

POCKET

PCRef



Thomas J. Glover
Millie M. Young

POCKET

PCRef



by

Thomas J. Glover

Millie M. Young

Sixth Edition



Sequoia Publishing, Inc.
Littleton, Colorado U.S.A.

This PCRef belongs to:

NAME:

HOME ADDRESS:

HOME PHONE:

WORK PHONE:

BUSINESS ADDRESS:

In case of accident or serious illness, please notify:

Name:

Phone Number:

Copyright © 1991-1997 by Thomas J. Glover and

Sequoia Publishing, Inc.

6th Edition, 2nd Printing, June 1997

All rights reserved.

No part of this book may be reproduced in any form,
by mimeograph, photocopying, information storage,
recording and retrieval systems, or any other means,
without permission in writing from the publisher.

ISBN 1-885071-07-8

Products by Sequoia Publishing, Inc.

Pocket Ref, 2nd Edition

by Thomas J. Glover

May 1995, 544p, ISBN 1-885071-00-0

DeskRef, 2nd Edition

by Thomas J. Glover

6"x 9" version of **Pocket Ref**

August 1995, 544p, ISBN 0-885071-06-X

MegaRef, Version 2

IBM PC and compatibles software version of
the book **Pocket Ref**.

Pocket PC DIRectory, 1st Edition

by Thomas J. Glover

November 1996, ISBN 1-885071-09-4

TechRef, 1st Edition

by Thomas J. Glover & Millie M. Young

6"x 9" *combined version of Pocket PCRef
and the Pocket PC DIRectory*

November 1996, ISBN 1-885071-11-6

Send your Name and Address to:

Mailing List Group
Sequoia Publishing, Inc
P.O. Box 620820
Littleton, CO 80162-0820

World Wide Web Site
<http://www.sequoiapub.com/>

Preface

Sequoia Publishing, Inc. has made a serious effort to provide accurate information in this book. However, the probability exists that there are errors and misprints. Sequoia Publishing, Inc. and the authors do not represent the information as being exact and make no warranty of any kind with regard to the content of Pocket PCRef. Sequoia Publishing, Inc. and the authors shall not be held liable for any errors contained in Pocket PCRef or for incidental or consequential damages in connection with any use of the material herein.

The publishers would appreciate being notified of any errors, omissions, or misprints which may occur in this book. Your suggestions for future editions would also be greatly appreciated.

The information in this manual was collected from numerous sources and if not properly acknowledged, Sequoia Publishing, Inc. and the authors would like to express their appreciation for those contributions. See page 6 for specific trade name, trade mark, and credit information.

Sequoia Publishing, Inc.

Department 101

P.O. Box 620820

Littleton, Colorado 80162-0820

(303) 972-4167

Web address <http://www.sequoiapub.com/>

Acknowledgements

POCKET PCRef would not have been possible without the efforts and endless patience of our families and many co-workers. Our deepest love and thanks to all of you.

Our deepest gratitude to Dave Derby, co-owner of Sequoia Publishing, for his technical editing, suggestions, and effort in tracking down the true meaning of Keyboard Scan Codes (a task no less difficult than tracking down the true meaning of life!).

Many thanks to Richard Young for his relentless pursuit of the perfect DOS Chapter. (Richard knows the true meaning of life and he has assured us that it has nothing to do with DOS!). Thanks to Liz Young, Trish Glover, Laurie Vendryes, Bob and Carrie Olson and Becky Tennesen for their help in compiling and verifying the Phone Book. Many thanks to Donna Baumgarten for her efforts in the never ending task of updating the hard and floppy drive sections.

Thank you never seems to be enough when you're saying it to the ones you care about the most! My family, Mary, Trish and Carrie, have supported and loved me through the whole monumental process of writing and publishing a book... Thank you and I love you. A very special thank you to my dear friend and co-author Millie, who has taught me the true meanings of courage, dedication and perseverance.

Thomas

It is amazing to me, what one person can accomplish when that accomplishment is based on the faith another person has in you. I share only in a small part of this book, the DOS Commands section, and though that may seem insignificant to some, it is a major accomplishment to this novice in the computer world. To the man I love, my gentle and patient husband Richard and our understanding offspring, Elizabeth, Christopher, and Stephanie, none of this would have been possible without you. And, especially to my mentor and friend Thomas, who doesn't know the meaning of limitations. To all of you who have had great faith in me and have allowed *this humble sparrow to soar as an eagle*, I give my sincerest thanks.

Millie

REFERENCES, TRADE NAMES and TRADE MARKS

The following are Registered Trademarks or Trade names:

ASCII – American Standard Code for Information Interchange
Commodore 64 – Commodore Computers
Diablo 630 – Xerox Corporation
Epson, FX-80 – Epson America Inc.
Hayes – Hayes Microcomputer Products, Inc.
HP, HP-IB, Hewlett-Packard, Laserjet – Hewlett-Packard Company
IBM, AT, XT, PC, PS/2, PC Convertible, PC Jr., PC-DOS – Interna-
tional Business Machines Corporation
ISO – International Standards Organization
Macintosh, Apple IIc, Apple – Apple Computer, Inc.
Microsoft, MS-DOS, and Microsoft Windows – Microsoft Corporation
NEC, Pinwriter – NEC Corporation

The following books were used as references during the writing of Pocket PCRef. (They are all excellent references and should be added to any good reference library):

- DOS Power Users Guide** by Kris Jamsa
McGraw Hill, 1988, ISBN 0-07-881310-7
- Hard Disk Handbook** by Alfred Glossbrenner and Nick Anis
Osborne McGraw Hill, 1989, ISBN 0-07-881604-1
- The Hard Disk Technical Guide** by Douglas T. Anderson
PCS Publications, 1991
- The Micro House Hard Drive Encyclopedia**, Edited by Douglas
T. Anderson, Micro House, 1992, 1993, 1994, 1995
- Inside the IBM PC** by Peter Norton
Brady Books, 1986, ISBN0-89303-583-1
- PC Magazine DOS Power Tools** by Paul Somerson
Bantam Computer Books, 1988, ISBN 0-553-34526-5
- Que's Computer User's Dictionary** by Bryan Pfaffenberger
Que Corporation, 1990, ISBN 0-88022-540-8
- Que's Upgrading & Repairing PCs** by Scott Mueller
Que Corporation, 1994, ISBN 1-56529-736-9
- MSDOS User's Guide and Reference**, Ver 2.11, 3.0, 3.1, 3.2, 3.3,
4.01, 5.0, 6.0, & 6.2 by Microsoft Corporation.
- Pocket Ref** by Thomas J. Glover
Sequoia Publishing, Inc, 1989, ISBN 0-9622359-0-3
- Supercharging MSDOS** by Van Wolverton
Microsoft Press, 1986, ISBN 0-914845-95-0
- The Winn Rosch Hardware Bible** by Winn L. Rosch
Brady Books, 1989, ISBN 0-13-160979-3
- PocketPOST** by Data Depot
Clearwater, Florida (813) 446-3402
- PC DOS Command Reference and Error Messages**, Ver.6.0 and
6.3, by IBM Corporation.
- Microsoft Windows User's Guide**, Ver. 3.1, by Microsoft Corp.

NOTE: There are many more references, most of which are referenced on specific pages in Pocket PCRef. If we have omitted a reference, we apologize, please let us know and we will include it in the next printing of Pocket PCRef. See page 440 for additional hard drive references.

TABLE OF CONTENTS

Chapter	Description	Page
	Personal Information	2
	Other books by Sequoia Publishing, Inc.	3
	Preface	4
	Acknowledgements	5
	Trade Names, Trade Marks, & References	6
	Blank Notes Page	8
1	..... ASCII Codes and Numerics	9
2	..... PC Hardware	31
	Video Standards	32
	Keyboard Scan Codes	34
	CPU Processor and Co-processor Types	38
	Resistor Color Codes	42
	Paper Size Table	43
	Port Pinouts and Cabling	44
	Memory Map, IO Map, Interrupts, Errors	53
	Audio Error Codes	57
	IBM PC/XT Error Codes	62
3	..... Printer Control Codes	67
4	..... Modems	105
	Modem Standards	106
	UARTs	108
	Hayes Modem AT Command Set	109
5	..... MSDOS Commands	111
	DOS History	116
6	..... Windows 3.1 Keyboard Shortcuts	307
7	..... Hard Drive Specifications	315
	Standard 286/386/486 Hard Drive Types	316
	Hard Drive Manufacturers Directory	318
8	..... Floppy Drive Specifications	441
	Floppy Drive Manufacturers Directory	442
9	..... PC Industry Phone Book	455
	Index	537

Chapter 1

ASCII and Numerics

1. Computer ASCII Codes..... 10
2. Numeric Prefixes..... 17
3. Megabytes and Kilobytes 17
4. Powers of 2–Decimal–Hexadecimal..... 18
5. Hex to Decimal Conversion 20
6. Alphabet–Decimal–Hexadecimal–EBCDIC... 30

COMPUTER ASCII CODES

The following ASCII (American Standard Code for Information Interchange) tables are used by most of the microcomputer industry. The codes occur in two sets: the "low-bit" set, from Dec 0 to Dec 127, and the "high-bit" set, from Dec 128 to Dec 255. The "low-bit" set is standard for almost all microcomputers but the "high-bit" set varies between the different computer brands. For instance, in the case of Apple computers and Epson printers, the "high-bit" set repeats the "low-bit" set except that the alphabetic characters are italic. In the case of IBM and many other MSDOS systems, the "high-bit" set is composed of foreign language and box drawing characters and mathematic symbols.

Hex	Dec	Description	Abbr	Character	Control
00	0	Null	Null		Control @
01	1	Start Heading	SOH	☺	Control A
02	2	Start of Text	STX	☹	Control B
03	3	End of Text	ETX	♥	Control C
04	4	End Transmit	EOT	♦	Control D
05	5	Enquiry	ENQ	♣	Control E
06	6	Acknowledge	ACK	♠	Control F
07	7	Beep	BEL	•	Control G
08	8	Back space	BS	◻	Control H
09	9	Horizontal Tab	HT	○	Control I
0A	10	Line Feed	LF	◻	Control J
0B	11	Vertical Tab	VT	♂	Control K
0C	12	Form Feed	FF	♀	Control L
0D	13	Carriage Ret.	CR	♪	Control M
0E	14	Shift Out	SO	♪	Control N
0F	15	Shift In	SI	⚙	Control O
10	16	Device Link Esc	DLE	▶	Control P
11	17	Dev Cont 1 X-ON	DC1	◀	Control Q
12	18	Dev Control 2	DC2	↑	Control R
13	19	Dev Cont 3 X-OFF	DC3	!!	Control S
14	20	Dev Control 4	DC4	¶	Control T
15	21	Negative Ack	NAK	§	Control U
16	22	Synchronous Idle	SYN	-	Control V
17	23	End Trans Block	ETB	↑	Control W
18	24	Cancel	CAN	↑	Control X
19	25	End Medium	EM	↓	Control Y
1A	26	Substitute	SUB	→	Control Z
1B	27	Escape	ESC	←	Control [

COMPUTER ASCII CODES

Hex	Dec	Description	Abbr	Character	Control
1C	28	Cursor Right	FS	←	Control \
1D	29	Cursor Left	GS	↔	Control]
1E	30	Cursor Up	RS	▲	Control ^
1F	31	Cursor Down	US	▼	Control _

Hex	Dec	Character	Description
20	32		Space (SP)
21	33	!	Exclamation Point
22	34	"	Double Quote
23	35	#	Number sign
24	36	\$	Dollar sign
25	37	%	Percent
26	38	&	Amperсанд
27	39	'	Apostrophe
28	40	(	Left parenthesis
29	41	)	Right parenthesis
2A	42	*	Asterisk
2B	43	+	Plus sign
2C	44	,	Comma
2D	45	-	Minus sign
2E	46	.	Period
2F	47	/	Right or Front slash
30	48	0	Zero
31	49	1	One
32	50	2	Two
33	51	3	Three
34	52	4	Four
35	53	5	Five
36	54	6	Six
37	55	7	Seven
38	56	8	Eight
39	57	9	Nine
3A	58	:	Colon
3B	59	;	Semicolon
3C	60	<	Less than
3D	61	=	Equal sign
3E	62	>	Greater than
3F	63	?	Question mark
40	64	@	"at" symbol

COMPUTER ASCII CODES

Hex	Dec	Character	Description
41	65	A	Uppercase A
42	66	B	Uppercase B
43	67	C	Uppercase C
44	68	D	Uppercase D
45	69	E	Uppercase E
46	70	F	Uppercase F
47	71	G	Uppercase G
48	72	H	Uppercase H
49	73	I	Uppercase I
4A	74	J	Uppercase J
4B	75	K	Uppercase K
4C	76	L	Uppercase L
4D	77	M	Uppercase M
4E	78	N	Uppercase N
4F	79	O	Uppercase O
50	80	P	Uppercase P
51	81	Q	Uppercase Q
52	82	R	Uppercase R
53	83	S	Uppercase S
54	84	T	Uppercase T
55	85	U	Uppercase U
56	86	V	Uppercase V
57	87	W	Uppercase W
58	88	X	Uppercase X
59	89	Y	Uppercase Y
5A	90	Z	Uppercase Z
5B	91	[	Left bracket
5C	92	\	Left or Back Slash
5D	93	]	Right bracket
5E	94	^	Caret
5F	95	_	Underline
60	96	`	Accent
61	97	a	Lowercase a
62	98	b	Lowercase b
63	99	c	Lowercase c
64	100	d	Lowercase d
65	101	e	Lowercase e
66	102	f	Lowercase f
67	103	g	Lowercase g

COMPUTER ASCII CODES

Hex	Dec	Standard Character	Description
68	104	h	Lowercase h
69	105	i	Lowercase i
6A	106	j	Lowercase j
6B	107	k	Lowercase k
6C	108	l	Lowercase l
6D	109	m	Lowercase m
6E	110	n	Lowercase n
6F	111	o	Lowercase o
70	112	p	Lowercase p
71	113	q	Lowercase q
72	114	r	Lowercase r
73	115	s	Lowercase s
74	116	t	Lowercase t
75	117	u	Lowercase u
76	118	v	Lowercase v
77	119	w	Lowercase w
78	120	x	Lowercase x
79	121	y	Lowercase y
7A	122	z	Lowercase z
7B	123	{	Left brace
7C	124	|	Vertical line
7D	125	}	Right brace
7E	126	~	Tilde
7F	127	DEL	Delete

Hex	Dec	Standard Character	IBM Set	Standard Description
80	128	Null	C	Null
81	129	SOH	U	Start Heading
82	130	STX	é	Start of Text
83	131	ETX	â	End of Text
84	132	EOT	ä	End Transmit
85	133	ENQ	à	Enquiry
86	134	ACK	â	Acknowledge
87	135	BEL	ç	Beep
88	136	BS	è	Back Space
89	137	HT	ë	Horiz Tab
8A	138	LF	è	Line Feed

COMPUTER ASCII CODES

Hex	Dec	Standard Character	IBM Set	Standard Description
8B	139	VT	ï	Vertical Tab
8C	140	FF	ï	Form Feed
8D	141	CR	ì	Carriage Return
8E	142	SO	À	Shift Out
8F	143	SI	Á	Shift In
90	144	DLE	Ê	Device Link Esc
91	145	DC1	æ	Device Cont 1 X-ON
92	146	DC2	Æ	Device Control 2
93	147	DC3	ô	Device Cont 3 X-OFF
94	148	DC4	ô	Device Control 4
95	149	NAK	ò	Negative Ack
96	150	SYN	û	Synchronous Idle
97	151	ETB	ü	End Transmit Block
98	152	CAN	ÿ	Cancel
99	153	EM	Ö	End Medium
9A	154	SUB	Ü	Substitute
9B	155	ESC	£	Escape
9C	156	FS	£	Cursor Right
9D	157	GS	¥	Cursor Left
9E	158	RS	Pt	Cursor Up
9F	159	US	f	Cursor Down
A0	160	Space	á	Space
A1	161	!	í	Italic Exclamation point
A2	162	"	ó	Italic Double quote
A3	163	#	ú	Italic Number sign
A4	164	\$	ñ	Italic Dollar sign
A5	165	%	N	Italic Percent
A6	166	&	a	Italic Ampersand
A7	167	'	o	Italic Apostrophe
A8	168	(	¿	Italic Left parenthesis
A9	169	)	┌	Italic Right parenthesis
AA	170	*	┐	Italic asterisk
AB	171	+	½	Italic plus sign
AC	172	,	¼	Italic comma
AD	173	-	l	Italic minus sign
AE	174	.	«	Italic period
AF	175	/	»	Italic right slash
B0	176	0	□	Italic Zero
B1	177	1	■	Italic One

COMPUTER ASCII CODES

Hex	Dec	Standard Character	IBM Set	Standard Description
B2	178	2	■	Italic Two
B3	179	3	|	Italic Three
B4	180	4	┤	Italic Four
B5	181	5	≡	Italic Five
B6	182	6	≡	Italic Six
B7	183	7	≡	Italic Seven
B8	184	8	≡	Italic Eight
B9	185	9	≡	Italic Nine
BA	186	:	||	Italic colon
BB	187	;	≡	Italic semicolon
BC	188	<	┐	Italic less than
BD	189	=	≡	Italic equal
BE	190	>	┐	Italic greater than
BF	191	?	┐	Italic question mark
C0	192	@	L	Italic "at" symbol
C1	193	A	┐	Italic A
C2	194	B	┐	Italic B
C3	195	C	┐	Italic C
C4	196	D	┐	Italic D
C5	197	E	┐	Italic E
C6	198	F	┐	Italic F
C7	199	G	┐	Italic G
C8	200	H	┐	Italic H
C9	201	I	┐	Italic I
CA	202	J	┐	Italic J
CB	203	K	┐	Italic K
CC	204	L	┐	Italic L
CD	205	M	≡	Italic M
CE	206	N	≡	Italic N
CF	207	O	≡	Italic O
D0	208	P	≡	Italic P
D1	209	Q	≡	Italic Q
D2	210	R	≡	Italic R
D3	211	S	≡	Italic S
D4	212	T	≡	Italic T
D5	213	U	≡	Italic U
D6	214	V	≡	Italic V
D7	215	W	≡	Italic W
D8	216	X	≡	Italic X

COMPUTER ASCII CODES

Hex	Dec	Standard Character	IBM Set	Description
D9	217	Y	┘	Italic Y
DA	218	Z	┘	Italic Z
DB	219	[	┘	Italic left bracket
DC	220	\	┘	Italic left or back slash
DD	221	]	┘	Italic right bracket
DE	222	^	┘	Italic caret
DF	223	_	┘	Italic underline
E0	224	'	α	Italic accent / alpha
E1	225	a	β	Italic a / beta
E2	226	b	γ	Italic b / gamma
E3	227	c	π	Italic c / pi
E4	228	d	σ	Italic d / sigma
E5	229	e	σ	Italic e / sigma
E6	230	f	μ	Italic f / mu
E7	231	g	γ	Italic g / gamma
E8	232	h	φ	Italic h / phi
E9	233	i	θ	Italic i / theta
EA	234	j	ω	Italic j / omega
EB	235	k	δ	Italic k / delta
EC	236	l	∞	Italic l / infinity
ED	237	m	ø	Italic m / slashed zero
EE	238	n	ε	Italic n
EF	239	o	ε	Italic o
F0	240	p	≡	Italic p
F1	241	q	≡	Italic q
F2	242	r	≡	Italic r
F3	243	s	≡	Italic s
F4	244	t	┘	Italic t
F5	245	u	┘	Italic u
F6	246	v	+	Italic v
F7	247	w	∞	Italic w
F8	248	x	•	Italic x
F9	249	y	•	Italic y
FA	250	z	•	Italic z
FB	251	{	√	Italic left bracket
FC	252	|	2	Italic vertical line
FD	253	}	2	Italic right bracket
FE	254	~		Italic tilde
FF	255	Blank	Blank	Blank

NUMERIC PREFIXES

Prefix	Abbreviation	Pronounce	Multiplier
yocto	y	yok-to	10 ⁻²⁴
zepto	z	zep-to	10 ⁻²¹
atto	a	at-to	10 ⁻¹⁸
femto	f	fem-to	10 ⁻¹⁵
pico	p	pe-ko	10 ⁻¹²
nano	n	nan-o	10 ⁻⁹
micro	μ	mi-kro	10 ⁻⁶
milli	m	mil - l	10 ⁻³
centi	c	sent-ti	10 ⁻²
deci	d	des - l	10 ⁻¹
deka	da	dek-a	10 ¹
hecto	h	hek-to	10 ²
kilo	k	kil-o	10 ³
mega	M	meg-a	10 ⁶
giga	G	gig-a	10 ⁹
tera	T	ter-a	10 ¹²
peta	P	pe-ta	10 ¹⁵
exa	E	ex-a	10 ¹⁸
zetta	Z	za-ta	10 ²¹
yotta	Y	yot-ta	10 ²⁴
		octillion	10 ²⁷
		nonillion	10 ³⁰

MEGABYTES AND KILOBYTES

- 1 kilobyte = 2¹⁰ bytes = exactly 1,024 bytes
- 1 megabyte = 2²⁰ bytes = exactly 1,048,576 bytes
- 1 gigabyte = 2³⁰ bytes = 1 billion bytes
- 1 terabyte = 2⁴⁰ bytes = 1 trillion bytes
- 1 petabyte = 2⁵⁰ bytes = 1 quadrillion bytes
- 1 byte = 8 bits (bit is short for binary digit)
- 8 bit computers (such as the 8088)
 - move data in 1 byte chunks
- 16 bit computers (such as the 80286 and 80386SX)
 - move data in 2 byte chunks
- 32 bit computers (80386DX, 80486, Pentium, Power PC)
 - move data in 4 byte chunks
- 64 bit computers (such as the Alpha AXP)
 - move data in 8 byte chunks

POWERS OF 2

n	2 ⁿ	Hexadecimal
0	1	1
1	2	2
2	4	4
3	8	8
4	16	10
5	32	20
6	64	40
7	128	80
8	256	100
9	512	200
10	1024	400
11	2048	800
12	4096	1000
13	8192	2000
14	16384	4000
15	32768	8000
16	65536	10000
17	131072	20000
18	262144	40000
19	524288	80000
20	1048576	100000
21	2097152	200000
22	4194304	400000
23	8388608	800000
24	16777216	1000000
25	33554432	2000000
26	67108864	4000000
27	134217728	8000000
28	268435456	10000000
29	536870912	20000000
30	1073741824	40000000
31	2147483648	80000000
32	4294967296	100000000

POWERS OF 2

n	2 ⁿ	Hexadecimal
33	8589934592	200000000
34	17179869184	400000000
35	34359738368	800000000
36	68719476736	1000000000
37	137438953472	2000000000
38	274877906944	4000000000
39	549755813888	8000000000
40	1099511627776	10000000000
41	2199023255552	20000000000
42	4398046511104	40000000000
43	8796093022208	80000000000
44	1759218604416	100000000000
45	35184372088832	200000000000
46	70368744177664	400000000000
47	140737488355328	800000000000
48	281474976710656	1000000000000
49	562949953421312	2000000000000
50	112589906842624	4000000000000
51	2251799813685248	8000000000000
52	4503599627370496	10000000000000
53	9007199254740992	20000000000000
54	18014398509481984	40000000000000
55	36028797018963968	80000000000000
56	72057594037927936	100000000000000
57	144115188075855872	200000000000000
58	288230376151711744	400000000000000
59	576460752303423488	800000000000000
60	1152921504606846976	1000000000000000
61	2305843009213693952	2000000000000000
62	4611686018427387904	4000000000000000
63	9223372036854775808	8000000000000000
64	18446744073709551616	10000000000000000

HEX to DECIMAL CONVERSION

Example: To convert the Hex number 1F7 to its decimal equivalent (Decimal 503), find 1F in the shaded left column of Hex numbers and follow the 1F row to the right, until it intersects the column with the shaded 7 at the top. The number at the intersection (503) is the decimal equivalent of Hex 1F7.

Standard Hex notation, using A through F to denote decimal values 10 through 15, is used in this table.

↓ Hex →	0	1	2	3	4	5	6	7
00	0	1	2	3	4	5	6	7
01	16	17	18	19	20	21	22	23
02	32	33	34	35	36	37	38	39
03	48	49	50	51	52	53	54	55
04	64	65	66	67	68	69	70	71
05	80	81	82	83	84	85	86	87
06	96	97	98	99	100	101	102	103
07	112	113	114	115	116	117	118	119
08	128	129	130	131	132	133	134	135
09	144	145	146	147	148	149	150	151
0A	160	161	162	163	164	165	166	167
0B	176	177	178	179	180	181	182	183
0C	192	193	194	195	196	197	198	199
0D	208	209	210	211	212	213	214	215
0E	224	225	226	227	228	229	230	231
0F	240	241	242	243	244	245	246	247
10	256	257	258	259	260	261	262	263
11	272	273	274	275	276	277	278	279
12	288	289	290	291	292	293	294	295
13	304	305	306	307	308	309	310	311
14	320	321	322	323	324	325	326	327
15	336	337	338	339	340	341	342	343
16	352	353	354	355	356	357	358	359
17	368	369	370	371	372	373	374	375
18	384	385	386	387	388	389	390	391
19	400	401	402	403	404	405	406	407
1A	416	417	418	419	420	421	422	423
1B	432	433	434	435	436	437	438	439
1C	448	449	450	451	452	453	454	455
1D	464	465	466	467	468	469	470	471
1E	480	481	482	483	484	485	486	487
1F	496	497	498	499	500	501	502	503
20	512	513	514	515	516	517	518	519
21	528	529	530	531	532	533	534	535
22	544	545	546	547	548	549	550	551
23	560	561	562	563	564	565	566	567
24	576	577	578	579	580	581	582	583
25	592	593	594	595	596	597	598	599

20 ASCII and Numerics

HEX to DECIMAL CONVERSION

Large number conversion: (Up to five Hexidecimal digits)

Find the fourth and fifth Hexidecimal significant digits in the following table and add their decimal equivalent to the value in the primary table. For example:

$$CB13F(\text{Hex}) = 786432 + 45056 + 319 = 831807(\text{Dec})$$

Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec
1000	4096	9000	36864	20000	131072	A0000	655360
2000	8192	A000	40960	30000	196608	B0000	728896
3000	12288	B000	45056	40000	262144	C0000	786432
4000	16384	C000	49152	50000	327680	D0000	851968
5000	20480	D000	53248	60000	393216	E0000	917504
6000	24576	E000	57344	70000	458752	F0000	983040
7000	28672	F000	61440	80000	524288		
8000	32768	10000	65536	90000	589824		

↓ Hex →	8	9	A	B	C	D	E	F
00	8	9	10	11	12	13	14	15
01	24	25	26	27	28	29	30	31
02	40	41	42	43	44	45	46	47
03	56	57	58	59	60	61	62	63
04	72	73	74	75	76	77	78	79
05	88	89	90	91	92	93	94	95
06	104	105	106	107	108	109	110	111
07	120	121	122	123	124	125	126	127
08	136	137	138	139	140	141	142	143
09	152	153	154	155	156	157	158	159
0A	168	169	170	171	172	173	174	175
0B	184	185	186	187	188	189	190	191
0C	200	201	202	203	204	205	206	207
0D	216	217	218	219	220	221	222	223
0E	232	233	234	235	236	237	238	239
0F	248	249	250	251	252	253	254	255
10	264	265	266	267	268	269	270	271
11	280	281	282	283	284	285	286	287
12	296	297	298	299	300	301	302	303
13	312	313	314	315	316	317	318	319
14	328	329	330	331	332	333	334	335
15	344	345	346	347	348	349	350	351
16	360	361	362	363	364	365	366	367
17	376	377	378	379	380	381	382	383
18	392	393	394	395	396	397	398	399
19	408	409	410	411	412	413	414	415
1A	424	425	426	427	428	429	430	431
1B	440	441	442	443	444	445	446	447
1C	456	457	458	459	460	461	462	463
1D	472	473	474	475	476	477	478	479
1E	488	489	490	491	492	493	494	495
1F	504	505	506	507	508	509	510	511
20	520	521	522	523	524	525	526	527
21	536	537	538	539	540	541	542	543
22	552	553	554	555	556	557	558	559
23	568	569	570	571	572	573	574	575
24	584	585	586	587	588	589	590	591
25	600	601	602	603	604	605	606	607

ASCII and Numerics

21

HEX to DECIMAL CONVERSION

↓ Hex→0	1	2	3	4	5	6	7
5D 1488	1489	1490	1491	1492	1493	1494	1495
5E 1504	1505	1506	1507	1508	1509	1510	1511
5F 1520	1521	1522	1523	1524	1525	1526	1527
60 1536	1537	1538	1539	1540	1541	1542	1543
61 1552	1553	1554	1555	1556	1557	1558	1559
62 1568	1569	1570	1571	1572	1573	1574	1575
63 1584	1585	1586	1587	1588	1589	1590	1591
64 1600	1601	1602	1603	1604	1605	1606	1607
65 1616	1617	1618	1619	1620	1621	1622	1623
66 1632	1633	1634	1635	1636	1637	1638	1639
67 1648	1649	1650	1651	1652	1653	1654	1655
68 1664	1665	1666	1667	1668	1669	1670	1671
69 1680	1681	1682	1683	1684	1685	1686	1687
6A 1696	1697	1698	1699	1700	1701	1702	1703
6B 1712	1713	1714	1715	1716	1717	1718	1719
6C 1728	1729	1730	1731	1732	1733	1734	1735
6D 1744	1745	1746	1747	1748	1749	1750	1751
6E 1760	1761	1762	1763	1764	1765	1766	1767
6F 1776	1777	1778	1779	1780	1781	1782	1783
70 1792	1793	1794	1795	1796	1797	1798	1799
71 1808	1809	1810	1811	1812	1813	1814	1815
72 1824	1825	1826	1827	1828	1829	1830	1831
73 1840	1841	1842	1843	1844	1845	1846	1847
74 1856	1857	1858	1859	1860	1861	1862	1863
75 1872	1873	1874	1875	1876	1877	1878	1879
76 1888	1889	1890	1891	1892	1893	1894	1895
77 1904	1905	1906	1907	1908	1909	1910	1911
78 1920	1921	1922	1923	1924	1925	1926	1927
79 1936	1937	1938	1939	1940	1941	1942	1943
7A 1952	1953	1954	1955	1956	1957	1958	1959
7B 1968	1969	1970	1971	1972	1973	1974	1975
7C 1984	1985	1986	1987	1988	1989	1990	1991
7D 2000	2001	2002	2003	2004	2005	2006	2007
7E 2016	2017	2018	2019	2020	2021	2022	2023
7F 2032	2033	2034	2035	2036	2037	2038	2039
80 2048	2049	2050	2051	2052	2053	2054	2055
81 2064	2065	2066	2067	2068	2069	2070	2071
82 2080	2081	2082	2083	2084	2085	2086	2087
83 2096	2097	2098	2099	2100	2101	2102	2103
84 2112	2113	2114	2115	2116	2117	2118	2119
85 2128	2129	2130	2131	2132	2133	2134	2135
86 2144	2145	2146	2147	2148	2149	2150	2151
87 2160	2161	2162	2163	2164	2165	2166	2167
88 2176	2177	2178	2179	2180	2181	2182	2183
89 2192	2193	2194	2195	2196	2197	2198	2199
8A 2208	2209	2210	2211	2212	2213	2214	2215
8B 2224	2225	2226	2227	2228	2229	2230	2231
8C 2240	2241	2242	2243	2244	2245	2246	2247
8D 2256	2257	2258	2259	2260	2261	2262	2263
8E 2272	2273	2274	2275	2276	2277	2278	2279
8F 2288	2289	2290	2291	2292	2293	2294	2295
90 2304	2305	2306	2307	2308	2309	2310	2311
91 2320	2321	2322	2323	2324	2325	2326	2327
92 2336	2337	2338	2339	2340	2341	2342	2343
93 2352	2353	2354	2355	2356	2357	2358	2359

HEX to DECIMAL CONVERSION

↓ Hex→8	9	A	B	C	D	E	F
5D 1496	1497	1498	1499	1500	1501	1502	1503
5E 1512	1513	1514	1515	1516	1517	1518	1519
5F 1528	1529	1530	1531	1532	1533	1534	1535
60 1544	1545	1546	1547	1548	1549	1550	1551
61 1560	1561	1562	1563	1564	1565	1566	1567
62 1576	1577	1578	1579	1580	1581	1582	1583
63 1592	1593	1594	1595	1596	1597	1598	1599
64 1608	1609	1610	1611	1612	1613	1614	1615
65 1624	1625	1626	1627	1628	1629	1630	1631
66 1640	1641	1642	1643	1644	1645	1646	1647
67 1656	1657	1658	1659	1660	1661	1662	1663
68 1672	1673	1674	1675	1676	1677	1678	1679
69 1688	1689	1690	1691	1692	1693	1694	1695
6A 1704	1705	1706	1707	1708	1709	1710	1711
6B 1720	1721	1722	1723	1724	1725	1726	1727
6C 1736	1737	1738	1739	1740	1741	1742	1743
6D 1752	1753	1754	1755	1756	1757	1758	1759
6E 1768	1769	1770	1771	1772	1773	1774	1775
6F 1784	1785	1786	1787	1788	1789	1790	1791
70 1800	1801	1802	1803	1804	1805	1806	1807
71 1816	1817	1818	1819	1820	1821	1822	1823
72 1832	1833	1834	1835	1836	1837	1838	1839
73 1848	1849	1850	1851	1852	1853	1854	1855
74 1864	1865	1866	1867	1868	1869	1870	1871
75 1880	1881	1882	1883	1884	1885	1886	1887
76 1896	1897	1898	1899	1900	1901	1902	1903
77 1912	1913	1914	1915	1916	1917	1918	1919
78 1928	1929	1930	1931	1932	1933	1934	1935
79 1944	1945	1946	1947	1948	1949	1950	1951
7A 1960	1961	1962	1963	1964	1965	1966	1967
7B 1976	1977	1978	1979	1980	1981	1982	1983
7C 1992	1993	1994	1995	1996	1997	1998	1999
7D 2008	2009	2010	2011	2012	2013	2014	2015
7E 2024	2025	2026	2027	2028	2029	2030	2031
7F 2040	2041	2042	2043	2044	2045	2046	2047
80 2056	2057	2058	2059	2060	2061	2062	2063
81 2072	2073	2074	2075	2076	2077	2078	2079
82 2088	2089	2090	2091	2092	2093	2094	2095
83 2104	2105	2106	2107	2108	2109	2110	2111
84 2120	2121	2122	2123	2124	2125	2126	2127
85 2136	2137	2138	2139	2140	2141	2142	2143
86 2152	2153	2154	2155	2156	2157	2158	2159
87 2168	2169	2170	2171	2172	2173	2174	2175
88 2184	2185	2186	2187	2188	2189	2190	2191
89 2200	2201	2202	2203	2204	2205	2206	2207
8A 2216	2217	2218	2219	2220	2221	2222	2223
8B 2232	2233	2234	2235	2236	2237	2238	2239
8C 2248	2249	2250	2251	2252	2253	2254	2255
8D 2264	2265	2266	2267	2268	2269	2270	2271
8E 2280	2281	2282	2283	2284	2285	2286	2287
8F 2296	2297	2298	2299	2300	2301	2302	2303
90 2312	2313	2314	2315	2316	2317	2318	2319
91 2328	2329	2330	2331	2332	2333	2334	2335
92 2344	2345	2346	2347	2348	2349	2350	2351
93 2360	2361	2362	2363	2364	2365	2366	2367

HEX to DECIMAL CONVERSION

↓ Hex → 0	1	2	3	4	5	6	7
94	2368	2369	2370	2371	2372	2373	2374
95	2384	2385	2386	2387	2388	2389	2390
96	2400	2401	2402	2403	2404	2405	2406
97	2416	2417	2418	2419	2420	2421	2422
98	2432	2433	2434	2435	2436	2437	2438
99	2448	2449	2450	2451	2452	2453	2454
9A	2464	2465	2466	2467	2468	2469	2470
9B	2480	2481	2482	2483	2484	2485	2486
9C	2496	2497	2498	2499	2500	2501	2502
9D	2512	2513	2514	2515	2516	2517	2518
9E	2528	2529	2530	2531	2532	2533	2534
9F	2544	2545	2546	2547	2548	2549	2550
A0	2560	2561	2562	2563	2564	2565	2566
A1	2576	2577	2578	2579	2580	2581	2582
A2	2592	2593	2594	2595	2596	2597	2598
A3	2608	2609	2610	2611	2612	2613	2614
A4	2624	2625	2626	2627	2628	2629	2630
A5	2640	2641	2642	2643	2644	2645	2646
A6	2656	2657	2658	2659	2660	2661	2662
A7	2672	2673	2674	2675	2676	2677	2678
A8	2688	2689	2690	2691	2692	2693	2694
A9	2704	2705	2706	2707	2708	2709	2710
AA	2720	2721	2722	2723	2724	2725	2726
AB	2736	2737	2738	2739	2740	2741	2742
AC	2752	2753	2754	2755	2756	2757	2758
AD	2768	2769	2770	2771	2772	2773	2774
AE	2784	2785	2786	2787	2788	2789	2790
AF	2800	2801	2802	2803	2804	2805	2806
B0	2816	2817	2818	2819	2820	2821	2822
B1	2832	2833	2834	2835	2836	2837	2838
B2	2848	2849	2850	2851	2852	2853	2854
B3	2864	2865	2866	2867	2868	2869	2870
B4	2880	2881	2882	2883	2884	2885	2886
B5	2896	2897	2898	2899	2900	2901	2902
B6	2912	2913	2914	2915	2916	2917	2918
B7	2928	2929	2930	2931	2932	2933	2934
B8	2944	2945	2946	2947	2948	2949	2950
B9	2960	2961	2962	2963	2964	2965	2966
BA	2976	2977	2978	2979	2980	2981	2982
BB	2992	2993	2994	2995	2996	2997	2998
BC	3008	3009	3010	3011	3012	3013	3014
BD	3024	3025	3026	3027	3028	3029	3030
BE	3040	3041	3042	3043	3044	3045	3046
BF	3056	3057	3058	3059	3060	3061	3062
C0	3072	3073	3074	3075	3076	3077	3078
C1	3088	3089	3090	3091	3092	3093	3094
C2	3104	3105	3106	3107	3108	3109	3110
C3	3120	3121	3122	3123	3124	3125	3126
C4	3136	3137	3138	3139	3140	3141	3142
C5	3152	3153	3154	3155	3156	3157	3158
C6	3168	3169	3170	3171	3172	3173	3174
C7	3184	3185	3186	3187	3188	3189	3190
C8	3200	3201	3202	3203	3204	3205	3206
C9	3216	3217	3218	3219	3220	3221	3222
CA	3232	3233	3234	3235	3236	3237	3238

HEX to DECIMAL CONVERSION

↓ Hex → 8	9	A	B	C	D	E	F
94	2376	2377	2378	2379	2380	2381	2382
95	2392	2393	2394	2395	2396	2397	2398
96	2408	2409	2410	2411	2412	2413	2414
97	2424	2425	2426	2427	2428	2429	2430
98	2440	2441	2442	2443	2444	2445	2446
99	2456	2457	2458	2459	2460	2461	2462
9A	2472	2473	2474	2475	2476	2477	2478
9B	2488	2489	2490	2491	2492	2493	2494
9C	2504	2505	2506	2507	2508	2509	2510
9D	2520	2521	2522	2523	2524	2525	2526
9E	2536	2537	2538	2539	2540	2541	2542
9F	2552	2553	2554	2555	2556	2557	2558
A0	2568	2569	2570	2571	2572	2573	2574
A1	2584	2585	2586	2587	2588	2589	2590
A2	2600	2601	2602	2603	2604	2605	2606
A3	2616	2617	2618	2619	2620	2621	2622
A4	2632	2633	2634	2635	2636	2637	2638
A5	2648	2649	2650	2651	2652	2653	2654
A6	2664	2665	2666	2667	2668	2669	2670
A7	2680	2681	2682	2683	2684	2685	2686
A8	2696	2697	2698	2699	2700	2701	2702
A9	2712	2713	2714	2715	2716	2717	2718
AA	2728	2729	2730	2731	2732	2733	2734
AB	2744	2745	2746	2747	2748	2749	2750
AC	2760	2761	2762	2763	2764	2765	2766
AD	2776	2777	2778	2779	2780	2781	2782
AE	2792	2793	2794	2795	2796	2797	2798
AF	2808	2809	2810	2811	2812	2813	2814
B0	2824	2825	2826	2827	2828	2829	2830
B1	2840	2841	2842	2843	2844	2845	2846
B2	2856	2857	2858	2859	2860	2861	2862
B3	2872	2873	2874	2875	2876	2877	2878
B4	2888	2889	2890	2891	2892	2893	2894
B5	2904	2905	2906	2907	2908	2909	2910
B6	2920	2921	2922	2923	2924	2925	2926
B7	2936	2937	2938	2939	2940	2941	2942
B8	2952	2953	2954	2955	2956	2957	2958
B9	2968	2969	2970	2971	2972	2973	2974
BA	2984	2985	2986	2987	2988	2989	2990
BB	3000	3001	3002	3003	3004	3005	3006
BC	3016	3017	3018	3019	3020	3021	3022
BD	3032	3033	3034	3035	3036	3037	3038
BE	3048	3049	3050	3051	3052	3053	3054
BF	3064	3065	3066	3067	3068	3069	3070
C0	3080	3081	3082	3083	3084	3085	3086
C1	3096	3097	3098	3099	3100	3101	3102
C2	3112	3113	3114	3115	3116	3117	3118
C3	3128	3129	3130	3131	3132	3133	3134
C4	3144	3145	3146	3147	3148	3149	3150
C5	3160	3161	3162	3163	3164	3165	3166
C6	3176	3177	3178	3179	3180	3181	3182
C7	3192	3193	3194	3195	3196	3197	3198
C8	3208	3209	3210	3211	3212	3213	3214
C9	3224	3225	3226	3227	3228	3229	3230
CA	3240	3241	3242	3243	3244	3245	3246

HEX to DECIMAL CONVERSION

Hex→0	1	2	3	4	5	6	7
CB 3248	3249	3250	3251	3252	3253	3254	3255
CC 3264	3265	3266	3267	3268	3269	3270	3271
CD 3280	3281	3282	3283	3284	3285	3286	3287
CE 3296	3297	3298	3299	3300	3301	3302	3303
CF 3312	3313	3314	3315	3316	3317	3318	3319
D0 3328	3329	3330	3331	3332	3333	3334	3335
D1 3344	3345	3346	3347	3348	3349	3350	3351
D2 3360	3361	3362	3363	3364	3365	3366	3367
D3 3376	3377	3378	3379	3380	3381	3382	3383
D4 3392	3393	3394	3395	3396	3397	3398	3399
D5 3408	3409	3410	3411	3412	3413	3414	3415
D6 3424	3425	3426	3427	3428	3429	3430	3431
D7 3440	3441	3442	3443	3444	3445	3446	3447
D8 3456	3457	3458	3459	3460	3461	3462	3463
D9 3472	3473	3474	3475	3476	3477	3478	3479
DA 3488	3489	3490	3491	3492	3493	3494	3495
DB 3504	3505	3506	3507	3508	3509	3510	3511
DC 3520	3521	3522	3523	3524	3525	3526	3527
DD 3536	3537	3538	3539	3540	3541	3542	3543
DE 3552	3553	3554	3555	3556	3557	3558	3559
DF 3568	3569	3570	3571	3572	3573	3574	3575
E0 3584	3585	3586	3587	3588	3589	3590	3591
E1 3600	3601	3602	3603	3604	3605	3606	3607
E2 3616	3617	3618	3619	3620	3621	3622	3623
E3 3632	3633	3634	3635	3636	3637	3638	3639
E4 3648	3649	3650	3651	3652	3653	3654	3655
E5 3664	3665	3666	3667	3668	3669	3670	3671
E6 3680	3681	3682	3683	3684	3685	3686	3687
E7 3696	3697	3698	3699	3700	3701	3702	3703
E8 3712	3713	3714	3715	3716	3717	3718	3719
E9 3728	3729	3730	3731	3732	3733	3734	3735
EA 3744	3745	3746	3747	3748	3749	3750	3751
EB 3760	3761	3762	3763	3764	3765	3766	3767
EC 3776	3777	3778	3779	3780	3781	3782	3783
ED 3792	3793	3794	3795	3796	3797	3798	3799
EE 3808	3809	3810	3811	3812	3813	3814	3815
EF 3824	3825	3826	3827	3828	3829	3830	3831
F0 3840	3841	3842	3843	3844	3845	3846	3847
F1 3856	3857	3858	3859	3860	3861	3862	3863
F2 3872	3873	3874	3875	3876	3877	3878	3879
F3 3888	3889	3890	3891	3892	3893	3894	3895
F4 3904	3905	3906	3907	3908	3909	3910	3911
F5 3920	3921	3922	3923	3924	3925	3926	3927
F6 3936	3937	3938	3939	3940	3941	3942	3943
F7 3952	3953	3954	3955	3956	3957	3958	3959
F8 3968	3969	3970	3971	3972	3973	3974	3975
F9 3984	3985	3986	3987	3988	3989	3990	3991
FA 4000	4001	4002	4003	4004	4005	4006	4007
FB 4016	4017	4018	4019	4020	4021	4022	4023
FC 4032	4033	4034	4035	4036	4037	4038	4039
FD 4048	4049	4050	4051	4052	4053	4054	4055
FE 4064	4065	4066	4067	4068	4069	4070	4071
FF 4080	4081	4082	4083	4084	4085	4086	4087

HEX to DECIMAL CONVERSION

Hex→8	9	A	B	C	D	E	F
CB 3256	3257	3258	3259	3260	3261	3262	3263
CC 3272	3273	3274	3275	3276	3277	3278	3279
CD 3288	3289	3290	3291	3292	3293	3294	3295
CE 3304	3305	3306	3307	3308	3309	3310	3311
CF 3320	3321	3322	3323	3324	3325	3326	3327
D0 3336	3337	3338	3339	3340	3341	3342	3343
D1 3352	3353	3354	3355	3356	3357	3358	3359
D2 3368	3369	3370	3371	3372	3373	3374	3375
D3 3384	3385	3386	3387	3388	3389	3390	3391
D4 3400	3401	3402	3403	3404	3405	3406	3407
D5 3416	3417	3418	3419	3420	3421	3422	3423
D6 3432	3433	3434	3435	3436	3437	3438	3439
D7 3448	3449	3450	3451	3452	3453	3454	3455
D8 3464	3465	3466	3467	3468	3469	3470	3471
D9 3480	3481	3482	3483	3484	3485	3486	3487
DA 3496	3497	3498	3499	3500	3501	3502	3503
DB 3512	3513	3514	3515	3516	3517	3518	3519
DC 3528	3529	3530	3531	3532	3533	3534	3535
DD 3544	3545	3546	3547	3548	3549	3550	3551
DE 3560	3561	3562	3563	3564	3565	3566	3567
DF 3576	3577	3578	3579	3580	3581	3582	3583
E0 3592	3593	3594	3595	3596	3597	3598	3599
E1 3608	3609	3610	3611	3612	3613	3614	3615
E2 3624	3625	3626	3627	3628	3629	3630	3631
E3 3640	3641	3642	3643	3644	3645	3646	3647
E4 3656	3657	3658	3659	3660	3661	3662	3663
E5 3672	3673	3674	3675	3676	3677	3678	3679
E6 3688	3689	3690	3691	3692	3693	3694	3695
E7 3704	3705	3706	3707	3708	3709	3710	3711
E8 3720	3721	3722	3723	3724	3725	3726	3727
E9 3736	3737	3738	3739	3740	3741	3742	3743
EA 3752	3753	3754	3755	3756	3757	3758	3759
EB 3768	3769	3770	3771	3772	3773	3774	3775
EC 3784	3785	3786	3787	3788	3789	3790	3791
ED 3800	3801	3802	3803	3804	3805	3806	3807
EE 3816	3817	3818	3819	3820	3821	3822	3823
EF 3832	3833	3834	3835	3836	3837	3838	3839
F0 3848	3849	3850	3851	3852	3853	3854	3855
F1 3864	3865	3866	3867	3868	3869	3870	3871
F2 3880	3881	3882	3883	3884	3885	3886	3887
F3 3896	3897	3898	3899	3900	3901	3902	3903
F4 3912	3913	3914	3915	3916	3917	3918	3919
F5 3928	3929	3930	3931	3932	3933	3934	3935
F6 3944	3945	3946	3947	3948	3949	3950	3951
F7 3960	3961	3962	3963	3964	3965	3966	3967
F8 3976	3977	3978	3979	3980	3981	3982	3983
F9 3992	3993	3994	3995	3996	3997	3998	3999
FA 4008	4009	4010	4011	4012	4013	4014	4015
FB 4024	4025	4026	4027	4028	4029	4030	4031
FC 4040	4041	4042	4043	4044	4045	4046	4047
FD 4056	4057	4058	4059	4060	4061	4062	4063
FE 4072	4073	4074	4075	4076	4077	4078	4079
FF 4088	4089	4090	4091	4092	4093	4094	4095

3F	63	?	6F
40	64	@	7C
41	65	A	C1
42	66	B	C2
43	67	C	C3
44	68	D	C4
45	69	E	C5
46	70	F	C6
47	71	G	C7
48	72	H	C8
49	73	I	C9
4A	74	J	D1
4B	75	K	D2
4C	76	L	D3
4D	77	M	D4
4E	78	N	D5
4F	79	O	D6
50	80	P	D7
51	81	Q	DB
52	82	R	DB
53	83	S	E2
54	84	T	E3
55	85	U	E4
56	86	V	E5
57	87	W	E6
58	88	X	E7
59	89	Y	E8
5A	90	Z	E9
5B	91	[
5C	92	]	E0
5D	93	^	-
5E	94	^	6D
60	96	^	
61	97	a	82
62	98	b	83
63	99	c	84
64	100	d	85
65	101	e	86
66	102	f	87
67	103	g	88
68	104	h	89
69	105	i	91
6A	106	j	91
6B	107	k	93
6C	108	l	94
6D	109	m	95
6E	110	n	95
6F	111	o	96
70	112	p	97
71	113	q	98
72	114	r	99
73	115	s	A2
74	116	t	A3
75	117	u	A4
76	118	v	A5
77	119	w	A6
78	120	x	A7
79	121	y	A8
7A	122	z	A9
7B	123	{	C0
7C	124	}	C1
7D	125	}	D1
7E	126	}	A1
7F	127	~	FI

1. Video Standards	32
2. Keyboard Scan Codes	34
3. CPU Processor Types	38
4. Math Co-processor Types	39
5. IBM Hardware Releases	40
6. IBM PC/XT Motherboard Switch Settings	40
7. Resistor Color Codes	42
8. Paper Sizes	43
9. Parallel Printer Interface	44
10. Parallel Pinouts	45
11. Loopback Diagnostic Plugs	45
12. Serial I/O Interfaces (RS232C) DB25/DB9	46
13. Notes on Serial I/O & Modem Eliminator	47
14. HPiB/GPIB/IEEE488 Interface	48
15. Video Card Pinouts	49
16. Keyboard Connector Pinouts	50
17. Mouse Connector Pinouts	50
18. Light Pen Interface Pinouts	51
19. Game Controller Pinouts	51
20. 686/386/486 Battery and Speaker Connector	51
21. P8/P9 Power Supply & Disk Drive Connector	52
22. PC Memory Map	52
23. Hardware Interrupts	53
24. DMA Channels	54
25. Serial/COM: Port Addresses and Interrupts	54
26. Hardware IO Map	55
27. Software Interrupts	56
28. Audio Error Codes	57
29. IBM XT/AT Class Error Codes	62

VIDEO STANDARDS

Video Standard (year)	Mode	Horz x Vert Resolution (pixels)	Simultaneous Colors	Vert Freq Hz	Horz Freq kHz	Band Width MHz
MDA (1981)	Text	720x350	1	50Hz	18.43	16.25
HGC	Text	640x400	1	50	18.43	16.25
	Graph	720x348	1	50	"	"
CGA (1981)	Text	320x200	16	60	15.75	14.31
	Text	640x200	16	60	"	"
	Graph	320x200	4	60	"	"
	Graph	640x200	2	60	"	"
EGA Color (1985)	Text	640x350	16	60	15.75	14.31
	Graph	640x350	16	60	to	"
	Graph	320x200	16	60	21.85	16.25
	Graph	640x350	64	60	"	"
EGA Mono	Graph	640x350	1	50	"	"
MCGA (1987)	Text	320x400	16	70	31.50	25.17
	Text	640x400	16	70	"	"
	Graph	640x480	2	60	"	"
	Graph	320x200	256	70	"	"
VGA (1987)	Text	360x400	16	70	31.50	25.17
	Text	720x400	16	70	"	to 28.3
	Graph	640x350	16	70	"	"
	Graph	640x480	16	60	"	"
	Graph	640x480	2	60	"	"
	Graph	320x200	256	70	"	"
Super VGA (1989)	Graph	800x600	16	50,60	35,37	"
	Graph	800x600	256	and	and	"
	Graph	1024x768	16	72	60,80	"
8514-A (1987)	Graph	1024x768	16	43.48	35.52	44.8
	Graph	640x480	256	60	31.5	"
	Graph	1024x768	256	43.48	35.52	"
XGA (1990)	Graph	640x480	256	43.48	35.52	"
	Graph	1024x768	256	43.48	"	"
	Graph	640x480	65536	60	31.5	"
	Text	1056x400	16	70	"	"

Note: Most video cards built around the standards listed above are downward compatible and will function in the modes of the earlier standards. For example, most VGA cards will operate in all of the MDA, CGA, and EGA modes.

VIDEO STANDARDS

Abbreviations for the graphics standards defined on the previous page are as follows:

MDA Monochrome Display Adapter
HGC Hercules Graphics Card
CGA Color Graphics Adapter
EGA Enhanced Graphics Adapter
PGA Professional Graphics Adapter
MCGA Multi Color Graphics Array
VGA Video Graphics Array - digital
8514-A Video Graphics Array - analog
Super VGA Super Video Graphics Array, VESA
XGA Extended Graphics Array

pixels are coded by assigning bits to the colors. 1 bit/pixel boards can only display 1 color, monochrome (the bit is either on or off). 2 bits/pixel boards can display 4 colors (CGA for example). 8 bits/pixel can display 256 colors (VGA for example). 24 bits/pixel can display 16,777,216 simultaneous colors. Video board memory limits the number of colors that a graphics adapter can store; for example, a 1024x768 adapter requires 786,432 bytes of memory in order to display 256 colors. Needless to say, future video memory requirements will continue to grow. Consider that a 1096x4096 image with 24 bit/pixel color will require nearly 50 Mb of video RAM.

KEYBOARD SCAN CODES

Generally, expanded PC/XT, AT and PS/2 keyboard scan codes are converted to PC/XT standard scan codes prior to ROM BIOS ASCII Code conversion. Notable exceptions are the F11 and F12 keys, which generate new scan codes (see table below). Extended ASCII characters and some special "characters" are achieved by combining 2 or more key presses.

Shaded areas in the table represent keys and scan codes of the standard 84 key PC/XT keyboard, however, the "Key #" listed in column 1 of the table is not the correct Key # for the XT class keyboard. See your computer's keyboard documentation for verification of the correct Key # to Key Name assignments. AT Scan Codes are only relevant to AT class and PS/2 (Models 50 and above) computers.

Key # for 101 Keybd	Key Name	XT scan codes Down • Up	AT hardware scan codes Down • Up
1	Esc	01 • 81	76 • F0 76
2	F1	3B • BB	05 • F0 05
3	F2	3C • BC	06 • F0 06
4	F3	3D • BD	04 • F0 04
5	F4	3E • BE	0C • F0 0C
6	F5	3F • BF	03 • F0 03
7	F6	40 • C0	0B • F0 0B
8	F7	41 • C1	83 • F0 83
9	F8	42 • C2	0A • F0 0A
10	F9	43 • C3	01 • F0 01
11	F10	44 • C4	09 • F0 09
12	F11	57 • D7	78 • F0 78
13	F12	58 • D8	07 • F0 07

Special Keys (expanded keyboards only)

14	PrintScr / SysReq	E0 2A E0 37 •	E0 12 E0 7C •
14	—PRINT SCRNL	E0 B7 E0 AA	E0 F0 7C E0 F0 17
14	—Sys Req (+ CTRL)	E0 37 • E0 B7	E0 7C • E0 F0 7C
14	—Sys Req (+ ALT)	54 • D4	84 • F0 84
15	ScrollLock	46 • C6	7E • F0 7E
16	Pause / Break		
16	—PAUSE (key alone)	E1 1D 45E1 9DC5 •	E1 14 77 E1 F0 14 F0 87
16	(No Auto Repeat)	No Up Code	No Up Code
16	—BREAK (+ CTRL)	E0 46 E0 C6 •	E0 7E E0 F0 7E •
16	(No Auto Repeat)	No Up Code	No Up Code
31	Insert Key	E0 52 • E0 D2	E0 70 • E0 F0 70 37
31	—LEFT SHIFT case	E0 AA E0 52 •	E0 F0 12 E0 70 •
31		E0 D2 E0 2A	E0 F0 70 E0 12
31	—RIGHT SHIFT case	E0 B6 E0 52 •	E0 F0 59 E0 70 •
31		E0 D2 E0 36	E0 F0 70 E0 59
31	—NUM LOCK ON case	E0 2A E0 52 •	E0 12 E0 70 •
31		E0 D2 E0 AA	E0 F0 70 E0 F0 17

KEYBOARD SCAN CODES (cont.)

Key # for 101 Keybd	Key Name	XT scan codes Down • Up	AT hardware scan codes Down • Up
32	Home	E0 47 • E0 C7	E0 6C • E0 F0 6C
32	—LEFT SHIFT case	E0 AA E0 47 •	E0 F0 12 E0 6C •
32		E0 C7 E0 2A	E0 F0 6C E0 12
32	—RIGHT SHIFT case	E0 B6 E0 47 •	E0 F0 59 E0 6C •
32		E0 C7 E0 36	E0 F0 6C E0 59
32	—NUM LOCK ON case	E0 2A E0 47 •	E0 12 E0 6C •
32		E0 C7 E0 AA	E0 F0 6C E0 F0 12
33	PageUp	E0 49 • E0 C9	E0 7D • E0 F0 7D
33	—LEFT SHIFT case	E0 AA E0 49 •	E0 F0 12 E0 7D •
33		E0 C9 E0 2A	E0 F0 7D E0 12
33	—RIGHT SHIFT case	E0 B6 E0 49 •	E0 F0 59 E0 7D •
33		E0 C9 E0 36	E0 F0 7D E0 59
33	—NUM LOCK ON case	E0 2A E0 49 •	E0 12 E0 7D •
33		E0 C9 E0 AA	E0 F0 7D E0 F0 12
52	Delete	E0 53 • E0 D3	E0 71 • E0 F0 71
52	—LEFT SHIFT case	E0 AA E0 53 •	E0 F0 12 E0 71 •
52		E0 D3 E0 2A	E0 F0 71 E0 12
52	—RIGHT SHIFT case	E0 B6 E0 53 •	E0 F0 59 E0 71 •
52		E0 D3 E0 36	E0 F0 71 E0 59
52	—NUM LOCK ON case	E0 2A E0 53 •	E0 12 E0 71 •
52		E0 D3 E0 AA	E0 F0 71 E0 F0 12
53	End	E0 4F • E0 CF	E0 69 • E0 F0 69
53	—LEFT SHIFT case	E0 AA E0 4F •	E0 F0 12 E0 69 •
53		E0 CF E0 2A	E0 F0 69 E0 12
53	—RIGHT SHIFT case	E0 B6 E0 4F •	E0 F0 59 E0 69 •
53		E0 CF E0 36	E0 F0 69 E0 59
53	—NUM LOCK ON case	E0 2A E0 4F •	E0 12 E0 69 •
53		E0 CF E0 AA	E0 F0 69 E0 F0 12
54	PageDown	E0 51 • E0 D1	E0 7A • E0 F0 7A
54	—LEFT SHIFT case	E0 AA E0 51 •	E0 F0 12 E0 7A •
54		E0 D1 E0 2A	E0 F0 7A E0 12
54	—RIGHT SHIFT case	E0 B6 E0 51 •	E0 F0 59 E0 7A •
54		E0 D1 E0 36	E0 F0 7A E0 59
54	—NUM LOCK ON case	E0 2A E0 51 •	E0 12 E0 7A •
54		E0 D1 E0 AA	E0 F0 7A E0 F0 12
57	UpArrow	E0 48 • E0 C8	E0 75 • E0 F0 75
57	—LEFT SHIFT case	E0 AA E0 48 •	E0 F0 12 E0 75 •
57		E0 C8 E0 2A	E0 F0 75 E0 12
57	—RIGHT SHIFT case	E0 B6 E0 48 •	E0 F0 59 E0 75 •
57		E0 C8 E0 36	E0 F0 75 E0 59
57	—NUM LOCK ON case	E0 2A E0 48 •	E0 12 E0 75 •
57		E0 C8 E0 AA	E0 F0 75 E0 F0 12
57	LeftArrow	E0 4B • E0 CB	E0 6B • E0 F0 6B
57	—LEFT SHIFT case	E0 AA E0 4B •	E0 F0 12 E0 6B •
57		E0 CB E0 2A	E0 F0 6B E0 12
57	—RIGHT SHIFT case	E0 B6 E0 4B •	E0 F0 59 E0 6B •
57		E0 CB E0 36	E0 F0 6B E0 59
57	—NUM LOCK ON case	E0 2A E0 4B •	E0 12 E0 6B •
57		E0 CB E0 AA	E0 F0 6B E0 F0 12

KEYBOARD SCAN CODES (cont.)

Key # for 101 Keybd	Key Name	XT scan codes Down • Up	AT hardware scan codes Down • Up
98	DownArrow	E0 50 • E0 D0	E0 72 • E0 F0 72
98	—LEFT SHIFT case	E0 AA • E0 50 •	E0 72 1E 02 72 •
98		E0 D0 E0 2A	E0 F0 72 E0 12
98	—RIGHT SHIFT case	E0 B6 • E0 50 •	E0 F0 59 E0 72 •
98		E0 D0 E0 36	E0 F0 72 E0 59
98	—NUM LOCK ON case	E0 2A • E0 50 •	E0 12 E0 72 •
98		E0 D0 E0 AA	E0 F0 72 E0 F0 12
99	RightArrow	E0 4D • E0 CD	E0 74 • E0 F0 74
99	—LEFT SHIFT case	E0 AA • E0 4D •	E0 F0 12 E0 74 •
99		E0 CD E0 2A	E0 F0 74 E0 12
99	—RIGHT SHIFT case	E0 B6 • E0 4D •	E0 F0 59 E0 74 •
99		E0 CD E0 36	E0 F0 74 E0 59
99	—NUM LOCK ON case	E0 2A • E0 4D •	E0 12 E0 74 •
99		E0 CD E0 AA	E0 F0 74 E0 F0 12

Alpha-Numeric Primary Keyboard Keys (includes expanded keys)

17	' (accent, tilde)	29 • A9	0E • F0 0E
18	1 !	02 • 82	16 • F0 16
19	2 @	03 • 83	1E • F0 1E
20	3 #	04 • 84	26 • F0 26
21	4 \$	05 • 85	25 • F0 25
22	5 %	06 • 86	2E • F0 2E
23	6 ^ (6, caret)	07 • 87	36 • F0 36
24	7 &	08 • 88	3D • F0 3D
25	8 * (8, asterisk)	09 • 89	3E • F0 3E
26	9 (	0A • 8A	46 • F0 46
27	0)	0B • 8B	45 • F0 45
28	_ (dash, underline)	0C • 8C	4E • F0 4E
29	= (equal, plus)	0D • 8D	55 • F0 55
30	Bkspc	0E • 8E	66 • F0 66
38	Tab	0F • 8F	0D • F0 0D
39	q Q	10 • 90	15 • F0 15
40	w W	11 • 91	1D • F0 1D
41	e E	12 • 92	24 • F0 24
42	r R	13 • 93	2D • F0 2D
43	t T	14 • 94	2C • F0 2C
44	y Y	15 • 95	35 • F0 35
45	u U	16 • 96	3C • F0 3C
46	i I	17 • 97	43 • F0 43
47	o O	18 • 98	44 • F0 44
48	p P	19 • 99	4D • F0 4D
49	[{	1A • 9A	54 • F0 54
50	] }	1B • 9B	5B • F0 5B
51	\ | (backslash, bar)	2B • AB	5D • F0 5D
59	CapsLock	3A • BA	58 • F0 58
60	a A	1E • 9E	1C • F0 1C
61	s S	1F • 9F	1B • F0 1B
62	d D	20 • A0	23 • F0 23
63	f F	21 • A1	2B • F0 2B
64	g G	22 • A2	34 • F0 34

KEYBOARD SCAN CODES (cont.)

Key # for 101 Keybd	Key Name	XT scan codes Down • Up	AT hardware scan codes Down • Up
65	h H	23 • A3	33 • F0 33
66	j J	24 • A4	3B • F0 3B
67	k K	25 • A5	42 • F0 42
68	l L	26 • A6	4B • F0 4B
69	:: (semicolon, colon)	27 • A7	4C • F0 4C
70	: (single quote, double)	28 • A8	52 • F0 52
71	Enter	1C • 9C	5A • F0 5A
75	Shift(left)	2A • AA	12 • F0 12
76	z Z	2C • AC	1A • F0 1A
77	x X	2D • AD	22 • F0 22
78	c C	2E • AE	21 • F0 21
79	v V	2F • AF	2A • F0 2A
80	b B	30 • B0	32 • F0 32
81	n N	31 • B1	31 • F0 31
82	m M	32 • B2	3A • F0 3A
83	, < (comma, less than)	33 • B3	41 • F0 41
84	. > (period, greater than)	34 • B4	49 • F0 49
85	/ ? (forward slash, ?)	35 • B5	4A • F0 4A
86	Shift(right)	36 • B6	59 • F0 59
92	Ctrl(left)	1D • 9D	14 • F0 14
93	Alt(left)	38 • B8	11 • F0 11
94	Space	39 • B9	29 • F0 29
95	Alt(right)	E0 38 • E0 B8	E0 11 • E0 F0 11
96	Ctrl(right)	E0 1D • E0 9D	E0 14 • E0 F0 14

Keypad keys (Includes expanded keyboard layout)

34	NumLock	45 • C5	77 • F0 77
35	/	E0 35 • E0 B5	E0 4A • E0 F0 4A
35	—LEFT SHIFT case	E0 AA • E0 35 •	E0 F0 12 E0 4A •
35		E0 B5 E0 2A	E0 F0 4A E0 12
35	—RIGHT SHIFT case	E0 B6 E0 35 •	E0 F0 59 E0 4A •
35		E0 B5 E0 36	E0 F0 4A E0 59
36	* (PriSc 84 key)	37 • B7	7C • F0 7C
37	—	4A • CA	7B • F0 7B
55	Home 7	47 • C7	6C • F0 6C
56	UpArrow 8	48 • C8	75 • F0 75
57	PageUp 9	49 • C9	7D • F0 7D
58	+	4E • CE	79 • F0 79
72	LeftArrow 4	4B • CB	6B • F0 6B
73	5	4C • CC	73 • F0 73
74	RightArrow 6	4D • CD	74 • F0 74
78	End 1	4F • CF	69 • F0 69
79	DownArrow 2	50 • D0	72 • F0 72
79	PageDown 3	51 • D1	7A • F0 7A
80	Enter	E0 1C • E0 9C	E0 5A • E0 F0 5A
80	Ins 0	52 • D2	70 • F0 70
81	Del .	53 • D3	71 • F0 71

CPU PROCESSOR TYPES

CPU Type	Max Date	Bus Memory	Int/Ext	Number Transistors	Speeds MHz
Advanced Micro Devices					
AM386SX	7-91	4Gb	32/16	161k	25, 33, 40
AM386DX	9-91	4Gb	32/32	161k	25, 33, 40
AM486SX (doubler)	9-91	4Gb*	32/32	900k	33, 40, 25/50
AM486SLV (3.3V)	7-93	4Gb*	32/32	900k	33
AM486DX		4Gb*	32/32	1,300k	33, 40
AM486DX2 (doubler)		4Gb*	32/32	1,300k	25/50, 33/66, 40
AM486DX4 (doubler, 3.3V)		4Bb*	32/32	1,300k	33
AM486DXLV (3.3V)		4Gb*	32/32	1,300k	25/50, 33/66, 40
AM486DXL2 (doubler)		4Gb*	32/32	1,300k	50/100
AM486DXL4 (doubler)		4Gb*	32/32	75	
AM586SE (3.3V)			64/64	4,300k	75, 90, 100
AM486SX (3.3V)					180
AMD-K6	12/96				175

Advanced Micro Devices Upgrade Chips					
AM186EM	9-94		16/16		25, 33, 40
AM386EM	9-94		32/32		25, 33
AM486SE (3 or 5V)	9-94				25, 33

Cyrix Corporation					
CX486SLC (3 or 5V)	4-92	16Mb	32/16	600k	20, 25, 33
CX486SLC	6-92	4Gb*	32/32	600k	25, 33, 40
CX486S	2-93	4Gb*	32/16	NA	33, 40
CX486DX	9-93	4Gb*	32/32	NA	25/50, 33/66
CX486DX2 (doubler)	9-93	4Gb*	32/16	NA	25/50
CX486SLC2 (doubler)	10-93	4Gb*	32/32	NA	33
CX486DXV (3V)		4Gb*	32/32	NA	25/50, 33/66, 40
CX486DX2V (doubler, 3V)		4Gb*	32/32	NA	25/50, 33/66, 40
5x86 (aka M16, 3.3V)	7/95		32/64	3,000k+	100, 120
6x86 (aka M1, 3.3V)	10/95		64/64	3,000k+	100, 110, 120, 133

Cyrix Upgrade Chips					
CX486DRX2 (doubler)	8-93	4Gb*	32/32	NA	16/32, 20/40, 25/50, 33/66
CX486SRX2 (doubler)	10-93	4Gb*	32/16	NA	20/40, 25/50

Digital Equipment					
DECchip 21084 (3.3V)	NA	16Gb	64/64	1,680k	150, 300
DECchip 21084A (3.3V)		16Gb	64/64	1,680k	233, 275
DECchip 21086 (3.3V)		16Gb	64/64	1,750k	96, 168
DECchip 21086A (3.3V)		16Gb	64/64	1,750k	100, 233
DECchip 21164 (3.3V)		16Gb	64/64	9,300k	266, 300

International Business Machines Corporation					
80386SLC	12-91	16Mb	32/16	800k	16, 20, 25
80386SLC2 (doubler)	9-92	16Mb	32/16	1,425k	20/40, 25/50, 33/66
80486SLC3 (triplexer)		16Mb	32/16	1,425k	25/75
BL486DX (Blue Lightning)-doubler		4Gb*	32/32	1,400k	25/50, 33/40, 33/66
BL486DX2 (Blue Lightning)-doubler		4Gb*	32/32	1,400k	25, 33, 40
BL486DX-V (Blue Lightning, 3.3V)		4Gb*	32/32	1,400k	25/50, 33/66
BL486DX2-V (Blue Lightning, 3.3V)		4Gb*	32/32	1,400k	25/50, 33/66

Intel Corporation					
8086	6-76	1Mb	16/16	29k	5, 8, 10
8088	6-79	1Mb	16/16	29k	5, 8, 10
80286	2-82	16Mb	16/16	130k	6, 8, 10, 12
80386SX	6-88	16Mb	32/16	275k	16, 20, 25, 33
80386DX (3.3 or 5V)	10-90	16Mb	32/16	855k	16, 20, 25
80486SX	10-85	4Gb	32/32	275k	16, 20, 25, 33
80486SX (3.3 or 5V)	4-91	4Gb*	32/32	900k	16, 20, 25, 33
80486DX (3.3 or 5V)	4-89	4Gb*	32/32	1,200k	25, 33, 50
80486DX2 (3.3 or 5V)-doubler	3-92	4Gb*	32/32	900k	40, 25/50, 33/66

CPU PROCESSOR TYPES (cont.)

CPU Type	Max Date	Bus Memory	Int/Ext	Number Transistors	Speeds MHz
Intel Corporation (cont.)					
Pentium (60586, 3.3 or 5V)	3-93	4Gb*	32/64	3,100k	60, 66
Pentium SL (3.3 or 5V)	9-93	64Mb	32/32	1,400k	25, 33
80486SLC (3.3 or 5V)	3-94	4Gb*	32/32	1,600k	75, 100
80486DX4 (3.3 or 5V)	3-94	4Gb*	32/64	3,300k	75, 100, 120, 133, 150, 166, 200
Pentium Pro (aka P6) (3.3V)	3/95	4Gb*	32/64	5,500k	150, 166, 180, 200
P55C Available 4th Qtr 1996					133 to 180
P55C Available 1997					180 to 200
P6S Available 1997					200 to 300
P68					32/32
DX2Overdrive (upgrade chip)			32/32		40, 50
DX2Overdrive (upgrade chip)		4Gb*	32/32	900k	40, 50, 66
DX4Overdrive (upgrade chip)		4Gb*	32/32	1,600k	75, 100
Pentium Overdrive (486 upgrade)		4Gb*	32/32	3,300k	60/82, 75/125, 100/133
Pentium Overdrive (Pentium upgrade)		4Gb*	32/64	3,300k	80/120, 66/133, 75/125, 90/150, 100/166
Pentium Overdrive (Pentium upgrade, 2nd Qtr 97)					120/180, 133/200

Motorola Communications and Electronics, Inc.

PowerPC 601 (3.6V)	32/64	2,800k		66, 80, 100
PowerPC 602	4Gb**	32/64	1,000k	66
PowerPC 603 (3.3V)	4Gb**	32/64	1,600k	50, 66, 80
PowerPC 604 (3.3V)	4Gb**	32/64	3,600k	100
PowerPC 620 (3.3V)	1Tb***	128/128	7,000k	133

VexGen

v586P75	64/64	3,500k		70
v586P80	64/64	3,500k		75
v586P90	64/64	3,500k		84
v586P100	64/64	3,500k		93

IEC America, Inc.

3	3-84	1Mb	16/16	63k	8, 10
20	3-84	1Mb	16/8	63k	8, 10
R400MC			64/64		200

exas Instruments, Inc.

X486SLC (3.3V)	16Mb	32/16		25, 33
X486SLC (5V)	16Mb	32/16		33
X486SLC2 (5V) doubler	16Mb	32/16		25/50
X486SLC (3.3V)	4Gb	32/32		33
X486SLC (5V)	4Gb	32/32		40
X486SLC2 (3.3V) doubler	4Gb	32/32		20/40
X486SLC2 (5V) doubler	4Gb	32/32		25/50

exas Instruments, Inc. Upgrade Chips

86SLC/E (5V)	16Mb	32/16		25, 33
16SLC/E-V (3V)	16Mb	32/16		25
16SLC/E (5V)	4Gb	32/32		33, 40
16DLCE/E-V (3V)	4Gb	32/32		25, 33

Gb addressable, 64Tb virtual memory ** 4Gb addressable, 4Pb virtual memory 1Tb addressable, 1 Hb virtual memory

IATh CoPROCESSOR TYPES

U Type	CoProcessor	CPU Type	CoProcessor
86, 8088, V20 & V30	8087	80386DX	80387DX
286	80287XL	80486SX	80487SX
386SX & SL	80387SX	80486DX	Built In

IBM® PC MOTHERBOARD

Date	Code	Hardware Release
04-24-81	FF	PC (the original!)
10-19-81	FF	PC (fixed bugs)
10-27-82	FF	PC hard drive support & 640K
11-08-82	FE	PC-XT
06-01-83	FD	PC jr
01-10-84	FC	AT
06-10-85	FC	AT revision 1
09-13-85	F9	PC Convertible
11-15-85	FC	AT w/speed control (30 meg HD)
01-10-86	FB	XT revision 1
04-21-86	FC	XT-286 model 2
05-09-86		
02-05-87	FB	XT revision 2
09-02-86	FA	PS/2 Model 30
02-13-87		
05-09-87	FC	PS/2 Model 50 model 4
02-13-87	FC	PS/2 Model 60 model 5
03-30-87	F8	PS/2 Model 80 16 MHz
06-26-87	FA	PS/2 Model 25
10-07-87	F8	PS/2 Model 80 20 MHz
01-28-88		
04-18-88	FC	PS/2 Model 50Z

IBM® PC/XT MOTHERBOARD SWITCH 1 SETTINGS

Switch #	On/Off	Function
1	Off	Always off
2	On	Coprocessor NOT present in system
2	Off	Coprocessor present in system
Switch 3,4 System motherboard merge		
3,4	3 On, 4 On	PC=16K XT=64K
3,4	3 Off, 4 On	PC=32K XT=128K
3,4	3 On, 4 Off	PC=48K XT=192K
3,4	3 Off, 4 Off	PC=64K XT=256K
5,6	5 On, 6 On	EGA/VGA video adapter present
5,6	5 Off, 6 Off	Monochrome video adapter present
5,6	5 On, 6 Off	CGA video adapter present, 80x25 n
5,6	5 Off, 6 On	CGA video adapter present, 80x25 n
7,8	7 On, 8 On	One floppy disk drive present
7,8	7 Off, 8 On	Two floppy disk drives present
7,8	7 On, 8 Off	Three floppy disk drives present
7,8	7 Off, 8 Off	Four floppy disk drives present

IBM® PC MOTHERBOARD SWITCH 2 SETTINGS (MEMORY)

System Memory Size	sw2-1	sw2-2	sw2-3	sw2-4	256K board sw2-5	64K board sw2-5
64K	On	On	On	On	On	Off
96K	Off	On	On	On	On	Off
128K	On	Off	On	On	On	Off
160K	Off	Off	On	On	On	Off
192K	On	On	Off	On	On	Off
224K	Off	On	Off	On	On	Off
256K	On	Off	Off	On	On	Off
288K	Off	Off	Off	On	On	Off
320K	On	On	On	Off	On	Off
352K	Off	On	On	Off	On	Off
384K	On	Off	On	Off	On	Off
416K	Off	Off	On	Off	On	Off
448K	On	On	Off	Off	On	Off
480K	Off	On	Off	Off	On	Off
512K	On	Off	Off	Off	On	Off
544K	Off	Off	Off	Off	On	Off
576K	On	On	On	On	Off	N/A
608K	Off	On	On	On	Off	N/A
640K	On	Off	On	On	Off	N/A
704K	On	On	Off	On	Off	N/A

Notes:

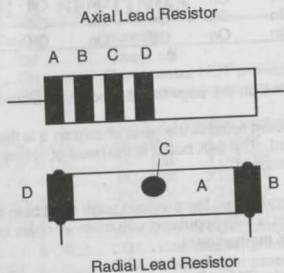
- Switch 2 listed on this page is not used on an IBM® XT.
- The 256K board listed at the head of column 6 is the PC2 motherboard. The 64K board at the head of column 7 is the PC1 motherboard.
- Switch 1-3 and 1-4 on the previous page must both be OFF if the motherboard is fully populated with memory chips on either the 64K or 256K motherboard.
- Switch 1 on the IBM® AT, is a single switch that selects whether the installed video adapter is color or monochrome.

RESISTOR COLOR CODES

Color	1st Digit(A)	2nd Digit(B)	Multiplier(C)	Tolerance
Black	0	0	1	
Brown	1	1	10	1%
Red	2	2	100	2%
Orange	3	3	1,000	3%
Yellow	4	4	10,000	4%
Green	5	5	100,000	
Blue	6	6	1,000,000	
Violet	7	7	10,000,000	
Gray	8	8	100,000,000	
White	9	9	10 ⁹	
Gold			0.1 (EIA)	5%
Silver			0.01 (EIA)	10%
No Color				20%

Example: Red-Red-Orange = 22,000 ohms, 20%

Additional information concerning the Axial Lead resistor can be obtained if Band A is a wide band. Case 1: If only Band A is wide, it indicates that the resistor is wirewound. Case 2: If Band A is wide and there is also a blue fifth band to the right of Band D on the Axial Lead Resistor, it indicates the resistor is wirewound and flame proof.



PAPER SIZE

Paper Size	Standard	Millimeters	Inches
Eight Crown	IMP	1461 x 1060	57-1/2 x 41-3/4
Antiquarian	IMP	1346 x 533	53 x 21
Quad Demy	IMP	1118 x 826	44 x 32-1/2
Double Princess	IMP	1118 x 711	44 x 28
Quad Crown	IMP	1016 x 762	40 x 30
Double Elephant	IMP	1016 x 686	40 x 27
B0	ISO	1000 x 1414	39.37 x 55.67
Arch-E	USA	914 x 1219	36 x 48
Double Demy	IMP	889 x 572	35 x 22-1/2
E	ANSI	864 x 1118	34 x 44
A0	ISO	841 x 1189	33.11 x 46.81
Imperial	IMP	762 x 559	30 x 22
Princess	IMP	711 x 546	28 x 21-1/2
B1	ISO	707 x 1000	27.83 x 39.37
Arch-D	USA	610 x 914	24 x 36
A1	ISO	594 x 841	23.39 x 33.11
Demy	IMP	584 x 470	23 x 18-1/2
D	ANSI	559 x 864	22 x 34
B2	ISO	500 x 707	19.68 x 27.83
Arch-C	USA	457 x 610	18 x 24
C	ANSI	432 x 559	17 x 22
A2	ISO	420 x 594	16.54 x 23.39
B3	ISO	353 x 500	13.90 x 19.68
Imperial	IMP	333 x 470	13-1/8 x 18-1/2
Foolscap folio	IMP	333 x 210	13-1/8 x 8-1/4
Arch-B	USA	305 x 457	12 x 18
A3	ISO	297 x 420	11.69 x 16.54
B	ANSI	279 x 432	11 x 17
Demy quarto	IMP	273 x 216	10-3/4 x 8-1/2
34	ISO	250 x 353	9.84 x 13.90
Crown quarto	IMP	241 x 184	9-1/2 x 7-1/4
Royal octavo	IMP	241 x 152	9-1/2 x 6
Arch-A	USA	229 x 305	9 x 12
Demy octavo	IMP	222 x 137	8-3/4 x 5-3/8
A	ANSI	216 x 279	8.5 x 11
4	ISO	210 x 297	8.27 x 11.69
Foolscap quarto	IMP	206 x 165	8-1/8 x 6-1/2
Crown Octavo	IMP	181 x 121	7-1/8 x 4-3/4
5	ISO	176 x 250	6.93 x 9.84
5	ISO	148 x 210	5.83 x 8.27
5	USA	140 x 216	5.5 x 8.5
6	USA	127 x 178	5 x 7
6	ISO	105 x 148	4.13 x 5.83
6	ISO	102 x 127	4 x 5
6	USA	76 x 102	3 x 5
7	ISO	74 x 105	2.91 x 4.13
3	ISO	52 x 74	2.05 x 2.91
3	ISO	37 x 52	1.46 x 2.05
10	ISO	26 x 37	1.02 x 1.46

Abbreviations for the above table are:

ISO	International Organization for Standardization
ANSI	American National Standards Institute
USA	United States
IMP	Imperial paper and plan sizes
Arch.	United States architectural standards

PARALLEL PRINTER INTERFACE

Printer Pin Number	Signal Description	Function	Signal Direction At Printer
1	STROBE	Reads in the data	Input
2	DATA Bit 0	Data line	Input
3	DATA Bit 1	Data line	Input
4	DATA Bit 2	Data line	Input
5	DATA Bit 3	Data line	Input
6	DATA Bit 4	Data line	Input
7	DATA Bit 5	Data line	Input
8	DATA Bit 6	Data line	Input
9	DATA Bit 7	Data line	Input
10	ACKNLG	Acknowledge receipt of data	Output
11	Busy	Printer is busy	Output
12	Paper Empty	Printer out of paper	Output
13	SLCT	Online mode indicator	Input
14	Auto Feed XT	Not Used	
15	Not Used	Signal ground	
16	Signal ground	Frame ground	
17	Frame ground	+5 volts	
18	+5 volts	Return signals of pins 1-12, twisted pairs.	
19-30	Ground	Resets printer, clears buffer & initializes	Input
31	Input Prime or INIT	Indicates offline mode	Output
32	Fault or Error	External ground	
33	Signal ground	Not Used	
34	Not Used	+5 Volts (3.3 K-ohm)	
35	+5 Volts	TTL high level	Input
36	SLCT IN		

The above pinout is at the printer plug, computer side pinouts are on the next page. The "Parallel" or "Centronics" configuration for printer data transmission has become the de facto standard in the personal computer industry. This configuration was developed by printer manufacturer (Centronics) as an alternative to serial data transmission. High data transfer rates are the main advantage of parallel and are attained by simultaneous transmission of all bits of a binary "word" (normally an ASCII code). Disadvantages of the parallel transfer are the requirement for 8 separate data lines and computer to printer cable lengths of less than 12 feet.

PARALLEL PINOUTS @ COMPUTER

DB25 Systems

Computer Pin Number	Signal Description	Function	Signal Direction At Computer
1	STROBE	Reads in the data	Output
2	DATA Bit 0	Data line	Output
3	DATA Bit 1	Data line	Output
4	DATA Bit 2	Data line	Output
5	DATA Bit 3	Data line	Output
6	DATA Bit 4	Data line	Output
7	DATA Bit 5	Data line	Output
8	DATA Bit 6	Data line	Output
9	DATA Bit 7	Data line	Output
10	ACKNLG	Acknowledge receipt of data	Input
11	Busy	Printer is busy	Input
12	Paper Empty	Printer out of paper	Input
13	SLCT	Online mode indicator	Input
14	Auto Feed XT	Not Used	
15	Fault or Error	Indicates offline mode	Input
16	Input Prime or INIT	Resets printer, clears buffer & initializes	Output
17	SLCT IN	TTL high level	Output
18-25	Ground	Return signals of pins 1-12, twisted pairs.	

LOOPBACK DIAGNOSTIC PLUGS

Parallel-IBM DB25	Parallel-Other DB25	Serial-IBM DB25	Serial-Other DB25
1 to 13	2 to 15	1 to 7	2 to 3
14 to 15	3 to 13	2 to 3	4 to 5
16 to 18	4 to 12	4 to 5 to 8	6 to 8 to 20 to 22
19 to 21	5 to 10	6 to 11 to 20 to 22	
22 to 24	6 to 11	15 to 17 to 23	
		18 to 25	

Loopback plugs work in conjunction with various software diagnostics programs and are used to determine whether or not a parallel or serial port is functioning correctly. The plugs labeled "IBM" will work with the IBM Corporation Advanced Diagnostics software and those labeled as "Other" will work with a variety of other programs such as Norton Diagnostics.

SERIAL I/O INTERFACES (RS232C)

Standard DB25 Pin Connector

Serial Pin Number	Signal Description	Function	Signal Direction At Device
1	FG	Frame ground	Output
2	TD	Transmit Data	Input
3	RD	Receive Data	Output
4	RTS	Request to Send	Input
5	CTS	Clear to Send	Input
6	DSR	Data Set Ready	Input
7	SG	Signal Ground	Input
8	DCD	Data Carrier Detect	Input
9	+V	+DC test voltage	Input
10	-V	-DC test voltage	Input
11	QM	Equalizer Mode	Input
12	(S)PCD	2nd Data Carrier Detect	Input
13	(S)CTS	2nd Clear to Send	Input
14	(S)TD	2nd Transmitted Data	Output
15	TC	Transmitter Clock	Input
16	(S)RD	2nd Received Data	Input
17	RC	Receiver Clock	Input
18	Not used	Not used	
19	(S)RTS	2nd Request to Send	Output
20	DTR	Data Terminal Ready	Output
21	SQ	Signal Quality Detect	Input
22	RI	Ring Indicator	Input
23		Data Rate Selector	Output
24	(TC)	External Transmitter Clk.	Output
25	Not used	Not used	

IBM® Standard DB9 Pin Connector

Serial Pin Number	Signal Description	Function	Signal Direction At Device
1	DCD	Data Carrier Detect	Input
2	RD	Receive Data	Output
3	SD	Transmit Data	Input
4	DTR	Data Terminal Ready	Output
5	SG	Signal Ground	Input
6	DSR	Data Set Ready	Input
7	RTS	Request to Send	Output
8	CTS	Clear to Send	Input
9	RI	Ring Indicator	Input

NOTES ON SERIAL INTERFACING

Printers and asynchronous modems are relatively unsophisticated pieces of electronic equipment. Although all 25 pins of the Standard DB25 serial connector are listed 1 page back, only a few of the pins are needed for normal applications. The following list gives the necessary pins for each of the indicated applications.

1. "Dumb Terminals" - 1,2,3, & 7
2. Printers and asynchronous modems - 1,2,3,4,5,6,7,8, & 20
3. "Smart" and synchronous modems - 1,2,3,4,5,6,7,8,13,14, 15,17,20,22, & 24

Cable requirements also differ, depending on the particular hardware being used. The asynchronous modems normally use the 9 pin or 25 pin cables and are wired 1 to 1 (ie, pin 1 on one end of the cable goes to pin 1 on the other end of the cable.) Serial printers, however, have several wires switched in order to accommodate "handshaking" between computer and printer. The rewired junction is called a "Modem Eliminator". In the case of Standard DB25 the following are typical rewires:

DB25 @ Computer	DB25 @ Printer	DB25 @ Computer	DB25 @ Printer
Standard	IBM PC	Second	Standard PC
1	1	1	1
3	2	3	2
2	3	2	3
8	4	20	5, 6 & 8
4	8	7	7
5 & 6	20	5, 6 & 8	20
20	5 & 6		
7	7		

PC to Terminal	Std Hewlett-Packard
1	1
2	2
3	3
4	4
5	5
6 & 8	6
20	7
7	17
	11
	12
	15 & 24
	20

GPIB I/O INTERFACE (IEEE-488)

The GPIB/GPIB/IEEE-488 standard is a very powerful interface developed originally by Hewlett-Packard (HP-IB). The interface has been adopted by a variety of groups, such as IEEE, and is known by names such as HP-IB, GPIB, IEEE-488 and is known as 1 (outside the US). Worldwide use of this standard has come about due to its ease of use, handshaking protocol, and precisely defined function.

Information management is handled by three device types: Talkers, Listeners, and Controllers. Talkers send information, Listeners receive data, and Controllers manage the information. Up to 15 devices can be interconnected, but are usually located within 20 feet of the computer. Additional extenders can be used to access more than 15 devices.

GPIB 24 Line Bus

Pin Number	Signal Description	Function
1 ...	DATA I/O 1	Data line I/O bus
2 ...	DATA I/O 2	Data line I/O bus
3 ...	DATA I/O 3	Data line I/O bus
4 ...	DATA I/O 4	Data line I/O bus
5 ...	EIO	End or Identify
6 ...	DAV	Data valid
7 ...	NRFD	Not Ready For Data
8 ...	NDAC	Data Not Accepted
9 ...	SRQ	Service Request
10 ...	IFC	Interface Clear
11 ...	ATN	Attention
12 ...	Shield	or wire ground
13 ...	DATA I/O 5	Data line I/O bus
14 ...	DATA I/O 6	Data line I/O bus
15 ...	DATA I/O 7	Data line I/O bus
16 ...	DATA I/O 8	Data line I/O bus
17 ...	REN	Remote Enable
18 ...	Ground	Ground
19 ...	Ground	Ground
20 ...	Ground	Ground
21 ...	Ground	Ground
22 ...	Ground	Ground
23 ...	Ground	Ground
24 ...	Logic Ground	Logic Ground

Devices can be set up in star, linear or other combinations and are easily set up using male/female stackable connectors.

VIDEO CARD PINOUTS

Pin Number	Description
Monochrome Display Adapter (MDA and HGC)	
1 & 2	Ground
3, 4, & 5	Not Used
6	+ Intensity
7	+ Video
8	+ Horizontal Drive
9	- Vertical Drive
Color Graphics Display Adapter (CGA)	
1 & 2	Ground
3	Red
4	Green
5	Blue
6	+ Intensity
7	Reserved
8	+ Horizontal Drive
9	- Vertical Drive
CGA Composite Video (RCA phono jack)	
1 (pin)	1.5 volt DC video signal
2 (shell)	Ground
Enhanced Graphics Adapter (EGA)	
1	Ground
2	Secondary Red
3	Red
4	Green
5	Blue
6	Secondary Green / Intensity
7	Secondary Blue / Monochrome
8	Horizontal Drive
9	Vertical Drive
Video Graphics Array (VGA)	
Color VGA	
1 ...	Red (Output)
2 ...	Green (Output)
3 ...	Blue (Output)
4 ...	Reserved
5 ...	Digital Ground
6 ...	Red Return (Input)
7 ...	Green Return (Input)
8 ...	Blue Return (Input)
9 ...	Plug
10 ...	Digital Ground
11 ...	Reserved
12 ...	Reserved
13 ...	Horizontal Sync (Output)
14 ...	Vertical Sync (Output)
15 ...	Reserved
Monochrome VGA	
1 ...	Not Used
2 ...	Monochrome Video
3 ...	Not Used
4 ...	Not Used
5 ...	Ground
6 ...	Key
7 ...	Monochrome Ground
8 ...	Not Used
9 ...	No Connection
10 ...	Horizontal Sync Ground
11 ...	Not Used
12 ...	Vertical Sync Ground
13 ...	Horizontal Sync
14 ...	Vertical Sync
15 ...	No Connection

KEYBOARD PLUG - 5 Pin Din

Pin #	Description
1	Clock (TTL signal)
2	Data (TTL signal)
3	Not used
4	Ground
5	Power (+5 volt)

KEYBOARD PLUG - 6 Pin MiniDin

Pin #	Description
1	Data (TTL signal)
2	Not used
3	Ground
4	Power (+5 volt)
5	Clock (TTL signal)
6	Not used

KEYBOARD PLUG - 6 Pin SDL

Pin #	Description
A	Not used
B	Data (TTL signal)
C	Ground
D	Clock (TTL signal)
E	Power (+5 volt)
F	Not used

MOUSE 9 Pin D-Shell

Pin #	Description
1	Not Used
2	Data
3	Clock
4	+5 Volt
5	Ground
6	Not Used
7	Enable Mouse
8	Mouse Ready
9	Not Used

MOUSE 6 Pin Mini DIN

Pin #	Description
1	Data
2	Not Used
3	Signal Ground
4	+5 Volt
5	Clock
6	Not Used
Shell	Shield Ground

MOUSE 9 Pin Microsoft Import

Pin #	Description
1	+5 Volt
2	XA
3	XB
4	YA
5	YB
6	Switch 1
7	Switch 2
8	Switch 3
9	Signal Ground
Shell	Shield Ground

LIGHT PEN INTERFACE

Pin #	Description
1	- Light Pen Input
2	No connection
3	- Light Pen Switch
4	Chassis Ground
5	+5 Volts
6	+12 Volts

GAME CONTROL CABLE

Joystick Pin Number	Signal Description	Function	Signal Direction At Joystick
1	+5 Volts	Supply voltage	Input
2	Button 1	Push Button 1	Output
3	Position 0	X Coordinate	Output
4	Ground	Ground	
5	Ground	Ground	
6	Position 1	Y Coordinate	Output
7	Button 2	Push Button 2	Output
8	+5 Volts	Supply voltage	Input
9	+5 Volts	Supply voltage	Input
10	Button 3	Push Button 3	Output
11	Position 2	X Coordinate	Output
12	Ground	Ground	
13	Position 3	Y Coordinate	Output
14	Button 4	Push Button 4	Output
15	+5 Volts	Supply voltage	Input

86/386/486 BATTERY CONNECTOR

Pin #	Description
1	Ground
2	Not used
3	Not used, or alignment key
4	+6 volt

SPEAKER CONNECTOR

1	Audio
2	Alignment key
3	Ground
4	+5 volt

KEYBOARD LOCKOUT / POWER LED CONNECTOR-MOTHERBOARD

Pin #	Description
1	LED Power, +5 Volt
2	Alignment Key
3	Ground
4	Keyboard Lockout
5	Ground

PS-8 and 9 POWER CONNECTOR

Pin #	PS-8 (XT)	PS-8 (AT)	PS-9 (XT & 9)
1	Power ground	Power good	Ground
2	Align Key	+5 volt	Ground
3	+12 volt	+12 volt	-5 volt
4	-12 volt	-12 volt	+5 volt
5	Ground	Ground	+5 volt
6	Ground	Ground	+5 volt

DISK DRIVE POWER CONNECTOR

Pin #	Description (4 pin molex)	Wire Color
1	+12 volt	Yellow
2	Ground	Black
3	Ground	Black
4	+5 volt	Red

PC MEMORY MAP

Address Range	Size	Description
00000-003FF	1K	Interrupt Vectors
00400-7FFFF	512K	Bios, DOS, 512K RAM Expansion
80000-9FFFF	128K	128K RAM Expansion (Top of 640K)
A0000-AFFFF	64K	EGA Video Buffer
B0000-B7FFF	32K	Monochrome & other screen buffers
B8000-BFFFF	32K	CGA and EGA Buffers
AT LIM Expanded Memory	64K	page is between 768K and 896K
C0000-C3FFF	16K	EGA Video Bios
C4000-C7FFF	16K	ROM Expansion Area
XT LIM Expanded Memory	64K	page is between 800K and 960K
C8000-CCFFF	20K	XT Hard Disk Controller Bios
CD000-CFFFF	12K	User PROM, Memory mapped I/O
D0000-DFFFF	64K	User PROM, normal LIM Location for Expanded Memory
EE000-EFFFF	64K	ROM expansion, I/O for XT
F0000-FDFFF	56K	ROM BASIC
FE000-FFFF9	8K	BIOS
FFFF0-FFFF4	4	1st Code run after system power on
FFFF5-FFFFC	8	BIOS Release Date
FFFE-FFFFFF	2	Machine ID (Top of 1 Meg RAM)
00000-FFFFFF	15Meg	AT Extended Memory

PC HARDWARE INTERRUPTS

INT0	Non-Maskable Interrupt (Parity)
Interrupt Controller 1:	
IRQ0	Timer Output
IRQ1	Keyboard controller
IRQ2	XT - Available
	AT - Route to Interrupt Controller 2, IRQ8 to 15
IRQ3	Serial Port COM2; or SDLC (see page 54)
IRQ4	Serial Port COM1; or SDLC (see page 54)
IRQ5	XT - Hard Disk Controller
	AT - Parallel Printer Port 2
IRQ6	Floppy Disk Controller
IRQ7	Parallel Printer Port LPT1:
Interrupt Controller 2 (AT Only):	
IRQ8	Real Time Clock
IRQ9	Software redirect to IRQ2 (Int 0A Hex)
IRQ10	Reserved
IRQ11	Reserved
IRQ12	Reserved
IRQ13	80287 Math Coprocessor
IRQ14	Hard Disk Controller
IRQ15	Some hard drive and SCSI controllers

DMA CHANNELS

XT 8 bit ISA Bus

Channel	Function
0	Dynamic memory refresh
1	Unassigned or SDLC
2	Floppy disk controller
3	Hard disk controller

16 bit ISA, EISA, and MCA Bus

Channel	Function
DMA Controller #1	
0	Dynamic memory refresh
1	Unassigned or SDLC
2	Floppy disk controller
3	Unassigned
DMA Controller #2	
4	First DMA Controller
5	Unassigned
6	Unassigned
7	Unassigned

SERIAL/COM: PORTS

Com: Port	PC / ISA IRQ / Address	PS2 / MCA IRQ / Address
1	4 / 03F8h	4 / 03F8h
2	3 / 02F8h	3 / 02F8h
3	4 / 03E8h*	3 / 3220h
4	3 / 02E8h*	3 / 3228h
5	not available	3 / 4220h
6	not available	3 / 4228h
7	not available	3 / 5220h
8	not available	3 / 5228h

* Note that some software and hardware products do not support the COM3: and COM4: addresses and interrupts

PC HARDWARE I/O MAP

8088 Class Systems

Address	Function
000-00F	DMA Controller (8237A)
020-021	Interrupt controller (8259A)
040-043	Timer (8253)
060-063	PPI (8255A)
080-083	DMA page register (74LS612)
0A0-0AF	NMI - Non Maskable Interrupt
200-20F	Game Port Joystick controller
210-217	Expansion Unit
2E8-2EF	COM4: Serial Port (see page 54)
2F8-2FF	COM2: Serial Port
300-31F	Prototype Card
320-32F	Hard Disk
378-37F	Parallel Printer Port 1
380-38F	SDLC
3B0-3BF	MDA - Monochrome Adapter and printer
3D0-3D7	CGA - Color Graphics Adapter
3E8-3EF	COM3: Serial Port (see page 54)
3F0-3F7	Floppy Diskette Controller
3F8-3FF	COM1: Serial Port

80286 / 386/486 Class Systems

Address	Function
200-01F	DMA Controller #1 (8237A-5)
220-03F	Interrupt controller #1 (8259A)
240-05F	Timer (8254)
260-0BF	Keyboard (8042)
370-07F	NMI - Non Maskable Interrupt & CMOS RAM
380-09F	DMA page register (74LS612)
3A0-0BF	Interrupt controller #2 (8259A)
3C0-0DF	DMA Controller #2 (8237A)
3F0-0FF	80287 Math Coprocessor
F0-1F8	Hard Disk
00-20F	Game Port Joystick controller
58-25F	Intel Above Board
78-27F	Parallel Printer Port 2
E8-2EF	COM4: Serial Port (see page 54)
F8-2FF	COM2: Serial Port
00-31F	Prototype Card
78-37F	Parallel Printer Port 1
10-38F	SDLC or Bisynchronous Comm Port 2
10-3AF	Bisynchronous Comm Port 1
10-3BF	MDA - Monochrome Adapter
1C-3BE	Parallel Printer on Monochrome Adapter
10-3CF	EGA - Reserved
10-3D7	CGA - Color Graphics Adapter
8-3EF	COM3: Serial Port (see page 54)
0-3F7	Floppy Diskette Controller
8-3FF	COM1: Serial Port

PC SOFTWARE INTERRUPTS

Address	Int #	Interrupt Name
000-003	0	Divide by zero
004-007	1	Single Step IRET
008-00B	2	NMI Non Maskable Interrupt
00C-00F	3	Breakpoint
010-013	4	Overflow IRET
014-017	5	Print Screen
018-01F	6	Reserved 018-01B and 01C-01F
020-023	7	Time of Day Ticker IRQ0
024-027	8	Keyboard IRQ1
028-02B	9	XT Reserved, AT IRQ2 direct to IRQ9
02C-02F	A	COM2 communications, IRQ3
030-033	B	COM1 communications, IRQ4
034-037	C	XT Hard disk, AT Parallel Printer, IRQ5
038-03B	D	Floppy Diskette, IRQ6
03C-03F	E	Parallel Printer 1, IRQ7, slave 8259, IRET
040-043	10	ROM Handler - Video
044-047	11	ROM Handler - Equipment Check
048-04B	12	ROM Handler - Memory Check
04C-04F	13	ROM Handler - Diskette I/O
050-053	14	ROM Handler - COMM I/O
054-057	15	XT Cassette, AT ROM Catchall Handlers
058-05B	16	ROM Handler - Keyboard I/O
05C-05F	17	ROM Handler - Printer I/O
060-063	18	ROM Handler - Basic Startup
064-067	19	ROM Handler - Bootstrap
068-06B	1A	ROM Handler - Time of Day
06C-06F	1B	ROM Handler - Keyboard Break
070-073	1C	ROM Handler - User Ticker
074-077	1D	ROM Pointer, Video Initialization
078-07B	1E	ROM Pointer, Diskette Parameters
07C-07F	1F	ROM Pointer, Graphics Characters Set 2
080-083	20	DOS - Terminate Program
084-087	21	DOS - Interrupt Call
088-08B	22	DOS - Program's Terminate Address
08C-08F	23	DOS - Program's Control-Break Address
090-093	24	DOS - Critical Error Handler
094-097	25	DOS - Absolute Disk Read
098-09B	26	DOS - Absolute Disk Write
09C-09F	27	DOS - TSR Terminate & Stay Ready
0A0-0A3	28-3F	DOS - Idle Loop, IRET
0A4-0A7	40	Hard Disk Pointer - Original Floppy Hard
0A8-0AB	41	Hard Disk Pointer - XT Hard Disk Parameters
0AC-0AF	42-45	Reserved
0B0-0B3	46	ROM Pointer, AT Hard Disk Parameters
0B4-0B7	47-5F	Reserved
0B8-0BB	60-6F	Reserved for User (67 is Expanded Memory)
0BC-0BF	70	Not Used
0C0-0C3	71	AT Real Time Clock, IRQ8
0C4-0C7	72	AT Redirect to IRQ2, IRQ9, LAN Adapter
0C8-0CB	73	AT Reserved, IRQ10
0CC-0CF	74	AT Reserved, IRQ11
0D0-0D3	75	AT Reserved, IRQ12
0D4-0D7	76	AT 80287 Error to NMI, IRQ13
0D8-0DB	77	AT Hard Disk, IRQ14
0DC-0DF	78	AT Reserved, IRQ15
0E0-0E3	80-85	Not Used
0E4-0E7	86	Reserved for BASIC
0E8-0EB	87-F0	NetBIOS, Relocated Interrupt 18H
0EC-0EF	F1-FF	Reserved for BASIC Interpreter
0F0-0F3		Not Used

AUDIO ERROR CODES

A variety of tests are executed automatically when computers are first turned on. Initially, the "Power-On Self Test" (POST) is run. It provides error or warning messages whenever a faulty component is encountered. Typically, two types of messages are issued: **Audio Beep Codes** and **Display Error Messages**.

Audio Beep Codes consist of a series of beeps that identify a faulty component. In the case of an IBM computer, if it is functioning normally, you will hear one short beep when the system is turned on. However, if a problem is detected, a series of beeps or no beeps will occur. The type and number of beeps define the problem. **Audio Beep Codes** for some of the major BIOS manufacturers are included below.

If the system has problems but completes the POST process, then additional errors may be reported in the form of **Display Error Messages**. The list of **Display Error Messages** is quite extensive and only the IBM PC/XT/PS2 messages are included in Pocket PCRef.

American Megatrends Bios (AMI)

Beeps	Error Description
Fatal Errors	
1 long, 2 short	DRAM refresh failed
1 long, 3 short	Parity circuit failed
1 long, 4 short	Base 64K or CMOS RAM failed
1 long, 5 short	System timer failed
1 long, 6 short	Processor failed
1 long, 7 short	Keyboard controller or gate A20 error
1 long, 8 short	Virtual mode exception error
1 long, 9 short	Display memory write/read test failed
1 long, 10 short	ROM BIOS checksum failed
1 long, 11 short	CMOS RAM shutdown register failed
1 long, 12 short	Cache memory bad, do not enable cache
Infatal errors	
1 long, 13 short	Conventional/extended memory failed
1 long, 14 short	Display and retrace failed

Compaq Computer Corporation Bios

Beeps	Error Description
1-2	Testing CPU register
3	CMOS write/read test failed
4	ROM BIOS checksum bad
1-1	Programmable interval timer failed
2	DMA initialization failed
3	DMA page register write/read bad
1	RAM refresh verification failed
2	Testing first 64K RAM

1-3-3	First 64K RAM chip or data line bad, multi-bit
1-3-4	First 64K RAM odd/even logic bad
1-4-1	Address line fault in first 64K RAM
1-4-2	Parity error detected in first 64K RAM
2-1-1	Bit 0 fault in first 64K RAM
2-1-2	Bit 1 fault in first 64K RAM
2-1-3	Bit 2 fault in first 64K RAM
2-1-4	Bit 3 fault in first 64K RAM
2-2-1	Bit 4 fault in first 64K RAM
2-2-2	Bit 5 fault in first 64K RAM
2-2-3	Bit 6 fault in first 64K RAM
2-2-4	Bit 7 fault in first 64K RAM
2-3-1	Bit 8 fault in first 64K RAM
2-3-2	Bit 9 fault in first 64K RAM
2-3-3	Bit 10 fault in first 64K RAM
2-3-4	Bit 11 fault in first 64K RAM
2-4-1	Bit 12 fault in first 64K RAM
2-4-2	Bit 13 fault in first 64K RAM
2-4-3	Bit 14 fault in first 64K RAM
2-4-4	Bit 15 fault in first 64K RAM
3-1-1	Slave DMA register bad
3-1-2	Master DMA register bad
3-1-3	Master interrupt mask register bad
3-1-4	Slave interrupt mask register bad
3-2-2	Interrupt vector loading in progress
3-2-4	Keyboard controller test failed
3-3-1	CMOS RAM power bad; calculating checksum
3-3-2	CMOS configuration validation in progress
3-3-4	Video memory test failed
3-4-1	Video initialization failed
3-4-2	Video retrace failure
3-4-3	Search for video ROM in progress
none	Screen operable, running with video ROM
none	Monochrome monitor operable
none	Color monitor (40 column) operable
none	Color monitor (80 column) operable
4-2-1	Timer tick interrupt test in progress or bad
4-2-2	Shutdown test in progress or bad
4-2-3	Gate A20 bad
4-2-4	Unexpected interrupt in protected mode
4-3-1	RAM test in progress or high address line bad
4-3-3	Interval timer channel 2 test or bad
4-3-4	Time-of-Day clock test or bad
4-4-1	Serial port test or bad
4-4-2	Parallel port test or bad
4-4-3	Math coprocessor test or bad
4-4-4	Cache test failure

IBM Corporation BIOS

Beeps	Error Description
1 short	Successful Post, no errors
2 short	Initialization error - serial, parallel, floppy, ROM, or DMA
1 long, 1 short	System Board
1 long, 2 short	Video adapter or video memory failed
1 long, 3 short	Video adapter failed, EGA
None	Power supply or system board
Continuous	Power supply or system board
Repeating short	Power supply or system board

Mylex and Eurosoft BIOS

Beeps	Error Description
1	Always present to indicate start of beep coding
2	Video adapter bad or not detected
3	Keyboard controller error
4	Keyboard error
5	8259 Programmable Interrupt Controller (PIC) 1 Err
6	8259 PIC 2 error
7	DMA page register failure
8	RAM refresh error
9	RAM data test failed
10	RAM parity error occurred
11	8237 DMA controller 2 failed
12	CMOS RAM failure
13	8237 DMA controller 2 failed
14	CMOS RAM battery failure
15	CMOS RAM checksum error
16	BIOS ROM checksum error

Phoenix BIOS

Beeps	Error Description
one/1-1-2	CPU register test in progress
1-3	CMOS write/read test failed
1-4	ROM BIOS checksum bad
2-1	Programmable interval timer failed
2-2	DMA initialization failed
2-3	DMA page register write/read bad
3-1	RAM refresh verification failed
one/1-3-2	Testing first 64K RAM
1-3	First 64K RAM chip or data line fault, multi-bit
1-4	First 64K RAM odd/even logic bad
1-1	Address line bad first 64K RAM
1-2	Parity error detected in first 64K RAM
1-3	EISA fail-safe timer test in progress

1-4-4	EISA s/w NMI port 462 test in progress
2-1-1	Bit 0 fault in first 64K RAM
2-1-2	Bit 1 fault in first 64K RAM
2-1-3	Bit 2 fault in first 64K RAM
2-1-4	Bit 3 fault in first 64K RAM
2-2-1	Bit 4 fault in first 64K RAM
2-2-2	Bit 5 fault in first 64K RAM
2-2-3	Bit 6 fault in first 64K RAM
2-2-4	Bit 7 fault in first 64K RAM
2-3-1	Bit 8 fault in first 64K RAM
2-3-2	Bit 9 fault in first 64K RAM
2-3-3	Bit 10 fault in first 64K RAM
2-3-4	Bit 11 fault in first 64K RAM
2-4-1	Bit 12 fault in first 64K RAM
2-4-2	Bit 13 fault in first 64K RAM
2-4-3	Bit 14 fault in first 64K RAM
2-4-4	Bit 15 fault in first 64K RAM
3-1-1	Slave DMA register bad
3-1-2	Master DMA register bad
3-1-3	Master interrupt mask register bad
3-1-4	Slave interrupt mask register bad
none/3-2-2	Interrupt vector loading in progress
none/3-3-1	Keyboard controller test failed
none/3-3-2	CMOS RAM power bad; calculating checksum
none/3-3-3	CMOS configuration validation in progress
3-3-4	Video memory test failed
3-4-1	Video initialization failed
3-4-2	Video retrace failure
none/3-4-3	Search for video ROM in progress
none	DDNIL bit scan failed
none	Screen operable, running with video ROM
none	Monochrome monitor operable
none	Color monitor (40 column) operable
none	Color monitor (80 column) operable
4-2-1	Timer tick interrupt test in progress or bad
4-2-2	Shutdown test in progress or bad
4-2-3	Gate A20 bad
4-2-4	Unexpected interrupt in protected mode
4-3-1	RAM test in progress or high address line bad
4-3-3	Interval timer channel 2 test or bad
4-3-4	Time-of-Day clock test or bad
4-4-1	Serial port test or bad
4-4-2	Parallel port test or bad
4-4-3	Math coprocessor test or bad
4-4-4	Cache test failure (Dell)
low-1-1-2	System board select bad (MCA only)
low-1-1-3	Extended CMOS RAM bad (MCA only)

Quadtel Bios Beeps

	Error Description
1 beep	POST ran okay and detected no error. System will now boot.
2 beeps	POST detected a configuration error, or a CMOS RAM change since the last time you ran Setup. Check the CMOS battery and rerun Setup.
1 long, 2 short	Faulty video configuration (no or bad video card installed), or bad ROM on a peripheral controller card (address range C0000 through FFFF)
1 long, 3+shorts	Faulty peripheral controller, such as VGA. Usually, the display shows a descriptive message. Check the setup of peripheral controllers.

Tandon Bios Beeps

	Error Description
long-short-long-short	8254 counter timer failure
short-long-short	RAM refresh failure
ong-long-long	System RAM failure
short-short-short	BIOS RAM checksum failure
ong-long	No video adapter is installed
ong-long-long-long	Video adapter failure

IBM XT/AT CLASS ERROR CODES

Code	Description
01x	Undetermined problem errors
02x	Power supply errors
1xx	System board error
101	Interrupt failure
102	Timer failure
103	Timer interrupt failure
104	Protected mode failure
105	Last 8042 command not accepted
106	Converting logic test
107	Hot NMI test
108	Timer bus test
109	Direct memory access test error
121	Unexpected hardware interrupts occurred
131	Cassette wrap test failed
151	System board error: defective battery
162	System Options Error-(Run SETUP) [Battery failure]
162	System options not set correctly-(Run SETUP)
163	Time and date not set-(Run SETUP)
164	Memory size error-(Run SETUP)
199	User indicated configuration not correct
2xx	Memory (RAM) errors
201	Memory test failed
202	Memory address error
203	Memory address error
3xx	Keyboard errors
301	Keyboard did not respond to software reset correctly or a stuck key failure was detected If a stuck key was detected, the scan code for the key is displayed in hexadecimal. For example, the error code 49 301 indicates the key 73, the PgUp key has failed (49 Hex = 1 decimal)
302	User indicated error from the keyboard test or AT system unit keylock is locked
303	Keyboard or system unit error
304	Keyboard or system unit error; CMOS does not match system
4xx	Monochrome monitor errors
401	Monochrome memory test, horizontal sync frequency test, or video test failed
408	User indicated display attributes failure
416	User indicated character set failure
424	User indicated 80X25 mode failure
432	Parallel port test failed (monochrome adapter)
5xx	Color monitor errors
501	Color memory test failed, horizontal sync frequency test, or video test failed
508	User indicated display attribute failure
516	User indicated character set failure
524	User indicated 80X25 mode failure
532	User indicated 40X25 mode failure
540	User indicated 320X200 graphics mode failure
548	User indicated 640X200 graphics mode failure
6xx	Diskette drive errors

IBM XT/AT CLASS ERROR CODES

Code	Description
601	Diskette power on diagnostics test failed
602	Diskette test failed; boot record is not valid
606	Diskette verify function failed
607	Write protected diskette
608	Bad command diskette status returned
610	Diskette initialization failed
611	Time-out - diskette status returned
612	Bad NEC - diskette status returned
613	Bad DMA - diskette status returned
621	Bad seek - diskette status returned
622	Bad CRC - diskette status returned
623	Record not found - diskette status returned
624	Bad address mark - diskette status returned
625	Bad NEC seek - diskette status returned
626	Diskette data compare error
7xx	8087 or 80287 math coprocessor errors
9xx	Parallel printer adapter errors
901	Parallel printer adapter test failed
10xx	Reserved for parallel printer adapter
11xx	Asynchronous communications adapter errors
1101	Async communications adapter test failed
12xx	Alternate asynchronous communications adapter errors
1201	Alternate asynchronous communications adapter test failed
13xx	Game control adapter errors
1301	Game control adapter test failed
1302	Joystick test failed
14xx	Printer errors
1401	Printer test failed
1404	Matrix printer failed
15xx	Synchronous data link control (SDLC) comm adapter errors
1510	8255 port B failure
1511	8255 port A failure
1512	8255 port C failure
1513	8253 timer 1 did not reach terminal count
1514	8253 timer 1 stuck on
1515	8253 timer 0 did not reach terminal count
1516	8253 timer 0 stuck on
1517	8253 timer 2 did not reach terminal count
1518	8253 timer 2 stuck on
1519	8273 port B error
1520	8273 port A error
1521	8273 command/read time-out
1522	Interrupt level 4 failure
1523	Ring Indicate stuck on
1524	Receive clock stuck on
1525	Transmit clock stuck on
1526	Test indicate stuck on
1527	Ring indicate not on
1528	Receive clock not on
1529	Transmit clock not on
1530	Test indicate not on
1531	Data set ready not on

IBM XT/AT CLASS ERROR CODES

Code	Description
1532	Carrier detect not on
1533	Clear to send not on
1534	Data set ready stuck on
1536	Clear to send stuck on
1537	Level 3 interrupt failure
1538	Receive interrupt results error
1539	Wrap data mis-compare
1540	DMA channel 1 error
1541	DMA channel 1 error
1542	Error in 8273 error checking or status reporting
1547	Stray interrupt level 4
1548	Stray interrupt level 3
1549	Interrupt presentation sequence time-out
1549	Display emulation errors (327x, 5520, 525x)
16xx	Fixed disk errors
17xx	Fixed disk POST error
1701	Fixed disk adapter error
1702	Fixed disk drive error
1703	Fixed disk adapter or drive error
1704	Fixed disk 0 failure
1780	Fixed disk 1 failure
1781	Fixed disk controller failure
1782	Fixed disk 0 error
1790	Fixed disk 1 error
1791	I/O expansion unit errors
18xx	I/O expansion unit POST error
1801	Enable/Disable failure
1810	Extender card wrap test failed (disabled)
1811	High order address lines failure (disabled)
1812	Wait state failure (disabled)
1813	Enable/Disable could not be set on
1814	Wait state failure (disabled)
1815	Extender card wrap test failed (enabled)
1816	High order address lines failure (enabled)
1817	Disable not functioning
1818	Wait request switch not set correctly
1819	Receiver card wrap test failure
1820	Receiver high order address lines failure
1821	3270 PC attachment card errors
19xx	Binary synchronous communications (BSC)
20xx	adapter errors
2010	8255 port A failure
2011	8255 port B failure
2012	8255 port C failure
2013	8253 timer 1 did not reach terminal count
2014	8253 timer 1 stuck on
2016	8253 timer 2 did not reach terminal count or timer 2 stuck on
2017	8251 Data set ready failed to come on
2018	8251 Clear to send not sensed
2019	8251 Data set ready stuck on
2020	8251 Clear to send stuck on
2021	8251 hardware reset failed
2022	8251 software reset failed
2023	8251 software "error reset" failed

IBM XT/AT CLASS ERROR CODES

Code	Description
2024	8251 transmit ready did not come on
2025	8251 receive ready did not come on
2026	8251 could not force "overflow" error status
2027	Interrupt failure - no timer interrupt
2027	Interrupt failure - transmit, replace card or planar
2029	Interrupt failure - transmit, replace card
2030	Interrupt failure - receive, replace card or planar
2031	Interrupt failure - receive, replace card
2033	Ring indicate stuck on
2034	Receive clock stuck on
2035	Transmit clock stuck on
2036	Test indicate stuck on
2037	Ring indicate stuck on
2038	Receive clock not on
2039	Transmit clock not on
2040	Test indicate not on
2041	Data set ready not on
2042	Carrier detect not on
2043	Clear to send not on
2044	Data set ready stuck on
2045	Carrier detect stuck on
2046	Clear to send stuck on
2047	Unexpected transmit interrupt
2048	Unexpected receive interrupt
2049	Transmit data did not equal receive data
2050	8251 detected overrun error
2051	Lost data set ready during data wrap
2052	Receive time-out during data wrap
21xx	Alternate binary synchronous communications adapter errors
2110	8255 port A failure
2111	8255 port B failure
2112	8255 port C failure
2113	8253 timer 1 did not reach terminal count
2114	8253 timer 1 stuck on
2115	8253 timer 2 did not reach terminal count or timer 2 stuck on
2116	8251 Data set ready failed to come on
2117	8251 Clear to send not sensed
2118	8251 Data set ready stuck on
2119	8251 Clear to send stuck on
2120	8251 hardware reset failed
2121	8251 software reset failed
2122	8251 software "error reset" failed
2123	8251 transmit ready did not come on
2124	8251 receive ready did not come on
2125	8251 could not force "overflow" error status
2126	Interrupt failure - no timer interrupt
2128	Interrupt failure - transmit, replace card or planar
2129	Interrupt failure - transmit, replace card
2130	Interrupt failure - receive, replace card or planar
2131	Interrupt failure - receive, replace card
2133	Ring indicate stuck on
2134	Receive clock stuck on
2135	Transmit clock stuck on

Code	Description
2136	Test indicate stuck on
2137	Ring indicate stuck on
2138	Receive clock not on
2139	Transmit clock not on
2140	Test indicate not on
2141	Data set ready not on
2142	Carrier detect not on
2143	Clear to send not on
2144	Data set ready stuck on
2145	Carrier detect stuck on
2146	Clear to send stuck on
2147	Unexpected transmit interrupt
2148	Unexpected receive interrupt
2149	Transmit data did not equal receive data
2150	8251 detected overrun error
2151	Lost data set ready during data wrap
2152	Receive time-out during data wrap
22xx	Cluster adapter errors
24xx	Enhanced graphics adapter errors
29xx	Color matrix printer errors
2901	
2902	
2904	
33xx	Compact printer errors

IBM is a registered trademark of the International Business Machines Corporation.

chapter 3

Printer Control Codes

1. Printer Introduction	68
2. Diablo 63 Control Codes (Daisy Wheel) . . .	69
3. Epson FX80 Control Codes (9 Pin)	71
4. Epson LQ860 Control Codes (24 Pin)	75
5. NEC Pinwriter Control Codes (24 Pin)	81
6. HP Laserjet PCL3 Control Codes (Laser) . . .	82
7. HP Laserjet PCL5 Control Codes (Laser) . . .	87
8. HP-GL Graphics Language (Plotters)	97
9. IBM Proprinter Control Codes (9 Pin)	102

Printer Control Codes

Since the PC boom started, there have been more than a thousand different printer makes and models released. With each new generation of printer, more and more bells and whistles have been introduced. All of a printer's functions can normally be accessed through a set of decimal or hex control codes and this chapter has been designed to provide the reader with some of the more standardized control code sets. "Standardized" simply means that the particular printer listed in this chapter has codes that are also used by other manufacturers, for example, the Panasonic 2124, 24 pin, dot matrix printer, can be configured to use either Epson LQ860 codes or IBM Proprinter X24E codes.

Please note that your particular printer may have additional, specialized codes which are unique to your printer and are not included in the standardized set. If in doubt, always refer to the printer manual that came with your printer.

Some control codes included in this chapter have been drastically simplified, particularly in the "Graphics" sections. Simplified sections are noted and you are told to refer to the manual that came with your printer for more details.

Sequoia welcomes your suggestions concerning the inclusion of other "Standardized" code sets in future editions of Pocket PCRes

DIABLO 630 PRINTER CODES

Code	Hex	Decimal	Command
Page Format Control:			
ESC 9	1B 39	27 57	Set left margin at current position
ESC Ø	1B 30	27 48	Set right margin at current position
ESC T	1B 54	27 84	Set top margin at current position
ESC L	1B 4C	27 76	Set bottom margin at current position.
ESC C	1B 43	27 67	Clear top and bottom margins
ESC FF #	1B ØC #	27 12 #	Set lines/page, # is 1 to 126 lines
Horizontal Movement and Spacing Control:			
CR	ØD	13	Carriage return
ESC M	1B 4D	27 77	Enable auto justify
ESC =	1B 3D	27 61	Enable auto center
ESC ?	1B 3F	27 63	Enable auto carriage return
ESC !	1B 21	27 33	Disable auto carriage return
ESC /	1B 2F	27 47	Enable auto backward printing
ESC \	1B 5C	27 92	Disable auto backward printing
ESC <	1B 3C	27 60	Enable reverse printing
ESC >	1B 3E	27 62	Disable reverse printing
ESC 5	1B 35	27 53	Enable forward printing
ESC 6	1B 36	27 54	Enable backward printing
?	20	32	Space
Ø	Ø8	Ø8	Backspace
ESC BS	1B Ø8	27 Ø8	Backspace 1/120 inch
Ø	Ø9	Ø9	Horizontal tab
ESC HT #	1B Ø9 #	27 Ø9 #	Absolute horizontal tab, # is column 1 to 126
ESC DC1 #	1B 11 #	27 17 #	Spacing offset, # is 1 to 126 (1/120" units), where #1 = offset 1 to # 63 = offset 63, # 64 = offset Ø, # 65 = offset -1 to # 126 = offset -62
Ø 1	1B 31	27 49	Set horizontal tab stop at current position
Ø 8	1B 38	27 56	Clear horizontal tab at current position

DIABLO 630 PRINTER CODES

Code	Hex	Decimal	Command
Horizontal Movement and Spacing Control: (Continued)			
ESC 2	1B 32	27 50	Clear all vertical and horizontal tab stops
ESC US #	1B 1F #	27 31 #	Set horizontal motion in # is 1 to 126, where (#-1)/120 inch is the column spacing.
ESC S	1B 53	27 83	Return HMI control to spacing switch

Vertical Movement and Spacing Control:

LF	0A	10	Line feed
ESC LF	1B 0A	27 10	Reverse line feed
ESC U	1B 55	27 85	Half line feed
ESC D	1B 44	27 68	Reverse half line feed
FF	0C	12	Form feed
VT	0B	11	Vertical tab
ESC VT #	1B 0B #	27 11 #	Absolute vertical tab, # is 1 to 126
ESC _	1B 2D	27 45	Set vertical tab stop at current position
ESC 2	1B 32	27 50	Clear all vertical and horizontal tab stops
ESC RS #	1B 1E #	27 30 #	Set vertical motion in # is 1 to 126, where (#-1) inch is the line spacing.

Character Selection:

ESC P	1B 50	27 80	Enable proportional print spacing
ESC Q	1B 51	27 81	Disable proportional print spacing
ESC SO DC2	1B 0E 12	27 14 18	Enable printwheel down load mode
DC4	14	28	Exit printwheel down load mode
SO	0E	14	Enable ESC mode, supplementary characters
SI	0F	15	Disable ESC mode, primary characters
ESC A	1B 41	27 65	Select red ribbon (secondary font)
ESC B	1B 42	27 66	Select black ribbon (primary font)
ESC X	1B 58	27 88	Cancel all WP mode except Proportional

DIABLO 630 PRINTER CODES

Code	Hex	Decimal	Command
Character Selection: (Continued)			
ESC Y	1B 59	27 89	Printwheel Spoke 0 char.
ESC Z	1B 5A	27 90	Printwheel Spoke 95 char.
Character Highlight Selection:			
ESC E	1B 45	27 69	Enable underscore print
ESC R	1B 52	27 82	Disable underscore print
ESC O	1B 4F	27 79	Enable bold printing
ESC W	1B 57	27 87	Enable shadow printing
ESC &	1B 26	27 38	Disable bold and shadow printing

Graphics:

ESC 3	1B 33	27 51	Enable graphics mode
ESC 4	1B 34	27 52	Disable graphics mode
ESC G	1B 47	27 71	Enable HyPLOT mode

Miscellaneous:

ESC CR P	1B 0D 50	27 13 80	Reset all modes to default
ESC SUB I	1B 1A 49	27 27 73	Reset all modes to default
ESC EM	1B 19	27 25	Enable auto sheet feeder
ESC SUB	1B 1A	27 26	Enable remote diagnostics
ESC N	1B 4E	27 78	Restore normal carriage settling time
ESC %	1B 25	27 37	Increase carriage settling time
ESC 7	1B 37	27 55	Enable print suppression
ESC SO M	1B 0E 4D	27 14 77	Enable program mode

PERSON FX-80 PRINTER CODES (9 PIN)

Code	Hex	Decimal	Command
Page Format Control:			
CL #	1B 6C #	27 108 #	Set Left Margin at Col #
CQ #	1B 51 #	27 81 #	Set Right Margin at Col #
CC #	1B 43 #	27 67 #	Set Form Length to # Lines (or n inches)
CC 0 #	1B 43 00 #	27 67 00 #	Set Form Length to # inches
CN #	1B 4E #	27 78 #	Set Skip-over Perforation to # lines
CO	1B 4F	27 79	Turn Skip-over Perforation Off

EPSON FX-80 PRINTER CODES (9 PIN)

Code	Hex	Decimal	Command
Horizontal Movement and Spacing Control:			
CR	0D	13	Carriage return
BS	08	08	Backspace
HT	09	09	Horizontal tab
ESC a 0	1B 61 00	27 97 0	Alignment Left Justified
ESC a 1	1B 61 01	27 97 1	Alignment Auto Center
ESC a 2	1B 61 02	27 97 2	Alignment Right Justified
ESC a 3	1B 61 03	27 97 3	Alignment Auto Justified
ESC D # 0	1B 44 # 0	27 68 # 00	Set Horizontal Tab(s), # can be 1 or a series of
ESC D 0	1B 44 0	27 68 00	Release Horizontal Tab
ESC e 0 #	1B 44 0 #	27 68 00 #	Set Horizontal Unit Tab

ESC e 00	1B 44 00	27 68 00 00	Release Horiz Tab
ESC t 0 #	1B 66 00 #	27 102 0 #	Move print position # of
ESC \ 1#2	1B 5C #1#2	27 92 #1#2	Move print position in increments of 1/120 in
ESC \$ #1#2	1B 24 #1#2	27 36 #1#2	Move print position in increments from margin
ESC SP #	1B 20 #	27 32 #	Add space after each character in units of 1/120 inch where # is from 1 to 255
ESC <	1B 3C	27 60	One Line Unidirectional Printing Mode On
ESC U	1B 55	27 85	Select Continuous Print Unidirectional Mode

Vertical Movement and Spacing Control:

LF	0A	10	Line feed
ESC j #	1B 6A #	27 106 #	Reverse Line Feed of #/216 Inch
ESC J #	1B 4A #	27 74 #	Forward Line Feed of #/216 inches
ESC f 1 #	1B 66 01 #	27 102 1 #	Forward Line Feed # of Form feed
FF	0C	12	Form feed
ESC 0	1B 30	27 48	Set Line Spacing to 6 (9 points or 8 lpi)
ESC 1	1B 31	27 49	Set Line Spacing to 7 (7 points)
ESC 2	1B 32	27 50	Set Line Spacing to 12 (12 points, 6 lpi)
ESC 3 #	1B 33 #	27 51 #	Set Line Spacing to #

EPSON FX-80 PRINTER CODES (9 PIN)

Code	Hex	Decimal	Command
Vertical Movement and Spacing Control: (Continued)			
ESC A #	1B 41 #	27 65 #	Set Line Spacing to # Points (#/72 inch)
VT	0B	11	Vertical tab
ESC b #1#2#3 0	1B 62 #1#2#3 00	27 98 #1#2#3 0	Set Vertical Tabs Format Units in Specific Channel, see the manual for details
ESC b #1 0	1B 62 #1 00	27 98 #1 0	Release Vertical Tab Format Unit
ESC / #	1B 2F #	27 47 #	Select Vertical Tab Channel #
ESC B #1#20	1B 42 #1#2 0	27 66 #1 #2 0	Set Vertical Tabs for Channel #1, #2 etc
ESC B 0	1B 42 0	27 66 0	Release Vertical Tabs for Channels
ESC e 1 #	1B 65 01 #	27 101 1 #	Set Vertical Tab Unit at # of equal space intervals
ESC e 1 1	1B 65 01 01	27 101 1 1	Release Vertical Tab Unit of equal space intervals

Character Selection:

ESC i 1	1B 49 01	27 73 1	Select Characters (0-31, 128-159) to Print
ESC i 0	1B 49 00	27 73 0	Disable Characters (0-31, 128-159) from Printing
ESC M	1B 4D	27 77	Enable Elite Pitch Mode
ESC P	1B 50	27 80	Enable Pica Pitch Mode
ESC o	1B 6F	27 111	Enable Elite Pitch Mode
ESC n	1B 6E	27 110	Enable Pica Pitch Mode
ESC w #	1B 77 #	27 119 #	Direct Pitch Selection, #=0 is 10cpi, #=1 is 12cpi, #=2 is 15cpi, #=3 is 17cpi, #=4 is proport.
ESC p 1	1B 70 01	27 112 1	Select Proportional Spacing
ESC p 0	1B 70 00	27 112 0	Release Proportional Spacing
ESC W 1	1B 57 01	27 87 1	Select Expanded Pitch
ESC W 0	1B 57 00	27 87 0	Release Expanded Pitch
ESC or	0E	14	Enable 1-line Expanded Print Mode
ESC SO	14	28	Disable one-line Expanded Print Mode
ESC SI	0F	15	Enable Compressed Print
ESC :	12	18	Disable Compressed Print
ESC ;	1B 3A	27 58	Duplicate Internal Font

EPSON FX-80 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
Character Selection: (Continued)			
ESC ! #	1B 21 #	27 33 #	Print Mode Selection, determines mode, #=128 is underline, #=64 is italic, #=32 is double wide, #=16 is double strike, #=8 is bold, #=4 is compressed, #=2 is proportional, #=1 is Elite, #=0 is Pica. Add numbers for multiples, eg, 129 is Underlined Elite
ESC %	1B 25	27 37	Select Character Set
ESC &	1B 26	27 38	Define User Font
ESC 6	1B 36	27 54	Enable printing High Symbols (Dec128-De
ESC 7	1B 37	27 55	Disable printing High Symbols (Dec128-De
ESC 4	1B 34	27 52	Enable Italics printing
ESC 5	1B 35	27 53	Disable Italics printing
ESC R #	1B 52 #	27 82 #	Select International Character Set, #=0 is US, France, 2 is Germany, England, 4 is Denmark, 5 is Sweden, 6 is Italy, Spain, 8 is Japan, 9 is Norway, 10 is Denmark
ESC S 1	1B 53 01	27 83 1	Select Subscripting
ESC S 0	1B 53 00	27 83 0	Select Superscripting
ESC T	1B 54	27 84	Release Super or Subscripting

Character Highlight Selection:

ESC - 1	1B 2D 01	27 45 1	Turn underline mode
ESC - 0	1B 2D 00	27 45 0	Turn underline mode
ESC E	1B 45	27 69	Enable Bold Print Mode
ESC F	1B 46	27 70	Disable Bold Print Mode
ESC G	1B 47	27 71	Enable Double-strike
ESC H	1B 48	27 72	Disable Double-strike

Graphics:

For values for #1 and #2 below, see printer manuals

ESC K #1#2	1B 4B #1#2	27 75 #1#2	Enable Single-density Graphics Mode, 60
ESC L #1#2	1B 4C #1#2	27 76 #1#2	Enable Double-density Graphics Mode, 120
ESC Y #1#2	1B 59 #1#2	27 89 #1#2	Enable Double-density 120 dpi, High-speed Graphics Mode

EPSON FX-80 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
Graphics: (Continued)			
ESC Z #1#2	1B 5A #1#2	27 90 #1#2	Enable Quadruple-density Graphics Mode, 240 dpi
ESC * #1#2#3	1B 2A #1#2#3	27 42 #1#2#3	Set Graphics Mode
ESC ^ #1#2#3	1B 5E #1 #2 #3	27 94 #1#2#3	9 pin Graphics Mode
ESC ? #1#2	1B 3F #1#2	27 63 #1#2	Bit Image Mode Reassignment
Miscellaneous:			
ESC 18	18	24	Cancel
ESC 11	11	17	Remote Printer Select
ESC 13	13	19	Remote Printer Deselect
ESC 7F	7F	127	Delete
ESC 1B 40	1B 40	27 64	Master Reset
ESC #	1B 23	27 35	Read Bit 7 of Received Word Normally
ESC =	1B 3D	27 61	Set Received Bit 7 to 0
ESC 1B 3E	1B 3E	27 62	Set Received Bit 7 to 1
ESC >	1B 38	27 56	Out of Paper Sensor Off
ESC 8	1B 39	27 57	Out of Paper Sensor On
ESC 9	1B 69	27 105	Enable Immediate Printing
ESC i	1B 73	27 115	Half Speed Printing
ESC s 1	1B 73 01	27 115 1	Sets Half Speed Printing
ESC s 0	1B 73 00	27 115 0	Releases Half Speed Printing
ESC EM #	1B 19 #	27 25 #	Paper Cassette Selection, #=E is envelope, #=1 is Lower Cassette, #=2 is Upper Cassette, #=R is eject page

EPSON LQ860 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
Format Control:			
ESC 1 #	1B 6C #	27 108 #	Set Left Margin at Col #
ESC Q #	1B 51 #	27 81 #	Set Right Margin at Col #
ESC C #	1B 43 #	27 67 #	Set Form Length to # Lines (or n inches)
ESC O #	1B 43 00 #	27 67 00 #	Set Form Length to # inches

EPSON LQ860 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
Page Format Control: (Continued)			
ESC N #	1B 4E #	27 78 #	Set Skip-over Perforation to # lines
ESC O	1B 4F	27 79	Turn Skip-over Perforation Off
Horizontal Movement and Spacing Control:			
CR	0D	13	Carriage return
BS	08	08	Backspace
HT	09	09	Horizontal tab
ESC a 0	1B 61 00	1B 61 0	Alignment Left Justification
ESC a 1	1B 61 01	1B 61 1	Alignment Auto Center
ESC a 2	1B 61 02	1B 61 2	Alignment Right Justification
ESC a 3	1B 61 03	1B 61 3	Alignment Auto Justification
ESC D # 0	1B 44 # 0	27 68 # 00	Set Horizontal Tab(s) can be 1 or a series of
ESC D 0	1B 44 0	27 68 00	Release Horizontal Tab
ESC e 0 #	1B 44 0 #	27 68 00 #	Set Horizontal Unit Tab # is repeating Tab distance in columns
ESC e 0 0	1B 44 00	27 68 00 00	Release Horizontal Tab
ESC f 0 #	1B 66 00 #	27 102 0 #	Move print position in 1/20 inch increments
ESC \ #1#2	1B 5C #1#2	27 92 #1#2	Move print position in 1/20 inch increments
ESC \$ #1#2	1B 24 #1#2	27 36 #1#2	Move print position in 1/60 inch increments
ESC SP #	1B 20 #	27 32 #	Add space after each character in units of 1/20 inch where # is from 1 to 15
ESC <	1B 3C	27 60	One Line Unidirectional Printing Mode On
ESC U	1B 55	27 85	Select Continuous Printing Unidirectional Mode
ESC U 0	1B 55 00	27 85 0	Releases unidirectional mode
ESC U 1	1B 55 01	27 85 1	Sets unidirectional printing mode

Vertical Movement and Spacing Control:

LF	0A	10	Line feed
ESC j #	1B 6A #	27 106 #	Reverse Line Feed (0=#/216 Inch)
ESC J #	1B 4A #	27 74 #	Forward Line Feed (0=#/216 inches)
ESC f 1 #	1B 66 01 #	27 102 1 #	Forward Line Feed (0=#/216 inches)

EPSON LQ860 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
Vertical Movement and Spacing Control: (Continued)			
FF	0C	12	Form feed
ESC 0	1B 30	27 48	Set Line Spacing to 1/8" (9 points or 8 lpi)
ESC 1	1B 31	27 49	Set Line Spacing to 7/72" (7 points)
ESC 2	1B 32	27 50	Set Line Spacing to 1/6" (12 points, 6 lpi)
ESC 3 #	1B 33 #	27 51 #	Set Line Spacing to #/216"
ESC A #	1B 41 #	27 65 #	Set Line Spacing to # Points (#/72 inch)
ESC + #	1B 2B	27 43	Sets paper feed to #/360 inch
ESC b #1#2#3 0	1B 62 #1#2#3 00	27 98 #1#2#3 0	Set Vertical Tabs Format Units in Specific Channel, see the manual for details
ESC b #1 0	1B 62 #1 00	27 98 #1 0	Release Vertical Tab Format Unit
ESC / #	1B 2F #	27 47 #	Select Vertical Tab Channel #
ESC B #1#20	1B 42 #1#2 0	27 66 #1 #2 0	Set Vertical Tabs for Channel #1, #2 etc
ESC B 0	1B 42 0	27 66 0	Release Vertical Tabs for Channels
ESC e 1 #	1B 65 01 #	27 101 1 #	Set Vertical Tab Unit at # of equal space intervals
ESC e 1 1	1B 65 01 01	27 101 1 1	Release Vertical Tab Unit of equal space intervals
Character Selection:			
ESC i 1	1B 49 01	27 73 1	Select Characters (0-31, 128-159) to Print
ESC i 0	1B 49 00	27 73 0	Disable Characters (0-31, 128-159) from Printing
ESC M	1B 4D	27 77	Enable Elite Pitch Mode
ESC P	1B 50	27 80	Enable Pica Pitch Mode
ESC o	1B 6F	27 111	Enable Elite Pitch Mode
ESC n	1B 6E	27 110	Enable Pica Pitch Mode
ESC w #	1B 77 #	27 119 #	Direct Pitch Selection, #=0 is 10cpi, #=1 is 12cpi, #=2 is 15cpi, #=3 is 17cpi, #=4 is proport.
ESC p 1	1B 70 01	27 112 1	Select Proportional Spacing
ESC p 0	1B 70 00	27 112 0	Release Proportional Spacing

EPSON LQ860 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
Character Selection: (Continued)			
ESC W 1	1B 57 01	27 87 1	Select Expanded Pitch
ESC W 0	1B 57 00	27 87 0	Release Expanded Pitch
ESC SO or	0E	14	Enable 1-line Expanded Print Mode
ESC SO			Print Mode
DC4	14	28	Disable one-line Expanded Print Mode
SI or ESC SI	0F	15	Enable Compressed Font
DC2	12	18	Disable Compressed Font
ESC :	1B 3A	27 58	Duplicate Internal Font
ESC : 0 # 0	1B 3A 00	27 58	Copies internal ROM font into download CG
ESC ! #	1B 21 #	27 33 #	Print Mode Selection, determines mode, #=0 is underline, #=64 is italic, #=32 is double wide, #=8 is double strike, #=4 is compressed, #=1 is proportional, #=1 is Pica. Add number for multiples, eg. 129 Underlined Elite
ESC %	1B 25	27 37	Select Character Set
ESC % 0	1B 25	27 37	Selects ROM CG
ESC % 1	1B 25	27 37	Selects download CG
ESC &	1B 26	27 38	Define User Font
ESC 6	1B 36	27 54	Enable printing High Symbols (Dec128-D127)
ESC 7	1B 37	27 55	Disable printing High Symbols (Dec128-D127)
ESC 4	1B 34	27 52	Enable Italics printing
ESC 5	1B 35	27 53	Disable Italics printing
ESC R #	1B 52 #	27 82 #	Select International Character Set, #=0 is US, #=1 is France, 2 is Germany, 3 is England, 4 is Denmark, 5 is Sweden, 6 is Italy, 7 is Spain, 8 is Japan, 9 is Norway, 10 is Denmark
ESC S 1	1B 53 01	27 83 1	Select Subscripting
ESC S 0	1B 53 00	27 83 0	Select Superscripting
ESC T	1B 54	27 84	Release Super or Subscripting

EPSON LQ860 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
Character Selection: (Continued)			
ESC 1 #	1B 74	27 116	Selects character set, #=0 is italic set, #=1 is Graphic set, #=2 remaps downloaded characters from 0-127 to 128-255
ESC 9	1B 67	27 103	Sets micron (15 cpi) printing
ESC x #	1B 78	27 120	Selects print quality, #=0 is Draft mode, #=1 is LQ mode, #2 is SLQ mode. Selects print typeface (NOTE: these may vary between printers.)
ESC k #	1B 6B	27 107	#=0 is Roman, #=1 is Sans Serif, #=2 is Courier, #=3 is Prestige, #=4 is Script, #=5 is OCR-B, #=6 is Bold PS, #=7 is Orator
Character Highlight Selection:			
ESC - 1	1B 2D 01	27 45 1	Turn underline mode on
ESC - 0	1B 2D 00	27 45 0	Turn underline mode off
ESC E	1B 45	27 69	Enable Bold Print Mode
ESC F	1B 46	27 70	Disable Bold Print Mode
ESC G	1B 47	27 71	Enable Double-strike
ESC H	1B 48	27 72	Disable Double-strike
ESC w 1	1B 77 01	27 119 1	Sets Double-High Printing
ESC w 0	1B 77 00	27 119 0	Releases Double-High Printing
ESC q #	1B 71	27 113	Sets Outline & Shadow Printing
Graphics:			
For values for #1 and #2 below, see printer manuals			
ESC K #1 #2	1B 4B #1 #2	27 75 #1 #2	Enable Single-density Graphics Mode, 60 dpi
ESC L #1 #2	1B 4C #1 #2	27 76 #1 #2	Enable Double-density Graphics Mode, 120 dpi
ESC Y #1 #2	1B 59 #1 #2	27 89 #1 #2	Enable Double-density, 120 dpi, High-speed Graphics Mode

EPSON LQ860 PRINTER CODES (24 PIN)

Code	Hex	Decimal	Command
ESC Z #1#2	1B 5A #1#2	27 90 #1#2	Enable Quadruple-density Graphics Mode 240 dpi
ESC ★ #1#2#3	1B 2A #1#2#3	27 42 #1#2#3	Set Graphics Mode 9 pin
ESC ^ #1#2#3	1B 5E #1 #2 #3	27 94 #1#2#3	Graphics Mode
ESC ? #1#2	1B 3F #1#2	27 63 #1#2	Bit Image Mode Reassignment
Miscellaneous:			
CAN	18	24	Cancel
DC1	11	17	Remote Printer Select
DC3	13	19	Remote Printer Deselect
DEL	7F	127	Delete
ESC @	1B 40	27 64	Master Reset
ESC "#	1B 23	27 35	Set to receive Bit 8 as
ESC =	1B 3D	27 61	Set Received Bit 7 to
ESC >	1B 3E	27 62	Set Received Bit 7 to
ESC 8	1B 38	27 56	Out of Paper Sensor
ESC 9	1B 39	27 57	Out of Paper Sensor
ESC i	1B 69	27 105	Enable Immediate Print
ESC s	1B 73	27 115	Half Speed Printing
ESC EM #	1B 19 #	27 25 #	Paper Cassette Select #=# is envelope, #=# Lower Cassette, #=# Upper Cassette, #=# eject page Sounds the buzzer for approx. 0.5 seconds Selects print color (Note: may vary between printers) #=# is Black #=# is Red #=# is Blue #=# is Violet #=# is Yellow #=# is Orange #=# is Green

BEL	07	7	
ESC r #	1B 72	27 114	

NEC PINWRITER PRINTER CODES

Code	Hex	Decimal	Command
NEC Pinwriters use most of the same codes as the Epson LQ1500, except for the following FS Codes:			
FS 3 #	1C 33 #	28 51 #	Line space 0-255 #/360
FS C #	1C 43 #	28 67 #	Set Font Cartridge, #=# is resident font, #=# is slot 1, #=# is slot 2 0=Cancel horiz enlarge., 1=2X horiz enlargement, 2=3X horiz enlargement Release Enhanced Print 0=Italic Set, 1=IBM Set Set Reverse Line Feed 0=Draft 12, 1=high speed Set double vertical enlarge Release double vertical enlargement
FS E #	1C 45 #	28 69 #	
FS F	1C 46	28 70	
FS I #	1C 49 #	28 73 #	
FS R	1C 52	28 82	
FS S #	1C 53 #	28 83 #	
FS V 1	1C 56 31	28 86 49	
FS V 0	1C 56 30	28 86 48	
FS Z #1 #2	1C 60 #1 #2	28 90 #1 #2	Set 360 dpi graphics
FS @	1C 40	28 64	Initialize except user buffer

HP LASERJET PCL3 CODES

Code	Hex	Decimal	Command
Page Format Control:			
ESC & I O	1B 26 6C 30 4F	27 38 108 48 79	Portrait Orientation
ESC & I 1	1B 26 6C 31 4F	27 38 108 49 79	Landscape Orientation
ESC & I #P	1B 26 6C # 50	27 38 108 # 80	Page length, # of lines
ESC & I #E	1B 26 6C # 45	27 38 108 # 69	Top Margin, # of lines
ESC & I #F	1B 26 6C # 46	27 38 108 # 70	Text Length, # of lines
ESC & I 1L	1B 26 6C 31 4C	27 38 108 49 76	Skip Perforation
ESC & I 0L	1B 26 6C 30 4C	27 38 108 48 76	Skip Perforation
ESC & I #D	1B 26 6C # 44	27 38 108 # 68	Lines Per Inch, # of lines/inch
ESC & I #C	1B 26 6C # 43	27 38 108 # 67	Vertical Motion, # of 1/48 inch
ESC & k #H	1B 26 6B # 48	27 38 107 # 72	Horizontal Motion, # of 1/12 inch
ESC & a #L	1B 26 61 # 4C	27 38 97 # 76	Left Margin, Left column
ESC & a #M	1B 26 61 # 4D	27 38 97 # 77	Right Margin, Right column
ESC 9	1B 39	27 57	Clear Margin
Horizontal Movement and Spacing Control:			
BS	08	8	Backspace
CR	0D	13	Carriage Return
ESC & k # G	1B 26 6B # 47	27 38 107 # 71	CR/LF/FF Line Termination
Line Termination Action			
#	CR	LF	FF
0	CR	LF	FF
1	CR+LF	LF	FF
2	CR	CR+LF	CR+FF
3	CR+LF	CR+LF	CR+FF
ESC & s 0 C	1B 26 73 30 43	27 38 115 48 67	Set Wrap Around
ESC & s 1 C	1B 26 73 31 43	27 38 115 49 67	Release Wrap Around
ESC & a # C	1B 26 61 # 43	27 38 97 # 67	Move Print Position to Column
ESC & a # H	1B 26 61 # 48	27 38 97 # 72	Move Print Position Horizontal # of Decipoints
ESC * p # X	1B 2A 70 # 58	27 42 112 # 88	Move Print Position Horizontal # of Dots

HP LASERJET PCL3 CODES

Code	Hex	Decimal	Command
Vertical Movement and Spacing Control:			
LF	0A	10	Line Feed
FF	0C	12	Formfeed
ESC =	1B 3D	27 61	Half Line Feed
ESC & a # R	1B 26 61 # 52	27 38 97 # 82	Move Print Position to Row #
ESC & a # V	1B 26 61 # 56	27 38 97 # 86	Move Print Position Vertical # of Decipoints
ESC * p # Y	1B 2A 70 # 59	27 42 112 # 89	Move Print Position Vertical # of Dots
Character Selection:			
ESC (# X	1B 28 # 58	27 40 # 88	Symbol Set, Primary, # is Character ID
ESC) # X	1B 29 # 58	27 41 # 88	Symbol Set, Secondary, # is Character ID
Character ID's:			
		Roman-8bit = 8U	Kana-8bit = 8K,
		Math-8bit = 8M	ANSI-8bit = 9U
		USASCII = 0U	Line Draw = 0B
		Math Symbols = 0A	US Legal = 1U
		Roman Ext = 0E	ISO Denmark = 0D
		ISO Italy = 0I	ISO United Kingdom = 1E
		ISO France = 0F	ISO Germany = 0G
		ISO Sweden = 0S	ISO Spain = 1S
ESC (s 0 P	1B 28 73 30 50	27 40 115 48 80	Spacing, Primary Fixed
ESC (s 1 P	1B 28 73 31 50	27 40 115 49 80	Spacing, Primary Proportional
ESC) s 0 P	1B 29 73 30 50	27 41 115 48 80	Spacing, Secondary Fixed
ESC) s 1 P	1B 29 73 31 50	27 41 115 49 80	Spacing, Secondary Proportional
ESC (s # H	1B 28 73 # 48	27 40 115 # 72	Print Pitch, Primary, # is characters/inch
ESC) s # H	1B 29 73 # 48	27 41 115 # 72	Print Pitch, Secondary, # is characters/inch
ESC & k # S	1B 26 6B # 53	27 38 107 # 83	Print Pitch, Prim. & Secondary, # = 0 is 10 cpi, # = 1 is 16.66 cpi

HP LASERJET PCL3 CODES

Code	Hex	Decimal	Command
ESC (s # V	1B 28 73 # 56	27 40 115 # 86	Print Point Size
ESC) s # V	1B 29 73 # 56	27 41 115 # 86	Primary, # is
ESC (s Ø S	1B 28 73 3Ø 53	27 40 115 48 83	Secondary, # is
ESC (s l S	1B 28 73 31 53	27 40 115 49 83	Print Style, # is
ESC) s Ø S	1B 29 73 3Ø 53	27 41 115 48 83	Primary, # is
ESC (s l S	1B 29 73 31 53	27 41 115 49 83	Print Style, # is
ESC (s # B	1B 28 73 # 42	27 40 115 # 66	Stroke Weight, # is
ESC) s # B	1B 29 73 # 42	27 41 115 # 66	Primary, # is
			Stroke Weight, # is
			Secondary, # is
			-7 to +7
			-1 to -7=light
			Ø =Medium
			1 to 7 =Bold
ESC (s # T	1B 28 73 # 54	27 40 115 # 84	Typeface, # is
ESC) s # T	1B 29 73 # 54	27 41 115 # 84	Typeface, # is
Typeface ID's:			
	Ø=Line printer	6=Gothic	
	1=Pica	7=Script	
	2=Elite	8=Prestige	
	3=Courier	9=Caslon	
	4=Swiss 721	1Ø=Orator	
	5=Dutch	23=Century 7Ø	
Font Control:			
SI	ØF	15	Shift In Print
SO	ØE	14	Shift In Secondary
ESC (# X	1B 28 # 58	27 40 # 88	Define Font, # is Font ID
ESC) # X	1B 29 # 58	27 41 # 88	Define Font, # is Font ID
ESC *c # F	1B 2A 63 # 46	27 42 99 # 7Ø	Font/Character Control, see printer manual
ESC (# @	1B 28 # 4Ø	27 40 # 64	Primary Font, see printer

HP LASERJET PCL3 CODES

Code	Hex	Decimal	Command
Font Control: (Continued)			
ESC) # @	1B 29 # 4Ø	27 41 # 64	Secondary Font, see printer manual
ESC *c # D	1B 2A 63 # 44	27 42 99 # 68	Define Font ID, # is the ID
ESC) s # W	1B 29 73 # 57	27 41 115 # 87	Font Header, # is byte number of font attribute
ESC *c # E	1B 2A 63 # 45	27 42 99 # 69	Define Character Code to download, # is Ø to 255
ESC (s # W	1B 28 73 # 57	27 40 115 # 87	Produce Download Character, see printer manual
Character Highlight Selection:			
ESC & d D	1B 26 64 44	27 38 1ØØ 68	Turn underline on
ESC & d @	1B 26 64 4Ø	27 38 1ØØ 64	Turn underline off
Graphics:			
ESC *t # R	1B 2A 74 # 52	27 42 116 # 82	Resolution, # is 75, 1ØØ, 15Ø, or 3ØØ Dots/inch
ESC *r # A	1B 2A 72 # 41	27 42 114 # 65	Graphics Start, #=Ø is start vertical from left end of print area, #=1 is start from present position.
C * b # W	1B 2A 62 # 57	27 42 98 # 87	Sending Graphics data, # is number of bytes of bit image data.
C * r B	1B 2A 72 42	27 42 114 66	End Raster
C * c # A	1B 2A 63 # 41	27 42 99 # 65	Graphics Mode Set Horizontal Rule Width to # dots (1 dot=1/3ØØ inch)
C * c # H	1B 2A 63 # 48	27 42 99 # 72	Set Horizontal Rule Width to # decipoints (1 decipoint=1/72Ø inch)
C * c # B	1B 2A 63 # 42	27 42 99 # 66	Set Vertical Rule Width to # dots (1 dot=1/3ØØ inch)

HP LASERJET PCL3 CODES

Code	Hex	Decimal	Command
------	-----	---------	---------

Graphics: (Continued)

ESC *c # V	1B 2A 63 # 56	27 42 99 # 86	Set Vertical Resolution Width to # dec points (1 dec = 1/720 inch)
ESC *c # G	1B 2A 63 # 47	27 42 99 # 71	Set Gray Scale Hatch Pattern see printer manual for a sample of pattern/hatch its associated Set Print Pattern
ESC *c # P	1B 2A 63 # 50	27 42 99 # 80	

Macro's:

ESC &f # Y	1B 26 66 # 59	27 38 102 # 89	Set Macro ID
ESC &f # Q X	1B 26 66 30 58	27 38 102 48 88	Start Macro
ESC &f # 1 X	1B 26 66 31 58	27 38 102 49 88	End Macro
ESC &f # 2 X	1B 26 66 32 58	27 38 102 50 88	Jump to Macro
ESC &f # 3 X	1B 26 66 33 58	27 38 102 51 88	Call Macro
ESC &f # 4 X	1B 26 66 34 58	27 38 102 52 88	Set Overlay
ESC &f # 5 X	1B 26 66 35 58	27 38 102 53 88	Release Overlay
ESC &f # 6 X	1B 26 66 36 58	27 38 102 54 88	Release all
ESC &f # 7 X	1B 26 66 37 58	27 38 102 55 88	Release all
ESC &f # 8 X	1B 26 66 38 58	27 38 102 56 88	Release all
ESC &f # 9 X	1B 26 66 39 58	27 38 102 57 88	Release all
ESC &f # 10 X	1B 26 66 31 30 58	27 38 102 49 88	Assign temporary

Miscellaneous:

ESC Y	1B 59	27 89	Set Display
ESC Z	1B 5A	27 90	of control
ESC & p # X	1B 26 70 # 58	27 38 112 # 88	Release Display
ESC &f # 0 S	1B 26 66 30 53	27 38 102 48 83	Function of

HP LASERJET PCL3 CODES

Code	Hex	Decimal	Command
------	-----	---------	---------

Miscellaneous: (Continued)

ESC &f # 1 S	1B 26 66 31 53	27 38 102 49 83	position on the top of the stack Pop Printing Position. Recall stored printing position and put on the top of the stack
ESC &f # X	1B 26 6C # 58	27 38 108 # 88	Set Number of Copies to #
ESC &f # H	1B 26 6C # 48	27 38 108 # 72	Paper Input Control.

#=0 is Feed out current page

#=1 is Lower Cassette supplies paper

#=3 is Envelope feeder supplies envelope

#=4 is Upper Cassette supplies paper

ESC E	1B 45	27 69	Reset Printer
ESC Z	1B 7A	27 122	Start Printer Self Test

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
------	-----	---------	---------

Page Format Control:

ESC &f # 100	1B 26 6C 30 4F	27 38 108 48 79	Portrait Orient.
ESC &f # 120	1B 26 6C 32 4F	27 38 108 50 79	Reverse Portrait
ESC &f # 110	1B 26 6C 31 4F	27 38 108 49 79	Landscape Orient.
ESC &f # 130	1B 26 6C 33 4F	27 38 108 51 79	Reverse Landscape
ESC &f # P	1B 26 6C # 50	27 38 108 # 80	Page length, # of lines
ESC &f # E	1B 26 6C # 45	27 38 108 # 69	Top Margin, # of lines
ESC &f # F	1B 26 6C # 46	27 38 108 # 70	Text Length, # of lines
ESC &f # L	1B 26 6C 31 4C	27 38 108 49 76	Skip Perforation, Set on
ESC &f # L	1B 26 6C 30 4C	27 38 108 48 76	Skip Perforation, Set off
ESC &f # D	1B 26 6C # 44	27 38 108 # 68	Lines Per Inch, # of lines/inch

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
------	-----	---------	---------

Page Format Control: (Continued)

ESC & I # C	1B 26 6C # 43	27 38 108 # 67	Vertical Movement Index, # of 1/60
ESC & k # H	1B 26 6B # 48	27 38 107 # 72	Horizontal Movement Index, # of 1/60
ESC & a # L	1B 26 61 # 4C	27 38 97 # 76	Left Margin
ESC & a # M	1B 26 61 # 4D	27 38 97 # 77	Left column
ESC & a # P	1B 26 61 #...#50	27 38 97 #...# 080	Right Margin
ESC 9	1B 39	27 57	Right column

Horizontal Movement and Spacing Control:

BS	08	8	Backspace
CR	0D	13	Carriage Return
ESC & k # G	1B 26 6B # 47	27 38 107 # 71	CR/LF/FF Termination

#	Line Termination Action		
	CR	LF	FF
0	CR	LF	FF
1	CR+LF	LF	FF
2	CR	CR+LF	CR+FF
3	CR+LF	CR+LF	CR+FF

ESC & s 0 C	1B 26 73 30 # 43	27 38 115 48 67	Set Wrap Around
ESC & s 1 C	1B 26 73 31 # 43	27 38 115 49 67	Release Wrap Around
ESC & a # C	1B 26 61 # 43	27 38 97 # 67	Move Print Position to Column
ESC & a # H	1B 26 61 # 48	27 38 97 # 72	Move Print Position to Half Line
ESC * p # X	1B 2A 70 # 58	27 42 112 # 88	# of Decipoints
ESC & I # U	1B 26 6C #...# 55	27 038 108 #...# 085	Left Margin (left) Offset Registration

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
------	-----	---------	---------

Vertical Movement and Spacing Control:

LF	0A	10	Line Feed
FF	0C	12	Formfeed
ESC =	1B 3D	27 61	Half Line Feed
ESC & a # R	1B 26 61 # 52	27 38 97 # 82	Move Print Position to Row #
ESC & a # V	1B 26 61 # 56	27 38 97 # 86	Move Print Position Vertical
ESC * p # Y	1B 2A 70 # 59	27 42 112 # 89	# of Decipoints
ESC & I # Z	1B 26 6C #...# 5A	27 038 108 #...# 090	Position Vertical
			# of Dots
			Short-edge (top) Offset Registration

Font Selection:

ESC (#	1B 28 #	27 40 #	Symbol Set, Primary, # is Character ID
ESC) #	1B 29 #	27 41 #	Symbol Set, Secondary, # is Character ID

Character ID's:

0 D = ISO 60:Norwegian 1	5M=PS Math
1E=ISO 4:United Kingdom	6M=Ventura Math
1F=ISO 69:French	8M=Math-8
G=ISO 21:German	0N=ECMA-94 Latin 1
01=ISO 15:Italian	0S=ISO 11:Swedish
6J=Microsoft Publishing	2S=ISO 17:Spanish
7J=DeskTop	0U=ISO 6:ASCII
10J=PS Text	1U=Legal
13J=Ventura International	8U=Roman8
14J=Ventura US	9U=Windows
9L=Ventura ITC Zapf Dingbats	10U=PC-8
10L=PS ITC Zapf Dingbats	11U=PC-8 D/N
11L=ITC Zapf Dingbats(S100)	12U=PC 850
12L=ITC Zapf Dingbats(S200)	15U=Pi Font
13L=ITC Zapf Dingbats(S300)	

(s 0 P	1B 28 73 30 # 50	27 40 115 48 80	Spacing, Primary Fixed
(s 1 P	1B 28 73 31 # 50	27 40 115 49 80	Spacing, Primary Proportional

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
Font Selection: (Continued)			
ESC) s OP	1B 29 73 30 50	27 41 115 48 80	Spacing, Secondary Face
ESC) s 1P	1B 29 73 31 50	27 41 115 49 80	Spacing, Secondary Proportional
ESC (s # H	1B 28 73 # 48	27 40 115 # 72	Print Pitch, Primary, # is characters/inch
ESC) s # H	1B 29 73 # 48	27 41 115 # 72	Print Pitch, Secondary, # is characters/inch
ESC & k # S	1B 26 6B # 53	27 38 107 # 83	Print Pitch, Proportional
ESC & k Q S	1B 26 6B 31 53	27 38 107 49 83	10.0 CPI
ESC & k 1 S	1B 26 6B 31 53	27 38 107 49 83	16.66 CPI
ESC & k 2 S	1B 26 6B 32 53	27 38 107 50 83	Compressed (16.5 - 16.7 CPI)
ESC & k 4 S	1B 26 6B 34 53	27 38 107 52 83	Elite (12.0 CPI)
ESC (s # V	1B 28 73 # 56	27 40 115 # 86	Print Point Size, Primary, # is points
ESC) s # V	1B 29 73 # 56	27 41 115 # 86	Print Point Size, Secondary, # is points
ESC (s0S	1B 28 73 30 53	27 40 115 48 83	Upright (Solid)
ESC (s1S	1B 28 73 31 53	27 40 115 49 83	Italic
ESC (s4S	1B 28 73 34 53	27 40 115 52 83	Condensed
ESC (s5S	1B 28 73 35 53	27 40 115 53 83	Condensed
ESC (s8S	1B 28 73 38 53	27 40 115 56 83	Compressed (Extra Condensed)
ESC (s24S	1B 28 73 32 34 53	27 40 115 50 52 83	Expanded
ESC (s32S	1B 28 73 33 32 53	27 40 115 51 50 83	Outline
ESC (s64S	1B 28 73 36 34 53	27 40 115 54 52 83	Inline
ESC (s128S	1B 28 73 31 32 38 53	27 40 115 49 50 56 83	Shadowed
ESC (s160S	1B 28 73 31 36 30 53	27 40 115 49 54 48 83	Outline Shadow
ESC (s # B	1B 28 73 # 42	27 40 115 # 66	Stroke Weight, Primary, # is -7 to +7

See Stroke Weights on next page:

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
Font Selection: (Continued)			
Stroke Weights			
			1=Semi Bold
			2=Demi Bold
			3=Bold
			4=Extra Bold
			5=Black
			6=Extra Black
			7=Ultra Black
			Ø=Medium (book or text)
ESC) s # B	1B 29 73 # 42	27 41 115 # 66	Stroke Weight, Secondary, # is -7 to +7, -1 to -7=light Ø=Medium 1 to 7=Bold
ESC (s # T	1B 28 73 # 54	27 40 115 # 84	Typeface, Primary # is typeface (see below)
ESC) s # T	1B 29 73 # 54	27 41 115 # 84	Typeface, Secondary # is typeface:
Typeface ID's:			
			Ø=Line printer
			1=Pica
			2=Elite
			3=Courier
			4=Swiss 721
			5=Dutch
			6=Gothic
			7=Script
			8=Prestige
			9=Caslon
			10=Orator
			23=Century 70
			4 14 8 = Universe
			4 10 1 = CG Times
Font Control:			
			ØF
			OE
ESC (# X	1B 28 # 58	27 40 # 88	Shift In Primary
ESC (# X	1B 29 # 58	27 41 # 88	Shift In Secondary
			Define Font, Primary
			# is the Font
			ID number
			Define Font,
			Secondary, # is the
			Font ID number
Font Control: (Continued)			

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
ESC *c #F	1B 2A 63 # 46	27 42 99 # 70	Font/Character Control, see page 10
ESC (# @	1B 28 # 40	27 40 # 64	Primary Font Default, see page 10
ESC) # @	1B 29 # 40	27 41 # 64	Secondary Font Default, see page 10
ESC *c #D	1B 2A 63 # 44	27 42 99 # 68	Define Font ID # is the ID
ESC) s # W	1B 29 73 # 57	27 41 115 # 87	Font Header, # is byte number of font attributes
ESC *c #E	1B 2A 63 # 45	27 42 99 # 69	Define Character Code to down # is 0 to 255
ESC (s # W	1B 28 73 # 57	27 40 115 # 87	Produce Down Character, see printer manual
ESC *c #R	1B 2A 63 #...#52	27 40 99 #...# 82	ID #
ESC (i # W	1B 2A 66 #...#46	27 40 102 #...#87	# of Bytes
ESC *c #OS	1B 2A 63 30 53	27 40 99 48 83	Delete all symbols
ESC *c #S	1B 2A 63 31 53	27 40 99 49 83	Delete all temporary symbol sets
ESC *c #2S	1B 2A 63 32 53	27 40 99 50 83	Delete current soft symbols (last ID#)
ESC *c #4S	1B 2A 63 34 53	27 40 90 52 83	Make current soft symbols temporary
ESC *c #5S	1B 2A 63 35 53	27 40 90 53 83	Make current soft symbols permanent

Character Highlight Selection:

ESC & d D	1B 26 64 44	27 38 100 68	Turn under
ESC & d @	1B 26 64 40	27 38 100 64	Turn under

Graphics:

ESC *r #A	1B 2A 72 # 41	27 42 114 # 65	Graphics St
-----------	---------------	----------------	-------------

#=0 is start vertical from left end of print area
 #=1 is start from present position.

Graphics: (Continued)

Printer Codes

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
ESC *c #A	1B 2A 63 # 41	27 42 99 # 65	Set Horizontal Rule Width to # dots (1 dot=1/300 inch)
ESC *c #B	1B 2A 63 # 42	27 42 99 # 66	Set Vertical Rule Width to # dots (1 dot=1/300 inch)
ESC *c #H	1B 2A 63 # 48	27 42 99 # 72	Set Horizontal Rule Width to # decipoints (1 decipoint=1/720 inch)
ESC *c #V	1B 2A 63 # 56	27 42 99 # 86	Set Vertical Rule Width to # decipoints (1 decipoint=1/720 inch)
ESC %0 A	1B 25 30 41	27 37 48 65	Use previous PCL cursor position
ESC %1 A	1B 25 31 41	27 37 49 65	Use current HP-GL/2 pen position for cursor position
ESC %0 B	1B 25 30 42	27 37 48 66	Use previous HP-GL/2 pen position.
ESC *c #K	1B 2A 63 #...# 48	27 42 99 #...#75	Use current PCL cursor position
ESC *c #L	1B 2A 63 #...# 4C	27 42 99 #...#76	Horizontal size in inches
ESC *c #OT	1B 2A 63 30 54	27 42 99 84	Vertical size in inches
ESC *c #X	1B 2A 63 #...# 58	27 42 99 #...# 88	Set anchor point to cursor position
ESC *c #Y	1B 2A 63 #...#59	27 42 99 #...#89	Decipoints Horiz.
ESC *t 75R	1B 2A 74 37 35 52	27 42 116 55 53 82	Decipoints Vert.
ESC *t 100R	1B 2A 74 31 30 30 52	27 42 116 49 48 48 82	75 dots/inch
ESC *t 115R	1B 2A 74 31 35 30 52	27 42 116 49 53 48 82	100 dots/inch
ESC *t 130R	1B 2A 74 33 30 30 52	27 42 116 51 48 48 82	150 dots/inch
ESC *r 0F	1B 2A 72 30 46	27 42 114 48 70	300 dots/inch
ESC *r 3F	1B 2A 72 33 46	27 42 114 51 70	Follows orientation
ESC *b #Y	1B 2A 62 #...# 59	27 42 98 #...# 89	Follows physical page # of Raster Lines of vertical movement

Graphics: (Continued)

Printer Codes

93

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
ESC*b0M	1B 2A 62 30 4D	27 42 98 48 77	Unencoded
ESC*b1M	1B 2A 62 31 4D	27 42 98 49 77	Run-Length Encod
ESC*b2M	1B 2A 62 32 4D	27 42 98 50 77	Tagged Image F
ESC*b3M	1B 2A 62 33 4D	27 42 98 51 77	Delta Row
ESC*b5M	1B 2A 62 35 4D	27 42 98 53 77	Adaptive compr
ESC*b#W	1B 2A 62 #... 57	27 42 98 #... 87	# of Bytes
ESC*rB	1B 2A 72 42	27 42 114 66	End Raster Gra
ESC*r#T	1B 2A 72 #... 54	27 42 114 #... 84	# Raster Rows
ESC*r#S	1B 2A 72 #... 53	27 42 114 #... 83	# Pixels of the
ESC*v0T	1B 2A 76 30 54	27 42 118 48 84	Solid Black (de
ESC*v1T	1B 2A 76 31 54	27 42 118 49 84	Solid White
ESC*v2T	1B 2A 76 32 54	27 42 118 50 84	HP-defined
ESC*v3T	1B 2A 76 33 54	27 42 118 51 84	shading patter
ESC*y4T	1B 2A 76 34 54	27 42 118 52 84	HP-defined C
ESC*v0N	1B 2A 76 30 4E	27 42 118 48 78	Hatched Patter
ESC*v1N	1B 2A 76 31 4E	27 42 118 49 78	User defined
ESC*v0O	1B 2A 76 30 4F	27 42 118 48 79	Transparent Sou
ESC*v1O	1B 2A 76 31 4F	27 42 118 49 79	Opaque Patter
ESC*c0P	1B 2A 63 30 50	27 42 99 48 80	Solid Black
ESC*c1P	1B 2A 63 31 50	27 42 99 49 80	Erase (solid)
ESC*c2P	1B 2A 63 32 50	27 42 99 50 80	Shaded Fill
ESC*c3P	1B 2A 63 33 50	27 42 99 51 80	Cross-hatche
ESC*c5P	1B 2A 63 35 50	27 42 99 53 80	Current Patter
ESC*c#G	1B 2A 63 #... 47	27 42 99 #... 71	% Shading o
ESC*c2G	1B 2A 63 32 47	27 42 99 50 71	Type of Patter
ESC*c10G	1B 2A 63 31 30 47	27 42 99 49 48 71	2% G
ESC*c15G	1B 2A 63 31 35 47	27 42 99 49 53 71	15% G
ESC*c30G	1B 2A 63 33 30 47	27 42 99 51 48 71	30% G
ESC*c45G	1B 2A 63 34 35 47	27 42 99 52 53 71	45% G
ESC*70G	1B 2A 63 37 30 47	27 42 99 55 48 71	70% G
ESC*c90G	1B 2A 63 39 30 47	27 42 99 57 48 71	90% G
ESC*c100G	1B 2A 6 331 30 30 47	27 42 99 49 48 48 71	100% G
ESC*c1G	1B 2A 63 31 47	27 42 99 49 71	1 Horiz. Lin
ESC*c2G	1B 2A 63 32 47	27 42 99 50 71	2 Vert. Lines
ESC*c3G	1B 2A 63 33 47	27 42 99 51 71	3 Diagonal
ESC*c4G	1B 2A 63 34 47	27 42 99 52 71	4 Diagonal
ESC*c5G	1B 2A 63 35 47	27 42 99 53 71	5 Square G
ESC*c6G	1B 2A 63 36 47	27 42 99 54 71	6 Diagonal

Graphics: (Continued)

94 Printer Codes

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
ESC*c#W	1B 2A 63 31 51	27 42 99 #... 87	# of Bytes
ESC*c#Q	1B 2A 63 32 51	27 42 99 48 81	Delete all patterns
ESC*c#1Q	1B 2A 63 31 51	27 42 99 49 81	Delete all temp-
ESC*c#2Q	1B 2A 63 32 81	27 42 99 50 81	orary patterns
ESC*c#4Q	1B 2A 63 34 51	27 42 99 52 81	Delete current pat.
ESC*c#5Q	1B 2A 63 34 51	27 42 99 53 81	Make pattern
ESC*p0R	1B 2A 70 30 52	27 42 112 48 82	temporary
ESC*p1R	1B 2A 70 31 52	27 42 112 49 82	Make pattern
Macros:			
ESC &#Y	1B 26 66 # 59	27 38 102 # 89	Set Macro ID #
ESC &10X	1B 26 66 30 58	27 38 102 48 88	Start Macro
ESC &11X	1B 26 66 31 58	27 38 102 49 88	End Macro
ESC &12X	1B 26 66 32 58	27 38 102 50 88	Jump to Macro
ESC &13X	1B 26 66 33 58	27 38 102 51 88	Call Macro
ESC &14X	1B 26 66 34 58	27 38 102 52 88	Set Overlay Macro
ESC &15X	1B 26 66 35 58	27 38 102 53 88	Release Overlay
ESC &16X	1B 26 66 36 58	27 38 102 54 88	Macro
ESC &17X	1B 26 66 37 58	27 38 102 55 88	Release all Macro
ESC &18X	1B 26 66 38 58	27 38 102 56 88	Release all
ESC &19X	1B 26 66 39 58	27 38 102 57 88	temporary Macro
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Release current
Macros:			
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Assign temporary
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	attribute to Macro
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Assign
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	permanent attribute
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	to Macro
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Set Display Function
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	of control codes
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Release Display
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Function of
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	control codes
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Transparent Print
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Data (no ESC
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	commands exist)
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Push Printing
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	Position. Puts
ESC &10X	1B 26 66 31 30 58	27 38 102 49 48 88	present printing

Macros: (Continued)

Printer Codes

HP LASERJET PCL5 CODES

Code	Hex	Decimal	Command
ESC & f1S	1B 26 66 31 53	27 38 102 49 83	position on the top of the stack Pop Printing Position. Recall stored printing position and put the top of the stack
ESC & i #X	1B 26 6C # 58	27 38 108 # 88	Set Number of Copies to # Paper Input Control
ESC & i #H	1B 26 6C # 48	27 38 108 # 72	#=0 is feed out current page #=1 is Lower Cassette supplies paper #=3 is Envelope
ESC & i 0H	1B 26 6C 30 48	27 038 108 048 072	Eject Paper
ESC & i 1H	1B 26 6C 31 48	27 038 108 049 072	MP Tray
ESC & i 2H	1B 26 6C 32 48	27 038 108 050 072	Manual Envelope Feeder
ESC & i 3H	1B 26 6C 33 48	27 038 103 051 072	Lower Envelope Feeder
ESC & i 4H	1B 26 6C 34 48	27 038 108 052 072	Lower Envelope Feeder
ESC & i 6H	1B 26 6C 36 48	27 038 108 054 072	Lower Envelope Feeder
ESC & i 1G	1B 26 6C 31 47	27 038 108 049 071	Cassette feeds supplies envelope #=4 is Upper Envelope Feeder
ESC & i 1A	1B 26 6C 31 41	27 038 108 049 065	Output Bin
ESC & i 2A	1B 26 6C 32 41	27 038 108 050 065	Execution
ESC & i 3A	1B 26 6C 33 41	27 038 108 051 065	Letter
ESC & i 26A	1B 26 6C 32 36 41	27 038 108 050 054 065	Legal
ESC & i 80A	1B 26 6C 38 30 41	27 038 108 056 048 065	A4 size
ESC & i 81A	1B 26 6C 38 31 41	27 038 108 056 049 065	Monarch size
ESC & i 90A	1B 26 6C 39 30 41	27 038 108 057 048 065	COM 10 size
ESC & i 91A	1B 26 6C 39 31 41	27 038 108 057 049 065	DL size
ESC E	1B 45	27 69	Reset Printer
ESC z	1B 7A	27 122	Start Printer Self Test

HP-GL GRAPHICS LANGUAGE CODES

HP-GL Command	Description [Parameters]	Syntax
ESC %A .	Enter PCL Mode	Ø-Retain previous PCL cursor position 1-Use current HP-GL/2 pen position None
ESC E	Reset	None
AA	Arc Absolute	AA X,Y,arc angle (,chord tolerance) [X,Y = coordinates, range -32768 to +32767] [arc angle = coordinates, range -360 to 360 degrees] [Chord Tolerance - Angle, range 0.1 to 180 degrees] Deviation, range -32768 to +32767
AP	Automatic Pen Operations AP n; or AP;	[n = coordinates, range 0 to 31]
AR	Arc Relative	AR X,Y arc angle (,chord tolerance) [X,Y = coordinates, range -32768 to 32767] [arc angle = coordinates, range -360 to +360 degrees] [Chord Tolerance - Angle, range 0.1 to 180 degrees] Deviation, range -32768 to +32767
CA	Designate Alternate Character Set	CA set; or CA; [set = coordinates, range 0-9, 30-39, 61, 99, 100 & 101]
CI	Circle	CI radius,(chord tolerance) [Radius = coordinates, range -32768 to 32767] [Chord Tolerance-angle, range 0.1 to 180 degrees] Deviation, range -32768 to 32767
CM	Character Selection Mode	CM switch mode (,fallback mode); or CM; [Switch Mode = coordinates, range 0 to 3] [Fallback Mode = coordinates, range 0 or 1]
CP	Character Plot	CP spaces,lines; or CP [spaces = coordinates, range -32768.9999 to +32767.9999] [lines = coordinates, range -32768.9999 to +32767.9999]
CS	Designate Standard Character Set	CS set; or CS; [set = coordinates, range 0-9, 30-39, 61, 99, 100 & 101]
CT	Chord Tolerance	CT n; or CT; [n = coordinates, range 0 to 1]
DC	Digitize Clear	DC;
DF	Default	DF;
DI	Direction Absolute	DI run,rise; or DI; [run = coordinates, range -32768.9999 to +32767.9999] [rise = coordinates, range -32768.9999 to +32767.9999]
DP	Digitize Point	DP;

HP-GL GRAPHICS LANGUAGE CODES

HP-GL Command	Description [Parameters]	Syntax
DR	Direction Relative [run = coordinates, range -32768.9999 to +32767.9999] [rise = coordinates, range -32768.9999 to +32767.9999]	DR run,rise; or DR ; [run = coordinates, range -32768.9999 to +32767.9999] [rise = coordinates, range -32768.9999 to +32767.9999]
DS	Designate Character Set Into Slot [slot = coordinates, range 0 to 1 (HP modes) 0 to 3 (ISO modes)]	DS slot,set; or DS ; [slot = coordinates, range 0 to 1 (HP modes) 0 to 3 (ISO modes)]
DT	Define Label Terminator [label terminator = coordinates, range any character except NUL, ENQ, LF, ESC, and ; (decimal codes 0, 5, 10, 27, and 59, respectively)]	DT label terminator [label terminator = coordinates, range any character except NUL, ENQ, LF, ESC, and ; (decimal codes 0, 5, 10, 27, and 59, respectively)]
DV	Direction Vertical [n = coordinates, range 0 or 1]	DV n; or DV ; [n = coordinates, range 0 or 1]
EA	Edge Rectangle Absolute [X,Y coordinates, range -32768 to +32767]	EA X,Y; [X,Y coordinates, range -32768 to +32767]
EP	Edge Polygon	EP ;
ER	Edge Rectangle Relative [X,Y coordinates, range -32768 to +32767]	ER X,Y; [X,Y coordinates, range -32768 to +32767]
ES	Extra Space [spaces = coordinates, range -.05 to +1 char. plot cos [lines = coordinates, range -.05 to +2 char. plot cos]	ES spaces;(lines); or ES ; [spaces = coordinates, range -.05 to +1 char. plot cos [lines = coordinates, range -.05 to +2 char. plot cos]
EW	Edge Wedge [radius = coordinates, range -32768 to +32767] [start angle = coordinates, range -360 to +360 degrees] [sweep angle = coordinates, -360 to +360 degrees] [chord tolerance-angle = coordinates range 0.1 to 180] [deviation = coordinates, range -32768 to +32767]	EW radius,start angle,sweep angle,(chord tolerance-angle); or EW ; [radius = coordinates, range -32768 to +32767] [start angle = coordinates, range -360 to +360 degrees] [sweep angle = coordinates, -360 to +360 degrees] [chord tolerance-angle = coordinates range 0.1 to 180] [deviation = coordinates, range -32768 to +32767]
FI	Primary Font	Font ID
FP	Fill Polygon	FP ;
FT	Fill Type [type = coordinates, range 1-4] [spacing = coordinates, range 0 to 32767] [angle = coordinates, range 0 to 90 degrees]	FT type,(spacing,(angle)); or FT ; [type = coordinates, range 1-4] [spacing = coordinates, range 0 to 32767] [angle = coordinates, range 0 to 90 degrees]
GM	Graphics Memory (,reserved buffer) (,reserved buffer) (,reserved buffer) (,pen sort buffer); or GM [polygon buffer = coordinates, range 0 to 31887] [reserved = coordinates, range 0] [reserved = coordinates, range 0] [reserved = coordinates, range 0] [pen sort buffer = coordinates, range 12 to 31887]	GM (polygon buffer) (,reserved buffer) (,reserved buffer) (,reserved buffer) (,pen sort buffer); or GM [polygon buffer = coordinates, range 0 to 31887] [reserved = coordinates, range 0] [reserved = coordinates, range 0] [reserved = coordinates, range 0] [pen sort buffer = coordinates, range 12 to 31887]

HP-GL GRAPHICS LANGUAGE CODES

HP-GL Command	Description [Parameters]	Syntax
IM	Input Mask [E-mask value = coordinates, range 0 to 255] [S-mask value = coordinates, range 0 to 255] [P-mask value = coordinates, range 0 to 255]	IM E-mask value (,S-mask value (,P-mask value)); or IM ; [E-mask value = coordinates, range 0 to 255] [S-mask value = coordinates, range 0 to 255] [P-mask value = coordinates, range 0 to 255]
IN	Initialize	IN ;
IP	Input P1 and P2 [X,Y = coordinates, range -32678 to 32767 plotter units]	IP P1x,P1y(P2x,P2t); or IP ; [X,Y = coordinates, range -32678 to 32767 plotter units]
IV	Invoke Character Slot [slot = coordinates, range 0 to 1 (HP modes) 0 to 3 (ISO modes)]	IV (slot,(left)); or IV ; [slot = coordinates, range 0 to 1 (HP modes) 0 to 3 (ISO modes)]
IW	Input Window [X1,Y1,X2,Y2 = coordinates, range -32768 to 32767]	IW X1,Y1,X2,Y2; or IW ; [X1,Y1,X2,Y2 = coordinates, range -32768 to 32767]
LB	Label [c..c = coordinates, range any ASCII character]	LB c..x CHR\$(3) [c..c = coordinates, range any ASCII character]
LO	Label Origin [position number = coordinates, range 1 to 9 or 11 to 19]	LO position number; [position number = coordinates, range 1 to 9 or 11 to 19]
LT	Line Type [pattern number = coordinates, range -6 to +6] [pattern length = coordinates, range 0 to 100 percentage]	LT pattern number (, pattern length); or LT ; [pattern number = coordinates, range -6 to +6] [pattern length = coordinates, range 0 to 100 percentage]
NR	Not Ready	NR ;
OA	Output Actual Pen Status [X,Y = coordinates, range -32678 to +32767] [pen status = coordinates, range 0 (up) or 1 (down)]	OA X,Y, pen status [X,Y = coordinates, range -32678 to +32767] [pen status = coordinates, range 0 (up) or 1 (down)]
OC	Output Commanded Pen Status [X,Y = coordinates, range -32678 to +32767] [pen status = coordinates, range 0 (up) or 1 (down)]	OC X,Y, pen status [X,Y = coordinates, range -32678 to +32767] [pen status = coordinates, range 0 (up) or 1 (down)]
D	Output Digitized Point and Pen Status [X,Y = coordinates, range -32678 to 32767] [pen status = coordinates, range 0 (up) or 1 (down)]	D X,Y, pen status [X,Y = coordinates, range -32678 to 32767] [pen status = coordinates, range 0 (up) or 1 (down)]
OE	Output Error [error number = coordinates, range 0 to 7]	OE error number [error number = coordinates, range 0 to 7]
OF	Output Factors [40,40 = coordinates, range none]	OF 40,40 [40,40 = coordinates, range none]
OH	Output Hard-Clip Limits [YLL, YLL, YUR, YUR = coordinates, range -32678 to +32767]	OH XLL,YLL,YUR,YUR [YLL, YLL, YUR, YUR = coordinates, range -32678 to +32767]
OI	Output Identification [model number = coordinates, range 7575A or 7576A]	OI model number [model number = coordinates, range 7575A or 7576A]
OO	Output Options [none = coordinates, range 0 or 1]	OO n,n,n,n,n,n,n,n [none = coordinates, range 0 or 1]

HP-GL GRAPHICS LANGUAGE CODES

HP-GL Command	Description [Parameters]	Syntax
OP.....	Output P1 and P2 [P1X, P1Y, P2X, P2Y = coordinates, range -32678 to +32767]	OP: P1X, P1Y, P2X, P2Y
OS.....	Output Status [status number = coordinates, range 0 to 255]	OS; status number
OT.....	Output Carousel Type [-1, 255 = coordinates, range none]	OT; -1, 255
OW.....	Output Window [YLL, YLL, XUR, YUR = coordinates, range -32678 to +32767]	OW; XLL, YLL, XUR, YUR
PA.....	Plot Absolute [X, Y = coordinates, range -32768 to +32767]	PA X, Y (... X, Y) or PA;
PD.....	Pen Down [X, Y = coordinates, range -32768 to +32767]	PD X, Y(...); or PD;
PE.....	Encoded Polyline [flag = coordinates, range -1 to 7] [value = coordinates, range flag dependent] [X, Y = coordinates, range -32768 to +32767]	PE (flag)(value)X, Y... (flag)(value)X,
PM.....	Polygon Mode [n = coordinates, range 0, 1, and 2]	PM n; or PM;
PR.....	Plot Relative [X, Y increments = coordinates, range -8388608 to +8388607.9999]	PR X, Y(...); or PR;
PT.....	Pen Thickness [pen thickness = coordinates, range 0.1 to 5.0 millimeters]	PT pen thickness; or PT;
PU.....	Pen Up [X, Y = coordinates, range -32768 to +32767]	PU X, Y(...); or PU;
RA.....	Fill Rectangle Absolute [X, Y = coordinates, range -32768 to +32767]	RA X, Y;
RO.....	Rotate Coord System [n = coordinates, range 0 or 90 degrees]	RO n; or RO;
RR.....	Fill Relative Rectangle [X, Y increments = coords, range -32768 to +32767]	RR X, Y
SA.....	Select Alt. Character Set	SA;
SC.....	Scale [Xmin, Xmax, Ymin, Ymax = coordinates, range -8388608 to +8388607]	SC Xmin, Xmax, Ymin, Ymax; or SC
SG.....	Select Pen Group [pen number = coordinates, range 0 to 8]	SG pen number;
SI.....	Absolute Character Size [width = coordinates, range -110 to +110] [height = coordinates, range -100 to +110]	SI width, height; or SI;

HP-GL GRAPHICS LANGUAGE CODES

HP-GL Command	Description [Parameters]	Syntax
SL.....	Slant Character [tangent = coordinates, range -3.5 to +3.5]	SL tangent; or SL;
SM.....	Symbol Mode [character = coordinates, range most printing characters (decimal codes 33-58 and 60-126)]	SM character(character); or SM;
SP.....	Select Pen [pen number = coordinates, range 0 to 8]	SP pen number; or SP;
SR.....	Relative Character Size [width = coordinates, range -100 to 100 percent of P2X - P1X] [height = coordinates, range -100 to 100 percent of P2X - P1X]	SR width, height; or SR;
SS.....	Select Std Character Set	SS;
TL.....	Tick Length	TL positive tick,(negative tick); or TL;
UC.....	User-defined Character [pen velocity = coordinates, range 1 to 80] [pen number = coordinates, range 1 to 8]	UC (pen control,)X-increment, Y-increment(...),(pen control) (...); or UC;
VS.....	Velocity Select [pen velocity = coordinates, range 1 to 80] [pen number = coordinates, range 1 to 8]	VS pen velocity,(pen number); or VS;
WG.....	Wedge Fill [radius = coordinates, range -32768 to +32767] [start angle = coordinates, range -360 to +360 degrees] [sweep angle = coordinates, range -360 to +360 degrees] [chord tolerance-angle = coordinates, range 0.1 to 180 degrees] [chord deviation = coordinates, range -32768 to +32767]	WG radius, start angle, sweep angle,(chord tolerance);
X-Tick		XT;
Y-Tick		YT;

IBM PROPRINTER PRINTER CODES

Code	Hex	Decimal	Command
Page Format Control:			
ESC C Ø #	1B 43 ØØ #	27 67 Ø #	Page Length, # is in Line
ESC C #	1B 43 #	27 67 #	Page Length, # is in Line
ESC X #1#2	1B 58 #1#2	27 88 #1#2	Left/Right Margins Set, #1 is left inches, #2 is right inches
ESC N #	1B 4E #	27 78 #	Skip Perforation Set, # Top + Bottom
ESC O	1B 4F	27 79	Skip Perforation Release
ESC 4	1B 34	27 52	Top of Page Set

Horizontal Movement and Spacing Control:

BS	Ø8	8	Backspace
CR	ØD	13	Carriage Return
ESC D # Ø	1B 44 # ØØ	27 68 # Ø	Horizontal Tab Set, # is the column, can use more than one #
ESC D Ø	1B 44 ØØ	27 68 Ø	Horizontal Tab Release
HT	Ø9	9	Horizontal Tab, move to next preset tab
ESC R	1B 52	27 82	Reset all Tabs

Vertical Movement and Spacing Control:

ESC Ø	1B 3Ø	27 48	Set Line Spacing to 1 inch (9 points or 8 lpi)
ESC 1	1B 31	27 49	Set Line Spacing to 1 inch (7 points)
ESC 2	1B 32	27 5Ø	Execute a Line Feed, follow ESC A # command
ESC 3 #	1B 33 #	27 51 #	Set Line Spacing to #/216 inch
ESC A #	1B 41 #	27 65 #	Set Line Spacing to # Points (#/72 inch)
LF	ØA	1Ø	Line feed
ESC 5 1	1B 35 Ø1	27 53 1	Set Auto Line Feed
ESC 5 Ø	1B 35 ØØ	27 53 Ø	Release Auto Line Feed
ESC j #	1B 6A #	27 1Ø6 #	Reverse Line Feed, #/216 Inches
ESC J #	1B 4A #	27 74 #	Forward Line Feed, #/216 Inches
FF	ØC	12	Form feed
ESC B # Ø	1B 42 # ØØ	27 66 # Ø	Vertical Tab Set, # is line, can use more than one
ESC B Ø	1B 42 ØØ	27 66 Ø	Vertical Tab Release

IBM PROPRINTER PRINTER CODES

Code	Hex	Decimal	Command
Vertical Movement and Spacing Control (Continued):			
VT	ØB	11	Vertical Tab, moves to next preset tab
ESC R	1B 52	27 82	Reset all Tabs

Character Selection:

DC2	12	18	Pica Pitch (12 pt, 1Ø cpi)
ESC :	1B 3A	27 58	Elite Pitch (1Ø pt, 12 cpi)
SI	ØF	15	Compressed Print
ESC SI	1B ØF	27 15	Compressed Print
SO	ØE	14	Set Double Width for a single line
ESC SO	1B ØE	27 14	Set Double Width for a single line
DC4	14	2Ø	Release Double Width for a single line
ESC WØ	1B 57 ØØ	27 87 Ø	Release Double Wide Line
ESC W1	1B 57 Ø1	27 87 1	Set Double Width Line
ESC SØ	1B 53 ØØ	27 83 Ø	Set Superscript Mode On
ESC S1	1B 53 Ø1	27 83 1	Set Subscript Mode On
ESC T	1B 54	27 84	Release Superscript and Subscript
ESC 7	1B 37	27 55	Set IBM Character Set 1
ESC 6	1B 36	27 54	Set IBM Character Set 2
ESC ^	1B 5E	27 94	Select 1 Character from the All Character Chart
ESC \ #1 #2	1B 5C	27 92	Select Print Continuously from All Character Chart for a total of (#2 X 256) + #1

Character Highlight Selection:

C - 1	1B 2D Ø1	27 45 1	Turn Underline Mode On
C - Ø	1B 2D ØØ	27 45 Ø	Turn Underline Mode Off
C - 1	1B 5F Ø1	27 95 1	Enable Overline Mode
C - Ø	1B 5F ØØ	27 95 Ø	Disable Overline Mode
C F	1B 45	27 69	Enable Bold Print Mode
C G	1B 46	27 7Ø	Disable Bold Print Mode
C H	1B 47	27 71	Enable Double-strike
	1B 48	27 72	Disable Double-strike

IBM PROPRINTER STERIOR CODES

Code	Hex	Decimal	Command
------	-----	---------	---------

Graphics:

For values of #1 and #2 below, see printer manuals

ESC K#1#2	1B 4B #1#2	27 75 #1#2	Enable Single-density Graphics Mode, 60 dpi
ESC L#1#2	1B 4C #1#2	27 76 #1#2	Enable Double-density Graphics Mode, 120 dpi
ESC Y#1#2	1B 59 #1#2	27 89 #1#2	Enable Double-density 120 dpi, High-speed Graphics Mode
ESC Z#1#2	1B 5A #1#2	27 90 #1#2	Enable Quad-density Graphics Mode, 240 dpi

Miscellaneous:

CAN	18	24	Cancel
DC1	11	17	Remote Printer Select
ESC Q3	1B 51 03	27 83	Remote Printer Deselect
ESC EM #	1B 19 #	27 25 #	Paper Cassette Select
			#=E is envelope
			#=1 is Lower Cassette
			#=2 is Upper Cassette
			#=R is eject page
NUL	00	0	Null
BEL	07	7	Sound Beeper

Chapter 4

Modems

1. Modem Standards 106
2. UART Serial Communications Chips 108
3. Hayes Compatible Modem Commands 109

See page 54 for information on
Serial/COM: port addresses and interrupts.

MODEM STANDARDS

V.xx Standards are international data communication standards defined by CCITT (Consultative Committee for International Telephone and Telegraph).

Standard	Description
V.13	Simulated half-duplex for synchronous network
V.21	300 bps, compatible with Bell 103.
V.22	1200 bps, compatible with Bell 212A; full duplex sync or async.
V.22bis	2400 bps with fall back to 1200 bps, compatible with Bell 212A and V.22; full duplex; sync or async.
V.23	1200 bps with 75 bps back channel for use in the United Kingdom.
V.25	Provides autodialing capabilities to sync or async dialup lines. Parallel interface.
V.25bis	Provides autodialing capabilities to sync or async dialup lines. Serial interface.
V.32	4800 and 9600 bps with fall back to 4800; full duplex or async. The first universal standard for 9600 bps modems.
V.32bis	14,400 bps with fall back to 12000, 9600, 7200, 4800 bps. Sync or async; full duplex. V.32bis incorporates "fasttrain" in which it can automatically increase or decrease modem speed during operation.
V.33	14,400 or 12,000 bps sync transmission over leased lines. Used in very high speed super computer environments. V.32bis provides the same capability but over 2 wire dialup lines.
V.34	28,800 bps Standard approved in June 1994. It is the state-of-the-art protocol for high speed modem communications. It includes a 4-dimensional trellis coding not found in the V.FC modems and also includes a V.8 high speed start sequence.
V.42	LAP-M (Link Access Protocol) Error Correction support for MNP levels 1 to 4; falls back to MNP 1 if LAP-M is not available.
V.42bis	V.42 with intelligent data compression and support for MNP5; compression up to 4:1.
V.FC or V.Fast	A class of modems incorporating some of the standards.

Bell Standards are USA data communication standards defined by Bell Labs and AT&T.

Standard	Description
Bell 103	300 bps, async, full duplex over 2 wire dialup leased lines. Comparable to V.21.
Bell 201B	2400 bps, sync, full duplex over 4 wire, half duplex over 2 wire dialup lines. Comparable to V.22.

Bell 201C	Same as 201B but dialup lines only.
Bell 208A	4800 bps, sync, full duplex over 4 wire leased line or half duplex over 2 wire leased line. Comparable to V.27
Bell 208B	Same as 208A but 2 wire dialup lines only
Bell 212A	1200 bps, sync or async, full duplex over 2 wire leased or dialup lines. Comparable to V.22.

MNP (Microcom Networking Protocol) Error Correction and Data Compression. In order to use MNP, the modems at both ends of the phone line must have the same MNP capability.

Standard	Description
MNP Level 1-4	Error correcting routines used to filter out line noise. It also reduces the size of data transferred by up to 20%, thereby speeding up transfers.
MNP Level 5	Conventional data compression of up to 2:1; useful for ASCII type files only not binary files like ZIP and ARC files. MNP 5 effectively doubles the baud rate of the transfer.

UART SERIAL CHIPS

The UART (Universal Asynchronous Receiver-Transmitter) is the heart of a computer's serial port and it provides a parallel to serial and serial to parallel translation link between computer and modem. The chips listed below are made by Intel (INS) and National Semiconductor (NS).

INS8250

The original UART used in IBM's first PC serial port. It has slow access cycle delays and requires extra NOPS between CPU read/write cycles. Several bugs (one of which was an interrupt enable problem) are present in the chip but are not serious. The 8250A replaced by the 8250A. Chip will not work properly at 9600 bps.

INS8250A and INS82C50A

This chip is an upgrade to the original 8250 and fixes some of the original bugs. The "A" series chip was designed to correct the problem in conjunction with the PC and XT BIOS and is therefore not compatible with many software packages and other computer's. Avoid using this chip! Chip will not work properly at 9600 bps.

INS8250B

The final upgrade of the 8250 chip series in which the bugs of the first two versions have been repaired. This chip will work in PC and XT class systems, however, it may or may not function correctly in 80286 and higher systems. Chip will not work properly at 9600 bps.

NS16450 and NS16C450

A higher speed version of the 8250 chip. It was designed for 80286 and higher systems and may not work correctly in PC and XT class systems. A scratch register (#7) has been included. The operating system requires the 16450 or higher in serial ports. Maximum data rate is 38,400 bps.

NS16550

This chip is an upgrade to the 16450. It provides higher baud rates and a DMA interface. It does not support FIFO (first in - first out) works well in 80286 and higher systems and the maximum data rate is 115,200 bps.

NS16550A

A higher speed version of the 16550 chip. It was designed for 80286 and higher systems. It allows multiple DMA access and has a built-in 16 character transmit and receive FIFO (first in - first out) buffer. The 16550A is currently the recommended UART for high speed data communications. Maximum data rate is 115,200 bps.

HAYES COMPATIBLE MODEM COMMAND SETTINGS

Command	Function
>>>>Note: all commands are not available on all modems!<<<<<	
+++	Default escape code, wait for modem to return state
A.....	Force answer mode; Immediate answer on ring
A.....	Repeat last command line (Replaces AT)
A.....	Attention code
At.....	n=0 is Transmitter off, n=1 is on, (1=default)
Cn.....	n=0 is CCITT answer tone, n=1 is US/Canada Tone
Bn.....	Dial telephone number
Dn.....	n=0 to 9 for phone numbers
	n=T is Touch Tone Dial, P is Pulse Dial
	n=R is Originate Only, n=, is Pause
	n=I is xfer call to following extension
	n=M is dial letters that follow
	n=@ is Dial, Wait for answer, & continue
	n=; is Return to command mode after dialing
En.....	n=0 is no character echo in command state
	n=1 is echo all characters in command state
Fn.....	n=0 is Half Duplex; n=1 if Full Duplex
Hn.....	n=0 is On Hook (Hang Up), n=1 is Off Hook
	n=2 is Special Off Hook
In.....	n=0 is Display product code, n=1 show Check Sum
	n=2 is show RAM test, n=3 is show call time length
	n=4 is show current modem settings
Kn.....	n=0 at AT13 show last call length, n=1 show time
Ln.....	Speaker volume control: n=0 or 1 is low volume
	n=2 is medium volume; n=3 is high volume.
Mn.....	n=0 is Speaker always off, n=2 is always on
	n=1 is Speaker on until carrier detected (default)
	n=3 is Speaker on during CONNECT sequence only.
Qn.....	Auto data standard/speed adjust; n=0 is connect at S37,
	n=1 auto data standard and speed adjust to match
Rn.....	n=0 is return to on-line; n=1 is return to on-line & retain
Sn.....	n=0 is send Result Codes; n=1 is do not send code
	n=2 is send result code only when originating call.
Tn.....	n=0 to 255 rings before answer (see switch 5)
Vn.....	Counts rings from 0 to 255
Xn.....	Set escape code character, n=0 to 127, 43 default
Yn.....	Set carriage return character, n=0 to 127, 13 default
Zn.....	Set line feed character, n=0 to 127, 10 default
[n.....	Set backspace character, n=0 to 127, 8 default
]n.....	Wait time for dial tone, n=2 to 255 seconds
^n.....	Wait time for carrier, n=2 to 255 seconds
^n.....	Set duration of " " pause character, n=0 to 255 sec.
^n.....	Carrier detect response time, n=1 to 255 1/10 secs.
^n.....	Delay time carrier loss to hang-up, n=1 to 255 1/10 s.
^n.....	Duration & space of Touch Tones, n=50 to 255 ms.
^n.....	Escape code guard time, n=50 to 255 1/50 seconds
^n.....	UART Status Register Bit Mapped (reserved)
^n.....	OPTION Register, Product code returned by AT10
^n.....	Flag Register (reserved)

Command	Function
---------	----------

Command	Function
S16=n	Self test mode. n=0 is data mode (default), n=1 is Test Analog Loopback, n=2 is dial test, n=4 is Test Pattern, n=5 is Analog Loopback and Test Pattern.
S18=n	Test timer for modem diagnostic tests
S37=n	Set line speed. Used in conjunction with Nn. n=0 Attempt at speed of last AT command; n=1 to 10 Attempt at 300bps; n=4 reserved; n=5 attempt 1200bps; n=6 attempt 2400bps; n=7 reserved; n=8 use 4800bps; n=9 use 9600; n=10-12000bps; n=11-14400bps; n=12-14400bps; n=13-14400bps; n=14-14400bps; n=15-14400bps; n=16-14400bps; n=17-14400bps; n=18-14400bps; n=19-14400bps
Sn ?	Send contents of Register n (0 to 16) to Computer
Vn	n=0 is send result codes as digits, n=1 is words
Wn	Protocol negotiation progress report; n=0 is progress is not reported; n=1 is reported; n=2 is not reported but CONNECT XXXX message reports DCE status
Xn	Send normal or extended result codes: n=0 send normal result codes; n=1 extended/blind dial; n=2 extended/blind dial; n=3 extended/blind & busy; n=4 extended/dial tone, busy.
Yn	Long space disconnect: n=0 is disabled; n=1 is enabled; n=2 is disabled; n=3 is enabled; n=4 is disabled; n=5 is enabled
Zn	Modem reset: n=0 is power on; n=1 active during connect; n=2 is DCD always active; n=1 active during connect
&Cn	n=0 is DTR always ignored, n=1 DTR causes reset
&Dn	n=0 is DTR disconnects, n=1 DTR disconnects, n=2 DTR disconnects, n=3 DTR disconnects, n=4 DTR disconnects, n=5 DTR disconnects, n=6 DTR disconnects, n=7 DTR disconnects, n=8 DTR disconnects, n=9 DTR disconnects, n=10 DTR disconnects, n=11 DTR disconnects, n=12 DTR disconnects, n=13 DTR disconnects, n=14 DTR disconnects, n=15 DTR disconnects, n=16 DTR disconnects, n=17 DTR disconnects, n=18 DTR disconnects, n=19 DTR disconnects
&F	Get Factory Configuration
&Gn	n=0 Disable Guard Tone, n=1 is 550hz, n=2 is 1800hz
&Kn	DTE: n=0 is disable flow control, n=3 Enable RTS/CTS flow control; n=4 enable XON/XOFF flow control; n=5 enable transparent XON/XOFF flow control; n=6 medium, n=7 medium, n=8 high
&Ln	n=0 or 1 Speaker Volume Low, n=2 medium, n=3 high
&Mn	Communications mode (same as Qn).
&Pn	n=0 Pulse Make/Break Ratio USA 39% / 61% n=1 Pulse Make/Break Ratio UK 33% / 67%
&Qn	Communication mode: n=0 is Async, Direct modem issues OK result code; n=5 Error mode; n=6 Async, Normal mode; n=8 MNP 2, n=9 V.42 and V.42bis modes.
&Rn	n=0 is CTS tracks RTS, n=1 CTS always active
&Sn	n=0 is DSR always active, n=1 DSR active at connect
&Tn	Test Commands: n=0 and test, n=1 local analog loopback, n=3 local digital loopback, n=4 enable Rm digit loopback, n=5 disable digital loopback, n=6 request Rm digit loop, n=7 request Rm digit loop enter self test, n=8 local analog loop & self test
&Vn	View current configuration
&W	Write Configuration to Memory
&Yn	n=0 is Default is user configuration at NVRAM location "n", n=1-15 is user configuration at NVRAM location "n". n=0, 1, 2
&Zn=x	Store Phone Number "x" at location "n". n=0, 1, 2

Chapter 5

DOS COMMANDS

Through MS-DOS® Version 6.22

This chapter is a concise general reference of DOS commands, listed in alphabetic order regardless of command type! In order to assist you in using the reference more effectively, a guide to conventions used in this chapter has been provided on page 112. A list of all DOS commands, grouped by command type, is located on page 114.

Editors Note: We strongly recommend that you upgrade your operating system with an official copy of MS-DOS 6.2x. Numerous functions and features that were not included in previous versions are now available and for the most part are bug free. The MS-DOS Users Guide and Technical Reference (or direct from Microsoft) are well written and are excellent resources. See page 6 for additional references. *If you are using Version 6.0, it is only recommended that you do not use LSPACE or SMARTDRV. Both of these programs caused a variety of problems with hard drives and are considered not safe to use.* MS-DOS 6.2x and several aftermarket programs are available which can safely provide the same features.

Command descriptions in this chapter are based on the following notations and syntax:

COMMAND NAME

Short Description: Long description

Syntax (shaded is optional):

COMMAND Drive:\Path /switches parameters

(Shaded areas indicate optional parameters and switches)

Examples: Samples of the syntax and command layout

Syntax Options:

Drive:\Path . . . Drive & Directory containing command
/switches Switches modify the way a command performs its particular function.
parameters . . . Data (usually numeric) passed to the command when it's started.

Command Type and Version:

External command DOS commands stored as files on a disk. All external commands have a file extension: .EXE, .COM or .SYS.
Internal command DOS commands contained in the COMMAND.COM file. These are loaded into the system on boot.
Batch command A script (text) file containing a sequence of commands to be executed. The file always ends in .BAT.
Config.sys command Script (text) file containing system configuration information and device drivers.
Network command Will function on a network.
Introduced with Ver X.XX The DOS version in which the command became available.

New V6.0

New V6.2

Danger V6.0

Removed V6.2

6 New commands Version 6.0

6.2 New commands Version 6.2

Dangerous Command Version 6.0

Command Removed Version 6.2

MS-DOS vs. PC-DOS

The following files contain the **Disc Operating System (DOS)**.

MS-DOS systems (most clones)

MSDOS.SYS
IO.SYS
COMMAND.COM

PC-DOS systems (IBM)

IBMBIO.COM
IBMDOS.COM
COMMAND.COM

These files (except COMMAND.COM) have attributes of "read only", "system" and "hidden" and are located in the root directory of the system's boot drive (hard drive or floppy drive). If any of these files are missing, the system will not start!

In spite of the differences in these "operating system" files, most of the other commands prior to Version 6.0 have the same file names, e.g. both MS and PC use the FORMAT and FDISK programs to prepare a hard drive.

Due to space limitations, Sequoia Publishing is unable to provide information on commands for PC-DOS Versions 6.1, and 6.3. Beginning with Version 6.0, Microsoft and IBM have taken radically different approaches to the commands supplied on the system disks, particularly the programs used for procedures such as disk repair and compression. We regret not being able to include the additional 100+ pages it would require. See page 115 for a list of the commands not covered.

MS-DOS vs. PC-DOS

External

Ados.com
Append.exe
Assign.com
Attrib.exe
Backinfo.exe
Backup.exe
Basic.exe
Basica.exe
Chkdsk.exe
Chkstate.sys
Command.com
Comp.exe
Country.sys
CV.com
Dblboot.bat
Dblspace.exe
Debug.exe
Defrag.exe
Deloldos.exe
Deltree.exe
Diskcomp.com
Diskcopy.com
Doskey.com
Doshell.com
Doshell.exe
Drvboot.bat
Drvspace.exe
Drvok.sys
Edit.com
Edlin.exe
Emm386.exe
Exe2bin.exe
Expand.exe
Fasthelp.exe
Fastopen.exe
FC.exe
Fdisk.exe
Find.exe
Format.exe
Graftabl.com
Graphics.com
GW-Basic.exe
Help.com
Help.exe
Interlnk.exe
Intersvr.exe
Join.exe

Keyb.com

Keybxx.com
Label.exe
Link.exe
Loadfix.com
Mem.exe
Memmaker.exe
Mirror.com
Mode.com
More.com
Move.exe
Msav/Mwav.exe
Msbakup/
Mwbackup.exe
Mscdex.exe
Msd.com & exe
Msherc.com
Nlsfunc.exe
Power.exe
Print.exe
Printfix.com
Qbasic.exe
Recover.exe
Replace.exe
Restore.exe
Scandisk.exe
Select.exe
Setup/
Bsetup.exe
Setver.exe
Share.exe
Sizer.exe
Smartdrv.exe
Smartmon.exe
Sort.exe
Spatch.bat
Subst.exe
Sys.com
Tree.com
Truename.exe
Undelete/
Mwundel.exe
Unformat.com
Uninstal.exe
Vsafe.com
Win20.386
Xcopy.exe

Internal

CD (Chdir)
Chop
Chdir (CD)
Cls
Copy
Ctty
Date
Del (Erase)
Dir
Echo
Erase (Del)
Exit
For
LH(load high)
Loadhigh
MD (Mkdir)
Mkdir (MD)
Path
Prompt
RD (Rmdir)
Rem
Ren (Rename)
Rename (Ren)
Rmdir (RD)
Set
Time
Type
Ver
Verify
Vol

Config.sys

Ansi.sys
Break
Buffers
Command.com
Country.sys
Dblspace.sys
Device
Devicehigh
Display.sys
DOS
Driver.sys
Drvparm
Drvspace.sys
EGA.sys

Emm386.exe

Fastopen.exe
FCBS
Files
Himem.sys
Include
Install
Interlnk.exe
Io.sys
Kbdbuf.sys
Keyb.com/
Keyboard.sys
Lastdrive
Menucolor
Menudefault
Menuitem
Nlsfunc.exe
Numlock
Power.exe
Printer.sys
Ramdrive.
Vdisk.sys
Rem
Setver.exe
Share.exe
Shell
Smartdrv.
Smartdrv.
Stacks
Submenu
Switchar
Switches

Batch

@
Break
Call
Choice.c
Echo
For
Goto
IF
Pause
Rem
Shift

Operating System

See also p. 113

Microsoft
MSDOS files:
Command.com
Io.sys
Msdos.sys

IBM
PCDOS files:
Command.com
Ibmio.com
Ibmtdos.com

**Can Not Use
in a Network**

Chkdsk
Diskcomp
Diskcopy
Fastopen
Setver.exe
Share.exe
Shell
Smartdrv.
Smartdrv.
Stacks
Submenu
Switchar
Switches

**Can Not Use While
Running Windows**

@
Break
Call
Choice.c
Echo
For
Goto
IF
Pause
Rem
Shift

The Following PC-DOS

Version 6.0, 6.1, and 6.3

**Files are Not Described
in this Edition of Pocket
PCRef**

See page 113

Cmosclk.sys
Cpbackup
Cpbdir
Cpsched
Datamon
Drvlock
E
Eject
Ibmavd
Ibmavw
Ibmavsp
Installhigh
Meutoini
Mouse
Pcformat
Pcmata
Pcmcs.sys
Pcmcs.exe
Pcmfdd
Pcmfdd.exe
Pcinfo
Pcmmtd
Pcmmtd.exe
Pcmstd.exe
Pcmstd
Pcmvcd.386
Pendos
Pendev.sys
Qconfig
Ramboost.exe
Ramsetup
Schedule
Setup
Umbcga.sys
Umbems.sys
Umbherc.sys
Umbmono.sys
Wnbackup
Wnsched

DOS History

System File Sizes

DOS Type	Release Date	Command. COM	io and ibmbio	msdos & ibmdos
PC 1.0	8-4-81	3,231	1,920	6,400
MS 1.0				
PC 1.1	5-7-82	4,959	1,920	6,400
MS 1.25				
Zenith		4,986	1,713	6,138
PC 2.0	3-8-83	17,792	4,608	17,152
MS 2.0				
Wang 2.01	12-22-83	15,877	30,482(Bios)	17,521
PC 2.1	10-20-83	17,792	4,736	17,024
MS 2.11				
?mfg	11-17-83	15,957	6,836	17,176
PC 2.11	11-17-83			
PC 2.11	5-30-84	18,272	5,120	17,408
PCAT&T 2.11	6-5-85	15,957	6,917	17,176
MSSanyo2.11	9-83-84	16,117	5,164	17,019
MS 2.25				
PC 3.0	8-14-84	22,042	8,964	27,920
MS 3.0				
PC 3.1	3-7-85	23,210	9,564	27,760
MS 3.1				
PC 3.2	12-30-85	23,791	16,369	28,477
MS 3.2	7-7-86	23,612	16,138	28,480
MS 3.21	5-1-87			
ZenithMS 3.21	9-28-87	23,948	18,501	28,480
PC 3.3	3-17-87	25,307	22,100	30,159
MS 3.3	7-24-87	25,276	22,357	30,128
MS 3.3a	2-2-88	25,308	22,398	30,128
MS 4.0	10-6-88			
PC 4.01	3-89			
MS 4.01	11-30-88			
MS 4.01a	4-7-89	37,557	33,337	37,376
PC 5.0	5-9-91	47,987	33,430	37,378
MS 5.0	4-9-91	33,430	37,394	47,845
PC 5.00.1a	2-28-92	48,006	33,446	37,378
PC 5.02	9-1-92	47,990	33,718	37,362

System File Sizes

DOS Type	Release Date	Command. COM	io and ibmbio	msdos & ibmdos	Loaded System (if High)
MS 6.0	3-10-93	52,925	40,470	38,138	63,065 (17,197)
IBM 6.1	6-29-93	52,589	40,964	38,138	
PC 6.1	9-30-93	52,797	40,964	38,138	
MS 6.2R0	9-30-93	54,619	40,566	38,138	63,085 (22,093)
MS 6.22	5-31-94	54,645	40,774	38,138	63,085 (25,037)
PC 6.3	12-31-93	54,654	40,758	37,174	

NOTE: According to Microsoft, there were no official versions of MS-DOS prior to version 3.2. Prior to version 3.2, only OEM versions were sold with computers by the computer manufacturers. Slight variations in the sizes do occur, so use these as a general reference only. If you have one of the OEM versions listed above, for which there is no data, we would appreciate hearing from you so we can fill in the gaps. See page 4 for a contact address and phone number.

Starts AccessDOS: AccessDOS contains a set of public domain MS-DOS extensions developed for persons with motion and hearing disabilities by the University of Wisconsin.

Syntax (shaded is optional):

ADOS /a /c /L /m /x

Examples: ados /c

Syntax options:

- /a..... Starts installation of AccessDOS.
- /c..... Runs in color mode.
- /L..... Runs in LCD mode.
- /m..... Runs in monochrome mode.
- /x..... Runs in minimal mode.

Command Type and Version:

External command, Introduced with Ver 6.0.

Available in the MS-DOS 6.0, 6.21, and 6.22 Supplemental disks.

Notes:

1. See the ADOS.TXT and AREADME.TXT files in the Supplemental disks for user information.

ANSI.SYS

A device driver loaded through CONFIG.SYS allows the user to control the computer's display and keyboard. Once the ANSI.SYS driver has been loaded, ANSI escape code sequences

be used to customize both the display and keyboard. This was developed by the American National Standards Institute (ANSI).

Syntax (shaded is optional):

DEVICE = Drive:\Path\ANSI.SYS /x /k /r

Examples: device=c:\dos\ansi.sys /x

If ANSI.SYS is loaded, try the following example for some enhancement of a color display:

PROMPT \$e[35;44;1m\$P\$g\$e[33;44;1m

Syntax Options:

- Drive:..... Letter of drive containing \Path.
- \Path..... Directory containing ANSI.SYS.
- /x..... Remaps 101-key keyboards so that the extended keys operate independently.
- /k..... Extended keys on the 101-key keyboards will be ignored. This is particularly important on systems that do not accurately handle extended keyboard functions. Added in Version 5.0
- Used with screen-reading programs to adjust rate of line scrolling for easier reading.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 2.0

Notes:

The user has a lot of control over screen colors at the DOS level when the ANSI.SYS driver is loaded. See also PROMPT, p. 261. The .SYS extension must be used in the syntax.

Using the Escape Code sequences is sometimes not an easy task. See PC Magazines book *DOS Power Tools*, page 420, for an example of how to write simple programs to send these codes. Escape sequences are a series of characters beginning with ESCAPE (character 27) key, followed by open left bracket ([), and by parameters sometimes, and ending with a letter or numeric format. Note that the ending letter must be used in the correct upper or

Parameters used in the escape sequences are as follows:

<i>pl</i>	Line number (decimal value)
<i>pc</i>	Column number (decimal value)
<i>pn</i>	Specifies parameter is numeric.
<i>ps</i>	Specific decimal number for a function. Multiple <i>ps</i> functions are separated with a +

ANSI escape sequences:

ESC [*pl* ; *pc* H .. Moves cursor to a specific line (*pl* parameter) and column (*pc* parameter). If no *pl* or *pc* specified, the cursor goes to the Home position.

ESC [*pl* ; *pc* f .. Functions same as **ESC [*pl* ; *pc* H**.

ESC [*pn* A .. Moves Cursor Up *pn* number of lines. If cursor is on top line, ANSI.SYS ignores this sequence.

ESC [*pn* B .. Moves Cursor Down *pn* number of lines. If cursor is on the bottom line, ANSI.SYS ignores this sequence.

ESC [*pn* C .. Moves Cursor Forward *pn* number of columns. If the cursor is at the farthestmost right column, ANSI.SYS ignores this sequence.

ESC [*pn* D .. Moves Cursor Backward *pn* number of columns. If the cursor is at the farthestmost left column, ANSI.SYS ignores this sequence.

ESC [6n .. Reports status of selected device.

ESC [s .. Save Cursor Position. The cursor may be moved to the saved position by using the Restore Cursor sequence.

ESC [u .. Restore Cursor Position. Moves the cursor to the Save Cursor Position.

ESC [2 J .. Erase Display. Erases the screen and the cursor to the home position.

ESC [K .. Erase Line. Erases all characters from the cursor to the end of the line.

ESC [*ps* ; .. ; *ps* m Sets graphics functions (text attributes, foreground and background colors). Note: These functions stay active until a new set of parameters is issued with this command.

Text Attributes:	All Attributes Off. 0
	Bold On 1
	Faint On 2
	Italic On 3
	Underscore 4 (Mono adapter)
	Blink On 5
	Rapid Blink On 6
	Reverse Video On 7
	Concealed On 8

Colors	Foreground	Background
Black	30	40
Red	31	41
Green	32	42
Yellow	33	43
Blue	34	44
Magenta	35	45
Cyan	36	46
White	37	47

Example: Try using the following PROMPT command if you have a color monitor and ANSI.SYS has been loaded in CONFIG.SYS.

PROMPT \$e[35;44;1m\$g\$e[33;44;1m

ESC [= *ps* h .. Set Mode function. The active screen width and graphics mode type is changed with this sequence using the following values: ("mono" means monochrome).

Mode	Mode
<i>ps</i> (Graphics unless noted)	<i>ps</i> (Graphics unless noted)
0... 40 x 25 mono (text)	13... 320 x 200 color
1... 40 x 25 mono (text)	14... 640 x 200 color (16 color)
2... 80 x 25 mono (text)	15... 640 x 350 mono (2 color)
3... 80 x 25 color (text)	16... 640 x 350 color (16 color)
4... 320 x 200 (4-color)	17... 640 x 480 mono (2 color)
5... 320 x 200 mono	18... 640 x 480 (16 color)
6... 640 x 200 mono	19... 320 x 200 color (256 color)
7... Enables line wrapping	

ESC [= *ps* l (1 in the sequence to the left is a lower case L) This sequence resets the Mode sequence described above. The *ps* parameter uses the same values as those shown in the Set Mode sequence above.

ESC [*code* ; *string* ; ..P Redefine a specific keyboard key with a specific string of characters. *code* is one of the values in the ASCII Key Code table, on the next three pages, that represent keyboard keys or combinations of keys. Gray keys, keypad keys or codes shown in () in the table may not function on some keyboards (try using the /x switch on the ANSI.SYS command line. *string* is either the decimal ASCII code for a single character (76 is the letter "C") or a string of characters in quotes ("<"). For example:

ESC ["<" ; "+" p ESC ["+" ; "<" p
ESC [60 ; 43 p ESC [43 ; 60 p
 Both of the above sequences do the same task, they exchange the < and + keys.
 Note that it is not possible to alter the ALT and Caps Lock keys.

NOTE: Some values listed in the ASCII Key Codes table below may not be valid for all computers! If in doubt, be sure to check the computer's documentation for verification.

ASCII Key Codes for ANSISYS

Key	K means Key → K Code	SHIFT+K Code	CTRL+K Code	ALT+K Code
F1	0:59	0:84	0:94	0:100
F2	0:60	0:85	0:95	0:101
F3	0:61	0:86	0:96	0:102
F4	0:62	0:87	0:97	0:103
F5	0:63	0:88	0:98	0:104
F6	0:64	0:89	0:99	0:105
F7	0:65	0:90	0:100	0:106
F8	0:66	0:91	0:101	0:107
F9	0:67	0:92	0:102	0:108
F10	0:68	0:93	0:103	0:109
F11	0:133	0:135	0:137	0:110
F12	0:134	0:136	0:138	0:111
Home	0:71	55	0:119	—
Up Arrow	0:72	56	(0:141)	—
Page Up	0:73	57	0:132	—
Left Arrow	0:75	52	0:115	—
Right Arrow	0:77	54	0:116	—
End	0:79	49	0:117	—
Down Arrow	0:80	50	(0:145)	—
Page Down	0:81	51	0:118	—
Insert	0:82	48	(0:146)	—
Delete	0:83	46	(0:147)	—
Home (gray key)	224:71	224:71	224:119	224:119
Up Arrow (gray key)	224:72	224:72	224:141	224:141
Page Up (gray key)	224:73	224:73	224:132	224:132
Left Arrow (gray key)	224:75	224:75	224:115	224:115
Right Arrow (gray K)	224:77	224:77	224:116	224:116
End (gray key)	224:79	224:79	224:117	224:117
Down Arrow (gray key)	224:80	224:80	224:145	224:145
Page Down (gray key)	224:81	224:81	224:118	224:118
Insert (gray key)	224:82	224:82	224:146	224:146
Delete (gray key)	224:83	224:83	224:147	224:147
Print Screen	—	—	0:114	—
Pause/Break	—	—	0:0	—
Backspace	8	8	127	—

ASCII Key Codes for ANSISYS (cont.)

Key	K means Key → K Code	SHIFT+K Code	CTRL+K Code	ALT+K Code
Tab	9	0:15	(0:148)	(0:165)
Null	0:3	—	—	—
A	97	65	1	0:30
B	98	66	2	0:48
C	99	66	3	0:46
D	100	68	4	0:32
Enter	13	—	10	(0:28)
E	101	69	5	0:18
F	102	70	6	0:33
G	103	71	7	0:34
H	104	72	8	0:35
I	105	73	9	0:23
J	106	74	10	0:36
K	107	75	11	0:37
L	108	76	12	0:38
M	109	77	13	0:50
N	110	78	14	0:49
O	111	79	15	0:24
P	112	80	16	0:25
Q	113	81	17	0:16
R	114	82	18	0:19
S	115	83	19	0:31
T	116	84	20	0:20
U	117	85	21	0:22
V	118	86	22	0:47
W	119	87	23	0:17
X	120	88	24	0:45
Y	121	89	25	0:21
Z	122	90	26	0:44
[	49	33	—	0:120
\	50	64	0	0:121
]	51	35	—	0:122
^	52	36	—	0:123
_	53	37	—	0:124
`	54	94	30	0:125
~	55	38	—	0:126
—	56	42	—	0:127
—	57	40	—	0:128
—	48	41	—	0:129
(minus sign)	45	95	31	0:130
(equal sign)	61	43	—	0:131

ASCII Key Codes for ANSI.SYS (cont.)

Key	K means Key → K Code	SHIFT+K Code	CTRL+K Code	ALT+K Code
[(left bracket)	91	123	27	0:26
] (right bracket)	93	125	29	0:27
\ (back slash)	92	124	28	0:43
; (semi-colon)	59	58	—	0:38
' (apostrophe)	39	34	—	0:40
, (comma)	44	60	—	0:51
. (period)	46	62	—	0:52
/ (forward slash)	47	63	—	0:53
` (accent)	96	126	—	(0:4)
ENTER (on keypad)	13	—	10	(0:16)
/ (on keypad)	47	47	(0:142)	(0:7)
* (on keypad)	42	—	(0:144)	—
— (on keypad)	45	45	(0:149)	(0:1)
+ (on keypad)	43	43	(0:150)	(0:5)
5 (on keypad)	(0:76)	53	(0:143)	—

APPEND.EXE

Sets directory search order: Searches specified directories on specified drives to locate files outside of the current directory that have extensions other than .COM, .EXE, or .BAT. *Use Caution!*

Syntax (shaded is optional):

APPEND Drive:\Path /X /E /Path:on or off

Examples: APPEND /X /E
APPEND C:\WORDDATA; D:\P
APPEND ;

Syntax Options:

Drive: Letter of drive to be searched.
Path Directory searched for data files.

/X :on or :off Extends the DOS search path for specified files when executing programs. Processes SEARCH FIRST, FIND FIRST, and EXEC functions. :ON and :OFF, new to Version 5.0, toggles this switch on and off.

/Path :on or :off If path is already included for a program file, :on tells program to also search in appended directories. Default= :on; added in DOS Ver 5.0

/E Causes the appended path to be stored in the DOS environment and searched for there.

; Use ";" to separate multiple Drive:\Path statements on one line. APPEND ; by itself will cancel the APPEND list.

Command Type and Version:

External command; Network; Introduced with Ver 3.2

Notes:

1. /X and /E switches can only be used the first time you use Append. The line following the APPEND /X /E line contains the Drive:\Path.
2. You can not use any paths on the same command line as /X & /E.
3. :ON and :OFF switches are valid for Ver 5.0 and later.
4. Do not use APPEND with Windows.

ASSIGN.COM Removed V6.0

Assign disk drive: Instructs DOS to redirect disk operations on one drive to a different drive.

Syntax (shaded is optional):

ASSIGN Source = Target /status

Examples: ASSIGN A = B or ASSIGN A = B B = C
ASSIGN
ASSIGN /status

Syntax Options:

ASSIGN ASSIGN with no switch cancels redired drive assignments and sets them back to their original drives.

Source Letter(s) of source drive(s).

Target Letter(s) of target drive(s).
Starting with Version 5.0, a colon can be used with each assigned drive letter. For example; ASSIGN A: = B:

/Status Lists current drive assignments. Ver 5.

Command Type and Version:

External command; Network; Introduced with Ver 2.0
Removed from Version 6.0, considered too dangerous
Available in the MS-DOS 6.0, 6.21, 6.22 Supplemental Disks.

Notes:

1. DO NOT use a colon after a drive letter in versions prior to 5.0.
2. FORMAT, DISKCOPY, DISKCOMP, BACKUP, JOIN, LABEL, RESTORE, PRINT and SUBST cannot be used on ASSIGN drives.
3. Be careful to reassign drives back to their original designation before running other programs.
4. If ASSIGN and APPEND are both used, the APPEND command must be used first.
5. See also the SUBST command.

ATTRIB.EXE Removed

Changes or displays file attributes: Sets, displays or clears a files read-only, archive, system and hidden attributes.

Syntax (shaded is optional):

ATTRIB +r-r +a-a +s-s +h-h Drive:\Path\Filename /s

Examples: ATTRIB wordfile.doc
ATTRIB +r wordfile.doc
ATTRIB +r d:\worddata*. * /s

Syntax Options:

Drive: Letter of drive containing \path\filename.
/Path Directory containing filename.

Filename Filename(s) of which attributes are to be displayed or changed. Wildcards (? and *) can be used for groups of files.

+r Sets file to read-only.

-r Removes read-only attribute.

+a Sets the archive file attribute.

-a Removes the archive file attribute.

+s Sets file as a system file. Ver 5

-s Removes system file attribute. Ver 5

+h Sets file as a hidden file. Ver 5

-h Removes the hidden file attribute. Ver 5

/s ATTRIB command processes files in the current directory and its subdirectories.

Command Type and Version:

External command; Network; Introduced with Ver 3.0

Notes:

When the system or hidden attribute is set, the read-only and archive attributes cannot be changed.

The archive attribute is used by the DOS BACKUP, RESTORE, and XCOPY commands when their /m switch is used and also the XCOPY command when the /a switch is used.

@ (at)

Turns off the command echo function: In a batch file, placing the @ symbol at the start of a command line suppresses the echoed display of the command on the screen.

Syntax (shaded is optional):

@ command

Examples: @xcopy a:*.* b:

@ECHO off

Syntax Options:

command. . . Any DOS command.

Command Type and Version:

Batch command; Introduced with Ver 3.3

Notes:

1. Useful in preventing the words ECHO OFF from displaying on screen when ECHO OFF is used in a Batch file. This command is useful if all screen echos need to be turned off in a Batch file.
2. See also ECHO.

BACKINFO.EXE Removed V6

MS-DOS utility: Allows viewing of files on a backup disk created by the DOS Version 3.3, 3.31, 4.0, 4.01, and 5.0 BACKUP command.

Syntax (shaded area optional):

BACKINFO drive1:

Example: backinfo b:

Syntax options:

drive1: Drive containing the BACKUP disk

Command Type and Version:

External command, Introduced with Ver 3.3.

Removed from Ver 6.0

BACKUP.EXE Removed V6.0

Back up files: Backs up files from one drive to another drive. Source and target drives may be either hard disks or floppy disks. DOSV6 use MSBACKUP.

Syntax (shaded is optional):

BACKUP Source:\Path\Filename Target: /s /m
/a /d:date /t:time /f:size /L:LogDrive:\Path\Log

Examples: BACKUP C:*.* B: /s
BACKUP C:\DATA*.* B: /s /L:C:\LOG

Syntax Options:

Source:\Path . . . Source drive & directory to be backed up.
Filename Filename (s) to be backed up. Use of Wild cards (? and *) is allowed.
Target: Target drive for backed up files.
/s Backs up all files in Source:\Path and subdirectories under Source:\Path
/m Backs up all files that have changed since the last backup (backup looks at the files archive attribute) and then turns off the files archive attribute.
/a Adds new backup files to the existing backup disk (existing files are not deleted.) If a backup was made with DOS 3.2 or earlier, the /a switch is ignored.
/d:date Only files created or modified after date are backed up. The way date is written depends on COUNTRY.SYS settings.

/t:time Only files created or modified after time are backed up. The way time is written depends on COUNTRY.SYS settings. Always use the /d:date switch when /t:time is used.

/f:size Format backup disk to the following size (size can also be with k or kb, e.g. 160 can be 160k or 160kb; or 1200 can be 1200k, 1200kb, 1.2, 1.2m or 1.2mb, etc)

size	Disk size and type
160...	160k single sided DD 5.25"
180...	180k single sided DD 5.25"
320...	320k double sided DD 5.25"
360...	360k double sided DD 5.25"
720...	720k double sided DD, 3.5"
1200...	1.2meg double sided HD, 5.25"
1440...	1.44meg double sided HD, 3.5"
2880...	2.88meg double sided, 3.5"
	(DD=Double Density, HD=High Density)

/L: Creates a log file during a specific backup operation.

Logdrive:\Path. Drive & Directory where backup Log is to be sent.

Log Text file log of a backup operation.

Command Type and Version:

External command; Network; Introduced with Ver 2.0
Removed from Version 6.0, replaced with MSBACKUP
Available in the MS-DOS 6.0 and 6.22 Supplemental Disks.

Notes:

1. See also RESTORE, COPY, XCOPY, DISKCOPY, IF
2. The sequence number of a backup disk can be checked by doing a DIR of the backup disk (Valid for version after DOS 3.3)
3. BACKUP does not backup the 3 system files, COMMAND.COM, MSDOS.SYS (or IBMDOS.SYS), and IO.SYS (or IMBIO.SYS)
4. BACKUP/RESTORE commands are not very compatible between pre DOS 5.0 version. DOS 5.0 will restore previous versions.
5. Do not use BACKUP when the ASSIGN, JOIN, or SUBST commands have been used.
6. When the IF ERRORLEVEL functions are used, BACKUP Error Codes can be used to show why a backup failed (see IF):

130 BACKUP.EXE

Exit Code	Code Meaning
0.....	Successful backup
1.....	No files found to be backed up
2.....	File-sharing conflict, some files not backed up
3.....	BACKUP terminated by user with CTRL-C
4.....	Error terminated BACKUP procedure
7.....	Backup floppies are not readable by DOS, a special file format is used.

BASIC®.EXE and BASICA®.EXE

BASIC Computer Language: Depending on the system in use and version of DOS, it will run one of the BASIC interpreters (BASIC, BASICA, GW-BASIC, or QBASIC) and provide an environment for programming in the BASIC language. BASIC and BASICA are versions that were shipped with IBM® systems and were simply entry programs that started BASIC from the system's ROM. GW-BASIC is Microsoft's own version of BASIC that is shipped with MS-DOS versions through 4.01. For specifics on DOS 5.0/6.0 QBASIC, refer to page 262.

Syntax (shaded is optional):

BASIC **Filename**

Examples: BASIC Test.bas
BASICA

Syntax Options:

BASIC BASIC without a filename just starts the BASIC Interpreter.

Filename A program written in BASIC that is loaded and run when the BASIC interpreter starts. The files normally end with .BAS

Command Type and Version:

External command; Network; Introduced with Ver 1.0

BASIC®.EXE and BASICA®.EXE 131

Notes:

1. See also QBASIC and GW-BASIC.

BREAK

Turns on/off the DOS check for Control-C or Control-Break: Determines when DOS looks for a Ctrl-C or Ctrl-Break more frequently in order to stop a program.

Syntax (shaded is optional):

BREAK on off

Examples: **BREAK**

BREAK = ON (syntax for CONFIG.SYS)

BREAK ON (syntax at DOS prompt)

Syntax Options:

BREAK **BREAK**, with no switches or options, displays the current setting of **BREAK**.

ON Tells DOS to check for Ctrl-C or Ctrl-B from the keyboard, during disk reads and writes, and during screen and printer writes.

OFF Tells DOS to check for Ctrl-C or Ctrl-B from the keyboard only during screen and printer writes.

Command Type and Version:

Internal command; CONFIG.SYS and Batch command.
Introduced with Ver 2.0

Notes:

1. If **BREAK** is ON, your system will run slightly slower.
2. The default setting is **BREAK=OFF**.

BUFFERS

Sets number of disk buffers in memory: A disk buffer is a block of RAM memory that DOS uses to hold data while reading and writing data to a disk.

Syntax (shaded is optional):

BUFFERS = X ,Y

Examples: **BUFFERS** = 35

BUFFERS = 35,8

Syntax Options:

X The number of disk buffers allocated. The total may range from 1 to 99 for versions Ver 4.0 to 6.2x. Versions prior to 4.0 can be in the range from 2 to 255.

Default values are as follows:

Buffers Drive Configuration

- 2... <128K RAM & 360k drive only
- 3... <128K RAM & Disks over 360K
- 5... 128K to 255K RAM
- 10... 256K to 511K RAM
- 15... 512K or more RAM

Y The number of secondary cache buffers. The total may range from 1 to 8, the default is 1.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 2.0

Notes:

1. Each buffer takes up approximately 532 bytes of RAM.
2. Standard buffer sizes should range from 20 to 30, unless more are required by a specific application (such as Dbase III Plus®).
3. If a disk cache program, such as SMARTDRV.SYS is used, the number of buffers can be set at 8 to 15 (sometimes lower).
4. In Ver 5.0, if DOS is in high memory, buffers are also in high mem.
5. The number of buffers (up to 35) significantly affects system speed; over 35, speed still increases but at much slower rate.
6. /X switch from earlier DOS versions is no longer available.

Calls a batch program: Starts one batch program from inside another batch program, without causing the initial batch program to stop.

Syntax (shaded is optional):

CALL Drive:\Path\ Filename Parameters

Examples: CALL C:\TEST %1

Syntax Options:

Drive: Letter of drive containing path.

\Path Path containing filename.

Filename Filename specifies name of the batch program to be called. *Filename* must have a .BAT extension.

Parameters ... Specifies command-line information required by the batch program, including switches, filenames, pass through parameters such as %1, and variables

Command Type and Version:

Internal command; Batch; Introduced with Ver 3.3

Notes:

1. Any information that can be passed to a batch program can be contained in the *Batch-parameters*, including switches, filename replaceable parameters %1 through %9, and variables such as % Parity %
2. Pipes and redirection symbols cannot be used with CALL.
3. If a recursive call (a program that calls itself) is created, an exit condition must be provided or the two batch programs will loop endlessly.

Change directory: Changes (moves) to another directory or shows the name of the current directory path.

Syntax (shaded is optional):

CD Drive:\Path

Examples: CD (displays current drive and directory)
CD D:\PFS (change to PFS directory on D: drive)
CD\ (changes to root directory)

Syntax Options:

Drive: Drive containing the subdirectory to be changed. CD does not move to *Drive*; it remains on the current drive.

\Path Directory path name to be made current, if *Drive* is the current drive. If *Drive* is not the current drive, *\Path* is simply the active path on *Drive*; and the current drive and directory remain unchanged. Pathname can be no longer than 63 characters and (\) is to be used as the path's first character to move to the root directory.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. When a drive letter is not specified, the current drive is assumed.
2. CD .. specifies move up one directory level.

Change code page: Displays or changes the number of the active code page for the command processor COMMAND.COM.

Syntax (shaded is optional):

CHCP **ccc**

Examples: CHCP (reports current ccc setting)
CHCP 863

Syntax Options:

ccc. These are the numbers that represent the prepared system code pages defined by the COUNTRY.SYS command in the CONFIG.SYS file. Valid code page numbers are as follows:

437. United States
850. Multilingual (Latin I)
852. Slavic (Latin II)
860. Portuguese
863. Canadian-French
865. Nordic

Command Type and Version:

Internal command; Network; Introduced with Ver 3.3

Notes:

1. Once a specified code page has been selected, all programs that are started will use that new code page.
2. NLSFUNC (national language support functions) must be installed before a code page can be switched with CHCP.
3. MODE SELECT can also be used to change code pages.
4. See also DOS commands COUNTRY.SYS, NLSFUNC, DEVICE3, and MODE.

Checks disk: Scans the disk and reports size, disk memory available, RAM available and checks for and corrects logical errors. A status report is displayed on screen.

Syntax (shaded is optional):

CHKDSK **Drive:\Path\Filename /f/v**

Examples: CHKDSK C: /f
(If no Drive: is specified, the current drive is used.)

Syntax Options:

Drive: Drive letter of the disk to be checked.
Path Directory path containing file to be checked.
Filename Name of file to be checked by CHKDSK for fragmentation. Wildcards * & ? are allowed.
/f Fixes logical errors on the disk.
/v Verbose switch. Displays CHKDSK progress by listing each file in every directory as it is being checked.

Command Type and Version:

External command; Can NOT check a Network drive; Introduced with Ver 1.0

Notes:

1. CHKDSK analyzes a disk's File Allocation Table (FAT) and file system. /f must be specified in order to fix errors. If /f is not used, CHKDSK reports the error, but does not fix the error, even if you answer yes to fixing the error at the CHKDSK prompt.
2. When CHKDSK /f finds an error, it asks if you want to convert the "lost clusters" to files. If you answer Yes, files in the form FILE0001.CHK are created and the lost areas dumped into those files. You must then determine if any valuable info is in that file. If they don't contain useful information, delete them.
3. Do not use CHKDSK from inside any other program, especially Windows.
4. Only logical errors are repaired by CHKDSK, not physical errors.
5. CHKDSK will not work when SUBST, JOIN or ASSIGN has been used.

CHKSTATE is used only by MemMaker to track the memory optimization process: During the memory optimization process, MemMaker adds CHKSTATE.SYS to the beginning of the CONFIG.SYS file. When the memory optimization process is complete, MemMaker automatically removes CHKSTATE.SYS.

CHOICE.COM

New Ver 6.0

Pauses the system and prompts the user to make a choice in a batch file: This command can only be used in batch programs.

Syntax (shaded is optional):

CHOICE /C:keys /N /S /T:c,nn text

Syntax Options:

- /C:keys Defines which keys are allowed in the prompt. The : is optional. Displayed keys are separated by commas and will be enclosed in [] brackets. Multiple keystroke characters are allowed. Default is [Y] (yes/no).
- /N Prevents display of prompt, but the specified keys are still valid.
- /S Specifies that CHOICE is case sensitive.
- /T:c,nn Forces CHOICE to pause for nn seconds before defaulting to a specified key (c). nn can range from 0 to 99. The c key specified must be included in the /C:keys definition.

text Defines what text is displayed before the prompt. Quotation marks (") must be used if a "/" character is included in the prompt. Default for CHOICE is no text displayed.

Command Type and Version:

Internal Batch command; Network;
Introduced with Ver 6.0

Notes:

1. ERRORLEVEL 0 is returned if Control-C or Control-Break is pressed.

CLS

Clears or Erases Screen: All information is cleared from the DOS screen and the prompt and cursor is returned to the upper left corner of the screen.

Syntax (shaded is optional):

CLS

Examples: CLS

Syntax Options:

None

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. Screen colors set by ANSI.SYS will remain set.

- If more than one video display is attached to the system, only the active display is cleared.
- If ANSI.SYS is not loaded on the system, CLS will clear the screen to gray (or amber on an amber monitor, etc) on black.

COMMAND.COM

Start a new DOS command processor: The command processor is responsible for displaying the prompt on the computer's display and contains all of the Internal DOS commands. It is also used to set variables such as environment size. Use the EXIT command to stop the new processor.

Syntax (shaded is optional):

```
COMMAND Drive:\Path\Device /e:xxxx /y
      /c text /k
```

In CONFIG.SYS use the following:

```
SHELL = Drive:\Path\ COMMAND.COM
      /e:xxxx /p /msg
```

Examples: COMMAND /e:1024
(use the following in CONFIG.SYS with SHELL)
SHELL = Drive:\Path\COMMAND.COM /e:512 /p

Syntax Options:

Drive:\Path ... Drive and \Path of the command device. Must be included if COMMAND.COM is not located in the root directory.

\Device ... Device for command input or output (see the CTTY command on page 146).

/e:xxxx ... Set environment size in bytes (xxxx). Default for Ver 5.0, 6.0, and 6.2x = 256 bytes; default for versions before 5.0 is 160 bytes. Range is 160 to 32768 bytes.

/p ... Makes the new command processor the permanent processor. Used only with SHELL command.

/c text ... Forces the command processor to perform the commands specified by *text*. On completion, it returns to the primary command processor. Must be last switch on command line.

/msg ... Causes error messages to be stored in memory. The */p* switch must also be used when */msg* is used.

/k **6** ... Execute a command, but after the command is executed, do not terminate the second COMMAND.COM that is running. Must be last switch on command line.

/y **62** ... Tells COMAND.COM to step through files specified by the */c text* or */k* switches.

Command Type and Version:

External command;
CONFIG.SYS command when used with SHELL;
Introduced with Ver 1.0

Notes:

- See also CTTY, EXIT and SHELL
- Default environment sizes are commonly not large enough. Try setting the environment to 512 or 1024.
- In Version 6.0, if DOS is unable to find COMMAND.COM, a warning message is issued that allows the user to "Enter correct name of Command Interpreter (e.g., C:\COMMAND.COM)". This is a much improved error handling function and allows the system to complete the booting process.
- Exercise caution when you are "messing around" with COMMAND.COM. It can get the user into some dangerous situations!
- The SHELL command in CONFIG.SYS is the preferred method of increasing the environment size with the */e:xxxx* switch.

Compare files: Compares the contents of two sets of disk files to see if they are the same or different. The comparison is made on a byte by byte basis. COMP displays filenames, locations and the differences found during the compare process.

Syntax (shaded is optional):

COMP Drive1:\Path1\File1 Drive2:\Path2\File2
/d /a /L /n=xx /c

Examples: COMP (prompts for file locations)
COMP C:\File1 D:\File2 /a

Syntax Options:

Drive1: Drive2: Letters of drives containing the file (s) to be compared.

\Path1 \Path2 . Paths of files to be compared.

File1 File2 Filenames to be compared. The names may be the same if they are in different locations. Wild cards (*) are allowed.

/d Displays file differences in decimal format, the default format is hexadecimal. Ver 5

/a File differences displayed as characters. Ver 5.0

/L Display Line numbers with different data instead of byte offsets. Ver 5.0

/n=xx Compares the first number of lines (xx) in each file, even if files are different sizes. Ver 5.0

/c Upper and lower case is ignored. Ver 5

Command Type and Version:

External command; Network; Introduced with Ver 1.0
Removed from Ver 6.0, replaced by FC.

Available on the MS-DOS 6.0, 6.21, and 6.22 Supplemental Disks.

1. If the drive, path and filename information is not specific enough, COMP will prompt for the correct information
2. If more than 10 mismatches are found, COMP ends the compare.
3. See also DISKCOMP (for floppy disk comparisons) and FC.

COPY

Copies file(s) from one location to another:

Files can also be combined (concatenated) using COPY.

Syntax (shaded is optional):

COPY /y /-y /a /b Source /a /b+Source /a /b + . . .
Target /a /b /v

Examples: COPY C:\Test*. * D:\Test2
COPY Test1.txt + Text2.txt Test3.txt /a

Syntax Options:

Source Source Drive, Directory, and File(s) or Devices to be copied **from**.

Target Destination Drive, Directory, and File(s) or Devices being copied **to**.

/a Denotes an ASCII text file. If /a preceeds a filename, that file and all following files are treated as ASCII files until a /b switch is encountered, then files that follow are considered to be binary files. If /a follows a filename, it applies to all files before and after the /a until a /b switch is encountered, then files that follow are considered to be binary files.

/b Denotes a Binary file. If /b preceeds a filename, that file and all following files are treated as binary files until a /a switch is encountered, then files that follow are considered to be binary files.

low are considered to be ASCII files. If `/b` follows a filename, it applies to all files before and after the `/b` until a `/a` switch is encountered, then files that follow are considered to be ASCII files. If `/b` forces copy to read exactly the number of bytes allocated to the file's size in the directory.

- `/v` Verifies files were copied correctly.
- `/y` **62** Directs COPY to replace existing file without confirmation prompt. Confirmation prompt is default.
- `/-y` **62** Directs COPY to ask for confirmation prior to replacing existing files.

Command Type and Version:

Internal command; Network; Introduced with Ver 1.0

Notes:

- COPY will only copy the contents of 1 directory. If a directory and its subdirectories need to be copied, use the XCOPY command.
- COPY will not copy files 0 bytes in length, use XCOPY instead.
- Both *Source* and *Destination* can be a device such as COM1: or LPT1:, however, when sending to *Destination*, if the `/b` switch is used, all characters, including control codes, are sent to the device as data. If no switch is used, the data transfers as ASCII data and the transmitted control codes may perform their special function on the device. For example, if a Ctrl + L code is sent to a printer on LPT1:, the printer will form feed.
- If *Destination* Filename is not specified, COPY will create a file with the same name and date and time of creation in the current directory (*Target*). If a file with the same name as *Filename* exists in the current directory, DOS will not copy the file and display an error message that says "File cannot be copied onto itself. 0 Bytes Copied".
- If the `+` function is used to combine files, it is assumed that the files are ASCII files. Normally you should NOT combine binary files since the internal format of binary files may be different.
- `/v` slows down the copy process. If a verify error occurs, the message is displayed on the screen.
- In order to change the date and time of a file during the copy process, use the following syntax:
COPY /b Source +, ,
- See also DISKCOPY and XCOPY.

COUNTRY and COUNTRY.SYS

Country dependent information: Enables DOS to use international time, date, currency, and case conversions.

Syntax (shaded is optional):

COUNTRY= `ccc` `ppp` `Drive:\Path \Filename`

Examples: COUNTRY = 002

Syntax Options:

- `ccc` Country code number. Default 001, USA
- `ppp` Code page number.
- `Drive:\Path` ... Drive & subdirectory containing *Filename*.
- `Filename` File containing country information.

Command Type and Version:

CONFIG.SYS; Introduced with Ver 3.0

Notes:

- COUNTRY is put in CONFIG.SYS. If the `Drive:\Path\Filename` option is not used to specify which file contains country information, COUNTRY.SYS must be in the root directory of the system's boot drive so that COUNTRY can retrieve the country data.

Country Code	Country or Language	Code Page	Time Format	Date Format
001	United States	437, 850	2:35:00.00p	06-30-1991
002	Canadian-French	863, 850	14:35:00.00	1991-06-30
003	Latin America	850, 437	2:35:00.00p	30/06/1991
004	Netherlands	850, 437	14:35:00.00	30-06-1991
005	Belgium	850, 437	14:35:00.00	30/06/1991
006	France	850, 437	14:35:00.00	30.06.1991
007	Spain	850, 437	14:35:00.00	30/06/1991
008	Hungary	852, 850	14:35:00.00	1991-06-30
009	Croatia/Slovenia	852, 850	14:35:00.00	1991-06-30
010	Yugoslavia/Serbia	850, 437	14:35:00.00	30/06/1991
011	Italy	850, 437	14:35:00.00	30.06.1991
012	Switzerland	852, 850	14:35:00.00	1991-06-30
013	Czech Rep/Slovakia	437, 850	14:35:00.00	30/06/1991
014	United Kingdom	850, 865	14:35:00.00	30.06.1991
015	Denmark	850, 437	14:35:00.00	1991-06-30
016	Sweden	850, 865	14:35:00.00	30.06.1991
017	Norway	852, 850	14:35:00.00	1991-06-30
018	Poland	850, 437	14:35:00.00	30.06.1991
019	Germany	850, 437	14:35:00.00	30/06/1991
020	Brazil	850, 437	14:35:00.00	30/06/1991

061	International English	437, 850	14:35:00.00	30-06-1991
351	Portugal	850, 860	14:35:00.00	30-06-1991
358	Finland	850, 437	14:35:00.00	30-06-1991

CTTY

Change to a remote console: Allows you to choose the device from which you issue commands. USE WITH CAUTION, you could lose control of your system!

Syntax (shaded is optional):

CTTY Device

Examples: CTTY aux
CTTY com1
CTTY con

Syntax Options:

Device Any valid DOS device for issuing commands. Examples include com1, com2, com3, com4, con, aux, prn (rare)

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. *Device* refers to a character-oriented remote unit, or secondary terminal, that will be used for command input and output. This device name must be a valid MS/PC-DOS name, specifically, AUX, COM1, COM2, COM3, COM4, CON. The use of a colon after the device name is optional.
2. *ctty con* moves the input and output back to the main terminal (the local console screen and keyboard).
3. *When redirected, some programs that are designed to work with the video display's control codes may not function correctly.*
4. Other redirected IO or piping is not affected by CTTY.
5. CAUTION: the command CTTY NUL will disconnect the screen and keyboard !!! Do not use unless the CTTY CON command is executed under some type of program control, such as a batch file.

CV starts the CodeView program: CodeView is a debugging utility for programs written in C.

Command Type and Version:

External command, Introduced with Ver 5.0.
Removed Ver. 6.2.

Available in the MS-DOS 6.0, 6.21, and 6.22 Supplemental Disks.

Notes:

1. CAUTION- Using CodeView CV.EXE Versions 3.0 to 3.13 with a 80386 memory manager such as EMM386 may cause loss of data. This problem has been fixed in Version 3.14 of CodeView. To start CodeView Versions 3.0 to 3.13 safely, use CV.COM.
2. Use HIMEM.SYS Version 2.77 or later with CodeView.

DATE

Date: Change and /or display the system date.
(Note: This does not reset the computer's battery powered clock if DOS 3.21 or earlier is used.)

Syntax (shaded is optional):

DATE month-day-year

Examples: **date mm-dd-yy** (for North America)

Note: If COUNTRY in config.sys is set for a country other than a North American country, then the following syntax is used:

DATE dd-mm-yy for Europe
DATE yy-mm-dd for Far East

Syntax Description and Options:

month One or two digit number (1 to 12)

day..... One or two digit number (1 to 31). DOS knows the correct number of days in each month (28, 29, 30 or 31).
year..... Two or four digit number (80 to 99 - The 19 is assumed for 1980 to 1999).

Command Type and Version:

Internal command; Network; Introduced with Ver 1.0

Notes:

1. You may separate the day, month and the year by the use of hyphens, periods or slashes.
2. If a system does not have an AUTOEXEC.BAT file in the root directory of the boot drive, the date and time functions are activated automatically when the system starts and the user is prompted for change or confirmation.
3. DOS has been programmed to change the year, month and day and adjusts the number of days in a month accordingly. DOS also knows which months have 28, 29, 30, or 31 days. DOS will issue errors if valid dates are not used.
4. Beginning with DOS 3.3, DATE and TIME both set the system's CMOS (battery powered) calendar (except in XT class systems).
5. See also TIME

DBLBOOT.BAT Removed V6.22

Creates a bootable DBLSPACE floppy disk:

Syntax (shaded is optional):

DBLBOOT drive1:

Example: dblboot a:

Syntax options:

drive1:..... Drive containing floppy disk to be compressed.

Command Type and Version:

External command, Introduced with MS-DOS Ver 6.0.

Available in the MS-DOS 6.0, 6.21, and 6.22 Supplemental Disks; Removed in version 6.22.

Notes:

1. DBLBOOT works only on high-density floppy disks (1.44 or 1.2 MB).
2. DBLSPACE must be installed prior to using DBLBOOT.

DBLSPACE.EXE

New V6.0

Danger V6.0

Removed V6.22

Utility to compress both hard and floppy disk drives so that there is more available storage space on the drive: Once the .EXE program has been run, DBLSPACE.SYS must be included in CONFIG.SYS. *Many problems have been reported with the DOS 6.0 version of this program. USE WITH CAUTION or not at all, you could lose data on your drive!*

Syntax (shaded is optional):

DBLSPACE /Automount /Chkdsk /Compress /Convstac /Create /Defragment /Delete /Format /Info /List /Mount /Ratio /Size /Unmount

Syntax Options:

- /Automount ... Automatically mount a compressed disk.
/Chkdsk ... Check the validity of a compressed disk's directory and FAT and report the status of the drive.
/Compress ... Start the compression process on a drive.

- / Convstac.... Removed V6.2 Converts a Stacker compressed drive to a DBLSPACE compressed drive.
- / Create Creates a new compressed drive in the free space of an existing drive.
- / Defragment.. Defragment the files on an existing drive.
- / Delete Remove a compressed drive.
- / Format Format a compressed drive.
- / Info Display detailed information on a compressed drive.
- / List Display a list of both compressed and uncompressed drives on a system. It does not report network drives.
- / Mount Mount a compressed drive.
- / Ratio Display and change the estimated compression ratio of a compressed drive.
- / Size Change the size of a compressed drive.
- / Uncompress^{as} Uncompresses a drive compressed by DBLSPACE.
- / Unmount Unmount a compressed drive.

Command Type and Version:

External command; Introduced with Ver 6.0
 Removed with Ver. 6.2, revision 2, and replaced by DRVSPACE.

Notes:

1. DBLSPACE can be run as a menu driven utility or with the command line switches listed under Syntax Options.
2. The maximum size of a DBLSPACE volume is 512 MB.
3. Default cluster size of a compressed volume is 8K.
4. When DBLSPACE.EXE is run, DBLSPACE.SYS is automatically placed in CONFIG.SYS as part of the installation process.
5. See Also DBLSPACE.SYS

DBLSPACE.SYS

New V6.0

Danger V6.0

Removed Ver 6.22

Device driver that activates a compressed drive: DBLSPACE.SYS determines the final memory location of DBLSPACE.BIN, which provides access to the compressed drives. **Many problems have been reported with the DOS 6.0 version of this program. USE WITH CAUTION or not at all, you could lose data on your drive!**

Syntax (shaded is optional):

DEVICE = Drive:\Path\ DBLSPACE.SYS

/ Move / Nohma

Examples: DEVICE = C:\DBLSPACE.SYS

It may also be loaded high using:

DEVICEHIGH = C:\DBLSPACE.SYS / Move

Syntax Options:

- Drive\ Path .. Drive and Path of the DBLSPACE.SYS
- / Move Moves the DBLSPACE.BIN file to a different location in memory. By default it is loaded at the top of conventional memory. /Move moves it to the bottom of conventional memory. Note that if DEVICEHIGH is used, it can be moved to upper memory, thereby freeing up conventional memory.
- /Nohma Tells DBLSPACE.SYS not to move DBLSPACE.BIN into high memory.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 6.0
 Removed with Ver. 6.2, revision2, and replaced by DRVSPACE

Notes:

1. DBLSPACE can be run as a menu driven utility or with the command line switches listed under Syntax Options.
2. DBLSPACE.SYS is automatically inserted into CONFIG.SYS when the DBLSPACE.EXE installation program is run.
3. See also DBLSPACE.EXE and DEVICEHIGH.

DEBUG.EXE

Starts a debugging program: Debug is a program that provides a testing environment for binary and executable programs, i.e. all programs that have .EXE or .COM extensions. It is also commonly used to run executable programs that are in memory, such as a hard drive's setup program stored in ROM on a hard drive controller. The full use of DEBUG is beyond the scope of this book. Refer to books such as Microsoft's *DOS Manuals* or PC Magazine's *DOS Power Tools*.

Syntax (shaded is optional):

There are two methods of starting DEBUG.

Method 1:

DEBUG **Drive:\Path** **Filename** **Parameter**

Method 2:

DEBUG

Examples:

Method 1: DEBUG C:\test.exe

Method 2: DEBUG (run in command line mode)

Syntax Options:

Method 1:

Drive:\Path ... Drive and Path of the executable **Filename** to be tested.

Filename ... Name of executable file to be tested.

Parameter ... Command line information needed by **Filename**.

Method 2:

Debug ... Starts DEBUG in the command line mode where debug commands are given at the DEBUG hyphen prompt (-).

Command Type and Version:

External command; Introduced with Ver 1.0

Debug Commands for Method 2:

Case makes no difference; address and range is in hex

? ... Display list of all DEBUG commands.

A **address** ... Assemble 8086/8087/8088 mnemonics directly into memory at **address** (hex).

C **range address** Compares contents of two memory blocks. **range** is the starting and ending address or starting address and length of Block 1 and **address** is the starting address of Block 2.

D **range** ... Dump (display) contents of memory with starting and ending addresses of **range**.

E **address data** Enter data into memory starting at **address**. **data** is entered into successive bytes of memory.

F **range data** ... Fill memory with **data** (hex or ASCII) in starting and ending addresses or starting address & length defined by **range**.

G=**address bkp**. Run program in memory starting at **address**. **bkp** defines 1 to 10 temporary breakpoints.

H **hex1 hex2** ... Does hexadecimal math on **hex1** & **hex2**. Two results are returned, first the sum of **hex1** and **hex2**; second, **hex1** minus **hex2**.

I **port** ... Read (input) & display 1 byte from **port**.

L **address drive:star number** ... Load a file or specific drive sectors into memory. **address** is the memory location you want to load to. **drive** contains the sectors to be

read. *start* is the hex value of the first sector to be read. *number* is the number of consecutive sectors to load.

M range address Copies memory contents from the starting and ending address or starting address and length of *range*. *address* is the starting address of the destination.

N d:\path\file parameters . . . Name the drive:\path\filename of an executable file for Debug *L* or *W*. Also used to specify *parameters* for the executable file. *N* by itself clears the current specification.

O port data . . . Output *data* to a *port* (by address).

P=address value Run a loop, string instruction, subroutine, or software interrupt starting at *address* and for *value* number of instructions.

Q Stop DEBUG without saving the file being tested. Returns to DOS.

R register Display or alter CPU (central processing units) *register*. *R* by itself displays contents of all registers.

S range data . . . Search for *data* at the beginning and ending address of *range*.

T=address value Trace instructions starting at *address* and for *value* number of instructions.

U range Unassemble code at the start & end address or start address & length of *range*.

W address drive:start number . . . Write a file or specific drive sectors into memory. *address* is the memory location you want to write to. *drive* contains the sectors to be written. *start* is the hex value of the first sector to be written. *number* is the number of consecutive sectors to write.

XA count Allocate count number of 16k expanded memory pages.

XD handle Deallocate a handle to expanded memory.

XM Lpage Ppage handle

Map a *Lpage* logical page of expanded memory belonging to *handle*, to a *Ppage* physical page of expanded memory.

XS Display status information of expanded memory.

DEBUG ERROR MESSAGES: BF=Bad Flag; BP=Too many breakpoints; BR=Bad Register; DF=Double Flag

DEFRAG.EXE

New V6.0

Reorganizes or defragments a disk in order to optimize disk drive performance.

Syntax (shaded is optional):

DEFRAG Drive: /F /U /S:order /B /Skiphigh
/LCD /BW /GØ /A /H

Examples: DEFRAG C: /U /B

Syntax Options:

Drive: Drive letter to be defragmented.

/F Insures that no empty disk space remains between files.

/U Leaves empty space, if any, between files.

/S:order . . . Sort files in a specific sort "*order*".

N . . In alphabetic order by name

-N . . In reverse alphabetic name order

E . . In alphabetic order by extension

-E . . In reverse alphabetic order by extension

D . . By date & time, earliest first

-D . . By date & time, latest first

S . . By size, smallest first

-S . . By size, largest first

/B Reboot system after DEFRAG is done.

- / Skiphigh . . . Load DEFRAG into conventional memory, instead of the default upper memory.
- / LCD Start DEFRAG in LCD color scheme mode.
- / BW Start DEFRAG in black & white color mode.
- / G0 Disable graphics mouse and character set.
- / A Start DEFRAG in Automatic mode.
- / H Moves hidden files.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. Do not use DEFRAG while Windows is running.
2. DEFRAG exit codes (ERRORLEVEL parameter) are:
 - 0 Successful defragmentation.
 - 1 Internal error.
 - 2 No free clusters, DEFRAG needs at least 1 free cluster.
 - 3 Process aborted with CTRL+C by user.
 - 4 General error.
 - 5 Error occurred while reading a cluster.
 - 6 Error occurred while writing a cluster.
 - 7 Allocation error, correct using SCANDISK.
 - 8 Memory error.
 - 9 Insufficient memory for defragmentation.

DEL or ERASE

Delete or Erase: Deletes specified files from a directory.

Syntax (shaded is optional):

DEL Drive:\Path\ **Filename** /p

Examples: DEL *.*
 DEL *.exe
 DEL C:\budget\1990 /p
 ERASE C:\Bin*.dbf

Syntax Options:

- Drive: Drive letter containing \Path
- \Path Subdirectory containing \Filename
- \Filename Filename(s) to be deleted.
- /P Screen prompts user for confirmation of the file(s) to be deleted.

Command Type and Version:

Internal command; Network; Introduced with Ver 1.0

Notes:

1. Use of wildcards * and ? is allowed. Use DEL *.* with caution, it will delete all files in the current directory. If you happen to be in the root directory of your boot drive when DEL *.* is used, COMMAND.COM, AUTOEXEC.BAT, CONFIG.SYS, etc will be deleted and the system will probably not start.
2. Files may be UNDELETED in DOS Versions 5.0, 6.0, and 6.2x.
3. See also RMDIR, MIRROR, and UNDELETE.

DELOLDOS.EXE Removed V6.2

Directs DOS to delete the OLD_DOS directory:

During setup (installation) DOS moves any previous DOS version files to a directory called OLD_DOS. The DELOLDOS command deletes the OLD_DOS directory and all contained files.

Syntax (Shaded is optional):

DELOLDOS

Examples: deloldos

Syntax options: None

Command Type and Version:

External command, Introduced Ver 6.0. Removed 6.2

Notes:

1. Deloldos should be the last step in the installation process for DOS Ver 6.0. When finished, DELOLDOS also deletes itself!

DELTREE.EXE

New V6.0

Deletes a directory and all the files and subdirectories that are in it: Exercise caution when using this command.

Syntax (shaded is optional):

DELTREE /Y Drive:\Path\Filename

Examples: DELTREE /Y A:*.*
DELTREE /Y C:\DATA

Syntax Options:

Drive:..... Drive letter containing \Path
\Path..... Subdirectory containing \Filename
\Filename.... Filename(s) to be deleted.
/Y..... Completes DELTREE without first prompting for confirmation of the deletion. Don't use this switch if you can avoid it.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. If a filename is not specified, all files and subdirectories in the Drive:\Path are deleted.
2. Wild card are supported in the filenames.
3. Attributes such as read only, system and hidden are ignored when a filename is specified.
4. See also DEL and RMDIR.

DEVICE

Loads a device driver into memory: Device drivers are loaded by way of CONFIG.SYS.

Syntax (shaded is optional):

DEVICE = Drive:\Path\ Filename Parameters

Examples: DEVICE = C:\Dos\Himem.sys
DEVICE = Smartdrv.sys 1024 512

Syntax Options:

Drive:\Path ... Drive and directory(s) containing Filename.
\Filename Driver to be loaded.
Parameters ... Switches and/or parameters needed by the device driver.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 2.0

Notes:

1. Standard installable device drivers are: ANSI.SYS, DISPLAY.SYS, DRIVER.SYS, EGA.SYS, PRINTER.SYS, RAMDRIVE.SYS, EMM386.EXE, HIMEM.SYS, and SMARTDRV.SYS. SMARTDRV.SYS is in DOS 5.0 only. SMARTDRV.EXE replaced it first in Windows and then in DOS 6. Other device drivers, such as SETVER and DBLSPACE or DRVSPACE may also be loaded.
2. COUNTRY.SYS and KEYBOARD.SYS are files, not device drivers. Do not try to load either of these files using the DEVICE command or your system will lock up and DOS will not be able to restart.
3. When new devices are purchased, such as a mouse or scanner, you will usually receive device driver software. Use DEVICE to install these drivers, making certain that the device driver is in the specified directory.
4. Install third party console drivers before DISPLAY.SYS.
5. See also DEVICEHIGH.

Load a device driver into upper memory: After DOS=umb and HIMEM.SYS have been loaded in CONFIG.SYS, DEVICEHIGH makes it possible to load device drivers into the upper memory area. Loading devices high will free up conventional memory for other programs.

Syntax (shaded is optional):

DEVICEHIGH = Drive:\Path\ Filename dswitch
or
DEVICEHIGH SIZE=hexsize Drive:\Path
Filename dswitch

DEVICEHIGH /L:(see below) /S Drive:\Path
⑥ Filename dswitch

Examples: DEVICEHIGH = C:\Filename.sys
DEVICEHIGH SIZE=FF C:\Filename.sys

Syntax Options:

Drive:\Path ... Drive and Path of driver to be loaded high.
Filename ... Device driver to be loaded high.
dswitch ... Command line switches required by the device driver being loaded.
SIZE= hexsize Minimum number of bytes (in hex) that must be available for DEVICEHIGH to try to load a driver in high memory. Ver 5
/L:region1[,minsize1];region2[,minsize2] ⑥ ...

This switch specifies one or more memory regions into which to load a device driver. Normally, DOS loads the driver into the largest free UMB. /L allows a specific region to be selected. See your DOS manual for detailed information on using this switch.

/S ⑥ ... Use /S only in conjunction with /L.
/S shrinks the UMB to its minimum size while a driver is loading and therefore makes the most efficient use of memory.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 5.0
Updated with different switches in Ver 6.0

Notes:

- DOS=umb and HIMEM.SYS must be loaded before DEVICEHIGH in order to function. The following is typical in CONFIG.SYS:
DEVICE = C:\HIMEM.SYS
DOS = umb
DEVICE = C:\DOS\EMM386.EXE
DEVICEHIGH = C:\Filename.sys
As the example shows, EMM386.EXE or a comparable third-party product must be loaded before DEVICEHIGH will work. See DOS for more information.
- If the driver being loaded high requires more high memory than is available, the system may lock-up. Use SIZE= to specify the memory required by the driver, after determining how much memory the driver normally takes by using MEM /DEBUG.
- See also DOS, LOADHIGH, HIMEM.SYS and EMM386.
- In MS-DOS Ver 6.0, see also MEMMAKER.

DIR

Directory: Displays the list of files and subdirectories within the current or a designated directory.

Syntax (shaded is optional):

DIR Drive:\Path\Filename /p /w /a:attrib
/o:sort /s /b /L /c (hd)

Examples: DIR or DIR *.* (wild cards are allowed)
DIR *.exe /p

Syntax Options:

Drive:\Path ... Drive and subdirectory to be listed
Filename ... File name(s) and/or extension to display.

- /p** Displays a screen of information, then pauses until any key is pressed.
- /w** Displays a wide screen list of files and subdirectories, but the file creation date & time, file size, and <DIR> subdirectory indicator are not shown.
- /a : attrib** Displays only files with *attrib* attributes: h=hidden, -h=not hidden, s=system, -s=not system, d=directories, -d=files, a=files ready for archive, -a=files not changed, r=read only, -r=not read only. Introduced with Ver 5.0
- /o : sort** Displays by *sort* order: n=alphabetic by name, -n=reverse alphabetic, e=alphabetic by extension, -e=reverse extension alphabetic, d=earliest date/time 1st, -d=latest date/time 1st, s=smallest first, -s=largest 1st, g=group directories before files, -g=group directories after. Introduced with Ver 5.0
- ⑥c**=compression ratio (least compressed first), -c=compression ratio (most compressed first)
- /s** Show all occurrences in both the current directory and all subdirectories below it. Introduced with Ver 5.0
- /b** Displays directory 1 line at a time. Ver 5
- /L** Displays unsorted names in lowercase. Introduced with Ver 5.0
- /c (hd) ⑥** ... Displays compression ratio. The option (hd) switch displays compression ratio of DBLSPACE files based on cluster size of host drive. If /w or /b switches are used, /c (hd) is ignored.

Command Type and Version:

Internal command; Network; Introduced with Ver 1.0

Notes:

1. The date and time formats displayed by the **DIR** command will vary, depending on which COUNTRY code is in CONFIG.SYS.

DISKCOMP.COM

Compares Disks: Compares the contents of the floppy disk in the Source drive to the contents of the floppy disk in the Target drive.

Syntax (shaded is optional):

DISKCOMP Source: Target: /1 /8

Examples:

DISKCOMP (first floppy disk drive is used)

DISKCOMP A: B: /1

Syntax Options:

- Source:** Source drive containing one of the floppy disks to be compared.
- Target:** Target drive containing the other disk to be compared.
- /1** Compares only the first side of disks.
- /8** Compares first 8 sectors per track.

Command Type and Version:

External command; Not for network. Introduced with Ver 1.0

Notes:

1. DISKCOMP must be used with identical size floppy disks. It cannot be used with a hard drive.
2. If a target drive is not specified, DISKCOMP uses the current drive.
3. DISKCOMP prompts you when to swap disks as necessary.
4. DISKCOMP cannot compare double-sided disk with single-sided disk, or double-density disk with high-density disk.
5. Do not use DISKCOMP on a drive that is affected by the ASSIGN, JOIN, or SUBST commands or DISKCOMP will display an error message. Do not use DISKCOMP on a network drive.
6. When using DISKCOMP to compare a disk made with the COPY command, although it is duplicate information, COPY may not put the information in the same location on the target disk and DISKCOMP will display an error message.

7. DISKCOMP exit codes are:
 - 0 Disks are the same.
 - 1 Disks are different.
 - 2 Process aborted with CTRL+C by user.
 - 3 Critical error.
 - 4 Initialization error.

DISKCOPY.COM

Copies disks: Copies entire contents of the disk (including the DOS system files) in the source drive onto the disk in the target drive.

Syntax (shaded is optional):

DISKCOPY Source: Target: /1 /v /m

Examples:

DISKCOPY (current drive must be A: or B:)
DISKCOPY A: B: /1
DISKCOPY A: A: (prompts to change disks)

Syntax Options:

Source: The floppy disk to be copied.
Target: The floppy disk to be copied to.
/1 Copies one side of disk.
/v Verifies that information is correctly copied.
Introduced with Ver 5.0
/m **62** Forces the use of only conventional memory for interim storage.

Command Type and Version:

External command; Not for networks; Introduced Ver 1.0

Notes:

1. DISKCOPY must be used with identical size floppy disks only. It will not work with a hard disk.
2. If you do not enter a target drive, DOS uses the default drive as the target drive and DISKCOPY will overwrite all information that is on the target disk.

5. DISKCOPY will duplicate disk fragmentation from the source disk. Using the COPY command or the XCOPY command will give you a new disk that will be in sequential order and will not be fragmented.
4. DISKCOPY works only with removable (i.e. floppy) uncom-pressed disks.
5. DISKCOPY exit codes (ERRORLEVEL parameter) are:
 - 0 Successful copy.
 - 1 Nonfatal read/write error.
 - 2 Process aborted with CTRL+C by user.
 - 3 Critical error.
 - 4 Initialization error.

DISPLAY.SYS

Driver that supports code page switching for the display: Supported types include Mono, CGA, EGA (includes VGA), and LCD.

Syntax (shaded is optional):

DEVICE = Drive:\Path\ DISPLAY.SYS
CON:= (type, hwcp, (n,m))

Examples:

DEVICE = DISPLAY.SYS con:=(ega,437,2)

Syntax Options:

Drive:\Path ... Drive & directory containing DISPLAY.SYS
type Type of display adapter,
hwcp The number assigned to a particular code page. Choices are as follows:
437... United States
850... Multilingual (Latin I)
852... Slavic (Latin II)
860... Portuguese
863... Canadian-French
865... Nordic

- n* Number of code pages supported by the hardware: Range is 0 through 6, max for EGA is 6, LCD is 1.
- m* Number of subfonts supported by the hardware. Default=2 for EGA, 1 if LCD. If the *m* option is omitted, the parentheses around *n,m* can be omitted.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 3.3

Notes:

1. Code-page switching has no effect with monochrome and CGA display adapters.
2. If 3rd party console drivers are installed, make sure they are installed before DISPLAY.SYS.

DOS

Forces DOS to keep a link with the upper memory area or to load itself into high memory:

HIMEM.SYS must be loaded before DOS= can be used. DOS is useful in that it is part of the program set that frees up conventional memory.

Syntax (shaded is optional):

DOS = high or low , umb or noumb
or
DOS = high or low, umb or noumb

Examples: DOS = high
DOS = umb
DOS = high, umb or DOS = umb, high

Syntax Options:

high Loads a portion of DOS into high memory
low Forces DOS to stay in conventional mem.

- umb* Forces DOS to maintain a link between high (upper) memory and conventional memory.
- noumb* Breaks the link between upper memory and conventional memory.

Command Type and Version:

CONFIG.SYS command: Introduced with Ver 5.0

Notes:

1. See also DEVICEHIGH and LOADHIGH.
2. UMB must be used in order to load either DOS or drivers into upper memory. EMM386.EXE or a comparable third party product must be loaded and configured in order to provide upper memory blocks from extended memory for DOS=UMB to work.
3. DOS can be placed anywhere in the CONFIG.SYS file.
4. UMB or NOUMB can be combined with HIGH or LOW in the same DOS = command line, see the example above.

DOSKEY.COM

Starts the DOSKEY program, which allows the user to edit command lines, create macros, and recall DOS commands:

Syntax (shaded is optional):

DOSKEY /reinstall /bufsize=nnn /macros
/history /insert /overstrike /macroname=text

Examples: DOSKEY (start DOSKEY with defaults)
DOSKEY / history > special.bat

Syntax Options:

- /reinstall* Installs DOSKEY again. If DOSKEY is currently running, this command clears the buffer.
- /bufsize=nnn* Sets the size of the buffer where DOSKEY store commands. Default=512 bytes, minimum=256 bytes.
- /macros* or */m* Displays the current list of DOSKEY macros.

- /history* or */h* . . . Displays a list of all commands that were stored in memory.
- /insert* Sets typing to insert mode (text is not overwritten as typing occurs)
- /overstrike* Sets typing to overstrike mode (text is overwritten as typing occurs)
- /macroname*= . . . Name of file created to hold *text* macro, *text* The commands and text to be recorded in the file named *macroname*.

Command Type and Version:

External command; Network; Introduced with Ver 5.0

Notes:

1. */macros* and */history* can be used with DOS redirection to a file. e.g. DOSKEY */macros* > Macro.txt creates a text file list of macros.
2. DOSKEY is a very powerful program, see the Microsoft **Users Guide and Reference** for detailed comments and examples.

When DOSKEY is on, the following can be used to recall/edit commands from its command buffer:

- Up Arrow* Recall command issued before currently displayed command.
- Down Arrow* . . . Recall command issued after the currently displayed command.
- Page Up* Recall oldest command in current session
- Page Down* . . . Recall most recent command in current session.
- Left Arrow* Moves cursor left one character.
- Right Arrow* . . . Moves cursor right one character.
- Ctrl+Left Arrow* Moves cursor left one word.
- Ctrl+Right Arrow* Moves cursor right one word.
- Home* Moves cursor to start of line.
- End* Moves cursor to end of line.
- Esc* Clears the display command line.
- F1* Copy one character from last command buffer to the command line.

- F2* Look forward for the next key typed after pressing F2.
- F3* Copies the remainder of the current template line at the current cursor position to the command line.
- F4* Delete all characters of the current template line, up to but not including the character pressed after F4 is pressed
- F5* Copy current line to template and clear command line
- F6* Put Ctrl+Z (end of line marker) at the end of the current line.
- F7* Displays all commands and numbers, beginning with the oldest, currently stored in the command buffer.
- Alt+F7* Delete all commands in command buffer.
- F8* Locate the most recently used command in the buffer that begins with a specific character(s). At the DOS prompt, simply type those beginning characters and then press F8.
- F9* Display the command associated with a specific command line number in buffer.
- Alt+F10* Delete all macros.

The following are special codes that can be used in creating macros. Code letters shown can be used in either upper or lower case.

- \$G* Redirect output (same as >) to a device other than the screen. e.g. a printer.
- \$G\$G* Append output data (same as >>) to the end of a file instead of overwriting file.
- \$L* Redirect input (same as <) to read from a device other than the keyboard.
- \$B* Send output from macro to another command (same as |).
- \$T* Used to separate commands in either a macro or at the DOSKEY command line.
- \$S* Used to specify the \$ character

- \$1 to \$9 Batch parameters (similar to %1) for passing command line info to the macro when it's run.
- \$* A replaceable parameter similar to \$1 to \$9, except that everything that is typed on the command line after *macroname* is substituted for the \$* in the macro.

Macros are run by simply typing the *macroname* at the DOS prompt, followed by any parameter info such as \$1 or \$*. If a macro is created that has the same name as a normal DOS command, the DOS command is started by typing a space and then the command name, whereas with the macro, simply type the *macroname* without a space preceding it.

DOSSHELL.COM & EXE

Starts the DOS graphical user interface shell:

Syntax (shaded is optional):

DOSSHELL /t or /g :Res n /b

Examples: DOSSHELL /t
DOSSHELL /g:m
DOSSHELL /g/b

Syntax Options:

- /t Directs DOSSHELL to start in text mode
- /g Directs DOSSHELL to start in graphics mode.
- :Res. Screen resolution class. l (lowercase L) for Low, m for medium and h for high resolution.

If there is more than one resolution available in the *Res* category, *n* provides additional information concerning which category to use. *n* is hardware dependent.

- /b Starts DOSSHELL in black & white mode or the state /t or /g is in.

Command Type and Version:

External command; Network; Introduced with Ver 4.0

Notes:

1. If DOSSHELL has already been started, the screen resolution can be changed from the options menu.
2. DOSSHELL is very useful for such tasks as renaming subdirectories.

DRIVER.SYS

Defines a logical drive from an existing physical drive: A logical drive is simply a drive letter used to point to the actual physical drive. The new drive letter established by DRIVER.SYS is the next highest drive letter above the system's highest current drive.

Syntax (shaded is optional):

DEVICE = Drive:\Path\ DRIVER.SYS /d:number
/c /f:factor /h:heads /s:sectors /t:tracks

Examples:

DEVICE=C:\dos\driver.sys /d:1 /f:2 /h:2 /s:9 /t:80
(above configures a 3.5" 720k floppy drive, if the last hard drive was drive E:, then the 3.5 inch would be designated as drive F:)

Syntax Options:

- Drive: Drive letter containig \Path
- \Path Subdirectory containing DRIVER.SYS

- /d: number* Specifies physical drive number. Values must be in the range of 0 to 127. Normally, Drive A=0, Drive B=1, etc.
- /c* Specifies that the driver will be able to tell that the floppy disk drive door is open.
- /f: factor* Specifies type of drive. Default value=2
- | Factor | Description |
|-----------|----------------------------|
| 0 | 160kb/180kb or 320kb/360kb |
| 1 | 1.2 megabyte (Mb) |
| 2 | 720kb (3.5 in. disk) |
| 7 | 1.44Mb (3.5 in. disk) |
| 9 | 2.88Mb (3.5 in. disk) |
- /h: heads* Specifies max. number of heads. Value for **heads** must be in the 1 to 99 range.
- /s: sectors* Number of sectors per track, ranging in value from 1 to 99. The default varies according to the */f* factor selected above. Normal values are 360kb and 720kb = 9 sectors, 1.44 meg = 18 sectors, 1.2 meg = 15 sectors and 2.8 meg = 36 sectors.
- /t: tracks* Number of tracks per side on the block device, ranging from 1 to 999. Default values vary according to the */f* factor selected above. Normal values are 360kb = 40 tracks, 720kb, 1.44 meg, and 1.2 meg = 80 tracks.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 3.2

Notes:

1. DRIVER.SYS is commonly used to set up a 3.5 inch floppy drive on a system that does not support 3.5 inch drives directly. Setting up external 3.5 inch drives is also common.
2. See also the DRIVEPARM command, it is used to modify existing parameters of a physical device.
3. DRIVER.SYS can not be used to define hard drives. If hard drive logical drive assignments need to be changed, see the SUBST command.

4. If two DRIVER.SYS command lines are used for the same physical drive, then two logical drive letters will be assigned to the single physical drive.
5. XT class systems, with standard floppy controllers, will still need either a special driver or special controller in order to recognize a 1.44 or 2.8 Mb 3.5 inch floppy or 1.2 Mb 5-1/4 inch floppy.

DRIVPARM

Defines block device parameters: DRIVEPARM allows the default or original device driver settings to be overridden when DOS is started.

Syntax (shaded is optional):

DRIVPARM=/d:number /c /f:factor /h:heads
/i /n /s:sectors /t:tracks

Examples: DRIVEPARM=/d:1 /c /f:2 /h:2 /s:9 /t:80
(above configures a 3.5" 720k floppy drive)

Syntax Options:

- /d: number* Specifies physical drive number. Numbers must be in the range of 0 to 255. Normally, Drive A=0, Drive B=1, etc.
- /c* Specifies that the driver will be able to tell that the floppy disk drive door is open.
- /f: factor* Specifies type of drive. Default value= 2
- | Factor | Description |
|-----------|-------------------------|
| 0 | 160K/180K or 320K/360 |
| 1 | 1.2 megabyte (MB) |
| 2 | 720K (3.5 in. disk) |
| 5 | Hard disk |
| 6 | Tape |
| 7 | 1.44MB (3.5 in. disk) |
| 8 | Read/write optical disk |
| 9 | 2.88MB (3.5 in. disk) |
- /h: heads* Specifies max. number of heads. Value for **heads** must be in the 1 to 99 range.

- /i** 4 Specifies an electronically-compatible 3.5 in. floppy disk drive. Use the /i switch if the ROM BIOS does not support 3.5 in. floppy disk drives.
- /n** Non-removable block device.
- /s: sectors** ... Number of sectors per track, ranging in value from 1 to 99. The default varies according to the /f factor selected above. Normal values are 360kb and 720kb = 9 sectors, 1.44 Mb = 18 sectors, 1.2 Mb = 15 sectors and 2.8 Mb = 36 sectors.
- /t: tracks** Number of tracks per side on the block device, ranging from 1 to 999. Default values vary according to the /f factor selected above. Normal values are 360kb = 40 tracks, 720kb, 1.44 Mb, and 1.2 Mb = 80 tracks.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 3.2

Notes:

1. DRIVPARM is particularly useful in configuring 3.5 inch floppy drives.
2. Settings in DRIVPARM will override any settings specified for a device prior to the DRIVPARM command line.
3. Although DRIVPARM is listed as an option in DOS Ver 3.3, the command will not function in that version.
4. DRIVPARM does not create new logical drives, it can only modify existing physical drive parameters.
5. See also DRIVER.SYS

DRVBOOT.BAT New Ver 6.22

Creates a bootable DRVSPACE floppy disk:

Syntax (shaded area optional):

DRVBOOT drive1:

Example: drvboot a:

Syntax options:

drive1: Drive containing floppy disk to be compressed.

Command Type and Version:

External command, Introduced with Ver 6.22.

Available in the MS-DOS 6.22 Supplemental Disks.

Notes:

1. DRVBOOT works only on high-density floppy disks (1.44 or 1.2 MB).
2. DRVSPACE must be installed prior to using DRVBOOT.

DRVSPACE.EXE New Ver 6.22

Directs DOS to compress hard drives or floppy disks or configure compressed files:

Syntax (Shaded is optional):

DRVSPACE (starts the interactive DriveSpace program)

Examples: DRVSPACE

or

DRVSPACE /task (executes task command without starting the DriveSpace program)

Example: DRVSPACE /create c: /newdrive=d: /reserve=50

Syntax for Task Command Options:

/compress drive1: /newdrive=drive2 /reserve=size /f

Directs DOS to compress files on an existing disk (hard drive, floppy, or other removable media).

drive1: Specifies existing drive to compress.
/compress or /com Compresses the floppy disk or hard drive specified by drive1..
/newdrive=drive2: or /new ... Identifies the drive letter for the uncompressed drive. After compression, the drive will contain an existing compressed drive (drive1:) and a new uncompressed drive (newdrive).
/reserve=size or /res ... Size, in megabytes, of space to leave uncompressed. Space will be located on drive2..
/f Suppresses display of the final DriveSpace screen and returns to command prompt.

/create drive1: /newdrive=drive2 /reserve=size /size=size

Directs DOS to create a new compressed drive in free space on an uncompressed drive. The new compressed drive will provide more storage space than the amount of uncompressed storage it uses.

drive1: Specifies uncompressed existing drive containing space to create new drive.
/create or **/cr** Creates a new compressed drive in free space on the uncompressed drive specified by drive1..
/newdrive=drive2: or /n Identifies the drive letter for the new compressed drive.
/reserve=size or /re Size, in megabytes, of space to leave uncompressed. Space will be located on drive2:. Can not use with **/size=size**.
/size=size or /si Total size, in megabytes, of the compressed .volume file. Can not use with **/reserve=size**.

/defragment /f drive1:

Directs DOS to defragment the specified compressed drive.

drive1: Specifies existing compressed drive to defragment.
/defragment or def Defragments specified compressed drive.
/f Specifies full defragmentation of specified drive.

/delete drive1:

Directs DOS to delete selected compressed drive and erase associated volume file.

drive1: Specifies drive to be deleted. Will not allow deletion of drive c:.
/delete or /del Deletes the specified drive.

/format drive1:

Directs DOS to format selected compressed drive. Caution-A compressed drive can not be unformatted after formatting using DRVSPACE /FORMAT.

drive1: Specifies drive to be formatted. Will not allow formatting of drive c:.
/format or /f... Formats the specified drive.

/info drive1:

Directs DOS to display information about selected compressed drive. Information includes free and unused space, name of compressed volume file, and estimated and actual compression ratios. Command may be used while Windows is running.

drive1: Specifies drive for which information is desired.
/format or /f... Displays information for the specified drive.

Directs DOS to list and describe, in brief terms, all available drives, except network and CD-ROM drives.

/list or **/li** Displays a list of all system drives, except CD-ROM or network drives.

/mount=nnn drive1: /newdrive=drive2

Directs DOS to create a reference between a compressed volume file (CVF) and a drive letter. DRVSPACE normally mounts compressed volume files automatically.

drive1: Specifies an existing drive containing the compressed volume file to be mounted. A drive must be specified.

/mount=ext or **/mo=ext** Directs DOS to mount the compressed volume file with the file-name extension specified by **ext**.

/newdrive=drive2: or **/new** ... Identifies the drive letter for the new drive.

/ratio=r.r drive1: /all

Directs DOS to change the estimated compression ratio of the specified compressed drive. DOS uses the ratio to estimate the amount of free space the drive contains.

drive1: Specifies existing compressed drive to defragment.

/ratio=r.r or **/ra=r.r** Changes the ratio of specified compressed drive. Ratios are allowed in the range from 1.0 to 16.0. If not specified, DOS sets the ratio to the average compression ratio for all compressed files on the drive.

/all Specifies a change of all mounted compressed drives. Do not use if a drive is specified using **drive1**.

/size=size1 /reserve=size2 drive1:

Directs DOS to enlarge or reduce the current size of a compressed drive. The command is used to free-up space on a drive or enlarge a compressed drive if ample free space is available.

drive1: Specifies the drive containing to be resized.

/size=size1 or **/si=size1** Changes the size of the drive specified by **drive1**: to **size1** in megabytes. Can not be used with **/reserve=size2**. If neither switch is used, DOS will make the compressed drive as small as possible.

/reserve=size2 or **/res=size2** Size, in megabytes, of space to leave uncompressed. Can not use with **/size=size1**.

/uncompress drive1:

Directs DOS to uncompress files on an existing disk (hard drive, floppy, or other removable media). Uncompressing the last mounted drive also removes DRVSPACE.BIN from memory.

drive1: Specifies drive to uncompress.

/uncompress Uncompresses the floppy disk or hard drive specified by **drive1**:

/unmount drive1:

Directs DOS to eliminate a previous reference between a compressed volume file (CVF) and the specified drive. The unmounted drive is unavailable until again mounted. Drive **c:** can not be unmounted.

drive1: Specifies the drive to be unmounted. If no drive is specified DRVSPACE unmounts the current drive.

/unmount Directs DOS to unmount the specified drive.

Command Type and Version:

External command, Interactive

Introduced in MS-DOS Version 6.2, Revision 2.

Notes:

1. DRVSPACE is the Microsoft DOS Ver 6.2, Revision 2, replacement for DBLSPACE.
2. DRVSPACE requires 33Kb of memory to install.
3. DRVSPACE may slow down the speed of a system with a slow CPU.

DRVSPACE.SYS

New Ver 6.22

Device driver which directs DOS to move DRVSPACE.BIN to its final memory location:

DRVSPACE.BIN provides DOS with access to compressed files. When the computer is started, DOS loads DRVSPACE.BIN at the top of conventional memory at the same time it loads other operating system functions; that is, prior to executing the CONFIG.SYS and AUTOEXEC.BAT files. After processing the CONFIG.SYS file, DOS moves DRVSPACE.BIN to the bottom of conventional memory. Running DRVSPACE.SETUP adds a command for DRVSPACE.SYS to the CONFIG.SYS file.

Syntax (shaded is optional):

DEVICE = DRVSPACE.SYS /move /nohma
or
DEVICEHIGH = DRVSPACE.SYS /move /nohma

Examples: DEVICE = DRVSPACE.SYS /move

Syntax Options:

- move Directs DOS to move DRVSPACE.BIN to its final memory location.
- nohma Tells DRVSPACE.SYS not to move DRVSPACE.BIN into high memory.

Command Type and Version:

External command, Introduced in Ver 6.2, revision 2.

DVORAK.SYS

New V6.0

Used with KEYB to provide an alternative to the standard QWERTY keyboard layout:

Syntax (shaded area optional):

KEYB nn,,drive1:\directory \DVORAK.SYS

Example: KEYB rh,,d:\dos\dvorak.sys

Syntax Options:

- drive1: Drive containing DVORAK.SYS.
- directory Directory containing DVORAK.SYS.
- nn Designates keyboard configuration.
- dv = two-handed layout
- rh = right-handed layout
- lh = left-handed layout.

Command Type and Version:

External command, Introduced with MS-DOS Ver 6.0.

Notes:

1. To return to the U. S. standard keyboard press CTRL+ALT+F1.
2. To return to the Dvorak keyboard layout press CTRL+ALT+F2.

ECHO

Display a message or turn command echo feature on or off: When batch files are run, DOS usually displays (echos) the name of the program being run to the display. This feature can be turned on or off with the ECHO command.

Syntax (shaded is optional):

ECHO **Message | on | off**

Examples: ECHO off
ECHO Enter program name to be run!
ECHO on

Syntax Options:

Message: Text to be displayed on screen.
on Turn display echo on.
off Turn display echo off.

Command Type and Version:

Internal and Batch command; Introduced with Ver 2.0

Notes:

1. Use the @ symbol in front of a batch file command in order to turn the screen echo function off.
2. NOTE: in DOS 6.0, ECHO. (with the period) on a command line will output a blank line. ECHO by itself displays ECHO status.

EDIT.COM

Starts MS-DOS Editor: EDIT is a full-screen text editor which can create, save, edit and print ASCII text files.

Syntax (shaded is optional):

EDIT Drive:\Path \Filename /b /g /h /nohi

Examples: EDIT C:\Autoexec.bat
EDIT D:\Bin\Test.bat /h

Syntax Options:

Drive: \Path . . . Location of *Filename*.
\Filename Name of ASCII text file to be edited.
/b Editor displayed in black and white.
/g Provides CGA monitors with the fastest screen update.
/h Allows monitor to display maximum number of lines on the screen.
/nohi Normally, DOS uses a 16 color mode for monitors. This switch enables the use of 8 color monitors.

Command Type and Version:

External command; Network; Introduced with Ver 5.0

Notes:

1. QBASIC.EXE must be in the same directory as EDIT or included in the DOS path. If it is not, EDIT will not function.
2. Shortcut keys that are shown on the bottom line of the screen may not display properly. If this occurs, use the /b and /nohi switches.

Line oriented text editor: Edlin is an editor used to insert, change, copy, move and delete lines of text in an ASCII file. If a full screen editor is required, use EDIT (page 183). 24 lines of text can be displayed on the screen at one time.

Syntax (shaded is optional):

EDLIN Drive:\Path\ Filename /b

Examples: EDLIN Test
EDLIN C:\Autoexec.bat

Syntax Options:

Drive:\Path ... Drive and directory containing the file to be edited.

Filename ... File to be edited. If Edlin cannot find the file named *Filename*, it will automatically create the file in the specified *Drive:\Path* location.

/b ... Causes EDLIN to ignore Ctrl-Z (end of file character).

Command Type and Version:

External command; Network; Introduced with Ver 1.0
Removed from DOS Ver 6.0, use the EDIT command.
Available In the MS-DOS 6.0, 6.21, and 6.22 Supplemental Disks.

Notes:

1. Edlin can handle a maximum of 253 characters per line.
2. A full description of EDLIN is beyond the scope of this book. See a full DOS manual for additional details and instructions.
3. EDLIN uses an asterisk * prompt on a line by itself to ask for a command. If the * occurs after a line number, it indicates that that line number is the current line.

EDLIN Commands:(case doesn't matter)

? ... Displays the list of EDLIN commands.

Line ... Just typing a number, at the prompt, displays the text contained in that line #.
Exit user out of the insert (I) mode.

Ctrl-C ... Append *n* number of lines into memory from disk. Edlin will load till 75% of available memory is full.

n A ... Append *n* number of lines into memory from disk. Edlin will load till 75% of available memory is full.

L1,L2,L3,count C ... Copy a block of lines. L1=first line to copy, L2=last line to copy, L3=line before which EDLIN is to insert the block, count=number of times to copy.

L1,L2 D ... Delete from line L1 to line L2.

E ... Write current file to disk and stop EDLIN.

L1 I ... Insert lines before line L1. Ctrl-C stops.

L1,L2 L ... List (display) lines between L1 and L2.

L1,L2,L3 M ... Move a block of lines. L1=first line to move, L2=last line to move, L3=line before which EDLIN is to move the block, +n=include the next *n* lines.

or L1,+n,L3 M ...

L1,L2 P ... Display all or part of the file one full screen of text at a time. L1=first line and L2=last line.

Q ... Quit EDLIN without saving the current file to disk. Return to DOS.

L1,L2 ? R S1 S2 S3 ... Replace a block of lines with a string. L1=first line to replace, L2=last line to replace, ?=prompt user to confirm replacement, S1=string to be replaced, S2=Ctrl-Z separator, S3=string to replace S1.

L1,L2 ? S S1 ... Search between L1 first line and L2 last line for string S1. ?=prompt user when string S1 is located.

L1 T D:\Path\Filename ... Transfer (merge) contents of a second file from disk into the current edited file. L1=line in current file before which user wants inserted file to be placed. D:\Path\Filename=name and directory location of file to be inserted into current file.

n W. Write *n* number of lines, starting at the first line, to disk.

EGA.SYS

When using Task Swapper with an EGA monitor, the EGA.SYS command saves and restores the display.

Syntax (shaded is optional):

DEVICE = Drive\path\ EGA.SYS

Examples: DEVICE=C:\Dos\EGA.SYS

Syntax Options:

Drive\Path . . . Specifies the location of the EGA.SYS file

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 5.0

Notes:

1. To save memory when using a mouse on a system, install EGA.SYS before installing the mouse driver.

EMM386.EXE

Activates or deactivates expanded memory emulator for 80386 and higher systems:

EMM386 is both a device driver loaded through CONFIG.SYS and an External command. It also enables or disables support of the Weitek coprocessor.

Syntax (shaded is optional)

To load EMM386 initially in CONFIG.SYS:
Device= Drive:\Path\ EMM386.EXE on or off or
auto memory min=size w=on or w=off mx or
frame = address or /pmmm pn=address
x=mm-nn

i=mm-nn b=address L=minXMS a=altregs
h=handles d=nnn ram=mm-nn noems novcpi
highscan verbose win=mm-nn nohi rom=mm-nn
nomovexbda altboot

To use EMM386 as an External command:
EMM386 on or off or auto w=on or w=off /?

Examples: Device=C:\EMM386.EXE noems
EMM386 on (at DOS prompt)
EMM386 (at DOS prompt to show status)

Syntax Options:

Drive\Path . . . Drive and directory containing EMM386

EMM386 At the DOS prompt this displays the current status of EMM386.

on Activates EMM386 driver. (default)

off Deactivates EMM386 driver.

auto Places EMM386 driver in auto mode, where expanded memory support is turned on when a program needs expanded memory.

memory kbytes of memory allocated to EMM386. Default=256, Range=16 to 32768, use multiples of 16. This memory is in addition to low-memory backfilling.

w=on Enable Weitek coprocessor support.

w=off Disable Weitek coprocessor support.

mx Address of page frame. Values for *x* can be 1 to 14 below. On systems with only 512k of memory, only 10 to 14 can be used.

1=C000 hex 8=DC00 hex
 2=C400 hex 9=E000 hex
 3=C800 hex 10=8000 hex
 4=CC00 hex 11=8400 hex
 5=D000 hex 12=8800 hex
 6=D400 hex 13=8C00 hex
 7=D800 hex 14=9000 hex

frame=address Specific page-frame segment address for base page. *address* can be C000h to E000h and 8000h to 9000h, in increments of 400h.

/pmmm Address of page frame. *mmm* can range from C000h to E000h and 8000h to 9000h, in increments of 400h.

pn=mmm Specific segment address (*mmm*) of a specific page *n*. *n* can range from 0 to 255. *mmm* can range from 8000h to 9C00h and C000h to EC00h, in increments of 400h.

x=mm-nn Excludes a range of segment addresses from EMS page use. *mm* and *nn* can both range from A000h to FFFFh, and are rounded off to the nearest 4k. *x* overrides *i* when two ranges overlap.

i=mm-nn Includes a range of segment addresses for EMS page or RAM use. *mm* and *nn* can both range from A000h to FFFFh, and are rounded off to the nearest 4k. *x* overrides *i* when two ranges overlap.

b=address Lowest segment address that can be used for bank swapping of 16k EMS pages. Default=4000h, range=1000h to 4000h.

L=minXMS Specifies that *minXMS* kbytes of extended memory will remain after EMM386 has been loaded. Default=0

a=altregs *altregs* number of fast alternate register sets are allocated to EMM386. Default=7, range=0 to 254. Each register uses an additional 400 bytes of memory.

h=handles Number of handles EMM386 can have. Default=64, range=2 to 255.

d=nnn Kbytes of memory reserved for buffered DMA (direct memory access). Default=16, range=16 to 256.

ram Upper memory and expanded memory access is provided.

noems Upper memory access provided but not to expanded memory.

novcpi Disables VCPI application support. Used with /noems.

highscan Directs EMM386 to check availability of upper memory for UMB or EMS windows.

verbose or v Directs EMM386 to display error and/or status messages while loading.

Win=mm-nn Directs EMM386 to reserve the specified range of segment addresses for Windows. Values of *mm* and *nn* are in the range A000h through FFFh, rounded down to the nearest 4 Kb boundary. The /x switch takes precedence over /win if overlap occurs. The /win switch takes precedence over /ram, /rom, or /i switches if overlap occurs.

nohi Forces EMM386 to load into conventional memory thus increasing upper memory available for UMBs.

rom=mm-nn Directs EMM386 to reserve the specified range of segment addresses for shadow RAM. Values of *mm* and *nn* are in the range A000h through FFFh, rounded down to the nearest 4 Kb boundary.

nomovexbda Directs EMM386 to keep extended BIOS data in conventional memory.

altboot Provides an alternate boot sequence for some computers with compatibility problems. Used if computer doesn't recognize Ctrl-Alt-Del.

Command Type and Version:

External and CONFIG.SYS command;
Introduced with Ver 4.0

Notes:

1. HIMEM.SYS must be loaded before EMM386.EXE is loaded.
2. The .EXE extension of EMM386 must be used to load the driver.
3. The order of switches and parameters is not important.
4. Device=EMM386.EXE must precede DEVICEHIGH commands.
5. If enough memory is not available to set up a 64k page frame, the "Unable to set base address" error message will display.
6. DOS=umb must be used in CONFIG.SYS to provide access to the upper memory block.
7. See also DOS, HIMEM.SYS, DEVICEHIGH, and LOADHIGH.
8. Using EMM386.EXE and the Note 7 commands is a very complicated task. It is strongly recommended that the user spend a great deal of time with Microsoft's *MS-DOS 5.0 User's Guide and Reference* learning about memory management and system optimization.

EXE2BIN.EXE Removed V6.0

Converts an executable file to a binary file:

Converting executable files (.EXE extension) to files with a binary format, is only useful to software developers and is of no value to general users.

Syntax (shaded is optional):

EXE2BIN	Drive1:\Path1\	INfile
	Drive2:\Path2\	OUTfile

Examples: EXE2BIN C:\Test.exe C:\test.bin

Syntax Options:

- Drive1:\Path1 . Drive and directory of input .EXE file.
Drive2:\Path2 . Drive and directory of output binary file.

INfile Input .EXE file to be converted.
OUTfile Output binary file.

Command Type and Version:

External command; Introduced with Ver 1.0
Removed from DOS Ver 6.0
Available in the MS-DOS 6.0, 6.21, and 6.22 Supplemental Disks.

Notes:

1. EXE2BIN is not for the general computer user, only programmers.
2. Default extensions for INfile is .EXE and for OUTfile is .BIN.
3. INfile must have been produced by LINK and must not be a packed file.
4. See also LINK

EXIT

Exits a secondary command processor and returns to the primary processor if one exists.

Syntax (shaded is optional):

EXIT

Examples: EXIT

Syntax Options:

No options

Command Type and Version:

Internal; Network; Command processor function;
Introduced with Ver 2.0

Notes:

1. If a secondary command processor is not loaded (or /P is used with COMMAND.COM), the EXIT command will have no effect.
2. See Also COMMAND

Expands a compressed DOS file: Compressed files are not usable unless expanded. Use EXPAND to retrieve files from DOS installation or update disks.

Syntax (shaded is optional):

EXPAND **Drive:\Path** Filename Destination

Examples:

EXPAND B:\Dos\FIND.EX_ C:\Dos\FIND.EXE

Syntax Options:

- Drive:\Path...** Specifies location and name of a compressed file to be expanded.
- Filename...** File to be expanded.
- Destination...** Target location where expanded files are to be placed. Destination can be a drive letter and colon, a filename, a directory name or a combination. A destination filename can only be used if a single compressed *Filename* is used.

Command Type and Version:

External command; Network; Introduced with Ver 5.0

Notes:

- Wildcards (* and ?) **cannot** be used.
- Compressed files, such as installation or update files, have a file extension which ends with an underscore character (_)
- Although EXPAND is normally used by the DOS 5.0 Upgrade program to install all DOS 5.0 files, you can copy a single compressed file, such as FIND.EX_, from an upgrade disk to the hard drive and EXPAND it for full use. A complete list of all files and what disk they are on is included in the file named PACKING.LST on upgrade disk 1 or 2.
- One or more source filenames may be specified. Destination may include a filename only if a single source filename is specified. If no destination is specified, EXPAND prompts for it.

Displays a list and gives a brief description of all DOS 6.0 commands: This command is a direct replacement for the DOS Ver 5.0 HELP. It can be used in conjunction with other DOS commands to display the same help as FASTHELP would display for the same command.

Syntax (shaded is optional):

FASTHELP **command**

Examples: FASTHELP Chkdsk
FASTHELP
DISKCOPY /?

Syntax Options:

command... The particular DOS command that you want help about.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

- FASTHELP without a command displays a list and brief description of all DOS 6.0 commands contained in the DOSHELP.HLP file.
- Detailed information on DOS commands is available with the HELP command.
- FASTHELP is a direct replacement for the DOS Ver 5.0 HELP command.

Fast opening of files: Decreases the amount of time to open frequently used files by keeping directory information in memory. FASTOPEN can be started at the DOS prompt or in either a Batch file or CONFIG.SYS. *DOS V4 is different, see manual.*

Syntax (shaded is optional):

To start in a Batch file or at the DOS Prompt:

FASTOPEN Drive1: = nnn Drive2:= nnn ... /x

To start in CONFIG.SYS use the following:

Install=Drive:\Path\FASTOPEN.EXE

Drive1: = nnn Drive2:=nnn ... /x

Examples: FASTOPEN C:=97 /x

Install=C:\DOS\FASTOPEN C:=97

Syntax Options:

Drive1: Drive2: One or more drives FASTOPEN tracks.
nnn Number of files FASTOPEN can work with at the same time. The valid values are 10 through 999. 48 is the default.

/x Creates the *name cache* in expanded memory rather than conventional memory. *name cache* is a buffer where names and locations of open files are stored.

Drive:\Path ... Drive and directory containing FASTOPEN

Command Type and Version:

External and CONFIG.SYS command; NOT for Network
 Introduced with Ver 3.3

Notes:

1. When placed in CONFIG.SYS, FASTOPEN.EXE must be used, not FASTOPEN without the extension.
2. FASTOPEN uses approximately 48 bytes of memory for each file that it tracks.
3. Deactivate FASTOPEN **BEFORE** disk compaction is used!!!!

FC.EXE

Compare two files and report the differences:

FC reports the differences it finds between two files and displays them on screen. The comparison can be of ASCII or binary files.

Syntax (shaded is optional):

FC /a /c /L /Lbx /n /t /w /nnn
 Drive1:\Path\ File1 Drive2:\Path\ File2

or

FC /b Drive1:\Path\ File1 Drive2:\Path\ File2

Examples: FC /a C:\DATA\Test.txt D:\Master.txt

Syntax Options:

- Drive1:\Path* .. Drive and directory of first file (*File1*).
Drive2:\Path .. Drive and directory of second file (*File2*).
File1 & File2 .. The two files to be compared.
/a Abbreviate ASCII comparison output, will only display first and last line of different block.
/c Ignore upper/ lower case.
/L Files compared in ASCII mode.
/Lbx Set *x* lines of internal line buffer.
/n During ASCII compare, displays line #s.
/t Do not expand tabs to spaces. Default is to treat tabs as spaces with stops at every 8th position.
/w During comparison, tabs and spaces are compressed. Also causes FC to ignore space that occurs at the beginning and end of lines.

- /nnn Set the number of consecutively matching lines before files are resynchronized.
- /b Files compared in binary mode. This is the default for all files ending in .EXE, .COM, .SYS, .OBJ, .LIB and .BIN.

Command Type and Version:

External command; Network;
Introduced with Version 2.1

Notes:

1. See also COMP and DISKCOMP.
2. Use of wild cards (* or ?) is allowed.
3. For ASCII comparisons, the *File1* name is displayed, then the lines from *File1* that are different are displayed, then the first line to match in both files, then the *File2* name is displayed, then the lines from *File2* that are different, and finally, the first line to match in *File2*. FC uses a 100 line buffer to hold the lines being compared, if there are more than 100 lines of differences, FC cannot complete the comparison and issues a Resynch Failed error message.
4. For binary comparisons, the differences are reported on a single line as xxxxxxxx: yy zz, where xxxxxxxx is the hex address from the beginning of the file where the difference occurs. yy is the byte that is different in *File1* and zz is the byte that is different in *File2*. FC uses the same line buffer as Note 4 for binary comparisons, however if it runs out of memory, it will overlay portions of the memory until the comparison is completed.
5. FC is only available with MS-DOS®, not PC-DOS.

FCBS

Sets number of file control blocks that DOS can have open at the same time:

Syntax (shaded is optional):

FCBS = x

Examples: FCBS = 10

Syntax Options:

- x File control blocks that DOS can have open at one time. Default = 4. Values can range from 1 through 255.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 3.0

Notes:

1. Normally, this command should only be used if a program specifically requires that FCBS be set to a specific value.
2. DOS may close a file opened earlier if there are not enough FCBS set aside.
3. The /y Syntax Option available in DOS Versions 4.01 and earlier, is no longer a valid option.

FDISK.EXE

Configures hard disk: After the low level format of a hard drive, FDISK is used to partition the drive for DOS. A series of menus are displayed to assist in the partitioning process. **Caution:** When a partition is deleted, all of the data stored on that partition is also deleted.

Syntax (shaded is optional):

FDISK / status

Examples: FDISK

Syntax Options:

- /status ⑥ Display partition table info for hard drives installed in the system.
- /mbr Master boot record. Undocumented

Command Type and Version:

External command; Network, introduced with Ver 2.0

Notes:

1. Before DOS 3.3, FDISK did not create extended partitions or logical drives in the partitions. There could be only one DOS partition per drive. Until DOS 3.31 & 4.0, max size was 32Mb.
2. Using the FDISK command, you can accomplish the following:
Create a primary DOS partition on a hard drive.
Create an extended DOS partition on a hard drive.
Delete a partition on a hard drive.
Change the active partition on a hard drive.
Displays partition data for a hard drive.
Selects a different hard disk for partitioning.
3. Maximum partition size is 2 gigabytes.
4. In order to change the size of a partition, the partition must be deleted first, and a new partition created.
5. Drives formed by ASSIGN, SUBST, or JOIN cannot be partitioned with FDISK.
6. USE WITH CAUTION, backup hard drive data files before changing or deleting a partition.
7. The formatting of a hard drive for use by DOS is a three step process: Low level format, FDISK, then FORMAT. Note that IDE hard drives have been low level formatted at the factory, do not re-low level format these drives, only use FDISK then FORMAT.
8. See also FORMAT.

FILES

Sets the number of open files DOS can access.

Syntax (shaded is optional):

FILES = nnn

Examples: FILES=20

Syntax Options:

nnn Number of files DOS can access, at one time, with valid values ranging from 8-255. The Default is 8.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 2.0

Notes:

1. The standard value for files is FILES=20, however, many software packages, such as database managers, will require values in the range of 35 to 40. See the documentation for each program you

wish to run and verify that your FILES= statement is not smaller than that required by the program. It is all right if FILES= is larger than a program requires.

FIND.EXE

Looks for a text string in a file(s): Once the text string is located that FIND is searching for, it displays those lines of text containing the text string.

Syntax (shaded is optional):

FIND /v /c /n /i text Drive:\Path\ Filename

Examples: FIND /v /i "Dear Sir" C:\Test.doc

FIND "Dear Sir" Test.doc

FIND "Dear Sir" "Sincerely" "Help" C:\Test.doc

Syntax Options:

Drive:\Path ... Drive and directory containing *Filename*.
Filename File being searched for *Text*.
text Text string being searched for.
/v Display lines that do not contain *Text*.
/c Display line count of lines containing *Text*.
/n File's line number containing *Text*.
/i Ignore upper/lower case during search.
Ver 5.0

Command Type and Version:

External command; Network; Introduced with Ver 2.0

Notes:

1. Wild cards (* and ?) cannot be used in filenames being searched for by FIND. See the FOR command for help in this area.
2. FIND ignores carriage returns, so *Text* must be a string that does not contain any carriage returns.
3. If /c and /n are used together, the /n is disregarded.
4. If *Filename* is not specified, FIND will act as a filter for any standard device (keyboard, file, pipe, etc) and display those lines containing *Text*.
5. DOS provides three filter commands, FIND, MORE, and SORT.

6. /c /v used together will return a count of lines that do not contain Text.

FOR

A logical batch command that runs a specific command for each file in a group: FOR can be run from inside a batch file or at the DOS prompt.

Syntax (shaded is optional):

If used in a batch file, use the following:

FOR %%variable IN (set) DO command cpar

If used at the DOS prompt, use the following:

FOR %variable IN (set) DO command cpar

Examples:

FOR %T IN (*.doc, *.asc) DO DEL %T
(deletes all .doc and .asc files in current directory)

Syntax Options:

%variable Replaceable variable for use at the DOS prompt. The *variable* name can be any character(s) except the numbers 0 to 9. FOR replaces *variable* with each text string contained in (set) and runs *command* over and over until all are processed.

%%variable Same as %variable, except for use in batch files only.

(set) One or more files or text strings on which *command* is to operate. () is required

command Any DOS command to be run on each item listed in (set).

cpar Parameters for *command*.

Command Type and Version:

Batch and Internal command; Introduced with Ver 2.0

Notes:

1. FOR..IN..DO commands cannot be nested on a single command line.
2. Wild cards (* and ?) are allowed in (set).
3. Multiple %variable names are allowed.

FORMAT.EXE

Format a floppy or hard disk: A disk must be formatted before DOS can recognize it.

Syntax (shaded is optional):

There are 4 different syntax choices:

FORMAT Drive: /v:name /q /u /t:size /b /s /c

FORMAT Drive: /v:name /q /u /t:trak /n:sect /b /s /c

FORMAT Drive: /v:name /q /u /f /4 /b /s /c

FORMAT Drive: /q /u /f /4 /8 /b /s /c /autotest

Examples: FORMAT A: /s /autotest

FORMAT B: /f:720k /s

Syntax Options:

Drive: Drive to be formatted. If no switches are used, the drive is formatted according to its system drive type.

/v:name Assign the disk the volume label *name*. *name* can be up to 11 characters long. If /v is not used, DOS will automatically prompt the user for a volume name when the format process is finished. /v is not compatible with /8. See also the VOL, DIR, and LABEL commands.

/q Quick format a disk by deleting the FAT (File Allocation Table) and root directory. Only use this on disks that have already been formatted. Ver 5.0

/u Unconditional format. Destroys all data and UNFORMAT will not work. Use if read or write errors occur with this disk or when a new disk is to be formatted. Ver. 5.0

/1 Format 1 side of floppy only.

/4 Formats a DSDD (double-sided double-density) 5-1/4 inch, 360k floppy in a 1.2 m floppy drive. Warning: some 1.2m drives can not reliably do this format!

/8 Formats a 5-1/4 disk with 8 sectors per track. 8 sectors per track are necessary for use with pre DOS 2.0 operating systems.

/f:size Floppy disk size. Use instead of /t and /n switches if possible:

160, 160k or 160kb	160k SSDD, 5-1/4"
180, 180k or 180kb	180k SSDD, 5-1/4"
320, 320k or 320kb	320k DSDD, 5-1/4"
360, 360k or 360kb	360k DSDD, 5-1/4"
720, 720k, or 720kb	720k DSDD, 3.5"
1200, k, kb, 1.2, 1.2m, 1.2mb	1.2m DSHD, 5-1/4"
1440, k, kb, 1.44, 1.44m, 1.44mb	1.44m DSHD, 3.5"
2880, k, kb, 2.88, 2.88m, 2.88mb	2.88m DSEHD, 3.5"

/b Obsolete switch used to reserve space for the system files. No longer generally used, retained for compatibility only.

/s Copies all 3 system files, [IO.SYS and MSDOS.SYS] or [IBMBIO.COM and IBMDOS.COM] and COMMAND.COM to the disk after formatting has finished. The DBLSPACE.BIN file is also copied to the target drive (if you are not using the DBLSPACE program, you can remove the hidden, system, read-only attributes from DBLSPACE.BIN on the target disk and then delete it.)

/t:trak Number of tracks on disk, must be used with the /n switch. Use /f:size switch if possible.

/n:sect Number of sectors on disk, must be used with the /t switch. Use /f:size switch if possible.

/autotest **6** .. Bypasses prompts during formatting. Note that this is an undocumented command.

/c **62** Retests for bad cluster

Command Type and Version:

External command; Introduced with Ver 1.0

Notes:

1 New floppy disks need only be formatted in order to make the disk useable by DOS. Hard drives, however, require a 2 or 3 step format process which includes a low level format (Not on IDE drives), then partitioning with FDISK, and finally FORMAT.

2 If the /U switch is **not** used, UNFORMAT can unformat the disk. See also UNFORMAT

3 Format issues a warning when a hard drive is to be formatted.

4 Do not format Network drives or drives that have had ASSIGN, JOIN or SUBST used on the drive.

5 FORMAT /S and the DOS "SYS" command both copy the DBLSPACE.BIN file to the Target Disk.

6 FORMAT Exit codes are:

0	Successful FORMAT
3	Aborted with Ctrl+C by user
4	Fatal error other than 0,3, or 5
5	No response to Proceed?

Directs DOS to process commands starting with the line after a specified label: Within a Batch program, when DOS finds the specified label, it processes the commands beginning with the next line after that label.

Syntax (shaded is optional):

GOTO Label
:Label

Examples: GOTO Start
Test.bat (bypassed by GOTO)
:Start (must begin with :)

Syntax Options:

Label Directs DOS to a specific line in a batch file. Valid values for *Label* can include spaces but cannot include other separators, such as equal signs and semicolons. GOTO will recognize only the first 8 characters of the *Label* name. *Label*, on the GOTO command line, does not begin with a colon and it must have a matching *Label* line in the batch program. The *Label* line in the batch program must begin with a colon. You can also substitute an environment variable enclosed in percent signs, e.g. %RETURN%, for *Label*.

Command Type and Version:

Internal command; only used in a Batch program;
Introduced with Ver 2.0

Notes:

1. A batch-program line beginning with a colon (:) is a label line, and will not be processed as a command. When the line begins with a (:) colon, DOS ignores any commands on that line.

Allows a display to show extended characters in graphics mode from a specific code page: This command is required when a monitor is not able to display extended characters in graphics mode. (Most monitors do not need GRAFTABL.)

Syntax (shaded is optional):

GRAFTABL nnn
or
GRAFTABL /status

Examples:
GRAFTABL 860 (Portuguese code page)

Syntax Options:

nnn Code page used to define extended characters.
437. United States
850. Multilingual
852. Slavic
860. Portuguese
863. Canadian-French
865. Nordic
/status Identifies current country code page.

Command Type and Version:

External command; Network; Introduced with Ver 3.0
Beginning with MS-DOS Ver 6.0, GRAFTABL is only available on Microsoft's DOS Supplemental Disks.

Notes:

1. The active code page is not changed when GRAFTABL is run.
2. GRAFTABL uses approximately 1K of RAM.
3. GRAFTABL exit codes are as follows:
 0. Successful load of character set.
 1. Current character set replaced by new table.
 2. File error has occurred.
 3. Incorrect parameter, new table not loaded.
 4. Incorrect DOS version, 5.0 required.

Configures DOS so that Print Screen (Shift+Print Scrn) can print a graphics screen to a printer. GRAPHICS supports CGA, EGA, and VGA display modes:

Syntax (shaded is optional):

GRAPHICS Type Drive:\Path\ Filename /r /b
/Lcd /pb:std or /pb:Lcd

Examples: GRAPHICS color4 /b

Syntax Options:

Type	Printer type (HP=Hewlett-Packard)
color1.....	IBM Color Printer with black ribbon
color4.....	IBM Color Printer with RGB ribbon
color8.....	IBM Color Printer with CMY ribbon
hpdefault....	Any HP PCL printer
deskjet.....	HP DeskJet printer
graphics.....	IBM Graphics, Proprinter or Quietwriter
graphicswide..	IBM Graphics Printer with 11inch carriage
laserjet.....	HP LaserJet printer
laserjetii....	HP LaserJet II printer
paintjet.....	HP PaintJet printer
quietjet.....	HP QuietJet printer
quietjetplus...	HP QuietJet Plus printer
ruggedwriter..	HP Rugged Writer printer
ruggedwriterwide	HP Rugged Writerwide printer
thermal.....	IBM PC-convertible Thermal Printer
thinkjet.....	HP ThinkJet printer
Drive:\Path...	Drive and directory containing Filename
Filename.....	Printer profile where graphics screen is to be printed to. Default is GRAPHICS.PRO.
/r.....	Prints the image as white characters on a black background (black characters on a white background is the Default).

/b..... Prints the background in color. (only color4 and color8 types are valid)

/Lcd..... Prints image using an LCD screen aspect ratio instead of a CGA screen aspect ratio.

/pb:std..... Sets printbox size. If this switch is used, you must check the GRAPHICS.PRO file and change each printbox line to std or Lcd so that it matches what you selected for /pb:

Command Type and Version:

External command; Network; Introduced with Ver 2.0

Notes:

- The GRAPHICS command does use a limited amount of conventional RAM when it is loaded.
- Four shades of gray are printed if color1 or graphics is in effect and the screen is in the 320x200 mode.
- If a printer profile such as GRAPHICS.PRO is already loaded, and you wish to load a different .PRO file, the new .PRO must be smaller than the currently loaded .PRO. If it is larger, your system must be re-booted first in order for the larger profile to be loaded.
- Use the Graphics or Graphicswide printer types if the printer you are using is an Epson.
- Supported displays include EGA and VGA.
- See also PRINT
- Do not use the /b switch in conjunction with the /r switch or with a black and white printer.

GW-BASIC®.EXE

BASIC language interpreter: GW-BASIC® is Microsoft's own version of BASIC that shipped with MS-DOS versions prior to Ver 5.0. Starting with Ver 5.0, QBASIC is shipped with DOS.

Syntax (shaded is optional):

GW-BASIC Drive:\Path\Filename < Input

>> Output /t:n /i /s:n /c:n /m:n,n /d

Examples: GW-BASIC (starts BASIC)

GW-BASIC C:\BAS\test.bas /t:4 /d

Syntax Options:

Drive:\Path . . . Drive and directory containing *Filename*.

Filename The BASIC program file to be run.
The default file extension is .BAS

< Input Standard input is read from *Input* file.

> Output Output is redirected to *Output* file or a device (screen, printer, etc)

>> Causes *Output* to be appended.

/t:n Max number *n* of simultaneously open files while a BASIC program is running. Default is 3. /i must be used at the same time. Size requirement includes 194 bytes (File Control Block) plus 128 bytes (data buffer).

/i Forces static allocation of memory for file operations.

/s:nn Max record length *nn* for a file. Default is 128 bytes, maximum is 32,767 bytes.

/c:nn Allocates *nn* bytes of Receive buffer and 128 bytes of Transmit buffer for RS-232 (serial) communications. /c:0 disables support. Defaults are 256 byte receive buffer and 128 byte transmit buffer for each RS-232 card.

/m:x,y Sets the highest memory location *x* and the maximum block size *y* in bytes. Block size is in multiples of 16.

/d Activates double-precision for the following functions: ATN, COS, EXP, LOG, SIN, SQR and TAN.

Command Type and Version:

External command; Network; Introduced with Ver 1.0

Notes:

1. See also BASIC, BASICA, and QBASIC.
2. Variables *n*, *nn*, *x*, and *y* listed above are all given in decimal values. If you wish to use hexadecimal values, precede the value with &H. If you wish to use octal values, precede the value with &O (O is the letter O, not zero).
3. A complete discussion of GW-BASIC is beyond the scope of this book. If you need information on GW-BASIC commands and how to program in BASIC, refer to Microsoft's manual on GW-BASIC or other texts on BASIC.
4. Different versions of GW-BASIC were released and each needs to be run with its correct version of DOS.
5. Programs written in BASIC (IBM's version) may require small adjustments in order to run correctly under GW-BASIC

HELP.EXE - Version 5.0 only

Online information about MS-DOS version 5.0 commands:

Syntax (shaded is optional):

HELP command

Examples: HELP (brief description of commands)
HELP chkdsk
DISKCOPY /? (see Note: 1 below)

Syntax Options:

Command Any specific DOS version 5.0 command on which more information is desired.

Command Type and Version:

External command; Network; Introduced with Ver 5.0
FASTHELP in Ver 6.0 is the same as HELP in Ver 5.0

Notes:

1. You can get online HELP in two ways. Either specify the name of the command on the HELP command line or type the command name and the /? switch at the command prompt.

Online information about MS-DOS Version 6.0 and 6.2x commands and a list of all DOS commands: The Ver 6.0 AND 6.2 information for HELP is much more detailed than FASTHELP or DOS Ver 5.0 HELP.

Syntax (shaded is optional):

HELP **command** /B /G /H /nohi

Examples: HELP (List of commands)
HELP chkdsk
DISKCOPY /? (see Note: 1 below)

Syntax Options:

Command Any specific DOS version 6.0 command on which more information is desired.
/B Display in black-and-white mode.
/G Display in CGA color mode.
/H Display HELP with the maximum number of lines that the display supports.
/nohi Turn high-intensity display off.

Command Type and Version:

External command; Network; Introduced with Ver 6.0
FASTHELP in Ver 6.0 and 6.2x is the same as HELP in Ver 5.0

Notes:

1. You can get online HELP in two ways. Either specify the name of the command on the HELP command line or type the command name and the /? switch at the command prompt.

Extended memory and HMA (high memory area) manager: HIMEM.SYS prevents programs from using the same memory locations at the same time.

Syntax (shaded is optional):

Device= Drive:\Path\ HIMEM.SYS /hmamin=m
/numhandles=n /int15=xxx /machine:xxx
/a20control:on or off /shadowram:on or off
/cpuclock:on or off /EISA /verbose
/test:on or off

Examples: Device=C:\Dos\HIMEM.SYS /test:off

Syntax Options:

Drive:\Path . . . Drive and directory containing HIMEM.
hmamin=m . . . Minimum *m* kilobytes of memory a program must use before it can use the HMA. Default=0, Range=0 to 63. The most efficient use of HMA is accomplished by setting *m* to the amount of memory required by the program that uses the most HMA.
/numhandles=n . . . Maximum number (*n*) of EMB (extended memory block) handles that can be used at the same time. Each handle uses 6 bytes of RAM. Default=32, Range=1 to 128.
/int15=xxx *xxx* kilobytes of memory are assigned to the Interrupt 15h interface. Programs must recognize VDisk headers in order to use this switch.
/machine:xxx . . . Defines a specific A20 handler *xxx* to be used. Normally, HIMEM automatically detects which A20 is to be used. Default=1. If the required handler is not

listed in the following table, see the README.TXT file in your DOS directory for additional information.

Number	Code	A20 handler
1	at	IBM PC/AT, Compuadd 386/JDR 386/33
2	ps2	IBM PS/2, Datamedia 386/486, Unisys PowerPort
3	ptlcascade . .	Phoenix Cascade Bios
4	hpvector . . .	HP Vectra, A and A+
5	att6300plus . .	AT&T 6300 Plus
6	acer1100 . . .	Acer 1100
7	toshiba	Toshiba 1600, 1200XE and 5100
8	wyse	Wyse 12.5 MHz 286, Intel 361Z or 302, Hitachi HL500C, Compuadd 386
9	tulip	Tulip SX
10	zenith	Zenith ZBIOS
11	at1	IBM PC/AT
12	at2	IBM PC/AT (alt. delay)
12	css	CSS Labs
13	at3	IBM PC/AT (alt. delay)
13	philips	Philips
14	fasthp	HP Vectra
15 ⑥	ibm7552	IBM 7552 Industrial Comp.
16 ⑥	bullmicral . . .	Bull Micral 60
17 ⑥	dell	Dell XBIOS

/a20control:on Off allows HIMEM.SYS to take control of
or */a20control:off* the A20 line only if A20 was off when
HIMEM.SYS was loaded. Default=:on

/shadowram:on If your system has Shadow RAM, :off
or */shadowram:off* switches the Shadow RAM off and
returns control of that RAM to HIMEM.
Default=:off if your system has less
than 2 megabytes of RAM.

- /spudlock:on* . . . If your system slows down when
HIMEM.SYS is loaded, specifying :on
might correct the problem. :on will slow
down HIMEM.SYS.
- EISA ⑥* Used only on EISA systems to specify
that HIMEM allocates all available ex-
tended memory.
- /verbose* or */v ⑥* HIMEM displays status and error
messages while loading. Hold ALT key
down during system startup to disable
/verbose.
- /test:on* or *:off* . Turns the HIMEM.SYS testing of all
extended memory :on or :off during sys-
tem startup.

Command Type and Version:

Config.sys command; Introduced with Ver 5.0

Notes:

- Only one program at a time can use the high memory area.
- HIMEM.SYS, or another XMS driver such as 386MAX or QEMM must be loaded before DOS can be loaded into HMA with the DOS=high command.
- In most cases, command line switches do not need to be used, since the defaults are designed to work with most computer hardware.

Performs a command based on the result of a condition in batch programs: If a conditional statement is true, DOS executes the command, if the condition is false, DOS ignores the command.

Syntax (shaded is optional):

Three syntax formats are valid:

```
IF not errorlevel nnn command
IF not string1==string2 command
IF not exist filename command
```

Examples: IF errorlevel 3 goto end

Syntax Options:

not The command is to be carried out only if the statement is false.

errorlevel nnn . True only if the previous program executed by COMMAND.COM had an exit code equal to or greater than *nnn*.

command The specified command that DOS is to perform if the preceding condition is met.

string1==string2 True, only if *string1* and *string2* are the same. The values of *string1* and *string2* can be literal strings or batch variables. Strings may not contain separators, such as commas, semicolons, spaces, etc.

exist filename . True condition if *filename* exists.

Command Type and Version:

Internal command but only used in Batch programs;
Introduced with Ver 2.0

Notes:

1. The *errorlevel* parameter allows you to use exit codes as conditions. An exit code is returned to DOS whenever a program stops.
2. Use " " quotes around strings when comparing, it's safer.

Includes the contents of one configuration block within another configuration block: This is one of five special CONFIG.SYS commands used to define multiple configurations.

Syntax (shaded is optional):

```
INCLUDE=blockname
```

Syntax Options:

blockname . . . The name of the configuration block to be included.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 6.0

Notes:

1. See also MENUITEM, MENUDEFAULT, MENUCOLOR, and SUBMENU. These are the other four special CONFIG.SYS commands used to define multiple configurations
2. Refer to your DOS 6.0 manual for more information on setting up the special multiple configuration menus.

INSTALL

Loads a memory-resident program when DOS is started: Use the INSTALL command to load FASTOPEN, KEYB, NLSFUNC, or SHARE in CONFIG.SYS.

Syntax (shaded is optional):

INSTALL = Drive: \Path\ Filename parameters

Examples: INSTALL = C:\Dos\NLSFUNC

Syntax Options:

- Drive:\Path ... Drive and directory containing Filename.
\Filename ... Name of memory-resident program that you want to run.
Parameters ... Command parameters, if any, required by Filename.

Command Type and Version:

Config.sys command; Network; Introduced with Ver 4.0

Notes:

1. Less memory is used when you load a program with INSTALL instead of loading from the AUTOEXEC.BAT file since an environment for a program is not created by INSTALL.
2. Do not use INSTALL to load programs that use shortcut keys, environment variables, or require COMMAND.COM for error handling.
3. Not all programs will function properly if loaded with INSTALL.
4. See also FASTOPEN, KEYB, NLSFUNC, SHARE, CONFIG.SYS

INTERLNK

New V6.0

Link computers to share resources:

INTERLNK.EXE must be installed as a device driver in the CONFIG.SYS file before the INTERLNK and INTERSVR commands can be run.

Syntax (shaded is optional):

INTERLNK client : = server :

Examples: INTERLNK C: = F:

Syntax Options:

- client : The drive letter of the client drive that is redirected to a drive on the server.
server : The drive letter on the server that will be redirected. If a letter is not specified, the client drive will no longer be redirected.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. See also INTERLNK.EXE and INTERSVR.
2. Note, the LASTDRIVE command may need to be used if drive letters greater than E are used.

INTERLNK.EXE

New V6.0

Link computers to share resources:

INTERLNK.EXE must be installed as a device driver in the CONFIG.SYS file before the INTERLNK and INTERSVR commands can be run.

Syntax (shaded is optional):

Device= Drive: \Path\ INTERLNK.EXE /drives:n
/noprinter /com:naddress /lpt:naddress
/auto /noscan /low /baud:rate /v

Examples: Device=C:\ INTERLNK.EXE /drives:4

Syntax Options:

- Drive:\Path ... Drive and directory containing the INTERLNK.EXE program.
/drives:n The number of redirected drives.
Default is n=3. If n=0, only the printers are redirected.

- /noprinter* No printers are to be redirected. Default is INTERLNK redirects all ports.
- /com:naddress* Specifies that serial port *n* be used to transfer data. If *n* or the address is omitted, INTERLNK scans for the first available port. Default is INTERLNK redirects all ports.
- /lpt:naddress .* Specifies that parallel port *n* be used to transfer data. If *n* or the address is omitted, INTERLNK scans for the first available port. Default is INTERLNK redirects all ports.
- /auto* INTERLNK.EXE is installed in memory only if *client* can make a connection when the *server* starts up. Default is INTERLNK is installed whether or not *server* is there.
- /noscan.* INTERLNK.EXE driver is installed, but a connection between *client* and *server* is prevented.
- /low.* INTERLNK.EXE forces driver to be loaded into conventional memory. Default is driver loaded into upper memory if it is available.
- /baud:rate. . . .* Sets baud rate for com serial ports. Default=115200. Valid values are 9600, 19200, 38400, 57600, & 115200.
- /v* Used to resolve problems and conflicts between *com* and *lpt* ports and the computer's timer.

Command Type and Version:

CONFIG.SYS command; Network; Introduced Ver 6.0

Notes:

1. See also INTERSVR and INTERLNK the command.

Starts the INTERLNK server so that resources can be shared between linked computers:
 INTERLNK.EXE must be installed as a device driver in the CONFIG.SYS file before the INTERLNK and INTERSVR commands can be run.

Syntax (shaded is optional):

INTERSVR drive: /X=drive /lpt:naddress
 /com:naddress /baud:rate /b /v /rcopy

Examples: INTERSVR /rcopy

Syntax Options:

- /X=drive* Specifies those drives that will not be redirected. Default is all drives are redirected.
- /lpt:naddress .* Specifies that serial port *n* be used to transfer data. If *n* or the address is omitted, INTERLNK scans for the first available port. Default is INTERSVR scans all ports.
- /com:naddress* Specifies that serial port *n* be used to transfer data. If *n* or the address is omitted, INTERLNK scans for the first available port. Default is INTERSVR scans all ports.
- /baud:rate. . . .* Sets baud rate for com serial ports. Default=115200. Valid values are 9600, 19200, 38400, 57600, & 115200.
- /b* Display stat screen in black-and-white.
- /v* Used to resolve problems and conflicts between *com* and *lpt* ports and the computer's timer.

/copy.

Copies all INTERLNK files from one computer to another. Note that a full 7 wire null-modem serial cable must be installed on the com port and the DOS MODE command must be available.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. See also INTERLNK.EXE and INTERLNK.
2. If port numbers for com and lpt are not specified, INTERLNK will scan and select the first port it finds.

JOIN.EXE

Removed V6.0

Joins a disk drive to a specific directory on another disk drive: Once joined, DOS treats the directories and files of the first drive as the contents of the second drive and path.

Syntax (shaded is optional):

Two syntax formats are valid:

JOIN Drive1: Drive2:\Path
JOIN Drive: /d

Examples: JOIN C: D:\Notes

JOIN C: D:\Notes\Bin (valid for DOS 5.0 only)

Syntax Options:

Drive1:..... Drive to be joined to Drive2:\Path.
Drive2:\Path .. Drive and Path to which you want to
..... JOIN Drive1:.. Drive2:\Path must be
..... empty and other than the root directory.
..... With DOS Ver 5.0, you can JOIN to a
..... subdirectory also, e.g. C:\Notes\Bin
Drive:..... Drive on which JOIN is to be canceled.
/d..... Cancels the JOIN command.

Command Type and Version:

External command; Introduced with Ver 3.0

Removed from MS DOS Version 6.0, however, it is available on Microsoft's MS-DOS 6.0 and 6.2x Supplemental Disks.

Considered too dangerous to use.

Notes:

1. Once you use the JOIN command, Drive1: becomes invalid.
2. If a specified path already exists before using JOIN, that directory cannot be used while JOIN is in effect. The specified directory must be empty or the JOIN operation will be incomplete and an error message will be displayed.
3. Commands that do not work with drives formed by JOIN are: ASSIGN, BACKUP, CHKDSK, DISKCOMP, DISKCOPY, FDISK, FORMAT, LABEL, MIRROR, RECOVER, RESTORE, SYS.
4. Use JOIN without parameters to show a list of the currently joined drives.

KBDBUF.SYS

New V6.0

A device driver that sets the number of key-strokes stored in the keyboard buffer.

Syntax (shaded is optional):

DEVICE = KBDBUF.SYS xxxx

Example: DEVICE = KBDBUF.SYS 200

Syntax Options (shaded is optional):

xxxx. Designates the number of keystrokes held in the buffer. This number can range from 16 to 1024.

Command Type and Version:

CONFIG.SYS command

Introduced with MS-DOS Ver. 6.0

Available only on Microsoft's Supplemental Disks for MS-DOS Versions 6.0, 6.21 and 6.22.

KEYB.COM and KEYBOARD.SYS

Configures a keyboard for use with a specific language (installs alternate keyboard layout):

Syntax (shaded is optional):

If started in a batch file or at the DOS prompt:

```
KEYB xx,yyy,Drive:\Path\Filename /e /id:nn
```

If started in CONFIG.SYS:

```
install = Drive1:\Path1\KEYB.COM xx, yyy,  
Drive:\Path\Filename /e /id:nn
```

Examples: KEYB fr,850,437,C:\Dos\Keyboard.sys
install = C:\KEYB.COM fr , , C:\Dos\Keyboard.sys

Syntax Options:

xx. Keyboard code. See table on next page.

yyy. Code page. See table on next page.

Drive:\Path ... Drive and directory containing *Filename*.

Filename Keyboard definition file.
Default=KEYBOARD.SYS

/e. Enhanced keyboard is being used. Ver5

/id:nn. Defines which keyboard is in use. See
table on next page.

Drive1:\Path1 . Drive and directory containing KEYB.COM

Command Type and Version:

External command; Network; Introduced with Ver 3.3

Notes:

1. When KEYB is installed through CONFIG.SYS, KEYB.COM with the .COM must be used. See also the CHCP command.
2. The Code Page specified with yyy must already be loaded on your system before KEYB is used.
3. You can switch from the default keyboard configuration to the KEYB configuration by pressing Ctrl+Alt+F2. To switch to the default keyboard configuration, press Ctrl+Alt+F1
4. The following are KEYB exit codes:
0. KEYB definition file loaded successfully.
1. Invalid Keyboard Code, Code Page, or syntax.

2. Bad or missing keyboard definition file.
4. Communication error with CON device.
5. Requested Code Page has not been prepared.

The following table lists xx, yyy, and nnn values for different countries and languages.

Country or language	Keyboard Code xx	Code Page yyy	Keyboard ID nnn
Belgium	be	850,437	
Brazil	br	850,437	
Canadian-French	cf	850,863	
Czech Republic	cz	852,850	
Denmark	dk	850,865	
Finland	su	850,437	
France	fr	850,437 ...	120,189
Germany	gr	850,437	
Hungary	hu	852,850	
Italy	it	850,437 ...	141,142
Latin America	la	850,437	
Netherlands	nl	850,437	
Norway	no	850,865	
Poland	pl	852,850	
Portugal	po	850,860	
Slovakia	sl	852,850	
Spain	sp	850,437	
Sweden	sv	850,437	
Switzerland (French)	sf	850,437	
Switzerland (German)	sg	850,437	
United Kingdom	uk	850,437 ...	166,168
United States	us	850,437	
Yugoslavia	yu	852,850	

Loads a keyboard program for a specific country or keyboard type:

Syntax (shaded is optional):

KEYBxx

Examples: KEYBGR
KEYBUK

Syntax Options:

xx Code for a specific keyboard type:
KEYBdv Dvorak keyboard
KEYBfr France
KEYBgr Germany
KEYBit Italy
KEYBsp Spain
KEYBuk United Kingdom

Command Type and Version:

External command; Network; Introduced with Ver 3.0

Notes:

1. KEYBxx was discontinued after DOS version 3.2 and was replaced by KEYB.
2. Only one keyboard program can be loaded at a time.
3. You can switch from the default keyboard configuration to the KEYBxx configuration by pressing Ctrl+Alt+F2. To switch to the default keyboard configuration, press Ctrl+Alt+F1.
4. If you need to change from one keyboard type to another, restart the system after the changes have been made.

Creates, changes or deletes the name or volume label of a disk: DOS displays the volume label and serial number, if it exists, as part of the directory listing.

Syntax (shaded is optional):

LABEL Drive: Label

Examples: LABEL
LABEL A: datadisc

Syntax Options:

Drive: Drive or diskette to be named.
Label New volume label, up to 11 characters.
A colon (:) must be included between the drive letter and label, but NO space.

Command Type and Version:

External command; Introduced with Ver 3.0

Notes:

1. Using the LABEL command without a label displays the following:
 - . Volume in Drive A is nnnnnnnnnn
 - . Volume Serial Number is nnnn-nnnn
 - . Volume Label (11 characters, ENTER for none)?
2. The Volume label cannot include tabs. Spaces are allowed, but consecutive spaces may be treated as a single space.
3. Do not use the following characters in a volume label:

* ? / \ . , ; : + = [] () & ^ < > "
4. LABEL is not case sensitive. (lower case is automatically converted to upper case.)
5. LABEL does not work on a drive created by ASSIGN, JOIN or SUBST.

LASTDRIVE

Number of drives installed: By default, the last drive is the one *after* the last drive used by your computer. DOS 4 and earlier it was E:

Syntax (shaded is optional):

LASTDRIVE = parameter

Examples: LASTDRIVE = F

Syntax Options:

parameter A drive letter in the range of A through Z to correspond to the number of logical drives installed. Default is the drive after the last one used by the computer.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 3.0

Notes:

1. Memory is allocated by DOS for each drive specified by LASTDRIVE, therefore, don't specify more drives than are necessary.

LINK.EXE

Removed V5.0

8086 Object Linker that creates executable programs from Microsoft Macro Assembler (MASM) object files: LINK is for the experienced programmer and is not used by the general user.

Syntax (shaded is optional):

LINK (LINK prompts for file names, etc)
LINK object , execute , map , library options ;

Examples: LINK file /se:192 , , ;

Syntax Options:

object Object files to be linked together.
execute Name for created executable file.
map Map listing file.
library Name(s) of library files to LINK.
options Options for the LINK program
. Terminates command line.

Command Type and Version:

External command; Introduced with Ver 1.0
Removed from Ver 5.0

Notes:

1. Further discussion of LINK is beyond the scope of POCKET PCRef.

LOADFIX.COM

Forces a program to load above the first 64k of conventional memory and then runs the program.

Syntax (shaded is optional):

LOADFIX Drive: \Path\ Filename parameters

Examples: LOADFIX C:\TEST.EXE

Syntax Options:

Drive:\Path . . . Drive and directory containing *Filename*.
Filename Name of program that you want to run.
Parameters . . . Command parameters, if any, required by *Filename*.

Command Type and Version:

External command; Introduced with Ver 5.0

Notes:

1. Use LOADFIX when the error message "Packed file corrupt" is reported during the execution of a program.

Loads programs into upper memory: Loading programs into upper memory frees up conventional memory for other programs. An upper memory manager such as EMM386 must be loaded first in order for LOADHIGH to function. LH and LOADHIGH are equivalent commands.

Syntax (shaded is optional):

LOADHIGH Drive:\Path\ Filename /L:region
/s parameters

Examples: LOADHIGH C:\Dos\doskey.com
LH C:\Dos\doskey.com

Syntax Options:

Drive:\Path... Drive and directory containing *Filename*.
Filename... Program to be loaded into high memory.
/L:region... Load the device driver into a specific upper memory region.
/s 62... Shrinks the upper-memory block (UMB) to minimum size while loading program. Used only with the /L:region switch. Typically used only by MEMMAKER.
parameters... Command line parameters required by *Filename*.

Command Type and Version:

Internal command; Network; Introduced with Ver 5.0

Notes:

1. DOS=umb must be included in your CONFIG.SYS in order for LOADHIGH to function.
2. HIMEM.SYS and EMM386.EXE must be loaded in CONFIG.SYS on a 386/486 system in order to provide upper memory management for 386/486 systems. (Programs such as 386MAX and QEMM will provide the same capabilities.)
3. If there is not enough upper memory to load a program, DOS will load the program into conventional memory (no notice is given).
4. See also DEVICEHIGH, DOS, HIMEM.SYS, and EMM386.

3. When LOADHIGH is used, it is typically placed in the AUTOEXEC.BAT file.
4. Use MEM /c to see where programs are loaded.
5. Running MEMMAKER will automatically add all necessary LOADHIGH commands to AUTOEXEC.BAT

MD or MKDIR

Makes a Directory: Creates a new subdirectory under the current directory (if no Drive:\Path is specified). A new subdirectory on a different drive or under a different path can also be created. MD and MKDIR are equivalent commands.

Syntax (shaded is optional):

MD Drive:\Path\ subdirectory

Examples: MD contract
MKDIR contract
MD C:\contract\bin

Syntax Options:

Drive:... Letter of drive for *subdirectory*.
Path... Path where subdirectory is to be made. If no path is specified, e.g. C:\ only, the new directory is made a subdirectory under the root directory.
subdirectory... Name of the *subdirectory* being created.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. DOS will always assume that the MD command is on the current directory if no path is specified.
2. The maximum length of any path to the final subdirectory is 63 characters, including backslashes.

MEM.EXE

Display information about used and free

system memory: Options are available that will display items such as which programs are loaded, the order of loaded programs, free memory, etc.

Syntax (shaded is optional):

MEM /program /page /a /c /d /f /m *prnname*

Examples: MEM
MEM /classify

Syntax Options:

MEM Without any switches, the status of used and free memory is displayed.

/program or /p **DOS Version 4/5 only:** Displays the status of programs currently loaded into memory. This switch can not be used at the same time as /debug and /classify.

/page or /p 6 **DOS Version 6 only:** Pauses display output after each screen.

/a 62 Adds a line to the display stating the amount of memory available in HMA (High Memory Area)

/c or /classify Displays the status of all programs and drivers currently loaded into conventional and upper memory. Other info, such as memory use and largest memory blocks available are also displayed. This switch can not be used at the same time as /program and /debug. Version 5.0

/d or /debug . Displays the status of programs and drivers currently loaded into memory. This switch can not be used at the same time as /program and /classify.

/f or /free . . . Lists free regions in upper memory. /free can not be used with other switches, except /module.

m prnname or /module prnname . . . Display info on a particular program loaded in memory. This switch can not be used with any other switches except /page.

Command Type and Version:

External command; Network; Introduced with Ver 4.0

Notes:

1. Extended memory usage is displayed only if the installed system memory is 1 meg or greater. Only LIM 4.0 expanded memory use is displayed.
2. Total conventional memory=first 640k of RAM. Extended = memory above 1 meg. Expanded = bank switched LIM 4.0 memory.
3. If information is needed on hard drive available space, see the CHKDSK command.

MEMMAKER.EXE New V6.0

Optimizes computer memory by moving device drivers and memory-resident programs

(TSR's) into upper memory: The system must be either a 386 or 486 and have extended memory available.

Syntax (shaded is optional):

MEMMAKER /b /batch /session /swap:drive
/T /undo /w:size1,size2

Examples: MEMMAKER
MEMMAKER /undo

Syntax Options:

/b Display in black-and-white mode. Use if there are problems with your monochrome monitor.

/batch Run MEMMAKER in unattended mode. This forces acceptance of defaults at all prompts. If an error occurs during the process, MEMMAKER restores the

original AUTOEXEC.BAT, CONFIG.SYS, and Windows SYSTEM.INI. Status messages and errors are reported in the MEMMAKER.STS file.

- /session This switch is only used by MEMMAKER during the optimizing process.
- /swap:drive . . . Specifies the drive letter of the system startup drive, if it has changed since the system started up. (encountered with some disk swapping programs)
- /T If problems are encountered between MEMMAKER and an IBM Token Ring network, use this switch. It disables the Token-Ring detection function.
- /undo Forces MEMMAKER to undo the most recent changes it has made to the system. This switch is normally used if problems are encountered after MEMMAKER has been run and you wish the system to be returned to its original configuration.
- /w:size1,size2. Sets the upper memory size reserved for Windows translation buffers. Windows needs two separate areas of upper memory for the buffers. size1 is the size of the first area, size2 is the size of the second area. The default is no buffers are created (/w:0,0).

Command Type and Version:

External command; Introduced with Ver 6.0

Notes:

1. See also DEVICEHIGH and LOADHIGH.
2. **WARNING: Do not run this program if Windows is running!**
3. CHKSTATE.SYS is a CONFIG.SYS command line that is automatically created by MEMMAKER during the optimization process. At the end of the process, it is automatically removed from CONFIG.SYS.

Command line to set text and background colors for the DOS startup menu in the CONFIG.SYS file:

The startup menu is a list of system configuration choices that appear when your system is started. Each menu item is a set of CONFIG.SYS commands and is called a "configuration block". See your DOS manual for details of setting up and using the startup menu.

Syntax (shaded is optional):

MENUCOLOR = X , Y

Examples: MENUCOLOR 7, 9

Syntax Options:

- X Sets menu text color. Valid values are 0 to 15.
- Y Sets screen background color. Valid values are 0 to 15. Default=0 (black).
- Color Values . .
- | | |
|-----------|-------------------|
| 0=Black | 8=Gray |
| 1=Blue | 9=Bright blue |
| 2=Green | 10=Bright green |
| 3=Cyan | 11=Bright cyan |
| 4=Red | 12=Bright red |
| 5=Magenta | 13=Bright magenta |
| 6=Brown | 14=Yellow |
| 7=White | 15=Bright white |

Note: colors 8 to 15 blink on some displays.

Command Type and Version:

CONFIG.SYS command; Network; Introduced with Ver 6.0

Notes:

1. See also MENUDEFAULT, MENUITEM, NUMLOCK, INCLUDE and SUBMENU. All are used by the startup menu.
2. Don't make X and Y the same number, text won't show!

Command line to set the default menu item for the DOS startup menu in CONFIG.SYS: The startup menu is a list of system configuration choices that appear when your system is started. Each menu item is a set of CONFIG.SYS commands and is called a "configuration block". See your DOS manual for details of setting up and using the startup menu.

Syntax (shaded is optional):

MENUEDEFAULT = blockname , timeout

Examples: MENUEDEFAULT = NET, 20

Syntax Options:

- blockname* Sets the default menu item. If no default is specified, item 1 is selected.
- , timeout* The number of seconds DOS waits before starting your computer with a default configuration.

Command Type and Version:

CONFIG.SYS command; Network; Introduced with Ver 6.0

Notes:

1. See also MENUCOLOR, MENUITEM, NUMLOCK, INCLUDE and SUBMENU. All are used by the startup menu.

Command line to define a menu item for the DOS startup menu in CONFIG.SYS: The startup menu is a list of system configuration choices that appear when your system is started. Each menu item is a set of CONFIG.SYS commands and is called a "configuration block". See your DOS manual for details of setting up and using the startup menu.

Syntax (shaded is optional):

MENUITEM blockname , menutext

Examples: MENUITEM NET, Start your Network

Syntax Options:

- blockname* Defines a menu item on the startup menu. It is usable only within a menu block and there can be a maximum of nine menu items per menu. If DOS cannot find a specified name, the item will not appear on the startup menu. *blockname* can be up to 70 characters long but you cannot use spaces, \ (backslashes), / (forward slashes), commas, semicolons, equal signs or square brackets.
- , menutext* Up to 70 characters of text to display for the menu item. If no text is given, DOS displays *blockname* as the menu item.

Command Type and Version:

CONFIG.SYS command; Network; Introduced with Ver 6.0

Notes:

1. See also MENUCOLOR, MENUEDEFAULT, NUMLOCK, INCLUDE and SUBMENU. All are used by the startup menu.

Records information about 1 or more disks for use by UNFORMAT and UNDELETE commands:

Syntax (shaded is optional):

Three syntax formats are valid:

MIRROR Drives: /1 /Tdrive – entries ...

MIRROR /u

MIRROR /partn

Examples: MIRROR /u

MIRROR C: /Ta /Tc

Syntax Options:

Drives: The drive or drives to be MIRRORed.

/1 Instructs MIRROR to retain only the latest information about a disk. The default causes MIRROR to make a backup of existing information before new information is recorded.

/Tdrive – entries Loads a deletion-tracking program that maintains information so that the UNDELETE command can recover files. *drive* is required and is the drive to be MIRRORed. *entries* is optional and is the maximum number of entries in PCTRACKR.DEL (the deletion tracking file). *entries* can range from 1 to 999 and the *entries* defaults are as follows:

Disk Size	Default Entry	File Size
360k.	25.	5k
720k.	50.	9k
1.2 meg	75.	14k
1.44 meg	75.	14k
20 meg.	101.	18k
32 meg.	202.	36k
>32 meg ...	303.	55k

Load and disable the deletion tracking program. If other memory resident programs have been loaded after MIRROR, the /u switch will not function.

/partn Save partitioning information for the UNFORMAT command. The information is saved on a floppy disk for use at a later time if partitions need to be rebuilt by UNFORMAT. The default drive to save the information to is A:, although a different drive can be specified at the prompt.

Command Type and Version:

External command; Network; Introduced with Ver 5.0
Removed from DOS Ver 6.0, functionally replaced by the UNDELETE /T command.

MIRROR is available on Microsoft's MS-DOS Ver. 6.0, 6.21, and 6.22 Supplemental Disks.

Notes:

1. If MIRROR is used without any switches, it saves information about the disk in the current drive.
2. Do not use MIRROR on any drive that has been redirected using the JOIN or SUBST commands. If ASSIGN is used, it must be used before MIRROR.
3. MIRROR saves a copy of a drive's FAT (file allocation table) and a copy of the drive's root directory. Since this information may change regularly, it is recommended that you use MIRROR regularly in order to maintain current information for UNFORMAT to use. It is recommended that MIRROR be placed in your AUTOEXEC.BAT file so that current information is saved every time your system is turned on or re-booted.
4. See also UNFORMAT and UNDELETE.
5. **DOS 6.0 Note:** MIRROR is still available from Microsoft as a supplemental disk, call them for details.

Controls system devices such as display, serial ports, printer ports, and system settings:

NOTE: Since there are many functions that MODE addresses, they will each be treated separately in the following pages.

Command Type and Version:

External command; Network; Introduced with Ver 1.0

MODE to Display Device Status

Syntax (shaded is optional):

MODE **device** /status

Examples:

MODE (Display status of all system devices)

MODE con (Display console status)

MODE lpt1 /status

Syntax Options:

device Device for which status is requested.
/status or /sta. . . Displays status of redirected parallel printers.

Notes:

None

Configures parallel port printers: Ports that can be addressed include PRN, LPT1, LPT2, and LPT3. Printer types that can be configured are IBM compatibles and Epson compatibles.

Syntax (shaded is optional):

MODE Lptn : c, L, r

MODE Lptn : cols=c lines=L retry=r

Examples: MODE Lpt2:132,6

MODE Lpt1 cols=132 lines=8

Syntax Options:

Lptn Parallel port to be configured. Valid numbers for *n* are 1, 2, and 3.
or *cols*= Number of character columns per line. Default=80, Values=80 or 132.
or *lines*= Number of vertical lines per inch. Default=6, Values=6 or 8.
or *retry*= Type of retry if time-out error occurs. This option leaves a memory resident piece of MODE in RAM. Valid *r*'s are:
e Return busy port error from status check.
b Return busy port "Busy" from status check.
p Continue retry until printer accepts data.
r Return "Ready" from busy port status check.
n Disable retry (Default). "none" is also valid.

Notes:

1. *retry=b* is equivalent to the "p" parameter in earlier DOS versions.
2. Ctrl+C will break out of a time-out loop.
3. PRN and LPT1 can be used interchangeably.
4. Do not use any *retry* options over a network.
5. The colon (:) with *Lptn* is optional.

MODE to Configure Serial Port

Configures a serial communications port: Ports that can be addressed include COM1, COM2, COM3, and COM4.

Syntax (shaded is optional):

```
MODE COMn : b , p , d , s , r
MODE COMn : baud=b parity=p data=d
              stop=s retry=r
```

Examples: MODE COM1:24,N,8,1

Syntax Options:

COMn Asynchronous serial port to be configured.
Valid values are 1, 2, 3, and 4.

b or baud= Transmission rate in bits per second.
Only the first 2 digits are required.
Valid values are 11=110 baud, 15=150,
30=300, 60=600, 12=1200, 24=2400,
48=4800, 96=9600, & 19=19,200 baud.

p or parity= Parity check. N=none, E=even, O=odd,
M=mark, S=space. Default=E

d or data= Number of data bits in a character.
Valid values are 5, 6, 7, 8. Default=7

s or stop= Number of stop bits for end of character.
Valid values are 1, 1.5 or 2. Default=1
(Default at 110 baud=2)

r or retry= Type of retry if time-out error occurs.
This option leaves a memory resident
piece of MODE in RAM. Valid r's are:

- e Return busy port error from status check.
- b Return busy port "Busy" from status check.
- p Continue retry until printer accepts data.
- r Return "Ready" from busy port status check.
- n Disable retry (Default). "none" is also valid.

Notes:

1. If any parameters are omitted in the MODE statement, the most recent setting is used.
2. Do not use *retry* values over a network.
3. *retry=b* is equivalent to the "p" parameter in earlier DOS versions.

240 MODE to Configure Serial Port

MODE to Redirect Printing

Redirects output from a parallel port to a serial port:

Syntax (shaded is optional):

```
MODE Lptr : = COMr :
```

Examples: MODE Lpt1 = COM1:
MODE Lpt1 = COM2

Syntax Options:

Lptr The parallel port to be redirected.
Valid m values are 1, 2, and 3.

COMn The serial port to be redirected to.
Valid n values are 1, 2, 3, and 4

Notes:

1. Following a redirection, the original output direction can be restored by typing MODE lptr where m is the original printer port.

MODE to Set Device Code Pages

Selects, refreshes, prepares, or displays code page numbers for parallel printers and the console:

Syntax (shaded is optional):

```
MODE device codepage prepare= yyy
                          Drive:\Path\Filename
MODE device codepage select=yyy
MODE device codepage refresh
MODE device codepage /status
```

Examples:

```
MODE CON codepage prepare = 860
MODE LPT1 codepage /status
```

MODE to Redirect Printing 241

Syntax Options:

device Device to be affected. Valid values are CON, LPT1, LPT2, and LPT3.

codepage prepare or *cp prep* Prepares the code page for the specific device. Use *codepage select* after this command.

Drive:\Path\Filename Drive, directory and file containing code page information (.CPI files) needed to prepare a code page.

EGA.CPI Enhanced graphics adapter or PS2

EGA2.CPI Similar to EGA.CPI, but with more code pages.

4201.CPI IBM Proprinters II and III, Model 4201

4208.CPI IBM Proprinters II & III, Model 4202

4208.CPI IBM Proprinter X24E Model 4207
IBM Proprinter XL24E Model 4208

5202.CPI IBM Quietwriter III Printer

LCD.CPI IBM PC Convertible Liquid Crystal Disp.

ISO.CPI Complies with Part 3 of ISO 9241 specification.

codepage select or *cp sel* Selects a code page for a specific device. *cp prep* above must be run first.

codepage refresh or *cp ref* If a code page is lost, this command reinstates it.

codepage When used alone, codepage displays the numbers of the code pages that have been prepared for a specific device.

/status or */sta* Displays the current code page numbers

Notes:

1. See also NLSFUNC and CHCP.
2. EGA.CPI and EGA2.CPI are shipped with DOS. All others are supplied on Microsoft's MS-DOS Supplemental Disks.

MODE to Set Display Mode

Reconfigure or select active display adapter:

Syntax (shaded is optional):

MODE adapter , shift , t

MODE adapter , n

MODE CON : cols=c lines=n

Examples: MODE co80,r

MODE CON:cols=40 lines=43

Syntax Options:

adapter Display adapter category as follows:

40 or 80 Number of characters/line.

bw40 or bw80 CGA (color graphics with color disabled. Characters per line = 40 or 80

co40 or co80 Color display with color enabled. Characters per line = 40 or 80.

mono Monochrome display with 80 characters per line.

shift Shift CGA screen left or right. Valid values are L for left, R for right.

t Starts a test pattern for screen alignment.

n Vertical lines per screen. Valid values are 25, 43, and 50. ANSI.SYS must be loaded in CONFIG.SYS for this to work.

cols= Characters or columns per line. Valid values are 40 and 80.

lines= Vertical lines per screen. Valid values are 25, 43, and 50. ANSI.SYS must be loaded in CONFIG.SYS for this to work.

Notes:

1. Some monitors do not support 43 and 50 vertical lines per screen.

Set the rate at which DOS repeats a character when a keyboard key is held down: Some keyboards do not recognize this command.

Syntax (shaded is optional):

MODE con : rate=*r* delay=*d*

Examples: MODE con : rate=20 delay=2

Syntax Options:

con or con: . . . Keyboard

rate=*r* The rate that a character is repeated on the display when a key is held down. *r* Default=20 for AT keyboards, Default=21 for PS2 keyboards. *r* Range=1 to 32, which is equivalent to the following: rate 1 = 2 characters per second (cps), 10 = 4.3 cps, 20 = 10 cps, 30 = 24 cps and 32 = 30 cps.

delay=*d* The amount of time, after a key is held down, before the repeat function activates. *d* Default=2, *d* valid values are 1, 2, 3 and 4 (equivalent to 0.25, 0.50, 0.75, and 1 second respectively). If a delay is specified, rate must also be specified.

Notes:

1. The keyboard must be an AT or PS/2 class or higher keyboard in order for this command to work.

Displays output one screen at a time: MORE reads standard input from a pipe or redirected file and is typically used to view lengthy files. Each screen of information ends with the prompt -More- and you can press any key to view the next screen.

Syntax (shaded is optional):

MORE < Drive:\Path\ Filename
or

command | MORE

Examples: MORE < C:\Data.txt
DIR | MORE

Syntax Options:

Drive\Path . . . Drive and directory containing *Filename*.

Filename Name of file that supplies data to be displayed.

command Name of command that supplies data to be displayed, for example, DIR

Command Type and Version:

External command; Network; Introduced with Ver 2.0

Notes:

1. When using the pipe (|) for redirection, you are able to use DOS commands, such as DIR, SORT, and TYPE with MORE, but the TEMP environment variable in AUTOEXEC.BAT file should be set first.
2. MORE saves input information in a temporary file on disk until the data is ready to be displayed. If there is no room on the disk, MORE will not work. Also, if the current drive is a write-protected drive, MORE will return an error.

Move files from one drive or directory to another: You can also move and rename complete directories, along with their files and subdirectories, to other drives or directories. **Warning:** DOS does not warn you if it is about to overwrite files with the same name.

Syntax (shaded is optional):

MOVE */Y /-Y* Drive:\Path\ Filename
 , Drive:\Path\... Filename Destination

Examples: M

Syntax Options:

/Y 6.2..... Directs MOVE to replace existing files without a confirmation prompt.

/-Y 6.2..... Directs MOVE to ask for confirmation prior to replacing an existing file. (Default)

Drive:\Path\... Drive and directory containing *Filename*.

Filename..... Name of file(s) that you want to move.

Destination... The new location of the file(s) being moved. This can be a drive, subdirectory, or combination of the two.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. If more than one file is being moved, the Destination must be a drive and subdirectory.

Microsoft Anti-Virus scanners for DOS (MSAV) and Windows (MWAV).

Syntax (shaded is optional):

MSAV Drive: */S /C /R /A /L /N /P /F /ss*
 /video /IN /BW /mono /LCD /FF /BF /NF
 /BT /NGM /LE /PS2

Examples: MSAV C: */A /N /F*

Syntax Options:

Drive:..... Drive to be scanned. The Default is the current drive.

/S..... Scan but do not remove viruses.

/C..... Scan and remove viruses.

/R..... Create a MSAV.RPT report that lists the number of files scanned, the number of viruses found, and the number of viruses removed. Default=no report.

/A..... Scan all drives except A and B.

/L..... Scan all logical drives except networks.

/N..... Run in command mode, not graphical. Also, display contents of a MSAV.TXT file if it's present.

/P..... Run in command line mode w/ switches.

/F..... Do not display file names during scan.

/ss..... Set screen display size:

/25=25 lines, this is the default

/28=28 lines, use with VGA

/43=43 lines, use with EGA or VGA

/50=50 lines, use with VGA

/60=60 lines, use with VGA and Video7

/video..... Display list of valid video screen switches.

/IN..... Run MSAV using a color scheme.

/BW..... Run MSAV in black-and-white mode.

/mono..... Run MSAV in monochrome mode.

- /LCD..... Run MSAV in LCD mode.
- /FF..... Run MSAV in fast screen mode for CGA monitors. Screen quality is worse.
- /BF..... Use computer BIOS to display video.
- /NF..... Disable use of alternate screen fonts.
- /BT..... Enable graphics mouse in Windows.
- /NGM..... Use default mouse character instead of the graphics character.
- /LE..... Switch left and right mouse buttons.
- /PS2..... Reset mouse if the mouse cursor locks up or disappears.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. MSAV is actually Central Point Software's Anti-Virus program which has been licensed to Microsoft.

MSBACKUP-MWBACKUP.EXE

New V6.0

Microsoft's menu driven program to backup and restore one or more files from one disk to another disk: This program is a replacement for BACKUP and RESTORE used in previous DOS versions. MSBACKUP is for DOS and MWBACKUP is for Windows.

Syntax (shaded is optional):

MSBACKUP **setup_file** /BW /LCD /MDA

Examples: MSBACKUP /BW

Syntax Options:

- setup_file**..... Predefined setup that specifies which files to backup and the type of backup to be performed. MSBACKUP automatically creates this file if "save program settings". During the "save program" function, if no file name is specified, the file name DEFAULT.SET is used.
- /BW..... Run screen in black-and-white mode.
- /LCD..... Run screen in LCD mode.
- /MDA..... Run screen in monochrome mode.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. MSBACKUP does not support the use of tape backups.
2. Backups and catalog files are compatible between MSBACKUP and MWBACKUP.

Microsoft's CD-ROM Extensions : MSCDEX is used in conjunction with the CD-ROM device driver that was shipped with the drive. It is normally executed in the AUTOEXEC.BAT file.

Syntax (shaded is optional):

```
MSCDEX /D:driver [/D:driver2 ... /E /K /S
                /V /L:letter /M:number]
```

Examples: MSCDEX /D:1

Syntax Options:

- /D:driver.* Drive signature for the first CD-ROM drive. Typically this is MSCD0000. The drive signature must match that of the CD-ROM driver in CONFIG.SYS.
- /D:driver2.* Drive signature of the second CD-ROM drive. Typically this is MSCD0001.
- /E.* CD-ROM drive can use expanded memory, if available, to store sector buffers.
- /K.* Provide Kanji support for CD-ROM.
- /S.* Share CD-ROM on MS-NET network or Windows for workgroup servers.
- /V.* Display MSCDEX memory stats when the program starts.
- /L:letter.* Specifies drive letter for first CD-ROM. If more than one CD-ROM, DOS assigns the subsequent drive letters.
- /M:number ...* Specifies the number of sector buffers.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. Do not start MSCDEX after Windows has been started.

Microsoft's menu driven system diagnostics: This program provides detailed technical information about your system.

Syntax (shaded is optional):

```
MSD /I /B [/F drive:\path\filename ]
        [/P drive:\path\filename]
        [/S drive:\path\filename]
```

Examples: MSD

MSD /B /I

Syntax Options:

- /I.* Forces MSD to not initially detect hardware when it starts. This may be necessary if MSD is not running properly or locks up.
- /B.* Run MSD in black-and-white mode.
- drive:\path.* Drive and path where a MSD report file is to be written.
- /F drive:\path\filename.* Prompts for a company, address, & phone to be written on the MSD report named *filename*.
- /P drive:\path\filename.* Writes a complete MSD report to a file named *filename*.
- /S drive:\path\filename.* Writes a summary MSD report to a file named *filename*.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. MSD has shipped with Windows for quite some time and is an excellent diagnostics tool.

Installs support for Qbasic graphics programs using the Hercules graphics card:

Syntax (shaded is optional):

MSHERC / half

Examples: MSHERC / half

Syntax Options:

/ half Use this switch if a color adapter card is also installed in the system.

Command Type and Version:

External command; Network; Introduced with Ver 5.0

NLSFUNC.EXE

National language support function, which loads country-specific information and code-page switching: Use NLSFUNC from either the command line or through **CONFIG.SYS**.

Syntax (shaded is optional):

At the DOS prompt:

NLSFUNC Drive:\Path\ Filename

If loaded through **CONFIG.SYS**:

INSTALL= Drive1:\Path1\ NLSFUNC.EXE
country

Examples: NLSFUNC C:\Bin\Newcode.sys

Syntax Options:

Drive:\Path ... Drive and directory containing *Filename*.

Filename File containing country-specific information.

Drive1:\Path1 ... Drive and directory containing **NLSFUNC**.

country Same as *Filename*.

Command Type and Version:

External & **CONFIG.SYS** command; Network;
Introduced with Ver 3.3

Notes:

1. The **COUNTRY** command in **CONFIG.SYS** defines the default value for **Drive:\Path\Filename**. If there is no **COUNTRY** command in **CONFIG.SYS**, **NLSFUNC** looks for **COUNTRY.SYS** in the root directory of the start up drive.
2. See also **CHCP** and **MODE**.

NUMLOCK

New V6.0

*Command line to set the NUM LOCK key to ON or OFF for the DOS startup menu in the **CONFIG.SYS** file:* The startup menu is a list of system configuration choices that appear when your system is started. Each menu item is a set of **CONFIG.SYS** commands and is called a "configuration block". See your DOS manual for details of setting up and using the startup menu.

Syntax (shaded is optional):

NUMLOCK = ON or OFF

Examples: NUMLOCK = ON

Syntax Options:

ON Turns NUM LOCK key on.

OFF Turns NUM LOCK key off.

Command Type and Version:

CONFIG.SYS command; Network; Introduced with Ver 6.0

Notes:

1. See also **MENUDEFAULT**, **MENUITEM**, **MENUCOLOR**, **INCLUDE** and **SUBMENU**. All are used by the startup menu.

Sets a directory search path: DOS uses the path command to search for executable files in specified directories. The default is the current working directory.

Syntax (shaded is optional):

PATH Drive1: \Path1; Drive2: \Path2;...

Examples: PATH C:\D:\D:\Dos\Utility\test
 PATH (displays the current search path)
 PATH ; (clears search-path settings other than default setting (current directory)).

Syntax Options:

Drive1: Drive2: Specifies drive letters to be included in the search path
\Path1 \Path 2 Specifies directory (s) in the search path where DOS should look for files.
; Must be used to separate multiple **Drive:\Path** locations or if used as **Path**; it clears search-path settings other than the default setting.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. The maximum number of characters allowed in the PATH statement is 127. See SUBST for ways to get around this limit. Also see the SET Path statement.
2. If files have the same name but different extensions, DOS searches for files in the following order: .COM, .EXE, .BAT.
3. If identical file names occur in different directories, DOS looks in the current directory first, then in locations specified in PATH in the order they are listed in the PATH statement.
4. A PATH command is usually included in the AUTOEXEC.BAT file so that it is issued at the time the system starts.

Pauses the processing of a batch file: Suspends processing of a batch file and prompts the user to press any key to continue.

Syntax (shaded is optional):

PAUSE

Examples: PAUSE

Syntax Options:

None

Command Type and Version:

Internal command; Only used in Batch Programs; Introduced with Ver 1.0

Notes:

Earlier versions of PAUSE indicated that a text comment could be inserted after PAUSE and the message would display when PAUSE ran, for example "PAUSE This is a test". This message function is not functional.
 Ctrl+C or Ctrl Break will stop a Batch program while running or at pause

Reduces power consumption in a computer when applications and devices are idle:

Once the POWER.EXE driver is loaded through the CONFIG.SYS file, POWER at the command line turns power on/off, reports status and sets conservation levels.

Syntax (shaded is optional):

POWER

ADV[:MAX or REG or MIN] or STD or OFF

Examples: POWER (displays current settings)
 POWER OFF

Syntax Options:

ADV[:MAX or REG or MIN] . . . Conserves power when devices are idle. MAX=maximum power conservation, REG=default, balance conservation with device performance, MIN=higher device performance is needed.

STD If the computer supports APM, STD conserves power. If not supported, it turns off the power.

OFF Turns off power management.

Command Type and Version:

External command;

Network; Introduced with Ver 6.0

Notes:

1. See also POWER.EXE.
2. If the computer does not support APM, using STD will disable the power completely.

POWER.EXE New V6.0

Reduces power consumption in a computer when applications and devices are idle:

This driver conforms to the Advanced Power Management (APM) specifications and is loaded through the CONFIG.SYS file.

Syntax (shaded is optional):

Device = Drive:\Path\ POWER.EXE

ADV[:MAX or REG or MIN] or **STD** or **OFF** /low

Examples: Device = POWER.EXE

Syntax Options:

Drive\Path . . Specifies the location of POWER.EXE

ADV[:MAX or REG or MIN] . . . Conserves power when devices are idle. MAX=maximum power conservation, REG=default, bal-

ance conservation with device performance, MIN=higher device performance is needed.

STD If the computer supports APM, STD conserves power. If not supported, it turns off the power.

OFF Turns off power management.

/low Loads driver into conventional memory, even if upper memory is available. The default is load into upper memory.

Command Type and Version:

CONFIG.SYS command; Network; Introduced with Ver 6.0

Notes:

1. See also POWER.

2. If the computer does not support APM, using STD will disable the power completely.

PRINT.EXE

Prints a text file to a line printer, in the background. Other DOS commands can be executed at the same time PRINT is running:

Syntax (shaded is optional):

PRINT /d:device /b:size /u:ticks1 /m:ticks2
/s:ticks3 /q:qsize /t
Drive:\Path\ Filename . . . /c /p

Examples: **PRINT** C:\Test.txt /c C:\test2.txt /p
PRINT /d:Lpt1 /u:25

Syntax Options:

/d:device Name of printer device.

Parallel Ports: Lpt1, Lpt2, Lpt3.

Serial Ports: com1, com2, com3, com4.

PRN and Lpt1 refer to the same parallel port. Default=PRN
/d must precede Filename.

- /b:size** Sets size (in bytes) of internal buffer. Default=512, Range=512 to 16384.
- /u:ticks1** Maximum number of clock ticks PRINT is to wait for a printer to become available. Default=1, Value Range=1 to 255.
- /m:ticks2** Maximum number of clock ticks PRINT can take to print a character on printer. Default=2, Value Range=1 to 255.
- /s:ticks3** Maximum number of clock ticks allocated for background printing. Default=8, Value Range=1 to 255.
- /q:qsize** Max number of files allowed in print queue. Default=10 Value Range=4 to 32.
- /t** Removes files from the print queue.
- Drive:\Path\Filename** . . . Location & Filename of file to be printed.
- /c** Removes files from the print queue. Both the **/c** and **/p** switches can be used on the same command line. When the **/c** **precedes** the *Filenames* on the command line, it applies to all the files that follow until PRINT comes to a **/p**, in which case the **/p** switch applies to the file preceding the **/p**. When the **/c** switch **follows** the *Filenames*, it applies to the file that precedes the **/c** and all files that follow until PRINT comes to a **/p** switch.
- /p** Adds files to the print queue. Both the **/c** and **/p** switches can be used on the same command line. When the **/p** **precedes** the *Filenames* on the command line, it applies to all the files that follow until PRINT comes to a **/c**, in which case the **/c** switch applies to the file preceding the **/c**. When the **/p** switch **follows** the *Filenames*, it applies to the file that precedes the **/p** and all files that follow until PRINT comes to a **/c** switch.

Command Type and Version:

External command; Introduced with Ver 2.0

Notes:

1. You can use the **/d/b/u/m/s** and **/q** switches only the first time you use PRINT. DOS must be restarted to use them again.
2. Use a program's own PRINT command to print files created with that program. PRINT only functions correctly with ASCII text.
3. Each queue entry includes a drive, directory and subdirectory and must not exceed 64 characters per entry.

PRINTER.SYS Removed V6.0

Installable device driver that supports code-page switching for parallel ports PRN, LPT1, LPT2, AND LPT3:

Syntax (shaded is optional):

DEVICE = Drive:\Path\ PRINTER.SYS
LPTn = (type , hwc , n)

Examples:

DEVICE=C:\Dos\PRINTER.SYS LPT1:=(4201,437,2)

Syntax Options:

- Drive:\Path** . . . Drive and directory containing PRINTER.SYS
- LPTn** LPT1, LPT2, or LPT3
- type** Type of printer in use. Valid values for *type* and the printer represented by each value are as follows:
- 4201. . . IBM Proprinters II and III M.4201
IBM Proprinters II and III XL M.4202
 - 4208. . . IBM Proprinters X24E M.4207
IBM Proprinters XL24E M.4208
 - 5202. . . IBM Quietwriter III M.5202
- hwc** Code-page supported by your hardware. DOS supports the following code pages:
- 437. . . . United States

- 850. Multilingual (Latin I)
- 852. Slavic (Latin II)
- 860. Portuguese
- 863. Canadian-French
- 865. Nordic

n Number of additional code-pages.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 3.3
Removed in Ver. 6.0, however it is available from
Microsoft on the MS-DOS 6.0, 6.21, and 6.22 Supple-
mental Disks

PRINTFIX.COM New V6.0

*Stops MS-DOS from Checking the status of the
printer attached to the system:*

Syntax (shaded is optional):

PRINTFIX

Example: printfix

Syntax Options:

None

Command Type and Version:

External command, Introduced with Ver. 6.0
Available from Microsoft on the MS-DOS 6.0, 6.21, and
6.22 Supplemental Disks.

Notes:

1. Use only if printing problems occurred while installing MS-DOS 6.0, 6.21, or 6.22.

PROMPT

Change Prompt: Customizing prompt to display
text or information and change color. Example:
time or date, current directory or default drive.

Syntax (shaded is optional):

PROMPT Text \$Characters

Examples: PROMPT \$p\$g (Most commonly used)
If ANSI.SYS is loaded and you have a color moni-
tor, try the following for colors at the DOS level:
PROMPT \$e[35;44;1m\$p\$g\$e[33;44;1m

Syntax Options:

PROMPT. PROMPT by itself resets to default prompt.

Text Text can be any typed message.

\$Characters. Type in special characters from the table be-
low to create special prompts.

Typed character	displayed prompt
\$q	The = character
\$\$	The \$ sign
\$t	Current time
\$d	Current date
\$p	Current drive and path
\$v	DOS version number
\$n	Current drive
\$g	>Greater-than symbol
\$l	<Less-than symbol
\$b	(I) vertical bar
\$_	Enter, first position of next line
\$e	ASCII escape code (code 27)
\$h	Backspace (deletes a prompts command line character)

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. See also ANSI.SYS
2. The PROMPT command is typically inserted in AUTOEXEC.BAT

Basic computer language: A program that reads instructions and interprets those instructions into executable computer code. A complete environment for programming in the Basic language is provided by the QBASIC program.

Syntax (shaded is optional):

QBASIC /b /editor /g /h /mbf /nohi /run
Drive:\Path \Filename

Examples: QBASIC
QBASIC C:\Qb\Bin\Test

Syntax Options:

Drive:\Path ... Drive and directory containing *Filename*.
\Filename ... Name of file to load when QBASIC starts.
/b ... QBASIC is displayed in black and white.
/editor ... Invokes EDIT, DOS full-screen text Editor.
/g ... Fastest screen update of a CGA monitor.
/h ... Displays max. number of display lines.
/mbf ... Converts the resident functions MK\$, MKD\$, CVS, and CVD to MKSMBF\$, MKDMBF\$, CVSMBF, and CVDMBF.
/nohi ... Allows use of monitor without high-intensity video support. COMPAQ lap-top computers cannot use this switch.
/run ... The specified BASIC program is run before being displayed.

Command Type and Version:

External command; Network; Introduced with Ver 5.0

Notes:

1. QBASIC.EXE must be in the current directory, search path, or in same directory as EDIT.COM in order to use the DOS Editor.
2. Consecutive Basic programs can be run from a Batch file if the Basic system command and the /run switch is used.
3. If GW-BASIC programs need to be converted to QBASIC, read REMLINE.BAS in QBASIC's subdirectory.
4. If a monitor does not support shortcut keys, use /b and /nohi.

Creates a simulated hard disk from the system's RAM memory: RAM disks are much faster than hard disks but they are temporary (if the system shuts down, the data is lost).

Syntax (shaded is optional):

Device=Drive:\Path\ RAMDRIVE.SYS disksize
sectorsize numentry /e /a

Examples:

Device=C:\Dos\RAMDRIVE.SYS 4096 /a

Syntax Options:

Drive:\Path ... Drive & directory containing RAMDRIVE.SYS
disksize ... Sets size of RAM disk in kilobytes. Valid sizes range from 4 to 32767. Default=64
sectorsize ... Sets sector size in bytes. Valid sizes are 128, 256, and 512. Default=512. Do not change default if possible.
numentry ... Sets the number of files and directories that the RAM disk's root directory can hold. Default=64, range=2 to 1024. If this parameter is used, *disksize* and *sectorsize* must also be set.
/e ... RAM disk uses extended memory. 4Kb minimum extended memory is needed. Default=uses conventional memory.
/a ... RAM disk uses expanded memory. 4Kb minimum extended memory is needed. Default= uses conventional memory.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 3.1 (Vdisk=3.0)

Notes:

Multiple RAM disks are allowed.
Always try to use /e or /a so that conventional RAM is not used.
A memory manager like HIMEM.SYS must be used if /e is used.
An expanded memory manager must be installed if /a is used.

Removes a directory: You cannot delete a directory without first deleting its files and subdirectories. The directory must be empty except for the "." and ".." symbols which represent the directory itself and the parent directory. RD and RMDIR are equivalent commands.

Syntax (shaded is optional):

RD **Drive:** \Path

Examples: RD \Data
RD \Data\Smith

Syntax Options:

Drive Drive containing *Path*.
\Path Directory to be deleted.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. Use DIR to list hidden and system files and ATTRIB to remove hidden and system file attributes in order to empty directory.
2. When a backslash (\) is used before the first directory name in *Path*, DOS treats the directory as a subdirectory of the root directory. Omit the backslash (\) before the first directory name and DOS treats the directory as a subdirectory of the current directory.
3. The directory being deleted cannot be the current directory and must be an empty directory.

RECOVER.EXE Removed V6.0

Recovers readable information from a disk containing bad sectors: When CHKDSK reports bad sectors on a disk, use the RECOVER command to read a file, sector by sector, and recover data from the good sectors.

Syntax (shaded is optional):

RECOVER **Drive:\Path** Filename

Examples: RECOVER A:

Syntax Options:

Drive:\Path ... Drive and directory containing *Filename*.
Filename *Filename* to be recovered. If no *Filename* or *Path* is specified, the entire drive is recovered.

Command Type and Version:

External command; Introduced with Ver 2.0
Removed from Ver 6.0, deemed too dangerous.

Notes:

- Wildcards (* and ?) cannot be used with the RECOVER command.
 - When an entire disk is recovered, each file is placed in the root directory in a FILEnnnn.REC file. The 4 digit numbering sequence on each recovered file is as follows: FILE0001.REC, FILE0002, etc.
 - Since all data in bad sectors is lost when you recover a file, it is best to recover files one at a time, allowing you to edit each file and re-enter missing information.
 - If a drive was formatted by the ASSIGN, JOIN or SUBST command, the RECOVER command will not work. It will not work with the BACKUP or RESTORE command since you must use RESTORE with backup files that you created with the BACKUP command.
 - RECOVER cannot recover files on a network drive.
 - If an entire drive is recovered, it is possible that some files will be lost, since the recovered files are written to the root directory and a limited number of files will fit in the root directory.
- See also CHKDSK

REM

Allows use of remarks (comments) in a Batch file or in CONFIG.SYS. : Any BATCH command or CONFIG.SYS line beginning with REM is ignored by DOS.

Syntax (shaded is optional):

REM **Comment**

Examples: REM begin files here

Syntax Options:

Comment Line of text that you want to include as a comment.

Command Type and Version:

Internal command;

Batch command; Introduced with Ver 1.0

CONFIG.SYS command; Introduced with Ver 4.0

Notes:

1. ECHO ON must be used in the Batch or CONFIG.SYS file for a comment to be displayed.
2. REM can be used without a comment to add vertical spacing to a Batch file, but you can also use blank lines. Blank lines are ignored by DOS.
3. Do not use redirection characters (>or <) or pipe (|) in a Batch file comment.
4. a ";" can be used in place of REM in the WIN.INI file.

REN or RENAME

Renames a file(s): Changes the name(s) on all files matching a specified Filename. REN and RENAME are equivalent commands.

Syntax (shaded is optional):

REN **Drive:\Path** Filename1 **Filename2**

Examples: REN C:\data*.dbf *.db2

Syntax Options:

Drive\Path . . . Drive and directory containing *Filename*.
Filename1 File(s) to be renamed.
Filename2 New name for file(s). You cannot rename Drive or Path.

Command Type and Version:

Internal command; Network; Introduced with Ver 1.0

Notes:

1. The use of Wildcards (* and ?) are allowed.
2. You cannot duplicate a *Filename*.
3. See also LABEL, COPY and XCOPY.

REPLACE.EXE

Replaces files in the target drive with files from the source drive when the filenames are the same: If same name files are not on the target drive, the new files will be added to the target drive.

Syntax (shaded is optional):

REPLACE **Source:\Path1** **Filename**
Target:\Path2 /a /p /r /w

REPLACE **Source:\Path1** **Filename**
Target:\Path2 /p /r /s /w /u

Examples: REPLACE A:.* C:\Test /a /s

Syntax Options:

Source:\Path1 . Source drive and directory containing *Filename*.

- Filename* Name of source file.
- Target:\Path2* Location of the destination file(s).
- /a* Adds, instead of replacing, new files to the destination file. This switch **cannot** be used with */s* or */u*.
- /p* Prompts for confirmation before adding a source file or replacing the destination file.
- /r* Replaces read-only and unprotected files.
- /s* Searches subdirectories of the destination directory and replaces matching files with the source file. The */s* switch **cannot** be used with */a*.
- /w* Waits for a disk to be inserted before REPLACE starts copying. If */w* is not specified, REPLACE begins immediately.
- /u* Updates or replaces files in the destination directory that are older than files in the source directory.

Command Type and Version:

External command; Network; Introduced with Ver 3.2

Notes:

1. REPLACE issues a message concerning the number of files that have been added or replaced when the operation is complete.
2. Use */w* if you need to change disks during REPLACE.
3. REPLACE does not function on system or hidden files.
4. REPLACE returns the following exit codes: (see IF errorlevel)
 - 0 Files successfully added or replaced
 - 2 Source files could not be found
 - 3 Source or destination path could not be found
 - 5 User does not have access to files being replaced
 - 8 Insufficient system memory to complete command
 - 11 Wrong command line syntax

RESTORE.EXE

Restores files that were backed up using the BACKUP command: The "backed up" and "restored to" disk types do not have to be identical. In Ver 6.0, RESTORE will only restore backups made with previous versions of DOS. It will **NOT** restore backups made with the Ver 6.0 or 6.2x MSBACKUP program!

Syntax (shaded is optional):

RESTORE Drive1: Drive2: \Path\ Filename /s
 /p /b:date /a:date /e:time /L:time /m /n /d

Examples: RESTORE A: C:*.* /s
 RESTORE B: D:\Data*.dbf /s /m

Syntax Options:

- Drive1:* Drive on which backed-up files are stored.
- Drive2:\Path* Drive and directory to which backed-up files will be restored.
- Filename* Name(s) of backed-up file(s) to be restored.
- /s* Restores all subdirectories.
- /p* Prompts for permission to restore files that are read-only or files that have changed since last backup.
- /b:date* Restores files changed or modified on or before a specified *date*.
- /a:date* Restores files changed or modified on or after a specified *date*.
- /e:time* Restores files changed or modified at or earlier than a specified *time*.
- /L:time* Restores files changed or modified at or later than a specified *time*.
- /m* Restores only files changed or modified since the last backup.
- /n* Restores files that no longer exist on the destination disk. (Drive2)

/d Without restoring, */d* displays a list of files on the backup disk that match names specified in *Filename*. Version 5.0

Command Type and Version:

External command; Network; Introduced with Ver 2.0

Notes:

1. RESTORE does not restore the system files (IO.SYS and MSDOS.SYS or IBMBIO.COM and IBMDOS.COM).
2. RESTORE will not function on drives that have been redirected with ASSIGN, JOIN, or SUBST.
3. MS-DOS RESTORE Version 5.0 will restore backups made with all previous versions of BACKUP.
4. RESTORE returns the following exit codes: (see IF errorlevel)
 0. Files successfully restored
 1. Files to be restored could not be found
 3. RESTORE stopped by user Ctrl+C
 4. RESTORE ended in error.
5. BACKUP is not included in DOS Ver 6.0, see the MSBACKUP utility program.

SCANDISK.EXE New V6.2

MS-DOS utility program to analyze and recover lost chains and lost clusters on hard or floppy disks to make more space available on these devices. SCANDISK also checks the surface of the disk for errors. Lost chains or lost clusters recovered by SCANDISK are saved in the root directory as files with a .CHK extension. The contents of each file can be examined using the MORE command or any text editor. The files can then be saved or deleted as needed. SCANDISK is an interactive program that steps the user through a series of options in order to scan and repair each selected drive.

Syntax (shaded is optional):

SCANDISK

Drive1: Drive2: Volume_Name
Drive:\Path\Filename /all /autofix
/checkonly /custom /fragment
/mono /nosave /nosummary
/surface /undo Undo_Drive

Examples: SCANDISK C: /autofix
SCANDISK /all
SCANDISK /fragment C:\TEST\data

Syntax Options:

Drive: Identifies drive (disk) to scan.
Drive:\Path\Filename ... Identifies drive (disk), directory, and file to be checked for fragmentation
/all Scan and repair all local drives.
/autofix Scan and repair without prompts.
/checkonly Only scans the selected drives, no repairs are made. Can not be used with */custom* or */autofix*.
/custom Scan and repair according to parameters set in SCANDISK.INI file. Can not be used with */autofix* or */checkonly*.
/fragment Check for fragmentation of files on selected drives. Individual directories and files may be indicated and wildcards may be used.
/mono Execute in monochrome mode.
/nosave Scans automatically and deletes any lost chain or cluster. Can be used only with */autofix*. If */nosave* is left off, all lost chains and clusters will automatically be saved as .CHK files in the root directory of the drive being scanned.
/nosummary .. Disables full-screen summary display. Full-screen summary display is the default setting for SCANDISK.
/surface Scans for physical errors on disk.

Volume_Name Name or unmounted compressed volume (compressed using either DRVSPACE or DBLSPACE) to be scanned and repaired.

/undo Undo any repairs made by SCANDISK. Use a blank disk as the undo disk.

Undo_Drive . . . Drive containing the current undo disk.

Command Type and Version:

External command, Interactive, NOT for Network; Introduced with Version 6.2

Notes:

1. Do not use SCANDISK on CD-ROM drives, network drives, or drives created using ASSIGN, SUBST, JOIN, or INTERLNK.
 2. Do not use SCANDISK on drives compressed using PC-DOS Ver 6.1.
 3. All applications (including Windows) must be stopped before running SCANDISK or data may be lost.
 4. Memory resident programs may need to be disabled in the AUTOEXEC.BAT and CONFIG.SYS files prior to running SCANDISK.
 5. SCANDISK.INI file is a text file containing settings which determine how SCANDISK operates on start-up. Sections such as Environment and Custom contain the required settings. For more information see comments in the file.
 6. SCANDISK is similar to CHKDSK but is more comprehensive in its analysis of a drive.
 7. SCANDISK sets ERRORLEVEL to one of the following values upon return to the DOS prompt:
 - 0 - No problems detected.
 - 1 - Syntax error.
 - 2 - Unexpected termination due to an internal error or an out-of-memory error.
 - 3 - User exit prior to completion.
 - 4 - User exit during surface scan.
- 254 - Disk problems found and all corrected.
255 - Disk problems found but not all corrected.

installs DOS on a new disk along with country specific information such as time and date formats and collating sequences: Select also formats the target disk, creates CONFIG.SYS and AUTOEXEC.BAT on a new disk and copies the source disk to the target disk.

Syntax (shaded is optional):

SELECT **Source** **Target** **Path** **yyy** **xx**

Examples: SELECT B: A: 045 dk

Syntax Options:

Source Drive containing Information to be copied.
Target Drive containing disk onto which DOS is to be copied.
Path Name of directory containing information to be copied.
yyy Country code. See COUNTRY Command.
xx Keyboard code. See KEYB Command.

Command Type and Version:

External command; Introduced with Ver 3.0
Removed from Version 5.0

Notes:

1. WARNING: SELECT is used to install DOS for the first time. Everything on the *target* disk is erased. SELECT is not available for use on Version 5.0 and should be used with caution in earlier versions.
2. The *Source Drive* can be either Drive A: or Drive B:.
3. If a hard disk is used in the Target Drive, DOS will prompt for the correct internal label for that disk. If the wrong label is typed in, SELECT ends.

Sets, removes or displays environment variables: SET is normally used in the AUTOEXEC.BAT file to set environment variables when the system starts. With DOS Ver 6.0, SET can be used in CONFIG.SYS. ⑥

Syntax (shaded is optional):

SET **variable = string**

Examples:

```
SET          (displays current environment settings)
SET TEMP=E:\Windows\Temp
SET variable =
              (above clears string associated with variable)
```

Syntax Options:

variable The *variable* to be set or modified.
string Text *string* to be associated with *variable*.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. If SET is used to define values for both *variable* and *string*, DOS adds *variable* to the environment and associates *string* with it. If *variable* already existed, the new *variable* replaces the old one.
2. In a Batch file, SET can be used to create variables that can be used in the same way as %1 through %9. In order to use the new variable, it must be enclosed with %, e.g. %variable%
3. The SET command uses memory from the environment space. If the environment space is too small, DOS will issue the error message "Out of Environment Space". See the SHELL command and COMMAND.COM for ways to increase environment space.
4. See also PATH, PROMPT, SHELL, and DIR for additional information on environment variables.

programs which initially install MS-DOS.

Syntax(shaded is optional):

Initial installation from command prompt:

drive1:SETUP

Example: a:setup

Installation of certain utilities after initial installation from command line:

drive1:SETUP **/e /f /u /i**

Example: a:setup /e

Installation of certain utilities after initial installation by insertion of Setup disk and restart of computer:

drive1:BSETUP **/e /u**

Example: a:bsetup /e

Syntax options:

drive1: Drive containing the SETUP program.
/f. If the system drive A is not compatible with the Setup disk, this switch makes a minimal installation of DOS by copying essential command files on a floppy disk which is compatible with drive A.
/u. Used when installing MS-DOS 6 with certain third-party disk-partitioning software.
/e. Used to install Anti-Virus, Backup, or Undelete after initial installation.
/i. Causes Setup to skip automatic hardware detection.

Command Type and Version:

External command, Introduced with Version 5.0.

Notes:

1. See the README.TXT files with MS-DOS Versions 5.0, 5 Upgrade, 6.0, and 6.2 for more information.
2. Press F3 twice to exit Setup.

SETVER.EXE

Sets the DOS version number that is reported to a program by MS-DOS® 5.0: If a program will not run under Ver 5.0 and issues the error "Incorrect DOS Version", adding the program to the SETVER file may allow the program to run.

Syntax (shaded is optional):

To initially load the SETVER table in CONFIG.SYS

Device = Drive:\Path\ SETVER.EXE

At DOS prompt or in Batch file:

SETVER Drive:\Path\ (Displays current table)

SETVER Drive:\Path Filename v.vv

SETVER Drive:\Path Filename /delete /d /quiet

Examples: Device=C:\DOS\SETVER.EXE

SETVER C:\DOS (Displays current ver. table)

SETVER C:\DOS TEST.EXE 3.30

(above adds TEST.EXE to the version table)

SETVER C:\DOS TEST.EXE /delete

(above deletes TEST.EXE from the version table)

Syntax Options:

Drive:\Path ... Drive and directory containing SETVER.

Filename ... Program file to be added to version table.
Must be a .EXE or .COM file. Wild cards are not allowed.

v.vv ... The DOS version number that should be reported to the program when it is run.

/delete or /d ... Delete the version table entry for the Filename program.

quiet. Hides the message normally displayed during the deletion process.

Command Type and Version:

External and CONFIG.SYS command;
Network; Introduced with Ver 5.0

Notes:

1. When loaded in CONFIG.SYS, the .EXE extension with SETVER.EXE must be used.
2. In order for SETVER to function at the DOS prompt or in a Batch file, it must first be loaded through CONFIG.SYS. SETVER is automatically added to CONFIG.SYS by the MS-DOS 5.0 setup program.
3. If you set a version number for your MS-DOS 5.0 COMMAND.COM, your system may not start.
4. If changes or additions or deletions are made to the SETVER table, your system must be restarted in order for the changes to take effect.
5. If a program starts correctly after it has been added to the SETVER table, the program may still not run correctly under Ver 5.0 if a compatibility problem exists.
6. If a program is added to the SETVER table and the program name is already in the table, the new entry and version number will replace the existing entry.
7. The following SETVER exit codes can be used in conjunction with the IF errorlevel command to report completion and error codes:
 0. SETVER function completed successfully
 1. Invalid command switch.
 2. Invalid Filename.
 3. Insufficient system memory to complete command.
 4. Invalid version number (v.vv) format specified.
 5. Specified entry not currently in version table.
 6. SETVER could not find the SETVER.EXE file.
 7. Invalid drive specified.
 8. Too many command line parameters specified by user.
 9. Missing command line parameter.
 10. Error while reading SETVER.EXE file.
 11. Corrupt SETVER.EXE file.
 12. Specified SETVER.EXE file does not support a version table.
 13. Insufficient space in version table to add a new entry.
 14. Error detected while writing to the SETVER.EXE file.

Program that installs file-sharing and locking capabilities on hard disk: The share command is installed through AUTOEXEC.BAT or CONFIG.SYS and is used by networking, multitasking under Windows, DOSHELL, and others.

Syntax (shaded is optional):

In a Batch file or at the DOS prompt:

SHARE /f:space /L:locks

In CONFIG.SYS:

INSTALL= Drive:\Path\ SHARE.EXE
/f:space /L:locks

Examples: SHARE /f:4096 /L:40

INSTALL=C:\Dos\SHARE.EXE

Syntax Options:

Drive:\Path ... Drive and directory containing the SHARE.EXE file.

/f:space File space allocated in bytes for the DOS storage area used to record file-sharing information. Default=2048

/L:locks Number of files that are to be locked. Default=20

Command Type and Version:

External command; Network; Introduced with Ver 3.0

Notes:

1. In CONFIG.SYS, the .EXE extension must be included with SHARE.EXE
2. SHARE allows DOS to check and verify all read and write requests from programs.
3. The average length of a file name and its Path is 20 bytes. Use that value when calculating the /f:space switch.
4. Beginning with Ver 5.0, SHARE is no longer required to support drive partitions >32mb.

Specifies the name and location of a command interpreter, other than COMMAND.COM: include the SHELL command to CONFIG.SYS to add a different Command Interpreter.

Syntax (shaded is optional):

SHELL = Drive:\Path\ Filename parameters

Examples:

SHELL=C:\COMMAND.COM /e:1024 /p

Syntax Options:

Drive:\Path ... Drive and directory containing Filename.

Filename ... Command Interpreter to be used.

Parameters ... Command-line parameters or switches to be used with Command Interpreter.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 2.0

Notes:

1. The SHELL command does not use or accept any switches, only the Command Interpreter uses switches.
2. The default Command Interpreter is COMMAND.COM.
3. SHELL must be used if the Command Interpreter is in a location other than the Root directory or if you need to change the environment size of COMMAND.COM.
4. **DOSSWAP** is the DOS Task Swapper and is used internally by the SHELL command. There are no switches for DOSSWAP and it should not be run from the DOS command line.

SHIFT

Allows a change in the position of replaceable command line parameters in a Batch file: Specifically, SHIFT copies the value of each replace-

able parameter to the next lowest parameter (for example, %1 is copied to %0, %2 is copied to %1, etc).

Syntax (shaded is optional):

SHIFT

Examples: SHIFT

Syntax Options:

None

Command Type and Version:

Internal command only used in Batch programs;
Introduced with Ver 2.0

Notes:

1. Batch files, usually limited to ten parameters (%0 through %9) on the command line, can now use more than 10. This is made possible because if more than 10 parameters are used, those appearing after the 10th will be shifted one at a time into %9.
2. Once the parameters are shifted, they cannot be shifted back.

SIZER.EXE

SIZER is used only by MEMMAKER during the memory optimizing process. It is used to determine the size, in memory, of device drivers and memory resident programs. It is added automatically to AUTOEXEC.BAT or CONFIG.SYS in order to determine the memory size, and when MEMMAKER is finished, SIZER is automatically removed.

SMARTDRV.EXE

New V6.0

Directs DOS to create a disk cache in extended memory or conventional memory: The cache effectively increases the speed of all disk functions. The SMARTDRV command allows management of the cache created by SMARTDRV.EXE.

Syntax (shaded is optional):

```
SMARTDRV /x Drive: + or - /b:buffer_size /c  
/e:element_size /f /initcachesize[wincachesize]  
/l /n /q /r /s /u /v
```

Example: SMARTDRV C-
SMARTDRV /r

```
DEVICE = SMARTDRV.EXE /x Drive: + or -  
/b:buffer_size /e:element_size /f  
/initcachesize[wincachesize] /l /n /q /r /s /u /v
```

Example: DEVICE = SMARTDRV.EXE C 1024 512
DEVICE = SMARTDRV.EXE /q

```
DEVICE = SMARTDRV.EXE /Double_buffer
```

Syntax options:

Drive: Identifies the drive (disk) that will use the cache. No specification allows all drives to use the cache. Ver 6.2 allows the caching of CD-ROM drives.

+ or - Cache-type (read or write) is enabled or disabled for identified drive. With Ver 6.0, "+" allows both read and write caching for the disk, "-" allows no caching, no specification for a floppy disk allows only read caching, and no specification for a hard drive allows both read and write caching. With Ver 6.2, "+" allows both read and write caching for the

disk, "-" allows no caching, no specification for a floppy disk. CD-ROM drive, or drives created using INTERLINK allows only read caching, and no specification for a hard drive allows both read and write caching

/b:buffer_size. States the size of the read-ahead buffer. The buffer size can be set to any multiple of the *element_size*. The default size is 16 384 bytes (16K) which is twice the maximum (default) *element_size* of 8192 bytes (8K).

/c..... Directs SMARTDRV to clear the buffer by writing all data in the cache to the cached disk. Use this switch before turning off the computer to save the cached data to the disk.

/e: element_size States the size of cache that SMARTDRV moves at one time. *Element_size*(bytes) can be one of the following: 1024, 2048, 4096, or 8192 (default).

/f 6.2..... Directs SMARTDRV to write data in the cache to the disk after completion of each command. This is the default setting.

/initcachesize. States size, in kilobytes, of the initial cache when SMARTDRV starts and Windows is not active. If not specified SMARTDRV sets *initcachesize* according to the amount of extended memory available as follows:

Extended Memory	Initcachesize
below 1MB	All extended
1MB to 2MB	1MB
2MB to 4MB	1MB
4MB to 6MB	2MB
above 6MB	2MB

/L..... Limits SMARTDRV to only conventional (low) memory, even if extended memory (Upper Memory Blocks, UMB) is available.

/m 6.2..... Directs SMARTDRV to write data in the cache to the disk only when the system is idle.

/q..... Directs SMARTDRV to load in the quiet mode with no messages on status or errors. Switch can not be used with */v*.

/r..... Restarts SMARTDRV after clearing all data from the current cache to the cached disk.

/s..... Status of SMARTDRV is displayed.

/u 6.2..... Disables the loading of CD-ROM caching.

/v..... Directs SMARTDRV to display messages on status or errors when loading. Default is to not display messages unless error conditions are encountered. Switch can not be used with */q*.

/wincachesize. States, in kilobytes, the amount of cache that SMARTDRV will remove from *initcachesize* prior to starting Windows. If not specified SMARTDRV sets *wincachesize* according to the amount of extended memory available as follows:

Extended Memory	Wincachesize
below 1MB	0 (no cache)
from 1MB to 2MB	256KB
from 2MB to 4MB	512KB
from 4MB to 6MB	1MB
above 6MB	2MB

/x 6.2..... Directs SMARTDRV to disable write-behind caching for all drives.

/Double_buffer Directs SMARTDRV to perform double buffering which is needed for compatibility with some hard-disk controllers.

Command Type and Version:

External Command or Device Driver

Introduced with Ver 6.0, and some Windows before that.

Notes:

1. Do not start or load SMARTDRV while Windows is running.

- For a CD-ROM drive to be cached SMARTDRV must load after MSCDEX.
- MS-DOS LOADHIGH (LH) command can be used to load SMARTDRV high.
- If the hard drive requires use of the double_buffer switch to perform properly, the double_buffer component of SMARTDRV must be loaded in conventional memory and the DEVICE command line for SMARTDRV must appear in the CONFIG.SYS file before the DEVICE command line for EMM386.
- CONFIG.SYS must contain a DEVICE command which loads HIMEM.SYS or some other memory manager in order for SMARTDRV to use extended memory.
- SMARTDRV is not an interactive program which steps the user through a series of screens.
- If SMARTDRV is run without parameters being set, DOS will set up a disk cache using default parameters.

SMARTDRV.SYS Removed V6.0

Creates a disk cache in extended or expanded memory: A disk cache can significantly increase the speed of any disk operations.

Syntax (shaded is optional):

```
DEVICE = Drive:\Path\ SMARTDRV.SYS
        initsize minsize /a
```

Examples:

```
DEVICE=C:\DOS\SMARTDRV.SYS 1024 512
```

Syntax Options:

Drive:\Path ... Drive and directory containing SMARTDRV.SYS.

initsize Initial size of disk cache in kilobytes. Default=256; Range=128 to 8192. Size is rounded off to 16k blocks.

minsize Minimum size of disk cache in kilobytes. Default=no minimum size. This option is important to programs such as Windows, which can reduce the cache size as required for its own use.

Specifies that the disk cache is to be set up in expanded memory. The Default places the cache in extended memory.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 4.0
Removed from MS-DOS Ver 6.0

Notes:

- If no sizes are specified with SMARTDRV, then all available extended or expanded memory is allocated to the cache.
- In order to use extended memory, HIMEM.SYS or another extended memory manager must be installed. HIMEM.SYS must precede SMARTDRV in CONFIG.SYS
- On 80286 / 386 / 486 systems, extended memory is probably the best choice for SMARTDRV.
- Do not use disk compaction programs while SMARTDRV is loaded.

SMARTMON.EXE New V6.0

Monitors SMARTDRV cache performance under Windows. Removed from DOS 6.2

Command Type and Version:

External command, Introduced with MS-DOS Ver 6.0.
Removed from DOS 6.2

SORT.EXE

A filtering program that reads the input, sorts the data and then writes the results to a screen, file or another device: The SORT command alphabetizes a file, rearranges in ascending or descending order by using a collating table based on Country Code and Code Page settings.

Syntax (shaded is optional):

```
Sort /r /+n < Drive1:\ Path1\ Filename1 >  
Drive2:\ Path2\ Filename2  
command | Sort /r /+n > Drive2:\ Path2\  
Filename2
```

Examples: Sort < C:\Data\Text.txt
DIR | Sort > C:\Sortdata.txt

Syntax Options:

Drive1\Path1 . Drive and directory containing *Filename1*.
Filename1 . . . File containing data to be sorted.
\Drive2\Path2 Drive and directory containing *Filename2*.
Filename2 . . . File in which to store sorted data.
Command . . . Specific command whose output is data to be sorted.
/r Reverses sorting order: Z to A and 9 to 0.
/+n Sorts according to character in column *n*.

Command Type and Version:

External command; Network; Introduced with Ver 2.0

Notes:

1. Use the pipe (|) or the less-than (<) to direct data through Sort from a command or filename. Before using a pipe for redirection, set the TEMP environment variable in AUTOEXEC.BAT.
2. Specify the MORE command to display information one screen at a time. You are prompted to continue after one screen is shown.
3. Sort is not case sensitive.
4. Files as large as 64K can be accommodated by Sort.
5. ASCII characters with codes higher than 127 are sorted based on the system's configuration with CONTRY.SYS.

Batch file needed to maintain compatibility between MS-DOS 6.0, 6.21, or 6.22 and the permanent swap file established by Windows Ver 3.0.

Command Type and Version:

External command, Introduced with MS-DOS Ver 6.0.
Available on the MS-DOS 6.0, 6.21, and 6.22 Supplemental Disks.

STACKS

Supports the dynamic use of data stacks: The STACKS command is used in CONFIG.SYS.

Syntax (shaded is optional):

STACKS = *n*,
Examples: STACKS = 8, 512

Syntax Options:

- n* Defines the number of STACKS. Valid values for *n* are 0 and numbers in the range 8 to 64.
- s* Defines STACK size in bytes. Valid values for *s* are 0 and numbers in the range 32 to 512.

Command Type and Version:

CONFIG.SYS; Introduced with Ver 3.2

Notes:

1. Default setting for the STACKS command are as follows:

COMPUTER	STACKS
IBM PC, IBM PC/XT	0,0
IBM PC-PORABLE	0,0
OTHER	9, 128

2. When the values for *n* and *s* are specified at 0, DOS allocates no stacks. If your computer does not seem to function properly when STACKS are set to 0, return to the default values.

Command line to setup an item to display another set of choices for the DOS startup menu in CONFIG.SYS: The startup menu is a list of system configuration choices that appear when your system is started. Each menu item is a set of CONFIG.SYS commands and is called a "configuration block". See your DOS manual for details of setting up and using the startup menu.

Syntax (shaded is optional):

SUBMENU = blockname ,menutext

Examples: SUBMENU = NET, Network Choices

Syntax Options:

blockname . . . Sets the name of the associated menu block. The menu block must be defined somewhere else in the CONFIG.SYS file and can contain other menu definition commands. *Blockname* can be up to 70 characters but without spaces, backslashes, forward slashes, commas, semicolons, equal signs and square brackets.

, *menutext* . . . Text to be displayed for the menu item. If no text is defined, DOS displays the *blockname* as the menu item. *menutext* can be up to 70 characters long.

Command Type and Version:

CONFIG.SYS command; Network; Introduced with Ver 6.0

Notes:

1. See also MENUCOLOR, MENUITEM, NUMLOCK, INCLUDE and MENUDEFAULT. All are used by the startup menu.

Substitutes a path with a drive letter: The SUBST command lets you use a drive letter (also known as a virtual drive) in commands as though it represents a physical drive.

Syntax (shaded is optional):

SUBST (Lists the virtual drives in effect)

SUBST Drive1: Drive2:\Path

SUBST Drive1: /d (deletes virtual drive)

Examples: SUBST

SUBST R: B:\Data\Text.txt

Syntax Options:

Drive1: Virtual drive to which a path is assigned.

Drive2: Physical drive that contains the specified path.

\Path Path to be assigned to the virtual drive named *Drive1*:

/d Deletes the *Drive1*: virtual drive.

Command Type and Version:

External command; Introduced with Ver 3.1

Notes:

1. Commands that do not work on drives where SUBST has been used are as follows:

ASSIGN	DISKCOPY	RECOVER
BACKUP	FDISK	RESTORE
CHKDSK	FORMAT	SYS
DEFRAG	LABEL	UNDELETE /s
DISKCOMP	MIRROR	
2. A virtual drive letter must be included in the LASTDRIVE command in CONFIG.SYS.
3. Use SUBST rather than ASSIGN to ensure compatibility with future DOS versions.
4. If using drive letters higher than E, the LASTDRIVE command must also be used.
5. Do not use SUBST while Windows is running!

SWITCHAR

Changes the switch character: The forward slash, "/" is the standard switch character. SWITCHAR allows the user to choose another switch character.

Syntax (shaded is optional):

SWITCHAR= cc

Example: switchar = *

Syntax Options:

cc. New switch character.

Command Type and Version:

CONFIG.SYS command, Introduced with Ver 2.0.
Removed Version 3.0.

SWITCHES

Forces enhanced keyboard to function like a conventional keyboard: This command is used in the CONFIG.SYS file.

Syntax (shaded is optional):

SWITCHES = /W /K /N /F

Examples: SWITCHES = /K

Syntax Options:

/W. If Windows 3.0 is used in enhanced mode and you have moved the WINA20.386 file, use this switch to tell DOS that the file has been moved.

Ignores extended keys on 101-key keyboards. It forces COMMAND.COM to use an older BIOS call to read the keyboard, making it possible to use certain older TSRs that depend on the older call. Actually, this switch was introduced in DOS V4.0, but was undocumented.

/N 6. Disables the F5 and F8 keys so that you cannot bypass startup commands.

/F 6. Skips the 2 second system delay after "Starting MS-DOS ..." is displayed during startup.

Command Type and Version:

CONFIG.SYS command; Introduced with Ver 4.0

Notes:

1. Use the SWITCHES command when there is a program that does not properly interpret input from an enhanced keyboard. This command enables the enhanced keyboard to use conventional keyboard functions.

2. SWITCHES=/k is used in a system that uses ANSI.SYS, be sure to also use the /k switch on the ANSI.SYS command.

Copies the DOS system files (IO.SYS and MSDOS.SYS on MS-DOS systems or IBMBIO.COM and IBMDOS.COM on PC-DOS systems) and the Command Interpreter from one disk drive to another disk drive.

Syntax (shaded is optional):

SYS Drive1:\Path Drive2

Examples: SYS A: (current drive to drive A:)
SYS D:\A: (copy from disk in D: to A:)

Syntax Options:

Drive1\Path . . . Drive and directory where system files are located. If a path is not specified, DOS searches the root directory. If a drive is not specified, DOS uses the current drive as the system files source drive.

Drive2: Drive to which system files are to be copied. These files can be copied to a root directory only.

Command Type and Version:

External command; Introduced with Ver 1.0

Notes:

1. The order in which the SYS command files are copied is as follows: IO:SYS, MSDOS.SYS and COMMAND.COM.
2. The two system files no longer need to be "contiguous" in Ver 5.0. In simple terms, this means that pre DOS 3.3 disks do not need to be reformatted in order to install the Ver 5.0 operating system.
3. The SYS command will not work on drives redirected by ASSIGN, JOIN or SUBST.
4. The SYS command does not work on Network drives.
5. See also DISKCOPY, which duplicated disks of the same size (including transfer of the operating system). See also COPY and XCOPY for information on copying all files except system and hidden files.
6. **Ⓢ** With DOS 6.0, DBLSPACE.BIN is also copied to the target drive.
7. Pre DOS 5.0 can only be SYS Drive1:

Enter or change current system time: DOS uses the internal clock to update the directory with date and time when a file is created or changed.

Syntax (shaded is optional):

TIME Hours: Minutes: Seconds: Hundredths
a or p

Examples: TIME
TIME 13:45 or TIME 1:45 p
TIME 11:28p

Syntax Options:

Hours: Specifies the hour. One or two digit number with valid values from 0-23.
Minutes: Specifies the minute. One or two digit number with valid values from 0-59.
Seconds: Specifies the seconds. One or two digit number with valid values from 0-59.
Hundredths: Specifies hundredths of a second. One or two digit number with valid values from 0-99.
a or p. When a 12 hour time format is used instead of the 24 hour format, use **a** or **p** to specify A.M. or P.M. When a valid 12 hour time is entered and a parameter is not entered, *time* uses **a** (A.M.).

Command Type and Version:

Internal command; Network; Introduced with Ver 1.0

Notes:

Using *time* without parameters will display the current time and prompt you for a time change.

Use a colon (:) to separate hours, minutes, (seconds and hundredths of a second are optional), if as defined in COUNTRY, dependent information file for the United States.

With all versions of DOS 3.3 and later, the TIME command will update the system's battery powered clock (except XT-type systems.)

Displays the directory structure of a path on a specific drive. See also DIR.

Syntax (shaded is optional):

TREE Drive:\Path /f /a

Examples: TREE (all directories and subdirectories)
 TREE \ (names of all subdirectories)
 TREE D:\ /f | MORE
 TREE D:\ /f > PRN

Syntax Options:

Drive:\Path ... Drive and directory containing disk for display of directory structure.
 /f Displays file names in each directory.
 /a ④ Text characters used for linking lines, instead of graphic characters. /a is used with code pages that do not support graphic characters and to send output to printers that do not properly interpret graphic characters.

Command Type and Version:

External command; Network; Introduced with Ver 2.0

Notes:

1. The path structure displayed by the TREE command will depend upon the specified parameters on the command line.
2. The TREE command in MS-DOS 5.0 has been greatly enhanced.

TRUENAME

Displays the TRUENAME of directories and logical drives created with ASSIGN, JOIN, and SUBST.

Syntax (shaded if optional):

TRUENAME drive1: \path \filename

Example: truename f:

Syntax options:

drive1: Drive created by ASSIGN, JOIN, or SUBST.
 \path \filename Path and filename created by ASSIGN, JOIN, or SUBST.

Command Type and Version:

Internal command, Introduced with Ver 4.0.

TYPE

Screen display of a text file's contents: The TYPE command is used to view a text file without modifying it.

Syntax (shaded is optional):

TYPE Drive:\Path \Filename

Examples: TYPE C:\Act\Receivbl.dat
 TYPE C:\Act\Receivbl.dat | MORE

Syntax Options:

Drive:\Path ... Drive and directory containing Filename.
 \Filename ... Name of text file to be viewed.

Command Type and Version:

Internal command; Network; Introduced with Ver 1.0

Notes:

Avoid using the TYPE command to display binary files or files created using a program as you may see strange characters on the screen which represent control codes used in binary files.
 Use DIR to find the name of a file and EDLIN or EDIT to change its contents.
 When using the pipe (|) for redirection, set the TEMP environment variable in AUTOEXEC.BAT.
 See also DIR and MORE.

UNDELETE / MWUNDEL.EXE

Recovers files that have been deleted with the DEL command: UNDELETE is the DOS version and MWUNDEL is the Windows version.

Syntax (shaded is optional):

UNDELETE Drive:\Path\ Filename [/List or /all
/purge:drive /status /load [/dos or /dt or /ds]
/sentry:drive /tracker:drive-entries /unload

Examples: UNDELETE /all
UNDELETE C:\Data\.*

Syntax Options:

Drive:\Path ... Drive and directory containing *Filename*.

Filename ... File to be undeleted. By default, all files in the current directory will be undeleted. Wild cards * and ? are allowed.

/List ... Lists all deleted files in the *Drive:\Path* that can be undeleted, but does not undelete them.

/all ... Recovers all deleted files without a confirmation prompt. If the deletion tracking file is present, it is used, otherwise deleted file information is taken from the DOS directory. See Note: 3.

/purge:drive ⑥ Deletes all files in the sentry directory on the specified *drive*.

/status ⑥ ... Displays the current UNDELETE protection level that is enabled.

/load ⑥ ... Load UNDELETE as memory resident, in order to track deleted files.

/unload ⑥ ... Unload the resident portion of the UNDELETE delete tracker.

/dos ... Causes UNDELETE to ignore the deletion tracking file and recover only those files listed as deleted by DOS. A confirmation prompt occurs with each undelete.

/dt ... Causes UNDELETE to ignore the files listed as deleted by DOS and only recover those files listed in the deletion tracking file. A confirmation prompt occurs with each undelete.

/ds ⑥ ... UNDELETE only the files in the /Sentry directory.

/sentry:drive ⑥ Specify the drive to be used for delete sentry files.

/tracker:drive-entries ⑥ ... Specify the drive to track deleted files on. The maximum number of deleted files to track can range from 1 to 999.

Command Type and Version:

External command; Introduced with Ver 5.0

Notes:

- For best results, use MIRROR and the deletion tracking system.
- When a file is recovered, it is assigned a # for the first character of its name, if a duplicate exists, another letter is selected, in order from the following list, until a unique filename is possible:
#%&-1234567890ABCDEFGHIJKLMNPOQRSTUVWXYZ
- If a switch is not specified with UNDELETE, the deletion tracking file is automatically used. If the deletion tracking file is not present, the DOS directory information is used. The deletion tracking system is much more accurate.
- UNDELETE cannot undelete a directory.
- UNDELETE cannot undelete a file if its directory has been deleted. A possible exception to this rule exists if the deleted directory was a main directory under the root directory and not a subdirectory of some other directory. If this is the case, see the UNFORMAT command. It is possible the directory and file can be saved. Use extreme caution with UNFORMAT and understand exactly what you are doing!!! If not used correctly, UNFORMAT can lose data and you might be worse off than when you started!
- UNDELETE may not be able to recover a deleted file if data of any kind has been written to the disk since the file was deleted. If you accidentally delete a file, stop what you are doing immediately and run the UNDELETE program.
- Some MIRROR commands from DOS 5.0 are included in the DOS 6.0 UNDELETE command.
- See also the UNFORMAT command.

Restores a disk that has been reformatted or restructured by the RECOVER command:
UNFORMAT can also rebuild disk partition tables that have been corrupted. Do not use UNFORMAT on a network drive.

Syntax (shaded is optional):

```
UNFORMAT Drive: /J
UNFORMAT Drive: /U /L /test /P
UNFORMAT /partn /L
```

Examples: UNFORMAT C: /J
UNFORMAT A: /test

Syntax Options:

Drive: Drive containing disk to be unformatted.
/J Check the file created by MIRROR for
Removed V6.0 agreement with the system information. Use this switch only by itself.
/U UNFORMAT a disk without using the
Removed V6.0 MIRROR file.
/L If **/partn** is not used, **/L** lists every file and directory found by UNFORMAT. Use if the MIRROR file is to be ignored. If **/partn** is used also, **/L** displays the complete partition table of the drive. Standard 512 byte sectors are assumed when the partition table size is displayed. **Description for Version 5 ONLY.**
/L Lists every file and subdirectory found by UNFORMAT. Default is to list only subdirectories and files that are fragmented. **Description for Version 6.x ONLY.**
/test Displays how UNFORMAT would rebuild information on the disk, but it does NOT unformat the disk. Use this switch only

if you want UNFORMAT to ignore the MIRROR file. **Description for Version 5 ONLY.**

/test Displays how UNFORMAT would rebuild information on the disk, but it does NOT unformat the disk. **Description for Version 6 ONLY.**
/P Outputs messages to the LPT1 printer.
/partn Rebuilds and restores a corrupted partition table of a hard drive. This switch will only work if MIRROR was run previously and the PARTNSAV.FIL file is available to UNFORMAT.

Command Type and Version:

External command; Introduced with Ver 5.0

Notes:

- Although UNFORMAT is a very powerful tool, it can also do a lot of damage if not used correctly. BE CAREFUL!
- UNFORMAT normally restores a disk based on MIRROR information. If disk information has changed since MIRROR was run, UNFORMAT may not be able to recover it. Use MIRROR frequently in order to assure an accurate restoration of the disk.
- If FORMAT with its **/u** switch was used, UNFORMAT cannot restore the disk.
- Per Microsoft's Ver 5.0 User's Guide: "The only case in which you would want to use a prior mirror file is the following: you use the MIRROR command, then the disk is corrupted, then you use the FORMAT command. If you use the MIRROR command and the FORMAT command after the disk is corrupted, the UNFORMAT command will not work. UNFORMAT searches the disk for the MIRROR file. Because UNFORMAT searches the disk directly, the disk does not have to be "readable" by MS-DOS for UNFORMAT to work. Do not use the FDISK command before using UNFORMAT; doing so can destroy information not saved by the MIRROR program."
- If UNFORMAT does not use the MIRROR file, the restore will take much longer and be less reliable.
- Without a MIRROR file, UNFORMAT cannot recover a file that is fragmented. It will recover what it can, then prompt for truncation of the file or delete the file.
- If DOS displays the message "Invalid drive specification", the problem might be a corrupted disk partition table, which UNFORMAT can probably repair. In order to recover the disk partition table, the MIRROR file must be available.

8. When the */partn* switch is used, you are prompted to insert a system disk in drive A: and press ENTER to restart. The restart will allow DOS to read the new partition table data. Once the system has been restarted, use UNFORMAT without the */partn* switch to recover directories and the FAT (file allocation table).
9. See also UNDELETE, MIRROR, FORMAT, and FDISK.
10. In DOS Ver 5.0, the */p* switch is not compatible with the */u* switch.

UNINSTALL.EXE

New V6.0

Restores the previous version of DOS after the MS-DOS 6 is installed: Used in conjunction with the Uninstall Disk to protect files while MS-DOS 6 is installed. If problems occurs during installation, UNINSTALL can be used to restore the previous version of DOS.

Command Type and Version:

External command, Introduced with Version 6.0.

VER

Displays DOS version number: Type **ver** and the version number will display on the screen.

Syntax (shaded is optional):

VER **/R**

Examples: VER

Syntax Options:

/R **6** Provides a more detailed report.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

VERIFY

Disk verification: Verifies that the files are written correctly to a disk.

Syntax (shaded is optional):

VERIFY **on / off**

Examples: VERIFY on

Syntax Options:

- Verify** **Verify** without an option will state whether verification is turned on or off.
- on** Forces DOS to confirm that information is being written correctly. The verify command will function until the system is rebooted or **verify off** is used.
- off** Turns verification off once it is on.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0

Notes:

1. When the VERIFY command is used, DOS verifies data as it is written to a disk. This will slow writing speed slightly.
2. COPY /V or XCOPY /V can also be used to verify that files are being copied correctly but on a case by case basis.
3. Verify does not perform a physical disk to disk comparison.

Displays disk Volume label: The VOL command displays the name of volume label given to a disk when it was formatted. DOS Version 4.0 and greater will also display a volume serial number.

Syntax (shaded is optional):

VOL **Drive:**

Examples: VOL A:
VOL

Syntax Options:

VOL..... VOL, without options, displays the volume label and volume serial number of the disk in current drive.

Drive:..... Specifies the drive that contains the disk whose label is to be displayed.

Command Type and Version:

Internal command; Network; Introduced with Ver 2.0
Volume serial numbers introduced with DOS Ver 4.0

Notes:

1. See also FORMAT and LABEL.

Continuously monitors a system for viruses and displays a warning if it finds one:

VSAFE is a memory resident program that uses approximately 22k of memory. See Windows Note below.

Syntax (shaded is optional):

VSAFE **/option + or - /NE /NX /A# /C# /N /D /U**

Example: VSAFE /2+ /NE /AV

Syntax Options:

/option + or - Specifies how VSAFE looks for viruses. The + or - is used to either turn on or turn off the option. Options are as follows:

- 1 - Warn of a formatting request. Default=On
- 2 - Warn if a program tries to stay resident. Default=Off
- 3 - Disable all disk writes. Default=Off
- 4 - Check executable files that DOS opens. Default=On
- 5 - Check for boot sector viruses. Default=On
- 6 - Warns if a program tries to write to the boot sector or partition table of a hard disk. Default=On
- 7 - Warns if a program tries to write to the boot sector of a floppy disk. Default=Off
- 8 - Warns if an attempt is made to modify an executable file. Default=Off

/NE..... Prevents VSAFE from loading into expanded memory.

/NX..... Prevents VSAFE from loading into extended memory.

/A#..... Sets the VSAFE hot key as Alt plus the key specified by #.

/C#..... Sets the VSAFE hot key as Ctrl plus the key specified by #.

/N..... Enable network drive monitoring.

/D..... Disables CRC checksumming.
/U..... Unloads VSAFE from memory.

Command Type and Version:

External command; Network; Introduced with Ver 6.0

Notes:

1. If VSAFE is to be used when Windows 3.1 is running, you must include "load-MWAVTSR.EXE" in the WIN.INI file.

WINA20.386

The WINA20.386 file must be located in the root directory in order for Microsoft Windows Ver. 3.0 to run in enhanced mode. It is automatically placed in the root directory by MS-DOS during the installation process:

If the file is not in the root directory, you will receive the message "You must have the file WINA20.386 in the root of your boot drive to run Windows in Enhanced Mode."

WINA20.386 must remain in the root directory unless the SWITCHES /W command is used to tell DOS that it has been moved. You must also add a DEVICE command under the [386Enh] section of your Windows SYSTEM.INI file, which specifies where WINA20.386 is now located.

Command Type and Version:

External command; Introduced with Ver 5.0

XCOPY.EXE

Copies files, directories, and subdirectories from one location to another location: XCOPY will not copy system or hidden files.

Syntax (shaded is optional):

XCOPY Source Destination /a /d:date /e /m
/p /s /v /w /y /-y

Examples: XCOPY C:\Dos*. * D:\Dos2\ /s

Syntax Options:

- Source*..... Location and names of files to be copied.
Destination... Destination of the files to be copied.
/a..... Copies *Source* files that have their archive file attributes set **without** modifying it.
/d:date..... Copies *Source* files that have been modified on or after a specific date.
/e..... Copies subdirectories even if empty.
/m..... Copies *Source* files that have their archive file attributes set and turns them off.
/p..... Prompts whether you want to create each destination file.
/s..... Copies directories and subdirectories, unless they are empty.
/v..... Verifies each file, as it is written, to confirm that the destination and source files are identical.
/w..... Displays "Press any key to begin copying file (s)", and waits for response before starting to copy files.
/y 62..... Directs XCOPY to replace existing files without a confirmation prompt.
/-y 62..... Directs XCOPY to ask for confirmation prior to replacing an existing file. Default

Command Type and Version:

External command; Network; Introduced with Ver 3.2

Notes:

1. The default *Destination* is the current directory.
2. If the *Destination* subdirectory does not end with a "\", DOS will prompt you to find out if the subdirectory is a subdirectory or a file.
3. XCOPY will not copy system or hidden files.
4. When a file is copied to *Destination*, the archive attribute is turned on, regardless of the file attribute in *Source*.
5. In order to copy between disks that are different formats, use XCOPY, not DISKCOPY, but remember that XCOPY does not copy the hidden or system files.
6. XCOPY exit codes are as follows: (see IF errorlevel)
 - 0..... Files copied successfully
 - 1..... Source files not found
 - 2..... XCOPY stopped by user Ctrl-C
 - 4..... One of the following errors occurred:
 - a. Initialization error
 - b. Not enough disk space
 - c. Insufficient memory available
 - d. Invalid drive name
 - e. Invalid syntax was used.
 - 5..... Disk write error occurred.
7. When a files size is larger than 64k, use XCOPY instead of the COPY command.

Chapter 6

Microsoft Windows 3.1 Short Cut Keys

1. Windows	308
2. Calendar	311
3. Cardfile	311
4. Clipboard Viewer.....	311
5. File Manager	312
6. Help Program.....	312
7. Object Packager.....	312
8. Paintbrush	312
9. Print Manager.....	313
10. Program Manager	313
11. Sound Recorder and Media Player	314
12. Write	314

Windows

ALT	In an open Application: Use to activate the Menu Bar, same as F10.
ALT + BACKSPACE	In a Text Box or Window: Use to undo last editing command, same as CTRL + Z.
ALT + DOWN ARROW	In a Dialog Box: Use to close or open a selected List.
ALT + ENTER	In 386 enhanced Mode: Moves an MS-DOS Application from a window to full screen and back.
ALT + ESC	Moves immediately to the next open Application.
ALT + F4	(1) Use to exit Windows (2) In a Dialog Box: Use to cancel the Dialog Box (3) In any open Application: Use to Quit that Application.
ALT + HYPHEN	In an open Application: Use to open Control Menu.
ALT + HYPHEN + N	In an open Application: Use to miNimize a second (or child) window.
ALT + HYPHEN + X	In an open Application: Use to maXimize a second (or child) window.
ALT + PRINT SCREEN	In an open Application: Copies an image of the active window to the Clipboard.
ALT + SHIFT + ESC	Moves immediately to the previous open Application.
ALT + SPACEBAR	In an open Application: Use to open Control Menu.
ALT + SPACEBAR + N	In an open Application: Use to miNimize a window.
ALT + SPACEBAR + M	In an open Application: Use to Move a window.
ALT + SPACEBAR + X	In an open Application: Use to maXimize a window.
ALT + TAB	Displays and scrolls forward through a list of open Applications. Releasing the TAB key opens the selected Application.
ALT + TAB + TAB	Displays only the Title Bar of open Applications and scrolls through the open Applications. Releasing the TAB key opens the selected Application.
ALT + Underlined Character	(1) In an open Application: (a) Menu bar: Open Menu with Underlined Character (b) Menu: Select Menu Item with Underlined Character from Menu (2) In a Dialog Box: Use to move to a Dialog Box item with Underlined Character.
ARROW KEYS	Move between Menu commands, characters in a text box, or items in a list.

BACKSPACE	In a Text Box or Window: Use to delete character to the left of the cursor.
CTRL + ALT + Character	In 386 enhanced Mode: Use to assign Character as an Application Shortcut Key, Character is user selected and can be any letter, numeral, or special key.
CTRL + ALT + SHIFT + Character	In 386 enhanced Mode: Use to assign Character as an Application Shortcut Key, Character is user selected and can be any letter, numeral, or special key.
CTRL + BACK SLASH (\)	In a Dialog Box: Use to cancel all selected items from a list except the current item.
CTRL + C	In a Text Box or Window: Use to copy selected text to the Clipboard, same as CTRL + INSERT.
CTRL + END	In a Document: Use to move to end of document.
CTRL + ESC	Opens the Task List window.
CTRL + F4	In an open Application: Use to close an active document or window.
CTRL + FORWARD SLASH (/)	In a Dialog Box: Use to select all items from a list.
CTRL + HOME	In a Document: Use to move to the beginning of the document.
CTRL + INSERT	In a Text Box or Window: Use to copy selected text to the Clipboard, same as CTRL + C.
CTRL + LEFT ARROW	In a Dialog Box: Use to move left one word in a text box.
CTRL + RIGHT ARROW	In a Dialog Box: Use to move right one word in a text box.
CTRL + SHIFT + Character	In 386 enhanced Mode: Use to assign Character as an Application Shortcut Key, Character is user selected and can be any letter, numeral, or special key.
CTRL + SHIFT + ALT + Character	In 386 enhanced Mode: Use to assign Character as an Application Shortcut Key, Character is user selected and can be any letter, numeral, or special key.
CTRL + V	In a Text Box or Window: Use to paste selected text from the Clipboard, same as SHIFT + INSERT.
CTRL + X	In a Text Box or Window: Use to move selected text on to the Clipboard, same as SHIFT + DELETE.
CTRL + Z	In a Text Box or Window: Use to undo last editing command, same as ALT + BACKSPACE.

DELETE	(1) Use to delete a group or program item (2) In a Text Box or Window: Use to delete character to the right of the cursor.
END	Move to the end of a line, screen, or list.
ENTER	In a Dialog Box: Use to close Dialog Box and initiate all highlighted commands.
ESC	In a Dialog Box: Use to cancel the Dialog Box.
F1	Starts the Help Program from within an open Application.
F10	In an open Application: Use to activate the Menu Bar, same as ALT.
HOME	Move to beginning of a line, screen, or list.
PAGE DOWN	Use to move down one screen.
PAGE UP	Use to move up one screen.
PRINT SCREEN	Use to copy an entire screen to the Clipboard.
SHIFT + ALT + ESC	Moves immediately to the previous open application.
SHIFT + ALT + TAB	Displays and scrolls backward through a list of open applications. Releasing the TAB key opens the selected Application.
SHIFT + CTRL + END	In a Document: Use to move to end of document.
SHIFT + CTRL + HOME	In a Document: Use to move to beginning of document.
SHIFT + CTRL + LEFT ARROW	In a Document: Use to move to previous word in document.
SHIFT + CTRL + RIGHT ARROW	In a Document: Use to move to next word in document.
SHIFT + DELETE	In a Text Box or Window: Use to move selected text to the Clipboard, same as CTRL + X.
SHIFT + DOWN ARROW	In a Document: Use to select whole line below the cursor location.
SHIFT + END	In a Document: Use to move to end of a line.
SHIFT + F8	In a Dialog Box: Use to select nonconsecutive items from a list.
SHIFT + HOME	In a Document: Use to move to beginning of a line.
SHIFT + INSERT	In a Text Box or Window: Use to paste selected text from the Clipboard, same as CTRL + V.
SHIFT + LEFT ARROW	In a Document: Use to move one letter left in document.
SHIFT + RIGHT ARROW	In a Document: Use to move one letter right in document.
SHIFT + TAB	In a Dialog Box: Moves to previous command in the Dialog Box.
SHIFT + UP ARROW	In a Document: Use to select whole line above the cursor location.

SPACEBAR	In a Dialog Box: Use to choose a selected Command.
TAB	In a Dialog Box: Moves to next command in the Dialog Box.

Calendar

CTRL + END	In Day View: Use to move to 12 entries after the starting time.
CTRL + HOME	In Day View: Use to move the starting time.
CTRL + INSERT	In Day View: Use to move selection to the Clipboard.
CTRL + PAGE DOWN	In Day View: Use to move to next day.
CTRL + PAGE UP	In Day View: Use to move to previous day.
DOWN ARROW (1)	In Month View: Use to move to next month (2) In Day View: Use to move to next time, same as ENTER.
ENTER	(1) In Month View: Use to change day (2) In Day View: Use to move to next time, same as DOWN ARROW.
PAGE DOWN	(1) In Month View: Use to move to next month (2) In Day View: Use to move to next screen.
PAGE UP	(1) In Month View: Use to move to previous month (2) In Day View: Use to move to previous screen.
SHIFT + DELETE	In Day View: Use to move a selection to the Clipboard.
SHIFT + INSERT	In Day View: Use to paste a selection from the Clipboard to the appointment area or scratch pad.
TAB	(1) In Month View: Use to move between date and scratch pad (2) In Day View: Use to move between appointment and scratch pad.
UP ARROW	(1) In Month View: Use to move to previous week (2) In Day View: Use to move to previous time.

Cardfile

CTRL + END	Use to display the last card.
CTRL + HOME	Use to display first card.
DOWN ARROW	Use to scroll forward one card in list.
PAGE DOWN	Use to scroll forward one card.
PAGE UP	Use to scroll backward one card.
SHIFT + CTRL + Character	Use to display first card beginning with Character.
UP ARROW	Use to scroll backward one card in list.

Clipboard Viewer

DELETE	Clear the contents of the Clipboard.
--------------	--------------------------------------

File Manager

ALT + ENTER	Use to display properties of a file or directory.
ALT + F + N	Use to rename a file.
ALT + F + U	Use to undelete a file (MS-DOS 6.0 and 6.2 only)
ALT + V + A	Use to display a file's date, file attributes, and size.
ALT + V + S	Use to sort files by filename.
Character	Go to directory or file where directory name or filename starts with Character.
CTRL + Drive Letter	Use to changed displayed drive.
CTRL + *	Use to expand all directories and subdirectories.
DELETE	Use to delete a directory or file
ENTER	Use to display or hide a displayed directory's subdirectories, start an application, or open a file.
F2	Use to display drive list.
F5	Use to update the displayed file or directory.
F6	Use to scroll between the displayed drive, directory, and file, same as TAB.
F7	Use to move a displayed file or directory.
F8	Use to copy a displayed file or directory.
SHIFT + ENTER	Use to open a new window and display contents of a directory.
TAB	Use to scroll between the displayed drive, directory, and file, same as F6.
+	Use to expand displayed directories one level to show subdirectories.
*	Use to expand displayed subdirectory.
-	Use to collapse displayed subdirectory.

Help Program

ALT + F4	Use to quit the Help Program.
ALT + PRINT SCREEN	Use to copy Help Screen to Clipboard.
CTRL + TAB	Highlights all key words on a Help Screen.
SHIFT + TAB	Use to move to previous Help Item.
TAB	Use to move to next Help Item.

Object Packager

TAB	Use to move between Content and Appearance windows.
-----------	---

Paintbrush

ARROW KEYS	Use to move the cursor.
CTRL + S	Use to save file.
CTRL + Z	Use to undo everything drawn since selecting a tool.

DELETE	Use to simulate clicking the right mouse button.
END	Use to move to the bottom of the drawing area.
F9 + INSERT	Use to simulate double-clicking the left mouse button.
HOME	Use to move to the top of the drawing area.
INSERT	Use to simulate clicking the left mouse button.
INSERT + ARROW KEYS	Use to simulate dragging the cursor.
PAGE DOWN	Use to move down one screen.
PAGE UP	Use to move up one screen.
SHIFT + DOWN ARROW	Use to move down one line.
SHIFT + END	Use to move to the right side of the drawing area.
SHIFT + HOME	Use to move to the left side of the drawing area.
SHIFT + LEFT ARROW	Use to move left one space.
SHIFT + PAGE DOWN	Use to move right one screen.
SHIFT + PAGE UP	Use to move left one screen.
SHIFT + RIGHT ARROW	Use to move right one space.
SHIFT + TAB	Use to move among drawing area, palette, linesize box, and toolbox; same as TAB.
SHIFT + UP ARROW	Use to move up one line.
TAB	Use to move among drawing area, palette, linesize box, and toolbox; same as SHIFT + TAB.

Print Manager

CTRL + DOWN ARROW	Use to move selected document down in the queue.
CTRL + UP ARROW	Use to move selected document up in the queue.
DOWN ARROW	Use to move between queues or documents in a queue.
UP ARROW	Use to move between queues or documents in a queue.

Program Manager

ALT + W	Use to move between groups, same as CTRL + TAB or CTRL + F6.
ARROW KEYS	Use to move between items in a group window.
CTRL + F4	Use to close an active group window.
CTRL + F6	Use to move between groups, same as CTRL + TAB or ALT + W.
CTRL + TAB	Use to move between groups, same as CTRL + F6 or ALT + W.
DELETE	Use to delete a program item.
ENTER	Use to open a selected Application.
SHIFT + F4	Use to file the group windows.

SHIFT + F5 Use to cascade the group windows.

Sound Recorder and Media Player

END Use to move to the end of the sound when scroll bar is selected.

HOME Use to move to the beginning of the sound when scroll bar is selected.

LEFT ARROW Use to move backward when scroll bar is selected.

PAGE DOWN Use to move forward 1 second when scroll bar is selected.

PAGE UP Use to move backward 1 second when scroll bar is selected.

RIGHT ARROW Use to move forward when scroll bar is selected.

Write

ALT + BACKSPACE Use to undo last editing action.

ALT + F6 Use to switch between the document and the find/replace Dialog Box.

ARROW KEYS Use to move the picture size cursor.

CTRL + ENTER Use to insert manual page break.

CTRL + SHIFT + HYPHEN Use to insert an invisible hyphen.

CTRL + Z Use to undo last typing action.

DOWN ARROW Use to select an object or picture, cursor must be above upper-left corner of object or picture.

5 + DOWN ARROW Use to move to next paragraph, 5 is on the numeric key pad with the NUM LOCK key turned OFF.

5 + LEFT ARROW Use to move to next sentence, 5 is on the numeric key pad with the NUM LOCK key turned OFF.

5 + PAGE DOWN Use to move to next page, 5 is on the numeric key pad with the NUM LOCK key turned OFF.

5 + PAGE UP Use to move to previous page, 5 is on the numeric key pad with the NUM LOCK key turned OFF.

5 + RIGHT ARROW Use to move to previous sentence, 5 is on the numeric key pad with the NUM LOCK key turned OFF.

5 + UP ARROW Use to move to previous paragraph, 5 is on the numeric key pad with the NUM LOCK key turned OFF.

Chapter 7

Hard Drive Specifications

1. Standard 286/386/486 Hard Disk Types... 316
2. Hard Drive Table Syntax and Notations... 317
3. Hard Drive Manufacturers Directory... 318
4. Hard Drive Specifications... 322
5. Hard Drive Source Notes... 440

STD 286/386/486 HARD DISK TYPES

Drive Type	# of Cylinders	# of Heads	Write Precomp	Land Zone	Size in Megabytes
1	306	4	128	305	10
2	615	4	300	615	21
3	615	6	300	615	31
4	940	8	512	940	63
5	940	6	512	940	47
6	615	4	65535	615	21
7	462	8	256	511	31
8	733	5	65535	733	31
9	900	15	65535	901	112
10	820	3	65535	820	21
11	855	5	65535	855	36
12	855	7	65535	855	50
13	306	8	128	319	21
14	733	7	65535	733	43
15	0	0	0	0	0
16	612	4	0	663	21
17	977	5	300	977	41
18	977	7	65535	977	57
19	1024	7	512	1023	60
20	733	5	300	732	31
21	733	7	300	732	43
22	733	5	300	733	31
23	306	4	0	336	10
24	698	7	300	732	42
25	615	4	0	615	21
26	1024	4	65535	1023	34
27	1024	5	65535	1023	43
28	1024	8	65535	1023	68
29	512	8	256	512	34
30	615	2	615	615	10
31	732	7	300	732	44
32	1023	5	65535	1023	44
33	306	4	0	340	10
34	976	5	488	977	42
35	1024	9	1024	1024	77
36	1024	5	512	1024	43
37	830	10	65535	830	69
38	823	10	256	824	68
39	615	4	128	664	21
40	615	8	128	664	41
41	917	15	65535	918	114
42	1023	15	65535	1024	127
43	823	10	512	823	68
44	820	6	65535	820	41
45	1024	8	65535	1024	68
46	925	9	65535	925	69
47	699	7	256	700	41

Note: Drive types over #24 vary between computer manufacturers

Hard Drive Table Syntax and Notations

See page 440 for comments on the hard drive data included in this chapter and a hard drive resource list. The following are descriptions of the information contained in the hard drive tables. Telephone and BBS numbers for hard drive manufacturers are listed in the Phone Book (Chapter 9) of this Pocket PCRef.

1. Format Size MB Formatted drive size in megabytes (Mb).
2. Heads Number of data heads
3. Cyl Number of cylinders
4. Sect/Trac Number of sectors per track, V=Variable Head-Cyl-Sector/Track Translation. *UNIV is a Universal Translation where any drive setup can be used as long as the total translated sectors is less than total drive sectors (Total drive sectors=physical heads x physical cylinders x physical sectors per track)
5. Translate Start Reduced Write Current cylinder
6. RWC Start Write Precompensation cylinder
7. WPC Safe cylinder for parking drive heads
8. Land zone Avg. drive head access time, milliseconds
9. Seek Time Type of drive interface used
10. Interface ST412/506, ESDI, SCSI, IDE AT, IDE XT, EIDE
11. Encode Data encoding method used on drive
12. Form Factor MFM, 2,7RLL, 1,7 RLL, RLL ZBR, ERLL
13. Cache Physical diameter and height of drive
14. mtbf 5.25HH, 3.5HH, 3.5/3H, 2.5
15. RPM Read ahead cache/buffer, in kilobytes (kb)
16. Obs Y Mean time between failures in kilohours (kh)
17. RPM Drive motor Revolutions Per Minute
18. Obs Y Is the drive obsolete? Y=Yes

PLEASE NOTE: The density of information in the hard drive table has made it necessary to conserve space by abbreviating kilobytes "kb" as "k" and kilohours "kh" as "k".

Hard Drive Manufacturer Directory

The following table is a general summary of companies that have manufactured and/or are still manufacturing hard drives. The number of models shown is based on data contained in the Pocket PCRef Hard Drive Specifications table and Sequoia Publishing does not represent this summary as being exact. If you have information concerning the status of any of these companies, such as "XYZ Company went bankrupt in August, 1990" or "XYZ Company was bought by Q Company", please let us know so we can keep this section current. If a phone number is listed in the Status column, the company is in business.

Manufacturer	Number of Models	Status
Alps America	8.....	800-449-2577; No longer make hard drives.
Ampex	4.....	415-367-2685; No longer make hard drives.
Areal Technology, Inc.	17.....	408-241-8290; No longer make hard drives as of 09-96.
Atasi Technology, Inc.	17.....	Out Of Business; Lipsig & Assoc. provide support 408-733-1844
Aura Associates	8.....	408-252-2872; No longer make hard drives.
BASF	5.....	Unknown
Brand Technologies	17.....	Out of Business
Bull.....	4.....	508-294-6000; No longer makes hard drives.
C. itoh Electronics, Inc	1.....	800-347-2484; Doing business as Itochu Tech; sold hard drive division to Y-E Data.
Cardiff	5.....	619-752-5200; No longer make hard drives.
CDC	214.....	408-438-6550; See Seagate
Century Data	18.....	919-821-5696; Not a manufacturer.
CMI	21.....	Out of Business
CMS Enhancements, Inc	50.....	714-437-0099; Not a manufacturer. Ameriquest parent company
Cogito	5.....	Out of Business
Compaq	15.....	713-370-0670
Comport	3.....	Unknown
Conner Peripherals, Inc.	169.....	800-468-3472; Merged with Seagate Technology 2-5-96.
Core International	58.....	407-997-6033 Stopped Manufacturing hard drives August

Manufacturer	Number of Models	Status
Digital Equipment Corp.	28.....	1995. Split into 2 companies- Iowa Data Product Services (407-997-6033-old drive support) and Core Engineering (407-998-3800).
Disc Tec	9.....	800-354-4636; Sold Storage Division to Quantum 1st Quarter 1995. Sold Direct Sales Division to PC Complete; OEM Hard Drives from Quantum & Seagate.
Discon (Otari)	12.....	407-671-5500; Maker of removable-hard drives.
DMA	1.....	Out Of Business
Echc	2.....	Unknown
Epson	10.....	800-922-8911; No longer make hard drives.
Fuji	17.....	510-438-9700; Do not manufacture hard drives in US.
Fujitsu America, Inc.	187.....	800-626-4686
Hewlett-Packard Co	96.....	Corporate: 415-857-1501; Most drives are OEM.
Hitachi America	54.....	800-448-2244
Hyosung	3.....	Unknown
IBM	101.....	408-256-1600
IBM Corp. (Storage Sys Div) ..	171.....	408-256-1600
IM	4.....	Unknown
Integral Peripherals	6.....	303-449-8009
ICT	7.....	Unknown
JVC Companies Of America	22.....	714-261-1292; No longer manufacture hard drives.
Kalok Corporation	20.....	Out of Business; JTS assumed some of their assets at 408-468-1800.
Kyocera Electronics, Inc.	7.....	908-563-4300; No longer manufacture hard drives.
Lanstor	4.....	Unknown
Lapine	17.....	Unknown
Maxtor Corporation	134.....	408-432-1700; Sold XT product line to Sequal in 1992.
Mega Drive Systems	16.....	310-247-0006
Memorex	8.....	214-444-3500; No longer a manufacturer.
Micropolis Corp	177.....	800-847-8153

Manufacturer	Number of Models	Status
Microscience International Corp	51	Out of Business
Miniscribe Corporation	90	Out Of Business, Portions Bought By Maxtor Corporation
Mitsubishi Electronics	10	800-843-2515
Mitsumi Electronics Corp.	2	214-550-7300; No longer manufacture hard drives.
MMI	8	Unknown
NCL America	1	408-737-2496; No longer manufacture hard drives.
NCR Corp	9	800-531-2222; No longer manufacture hard drives; call AT&T Global Info.
NEC Technologies Inc	52	508-264-8000
NEI	4	Unknown
Newbury Data	16	Unknown
NPL	13	Unknown
Okidata	2	609-235-2600
Olivetti	5	509-927-5600; No longer make or support drives.
Optima Technology Corp	26	714-476-0515
Orca Technology Corp	6	Unknown
Otari	1	Out of Business
Pacific Magtron	11	408-733-1188; No longer make hard drives.
Panasonic	2	201-348-7000
Plus Development	27	408-894-4000; Bought Out By Quantum
PrairieTek Corp	9	Unknown
Priam Corporation	62	Out Of Business; Lipsig & Assoc provide support 408-733-1844
Procom Technology	107	714-852-1000; Does Not manufacture drives, they Bundle
PTI (Peripheral Technology)	23	510-724-1486
Quantum Corporation	156	408-894-4000
Ricoh	5	800-955-3453; No longer manufacture drives.
RMS	4	212-840-8666; They say they have never manufactured drives.
Rodime Systems, Inc	92	Out of Business
Samsung	31	800-726-7864
Seagate Technologies	461	408-438-6550
Sequel, Inc	30	408-987-1000; Purchased XT model lines from Maxtor.

Number of Manufacturer	Models	Status
Sugart	12	520-294-0898
Siemens	12	Out of Business
Sony	3	408-432-1600
Storage Dimensions	40	408-954-0710; Do not manufacture hard drives, they bundle.
Syquest Technology	24	510-226-4000
Tandon Computer Corporation	34	Out of Business; Filed Chapter 11 Bankruptcy March 1993.
Tandy Corp	3	817-390-3011; No longer manufacture hard drives.
Teac America, Inc.	21	213-726-0303
Texas Instruments	2	800-848-3927
Toshiba America, Inc.	110	714-583-3000
Tulio	7	408-432-9025; Not a manufacturer.
Vortex (see Priam)	1	Out Of Business; Lipsig & Assoc provide support 408-733-1844
Western Digital	93	714-932-5000
Wibec	4	Out of Business
WE Data America, Inc	13	847-855-0890; No longer manufacture drives, they make heads.
Zentec	6	Unknown
=====		
Total Number of Drives	3452	

Model	Size MB	Head	Cyl	Trac	Sect/ H/C/S	WVC/ WPC	Time	Interface	Encode	Form cache	Obsolete?
ALPS AMERICA							Time	Interface	Encode	Factor	kb mtfb RPM
DR311C	106	2	2108	V		N/A/N/A	13	IDE AT	1,7 RLL	3.5 3H	150k Y
DR311D	106	2	2108	V		N/A/N/A	13	SCSI-2	1,7 RLL	3.5 3H	150k Y
DR312C	212	4	2108	V		N/A/N/A	13	IDE AT	1,7 RLL	3.5 3H	150k Y
DR312D	212	4	2108	V		N/A/N/A	13	SCSI-2	1,7 RLL	3.5 3H	150k Y
DRND-10A	11	2	615	17		616/616	60	ST412/506	MFM	3.5 HH	Y
DRND-20A	21	4	615	17		616/616	60	ST412/506	MFM	3.5 HH	Y
DRPO-20A	16	2	615	26		616/616	60	ST412/506	2,7 RLL	3.5 HH	Y
DRPO-20D	16	2	615	26		616/616	60	ST412/506	2,7 RLL	3.5 HH	Y
AMPEX							Time	Interface	Encode	Factor	kb mtfb RPM
PYXIS-13	11	4	320	17		132/132	90	ST412/506	MFM	5.25 FH	Y
PYXIS-20	17	6	320	17		132/132	90	ST412/506	MFM	5.25 FH	Y
PYXIS-27	22	8	320	17		132/132	90	ST412/506	MFM	5.25 FH	Y
PYXIS-7	6	2	320	17		132/132	90	ST412/506	MFM	5.25 FH	Y
AREAL TECHNOLOGY, INC							Time	Interface	Encode	Factor	kb mtfb RPM
A120	132	4	1070	63	10/535/50	N/A/N/A	15	IDE AT	2,7-1 RLL	2.5 4H	32k 100k 2981
A130	130	2	1438	V	5/856/60	N/A/N/A	17	IDE AT	1,7 RLL	2.5 4H	150k 2981
A180	183	4	1430	62	10/715/50	N/A/N/A	17	IDE XT-AT	2,7 RLL	2.5 4H	32k 100k 2981
A260	260	4	1438	V	10/856/60	N/A/N/A	17	IDE AT	1,7 RLL	2.5 4H	150k 2981
A340	350	4	2120	V	12/950/60	N/A/N/A	13	IDE AT	1,7 RLL	2.5 4H	150k
A520	526	6	2120	V	16/1020/63	N/A/N/A	13	IDE AT	1,7 RLL	2.5 4H	150k
A85	86	2	1344	V	AUTO/AUTO	N/A/N/A	15	IDE	2,7 RLL	2.5 4H	100k
A90	90	2	1430	62	10/715/25	N/A/N/A	15	IDE XT-AT	2,7 RLL	2.5 4H	32k 100k 2981
BP100 (never made)	102	2	1720	V		N/A/N/A	27	SCSI	2,7 RLL	2.5 4H	Y
BP200 (never made)						N/A/N/A					Y
BP50 (never made)						N/A/N/A					Y
MD2050 (never made)	49	2	819	V		N/A/N/A	28	IDE AT	2,7 RLL	2.5 4H	Y
MD2060	62	2	1024	59	7/1024/17	N/A/N/A	19	IDE AT	2,7 RLL	2.5 4H	32k 45k 1565
MD2065	62	2	1024	59		N/A/N/A	19	IDE AT	RLL	2.5 4H	100k 2504 Y
MD2080	81	2	1330	59	14/665/17	N/A/N/A	19	IDE AT	2,7 RLL	2.5 4H	32k 100k 1565
MD2085	86	2	1410	59	14/705/17	N/A/N/A	19	IDE AT	2,7 RLL	2.5 4H	32k 100k 2504
MD2100 (never made)	100	2	1638	V		N/A/N/A	29	SCSI	2,7 RLL	2.5 4H	
ATASI TECHNOLOGY, INC							Time	Interface	Encode	Factor	kb mtfb RPM
3020	17	3	645	17		320/320	30	ST412/506	MFM	5.25 FH	Y
3033	28	5	645	17		320/320	30	ST412/506	MFM	5.25 FH	Y
3046	39	7	645	17		320/320	30	ST412/506	MFM	5.25 FH	
3051	43	7	704	17		—/352	33	ST412/506	MFM	5.25 FH	
3051+	44	7	733	17		—/368	33	ST412/506	MFM	5.25 FH	
3053	47	8	733	17		350/368	27	ST412/506	MFM	5.25 FH	Y
3075	67	8	1024	17		1025/1025	27	ST412/506	MFM	5.25 FH	Y
3085	72	8	1024	17		—/512	27	ST412/506	MFM	5.25 FH	
3128	128	8	1024	26			27	ST412/506	2,7 RLL		
519	159	15	1224	17		N/A/N/A	22	ST412/506	MFM	5.25 FH	40k
519R	244	15	1224	26		N/A/N/A	22	ST412/506	2,7 RLL	5.25 FH	40k
6120	1051	15	1925	71		N/A/N/A	14	ESDI	2,7 RLL	5.25 FH	150k 3600
638	338	15	1225	36		N/A/N/A	18	ESDI		5.25 FH	40k 3600
676	676	15	1632	54		N/A/N/A	16	ESDI	2,7 RLL	5.25 FH	150k 3600
7120	1034	15	1919	71		N/A/N/A	14	SCSI	2,7 RLL	5.25 FH	150k 3600
738	336	15	1225	36		N/A/N/A	18	SCSI		5.25 FH	40k 3600
776	668	15	1632	54		N/A/N/A	16	SCSI		5.25 FH	150k 3600
AURA ASSOCIATES							Time	Interface	Encode	Factor	kb mtfb RPM
AU126	125	4				N/A/N/A	17	PCMCIA-ATA	1,7 RLL	1.8 4H	32k 100k 5400 Y
AU211	211					N/A/N/A	13	ATA		1.8 4H	128k 3448 Y
AU211S	211					N/A/N/A	13	SCSI-2		1.8 4H	128k 3448 Y
AU245	245					N/A/N/A	13	ATA		1.8 4H	128k 3448 Y
AU245S	245					N/A/N/A	13	SCSI-2		1.8 4H	128k 3448 Y
AU43	42	2				N/A/N/A	17	IDE AT	1,7 RLL	1.8 4H	32k 100k 5400 Y

Drive Model	Format	Size MB	Head	Cyl	Trac	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
AUG3		42	2					---	
AUG5		85	4					---	
BASF									
6185		23	6	440	17			220/220	
6186		15	4	440	17			220/220	
6187		8	2	440	17			220/220	
6188-R1		10	2	612	17			---	
6188-R3		21	4	612	17			---	

BRAND TECHNOLOGIES

9121A (never made)	107	5	1166	36	10/583/36	NANA	NANA	AUTO	
9121E (never made)	107	5	1166	36		NANA	NANA	AUTO	
9121S (never made)	107	5	1166	36		NANA	NANA	AUTO	
9170A	150	7	1166	36	14/583/36	NANA	NANA	AUTO	
9170E	150	7	1166	36		NANA	NANA	AUTO	
9170S	150	7	1166	36		NANA	NANA	AUTO	
9200A	200	9	1209	36	16/401/61	NANA	NANA	AUTO	
9220E	200	9	1210	36		NANA	NANA	AUTO	
9220S	200	9	1210	36		NANA	NANA	AUTO	
BT8085	71	8	1024	17		NANA	NANA	AUTO	
BT8128	109	8	1024	26		NANA	NANA	AUTO	
BT8170E	142	8	1024	34		NANA	NANA	AUTO	
BT8170S	142	8	1024	34		NANA	NANA	AUTO	
BT9400A (never made)	400	6	1800	36		NANA	NANA	AUTO	
BT9400S (never made)	400	6	1800	36	16/801/61	NANA	NANA	AUTO	
BT9650A (never made)	650	10	1800	36	16/1024/63	NANA	NANA	AUTO	
BT9650S (never made)	650	10	1800	36		NANA	NANA	AUTO	

BULL

D530	25	3	987	17			988/988		
D550	43	5	987	17			988/988		
D570	60	7	987	17			988/988		
D585	71	7	1166	17			1166/1166		

C.ITOH ELECTRONICS, INC

SEE YE-DATA

CARDIFF

F3053	44	5	1024	17			---		
F3080E	68	5	1024	26		NANA	NANA		
F3080S	68	5	1024	26		NANA	NANA		
F3127E	109	5	1024	35		NANA	NANA		
F3127S	109	5	1024	35		NANA	NANA		

CDC

94151-25 WREN II	25	3	921	19			---		
94151-27 WREN II	26	3	921	19			---		
94151-42 WREN II	42	5	921	19			---		
94151-44 WREN II	44	5	921	19			---		
94151-59 WREN II	59	7	921	19			---		
94151-62 WREN II	62	7	921	19			---		
94151-76 WREN II	76	9	921	19			---		
94151-80 WREN II	80	9	921	19			---		
94151-80SA WREN II	72	9	921	17			---		
94151-80SC WREN II	70	9	921	17			---		
94151-86 WREN II	72	9	925	17			925/925		
94155-021 WREN I	18	3	697	17			697/697		
94155-025 WREN I	24	4	697	17			697/128		
94155-028 WREN I	24	3	697	17			698/128		

Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolote? mbf	RPM
AUG3	17	PCMCIA-ATA	1,7 RLL	1.8 4H	32k	100k	5400 Y
AUG5	17	IDE AT	1,7 RLL	1.8 4H	32k	100k	5400 Y
BASF							
6185	150/70?	ST412/506	MF	5.25 FH			
6186	70	ST412/506	MF	5.25 FH			
6187	70	ST412/506	MF	5.25 FH			
6188-R1	70	ST412/506	MF	5.25 FH			
6188-R3	70	ST412/506	MF	5.25 FH			

BRAND TECHNOLOGIES

9121A (never made)	16.5	IDE AT	2,7 RLL	3.5 HH	50k		Y
9121E (never made)	16.5	SCSI	2,7 RLL	3.5 HH	50k		Y
9121S (never made)	16.5	SCSI	2,7 RLL	3.5 HH	50k		Y
9170A	16.5	IDE AT	2,7 RLL	3.5 HH	64k		Y
9170E	16.5	ESDI	2,7 RLL	3.5 HH	50k	3565	Y
9170S	16.5	SCSI	2,7 RLL	3.5 HH	64k	50k	Y
9200A	16.5	IDE AT	2,7 RLL	3.5 HH	64k	50k	Y
9220E	16.5	ESDI	2,7 RLL	3.5 HH	50k	3565	Y
9220S	16.5	SCSI	2,7 RLL	3.5 HH	64k	50k	Y
BT8085	25	ST412/506	MF	5.25 FH	50k		Y
BT8128	25	ST412/506	MF	5.25 FH	50k		Y
BT8170E	25	ESDI	2,7 RLL	5.25 FH	50k		Y
BT8170S	25	SCSI	2,7 RLL	5.25 FH	50k		Y
BT9400A (never made)	12	IDE AT	1,7 RLL	5.25 FH			Y
BT9400S (never made)	12	SCSI-2	1,7 RLL	5.25 FH			Y
BT9650A (never made)	12	IDE AT	1,7 RLL	5.25 FH			Y
BT9650S (never made)	12	SCSI-2	1,7 RLL	5.25 FH			Y

BULL

D530		ST412/506	MF	5.25 FH			Y
D550		ST412/506	MF	5.25 FH			Y
D570		ST412/506	MF	5.25 FH			Y
D585		ST412/506	2,7 RLL	5.25 FH			Y

C.ITOH ELECTRONICS, INC

SEE YE-DATA

CARDIFF

F3053	20	ST412/506	MF	3.5 HH			Y
F3080E	20	ESDI	2,7 RLL	3.5 HH			Y
F3080S	20	SCSI	2,7 RLL	3.5 HH			Y
F3127E	20	ESDI	2,7 RLL	3.5 HH			Y
F3127S	20	SCSI	2,7 RLL	3.5 HH			Y

CDC

94151-25 WREN II				5.25 FH			Y
94151-27 WREN II				5.25 FH			Y
94151-42 WREN II				5.25 FH			Y
94151-44 WREN II				5.25 FH			Y
94151-59 WREN II				5.25 FH			Y
94151-62 WREN II				5.25 FH			Y
94151-76 WREN II				5.25 FH			Y
94151-80 WREN II				5.25 FH			Y
94151-80SA WREN II	38	SCSI		5.25 FH			Y
94151-80SC WREN II	38	SCSI		5.25 FH			Y
94151-86 WREN II	38	ST412/506	MF	5.25 FH			Y
94155-021 WREN I		ST412/506	MF	5.25 FH			Y
94155-025 WREN I		ST412/506	MF	5.25 FH			Y
94155-028 WREN I	28	ST412/506	MF	5.25 FH			Y

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
94155-029 WREN I	25	3	925	17		---	
94155-036 WREN I	31	5	733	17		697/128	
94155-037 WREN I	32	4	925	17		734/0	
94155-038 WREN I	31	5	733	17		925/128	
94155-048 WREN II	40	5	925	17		925/128	
94155-051 WREN II	43	5	989	17		990/128	
94155-057 WREN II	48	6	925	17		926/128	
94155-057P WREN II	48	6	925	17		926/128	AUTO
94155-067 WREN II	56	7	925	17		926/128	
94155-067P WREN II	56	7	925	17		926/128	AUTO
94155-077 WREN II	64	8	925	17		926/128	
94155-085 WREN II	71	8	1024	17		1025/128	AUTO
94155-085P WREN II	71	8	1024	17		1025/128	AUTO
94155-086 WREN II	72	9	925	17		926/128	AUTO
94155-087 WREN II	72	9	925	17		---	
94155-092 WREN II	77	9	989	17		---	
94155-092P WREN II	77	9	989	17		---	

Conversion Chart: Part I			
Old CDC/Imprimis model # to new Seagate model #		Seagate model # to new Seagate model #	
CDC/Imprimis	Seagate	Seagate	CDC/Imprimis
94155-135	ST4135R	ST1090A	94354-090
94155-85	ST4085	ST1090N	94354-090
94155-86	ST4086	ST1100	94354-100
94155-96	ST4097	ST1111A	94354-111
94161-182	ST4182N	ST1111E	94354-111
94166-182	ST4182E	ST1111N	94354-111
94171-350	ST4350N	ST1126A	94354-126
94171-376	ST4376N	ST1126N	94354-126
94181-365H	ST4365N	ST1133A	94354-133
94181-702	ST4702N	ST1133NS	94354-133
94186-383	ST4383E	ST1150R	94354-150
94186-383H	ST4383A	ST1156A	94354-155
94186-442	ST4442E	ST1156E	94354-155
94191-766	ST4766N	ST1156N	94354-155
94196-766	ST4766E	ST116NS	94354-155S
94204-65	ST274A	ST1162A	94354-160
94204-71	ST280A	ST1162N	94354-160
94204-74	ST274A	ST1166A	94354-186
94204-81	ST280A	ST1166NS	94354-186S
94205-51	ST253	ST1201A	94354-200
94205-77	ST279R	ST1201E	94354-200
94211-106	ST2106N	ST1201N	94354-200
94216-106	ST2106E	ST1201NS	94354-200S
94221-125	ST2125N	ST1239A	94354-239
94241-502	ST2502N	ST1239NS	94354-239S
94244-274	ST274A	ST2106E	94216-106
94244-383	ST2383E	ST2106N	94211-106
94246-182	ST2182E	ST2125N	94221-125
94246-383	ST2383E	ST2182E	94246-182
94351-090	ST1090N	ST2274A	94244-274
94351-111	ST1111N	ST2383A	94244-383
94351-126	ST1126N	ST2383E	94246-383
94351-133S	ST1133NS	ST2502N	94241-502
94351-155	ST1156N	ST253	94205-51
94351-155S	ST1156NS	ST274A	94204-74
94351-160	ST1160N	ST274A	94204-65
94351-186S	ST1186NS	ST279R	94205-77
94351-200	ST1201N	ST280A	94204-81
94351-200S	ST1201NS	ST280A	94204-71
94351-230S	ST1239NS	ST4085	94155-85
94354-090	ST1090A	ST4086	94155-86

Drive Model	Seek Time	Interface	Encode	Form Factor	Cache kb	Obsolete? Y/N
94155-029 WREN I	28	ST412/506	MF	5.25 FH		Y
94155-036 WREN I	28	ST412/506	MF	5.25 FH		Y
94155-037 WREN I	28	ST412/506	MF	5.25 FH		Y
94155-038 WREN I	28	ST412/506	MF	5.25 FH		Y
94155-048 WREN II	28	ST412/506	MF	5.25 FH		Y
94155-051 WREN II	28	ST412/506	MF	5.25 FH		Y
94155-057 WREN II	28	ST412/506	MF	5.25 FH	40k	Y
94155-057P WREN II	28	ST412/506	MF	5.25 FH		Y
94155-067 WREN II	38	ST412/506	MF	5.25 FH	40k	Y
94155-067P WREN II	28	ST412/506	MF	5.25 FH		Y
94155-077 WREN II	28	ST412/506	MF	5.25 FH	40k	Y
94155-085 WREN II	28	ST412/506	MF	5.25 FH	40k	Y
94155-085P WREN II	28	ST412/506	MF	5.25 FH	40k	Y
94155-086 WREN II	28	ST412/506	MF	5.25 FH	40k	Y
94155-087 WREN II	38	ESDI		5.25 FH		Y
94155-092 WREN II	38	ST412/506	MF	5.25 FH		Y
94155-092P WREN II	38	ST412/506	MF	5.25 FH		Y

Conversion Chart: Part II

Old CDC/Imprimis model # to new Seagate model #			
CDC/Imprimis		Seagate	
CDC/Imprimis	Seagate	Seagate	CDC/Imprimis
94354-111	ST1111A	ST4097	94155-96
94354-126	ST1126A	ST41200N	94601-12GM
94354-133	ST1133A	ST41201J	97500-12G
94354-155	ST1156A	ST41201K	97509-12G
94354-160	ST1162A	ST4135R	94155-135
94354-186	ST1186A	ST41500N	97501-12G
94354-200	ST1201A	ST4182E	94166-182
94354-239	ST1239A	ST4182N	94161-182
94355-100	ST1100	ST4350N	94171-350
94355-150	ST1150R	ST4376N	94171-376
94355-111	ST1111E	ST4383E	94186-383
94355-155	ST1156E	ST4384E	94186-383H
94356-200	ST1201E	ST4385N	94181-385H
94601-12G/M	ST41200N	ST4442E	94186-442
94601-767H	ST4767N	ST4702N	94181-702
97100-80	ST683J	ST4766E	94196-766
97150-160	ST6165J	ST4766N	94191-766
97150-300	ST6315J	ST4767N	94601-767H
97150-340	ST6344J	ST6165J	97150-160
97150-500	ST6165J	ST6315J	97150-300
97200-1130	ST81123J	ST6344J	97150-340
97200-12G	ST81236J	ST6515J	97150-500
97200-23G	ST82272K	ST683J	97100-80
97200-25G	ST82500J	ST81123J	97200-1130
97200-368	ST8368J	ST81154K	97229-1150
97200-500	ST8500J	ST81236K	97200-12G
97200-736	ST8741N	ST81236N	97209-12G
97200-850	ST8851J	ST82105K	97289-21G
97201-12G	ST82106N	ST8272K	97200-23G
97201-25G	ST82500N	ST8268K	97229-23G
97201-368	ST8368N	ST82500J	97200-25G
97201-500	ST8500N	ST82500K	97209-25G
97201-736	ST8741N	ST82500N	97201-25G
97201-850	ST8851N	ST8368J	97200-368
97209-12G	ST81236K	ST8368N	97201-368
97209-25G	ST82500K	ST8500J	97200-500
97229-1150	ST81154K	ST8500N	97201-500
97229-23G	ST82105K	ST8741J	97200-736
97299-23G	ST82368K	ST8741N	97201-736
97500-12G	ST41201J	ST8851J	97200-850
97501-12G	ST41500N	ST8851N	97201-850
97509-12G	ST41201K		

Drive Model	Format Size MB	Head	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
94155-096 WREN II	80	9	1024	17	---	---
94155-120 WREN II	122	8	960	26	961/128	AUTO
94155-130 WREN II	122	9	1024	26	---	AUTO
94155-135 WREN II	115	9	960	26	961/128	AUTO
94156-048 WREN II	40	5	925	17	926/128	AUTO
94156-067 WREN II	56	7	925	17	926/128	AUTO
94156-086 WREN II	72	9	925	17	926/128	AUTO
94156-48 WREN II	40				---	AUTO
94156-67 WREN II	56				---	AUTO
94156-86 WREN II	72				---	AUTO
94161-086 WREN III	84	5	969	35	NANA	AUTO
94161-101 WREN III	84	5	969	34	NANA	AUTO
94161-103 WREN III	104	6	969	35	NANA	AUTO
94161-121 WREN III	121	7	969	35	NANA	AUTO
94161-138 WREN III	138	8	969	35	NANA	AUTO
94161-141 WREN III	118	7	969	35	NANA	AUTO
94161-151 WREN III	151	9	969	34	NANA	AUTO
94161-155 WREN III	132	9	969	35	---1.0	AUTO
94161-156 WREN III	132	9	969	36	---1.0	AUTO
94161-180 WREN III	160				---	AUTO
94161-182 WREN III	156	9	969	35	NANA	AUTO
94161-182M WREN III	160	9	969		---	AUTO
94166-086 WREN III	86	5	969	35	---1.0	AUTO
94166-101 WREN III	86	5	969	35	NANA	AUTO
94166-103 WREN III	104	6	969	35	---1.0	AUTO
94166-121 WREN III	107	6	969	36	NANA	AUTO
94166-138 WREN III	138	8	969	35	---1.0	AUTO
94166-141 WREN III	125	7	969	36	NANA	AUTO
94166-161 COMPAQ	160	9	969	36	NANA	AUTO
94166-161 WREN III	142	8	969	36	NANA	AUTO
94166-182 WREN III	161	9	969	36	NANA	AUTO
94171-300 WREN IV	300	9	1412		NANA	AUTO
94171-307 WREN IV	300	9	1412		NANA	AUTO
94171-327 WREN IV	300	9	1412		NANA	AUTO
94171-330 WREN IV	330				---	AUTO
94171-344 WREN IV	323	9	1549	V	NANA	AUTO
94171-350 WREN IV	307	9	1412	V	NANA	AUTO
94171-375 WREN IV	330	9	1549	V	NANA	AUTO
94171-376 WREN IV	330	9	1546	V	NANA	AUTO
94171-376D WREN IV	323	9	1549	V	NANA	AUTO
94181-383 WREN IV	330	15	1224		---	AUTO
94181-385D WREN V	337	15	791	V	NANA	AUTO
94181-385H WREN V	337	15	791	V	NANA	AUTO
94181-574 WREN V	574	15	1549	V	NANA	AUTO
94181-702 WREN V	613	15	1546	V	NANA	AUTO
94181-702D WREN V	601	15	1546	V	NANA	AUTO
94181-702M WREN V	613	15	1549		---	AUTO
94186-265 WREN V	234	9	1412	36	NANA	AUTO
94186-324 WREN V	278	11	1412	35	NANA	AUTO
94186-383 WREN V	338	7	1747	35	NANA	AUTO
94186-383H WREN V	338	7	1747	35	NANA	AUTO
94186-383S WREN V	338	13	1412	36	NANA	AUTO
94186-442 WREN V	380	15	1412	35	NANA	AUTO
94186-442S WREN V	390	15	1412	36	NANA	AUTO
94191-766 WREN VI	677	15	1632	54	NANA	AUTO
94191-766D WREN VI	677	15	1632	54	NANA	AUTO
94196-383 WREN VI	338	7	1747	54	NANA	AUTO
94196-766 WREN V	677	15	1632	54	NANA	AUTO
94204-051 WREN II	43	5	989	26	NANA	AUTO
94204-065 WREN II	63	5	948	26	NANA	AUTO
94204-071 WREN II	63	5	1032	27	NANA	AUTO
94204-074 WREN II	63	5	948	26	NANA	AUTO
94204-081 WREN II	71	5	1032	27	NANA	AUTO

Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtfb RPM
94155-096 WREN II	28	ST412/508	MF	5.25 FH	40k	Y
94155-120 WREN II	28	ST412/506	2.7 RLL	5.25 FH	40k	Y
94155-130 WREN II	28	ST412/506	RLL	5.25 FH	40k	Y
94155-135 WREN II	28	ST412/506	2.7 RLL	5.25 FH	40k	Y
94156-048 WREN II	28	ESDI	MF	5.25 FH	40k	Y
94156-067 WREN II	28	ESDI	MF	5.25 FH	40k	Y
94156-086 WREN II	28	ESDI	MF	5.25 FH	40k	Y
94156-48 WREN II		ESDI	ST412/506	5.25 FH		
94156-67 WREN II		ESDI	ST412/506	5.25 FH		
94156-86 WREN II		ESDI	ST412/506	5.25 FH		
94161-086 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-101 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-103 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-121 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-138 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-141 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-151 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-155 WREN III	17	SCSI	RLL	5.25 FH		
94161-156 WREN III	17	SCSI	RLL	5.25 FH		
94161-180 WREN III		SCSI	2.7 RLL	5.25 FH		
94161-182 WREN III	16.5	SCSI	2.7 RLL	5.25 FH	100k	Y
94161-182M WREN III	17	SCSI	ZBR	5.25 FH		
94166-086 WREN III	25	ESDI	RLL	5.25 FH		
94166-101 WREN III	16.5	ESDI	2.7 RLL	5.25 FH	100k	Y
94166-103 WREN III	25	ESDI	RLL	5.25 FH		
94166-121 WREN III	16.5	ESDI	2.7 RLL	5.25 FH	100k	Y
94166-138 WREN III	25	ESDI	RLL	5.25 FH		
94166-141 WREN III	16.5	ESDI	2.7 RLL	5.25 FH	100k	Y
94166-161 COMPAQ		ESDI	2.7 RLL	5.25 FH	100k	Y
94166-161 WREN III		ESDI	2.7 RLL	5.25 FH	100k	Y
94166-182 WREN III	16.5	ESDI (10)	2.7 RLL	5.25 FH	100k	Y
94171-300 WREN IV	17	SCSI	RLL ZBR	5.25 FH		
94171-307 WREN IV	17	SCSI	RLL ZBR	5.25 FH		
94171-327 WREN IV	17	SCSI	RLL ZBR	5.25 FH		
94171-330 WREN IV		SCSI	RLL ZBR	5.25 FH		
94171-344 WREN IV	16	SCSI	RLL ZBR	5.25 FH		
94171-350 WREN IV	16.5	SCSI	RLL ZBR	5.25 FH	100k	
94171-375 WREN IV	16	SCSI	RLL ZBR	5.25 FH		
94171-376 WREN IV	17.5	SCSI	RLL ZBR	5.25 FH	100k	
94171-376D WREN IV		SCSI	RLL ZBR	5.25 HH	100k	
94181-383 WREN IV	18	SCSI	ZBR	5.25 FH		
94181-385D WREN V		SCSI	RLL ZBR	5.25 FH	100k	
94181-385H WREN V	10.7	SCSI	RLL ZBR	5.25 FH	100k	
94181-574 WREN V	16	SCSI	RLL ZBR	5.25 FH	100k	
94181-702 WREN V	16.5	SCSI	RLL ZBR	5.25 FH	100k	
94181-702D WREN V		SCSI	RLL ZBR	5.25 FH	100k	
94181-702M WREN V	17	SCSI	ZBR	5.25 FH		
94186-265 WREN V		ESDI (10)	2.7 RLL	5.25 FH	100k	
94186-324 WREN V		ESDI (10)	2.7 RLL	5.25 FH		
94186-383 WREN V		ESDI (10)	2.7 RLL	5.25 FH	100k	
94186-383H WREN V		ESDI (10)	2.7 RLL	5.25 FH	100k	
94186-383S WREN V	19	SCSI	2.7 RLL	5.25 FH	100k	
94186-442 WREN V		ESDI (10)	2.7 RLL	5.25 FH	100k	
94186-442S WREN V	15	SCSI	2.7 RLL	5.25 FH		
94191-766 WREN VI	15.5	SCSI	2.7 RLL	5.25 FH	100k	
94191-766D WREN VI		SCSI	2.7 RLL	5.25 FH	100k	
94196-383 WREN VI		ESDI (15)	2.7 RLL	5.25 FH	100k	
94196-766 WREN V		ESDI (15)	2.7 RLL	5.25 FH	100k	
94204-051 WREN II		IDE AT	2.7 RLL	5.25 HH	40k	Y
94204-065 WREN II		IDE AT	2.7 RLL	5.25 HH	40k	Y
94204-071 WREN II		IDE AT	2.7 RLL	5.25 HH	40k	Y
94204-074 WREN II	28	IDE AT	2.7 RLL	5.25 HH	40k	Y
94204-081 WREN II	28	IDE AT	2.7 RLL	5.25 HH	40k	Y

Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete?
Model	Format	Size MB	Head	Cyl	Trac	H/C/S	WPC	Zone	Model	Time	Interface	Encode	Factor	mbf	RPM
94205-030 WREN II		26	3	989	17	---	989---	---	94205-030 WREN II		ST412/506	MF	5.25 FH	40k	Y
94205-041 WREN II		43	4	989	17	---	990/128	AUTO	94205-041 WREN II		ST412/506	MF	5.25 HH	40k	Y
94205-051 WREN II		43	5	989	17	---	990/128	AUTO	94205-051 WREN II	28	ST412/506	MF	5.25 HH	40k	Y
94205-053 WREN II		43	5	1024	17	---	990/128	AUTO	94205-053 WREN II		ST412/506	MF	5.25 HH	40k	Y
94205-071 WREN II		43	5	989	26	---	990/128	AUTO	94205-071 WREN II		ST412/506	RL	5.25 HH	40k	Y
94205-075 WREN II		62	5	966	25	---	966/128	AUTO	94205-075 WREN II	28	ST412/506	RL	5.25 HH	40k	Y
94205-077 WREN II		66	5	989	26	---	---	AUTO	94205-077 WREN II	28	ST412/506	2.7 RLL	5.25 HH	40k	Y
94208-062 WREN II		60	5	989	17	---	---	AUTO	94208-062 WREN II		COMPQA	MF	5.25 HH		Y
94208-075 WREN II		66	5	989	26	---	NANA	---	94208-075 WREN II	30	IDE AT	2.7 RLL	5.25 HH		Y
94208-106 WREN II		91		989	---	---	---	---	94208-106 WREN II		IDE AT		5.25 HH		Y
94208-51 WRENII		43		989	---	---	---	---	94208-51 WRENII		IDE AT		5.25 HH		Y
94208-91 WRENII		80		989	---	---	---	---	94208-91 WRENII		IDE AT		5.25 HH		Y
94208-951 WREN II		42	5	989	17	---	990/128	---	94208-951 WREN II	28	COMPQA	MF	5.25 FH		Y
94211-086 WREN III		72	5	1024	35	---	---	---	94211-086 WREN III	18	SCSI	MF	5.25 HH		Y
94211-091 WREN III		77	5	1024	17	---	970/970	---	94211-091 WREN III	18	SCSI	MF	5.25 HH		Y
94211-106 WREN III		92	5	1024	35	---	NANA	---	94211-106 WREN III	18	SCSI	2.7 RLL	5.25 HH	100k	Y
94211-106M WREN III		94	5	1024	---	---	1025/1025	---	94211-106M WREN III	18	SCSI	ZBR	5.25 FH		Y
94211-209 WREN III		183	5	1547	---	---	1549/1548	AUTO	94211-209 WREN III	18	SCSI	ZBR	3.5 HH		Y
94216-106 WREN V		90	5	1024	34	---	NANA	AUTO	94216-106 WREN III	18	ESDI (10)	2.7 RLL	5.25 HH	100k	Y
94221-125 WREN V		110	3	1544	V	---	NANA	AUTO	94221-125 WREN V	18	SCSI	RL ZBR	5.25 HH	100k	Y
94221-169 WREN V		159	5	1310	V	---	NANA	AUTO	94221-169 WREN V	18	SCSI	RL ZBR	5.25 HH	100k	Y
94221-190 WREN V		190	5	1547	V	---	NANA	AUTO	94221-190 WREN V	18	SCSI	RL ZBR	5.25 HH	100k	Y
94221-209 WREN V		183	5	1544	V	---	NANA	AUTO	94221-209 WREN V	18	SCSI	RL ZBR	5.25 HH	100k	Y
94241-383 WREN VI		338	7	1400	V	---	NANA	AUTO	94241-383 WREN VI	14	SCSI	RL ZBR	5.25 HH	100k	Y
94241-502 WREN VI		7	1765	V	---	---	NANA	AUTO	94241-502 WREN VI		SCSI	RL ZBR	5.25 HH	100k	Y
94241-502M WREN VI		7	1765	V	---	---	NANA	AUTO	94241-502M WREN VI	16	SCSI(MAC)	RL ZBR	5.25 HH	100k	Y
94244-219 WREN VI		186	4	1747	54	---	1748-1.0	---	94244-219 WREN VI	16	AT	RL	5.25 HH		Y
94244-274 WREN VI		233	5	1747	52	---	NANA	AUTO	94244-274 WREN VI	16	IDE AT	2.7 RLL	5.25 HH	100k	Y
94244-383 WREN VI		338	7	1747	54	---	NANA	AUTO	94244-383 WREN VI	16	IDE AT	2.7 RLL	5.25 HH	100k	Y
94246-182 WREN VI		161	4	1453	54	---	NANA	AUTO	94246-182 WREN VI	16	ESDI (20)	2.7 RLL	5.25 HH	100k	Y
94246-383 WREN VI		338	7	1747	---	---	NANA	AUTO	94246-383 WREN VI	16	SCSI (20)	2.7 RLL	5.25 HH	100k	Y
94311-136 SWIFT SL		120	5	---	---	---	NANA	AUTO	94311-136 SWIFT SL	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94311-136S SWIFT SL		120	5	1247	36	---	NANA	AUTO	94311-136S SWIFT SL	15	SCSI-2	2.7 RLL	3.5 HH	70k	Y
94314-136 SWIFT SL		120	5	---	---	---	NANA	AUTO	94314-136 SWIFT SL	15	IDE AT	2.7 RLL	3.5 HH	70k	Y
94316-111 SWIFT		98	5	---	---	---	NANA	AUTO	94316-111 SWIFT	23	ESDI	2.7 RLL	3.5 HH	70k	Y
94316-136 SWIFT SL		120	5	---	---	---	NANA	AUTO	94316-136 SWIFT SL	15	ESDI	2.7 RLL	3.5 HH	70k	Y
94316-155 SWIFT		138	5	1072	36	---	NANA	AUTO	94316-155 SWIFT	15	ESDI	2.7 RLL	3.5 HH	70k	Y
94316-200 SWIFT		177	5	---	---	---	NANA	AUTO	94316-200 SWIFT	15	ESDI	2.7 RLL	3.5 HH	70k	Y
94335-055 SWIFT SL		46	5	---	---	---	---	---	94335-055 SWIFT SL	25	ST412/506	RL	3.5 HH		Y
94335-100 SWIFT		85	9	1072	17	---	---	---	94335-100 SWIFT	25	ST412/506	MF	3.5 HH		Y
94335-150 SWIFT		128	9	1068	26	---	---	---	94335-150 SWIFT	25	ST412/506	RL	3.5 HH		Y
94351-090 SWIFT		80	5	1068	---	---	---	---	94351-090 SWIFT	15	SCSI	RL	3.5 HH		Y
94351-111 SWIFT		98	5	1068	---	---	NANA	AUTO	94351-111 SWIFT	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94351-126 SWIFT		111	7	1068	29	---	NANA	AUTO	94351-126 SWIFT	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94351-128 SWIFT		111	7	1068	---	---	NANA	AUTO	94351-128 SWIFT	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94351-133S SWIFT		117	5	1288	36	---	NANA	AUTO	94351-133S SWIFT	15	SCSI-2	2.7 RLL	3.5 HH	70k	Y
94351-134 SWIFT		120	7	1288	---	---	---	---	94351-134 SWIFT	15	SCSI	RL	3.5 HH		Y
94351-135 SWIFT		121	6	1068	---	---	---	---	94351-135 SWIFT	15	SCSI	RL	3.5 HH		Y
94351-155 SWIFT		138	7	1068	36	---	NANA	AUTO	94351-155 SWIFT	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94351-155S SWIFT		138	7	1068	36	---	NANA	AUTO	94351-155S SWIFT	15	SCSI-2	2.7 RLL	3.5 HH	70k	Y
94351-160 SWIFT		143	9	1068	29	---	NANA	AUTO	94351-160 SWIFT	15	SCSI	2.7 RLL	3.5 HH	150k	Y
94351-172 SWIFT		177	9	1068	36	---	NANA	AUTO	94351-172 SWIFT	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94351-186S SWIFT		164	7	1288	36	---	NANA	AUTO	94351-186S SWIFT	15	SCSI-2	2.7 RLL	3.5 HH	150k	Y
94351-200 SWIFT		178	7	1068	36	---	NANA	AUTO	94351-200 SWIFT	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94351-200S SWIFT		177	9	1068	36	---	NANA	AUTO	94351-200S SWIFT	15	SCSI-2	2.7 RLL	3.5 HH	150k	Y
94351-230 SWIFT		210	9	1288	36	---	NANA	AUTO	94351-230 SWIFT	15	SCSI	2.7 RLL	3.5 HH	70k	Y
94351-230S SWIFT		210	9	1288	36	---	NANA	AUTO	94351-230S SWIFT	15	SCSI-2	2.7 RLL	3.5 HH	70k	Y
94354-090 SWIFT		80	5	102	---	---	---	---	94354-090 SWIFT	15	AT	RL	3.5 HH		Y
94354-111 SWIFT		99	5	1072	36	---	NANA	AUTO	94354-111 SWIFT	15	IDE AT	2.7 RLL	3.5 HH	70k	Y
94354-126 SWIFT		111	7	1072	36	---	NANA	AUTO	94354-126 SWIFT	15	IDE AT	2.7 RLL	3.5 HH	150k	Y
94354-133 SWIFT		117	5	1272	36	---	NANA	AUTO	94354-133 SWIFT	15	IDE AT	2.7 RLL	3.5 HH	70k	Y
94354-155 SWIFT		138	7	1072	36	---	NANA	AUTO	94354-155 SWIFT	15	IDE AT	2.7 RLL	3.5 HH	70k	Y
94354-160 SWIFT		143	9	1072	29	---	NANA	AUTO	94354-160 SWIFT	15	IDE AT	2.7 RLL	3.5 HH	150k	Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
94354-186 SWIFT		164	7	1272	36		NANA	AUTO
94354-200 SWIFT		178	9	1072	36		NANA	AUTO
94354-230 SWIFT		204					NANA	AUTO
94354-239 SWIFT		211	9	1272	36		NANA	AUTO
94355-055 SWIFT II		46	5		17			AUTO
94355-100 SWIFT		84	9	1072	17		1073/300	AUTO
94355-150 SWIFT		128	9	1072	26		1073/300	AUTO
94355-55 SWIFT		46						AUTO
94356-111 SWIFT		99	5	1072	36		NANA	AUTO
94356-155 SWIFT		138	7	1072	36		NANA	AUTO
94356-200 SWIFT		178	9	1072	36		NANA	AUTO
94601-120 WREN VII		1035	15	1931	V		NANA	AUTO
94601-123 WREN VII		1037	15	1937	V		NANA	AUTO
94601-12GM WREN VII		1037	15	1937	V		NANA	AUTO
94601-767H WREN VII		676	15	1356	V		NANA	AUTO
97155-036		30			17			AUTO
9720-1123 SABRE		964	19					AUTO
9720-1130 SABRE		1050	15	1635				AUTO
9720-2270 SABRE		1948	19					AUTO
9720-2500 SABRE		2145	19					AUTO
9720-368 SABRE		368		1635			1218/1218	AUTO
9720-500 SABRE		500	10	1217			1218/1218	AUTO
9720-736 SABRE		736	15	1635			1636/1636	AUTO
9720-850 SABRE		727	15	1381			1382/1382	AUTO
97229-1150 WREN V		990	19					AUTO
97501-15G ELITE		1050	17				NANA	AUTO
97509-12G ELITE		1050	17					AUTO
BJ7D5A/77731600		18	3	697	17			AUTO
BJ7D5A/77731601		18	3	697	17			AUTO
BJ7D5A/77731602		30	5	697	17			AUTO
BJ7D5A/77731603		30	5	697	17			AUTO
BJ7D5A/77731604		36	5	697				AUTO
BJ7D5A/77731605		30	5	697	17			AUTO
BJ7D5A/77731606		27		17				AUTO
BJ7D5A/77731607		18	3	697	17			AUTO
BJ7D5A/77731608		25	5	670	17			AUTO
BJ7D5A/77731609		30	5	697	17			AUTO
BJ7D5A/77731610		18	3	697	17			AUTO
BJ7D5A/77731611		30	5	697	17			AUTO
BJ7D5A/77731612		24	4	697	17			AUTO
BJ7D5A/77731613		31	5	733	17			AUTO
BJ7D5A/77731614		23	4	670	17			AUTO
BJ7D5A/77731615		24	4	697	17			AUTO
BJ7D5A/77731616		21	5	733	17			AUTO
BJ7D5A/77731617		30	5	697	17			AUTO
BJ7D5A/77731618		30	5	697	17			AUTO
BJ7D5A/77731619		30	5	697	17			AUTO
BJ7D5A/77731620		30	5	697	17			AUTO
SABRE 1123		964	19					AUTO
SABRE 1150		990	19					AUTO
SABRE 1230		1050	15	1635				AUTO
SABRE 2270		1948	19					AUTO
SABRE 2500		2145	19					AUTO
SABRE 368		368	10	1635				AUTO
SABRE 500		500	10	1217				AUTO
SABRE 736		741	15	1217				AUTO
SABRE 850		851	15	1635				AUTO

CENTURY DATA

CAST-10203E	55	3	1050	35	NANA	AUTO
CAST-10203S	55	3	1050	35	NANA	AUTO
CAST-10304E	75	4	1050	35	NANA	AUTO
CAST-10304S	75	4	1050	35	NANA	AUTO

Drive Model	Seek Time	Interface	Encode	Form Factor	Cache kmbf	Obsolete? RPM
94354-186 SWIFT	15	IDE AT	2,7 RLL	3.5 HH	150k	Y
94354-200 SWIFT	15	IDE AT	2,7 RLL	3.5 HH	150k	Y
94354-230 SWIFT		IDE AT	2,7 RLL	3.5 HH		Y
94354-239 SWIFT	15	IDE AT	2,7 RLL	3.5 HH	70k	Y
94355-055 SWIFT II	25	ST412/506	MF	3.5 HH	70k	Y
94356-100 SWIFT	15	ST412/506	MF	3.5 HH	150k	Y
94356-150 SWIFT	15	ST412/506	2,7 RLL	3.5 HH	150k	Y
94356-55 SWIFT						
94356-111 SWIFT	15	ESDI (10)	2,7 RLL	3.5 HH	150k	Y
94356-155 SWIFT	15	ESDI (10)	2,7 RLL	3.5 HH	70k	Y
94356-200 SWIFT	15	ESDI (10)	2,7 RLL	3.5 HH	70k	Y
94601-120 WREN VII	15	SCSI	2,7 RLL	5.25 FH	150k	Y
94601-123 WREN VII	15	SCSI	RLL ZBR	5.25 FH	150k	Y
94601-12GM WREN VII	15	SCSI(MAC)	RLL ZBR	5.25 FH	150k	Y
94601-767H WREN VII	15	SCSI(MAC)	RLL ZBR	5.25 FH	100k	Y
97155-036		ST412/506			70k	Y
9720-1123 SABRE	15	SMD	2,7 RLL	8.0 FH	70k	Y
9720-1130 SABRE	15	SMD/SCSI	2,7 RLL	8.0 FH	100k	Y
9720-2270 SABRE	12	SMD	2,7 RLL	8.0 FH	100k	Y
9720-2500 SABRE	12	SMD/SCSI	2,7 RLL	8.0 FH	100k	Y
9720-368 SABRE	18	SMD/SCSI	2,7 RLL	8.0 FH	30k	Y
9720-500 SABRE	18	SMD/SCSI	2,7 RLL	8.0 FH	30k	Y
9720-736 SABRE	15	SMD/SCSI	2,7 RLL	8.0 FH	50k	Y
9720-850 SABRE	15	SMD/SCSI	2,7 RLL	8.0 FH	50k	Y
97229-1150 WREN V	15	PI-2		8.0 FH	100k	Y
97501-15G ELITE	12	SCSI-2	RLL	5.25 FH	100k	Y
97509-12G ELITE	12	PI-2		5.25 FH	100k	Y
BJ7D5A/77731600		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731601		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731602		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731603		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731604		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731605		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731606		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731607		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731608		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731609		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731610		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731611		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731612		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731613		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731614		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731615		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731616		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731617		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731618		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731619		ST412/506	MF	5.25 FH		Y
BJ7D5A/77731620		ST412/506	MF	5.25 FH		Y
SABRE 1123	15				100k	
SABRE 1150	15				100k	
SABRE 1230	15				100k	
SABRE 2270	12				100k	
SABRE 2500	15				100k	
SABRE 368	18				30k	
SABRE 500	18				30k	
SABRE 736	15				50k	
SABRE 850	15				50k	

CENTURY DATA

AST-10203E	28	ESDI	2,7 RLL	5.25 FH
AST-10203S	28	SCSI	2,7 RLL	5.25 FH
AST-10304E	28	ESDI	2,7 RLL	5.25 FH
AST-10304S	28	SCSI	2,7 RLL	5.25 FH

Drive Model	Format Size MB	Head	Cyls	Sec/Trac	Translate H/C/S	RWC/ WPC	Land Zone
CAST-10305E	94	5	1050	35		NANA	AUTO
CAST-10305S	94	5	1050	35		NANA	AUTO
CAST-14404E	114	4	1590	35		NANA	AUTO
CAST-14404S	114	4	1590	35		NANA	AUTO
CAST-14405E	140	5	1590	35		NANA	AUTO
CAST-14405S	140	5	1590	35		NANA	AUTO
CAST-14406E	170	6	1590	35		NANA	AUTO
CAST-14406S	170	6	1590	35		NANA	AUTO
CAST-24509E	258	9	1590	35		NANA	AUTO
CAST-24509S	258	9	1590	35		NANA	AUTO
CAST-24611E	315	11	1590	35		NANA	AUTO
CAST-24611S	315	11	1590	35		NANA	AUTO
CAST-24713E	372	13	1590	35		NANA	AUTO
CAST-24713S	372	13	1590	35		NANA	AUTO

CM1

CM3412	10	4	306	17		306/256	
CM3426	20	4	615	17		616/256	
CM5018H	15	2		17		---	
CM5205	4	2	256	17		128/128	
CM5206	5	2	306	17		307/256	
CM5410	8	4	256	17		128/128	
CM5412	10	4	306	17		307/128	
CM5616	16	6	256	17		257/257	
CM5619	16	6	306	17		307/128	
CM5826	20	8	306	17		---	
CM6213	11	2	640	17		641/256	
CM6426	22	4	615	17		---/300	
CM6426S	22	4	615	17		256/300	615
CM6640	33	6	615	17		816/300	615
CM7000	44	7	733	17		733/512	
CM7030	25	4	733	17		733/512	
CM7038	31	5	733	17		733/512	
CM7050	44	7	733	17		733/512	
CM7085	71	8	1024	17		1024/512	
CM7660	50	6	960	17		961/450	
CM7880	67	8	960	17		961/450	

CMS ENHANCEMENTS, INC

B1.0A1-U1	1281				16/2100/63	NANA	AUTO
B340A4-U1	340				12/1010/55	NANA	AUTO
B420A4-U1	425				16/1010/51	NANA	AUTO
B540A4-U1	541				16/1023/63	NANA	AUTO
B730A4-U1	731				16/1416/63	NANA	AUTO
D20XT-OK	21	4	615	17		---	
D30XT-OK	32	4	615	26		---	
D40XT-OK	42	5	977	17		---	
F115ESD1-T	115	7	915	35		---	AUTO
F150AT-CA	150	9	969	34		---	AUTO
F150AT-WCA	151	9	969	34		---	AUTO
F150EQ-WCA	151	9	969	34		---	AUTO
F320AT-CA	320	15	1224	34		---	AUTO
F70ESDI-T	73	7	583	35		---	AUTO
H100286D-P	105	8	776	34		---	
H100386S-P	105	8	776	34		---	
H330E1 (PS Express)	330	7	1780	54		---	AUTO
H340E1 (PS Express)	340	7	1780	54		---	AUTO
H40M50-P	42	5	977	17		---	
H60286D-P	64	5	948	27		---	
H60SCSI-S	65	6	628	34		---	
H65M50-P	65	9	1024	17		---	
H80AT	84	9	1072	17		---	

Drive Model	Time	Interface	Encode	Form cache Factor	Obsolete? kb mtbf RPM
CAST-10305E	28	ESDI	2,7 RLL	5,25 FH	Y
CAST-10305S	28	SCSI	2,7 RLL	5,25 FH	Y
CAST-14404E	25	ESDI	2,7 RLL	5,25 HH	Y
CAST-14404S	25	SCSI	2,7 RLL	5,25 HH	Y
CAST-14405E	25	ESDI	2,7 RLL	5,25 HH	Y
CAST-14405S	25	SCSI	2,7 RLL	5,25 HH	Y
CAST-14406E	25	ESDI	2,7 RLL	5,25 HH	Y
CAST-14406S	25	SCSI	2,7 RLL	5,25 HH	Y
CAST-24509E	18	ESDI	2,7 RLL	5,25 FH	Y
CAST-24509S	18	SCSI	2,7 RLL	5,25 FH	Y
CAST-24611E	18	ESDI	2,7 RLL	5,25 FH	Y
CAST-24611S	18	SCSI	2,7 RLL	5,25 FH	Y
CAST-24713E	18	ESDI	2,7 RLL	5,25 FH	Y
CAST-24713S	18	SCSI	2,7 RLL	5,25 FH	Y

CM1

CM3412		ST412/506	MFM	5,25 FH	Y
CM3426	85	ST412/506	MFM	5,25 FH	Y
CM5018H	85	ST412/506	MFM	5,25 FH	Y
CM5205		ST412/506	MFM	5,25 FH	Y
CM5206	102	ST412/506	MFM	5,25 FH	Y
CM5410	102	ST412/506	MFM	5,25 FH	Y
CM5412	85	ST412/506	MFM	5,25 FH	Y
CM5616	102	ST412/506	MFM	5,25 FH	Y
CM5619	85	ST412/506	MFM	5,25 FH	Y
CM5826	102	ST412/506	MFM	5,25 FH	Y
CM6213	48	ST412/506	MFM	5,25 FH	Y
CM6426	39	ST412/506	MFM	5,25 FH	Y
CM6426S	39	ST412/506	MFM	5,25 FH	Y
CM6640	39	ST412/506	MFM	5,25 FH	Y
CM7000	42	ST412/506	MFM	5,25 FH	Y
CM7030	42	ST412/506	MFM	5,25 FH	Y
CM7038	42	ST412/506	MFM	5,25 FH	Y
CM7050	42	ST412/506	MFM	5,25 FH	Y
CM7085	42	ST412/506	MFM	5,25 FH	Y
CM7660	28	ST412/506	MFM	5,25 FH	Y
CM7880	28	ST412/506	MFM	5,25 FH	Y

CMS ENHANCEMENTS, INC

B1.0A1-U1	10	IDE AT		3,5 3H	250k 4500 Y
B340A4-U1	13	IDE AT		3,5 3H	250k 3600
B420A4-U1	13	IDE AT		3,5 3H	250k 3300
B540A4-U1	14	IDE AT		3,5 3H	300k 3600
B730A4-U1	11	IDE AT		3,5 3H	300k 4500
D20XT-OK	62	ST412/506	MFM	3,5 HH	Y
D30XT-OK	62	ST412/506	MFM	3,5 HH	Y
D40XT-OK	24	ST412/506	MFM	3,5 HH	Y
F115ESD1-T	30	ESDI	2,7 RLL	5,25 FH	25k Y
F150AT-CA	17	ESDI	2,7 RLL	5,25 FH	40k Y
F150AT-WCA	17	ESDI	2,7 RLL	5,25 FH	40k Y
F150EQ-WCA	17	ESDI	2,7 RLL	5,25 FH	40k Y
F320AT-CA	18	ESDI	2,7 RLL	5,25 FH	40k Y
F70ESDI-T	30	ESDI	2,7 RLL	5,25 FH	25k Y
H100286D-P	25	IDE AT		5,25 HH	20k Y
H100386S-P	25	IDE AT		5,25 HH	20k Y
H330E1 (PS Express)	14	ESDI	2,7 RLL	5,25 HH	150k Y
H340E1 (PS Express)	14	ESDI	2,7 RLL	5,25 HH	150k Y
H40M50-P	24	ST412/506	MFM	3,5 HH	45k Y
H60286D-P	29	IDE AT		5,25 HH	40k Y
H60SCSI-S	28	SCSI		5,25 HH	45k Y
H65M50-P	15	ST412/506	MFM	3,5 HH	30k Y
H80AT	15	SCSI		5,25 HH	30k Y

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/ WPC	Land Zone
H80SCSI-S	85	6	820	34			
HD20AT-S	21	4	615	17			
HD30AT-S	32	6	615	17			
HD40AT-S1	43	6	820	17			
K120M50Z-70P	125	8	925	33			
K20M25-WS	21	2	636	34			
K20M25/30-OK	21	4	615	17			
K20M25/30-WS	21	4	615	17			
K30M25/30-OK	32	6	615	17			
K30M25/30-WS	32	6	615	17			
K30M30E-P	31	4	615	25			
K40M25/30-WS	42	5	977	17			
K45M30286-ZS	48	6	615	26			
K50M50Z/70P	63	6	767	27			
K60M30286-ZS	61	5	921	26			
K80M25Z/30	84	9	1072	17			
K80M30286-WS	84	7	906	26			
LDSNECMS-20	20	4	575	32			
LDZE386-100	100	8	776	34			
PB340	340						
PB320	520						
PSEXPRESS 150	150						
PSEXPRESS 320	320						
SENTRY 180	180	5	1546				
SENTRY 300	290	9	1546				
SENTRY 600	600	15	1546				
SENTRY 90	90	5	1024				

COGITO

CG906	5	2	306	17	128/128
CG912	10	4	306	17	128/128
CG925	21	4	612	17	307/307
PT912	11	2	612	17	307/307
PT925	21	4	612	17	307/307

COMPAQ

142018-001	1049	13	1974	56-96	
142216-001	2097	18	262668-108		
146742-001	2097	18	262668-108		
146742-003	1049	13	1974	56-96	
146742-005	4293	21	360682-135		
146742-006	4293	21	360682-135		
146742-007	2097	11	351186-135		
172492-002	421	4	251955-104	16/1010/51	
172493-001	1083	6	381161-117	16/2100/63	
172678-002	730	4	365864-128	16/1416/63	
172874-001	541	4	285358-118	9/1926/61	
196408-002	270	2	285358-118	14/944/40	
196580-001	4293	21	360682-135		
196587-001	4293	21	360682-135		
196642-001	2097	11	351186-135		

COMPORT

2040	44	4	820	26	
2041	44	4	820	26	
2082	86	6	820	34	

CONNER PERIPHERALS, INC.

CFA1080A	1080	8	72-114		
CFA1080S	1080	8	72-114		
CFA1275A	1278	6		16/2479/63	

Drive Model	Seek Time	Interface	Encode	Form cache Factor	Obsolete? kb mtbf RPM
H80SCSI-S	28	SCSI		5.25 HH	45k Y
HD20AT-S	65	ST412/506	MFM	5.25 HH	50k Y
HD30AT-S	40	ST412/506	MFM	5.25 HH	50k Y
HD40AT-S1	28	ST412/506	MFM	5.25 HH	50k Y
K120M50Z-70P	23	MCA	2,7 RLL	3.5 HH	50k Y
K20M25-WS	27	IDE AT		3.5 HH	20k Y
K20M25/30-OK	62	ST412/506	MFM	3.5 HH	20k Y
K20M25/30-WS	40	ST412/506	MFM	3.5 HH	20k Y
K30M25/30-OK	62	ST412/506	MFM	3.5 HH	50k Y
K30M25/30-WS	40	ST412/506	MFM	3.5 HH	50k Y
K30M30E-P	39	IDE AT		3.5 HH	25k Y
K40M25/30-WS	24	ST412/506	MFM	3.5 HH	45k Y
K45M30286-ZS	28	SCSI		3.5 HH	45k Y
K50M50Z/70P	27	MCA	2,7 RLL	3.5 HH	50k Y
K60M30286-ZS	24	SCSI		3.5 HH	40k Y
K80M25Z/30	15	ST412/506	MFM	3.5 HH	40k Y
K80M30286-WS	24	SCSI		3.5 HH	40k Y
LDSNECMS-20	28	IDE AT	2,7 RLL	3.5 HH	20k Y
LDZE386-100	25	IDE AT		3.5 HH	20k Y
PB340	17	SCSI-2	1,6 RLL	128k	150k 4200
PB320	17	SCSI-2	1,7 RLL	128k	350k 4500
PSEXPRESS 150	17	ESDI	2,7 RLL		
PSEXPRESS 320	15	ESDI	2,7 RLL		
SENTRY 180	18	SCSI		5.25 FH	40k Y
SENTRY 300	16.5	SCSI		5.25 FH	40k Y
SENTRY 600	16	SCSI		5.25 FH	30k Y
SENTRY 90	18	SCSI		5.25 FH	40k Y

COGITO

CG906	93	ST412/506	MFM	5.25 HH	Y
CG912	93	ST412/506	MFM	5.25 HH	Y
CG925	93	ST412/506	MFM	5.25 HH	Y
PT912	93	ST412/506	MFM	5.25 HH	Y
PT925	93	ST412/506	MFM	5.25 HH	Y

COMPAQ

142018-001	10	SCSI-2 FAST		3.5 HH	5400
142216-001	9	SCSI-2 FAST		3.5 HH	6400
146742-001	9	SCSI-2 FAST		3.5 HH	6400
146742-003	10	SCSI-2 FAST		3.5 HH	5400
146742-005	9	SCSI-2 FAST		3.5 HH	7200
146742-006	9	SCSI-2 FSTW		3.5 HH	7200
146742-007	9	SCSI-2 FSTW		3.5 HH	7200
172492-002	14	IDE AT		3.5 3H	96k 3600
172493-001	14	IDE AT		3.5 3H	128k 4495
172678-002	11	IDE AT		3.5 3H	96k 4500
172874-001	14	IDE AT		3.5 3H	96k 3600
196408-002	14	IDE AT		3.5 3H	96k 3600
196580-001	9	SCSI-2 FAST		3.5 HH	7200
196587-001	9	SCSI-2 FSTW		3.5 HH	7200
196642-001	9	SCSI-2 FSTW		3.5 HH	7200

COMPORT

2040	35	ST412/506	2,7 RLL	5.25 HH	30k
2041	29	IDE AT		5.25 HH	30k
2082	29	SCSI		5.25 HH	30k

CONNER PERIPHERALS, INC.

CFA1080A	12	IDE AT	1,7 RLL	3.5 3H	256k 300k 4500
CFA1080S	12	SCSI-2 FAST	1,7 RLL	3.5 3H	256k 300k 4500
CFA1275A	12	EIDE	1,7 RLL	3.5 3H	256k 300k 4500

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb mbit	Obsolete? RPM
CFA1275S	1278	6				---		CFA1275S	12	SCSI-2	1,7 RLL	3.5 3H	256k 300k 4500	
CFA170A	172	2	2111	V		AUTO/AUTO		CFA170A	13	IDE	1,7 RLL	3.5 3H	64k 250k	Y
CFA170S	172	2	2111	67-91		---	NA	CFA170S	13	SCSI-2	1,7 RLL	3.5 3H	64k 250k 4011 Y	
CFA270A	270	2		72-114		---		CFA270A	12	IDE AT	1,7 RLL	3.5 3H	256k 250k 4500 Y	
CFA270S	270	2		72-114		---		CFA270S	12	SCSI-2	1,7 RLL	3.5 3H	256k 250k 4500 Y	
CFA340A	343	4		67-91		NANA		CFA340A	13	IDE AT	1,7 RLL	3.5 3H	64k 300k 4011 Y	
CFA340S	343	4		67-91		NANA	AUTO	CFA340S	13	SCSI-2	1,7 RLL	3.5 3H	64k 300k 4011 Y	
CFA540A	541	4		72-114		---	AUTO	CFA540A	12	IDE AT	1,7 RLL	3.5 3H	256k 300k 4500	
CFA540S	541	4		72-114		---		CFA540S	12	SCSI-2 FAST	1,7 RLL	3.5 3H	256k 300k 4500	
CFA810A	810	6		72-114		---		CFA810A	12	IDE AT	1,7 RLL	3.5 3H	256k 300k 4500	
CFA810S	810	6		72-114		---		CFA810S	12	SCSI-2 FAST	1,7 RLL	3.5 3H	256k 300k 4500 Y	
CFA850A	852	4				---		CFA850A	12	IDE AT	1,7 RLL	3.5 3H	256k 300k 4500 Y	
CFA850S	852	4				---		CFA850S	12	SCSI-2	1,7 RLL	3.5 3H	256k 300k 4500 Y	
CFL350A	350	4	2225		12/9/05/63	---		CFL350A	12	IDE AT	1,7 RLL	2.5 4H	32k 300k 3750	
CFL420A	422	4	2393	V	16/8/18/63	---		CFL420A	12	IDE AT	1,7 RLL	2.5 4H	64k 300k 3600 Y	
CFN170A	168	4		47-72		---		CFN170A	12	IDE AT	1,7 RLL	2.5 4H	32k 150k 4500 Y	
CFN170S	168	4		47-72		---		CFN170S	12	SCSI-2	1,7 RLL	2.5 4H	32k 150k 4500 Y	
CFN250A	252	6		47-72	16/489/63	---		CFN250A	12	IDE AT	1,7 RLL	2.5 4H	32k 150k 4000	
CFN250S	252	6		47-72		---		CFN250S	12	SCSI	1,7 RLL	2.5 4H	32k 150k 4500	
CFN340A	344	6		53-89	16/667/63	---		CFN340A	13	IDE AT	1,7 RLL	2.5 4H	32k 150k 4000	
CFN340S	344	6		53-89		---		CFN340S	13	SCSI	1,7 RLL	2.5 4H	32k 150k 4000	
CFP1060D	1062	8				---		CFP1060D	9	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 500k 5400	
CFP1060E	1062	8				---		CFP1060E	9	SCSI	1,7 RLL	3.5 3H	512k 500k 5400	
CFP1060S	1062	8				---		CFP1060S	9	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 500k 5400	
CFP1060W	1062	8				---		CFP1060W	9	SCSI-2 FSTW	1,7 RLL	3.5 3H	512k 500k 5400	
CFP1080E	1080	6	365866-120			---		CFP1080E	11	SCSI-2 FSTW	1,7 RLL	3.5 3H	512k 1000k 5400	
CFP1080S	1080	6	365866-120			---		CFP1080S	11	SCSI-2 FAST	1,7 RLL	3.5 3H	256k 1000k 5400	
CFP2105E	2147	10	394867-139			---		CFP2105E	9	SCSI-2 FSTW	1,7 RLL	3.5 3H	512k 1000k 5400	
CFP2105S	2147	10	394867-139			---		CFP2105S	9	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 1000k 5400	
CFP2105W	2147	10	394867-139			---		CFP2105W	9	SCSI-2 FSTW	1,7 RLL	3.5 3H	512k 1000k 5400	
CFP2107E	2147	10	401669-124			---		CFP2107E	9	SCSI-2 FSTW	1,7 RLL	3.5 3H	512k 1000k 7200	
CFP2107S	2147	10	401669-124			---		CFP2107S	9	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 1000k 7200	
CFP2107W	2147	10	401669-124			---		CFP2107W	9	SCSI-2 FSTW	1,7 RLL	3.5 3H	512k 1000k 7200	
CFP4207E	4294	20	401669-124			---		CFP4207E	9.5	SCSI-2 FSTW	1,7 RLL	3.5 HH	512k 1000k 7200	
CFP4207S	4294	20	401669-124			---		CFP4207S	9.5	SCSI-2 FAST	1,7 RLL	3.5 HH	512k 1000k 7200	
CFP4207W	4294	20	401669-124			---		CFP4207W	9.5	SCSI-2 FSTW	1,7 RLL	3.5 HH	512k 1000k 7200	
CFP4217C (FILEPRO)	4294		6028			NANA	AUTO	CFP4217C (FILEPRO)	9	SCSI-3		3.5 5H	512k 999k 7200	
CFP4217E (FILEPRO)	4294		6028			NANA	AUTO	CFP4217E (FILEPRO)	9	SCA		3.5 5H	512k 999k 7200	
CFP4217S (FILEPRO)	4294		6028			NANA	AUTO	CFP4217S (FILEPRO)	9	SCSI-3		3.5 5H	512k 999k 7200	
CFP4217W (FILEPRO)	4294		6028			NANA	AUTO	CFP4217W (FILEPRO)	9	SCSI-3Wide		3.5 5H	512k 999k 7200	
CFP4217WD (FILEPRO)	4294		6028			NANA	AUTO	CFP4217WD (FILEPRO)	9	SCSI-3Wide		3.5 5H	512k 999k 7200	
CFP9117C (FILEPRO)	9100		6028			NANA	AUTO	CFP9117C (FILEPRO)	9	SSA	RLL 8,9	3.5 5H	512k 999k 7200	
CFP9117E (FILEPRO)	9100		6028			NANA	AUTO	CFP9117E (FILEPRO)	9	SCA	RLL 8,9	3.5 5H	512k 999k 7200	
CFP9117S (FILEPRO)	9100		6028			NANA	AUTO	CFP9117S (FILEPRO)	9	SCSI-3	RLL 8,9	3.5 5H	512k 999k 7200	
CFP9117W (FILEPRO)	9100		6028			NANA	AUTO	CFP9117W (FILEPRO)	9	SCSI-3Wide	RLL 8,9	3.5 5H	512k 999k 7200	
CFP9117WD (FILEPRO)	9100		6028			NANA	AUTO	CFP9117WD (FILEPRO)	9	SCSI-3Wide	RLL 8,9	3.5 5H	512k 999k 7200	
CFP1081A	1080	4	3930			---		CFP1081A	14	IDE AT	1,7 RLL	3.5 3H	64k 300k 3600	
CFS1275A	1275	6	3640		16/2479/63	---		CFS1275A	14	IDE	1,7 RLL	3.5 3H	64k 250k 3600	
CFS1276A	1276	6	4893			NANA	AUTO	CFS1276A	14	ATA-2	1,7 RLL	3.5 3H	64k 300k 4500	
CFS1276S	1276	6	4893			---		CFS1276S	14	ATA-2	1,7 RLL	3.5 3H	64k 300k 4500	
CFS2105S	2147	10	3948			---		CFS2105S	9	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 1000k 5400	
CFS210A	213	2	68-107			---		CFS210A	14	IDE AT	1,7 RLL	3.5 3H	32k 250k 3600 Y	
CFS270A	270	2	2595		16/525/63	---		CFS270A	14	IDE	1,7 RLL	3.5 3H	32k 250k 3400 Y	
CFS420A	426	4	68-107			---		CFS420A	14	IDE AT	1,7 RLL	3.5 3H	32k 250k 3600	
CFS425A	425	2	3687		16/826/63	---		CFS425A	14	IDE	1,7 RLL	3.5 3H	64k 250k 3600	
CFS540A	540	4	3517		16/1050/63	---		CFS540A	14	IDE	1,7 RLL	3.5 3H	64k 250k 3600	
CFS541A	540	2	3924			---		CFS541A	14	IDE AT	1,7 RLL	3.5 3H	64k 300k 3600	
CFS635A	635	3	3640			---		CFS635A	14	IDE AT	1,7 RLL	3.5 3H	64k 300k 3600	
CFS636A	635	2	4893			---		CFS636A	13	ATA-2	1,7 RLL	3.5 3H	64k 300k 4500	
CFS850A	850	4	3640		16/1652/63	---		CFS850A	14	IDE	1,7 RLL	3.5 3H	64k 250k 3600	
CP1044 (DERRINGER)	42.6	2				NANA	AUTO	CP1044 (DERRINGER)	19			2.5 4H	32k	Y
CP2020 (KATO)	21	2	653	32		NANA	AUTO	CP2020 (KATO)	23	SCSI	2,7 RLL	2.5 4H	8k 100k	Y
CP2022	20	2	653	32	4/615/17	NANA	AUTO	CP2022	23	IDE AT	2,7 RLL	3.5 5H		Y

Drive Model	Format Size MB	Head	Cyl	Trac	Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Time	Interface	Encode	Form Factor	cache kb mtbf	Obsolete? RPM
CP2024 (KATO)	21	2	653	32	4/615/17	NANA	AUTO	CP2024 (KATO)	23	IDE AT	2,7 RLL	2.5 4H	8k	100k 3433 Y
CP2027	20				---	NANA	AUTO	CP2027	19	IDE AT	2,7 RLL	2.5 4H		
CP2031	30	2			4/411/38	NANA	AUTO	CP2031	19	ATA	2,7 RLL	2.5 4H	32k	100k Y
CP2034 (PANCHO)	32	2	823	38	4/615/17	NANA	AUTO	CP2034 (PANCHO)	19	IDE AT	2,7 RLL	2.5 4H	32k	100k 3433 Y
CP2040	43	4	548	38	---	NANA	AUTO	CP2040	17	SCSI	2,7 RLL	2.5 4H	32k	50k 3486 Y
CP2044 (PANCHO)	42	4	552	38	5/977/17	NANA	AUTO	CP2044 (PANCHO)	19	IDE AT	2,7 RLL	2.5 4H	32k	100k 3486 Y
CP2045	40				---	NANA	AUTO	CP2045	19	SCSI	2,7 RLL	2.5 4H		
CP2048 (PANCHO)	64	4	823	38	4/548/38	NANA	AUTO	CP2048 (PANCHO)	19	ATA	2,7 RLL	2.5 4H	32k	100k 3486 Y
CP2060	60				---	NANA	AUTO	CP2060	19	SCSI	2,7 RLL	2.5 4H	32k	50k 3486 Y
CP2061	60				---	NANA	AUTO	CP2061	19	IDE AT	2,7 RLL	2.5 4H		
CP2064 (PANCHO)	64	4	823	38	4/615/17	NANA	AUTO	CP2064 (PANCHO)	19	IDE AT	2,7 RLL	2.5 4H	32k	100k 3486 Y
CP2067	60				---	NANA	AUTO	CP2067	19	IDE AT	2,7 RLL	2.5 4H		
CP2081	80				---	NANA	AUTO	CP2081	19	IDE AT	2,7 RLL	2.5 4H		
CP2084 (PANCHO)	85	4	1096	38	8/548/38	NANA	AUTO	CP2084 (PANCHO)	19	IDE AT	1,7 RLL	2.5 4H	32k	150k 3486 Y
CP2088	85	4			8/548/38	NANA	AUTO	CP2088	19	IDE AT	1,7 RLL	2.5 4H	32k	100k 3486 Y
CP2124 (PANCHO)	120	4	1123	53	*UNIV T	NANA	AUTO	CP2124 (PANCHO)	26	IDE AT	1,7 RLL	2.5 4H	32k	150k Y
CP2250	253				---	NANA	AUTO	CP2250	12	SCSI	2,7 RLL	2.5 4H	32k	
CP2254 (TRIGGER)	253				---	NANA	AUTO	CP2254 (TRIGGER)	12	ATA		2.5 4H		
CP2304	209	8	1348	39	*UNIV T	NANA	AUTO	CP2304	19	IDE AT	RLL	3.5 HH		
CP3000	42	2	1045	40	5/980/17	NANA	AUTO	CP3000	28	IDE AT	2,7 RLL	3.5 3H	8k	150k 3557 Y
CP30060	60	2	1524	39	---	NANA	AUTO	CP30060	19	SCSI	1,7 RLL	3.5 3H		150k Y
CP30061	60				---	NANA	AUTO	CP30061	19	IDE AT	1,7 RLL	3.5 3H		
CP30064 (HOPI)	60	2	1524	39	4/762/39	NANA	AUTO	CP30064 (HOPI)	19	IDE AT	1,7 RLL	3.5 3H	64k	100k 3400 Y
CP30064H (HOPI)	60	2	1524	39	4/762/39	NANA	AUTO	CP30064H (HOPI)	19	IDE AT	1,7 RLL	3.5 3H	32k	150k 3400 Y
CP30069 (HOPI)	60	2	1524	39	---	NANA	AUTO	CP30069 (HOPI)	19	MCA	1,7 RLL	3.5 3H	64k	100k 3399 Y
CP30080 (HOPI)	84	4	1053	39	---	NANA	AUTO	CP30080 (HOPI)	19	SCSI	1,7 RLL	3.5 3H	64k	100k 3400 Y
CP30080E (JAGUAR)	85	2	1806	46	---	NANA	AUTO	CP30080E (JAGUAR)	17	SCSI	1,7 RLL	3.5 3H	32k	150k 3822 Y
CP30081	85	4	1058	39	8/526/39	NANA	AUTO	CP30081	19	IDE AT	2,7 RLL	3.5 4H		150k Y
CP30084 (HOPI)	84	4	1053	39	8/526/39	NANA	AUTO	CP30084 (HOPI)	19	IDE AT	1,7 RLL	3.5 3H	64k	100k 3400 Y
CP30084E (JAGUAR)	85	2	1806	46	4/903/46	NANA	AUTO	CP30084E (JAGUAR)	17	IDE AT	1,7 RLL	3.5 3H	32k	150k 3822 Y
CP30100 (HOPI)	120	4	1522	39	---	NANA	AUTO	CP30100 (HOPI)	19	SCSI	2,7 RLL	3.5 3H	64k	150k 3400 Y
CP30101	122	4	1524	9	8/762/39	NANA	AUTO	CP30101	19	IDE AT	2,7 RLL	3.5 3H		
CP30101 (HOPI)	121	8	761	39	*UNIV T	NANA	AUTO	CP30101 (HOPI)	10	IDE AT	2,7 RLL	3.5 3H		
CP30101G	122	4	1524	9	8/762/39	NANA	AUTO	CP30101G	19	IDE AT	2,7 RLL	3.5 3H		
CP30104 (HOPI)	121	4	1524	39	8/762/39	NANA	AUTO	CP30104 (HOPI)	19	IDE AT	1,7 RLL	3.5 3H	32k	100k 3400 Y
CP30104H (HOPI)	121	4	1524	39	8/762/39	NANA	AUTO	CP30104H (HOPI)	19	IDE AT	1,7 RLL	3.5 3H	32k	150k 3400 Y
CP30109 (HOPI)	120	4	1522	39	---	NANA	AUTO	CP30109 (HOPI)	19	MCA	2,7 RLL	3.5 3H	64k	150k 3400 Y
CP30124	126	2			5/895/55	NANA	AUTO	CP30124	14	IDE AT	1,7 RLL	3.5 3H	32k	250k 4542 Y
CP30170	172	2	2111	67-91	---	NANA	AUTO	CP30170	13	SCSI-2	1,7 RLL	3.5 3H	64k	250k 4011 Y
CP30170E (JAGUAR)	170	4	1806	46	---	NANA	AUTO	CP30170E (JAGUAR)	17	SCSI	1,7 RLL	3.5 3H	32k	150k 3833 Y
CP30174	172	2	2111	67-91	---	NANA	AUTO	CP30174	13	IDE AT	1,7 RLL	3.5 3H	64k	250k 4011 Y
CP30174E (JAGUAR)	170	4	1806	46	8/903/46	NANA	AUTO	CP30174E (JAGUAR)	17	IDE AT	1,7 RLL	3.5 3H	32k	150k 3833 Y
CP3020	21	2	636	33	---	NANA	AUTO	CP3020	27	SCSI	2,7 RLL	3.5 3H	8k	50k 3575 Y
CP30200 (COUGAR)	212	4	2124	49	---	NANA	AUTO	CP30200 (COUGAR)	12	SCSI-2	2,7 RLL	3.5 3H	256k	150k 4500 Y
CP30201	212				---	NANA	AUTO	CP30201	12	IDE AT	2,7 RLL	3.5 3H		
CP30204 (COUGAR)	212	4			16/683/38	NANA	AUTO	CP30204 (COUGAR)	27	IDE AT	2,7 RLL	3.5 3H	50k	4500 Y
CP3022	21	2	636	33	4/615/17	NANA	AUTO	CP3022	12	IDE AT	2,7 RLL	3.5 3H		
CP3023	21				---	NANA	AUTO	CP3023	27	IDE AT	2,7 RLL	3.5 3H	8k	50k 3575 Y
CP3024	22	2	636	33	4/615/17	NANA	AUTO	CP3024	14	IDE AT	2,7 RLL	3.5 3H	64k	250k 4542 Y
CP30254	252	4	1985	62	10/895/55	NANA	AUTO	CP30254	13	SCSI-2	1,7 RLL	3.5 3H	64k	300k 4011 Y
CP30340	343	4			67-91	NANA	AUTO	CP30340	13	ATA		3.5 3H	64k	250k 4500 Y
CP30344	343	4			16/665/63	NANA	AUTO	CP30344	25	SCSI	2,7 RLL	3.5 3H	8k	50k 3557 Y
CP3040	42	2	1026	40	---	NANA	AUTO	CP3040	25	IDE AT	2,7 RLL	3.5 3H		
CP3041	42	2	1047	40	5/977/17	NANA	AUTO	CP3041	25	IDE AT	2,7 RLL	3.5 3H	8k	50k 3557 Y
CP3044	42	2	1047	40	5/977/17	NANA	AUTO	CP3044	25	IDE AT	2,7 RLL	3.5 3H		
CP3045	40				---	NANA	AUTO	CP3045	25	IDE AT	2,7 RLL	3.5 3H		
CP30540	545	6	2243		---	NANA	AUTO	CP30540	10	SCSI-2 FAST	1,7 RLL	3.5 3H	256k	250k 5400 Y
CP30544	545	6	2243		16/989/63	NANA	AUTO	CP30544	10	IDE AT	1,7 RLL	3.5 3H	256k	250k 5400 Y
CP3100	104	8	776	33	---	NANA	AUTO	CP3100	25	SCSI	2,7 RLL	3.5 HH	32k	50k 3575 Y
CP3101	104				---	NANA	AUTO	CP3101	25	IDE AT	2,7 RLL	3.5 HH		
CP3102	104	8	776	33	*UNIV T	NANA	AUTO	CP3102	25	IDE AT	2,7 RLL	3.5 HH	16k	50k Y
CP3104	104	8	776	33	13/925/17	NANA	AUTO	CP3104	25	IDE AT	2,7 RLL	3.5 HH	16k	30k 3575 Y
CP3106	104				---	NANA	AUTO	CP3106	25	IDE AT	2,7 RLL	3.5 HH		

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
CP3111	107 8	832	33	'UNIV T	8/32/33	NANA	AUTO
CP3114	107 8	832	33	8/32/33	NANA	AUTO	AUTO
CP31370	1372 14	2386					
CP31374 BAJA	1372 14						
CP3150	52 4	776	33			NANA	AUTO
CP3180	84 6	832	33			NANA	AUTO
CP3181	84 6	832	33			NANA	AUTO
CP3184	84 6	832	33	9/1024/17		NANA	AUTO
CP320	20 2	752	26			NANA	AUTO
CP3200	209 8	1366	38			NANA	AUTO
CP3200F	212 8	1366	38			NANA	AUTO
CP32011	215 8	1348	39	'UNIV T		NANA	AUTO
CP3204	209 8	1366	38	16/683/38		NANA	AUTO
CP3204F	212 8	1366	38	16/683/38		NANA	AUTO
CP3209F	212 8	1366	38	'UNIV T		NANA	AUTO
CP321	20 2	752	26	4/615/17		NANA	AUTO
CP323	20 2	752	26	4/615/17		NANA	AUTO
CP324	20 2	752	26	4/615/17		NANA	AUTO
CP3304 (SUMMIT)	340 8	1806	46	16/659/63		NANA	AUTO
CP3360 (SUMMIT)	362 8	1807	49			NANA	AUTO
CP3364 (SUMMIT)	362 8	1808	49	16/702/63		NANA	AUTO
CP340	42 4	788	26			NANA	AUTO
CP341	42 4	805	26	5/977/17		NANA	AUTO
CP3411	42 4	805	26	5/977/17		NANA	AUTO
CP342	40 4	805	26	4/805/26		NANA	AUTO
CP343 (ZENITH)	43 4	805	26	5/977/17		NANA	AUTO
CP344	43 4	805	26	5/977/17		NANA	AUTO
CP346	42						
CP3500 (SUMMIT)	510 12	1806	49			AUTO/AUTO	AUTO
CP3501	510 12	1806	46			AUTO/AUTO	AUTO
CP3504 (SUMMIT)	510 12	1806	46	16/987/63		NANA	AUTO
CP3505	510 12	1806	46			NANA	AUTO
CP3540 (SUMMIT)	543 12	1807	49			NANA	AUTO
CP3544 (SUMMIT)	544 12	1808	49	16/1023/63		NANA	AUTO
CP4021	20						
CP4024 (STUBBY)	21 2	627	34	4/615/17		NANA	AUTO
CP4041	42						
CP4044 (STUBBY)	43 2	1097	38	5/977/17		NANA	AUTO
CP4084 (GATOR)	85 2	1806	46			NANA	AUTO
CP5500	510 20	2034	50			NANA	AUTO

CORE INTERNATIONAL

3SHC230	230 5	1511	V			NANA	AUTO
AT115	115 7	968	35				AUTO
AT145	58 7	968					
AT150	156 9	968	35				
AT20	26 3	988	17				
AT260	260 12	1212	35				AUTO
AT30	32 5	733	17				
AT30R	49 5	733	26				
AT32	32 5	733	17				
AT32R	49 5	733	26				
AT40	40 5	924	17				AUTO
AT40F	40 4	924	35				
AT40R	52 5	924	26				
ATPLUS20	21 4	615	17				
ATPLUS43	43 5	988	17				
ATPLUS43R	66 5	988	26				
ATPLUS44	44 7	733	17				
ATPLUS44R	68 7	733	26				
ATPLUS56	56 7	924	17				
ATPLUS63	42 5	988	17				

Drive Model	Time	Interface	Encode	Form Factor	cache kb	Obsolete? RPM
CP3111	25	IDE AT	2,7 RLL	3.5 HH	16k	50k Y
CP3114	25	IDE AT	2,7 RLL	3.5 HH	16k	50k Y
CP31370	10	SCSI-2 FAST	1,7 RLL	3.5 HH	256k	250k 5400 Y
CP31374 BAJA	11	ATA			256k	
CP3150	25	SCSI	2,7 RLL	3.5 HH	50k	50k Y
CP3180	25	SCSI	2,7 RLL	3.5 HH	32k	50k 3575 Y
CP3181	25	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP3184	25	IDE AT	2,7 RLL	3.5 HH	32k	50k 3575 Y
CP320	16	SCSI	2,7 RLL	3.5 HH	50k	50k Y
CP3200	16	SCSI	2,7 RLL	3.5 HH	64k	50k 3485 Y
CP3200F	16	SCSI	2,7 RLL	3.5 HH	64k	50k 3485 Y
CP32011	19	IDE AT	2,7 RLL	3.5 HH	64k	50k 3485 Y
CP3204	16	IDE AT	2,7 RLL	3.5 HH	64k	50k 3485 Y
CP3204F	16	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP3209F	16	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP321	16	ZENITH	2,7 RLL	3.5 HH	50k	50k Y
CP323	16	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP324	16	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP3304 (SUMMIT)	12	IDE AT	1,7 RLL	3.5 HH	150k	150k Y
CP3360 (SUMMIT)	12	SCSI-2	2,7 RLL	3.5 HH	256k	150k 4500 Y
CP3364 (SUMMIT)	12	IDE AT	2,7 RLL	3.5 HH	256k	150k 4498 Y
CP340	29	SCSI	2,7 RLL	3.5 HH	1k	20k 3600 Y
CP341	29	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP3411	29	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP342	29	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP343 (ZENITH)	29	ZENITH		3.5 HH	50k	50k Y
CP344	29	IDE AT	2,7 RLL	3.5 HH	8k	20k 3600 Y
CP346	29	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP3500 (SUMMIT)	12	SCSI	2,7 RLL	3.5 HH	256k	100k 3609 Y
CP3501	12	IDE AT	2,7 RLL	3.5 HH	150k	150k Y
CP3504 (SUMMIT)	12	IDE AT	2,7 RLL	3.5 HH	256k	150k 3828 Y
CP3505	12	IDE AT	2,7 RLL	3.5 HH	256k	150k 4498 Y
CP3540 (SUMMIT)	12	SCSI-2	2,7 RLL	3.5 HH	256k	150k 4500 Y
CP3544 (SUMMIT)	12	IDE AT	2,7 RLL	3.5 HH	256k	150k 4498 Y
CP4021	12	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP4024 (STUBBY)	12	IDE AT	2,7 RLL	3.5 HH	8k	40k 2913 Y
CP4041	12	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP4044 (STUBBY)	12	IDE AT	2,7 RLL	3.5 HH	8k	50k Y
CP4084 (GATOR)	19	IDE AT	2,7 RLL	3.5 HH	50k	50k Y
CP5500	12	SCSI-2	RLL		512k	150k 4498 Y

CORE INTERNATIONAL

SHC230	230 5	1511	V			NANA	AUTO
AT115	115 7	968	35				AUTO
AT145	58 7	968					
AT150	156 9	968	35				
AT20	26 3	988	17				
AT260	260 12	1212	35				AUTO
AT30	32 5	733	17				
AT30R	49 5	733	26				
AT32	32 5	733	17				
AT32R	49 5	733	26				
AT40	40 5	924	17				AUTO
AT40F	40 4	924	35				
AT40R	52 5	924	26				
ATPLUS20	21 4	615	17				
ATPLUS43	43 5	988	17				
ATPLUS43R	66 5	988	26				
ATPLUS44	44 7	733	17				
ATPLUS44R	68 7	733	26				
ATPLUS56	56 7	924	17				
ATPLUS63	42 5	988	17				

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone	Model	Time	Interface	Encode	Form cache Factor	Obsolte? mbf RPM
ATPLUS63R	65	65	988	26		---		ATPLUS63R	26	ST412/506	2,7 RLL	5.25 FH	
ATPLUS72	73	9	924	17		---		ATPLUS72	26	ST412/506	MFM	5.25 FH	50k Y
ATPLUS72R	107	9	924	26		---		ATPLUS72R	26	ST412/506	2,7 RLL	5.25 FH	50k Y
ATPLUS80	80	9	1024			---		ATPLUS80	15	ST412/506	MFM	3.5 HH	50k Y
ATPLUS80R	132	9	1024			---		ATPLUS80R	15	ST412/506	2,7 RLL	3.5 HH	50k Y
ATPLUS82	82	5	968	35		---		ATPLUS82	16	ESDI		5.25 FH	33k 3597 Y
HC100	101	15	379	35		---	AUTO	HC100	9	SCSI		5.25 FH	50k Y
HC1000	1056	15	1787	77		---		HC1000	14	ESDI (24)	2,7 RLL	5.25 FH	150k Y
HC1000-20	1056	15	1787	77		---	AUTO	HC1000-20	14	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
HC1000S	1005	16	1918	64		---	AUTO	HC1000S	15	SCSI	2,7 RLL	5.25 FH	150k 4002 Y
HC150	150	7	1250	35		---	AUTO	HC150	17	ESDI	2,7 RLL	5.25 HH	100k 3600 Y
HC150FH	151	9	969	34		---	AUTO	HC150FH	16	ESDI (10)	2,7 RLL	5.25 FH	100k Y
HC150S	155	9	969	35		---	AUTO	HC150S	16.5	SCSI	2,7 RLL	5.25 FH	150k 3597 Y
HC175	177	9	1072	35		---	AUTO	HC175	14	ESDI AT		5.25 FH	50k Y
HC200	200	8			12/986/33	---		HC200	16	IDE AT		5.25 FH	150k Y
HC230	230	5				---	AUTO	HC230	13	SCSI		3.5 FH	150k Y
HC25	250					---	AUTO	HC25		ESDI		5.25 FH	Y
HC260	260	12	1212	35		---	AUTO	HC260	25	ESDI	2,7 RLL	5.25 FH	Y
HC310	325	7	1747	52		---	AUTO	HC310	18	ESDI	2,7 RLL	5.25 HH	100k 3600 Y
HC310S	330	8	1447	56		---	AUTO	HC310S	16.5	SCSI	2,7 RLL	5.25 FH	150k 4002 Y
HC315-20	340	8	1447	57		---	AUTO	HC315-20	17	ESDI	2,7 RLL	5.25 FH	150k 4002 Y
HC380	376	15	1412	35		---	AUTO	HC380	16	ESDI	2,7 RLL	5.25 FH	50k Y
HC40	40	4	564	35		---	AUTO	HC40	9	ESDI	2,7 RLL	5.25 FH	50 Y
HC650	658	15	1661	53		---	AUTO	HC650	17	ESDI	2,7 RLL	5.25 FH	100k 3600 Y
HC650S	663	16	1447	56		---	AUTO	HC650S	16.5	SCSI		5.25 FH	150k 4002 Y
HC655-20	680	16	1447	57		---	AUTO	HC655-20	17	ESDI	2,7 RLL	5.25 FH	150k 4002 Y
HC90	91	5	969	35		---	AUTO	HC90	16	ESDI	2,7 RLL	5.25 HH	50k Y
MC120	120	8	920	32		---	AUTO	MC120	23	MCA		3.5 HH	45k 3600 Y
MC60	60	4	928	32		---	AUTO	MC60	23	MCA		3.5 HH	45k 3600 Y
OPTIMA 30	31	5	733	17		---		OPTIMA 30	21	ST412/506	MFM	5.25 HH	Y
OPTIMA 30R	48	5	733	26		---		OPTIMA 30R	21	ST412/506	2,7 RLL	5.25 HH	Y
OPTIMA 40	41	5	963	17		---		OPTIMA 40	26	ST412/506	MFM	5.25 HH	35k Y
OPTIMA 40R	64	5	963	26		---		OPTIMA 40R	26	ST412/506	2,7 RLL	5.25 HH	35k Y
OPTIMA 70	71	9	918	17		---		OPTIMA 70	26	ST412/506	MFM	5.25 FH	35k Y
OPTIMA 70R	109	9	918	17		---		OPTIMA 70R	26	ST412/506	2,7 RLL	5.25 FH	35k Y
OPTIMA 80	80	9	1024	17		---		OPTIMA 80	15	ST412/506	MFM	3.5 HH	35k Y
OPTIMA 80R	132	9	1024	26		---		OPTIMA 80R	15	ST412/506	2,7 RLL	3.5 HH	35k Y

DIGITAL EQUIPMENT CORP.

CAPELLA 3055	550					NANA	AUTO	CAPELLA 3055	9	SCSI-2Fast		3H	700k 5400
CAPELLA 3110	1100					NANA	AUTO	CAPELLA 3110	9	SCSI-2Fast		3H	700k 5400
CAPELLA 3221	2200					NANA	AUTO	CAPELLA 3221	9	SCSI-2Fast		3H	700k 5400
DSP2022A	220	5				---		DSP2022A		IDE AT	1,7 RLL	2.5 4H	512k 250k 5400
DSP2022S	220	5				---		DSP2022S		SCSI-2 FAST	1,7 RLL	2.5 4H	512k 250k 5400
DSP3053L	535	4				---		DSP3053L	9.5	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 500k 5400
DSP3080	852	14				NANA	AUTO	DSP3080	10	SCSI-2		3H	512k 5400
DSP3085	852	14				NANA	AUTO	DSP3085	9	SCSI-2 FAST	1,7 RLL	3.5 HH	512k 250k 5400
DSP3105	1050	14				---		DSP3105	9	SCSI-2 FAST	1,7 RLL	3.5 HH	512k 250k 5400
DSP3107L	1070	8				NANA	AUTO	DSP3107L	9.5	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 500k 5400
DSP3133L	1337	10				NANA	AUTO	DSP3133L	9.5	SCSI-2 FAST	1,7 RLL	3.5 3H	512k 500k 5400
DSP3160	1600	16				---		DSP3160	9.7	SCSI-2 FAST	1,7 RLL	3.5 HH	512k 350k 5400
DSP3210	2148	16				NANA	AUTO	DSP3210	9.5	SCSI-2 FAST	1,7 RLL	3.5 HH	1024k 500k 5400
DSP5200	2000	21				---		DSP5200	12	SCSI-2 FAST	1,7 RLL	5.25 FH	512k 250k 3600
DSP5300	3000	21				NANA	AUTO	DSP5300	12	SCSI-2 FAST	1,7 RLL	5.25 FH	512k 300k 5400
DSP5350	3572	25				---		DSP5350	12	SCSI-2 FAST	1,7 RLL	5.25 FH	512k 300k 5400
DSP5400	4000	26				NANA	AUTO	DSP5400	12	SCSI-2 FAST	1,7 RLL	5.25 FH	1024k 300k 5400
RZ28N-VA	1050					---		RZ28N-VA	14.5	SCSI-2Fast		3.5 FH	480k 5400
RZ28N-VW	1050					---		RZ28N-VW	14.5	SCSI-2FastWd		3.5 FH	480k 5400
RZ28D-VA	2100					---		RZ28D-VA	12.2	SCSI-2Fast		3.5 FH	480k 7200
RZ28D-VW	2100					---		RZ28D-VW	12.2	SCSI-2FastWd		3.5 FH	480k 7200
RZ28M-VA	2100					---		RZ28M-VA	14.5	SCSI-2Fast		3.5 FH	480k 5400
RZ28M-VW	2100					---		RZ28M-VW	14.5	SCSI-2FastWd		3.5 FH	480k 5400
RZ29B-VA	4300					---		RZ29B-VA	12.2	SCSI-2Fast		3.5 FH	1000k 7200

DIGITAL EQUIPMENT CORP.

CAPELLA 3055	9	SCSI-2Fast		3H		700k 5400
CAPELLA 3110	9	SCSI-2Fast		3H		700k 5400
CAPELLA 3221	9	SCSI-2Fast		3H		700k 5400
DSP2022A		IDE AT	1,7 RLL	2.5 4H	512k	250k 5400
DSP2022S		SCSI-2 FAST	1,7 RLL	2.5 4H	512k	250k 5400
DSP3053L	9.5	SCSI-2 FAST	1,7 RLL	3.5 3H	512k	500k 5400
DSP3080	10	SCSI-2		3H	512k	5400
DSP3085	9	SCSI-2 FAST	1,7 RLL	3.5 HH	512k	250k 5400
DSP3105	9	SCSI-2 FAST	1,7 RLL	3.5 HH	512k	250k 5400
DSP3107L	9.5	SCSI-2 FAST	1,7 RLL	3.5 3H	512k	500k 5400
DSP3133L	9.5	SCSI-2 FAST	1,7 RLL	3.5 3H	512k	500k 5400
DSP3160	9.7	SCSI-2 FAST	1,7 RLL	3.5 HH	512k	350k 5400
DSP3210	9.5	SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k 5400
DSP5200	12	SCSI-2 FAST	1,7 RLL	5.25 FH	512k	250k 3600
DSP5300	12	SCSI-2 FAST	1,7 RLL	5.25 FH	512k	300k 5400
DSP5350	12	SCSI-2 FAST	1,7 RLL	5.25 FH	512k	300k 5400
DSP5400	12	SCSI-2 FAST	1,7 RLL	5.25 FH	1024k	300k 5400
RZ28N-VA	14.5	SCSI-2Fast		3.5 FH	480k	5400
RZ28N-VW	14.5	SCSI-2FastWd		3.5 FH	480k	5400
RZ28D-VA	12.2	SCSI-2Fast		3.5 FH	480k	7200
RZ28D-VW	12.2	SCSI-2FastWd		3.5 FH	480k	7200
RZ28M-VA	14.5	SCSI-2Fast		3.5 FH	480k	5400
RZ28M-VW	14.5	SCSI-2FastWd		3.5 FH	480k	5400
RZ29B-VA	12.2	SCSI-2Fast		3.5 FH	1000k	7200

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
R229B-VW	4300					---	---
SP3430	4300	20				NANA	AUTO
VP3107	1075	5				NANA	AUTO
VP3215	2150	10				NANA	AUTO

DISC TEC

RHD 260	260					---	---
RHD 340	340					---	---
RHD 520	520					---	---
RHD-120	130					NANA	AUTO
RHD-180	183					NANA	AUTO
RHD-20 (Removable)	21	2	615	34		NANA	AUTO
RHD-210	210					NANA	AUTO
RHD-60	62	2	1024	60		NANA	AUTO
RHD-80	81					NANA	AUTO

DISCTRON (OTARI)

D214	11	4	306	17		128/128	
D503	3	2	153	17		---	
D504	4	2	215	17		---	
D506	5	4	153	17		---	
D507	5	2	306	17		128/128	
D509	8	4	215	17		128/128	
D512	11	8	153	17		---	
D513	11	6	215	17		128/128	
D514	11	4	306	17		128/128	
D518	15	8	215	17		128/128	
D519	16	6	306	17		128/128	
D526	21	8	306	17		128/128	

DMA

306	11	2	612	17		612/400	
-----	----	---	-----	----	--	---------	--

ELOCH

DISCACHE10	40	4	320	17		321/321	
DISCACHE20	20	8	320	17		321/321	

EPSON

HD560	21	4	615	17		615/300	
HD830	10	2	612	17		---	
HD850	10	4	306	17		---	
HD860	21	4	612	17		---	
HMD710	10	2	615	17		---	
HMD720	21	4	615	17		---	
HMD726A	21	4	615	32		---	AUTO
HMD755	21	2	615	34		---	
HMD765	42	4	615	34		---	
HMD976	69					---	

FUJI

FK301-1	10					---	
FK301-13	10	4	306	17		307/128	
FK302	20					---	
FK302-13	10	2	612	17		613/307	
FK302-26	21	4	612	17		613/307	
FK302-39	32	6	612	17		613/307	
FK303-52	40	8	615	17		---616	
FK305-26	21	4	615	17		---616	
FK305-26R	21	8	615	26		---	
FK305-39	32	6	615	17		---616	

Drive Model	Time	Interface	Encode	Form cache Factor	Obsolete? kb mtbf RPM
R229B-VW	12.2	SCSI-2FstWd		3.5 FH 1000k	7200
SP3430	9	SCSI-2 FAST	1,7 RLL	3.5 HH 2048k	800k 7200
VP3107	9	SCSI-2 FAST	1,7 RLL	3.5 3H 1024k	800k 7200
VP3215	9	SCSI-2 FAST	1,7 RLL	3.5 3H 1024k	800k 7200

DISC TEC

RHD 260	14	IDE AT	RLL	3.5 3H	100k Y
RHD 340	14	IDE AT	RLL	3.5 3H	100k Y
RHD 520	14	IDE AT	RLL	3.5 3H	100k Y
RHD-120	17	IDE AT	RLL	3.5 3H	100k Y
RHD-180	15	IDE AT	RLL	3.5 3H	100k Y
RHD-20 (Removable)	23	IDE AT	RLL	3.5 3H	20k Y
RHD-210	19	IDE AT	RLL	3.5 3H	150k Y
RHD-60	22	IDE AT	RLL	3.5 3H	45k Y
RHD-80	16	IDE AT	RLL	3.5 3H	150k Y

DISCTRON (OTARI)

D214	ST412/506	MF	5.25 FH	Y
D503	ST412/506	MF	5.25 FH	Y
D504	ST412/506	MF	5.25 FH	Y
D506	ST412/506	MF	5.25 FH	Y
D507	ST412/506	MF	5.25 FH	Y
D509	ST412/506	MF	5.25 FH	Y
D512	ST412/506	MF	5.25 FH	Y
D513	ST412/506	MF	5.25 FH	Y
D514	ST412/506	MF	5.25 FH	Y
D518	ST412/506	MF	5.25 FH	Y
D519	ST412/506	MF	5.25 FH	Y
D526	ST412/506	MF	5.25 FH	Y

DMA

306	1707	ST412/506	MF	5.25 HH	Y
-----	------	-----------	----	---------	---

ELOCH

DISCACHE10	657	ST412/506	MF	5.25 FH	
DISCACHE20	657	ST412/506	MF	5.25 FH	

EPSON

HD560	78	ST412/506	MF	5.25 HH	Y
HD830	93	ST412/506	MF	5.25 HH	Y
HD850		ST412/506	MF	5.25 HH	Y
HD860		ST412/506	MF	5.25 HH	Y
HMD710	78	ST412/506	MF	5.25 HH	Y
HMD720	78	ST412/506	MF	5.25 HH	Y
HMD726A	80	SCSI	2,7 RLL	3.5 HH	20k Y
HMD755	80	ST412/506	2,7 RLL	5.25 HH	20k Y
HMD765	80	ST412/506	2,7 RLL	5.25 HH	20k Y
HMD976		SCSI		3.5 HH	Y

FUJI

FK301-1		ST412/506	MF	3.5 HH	Y
FK301-13	65	ST412/506	MF	3.5 HH	45k Y
FK302		ST412/506	MF	3.5 HH	Y
FK302-13	65	ST412/506	MF	3.5 HH	Y
FK302-26	65	ST412/506	MF	3.5 HH	Y
FK302-39	65	ST412/506	MF	3.5 HH	Y
FK303-52	657	ST412/506	MF	3.5 HH	20k Y
FK305-26	65	ST412/506	MF	3.5 HH	20k 3350 Y
FK305-26R	65	ST412/506	2,7 RLL	3.5 HH	Y
FK305-39	65	ST412/506	MF	3.5 HH	20k Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/ WPC	Land Zone
FK305-39R	32	4	615	26			—/616	
FK305-58R	49	6	615	26			—/616	
FK308S-39R	45	6	615	26			—/616	
FK308S-58R	32	4	615	26			—/616	
FK309-26	21	4	615	17			—/616	
FK309-39R	42	4	615	26			—/616	
FK309S-50R	31	4	615				—/—	

FUJITSU AMERICA, INC.

M1603 SAU	540	3					—/—	
M1603 TAU	540	4					—/—	
M1606 SAU	1080	6	3457	94			—/—	
M1606 TAU	1080	6					—/—	
M1612 TAU	545	2	413385-153				—/—	
M1614 TAU	1090	4	413385-153				—/—	
M2225D	40	4	615	17			—/—	
M2225D2	20	4	615	17			—/—	
M2225D2R	32	4	615	17			—/—	
M2226D	60	6	615	17			—/—	
M2226D2	30	6	615	17			—/—	
M2226D2R	49	6	615	26			—/—	
M2227D	80	8	615	17			—/—	
M2227D2	42	8	615	17			—/—	
M2227D2R	65	8	615	26			—/—	
M2230	5	2	320	17		320/180	—/—	
M2230AS	5	2	320	17		320/320	—/—	
M2230AT	5	2	320	17		320/320	—/—	
M2231	5	2	306	17		—/—	—/—	
M2233	10	4	320	17		320/128	—/—	
M2233AS	10	4	320	17		320/320	—/—	
M2233AT	10	4	320	17		320/320	—/—	
M2234	15	6	320	17		320/128	—/—	
M2234AS	15	6	306	17		320/320	—/—	
M2235	21	8	320	17		320/128	—/—	
M2235AS	20	8	306	17		320/320	—/—	
M2241AS	25	4	754	17		—/375	754	
M2241AS2	24	4	754	32		—/375	754	
M2242AS	45	7	754	17		754/375	—/—	
M2242AS2	43	7	754	17		—/—	—/—	
M2243AS	72	11	754	17		754/375	—/—	
M2243AS2	67	11	754	17		—/—	—/—	
M2243FR	110	7	1186	26		—/—	—/—	
M2243T	68	7	1186	17		—/—	—/—	
M2244E	73	5	823	35		NANA	—/—	
M2244S	85U	5	823	65		NANA	—/—	
M2244SA	85U	5	823	35		NANA	—/—	
M2244SB	85U	5	823	19		NANA	—/—	
M2245E	120	7	823	35		NANA	—/—	
M2245S	120U	7	823	65		NANA	—/—	
M2245SA	120U	7	823	35		NANA	—/—	
M2245SB	120U	7	823	19		NANA	—/—	
M2246E	138	10	823	35		NANA	—/—	
M2246S	171U	10	823	65		NANA	—/—	
M2246SA	171U	10	823	35		NANA	—/—	
M2246SB	171U	10	823	19		NANA	—/—	
M2247E	285	7	1243			NANA	—/—	
M2247S	289	7	1243	65		NANA	—/—	
M2247SA	160	7	1243	36		NANA	—/—	
M2247SB	169	7	1243			NANA	—/—	
M2248E	266	11	1243			NANA	—/—	
M2248S	227	11	1243			NANA	—/—	
M2248SA	252	11	1243	36		NANA	—/—	
M2248SB	266	11	1243			NANA	—/—	

Drive Model	Seek Time	Interface	Encode	Form cache Factor	kb	mbf	Obsolete? RPM
FK305-39R	65	ST412/506	2,7 RLL	3.5 HH			20k 3350 Y
FK305-58R	65	ST412/506	2,7 RLL	3.5 HH			20k 3350 Y
FK308S-39R	65	SCSI	2,7 RLL	3.5 HH			20k Y
FK308S-58R	65	ST412/506	2,7 RLL	3.5 HH			20k Y
FK309-26	65	ST412/506	MF	3.5 HH			20k Y
FK309-39R	65	ST412/506	2,7 RLL	3.5 HH			20k Y
FK309S-50R	45	SCSI	2,7 RLL	3.5 HH			20k Y

FUJITSU AMERICA, INC.

M1603 SAU	10	SCSI-2 FAST	1,7 RLL	3.5 3H	512k	800k	5400
M1603 TAU	10	ATA-2	1,7 RLL	3.5 3H	256k	500k	5400
M1606 SAU	10	SCSI-2 FAST	1,7 RLL	3.5 3H	512k	800k	5400
M1606 TAU	11	ATA-2	1,7 RLL	3.5 3H	256k	300k	5400
M1612 TAU	11	ATA-2	PRMLB,9	3.5 3H	64k	300k	4500
M1614 TAU	11	ATA-2	PRMLB,9	3.5 3H	64k	300k	4500
M2225D	40	ST412/506	MF	3.5 HH			30k Y
M2225D2	35	ST412/506	MF	3.5 HH			Y
M2225D2R	35	ST412/506	2,7 RLL	3.5 HH			Y
M2226D	40	ST412/506	MF	3.5 HH			30k Y
M2226D2	35	ST412/506	MF	3.5 HH			Y
M2226D2R	35	ST412/506	2,7 RLL	3.5 HH			Y
M2227D	35	ST412/506	MF	3.5 HH			30k Y
M2227D2	35	ST412/506	MF	3.5 HH			Y
M2227D2R	35	ST412/506	2,7 RLL	3.5 HH			Y
M2230	85	ST412/506	MF	5.25 FH			Y
M2230AS	27	ST412/506	MF	5.25 FH			3600 Y
M2230AT	8	ST412/506	MF	5.25 FH			3600 Y
M2231	85	ST412/506	MF	5.25 FH			Y
M2233	80	ST412/506	MF	5.25 FH			3600 Y
M2233AS	27	ST412/506	MF	5.25 FH			3600 Y
M2233AT	8	ST412/506	MF	5.25 FH			3600 Y
M2234	8	ST412/506	MF	5.25 FH			3600 Y
M2234AS	27	ST412/506	MF	5.25 FH			3600 Y
M2235	85	ST412/506	MF	5.25 FH			3600 Y
M2235AS	27	ST412/506	MF	5.25 FH			3600 Y
M2241AS2	30	ST412/506	MF	5.25 FH			20k Y
M2242AS	30	ST412/506	MF	5.25 FH			30k Y
M2242AS2	30	ST412/506	MF	5.25 FH			Y
M2243AS	30	ST412/506	MF	5.25 FH			30k Y
M2243AS2	30	ST412/506	MF	5.25 FH			Y
M2243FR	25	ST412/506	2,7 RLL	5.25 HH			Y
M2243T	25	ST412/506	MF	5.25 HH			Y
M2244E	25	ESDI	2,7 RLL	5.25 FH			30k Y
M2244S	25	SCSI	2,7 RLL	5.25 FH			35k 3600 Y
M2244SA	25	SCSI	2,7 RLL	5.25 FH			35k 3600 Y
M2244SB	25	SCSI	2,7 RLL	5.25 FH			35k 3600 Y
M2245E	25	ESDI	2,7 RLL	5.25 FH			Y
M2245S	25	SCSI	2,7 RLL	5.25 FH			3600 Y
M2245SA	25	SCSI	2,7 RLL	5.25 FH			3600 Y
M2245SB	25	SCSI	2,7 RLL	5.25 FH			3600 Y
M2246E	25	ESDI	2,7 RLL	5.25 FH			30k Y
M2246S	25	SCSI	2,7 RLL	5.25 FH			30k 3600 Y
M2246SA	25	SCSI	2,7 RLL	5.25 FH			30k 3600 Y
M2246SB	25	SCSI	2,7 RLL	5.25 FH			30k 3600 Y
M2247E	18	ESDI	1,7 RLL	5.25 FH			30k Y
M2247S	18	SCSI	1,7 RLL	5.25 FH			30k Y
M2247SA	18	SCSI	1,7 RLL	5.25 FH			30k Y
M2247SB	18	SCSI	1,7 RLL	5.25 FH			30k Y
M2248E	18	ESDI	1,7 RLL	5.25 FH			130k Y
M2248S	18	SCSI	1,7 RLL	5.25 FH			130k Y
M2248SA	18	SCSI	1,7 RLL	5.25 FH			130k Y
M2248SB	18	SCSI	1,7 RLL	5.25 FH			130k Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RW/C/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form cache			Obsolete?		
													Factor	kb	mtbf	RPM		
M2249E		334	15	1243	35		NANA	AUTO	M2249E	18	ESDI	1,7 RLL	5,25 FH		30k		Y	
M2249S		334	15	1243	35		NANA	AUTO	M2249S	18	SCSI	1,7 RLL	5,25 FH		30k		Y	
M2249SA		334	15	1243	35		NANA	AUTO	M2249SA	18	SCSI	1,7 RLL	5,25 FH		30k		Y	
M2249SB		362	15	1243			NANA	AUTO	M2249SB	18	SCSI	1,7 RLL	5,25 FH		30k		Y	
M2261E		321	8	1658			NANA	AUTO	M2261E	16	ESDI	1,7 RLL	5,25 FH		200k		Y	
M2261HA		357	8	1658	53		NANA	AUTO	M2261HA	16	SCSI	1,7 RLL	5,25 FH		200k		Y	
M2261S		321	8	1658			NANA	AUTO	M2261S	16	SCSI	2,7 RLL	5,25 FH		200k		Y	
M2261SA		415U	8	1658	53		NANA	AUTO	M2261SA		SCSI		5,25 FH				Y	
M2262E		448	11	1658			NANA	AUTO	M2262E	16	ESDI	1,7 RLL	5,25 FH		200k		Y	
M2262HA		476	11	1658	51		NANA	AUTO	M2262HA	16	SCSI	1,7 RLL	5,25 FH		200k		Y	
M2262SA		476	11	1658	51		NANA	AUTO	M2262SA	16	SCSI	1,7 RLL	5,25 FH		200k		Y	
M2263E		688	15	1658	53		NANA	AUTO	M2263E	16	ESDI	1,7 RLL	5,25 FH		30k 3600			
M2263HA		672	15	1658	53		NANA	AUTO	M2263HA	16	SCSI	1,7 RLL	5,25 FH		200k			
M2263S		650	15	1658	53		NANA	AUTO	M2263S	16	SCSI	1,7 RLL	5,25 FH		30k			
M2266E		674	15	1658	53		NANA	AUTO	M2266E	16	ESDI	1,7 RLL	5,25 FH		200k			
M2266H		953	15	1658			NANA	AUTO	M2266H	14,5	SCSI	1,7 RLL	5,25 FH		200k 3600			
M2266HA		1079	15	1658			NANA	AUTO	M2266HA	14,5	SCSI	1,7 RLL	5,25 FH		200k 3600			
M2266HB		1140	15	1658			NANA	AUTO	M2266HB	14,5	SCSI	1,7 RLL	5,25 FH		200k 3600			
M2266S		953	15	1658			NANA	AUTO	M2266S	14,5	SCSI	1,7 RLL	5,25 FH		200k 3600			
M2266SA		1079	15	1658	65		NANA	AUTO	M2266SA	14,5	SCSI	1,7 RLL	5,25 FH	256k	200k 3600			
M2266SB		1140	15	1658			NANA	AUTO	M2266SB	14,5	SCSI	1,7 RLL	5,25 FH		200k 3600			
M2344KS		690	27	624	NA		NANA	AUTO	M2344KS	16	SCSI/SMD	RLL	8 FH					
M2372K		823	27	745			---	---	M2372K	16	HSMO	2,7 RLL						
M2372KS		823	27	745			---	---	M2372KS	16	SCSI	2,7 RLL						
M2382K		10000	27	745			---	---	M2382K	16	ESMD	1,7 RLL						
M2382P		1000	27	745			---	---	M2382P	16	PI	1,7 RLL						
M2392K		2020	21	1916			---	---	M2392K	12	ESMD	1,7 RLL						
M2511A		128	1	9952	25		NANA	AUTO	M2511A	30	SCSI-2	1,7 RLL	3,5 HH	256k	30k 3600	Y		
M2611H		46	2	1334	34		NANA	AUTO	M2611H	25	SCSI	1,7 RLL	3,5 HH		50k		Y	
M2611S		46	2	1334	68		NANA	AUTO	M2611S	25	SCSI	1,7 RLL	3,5 HH		50k		Y	
M2611SA		46	2	1334	34		NANA	AUTO	M2611SA	25	SCSI	1,7 RLL	3,5 HH	24k	50k 3490	Y		
M2611SB		46	2	1334	17		NANA	AUTO	M2611SB	25	SCSI	1,7 RLL	3,5 HH		50k		Y	
M2611T		45	2	1334	33	4/667/33	NANA	AUTO	M2611T	25	IDE AT	1,7 RLL	3,5 HH	64k	50k 3490	Y		
M2612ES		90	4	1334			NANA	AUTO	M2612ES	20	SCSI	1,7 RLL	3,5 HH				Y	
M2612ESA		90	4	1334	34		NANA	AUTO	M2612ESA	20	SCSI	1,7 RLL	3,5 HH	24k	30k 3490	Y		
M2612ESB		90	4	1334			NANA	AUTO	M2612ESB	20	SCSI	1,7 RLL	3,5 HH				Y	
M2612ET		90	4	1334	34	8/667/33	NANA	AUTO	M2612ET	20	IDE AT	1,7 RLL	3,5 HH	64k	50k 3490	Y		
M2612S		92	4	1334	34		NANA	AUTO	M2612S	20	SCSI	1,7 RLL	3,5 HH		50k 3490	Y		
M2612SA		91	4	1334	33		NANA	AUTO	M2612SA	25	SCSI	1,7 RLL	3,5 HH	24k	30k 3490	Y		
M2612T		90	4	1334	33	8/667/33	NANA	AUTO	M2612T	25	IDE AT	1,7 RLL	3,5 HH	64k	50k 3490	Y		
M2613ES		139	6	1334			NANA	AUTO	M2613ES	20	SCSI	1,7 RLL	3,5 HH				Y	
M2613ESA		137	6	1334	34		NANA	AUTO	M2613ESA	20	SCSI	1,7 RLL	3,5 HH	24k	30k 3490	Y		
M2613ESB		139	6	1334			NANA	AUTO	M2613ESB	20	SCSI	1,7 RLL	3,5 HH				Y	
M2613ET		137	6	1334	34	12/667/33	NANA	AUTO	M2613ET	20	IDE AT	1,7 RLL	3,5 HH	64k	50k 3490	Y		
M2613S		139	6	1334	34		NANA	AUTO	M2613S	20	SCSI	1,7 RLL	3,5 HH		50k 3490	Y		
M2613SA		137	6	1334	34		NANA	AUTO	M2613SA	25	SCSI	1,7 RLL	3,5 HH	24k	30k 3490	Y		
M2613SB		139	6	1334	17		NANA	AUTO	M2613SB	20	SCSI	1,7 RLL	3,5 HH		50k		Y	
M2613T		137	6	1334	34	12/667/33	NANA	AUTO	M2613T	25	IDE AT	1,7 RLL	3,5 HH	64k	50k 3490	Y		
M2614ES		185	8	1334			NANA	AUTO	M2614ES	20	SCSI	1,7 RLL	3,5 HH				Y	
M2614ESA		182	8	1334	34		NANA	AUTO	M2614ESA	20	SCSI	1,7 RLL	3,5 HH	24k	30k 3490	Y		
M2614ESB		185	8	1334			NANA	AUTO	M2614ESB	20	SCSI	1,7 RLL	3,5 HH				Y	
M2614ET		180	8	1334	34	16/667/33	NANA	AUTO	M2614ET	20	IDE AT	1,7 RLL	3,5 HH		50k		Y	
M2614S		185	8	1334	34		NANA	AUTO	M2614S	20	SCSI	1,7 RLL	3,5 HH	50k 3490	Y			
M2614SA		182	8	1334	34		NANA	AUTO	M2614SA	25	SCSI	1,7 RLL	3,5 HH	24k	30k 3490	Y		
M2614SB		186	8	1334	17		NANA	AUTO	M2614SB	20	SCSI	1,7 RLL	3,5 HH		50k		Y	
M2614T		180	8	1334	34	16/667/33	NANA	AUTO	M2614T	20	IDE AT	1,7 RLL	3,5 HH	64k	50k 3490	Y		
M2616ESA		105	4	1542	34		NANA	AUTO	M2616ESA	20	SCSI	1,7 RLL	3,5 HH	24k	30k 3490	Y		
M2616ET		105	4	1542		8/771/33	NANA	AUTO	M2616ET	20	IDE AT	1,7 RLL	3,5 HH				Y	
M2616SA		105	4	1542			NANA	AUTO	M2616SA	20	SCSI	1,7 RLL	3,5 HH	24k	50k 3490	Y		
M2616T		105	4	1542		8/771/33	NANA	AUTO	M2616T	20	IDE AT	1,7 RLL	3,5 HH	64k	50k 3490	Y		
M2621S		235	5	1435			NANA	AUTO	M2621S	12	SCSI-2	1,7 RLL	3,5 HH				4400	Y
M2622F		293	7	1435			---	---	M2622F	12	SCSI	1,7 RLL	3,5 HH					
M2622FA		330	7	1435			---	---	M2622FA	12	SCSI-1/2	1,7 RLL	3,5 HH	240k	200k 4400	Y		

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtfb RPM
M2622S	330	7	1153	80				M2622S	12	SCSI-2	1,7 RLL	3.5 HH		4400 Y
M2622SA	329	7	1429	56-70		N/A	N/A	M2622SA	12	SCSI-2	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2622T	326	7	1435		10/1013/63	N/A	AUTO	M2622T	12	IDE AT	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2623F	377	9	1429	V		N/A	AUTO	M2623F	12	SCSI 1/2	1,7 RLL	3.5 HH		200k 4400 Y
M2623FA	498	9	1435			N/A	AUTO	M2623FA	12	SCSI-1/2	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2623S	425	9	1153	80		N/A	AUTO	M2623S	12	SCSI-2	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2623SA	425	9	1429	64		N/A	AUTO	M2623SA	12	SCSI-2	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2623T	420	9	1435		13/002/63	N/A	AUTO	M2623T	12	IDE AT	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2624F	461	6	1435			N/A	AUTO	M2624F	12	SCSI	1,7 RLL	3.5 HH		4400 Y
M2624FA	520	11	1435			N/A	AUTO	M2624FA	12	SCSI-1/2	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2624S	520	11	1463	63		N/A	AUTO	M2624S	12	SCSI-2	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2624SA	520	11	1429	64		N/A	AUTO	M2624SA	12	SCSI-2	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2624T	513	11	1429	63	16/995/63	N/A	AUTO	M2624T	12	IDE AT	1,7 RLL	3.5 HH	240k	200k 4400 Y
M2635S	160	4	1569			N/A	AUTO	M2635S	14	SCSI-2	1,7 RLL	2.5 4H	256k	150k 4500 Y
M2635T	160	4	1569		8/620/63	N/A	AUTO	M2635T	14	IDE AT	1,7 RLL	2.5 4H	256k	150k 4500 Y
M2637S	240	6	1574	49		N/A	AUTO	M2637S	14	SCSI-2	1,7 RLL	2.5 4H	256k	150k 4500 Y
M2637SA	240	6	1574			N/A	AUTO	M2637SA	14	SCSI-2	1,7 RLL	2.5 4H	256k	150k 4500 Y
M2637T	240	6	1569		8/930/63	N/A	AUTO	M2637T	14.5	SCSI-2	1,7 RLL	2.5 4H	256k	150k 4500 Y
M2651SA	1400	16	1944	88		N/A	AUTO	M2651SA	14	IDE AT	1,7 RLL	2.5 4H	256k	150k 4500 Y
M2652H	1628	20	1893	84		N/A	AUTO	M2652H	12	SCSI-2	1,7 RLL	5.25 FH	256k	300k 5400
M2652HA	1600	20	1944			N/A	AUTO	M2652HA	11	SCSI-2	1,7 RLL	5.25 HH		300k 5400
M2652HD	1628	20	1893	84		N/A	AUTO	M2652HD	11	SCSI-2	1,7 RLL	5.25 FH		300k 5400
M2652P	1600	20	1893			N/A	AUTO	M2652P	11	IP-2		5.25 FH		300k 5400
M2652S	1628	20	1893	84		N/A	AUTO	M2652S	11	SCSI-2	1,7 RLL	5.25 FH		300k 5400
M2652SA	1750	20	1944	88		N/A	AUTO	M2652SA	11	SCSI-2	1,7 RLL	5.25 FH		300k 5400
M2653	1400	15	2078	88		N/A	AUTO	M2653	12	SCSI-2	1,7 RLL	5.25	256k	5400 Y
M2654HA	2000	21	2179			N/A	AUTO	M2654HA	12	SCSI-2 DIFF	1,7 RLL	5.25	256k	300k 5400
M2654SA	2061	21	2170	88		N/A	AUTO	M2654SA	12	SCSI-2 DIFF	1,7 RLL	5.25 FH	256k	300k 5400
M2671P	2640	15	2671			N/A	AUTO	M2671P	12	SCSI-2	1,7 RLL	8 FH		200k 4340
M2681SAU	264	3	2379			N/A	AUTO	M2681SAU	12	SCSI-2	1,7 RLL	3.5 3H	256k	250k 4500
M2681TAU	264	3	2379	11/977/48		N/A	AUTO	M2681TAU	12	IDE AT	1,7 RLL	3.5 3H	256k	250k 4500
M2682SAU	350	4	2379	64-90		N/A	AUTO	M2682SAU	12	SCSI-2	1,7 RLL	3.5 3H	256k	250k 4500
M2682TAU	352	4	2378	64-90	11/992/63	N/A	AUTO	M2682TAU	12	IDE AT	1,7 RLL	3.5 3H	256k	250k 4500
M2684TAU	525	6	2379	74		N/A	AUTO	M2684TAU	12	SCSI-2	1,7 RLL	3.5 3H	256k	250k 4500
M2691EAH	645	9	1818	V	16/1024/63	N/A	AUTO	M2691EAH	12	SCSI-2	1,7 RLL	3.5 3H	256k	300k 5400
M2691EQ	756U	9	1831			N/A	AUTO	M2691EQ	10	SCSI	1,7 RLL	3.5 HH	512k	5400
M2691ER	756U	9	1831			N/A	AUTO	M2691ER	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	512k	5400
M2691ESA	645	9	1818	V		N/A	AUTO	M2691ESA	10	SCSI-2	1,7 RLL	3.5 HH	256k	300k 5400
M2692EQ	925U	11	1831			N/A	AUTO	M2692EQ	10	SCSI	1,7 RLL	3.5 HH	512k	5400
M2692ER	925U	11	1831			N/A	AUTO	M2692ER	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	512k	5400
M2693EQ	1093U	13	1831			N/A	AUTO	M2693EQ	10	SCSI	1,7 RLL	3.5 HH	512k	5400
M2693ER	1093U	13	1831			N/A	AUTO	M2693ER	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	512k	5400
M2694EAH	1080	15	1818	V		N/A	AUTO	M2694EAH	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	512k	5400
M2694EQ	1261U	15	1831			N/A	AUTO	M2694EQ	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	512k	5400
M2694ER	1261U	15	1831			N/A	AUTO	M2694ER	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	512k	5400
M2694ESA	1080	15	1818	V		N/A	AUTO	M2694ESA	10	SCSI-2	1,7 RLL	3.5 HH	512k	300k 5400
M2703S	260	3	2305			N/A	AUTO	M2703S	12	SCSI-2 FAST	RLL	2.5 4H	512k	300k 5400 Y
M2703T	260	3	2305			N/A	AUTO	M2703T	12	ATA-2	RLL	2.5 4H	256k	300k 5400 Y
M2704	260	3				N/A	AUTO	M2704	12	SCSI		2.5 4H	256k	250k 5400 Y
M2704S	350	4	2305			N/A	AUTO	M2704S	12	SCSI-2 FAST	RLL	2.5 4H	512k	300k 5400 Y
M2704T	350	4	2305			N/A	AUTO	M2704T	12	ATA-2	RLL	2.5 4H	256k	300k 5400 Y
M2705	350	4				N/A	AUTO	M2705	12	SCSI		2.5 4H	256k	250k 5400 Y
M2706	530	6				N/A	AUTO	M2706	12	SCSI		2.5 4H	512k	300k 5400
M2706S	530	6	2305			N/A	AUTO	M2706S	12	SCSI-2 FAST	RLL	2.5 4H	512k	300k 5400
M2706T	530	6	2305			N/A	AUTO	M2706T	12	ATA-2	RLL	2.5 4H	256k	300k 5400
M2712TAM	540	1				N/A	AUTO	M2712TAM	12	ATA	PRML8,9	2.5 4H	128k	300k 3634
M2713TAM	1080	2				N/A	AUTO	M2713TAM	12	ATA	PRML8,9	2.5 4H	128k	300k 3634
M2714TAM	1080	2				N/A	AUTO	M2714TAM	12	ATA	PRML8,9	2.5 4H	128k	300k 3634
M2903	2100	14	3139			N/A	AUTO	M2903	10.5	SCSI-2 FSTW	RLL	3.5 HH	512k	500k 5400
M2909	3100	20	3139			N/A	AUTO	M2909	10.5	SCSI-2 FSTW	RLL	3.5 HH	512k	500k 5400
M2914	2100	7				N/A	AUTO	M2914	9	SCSI-2 FSTW	RLL	3.5 HH	512k	500k 7200
M2915	2100	16	3012			N/A	AUTO	M2915	9.8	SCSI-2 FSTW	RLL	3.5 HH	512k	500k 7200

Drive Model	Format Size MB	Head	Cyl	Trac	Sec/ Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form cache Factor kb mtfb	Obsolete? RPM
M2927	1100	4				—/—	—/—	M2927	10.5	SCSI-2	FSTW	3.5 FH	512K 500K 5400
M2932	2170	10	3422			—/—	—/—	M2932	11	SCSI-2	FAST RLL	3.5 HH	510K 800K 7200
M2934	4350	19	3422			—/—	—/—	M2934	11	SCSI-2	FAST RLL	3.5 HH	510K 800K 7200
M2948S	8800	18	5751			—/—	—/—	M2948S	10	SCSI-2FstWd	PR4ML	3.5 HH	512K1000K 7200
M2949S	9100	18	5772			—/—	—/—	M2949S	10	SCSI-2FstWd	RLL 0,4,4	3.5 HH	512K1000K 7200
M2952S	2200	5	5565			—/—	—/—	M2952S	8	SCSI-2FstWd	RLL 8,9	3.5 3H	512K1000K 7200
M2954S	4400	9	5565			—/—	—/—	M2954S	8	SCSI-2FstWd	RLL 8,9	3.5 3H	512K1000K 7200

HEWLETT-PACKARD CO

HP97530E	136	4				NANA	AUTO	HP97530E	18	ESDI	2,7 RLL	5.25 FH	Y
HP97530S	204	6				NANA	AUTO	HP97530S	18	SCSI	2,7 RLL	5.25 FH	Y
HP97532D	215	4	1643	64°V		NANA	AUTO	HP97532D	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97532E	215	4	1643	64		NANA	AUTO	HP97532E	17	ESDI (10)	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97532S	215	4	1643	64		NANA	AUTO	HP97532S	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97532T	215	4	1643	64		NANA	AUTO	HP97532T	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533D	323	6	1643	64		NANA	AUTO	HP97533D	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533E	323	6	1643	64		NANA	AUTO	HP97533E	17	ESDI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533S	323	6	1643	64		NANA	AUTO	HP97533S	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533T	323	6	1643	64		NANA	AUTO	HP97533T	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536D	646	12	1643	64		NANA	AUTO	HP97536D	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536E	646	12	1643	64		NANA	AUTO	HP97536E	17	ESDI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536S	646	12	1643	64		NANA	AUTO	HP97536S	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536SP	320	—	—	—	—	NANA	AUTO	HP97536SP	17	SCSI	2,7 RLL	5.25 FH	Y
HP97536SX	322	—	—	—	—	NANA	AUTO	HP97536SX	17	SCSI	2,7 RLL	5.25 FH	Y
HP97536T	646	12	1643	64		NANA	AUTO	HP97536T	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536TA	320	—	—	—	—	NANA	AUTO	HP97536TA	17	SCSI	2,7 RLL	5.25 FH	Y
HP97544D	331	8	1447	56		NANA	AUTO	HP97544D	16	SCSI	2,7 RLL	5.25 HH	64K 150K 4002 Y
HP97544E	337	8	1447	56		NANA	AUTO	HP97544E	17	ESDI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97544P	331	8	1447	56		NANA	AUTO	HP97544P	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97544S	331	8	1447	56		NANA	AUTO	HP97544S	16	SCSI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97544SA	331	—	—	—	—	NANA	AUTO	HP97544SA	17	SCSI	2,7 RLL	5.25 FH	Y
HP97544T	331	8	1447	56		NANA	AUTO	HP97544T	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548D	663	16	1447	56		NANA	AUTO	HP97548D	16	SCSI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548E	675	16	1447	56		NANA	AUTO	HP97548E	17	ESDI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548P	663	16	1447	56		NANA	AUTO	HP97548P	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548S	663	16	1447	56		NANA	AUTO	HP97548S	16	SCSI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548SZ	663	—	—	—	—	NANA	AUTO	HP97548SZ	17	SCSI	2,7 RLL	5.25 FH	Y
HP97548T	663	16	1447	56		NANA	AUTO	HP97548T	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97549P	1001	16	1911	64		NANA	AUTO	HP97549P	17	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97549T	1001	16	1911	69		NANA	AUTO	HP97549T	17	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556	786	—	—	—	—	NANA	AUTO	HP97556	14	ESDI	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556E	688	11	1697	72		NANA	AUTO	HP97556E	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556P	677	11	1670	72		NANA	AUTO	HP97556P	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556T	677	11	1670	72		NANA	AUTO	HP97556T	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97558E	1084	15	1962	72		NANA	AUTO	HP97558E	14	ESDI	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97558P	1069	15	1935	72		NANA	AUTO	HP97558P	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97558T	1069	15	1935	72		NANA	AUTO	HP97558T	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97560	1300	—	—	—	—	NANA	AUTO	HP97560	14	SCSI-2	2,7 RLL	5.25 FH	150K Y
HP97560E	1374	19	1962	72		NANA	AUTO	HP97560E	14	ESDI	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97560P	1355	19	1935	72		NANA	AUTO	HP97560P	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97560T	1355	19	1935	72		NANA	AUTO	HP97560T	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HPC2233 ATA	238	5	1546	V	16/462/63	NANA	AUTO	HPC2233 ATA	12.6	IDE AT	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2233S	234	5	1546	V		NANA	AUTO	HPC2233S	12	SCSI-2	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2234 ATA	334	7	1546	V	16/647/63	NANA	AUTO	HPC2234 ATA	12.6	IDE AT	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2234S	328	7	1546	V		NANA	AUTO	HPC2234S	12	SCSI-2	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2235A	429	—	—	—	—	NANA	AUTO	HPC2235A	13	ATA		FH	150K
HPC2235S	422	9	1546	V		NANA	AUTO	HPC2235S	12	SCSI-2	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2247	1052	13	1981	56-96		NANA	AUTO	HPC2247	10	SCSI-2	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2247D	1052	13	1981	56-96		NANA	AUTO	HPC2247D	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2247SE	1052	13	1981	56-96		NANA	AUTO	HPC2247SE	10	SCSI-2	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2247W	1052	13	1981	56-96		NANA	AUTO	HPC2247W	10	SCSI-2 FSTW	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2270S	320	—	—	—	—	NANA	AUTO	HPC2270S	17	SCSI		5.25 FH	Y
HPC2271S	663	—	—	—	—	NANA	AUTO	HPC2271S	17	SCSI		5.25 FH	Y

HEWLETT-PACKARD CO

HP97530E	18	ESDI	2,7 RLL	5.25 FH	Y
HP97530S	18	SCSI	2,7 RLL	5.25 FH	Y
HP97532D	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97532E	17	ESDI (10)	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97532S	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97532T	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533D	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533E	17	ESDI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533S	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97533T	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536D	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536E	17	ESDI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536S	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536SP	17	SCSI	2,7 RLL	5.25 FH	Y
HP97536SX	17	SCSI	2,7 RLL	5.25 FH	Y
HP97536T	17	SCSI	2,7 RLL	5.25 FH	16K 99K 3348 Y
HP97536TA	17	SCSI	2,7 RLL	5.25 FH	Y
HP97544D	16	SCSI	2,7 RLL	5.25 HH	64K 150K 4002 Y
HP97544E	17	ESDI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97544P	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97544S	16	SCSI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97544SA	17	SCSI	2,7 RLL	5.25 FH	Y
HP97544T	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548D	16	SCSI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548E	17	ESDI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548P	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548S	16	SCSI	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97548SZ	17	SCSI	2,7 RLL	5.25 FH	Y
HP97548T	17	SCSI-2	2,7 RLL	5.25 FH	64K 150K 4002 Y
HP97549P	17	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97549T	17	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556	14	ESDI	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556E	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556P	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97556T	14	ESDI	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97558E	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97558P	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97558T	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97560	14	SCSI-2	2,7 RLL	5.25 FH	150K Y
HP97560E	14	ESDI	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97560P	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HP97560T	14	SCSI-2	2,7 RLL	5.25 FH	128K 150K 4002 Y
HPC2233 ATA	12.6	IDE AT	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2233S	12	SCSI-2	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2234 ATA	12.6	IDE AT	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2234S	12	SCSI-2	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2235A	13	ATA		FH	150K
HPC2235S	12	SCSI-2	2,7 RLL	3.5 HH	64K 150K 3600 Y
HPC2247	10	SCSI-2	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2247D	10	SCSI-2 DIFF	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2247SE	10	SCSI-2	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2247W	10	SCSI-2 FSTW	1,7 RLL	3.5 HH	256K 300K 5400 Y
HPC2270S	17	SCSI		5.25 FH	Y
HPC2271S	17	SCSI		5.25 FH	Y

Drive Model	Format Size MB	Head	Cyl	Sect/ Trac	Translate H/C/S	RWC/ WPC	Lat/ Zone	Seek Time	Interface	Encode	Form Factor	cache kb	mtbf	Obsolote? RPM
HPC2490D	2100	18	258268	108	---	---	---	9	SCSI-2 DIFF	---	3.5 HH	500k	6400	Y
HPC2490SE	2100	18	258268	108	---	---	---	9	SCSI	---	3.5 HH	500k	6400	Y
HPC2490W	2100	18	258268	108	---	---	---	9	SCSI-2 FSTW	---	3.5 HH	500k	6400	Y
HPC3007	1370	2255	---	---	---	NANA	AUTO	12	SCSI-2	---	FH	256k	300k	5400
HPC3009	1792	2255	---	---	---	NANA	AUTO	12	SCSI-2	---	FH	256k	300k	5400
HPC3010	2003	---	---	---	---	NANA	AUTO	12	SCSI-2	---	FH	256k	300k	5400
HPC3014A	42	4	786	---	---	---	---	18	IDE	---	1.34H	300k	5310	Y
HPC3031A	21	3	---	---	---	---	---	18	IDE	---	1.34H	300k	5310	Y
HPC3323D	1050	7	291072	120	---	NANA	AUTO	9.5	SCSI-2 DIFF	---	3.53H	512k	500k	5400
HPC3323SE	1050	7	291072	120	---	NANA	AUTO	9.5	SCSI-2	---	3.53H	512k	500k	5400
HPC3323W	1050	7	291072	120	---	NANA	AUTO	9.5	SCSI-2 DIFF	---	3.53H	512k	500k	5400
HPC3325A	2170	9	3610100	14	---	---	---	10.5	SCSI-2	PRML	3.53H	5400	---	
HPC3335 ATA	429	9	1546	V	---	NANA	AUTO	12.6	IDE AT	2.7 RLL	3.5 HH	64k	150k	3600
HPC3550	2000	---	---	---	---	---	---	---	SCSI-2 FSTW	---	3.5 HH	---	---	---
HPC3555	1000	---	---	---	---	---	---	---	SCSI-2 FSTW	---	3.5 HH	---	---	---
HPC3553A	8700	20	5371124	17	---	---	---	9	SE SCSI	PRML	3.5 HH	512k	7200	---
HPC3724D	1200	5	3610100	14	---	NANA	AUTO	9.5	SCSI-2 DIFF	---	3.53H	800k	5400	---
HPC3724S	1200	5	3610100	14	---	NANA	AUTO	9.5	SCSI-2	---	3.53H	800k	5400	---
HPC3724W	1200	5	3610100	14	---	NANA	AUTO	9.5	SCSI-2 FSTW	---	3.53H	800k	5400	---
HPC3725D	2170	9	3610100	14	---	---	---	9.5	SCSI-2 DIFF	---	3.53H	800k	5400	---
HPC3725S	2170	9	3610100	14	---	---	---	9.5	SCSI-2	---	3.53H	800k	5400	---
HPC3725W	2170	9	3610100	14	---	---	---	9.5	SCSI-2 DIFF	---	3.53H	800k	5400	---
HPC5270A	1084	4	91-155	---	---	---	---	---	EIDE/ATA-2	---	3.5 HH	128k	300k	4480
HPC5271A	1626	6	91-155	---	---	---	---	---	EIDE/AT	1.7 RLL	3.53H	64k	300k	4480
HPC5272A	1336	4	94-162	---	---	---	---	---	EIDE/AT	1.7 RLL	3.53H	128k	300k	4480
HPC5273A	2004	6	94-162	---	---	---	---	---	EIDE/ATA-2	---	3.53H	128k	300k	4480
HPC5273AK	1336	4	94-162	---	---	---	---	---	EIDE	---	3.53H	128k	300k	4480
HPC5280A	1084	4	91-155	---	---	---	---	---	EIDE	---	3.53H	128k	300k	4480
HPC5281A	1626	6	91-155	---	---	---	---	---	EIDE	---	3.53H	128k	300k	4480
HPC5283A	2004	6	94-162	---	---	---	---	---	EIDE/AT	1.7 RLL	3.53H	128k	300k	4480
HPC5421SK	8700	20	5371124	17	---	---	---	8.7	SE SCSI	PRML	3.5 HH	512k	7200	---
HPC5421TK	8700	20	5371124	17	---	---	---	8.7	SE SCSI-2W	PRML	3.5 HH	512k	7200	---
HPC5435A	1336	4	94-162	---	---	---	---	---	EIDE/AT	1.7 RLL	3.53H	64k	300k	4480
HPC5436AK	2004	6	94-162	---	---	---	---	---	EIDE/ATA-2	1.7 RLL	3.53H	128k	300k	4480
HPD1296A	21	4	615	17	0/300	---	670	65	ST412/506	MFM	5.25 HH	100k	---	Y
HPD1660A	340	8	1457	57	---	NANA	AUTO	16	ESDI (15)	2.7 RLL	5.25 HH	64k	150k	---
HPD1661A	680	16	1457	57	---	NANA	AUTO	16	ESDI (15)	2.7 RLL	5.25 HH	64k	150k	---
HPD2076B	1050	---	---	---	---	---	---	10.5	SCSI-2 FAST	---	---	256k	500k	5400
HPD2077A	2100	---	---	---	---	---	---	10.5	SCSI-2 FAST	---	---	256k	500k	5400
HPD2389A	540	---	---	---	---	---	---	14	IDE AT	---	3.5	512k	300k	3600
HPD3340A	2100	---	---	---	---	---	---	8.4	SCSI-2	---	---	512k	1000k	5400
HPD3341A	4200	---	---	---	---	---	---	8.4	SCSI-2	---	---	512k	1000k	5400

HITACHI AMERICA

DK211A-51	510	6			
DK211A-54	540	16	1047	63	16/1047/63
DK211C-51	510	6			
DK212A-10	1080	8			
DK212A-81	810	8			
DK213A-13	1350	10	2605		
DK221A-34	340	4			
DK222A-54	540	4			
DK223A-81	810	6	2605		
DK301-1	10	4	306	17	
DK301-2	15	6	306	17	
DK312C-20	209	9	1076	38	
DK312C-25	251	11	1076	38	
DK314C-41	419	14		17	
DK315C-10	1000	11			
DK315C-11	1100	15			
DK315C-14	1400	15			
DK325C-57	573	6	2458	75	
DK326C-10	1050	8			

HITACHI AMERICA

NANA	AUTO	121A-5	12.6	IDE AT		2.5 4H	64k	300k	4464	
NANA	AUTO	121A-54	12	ATA			64k		4464	
NANA	AUTO	121C-51	12.6	SCSI-2 FAST		2.5 4H	512k	300k		Y
---	---	121A-10	12	EIDE/ATA-2	PRML8,9	2.5 4H	64k	300k	4464	
---	---	121A-81	12	EIDE/ATA-2	PRML8,9	2.5 4H	64k	300k	4464	
---	---	121A-13	12	ATA-2	PRML8,9	2.5 4H	128k	300k	4464	
NANA	AUTO	122A-34	12.6	IDE AT		2.5 4H	64k	300k	4464	
---	---	122A-54	12	EIDE/ATA-2	PRML8,9	2.5 4H	64k	300k	4464	
---	---	123A-81	12	ATA-2	PRML8,9	2.5 4H	128k	300k	4464	
---	---	301-1	85	ST412/506	MFM	3.5 HH				Y
---	---	301-2	85	ST412/506	MFM	3.5 HH				Y
---	---	102C-20	17	SCSI		2,7 RLL	3.5 HH	40k		Y
---	---	102C-25	17	SCSI		2,7 RLL	3.5 HH			Y
---	---	104C-41	17	SCSI		2,7 RLL	3.5 HH	64k	150k	Y
NANA	AUTO	115C-10	11.8	SCSI-2 FAST		3.5 HH	256k	400k		Y
NANA	AUTO	115C-11	11	SCSI-2		3.5 HH	256k	150k		Y
NANA	AUTO	115C-14	11	SCSI-2 FAST		3.5 HH	256k	400k		Y
NANA	AUTO	125C-57	12	SCSI-2	1,7 RLL	5.25 HH		200k	4500	
NANA	AUTO	126C-10	9.8	SCSI-2 FAST		3.53H	448k	400k	6300	

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/RPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete?
DK326C-10WD	1050	7					NANA		DK326C-10WD	9.8	SCSI-2 FSTW		3.5 3H	448k	6300
DK326C-6	601	4					NANA		SCSI-2 FAST				3.5 3H	448k	400k
DK326C-6WD	601	4					NANA		SCSI-2 FSTW				3.5 3H	448k	400k
DK328C-10	1050	3					---		9.8 SE SCSI-2F				3.5 3H	512k	800k 5400
DK328C-21	2100	5					---		9.8 SE SCSI-2D				3.5 3H	512k	800k 5400
DK328C-43	4300	10					---		9.8 SE SCSI-2F				3.5 3H	512k	800k 5400
DK503-2	10						---						5.25 HH		Y
DK505-2	21	4	615	17			---		85 ST412/506		MFM	5.25 HH			Y
DK511-3	29	5	699	17			---/300		30 ST412/506		MFM	5.25 FH			Y
DK511-5	41	7	699	17			---/300		26 ST412/506		MFM	5.25 FH			Y
DK511-8	67	10	823	17			---/400		23 ST412/506		MFM	5.25 FH			Y
DK512-12	94	7	823				NANA		23 ESDI		2.7 RLL	5.25 FH		20k 3482	Y
DK512-17	134	10	823				NANA		23 ESDI		2.7 RLL	5.25 FH		20k 3482	Y
DK512-8	67	5	823				NANA		23 SCSI		2.7 RLL	5.25 FH		20k 3482	Y
DK512C-12	94	7	823				---		23 SCSI		2.7 RLL	5.25 FH			Y
DK512C-17	134	10	819	35			---		23 SCSI		2.7 RLL	5.25 FH			Y
DK512C-8	67	5	823				---		23 SCSI		2.7 RLL	5.25 FH			Y
DK512S-17	143						---		SMD-E		5.25 FH				Y
DK514-38	330	14	903	51			NANA		16 ESDI		2.7 RLL	5.25 HH		30k 3600	Y
DK514C-38	322	14	898	50			---		16 SCSI		2.7 RLL	5.25 FH		30k	Y
DK514S-38	332						---		SMD-E		5.25 FH				Y
DK515-12	1229	15		69			NANA		14 ESDI		2.7 RLL	5.25 FH		150k	
DK515-78	673	14	1361	69			---		16 ESDI		2.7 RLL	5.25 FH		150k	
DK515C-78	670	14	1356	69			---		16 SCSI		2.7 RLL	5.25 FH		150k	
DK515C-78D	673	14	1361	69			NANA		16 SCSI		2.7 RLL	5.25 FH		150k	
DK515S-78	673	14					---		16 E-SMD		5.25 FH			150k	
DK516-12	1230						---		14 ESDI		5.25 FH			100k	
DK516-15	1320	15					NANA		14 ESDI		5.25 FH			150k	
DK516C-16	1340	15					---		14 SCSI		2.7 RLL	5.25 FH		150k	
DK517C-26	2000	14					NANA		12 SCSI-2			5.25 FH		150k	Y
DK517C-37	2900	21					NANA		12 SCSI-2 FAST			5.25 FH	512k	400k	Y
DK521-5	51	6	823	17			---		25 ST412/506		MFM	5.25 HH			Y
DK522-10	91	6	823	36			---		25 ESDI		2.7 RLL	5.25 HH		30k	Y
DK522C-10	87	6	819	35			---		25 SCSI		2.7 RLL	5.25 FH		30k	Y
DK524C-20	169	6	1105	51			---		25 SCSI-2		2.7 RLL	5.25 HH		40k 3600	Y

HYOSUNG

HC8085	71	8	1024	17			NANA	AUTO	HC8085	25	ST412/506		5.25 FH		28k
HC8128	109	8	1024	26			NANA	AUTO	HC8128	25	ST412/506		5.25 FH		28k
HC8170E	150	8	1024	36			NANA	AUTO	HC8170E	25	ESDI		5.25 FH		28k

IBM

06H3370	2250						---		06H3370	7.5	SCSI-2 FAST		3.5 3H	512k	1000k 7200
06H3372	2250						---		06H3372	7.5	SCSI-2 FSTW		3.5 3H	512k	1000k 7200
06H5709	4510						---		06H5709	8	SCSI-2 FSTW		3.5 HH	512k	7200
06H5710	5318						---		06H5710	8	SCSI-2 FSTW		3.5 HH	512k	1000k 5400
06H6111	1080	2					---		06H6111	10.5	ATA-2		3.5 3H	512k	500k 5400
06H6740	2250						---		06H6740	7.5	SCSI-2 DIFF		3H	1000k 7200	
06H6741	4510						---		06H6741	8	SCSI-2 FAST		3.5 HH	512k	7200
06H6742	4512						---		06H6742	8	SCSI-2 DIFF		3.5 HH	1000k 7200	
06H6749	5318						---		06H6749	8	SCSI-2 DIFF		3.5 HH	1000k 5400	
06H6750	5318						---		06H6750	8	SCSI-2 DIFF		3.5 HH	1000k 5400	
06H7141	540						---		06H7141	12	ATA-2		3.5 3H	128k	350k 4500
06H7142	540						---		06H7142	12	ATA-2		3.5 3H	128k	350k 4500
06H8558	540						---		06H8558	12	SCSI-2 FAST		3.5 3H	128k	300k 4500
06H8724	1700	2					---		06H8724	12	ATA-2		3.5 3H	128k	350k 4500
06H8891	1080						---		06H8891	10.5	SCSI-2 FAST		3.5 3H	512k	500k 5400
07H0386	125	3					---		07H0386	8.5	SCSI-2FstWd		3.5 3H	800k 7200	
07H0387	2250	5					---		07H0387	8.5	SCSI-2FstWd		3.5 3H	800k 7200	
07H0834	4510	10					---		07H0834	8.5	SCSI-2FstWd		3.5 HH	800k 7200	
07H1124	2160	3					---		07H1124	8.5	SCSI-2FstWd		3.5 3H	512k	800k 5400
07H1128	2160	3					---		07H1128	8.5	Ultra SCSIW		3.5 3H	512k	800k 5400

HYOSUNG

HC8085	71	8	1024	17			NANA	AUTO	HC8085	25	ST412/506		5.25 FH		28k
HC8128	109	8	1024	26			NANA	AUTO	HC8128	25	ST412/506		5.25 FH		28k
HC8170E	150	8	1024	36			NANA	AUTO	HC8170E	25	ESDI		5.25 FH		28k

IBM

06H3370	2250						---		06H3370	7.5	SCSI-2 FAST		3.5 3H	512k	1000k 7200
06H3372	2250						---		06H3372	7.5	SCSI-2 FSTW		3.5 3H	512k	1000k 7200
06H5709	4510						---		06H5709	8	SCSI-2 FSTW		3.5 HH	512k	7200
06H5710	5318						---		06H5710	8	SCSI-2 FSTW		3.5 HH	512k	1000k 5400
06H6111	1080	2					---		06H6111	10.5	ATA-2		3.5 3H	512k	500k 5400
06H6740	2250						---		06H6740	7.5	SCSI-2 DIFF		3H	1000k 7200	
06H6741	4510						---		06H6741	8	SCSI-2 FAST		3.5 HH	512k	7200
06H6742	4512						---		06H6742	8	SCSI-2 DIFF		3.5 HH	1000k 7200	
06H6749	5318						---		06H6749	8	SCSI-2 DIFF		3.5 HH	1000k 5400	
06H6750	5318						---		06H6750	8	SCSI-2 DIFF		3.5 HH	1000k 5400	
06H7141	540						---		06H7141	12	ATA-2		3.5 3H	128k	350k 4500
06H7142	540						---		06H7142	12	ATA-2		3.5 3H	128k	350k 4500
06H8558	540						---		06H8558	12	SCSI-2 FAST		3.5 3H	128k	300k 4500
06H8724	1700	2					---		06H8724	12	ATA-2		3.5 3H	128k	350k 4500
06H8891	1080						---		06H8891	10.5	SCSI-2 FAST		3.5 3H	512k	500k 5400
07H0386	125	3					---		07H0386	8.5	SCSI-2FstWd		3.5 3H	800k 7200	
07H0387	2250	5					---		07H0387	8.5	SCSI-2FstWd		3.5 3H	800k 7200	
07H0834	4510	10					---		07H0834	8.5	SCSI-2FstWd		3.5 HH	800k 7200	
07H1124	2160	3					---		07H1124	8.5	SCSI-2FstWd		3.5 3H	512k	800k 5400
07H1128	2160	3					---		07H1128	8.5	Ultra SCSIW		3.5 3H	512k	800k 5400

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	mtbf	Obsolete? RPM
32G3796	2000					---	---	32G3796	9.5	SCSI-2 FSTW		3.5 HH	512k	750k	5400
32G4194	245					---	---	32G4194	15	IDE AT		3.5 3H			
32G4195	340					---	---	32G4195	14	IDE AT		3.5 3H			
32G4196	527					---	---	32G4196	9	IDE AT		3.5 3H			
32G4198	1000					---	---	32G4198	8.6	SCSI-2 FAST		3.5 3H	512k	800k	5400
32G4199	105					---	---	32G4199	15	PCMCIA		FH			
32G4336	2000					---	---	32G4336	9.5	SCSI-2 FAST		3.5 HH	512k	750k	5400
32G4338	2880					---	---	32G4338	94	AT BUS		3.5 3H			
3513364	364					---	---	3513364	12	PCMCIA		HH	200k		
3513527	527					---	---	3513527	12	PCMCIA		HH			
70G7154	1000					---	---	70G7154	8.6	SCSI-2 FAST		3.5 3H	512k	800k	5400
70G7424	170	2	2233			---	---	70G7424	14	IDE AT		3.5 3H	96k	250k	3322
70G8480	170	2	2111			---	---	70G8480	13	SCSI-2 FAST		3.5 3H	64k	250k	4011
70G8481	340	4	2111			---	---	70G8481	13	SCSI-2		3.5 3H	64k	250k	4011
70G8486	527					---	---	70G8486	12	IDE AT		3.5 3H	96k	300k	4500
70G8487	270					---	---	70G8487	12	IDE AT		3.5 3H	96k	300k	4500
70G8488	364					---	---	70G8488	12	IDE AT		3.5 3H	96k	300k	4500
70G8491	540	7	2466			---	---	70G8491	8.5	SCSI-2 FAST		3.5 3H	256k	300k	6300
70G8492	1052	8				---	---	70G8492	8.6	SCSI-2 FAST		3.5 3H	512k	800k	5400
70G8493	2014	16				---	---	70G8493	8.5	SCSI-2 FAST		3.5 HH	512k	750k	5400
70G8494	2014	16				---	---	70G8494	9.5	SCSI-2 FSTW		3.5 HH	512k	750k	5400
70G8495	40					---	---	70G8495	18	PCMCIA		FH			
70G8499	1440					---	---	70G8499	94	IDE AT		3.5 3H			
70G8500	1440					---	---	70G8500	94	IDE AT		5.25 HH			
70G8511	728	4	3875			---	---	70G8511	12	IDE AT		3.5 3H	96k	300k	4500
70G8512	1000	5				---	---	70G8512	8.5	IDE AT		3.5 3H	512k	800k	5400
70G8847	270					---	---	70G8847	12	IDE AT		3.5 3H	96k	300k	4500
70G8848	364					---	---	70G8848	12	IDE AT		3.5 3H	96k	300k	4500
70G8849	527					---	---	70G8849	12	IDE AT		3.5 3H	96k	300k	4500
70G8850	728					---	---	70G8850	12	IDE AT		3.5 3H	96k	300k	4500
70G9743	1000					---	---	70G9743	8	SCSI-2 FSTW		3.5 3H	512k	800k	5400
71G0666	1000	5				---	---	71G0666	8.5	IDE AT		3.5 3H	512k	800k	5400
71G6550	170	2	2111			---	---	71G6550	13	SCSI-2 FAST		3.5 3H	64k	250k	4011
82G5926	270					---	---	82G5926	12	IDE AT		3.5 3H	96k	300k	4500
82G5927	364					---	---	82G5927	12	IDE AT		3.5 3H	96k	300k	4500
82G5928	540					---	---	82G5928	12	ATA-2		3.5 3H	128k	350k	4500
82G5929	1000	5				---	---	82G5929	8.5	IDE AT		3.5 3H	512k	800k	5400
82G5930	270					---	---	82G5930	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
82G5931	364					---	---	82G5931	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
82G5932	540					---	---	82G5932	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
82G5933	728					---	---	82G5933	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
82G6106	527					---	---	82G6106	12	IDE AT		3.5 3H	96k	300k	4500
92F0428	1052	6				---	---	92F0428	8.6	SCSI-2 FAST		3.5 3H	512k	800k	5400
92F0440	2014	16				---	---	92F0440	9.5	SCSI-2 FAST		3.5 HH	512k	750k	5400
94G2413	1052	6				---	---	94G2413	8.6	SCSI-2 FAST		3.5 3H	512k	800k	5400
94G2439	270					---	---	94G2439	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2440	364					---	---	94G2440	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2441	540					---	---	94G2441	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2442	728					---	---	94G2442	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2644	270					---	---	94G2644	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2645	364					---	---	94G2645	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2646	540					---	---	94G2646	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2647	728					---	---	94G2647	12	SCSI-2 FAST		3.5 3H	96k	300k	4500
94G2649	1120					---	---	94G2649	6	SCSI-2 FSTW		3.5 3H	512k	1000k	7200
94G2650	2250					---	---	94G2650	7	SCSI-2 FSTW		3.5 3H	512k	1000k	7200
94G2651	4510					---	---	94G2651	8	SCSI-2 FSTW		3.5 HH	512k	1000k	7200
94G3052	1120					---	---	94G3052	6.9	SCSI-2 FSTW		3.5 3H	512k	1000k	7200
94G3054	2250					---	---	94G3054	7.5	SCSI-2 FAST		3.5 3H	512k	1000k	7200
94G3055	2250					---	---	94G3055	7.5	SCSI-2 FSTW		3.5 3H	512k	1000k	7200
94G3056	2255					---	---	94G3056	7.5	SCSI-2 FSTW		3.5 3H	512k	1000k	7200
94G3057	4510					---	---	94G3057	8	SCSI-2 FSTW		3.5 HH	512k	1000k	7200
94G3059	5318					---	---	94G3059	8	SCSI-2 FSTW		3.5 HH	512k	1000k	5400
94G3183	1080	2				---	---	94G3183	10.5	ATA-2		3.5 3H	512k	500k	5400

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
94G3184	1080	2				—/—	
94G3186	1080	2				—/—	
94G3187	1080	2				—/—	
94G3192	2250					—/—	
94G3193	1080					—/—	
94G3195	4510					—/—	
94G3196	4510					—/—	
94G3197	5318					—/—	
94G3198	4510					—/—	
94G3199	2255					—/—	
94G3200	4512					—/—	
94G3201	5318					—/—	
94G3203	2255					—/—	
94G3204	4512					—/—	
94G3205	5318					—/—	
94G3787	5318					—/—	
94G3794	5318					—/—	
94G4196	527					—/—	

IBM CORP. (STORAGE SYS DIV)

0661-371	326	14	949	48	NANA	AUTO
0661-437	467				—/—	—/—
0661-467	412	14	1199	48	NANA	AUTO
0661-467R	400	14	1199	48	—/—	—/—
0662-A10	1052	6			—/—	—/—
0662-S12	1062	6			—/—	—/—
0662-S1D	1052				NANA	AUTO
0662-SW1	1062	6			—/—	—/—
0662-SWD	1062	6			—/—	—/—
0663-E12	1044	14			—/—	—/—
0663-E15	1206	16			—/—	—/—
0663-E15R	1206	15	2463	66	—/—	—/—
0663-H11	868	13	2051	66	—/—	—/—
0663-H12	1004	15	2051	66	NANA	AUTO
0663-L08	823	9	2051	66	NANA	AUTO
0663-L11	868	13	2051	66	NANA	AUTO
0663-L12R	1004	15	2051	66	NANA	AUTO
0663-W2H	2412	15			—/—	—/—
0664-CSH	4027	38	2328	211	—/—	—/—
0664-DSH	4027	32			—/—	—/—
0664-ESH	4027	38	2328	211	—/—	—/—
0664-FSH	4027	32			—/—	—/—
0664-M1H	2013	16			—/—	—/—
0664-N1H	2013	16			—/—	—/—
0664-P1S	1741	15	2304		—/—	—/—
0665-30	25				—/—	—/—
0665-38	31	5	733	17	NANA	AUTO
0665-53	44	7	733	17	NANA	AUTO
0667-61	52	5	582	35	NANA	AUTO
0667-85	73	7	582	35	NANA	AUTO
0669-133	133				—/—	—/—
0671-315/S	315				—/—	—/—
0671-S11	234	11	1224	34	NANA	AUTO
0671-S15	319	15	1224	34	NANA	AUTO
0681-1000	865	20	1458	58	NANA	AUTO
0681-500	476	11	1458	58	NANA	AUTO
1430	21	4	615	17	320/128	307
1431	31	5	733	17	733/733	
1471	31	5	733	17	733/733	
245MB	245				—/—	—/—
340MB	340				—/—	—/—
527MB	527				—/—	—/—
540MB	540	7	2466		—/—	—/—

Drive Model	Seek Time	Interface	Encode	Form Factor	Cache kb	mtbf	Obsolete? RPM
94G3184	10.5	SCSI-2	FAST	3.5 3H	512k	500k	5400
94G3186	10.5	ATA-2		3.5 3H	512k	500k	5400
94G3187	10.5	SCSI-2	FAST	3.5 3H	512k	500k	5400
94G3192	7.5	SCSI-2	FAST	3.5 3H	512k	1000k	7200
94G3193	7.5	SCSI-2	FSTW	3.5 3H	512k	1000k	7200
94G3195	8	SCSI-2	FSTW	3.5 HH	512k	1000k	7200
94G3196	8	SCSI-2	FAST	3.5 HH	512k	1000k	7200
94G3197	8	SCSI-2	FSTW	3.5 HH	512k	1000k	5400
94G3198	8	SCSI-2	FAST	3.5 HH	512k	1000k	7200
94G3199	7.5	SCSI-2	DIFF	3H	512k	1000k	7200
94G3200	8	SCSI-2	DIFF	3.5 HH	512k	1000k	7200
94G3201	8	SCSI-2	DIFF	3.5 HH	512k	1000k	5400
94G3203	7	SCSI-2	DIFF	3H	512k	1000k	7200
94G3204	8	SCSI-2	DIFF	3.5 HH	512k	1000k	7200
94G3205	8	SCSI-2	DIFF	3.5 HH	512k	1000k	5400
94G3787	8	SCSI-2	FAST	3.5 HH	512k	1000k	5400
94G3794	8	SCSI-2	FAST	3.5 HH	512k	1000k	5400
94G4196	8	IDE AT		3.5 3H	512k	1000k	5400

IBM CORP. (STORAGE SYS DIV)

0661-371	12.5	SCSI-2		3.5 HH	64k	300k	Y
0661-437		SCSI		3.5 HH			Y
0661-467	11.5	SCSI-2		3.5 HH	128k	300k	Y
0661-467R	11	SCSI-2		3.5 FH	28k	50k	4316 Y
0662-A10	10	IDE AT		3.5 3H	512k	500k	5400 Y
0662-S12	10	SCSI-2	FAST	3.5 3H	512k	800k	5400 Y
0662-S1D	10	SCSI-2	FSTW	3.5 3H	512k	800k	5400 Y
0662-SW1	10	SCSI-2	FSTW	3.5 3H	512k	800k	5400 Y
0662-SWD	10	SCSI-2	FSTW	3.5 3H	512k	800k	5400 Y
0663-E12	11	SCSI-2	FAST	3.5 HH	256k	50k	4317 Y
0663-E15	11	SCSI-2	FAST	3.5 HH	256k	50k	4317 Y
0663-E15R	9	SCSI-2		3.5 FH	256k	75k	4316 Y
0663-H11	11	SCSI-2		3.5 HH	256k	400k	4316 Y
0663-H12	11	SCSI-2		3.5 HH	256k	400k	4316 Y
0663-L08	9.8	SCSI-2		3.5 HH		400k	
0663-L11	11	SCSI-2		3.5 HH	256k	400k	4316 Y
0663-L12R	11	SCSI-2		3.5 FH	256k	75k	4316 Y
0663-W2H	9	SCSI-2	FAST	5.25 FH	256k	300k	4317 Y
0664-CSH	11	SCSI-2	FAST	5.25 FH		375k	5400 Y
0664-DSH	11	SCSI-2	FAST	5.25 FH		375k	5400 Y
0664-ESH	11	SCSI-2	FAST	5.25 FH		375k	5400 Y
0664-FSH	11	SCSI-2	FAST	5.25 FH		375k	5400 Y
0664-M1H	11	SCSI-2	FAST	3.5 HH	512k	750k	5400 Y
0664-N1H	11	SCSI-2	FSTW	3.5 HH	512k	750k	5400 Y
0664-P1S	11	IPI-2		3.5 HH		750k	5400 Y
0665-30	40	ST412/506	MFM	5.25 FH			Y
0665-38	40	ST412/506	MFM	5.25 FH			Y
0665-53	40	ST412/506	MFM	5.25 FH			Y
0667-61	30	ESDI		5.25 FH			Y
0667-85	30	ESDI		5.25 FH			Y
0669-133		ESDI		5.25 FH			Y
0671-315/S		ESDI		5.25 FH			Y
0671-S11	21.5	SCSI		5.25 FH			Y
0671-S15	21.5	SCSI		5.25 FH			Y
0681-1000	13	SCSI		5.25 FH			Y
0681-500	13	SCSI		5.25 FH			Y
430	80	ST412/506	MFM	5.25 FH			Y
431	40	ST412/506	MFM	5.25 FH			Y
432	40	ST412/506	MFM	5.25 FH			Y
433	14	IDE AT		4H			Y
434	9	IDE AT		4H			Y
435	9	IDE AT		3.5 3H			Y
436	9	SCSI-2		3.5 3H	256k	300k	6300

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtfb RPM
DALA 3540	540	2	4892		16/1049/63	---	---	DALA 3540	12	ATA-2		3.5 3H	128k	350k 4500
DALS 3540	541	2				---	---	DALS 3540	12	SCSI-2 FAST		3.5 4H	64k	350k 4500
DBOA 2360	360	2	3478		16/700/63	---	---	DBOA 2360	13	ATA-2		2.5 4H	32k	300k 4000
DBOA 2528	528				16/1024/63	---	---	DBOA 2528	13	ATA-2		2.5 4H	64k	300k 4000
DBOA 2540	540	3	3478		16/1050/63	---	---	DBOA 2540	13	ATA-2		2.5 4H	32k	300k 4000
DBOA 2720	722	4	3478		16/1400/63	---	---	DBOA 2720	13	ATA-2		2.5 4H	64k	300k 4000
DCHC 38700	8700	18				---	---	DCHC 38700	9	SSA		3.5 FH	512k	1000k 7200
DCHS 38700	8700	18				---	---	DCHS 38700	9	IPI-2		3.5 FH	512k	1000k 7200
DCMS 310800	10800	20				---	---	DCMS 310800	9	SCSI-2 FSTW		3.5 FH	512k	1000k 3400
DESKSTAR 1700AT	1700	2				---	---	DESKSTAR 1700AT	12	ATA-2		3.5 3H	128k	350k 4500
DESKSTAR 540AT	540					---	---	DESKSTAR 540AT	12	ATA-2		3.5 3H	128k	350k 4500
DESKSTAR XP 1.	1080	2				---	---	DESKSTAR XP 1.	10.5	ATA-2		3.5 3H	512k	500k 5400
DFHC 31080	1126	4				---	---	DFHC 31080	9	SSA		3.5 3H	512k	1000k 7200
DFHC 32160	2255	8				---	---	DFHC 32160	9	SSA		3.5 3H	512k	1000k 7200
DFHC 32160	2255	8				---	---	DFHC 32160	9	SSA		3.5 3H	512k	1000k 7200
DFHC 34320	4512	16				---	---	DFHC 34320	9	SSA		3.5 HH	512k	1000k 7200
DFHC 34320	4512	16				---	---	DFHC 34320	9.5	SSA		3.5 HH	512k	1000k 7200
DFHS 31080 S1F	1126	4				---	---	DFHS 31080 S1F	9	SCSI-2 F/FW		3.5 3H	512k	1000k 7200
DFHS 32160	2255	8				---	---	DFHS 32160	9	SCSI-2 F/FW		3.5 3H	512k	1000k 7200
DFHS 32160 S2D	2255					---	---	DFHS 32160 S2D	7.5	SCSI-2 DIFF		3.5 3H	512k	1000k 7200
DFHS 32160 S2F	2250					---	---	DFHS 32160 S2F	7.5	SCSI-2 FAST		3.5 3H	512k	1000k 7200
DFHS 32160 S2W	2250					---	---	DFHS 32160 S2W	7.5	SCSI-2 FSTW		3.5 3H	512k	1000k 7200
DFHS 34320	4512	16				---	---	DFHS 34320	9.5	SCSI-2 F/FW		3.5 HH	512k	1000k 7200
DFHS 34320 S4D	4512					---	---	DFHS 34320 S4D	8	SCSI-2 DIFF		3.5 HH	512k	1000k 7200
DFHS 34320 S4F	4510					---	---	DFHS 34320 S4F	8	SCSI-2 FAST		3.5 HH	512k	1000k 7200
DFHS 34320 S4W	4510					---	---	DFHS 34320 S4W	8	SCSI-2 FSTW		3.5 HH	512k	1000k 7200
DFMS 31080	1320	4				---	---	DFMS 31080	7	SCSI-2 FAST		3.5 3H	512k	1000k 5400
DFMS 32160	2325	8				---	---	DFMS 32160	9	SCSI-2 FAST		3.5 3H	512k	1000k 5400
DFMS 32600	2657	8				---	---	DFMS 32600	9	SCSI-2 FAST		3.5 3H	512k	1000k 5400
DFMS 34320	4320	13				---	---	DFMS 34320	9.5	SCSI-2 F/FW		3.5 HH	512k	1000k 5400
DFMS 351AV	5106	16				---	---	DFMS 351AV	9.5	SCSI-2 F/FW		3.5 HH	512k	1000k 5400
DFMS 35250	5318	16				---	---	DFMS 35250	9.5	SCSI-2 FAST		3.5 HH	512k	1000k 5400
DFMS 35250 S5D	5318					---	---	DFMS 35250 S5D	8	SCSI-2 DIFF		3.5 HH	512k	1000k 5400
DFMS 35250 S5F	5318					---	---	DFMS 35250 S5F	8	SCSI-2 DIFF		3.5 HH	512k	1000k 5400
DFMS 35250 S5W	5318					---	---	DFMS 35250 S5W	8	SCSI-2 FSTW		3.5 HH	512k	1000k 5400
DHAA 2270	270	2	2788		16/524/63	---	---	DHAA 2270	14	IDE AT		2.5 4H	32k	300k 3800
DHAA 2344	344	3	2788			---	---	DHAA 2344	14	IDE AT		2.5 4H	32k	300k 3800 Y
DHAA 2405	405	3	2788		16/785/63	---	---	DHAA 2405	14	IDE AT		2.5 4H	32k	300k 3800
DHAA 2540	540	4	2788		16/1047/63	---	---	DHAA 2540	14	IDE AT		2.5 4H	32k	300k 3800
DHAS 2270	270	2	2788			---	---	DHAS 2270	14	SCSI-2 FAST		2.5 4H	32k	300k 3800
DHAS 2344	344	3	2788			---	---	DHAS 2344	14	SCSI-2 FAST		2.5 4H	32k	300k 3800
DHAS 2405	405	3	2788			---	---	DHAS 2405	14	SCSI-2 FAST		2.5 4H	32k	300k 3800 Y
DHAS 2540	540	4	2788			---	---	DHAS 2540	14	SCSI-2 FAST		2.5 4H	32k	300k 3800
DPEA 30540	540				16/1050/63	---	---	DPEA 30540	10.5	ATA-2		3.5 3H	448k	350k 5400
DPEA 30810	812				16/1574/63	---	---	DPEA 30810	10.5	IDE AT		3.5 3H	448k	350k 5400
DPEA 31080	1083				16/2100/63	---	---	DPEA 31080	10.5	ATA-2		3.5 3H	448k	350k 5400
DPEA 31080	540	4	4896			---	---	DPEA 30540	10.5	SCSI-2 FAST		3.5 3H	512k	1000k 5400 Y
DPES 30810	810	4	4896			---	---	DPEA 30810	10.5	SCSI-2 FAST		3.5 3H	512k	1000k 5400 Y
DPES 31080	1080	4	4896			---	---	DPES 31080	10.5	SCSI-2 FAST		3.5 3H	512k	1000k 5400
DPRA 20810	810	16	1572	63		---	---	DPRA 20810	12	ATA-2		2.5 4H	64k	300k 4900
DPRA 21215	1215	16	2358	63		---	---	DPRA 21215	12	ATA-2		2.5 4H	64k	300k 4900
DPRS 20810	810					---	---	DPRS 20810	12	SCSI-2		2.5 4H	64k	300k 4900
DPRS 21215	1215	16	2358	63		---	---	DPRS 21215	12	SCSI-2		2.5 4H	64k	300k 4900
DSAA 3270	270					---	---	DSAA 3270	12	IDE AT		3.5 3H	96k	300k 4500 Y
DSAA 3360	364					---	---	DSAA 3360	12	IDE AT		3.5 3H	96k	300k 4500 Y
DSAA 3540	548	3	3875			---	---	DSAA 3540	12	ATA-2		3.5 3H	128k	300k 4500 Y
DSAA 3720	720	3	3875			---	---	DSAA 3720	12	ATA-2		3.5 3H	128k	300k 4500 Y
DSAS 3270	270					---	---	DSAS 3270	12	SCSI-2 FAST		3.5 3H	96k	300k 4500 Y
DSAS 3360	364					---	---	DSAS 3360	12	SCSI-2 FAST		3.5 3H	96k	300k 4500 Y
DSAS 3540	548	4	3875			---	---	DSAS 3540	12	SCSI-2 FAST		3.5 3H	128k	300k 4500 Y
DSAS 3720	720	4	3875			---	---	DSAS 3720	12	SCSI-2 FAST		3.5 3H	128k	300k 4500 Y
DVAA 2810	810	6	2788		16/1571/63	---	---	VAA 2810	14	IDE AT		2.5 4H	32k	300k 3800 Y
DVAS 2810	810	6	2788			---	---	VAS 2810	14	SCSI-2 FAST		2.5 4H	32k	300k 3800 Y

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone	Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? RPM
H1172-S2	172	2	2264			---		H1172-S2	14	SCSI		2.5 4H	32k	300k 3800 Y
H2172-A2	172	2	2264			---		H2172-A2	14	IDE AT		2.5 4H	32k	300k 3800 Y
H2172-S2	172	2	2264			---		H2172-S2	14	SCSI-2		2.5 4H	32k	300k 3800 Y
H2258-A3	258	3	2264			---	NA	H2258-A3	14	IDE AT		2.5 4H	32k	300k 3800 Y
H2258-S3	258	3	2264			---	NA	H2258-S3	14	SCSI		2.5 4H	32k	300k 3800 Y
H2344-A4	344	4	2264			---		H2344-A4	14	IDE AT		2.5 4H	32k	300k 3800 Y
H2344-S4	344	4	2264			---		H2344-S4	14	SCSI		2.5 4H	32k	300k 3800 Y
H3133	133	2	2420			---		H3133	14	IDE AT		3.5 3H	96k	250k 3600 Y
H3171	171	2	2420			---		H3171	14	IDE AT		3.5 3H	96k	250k 3600 Y
H3256	256	3	2420			---		H3256	14	IDE AT		3.5 3H	96k	250k 3600 Y
H3342	342	4	2420			---		H3342	14	IDE AT		3.5 3H	96k	250k 3600 Y
Ultrastar ES SCSI 2.16	2160	3				---		Ultrastar ES SCSI 2.16	8.5	SCSI-2Fast		3.5 3H	512k	800k 5400
Ultrastar Ultra 2.16S	2160	3				---		Ultrastar Ultra 2.16S	8.4	Ultra SCSIw		3.5 3H	512k	800k 5400
Ultrastar XP 2.25GB	2250	4				---		Ultrastar XP 2.25GB	7.5	SCSI-2 FAST		3.5 FH	512k	1000k 7200
Ultrastar XP 4.51GB	4510	8				---		Ultrastar XP 4.51GB	8	SCSI-2 FAST		3.5 FH	512k	1000k 7200
WD-12	10	4	306	17		296/296		WD-12	16	IDE AT	MFM	5.25 FH	150k	3600 Y
WD-2120	126	4	1248	50				WD-2120	16	IDE AT		2.5 4H	150k	3600 Y
WD-240	42	2	1120	38		NA/NA	AUTO	WD-240	19	MCA		2.5 4H	150k	3600 Y
WD-240	43	2	1122	38		NA/NA	AUTO	WD-240	19	MCA		2.5 4H	150k	3600 Y
WD-240	42	2	1120	38		---		WD-240	19	MCA		2.5 4H	150k	3600 Y
WD-25	20	8	306	17		296/296		WD-25	16	IDE AT	MFM	5.25 FH	150k	3600 Y
WD-25A	20					---		WD-25A	16	IDE AT	MFM	5.25 FH	150k	3600 Y
WD-25R	20					---		WD-25R	16	IDE AT	MFM	5.25 FH	150k	3600 Y
WD-280	85	4	1120	38		---		WD-280	17	MCA		2.5 4H	150k	3600 Y
WD-3158	120	8	920	32		NA/NA	AUTO	WD-3158	23	MCA		3.5 FH	45k	Y
WD-3158(P2/70)	120					---		WD-3158(P2/70)		MCA		3.5 HH		Y
WD-3160	163	8	1021	39		NA/NA	AUTO	WD-3160	16	MCA		3.5 HH	110k	Y
WD-325	21	4	615	17		---		WD-325	88	MCA		3.5 HH		Y
WD-325K	20					---		WD-325K		ST412/506	MFM	3.5 HH		Y
WD-325N(P2/50)	21					---		WD-325N(P2/50)		MCA		3.5 HH		Y
WD-325Q(P2/30)	21					---		WD-325Q(P2/30)		MCA		3.5 HH		Y
WD-336P(P2/30E)	31					---		WD-336P(P2/30E)		MCA		3.5 HH		Y
WD-336R(P2/50Z)	31					---		WD-336R(P2/50Z)		MCA		3.5 HH		Y
WD-380	81	4	1021	39		NA/NA	AUTO	WD-380	16	MCA		3.5 HH	110k	Y
WD-380S(P2/70)	81					---		WD-380S(P2/70)		MCA		3.5 HH		Y
WD-387(P2/70)	60	4	928	32		NA/NA	AUTO	WD-387(P2/70)	23	MCA		3.5 HH	45k	Y
WD-387T(P2/70)	60					---		WD-387T(P2/70)		MCA		3.5 HH		Y
WD-1320(P2/30E)	20					---		WD-1320(P2/30E)		MCA		3.5 HH		Y
WD-1330P(P2/30E)	30					---		WD-1330P(P2/30E)		MCA		3.5 HH		Y
WD-1330R(P2/70)	30					---		WD-1330R(P2/70)		MCA		3.5 HH		Y
WD-140	41	2	1038	39		NA/NA	AUTO	WD-140	17	MCA		3.5 HH	90k	Y
WD-140S(P2/70)	41	2	1038	39		NA/NA	AUTO	WD-140S(P2/70)	17	MCA		3.5 HH	90k	Y
WDA-2120R	126	4	1243	50		---		WDA-2120R	16	IDE AT		2.5 3H	250	3600 Y
WDA-240	43	2	1122	38		NA/NA	AUTO	WDA-240	19	IDE AT		2.5 4H	150k	3600 Y
WDA-260	63	2	1248	50		---		WDA-260	16	IDE AT		2.5 4H	150k	3600 Y
WDA-280	87	4	1122	38		NA/NA	AUTO	WDA-280	19	IDE AT		2.5 4H	150k	3600 Y
WDA-3160	81	4	1021	39		NA/NA	AUTO	WDA-3160	16	IDE AT		3.5 HH	110k	Y
WDA-380	81	4	1021	39		NA/NA	AUTO	WDA-380	16	IDE AT		3.5 HH	110k	Y
WDA-L160	171	4	1923	44	8/966/44	---		WDA-L160	16	IDE AT		3.5 4H	150k	3600 Y
WDA-L40	41	2	1040	39		NA/NA	AUTO	WDA-L40	17	IDE AT	2.7 RLL	3.5 3H	90k	Y
WDA-L42	42	2	1067	39		NA/NA	AUTO	WDA-L42	17	IDE AT	2.7 RLL	3.5 3H	90k	Y
WDA-L80	85	2	1923	44		---		WDA-L80	16	SCSI-2		3.5 4H	150k	3600 Y
WDS-240	43	2	1120	38		NA/NA	AUTO	WDS-240	19	SCSI		2.5 4H	150k	3600 Y
WDS-260	63	2	1248	50		---		WDS-260	16	SCSI-2		2.5 4H	150k	3600 Y
WDS-280	85	4	1120	38		---		WDS-280	17	SCSI		2.5 4H	150k	3600 Y
WDS-3100	104	2	1990	44		NA/NA	AUTO	WDS-3100	12	SCSI-2		3.5 4H	32k	150k 4320 Y
WDS-3160	163	8	1021	39		NA/NA	AUTO	WDS-3160	16	SCSI-2		3.5 HH	110k	Y
WDS-3168	160					---		WDS-3168		SCSI		3.5 HH		Y
WDS-3200	209	4	1990	44		---		WDS-3200	12	SCSI-2		3.5 4H		Y
WDS-380	81	4	1021	39		NA/NA	AUTO	WDS-380	16	SCSI-2		3.5 HH	32k	150k 4320 Y
WDS-387	80					---		WDS-387		SCSI		3.5 HH	110k	Y
WDS-L160	171	4	1923	44		---		WDS-L160	16	SCSI-2		3.5 4H	150k	3600 Y
WDS-L40	41	2	1038	39		NA/NA	AUTO	WDS-L40	17	SCSI-2		3.5 FH	90k	Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
WDS-L42		42	2	1066	39		NANA	
WDS-L80		85	2	1923	44		---	AUTO

IMI

5006		5	2	306	17		307/214	
5012		10	4	306	17		307/214	
5018		15	6	306	17		307/214	
5021H		15			17		---	

INTERGRAL PERIPHERALS

105 (VIPER)		105	4				---	
170 (VIPER)		171	4				NANA	
1862		64	3		V		NANA	
2100		1000	6		16/1900/63		NANA	AUTO
260 (VIPER)		262	4				---	
340 (VIPER)		341	4				---	

JCT (SEE MAXCARD)

100		5			17		---	
1000		5			17		---	
1005		7			17		---	
1010		14			17		---	
105		5	2	306	17		---	
110		14			17		---	
120		20			17		---	

JVC COMPANIES OF AMERICA

JD-E2042M		42	2	973	43		NANA	AUTO
JD-E2085M		85	4	973	43		NANA	AUTO
JD-E2825P(A)		21	2	581	36		---	AUTO
JD-E2825P(S)		21	2	581	36		---	AUTO
JD-E2825P(X)		21	2	581	36		---	AUTO
JD-E2850P(A)		42	3	791	35		---	AUTO
JD-E2850P(S)		42	3	791	35		---	AUTO
JD-E2850P(X)		42	3	791	35		---	AUTO
JD-E3824TA		21	2	436	48		---	
JD-E3848HA		42	4	436	48		---	
JD-E3848P(A)		42	2	862	48		---	AUTO
JD-E3848P(S)		42	2	862	48		---	AUTO
JD-E3848P(X)		42	2	862	48		---	AUTO
JD-E3896P(A)		84	4	862	48		---	AUTO
JD-E3896P(S)		84	4	862	48		---	AUTO
JD-E3896P(X)		84	4	862	48		---	AUTO
JD-E3896V(A)		84	4	862	48		NANA	AUTO
JD-E3896V(S)		84	4	862	48		NANA	AUTO
JD-E3896V(X)		84	4	862	48		NANA	AUTO
JD-F2042M		42	2	973	43		NANA	AUTO
JD3842HA		21	2	436	48		---	
JD3848HA		43	4	436	48		---	

KALOK CORPORATION

KL1000		105	6	978	35		---	AUTO
KL1300		105	6	820	48/35	6/979/35	NANA	AUTO
KL1320		121	6	820	55/40	6/981/40	NANA	AUTO
KL320		21	4	615	17		616/300	
KL330		43	4	615	26		617/617	
KL332		40	4	615	26		---	
KL340		43	6	820	17		---	
KL341		43	4	676	31		---	AUTO
KL342		42	4	676	31		---	
KL343		43	4	676	31		645/645	AUTO

Drive Model	Seek Time	Interface	Encode	Form cache	Obsolote?
WDS-L42	17	SCSI-2		3.5 3H	80k Y
WDS-L80	16	SCSI-2		3.5 4H	150k 3600 Y

IMI

5006	27	ST412/506	MFM		
5012	27	ST412/506	MFM		
5018	27	ST412/506	MFM		
5021H	85	ST412/506	MFM	5.25 FH	

INTERGRAL PERIPHERALS

105 (VIPER)	15	PCMCIA-ATA	1,7 RLL	1.8 IN	32k 250k 4500
170 (VIPER)	18	PCMCIA-ATA	1,7 RLL	1.8 IN	32k 250k 4500
1862	12	IDE AT	1,7 RLL		100k Y
2100	12	ATA-2	1,7 RLL	2.5 4H	128k 250k 4200
260 (VIPER)	12	PCMCIA-ATA	1,7 PRML	1.8 IN	32k 250k 4500
340 (VIPER)	12	PCMCIA-ATA	1,7 PRML	1.8 IN	32k 250k 4500

JCT (SEE MAXCARD)

100	110	ST412/506	MFM	5.25 HH	Y
1000	110	Commodore	MFM	5.25 HH	Y
1005	110	Commodore	MFM	5.25 HH	Y
1010	130	Commodore	MFM	5.25 HH	Y
105	110	ST412/506	MFM	5.25 HH	Y
110	130	ST412/506	MFM	5.25 HH	Y
120	100	ST412/506	MFM	5.25 HH	Y

JVC COMPANIES OF AMERICA

JD-E2042M	16	IDE AT	1,7 RLL	2.5 4H	32k 130k 3118 Y
JD-E2085M	16	IDE AT	1,7 RLL	2.5 4H	32k 130k 3118 Y
JD-E2825P(A)	25	IDE AT	2,7 RLL	3.5 4H	30k 3109 Y
JD-E2825P(S)	25	SCSI	2,7 RLL	3.5 4H	30k 3109 Y
JD-E2825P(X)	25	IDE XT	2,7 RLL	3.5 4H	30k 3109 Y
JD-E2850P(A)	25	IDE AT	2,7 RLL	3.5 4H	32k 40k 3109 Y
JD-E2850P(S)	25	SCSI	2,7 RLL	3.5 4H	40k 3109 Y
JD-E2850P(X)	25	IDE XT	2,7 RLL	3.5 4H	32k 40k 3109 Y
JD-E3824TA	28		2,7 RLL	3.5 3H	20k Y
JD-E3848HA	29		2,7 RLL	3.5 3H	20k Y
JD-E3848P(A)	25	IDE AT	2,7 RLL	3.5 4H	30k 2332 Y
JD-E3848P(S)	25	SCSI	2,7 RLL	3.5 4H	30k 2332 Y
JD-E3848P(X)	25	IDE XT	2,7 RLL	3.5 4H	30k 2332 Y
JD-E3896P(A)	25	IDE AT	2,7 RLL	3.5 4H	30k 3109 Y
JD-E3896P(S)	25	SCSI	2,7 RLL	3.5 4H	30k 3109 Y
JD-E3896P(X)	25	IDE XT	2,7 RLL	3.5 4H	30k 3109 Y
JD-E3896V(A)	25	IDE AT	2,7 RLL	3.5 3H	30k Y
JD-E3896V(S)	25	SCSI	2,7 RLL	3.5 3H	30k Y
JD-E3896V(X)	25	IDE XT	2,7 RLL	3.5 3H	30k Y
JD-F2042M	16	IDE AT	1,7 RLL	2.5 4H	32k 130k 3118 Y
JD3842HA	28		2,7 RLL	3.5 3H	20k Y
JD3848HA	29		2,7 RLL	3.5 3H	20k Y

KALOK CORPORATION

KL1000	25	IDE AT	2,7 RLL	3.5 HH	32k 50k 3662 Y
KL3100	49	IDE AT	2,7 RLL	3.5 HH	100k 3662 Y
KL3120	49	IDE AT	2,7 RLL	3.5 HH	100k 3662 Y
KL320	28	ST412/506	MFM	3.5 HH	43.5 3600 Y
KL330	40	ST412/506	2,7 RLL	3.5 HH	43.5 3600 Y
KL332	48	MCA	2,7 RLL	3.5 HH	Y
KL340	25	ST412/506	MFM	3.5 HH	50 Y
KL341	33	SCSI	2,7 RLL	3.5 HH	8k 40k 3375 Y
KL342	30	MCA	2,7 RLL	3.5 HH	40k Y
KL343	28	IDE AT	2,7 RLL	3.5 HH	8k 100k 3375 Y

Drive Model	Format	Size MB	Head	Cyl	Trac	Sect/Translate	H/C/S	RWC/ WPC	Land Zone	
KL360		66	6	820	26			---		
KL381		85	6	820				---		
KL383		84	6	815	34	6/815/33		NANA		
P3250		251	4	2048	80	16/961/32		NANA		
P3360		362	4	791	56	16/791/56		NANA		
P3540		540	4	1024	63			NANA	AUTO	
P5-125(A)		125	2	2048				NANA	AUTO	
P5-125(S)		125	2	2048				NANA	AUTO	
P5-250(A)		251	4	2048				NANA	AUTO	
P5-250(S)		251	4	2048				NANA	AUTO	

KYOCERA ELECTRONICS, INC.

KC20A		21	4	615	17			---		
KC20B		21	4	615	17			---		
KC30A		33	4	615	26			---		
KC30B		33	4	615	26			---		
KC40GA		40	2	1075	17	4/577	33/		AUTO	
KC80C		87	8	787	28			NANA		
KC80GA		78	4	1069	36	8/577/33		NANA	AUTO	

LANSTOR

LAN-115		15	918	17				---	NONE	1023
LAN-140		8	1024	34				---	NONE	1023
LAN-180		8	1024	26				---	NONE	1023
LAN-64		8	1024	17				---	NONE	1023

LAPINE

LT10		10	2	615	17			616/		
LT100 (not verified)		10						---		
LT20		20	4	614	17			616/		
LT200		20	4	614	17			615/		
LT2000		20	4	614	17			615/		
LT300		32	4	614	17			615/		
LT3065		10	4	306	17			306/128		
LT3512		10	4	306	17			306/128		
LT3522		10	4	306	17			307/		
LT3532		32	4	614	26			---		
LT3533		20						---		
LT4000 (not verified)		40						---		
TITAN 20		21	4	615	17			---	615	
TITAN 30		21	4	615				---		
TITAN 40		40						---		
TITAN 42		42						---		
TITAN 45		45						---		

MAXTOR CORPORATION

250837		837	5	66-132				---		
25084A		80	2	43-67	16/569/18	NANA		---	569	
251005		1005	6	66-132				---		
25128A		128	4	1092	NA	14/1024/17	NANA		AUTO	
251340		1340	8	66-132				---		
25252A		252	6		16/569/54			---		
25252S		251	6					---		
2585A		85	4	1092	NA	10/981/17	NANA		AUTO	
2585S (never made)		85	4	1092	V		NANA		AUTO	
3053		44	5	1024	17		1024/512		AUTO	
3085		68	7	1170	17		1170/512		AUTO	
3130E		112	5	1250	36		1251/512		AUTO	
3130S		112	5	1255	35		1256/512		AUTO	
3180E		150	7	1250	35		1251/512		AUTO	
3180S		153	7	1255	36		1256/512		AUTO	

Drive Model	Seek	Time	Interface	Encode	Form	cache	Obsolete?
KL360	25	ST412/506	2,7 RLL	3.5 HH	50k	Y	
KL381	25	SCSI	2,7 RLL	3.5 HH	50k	Y	
KL383	25	IDE AT	2,7 RLL	3.5 HH	50k	Y	
P3250	16.5	IDE AT	1,7 RLL	3.5 4H	128k 250k 3600	Y	
P3360	16.5	IDE AT	1,7 RLL	3.5 4H	128k 250k 3600	Y	
P3540	11/16.5	IDE AT	1,7 RLL	3.5 4H	128k 250k 4200	Y	
P5-125(A)	17	IDE AT	1,7 RLL		100k	Y	
P5-125(S)	17	SCSI-2	1,7 RLL		100k	Y	
P5-250(A)	17	IDE AT	1,7 RLL		100k	Y	
P5-250(S)	17	SCSI-2	1,7 RLL		100k	Y	

KYOCERA ELECTRONICS, INC.

KC20A		65	ST412/506	MFM	3.5 HH	40k	Y
KC20B		62	ST412/506	MFM	3.5 HH	40k	Y
KC30A		65	ST412/506	2,7 RLL	3.5 HH	40k	Y
KC30B		62	ST412/506	2,7 RLL	3.5 HH	40k	Y
KC40GA		28	IDE AT	2,7 RLL	3.5 HH	40k	Y
KC80C		28	SCSI	2,7 RLL	3.5 HH	28k	Y
KC80GA		23	IDE AT	2,7 RLL	3.5 HH	28k	Y

LANSTOR

LAN-115							
LAN-140							
LAN-180							
LAN-64							

LAPINE

LT10		27	ST412/506	MFM	3.5 HH		
LT100 (not verified)		85	ST412/506		3.5 HH		
LT20		20	ST412/506	MFM	3.5 HH		
LT200		65	ST412/506	MFM	3.5 HH		
LT2000			ST412/506	MFM	3.5 HH		
LT300			ST412/506	2,7 RLL	3.5 HH		
LT3065		65	ST412/506	2,7 RLL	3.5 HH		
LT3512		65	ST412/506	2,7 RLL	3.5 HH		
LT3522		27	ST412/506	MFM	3.5 HH		
LT3532		65	ST412/506	2,7 RLL	3.5 HH		
LT3533			ST412/506	MFM	3.5 HH		
LT4000 (not verified)		27	SCSI		3.5 HH		
TITAN 20			ST412/506		3.5 HH		
TITAN 30				RLL?	3.5 HH		
TITAN 40			SCSI		3.5 HH		
TITAN 42			SCSI		3.5 HH		
TITAN 45			SCSI		3.5 HH		

MAXTOR CORPORATION

30837		14	IDE AT	1,7 RLL	2.5 4H	64k 300k 4464	
3084A		12	IDE AT	1,7 RLL	2.5 4H	128k 350k 4247	
351005		14	IDE AT	1,7 RLL	2.5 4H	64k 300k 4464	
35128A		14	IDE AT	1,7 RLL	2.5 4H	250k 3600	
351340		14	IDE AT	1,7 RLL	2.5 4H	64k 300k 4464	
35252A		12	IDE AT	1,7 RLL	2.5 4H	64k 350k 4247	
35252S		12	SCSI	1,7 RLL	2.5 4H	128k 350k 4247	
3585A		14	IDE AT	1,7 RLL	2.5 4H	250k 3600	
3585S (never made)		15	SCSI	1,7 RLL	2.5 4H	150k 3600	
3653		25	ST412/506	MFM	5.25 HH	30k 3600	Y
3085		22	ST412/506	MFM	5.25 HH	40k 3600	Y
3130E		17	ESDI	2,7 RLL	5.25 HH	35k 3600	Y
3180E		17	SCSI	2,7 RLL	5.25 HH	35k 3600	Y
3180S		17	ESDI	2,7 RLL	5.25 HH	35k 3600	Y
3180S		17	SCSI	2,7 RLL	5.25 HH	35k 3600	Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	mtbf	Obsolete? RPM
3380	338	15	1224	NA					3380	27	SCSI	RL	5.25 FH		20k	3600 Y
7040A	41	2	1155	36	5/981/17		NANA	AUTO	17 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	32k	150k	3703
7040S	42	2	1155	36			NANA	AUTO	17 SCSI	1,7 RLL		1,7 RLL	3.5 FH	32k	150k	3600
7060A	65	2	1498	NA	16/467/17		NANA	AUTO	15 IDE AT	1,7 RLL		1,7 RLL	3.5 FH		150k	3600
7060S	60	2	1498	42			NANA	AUTO	15 SCSI	1,7 RLL		1,7 RLL	3.5 FH		150k	3600
7080A	85	4	1166	36	10/981/17		NANA	AUTO	17 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	32k	150k	3703
7080S	85	4	1166	36			NANA	AUTO	17 SCSI	1,7 RLL		1,7 RLL	3.5 FH	32k	150k	3600
71050A	1000	5	77-124	16/2045/63			NANA	AUTO	12 EIDE	1,7 RLL		1,7 RLL	3.5 FH	256k	300k	4500
71084A	1084	4	413691-155	16/2105/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	4480
71084AP	1084	4	413691-155	16/2105/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	150k	3600 Y
7120A	125	4	1498	NA	16/936/17		NANA	AUTO	15 SCSI	1,7 RLL		1,7 RLL	3.5 FH	64k	150k	3600 Y
7120S	125	4	1498	42			NANA	AUTO	12 EIDE	1,7 RLL		1,7 RLL	3.5 FH	256k	300k	4500
71260A	1200	6	77-124	16/2448/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
71260AP	1260	5	413691-155	16/2632/63			NANA	AUTO	14 ATA-2	1,7 RLL		1,7 RLL	3.5 FH	256k	300k	4500
71260S	1200						NANA	AUTO	14 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551 Y
7131A	125	2	2096	8/1002/32			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	4480
71336A	1336	4	4721	16/2595/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
71336AP	1336	4	4721	16/2595/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
7135AV	135	1	72-123	13/966/21			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	32k	300k	3551 Y
71626AP	1626	6	413691-155	16/3158/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
71670A	1670	5	4721	16/3224/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	4480
71670AP	1670	5	4721	16/3224/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
7170A	171	4	1281	48-72	10/984/34		NANA	AUTO	15 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	150k	3551 Y
7171A	172	2		V	15/866/26		NANA	AUTO	14 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551 Y
72004A	2004	6	4721	16/3893/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	4480
72004AP	2004	6	4721	16/3893/63			NANA	AUTO	15 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
7213A	213	4	1690	42	16/683/38		NANA	AUTO	15 SCSI	1,7 RLL		1,7 RLL	3.5 FH	64k	150k	3551 Y
7213S	213	4	1690	42			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	32k	300k	3551 Y
7245A	234	4	48-72	16/967/31			NANA	AUTO	15 SCSI	1,7 RLL		1,7 RLL	3.5 FH	64k	250k	3551 Y
7245S	245	4	48-72				NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	32k	300k	3551 Y
7270AV	270	2	72-123	11/959/50			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	256k	300k	4500 Y
7273A	273	3	V	16/1012/33			NANA	AUTO	14 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551 Y
7290A	290	4	60-96				NANA	AUTO	14 SCSI	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551 Y
7290S	290	4					NANA	AUTO	14 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551 Y
7345A	345	4		15/790/57			NANA	AUTO	14 SCSI	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551 Y
7345S	345	4					NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551 Y
7405AV	405	3	72-123	16/989/50			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	32k	300k	3551
7420AV	420	3	72-123	16/1046/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551
7425AV	425	2	372176-144	16/1000/52			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	32k	300k	3551
7540AV	540	4	72-123	16/1046/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	4480
7541A	541	2	413691-155	16/1052/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
7541AP	541	2	413691-155	16/1052/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	256k	300k	4500
7546A	547	4	V	16/1024/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	4480
7668A	668	2	4721	16/1297/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	128k	300k	4480
7668AP	668	2	4721	16/1297/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	4480
7850AV	850	4	372176-144	16/1648/63			NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 FH	64k	300k	3551
8051A	41	4	745	26	5/981/17		NANA	AUTO	28 IDE AT	2,7 RLL		2,7 RLL	3.5 HH	32k	150k	3484 Y
8051S	40	4	793	28			NANA	AUTO	28 SCSI	2,7 RLL		2,7 RLL	3.5 HH		30k	3600 Y
8425S	21	4	612	17	616/128		66A		68 SCSI	MF		MF	3.5 HH		20k	3600 Y
9380E	338	15	1224	36	NA/512		AUTO		16 ESDI	2,7 RLL		2,7 RLL	5.25 FH	50k	3600 Y	
9380S	336	15	1218	36	NA/512		AUTO		16 SCSI	2,7 RLL		2,7 RLL	5.25 FH	50k	3600 Y	
9780E	676	15	1661	53	NA/512		AUTO		17 ESDI	1,7 RLL		1,7 RLL	5.25 FH	50k	3600 Y	
9780S	676	15	1661	53	166/512		AUTO		17 SCSI	1,7 RLL		1,7 RLL	5.25 FH	50k	3600 Y	
EXT4175	149	7	1224	34	NANA		AUTO		27 ESDI	RL		RL	5.25 FH		20k	3600 Y
EXT4280	234	11	1224	36	NANA		AUTO		27 ESDI	RL		RL	5.25 FH		20k	3600 Y
EXT4380	319	15	1224	34	NANA		AUTO		27 ESDI	RL		RL	5.25 FH		20k	3600 Y
LXT100A	90						NANA	AUTO	12 IDE AT	1,7 RLL		1,7 RLL	3.5 HH		150k	3600 Y
LXT100S	96	8	733	32			NANA	AUTO	27 SCSI	2,7 RLL		2,7 RLL	3.5 HH		150k	3600 Y
LXT200A	191	7	1320	NA	15/816/32		NANA	AUTO	15 IDE AT	1,7 RLL		1,7 RLL	3.5 HH		150k	3600 Y
LXT200S	207	7	1320	33,53			NANA	AUTO	15 SCSI	1,7 RLL		1,7 RLL	3.5 HH		150k	3600 Y
LXT213A	203	7	1320	NA	16/683/38		NANA	AUTO	15 IDE AT	1,7 RLL		1,7 RLL	3.5 HH	32k	150k	3600 Y
LXT213S	213	7	1320	34-56			NANA	AUTO	15 SCSI-2	1,7 RLL		1,7 RLL	3.5 HH	32k	150k	3600 Y
LXT340A	340	7	1560	47-72	16/654/63		NANA	AUTO	15 IDE AT	2,7 RLL		2,7 RLL	3.5 HH	128k	150k	3600 Y

Drive Model	Format	Size MB	Head	Cyl	Trac	Sec/ Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Format	Size MB	Head	Cyl	Trac	Sec/ Translate H/C/S	RWC/ WPC	Land Zone	Seek Time	Interface	Encode	Form Factor	Cache kb	mbf	Obsolete? RPM
LXT340S		340	7	1560	47-72		NANA	AUTO	LXT340S		340	7	1560	47-72		NANA	AUTO	15	SCSI	2,7 RLL	3.5 HH	128k	150k	3600 Y
LXT437A (never made)		437	9	1560		16/842/63	NANA	AUTO	LXT437A (never made)		437	9	1560		16/842/63	NANA	AUTO	12	IDE AT	2,7 RLL	3.5 HH		150k	3600
LXT437S (never made)		437	9	1560	V		NANA	AUTO	LXT437S (never made)		437	9	1560	V		NANA	AUTO	13	SCSI	2,7 RLL	3.5 HH		150k	3600
LXT50S		48	4	733	32		NANA	AUTO	LXT50S		48	4	733	32		NANA	AUTO	27	SCSI	2,7 RLL	3.5 HH		40k	3600 Y
LXT535A		535	11	1024	63	16/1024/36	NANA	AUTO	LXT535A		535	11	1024	63	16/1024/36	NANA	AUTO	12	IDE AT	2,7 RLL	3.5 HH	128k	150k	3600
MX9217SDN		2170	9	100-14			NANA	AUTO	MX9217SDN		2170	9	100-14			NANA	AUTO	13	SCSI	2,7 RLL	3.5 HH	128k	150k	3600
MX9217SDW		2170	9	100-14			NANA	AUTO	MX9217SDW		2170	9	100-14			NANA	AUTO	10.5	SE SCSI-2D	1,7 RLL	3.5 3H	512k	800k	5400
MX9217SSN		2170	9	100-14			NANA	AUTO	MX9217SSN		2170	9	100-14			NANA	AUTO	10.5	SE SCSI-2DW	1,7 RLL	3.5 3H	512k	800k	5400
MX9217SSW		2170	9	100-14			NANA	AUTO	MX9217SSW		2170	9	100-14			NANA	AUTO	10.5	SE SCSI-2	1,7 RLL	3.5 3H	512k	800k	5400
MXT1240S		1240	15	2512	NA	16/1024/63	NANA	AUTO	MXT1240S		1240	15	2512	NA	16/1024/63	NANA	AUTO	10.5	SE SCSI-2W	1,7 RLL	3.5 3H	512k	800k	5400
MXT540AL		547	7	2466	NA		NANA	AUTO	MXT540AL		547	7	2466	NA		NANA	AUTO	9	IDE AT	1,7 RLL	3.5 3H		300k	6300
MXT540SL		547	7	2466	NA		NANA	AUTO	MXT540SL		547	7	2466	NA		NANA	AUTO	9	IDE AT	1,7 RLL	3.5 3H		300k	6300
PO-12S PANTHER		1045	15	162681-103			NANA	AUTO	PO-12S PANTHER		1045	15	162681-103			NANA	AUTO	13	SCSI-2	RLL	5.25 FH	256k	150k	3600
P1-08E (never made)		696	9	1778	85		NANA	AUTO	P1-08E (never made)		696	9	1778	85		NANA	AUTO	12	ESDI	RLL	5.25 FH		100k	3600
P1-12E (never made)		1051	15	1778	77		NANA	AUTO	P1-12E (never made)		1051	15	1778	77		NANA	AUTO	13	ESDI	RLL	5.25 FH		100k	3600
P1-13E (never made)		1160	15	1778			NANA	AUTO	P1-13E (never made)		1160	15	1778			NANA	AUTO	13	ESDI	RLL	5.25 FH		100k	3600
P1-16E (never made)		1331	19	1778			NANA	AUTO	P1-16E (never made)		1331	19	1778			NANA	AUTO	13	ESDI	RLL	5.25 FH		100k	3600
P1-17E (never made)		1470	19	1778	85		NANA	AUTO	P1-17E (never made)		1470	19	1778	85		NANA	AUTO	13	ESDI	RLL	5.25 FH		100k	3600
P1-17S PANTHER		1503	19	177870-101			NANA	AUTO	P1-17S PANTHER		1503	19	177870-101			NANA	AUTO	13	SCSI-2	RLL	5.25 FH	256k	150k	3600
P2-08S		696					NANA	AUTO	P2-08S		696					NANA	AUTO	13	SCSI-2	RLL	5.25 FH			
P2-12S		1000					NANA	AUTO	P2-12S		1000					NANA	AUTO	13	SCSI-2	RLL	5.25 FH			
P2-17S		1400					NANA	AUTO	P2-17S		1400					NANA	AUTO	13	SCSI-2	RLL	5.25 FH			
RT-800HS		786					NANA	AUTO	RT-800HS		786					NANA	AUTO	13	SCSI	RLL	5.25 HH			
XT1050		38	5	902	17		NANA	AUTO	XT1050		38	5	902	17		NANA	AUTO	30	ST412/506	MF	5.25 FH		20k	3600 Y
XT1065		52	7	918	17		NANA	AUTO	XT1065		52	7	918	17		NANA	AUTO	30	ST412/506	MF	5.25 FH		20k	3600 Y
XT1085		71	8	1024	17		NANA	AUTO	XT1085		71	8	1024	17		NANA	AUTO	28	ST412/506	MF	5.25 FH		150k	3600 Y
XT1105		84	11	918	17		NANA	AUTO	XT1105		84	11	918	17		NANA	AUTO	27	ST412/506	MF	5.25 FH		20k	3600 Y
XT1120R		105	8	1024	25		NANA	AUTO	XT1120R		105	8	1024	25		NANA	AUTO	27	ST412/506	MF	5.25 FH		150k	3600 Y
XT1140		119	15	918	17		NANA	AUTO	XT1140		119	15	918	17		NANA	AUTO	27	ST412/506	MF	5.25 FH		150k	3600 Y
XT1240R		196	15	1024	25		NANA	AUTO	XT1240R		196	15	1024	25		NANA	AUTO	27	ST412/506	MF	5.25 FH		150k	3600 Y
XT2085		72	7	1224	17		NANA	AUTO	XT2085		72	7	1224	17		NANA	AUTO	30	ST412/506	MF	5.25 FH		30k	3600 Y
XT2140		113	11	1224	17		NANA	AUTO	XT2140		113	11	1224	17		NANA	AUTO	30	ST412/506	MF	5.25 FH		30k	3600 Y
XT2190		159	15	1224	17		NANA	AUTO	XT2190		159	15	1224	17		NANA	AUTO	29	ST412/506	MF	5.25 FH		150k	3600 Y
XT3170		146	9	1224	26		NANA	AUTO	XT3170		146	9	1224	26		NANA	AUTO	30	SCSI	RLL	3.5 FH		20k	3600 Y
XT3280		244	15	1224	26		NANA	AUTO	XT3280		244	15	1224	26		NANA	AUTO	30	SCSI	RLL	3.5 FH		20k	3600 Y
XT3380		319	15	1224	34		NANA	AUTO	XT3380		319	15	1224	34		NANA	AUTO	27	SCSI	RLL	5.25 FH		20k	3600 Y
XT4170E		157	7	1224	35/36		NANA	AUTO	XT4170E		157	7	1224	35/36		NANA	AUTO	27	SCSI	RLL	5.25 FH		20k	3600 Y
XT4170S		157	7	1224	35-36		NANA	AUTO	XT4170S		157	7	1224	35-36		NANA	AUTO	27	SCSI	RLL	5.25 FH		20k	3600 Y
XT4175		234	11	1224	34		NANA	AUTO	XT4175		234	11	1224	34		NANA	AUTO	14	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT4230E		203	9	1224	35/36		NANA	AUTO	XT4230E		203	9	1224	35/36		NANA	AUTO	14	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT4280SF		338	15	1224	36		NANA	AUTO	XT4280SF		338	15	1224	36		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT4380E		338	15	1224	36		NANA	AUTO	XT4380E		338	15	1224	36		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT4380S		338	15	1224	NA		NANA	AUTO	XT4380S		338	15	1224	NA		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT81000E		889	15	1632	71		NANA	AUTO	XT81000E		889	15	1632	71		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8380E		361	8	1632	53-54		NANA	AUTO	XT8380E		361	8	1632	53-54		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8380EH		360	8	1632	54		NANA	AUTO	XT8380EH		360	8	1632	54		NANA	AUTO	13	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8380S		361	8	1632	NA		NANA	AUTO	XT8380S		361	8	1632	NA		NANA	AUTO	14	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8380SH		360	8	1632	NA		NANA	AUTO	XT8380SH		360	8	1632	NA		NANA	AUTO	14	SCSI	1,7 RLL	5.25 FH	256k	150k	3600 Y
XT8610E		641	12	1632	53-54		NANA	AUTO	XT8610E		641	12	1632	53-54		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8702S		616	15	1490	NA		NANA	AUTO	XT8702S		616	15	1490	NA		NANA	AUTO	17	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8760E		676	15	1632	53-54		NANA	AUTO	XT8760E		676	15	1632	53-54		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8760EH		676	15	1632	54		NANA	AUTO	XT8760EH		676	15	1632	54		NANA	AUTO	14	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8760S		670	15	1632	NA		NANA	AUTO	XT8760S		670	15	1632	NA		NANA	AUTO	16	SCSI	1,7 RLL	5.25 FH		150k	3600 Y
XT8760SH		670	15	1632	NA		NANA	AUTO	XT8760SH		670	15	1632	NA		NANA	AUTO	14	SCSI	1,7 RLL	5.25 FH	256k	150k	3600 Y
XT8800E		694	15	1274	54		NANA	AUTO	XT8800E		694	15	1274	54		NANA	AUTO	14	SCSI	1,7 RLL	5.25 FH		150k	3600 Y

MEGA DRIVE SYSTEMS

M1-105	105	4	1219				---	
M1-120	122	2	1818				---	
M1-240	245	4	1818				---	
M1-52	52	2	1219				---	
MH-1G	1050	13	1974				---	

MEGA DRIVE SYSTEMS

105	17	SCSI	2,7 RLL	3.5 HH	64k	60k	3662 Y
120	16	SCSI	1,7 RLL	3.5 HH	256k	250k	4306 Y
240	16	SCSI	1,7 RLL	3.5 HH	256k	250k	4306 Y
82	17	SCSI	2,7 RLL	3.5 HH	64k	60k	3662 Y
1G	10	SCSI	1,7 RLL	3.5 HH	256k	300k	5400

Drive Model	Format Size MB	Head	Cyl	Trac	Sec/ Translate H/C/S	RWC/ WPC	Land Zone
MH-340	338	9	1100			---	
MH-425	426	9	1520			---	
MH-535	525	9	1476			---	
P105	103	6	1019	33		NANA	AUTO
P120	120	5	1123			NANA	AUTO
P170	168	7	1123			NANA	AUTO
P210	210	7	1156			NANA	AUTO
P320	320	15	886			NANA	AUTO
P42	42	3	834	33		NANA	AUTO
P42S	426	9	1512			NANA	AUTO
P84	84	6	834	33		NANA	AUTO

MEMOREX

321	5	2	320	17		321/128	
322	10	4	320	17		321/128	
323	15	6	320	17		321/128	
324	20	8	320	17		321/128	
450	10	2	612	17		321/350	
512	25	3	961	17		321/480	
513	41	5	961	17		321/480	
514	58	7	961	17		961/1480	

MICROPOLIS CORP

1302	20	3	830	17		831/831	AUTO
1303	35	5	830	17		831/831	AUTO
1304	40	6	830	17		831/831	AUTO
1323	35	4	1024	17		1025/1025	AUTO
1323A	44	5	1024	17		1025/1025	AUTO
1324	53	6	1024	17		1025/1025	AUTO
1324A	62	7	1024	17		1025/1025	AUTO
1325	71	8	1024	17		1025/1025	AUTO
1325CT	71		1024	17		1025/1025	AUTO
1333	35	4	1024	17		1025/1025	AUTO
1333A	44	5	1024	17		1025/1025	AUTO
1334	53	6	1024	17		1025/1025	AUTO
1334A	62	7	1024	17		1025/1025	AUTO
1335	71	8	1024	17		1025/1025	AUTO
1352	32	2	1024	36		---	
1352A	41	3	1024	36		NANA	
1353	75	4	1024	36		NANA	AUTO
1353A	94	5	1024	36		NANA	AUTO
1354	113	6	1024	36		NANA	AUTO
1354A	131	7	1024	36		NANA	AUTO
1355	150	8	1024	36		NANA	AUTO
1372A	52		1024	36		---	
1373	72	4	1024	36		1017/1017	AUTO
1373A	91	5	1024	36		1017/1017	AUTO
1374	109	6	1024	36		1017/1017	AUTO
1374-6	135	6	1245	36		---	
1374A	127	7	1024	36		1017/1017	AUTO
1375	145	8	1024	36		1017/1017	AUTO
1516-10S	678	10	1640	72		NANA	
1517-13	922	13	1925	72		NANA	
1517-14	981	14	1925	71		---	
1517-15	1051	15	1925	71		---	
1518	1346					---	
1518-14	993	14	1925	72		NANA	
1518-15	1341	15	2104	83		NANA	AUTO
1528	1342	15	2100	84		NANA	AUTO
1528-15	1342	15	2100	84		NANA	AUTO
1528-15D	1300					---	
1538	871	15	1669	68		NANA	AUTO

Drive Model	Seek Time	Interface	Encode	Form Factor	Cache kb	Obsolete? mtbf RPM
MH-340	13	SCSI	1,7 RLL	3.5 HH	64k	150k 4412 Y
MH-425	14	SCSI	1,7 RLL	3.5 HH	64k	150k 4412 Y
MH-535	14	SCSI	1,7 RLL	3.5 HH	256k	150k 4412 Y
P105	19	SCSI	2,7 RLL	3.5 HH		50k Y
P120	14	SCSI	1,7 RLL	3.5 HH		50k Y
P170	14	SCSI	1,7 RLL	3.5 HH		50k Y
P210	12.5	SCSI	1,7 RLL	3.5 HH		150k Y
P320	19	SCSI	2,7 RLL	3.5 HH		50k Y
P42	12	SCSI	1,7 RLL	3.5 HH		75k Y
P42S	19	SCSI	2,7 RLL	3.5 HH		50k Y

MEMOREX

531	ST412/506	MFM	5.25 FH		Y
532	ST412/506	MFM	5.25 FH		Y
533	ST412/506	MFM			Y
534	ST412/506	MFM			Y
535	ST412/506	MFM			Y
536	ST412/506	MFM			Y

MICROPOLIS CORP

1302	30	ST412/506	MFM	5.25 FH		20k 3600 Y
1303	30	ST412/506	MFM	5.25 FH		20k 3600 Y
1304	30	ST412/506	MFM	5.25 FH		20k 3600 Y
1323	28	SP412/506	MFM	5.25 FH		35k 3600 Y
1323A	28	ST412/506	MFM	5.25 FH		35k 3600 Y
1324	28	ST412/506	MFM	5.25 FH		35k 3600 Y
1324A	28	ST412/506	MFM	5.25 FH		35k 3600 Y
1325	28	ST412/506	MFM	5.25 FH		35k 3600 Y
1325CT	28	ST412/506	MFM	5.25 FH		35k 3600 Y
1333	28	ST412/506	MFM	5.25 FD		25k 3600 Y
1333A	28	ST412/506	MFM	5.25 FH		25k 3600 Y
1334	28	ST412/506	MFM	5.25 FH		25k 3600 Y
1334A	28	ST412/506	MFM	5.25 FH		25k 3600 Y
1335	28	ST412/506	MFM	5.25 FH		25k 3600 Y
1352	23	ESDI	2,7 RLL	5.25 FH		Y
1352A	23	ESDI	2,7 RLL	5.25 FH		Y
1353	23	ESDI	2,7 RLL	5.25 FH		150k 3600 Y
1353A	23	ESDI	2,7 RLL	5.25 FH		150k 3600 Y
1354	23	ESDI	2,7 RLL	5.25 FH		150k 3600 Y
1354A	23	ESDI	2,7 RLL	5.25 FH		150k 3600 Y
1355	23	ESDI	2,7 RLL	5.25 FH		150k 3600 Y
1372A	---	SCSI	2,7 RLL	5.25 FH		Y
1373	23	SCSI	2,7 RLL	5.25 FH		30k 3600 Y
1373A	23	SCSI	2,7 RLL	5.25 FH		30k 3600 Y
1374	23	SCSI	2,7 RLL	5.25 FH		30k 3600 Y
1374-6	16	SCSI	2,7 RLL	5.25 HH		40k 3600 Y
1374A	---	SCSI	2,7 RLL	5.25 FH		30k 3600 Y
1375	23	SCSI	2,7 RLL	5.25 FH		30k 3600 Y
1516-10S	14	ESDI	2,7 RLL	5.25 FH		150k Y
1517-13	14	ESDI	2,7 RLL	5.25 FH		150k Y
1517-14	14	ESDI	2,7 RLL	5.25 FH		150k Y
1517-15	14	ESDI	2,7 RLL	5.25 FH		150k Y
1518	14.5	ESDI	1,7 RLL	5.25 FH		150k Y
1518-14	14	ESDI	2,7 RLL	5.25 FH		150k Y
1518-15	14	ESDI	2,7 RLL	5.25 FH		150k 3600 Y
1528	14.5	SCSI-2		5.25 FH 256k		150k 3600 Y
1528-15	14	SCSI-2		5.25 FH		150k 3600 Y
1528-15D	---	SCSI-2 DIFF		5.25 FH		3600 Y
1538	---	ESDI	1,7 RLL	5.25 FH		150k 3600 Y

Drive Model	Format Size MB	Head	Cyl	Sect/ Trac	Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form cache Factor kb	Obsolete? mtbf RPM ↓
1538-15	910	15	1669	71		NANA		1538-15	15	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1548-15	1748	15	2112	V		NANA		1548-15	14	SCSI-2		5.25 FH 256k	150k 3600 Y
1554-07	157	7	1224	36		NANA	AUTO	1554-07	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1555-08	180	8	1224	36		NANA	AUTO	1555-08	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1555-09	203	9	1224	36		NANA	AUTO	1555-09	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1556-10	225	10	1224	36		NANA	AUTO	1556-10	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1556-11	248	11	1224	36		NANA	AUTO	1556-11	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1557-12	270	12	1224	36		NANA	AUTO	1557-12	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1557-13	293	13	1224	36		NANA	AUTO	1557-13	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1557-14	315	14	1224	36		NANA	AUTO	1557-14	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1557-15	338	15	1224	36	1225/1225	NANA		1557-15	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1558	338	1224	36		1225/1225	NANA		1558	19	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1558-14	315	14	1224	36		NANA	AUTO	1558-14	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1558-15	338	15	1224	36		NANA	AUTO	1558-15	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1560-8S	389	8	1632	54		NANA	AUTO	1560-8S	16	ESDI	2,7 RLL	5.25 FH	150k Y
1564-07	315	7	1224	54		NANA	AUTO	1564-07	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1565-08	360	8	1224	54		NANA	AUTO	1565-08	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1565-09	406	9	1224	54		NANA	AUTO	1565-09	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1566-10	451	10	1224	54		NANA	AUTO	1566-10	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1566-11	496	11	1224	54		NANA	AUTO	1566-11	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1567-12	541	12	1632	54		NANA	AUTO	1567-12	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1567-13	586	13	1224	54		NANA	AUTO	1567-13	18	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1567-14	631	14	1632	54		NANA	AUTO	1567-14	16	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1568	676	1632	54			NANA	AUTO	1568	16	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1568-14	631	14	1632	54		NANA	AUTO	1568-14	16	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1568-15	676	15	1632	54		NANA	AUTO	1568-15	16	ESDI	2,7 RLL	5.25 FH	150k 3600 Y
1571	160					NANA	AUTO	1571	16	SCSI		5.25 FH	Y
1574-07	155	7	1224	36		NANA	AUTO	1574-07	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1575-08	177	8	1224	36		NANA	AUTO	1575-08	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1575-09	199	9	1224	36		NANA	AUTO	1575-09	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1576-10	221	10	1224	36		NANA	AUTO	1576-10	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1576-11	243	11	1224	36	1224/1224	NANA	AUTO	1576-11	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1577-12	265	12	1224	36	1224/1224	NANA	AUTO	1577-12	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1577-13	287	13	1224	36	1224/1224	NANA	AUTO	1577-13	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1578	331		1224	36	1224/1224	NANA	AUTO	1578	16	SCSI		5.25 FH	64k Y
1578-14	310	14	1224	36	1224/1224	NANA	AUTO	1578-14	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1578-15	332	15	1224	36	1224/1224	NANA	AUTO	1578-15	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1585-8S	344	8	1628	54		NANA	AUTO	1585-8S	16	SCSI	2,7 RLL	5.25 FH	150k Y
1586-11	490	11	1628	54	1632/1632	NANA	AUTO	1586-11	16	SCSI	2,7 RLL	5.25 FH	150k Y
1587-12	540	12	1628	54	1632/1632	NANA	AUTO	1587-12	16	SCSI	2,7 RLL	5.25 FH	150k Y
1587-13	579	13	1628	54	1632/1632	NANA	AUTO	1587-13	16	SCSI	2,7 RLL	5.25 FH	150k Y
1587-13	585	13	1628	54		NANA	AUTO	1587-13	16	SCSI	2,7 RLL	5.25 FH	150k Y
1588	668					NANA	AUTO	1588	16	SCSI		5.25 FH 256k	150k Y
1588-14	624	14	1628	54	1832/1832	NANA	AUTO	1588-14	16	SCSI	2,7 RLL	5.25 FH	150k Y
1588-15	667	15	1632	54	1832/1832	NANA	AUTO	1588-15	16	SCSI	2,7 RLL	5.25 FH	150k 3600 Y
1588T-15	676	15	1632	54		NANA	AUTO	1588T-15	16	SCSI	2,7 RLL	5.25 FH	150k Y
1596-10S	668	10	1834	72	1835/1835	NANA	AUTO	1596-10S	14	SCSI	2,7 RLL	5.25 FH	150k Y
1597-13	909	13	1919	72	1835/1835	NANA	AUTO	1597-13	14	SCSI	2,7 RLL	5.25 FH	150k Y
1598	1034					NANA	AUTO	1598	14.5	SCSI-2		5.25 FH 256k	150k Y
1598-14	979	14	1919	72	1920/1920	NANA	AUTO	1598-14	14	SCSI	2,7 RLL	5.25 FH	150k Y
1598-15	1034	15	1928	71	1920/1920	NANA	AUTO	1598-15	14	SCSI-2		5.25 FH	150k 3600 Y
1624	667	7	2088	V		NANA	AUTO	1624	15	SCSI-2		5.25 FH	150k Y
1624-7	667	7	2112			NANA	AUTO	1624-7	15	SCSI-2	FAST	5.25 HH	150k 3600 Y
1653-4	92	4	1249	36		NANA	AUTO	1653-4	16	ESDI	2,7 RLL	5.25 HH	150k 3600 Y
1653-5	115	5	1249	36		NANA	AUTO	1653-5	16	ESDI	2,7 RLL	5.25 HH	150k 3600 Y
1653-6	138	6	1249	36		NANA	AUTO	1653-6	16	ESDI	2,7 RLL	5.25 HH	150k Y
1654	161	1249	36			NANA	AUTO	1654	16	ESDI	2,7 RLL	5.25 HH	150k Y
1654-6	138	6	1249	36		NANA	AUTO	1654-6	16	ESDI	2,7 RLL	5.25 HH	150k 3600 Y
1654-7	161	7	1249	36		NANA	AUTO	1654-7	16	ESDI	2,7 RLL	5.25 HH	150k 3600 Y
1654-8	197	4	1780	54		NANA	AUTO	1654-8	14	ESDI	2,7 RLL	5.25 HH	150k Y
1663-5	246	5	1780	54		NANA	AUTO	1663-5	14	ESDI	2,7 RLL	5.25 HH	150k Y
1664	345		1780	54		NANA	AUTO	1664	15	ESDI	2,7 RLL	5.25 HH	150k Y
1664-6	295	6	1780	54		NANA	AUTO	1664-6	14	ESDI	2,7 RLL	5.25 HH	150k Y

Drive Model	Format	Size MB	Head	Trac	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
1664-7	344	7	1780	54			NANA	
1670-4	90	4	1245	36			---	AUTO
1670-5	90	4	1245	36			---	
1670-6	112	5	1245	36			---	
1670-7	135	6	1245	36			---	
1673-4	90	4	1249	36			1250/1250	
1673-5	112	5	1249	36			1250/1250	AUTO
1674	158	8	1249	36			---	AUTO
1674-6	135	6	1249	36			1250/1250	
1674-7	157	7	1249	36			---	
1683-4	193	4	1776	54			1250/1250	AUTO
1683-5	242	5	1776	54			1777/1777	AUTO
1684	340	40	1776	54			---	AUTO
1684-6	291	6	1776	54			1777/1777	
1684-7	339	7	1780	54			1777/1777	AUTO
1743-5	112	5	1140	28			NANA	
1744-6	135	6	1140	28			NANA	
1744-7	157	7	1140	28			NANA	
1745-8	180	8	1140	28			NANA	
1745-9	202	9	1140	28			NANA	
1773-5	112	5	1140	28			1141/1141	
1774-6	135	6	1140	28			1141/1141	
1774-7	157	7	1140	28			1141/1141	
1775-8	180	8	1140	28			1141/1141	
1775-9	202	9	1140	28			1141/1141	
1908-15	1381	15	2112	V			NANA	AUTO
1924-21	2100	21	2280	V			NANA	AUTO
1926	2158	15		V			NANA	AUTO
1926-15	2158	15	2772	V			---	
1936	3022	21		V			NANA	AUTO
1936-21	3022	21	2772	V			NANA	AUTO
1936AV	3022	21	2759	V			NANA	AUTO
1991	9090	27	4446	V			---	
1991AV	9090	27	4477	V			---	
1991W	9090	27	4477	V			---	
1991WAV	9090	27	4477	V			---	
2100	512	15	2759	V			NANA	AUTO
2105(A)	560	8	1745	V	16/1084/63		NANA	AUTO
2105(S)	560	8	1745	V			NANA	AUTO
2105-15	560	15	1747	V			NANA	AUTO
2108(A)	560	15	1747	V			NANA	AUTO
2108(S)	666	10	1745	V			NANA	AUTO
2108(S)	666	10	1745	V			NANA	AUTO
2112(A)	1050	15	1745	V	16/2034/63		NANA	AUTO
2112(D)	1050	15	1744	V			NANA	AUTO
2112(S)	1050	15	1745	V			NANA	AUTO
2112-15	1050	15	1747	V			NANA	AUTO
2112A-15	1050	15	1747	V			NANA	AUTO
2121(A)	NANA			V			NANA	AUTO
2121(S)	NANA			V			NANA	AUTO
2205	585	5	2360	V			NANA	AUTO
2205A	542	5		V			NANA	AUTO
2207	701	9	2360	V			NANA	AUTO
2210	1056	9	2360	V			NANA	AUTO
2210A	976	9		V			NANA	AUTO
2210AV	1056	9		V			NANA	AUTO
2217	1626	15	2360	V			NANA	AUTO
2217A	1626	15		V			NANA	AUTO
2217AV	1765	15		V			NANA	AUTO
3020	512	21	2759	V			NANA	AUTO
3243	4294	19	4124	V			---	
3243AV	4290	19	4081	V			NANA	AUTO
3243S	4294	19	3957	V			---	

Drive Model	Time	Interface	Encode	Form cache	Obsolote?
1654-7	14	ESDI	2,7 RLL	5.25 HH	150k 3600 Y
1654-7	16	SCSI		5.25 HH	150k Y
1670-4				5.25 HH	150k Y
1670-5				5.25 HH	150k Y
1670-6				5.25 HH	150k Y
1670-7	16	SCSI	2,7 RLL	5.25 HH	150k 3600 Y
1673-4	16	SCSI	2,7 RLL	5.25 HH	150k 3600 Y
1673-5	16	SCSI	2,7 RLL	5.25 HH	150k Y
1674	16	SCSI	2,7 RLL	5.25 HH	150k 3600 Y
1674-6	16	SCSI	2,7 RLL	5.25 HH	150k 3600 Y
1674-7	14	SCSI	2,7 RLL	5.25 HH	150k Y
1683-4	14	SCSI	2,7 RLL	5.25 HH	150k Y
1683-5	15	SCSI	2,7 RLL	5.25 HH	150k Y
1684	14	SCSI	2,7 RLL	5.25 HH	150k Y
1684-6	14	SCSI	2,7 RLL	5.25 HH	150k 3600 Y
1684-7	15	IDE AT	2,7 RLL	3.5 HH	Y
1743-5	15	IDE AT	2,7 RLL	3.5 HH	Y
1744-6	15	IDE AT	2,7 RLL	3.5 HH	Y
1744-7	15	IDE AT	2,7 RLL	3.5 HH	Y
1745-8	15	IDE AT	2,7 RLL	3.5 HH	Y
1745-9	15	SCSI	2,7 RLL	3.5 HH	Y
1773-5	15	SCSI	2,7 RLL	3.5 HH	Y
1774-6	15	SCSI	2,7 RLL	3.5 HH	Y
1774-7	15	SCSI	2,7 RLL	3.5 HH	Y
1775-8	15	SCSI	2,7 RLL	3.5 HH	Y
1775-9	15	SCSI	2,7 RLL	3.5 HH	Y
1908-15	11	SCSI-2 FAST		5.25 FH	150k 5400 Y
1924-21	11	SCSI-2		5.25 FH	250k 5400 Y
1926	13	SCSI-2 FAST		5.25 FH 512k	250k 5400 Y
1926-15	13	SCSI-2		5.25 FH	300k
1936	13	SCSI-2 FAST		5.25 FH 256k	250k 5400 Y
1936-21	11.5	SCSI-2	2,7 RLL	5.25 FH	300k
1936AV	13	SCSI-2 FAST	MZR	5.25 FH 256k	250k 5400
1991	12	SCSI-2 FAST		5.25 FH 512k	650k 5400
1991AV	12	SCSI-2Fst	MZR	5.25 FH 512k	650k 5400
1991W	12	SCSI-2FstWd	MZR	5.25 FH 512k	650k 5400
1991WAV	12	SCSI-2FstWd	MZR	5.25 FH 512k	650k 5400
2100	13	SCSI-2 FAST		5.25 FH 512k	250k 5400 Y
2105(A)	10	IDE AT	RLL	3.5 HH	300k Y
2105(S)	10	SCSI-2	RLL	3.5 HH	300k Y
2105-15	10	SCSI-2 FAST		3.5 FH	300k 5400 Y
2108(A)	10	IDE AT	RLL	3.5 HH	300k Y
2108(S)	10	SCSI-2	RLL	3.5 HH	300k Y
2112(A)	10	IDE AT	RLL	3.5 FH	300k Y
2112(D)	10	SCSI-2Dfif		3.5 HH	300k
2112(S)	10	SCSI-2	RLL	5.25 FH	300k Y
2112-15	10	SCSI-2 FAST	RLL	3.5 FH	300k 5400 Y
2112A-15	10	IDE AT	RLL	3.5 FH	300k 5400 Y
2121(A)	10	SCSI-2	RLL	3.5 FH	300k Y
2121(S)	10	SCSI-2	RLL	5.25 FH	300k Y
2205	10	SCSI-2 FAST		3.5 FH	300k 5400 Y
2205A	10	IDE AT		3.5 FH 512k	300k 5400 Y
2207	10	SCSI-2 FAST		3.5 FH 512k	300k 5400 Y
2210	10	SCSI-2 FAST		3.5 FH 512k	300k 5400 Y
2210A	10	IDE AT		3.5 FH 512k	300k 5400 Y
2210AV	10	SCSI-2 FAST		3.5 FH 512k	300k 5400 Y
2217	10	SCSI-2 FAST		3.5 FH	300k 5400 Y
2217A	10	IDE AT		3.5 FH 512k	300k 5400 Y
2217AV	10	SCSI-2 FAST		3.5 FH 512k	300k 5400 Y
3020	13	SCSI-2 FAST		5.25 FH 512k	250k 5400 Y
3243	8.5	SCSI-2 FAST		3.5 FH 512k	650k 7200
3243AV	9	SCSI-2Fst	MZR	3.5 HH 512k	650k 7200
3243S	9	SSA-SCSI		3.5 FH 512k	650k 7200

Drive Model	Format Size MB	Head	Cyl	Trac	Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtfb RPM
3243W	4294	19	3956	V		NA/NA		3243W	9	SCSI-2FtWd	MZR	3.5 HH	512k	650k 7200
3243WAV	4294	19	3956	V		NA/NA		3243WAV	9	SCSI-2FtWd	MZR	3.5 HH	512k	650k 7200
3243WD	4294	19	3956	V		NA/NA	AUTO	3243WD	9	SCSI-2FtWd	MZR	3.5 FH	512k	650k 7200
3243WDVAV	4294	19	3956	V		NA/NA	AUTO	3243WDVAV	9	SCSI-2FtWd	MZR	3.5 FH	512k	650k 7200
4110	1052	9		V	16/1024/63	NA/NA	AUTO	4110	8.5	SCSI-2 FAST		3.5 3H	512k	500k 5400 Y
4110A	1057			V		NA/NA	AUTO	4110A	8.5	IDE AT		3.5 3H	512k	500k 5400 Y
4221	2050		4150	V		NA/NA		4221	9	SCSI-2 FAST		3.5 3H	512k	650k 7200
4221AV	2050	9	4050	V		NA/NA	AUTO	4221AV	9	SCSI-2Fast	MZR	3.5 3H	512k	650k 7200
4221W	2050	9	4150	V		NA/NA	AUTO	4221W	9	SCSI-2FtWd	MZR	3.5 3H	512k	650k 7200
4221WAV	2050	9	4150	V		NA/NA	AUTO	4221WAV	9	SCSI-2FtWd	MZR	3.5 3H	512k	650k 7200
4221WD	2050	9	4050	V		NA/NA	AUTO	4221WD	9	SCSI-2FtWd	MZR	3.5 3H	512k	650k 7200
4221WDVAV	2050	9	4150	V		NA/NA	AUTO	4221WDVAV	9	SCSI-2FtWd	MZR	3.5 3H	512k	650k 7200

MICROSCIENCE INTERNATIONAL COR

4050	44	5	1024	17		1025/1025	
4060	67	5	1024	26		---	
4070	62	7	1024	17		---	
4090	93	7	1024	26		---	
5100	110	7	855	36		NA/NA	
5100-20	120	7	960	35		NA/NA	AUTO
6100	110	7	855	36		NA/NA	AUTO
7040	47	3	855	36		NA/NA	
7100	100	7	855	36		NA/NA	
7100-20	120	7	960	35		NA/960	
7200	200	7	1277	44		---	
7400	304	8	1904			NA/NA	AUTO
8040	42	2	1024	40		NA/NA	AUTO
8080	85	2	1768	47		NA/NA	AUTO
8200	152	4	1904			NA/NA	AUTO
FH21200	1062	15	1921	72		NA/NA	AUTO
FH21600	1418	15	2147	86		NA/NA	AUTO
FH2414	366	8	1658	54		NA/NA	AUTO
FH2777	687	15	1658	54		NA/NA	AUTO
FH31200	1062	15	1921	72		NA/NA	AUTO
FH31600	1418	15	2147	86		NA/NA	AUTO
FH3414	366	8	1658	54		NA/NA	AUTO
FH3777	687	15	1658	54		NA/NA	AUTO
FH1050	44	5	1024	17		1025/1025	
HH1060	65	5	1024	26		1025/1025	
HH1075	62	7	1024	17		1025/1025	
HH1080	65	5	1024	26		---	
HH1090	80	7	1314	17		1315/1315	
HH1095	95	7	1024	26		1025/1025	
HH1120	122	7	1314	26		1315/1315	
HH2012	10	4	306	17		---	
HH2120	128	7	1024	35		NA/NA	
HH2120F	121					---	
HH2160	160	7	1276	35		NA/NA	
HH2160F	160					---	
HH312	10	4	306	17		307/307	
HH3120	121	5	1314	36		---	
HH3120F	122					---	
HH315	10	4	306	17		307/307	
HH3160	170	7	1314	36		---	
HH3160F	170					---	
HH325	21	4	612	17		613/613	613/613
HH330	32	4	612	26		613/613	
HH612	10	4	306	17		307/307	
HH625	21	4	612	17		613/613	
HH712	10	2	612	17		613/613	
HH712A	10	2	612	17		---	
HH725	21	4	612	17		613/613	613/613
HH738	32	4	612	26		613/613	

MICROSCIENCE INTERNATIONAL COR

4050	18	ST412/506	MF	3.5 HH	36k	Y
4060	18	ST412/506	2.7 RLL	3.5 HH	36k	Y
4070	18	ST412/506	MF	3.5 HH	36k	Y
4090	18	ST412/506	2.7 RLL	3.5 HH	36k	Y
5100-20	18	ESDI	2.7 RLL	3.5 HH	36k	Y
6100	18	ESDI	2.7 RLL	3.5 HH	60k	Y
7040	18	SCSI	2.7 RLL	3.5 HH	36k	Y
7100	18	IDE AT	2.7 RLL	3.5 HH		
7100-20	18	IDE AT	2.7 RLL	3.5 HH	36k	Y
7200	18	IDE AT	2.7 RLL	3.5 HH	60k 3600	Y
7400	18	IDE AT	2.7 RLL	3.5 HH		
8040	15	IDE AT	2.7 RLL	3.5 HH	100k	Y
8080	25	IDE AT	2.7 RLL	3.5 3H	20k	Y
8200	17	IDE AT	2.7 RLL	3.5 3H	100k	Y
FH21200	16	IDE AT	2.7 RLL	3.5 3H	100k	Y
FH21600	14	ESDI	2.7 RLL	5.25 FH	100k 3600	Y
FH2414	14	ESDI	2.7 RLL	5.25 FH	100k 3600	Y
FH2777	14	ESDI	2.7 RLL	5.25 FH	100k	Y
FH31200	14	SCSI	2.7 RLL	5.25 FH	50k 3600	Y
FH31600	14	SCSI	2.7 RLL	5.25 FH	100k 3600	Y
FH3414	14	SCSI	2.7 RLL	5.25 FH	100k	Y
FH3777	14	SCSI	2.7 RLL	5.25 FH	100k 3600	Y
FH1050	28	ST412/506	MF	5.25 HH	140k	Y
HH1060	28	ST412/506	2.7 RLL	5.25 HH	140k	Y
HH1075	28	ST412/506	MF	5.25 HH		
HH1080	28	ST412/506	2.7 RLL	5.25 HH	50k	Y
HH1090	28	ST412/506	MF	5.25 HH	40k	Y
HH1095	28	ST412/506	2.7 RLL	5.25 HH		
HH1120	28	ST412/506	2.7 RLL	5.25 HH	40k	Y
HH2012	65	ST412/506	MF	5.25 HH		
HH2120	28	ESDI (10)	2.7 RLL	5.25 HH	40k	Y
HH2120F	ESDI	2.7 RLL	5.25 HH			
HH2160	28	ESDI (10)	2.7 RLL	5.25 HH	40k	Y
HH2160F	ESDI	2.7 RLL	5.25 HH			
HH312	65	ST412/506	MF	5.25 HH		
HH3120	28	SCSI	2.7 RLL	5.25 HH	40k	Y
HH3120F	SCSI	2.7 RLL	5.25 HH			
HH315	65	ST412/506	MF	5.25 HH		
HH3160	28	SCSI	2.7 RLL	5.25 HH	40k	Y
HH3160F	SCSI	2.7 RLL	5.25 HH			
HH325	80	ST412/506	MF	5.25 HH		
HH330	105	ST412/506	2.7 RLL	5.25 HH		
HH612	85	ST412/506	MF	5.25 HH		
HH625	65	ST412/506	MF	5.25 HH		
HH712	105	ST412/506	MF	5.25 HH		
HH712A	75	ST412/506	MF	5.25 HH		
HH725	105	ST412/506	MF	5.25 HH		
HH738	105	ST412/506	2.7 RLL	5.25 HH		

Drive Model	Format	Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Time	Interface	Encode	Form cache Factor kb	Obsolete? mtfb RPM
HH825		21	4	615	17		616/616		HH825	65	ST412/506	MFM	5.25 HH	Y
HH830		33	4	615	26		616/616		HH830	65	ST412/506	2,7 RLL	5.25 HH	Y
MINISCRIBE CORPORATION									MINISCRIBE CORPORATION					
1006		5	2	306	17		307/128	336	1006	179	ST412/506	MFM	5.25 FH	8k Y
1012		10	4	306	17		307/128	336	1012	179	ST412/506	MFM	5.25 FH	8k Y
2006		5	2	306	17		307/128	336	2006	93	ST412/506	MFM	5.25 FH	10k Y
2012		10	4	306	17		307/128	336	2012	85	ST412/506	MFM	5.25 FH	10k Y
3006		5	2	306	17		307/128	336	3006	179	ST412/506	MFM	5.25 HH	Y
3012		10	2	612	19		613/128	306	3012	155	ST412/506	MFM	5.25 HH	10k Y
3053		44	5	1024	17		1024/512	656	3053	25	ST412/506	MFM	5.25 HH	30k 3600 Y
3085		68	7	1170	17		1170/512	AUTO	3085	22	ST412/506	MFM	5.25 HH	40k 3600 Y
3085E		72	3	1270	36		NANA	AUTO	3085E	17	ESDI	2,7 RLL	5.25 HH	Y
3085S		72	3	1255	125		NANA	AUTO	3085S	17	SCSI	2,7 RLL	5.25 HH	Y
3130E		112	5	1250	36		1251/512	AUTO	3130E	17	ESDI	2,7 RLL	5.25 HH	35k 3600 Y
3130S		112	5	1255	35		1256/512	AUTO	3130S	17	SCSI	2,7 RLL	5.25 HH	35k 3600 Y
3180E		150	7	1250	35		1251/512	AUTO	3180E	17	ESDI	2,7 RLL	5.25 HH	35k 3600 Y
3180S		153	7	1255	36		1256/512	AUTO	3180S	17	SCSI	2,7 RLL	5.25 HH	35k 3600 Y
3180SM		161	7	1250	36		NANA	AUTO	3180SM	17	SCSI-MAC	RLL	5.25 HH	35k Y
3212		10	2	612	17		613/128	656	3212	85	ST412/506	MFM	5.25 HH	20k 3600 Y
3212 PLUS		11	2	615	17		613/128	656	3212 PLUS	53	ST412/506	MFM	5.25 HH	20k 3600 Y
3412		10	4	306	17		307/128	336	3412	60	ST412/506	MFM	5.25 HH	11k Y
3425		20	4	615	17		616/128	656	3425	85	ST412/506	MFM	5.25 HH	20k 3600 Y
3425 PLUS		20	4	615	17		616/128	656	3425 PLUS	53	ST412/506	MFM	5.25 HH	20k 3600 Y
3425S		21	4	612	17		615/128	656	3425S	68	SCSI	MFM	5.25 HH	20k Y
3438		32	4	615	26		616/128	656	3438	85	ST412/506	2,7 RLL	5.25 HH	20k 3600 Y
3438 PLUS		32	4	615	26		616/128	656	3438 PLUS	53	ST412/506	2,7 RLL	5.25 HH	20k 3600 Y
3650		40	6	809	17		819/128	852	3650	61	ST412/506	MFM	5.25 HH	25k 3600 Y
3650F		42	6	809	17		810/128	852	3650F	46	ST412/506	MFM	5.25 HH	25k 3600 Y
3650R		64	6	809	26		809/128	852	3650R	61	ST412/506	2,7 RLL	5.25 HH	25k 3600 Y
3675		63	6	809	26		810/128	852	3675	61	ST412/506	2,7 RLL	5.25 HH	25k Y
4010		8	2	480	17		481/128	520	4010	133	ST412/506	MFM	5.25 FH	10k Y
4020		16	4	480	17		481/128	520	4020	133	ST412/506	MFM	5.25 FH	10k Y
5330		25	6	480	17		481/128	520	5330	27	ST412/506	MFM	5.25 FH	Y
5338		32	6	612	17		613/306	538	5338	27	ST412/506	MFM	5.25 FH	Y
5440		32	8	480	17		481/128	540	5440	27	ST412/506	MFM	5.25 FH	Y
5451		43	8	612	17		613/306	5451	5451	27	ST412/506	MFM	5.25 FH	Y
6032		26	3	1024	17		1024/512	AUTO	6032	28	ST412/506	MFM	5.25 FH	25k 3600 Y
6053		44	5	1024	17		1024/512	AUTO	6053	28	ST412/506	MFM	5.25 FH	25k 3600 Y
6074		62	7	1024	17		1025/512	AUTO	6074	28	ST412/506	MFM	5.25 FH	Y
6079		68	5	1024	26		1024/512	AUTO	6079	28	ST412/506	2,7 RLL	5.25 FH	25k 3600 Y
6085		71	8	1024	17		1024/512	AUTO	6085	28	ST412/506	MFM	5.25 FH	25k 3600 Y
6085E		71					---	AUTO	6085E	ESDI	MFM	5.25 FH	Y	
6128		109	8	1024	26		1024/512	AUTO	6128	28	ST412/506	2,7 RLL	5.25 FH	25k 3600 Y
6128E		110					---	AUTO	6128E	ESDI	2,7 RLL	5.25 FH	Y	
6170E		130	8	1024	34		NANA	AUTO	6170E	28	ESDI	RLL	5.25 FH	Y
6212		10	2	612	17		613/128	AUTO	6212	27	ST412/506	MFM	5.25 FH	Y
7040A		40	2	1159	36	5/981/17	981/512	AUTO	7040A	19	IDE AT	1,7 RLL	3.5 FH	32k 40k 3703 Y
7040S		40	2	1156	36		NANA	AUTO	7040S	19	SCSI	RLL	3.5 FH	40k Y
7060A		65	2	1516	42	7/1024/17	981/512	AUTO	7060A	15	IDE AT	1,7 RLL	3.5 FH	150k Y
7060S		65	2	1516	42		NANA	AUTO	7060S	15	SCSI	1,7 RLL	3.5 FH	150k Y
7080A		81	4	1159	36	10/981/17	981/512	AUTO	7080A	19	IDE AT	1,7 RLL	3.5 FH	32k 40k 3703 Y
7080S		81	4	1156	36		NANA	AUTO	7080S	19	SCSI	1,7 RLL	3.5 FH	150k Y
7120A		131	2	1516	85	14/1024/17	NANA	AUTO	7120A	15	IDE AT	1,7 RLL	3.5 FH	150k Y
7120S		131	2	1516	85		NANA	AUTO	7120S	15	SCSI	1,7 RLL	3.5 FH	150k Y
7426		21	4	612	17		613/613	AUTO	7426	27	ST412/506	MFM	3.5 HH	Y
8048S		40					---	AUTO	8048S	SCSI	MFM	5.25 FH	Y	
8051A		41	4	745	26	4/745/28	746/128	AUTO	8051A	28	IDE AT	2,7 RLL	3.5 HH	32k 150k 3484 Y
8051S		43	4	745	26		746/128	AUTO	8051S	28	SCSI	2,7 RLL	3.5 HH	32k 150k 3484 Y
8057A		42					---	AUTO	8057A	IDE AT	MFM	5.25 FH	Y	
805C-MFM		21	4	615	17		---	AUTO	805C-MFM	68	ST412/506	MFM	3.5 HH	20k 3600 Y
805C-RLL		33	4	615	26		---	AUTO	805C-RLL	68	ST412/506	2,7 RLL	3.5 HH	20k 3600 Y
8212		10	2	615	17		616/128	654	8212	68	ST412/506	MFM	3.5 HH	20k 3600 Y

Drive Model	Format	Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	R/WC/WPC	Latency Zone
8225		20	2	771	26		772/128	
8225A		21	2	747	28	4/615/17	NANA	810
8225AT		20	2	747	28		748/128	AUTO
8225S		21	2	804	26		805/128	820
8225XT		20	2	805	26		806/128	820
8412		10	4	306	17		307/128	820
8425		21	4	615	17		616/128	336
8425F		20	4	615	17		616/128	564
8425S		21	4	612	17		616/128	564
8425XT		20	4	615	17		616/128	564
8434F		32	4	615	26		616/128	564
8438		31	4	615	26		616/128	564
8438 PLUS		31	4	615	26		615/128	564
8438F		32	4	615	26		616/128	564
8438XT		31	4	615	26		NANA	564
8450		39	4	771	26		772/128	564
8450AT		42	4	745	28		746/128	810
8450S		42	4	804	26		805/128	820
8450XT		42	4	805	26		806/128	820
9000E		338	15	1224	36		NANA	AUTO
9000S		347	15	1220	36		NANA	AUTO
9230		203	9	1224	34		0/512	0
9230E		203	9	1224	36		NANA	AUTO
9230S		203	9	1224	36		NANA	AUTO
9380E		338	15	1224	36		NA/512	AUTO
9380S		336	15	1218	36		NA/512	AUTO
9380SM		319	15	1218			NANA	AUTO
9424E		360	8	1661			NANA	AUTO
9424S		355	8	1661			NANA	AUTO
9780E		676	15	1661	53		NA/512	AUTO
9780S		676	15	1661	53		166/512	AUTO

MITSUBISHI ELECTRONICS

MR335	69	7	743	26		---		
MR521	10	2	612	17		---		
MR522	20	4	612	17		---	300	612
MR5310E	65	5	977	26		NANA	AUTO	
MR533	24	3	971	17		---	971	AUTO
MR535	42	5	977	17		---	300/300	AUTO
MR535-U00	42	5	977	17		---	300/300	AUTO
MR535R	65	5	977	26		NANA	AUTO	
MR535S	85	5	977	34		NANA	AUTO	
MR537S	65	5	977	26		NANA	AUTO	

MITSUMI ELECTRONICS CORP.

HD2509AA	92	4		52		---		
HD2513AA	130	4		52		---		

MMI

M106	5	2	306	17		---	128	
M112	10	4	306	17		---	128	
M125	20	8	306	17		---	128	
M212	10	4	306	17		---	128	
M225	20	8	306	17		---	128	
M306	5	2	306	17		---	128	
M312	10	4	306	17		---	128	
M325	20	8	306	17		---	128	

NCL AMERICA

SEE BRAND TECHNOLOGIES

Drive Model	Seek Time	Interface	Encode	Form cache Factor	kb mtfb	Obsolete? RPM
8225	68	ST412/506	2,7 RLL	3.5 HH		30k 3600 Y
8225S		IDE	2,7 RLL	3.5 HH		30k 3600 Y
8225AT		40 IDE AT	2,7 RLL	3.5 HH		30k 3600 Y
8225S	68	SCSI	2,7 RLL	3.5 HH		30k 3600 Y
8225XT	68	IDE XT	2,7 RLL	3.5 HH		30k 3600 Y
8225XT	50	ST412/506	MFm	3.5 HH		20k 3600 Y
8412	68	ST508/412	MFm	3.5 HH		20k 3600 Y
8425	40	ST412/506	MFm	3.5 HH		20k 3600 Y
8425F	68	SCSI	MFm	3.5 HH		20k 3600 Y
8425S	68	IDE XT	MFm	3.5 HH		20k 3600 Y
8425XT	40	ST412/506	RLL	3.5 HH		20k 3600 Y
8434F	68	ST412/506	RLL	3.5 HH		20k 3600 Y
8438	55	ST412/506	2,7 RLL	5.25 HH		20k 3600 Y
8438 PLUS	40	ST412/506	2,7 RLL	5.25 HH		20k 3600 Y
8438F	68	IDE XT	RLL	3.5 HH		20k 3600 Y
8438XT	45	ST412/506	2,7 RLL	3.5 HH		20k 3600 Y
8450	40	IDE AT	2,7 RLL	3.5 HH		30k 3600 Y
8450AT	45	SCSI	2,7 RLL	3.5 HH		30k 3600 Y
8450S	68	IDE XT	2,7 RLL	3.5 HH		20k 3600 Y
8450XT	16	ESDI		5.25 FH		30k Y
9000E	16	SCSI		5.25 FH		30k Y
9000S	16	ESDI	RLL	5.25 FH		Y
9230	16	ESDI	RLL	5.25 FH		Y
9230E	16	SCSI	RLL	5.25 FH		Y
9230S	16	ESDI	2,7 RLL	5.25 FH		50k 3600 Y
9380E	16	SCSI	2,7 RLL	5.25 FH		50k 3600 Y
9380S	16	SCSI-MAC	RLL	5.25 FH		Y
9380SM	17	ESDI	2,7 RLL	5.25 FH		Y
9424E	17	SCSI	2,7 RLL	5.25 FH		Y
9424S	17	ESDI	1,7 RLL	5.25 FH		50k 3600 Y
9780E	17	SCSI	1,7 RLL	5.25 FH		30k 3600 Y
9780S	17	SCSI	1,7 RLL	5.25 FH		30k 3600 Y

MITSUBISHI ELECTRONICS

MR335	20	ST412/506	MFm	3.5 HH	30k	Y
MR521	85	ST412/506	MFm	5.25 HH		Y
MR522	85	ST412/506	MFm	5.25 HH		Y
MR5310E	28	ESDI	2,7 RLL	5.25 HH	30k	Y
MR533	28	ST412/506	MFm	5.25 HH		Y
MR535	28	ST412/506	MFm	5.25 HH	30k 3600	Y
MR535-U00	28	ST412/506	MFm	5.25 HH	30k	Y
MR535R	28	ST412/506	2,7 RLL	5.25 HH	30k 3600	Y
MR535S	28	SCSI	2,7 RLL	5.25 HH	30k	Y
MR537S	28	SCSI	2,7 RLL	5.25 HH	30k	Y

MITSUMI ELECTRONICS CORP.

HD2509AA	16	IDE AT	1,7 RLL	2.5 4H	32k	150k 3600 Y
HD2513AA	16	IDE AT	1,7 RLL	2.5 4H	32k	150k 3600 Y

MMI

M106	75	ST412/506	MFm	3.5 HH		Y
M112	75	ST412/506	MFm	3.5 HH		Y
M125	75	ST412/506	MFm	3.5 HH		Y
M212	75	ST412/506	MFm	5.25 HH		Y
M225	75	ST412/506	MFm	5.25 HH		Y
M306	75	ST412/506	MFm	5.25 HH		Y
M312	75	ST412/506	MFm	5.25 HH		Y
M325	75	ST412/506	MFm	5.25 HH		Y

NCL AMERICA

SEE BRAND TECHNOLOGIES

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
NCR CORP								
6091-5101		323	9				NANA	AUTO
6091-5301		675	15				NANA	AUTO
H6801-STD1-03-17		53	7	872	17		NANA	AUTO
H6801-STD1-07-17		45	3	868	34		NANA	AUTO
H6801-STD1-10-17		104	8	776	33		NANA	AUTO
H6801-STD1-12-17		42	2	1047	40		NANA	AUTO
H6801-STD1-46-46		21	4	615	17		616/128	AUTO
H6801-STD1-47-46		71	8	1024	17		1025/128	66A AUTO
H6801-STD1-47-46		121	7	969	35		1025/128	AUTO

NEC TECHNOLOGIES INC

D1711		42	2					
D1731		85	4					
D3122		20						
D3126H		21	4	615	17		616/256	
D3142H		42	8	642	17			
D3146H		40	8	615	17			
D3661		118	7	915	36		NANA	AUTO
D3713		345	16	670	63			
D3717		540	4	2924				
D3725		730	4	3493				
D3725		540	4	3493		16/1416/63	NANA	AUTO
D3727		1083	6	3493		16/2100/63	NANA	AUTO
D3735		45	2	1084	41	4/542/41		
D3741		40						
D3745		1080	4			16/2096/63	NANA	AUTO
D3747		1620	6	3678				
D3755		105	4	1250	41	8/625/41		
D3756		105						
D3761		114	7	915	35	7/915/35		
D3772		330						
D3781		425	9	1464	63	9/1464/63		
D3825		730	4					
D3825		1083	6					
D3835		45	2	1084	41			
D3841		45	8	440	25			
D3845		1080	4					
D3847		1620	6					
D3855		105	4	1250	41			
D3856		105						
D3861		114	7	915	35			
D3865		176						
D3872		330						
D3881		425	9	1464	63			
D3896		2160	9					
D5114		5	2	306	17			
D5124		10	4	309	17		310/310	66A
D5126		20	4	612	17		613/NONE	66A
D5126H		21	4	612	17		613/NONE	66A
D5146		40	8	615	17		616/NONE	66A
D5146H		42	8	615	17		616/NONE	66A
D5244		21						
D5392		1322	16	615	17			
D5652		143	10	823	34		NANA	
D5655		140	7	1224	35		NANA	
D5662		300	15	1224	35		NANA	
D5665		153						
D5682		664	15	1633	53		NANA	AUTO
D5855		153						
D5862		301	15	1224	53		NANA	

Drive Model	Time	Interface	Encode	Form cache	Obsolete?
NCR CORP					
6091-5101	27	SCSI	2,7 RLL	5,25	Y
6091-5301	25	SCSI	2,7 RLL	5,25	Y
H6801-STD1-03-17	28	ST412/506	MFM	3,5 HH	20k Y
H6801-STD1-07-17	18	IDE AT	2,7 RLL	3,5 HH	20k Y
H6801-STD1-10-17	25	IDE AT	2,7 RLL	3,5 HH	150k Y
H6801-STD1-12-17	25	IDE AT	2,7 RLL	3,5 HH	150k Y
H6801-STD1-46-46	68	ST412/506	MFM	3,5 HH	20k Y
H6801-STD1-47-46	28	ST412/506	MFM	5,25 FH	40k Y
H6801-STD1-47-46	16	ESDI (10)	2,7 RLL	5,25 FH	100k Y

NEC TECHNOLOGIES INC

D1711	19	IDE/PCMCIA	1,7 RLL	4H	32k 100k 5400 Y
D1731	19	IDE/PCMCIA	1,7 RLL	4H	32k 100k 5400 Y
D3122		ST412/506	MFM	3,5 HH	Y
D3126	85	ST412/506	MFM	3,5 HH	Y
D3126H	28	ST412/506	MFM	3,5 HH	Y
D3142H	88	ST412/506	MFM	3,5 HH	30k Y
D3146H	35	ST412/506	MFM	3,5 HH	Y
D3661	20	ESDI (10)	2,7 RLL	3,5 HH	30k Y
D3713	12	IDE AT	1,7 RLL	3,5 3H	64k 250k 4500 Y
D3717	11	IDE AT	1,7 RLL	3,5 3H	128k 300k 4090 Y
D3725	11	IDE AT	1,7 RLL	3,5 3H	128k 300k 4090 Y
D3725	11	IDE AT	1,7 RLL	3,5 3H	128k 300k 4090 Y
D3727	11	IDE AT	1,7 RLL	3,5 3H	128k 300k 4090 Y
D3735	25	IDE AT	1,7 RLL	3,5 HH	50k 3456 Y
D3741	11	IDE	PRML	3,5 3H	64k 300k 4500 Y
D3745	11	IDE AT	PRML	3,5 3H	128k 300k 4500 Y
D3747	25	IDE AT	1,7 RLL	3,5 3H	50k 3456 Y
D3755	25	IDE AT	1,7 RLL	3,5 HH	Y
D3756	20	IDE AT	2,7 RLL	3,5 HH	30k Y
D3761	20	IDE AT	2,7 RLL	3,5 HH	Y
D3772	15	IDE AT	1,7 RLL	3,5 HH	64k 50k 3600 Y
D3781	11	SCSI-2	1,7 RLL	3,5 3H	64k 300k 4090 Y
D3825	11	SCSI-2	1,7 RLL	3,5 3H	32k 300k 4090 Y
D3825	25	SCSI	1,7 RLL	3,5 3H	50k 3456 Y
D3835	25	SCSI	1,7 RLL	3,5 HH	30k Y
D3841	11	SCSI-2	PRML	3,5 3H	64k 300k 4500 Y
D3845	11	SCSI-2	PRMLB,9	3,5 3H	64k 300k 4500 Y
D3847	25	SCSI	1,7 RLL	3,5 3H	50k 3456 Y
D3855	20	SCSI	2,7 RLL	3,5 HH	30 Y
D3856	20	SCSI	2,7 RLL	3,5 HH	Y
D3861	15	SCSI-2	3,5 HH		Y
D3865	9	SCSI-2	1,7 RLL	3,5 HH	64k 50k 3600 Y
D3872	15	SCSI	1,7 RLL	3,5 3H	1024k 800k 7200 Y
D3881	80	ST412/506	MFM	5,25 HH	Y
D3896	80	ST412/506	MFM	5,25 HH	Y
D5114	40	ST412/506	MFM	5,25 HH	Y
D5124	40	ST412/506	MFM	5,25 HH	Y
D5126	40	ST412/506	MFM	5,25 HH	Y
D5126H	40	ST412/506	MFM	5,25 HH	Y
D5146	40	ST412/506	MFM	5,25 HH	Y
D5146H	40	ST412/506	MFM	5,25 HH	Y
D5244	14	IP1-2			100k Y
D5392	23	ESDI	2,7 RLL	5,25 FH	Y
D5652	18	ESDI	2,7 RLL	5,25 FH	30k Y
D5655	18	ESDI	2,7 RLL	5,25 FH	30k Y
D5662		ESDI		5,25 FH	Y
D5665	16	ESDI	RLL 1,7	5,25 FH	50k 3600 Y
D5682		SCSI		5,25 FH	Y
D5855	18	SCSI		5,25 FH	30k Y
D5862					

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RW/C WPC	Latency Zone
D5882		664	15	1633	53		—/—	
D5892		1404	19	1678	86		—/—	AUTO

NEI

RD3127	10	2	612	17	—/—	
RD3255	20	4	612	17	—/—	
RD4127	10	4	306	17	—/—	
RD4255	20	8	306	17	—/—	

NEWBURY DATA

NDR1065	55	7	918	17	—/—	
NDR1085	71	8	1024	17	—/—	
NDR1105	87	11	918	17	—/—	1020
NDR1140	120	15	918	17	—/—	1020
NDR2085	74	7	1224	17	—/—	1020
NDR2140	117	11	1224	17	—/—	
NDR2190	160	15	1224	17	—/—	
NDR3170S	146	9	1224	26	—/—	1220
NDR320	21	4	615	17	—/—	AUTO
NDR3280S	244	15	1224	26	—/—	615
NDR3380S	319	15	1224	34	—/—	
NDR340	42	8	615	17	—/—	AUTO
NDR4175	179	7	1224	36	—/—	615
NDR4380	338	15	1224	36	—/—	
NDR4380S	319	15	1224	34	—/—	
PENNY 340	42	8	615	17	—/—	615/615

NPL

4064	5		17	—/—	
4127	10		17	—/—	
4191S	15		17	—/—	
4255	20		17	—/—	
4362	30		17	—/—	
NP02-13	11	4	320	17	—/—
NP02-26A/26S	22	4	640	17	—/—
NP02-52A	44	8	640	17	—/—
NP03-20	16	6	306	17	—/—
NP04-13T	10	6	17	—/—	
NP04-55	45	7	754	17	—/—
NP04-85	72	11	754	17	—/—
NP05-105	10			—/—	

OKIDATA

OD526	31	4	640	26	651/651
OD540	51	6	640	26	651/651

OLIVETTI

HD662/11	10	2	612	17	—/—
HD662/12	20	4	612	17	—/—
XM5210	10	2	612	17	—/—
XM5220/2	20	4	612	17	—/—
XM563-12	10			—/—	

OPTIMA TECHNOLOGY CORP

CONCORDE 1050	990	15			NANA	AUTO
CONCORDE 1350	1342				NANA	AUTO
CONCORDE 635	640	14			NANA	AUTO
CONCORDE 9000	8669				NANA	AUTO
CONCORDE 9000W	8669				NANA	AUTO
DISCOVERY 1000	1001				NANA	AUTO

Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtbf RPM
D5882	16	SCSI	1,7 RLL	5.25 FH		50k 3600 Y
D5892	14	SCSI	1,7 RLL	5.25 FH		100k Y

NEI

RD3127	ST412/506	MF	5.25		
RD3255	ST412/506	MF	5.25		
RD4127	ST412/506	MF	5.25		
RD4255	ST412/506	MF	5.25		

NEWBURY DATA

NDR1065	25	ST412/506	MF	5.25 FH	
NDR1085	26	ST412/506	MF	5.25 FH	
NDR1105	25	ST412/506	MF	5.25 FH	
NDR1140	25	ST412/506	MF	5.25 FH	
NDR2085	ST412/506	MF	5.25 FH		
NDR2140	ST412/506	MF	5.25 FH		
NDR2190	28	ST412/506	MF	5.25 FH	
NDR3170S	28	SCSI	2,7 RLL	5.25 FH	
NDR320	ST412/506	MF	5.25 FH		
NDR3280S	28	SCSI	2,7 RLL	5.25 FH	
NDR3380S	28	SCSI	2,7 RLL	5.25 FH	50k
NDR340	40	ST412/506	MF	3.5 HH	
NDR4175	28	SDI	2,7 RLL	5.25 FH	
NDR4380	28	ESDI	2,7 RLL	5.25 FH	
NDR4380S	28	SCSI	RLL	5.25 FH	
PENNY 340	ST412/506	MF	5.25 HH		

NPL

4064	ST412/506	MF	5.25 FH		
4127	ST412/506	MF	5.25 FH		
4191S	ST412/506	MF	5.25 FH		
4255	ST412/506	MF	5.25 FH		
4362	ST412/506	MF	5.25 FH		
NP02-13	95	ST412/506	MF	5.25 FH	
NP02-26A/26S	40	ST412/506	MF	5.25 HH	
NP03-20	40	ST412/506	MF	5.25 HH	
NP03-20	85	ST412/506	MF	3.5 FH	
NP04-13T	85	ST412/506	MF	5.25 FH	
NP04-55	35	ST412/506	MF	5.25 FH	
NP04-85	35	ST412/506	MF	3.5 HH	
NP05-105	ST412/506	MF	5.25 FH		

OKIDATA

OD526	85	ST412/506	2,7 RLL	5.25 HH	Y
OD540	85	ST412/506	2,7 RLL	5.25 HH	Y

OLIVETTI

HD662/11	27	ST412/506	MF	5.25 HH	Y
HD662/12	27	ST412/506	MF	5.25 HH	Y
XM5210	65	ST412/506	MF	5.25 HH	Y
XM5220/2	85	ST412/506	MF	5.25 FH	Y
XM563-12	ST412/506	MF	5.25 FH		Y

OPTIMA TECHNOLOGY CORP

CONCORDE 1050	15	SCSI	2,7 RLL	5.25	150k	Y
CONCORDE 1350	14	SCSI	2,7 RLL	5.25	150k	Y
CONCORDE 635	16	SCSI	2,7 RLL	5.25	150k	Y
CONCORDE 9000	11	SCSI-2 FAST	2,7 RLL	5.25 FH	500k 5400	
CONCORDE 9000W	11	SCSI-2 FAST	2,7 RLL	5.25 FH	500k 5400	
DISCOVERY 1000	9	SCSI-2 FAST	2,7 RLL	3.5 HH	800k 5400	

Drive Model	Format	Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	RWC/WPC	Latent Zone
DISKOVERY 1000	2040						NANA	AUTO
DISKOVERY 130	137						NANA	AUTO
DISKOVERY 1800DHW	173						NANA	AUTO
DISKOVERY 200	200						NANA	AUTO
DISKOVERY 2100W	2040						NANA	AUTO
DISKOVERY 325	321						NANA	AUTO
DISKOVERY 40	45						NANA	AUTO
DISKOVERY 4100	4095						NANA	AUTO
DISKOVERY 4100W	4095						NANA	AUTO
DISKOVERY 420	416	8					NANA	AUTO
DISKOVERY 500	520						NANA	AUTO
MINIPAK 100	104	4					NANA	AUTO
MINIPAK 1000	1001						NANA	AUTO
MINIPAK 200	209	8					NANA	AUTO
MINIPAK 2100	2040						NANA	AUTO
MINIPAK 2100	2040						NANA	AUTO
MINIPAK 300	320						NANA	AUTO
MINIPAK 40	45						NANA	AUTO
MINIPAK 4100	4095						NANA	AUTO
MINIPAK 500	520						NANA	AUTO

ORCA TECHNOLOGY CORP

320A	370	9					NANA	AUTO
320S	370	9					NANA	AUTO
400A	470	9					NANA	AUTO
400S	470	9					NANA	AUTO
760E	760	15	1564				NANA	AUTO
760S	760	15	1564				NANA	AUTO

OTARI

SEE DISTRON

--/--

PACIFIC MAGTRON

MT3050	50	2	1062	46			--/--	
MT3100	100	4	1062	46			--/--	
MT4115E	115	4	1597				--/--	
MT4115S	115	4	1597				--/--	
MT4140E	140	5	1597				--/--	
MT4140S	140	5	1597				--/--	
MT4170E	170	6	1597				--/--	
MT4170S	170	6	1597				--/--	
MT5760E	676	15	1632	54			NANA	AUTO
MT5760S	673	15	1632	54			NANA	AUTO
MT6120S	1050	15	1927	71			NANA	AUTO

PANASONIC

JU116	20	4	615	17			616/616	
JU128	42	7	733	17			734/734	

PLUS DEVELOPMENT

HARDCARD 20	21	4	615	17			NANA	AUTO
HARDCARD 40	42	8	612	17			NANA	AUTO
HARDCARD II-40	40	5	925	17			NANA	AUTO
HARDCARD II-80	80	10	925	17			NANA	AUTO
HARDCARD II-XL105	105	15	806	17			--/--	
HARDCARD II-XL50	52	10	601	17			--/--	
IMPULSE 105AT/LP	105	16	755	17	16/75/17		AUTO	
IMPULSE 105S	105	6	1019				--/--	
IMPULSE 105S/LP	105	4	1056				AUTO	
IMPULSE 120AT	120	5	1123	42	9/814/32		AUTO	
IMPULSE 120S	120	5	1123	42			AUTO	

Drive Model	Seek Time	Interface	Encode	Form cache	Factor	kb	mbf	Obsolete? RPM
DISKOVERY 1000	8	SCSI-2	FAST	2.7 RLL	3.5 4H		500k	5400
DISKOVERY 130	20	SCSI		2.7 RLL	5.25		50k	Y
DISKOVERY 1800DHW	8	SCSI-2	FSTW	2.7 RLL	3.5 HH		500k	
DISKOVERY 200	15	SCSI		2.7 RLL	5.25		150k	Y
DISKOVERY 2100W	8	SCSI-2	FSTW	2.7 RLL	3.5 4H		500k	7200
DISKOVERY 325	14	SCSI		2.7 RLL	5.25		150k	Y
DISKOVERY 40	25	SCSI		2.7 RLL	5.25		50k	Y
DISKOVERY 4100	8	SCSI-2	FAST	2.7 RLL	3.5 HH		800k	7200
DISKOVERY 4100W	8	SCSI-2	FSTW	2.7 RLL	3.5 HH		800k	7200
DISKOVERY 420	16	SCSI		2.7 RLL	5.25		100k	Y
DISKOVERY 500	12	SCSI-2	FAST	2.7 RLL	3.5 4H		300k	5411
MINIPAK 100	25	SCSI		2.7 RLL	3.5 HH		30k	Y
MINIPAK 1000	9	SCSI-2	FAST	2.7 RLL	3.5 4H		800k	5400
MINIPAK 200	20	SCSI		2.7 RLL	3.5 HH		40k	Y
MINIPAK 2100	8	SCSI-2	FAST	2.7 RLL	3.5 4H		500k	7200
MINIPAK 2100	8	SCSI-2	FSTW	2.7 RLL	3.5 4H		500k	7200
MINIPAK 300	13	SCSI		2.7 RLL	3.5 HH		150k	Y
MINIPAK 40	25	SCSI		2.7 RLL	3.5 HH		30k	Y
MINIPAK 4100	8	SCSI-2	FAST	2.7 RLL	3.5 HH		800k	7200
MINIPAK 500	12	SCSI-2	FAST	2.7 RLL	3.5 4H		300k	5411

ORCA TECHNOLOGY CORP

320A	12	IDE AT	2.7 RLL	3.5 HH			100k	
320S	12	SCSI	2.7 RLL	3.5 HH			100k	
400A	12	IDE AT	2.7 RLL	3.5 HH			100k	
400S	12	SCSI	2.7 RLL	3.5 HH			100k	
760E	14	ESDI	2.7 RLL	5.25			50k	
760S	14	SCSI	2.7 RLL	5.25			50k	

OTARI

SEE DISTRON

PACIFIC MAGTRON

MT3050	20	IDE AT	2.7 RLL	5.25 HH			60k	Y
MT3100	20	IDE AT	2.7 RLL	5.25 HH			60k	Y
MT4115E	16	ESDI	2.7 RLL	5.25 HH			100k	Y
MT4115S	16	SCSI	2.7 RLL	5.25 HH			100k	Y
MT4140E	16	ESDI	2.7 RLL	5.25 HH			100k	Y
MT4140S	16	SCSI	2.7 RLL	5.25 HH			100k	Y
MT4170E	16	ESDI	2.7 RLL	5.25 HH			100k	Y
MT4170S	16	SCSI	2.7 RLL	5.25 HH			100k	Y
MT5760E	14	ESDI (15)	1.7 RLL	5.25 FH			150k	Y
MT5760S	14	SCSI	1.7 RLL	5.25 FH			150k	Y
MT6120S	14	SCSI	1.7 RLL	5.25 FH			150k	Y

PANASONIC

JU116	85	ST412/506	MF	3.5 HH			5	Y
JU128	35	ST412/506	MF	3.5 HH			5	Y

PLUS DEVELOPMENT

HARDCARD 20	40	IDE AT	2.7 RLL	3.5 3H			60k	
HARDCARD 40	25	IDE AT	2.7 RLL	3.5 3H			60k	
HARDCARD II-40	25	IDE AT	2.7 RLL	3.5 3H				
HARDCARD II-80	25	IDE AT	2.7 RLL	3.5 3H				
HARDCARD II-XL105	17	IDE AT	2.7 RLL	CARD 3H				
HARDCARD II-XL50	17	IDE AT	2.7 RLL	CARD 3H				
IMPULSE 105AT/LP	17	IDE AT	2.7 RLL	3.5 3H			60k	Y
IMPULSE 105S	19	SCSI-2	2.7 RLL	3.5 HH			50k	Y
IMPULSE 105S/LP	19	SCSI-2	2.7 RLL	3.5 HH			60k	Y
IMPULSE 120AT	15	IDE AT	1.7 RLL	3.5 HH			50k	3605 Y
IMPULSE 120S	15	SCSI-2	1.7 RLL	3.5 HH			50k	3605 Y

Drive Model	Format Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	RWC/WPC	Land Zone
IMPULSE 170AT	169	7	1123	42	10/966/34	---	AUTO
IMPULSE 170S	169	7	1123	42	---	---	AUTO
IMPULSE 210AT	174	7	1156	42	13/873/36	---	AUTO
IMPULSE 210S	174	7	1156	42	---	---	AUTO
IMPULSE 330AT	331	---	---	---	---	---	AUTO
IMPULSE 330S	331	---	---	---	---	---	AUTO
IMPULSE 40AT	41	5	965	17	5/968/17	NANA	AUTO
IMPULSE 40S	42	3	834	---	---	---	AUTO
IMPULSE 425AT	425	---	---	---	---	---	AUTO
IMPULSE 425S	425	---	---	---	---	---	AUTO
IMPULSE 52AT/LP	52	8	751	17	8/751/17	---	AUTO
IMPULSE 52S/LP	52	2	---	---	---	---	AUTO
IMPULSE 80AT	83	10	965	17	6/611/17	NANA	AUTO
IMPULSE 80AT/LP	85	16	616	17	6/611/17	---	AUTO
IMPULSE 80S	84	6	918	---	---	---	AUTO
IMPULSE 80S/LP	85	4	---	---	---	---	AUTO

PRAIRIETEK CORP

PRAIRIE 120	21	2	615	34	---	---	---
PRAIRIE 140	42	4	615	34	NANA	---	AUTO
PRAIRIE 220A	20	4	612	16	---	---	---
PRAIRIE 220S	20	4	612	16	---	---	---
PRAIRIE 240	42	4	615	34	---	---	---
PRAIRIE 242S	42	4	615	34	NANA	---	AUTO
PRAIRIE 242S	42	4	615	34	NANA	---	AUTO
PRAIRIE 282A	82	4	---	---	NANA	---	AUTO
PRAIRIE 282S	82	4	---	---	NANA	---	AUTO

PRIAM CORPORATION

160A	62	---	---	---	---	---	---
185A	73	---	---	---	---	---	---
330	338	---	---	---	---	---	---
350A	32	4	820	26	756/756	---	---
502	46	7	755	17	756/756	---	---
504	46	7	755	17	---	---	---
514	117	11	1224	17	---	---	---
519	160	15	1224	17	1225/1225	---	---
519	244	11	1224	26	---	---	---
617	153	7	1225	---	NANA	---	---
628	241	11	1225	---	NANA	---	---
638	329	15	1225	---	NANA	---	---
717	153	7	1225	---	1226/1226	---	---
728	241	11	1225	---	1226/1226	---	---
738	329	15	1225	---	1226/1226	---	---
ID/ED040	42	5	987	17	---	---	---
ID/ED045	50	5	1166	17	---	---	---
ID/ED060	62	7	1018	17	---	---	---
ID/ED062	71	7	1166	17	---	---	---
ID/ED075	74	5	1166	25	---	---	---
ID/ED100	122	7	1314	26	---	---	---
ID/ED1000	1046	15	1919	71	---	AUTO	---
ID/ED120	121	7	1024	33	NANA	AUTO	---
ID/ED130	159	15	1224	17	---	---	---
ID/ED150	160	7	1276	35	NANA	AUTO	---
ID/ED180	158	7	1225	36	NANA	AUTO	---
ID/ED230	235	15	1224	25	---	---	---
ID/ED240	243	15	1220	26	---	---	---
ID/ED250	248	11	1225	36	NANA	AUTO	---
ID/ED660	675	15	1628	54	---	AUTO	---
ID100	103	7	1166	25	---	---	---
ID1000	1034	15	1919	71	NANA	AUTO	---
ID120	119	7	1024	33	NANA	---	---

Drive Model	Seek Time	Interface	Encode	Form cache Factor	Form cache kb	Obsolete? mbf	Obsolete? RPM
IMPULSE 170AT	15	IDE AT	1,7 RLL	3.5 HH	50k	3805	Y
IMPULSE 170S	15	SCSI-2	1,7 RLL	3.5 HH	50k	3805	Y
IMPULSE 210AT	15	IDE AT	1,7 RLL	3.5 HH	50k	3805	Y
IMPULSE 210S	15	SCSI-2	1,7 RLL	3.5 HH	50k	3805	Y
IMPULSE 330AT	14	IDE AT	1,7 RLL	3.5 HH	75k	---	Y
IMPULSE 330S	14	SCSI-2	1,7 RLL	3.5 HH	75k	---	Y
IMPULSE 40AT	19	IDE AT	2,7 RLL	3.5 HH	50k	3660	Y
IMPULSE 40S	19	SCSI-2	2,7 RLL	3.5 HH	50k	3660	Y
IMPULSE 425AT	14	SCSI-2	1,7 RLL	3.5 HH	75k	---	Y
IMPULSE 425S	14	SCSI-2	1,7 RLL	3.5 HH	75k	---	Y
IMPULSE 52AT/LP	17	IDE AT	2,7 RLL	3.5 HH	60k	3660	Y
IMPULSE 52S/LP	17	SCSI-2	2,7 RLL	3.5 HH	60k	3660	Y
IMPULSE 80AT/LP	17	IDE AT	2,7 RLL	3.5 HH	60k	3660	Y
IMPULSE 80S	19	SCSI-2	2,7 RLL	3.5 HH	50k	3660	Y
IMPULSE 80S/LP	17	SCSI-2	2,7 RLL	3.5 HH	60k	---	Y

PRAIRIETEK CORP

PRAIRIE 120	23	IDE AT	2,7 RLL	2.5 4H	20k	---	---
PRAIRIE 140	23	IDE AT	2,7 RLL	2.5 4H	20k	---	---
PRAIRIE 220A	28	IDE AT	2,7 RLL	2.5 3H	20k	---	---
PRAIRIE 220S	28	SCSI	2,7 RLL	2.5 3H	20k	---	---
PRAIRIE 240	28	IDE AT	2,7 RLL	2.5 3H	20k	---	---
PRAIRIE 242A	23	IDE XT-AT	2,7 RLL	---	20k	---	---
PRAIRIE 242S	23	SCSI	2,7 RLL	---	20k	---	---
PRAIRIE 282A	28	IDE AT	2,7 RLL	---	20k	---	---
PRAIRIE 282S	23	SCSI	2,7 RLL	---	20k	---	---

PRIAM CORPORATION

160A	ST412/506	MF	5.25 FH	---	---	---	---
185A	ST412/506	MF	5.25 FH	---	---	---	---
330	ST412/506	MF	5.25 FH	---	---	---	---
350A	27	ST412/506	2,7 RLL	3.5 HH	---	---	---
502	22	ST412/506	MF	5.25 FH	---	---	---
504	22	ST412/506	MF	5.25 FH	---	---	---
514	22	ST412/506	MF	5.25 FH	---	---	---
519	22	ST412/506	MF	5.25 FH	40k	---	---
519	27	ST412/506	2,7 RLL	5.25 FH	40k	---	---
617	20	ESDI	2,7 RLL	5.25 FH	40k	---	---
628	20	ESDI	2,7 RLL	5.25 FH	40k	---	---
638	20	SCSI	2,7 RLL	5.25 FH	40k	---	---
717	20	SCSI	2,7 RLL	5.25 FH	40k	---	---
728	20	SCSI	2,7 RLL	5.25 FH	40k	---	---
738	20	SCSI	2,7 RLL	5.25 FH	40k	---	---
ID/ED040	23	ST412/506	MF	5.25 FH	40k	---	---
ID/ED045	23	ST412/506	MF	5.25 FH	40k	---	---
ID/ED060	30	ST412/506	MF	5.25 FH	40k	---	---
ID/ED062	23	ST412/506	MF	5.25 FH	40k	---	---
ID/ED075	23	ST412/506	MF	5.25 FH	40k	---	---
ID/ED100	15	ST412/506	2,7 RLL	5.25 HH	40k	---	---
ID/ED1000	14	SCSI	---	5.25 FH	150k	---	---
ID/ED120	28	ESDI	2,7 RLL	5.25 HH	---	---	---
ID/ED130	13	ST412/506	MF	5.25 FH	40k	---	---
ID/ED150	28	ESDI	2,7 RLL	5.25 HH	---	---	---
ID/ED180	18	ESDI	2,7 RLL	5.25 FH	---	---	---
ID/ED230	11	ST412/506	---	5.25 FH	40k	---	---
ID/ED240	28	ST412/506	2,7 RLL	5.25 FH	---	---	---
ID/ED250	18	ESDI	---	5.25 FH	---	---	---
ID/ED660	16	SCSI	---	5.25 FH	150k	---	---
ID100	15	ST412/506	2,7 RLL	5.25 FH	40k	---	---
ID1000	14	ESDI	---	5.25 FH	150k	---	---
ID120	28	ESDI	2,7 RLL	5.25 FH	---	---	---

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/ WPC	Land Zone
ID130	132	15	1224	17	---	---	---
ID150	158	7	1276	35	---	N/A/N/A	---
ID160	158	7	1218	36	---	---	---
ID160H	156	7	1225	36	---	N/A/N/A	AUTO
ID20	25	3	987	17	---	---	AUTO
ID230	233	15	1224	25	---	---	---
ID250	246	11	1225	36	---	N/A/N/A	---
ID330	339	15	1218	36	---	---	---
ID330D	337	15	1225	36	---	N/A/N/A	---
ID330E	337	15	1218	36	---	---	---
ID330E-PS/2	330	15	1195	36	---	---	---
ID330S	338	15	1225	36	---	N/A/N/A	---
ID340H	340	7	1218	36	---	---	AUTO
ID40	42	4	987	17	---	---	AUTO
ID40AT	40	5	1018	17	---	---	---
ID45	44	5	1018	17	---	---	---
ID45H	44	5	1024	17	---	---	---
ID60	59	7	1018	17	---	---	---
ID60AT	59	7	1018	17	---	---	---
ID62	62	7	1166	17	---	---	---
ID660	660	15	1632	54	---	N/A/N/A	AUTO
ID75	73	5	1166	25	---	---	---
V130	39	3	987	26	988/988	987	987
V150	42	5	987	17	988/988	987	987
V160	50	5	1166	17	1167/1167	---	---
V170	60	7	987	17	988/988	987	987
V170R	91	7	987	26	988/988	987	987
V185	72	7	1166	17	1167/1167	1165	1165
V519	159	15	1224	17	---/NONE	1228	---

PROCOM TECHNOLOGY

ATOM-AT1300	1350	---	---	---	---	---	---
ATOM-AT340	340	---	---	---	N/A/N/A	---	AUTO
ATOM-AT500	528	---	---	---	---	---	---
ATOM-AT800	811	---	---	---	---	---	---
BRAVOPAQ120	124	14	1024	17	---	---	AUTO
BRAVOPAQ40	42	5	977	17	---	---	AUTO
HIPER 145	150	8	1024	36	---	---	---
HIPER 155	160	9	966	36	---	---	---
HIPER 20	21	4	615	17	---	---	---
HIPER 30	33	4	615	26	---	---	---
HIPER 330	337	15	1224	36	---	---	---
HIPER 380	388	16	755	63	---	---	---
HIPER 48	48	6	615	26	---	---	---
HIPER/II 155	157	64	150	32	---	---	---
HIPER/II 380	383	64	365	32	---	---	---
HIPER/II 65	65	9	925	17	---	---	---
MD100	104	64	102	32	---	---	---
MD1003 (external)	1030	---	---	---	---	---	---
MD20	21	64	21	32	---	---	---
MD200	209	32	200	32	---	---	---
MD2003 (external)	2030	---	---	---	---	---	---
MD2103 (external)	2100	---	---	---	---	---	---
MD2103W (external)	2100	---	---	---	---	---	---
MD30	30	64	30	32	---	---	---
MD320	337	64	317	32	---	---	---
MD420	433	64	415	32	---	---	---
MD4303 (external)	4300	---	---	---	---	---	---
MD4303W (external)	4300	---	---	---	---	---	---
MD45	45	64	45	32	---	---	---
MD544 (external)	544	---	---	---	---	---	---
MD80	83	64	80	32	---	---	---
MTD1000	1037	64	989	32	---	---	---

Drive Model	Seek Time	Interface	Encode	Form cache Factor	Obsolete? kb mtbf RPM
ID130	13	ST412/506	MF	5.25 FH	40k Y
ID150	28	ESDI	2.7 RLL	5.25 FH	Y
ID160	28	SCSI	---	5.25 FH	150k Y
ID160H	28	ESDI	2.7 RLL	5.25 FH	150k Y
ID20	23	ST412/506	MF	5.25 FH	40k Y
ID230	11	ST412/506	2.7 RLL	5.25 FH	40k Y
ID250	18	ESDI	2.7 RLL	5.25 FH	Y
ID330	18	SCSI	2.7 RLL	5.25 FH	Y
ID330D	18	ESDI	2.7 RLL	5.25 FH	Y
ID330E	18	ESDI	2.7 RLL	5.25 FH	Y
ID330E-PS/2	18	PS/2	2.7 RLL	5.25 FH	Y
ID330S	18	SCSI	2.7 RLL	5.25 FH	Y
ID340H	14	ESDI	2.7 RLL	5.25 FH	150k Y
ID40	23	ST412/506	MF	5.25 FH	40k Y
ID40AT	23	ST412/506	MF	5.25 FH	150k Y
ID45	25	ST412/506	MF	5.25 HH	40k Y
ID45H	30	ST412/506	MF	5.25 FH	40k Y
ID60	23	ST412/506	MF	5.25 FH	150k Y
ID60AT	23	ST412/506	MF	5.25 FH	40k Y
ID62	16	ESDI	2.7 RLL	5.25 FH	150k Y
ID660	23	ST412/506	2.7 RLL	5.25 FH	40k Y
ID75	23	ST412/506	2.7 RLL	5.25 FH	Y
V130	---	ST412/506	MF	5.25 FH	Y
V150	---	ST412/506	MF	5.25 FH	Y
V160	---	ST412/506	MF	5.25 FH	Y
V170	28	ST412/506	MF	5.25 FH	Y
V170R	28	ST412/506	MF	5.25 FH	Y
V185	28	ST412/506	MF	5.25 FH	Y
V519	20	---	MF	5.25 FH	115 Y

PROCOM TECHNOLOGY

ATOM-AT1300	13	IDE	---	2.5 4H	128k 300k
ATOM-AT340	16	IDE	---	2.5 4H	120k 300k
ATOM-AT500	13	IDE	---	2.5 4H	128k 300k
ATOM-AT800	13	IDE	---	2.5 4H	128k 300k
BRAVOPAQ120	19	IDE AT	RLL	3.5 HH	150k Y
BRAVOPAQ40	25	IDE AT	RLL	3.5 HH	150k Y
HIPER 145	23	ESDI	---	5.25 FH	30 Y
HIPER 155	16.5	SCSI	RLL	5.25 FH	100k Y
HIPER 20	40	ST412/506	MF	5.25 FH	150k Y
HIPER 30	28	ST412/506	RLL	5.25 FH	150k Y
HIPER 330	18	ESDI	---	5.25 FH	30k Y
HIPER 380	16	SCSI	RLL	5.25 FH	100k Y
HIPER 48	28	ST412/506	RLL	5.25 FH	150k Y
HIPER/II 155	16.5	ESDI	RLL	5.25 FH	100k Y
HIPER/II 380	16	ESDI	RLL	5.25 FH	100k Y
HIPER/II 65	28	ST412/506	MF	5.25 FH	40k Y
MD100	18	SCSI	RLL	---	70k Y
MD1003 (external)	10	SCSI-2 FAST	---	3.5	---
MD20	28	SCSI	RLL	---	150k Y
MD200	18	SCSI	RLL	---	70k Y
MD2003 (external)	10	SCSI-2 FAST	---	3.5	---
MD2103 (external)	8	SCSI-2 FAST	---	3.5	---
MD2103W (external)	8	SCSI-2 FSTW	---	3.5	7200
MD30	28	SCSI	RLL	---	150k Y
MD320	12	SCSI	RLL	---	100k Y
MD420	16	SCSI	RLL	---	100k Y
MD4303 (external)	8	SCSI-2 FAST	---	3.5 HH	7200
MD4303W (external)	8	SCSI-2 FSTW	---	3.5	7200
MD45	28	SCSI	RLL	---	150k Y
MD544 (external)	9	SCSI-2 FAST	---	3.5	---
MD80	24	SCSI	RLL	---	150k Y
MTD1000	15	SCSI	RLL ZBR	---	100k Y

Drive Model	Format Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	RWC/WPC	Land Zone
MTD320-10	337	64	317	32		---	
MTD585	601	64	573	32		---	
MTD650	676	64	650	32		---	
MTD9000 (external)	9100					---	
PAT100	110	14	535	29		---	
PAT40	42	4	805	26		---	AUTO
PH.D20	21	4	615	17		---	AUTO
PH.D2520	21	4	615	17		---	
PH.D2545	45	7	733	17		---	
PH.D30	33	4	615	26		---	
PH.D30-CE	33	4	615	26		---	
PH.D3020	21	4	615	17		---	
PH.D45	45	7	773	17		---	
PH.D48	49	6	615	26		---	
PH.D5045	45	7	773	17		---	
PIRA 100	101	8	776	33		---	
PIRA 120	124	14	1024	17		---	
PIRA 200	210	12	954	36		---	AUTO
PIRA 40	42	5	977	17		---	AUTO
PIRA 50-120	210	14	1024	36		---	AUTO
PIRA 50-200	210	12	954	36		---	AUTO
PIRA 50-270	270					---	AUTO
PIRA 50-340	340					---	
PIRA 50-420	420					---	
PIRA 55-120	130					---	
PIRA 55-200	212					---	
PIRA 55-270	270					---	
PIRA 55-340	340					---	
PIRA 55-420	420					---	
PIRA 55-500	510					---	
PR-IDE1200	1200					---	
PR-IDE210	210					---	
PR-IDE270	270					---	
PR-IDE340	340					---	
PR-IDE420	420					---	
PR-IDE500	510					---	
PR-IDE800	800					---	
PROPAQ/N100	101	8	776	33		---	AUTO
PROPAQ/N120-19	124	14	1024	17		---	AUTO
PROPAQ/N185-15	189	12	1023	33		---	AUTO
PROPAQ/N40	40	4	805	26		---	AUTO
PROPAQ/N40N	40	6	580	26		---	AUTO
PROPAQ/S100	101	8	776	33		---	AUTO
PROPAQ/S120-19	124	14	1024	17		---	AUTO
PROPAQ/S185-15	189	12	1023	33		---	AUTO
PROPAQ/S40	40	4	805	26		---	AUTO
PROPAQ/S40N	40	6	580	26		---	AUTO
PROPAQ100	101	8	776	33		---	AUTO
PROPAQ120-19	124	14	1024	17		---	AUTO
PROPAQ185-15	189	12	1023	33		---	AUTO
PROPAQ185-15	189	5				NANA	AUTO
PROPAQ40	40	4	805	26		---	AUTO
PROPAQ40N	40	6	580	26		---	AUTO
SI100	104	64	102	32		---	
SI1000	1037	64				---	
SI1000/S5	1037	8				NANA	AUTO
SI1003/C	1030					---	
SI200	209	64	200	32		---	
SI200/PS3	209	4				NANA	AUTO
SI2003/C	2030					---	
SI2103/C	2100					---	
SI2103W/C	2100					---	
SI320-10	337	64	317	32		---	

Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtbf RPM
MTD320-10	10.7	SCSI	RLL ZBR			100k Y
MTD585	16.5	SCSI	RLL ZBR			100k Y
MTD650	15.5	SCSI	RLL ZBR			100k Y
MTD9000 (external)	11	SCSI-2 FAST				
PAT100	15	IDE AT	RLL	3.5 HH	150	Y
PAT40	25	IDE AT	RLL	5.25 HH	150k	Y
PH.D20	40	ST412/506	MF	3.5 HH	150	Y
PH.D2520	40	ST412/506	MF	3.5 HH	30k	Y
PH.D2545	25	ST412/506	MF	3.5 HH	30k	Y
PH.D30	28	ST412/506	RLL	3.5 HH	150	Y
PH.D30-CE	28	ST412/506	RLL	3.5 HH	150	Y
PH.D3020	40	ST412/506	MF	3.5 HH	30k	Y
PH.D45	25	ST412/506	MF	3.5 HH	150	Y
PH.D48	28	ST412/506	RLL	3.5 HH	150	Y
PH.D5045	25	ST412/506	MF	3.5 HH	150k	Y
PIRA 100	25	IDE AT		3.5 HH	20k	Y
PIRA 120	18	IDE AT	RLL	3.5 HH	150	Y
PIRA 200	15	IDE AT	RLL	3.5 HH	150k	Y
PIRA 40	28	IDE AT	RLL	3.5 HH	150k	Y
PIRA 50-120	19	IDE AT	RLL	3.5 HH	150k	Y
PIRA 50-200	15	IDE AT	RLL	3.5 HH	150k	Y
PIRA 50-270	14	IDE AT	RLL	3.5 HH	150k	Y
PIRA 50-340	14	IDE AT	RLL	3.5 HH	150k	Y
PIRA 50-420	14	IDE AT	RLL	3.5 HH	150k	Y
PIRA 55-120	16	IDE	2.7 RLL		32k 150k 3211	Y
PIRA 55-200	15	IDE	1.7 RLL		64k 150k 3551	Y
PIRA 55-270	14	IDE			150k	Y
PIRA 55-340	15	IDE			150k	Y
PIRA 55-420	14	IDE			150k	Y
PIRA 55-500	12	IDE	2.7 RLL		256k 150k 4500	Y
PR-IDE1200	10	IDE		3H		Y
PR-IDE210	14	IDE		3H		Y
PR-IDE270	14	IDE		3H		Y
PR-IDE340	12	IDE		3H		Y
PR-IDE420	14	IDE		3H		Y
PR-IDE500	12	IDE		3H		Y
PR-IDE800	12	IDE		3H		Y
PROPAQ/N100	25	IDE AT	RLL	3.5 HH	100k	Y
PROPAQ/N120-19	19	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ/N185-15	15	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ/N40	25	IDE AT	RLL	3.5 HH	100k	Y
PROPAQ/N40N	25	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ/S100	25	IDE AT	RLL	3.5 HH	20k	Y
PROPAQ/S120-19	19	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ/S185-15	15	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ/S40	25	IDE AT	RLL	3.5 HH	100k	Y
PROPAQ/S40N	25	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ100	25	IDE AT	RLL	3.5 HH	100k	Y
PROPAQ120-19	19	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ185-15	15	IDE AT	RLL	3.5 HH	150k	Y
PROPAQ185-15	15	IDE AT	RLL	3.5 HH	70k	Y
PROPAQ40	25	IDE AT	RLL	3.5 HH	100k	Y
PROPAQ40N	25	IDE AT	RLL	3.5 HH	150k	Y
SI100	18	SCSI	RLL	5.25 FH	70k	Y
SI1000	15	SCSI	RLL	5.25 FH	100k	Y
SI1000/S5	15	SCSI		5.25	40k	
SI1003/C	10	SCSI-2 FAST		3.5 3H		
SI200	18	SCSI	RLL	2.7 RLL	70k	Y
SI200/PS3	18	SCSI		3.5 HH	70k	Y
SI2003/C	10	SCSI-2 FAST		3.5 3H		
SI2103/C	8	SCSI-2 FAST		3.5 3H	7200	
SI2103W/C	8	SCSI-2 FSTW		3.5 3H	7200	
SI320-10	10.7	SCSI	RLL	5.25 FH	100k	Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
SI320H		331 64		339	32		---	
SI420H		435 64		415	32		---	
SI4303		4300					---	
SI4303W/C		4300					---	
SI45		48 64		45	32		---	
SI544/C		544					---	
SI585		601 64		415	32		---	
SI585/PS5		601 8					NANA	AUTO
SI585/S5		601 8					NANA	AUTO
SI650		662 64		632	32		---	
SI80		83 64		80	32		---	
SI9000/S5		9100					---	

PTI (PERIPHERAL TECHNOLOGY)

PL100 TURBO	105 4						NANA	AUTO
PL200 TURBO	210 7						NANA	AUTO
PL32 TURBO	320 14						NANA	AUTO
PT225	21 4		615	17			---	
PT234	28 4		820 17				---	
PT238A	32 4		615 26				NANA	
PT238R	32 4		615 26				---	
PT238S	32 4		615 26				---	
PT251A	51 4		820 26				---	
PT251R	44 4		820 26				---	
PT251S	44 4		820 26				---	
PT338	32 6		615 17				---	
PT351	42 6		820 17				---	
PT357A	49 6		615 26				---	
PT357R	49 6		615 26				---	
PT357S	49 6		615 26				---	
PT376A	65 6		820 26				NANA	
PT376R	65 6		820 26				---	
PT376S	65 6		820 26				---	
PT4102A	87 8		820 26				---	
PT4102R	87 8		820 26				---	
PT4102S	87 8		820 26				---	
PT468	57 8		820 17				---	

QUANTUM CORPORATION

ATLAS II 2.2S	2275 5		V				---	
ATLAS II 4.5S	4550 10		V				---	
ATLAS II 9.1S	9100 20		V				---	
ATLAS XP31070S	1075 5		80-134				---	
ATLAS XP32150S	2150 10		80-134				---	
ATLAS XP34300S	4350 20		80-134				---	
BIGFOOT 1275	1275 2		144-23				---	
BIGFOOT 2550	2550 4		144-23				---	
CAPELLA VP31110S	1108 4		97-149				---	
CAPELLA VP32210S	2216 8		97-149				---	
DAYTONA 127AT	127 2		54-92	9/677/41		NANA	AUTO	
DAYTONA 127S	127 2		54-92			NANA	AUTO	
DAYTONA 170AT	256 3		54-92	10/538/62		NANA	AUTO	
DAYTONA 170S	170 3		54-92			NANA	AUTO	
DAYTONA 256AT	256 4		54-92	11/723/63		NANA	AUTO	
DAYTONA 256S	256 4		54-92			NANA	AUTO	
DAYTONA 341AT	341 6		54-92	15/1011/44		NANA	AUTO	
DAYTONA 341S	341 6		54-92			NANA	AUTO	
DAYTONA 514AT	514 8		54-92	16/996/63		NANA	AUTO	
DAYTONA 514S	514 8		54-92			NANA	AUTO	
DSP3053LS	535 4		59-119			---		
DSP3107LS	1070 8		59-119			---		
DSP3133LS	1337 10		59-119			---		

Drive Model	Seek Time	Interface	Encode	Form cache	Obsolete?
SI320H	14	SCSI	RLL	5.25 FH	100k Y
SI420H	16	SCSI	RLL	5.25 FH	100k Y
SI4303	8	SCSI-2 FAST		3.5 HH	7200
SI4303W/C	8	SCSI-2 FSTW		3.5 HH	7200
SI45	28	SCSI	RLL		150k Y
SI544/C	9	SCSI-2 FAST		3.5 3H	
SI585	16.5	SCSI	RLL	5.25 FH	100k
SI585/PS5	17	SCSI		5.25	100k
SI585/S5	17	SCSI		5.25	100k
SI650	15.5	SCSI	RLL	5.25 FH	100k
SI80	24	SCSI	RLL	5.25 FH	150k Y
SI9000/S5	11	SCSI-2 FAST		5.25 FH	

PTI (PERIPHERAL TECHNOLOGY)

PL100 TURBO	19	SCSI	2.7 RLL	3.5 HH	60k
PL200 TURBO	19	SCSI	2.7 RLL	3.5 HH	50k
PL32 TURBO	12	SCSI	2.7 RLL	3.5 HH	100k
PT225	35	ST412/506	MFM	3.5 HH	
PT234	35	ST412/506	MFM	3.5 HH	
PT238A	35	IDE AT	2.7 RLL	3.5 HH	
PT238R	35	ST412/506	2.7 RLL	3.5 HH	
PT238S	35	SCSI	2.7 RLL	3.5 HH	
PT251A	35	IDE AT	2.7 RLL	3.5 HH	25k
PT251R	35	ST412/506	2.7 RLL	3.5 HH	25
PT251S	35	SCSI	2.7 RLL	3.5 HH	25k
PT338	35	ST412/506	MFM	3.5 HH	25k
PT351	35	ST412/506	MFM	3.5 HH	
PT357A	35	IDE AT	2.7 RLL	3.5 HH	25k
PT357R	35	ST412/506	2.7 RLL	3.5 HH	
PT357S	35	SCSI	2.7 RLL	3.5 HH	25k
PT376A	35	IDE AT	2.7 RLL	3.5 HH	25k
PT376R	35	ST412/506	2.7 RLL	3.5 HH	25k
PT376S	35	SCSI	2.7 RLL	3.5 HH	25k
PT4102A	35	IDE AT	2.7 RLL	3.5 HH	25k
PT4102R	35	ST412/506	2.7 RLL	3.5 HH	25k
PT4102S	35	SCSI	2.7 RLL	3.5 HH	25k
PT468	35	ST412/506	MFM	3.5 HH	25k

QUANTUM CORPORATION

ATLAS II 2.2S	8	SCSI-3	1.7 RLL	3.5 3H	512k/1000k 7200
ATLAS II 4.5S	8	SCSI-3	1.7 RLL	3.5 3H	512k/1000k 7200
ATLAS II 9.1S	8	SCSI-3	1.7 RLL	3.5 HH	1024k/1000k 7200
ATLAS XP31070S	8	SCSI-2 FAST	1.7 RLL	3.5 3H	1024k 800k 7200
ATLAS XP32150S	8	SCSI-2 FAST	1.7 RLL	3.5 3H	1024k 800k 7200
ATLAS XP34300S	8	SCSI-2 FAST	1.7 RLL	3.5 HH	1024k 800k 7200
BIGFOOT 1275	15.5	ATA-2 Fast	FRM 16.17	5.25 4H 128k	3600
BIGFOOT 2550	15.5	ATA-2 Fast	FRM 16.17	5.25 4H 128k	3600
CAPELLA VP31110S	9	SCSI-2 FAST	1.7 RLL	3.5 3H	1024k 800k 5400
CAPELLA VP32210S	9	SCSI-2 FAST	1.7 RLL	3.5 3H	1024k 800k 5400
DAYTONA 127AT	17	IDE AT	1.7 RLL	2.5 4H	96k 350k 4500 Y
DAYTONA 127S	17	SCSI-2	1.7 RLL	2.5 4H	96k 350k 4500 Y
DAYTONA 170AT	17	IDE AT	1.7 RLL	2.5 4H	96k 350k 4500 Y
DAYTONA 170S	17	SCSI-2	1.7 RLL	2.5 4H	96k 350k 4500 Y
DAYTONA 256AT	17	IDE AT	1.7 RLL	2.5 4H	96k 350k 4500
DAYTONA 256S	17	SCSI-2	1.7 RLL	2.5 4H	96k 350k 4500
DAYTONA 341AT	17	IDE AT	1.7 RLL	2.5 4H	96k 350k 4500
DAYTONA 341S	17	SCSI-2	1.7 RLL	2.5 4H	96k 350k 4500
DAYTONA 514AT	17	IDE AT	1.7 RLL	2.5 4H	96k 350k 4500
DAYTONA 514S	17	SCSI-2	1.7 RLL	2.5 4H	96k 350k 4500
DSP3053LS	9.5	SCSI-2 FAST	1.7 RLL	3.5 3H	512k 500k 5400 Y
DSP3107LS	9.5	SCSI-2 FAST	1.7 RLL	3.5 3H	512k 500k 5400 Y
DSP3133LS	9.5	SCSI-2 FAST	1.7 RLL	3.5 3H	512k 500k 5400 Y

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
DSP3210S	2148	16		59-119		---	
ELS127AT	127	3	1536	V	16/919/17	NANA	AUTO
ELS127S	127	3	1536	V		NANA	AUTO
ELS170AT	170	4	1536	V	15/1011/22	NANA	AUTO
ELS170S	170	4	1536	V		NANA	AUTO
ELS42AT	42	1	1536	V	5/968/17	NANA	AUTO
ELS42S	42	1	1536	V		NANA	AUTO
ELS85AT	85	2	1536	V	10/977/17	NANA	AUTO
ELS85S	85	2	1536	V		NANA	AUTO
EMPIRE 1080S	1080	8				NANA	AUTO
EMPIRE 1400S	1400	8		72-137		---	
EMPIRE 2100S	2100	12		72-137		---	
EMPIRE 540S	540	4				NANA	AUTO
EMPIRE II VP32181S	2180	5				---	
EMPIRE II VP34360S	4360	10				---	
EMPIRE II VP39100S	9100	20	311586-126			---	
EUROPA 1080AT	1080	8		66-110		---	
EUROPA 540AT	540	4		66-110		---	
EUROPA 810AT	810	6		66-110		---	
FIREBALL 1080AT	1089	4		88-177		---	
FIREBALL 1080S	1093	4		88-177		---	
FIREBALL 1280AT	1280	4		95-177		---	
FIREBALL 1280S	1280	4		95-177		---	
FIREBALL 540AT	544	2		88-177		---	
FIREBALL 540S	545	2		88-177		---	
FIREBALL 640AT	640	2		95-177		---	
FIREBALL 640S	640	2		95-177		---	
GODRIVE 120AT	127	4	1097	V	13/731/26	NANA	AUTO
GODRIVE 120S	127	4	1097	V		NANA	AUTO
GODRIVE 40AT	43	2	957		6/820/17	---	
GODRIVE 40S	43	2	957			---	
GODRIVE 60AT	63	2	1097	V	7/1024/17	NANA	AUTO
GODRIVE 60S	63	2				NANA	AUTO
GODRIVE 80AT	84	2		NA	9/1024/17	NANA	AUTO
GODRIVE 80S	84	2				NANA	AUTO
GODRIVE GLS127AT	127	3				NANA	AUTO
GODRIVE GLS127S	127	3				NANA	AUTO
GODRIVE GLS170AT	170	4				NANA	AUTO
GODRIVE GLS170S	170	4				NANA	AUTO
GODRIVE GLS256AT	256	6				NANA	AUTO
GODRIVE GLS256S	256	6				NANA	AUTO
GODRIVE GLS85AT	85	2				NANA	AUTO
GODRIVE GLS85S	85	2				NANA	AUTO
GODRIVE GRS160AT	169	4				NANA	AUTO
GODRIVE GRS160S	169	4				NANA	AUTO
GODRIVE GRS80AT	84	2	45-73	5/966/34		NANA	AUTO
GODRIVE GRS80S	84	2				NANA	AUTO
Grand Prix XP32151S	2150	10		118		---	
Grand Prix XP34301S	4300	20		118		---	
HARDCARD E2 42	42	5	977	17		NANA	AUTO
LIGHTNING 365AT	366	2		61-128	12/976/61	NANA	AUTO
LIGHTNING 365S	365	2		64-128		NANA	AUTO
LIGHTNING 540AT	541	4		61-128	16/1120/59	NANA	AUTO
LIGHTNING 540S	541	3		64-128		NANA	AUTO
LIGHTNING 730AT	731	4		61-128	16/1416/63	NANA	AUTO
LIGHTNING 730S	732	4		54-128		NANA	AUTO
MAVERICK 270AT	271	2		58-118	14/944/40	NANA	AUTO
MAVERICK 270S	271	2		58-118		NANA	AUTO
MAVERICK 540AT	541	4		58-118	16/1049/63	NANA	AUTO
MAVERICK 540S	542	4		58-118		NANA	AUTO
PRODRIVE 100E	100					NANA	
PRODRIVE 1050S	1050	12	2442	NA		NANA	AUTO
PRODRIVE 105AT	104	4	1219	17	16/755/17	NANA	AUTO

Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtbf RPM
DSP3210S	9.5	SCSI-2	FAST	1.7 RLL	3.5 HH 1024K	500K 5400 Y
ELS127AT	17	IDE AT		1.7 RLL	3.5 3H	32K 250K 3663 Y
ELS127S	17	SCSI		1.7 RLL	3.5 3H	32K 250K 3663 Y
ELS170AT	17	IDE AT		1.7 RLL	3.5 3H	32K 250K 3663 Y
ELS170S	17	SCSI		1.7 RLL	3.5 3H	32K 250K 3663 Y
ELS42AT	19	IDE AT		2.7 RLL	3.5 3H	250K Y
ELS42S	19	SCSI		2.7 RLL	3.5 3H	250K Y
ELS85AT	17	IDE XT		2.7 RLL	3.5 3H	250K Y
ELS85S	17	SCSI		2.7 RLL	3.5 3H	250K Y
EMPIRE 1080S	9.5	SCSI-3		3.5 3H	512K	500K 5400
EMPIRE 1400S	11	SCSI-3	FAST	PRML0,44	3.5 3H	512K 500K 5400 Y
EMPIRE 2100S	11	SCSI-3	FAST	PRML0,44	3.5 HH	512K 500K 5400 Y
EMPIRE 540S	9.5	SCSI-3		3.5 3H	512K	500K 5400 Y
EMPIRE II VP32181S	9	SCSI-3		PRML	3.5 3H	512K1000K 5400
EMPIRE II VP34360S	9	SCSI-3		PRML	3.5 3H	512K1000K 5400
EMPIRE II VP39100S	9	SCSI-3		PRML	3.5 HH	512K1000K 5400
EUROPA 1080AT	14	ATA-2	FAST	PRML	2.5 4H	128K 350K 3800
EUROPA 540AT	14	ATA-2	FAST	PRML	2.5 4H	128K 350K 3800
EUROPA 810AT	14	ATA-2	FAST	PRML	2.5 4H	128K 350K 3800
FIREBALL 1080AT	12	ATA-2		PRML	3.5 3H	128K 500K 5400
FIREBALL 1080S	12	SCSI-3		PRML	3.5 3H	128K 500K 5400
FIREBALL 1280AT	12	ATA-2	Fast	PRML16,17	3.5 3H	128K 5400
FIREBALL 1280S	12	SCSI-3		PRML16,17	3.5 3H	128K 5400
FIREBALL 540AT	12	ATA-2		PRML	3.5 3H	128K 500K 5400
FIREBALL 540S	12	SCSI-3		PRML	3.5 3H	128K 500K 5400
FIREBALL 640AT	12	ATA-2	Fast	PRML16,17	3.5 3H	128K 5400
FIREBALL 640S	12	SCSI-3		PRML16,17	3.5 3H	128K 5400
GODRIVE 120AT	17	IDE AT		1.7 RLL	2.5 3H	32K 150K Y
GODRIVE 120S	17	SCSI		1.7 RLL	2.5 3H	32K 150K Y
GODRIVE 40AT	19	IDE AT		1.7 RLL	2.5 4H	32K 80K Y
GODRIVE 40S	19	SCSI		1.7 RLL	2.5 4H	32K 80K Y
GODRIVE 60AT	19	IDE AT		1.7 RLL	2.5 3H	150K Y
GODRIVE 60S	17	SCSI		1.7 RLL	2.5 4H	150K Y
GODRIVE 80AT	19	IDE AT		1.7 RLL	2.5 4H	80K Y
GODRIVE 80S	19	SCSI		1.7 RLL	2.5 4H	80K Y
GODRIVE GLS127AT	17	IDE AT			2.5	128K 350K Y
GODRIVE GLS127S	17	SCSI-2			2.5	128K 350K Y
GODRIVE GLS170AT	17	IDE AT			2.5	128K 350K Y
GODRIVE GLS170S	17	SCSI-2			2.5	128K 350K Y
GODRIVE GLS256AT	17	IDE AT			2.5	128K 350K Y
GODRIVE GLS256S	17	SCSI-2			2.5	128K 350K Y
GODRIVE GLS85AT	17	IDE AT			2.5	128K 350K Y
GODRIVE GLS85S	17	SCSI-2			2.5	128K 350K Y
GODRIVE GRS160AT	17	IDE AT			2.5	32K 150K Y
GODRIVE GRS160S	17	SCSI			2.5	32K 150K Y
GODRIVE GRS80AT	17	IDE AT		1.7 RLL	2.5 4H	32K 150K 3600 Y
GODRIVE GRS80S	17	SCSI			2.5	32K 150K Y
GRAND PRIX XP32151S	SCSI-3			PRML0,44	3.5 HH	512K 800K 7200
GRAND PRIX XP34301S	SCSI-3			PRML0,44	3.5 HH	512K 800K 7200
HARDCARD E2 42	11	IDE AT				
LIGHTNING 365AT	11	IDE AT		1.7 RLL	3.5 3H	128K 300K 4500
LIGHTNING 365S	11	SCSI-2		1.7 RLL	3.5 3H	128K 300K 4500
LIGHTNING 540AT	11.5	IDE AT		1.7 RLL	3.5 3H	128K 300K 4500
LIGHTNING 540S	11.5	SCSI-2		1.7 RLL	3.5 3H	128K 300K 4500
LIGHTNING 730AT	11.5	IDE AT		1.7 RLL	3.5 3H	128K 300K 4500
LIGHTNING 730S	11.5	SCSI-2		1.7 RLL	3.5 3H	128K 300K 4500
MAVERICK 270AT	14	IDE AT		1.7 RLL	3.5 3H	128K 300K 3600
MAVERICK 270S	14	SCSI-2		1.7 RLL	3.5 3H	128K 300K 3600
MAVERICK 540AT	14	IDE AT		1.7 RLL	3.5 3H	128K 300K 3600
MAVERICK 540S	14	SCSI-2		1.7 RLL	3.5 3H	128K 300K 3600
PRODRIVE 100E	19	ESDI			3.5 HH	
PRODRIVE 1050S	10	SCSI			3.5 HH	512K 350K 4500 Y
PRODRIVE 105AT	17	IDE AT		2.7 RLL	3.5 HH	60K Y

Drive Model	Format		Head	Cyl	Sect/ Trac	Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Seek		Form	cache		Obsolète?	
	Size	MB								Time	Interface		Encode	Factor		kb	mtbf	RPM
PRODRIVE 105S	105	6	1019				---	AUTO	PRODRIVE 105S	19	SCSI	2,7 RLL	3,5 HH	64k	50k	Y
PRODRIVE 120AT	120	5	1123			9/814/32	NANA	AUTO	PRODRIVE 120AT	15	IDE AT	1,7 RLL	3,5 HH	64k	50k 3605	Y
PRODRIVE 120S	120	5	1123				---	AUTO	PRODRIVE 120S	15	SCSI	1,7 RLL	3,5 HH	64k	50k	Y
PRODRIVE 1225S	1225	14	2444		NA		---	AUTO	PRODRIVE 1225S	10	SCSI		3,5 HH	512k	350k 4500	Y
PRODRIVE 145E	145						---	AUTO	PRODRIVE 145E	19	ESDI		3,5 HH			Y
PRODRIVE 160AT	168	4	839				---	AUTO	PRODRIVE 160AT	19	IDE AT	1,7 RLL	3,5 4H		80k	Y
PRODRIVE 160S	168	4	839				---	AUTO	PRODRIVE 160S	19	SCSI	1,7 RLL	3,5 4H		80k	Y
PRODRIVE 170AT	168	7	1123			10/968/34	NANA	AUTO	PRODRIVE 170AT	15	IDE AT	1,7 RLL	3,5 HH	56k	50k 3605	Y
PRODRIVE 170S	168	7	1123				---	AUTO	PRODRIVE 170S	15	SCSI	1,7 RLL	3,5 HH	64k	50k	Y
PRODRIVE 1800S	1800	14					---	AUTO	PRODRIVE 1800S	10	SCSI		3,5 HH	512k	350k 4500	Y
PRODRIVE 210AT	209	7	1156			13/873/36	NANA	AUTO	PRODRIVE 210AT	15	IDE AT	1,7 RLL	3,5 HH	56k	50k 3605	Y
PRODRIVE 210S	210	7	1156				---	AUTO	PRODRIVE 210S	15	SCSI	1,7 RLL	3,5 HH	64k	50k 3606	Y
PRODRIVE 330AT	331	7	1156				---	AUTO	PRODRIVE 330AT	14	IDE AT	1,7 RLL	3,5 HH	64k	150k 3606	Y
PRODRIVE 330S	331	7	1156				---	AUTO	PRODRIVE 330S	14	SCSI	1,7 RLL	3,5 HH	64k	150k	Y
PRODRIVE 40AT	42	3	834			5/968/17	NANA	AUTO	PRODRIVE 40AT	19	IDE AT	2,7 RLL	3,5 HH	64k	50k	Y
PRODRIVE 40S	42	3	834				---	AUTO	PRODRIVE 40S	19	SCSI	2,7 RLL	3,5 HH	64k	50k	Y
PRODRIVE 425AT	426	9	1520		V	16/1021/51	NANA	AUTO	PRODRIVE 425AT	14	IDE AT	1,7 RLL	3,5 HH	56k	150k 3606	Y
PRODRIVE 425S	426	9					---	AUTO	PRODRIVE 425S	14	SCSI	1,7 RLL	3,5 HH	64k	150k 3606	Y
PRODRIVE 525S	525	6	2446	NA			---	AUTO	PRODRIVE 525S		SCSI		3,5 HH			Y
PRODRIVE 700S	700	8	834	35		10/965/17	NANA	AUTO	PRODRIVE 700S	10	SCSI		3,5 HH	512k	350k 4500	Y
PRODRIVE 80AT	84	6	834	35			---	AUTO	PRODRIVE 80AT	19	IDE AT	2,7 RLL	3,5 HH	64k	50k	Y
PRODRIVE 80S	84	6	834	35			---	AUTO	PRODRIVE 80S	19	SCSI	2,7 RLL	3,5 3H	64k	50k	Y
PRODRIVE LPS105AT	105	4	1219			16/755/17	NANA	AUTO	PRODRIVE LPS105AT	17	IDE AT	2,7 RLL	3,5 3H	64k	60k	Y
PRODRIVE LPS105S	105	4	1219				---	AUTO	PRODRIVE LPS105S	17	SCSI	2,7 RLL	3,5 3H	64k	60k	Y
PRODRIVE LPS120AT	122	2				5/901/53	NANA	AUTO	PRODRIVE LPS120AT	16	IDE AT	1,7 RLL	3,5 3H	256k	250k	Y
PRODRIVE LPS120S	122	2	1818				---	AUTO	PRODRIVE LPS120S	16	SCSI	1,7 RLL	3,5 3H	256k	250k 4306	Y
PRODRIVE LPS127AT	128	2			65-91	16/919/17	NANA	AUTO	PRODRIVE LPS127AT	14	IDE AT	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS127S	127	2			52-91	15/1011/22	NANA	AUTO	PRODRIVE LPS127S	14	IDE AT	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS170AT	171	2					---	AUTO	PRODRIVE LPS170AT	14	SCSI-2	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS170S	170	2					---	AUTO	PRODRIVE LPS170S	14	SCSI-2	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS210AT	211	2			55-104	15/723/38	NANA	AUTO	PRODRIVE LPS210AT	15	IDE AT	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS210S	215	2				13/723/51	NANA	AUTO	PRODRIVE LPS210S	15	IDE AT	1,7 RLL	3,5 3H	256k	250k 4306	Y
PRODRIVE LPS240AT	245	4	1818	V		13/723/51	NANA	AUTO	PRODRIVE LPS240AT	16	IDE AT	1,7 RLL	3,5 3H	256k	250k 4306	Y
PRODRIVE LPS240S	245	4				14/944/40	NANA	AUTO	PRODRIVE LPS240S	17	SCSI	1,7 RLL	3,5 3H	256k	250k 4306	Y
PRODRIVE LPS270AT	270	2					---	AUTO	PRODRIVE LPS270AT	14	IDE AT	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS270S	270	2					---	AUTO	PRODRIVE LPS270S	12	SCSI-2	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS340AT	342	4					---	AUTO	PRODRIVE LPS340AT	12	IDE AT	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS340S	342	4					---	AUTO	PRODRIVE LPS340S	12	SCSI-2	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS420AT	420	4			55-104	16/1010/51	NANA	AUTO	PRODRIVE LPS420AT	13	IDE AT	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS420S	525	6				16/1017/63	NANA	AUTO	PRODRIVE LPS420S	10	IDE AT		3,5 3H	512k	350k 4500	Y
PRODRIVE LPS525S	525	6					---	AUTO	PRODRIVE LPS525S	10	SCSI		3,5 3H	512k	350k 4500	Y
PRODRIVE LPS52AT	52	2	1219			8/751/17	NANA	AUTO	PRODRIVE LPS52AT	17	IDE AT	2,7 RLL	3,5 3H	64k	60k	Y
PRODRIVE LPS52S	52	2	1219				---	AUTO	PRODRIVE LPS52S	17	SCSI	2,7 RLL	3,5 3H	64k	60k	Y
PRODRIVE LPS540AT	541	4			V	16/1049/63	NANA	AUTO	PRODRIVE LPS540AT	14	IDE AT	1,7 RLL	3,5 3H	128k	300k 3600	Y
PRODRIVE LPS540S	541	4					---	AUTO	PRODRIVE LPS540S	12	SCSI-2	1,7 RLL	3,5 3H	128k	300k 4500	Y
PRODRIVE LPS80AT	85					16/616/17	NANA	AUTO	PRODRIVE LPS80AT	19	IDE AT		3,5 3H			Y
PRODRIVE LPS80S	86	4					---	AUTO	PRODRIVE LPS80S	19	SCSI	2,7 RLL	3,5 3H		60k	Y
Q160	200	12					---	---	Q160	26	SCSI	2,7 RLL	5,25 HH			Y
Q2010	8	2	512	32			256/256	---	Q2010	55	ST412/506	MFH	8		12k	Y
Q2020	16	4	512	32			256/256	---	Q2020	60	ST412/506	MFH	8		12k	Y
Q2030	25	6	512	32			256/256	---	Q2030	60	ST412/506	MFH	8		12k	Y
Q2040	33	8	512	32			256/256	---	Q2040	65	ST412/506	MFH	8		12k	Y
Q2080	67	7	1172	32			256/256	---	Q2080	40	ST412/506	MFH	8		8k	Y
Q250	53	4	823				---	---	Q250	26	SCSI	2,7 RLL	5,25 HH			Y
Q280	80	6	823				---	---	Q280	26	SCSI	2,7 RLL	5,25 HH			Y
Q510	8	2	512	17			256/256	---	Q510	30	ST412/506	MFH	5,25			Y
Q520	18	4	512	17			256/256	---	Q520	27	ST412/506	MFH	5,25			Y
Q530	27	6	512	17			256/256	---	Q530	40	ST412/506	MFH	5,25 FH			Y
Q540	36	8	512	17			256/256	---	Q540	45	ST412/506	MFH	5,25 FH			Y
SATURN VP31080S	1080	5					---	---	SATURN VP31080S	8,5	SCSI-2	1,7 RLL	3,5 3H	512k		5400
SATURN VP32170S	2170	10					---	---	SATURN VP32170S	8,5	SCSI-3fast	1,7 RLL	3,5 3H	512k		5400
SIROCCO 1700AT	1700	4			90-180		NANA	AUTO	SIROCCO 1700AT	11	ATA-2	PFM,16,17	3,5 3H	128k	400k 4500	Y
SIROCCO 1700S	1700	4			90-180		NANA	AUTO	SIROCCO 1700S	11	SCSI-2	PFM,16,17	3,5 3H	128k	400k 4500	Y
SIROCCO 2550AT	2550	6			90-180		NANA	AUTO	SIROCCO 2550AT	11	ATA-2	PFM,16,17	3,5 3H	128k		4500

Drive Model	Format Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	RWC/WPC	Land Zone
SIROCCO 2550S	2550	6	90-180			NANA	
TRAILBLAZER 420AT	422	2	76-141			---	AUTO
TRAILBLAZER 420S	425	2	76-141			---	
TRAILBLAZER 850AT	850	4	76-141			---	
TRAILBLAZER 850S	852	4	76-141			---	
VIKING 2.1S	2180	4				---	
VIKING 4.3S	4360	8				---	

RICOH

RH5130	10	2	612	17		613/400	
RH5260	10	2	615	17		---	
RH5261	10	2	612	17		---	
RH5500	100	2	1285	76		NANA	AUTO
RS9150AR	100	2	1285	76		NANA	AUTO

RMS

RMS503	2.5	2	153	17		77/77	
RMS506	5	4	153	17		77/77	
RMS509	8	6	153	17		77/77	
RMS512	10	8	153	17		77/77	

RODIME SYSTEMS, INC

COBRA 1000E (Mac)	1000					---	AUTO
COBRA 110AT	110	4				---	AUTO
COBRA 210AT	210	5				---	AUTO
COBRA 330E (Mac)	330					---	AUTO
COBRA 40AT	40	2	1170	36	4/585/36	---	AUTO
COBRA 650E (Mac)	650					---	AUTO
COBRA 80AT	80	4	1159	36	8/579/36	---	AUTO
RO101	6	2	192	17		96/192	
RO102	12	4	192	17		96/192	
RO103	18	6	192	17		96/192	
RO104	24	8	192	17		96/192	
RO200	11	4	320	17		---/132	
RO201	5	2	321	17		132/300	
RO201E	11	2	640	17		264/300	
RO202	10	4	321	17		132/300	
RO202E	21	4	640	17		264/300	640
RO203	15	6	321	17		132/300	321
RO203E	32	6	640	17		264/300	640
RO204	21	8	320	17		132/300	321
RO204E	43	8	640	17		264/300	640
RO251	5	2	306	17		307/307	
RO252	11	4	306	17		64/128	
RO304S	37	5	872	17		873/---	
RO3051	44					---	
RO3055	45	6	872	17		873/---	
RO3055A	49					---	
RO3055T	45	3	1053	26		NANA	AUTO
RO3057S	45	5	880			---	
RO3058A	45	3	868	17	3/868/34	---	
RO3058T	45	3	868	17		---	
RO3059A	46	2	1216	17		---	
RO3059T	46	2	1216	34		---	
RO3060R	50	2	1216	17		---	
RO3065	53	7	872	17		---/650	
RO3070S	71					---	
RO3070S	71					---	
RO3075R	78	6	750			---/650	
RO3085A	89	7	750			---/650	
RO3085R	89	7	750			---/650	
RO3085S	89					---	
RO3085T	60					---	

Drive Model	Seek Time	Interface	Encode	Form Factor	Cache kb	mtbf	Obsolete? RPM
SIROCCO 2550S	11	SCSI-3	PFML16,17	3.5 3H	128k		4500
TRAILBLAZER 420AT	14	ATA-2 FAST	1,7 RLL	3.5 3H	128k	300k	4500
TRAILBLAZER 420S	14	SCSI-2 FAST	1,7 RLL	3.5 3H	128k	300k	4500
TRAILBLAZER 850AT	14	ATA-2 FAST	1,7 RLL	3.5 3H	128k	300k	4500
TRAILBLAZER 850S	14	SCSI-2 FAST	1,7 RLL	3.5 3H	128k	300k	4500
VIKING 2.1S	8.5	Ultra SCSI3		3.5 3H	512k	800k	7200
VIKING 4.3S	8.5	Ultra SCSI3		3.5 3H	512k	800k	7200

RICOH

RH5130	85	ST412/506	MFM				Y
RH5260	85	ST412/506	MFM				Y
RH5261	85	SCSI	MFM				Y
RH5500	25	SCSI	2,7 RLL	5.25 HH	20k		Y
RS9150AR	25	SCSI	2,7 RLL	5.25 HH	20k		Y

RMS

RMS503		ST412/506	MFM	5.25			Y
RMS506		ST412/506	MFM	5.25			Y
RMS509		ST412/506	MFM	5.25 FH			Y
RMS512		ST412/506	MFM	5.25			Y

RODIME SYSTEMS, INC

COBRA 1000E (Mac)	15	SCSI			45k	100k	3600	Y
COBRA 110AT	19	IDE AT	2,7 RLL	3.5 HH		40k		Y
COBRA 210AT	19	IDE AT	2,7 RLL	3.5 HH		40k		Y
COBRA 330E (Mac)	14.5	SCSI			45k	50k	3600	Y
COBRA 40AT	19	IDE AT	2,7 RLL	3.5 HH		40k		Y
COBRA 650E (Mac)	16.5	SCSI			45k	50k	3600	Y
COBRA 80AT	20	IDE AT	2,7 RLL	3.5 HH		40k		Y
RO101		ST412/506	MFM	5.25 FH				Y
RO102		ST412/506	MFM	5.25 FH				Y
RO103	55	ST412/506	MFM	5.25 FH				Y
RO104		ST412/506	MFM	5.25 FH				Y
RO200		ST412/506	MFM	5.25 FH				Y
RO201	85	ST412/506	MFM	5.25 FH				Y
RO201E	55	ST412/506	MFM	5.25 FH				Y
RO202	85	ST412/506	MFM	5.25 HH				Y
RO202E	55	ST412/506	MFM	5.25 FH				Y
RO203	85	ST412/506	MFM	5.25 HH				Y
RO203E	55	ST412/506	MFM	5.25 FH				Y
RO204	85	ST412/506	MFM	5.25 FH				Y
RO204E	55	ST412/506	MFM	5.25 FH				Y
RO251	85	ST412/506	MFM	5.25 HH				Y
RO252	85	ST412/506	MFM	5.25 HH				Y
RO304S	28	ST412/506	MFM	3.5 HH				Y
RO3051		SCSI	2,7 RLL	3.5 HH				Y
RO3055	28	ST412/506	MFM	3.5 HH				Y
RO3055A		IDE AT	2,7 RLL	3.5 HH				Y
RO3055T		SCSI	RLL	3.5 HH				Y
RO3057S	28	SCSI	2,7 RLL	3.5 HH				Y
RO3058A	18	IDE AT	2,7 RLL	3.5 HH		20k		Y
RO3058T	18	SCSI	2,7 RLL	3.5 HH		20k		Y
RO3059A	18	IDE AT	2,7 RLL	3.5 HH		20k		Y
RO3059T	18	SCSI	2,7 RLL	3.5 HH		20k		Y
RO3060R	28	ST412/506	2,7 RLL	3.5 HH		20k		Y
RO3065	28	ST412/506	MFM	3.5 HH		20k		Y
RO3070S	28	SCSI	2,7 RLL	3.5 HH		20k		Y
RO3075R	28	ST412/506	2,7 RLL	3.5 HH		20k		Y
RO3085A		IDE AT	2,7 RLL	3.5 HH				Y
RO3085R	28	ST412/506	2,7 RLL	3.5 HH		20k		Y
RO3085S	28	SCSI	2,7 RLL	3.5 HH				Y
RO3085T		SCSI	2,7 RLL	3.5 HH				Y

Drive Model	Format Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	RWC/WPC	Land Zone
RO3088A	75	5	868	34	5/688/34	---	---
RO3088T	75	5	868	34	---	---	---
RO3089A	70	3	1216	34	---	---	---
RO3089T	70	3	1216	34	---	---	---
RO3090T	75	5	1053	28	---	NANA	AUTO
RO3095A	80	3	1216	34	5/923/34	---	---
RO3099A	80	4	1030	---	15/614/17	NANA	AUTO
RO3099AP	80	4	1030	---	15/614/17	NANA	AUTO
RO3128A	105	7	868	34	---	---	---
RO3128T	105	7	868	17	---	---	---
RO3129A	105	5	1090	---	---	---	---
RO3129T	105	5	1090	17	---	---	---
RO3130A	109	7	1047	30	---	---	---
RO3130S	105	7	1053	28	---	NANA	AUTO
RO3130T	105	7	1053	28	---	NANA	AUTO
RO3135A	112	7	923	34	7/923/34	---	---
RO3139A	112	5	1168	17	15/861/17	---	---
RO3139AP	112	5	1168	---	15/861/17	NANA	AUTO
RO3139S	112	5	1148	---	---	NANA	AUTO
RO3139TP	112	5	1148	---	---	NANA	AUTO
RO3258TS	210	---	---	---	---	---	---
RO3259A	210	9	1235	---	15/976/28	---	---
RO3259AP	212	9	1235	---	15/990/28	---	---
RO3259T	210	---	---	---	---	---	---
RO3259TP	210	9	1148	V	---	NANA	AUTO
RO3259TS	210	9	1216	---	---	NANA	AUTO
RO351	5	2	306	17	307/307	---	---
RO352	11	4	306	17	64/128	---	---
RO365	21	4	612	17	613/613	---	---
RO5040S	38	3	---	---	---	---	---
RO5060ST	63	5	---	---	---	---	---
RO5065	63	5	---	---	---	---	---
RO5070	65	3	1224	35	---	NANA	AUTO
RO5075E	65	3	1224	35	---	NANA	AUTO
RO5075S	76	---	---	---	---	NANA	AUTO
RO5078S	62	3	1224	33	---	NANA	AUTO
RO5090	89	7	1224	17	---	NANA	AUTO
RO5095R	81	5	1224	26	---	NANA	AUTO
RO5125-1F2	106	5	1219	34	---	NANA	AUTO
RO5125E	106	5	1224	34	---	NANA	AUTO
RO5125S	106	5	1219	34	---	NANA	AUTO
RO5128S	103	5	1224	33	---	NANA	AUTO
RO5130R	114	7	1224	26	---	---	---
RO5178S	144	7	1219	---	---	---	---
RO5180-1F2	148	7	1219	34	---	NANA	AUTO
RO5180E	149	7	1224	34	---	---	---
RO5180S	144	7	1219	34	---	---	---
RO652	20	4	306	33	---	NANA	AUTO
RO652A	20	---	---	---	---	---	---
RO652B	20	4	306	33	---	---	---
RO752	20	4	306	33	---	NANA	AUTO
RO752A	25	---	---	---	---	---	---

SAMSUNG

ACB20811A (Rel. 10-96)	810	---	---	---	---	---	---
IC21021A (Rel. 10-96)	1020	---	---	---	---	---	---
PLS30854A	850	4	386872-132	16/1647/63	---	---	---
PLS31084A	1080	5	384072-144	16/2093/63	---	---	---
PLS31084S	1080	5	384072-144	16/2093/63	---	---	---
PLS31274A	1273	5	384472-132	---	---	---	---
PLS31274S	1273	5	384472-132	---	---	---	---
SHD2040N	44	4	820	28	---	544	819
SHD2041	47	4	820	28	---	NANA	AUTO

Drive Model	Time	Interface	Encode	Form Factor	cache kb	mbf	Obsolete? RPM
RO3088A	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3088T	18	SCSI	2,7 RLL	3.5 HH	20k	Y	Y
RO3089A	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3089T	18	SCSI	2,7 RLL	3.5 HH	20k	Y	Y
RO3090T	18	SCSI	2,7 RLL	3.5 HH	20k	Y	Y
RO3095A	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3099A	19	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3099AP	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3128A	18	SCSI	2,7 RLL	3.5 HH	20k	Y	Y
RO3128T	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3129A	18	SCSI	2,7 RLL	3.5 HH	20k	Y	Y
RO3129T	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3130A	22	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO3130S	22	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO3130T	19	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3135A	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3139A	18	IDE AT	2,7 RLL	3.5 HH	20k	Y	Y
RO3139AP	18	SCSI	---	3.5 HH	Y	Y	Y
RO3139S	---	SCSI	RLL ZBR	3.5 HH	Y	Y	Y
RO3139TP	---	SCSI	---	3.5 HH	Y	Y	Y
RO3258TS	18	IDE AT	2,7 RLL	3.5 HH	Y	Y	Y
RO3259A	18	IDE AT	2,7 RLL	3.5 HH	Y	Y	Y
RO3259AP	18	SCSI	2,7 RLL	3.5 HH	Y	Y	Y
RO3259T	18	SCSI	2,7 RLL	3.5 HH	Y	Y	Y
RO3259TP	18	SCSI	2,7 RLL	3.5 HH	Y	Y	Y
RO3259TS	85	ST412/506	MF	3.5 HH	Y	Y	Y
RO351	85	ST412/506	MF	3.5 HH	Y	Y	Y
RO352	85	ST412/506	MF	3.5 HH	Y	Y	Y
RO365	28	SCSI	MF	5.25 HH	Y	Y	Y
RO5040S	28	SCSI	MF	5.25 HH	Y	Y	Y
RO5060ST	28	SCSI	MF	5.25 HH	Y	Y	Y
RO5065	28	ST412/506	MF	5.25 HH	Y	Y	Y
RO5070	28	ST412/506	MF	5.25 HH	Y	Y	Y
RO5075E	28	ESDI	5.25 HH	Y	Y	Y	Y
RO5075S	28	SCSI	5.25 HH	Y	Y	Y	Y
RO5078S	28	SCSI	5.25 HH	Y	Y	Y	Y
RO5090	28	ST412/506	MF	5.25 HH	Y	Y	Y
RO5095R	18	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO5125-1F2	18	ESDI	2,7 RLL	5.25 HH	25k	Y	Y
RO5125E	28	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO5125S	28	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO5128S	28	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO5130R	19	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO5178S	19	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO5180-1F2	19	SCSI	2,7 RLL	5.25 HH	20k	Y	Y
RO5180E	18	ESDI	2,7 RLL	5.25 HH	25k	Y	Y
RO5180S	28	SCSI	2,7 RLL	5.25 HH	Y	Y	Y
RO652	85	SCSI	2,7 RLL	3.5 HH	Y	Y	Y
RO652A	85	SCSI	---	3.5 HH	Y	Y	Y
RO652B	85	SCSI	2,7 RLL	3.5 HH	Y	Y	Y
RO752	85	SCSI	---	5.25 HH	Y	Y	Y
RO752A	85	SCSI	---	5.25 HH	Y	Y	Y

SAMSUNG

ICB20811A (Rel. 10-96)	ATA-2 Fast	2.5	---	---	---	---
IC21021A (Rel. 10-96)	ATA-2 Fast	2.5	---	---	---	---
PLS30854A	1	1,7 RLL	3.5 3H	256k	300k	4500
PLS31084A	11	ATA-2	1,7 RLL	3.5 3H	256k	300k
PLS31084S	11	SCSI-2	1,7 RLL	3.5 3H	256k	300k
PLS31274A	11	ATA-2	1,7 RLL	3.5 3H	256k	300k
PLS31274S	11	SCSI-2	1,7 RLL	3.5 3H	256k	300k
SHD2040N	39	ST412/506	2,7 RLL	3.5 HH	30k	3568 Y
SHD2041	29	IDE AT	2,7 RLL	3.5 HH	30k	3525 Y

Drive Model	Format Size MB	Head	Cyl	Sect Trac	Translate H/C/S	RWC/ WPC	Land Zone
SHD30280A	280					NANA	
SHD30420A	421	3	276872-120			---	AUTO
SHD30560A	561	4	276872-120		16/1086/63	---	
SHD3061A	60	2	1478	40	7/993/17	NANA	
SHD3062A	121	4	1479	40	15/927/17	NANA	
SHD3101B	105	4	1282	40		NANA	AUTO
SHD3121A	125	2	1956	79		NANA	AUTO
SHD3122A	251	4	1956	79		---	
SHD3171A	178	2				---	
SHD3172A	356	4	2223	96		---	
SHD3202	212	7	1376	43		NANA	AUTO
SHD3210S	212	7	1376	43		NANA	AUTO
SHD3211A	213	2	2570	55-96		---	
SHD3212A	426					NANA	AUTO
SHD3272A	545	4				---	
SHD3272S	545	4				---	
STG31271A	1280				16/2483/63	---	
STG31601A	1610				16/3104/63	---	
TBR31080A	1080				16/2092/63	---	
WNR31081A	1080	4	4308			---	
WNR31601A	1610	4	5589			---	
WNR32101A	2060	5	5589			---	

SEAGATE TECHNOLOGIES

32550W	2147	11	3510	108		NANA	AUTO
ELUTE12G	1050	17				---	
SABRE1123	964	19				---	
SABRE1150	990	19				---	
SABRE1230	1050	15	1635			---	
SABRE2270	1948	19				---	
SABRE2500	2145	19				---	
SABRE368	368	10	1635			---	
SABRE500	500	10	1217			---	
SABRE736	741	15	1217			---	
SABRE850	851	15	1635			---	
ST1057A	53	3	1024	17	6/1024/17	NANA	AUTO
ST1057N	49	3	940	34		---	
ST1090A	79	5	1072	29	16/335/29	NANA	AUTO
ST1090N	79	5	1068	29		NANA	AUTO
ST1098N	84	8	906	26		NANA	AUTO
ST1100	83	9	1072	17	1073/1073	NANA	AUTO
ST1102A	89	5	1024	17	10/1024/17	NANA	AUTO
ST1102N	84	5	965	34		---	
ST1106R	91	7	977	26		NANA	AUTO
ST1111A	98	5	1072	36	10/536/36	NANA	AUTO
ST1111E	98	5	1072	36		NANA	AUTO
ST1111N	98	5	1068	36		NANA	AUTO
ST11200N	1054	15	1872	73		NANA	AUTO
ST11200ND	1050	15	1877			---	
ST11201N (never made)	1054	15	1872	73		---	
ST11201ND	1050	15	1877			---	
ST1126A	111	7	1072	29	16/469/29	NANA	AUTO
ST1126N	107	7	1068	29		NANA	AUTO
ST1133A	117	5	1272	36	10/636/36	NANA	AUTO
ST1133NS	113	5	1268	36		NANA	AUTO
ST1144A	131	7	1024	32	15/1001/17	NANA	AUTO
ST1144N	126	7				---	
ST1150R	128	9	1072	26		NA/300	AUTO
ST1156A	138	7	1072	36	14/536/36	NANA	AUTO
ST1156E	138	7	1072	36		NANA	AUTO
ST1156N	138	7	1068	36		NANA	AUTO
ST1156NS	138	7	1068	36		---	
ST1162A	143	9	1072	29	16/603/29	NANA	AUTO

Drive Model	Time	Interface	Encode	Form Factor	Cache kb	Obsolete? RPM
SHD30280A	12	ATA		3.5 HH	64k	Y
SHD30420A	12	IDE AT	1,7 RLL	3.5 3H	128k	250k 3600
SHD30560A	12	IDE AT	1,7 RLL	3.5 3H	128k	250k 3600 Y
SHD3061A	16	IDE AT	1,7 RLL	3.5 3H		200k Y
SHD3062A	16	IDE AT	1,7 RLL	3.5 3H		200k Y
SHD3101B	19	IDE AT	1,7 RLL	3.5 3H	32k	40k 3600 Y
SHD3121A	16	IDE AT	1,7 RLL	3.5 3H	64k	250k 3600 Y
SHD3122A	16	IDE AT	1,7 RLL	3.5 3H	64k	250k 3600 Y
SHD3171A	13	IDE AT	1,7 RLL	3.5 3H	64k	250k 3600 Y
SHD3172A	13	IDE AT	1,7 RLL	3.5 3H	64k	250k 3600 Y
SHD3202	16	SCSI	1,7 RLL	3.5 HH		50k Y
SHD3210S	16	SCSI	1,7 RLL	3.5 HH		50k Y
SHD3211A	13	IDE AT	1,7 RLL	3.5 3H	64k	250k 3600
SHD3212A	13	ATA		3.5 HH	128k	
SHD3272A	12	IDE AT	1,7 RLL		256k	4510 Y
SHD3272S	12	SCSI-2 FAST	1,7 RLL		256k	4510 Y
STG31271A	12	ATA-2 Fast		3.5	1500	
STG31601A	9	ATA-2 Fast		3.5	128k	4500
TBR31080A	9	ATA-2 Fast		3.5	256k	5400
TBR31081A	9	ATA-2 Fast	1,7 RLL			5400
WNR31601A	11	ATA-2 Fast	RLL 8,9	3.5 3H	128k	500k 5400
WNR32101A	11	ATA-2 Fast	RLL 8,9	3.5 3H	128k	500k 5400

SEAGATE TECHNOLOGIES

32550W	8	SCSI-2 FSTW	RLL ZBR	3.5 3H	512k	800k 7200 Y
ELUTE12G	12	SMD	RLL	5.25 FH		100k Y
SABRE1123	15	SMD	RLL	8.0 FH		100k Y
SABRE1151	15	IP1-2	RLL	8.0 FH		100k Y
SABRE1230	15	SMD/SCSI	RLL	8.0 FH		100k Y
SABRE2270	12	SMD	RLL	8.0 FH		100k Y
SABRE2500	12	SMD/SCSI	RLL	8.0 FH		100k Y
SABRE368	182	SMD/SCSI	RLL	8.0 FH		100k Y
SABRE500	18	SMD/SCSI	RLL	8.0 FH		100k Y
SABRE736	15	SMD/SCSI	RLL	8.0 FH		50k Y
SABRE850	15	SMD/SCSI	RLL	8.0 FH		50k Y
ST1057A	19	IDE AT	RLL ZBR	3.5 HH	8/32k	50k 3528 Y
ST1057N	19	SCSI-2	2,7 RLL	3.5 HH	8/32k	50k 3528 Y
ST1090A	15	IDE AT	2,7 RLL	3.5 HH		70k 3600 Y
ST1090N	15	SCSI	2,7 RLL	3.5 HH		70k 3600 Y
ST1096N	20	SCSI	2,7 RLL	3.5 HH	8k	150k 3600 Y
ST1100	15	ST412/506	MFM	3.5 HH		150k 3600 Y
ST1102A	19	IDE AT	RLL ZBR	3.5 HH	8k	150k 3528 Y
ST1102N	19	SCSI-2	RLL ZBR	3.5 HH	8/32k	50k 3528 Y
ST1106R	24	ST412/506	RLL	3.5 HH		50k 3600 Y
ST1111A	15	IDE AT	2,7 RLL	3.5 HH		150k 3600 Y
ST1111E	15	ESDI (10)	2,7 RLL	3.5 HH		150k 3600 Y
ST1111N	15	SCSI	RLL	3.5 HH		70k 3600 Y
ST11200N	11	SCSI-2 FAST	RLL ZBR	3.5 HH	256k	200k 5411 Y
ST11200ND	12	SCSI-2 FAST	1,7 RLL	3.5 HH	256k	200k 5400 Y
ST11201N (never made)	10	SCSI-2 FSTW	1,7 RLL ZBR	3.5 HH	256k	200k 5411 Y
ST11201ND	12	SCSI-2 FSTW	1,7 RLL	3.5 HH	256k	200k 5400 Y
ST1126A	15	IDE AT	2,7 RLL	3.5 HH	32k	150k 3600 Y
ST1126N	15	SCSI	RLL	3.5 HH	64k	150k 3600 Y
ST1133A	15	IDE AT	2,7 RLL	3.5 HH	64k	150k 3600 Y
ST1133NS	15	SCSI	RLL	3.5 HH		70k 3600 Y
ST1144A	19	IDE AT	RLL ZBR	3.5 HH	32k	150k 3528 Y
ST1144N	19	SCSI-2	RLL ZBR	3.5 HH	8/32k	50k 3528 Y
ST1150R	15	ST412/506	RLL	3.5 HH		150k 3600 Y
ST1156A	15	IDE AT	2,7 RLL	3.5 HH		70k 3600 Y
ST1156E	15	ESDI	RLL	3.5 HH		70k 3600 Y
ST1156N	15	SCSI	RLL	3.5 HH		70k 3600 Y
ST1156NS	15	SCSI-2	2,7 RLL	3.5 HH		70k 3600 Y
ST1162A	15	IDE AT	2,7 RLL	3.5 HH	32k	150k 3600 Y

Drive Model	Format	Size MB	Head	Cyl	Trac	Sect/ Translate H/C/S	RWC/ WPC	Land Zone	Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete? mtfb RPM
ST1162N		138	9	1068		29	NANA		ST1162N	15	SCSI	2,7 RLL	3.5 HH	64k	70k 3600 Y
ST11700N		1430	13	2626			NANA		9 SCSI-2 FAST	1,7 RLL	3.5 HH	256k	500k	5400 Y	
ST11700ND		1430	13	2626			NANA		10 SCSI-2 FAST	1,7 RLL	3.5 HH	256k	500k	5400 Y	
ST11701N		1430	13	2626			NANA		9 SCSI-2 FSTW	1,7 RLL	3.5 HH	256k	500k	5400 Y	
ST11701ND		1430	13	2626			NANA		10 SCSI-2 FSTW	1,7 RLL	3.5 HH	256k	500k	5400 Y	
ST11750N		1437		2756			NANA		8 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST11750ND		1437		2756			NANA		9 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST11751N		1437		2756			NANA		8 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST11751ND		1437		2756			NANA		9 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST1186A		164	7	1272	36	12/742/36	NANA		15 IDE AT	2,7 RLL	3.5 HH	32k	150k	3600 Y	
ST1186NS		159	7	1268	36		NANA	AUTO	15 SCSI	2,7 RLL	3.5 HH	64k	150k	3600 Y	
ST11900N		1700	15	2621	83		NANA	AUTO	10 SCSI-2 FAST	1,7 RLL	3.5 HH	500k	5411 Y		
ST11900NC		1700	15	2621	83		NANA	AUTO	10 SCSI-2 FAST	1,7 RLL	3.5 HH	500k	5411 Y		
ST11900ND		1700	15	2621	83		NANA	AUTO	10 SCSI-2 FAST	1,7 RLL	3.5 HH	500k	5411 Y		
ST11900W		1700	15	2621	83		NANA	AUTO	10 SCSI-2 FSTW	RLL ZBR	3.5 HH	500k	5411 Y		
ST11900WC		1700	15	2621	83		NANA	AUTO	10 SCSI-2 FSTW	RLL ZBR	3.5 HH	500k	5411 Y		
ST11900WD		1700	15	2621	83		NANA	AUTO	10 SCSI-2 FSTW	RLL ZBR	3.5 HH	500k	5411 Y		
ST11950N		1690	15	2706	81		NANA	AUTO	9 SCSI-2 FAST	RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST11950ND		1690					NANA	AUTO	9 SCSI-2 FAST	RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST11950W		1690	15	2706	81		NANA	AUTO	9 SCSI-2 FSTW	RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST11950WD		1690					NANA	AUTO	9 SCSI-2 FSTW	RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST1201A		177	9	1072	36	9/804/48	NANA	AUTO	15 IDE AT	2,7 RLL	3.5 HH	32k	150k	3600 Y	
ST1201E		177	9	1072	36		NANA	AUTO	15 ESDI (10)	2,7 RLL	3.5 HH	150k	3600 Y		
ST1201N		172	9	1068	36		NANA	AUTO	15 SCSI	2,7 RLL	3.5 HH	64k	150k	3600 Y	
ST1201NS		177	9	1068	36		NANA	AUTO	15 SCSI-2	2,7 RLL	3.5 HH	70k	Y		
ST1239A		211	9	1272	36	14/817/36	NANA	AUTO	15 IDE AT	2,7 RLL	3.5 HH	32k	150k	3600 Y	
ST1239NS		224	9	1268	36		NANA	AUTO	10 SCSI-2	2,7 RLL	3.5 HH	64k	150k	3600 Y	
ST124		21	4	615	17		616/616	AUTO	40 ST412/506	MFM	3.5 HH	150k	3600 Y		
ST12400N		2148	19	2621	83		NANA	670	9 SCSI-2 FAST	RLL ZBR	3.5 HH	256k	500k	5411 Y	
ST12400NC		2148	19	2621	83		NANA	AUTO	9 SCSI-2 FAST	RLL ZBR	3.5 HH	256k	500k	5411 Y	
ST12400ND		2100	19	2626			NANA	AUTO	10 SCSI-2 FAST	1,7 RLL	3.5 HH	256k	500k	5400 Y	
ST12400ND		2148	19	2621	83		NANA	AUTO	9 SCSI-2 FAST	RLL ZBR	3.5 HH	256k	500k	5411 Y	
ST12400W		2148	19	2621	84		NANA	AUTO	10.5 SCSI-2 FSTW	RLL ZBR	3.5 HH	256k	500k	5411 Y	
ST12400WC		2148	19	2621	84		NANA	AUTO	10.5 SCSI-2 FSTW	RLL ZBR	3.5 HH	256k	500k	5411 Y	
ST12400WD		2148	19	2621	84		NANA	AUTO	10.5 SCSI-2 FSTW	RLL ZBR	3.5 HH	256k	500k	5411 Y	
ST12401N		2100	19	2626			NANA	AUTO	9 SCSI-2 FSTW	1,7 RLL	3.5 HH	256k	500k	5400 Y	
ST12401ND		2100	19	2626			NANA	AUTO	10 SCSI-2 FAST	1,7 RLL	3.5 HH	256k	500k	5400 Y	
ST12450W		1849	18	2710	149		NANA	AUTO	9 SCSI-2 FSTW	1,7 RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST12450WD		1781					NANA	AUTO	9 SCSI-2 FSTW	1,7 RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST125-0		21	4	615	17		NANA	AUTO	40 ST412/506	MFM	3.5 HH	150k	3600 Y		
ST125-1		21	4	615	17		NANA	AUTO	28 ST412/506	MFM	3.5 HH	150k	3600 Y		
ST12550N		2139	19	2707	81		NANA	AUTO	8 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST12550ND		2139		2756			NANA	AUTO	9 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST12550W		2139	19	2707	81		NANA	AUTO	9 SCSI-2 FSTW	1,7 RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST12550WD		2139					NANA	AUTO	9 SCSI-2 FSTW	1,7 RLL ZBR	3.5 HH	1024k	500k	7200 Y	
ST12551N		2100		2756			NANA	AUTO	8 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST12551ND		2100		2756			NANA	AUTO	9 SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	500k	7200 Y	
ST125A-0		21	4	404	26	4/615/17	NANA	AUTO	40 IDE AT	RLL	3.5 HH	2k	150k	3600 Y	
ST125A-1		21	4	404	26	4/615/17	NANA	AUTO	28 IDE AT	RLL	3.5 HH	2k	150k	3600 Y	
ST125N-0		21	4	407	26		NONE/NA	NA	40 SCSI	RLL	3.5 HH	2k	150k	3600 Y	
ST125N-1		21	4	407	26		NANA	AUTO	28 SCSI	RLL	3.5 HH	2k	150k	3600 Y	
ST125R		21.5	4	404	26		NANA	AUTO							
ST1274A		230	4	407	26	4/407/26	NANA	AUTO	18 IDE AT	2,7 RLL	3.5 HH	70k	Y		
ST137R		33	4	615	26		NANA	AUTO	40 ST412/506	MFM	3.5 HH	70k	Y		
ST138-0		32	6	615	17		NANA	AUTO	40 ST412/506	MFM	3.5 HH	2k	150k	3600 Y	
ST138-1		32	6	615	17		NANA	AUTO	28 ST412/506	MFM	3.5 HH	2k	70k	3600 Y	
ST138A-0		32	4	604	26	6/615/17	NANA	AUTO	40 IDE AT	2,7 RLL	3.5 HH	2k	150k	3600 Y	
ST138A-1		32	4	604	26	6/615/17	NANA	AUTO	28 IDE AT	2,7 RLL	3.5 HH	2k	150k	3600 Y	
ST138N-0		32	4	615	26		NANA	AUTO	40 SCSI	2,7 RLL	3.5 HH	2k	150k	3600 Y	
ST138N-1		32	4	615	26		NANA	AUTO	28 SCSI	2,7 RLL	3.5 HH	2k	150k	3600 Y	
ST138R-0		32	4	615	26		NANA	AUTO	40 ST412/506	2,7 RLL	3.5 HH	2k	150k	3600 Y	
ST138R-1		32	4	615	26		NANA	AUTO	28 ST412/506	2,7 RLL	3.5 HH	2k	150k	3600 Y	
ST1400A		331	7	1475	NA	12/1018/53	NANA	AUTO	14 IDE AT	1,7 RLL	3.5 HH	64k	150k	4412 Y	

Drive Model	Format Size MB	Head	Cyl	Sect/Track	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Factor	kbf	mtbf	RPM	Obsolete?
ST1400N	331	7	1476	62			NANA	ST1400N	14	SCSI-2	1,7RL,ZBR3.5	HH	64k	150k	4412	Y
ST1401A	340	9	1132		15/726/61		NANA	ST1401A	12	IDE AT	1,7 RLL	3.5 HH	64k	150k	4412	Y
ST1401N	338	9	1100	66			NANA	ST1401N	12	SCSI-2	1,7RL,ZBR3.5	HH	64k	150k	4412	Y
ST14207N CAYMAN	4294	20	4016	104			NANA	ST14207N CAYMAN	9	SCSI-2Fast	1,7 RLL	3.5 HH	512k	1000k	7200	
ST14207W CAYMAN	4294	20	4016	104			NANA	ST14207W CAYMAN	9	SCSI-2fstWd	1,7 RLL	3.5 HH	512k	1000k	7200	
ST1480A	426	9	1474	NA	15/895/62		NANA	ST1480A	14	IDE AT	ZBR	3.5 HH	64k	150k	4412	Y
ST1480N	426	9	1476	62			NANA	ST1480N	14	SCSI-2	ZBR	3.5 HH	64k	150k	4412	Y
ST1480NV	426	9	1478	V			NANA	ST1480NV	14	SCSI-2	1,7 RLL	3.5 HH	64k	150k	4412	Y
ST1481N	426	9	1476	62			NANA	ST1481N	14	SCSI-2	ZBR,1,7LL	3.5 HH	64k	150k	4412	Y
ST151	42	5	977	17			NANA	ST151	24	ST412/506	MFM	3.5 HH	150k	3600	Y	
ST15150DC	4294	21	3711				NANA	ST15150DC	9	SCSI-2 DIFF	1,7 RLL	3.5 HH	1024k	800k	7200	
ST15150FC	4294	21	3711				NANA	ST15150FC	9	FC	1,7 RLL	3.5 HH	1024k	800k	7200	
ST15150N	4294	21	3711	81			NANA	ST15150N	9	SCSI-2 FAST	1,7 RLL	3.5 HH	1024k	800k	7200	
ST15150ND	4294	21	3711				NANA	ST15150ND	9	SCSI-2 DIFF	1,7 RLL	3.5 HH	1024k	800k	7200	
ST15150W	4294	21	3711				NANA	ST15150W	9	SCSI-2 FSTW	1,7 RLL	3.5 HH	1024k	800k	7200	
ST15150WC	4294	21	3711				NANA	ST15150WC	9	SCSI-2 FSTW	1,7 RLL	3.5 HH	1024k	800k	7200	
ST15150WD	4294	21	3711				NANA	ST15150WD	9	SCSI-2 DIFF	1,7 RLL	3.5 HH	1024k	800k	7200	
ST15230DC	4294	19	3892				NANA	ST15230DC	10	SCSI-2 FSTW	ZBR,1,7LL	3.5 HH	512k	800k	5411	
ST15230N	4294	19	3892				NANA	ST15230N	9	SCSI-2 FAST	1,7 RLL	3.5 HH	512k	800k	5411	
ST15230ND	4294	19	3892				NANA	ST15230ND	9	SCSI-2 FAST	1,7 RLL	3.5 HH	512k	800k	5411	
ST15230W	4294	19	3892				NANA	ST15230W	10	SCSI-2 FSTW	ZBR,1,7LL	3.5 HH	512k	800k	5411	
ST15230WC	4294	19	3892				NANA	ST15230WC	10	SCSI-2 FSTW	ZBR,1,7LL	3.5 HH	512k	800k	5411	
ST15230WD	4294	19	3892				NANA	ST15230WD	10	SCSI-2 FSTW	ZBR,1,7LL	3.5 HH	512k	800k	5411	
ST157A-0	45	6	560	26	7/733/17		NANA	ST157A-0	40	IDE AT	2,7 RLL	3.5 HH	2k	150k	3600	Y
ST157A-1	45	6	560	26	7/733/17		NANA	ST157A-1	28	IDE AT	2,7 RLL	3.5 HH	2k	150k	3600	Y
ST157N-0	49	6	615	26			NANA	ST157N-0	40	SCSI	2,7 RLL	3.5 HH	2k	150k	3600	Y
ST157N-1	49	6	615	26			NANA	ST157N-1	28	SCSI	2,7 RLL	3.5 HH	2k	150k	3600	Y
ST157R-0	49	6	615	26			NANA	ST157R-0	40	ST412/506	2,7 RLL	3.5 HH	2k	150k	3600	Y
ST157R-1	49	6	615	26			NANA	ST157R-1	28	ST412/506	2,7 RLL	3.5 HH	2k	150k	3600	Y
ST1581N	525	9	1476	77			NANA	ST1581N	14	SCSI-2 FAST	RLL ZBR	3.5 HH	64k	150k	4412	Y
ST177N	60	5	921	26			NANA	ST177N	24	SCSI	RLL	3.5 HH	8k	150k	3600	Y
ST1830N	702	13	1325				NANA	ST1830N	9	SCSI-2 FAST	ZBR,1,7LL	3.5 HH	256k	200k	4535	Y
ST18771DC	8700	20	5333				NANA	ST18771DC	9	ULTRA SCSI	PM10.66	3.5 HH	512k	100k	7200	
ST18771FC	8700	20	5333				NANA	ST18771FC	9	FC	PM10.66	3.5 HH	512k	100k	7200	
ST18771N	8700	20	5333				NANA	ST18771N	9	ULTRA SCSI	PM10.66	3.5 HH	512k	100k	7200	
ST18771ND	8700	20	5333				NANA	ST18771ND	9	ULTRA SCSI	PM10.66	3.5 HH	512k	100k	7200	
ST18771W	8700	20	5333				NANA	ST18771W	9	ULTRA SCSI	PM10.66	3.5 HH	512k	100k	7200	
ST18771WC	8700	20	5333				NANA	ST18771WC	9	ULTRA SCSI	PM10.66	3.5 HH	512k	100k	7200	
ST18771WD	8700	20	5333				NANA	ST18771WD	9	ULTRA SCSI	PM10.66	3.5 HH	512k	100k	7200	
ST19171	9100	10	5333				NANA	ST19171	8	Ultra SCSI	PM10.44	3.5 HH	512k	100k	7200	
ST19171FC	9100	10	5333				NANA	ST19171FC	8	FC	PM10.44	3.5 HH	512k	100k	7200	
ST1960N	860	13	1575				NANA	ST1960N	11	SCSI-2 FAST	ZBR,1,7LL	3.5 HH	256k	200k	4535	Y
ST1960NC	860	13	1730	74			NANA	ST1960NC	10	SCSI-2 FAST	ZBR,1,7LL	3.5 HH	256k	200k	5411	Y
ST1960ND	860	13	1730				NANA	ST1960ND	11	SCSI-2 FAST	1,7 RLL	3.5 HH	256k	200k	5400	Y
ST1960ND	860	13	1730				NANA	ST1960ND	11	SCSI-2 FAST	1,7 RLL	3.5 HH	256k	200k	5400	Y
ST206	5	2	306	17		307/128		ST206	18	ST412/506	MFM	5.25 FH				
ST2106E	89	5	1024	34			NANA	ST2106E	18	ESDI (10)	2,7 RLL	5.25 HH	32k	100k	3600	Y
ST2106N	91	5	1022	36			NANA	ST2106N	18	SCSI	2,7 RLL	5.25 HH	32k	100k	3600	Y
ST2106NM	94	5	1022	35			NANA	ST2106NM	18	SCSI	2,7 RLL	5.25 HH	32k	100k	3600	Y
ST212	10	4	306	17		307/128	311	ST212	65	ST412/506	MFM	5.25 FH	11k	3600	Y	
ST2125N	107	3	1544	45			NANA	ST2125N	18	SCSI	ZBR,2,7LL	5.25 HH	32k	100k	3600	Y
ST2125NM	107	3	1544	45			NANA	ST2125NM	18	SCSI	ZBR,2,7LL	5.25 HH	32k	100k	3600	Y
ST2125NV	107	3	1544	45			NANA	ST2125NV	18	SCSI	ZBR,2,7LL	5.25 HH	32k	100k	3600	Y
ST213	10	2	615	17		616/300	671	ST213	65	ST412/506	MFM	5.25 FH	20k	3600	Y	
ST2182E	160	4	1453	54			NANA	ST2182E	16	ESDI (15)	2,7 RLL	5.25 HH	32k	100k	3600	Y
ST2209N	179	5	1544	45			NANA	ST2209N	18	SCSI	ZBR,2,7LL	5.25 HH	32k	100k	3600	Y
ST224N	21	2					NANA	ST224N	70	SCSI	2,7 RLL	5.25 HH	100k	3600	Y	
ST225	21	4	615	17		NONE/300-614	671	ST225	65	ST412/506	MFM	5.25 HH	100k	3600	Y	
ST225N	21	4	615	17			NANA	ST225N	65	SCSI	MFM	5.25 HH	100k	3600	Y	
ST225R	21	2	667	31			NANA	ST225R	70	ST412/506	2,7 RLL	5.25 HH	100k	3600	Y	
ST2274A	241	5	1747	54	16/536/55		NANA	ST2274A	16	IDE AT	2,7 RLL	5.25 HH	32k	100k	3600	Y
ST2383A	338	7	1747	54	16/737/56		NANA	ST2383A	16	IDE AT	2,7 RLL	5.25 HH	32k	100k	3600	Y
ST2383E	338	7	1747	54			NANA	ST2383E	16	ESDI	2,7 RLL	5.25 HH	100k	3600	Y	

Drive Model	Format Size MB	Head	Cyl	Trac	Translate H/C/S	RWC/ WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form cache Factor kb	Obsolete? mtfb RPM
ST2383N	332	7	1261	74		NANA	AUTO	ST2383N	14	SCSI	ZBR2,7RL,5.25 HH	64k	100k 3600 Y
ST2383ND	332	7	1261	NA		NANA	AUTO	ST2383ND	14	SCSI	RL, ZBR 5.25 HH	64k	100k 3600 Y
ST2383NM	332	7	1261	NA		NANA	AUTO	ST2383NM	14	SCSI	RL, ZBR 5.25 HH	64k	100k 3600 Y
ST238R	32	4	615	26		NANA	AUTO	ST238R	65	ST412/506	RL, ZBR 5.25 HH	100k	3600 Y
ST2502N	435	7	1755	NA		NANA	AUTO	ST2502N	16	SCSI	ZBR2,7RL,5.25 HH	64k	100k 3600 Y
ST2502ND	435	7	1765	NA		NANA	AUTO	ST2502ND	16	SCSI	RL, ZBR 5.25 HH	64k	100k Y
ST2502NM	435	7	1765	NA		NANA	AUTO	ST2502NM	16	SCSI	RL, ZBR 5.25 HH	64k	100k Y
ST2502NV	435	7	1765	NA		NANA	AUTO	ST2502NV	16	SCSI	RL, ZBR 5.25 HH	64k	100k Y
ST250N	42	4	667			NANA	AUTO	ST250N	70	SCSI	2.7 RLL 5.25 HH	100k	Y
ST250R	42	4	667	31		NANA	AUTO	ST250R	70	ST412/506	2.7 RLL 5.25 HH	100k	3600 Y
ST251-0	42	6	820	17		NANA	AUTO	ST251-0	40	ST412/506	MF, 5.25 HH	100k	3600 Y
ST251-1	42	6	820	17		NANA	AUTO	ST251-1	28	ST412/506	MF, 5.25 HH	100k	3600 Y
ST251N-0	43	4	820	26		NANA	AUTO	ST251N-0	40	SCSI	RL, 5.25 HH	70k	3600 Y
ST251N-1	43	4	820	26		NANA	AUTO	ST251N-1	28	SCSI	RL, 5.25 HH	70k	3600 Y
ST251R	43	4	820	26		NANA	AUTO	ST251R	40	ST412/506	2.7 RLL 5.25 HH	100k	Y
ST252	42	6	820	17		NANA	AUTO	ST252	40	ST412/506	MF, 5.25 HH	100k	3600 Y
ST253	43	5	989	17		NA128	AUTO	ST253	40	ST412/506	MF, 5.25 HH	40k	3600 Y
ST274A	65	5	848	26	8/940/17	NANA	AUTO	ST274A	28	IDE AT	RL, 5.25 HH	2k	70k 3600 Y
ST277N-0	65	6	820	26		NANA	AUTO	ST277N-0	40	SCSI	RL, 5.25 HH	2k	70k 3600 Y
ST277R-0	65	6	820	26		NANA	AUTO	ST277R-0	28	SCSI	RL, 5.25 HH	2k	70k 3600 Y
ST277R-1	65	6	820	26		NANA	AUTO	ST277R-1	28	ST412/506	2.7 RLL 5.25 HH	70k	3600 Y
ST278R	65	6	820	26		NANA	AUTO	ST278R	40	ST412/506	2.7 RLL 5.25 HH	70k	3600 Y
ST279R	65	5	989	26		NA128	AUTO	ST279R	28	ST412/506	RL, 5.25 HH	40k	3600 Y
ST280A	71	5	1032	26	10/516/27	NANA	AUTO	ST280A	29	IDE AT	RL, 5.25 HH	40k	3600 Y
ST296N	85	6	820	34		NANA	AUTO	ST296N	29	SCSI	2.7 RLL 5.25 HH	8k	70k 3600 Y
ST3025A	21	1	615	17	2/808/26	NANA	AUTO	ST3025A	19	IDE AT	2.7 RLL 3.5 3H	8/32k	50k 3600 Y
ST3025N	21	1	1616	26		NANA	AUTO	ST3025N	19	SCSI-2	2.7 RLL 3.5 3H	8/32k	50k 3600 Y
ST3051A	43	6	820	17	6/820/17	NANA	AUTO	ST3051A	16	IDE AT	2.7 RLL 3.5 3H	32k	150k 3211 Y
ST3057A	53	*	1024	17		NANA	AUTO	ST3057A	19	IDE AT	2.7 RLL 3.5 3H	8/32k	50k 3600 Y
ST3057N	49	3	940	34		NANA	AUTO	ST3057N	19	SCSI-2	2.7 RLL 3.5 3H	8/32k	50k 3600 Y
ST3096A	90	10	1024	17	8/836/26	NANA	AUTO	ST3096A	14	IDE AT	2.7 RLL 3.5 3H	32k	150k 3211 Y
ST3096N	84	3	1024	35		NANA	AUTO	ST3096N	20	SCSI-2	2.7 RLL 3.5 3H	8/32k	50k 3528 Y
ST3051	1052	4	4569			NANA	AUTO	ST3051	10	SCSI-2 FAST	RL, 0.4, 3.5 3H	256k	800k 5411 Y
ST31081A	1052	1	3924		16/2097/63	NANA	AUTO	ST31081A	14	ATA	1.7 RLL 3.5 3H	64k	300k 3600 Y
ST31200N	1052	9	2700	84		NANA	AUTO	ST31200N	10	SCSI-2 FAST	ZBR,1,7RL,3.5 3H	256k	500k 5411 Y
ST31200NC	1052					NANA	AUTO	ST31200NC	10.5	SCSI-2 FAST	2.7 RLL 3.5 3H	256k	500k 5400 Y
ST31200ND	1052	9	2626			NANA	AUTO	ST31200ND	10	SCSI-2 FAST	1.7 RLL 3.5 3H	256k	500k 5400 Y
ST31200W	1052	9	2700	84		NANA	AUTO	ST31200W	10.5	SCSI-2 FSTW	ZBR,1,7RL,3.5 3H	256k	500k 5411 Y
ST31200WC	1052	9	2700	84		NANA	AUTO	ST31200WC	10.5	SCSI-2 FSTW	ZBR,1,7RL,3.5 3H	256k	500k 5411 Y
ST31200WD	1052	9	2700	84		NANA	AUTO	ST31200WD	10.5	SCSI-2 FSTW	ZBR,1,7RL,3.5 3H	256k	500k 5411 Y
ST3120A	107	12	1024	NA	12/1024/17	NANA	AUTO	ST3120A	15	IDE AT	RL, ZBR 3.5 3H	32k	50k 3211 Y
ST31220A	1083	6	3876		16/2099/63	NANA	AUTO	ST31220A	12	ATA-2 FAST	1.7 RLL 3.5 3H	256k	800k 4500 Y
ST31230DC	1050	5	3892			NANA	AUTO	ST31230DC	10.5	SCSI-2 DIFF	1.7 RLL 3.5 3H	512k	800k 5411 Y
ST31230N	1050	5	3892			NANA	AUTO	ST31230N	10.5	SCSI-2 FAST	1.7 RLL 3.5 3H	512k	800k 5411 Y
ST31230NC	1050	5	3898			NANA	AUTO	ST31230NC	10.5	SCSI-2 FAST	ZBR,1,7RL,3.5 3H	512k	800k 5411 Y
ST31230ND	1050	5	3892			NANA	AUTO	ST31230ND	10.5	SCSI-2 DIFF	1.7 RLL 3.5 3H	512k	800k 5411 Y
ST31230W	1050	5	3892			NANA	AUTO	ST31230W	10.5	SCSI-2 FSTW	1.7 RLL 3.5 3H	512k	800k 5411 Y
ST31230WC	1050	5	3898			NANA	AUTO	ST31230WC	10.5	SCSI-2 FSTW	1.7 RLL 3.5 3H	512k	800k 5411 Y
ST31230WD	1050	5	3898			NANA	AUTO	ST31230WD	10.5	SCSI-2 FSTW	1.7 RLL 3.5 3H	512k	800k 5411 Y
ST31231N	1060	5	3992			NANA	AUTO	ST31231N	10	SCSI-2 FAST	1.7 RLL 3.5 3H	256k	800k 5411 Y
ST3124A	106	2			12/1024/17	NANA	AUTO	ST3124A	16	IDE AT	ZBR,1,7RL,3.5 3H	32k	250k 3811 Y
ST31250N	1021	5	3711	107		NANA	AUTO	ST31250N	9	SCSI-2 FAST	1.7 RLL 3.5 3H	512k	800k 7200 Y
ST31250ND	1021	5	3711			NANA	AUTO	ST31250ND	9	SCSI-2 DIFF	1.7 RLL 3.5 3H	512k	800k 7200 Y
ST31250W	1021	5	3711			NANA	AUTO	ST31250W	9	SCSI-2 FSTW	1.7 RLL 3.5 3H	512k	800k 7200 Y
ST31250WC	1021	5	3711			NANA	AUTO	ST31250WC	9	SCSI-2 DIFF	1.7 RLL 3.5 3H	512k	800k 7200 Y
ST31250WD	1021	5	3711			NANA	AUTO	ST31250WD	9	SCSI-2 DIFF	1.7 RLL 3.5 3H	512k	800k 7200 Y
ST31270A	1283	6	3876		16/2485/63	NANA	AUTO	ST31270A	12	ATA	RL, ZBR 3.5 3H	256k	300k 4500 Y
ST31275A	1275	6	3640		16/2477/63	NANA	AUTO	ST31275A	14	ATA	RL, ZBR 3.5 3H	64k	300k 3600 Y
ST31276A	1281	4	4833		16/2482/63	NANA	AUTO	ST31276A	12	ATA	RL, ZBR 3.5 3H	64k	300k 4500 Y
ST3144A	130	15	1001	17	15/1001/17	NANA	AUTO	ST3144A	16	IDE AT	2.7 RLL 3.5 3H	32k	150k 3211 Y
ST3145A	130	2				NANA	AUTO	ST3145A	16	IDE AT	1.7 RLL 3.5 3H	250k	3811 Y
ST31621A	1621	6	3924		16/3146/63	NANA	AUTO	ST31621A	14	ATA	RL, ZBR 3.5 3H	64k	300k 3600 Y

Drive Model	Format Size MB	Head	Cyls	Sec/Trac	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form Factor	cache mbf	Obsolete? RPM ↓
ST31640A	1625		4834		16/3150/63	NANA	AUTO	ST31640A	10	ATA-2	FAST	1,7 RLL	3.5 3H	256K 300K 5400
ST31720A	1700	2			16/3306/63	NANA	AUTO	ST31720A	12	ATA-2		1,7 RLL	3.5 3H	128K 500K 4500
ST31930N	1700	7	3898			NANA	AUTO	ST31930N	10.5	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H		800K 5411 Y
ST31930ND	1700	7	3898			NANA	AUTO	ST31930ND	10.5	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H		800K 5411 Y
ST3195A	170	4			10/981/34	NANA	AUTO	ST3195A	16	IDE AT		ZBR,1,7RLL,3.5 3H	64K	250K 3811 Y
ST32140A	2167		4834		16/4200/63	NANA	AUTO	ST32140A	10	ATA-2	FAST	1,7 RLL	3.5 3H	256K 300K 5400
ST32151	2147	8	4569			NANA	AUTO	ST32151	10	SCSI-2	FAST	RLL 0.4,4 3.5 3H	256K	800K 5411
ST32171DC	2150	6	5288			NANA	AUTO	ST32171DC	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST32171FC	2150	6	5288			NANA	AUTO	ST32171FC	9	FC-AL		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST32171N	2150	6	5288			NANA	AUTO	ST32171N	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST32171ND	2150	6	5288			NANA	AUTO	ST32171ND	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST32171W	2150	6	5288			NANA	AUTO	ST32171W	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST32171WC	2150	6	5288			NANA	AUTO	ST32171WC	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST32171WD	2150	6	5288			NANA	AUTO	ST32171WD	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST3240A	211	2				NANA	AUTO	ST3240A	8	IDE AT		RLL ZBR	3.5 3H	120K 300K 3811 Y
ST32430DC	2147	9	3892			NANA	AUTO	ST32430DC	10.5	SCSI-2	FAST	1,7 RLL	3.5 3H	512K 800K 5411
ST32430N	2147	9	3892			NANA	AUTO	ST32430N	10.5	SCSI-2	FAST	1,7 RLL	3.5 3H	512K 800K 5411
ST32430NC	2147	9	3892			NANA	AUTO	ST32430NC	10.5	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H		800K 5411 Y
ST32430ND	2147	9	3892			NANA	AUTO	ST32430ND	10.5	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H		800K 5411 Y
ST32430W	2147	9	3892			NANA	AUTO	ST32430W	10.5	SCSI-2	DIFF	1,7 RLL	3.5 3H	512K 800K 5411
ST32430WC	2147	9	3892			NANA	AUTO	ST32430WC	10.5	SCSI-2	FASTW	ZBR,1,7RLL,3.5 3H	512K	800K 5411
ST32430WD	2147	9	3892			NANA	AUTO	ST32430WD	10.5	SCSI-2	FASTW	1,7 RLL	3.5 3H	512K 800K 5411
ST3243A	214	4	1024	34	12/1024/34	NANA	AUTO	ST3243A	16	IDE AT		ZBR,1,7RLL,3.5 3H	32K	250K 3811 Y
ST3250A	213	2			12/1024/34	NANA	AUTO	ST3250A	15	IDE AT		ZBR,1,7RLL,3.5 3H	120K	300K 3811 Y
ST32530A	2558	6			16/4958/63	NANA	AUTO	ST32530A	10.5	ATA		ZBR,1,7RLL,3.5 3H	128K	500K 5376
ST32550DC	2147	11	3711	V		NANA	AUTO	ST32550DC	8	SCSI-2	DIFF	1,7 RLL	3.5 3H	512K 800K 7200
ST32550N	2147	11	3711	V		NANA	AUTO	ST32550N	8	SCSI-2	FAST	1,7 RLL	3.5 3H	512K 800K 7200
ST32550ND	2147	11	3711	V		NANA	AUTO	ST32550ND	8	SCSI-2	DIFF	1,7 RLL	3.5 3H	512K 800K 7200
ST32550W	2147	11	3711	V		NANA	AUTO	ST32550W	8	SCSI-2	FASTW	1,7 RLL	3.5 3H	512K 800K 7200
ST32550WC	2147	11	3711	V		NANA	AUTO	ST32550WC	8	SCSI-2	FASTW	1,7 RLL	3.5 3H	512K 800K 7200
ST32550WD	2147	11	3711	V		NANA	AUTO	ST32550WD	8	SCSI-2	DIFF	1,7 RLL	3.5 3H	512K 800K 7200
ST325A,X	21	2	615	17	4/615/17	NANA	AUTO	ST325A,X	28	IDE AT		ZBR,2,7RLL,3.5 HH	8/32K	150K 3048 Y
ST325N	21	2	654	32		NANA	AUTO	ST325N	28	SCSI		2,7 RLL	3.5 HH	2K/8K 50K 3600 Y
ST325X	21	2	615	17		NANA	AUTO	ST325X	45	IDE XT		2,7 RLL	3.5 HH	8/32K 150K 3600 Y
ST3271A	265	2	2805		10/977/53	NANA	AUTO	ST3271A	10.5	ATA		RLL ZBR	3.5 3H	256K 300K 4500
ST3283A	245				14/978/35	NANA	AUTO	ST3283A	12	IDE AT		RLL ZBR	3.5 3H	128K 200K 4500 Y
ST3283N	248	5	1691	57		NANA	AUTO	ST3283N	12	SCSI-2	FAST	RLL ZBR	3.5 3H	128K 250K 4500 Y
ST3285N	248	3	1691			NANA	AUTO	ST3285N	12	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H	128K	250K 4500 Y
ST3290A	260				15/1001/34	NANA	AUTO	ST3290A	16	IDE AT		1,7 RLL	3.5 3H	250K 3811 Y
ST3291A	272	4			14/761/50	NANA	AUTO	ST3291A	13	IDE AT		ZBR,1,7RLL,3.5 3H	120K	300K 3811 Y
ST3295A	273	2			14/761/50	NANA	AUTO	ST3295A	14	IDE AT		1,7 RLL	3.5 3H	120K 300K 3811 Y
ST3385A	340	5	767	62	14/767/62	NANA	AUTO	ST3385A	12	IDE AT		ZBR,1,7RLL,3.5 3H	256K	250K 4500 Y
ST3390A	341				14/768/62	NANA	AUTO	ST3390A	12	IDE AT		1,7 RLL	3.5 3H	250K 4500 Y
ST3390N	344	3	2676	83		NANA	AUTO	ST3390N	12	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H	256K	250K 4500 Y
ST3391A	341	4			14/768/62	NANA	AUTO	ST3391A	14	IDE AT		1,7 RLL	3.5 3H	120K 300K 3811 Y
ST34217N	4294	10	6028			NANA	AUTO	ST34217N	9	Ultra SCSI		8,9RLL	3.5 3H	512K 1000K 7200
ST34217W	4294	10	6028			NANA	AUTO	ST34217W	9	Ultra SCSI		8,9RLL	3.5 3H	512K 1000K 7200
ST34217WC	4294	10	6028			NANA	AUTO	ST34217WC	9	Ultra SCSI		8,9RLL	3.5 3H	512K 1000K 7200
ST34217WDC	4294	10	6028			NANA	AUTO	ST34217WDC	9	Ultra SCSI		8,9RLL	3.5 3H	512K 1000K 7200
ST34371DC	4350	10	5288			NANA	AUTO	ST34371DC	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST34371FC	4350	10	5288			NANA	AUTO	ST34371FC	9	FC-AL		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST34371N	4350	10	5288			NANA	AUTO	ST34371N	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST34371ND	4350	10	5288			NANA	AUTO	ST34371ND	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST34371W	4350	10	5288			NANA	AUTO	ST34371W	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST34371WC	4350	10	5288			NANA	AUTO	ST34371WC	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST34371WD	4350	10	5288			NANA	AUTO	ST34371WD	9	ULTRA SCSI		RLL 0.4,4 3.5 3H	512K	1000K 7200
ST3491A	428	4			15/899/62	NANA	AUTO	ST3491A	14	ATA FAST		ZBR,1,7RLL,3.5 3H	120K	300K 3811 Y
ST3500A	426	7	1547		15/895/62	NANA	AUTO	ST3500A	10	AT BUS		RLL ZBR	3.5 3H	256K 200K 4535 Y
ST3500N	426	7	1547	V		NANA	AUTO	ST3500N	11	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H	240K	200K 4535 Y
ST351A,X	43	2	820	17	6/820/17	NANA	AUTO	ST351A,X	28	IDE AT		2,7 RLL	3.5 3H	32K 150K 3048 Y
ST352A,X	42	2		17	5/980/17	NANA	AUTO	ST352A,X	28	AT/XT		ZBR,2,7RLL,3.5 3H	150K	3048 Y
ST3550A	452	5	1018	62	14/1018/62	NANA	AUTO	ST3550A	12	IDE AT		ZBR,1,7RLL,3.5 3H	256K	250K 4500 Y
ST3550N	456	5	2126	83		NANA	AUTO	ST3550N	12	SCSI-2	FAST	ZBR,1,7RLL,3.5 3H	256K	250K 4500 Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone	Drive Model	Seek Time	Interface	Encode	Form cache Factor	kb mbf	Obsolete? RPM
ST3600A		528	7	1872		16/1024/63	NANA	AUTO	ST3600A	11	IDE AT	1,7 RLL	3.5 3H	256k	200k 4535 Y
ST3600N		525	7	1872	79		NANA	AUTO	ST3600N	12	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	200k 4467 Y	
ST3600ND		525	7	1872			NANA	AUTO	ST3600ND	12	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	200k 5400 Y	
ST3610N		535	7	1872	79		NANA	AUTO	ST3610N	12	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	200k 5400 Y	
ST3610NC		535					NANA	AUTO	ST3610NC	12	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	200k 5400 Y	
ST3610ND		535	7	1872			NANA	AUTO	ST3610ND	12	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	200k 5400 Y	
ST3620N		545	5	2700	78		NANA	AUTO	ST3620N	10.5	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	500k 5411 Y	
ST3620NC		545	5	2700	78		NANA	AUTO	ST3620NC	10.5	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	500k 5411 Y	
ST3620ND		545	5	2700	78		NANA	AUTO	ST3620ND	10.5	SCSI-2 FAST	ZBR,1,7LL,3.5 3H	256k	500k 5411 Y	
ST3620W		546	5	2700	78		NANA	AUTO	ST3620W	10	SCSI-2 FSTW	RLL ZBR 3.5 3H	256k	500k 5411 Y	
ST3636A		640	2	4893		16/1241/63	NANA	AUTO	ST3636A	12.5	ATA	RLL ZBR 3.5 3H	64k	300k 4500	
ST3655A		528	5			16/1024/63	NANA	AUTO	ST3655A	12	IDE AT	1,7 RLL	3.5 3H	256k	250k 4500 Y
ST3655N		545	5	2393	89		NANA	AUTO	ST3655N	12	SCSI-2 FAST	ZBR,1,7LL,3.5 3H		250k 4500 Y	
ST3660A		545				16/1057/63	NANA	AUTO	ST3660A	14	ATA FAST	1,7 RLL	3.5 3H	120k	300k 3811
ST3780A		722	4	3876		16/1399/63	NANA	AUTO	ST3780A	14	IDE AT	RLL ZBR 3.5 3H	256k	300k 4500 Y	
ST3852A		850	1			16/1653/63	NANA	AUTO	ST3852A	12	ATA-2	1,7 RLL	3.5 3H	128k	500k 4500
ST4026		20	4	615	17		NANA	AUTO	ST4026	40	ST412/506	MFH	5.25 FH	15k 3600 Y	
ST4038		31	5	733	17		NA/300	AUTO	ST4038	40	ST412/506	MFH	5.25 FH	25k 3600 Y	
ST4038N		30	5	733	17		NANA	AUTO	ST4038N		SCSI		5.25 FH		
ST4051		40	5	977	17		NANA	977	ST4051	40	ST412/506	MFH	5.25 FH	15k 3600 Y	
ST4053		44	5	1024	17		NANA	AUTO	ST4053	28	ST412/506	MFH	5.25 FH	40k 3600 Y	
ST406		5	2	306	17		NA/128		ST406	85	ST412/506	MFH	5.25 FH	11k 3600 Y	
ST4077N		67	5	1024	26		1025/1025	319	ST4077N	28	SCSI	2,7 RLL	5.25 FH		
ST4077R		65	5	1024	26		1025/1025		ST4077R	28	ST412/506	2,7 RLL	5.25 FH		
ST4085		71	8	1024	17		NANA	AUTO	ST4085	28	ST412/506	MFH	5.25 FH	40k 3600 Y	
ST4086		72	9	925	17		NANA	AUTO	ST4086	28	ST412/506	MFH	5.25 FH	40k 3600 Y	
ST4096		80	9	1024	17		NANA	AUTO	ST4096	28	ST412/506	MFH	5.25 FH	40k 3600 Y	
ST4096N		83	4				NANA	AUTO	ST4096N	17	SCSI		5.25 FH		
ST4097		80	9	1024	17		NANA	AUTO	ST4097	28	ST412/506	MFH	5.25 FH	40k 3600 Y	
ST410800N		9090	27	4925	133		NANA	AUTO	ST410800N	12	SCSI-2 FAST	1,7 RLL	5.25 FH/024k	500k 5400 Y	
ST410800ND		9090	27	4925	133		NANA	AUTO	ST410800ND	12	SCSI-2 FAST	1,7 RLL	5.25 FH/024k	500k 5400	
ST410800W		9090	27	4925	133		NANA	AUTO	ST410800W	12	SCSI-2 FSTW	1,7 RLL	5.25 FH/024k	500k 5400	
ST410800WD		9090	27	4925	133		NANA	AUTO	ST410800WD	12	SCSI-2 FSTW	1,7 RLL	5.25 FH/024k	500k 5400	
ST41097J		1097	17	2101			NANA	AUTO	ST41097J	11	SMD-O/E	2,7 RLL	5.25 FH	150k 5400 Y	
ST412		10	4	306	17		307/128	319	ST412	85	ST412/506	MFH	5.25 FH	10k 3600 Y	
ST41200N		1037	15	1931	71		NANA	AUTO	ST41200N	15	SCSI-2	ZBR,1,7LL	5.25 FH	256k	150k 3600 Y
ST41200ND		1037	15	1931	NA		NANA	AUTO	ST41200ND	15	SCSI-2	RLL ZBR	5.25 FH	256k	150k Y
ST41200NM		1037	15	1931	NA		NANA	AUTO	ST41200NM	15	SCSI-2	RLL ZBR	5.25 FH	256k	150k Y
ST41200NV		1037	15	1931	NA		NANA	AUTO	ST41200NV	15	SCSI-2	RLL ZBR	5.25 FH	256k	150k Y
ST41201J		1200U	17	2101			NANA	AUTO	ST41201J	11	SMD-O/E	2,7 RLL	5.25 FH	150k 5400 Y	
ST41201K		1200U	17	2101	NA		NANA	AUTO	ST41201K	11	IP1-2	2,7 RLL	5.25 FH	150k 5400 Y	
ST4135R		115	9	960	26		NA/128	AUTO	ST4135R	28	ST412/506	RLL	5.25 FH	40k 3600 Y	
ST4144N		122	9	1024	26		NA/128	1028	ST4144N	28	SCSI	2,7 RLL	5.25 FH		
ST4144R		122	9	1024	26		NANA	AUTO	ST4144R	28	ST412/506	2,7 RLL	5.25 FH	40k 3600 Y	
ST41520N		1370	17	2101	NA		NANA	AUTO	ST41520N	11	SCSI-2	ZBR,2,7LL	5.25 FH	48k	150k 5400 Y
ST41520ND		1370	17	2101	NA		NANA	AUTO	ST41520ND	11	SCSI-2	ZBR	5.25 FH	48k	150k 5400 Y
ST41600N		1370	17	2101	NA		NANA	AUTO	ST41600N	11	SCSI-2	ZBR,2,7LL	5.25 FH	48k	150k 5400 Y
ST41600ND		1370	17	2101	NA		NANA	AUTO	ST41600ND	11	SCSI-2	ZBR	5.25 FH	48k	150k 5400 Y
ST41601N		1370	17	2101	V		NANA	AUTO	ST41601N	11	SCSI-2 FAST	ZBR,2,7LL	5.25 FH	256k	150k 5400 Y
ST41601ND		1370	17	2101	V		NANA	AUTO	ST41601ND	11	SCSI-2 FAST	2,7 RLL	5.25 FH	256k	150k 5400 Y
ST41650N		1415	15	2107	87		NANA	AUTO	ST41650N	15	SCSI-2	ZBR,1,7LL	5.25 FH	256k	150k 3600 Y
ST41650ND		1415	15	2107	NA		NANA	AUTO	ST41650ND	15	SCSI-2 DIFF	RLL ZBR	5.25 FH	256k	150k Y
ST41651N		1415	15	2107	87		NANA	AUTO	ST41651N	15	SCSI-2 FAST	ZBR,1,7LL	5.25 FH	256k	150k 3600 Y
ST41651ND		1415	15	2107	NA		NANA	AUTO	ST41651ND	15	SCSI-2 DIFF	1,7 RLL	5.25 FH	256k	150k Y
ST41800K		1986U	18	2627	NA		NANA	AUTO	ST41800K	11	IP1-2	2,7 RLL	5.25 FH	150k 5400 Y	
ST4182E		151	9	969	34		NANA	AUTO	ST4182E	16	ESDI	RLL	5.25 FH	100k 3600 Y	
ST4182N		155	9	967	36		NANA	AUTO	ST4182N	16	SCSI	2,7 RLL	5.25 FH	32k	100k 3600 Y
ST4182NM		155	9	967	36		NANA	AUTO	ST4182NM	16	SCSI	2,7 RLL	5.25 FH	32k	100k 3600 Y
ST4192		139	9	967	32		NA/128	319	ST4192	85	ST412/506	MFH	5.25 FH		
ST4192E		169	8	1147	36		NANA		ST4192E	17	ESDI	2,7 RLL	5.25 FH	20k Y	
ST4192N		168	8	1147	36		NANA		ST4192N	17	SCSI	2,7 RLL	5.25 FH	20k Y	
ST42000N,ND		1792	16	2627	83		NANA	AUTO	ST42000N,ND	11	SCSI-2 FAST	ZBR,2,7LL	5.25 FH	150k 5400 Y	
ST42100N		1900	15	2573	96		NANA	AUTO	ST42100N	13	SCSI-2 FSTW	ZBR,1,7LL	5.25 FH	256k	150k 3600 Y

Drive Model	Format Size MB	Head	Cyl	Sec/Trac	Translate H/C/S	RWC/WPC	Land Zone	Interface	Seek Time	Form Factor	cache kb	Obsolete? mtbf RPM	
ST423451N	2,34	28	6884	237	---	---	---	13 Ultra SCSI	ZBR PRML	5.25 FH 512k	800k	5400 Y	
ST42400N,ND	2129	19	2627	83	---	---	---	11 SCSI-2 FAST	ZBR,2,7,11,5.25 FH 512k	150k	5400 Y		
ST42425	20	8	306	17	---	---	---	ST412/506	MFM	5.25 FH	300k	---	
ST43200K	3386	20	2738	---	---	---	---	11 IPI-2	1,7 RLL	5.25 FH 512k	200k	5400 Y	
ST43200N	3338	---	---	NA	---	---	---	11 IPI-2	RLL ZBR	5.25 FH	300k	---	
ST43400N	2912	21	2738	99	---	---	---	11 SCSI-2 FAST	1,7 RLL	5.25 FH 512k	200k	5400 Y	
ST43400ND	2912	21	2738	99	---	---	---	11 SCSI-2 FAST	1,7 RLL	5.25 FH 512k	200k	5400 Y	
ST43401N	2912	21	2738	---	---	---	---	11 SCSI-2 FSTW	1,7 RLL	5.25 FH 512k	200k	5400 Y	
ST43401ND	2912	21	2738	---	---	---	---	11 SCSI-2 FSTW	1,7 RLL	5.25 FH 512k	200k	5400 Y	
ST43402N	2912	21	2738	99	---	---	---	11 SCSI-2 2POR	ZBR,1,7,11,5.25 FH 512k	200k	5400 Y		
ST43402ND	2912	21	2738	99	---	---	---	11 SCSI-2 2POR	ZBR,1,7,11,5.25 FH 512k	200k	5400 Y		
ST4350N	300	9	1412	46	---	---	---	16 SCSI	ZBR,2,7,11,5.25 FH	32k	100k	3600 Y	
ST4350NM	307	9	1412	NA	---	---	---	16 SCSI	RLL ZBR	5.25 FH	32k	100k	---
ST4376N	330	9	1549	45	---	---	---	17 SCSI	ZBR,2,7,11,5.25 FH	32k	100k	3600 Y	
ST4376NM	330	9	1549	NA	---	---	---	17 SCSI	RLL ZBR	5.25 FH	32k	100k	---
ST4376NV	330	9	1549	NA	---	---	---	17 SCSI	RLL ZBR	5.25 FH	32k	100k	---
ST4383E	319	13	1224	34	---	---	---	18 ESDI	2,7 RLL	5.25 FH	100k	3600 Y	
ST4384E	319	15	1224	34	---	---	---	14 ESDI	2,7 RLL	5.25 FH	100k	3600 Y	
ST4385N	330	15	791	55	---	---	---	10 SCSI	ZBR,2,7,11,5.25 FH	32k	100k	3600 Y	
ST4385NM	330	15	791	NA	---	---	---	10 SCSI	RLL ZBR	5.25 FH	32k	100k	---
ST4385NV	330	15	791	NA	---	---	---	10 SCSI	RLL ZBR	5.25 FH	32k	100k	---
ST4442E	368	15	1412	34	---	---	---	16 ESDI	RLL	5.25 FH	100k	3600 Y	
ST4702N	601	15	1546	50	---	---	---	16 SCSI	ZBR,2,7,11,5.25 FH	32k	100k	3600 Y	
ST4702NM	601	15	1546	NA	---	---	---	16 SCSI	RLL ZBR	5.25 FH	32k	100k	---
ST4766E	664	15	1632	53	---	---	---	16 ESDI (15)	RLL	5.25 FH	100k	3600 Y	
ST4766N	676	15	1632	54	---	---	---	15 SCSI	RLL	5.25 FH	32k	150k	3600 Y
ST4766NM	663	16	1632	54	---	---	---	15 SCSI	2,7 RLL	5.25 FH	32k	150k	---
ST4766NV	663	16	1632	54	---	---	---	15 SCSI	2,7 RLL	5.25 FH	32k	150k	---
ST4767E	676	15	1399	63	---	---	---	11 ESDI (24)	1,7 RLL	5.25 FH	150k	4800 Y	
ST4767N	665	15	1356	64	---	---	---	11 SCSI-2	ZBR,1,7,11,5.25 FH 256k	150k	4800 Y		
ST4767ND	665	15	1356	64	---	---	---	11 SCSI-2	RLL ZBR	5.25 FH 256k	150k	4800 Y	
ST4767NM	665	15	1356	64	---	---	---	11 SCSI-2	RLL ZBR	5.25 FH 256k	150k	4800 Y	
ST4767NV	665	15	1356	64	---	---	---	11 SCSI-2	RLL ZBR	5.25 FH 256k	150k	4800 Y	
ST4769E	631	15	1552	53	---	---	---	14 ESDI	1,7 RLL	5.25 FH	150k	4800 Y	
ST506	5	4	153	17	---	---	---	85 ST412/506	MFM	3.5 4H	11k	---	
ST51080A	1080	4	4771	---	16/2114/63	---	---	10 ATA-2 FAST	1,7 RLL	3.5 4H	256k	300k	5400
ST51080N	1000	---	---	---	---	---	---	SCSI	---	2.5 4H	---	---	
ST51270A	1282	4	5414	---	16/2485/63	---	---	10.5 ATA	RLL ZBR	3.5 4H	128k	300k	5376
ST52160A	2113	4	---	---	16/4095/63	---	---	11 ATA-2 Fast	PRML	3.5 3H	128k	500k	5400
ST52520A	2560	4	---	---	16/4970/63	---	---	11 ATA-2 Fast	PRML	3.5 3H	128k	500k	5400
ST5540A	541	2	4834	---	16/1050/63	---	---	10.5 ATA	RLL ZBR	3.5 4H	128k	300k	5376
ST5660A	545	4	3420	---	16/1057/63	---	---	12 IDE AT	1,7 RLL	3.5 4H	300k	4500 Y	
ST5660N	545	4	3420	77	---	---	---	11 SCSI-2 FAST	ZBR,1,7,11,5.25 FH	300k	4500 Y		
ST5850A	855	4	4085	---	16/1656/63	---	---	12 SCSI-2 FAST	1,7 RLL	3.5 4H	256k	300k	5400
ST6165J	165	10	823	---	---	---	---	30 SMD	2,7 RLL	8	10k	3600 Y	
ST6315J	315	19	823	---	---	---	---	20 SMD-E	MFM	9	30k	3600 Y	
ST6344J	344	24	711	---	---	---	---	18 SMD-O/E	MFM	9	30k	3600 Y	
ST6515J	516	24	711	---	---	---	---	18 SMD	2,7 RLL	9	30k	3600 Y	
ST6519K	516	24	711	---	---	---	---	18 IPI-2	2,7 RLL	9	30k	3600 Y	
ST6516J	516	24	711	---	---	---	---	18 SMD-E	2,7 RLL	9	30k	3600 Y	
ST683J	83	5	823	---	---	---	---	30 SMD	2,7 RLL	8	8k	3600 Y	
ST7050P	42	2	---	---	---	---	---	18 PCMCIA/ATA	1,7 RLL	1.8 4H	32k	300k	3545
ST706	5	2	306	17	---	---	---	ST412/506	MFM	5.25 FH	---	---	
ST81123J	1123	15	1635	---	---	---	---	15 SMD-E	2,7 RLL	8	150k	3600 Y	
ST81154K	1154	14	1635	---	---	---	---	15 IPI-2	2,7 RLL	8	150k	3600 Y	
ST81236J	1236	15	1635	---	---	---	---	15 SMD-E	2,7 RLL	8	150k	3600 Y	
ST81236K	1236	15	1635	---	---	---	---	15 IPI-2	2,7 RLL	8	150k	3600 Y	
ST81236N	1056	15	1635	NA	---	---	---	15 SCSI	2,7 RLL	8	150k	3600 Y	
ST82030J	2030	19	2120	---	---	---	---	11 SMD-O/E	2,7 RLL	8	150k	3600 Y	
ST82030K	2030	19	2120	---	---	---	---	11 IPI-2	2,7 RLL	8	150k	3600 Y	
ST82038J	2038	19	2611	---	---	---	---	12 SMD-E	2,7 RLL	8	150k	3600 Y	
ST82105K	2105	16	2611	---	---	---	---	12 IPI-2	2,7 RLL	8	80k	3600 Y	
ST82272J	2272	19	2611	---	---	---	---	12 SMD-E	2,7 RLL	8	150k	---	

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
ST82366K	2368U	19	2611				---	
ST82500U	2500 (U)	19	2611				---	
ST82500K	2500 (U)	19	2611				---	AUTO
ST82500N	2140	19	2611	NA			NA/NA	AUTO
ST83050K	3050U	18	2655	NA			NA/NA	AUTO
ST83050N	3050U	18	2655	NA			NA/NA	AUTO
ST83073J	3073u	19	2655	NA			NA/NA	AUTO
ST83220K	3220U	19	2655	NA			NA/NA	AUTO
ST8366J	366U	10	1217				---	AUTO
ST8366N	316	10	1217	NA			NA/NA	AUTO
ST8500J	500U	10	1217				---	AUTO
ST8500N	427	10	1217	NA			NA/NA	AUTO
ST8741J	741U	15	1635				---	AUTO
ST8741N	637	15	1635	NA			NA/NA	AUTO
ST8851J	851	15	1381				---	AUTO
ST8851K	851	15	1381				---	AUTO
ST8851N	727	15	1381				---	AUTO
ST885N	727			NA			NA/NA	AUTO
ST9025A	21	4	1024			4/615/17	NA/NA	AUTO
ST9051A	43	4	654	32		6/820/17	NA/NA	AUTO
ST9052A	42	16	1024	63		5/980/17	NA/NA	AUTO
ST9077A	64	4	802	39		11/669/17	NA/NA	AUTO
ST9080A	64	2	38	4/823/38			NA/NA	AUTO
ST9096A	85	4	34	10/980/17			NA/NA	AUTO
ST9100A	85						NA/NA	AUTO
ST9100AG	85	2	63	14/748/16			NA/NA	AUTO
ST9140AG	127	4		15/980/17			NA/NA	AUTO
ST9144A	128	6		15/980/17			NA/NA	AUTO
ST9145A	128	4	1463			15/980/17	NA/NA	AUTO
ST9145AG	127	4	1463			15/980/17	NA/NA	AUTO
ST9150AG	131	2		13/419/47			NA/NA	AUTO
ST9190AG	171	4		16/873/24			NA/NA	AUTO
ST9235AG	209	6	985	32		13/985/32	NA/NA	AUTO
ST9235N	209	13	985	NA			NA/NA	AUTO
ST9240AG	210	4	1024	63		8/988/52	NA/NA	AUTO
ST9240N	261	16	NA	NA			---	
ST9295N (never made)	250	NA	NA				---	
ST9300AG	262	4		15/569/60			NA/NA	AUTO
ST9385AG	341	6		16/934/51			NA/NA	AUTO
ST9420AG	420			16/988/32			---	
ST9550AG	455	6		16/942/59			NA/NA	AUTO
ST9655AG	524	6		14/1016/63			NA/NA	AUTO
ST9816AG	810			16/1571/63			NA/NA	AUTO
ST9840AG	840	4		16/1628/63			NA/NA	AUTO

SEQUEL, INC

5300	3000	21	V	---	
5350	3572	25	V	---	
5400	4000	26	V	---	
EXT4175	149	7	1224	34	NA/NA AUTO
EXT4280	234	11	1224	36	NA/NA AUTO
EXT4380	319	15	1224	34	NA/NA AUTO
XT1050	38	5	902	17	NA/NA AUTO
XT1065	52	7	918	17	NA/NA AUTO
XT1085	71	8	1024	17	NA/NA AUTO
XT1105	84	11	918	17	NA/NA AUTO
XT1120R	105	8	1024	25	NA/NA AUTO
XT1140	119	15	918	17	NA/NA AUTO
XT1240R	196	15	1024	25	NA/NA AUTO
XT2085	72	7	1224	17	NA/NA AUTO
XT2140	113	11	1224	17	NA/NA AUTO
XT2190	159	15	1224	17	NA/NA AUTO
XT3170	146	9	1224	26	---

Drive Model	Time	Interface	Encode	Form Factor	cache kb	Obsolete? mbf RPM
ST82366K	12	IPI-2	2,7 RLL	8		80k 3600 Y
ST82500J	12	SMD-E	2,7 RLL	8		150k 3600 Y
ST82500K	12	IPI-2	2,7 RLL	8		150k 3600 Y
ST82500N	12	SCSI	2,7 RLL	8		150k 3600 Y
ST83050K	12	IPI-2	1,7 RLL	8		150k 4365 Y
ST83050N	12	IPI-2	1,7 RLL	8		150k 4365 Y
ST83073J	12	SMD-O/E	1,7 RLL	8 FH		150k 4235 Y
ST83220K	12	IPI-2	1,7 RLL	8		150k 4365 Y
ST8366J	18	SMD-E	2,7 RLL	8 FH		35k 3600 Y
ST8366N	18	SCSI	2,7 RLL	8		30k 3600 Y
ST8500J	18	SMD-E	2,7 RLL	8		30k 3600 Y
ST8500N	18	SCSI	2,7 RLL	8		30k 3600 Y
ST8741J	15	SMD-E	2,7 RLL	8		50k 3600 Y
ST8741N	15	SCSI	2,7 RLL	8		50k 3600 Y
ST8851J	15	SMD-E	2,7 RLL	8		100k 3600 Y
ST8851K	15	IPI-2	2,7 RLL	8		100k 3600 Y
ST8851N	12	SCSI	2,7 RLL	8		100k 3600 Y
ST885N	15	SCSI		8		150k Y
ST9025A		IDE AT	2,7 RLL	2.5 4H		150k 3631 Y
ST9051A		IDE AT	2,7 RLL	2.5 4H	32k	150k 3631 Y
ST9052A		IDE AT	2,7 RLL	2.5 4H	32k	150k 3450 Y
ST9077A		IDE AT	2,7 RLL	2.5 4H	32k	150k 3546 Y
ST9080A		IDE AT	ZBR2,7RLL	2.5 4H	32k	150k 3449 Y
ST9096A		IDE AT	ZBR2,7RLL	2.5 4H	64k	150k 3450 Y
ST9100A		IDE AT	2.5 4H		120k	300k Y
ST9100AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3545 Y
ST9140AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3545 Y
ST9144A		IDE AT	ZBR,1,7RLL	2.5 4H	64k	150k 3450 Y
ST9145A		IDE AT BUS	RLL ZBR	2.5 4H	32k	150k 3449 Y
ST9145AG		IDE AT	ZBR2,7RLL	2.5 4H	32k	150k 3449 Y
ST9150AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3980 Y
ST9190AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3545 Y
ST9235AG		IDE AT	RLL ZBR	2.5 4H	64k	150k 3449 Y
ST9235N		IDE AT	ZBR2,7RLL	2.5 4H	64k	150k 3449 Y
ST9240AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3980 Y
ST9295AG		IDE AT	2,7 RLL	2.5 4H	120k	300k 3450 Y
ST9295N (never made)		IDE AT	2,7 RLL	2.5 4H	64k	150k 3450 Y
ST9300AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3980 Y
ST9385AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3980 Y
ST9420AG		ATA-2 FAST		2.5 4H	120k	300k 4500 Y
ST9550AG		IDE AT	ZBR,1,7RLL	2.5 4H	120k	300k 3980 Y
ST9655AG		ATA-2 FAST	ZBR,1,7RLL	2.5 4H	120k	300k 3980 Y
ST9816AG		ATA-2 FAST	2.5 4H		120k	300k 4500 Y
ST9840AG		ATA	PRML8,9	3.5 4H	107k	300k 4500 Y

SEQUEL, INC

5300	12	SCSI-2 FSTW	1,7 RLL	5.25 FH	512	300k 5400 Y
5350	12	SCSI-2 FSTW	1,7 RLL	5.25 FH	512k	300k 5400 Y
5400	12	SCSI-2 FSTW	1,7 RLL	5.25 FH	024k	300k 5400 Y
EXT4175	27	ESDI	RLL	5.25 FH		20k 3600 Y
EXT4280	27	ESDI	RLL	5.25 FH		20k 3600 Y
EXT4380	27	ESDI	RLL	5.25 FH		20k 3600 Y
XT1050	30	ST412/506	MFM	5.25 FH		20k 3600 Y
XT1065	30	ST412/506	MFM	5.25 FH		20k 3600 Y
XT1085	28	ST412/506	MFM	5.25 FH		150k 3600 Y
XT1105	27	ST412/506	MFM	5.25 FH		20k 3600 Y
XT1120R	27	ST412/506	2,7 RLL	5.25 FH		150k 3600 Y
XT1140	27	ST412/506	MFM	5.25 FH		150k 3600 Y
XT1240R	27	ST412/506	2,7 RLL	5.25 FH		150k 3600 Y
XT2085	30	ST412/506	MFM	5.25 FH		30k 3600 Y
XT2140	30	ST412/506	MFM	5.25 FH		30k 3600 Y
XT2190	29	ST412/506	MFM	5.25 FH		150k 3600 Y
XT3170	30	SCSI	RLL	5.25 FH		20k 3600 Y

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
XT3280	244	15	1224	26	16	---	---
XT3380	319	15	1224	34		NA/NA	AUTO
XT4170E	157	7	1224	35/36		NA/NA	AUTO
XT4170S	157	7	1224	35-36		NA/NA	AUTO
XT4380E	338	15	1224	36		NA/NA	AUTO
XT4380S	338	15	1224	36		NA/NA	AUTO
XT8380E	361	8	1632	53-54		NA/NA	AUTO
XT8380S	361	8	1632	54		NA/NA	AUTO
XT8760E	676	15	1632	53-54		NA/NA	AUTO
XT8760EH	676	15	1632	54		NA/NA	AUTO
XT8760S	670	15	1632	NA		NA/NA	AUTO
XT8760SH	670	15	1632	NA		NA/NA	AUTO
XT8800E	694	15	1274	54		NA/NA	AUTO

SHUGART

1002	5		17	---	---
1004	10		17	---	---
1006	30			---	---
4004	14		17	---	---
4008	29		17	---	---
4100	56		17	---	---
604	5	4	160	17	128/128 AUTO
606	7	6	160	17	128/128 AUTO
612	10	4	306	17	307/128 AUTO
706	6	2	320	17	321/128 AUTO
712	10	4	320	17	321/128 AUTO
725	20			---	---

SIEMENS

1200	174	8	1216	35	NA/NA	AUTO
1300	261	12	1216	35	NA/NA	AUTO
2200	174	8	1216	35	NA/NA	AUTO
2300	261	12	1216	35	NA/NA	AUTO
4410	322	11	1100	52	NA/NA	AUTO
4420	334	11	1100	54	NA/NA	AUTO
5710	655	15			NA/NA	AUTO
5720	655	15			NA/NA	AUTO
5810	777	16			NA/NA	AUTO
5820	777	16			NA/NA	AUTO
6200	1200				NA/NA	AUTO
7520	655	15			NA/NA	AUTO

SONY

2020A	20			---	---
2040A	40			---	---
3080L	80			---	---

STORAGE DIMENSIONS

AT100	109	8	1024	26	---NONE	1023
AT1000S	1000	15			NA/NA	AUTO
AT100S	105	3			NA/NA	AUTO
AT120	119	15	918	17	NA/NA	AUTO
AT133	133	15	1024	17	---NONE	1023
AT140	142	8	1024	34	---NONE	1023
AT155E	158	9	1224	36	---	---
AT155S	156	9	1224	36	---	---
AT160	160	15	1224	17	---NONE	1023
AT200	204	15	1024	26	---NONE	1023
AT200S	204	7			---	---
AT320S	320	15	1224	36	---	---
AT336E	338	15	1224	36	---	---

Drive Model	Seek Time	Interface	Encode	Form cache Factor	Obscote? kb mtfb RPM
XT3280	30	SCSI		5.25 FH	20k 3600
XT3380	27	SCSI		5.25 FH	20k 3600
XT4170E	14	ESDI	1,7 RLL	5.25 FH	150k 3600
XT4170S	14	SCSI	1,7 RLL	5.25 FH	150k 3600
XT4380E	16	ESDI	1,7 RLL	5.25 FH	150k 3600
XT4380S	16	SCSI	1,7 RLL	5.25 FH	150k 3600
XT8380E	16	ESDI	1,7 RLL	5.25 FH	150k 3600
XT8380S	14	SCSI	1,7 RLL	5.25 FH	150k 3600
XT8760E	16	ESDI	1,7 RLL	5.25 FH	150k 3600
XT8760EH	14	SCSI	1,7 RLL	5.25 FH	150k 3600
XT8760S	16	ESDI	1,7 RLL	5.25 FH	150k 3600
XT8760SH	14	SCSI	1,7 RLL	5.25 FH	150k 3600
XT8800E	14	ESDI	1,7 RLL	5.25 FH	150k 3600

SHUGART

1002	ST412/506	MFH	8.0 FH	Y
1004	ST412/506	MFH	8.0 FH	Y
1006	ST412/506	MFH	8.0	Y
4004	ST412/506	MFH		Y
4008	ST412/506	MFH	14.0	Y
4100	ST412/506	MFH		Y
604	27 ST412/506	MFH	5.25 FH	Y
606	27 ST412/506	MFH	5.25 FH	Y
612	27 ST412/506	MFH	5.25 FH	Y
706	27 ST412/506	MFH	5.25 FH	Y
712	27 ST412/506	MFH	5.25 FH	Y
725	ST412/506	MFH	5.25 HH	Y

SIEMENS

1200	25	ESDI	2,7 RLL	5.25 FH	Y
1300	27	SCSI	2,7 RLL	5.25 FH	Y
2200	25	ESDI	2,7 RLL	5.25 FH	Y
2300	25	ESDI	2,7 RLL	5.25 FH	Y
4410	18	ESDI	2,7 RLL	5.25 FH	Y
4420	16	SCSI	2,7 RLL	5.25 FH	Y
5710	16	ESDI	2,7 RLL	5.25 FH	Y
5720	16	SCSI	2,7 RLL	5.25 FH	Y
5810	18	ESDI	2,7 RLL	5.25 FH	Y
5820	18	SCSI	2,7 RLL	5.25 FH	Y
6200	14	SCSI	2,7 RLL	5.25 FH	Y
7520	16	SCSI	2,7 RLL	5.25 FH	Y

SONY

2020A	SCSI		3.5 HH	
2040A	SCSI		3.5 HH	
3080L	SCSI		3.5 3H	

STORAGE DIMENSIONS

AT100		ST412/506	2,7 RLL		Y
AT1000S		SCSI			Y
AT100S	19	SCSI	2,7 RLL	3,5 HH	100k Y
AT120	26	ST412/506	MFH	5,25 FH	150k Y
AT133		ST412/506	MFH		40k Y
AT140					Y
AT155E	14	ESDI	2,7 RLL	5,25 FH	40k Y
AT155S	17	SCSI	2,7 RLL	5,25 FH	40k Y
AT160	28	ST412/506	MFH	5,25 FH	40k Y
AT200		ST412/506	2,7 RLL	3,5 HH	Y
AT200S	16	SCSI	2,7 RLL	3,5 HH	150k Y
AT320S	17	SCSI	2,7 RLL	5,25 FH	40k Y
AT336E	16	ESDI	2,7 RLL	5,25 FH	40k Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
AT40		44	5	1024	17		---NONE	
AT650E		651	15	1632	54		---NONE	1023
AT650S		651	15	1632	54		---NONE	
AT70		70			17		---NONE	
CDASM-1051F		1000					---NONE	
CDASM-2105F		2100					---NONE	
CDASM-4005F		4300					---NONE	
DMH-A02W		2100					---NONE	
DMH-A04W		4300					---NONE	
DMH-B02W		2100					---NONE	
DMH-B04W		4300					---NONE	
LAN1050F		1050					---NONE	
LAN2101F		2101					---NONE	
LAN2105F		2105					---NONE	
LAN4005		4300					---NONE	
LAN9000F		9000					---NONE	
MAC-195		195	7				NANA	AUTO
PS155E		156	9	1224	36		---NONE	
PS155S		156	9	1224	36		---NONE	
PS320S		320	15	1224	36		---NONE	
PS335E		338	15	1224	36		---NONE	
PS650S		651	15	1632	16		---NONE	
XT100		109	8	1024	26		---NONE	1023
XT120		119	15	918	17		---NONE	
XT200		204	15	1024	26		---NONE	1023
XT40		44	5	1024	17		---NONE	1023
XT70		71	8	1024	17		---NONE	1023

SYQUEST TECHNOLOGY

EZ135 (removable)	135						---NONE	
EZ230 (removable)	230						---NONE	
SQ105 (removable)	105						---NONE	
SQ200	200						---NONE	
SQ225F	20				17		---NONE	
SQ270 (removable)	270						---NONE	
SQ306F	5				17		---NONE	
SQ306R	5	2		306	17		---NONE	
SQ306RD	5	2		306	17		307/307	
SQ3105 (removable)	105	2				16/420/32	---NONE	
SQ312	10	2		615	17		---NONE	
SQ312RD	10	2		615	17		616/616	
SQ319	10	2		612	17		---NONE	
SQ325	21	4		612	17		612/612	
SQ325F	20	4		615	17		616/616	
SQ3270 (removable)	256	2				16/1024/32	---NONE	
SQ338F	30	6		615	17		616/616	
SQ340AF	38	6		640	17		616/616	
SQ5110C (removable)	89						---NONE	
SQ5200C (removable)	200						---NONE	
SQ555 (removable)	44						---NONE	
SQ88	88						---NONE	
SYJET 1.3 (removable)1300							---NONE	
SYJET 650 (removable) 650							---NONE	

TANDON COMPUTER CORPORATION

TM2085	74	9	1004	17			1005/1005	
TM2128	115	9	1004	26			1005/1005	
TM2170	154	9	1344	26			1345/1345	
TM244	41	4	782	26			783/783	
TM246	62	6	782	26			783/783	
TM251	5	2	306	17			---NONE	
TM252	10	4	306	17			307/307	

Drive Model	Seek Time	Interface	Encode	Form cache	Obsolete?
ST412/506			MFM	5.25 FH	Y
ESDI			2.7 RLL	40k Y	Y
SCSI			2.7 RLL	5.25 FH	Y
ST412/506			MFM	5.25 FH	Y
SCSI-2 FAST				3.5	800k 5400
SCSI-2 FAST				3.5	800k 7200
SCSI-2 FAST				3.5	800k 7200
SCSI-2 FAST				3.5	800k 5400
SCSI-2 FAST				3.5	800k 5400
SCSI-2 FSTW				3.5	800k 7200
SCSI-2 FSTW				3.5	800k 7200
SCSI-2 FSTW				3.5	500k 5400
SCSI-2 FAST				3.5	500k 5400
SCSI-2 FAST				3.5	500k 7200
SCSI-2 FAST				3.5	800k 7200
SCSI-2 FAST				5.25 FH	500k 5400
SCSI			2.7 RLL	3.5 HH	150k Y
ESDI			2.7 RLL	5.25 FH	70k Y
SCSI			2.7 RLL	5.25 FH	70k Y
SCSI			2.7 RLL	5.25 FH	150k Y
ESDI			2.7 RLL	5.25 FH	70k Y
SCSI			2.7 RLL	5.25 FH	100k Y
ST412/506			2.7 RLL		Y
ST412/506			MFM		Y
ST412/506			2.7 RLL		Y
ST412/506			MFM		Y
ST412/506			MFM		Y

SYQUEST TECHNOLOGY

EZ135 (removable)	13	SCSI-2		3.5 3H	200k
EZ230 (removable)	13	SCSI		3.5 3H	200k
SQ105 (removable)	14.5	IDE AT		3.5 3H	64k 100k 3600
SQ200	18			5.25 HH	64k 200k
SQ225F	99	ST412/506	MFM	5.25 HH	Y
SQ270 (removable)	13.5	IDE AT		3.5 3H	128k 100k 3600
SQ306F	99	ST412/506	MFM	5.25 HH	Y
SQ306R	99	ST412/506	MFM	5.25 HH	Y
SQ306RD	99	ST412/506	MFM	5.25 HH	Y
SQ3105 (removable)	14.5	ATA-2	1.7 RLL	3.5 3H	64k 100k 3600
SQ312	80	ST412/506	MFM	5.25 HH	Y
SQ312RD	80	ST412/506	MFM	5.25 HH	Y
SQ319	80	ST412/506	RLL	5.25 HH	Y
SQ325	80	ST412/506	MFM	5.25 HH	Y
SQ325F	99	ST412/506	MFM	5.25 HH	Y
SQ3270 (removable)	13.5	ATA-2	1.7 RLL	3.5 3H	128k 100k 3600
SQ338F	80	ST412/506	MFM	5.25 HH	Y
SQ340AF	80	ST412/506	MFM	5.25 HH	Y
SQ5110C (removable)	20	SCSI-2		5.25 HH	64k 100k 3220
SQ5200C (removable)	18	SCSI-2		5.25 HH	64k 100k 3220
SQ555 (removable)	20	SCSI-2		5.25 HH	64k 100k 3220
SQ88	20			5.25 HH	32k 100k
SYJET 1.3 (removable)		SCSI		3.5 HH	256k 250k 5400
SYJET 650 (removable)		SCSI		3.5 HH	256k 250k 5400

TANDON COMPUTER CORPORATION

TM2085	25	SCSI	MFM	5.25 FH	Y
TM2128	25	SCSI	2.7 RLL	5.25 FH	Y
TM2170	25	SCSI	2.7 RLL	5.25 FH	Y
TM244	37	ST412/506	2.7 RLL	3.5 HH	Y
TM246	37	ST412/506	2.7 RLL	3.5 HH	Y
TM251		ST412/506	MFM	5.25	Y
TM252	85	ST412/506	MFM	5.25 HH	Y

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
TM261	10	2	615	17			616/616	
TM262	21	4	615	17			616/616	
TM262R	20	2	782	26			783/783	AUTO
TM264	41	4	782	26			783/783	
TM3085	71	8	1024	17			1024/1024	
TM3085R	105	8	1024	26			1024/1024	
TM344	41	4	782	26			783/783	
TM346	62	6	782	26			783/783	
TM361	10	2	615	17			616/616	
TM362	20	4	615	17			616/616	
TM362R	20	2	782	26			783/783	615
TM364	41	4	782	26			783/783	
TM501	5	2	306	17			128/153	
TM502	10	4	306	17			128/153	
TM503	15	6	306	17			128/153	
TM601	3						---	
TM602S	5	4	153	17			128/128	
TM602SE	12		153	17			---	
TM603S	10	6	153	17			128/128	
TM603SE	12	6	230	17			128/128	
TM702	20	4	615	26			616/616	AUTO
TM702AT	21	4	615	17			616/616	615
TM703	30	5	733	17			734/734	615
TM703AT	31	5	733	17			733/733	615
TM703C	25	17	733	17			---	733
TM705	41	5	962	17			---NONE	962
TM755	42	5	981	17			982/982	981

TANDY CORP

25-1045	28						---	AUTO
25-1046	43	4	782	27			NANA	AUTO
25-4130	100	4	1219				NANA	AUTO

TEAC AMERICA, INC.

SD240	43	2	1000	42			NANA	AUTO
SD260	63	2	1226	50			NANA	AUTO
SD310SA	105	4	1282	40		8/641/40	NANA	AUTO
SD310SS	105	4	1282	40			NANA	AUTO
SD3210A	215	4	1695	62		8/847/62	NANA	AUTO
SD3210S	215	4	1695	62			NANA	AUTO
SD3240	245	4	1930			8/965/62	---	
SD3250N (removable)	252						NANA	AUTO
SD3360N (removable)	363						NANA	AUTO
SD340A	43	2	1050	40		4/525/40	NANA	AUTO
SD340HA	43	2	1050	40			NANA	AUTO
SD340HS	43	2	1050	40			---	AUTO
SD340S	43	2	1050	40			NANA	AUTO
SD3540N (removable)	540						NANA	AUTO
SD380	86	4	1025	40		8/965/62	NA/300	1025
SD380HA	86	4	1050	40			NANA	AUTO
SD380HS	86	4	1050	40			---	AUTO
SD380S	86	4	1050	40			---	AUTO
SD510	10	4	306	17			128/128	
SD520	20	4	615	17			128/128	
SD540	40	8	615	17			---	

TEXAS INSTRUMENTS

525-122	20						---	
T15	5	4	153	17			64/64	

Drive Model	Seek Time	Interface	Encode	Form cache	Obsolete?
TM261		ST412/506	MFM	5.25	Y
TM262	65	ST412/506	MFM	3.5 HH	Y
TM262R	85	ST412/506	2.7 RLL	3.5 HH	Y
TM264	85	ST412/506	2.7 RLL	3.5 HH	Y
TM3085	35	ST412/506	MFM	5.25	Y
TM3085R	35	ST412/506	2.7 RLL	5.25	Y
TM344	35	ST412/506	2.7 RLL	3.5 HH	Y
TM346	35	ST412/506	2.7 RLL	3.5 HH	Y
TM361	27	ST412/506	MFM	5.25	Y
TM362	85	ST412/506	MFM	5.25	Y
TM362R	85	ST412/506	2.7 RLL	3.5 HH	Y
TM364	85	ST412/506	2.7 RLL	3.5 HH	Y
TM501	85	ST412/506	MFM	5.25 FH	Y
TM502	85	ST412/506	MFM	5.25 FH	Y
TM503	85	ST412/506	MFM	5.25 FH	Y
TM601		ST412/506	MFM	5.25 FH	Y
TM602S	85	ST412/506	MFM	5.25 FH	Y
TM602SE		ST412/506	MFM	5.25 FH	Y
TM603S		ST412/506	MFM	5.25 FH	Y
TM603SE		ST412/506	MFM	5.25 FH	Y
TM702	27	ST412/506	MFM	5.25 FH	Y
TM702AT	27	ST412/506	MFM	5.25 FH	Y
TM703	40	ST412/506	MFM	5.25 FH	Y
TM703AT	40	ST412/506	MFM	5.25 FH	Y
TM703C		ST412/506	MFM	5.25 FH	Y
TM705		ST412/506	MFM	5.25 FH	Y
TM755	27	ST412/506	MFM	5.25 FH	Y

TANDY CORP

25-1045	28	IDE XT		3.5 HH	Y
25-1046	43	IDE XT	2.7 RLL	3.5 HH	Y
25-4130	17	IDE XT	2.7 RLL	3.5 HH	Y

TEAC AMERICA, INC.

SD240	19	IDE AT	1.7 RLL	2.5	32k	100k	3600	Y
SD260	19	IDE AT	1.7 RLL	2.5	32k	100k	3600	Y
SD310SA	19	IDE AT	2.7 RLL	3.5 3H	64k	30k	3600	Y
SD310SS	19	SCSI	2.7 RLL	3.5 3H	64k	30k	3600	Y
SD3210A	17	IDE AT	1.7 RLL	3.5 3H	65k	100k	3600	Y
SD3210S	17	SCSI	1.7 RLL	3.5 3H	63k	100k	3600	Y
SD3240	17	IDE AT	1.7 RLL	3.5 3H	64k	100k	3600	Y
SD3250N (removable)	17	IDE		5.25 HH		250k	3600	
SD3360N (removable)	17	IDE		5.25 HH		250k	3600	
SD340A	23	IDE AT	2.7 RLL	3.5 3H	64k	30k	2358	Y
SD340HA	19	IDE AT	2.7 RLL	3.5 3H		30k	2358	Y
SD340HS	19	SCSI	2.7 RLL	3.5 3H		30k	2358	Y
SD340S	23	SCSI	2.7 RLL	3.5 3H	28k	30k	2358	Y
SD3540N (removable)	11	IDE		5.25 HH		250k	4201	
SD380	22	IDE AT	2.7 RLL	3.5 3H		30k	2358	Y
SD380HA	19	IDE AT	2.7 RLL	3.5 3H		30k	2358	Y
SD380HS	19	SCSI	2.7 RLL	3.5 3H		30k	2358	Y
SD380S	22	SCSI	2.7 RLL	3.5 3H		30k	2358	Y
SD510	27	ST412/506	MFM	5.25 FH				Y
SD520	27	ST412/506	MFM	5.25 FH				Y
SD540	40			5.25 HH		20k	3600	Y

TEXAS INSTRUMENTS

525-122		ST412/506	MFM	5.25	FH	Y	
T15		ST412/506	MFM	5.25	FH	Y	

Drive Model	Format	Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
TOSHIBA AMERICA, INC.								
MK1034FC	107	4	1345			8/64/39	---	
MK1122FC	43	2	977			5/98/17	---	
MK130	53	7	733			---	---	
MK1301MAV	1350					---	---	
MK132FA	18					---	---	
MK133FA	30					---	---	
MK134FA	44	7	733	17		---	---	
MK134FA(R)	65	7	733	26		---	---	
MK1422FCV	86	2	988			10/98/17	---	
MK1522FCV	126	2	812			8/812/38	NANA	
MK153FA	74	5	830	35		---	NANA	AUTO
MK153FA-I	74	5	830	35		---	NANA	AUTO
MK153FB	76	5	830	35		---	NANA	AUTO
MK154FA	104	7	830	35		---	NANA	AUTO
MK154FA-I	104	7	830	35		---	NANA	AUTO
MK154FB	106	7	830	35		---	NANA	AUTO
MK155FA	148	10	830	35		---	NANA	AUTO
MK156FB	152	10	830	35		---	NANA	AUTO
MK158FA	1734	10	830			---	NANA	AUTO
MK1624FCV	213	4				16/64/38	NANA	AUTO
MK1722FCV	131	2				8/642/38	NANA	AUTO
MK1724FCV	262	4	841			16/642/38	NANA	AUTO
MK1824FBV	352	4	2050			---	NANA	AUTO
MK1824FCV	353	4		63		16/682/63	NANA	AUTO
MK182FB	83	5	823			---	NANA	AUTO
MK184FB	116	7	823			---	NANA	AUTO
MK186FB	166	10	823			---	NANA	AUTO
MK1924FBV	543	4	2920			---	NANA	AUTO
MK1924FCV	543	4				16/1053/63	NANA	AUTO
MK1926FBV	815	6	2920			---	NANA	AUTO
MK1926FCV	815	6				16/1579/63	NANA	AUTO
MK2024FC	86	4	977	43		10/98/17	NANA	AUTO
MK2101MAN	2160					---	NANA	AUTO
MK2124FC	130	4	934	55		16/934/17	NANA	AUTO
MK2224FB	213	4	1560	83		---	NANA	AUTO
MK2224FC	213	4	684			16/684/38	NANA	AUTO
MK2326FB	340	6	1830	74		---	NANA	AUTO
MK2326FC	340	6				14/969/49	NANA	AUTO
MK2326FCH	340					---	NANA	AUTO
MK232FB	45	3	845	35		---	NANA	AUTO
MK232FBS	45	3	845	35		---	NANA	AUTO
MK232FC	45	3	845	35		---	NANA	AUTO
MK233FB	75	5	845	35		---	NANA	AUTO
MK234FB	106	7	845	35		---	NANA	AUTO
MK234FBS	106	7	845	35		---	NANA	AUTO
MK234FC	106	7	845	35		7/845/35	NANA	AUTO
MK234FCH	106	7	845	35		7/845/35	NANA	AUTO
MK2428FB	524	8	1920	83		---	NANA	AUTO
MK2428FC	524	8		63		16/1016/63	NANA	AUTO
MK250FA	382	10	1224	35		---	NANA	AUTO
MK250FB	382	10	1224	35		---	NANA	AUTO
MK2526FC	528	6		63		16/1023/63	NANA	AUTO
MK2528FC	704	8				16/1365/63	NANA	AUTO
MK253FA	162					---	NANA	AUTO
MK253FB	158					---	NANA	AUTO
MK254FA	227					---	NANA	AUTO
MK254FB	221					---	NANA	AUTO
MK256FA	325					---	NANA	AUTO
MK256FB	316					---	NANA	AUTO
MK256FB	315					---	NANA	AUTO
MK2628FC	811	8				16/1571/63	NANA	AUTO
MK2720FC	1350	10				16/2633/63	NANA	AUTO

Drive Model	Seek Time	Interface	Encode	Form Factor	Cache kb	Obsolete? mtbf	Obsol? RPM
TOSHIBA AMERICA, INC.							
MK1034FC	16	IDE AT	2.7 RLL	3.5 3H	64k	40k	3414 Y
MK1122FC	23	IDE AT	2.7 RLL	2.5 4H	32k	40k	3600 Y
MK130	25	ST412/506	MF	3.5 HH		30k	Y
MK1301MAV	13	ATA-2 Fast	PRML	2.5 4H	128k	300k	4200
MK132FA	23	ST412/506	MF	3.5 HH			Y
MK133FA	23	ST412/506	MF	3.5 HH			Y
MK134FA	25	ST412/506	MF	3.5 HH		30k	3600 Y
MK134FA(R)	23	ST412/506	2.7 RLL	3.5 HH			Y
MK1422FCV	15	IDE AT	2.5 4H	32k	150k	3600 Y	
MK1522FCV	15	IDE AT	2.5 4H	128k	150k	3600 Y	
MK153FA	23	ESDI	2.7 RLL	5.25 FH		30k	3600 Y
MK153FA-I	23	ESDI	2.7 RLL	5.25 FH		30k	Y
MK153FB	23	SCSI	2.7 RLL	5.25 FH	32k	30k	3600 Y
MK154FA	23	ESDI	2.7 RLL	5.25 FH		30k	3600 Y
MK154FA-I	23	ESDI	2.7 RLL	5.25 FH		30k	Y
MK154FB	23	SCSI	2.7 RLL	5.25 FH	32k	30k	3600 Y
MK156FA	23	ESDI	2.7 RLL	5.25 FH		30k	Y
MK156FB	23	SCSI	2.7 RLL	5.25 FH	32k	30k	3600 Y
MK158FA	23	ESDI	2.7 RLL	5.25 FH		30k	3600 Y
MK1624FCV	13	IDE AT	2.5 4H	128k	150k	4000 Y	
MK1722FCV	13	IDE AT	2.5 4H	128k		4000 Y	
MK1724FCV	12	IDE AT	2.5 4H	128k	150k	4000	
MK1824FBV	13	SCSI-2	1.7 RLL	2.5 4H	128k	300k	4200
MK1824FCV	13	ATA-2		2.5 4H	128k	300k	4200
MK182FB	18	SM/CMD	2.7 RLL	8.00 FH		20k	3600
MK184FB	18	SM/CMD	2.7 RLL	8.00 FH		20k	3600
MK186FB	18	SM/CMD	2.7 RLL	8.00 FH		20k	3600
MK1924FBV	13	SCSI-2	8.9RLL	2.5 4H	128k		4200
MK1924FCV	13	ATA-2		2.5 4H	128k	300k	4200
MK1926FBV	13	SCSI-2	8.9RLL	2.5 4H	128k		4200
MK1926FCV	13	ATA-2		2.5 4H	128k	300k	4200
MK2024FC	19	IDE AT	2.7 RLL	2.5 4H	32k	80k	3600 Y
MK2101MAN	13	ATA Fast	PRML	2.5 4H	128k	300k	4200
MK2124FC	17	IDE AT	2.7 RLL	2.5 4H	32k	150k	3600 Y
MK2224FB	12	SCSI-2 FAST		2.5 4H	128k	150k	4000 Y
MK2224FC	12	IDE AT		2.5 4H	128k	150k	4000 Y
MK2326FB	12	SCSI-2 FAST		2.5 4H	128k	150k	4200
MK2326FC	12	IDE AT		2.5 4H	128k	150k	4200
MK2326FCH	12	IDE AT		2.5 4H			
MK232FB	25	SCSI		3.5 HH		30k	3600 Y
MK232FBS	19	SCSI	2.7 RLL	3.5 HH		30k	Y
MK232FC	25	IDE AT	2.7 RLL	3.5 HH		30k	Y
MK233FB	25	SCSI	2.7 RLL	3.5 HH		30k	3600 Y
MK234FB	25	SCSI	2.7 RLL	3.5 HH		30k	3600 Y
MK234FBS	19	SCSI	2.7 RLL	3.5 HH		30k	Y
MK234FC	25	IDE AT	2.7 RLL	3.5 HH		30k	3600 Y
MK234FCH	25	IDE AT	2.7 RLL	3.5 HH		30k	Y
MK2428FB	12	SCSI-2 FAST		2.5 4H	512k	150k	4000
MK2428FC	12	IDE AT		2.5 4H	512k	150k	4000
MK250FA	18	ESDI	2.7 RLL	5.25 FH		30k	
MK250FB	18	SCSI	2.7 RLL	5.25 FH		30k	
MK2526FC	13	IDE AT		2.5 4H	128k		4200
MK2528FC	13	IDE AT		2.5 4H	128k		4200
MK253FA	ESDI			5.25 FH			Y
MK253FB	ESDI			5.25 FH			Y
MK254FA	ESDI			5.25 FH			Y
MK254FB	SCSI			5.25 FH			Y
MK256FA	ESDI			5.25 FH			
MK256FB	SCSI			5.25 FH			
MK256FB	SCSI			5.25 FH			
MK2628FC	13	ATA-2		2.5 4H	128k	300k	4200
MK2720FC	13	ATA-2		2.5 4H	128k	300k	4200

Drive Model	Format Size MB	Head	Cyl	Sect/Trac	Translate H/C/S	RWC/WPC	Land Zone
MK2728FC	1080	8			16/1579/63	---	
MK286FC	374	11	823			---	
MK288FC	510	15	823			---	
MK355FA	405	9	1661	53		---	
MK355FB	405	9	1661	53		---	
MK356FA	495					---	
MK356FA	675	15	1661	53		---	
MK358FB	675	15	1661	53		---	
MK388FA	720	15	1162			---	
MK438FB	900	11	1980			NA/NA	
MK537FB	1064	13	1980	NA		NA/NA	AUTO
MK538FB	1230	15	1980	NA		NA/NA	AUTO
MK53FA	36	5	830	17		---	
MK53FA(M)	36	5	830	17	830/512	830	
MK53FA(R)	43	5	830	26	831/831	830	
MK53FB	36	5	830	17	830/512	830	
MK53FB(M)	36	5	830	17	831/831	830	
MK53FB(R)	64	5	830	26	830/512	830	
MK53FB-I	36	5	830	17	831/512	830	
MK54FA(M)	60	7	830	26	831/831	830	
MK54FA(R)	90	7	830	26	830/512	830	
MK54FB(M)	90	7	830	26	831/831	830	
MK54FB(R)	90	7	830	26	830/512	830	
MK54FB-I	50	7	830	17	NA/NA	830	
MK556FA	152	10	830		831/831	830	
MK56FA(M)	86	10	830	17	---	830	
MK56FA(R)	129	10	830	26	830/512	830	
MK56FB(M)	86	10	830	17	831/831	830	
MK56FB(R)	129	10	830	26	830/512	830	
MK56FB-I	72	10	830	17	---	830	
MK72PC	72	10	830	17	---		
MK72PCR	109	10	830	26	830/512	830	
MKM0351E	36	5	830	17	830/512	830	
MKM0351J	36	5	830	17	---	830	
MKM0352E	50	7	830	17	---	830	
MKM0352J	50	7	830	17	---	830	
MKM0353E	72	10	830	17	830/512	830	
MKM0353J	72	10	830	17	830/512	830	
MKM0363A	74	5	830	35	NA/NA	AUTO	
MKM0363J	74	5	830	35	NA/NA	AUTO	
MKM0364A	104	7	830	35	NA/NA	AUTO	
MKM0364J	104	7	830	35	NA/NA	AUTO	
MKM0381E	36	5	830	17	830/512	830	
MKM0381J	36	5	830	17	---	830	
MKM0382E	50	7	830	17	---	830	
MKM0382J	50	7	830	17	830/512	830	
MKM0383E	72	10	830	17	830/512	830	
MKM0383J	72	10	830	17	830/512	830	

TULIN

TL213	10	2	640	17	656/656	640	
TL226	22	4	640	17	656/656	656	
TL238	22	4	640	17	---	NONE	640
TL240	33	6	640	17	656/656	656	
TL258	32	6	640	17	---	NONE	640
TL326	22	4	640	17	641/641	640	
TL340	33	6	640	17	641/641	640	

VERTEX (SEE PRIAM)

Drive Model	Seek Time	Interface	Encode	Form Factor	cache kb	Obsolete?
MK2728FC	13	ATA-2		2.5 4H	128k	300k 4200
MK286FC	18	HSM	2,7 RLL	8.00 FH		35k 3600
MK288FC	18	HSM	2,7 RLL	8.00 FH		35k 3600
MK355FA	16	ESDI	1,7 RLL	5.25 FH	64k	30k 3600
MK355FB	16	SCSI	2,7 RLL	5.25 FH		30k 3600
MK356FA	16	SCSI	RLL	5.25 FH	64k	30k 3600
MK358FA	16	ESDI	1,7 RLL	5.25 FH	64k	30k 3600
MK388FA	16	SCSI-2	2,7 RLL	5.25 FH	64k	30k
MK438FB	18	HSM	2,7 RLL	8.00 FH		35k 3600
MK537FB	12	SCSI-2	1,7 RLL	3.5 HH	512k	200
MK538FB	12	SCSI-2	1,7 RLL	3.5 HH	512k	200k
MK53FA	12	SCSI-2	1,7 RLL	3.5 HH	512k	200k
MK53FA(M)	30	ST412/506	MFM	5.25 FH		20k Y
MK53FA(R)	25	ST412/506	MFM	5.25 FH		20k Y
MK53FB	30	ST412/506	MFM	5.25 FH		20k Y
MK53FB(M)	25	ST412/506	MFM	5.25 FH		20k Y
MK53FB(R)	25	ST412/506	MFM	5.25 FH		20k Y
MK53FB-I	25	ST412/506	MFM	5.25 FH		20k Y
MK54FA(M)	30	ST412/506	MFM	5.25 FH		20k Y
MK54FA(R)	25	ST412/506	MFM	5.25 FH		20k Y
MK54FB(M)	25	ST412/506	MFM	5.25 FH		20k Y
MK54FB(R)	25	ST412/506	MFM	5.25 FH		20k Y
MK54FB-I	25	ST412/506	MFM	5.25 FH		20k Y
MK556FA	23	ESDI		5.25 FH		30k Y
MK56FA(M)	30	ST412/506	MFM	5.25 FH		20k Y
MK56FA(R)	30	ST412/506	MFM	5.25 FH		20k Y
MK56FB(M)	25	ST412/506	MFM	5.25 FH		20k Y
MK56FB(R)	25	ST412/506	MFM	5.25 FH		20k Y
MK56FB-I	25	ST412/506	MFM	5.25 FH		20k Y
MK72PC	25	ST412/506	MFM	3.5 HH		Y
MK72PCR	25	ST412/506	MFM	2.7 RLL	3.5 HH	Y
MKM0351E	25	ST412/506	MFM	5.25 FH		20k Y
MKM0351J	25	ST412/506	MFM	5.25 FH		20k Y
MKM0352E	30	ST412/506	MFM	5.25 FH		20k Y
MKM0352J	30	ST412/506	MFM	5.25 FH		20k Y
MKM0353E	25	ST412/506	MFM	5.25 FH		20k Y
MKM0353J	25	ST412/506	MFM	5.25 FH		20k Y
MKM0363A	23	ESDI	2,7 RLL	5.25 FH		30k Y
MKM0363J	23	SCSI	2,7 RLL	5.25 FH		30k Y
MKM0364A	23	ESDI	2,7 RLL	5.25 FH		30k Y
MKM0364J	23	ESDI	2,7 RLL	5.25 FH		30k Y
MKM0381E	25	ST412/506	MFM	5.25 FH		20k Y
MKM0381J	25	ST412/506	MFM	5.25 FH		20k Y
MKM0382E	30	ST412/506	MFM	5.25 FH		20k Y
MKM0382J	30	ST412/506	MFM	5.25 FH		20k Y
MKM0383E	25	ST412/506	MFM	5.25 FH		20k Y
MKM0383J	25	ST412/506	MFM	5.25 FH		20k Y

TULIN

TL213	27	ST412/506	MFM	5.25 HH		Y
TL226	85	ST412/506	MFM	5.25 HH		Y
TL238		ST412/506	MFM	5.25 HH		Y
TL240	85	ST412/506	MFM	5.25 HH		Y
TL258		ST412/506	MFM	5.25 HH		Y
TL326	40	ST412/506	MFM	5.25 HH		Y
TL340	40	ST412/506	MFM	5.25 HH		Y

VERTEX (SEE PRIAM)

Drive Model	Format Size MB	Head	Cyl	Sect/ Trac	Translate H/C/S	RWC/ WPC	Land Zone
WESTERN DIGITAL							
PIRANHA 105A	1104	4				NANA	
PIRANHA 105S	1104	4				NANA	AUTO
PIRANHA 210A	210					---	AUTO
PIRANHA 210S	210					---	
WD140	40					---	
WD2120	125					---	
WD262	20	4	615	17		616/616	
WD280	80					---	616
WD344R	40	4	782	26		783/783	783
WD362	20	4	615	17		616/616	783
WD382R	20	2	782	26		783/783	616
WD383R	30	4	615	26		616/616	782
WD384R	40	4	782	26		783/783	616
WD544R	40	4	782	26		783/783	783
WD562.5	21	4	615	17		---	783
WD582R	20	2	782	26		783/783	783
WD583R	30	4	615	26		616/616	616
WD584R	40	4	782	26		783/783	783
WD93018-A	21					---	
WD93020-XE1	20	4	615	17		NANA	616
WD93023-A	21					---	
WD93024-A	21	2	782	27	4/615/17	NANA	783
WD93024-X	21	2	782	27		NANA	783
WD93028-A	21	2	782	27	4/615/17	NANA	783
WD93028-X	21	2	782	27		NANA	783
WD93034-X	32	3	782	27		NANA	783
WD93038-X	32	3	782	27		NANA	783
WD93044-A	43	4	782	27	5/877/17	NANA	783
WD93044-X	43	4	782	27		NANA	882
WD93048-A	40	4	782	27		NANA	783
WD93048-AD	43	4	782	27		NANA	783
WD93048-X	43	4	782	27	4/615/17	NANA	783
WD95024-A	21	2	782	27		NANA	783
WD95024-X	21	2	782	27		783/783	783
WD95028-A	20	2	782	27		NANA	783
WD95028-AD	21	2	782	27		783/783	783
WD95028-X	20	2	782	27		NANA	783
WD95034-X	32	3	782	27		783/783	783
WD95038-X	30	3	782	27		NANA	783
WD95044-A	43	4	782	27	4/782/27	783/783	783
WD95044-X	43	4	782	27	4/782/27	783/783	783
WD95048-A	40	4	782	27	4/782/27	NANA	783
WD95048-AD	43	4	782	27	4/782/27	NANA	783
WD95048-X	40	4	782	27	4/782/27	NANA	783
WDAB130 (Tidbit)	31	5	733	17	4/616/17	734/734	AUTO
WDAB260 (Tidbit)	62	4	1020	17		NANA	AUTO
WDAC1170 (Caviar)	170	2	2233	56-96	6/1010/55	NANA	AUTO
WDAC1210 (Caviar)	212	2	2720	55-99	12/989/35	NANA	AUTO
WDAC1270 (Caviar)	270	2			12/917/48	NANA	AUTO
WDAC1365 (Caviar)	364	2			16/708/63	NANA	AUTO
WDAC140 (Caviar)	212	2	1082	39	5/800/17	NANA	AUTO
WDAC1425 (Caviar)	427	2			16/827/63	---	AUTO
WDAC160 (Caviar)	62	7	1024	17	7/1024/17	1023/1023	AUTO
WDAC2100 (Caviar)	1083	4			16/2100/63	---	AUTO
WDAC2120 (Caviar)	125	8	872	35	8/872/35	872/872	AUTO
WDAC21200 (Caviar)	1282	4			16/2484/63	---	AUTO
WDAC21600 (Caviar)	1625	4			16/3148/63	NANA	AUTO
WDAC2170 (Caviar)	171	4	1584	48-56	6/1010/55	NANA	AUTO
WDAC2200 (Caviar)	213	4	1971	48-56	12/989/35	NANA	AUTO
WDAC2270 (Caviar)	256	3	2233	56-96	9/1010/55	NANA	AUTO
WDAC2340 (Caviar)	341	4	2233	56-96	12/1010/55	NANA	AUTO

Drive Model	Seek Time	Interface	Encode	Form cache Factor	Obsolete? kb mtbf RPM
WESTERN DIGITAL					
PIRANHA 105A	15	IDE AT	2,7 RLL	3.5 HH	50k Y
PIRANHA 105S	15	SCSI	2,7 RLL	3.5 HH	50k Y
PIRANHA 210A		IDE AT		3.5 HH	Y
PIRANHA 210S		SCSI		3.5 HH	Y
WD140		IDE AT		3.5 3H	Y
WD2120		IDE AT		3.5 3H	Y
WD262	80	ST412/506	MFM	3.5 HH	Y
WD280		IDE AT		3.5 3H	Y
WD344R	40	ST412/506	2,7 RLL	3.5 HH	Y
WD362	80	ST412/506	MFM	3.5 HH	Y
WD382R	85	ST412/506	2,7 RLL	3.5 HH	Y
WD383R	85	ST412/506	2,7 RLL	3.5 HH	Y
WD384R	85	ST412/506	2,7 RLL	3.5 HH	Y
WD544R	85	ST412/506	2,7 RLL	3.5 HH	Y
WD562.5	80	ST412/506	MFM	3.5 HH	40k Y
WD582R	85	ST412/506	2,7 RLL	3.5 HH	Y
WD583R	85	ST412/506	2,7 RLL	3.5 HH	Y
WD584R	85	ST412/506	2,7 RLL	3.5 HH	Y
WD93018-A		IDE AT		3.5 HH	Y
WD93020-XE1	85	IDE XT	2,7 RLL	3.5 HH	Y
WD93023-A		IDE AT		3.5 HH	Y
WD93024-A	28	IDE AT	2,7 RLL	3.5 HH	40k Y
WD93024-X	39	IDE XT	2,7 RLL	3.5 HH	1k 50k Y
WD93028-A	70	IDE AT	2,7 RLL	3.5 HH	40k Y
WD93028-AD	69	IDE AT	2,7 RLL	3.5 HH	40k Y
WD93028-X	70	IDE AT	2,7 RLL	3.5 HH	40k Y
WD93034-X	39	IDE XT	2,7 RLL	3.5 HH	1k 50k Y
WD93038-X	70	IDE XT	2,7 RLL	3.5 HH	40k Y
WD93044-A	28	IDE AT	2,7 RLL	3.5 HH	640k 40k Y
WD93044-X	39	IDE XT	2,7 RLL	3.5 HH	1k 50k Y
WD93048-A	69	IDE AT	2,7 RLL	3.5 HH	40k Y
WD93048-AD	69	IDE AT	2,7 RLL	3.5 HH	40k Y
WD93048-X	70	IDE XT	2,7 RLL	3.5 HH	40k Y
WD95024-A	28	IDE AT	2,7 RLL	5.25 HH	40k Y
WD95024-X	39	IDE XT	2,7 RLL	5.25 HH	1k 50k Y
WD95028-A	70	IDE AT	2,7 RLL	5.25 HH	40k Y
WD95028-AD	69	IDE AT	2,7 RLL	5.25 HH	40k Y
WD95028-X	70	IDE XT	2,7 RLL	5.25 HH	40k Y
WD95034-X	39	IDE XT	2,7 RLL	3.5 HH	1k 50k Y
WD95038-X	70	IDE XT	2,7 RLL	5.25 HH	40k Y
WD95044-A	28	IDE AT	2,7 RLL	5.25 HH	40k Y
WD95044-X	39	IDE XT	2,7 RLL	3.5 HH	1k 50k Y
WD95048-A	70	IDE AT	2,7 RLL	5.25 HH	40k Y
WD95048-AD	69	IDE AT	2,7 RLL	5.25 HH	40k Y
WD95048-X	70	IDE XT	2,7 RLL	5.25 HH	40k Y
WDAB130 (Tidbit)	19	IDE AT-XT	2,7 RLL	2.50 4H	32k Y
WDAB260 (Tidbit)	19	IDE XT-AT	2,7 RLL	2.5 4H	50k Y
WDAC1170 (Caviar)	13	IDE AT	1,7 RLL	3.5 3H	32k 250k 3322 Y
WDAC1210 (Caviar)	13	IDE AT	1,7 RLL	3.5 3H	64k 250k 3314 Y
WDAC1270 (Caviar)	11	IDE AT		3.5 3H	64k 250k 4500 Y
WDAC1365 (Caviar)	10	IDE AT		3.5 3H	64k 300k 4500 Y
WDAC140 (Caviar)	18	IDE AT	2,7 RLL	3.5 3H	32k 50k Y
WDAC1425 (Caviar)	10	IDE AT		3.5 3H	64k 300k 4500 Y
WDAC160 (Caviar)	17	IDE AT	2,7 RLL	3.5 3H	3605 Y
WDAC2100 (Caviar)		EIDE		3.5 3H	128k 300k 5200 Y
WDAC2120 (Caviar)	15	IDE AT	2,7 RLL	3.5 3H	32k 100k 3600 Y
WDAC21200 (Caviar)		EIDE		3.5 3H	128k 300k 5200 Y
WDAC21600 (Caviar)	12	EIDE		3.5 3H	128k 300k 5200 Y
WDAC2170 (Caviar)	14	IDE AT	2,7 RLL	3.5 3H	32k 100k 3652 Y
WDAC2200 (Caviar)	14	IDE AT	2,7 RLL	3.5 3H	64k 100k 3652 Y
WDAC2250 (Caviar)	13	IDE AT	1,7 RLL	3.5 3H	64k 250k 3322 Y
WDAC2340 (Caviar)	13	IDE AT	1,7 RLL	3.5 3H	128k 250k 3322 Y

Drive Model	Format	Size MB	Head	Cyl	Trac	Sect/ Translate	H/C/S	RWC/ WPC	Land Zone
WDAC2420 (Caviar)	425	4	2720	55-99	15/989/56	NANA	---	NANA	AUTO
WDAC2540 (Caviar)	540	3			16/1048/63	NANA	---	NANA	AUTO
WDAC2635 (Caviar)	640	3			16/1240/63	---	---	---	AUTO
WDAC2700 (Caviar)	730	4			16/1416/63	---	---	---	AUTO
WDAC280 (Caviar)	85	10	980	17	10/980/17	NANA	---	NANA	981
WDAC2850 (Caviar)	854	4			16/1654/63	---	---	---	---
WDAC31000 (Caviar)	1084	6			16/2100/63	---	---	---	---
WDAC31200 (Caviar)	1282	6			16/2484/63	---	---	---	---
WDAC31600 (Caviar)	1625	6			16/3148/63	---	---	---	---
WDAC3210 (Caviar)	1250					---	---	---	---
WDAC32100 (Caviar)	2112	5			16/4092/63	NANA	---	NANA	AUTO
WDAC32500 (Caviar)	2580	6			16/4960/63	NANA	---	NANA	AUTO
WDAC33100 (Caviar)	3166					---	---	---	---
WDH4260 (Tidbit)	62	4	1024	17	7/1024/17	NANA	---	NANA	AUTO
WDH4280	86	4	1390	V	10/980/17	NANA	---	NANA	AUTO
WDAL1100	100					---	---	---	---
WDAL2170	170					---	---	---	---
WDAL2200	200					---	---	---	---
WDAL2540	541	4			16/1048/63	---	---	---	---
WDAP2120 (Piranha)	125	8		35		NANA	---	NANA	AUTO
WDAP4200 (Piranha)	212	8	1280	41	12/987/35	NANA	---	NANA	AUTO
WDCU140	42	2	1050	30-50	5/980/17	NANA	---	NANA	AUTO
WDM1130-44 (44 PIN)	31	2	920	33		NANA	---	NANA	AUTO
WDM1130-72 (72 PIN)	30	2	928	32		NANA	---	NANA	AUTO
WDM14120-72 (72 PIN)	125	8	925	33		NANA	---	NANA	AUTO
WDS8320 (Conдор)	320	14	949	48		NANA	---	NANA	AUTO
WDS8400 (Conдор)	400	15	1199	48		NANA	---	NANA	AUTO
WDSP2100 (Piranha)	104	4	1265	41		NANA	---	NANA	AUTO
WDSP4200 (Piranha)	20	8	1265	41		NANA	---	NANA	AUTO
WDTM262R (Tandon)	20	2	782	26		783/783	---	784	---
WDTM364 (Tandon)	41	4	782	26		783/783	---	784	---

XEBEC

OWL I	25	4			---	---	---	---	---
OWL II	38	4			---	---	---	---	---
OWL III	52	4			---	---	---	---	---
XE3100	105	6	979	35		---	---	---	---

Y-E DATA AMERICA, INC

YD3042	43	4	788	28		789/789	---	AUTO	---
YD3081B	45	2	1057	42		NANA	---	AUTO	---
YD3082	87	8	788	28		789/789	---	AUTO	---
YD3082B	90	4	1057	42		NANA	---	AUTO	---
YD3083B	136	6	1057	42		NANA	---	AUTO	---
YD3084B	181	8	1057	42		NANA	---	AUTO	---
YD3161B	45	2	1057	42		NANA	---	AUTO	---
YD3162B	90	4	1057	42		NANA	---	AUTO	---
YD3181B	45	2	1057	42		NANA	---	AUTO	---
YD3182B	90	4	1057	42		NANA	---	AUTO	---
YD3530	32	5	731	17		732/732	---	AUTO	---
YD3540	42	7	733	32		732/732	---	AUTO	---
YD3541	45	8	731	15		732/732	---	AUTO	---

ZENTEC

DRACO	518	6	2142	V		---	---	---	---
ZM3180	170					---	---	---	---
ZM3272	260	4	2076	55		---	---	---	---
ZM3360	340					---	---	---	---
ZM3540	518					---	---	---	---
ZQ2140	126	4	1410	44		---	---	---	---

Drive Model	Seek Time	Interface	Encode	Form Factor	kb	mbf	Obsolete?
WDAC2420 (Caviar)	13	IDE AT	1,7 RLL	3.5 3H	128k	250k 3314	
WDAC2540 (Caviar)	11	IDE AT		3.5 3H	64k	300k 4500	
WDAC2635 (Caviar)	10	IDE AT		3.5 3H	64k	300k 4500	Y
WDAC2700 (Caviar)	13	IDE AT		3.5 3H	64k	300k 4500	Y
WDAC280 (Caviar)	17	IDE AT	2,7 RLL	3.5 3H	32k	100k 3595	Y
WDAC2850 (Caviar)	10	EIDE		3.5 3H	64k	300k 4500	
WDAC31000 (Caviar)	10	IDE AT		3.5 3H	128k	250k 4500	
WDAC31200 (Caviar)	10	IDE AT		3.5 3H	64k	250k 4500	
WDAC31600 (Caviar)		EIDE		3.5 3H	128k	300k 5200	
WDAC3210 (Caviar)	13	IDE		3H	128k	4500	
WDAC32100 (Caviar)		EIDE		3.5 3H	128k	300k 5200	
WDAC32500 (Caviar)		EIDE		3.5 3H	128k	300k 5200	
WDAC33100 (Caviar)		EIDE					
WDH4260 (Tidbit)	19	IDE XT-AT	2,7 RLL	2.5 4H	50k	3383	Y
WDH4280	19	IDE XT-AT	2,7 RLL	2.5 4H	50k		Y
WDAL1100	17	IDE AT		2.5 4H	32k	100k	Y
WDAL2170	16	IDE AT		2.5 4H	32k	100k	Y
WDAL2200	17	IDE AT		2.5 4H	32k	100k	Y
WDAL2540	13	EIDE		2.5 4H	128k	300k 4500	
WDAP2120 (Piranha)	15	IDE AT	2,7 RLL	3.5 3H	100k	3605	Y
WDAP4200 (Piranha)	14	IDE AT	1,7 RLL	3.5 3H	64k	50k	Y
WDCU140	19	PCMCIA-ATA	1,7 RLL	1.8 4H	32k	255k 4503	Y
WDM1130-44 (44 PIN)	19	MCA	RLL	3.5 3H	45k		Y
WDM1130-72 (72 PIN)	19	MCA	RLL	3.5 3H	45k		Y
WDM14120-72 (72 PIN)	23	MCA	2,7 RLL	3.5 3H	45k		Y
WDS8320 (Conдор)	12	SCSI-2	1,7 RLL	3.5 HH	64k	150k 4316	Y
WDS8400 (Conдор)	16	SCSI-2	1,7 RLL	3.5 HH	128k	150k 4316	Y
WDSP2100 (Piranha)	14	SCSI-2	2,7 RLL	3.5 HH	64k	50k	Y
WDSP4200 (Piranha)	14	SCSI-2	2,7 RLL	3.5 HH	64k	50k	Y
WDTM262R (Tandon)	85	ST412/506	2,7 RLL	3.5 HH			Y
WDTM364 (Tandon)	85	ST412/506	2,7 RLL	3.5 HH			Y

XEBEC

OWL I	55	SCSI	MFM	5.25 HH		Y
OWL II	40	SCSI	MFM	5.25 HH		Y
OWL III	38	SCSI	MFM	5.25 HH		Y
XE3100		IDE AT				Y

Y-E DATA AMERICA, INC

YD3042	28	SCSI	2,7 RLL	3.5 HH	40k	Y
YD3081B	28	SCSI	2,7 RLL	3.5 HH	30k	Y
YD3082	28	SCSI	2,7 RLL	3.5 HH	40k	Y
YD3082B	28	SCSI	2,7 RLL	3.5 HH	30k	Y
YD3083B	28	SCSI	2,7 RLL	3.5 HH	30k	Y
YD3084B	28	SCSI	2,7 RLL	3.5 HH	30k	Y
YD3161B	19	IDE AT	2,7 RLL	3.5 3H	40k	Y
YD3162B	19	IDE AT	2,7 RLL	3.5 3H	40k	Y
YD3181B	19	SCSI	2,7 RLL	3.5 3H	40k	Y
YD3182B	19	SCSI	2,7 RLL	3.5 3H	40k	Y
YD3530	26	ST412/506	MFM	3.5 HH		Y
YD3540	29	ST412/506	MFM	3.5 HH	20k 3600	Y
YD3541	29	SCSI	2,7 RLL	3.5 HH	20k 3600	Y

ZENTEC

DRACO	12	SCSI-2 FAST	1,7 RLL	3.5 3H	512k	150k 4200
ZM3180	12	IDE AT		3.5 3H		150k
ZM3272	13	IDE AT	1,7 RLL	3.5 3H	64k	150k 3600
ZM3360	12	IDE AT		3.5 3H		150k
ZM3540	12	IDE AT		3.5 3H		150k
ZQ2140	18	IDE AT	1,7 RLL	2.5 4H	32k	150k 3600

Hard Drive Source Notes

Information contained in the hard drive chapter was derived from numerous sources, including the manufacturers of the drives. When compiling tables this large, the chance for typing and resource error is great. The authors and publisher would greatly appreciate being notified of any inaccurate or missing information. Some of the older drives (especially those from companies who have gone out of business) are very difficult to obtain accurate and verifiable specifications for. If you have access to old specification sheets, etc please send us a copy so that we may add the information to future editions.

The following are important resources:

ONTRACK Computer Systems Disk Manager Series

Eden Prairie, Minnesota, 1985 to 1990

The Hard Disk Technical Guide by Douglas T. Anderson

PCS Publications, Clearwater, FL, 1990, 1991

The Micro House Encyclopedia of Hard Drives edited

by Douglas T. Anderson, Boulder, CO, 1990 to 1995

Numerous public domain and BBS hard drive listings.

SpeedStor Hard Disk Preparation/Diagnostics

Storage Dimensions, 1985, 1988

Numerous manufacturer specification sheets

Reseller's Resource - Hard Drives, Volume 2, No 1

Technology Publishing, Inc, Livonia, MI January 1990

Buyer's Guide-Hard Drives 40MB to 400MB

Computer Shopper, March 1990

THEREF by F. Robert Falbo, Rome, New York, 1991

Western Digital BBS Listing, 6-6-91

Chapter 8

Floppy Drive Specifications

1. Floppy Drive Manufacturers 442
2. General Floppy Drive Specifications 444
3. Floppy Drive Specifications by Model 445

Many thanks to Bottom Line Industries, 9556 Cozycroft Ave, Chatsworth, California, 91311, (818) 700-1922, (800) 344-6044 for providing Sequoia with additional floppy drive information included in this chapter. If you need to have a floppy or hard drive rebuilt or would like to purchase a rebuilt floppy or hard drive, Bottom Line Industries is an excellent source!

Floppy Drive Manufacturers

The following table is a general summary of companies that have manufactured and/or are still manufacturing floppy drives. If you have information concerning the status of any of these companies, such as "XYZ Company went bankrupt in August, 1990" or "XYZ Company was bought by Q Company", please let us know so we can keep this section current. If a phone number is listed in the Status column, the company is in business.

Manufacturer	Status
Alps	800-449-2577
Aurora Tech	Unknown
Bachelor	Unknown
BASF	800-343-4600
Burroughs	Unknown
Calcomp	800-225-2667
Canon	800-423-2366
C.D.C	Unknown
Century Data	919-821-5696; Not a manufacturer
Chinon	310-533-0274
Citizen	310-453-0614
Disc Tec	407-671-5500
Epson	310-787-6300
Fuji	510-438-9700; Do not manufacture floppy or hard drives anymore.
Fujitsu	408-432-6333; Made in Japan
Hewlett Packard	800-752-0900
Hi-Tech	Unknown
Hitachi	800-448-2244
IBM	914-765-1900
Iomega	801-778-1000
JVC	714-261-1292; Never manufactured floppy drives
MFE	210-997-9663
MPI	Unknown
Maple Tech	Unknown
Memorex	804-342-9620
Micropolis	800-847-8153; No longer manufactures floppy drives

Manufacturer	Status
Mitac	Unknown
Mitsubishi	408-730-5900 Corporate
Mitsumi	800-648-7864
NEC	508-264-8000
Newtronic	Unknown
Okidata	609-235-2600
Olivetti	Out of Business
Pacific Rim	800-722-7461
Panasonic	800-854-4536
Persci	Unknown
Pertec	Unknown
Phillips	719-593-7900
Qume	Unknown
Remex	Unknown
Samsung	800-726-7864
Sanyo	Unknown
Seiko	800-888-0817; Never manufactured floppy drives
shugart	714-770-1100
Siemens	Out of Business
Sony	800-222-7669; Do not manufacture floppy drives?
Tandon	Filed Chapter 11 bankruptcy 9-95
Teac Corp.	213-726-0303
Tec	Unknown
Tecmate	Unknown
Texas Peripherals	Unknown
Toshiba	714-457-0777
Victor	800-628-2420
Weltec	302-737-1260
World Storage	Unknown
Y-E Data	708-855-0890

GENERAL FLOPPY DRIVE SPECS

Formatted Capacity	Sides	Tracks	Sectors	ID Byte	Media Type*	Media Agent
5-1/4 inch diameter						
160 kb **	1	40	8	FE	SSDD	Ferrite
180 kb **	1	40	9	FC	SSDD	Ferrite
320 kb **	2	40	8	FF	DSDD	Ferrite
360 kb	2	40	9	FD	DSDD	Ferrite
1.2 Mb	2	80			DSQD	Ferrite
1.2 Mb	2	80	15	F9	DSHD	Cobalt
3-1/2 inch diameter						
720 kb	2	80	9	F9	DSDD	Cobalt
1.44 Mb	2	80	18	F0	DSHD	Cobalt
2.8 Mb	2	80	36	F0	DSEHD	Barium

*Sequoia needs your help! If you have specifications on new or obsolete floppy drives, please send them to us for future editions of PCRef. SS = Single Sided, DS=Double Sided
 DD = Double Density
 HD = High Density
 QD = Quad Density (now obsolete)
 EHD or ED = Extra High Density

** Obsolete drives

Maximum Entries in the Root Directory:

- 5-1/4 DD and 3.5 DD = 112 Entries
- 5-1/4 HD and 3.5 HD = 224 Entries
- 3.5 EHD = 240 Entries

All floppy drives currently produced rotate at 300 RPM, except for the 1.2Mb, 5-1/4 HD drives, which rotate at 360 RPM.

All floppy drives are formatted at 512 Bytes Per Sector.

Floppy disks have 2 FATs, 12 Bit Type

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Alps	413(PS2)	3.50	Half	720kb	DSDD
	713(PS2)	3.50	Half	1.44Mb	DSHD
	723	3.50	1/3	1.44Mb	DSHD
	723(PS2)	3.50	Half	1.44Mb	DSHD
	2124	5.25	Half	180kb	SSDD
	2124A	5.25	Full	360kb	DSDD
	2624-BK1	5.25	Half	360kb	DSDD
	DF328N	3.50	1/4	2.88Mb	DSHD
	DFC 222 B02A,01A	5.25	Half	360kb	DSDD
	DFC 222A05A	5.25	Half	360kb	DSDD
Aurora Tech ...	DFC 642 B01B	5.25	Half	1.2Mb	DSDD
	FD350(SCSI)	3.50	Half		
Bachelor	FD525(SCSI)	5.25	Half		
	FD-104	5.25	Half	360kb	DSDD
BASF	6106	5.25	Full	180kb	SSDD
	6128	5.25	Full	360kb	DSDD
	6138	5.25	Half	720kb	DSDD
Burroughs.....	B9489-1	8.00	Full	1.6Mb	DSDD
Calcomp	142	8.00	Full	800kb	SSDD
	143	8.00	Full	1.6Mb	DSDD
Canon.....	221	5.25	Half	720kb	DSDD
	530	5.25	Half	720kb	DSDD
	531	5.25	Half	360kb	DSDD
	3361	3.50	1/4	1.44Mb	DSHD
	5201	5.25	Half	360kb	DSDD
	5501	5.25	1/3	1.2Mb	DSDD
	5511	5.25/3.5	Half	1.2/1.44Mb	DUAL
C.D.C.....	9404	8.00	Full	800kb	SSDD
	9406-3	8.00	Full	800kb	SSDD
	9406-4	8.00	Full	1.6Mb	DSDD
	9408	5.25	Full	180kb	SSDD
	9409	5.25	Full	360kb	DSDD
	9409T	5.25	Full	720kb	DSQD
	9428	5.25	Half	360kb	DSDD
	9428-01	5.25	Half	180kb	SSDD
	9428-02	5.25	Half	360kb	DSDD
	9429	5.25	Half	720kb	DSQD
	9429-01	5.25	Half	360kb	SSQD
	BR8B1A	5.25	Full	360kb	DSDD
Century Data ..	140	8.00	Full	800kb	SSDD
Chinon.....	506-L	5.25	Half	1.2Mb	DSDD
	C354	3.50	Half	720kb	DSDD
	FX354	3.50	1.0"	720kb	DSDD
	FZ357	3.50	1.0"	1.4Mb	DSHD
	C359	3.50	Half	1.4Mb	DSHD
	F.FZ.C502	5.25	Half	360kb	DSDD
	C506	5.25	Half	1.2Mb	DSHD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Citizen	OSDA-01D	3.50	1/3	720kb	DSQD
	OSDA-14A	3.50	1/3	1.44Mb	DSHD
	OSDA-39D	3.50	1/3	1.44Mb	DSQD
	OSDA-51B	3.50	1/3	1.44Mb	DSHD
	OSDA-52B	3.50	1/3	1.44Mb	DSHD
	OSDA-53B	3.50	1/3	1.44Mb	DSHD
	OSDA-77D	3.50	1/3	720kb	DSQD
	OSDA-81F	3.50	Half	1.44Mb	DSHD
	OSDA-90E-U	3.50	1/3	720kb	DSQD
	OPDB-22A	3.50	Half	720kb	DSQD
	OSDD-05B	3.50	1/3	720kb	DSQD
	OSDD-57	3.50	1/3	720kb	DSQD
	OSDD-57B	3.50	1/3	720kb	DSQD
	UIDA-14A	3.50	1/4	1.44Mb	DSHD
	V1DA-10A	3.50	1/4	1.44Mb	DSHD
	V1DA-27A	3.50	1/4	1.44Mb	DSHD
	V1DA-31B	3.50	1/4	1.44Mb	DSHD
	V9DA-55A	3.50	1/4	1.44Mb	DSHD
	V9DA-55B	3.50	1/4	1.44Mb	DSHD
	V9DA-71B	3.50	1/4	1.44Mb	DSHD
Digital	PBXR- AA	3.50	1.0"	1.44Mb	DSHD
	PBXR- AB	3.50	1.0"	1.44Mb	DSHD
Epson	170-SMD	3.50	Half	400kb	SSDD
	180	3.50	Half	720kb	DSQD
	200P-053	3.50	Half	720kb	DSQD
	200P-055	3.50	Half	720kb	DSQD
	200P-073	3.50	Half	720kb	DSQD
	280	3.50	Half	720kb	DSQD
	300	3.50	1/3	1.44Mb	DSHD
	340	3.50	1/3	1.44Mb	DSHD
	400 W/FRAME	3.50	1/3	1.44Mb	DSHD
	400P-4	3.50	1/3	1.44Mb	DSHD
	500	5.25	Half	360kb	DSQD
	521	5.25	Half	360kb	DSQD
	521L	5.25	Half	360kb	DSQD
	621L	5.25	Half	360kb	DSQD
	700/800	5.25/3.5		1.2/1.44Mb	DUAL
	1000	3.50	1/3	1.44Mb	DSHD
	1000P	3.50	1/4	1.44Mb	DSHD
	SD-321	5.25	1/3	360kb	DSQD
	SD-520	5.25	Half	360kb	DSQD
	SD-521	5.25	Half	360kb	DSQD
	SD-581	5.25	Half	360kb	DSQD
	SD-621L	5.25	Half	328kb	DSQD
	SD-680L	5.25	Half	1.02Mb	DSHD
	SMD-1040	3.50	0.7"	1.44Mb	DSHD
	SMD-1060	3.50	0.7"	2.8Mb	DSHD
	SMD-1340	3.50	1.0"	1.44Mb	DSHD
	SMD-340	3.50	1.0"	1.47Mb	DSHD
	SMD-349	3.50	Half	1.4Mb	DSHD
	SMD-380	3.50	1.0"	656kb	DSQD
	SMD-389	3.50	Half	720kb	DSQD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Epson (cont.)	SMD-400P-4	3.50	1/3	1.44Mb	DSHD
Fujitsu	FDD4206AOK	3.50	Half	720kb	DSQD
	FDD421GOK	3.50	1.0"	720kb	DSQD
	FDD5452BOK	5.25	Half	360kb	DSQD
	FDD6471LOK	5.25	Half	360kb	DSQD
Fujitsu	2551 A08	5.25	Half	360kb	DSQD
	2552K	5.25	Half	720kb	DSQD
	2553A,K	5.25	Half	1.2Mb	DSHD
	2553 K03B	5.25	Half	1.2Mb	DSQD
	2554	5.25	Half	720kb	DSQD
	M2537K	3.50	1/3	1.44Mb	DSHD
	N02B-0112-B001	3.50	Half	720kb	DSQD
	N02B-0112-B201	3.50	Half	720kb	DSQD
Hewlett Packard	J455-3	5.25	Half	360kb	DSQD
	J475-1	5.25	Half	1.2Mb	DSQD
Hi-Tech	548-25	5.25	Half	180kb	SSQD
	548-50	5.25	Half	360kb	DSQD
	548-A	5.25	Half	360kb	DSQD
	596-10	5.25	Full	720kb	DSQD
Hitachi	HFD 305S	5.25	Half	360kb	SSQD
	FD532EIU	5.25	Half	2.4Mb	DSHD
	FDD412A	5.25	Half	1.2Mb	DSQD
IBM	0384-002	5.25	Full	360kb	DSQD
JVC	MDP-100	5.25	Half	720kb	DSQD
MFE	M700	8.00	Full	1.6Mb	DSQD
	M750	8.00	Full	1.6Mb	DSQD
MPI	501	5.25	Half	180kb	SSQD
	502B	5.25	Half	360kb	DSQD
	51M	5.25	Full	180kb	SSQD
	52M	5.25	Full	360kb	DSQD
	52S	5.25	Full	360kb	DSQD
	91M	5.25	Full	360kb	SSQD
	92M-002	5.25	Full	720kb	DSQD
	B101M-S	5.25	Full	180kb	SSQD
	B102M-S	5.25	Full	360kb	DSQD
	B51S	5.25	Full	180kb	SSQD
	B52S	5.25	Full	360kb	DSQD
	B91S	5.25	Full	360kb	SSQD
Maple Tech	B92M	5.25	Full	720kb	DSQD
	B92S	5.25	Full	720kb	DSQD
	MT-502	5.25	Half	360kb	DSQD
Matsushita	EME-263TL	3.50	1/4	1.44Mb	DSHD
	EME-278T	3.50	1/4	1.44Mb	DSHD
	EME-278TA	3.50	1/4	1.44Mb	DSHD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Memorex	651	8.00	Full	1.2Mb	DSDD
Micropolis	1006-4N	5.25	Full	720kb	DSDD
	1015-2	5.25	Full	360kb	DSDD
	1015-4	5.25	Full	720kb	SSDD
	1015-6	5.25	Full	720kb	DSDD
	1016-2	5.25	Full	360kb	DSDD
	1115-4	5.25	Full	720kb	DSDD
	1115-5	5.25	Full	360kb	DSDD
	1115-6	5.25	Full	720kb	SSDD
	1117-6	5.25	Full	720kb	DSDD
Mitac.....	MC-490	5.25	Half	360kb	DSDD
Mitsubishi	2894	8.00	Full	1.6Mb	DSDD
	2894-63	8.00	Full	1.6Mb	DSDD
	2896	8.00	Half	1.6Mb	DSDD
	2896-63	8.00	Half	1.6Mb	DSDD
	353AF	3.50	Half	720kb	DSDD
	353B-12	3.50	Half	720kb	DSDD
	353B-82	3.50	1/3	720kb	DSDD
	353B,C	3.50	Half	720kb	DSDD
	353C	3.50	1/3	720kb	DSDD
	353-12	3.50	1/3	720kb	DSDD
	355A,B,C	3.50	1.0"	1.4Mb	DSHD
	355B-52	3.50	Half	1.44Mb	DSHD
	355B-82UF	3.50	Half	1.44Mb	DSHD
	355BA-82UF/W51/4	3.50	Half	1.44Mb	DSHD
	355BA-88UF/W51/4	3.50	Half	1.44Mb	DSHD
	355B-88UF	3.50	Half	1.44Mb	DSHD
	355C-12	3.50	1/3	1.44Mb	DSHD
	355C-215	3.50	1/3	1.44Mb	DSHD
	355C-222	3.50	1/3	1.44Mb	DSHD
	355C-258MC	3.50	1/3	1.44Mb	DSHD
	355C-352	3.50	1/3	1.44Mb	DSHD
	355C-37/W51/4	3.50	1/3	1.44Mb	DSHD
	355C-526	3.50	1/3	1.44Mb	DSHD
	355C-58UF	3.50	1/3	1.44Mb	DSHD
	355C599MA(PS2)	3.50	Half	1.4Mb	DSHD
	355C599MB(PS2)	3.50	Half	1.4Mb	DSHD
	355C599MR4(PS2)	3.50	Half	1.4Mb	DSHD
	355C599MQ4(PS2)	3.50	Half	1.4Mb	DSHD
	355C599MQ41(PS2)	3.50	Half	1.4Mb	DSHD
	355C-82UF/W51/4	3.50	Half	1.44Mb	DSHD
	355C-88UF/W51/4	3.50	Half	1.44Mb	DSHD
	355F258	3.50	1/3	1.4Mb	DSHD
	355W99M1(PS2)	3.50	Half	1.4Mb	DSHD
	355W99M2(PS2)	3.50	Half	1.4Mb	DSHD
	355W99M3(PS2)	3.50	Half	1.4Mb	DSHD
	355W99W1(PS2)	3.50	Half	1.4Mb	DSHD
	4851	5.25	Half	360kb	DSDD
	4852	5.25	Full	720kb	DSDD
	4853	5.25	Half	720kb	DSDD
	4854	5.25	Half	1.2Mb	DSDD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Mitsubishi (cont.)	501A	5.25	Half	360kb	DSDD
	501B	5.25	Half	360kb	DSDD
	501C	5.25	Half	360kb	DSDD
	503	5.25	Half	720kb	DSDD
	504A	5.25	Half	1.2Mb	DSHD
	504B	5.25	Half	1.2Mb	DSDD
	504C	5.25	Half	1.2Mb	DSDD
	504S	5.25	Half	1.2Mb	DSDD
Mitsumi		3.50		720kb	DSDD
		3.50		1.44Mb	DSHD
	D359C	3.50	1/4	1.44Mb	DSHD
	D359T2	3.50	1/3	1.44Mb	DSHD
	D359T3	3.50	1/3	1.44Mb	DSHD
	D359T5	3.50	1/3	1.44Mb	DSHD
	D503	5.25	Half	360kb	DSDD
	D509V	5.25	Half	1.2Mb	DSDD
MPI	51-S	5.25	Full	180kb	SSDD
	52-S	5.25	Full	360kb	DSDD
NEC.....	1035	3.50	Half	720kb	DSDD
	1036A	3.50	1/3	720kb	DSDD
	1037A	3.50	1/3	720kb	DSDD
	1053	5.25	Half	360kb	DSDD
	1055	5.25	Half	720kb	DSDD
	1137H	3/50	1/3	1.44Mb	DSHD
	1155C	5.25	Half	1.2Mb	DSDD
	1157C	5.25	Half	1.2Mb	DSDD
	1158C	5.25	1/3	1.2Mb	DSHD
	1165A	8.00	Half	1.6Mb	DSDD
	1165FQ	8.00	Half	1.6Mb	DSDD
	5138A	3.50	1/3	1.44Mb	DSHD
	FD1035	3.50	Half	720kb	DSDD
	FD1138H	3.50	.75"	1.44Mb	DSHD
	FD1139H	3.50	0.6"	1.44Mb	DSHD
	FD1148H	3.50	0.78"	1.44Mb	DSHD
	FD1165F	8.00	Half	1.6Mb	DSDD
	FD1165H	8.00	Half	1.6Mb	DSDD
	FD1165S	8.00	Half	1.6Mb	DSDD
	FD1177C	5.25	1.6"	1.2Mb	DSHD
	FD1231H	3.50	1.0"	1.44Mb	DSHD
	FD1238H	3.50	0.5"	1.44Mb	DSHD
	FD1335H	3.50	1.0"	1.44Mb	DSHD
	FD5839H	5.25/3.5	1.63"	1.2/1.44Mb	DUAL
Newtronic	D357	3.50	1/3	720kb	DSDD
Okidata	3305	5.25	Half	360kb	DSDD
	3305BU	5.25	1/3	360kb	DSDD
	3305U	5.25	Half	360kb	DSDD
	3315B	5.25	Half	360kb	DSDD
Olivetti	4311	5.25	Half	360kb	DSDD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Olivetti (cont.)	4311-3	5.25	Half	360kb	DSDD
Pacific Rim	U1.2	5.25	Half	1.2Mb	DSHD
	U1.44	3.50		1.44Mb	DSHD
	U4	3.50	1.0"	2.88Mb	DSHD
	U720	3.50		720kb	DSHD
	U360	5.25	Half	360kb	DSDD
Panasonic	253	3.50	1/3	720kb	DSDD
	257	3.50	1/3	1.44Mb	DSHD
	257 W/FAME	3.50	1/3	1.44Mb	DSHD
	455	5.25	Half	360kb	DSDD
	465	5.25	Half	720kb	DSDD
	475	5.25	Half	1.2Mb	DSDD
	551	5.25	Half	360kb	DSDD
	595	5.25	Half	1.2Mb	DSDD
Persci	277(6N)	8.00	Full	1.2Mb	SSDD
	299	8.00	Full	2.0Mb	SSDD
Pertec	FD200	5.25	Full	180kb	SSDD
	FD250	5.25	Full	360kb	SSDD
	FD400	8.00	Full	800Kb	SSDD
	FD410	8.00	Full	800kb	SSDD
	FD500	8.00	Full	800kb	SSDD
	FD510	8.00	Full	800kb	SSDD
	FD511	8.00	Full	800kb	SSDD
	FD514-U2	8.00	Full	800kb	SSDD
	FD650	8.00	Full	1.6Mb	SSDD
Phillips	3121		Half	360kb	SSDD
	3132	5.25	Half	360kb	DSDD
	3133	5.25	Half	720kb	DSDD
	3134	5.25	Half	1.0Mb	DSDD
Qume	142	5.25	Half	360kb	DSDD
	242	8.00	Full	1.6Mb	DSDD
	542	5.25	Full	360kb	DSDD
	841	8.00	Full	800kb	DSDD
	842	8.00	Full	1.6Mb	DSDD
	DT/5	5.25	Full	360kb	DSDD
	DT/8	8.00	Full	1.6Mb	DSDD
Remex	RFD 2000	8.00	Full	800kb	SSDD
	RFD 4000	8.00	Full	1.6Mb	SSDD
	RFD 480	5.25	Half	360kb	DSDD
Richoh	5100	5.25	Half	720kb	DSDD
	RF8160	8.00	Half	1.6Mb	DSDD
Samsung	SFD500K	5.25	Half	360kb	DSDD
	SFD-560DT	5.25	Half	1.2Mb	DSHD
	SFD-321DT	3.50	Half	1.44Mb	DSHD
Sanyo	500C	5.25	Half	360kb	DSDD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Sanyo (cont.)	FDA5200	5.25	Half	360kb	DSDD
Seiko	8640	5.25	Full	640kb	DSDD
Shugart	SA200	5.25	Half	180kb	SSDD
	SA210	5.25	Half	360kb	SSDD
	SA215	5.25	Half	180kb	SSDD
	SA300	3.50	Half	360kb	SSDD
	SA390	5.25	Full	180kb	SSDD
	SA400	5.25	Full	180kb	SSDD
	SA400L	5.25	Full	180kb	SSDD
	SA410	5.25	Full	360kb	SSDD
	SA450	5.25	Full	360kb	SSDD
	SA455	5.25	Full	360kb	SSDD
	SA460	5.25	Full	720kb	SSDD
	SA465	5.25	Half	720kb	SSDD
	SA475	5.25	Half	1.2Mb	SSDD
	SA551	5.25	Half	360kb	SSDD
	SA561	5.25	Half	720kb	SSDD
	SA800-1	8.00	Full	800kb	SSDD
	SA800-1R	8.00	Full	800kb	SSDD
	SA800-2	8.00	Full	800k	SSDD
	SA800-2R	8.00	Full	800kb	SSDD
	SA800-4	8.00	Full	800kb	SSDD
	SA801	8.00	Full	800kb	SSDD
	SA801-R	8.00	Full	800kb	SSDD
	SA810	8.00	Half	800kb	SSDD
	SA850	8.00	Full	1.6Mb	SSDD
	SA850R	8.00	Full	1.6Mb	SSDD
	SA851	8.00	Full	1.6Mb	SSDD
	SA851R	8.00	Full	1.6Mb	SSDD
	SA860	8.00	Full	1.6Mb	SSDD
	SA860-1	8.00	Half	1.6Mb	SSDD
	SA900-1	8.00	Full	800kb	SSDD
	SA901	8.00	Full	800kb	SSDD
Siemens	FDD100-5	5.25	Full	180kb	SSDD
	FDD100-8	8.00	Full	800kb	SSDD
	FDD220-8	8.00	Full	800kb	SSDD
	FDD121-5	5.25	Full	360kb	SSDD
	FDD196-5	5.25	Full	360kb	SSDD
	FDD221-5	5.25	Full	360kb	SSDD
Sony	120-04	3.50	1/3	1.44Mb	DSHD
	17W	3.50	1/3	1.44Mb	DSHD
	17W-5PF	3.50	1/3	1.44Mb	DSHD
	17W-10W51/4	3.50	1/3	1.44Mb	DSHD
	17W-34W51/4	3.50	1/3	1.44Mb	DSHD
	17W-42W51/4	3.50	1/3	1.44Mb	DSHD
	17W-90	3.50	1/3	1.44Mb	DSHD
	17W-WFP	3.50	1/3	1.44Mb	DSHD
	40W-00(P52)	3.50	1/3	2.88Mb	DSHD
	40W-9E	3.50	1/3	2.88Mb	DSHD
	420-6	3.50	1/3	1.44Mb	DSHD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Sony (cont.)	53	3.50	1/3	1.44Mb	DSHD
	53W	3.50	1/3	720kb	DSQD
	63W	3.50	1/3	720kb	DSQD
	73W	3.50	3/4	1.44Mb	DSHD
	73W-34D/W51/4	3.50	3/4	1.44Mb	DSHD
	77W(PS2)	3.50	1/3	1.44Mb	DSHD
	MFD51W	3.50	1/3	800kb	DSQD
Tandon.....	TM100-1A	5.25	Full	180kb	SSDD
	TM100-2A	5.25	Full	360kb	SSDD
	TM100-3	5.25	Full	360kb	SSQD
	TM100-3M	5.25	Full	360kb	SSQD
	TM100-4	5.25	Full	720kb	DSQD
	TM100-4A	5.25	Full	720kb	DSQD
	TM101-2	5.25	Full	360kb	DSQD
	TM101-3	5.25	Full	360kb	DSQD
	TM101-4	5.25	Full	720kb	DSQD
	TM50-1	5.25	Half	180kb	SSDD
	TM50-2	5.25	Half	360kb	DSQD
	TM55-1	5.25	Half	180kb	SSDD
	TM55-2	5.25	Half	360kb	DSQD
	TM55-4	5.25	Half	720kb	DSQD
	TM65-1L	5.25	Half	180kb	SSDD
	TM65-2L	5.25	Half	360kb	DSQD
	TM65-4	5.25	Half	720kb	DSQD
	TM65-8	5.25	Half	1.2Mb	DSQD
	TM75-2	5.25	Half	360kb	DSQD
	TM75-8	5.25	Half	1.2Mb	DSQD
	TM848-1	8.00	Half	800kb	SSDD
	TM848-1E	8.00	Half	800kb	SSDD
	TM848-2	8.00	Half	1.6Mb	DSQD
	TM848-2E	8.00	Half	1.6Mb	DSQD
	TM965-2	5.25	Full	360kb	DSQD
Teac.....	35F	3.50	Half	720kb	DSQD
	35FN	3.50	Half	720kb	DSQD
	35HFN	3.50	1/3	1.44Mb	DSHD
	50A	5.25	Full	180kb	SSDD
	53B	5.25	Half	360kb	DSQD
	54B	5.25	Half	360kb	DSQD
	55A	5.25	Half	180kb	SSDD
	55B	5.25	Half	360kb	DSQD
	55BR	5.25	Half	360kb	DSQD
	55BV	5.25	Half	360kb	DSQD
	55E	5.25	Half	360kb	DSQD
	55FR	5.25	Half	720kb	DSQD
	55FV	5.25	Half	720kb	DSQD
	55G	5.25	Half	1.2Mb	DSQD
	55GFR	5.25	Half	1.2Mb	DSQD
	55GR	5.25	Half	1.2Mb	DSHD
	55GS (SCSI)	5.25	Half	1.2Mb	DSHD
	55GV	5.25	Half	1.2Mb	DSQD
	55GVF	5.25	Half	1.2Mb	DSQD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Teac (cont.)	135FN	3.50	1/3	720kb	DSDD
	135HF	3.50	1/3	1.44Mb	DSHD
	135HFN	3.50	1/3	720kb	DSDD
	235F	3.50	1/3	720kb	DSDD
	235GF	3.50	1.0"	1.6Mb	DSDD
	235HF	3.50	1/3	1.44Mb	DSHD
	235HG	3.50	1/3	1.44Mb	DSHD
	235HS (SCSI)	3.50	1.0"	1.44Mb	DSHD
	235J	3.50	1.0"	2.88Mb	DSEHD
	235JS (SCSI)	3.50	1.0"	2.88Mb	DSEHD
	335F	3.50	0.75"	720kb	DSDD
	335HF	3.50	0.75"	1.4Mb	DSHD
	335HS (SCSI)	3.50	0.75"	1.4Mb	DSHD
	335J	3.50	0.75"	2.88Mb	DSEHD
	335JS (SCSI)	3.50	0.75"	2.88Mb	DSEHD
	505	5.25/3.5	Half	1.2/1.44Mb	DSHD
	05HF-030	3.50	1/3	1.44Mb	DSHD
Tec.....	FB501	5.25	Half	180kb	SSDD
	FB503	5.25	Half	360kb	DSDD
	FB504	5.25	Half	720kb	DSQD
Tecmate.....	1103	5.25	Half	3.3Mb	DSDD
Texas Peripherals	10-5355-001	5.25	Full	180kb	SSDD
Toshiba.....	0202A	5.25	Full	720kb	DSQD
	0242A	5.25	Half	360kb	DSDD
	0401GR	5.25	Half	360kb	DSDD
	0801GR	5.25	Half	1.2Mb	DSDD
	0802GR	5.25	Half	1.2Mb	DSHD
	352TH	3.50	1/3	720kb	DSQD
	352TH	3.50	1/3	720kb	DSQD
	3527TH	3.50	1/3	720kb	DSQD
	3561	3.50	1/3	1.44Mb	DSHD
	3564	3.50	1/3	1.44Mb	DSHD
	3567	3.50	1/3	1.44Mb	DSHD
	4210	3.50	1/3	720kb	DSDD
	4202-AOK	3.50	1/3	720kb	DSDD
	4207-AOK	3.50	1.0"	720kb	DSQD
	4207-AOK	3.50	1/3	720kb	DSDD
	4261	3.50	1/3	720kb	DSQD
	4449-AOZ(PS2)	3.50	Half	720kb	DSQD
	5401	5.25	Half	360kb	DSDD
	5406	5.25	Half	360kb	DSDD
	5426	5.25	Half	360kb	DSDD
	5451	5.25	Half	360kb	DSDD
	5454	5.25	Half	360kb	DSDD
	5471	5.25	Half	360kb	DSDD
	5472	5.25	Half	360kb	DSDD
	5474	5.25	Half	360kb	DSDD
	5629	5.25	Half	720kb	DSQD
	5861	5.25	Half	1.2Mb	DSHD

FLOPPY DRIVE SPECS BY MODEL

Manufacturer	Model Number	Width (Inch)	Height (Inch)	Format Capacity	Media Density
Toshiba (cont.)	5862	5.25	Half	1.2Mb	D5HD
	5863	5.25	Half	1.2Mb	D5HD
	5881	5.25	Half	1.2Mb	D5HD
	5882	5.25	Half	1.2Mb	D5HD
	6371	5.25	Half	360kb	D5DQ
	6374	5.25	Half	360kb	D5DQ
	6471	5.25	Half	360kb	D5DQ
	6474-T2P	5.25	Half	360kb	D5DQ
	6782	5.25	Half	1.2Mb	D5HD
	6784	5.25	Half	1.2Mb	D5HD
	6881	5.25	Half	1.2Mb	D5HD
	6882	5.25	Half	1.2Mb	D5HD
	6890	5.25	Half	1.2Mb	D5HD
	M48D-12	5.25	Half	360kb	D5DQ
	ND-04	5.25	Half	360kb	D5DQ
	ND-08	5.25	Half	1.2Mb	D5HD
	ND-352T,S	3.50	1.0"	720kb	D5HD
	ND-354A	3.50	1.0"	720kb	D5HD
	ND-356	3.50	1/3	1.44Mb	D5HD
	ND-3565-A	3.50	1/3	1.44Mb	D5HD
Victor	PD-3571	3.50	1.0"	2.88Mb	D5HD
	PD-211	3.50	1.0"	2.88Mb	D5HD
Weltec	TM100-3	5.25	Full	360kb	SSDQ
	TM100-4	5.25	Full	720kb	SSDQ
World Storage	M16-A22	5.25	Half	1.0Mb	D5DQ
	M16-P12	5.25	Half	720kb	D5DQ
	M-16-R12	5.25	Half	1.0Mb	D5DQ
	M16-R12/910	5.25	Half	720kb	D5DQ
	M48D-1	5.25	Half	360kb	D5DQ
	M48D-14	5.25	Half	360kb	D5DQ
	N96-12	5.25	Half	720kb	D5DQ
YE-Data	FD100-5	5.25	Full	180kb	SSDQ
	FD100-8	8.00	Full	800kb	SSDQ
	FD200-5	5.25	Full	360kb	D5DQ
	FD200-8	8.00	Full	1.6Mb	D5DQ
3M	YD180	8.00	Half	1.6Mb	D5DQ
	YD280	5.25	Full	720kb	D5DQ
	YD380	5.25	Half	1.2Mb	D5HD
	YD380B	5.25	Half	1.2Mb	D5HD
	YD380C	5.25	Half	1.2Mb	D5HD
	YD580	5.25	Half	360kb	D5DQ
	YD580B	5.25	Half	360kb	D5DQ
	YD701	3.50	1/3	1.44Mb	D5HD
	YD701(PS2)	3.50	1/3	1.44Mb	D5HD

chapter 9

PC Phone Book

The following information has been included in this phone book:

Company Name:State..... Main Phone
Toll Free Phone..... Fax Line..... Tech Support

We ran out of space in the phone book this year so we had to eliminate the Fax on Demand and BBS phone numbers. If you need additional info on companies, Sequoia now publishes a shirt pocket reference book titled **Pocket PC Directory** which contains complete company address, and additional phone numbers such as BBS, Fax on Demand, and Toll Free/900 Tech support numbers. Internet, Web, Compuserve, AOL and Microsoft Network addresses are also included!! See also the Hard Drive and Floppy Drive manufacturers directories on pages 318 and 442 for additional information.

1776 Inc:CA.....Main: (310) 215-1776
Fax:(310) 216-1107 Tech:(310) 215-1776
1st Class Software:ON.....Main: (905) 302-9988
Fax:(905) 608-2422
1st Tech Corp:TX.....Main: (512) 258-3570
TFree:(800) 533-1744 Fax:(512) 258-3689 Tech:(512) 258-3570
20/20 Software:OR.....Main: (503) 520-0504
TFree:(800) 735-2020 Fax:(503) 520-9118 Tech:(503) 520-0504
3Com Corp:CA.....Main: (408) 764-5000
TFree:(800) 876-3266 Fax:(408) 764-5001 Tech:(800) 766-3266
3D Visions (see Visual Numerics):
3DLabs, Inc:CA.....Main: (408) 436-3455
Fax:(408) 436-3458
3DTV Corp:CA.....Main: (415) 479-3516
Fax:(415) 479-3316
3G Graphics:WA.....Main: (800) 456-0234
TFree:(800) 456-0234 Fax:(206) 771-8975 Tech:(206) 774-3518
3M Data Storage Products Div:MN.....Main: (612) 736-1866
TFree:(800) 854-0033 Fax:(800) 437-6264 Tech:(800) 328-9438
3PM Inc:IA.....Main: (319) 393-9322
Fax:(319) 393-8549
4Home Productions:NY.....Main: (800) 773-5445
Fax:(516) 342-5125 Tech:(516) 342-5466
4Q Technologies:CA.....Main: (818) 935-1990
7 Sigma:MN.....Main: (612) 721-4280
Fax:(612) 722-0493

7th Level:TX.....Main: (214) 498-8100
 Fax:(214) 437-2177 Tech:(214) 498-8060
 A & G Graphics Interface Inc:MA.....Main: (617) 492-0120
 Fax:(617) 492-2133
 A.R.S.:VA.....Main: (804) 974-1726
 TFree:(800) 443-5894 Fax:(804) 973-2004
 A4 Tech (USA) Corp:CA.....Main: (909) 468-0071
 Fax:(909) 468-2231 Tech:(909) 468-0071
 Abaco Software, Inc.:NH.....Main: (603) 883-1818
 Fax:(603) 883-2019 Tech:(603) 883-1818
 Abacus Accounting Systems Inc.:CA.....Main: (403) 488-8100
 TFree:(800) 992-0616 Fax:(403) 488-8150 Tech:(403) 488-8100
 Abacus Concepts, Inc.:CA.....Main: (510) 540-1946
 TFree:(800) 666-7828 Fax:(510) 540-0260 Tech:(510) 540-1946
 Abacus Software, Inc.:MI.....Main: (616) 698-0330
 TFree:(800) 451-4319 Fax:(616) 689-0325 Tech:(616) 698-0330
 Abaton (see Everex Systems):.....Main: (805) 966-0810
 TFree:(800) 922-0977 Fax:(805) 966-7659
 Ability Systems Corp:PA.....Main: (215) 657-4338
 Fax:(215) 657-7815
 Able Soft (Out of Business):.....Main: (813) 579-1111
 Abra Cadabra Software:FL.....Main: (813) 579-1111
 TFree:(800) 424-9392 Fax:(813) 578-2178 Tech:(813) 579-1111
 Absort Corp.:MI.....Main: (810) 853-0050
 Fax:(810) 853-0108 Tech:(810) 853-0095
 Absolute Battery Co.:NJ.....Main: (908) 534-1560
 TFree:(800) 829-8296 Fax:(908) 534-1792 Tech:(908) 534-1560
 Abstract Technologies Inc.:TX.....Main: (512) 441-4040
 Fax:(512) 416-0310
 Abudoe Software, Inc.:WA.....Main: (206) 462-8303
 Fax:(206) 462-9265 Tech:(206) 462-8303
 ACC Systems:MD.....Main: (800) 242-0739
 TFree:(800) 242-0739 Fax:(410) 290-8106
 Accent Software International, Ltd.:PA.....Main: (800) 535-5256
 TFree:(800) 535-5216 Fax:(800) 535-5257 Tech:(800) 535-5216
 Access Micro Products (All Amer Semi):CA.....Main: (408) 441-1300
 TFree:(800) 639-4366 Fax:(408) 437-4355 Tech:(800) 639-4366
 Access Software:UT.....Main: (801) 359-2900
 TFree:(800) 800-4880 Fax:(801) 596-9128 Tech:(800) 793-8324
 Access/Visual Basic Advisor:CA.....Main: (619) 483-6400
 TFree:(800) 336-6060 Fax:(619) 483-9851
 AccessData Corp.:UT.....Main: (801) 224-6970
 TFree:(800) 489-5199 Fax:(801) 224-6009 Tech:(800) 489-5199
 Accolade Inc.:CA.....Main: (408) 985-1700
 TFree:(800) 245-7744 Fax:(408) 246-0231 Tech:(408) 296-8401
 Actcon Technology Corp.:CA.....Main: (408) 452-8900
 TFree:(800) 926-9288 Fax:(408) 452-8988 Tech:(800) 926-9288
 Acculogic Inc (ACC Technology Group):CA.....Main: (714) 454-2441
 TFree:(800) 234-7811 Fax:(714) 454-8527 Tech:(714) 454-2441
 Accurate Research, Inc.:CA.....Main: (408) 523-4788
 TFree:(800) 799-8802 Fax:(408) 523-4789 Tech:(408) 523-4788
 Accurite Technologies, Inc.:CA.....Main: (408) 433-1980
 Fax:(408) 433-1716 Tech:(408) 433-1980
 Accurite Technologies, Inc.:CA.....Main: (408) 433-1980
 Fax:(408) 433-1716

Accutek, Inc.:AL.....Main: (205) 586-2885
 Fax:(205) 586-2261
 Acccad Inc:CA.....Main: (408) 655-1900
 TFree:(800) 676-4223 Fax:(408) 655-1919 Tech:(408) 655-9911
 Acer America Corp:CA.....Main: (408) 432-6200
 TFree:(800) 733-2237 Fax:(408) 922-0175 Tech:(800) 445-6495
 Acer Computers:CA.....Main: (408) 432-6200
 Fax:(408) 922-2933
 Acer Sertek Inc.:CA.....Main: (408) 733-3174
 Fax:(408) 733-2569 Tech:(408) 733-3174
 Aces Research, Inc.:CA.....Main: (510) 683-8855
 Fax:(510) 683-8875 Tech:(510) 681-2093
 Aci Us, Inc:CA.....Main: (408) 252-4444
 Fax:(408) 252-0831
 ACL Staticide:IL.....Main: (847) 981-9212
 TFree:(800) 782-8420 Fax:(847) 981-9278 Tech:(708) 981-9212
 Acme Electric Corp:NY.....Main: (716) 968-2400
 TFree:(800) 325-5848 Fax:(716) 968-3948
 Acorn Computers:WA.....Main: (206) 443-8004
 Fax:(206) 443-5838
 ACT Networks, Inc.:CA.....Main: (805) 388-2474
 TFree:(800) 367-2281 Fax:(805) 388-3504
 Action Image Systems Technology, Inc.:NJ.....Main: (908) 232-2166
 Fax:(908) 232-1621 Tech:(908) 232-2166
 Action Technologies Inc:CA.....Main: (510) 521-6190
 TFree:(800) 967-5356 Fax:(510) 769-0596
 Active Voice Corporation:WA.....Main: (206) 441-4700
 Fax:(206) 441-4784
 Activision:CA.....Main: (310) 473-9200
 TFree:(800) 477-3650 Fax:(310) 479-7355 Tech:(310) 479-5644
 Actix Systems, Inc:CA.....Main: (408) 986-1625
 TFree:(800) 927-5557 Fax:(408) 986-1646 Tech:(408) 986-1625
 Adaptec Inc.:CA.....Main: (408) 945-8600
 TFree:(800) 959-7274 Fax:(408) 262-2533 Tech:(408) 934-7274
 Adaptiv Software Corp.:CA.....Main: (714) 789-7300
 TFree:(800) 598-1222 Fax:(714) 789-7320 Tech:(714) 789-7311
 Adaptive Solutions Inc.:OR.....Main: (503) 690-1236
 TFree:(800) 482-6277 Fax:(503) 690-1249
 Adax, Inc.:CA.....Main: (510) 548-7047
 Fax:(510) 548-5526
 ADC Fiberlux Corp:CA.....Main: (818) 709-6000
 TFree:(800) 800-4624 Fax:(818) 725-2660 Tech:(800) 342-3768
 ADC Kentrox:OR.....Main: (503) 643-1681
 TFree:(800) 733-5511 Fax:(503) 641-3341 Tech:(800) 733-5511
 ADC Kentrox:OR.....Main: (503) 643-1681
 TFree:(800) 232-5879 Fax:(503) 641-3341 Tech:(800) 733-5511
 Addison-Wesley Publishing Co:CA.....Main: (617) 944-3700
 TFree:(800) 447-2226 Fax:(617) 944-9338
 Adept Computer Solutions, Inc.:CA.....Main: (619) 270-4900
 TFree:(800) 578-6277
 ADI Systems, Inc.:CA.....Main: (408) 944-0100
 TFree:(800) 228-0530 Fax:(408) 944-0300 Tech:(408) 944-0100
 Adobe Systems, Inc (Mac):CA.....Main: (415) 961-4400
 TFree:(800) 833-6687 Fax:(415) 961-3769
 Adobe Systems, Inc (PC):CA.....Main: (415) 961-4400
 TFree:(800) 447-3577 Fax:(415) 961-3769

Adtran:AL.....Main: (205) 971-8000
TFree: (800) 971-8000 Fax: (205) 971-7941 Tech: (205) 971-8716

Advance Media:CA.....Main: (714) 965-7122
TFree: (800) 292-4264 Fax: (714) 957-5977 Tech: (714) 957-1616

Advanced Digital Information (ADIC):WA.....Main: (206) 881-8004
TFree: (800) 336-1233 Fax: (206) 881-2296 Tech: (206) 883-4357

Advanced Digital Systems:CA.....Main: (310) 926-4357
TFree: (800) 888-5244 Fax: (310) 926-0518 Tech: (310) 926-4338

Advanced Graphics Software, Inc.:CA.....Main: (619) 931-1919
TFree: (800) 795-4754 Fax: (619) 931-9313

Advanced Gravis Computer Tech Ltd:BC.....Main: (604) 431-5020
TFree: (800) 663-8558 Fax: (604) 431-5155 Tech: (604) 431-1807

Advanced Logic Research (see ALR):

Advanced Logic Research Inc.:CA.....Main: (800) 444-4257
TFree: (800) 444-4257 Fax: (714) 581-9240 Tech: (800) 257-1230

Advanced Matrix Technology, Inc.:CA.....Main: (805) 388-5799
Fax: (805) 484-5282 Tech: (805) 388-5799

Advanced Micro Devices:CA.....Main: (408) 732-2400
TFree: (800) 538-8450 Fax: (800) 222-9323 Tech: (800) 222-9323

Advanced Network Solutions:WA.....Main: (206) 644-6082
TFree: (800) 837-4180 Fax: (206) 222-7622

Advanced RISC Machines, Inc.:CA.....Main: (408) 399-5199
Fax: (408) 399-8854

Advanced Software (see Prairie Group):

Advanced Storage Concepts, Inc.:TX.....Main: (512) 335-1077
Fax: (512) 335-1078

AdvanSys Inc.:CA.....Main: (408) 383-9400
TFree: (800) 525-7443 Fax: (408) 383-9612 Tech: (800) 525-7440

Advantage Memory:CA.....Main: (714) 453-8111
TFree: (800) 245-5299 Fax: (714) 453-8158

AEC Management (see AEC Software):

AEC Software:VA.....Main: (703) 450-1980
TFree: (800) 346-9413 Fax: (703) 450-9786 Tech: (703) 450-2318

Aeronic, Inc.:TX.....Main: (512) 258-2303
Fax: (512) 258-4392 Tech: (512) 258-2303

AG Group, The:CA.....Main: (510) 937-7900
TFree: (800) 466-2447 Fax: (510) 937-2479 Tech: (800) 466-2447

AgData:CA.....Main: (916) 846-6203
TFree: (800) 424-8973 Fax: (508) 694-7896 Tech: (800) 879-2432

Agile Networks, Inc.:MA.....Main: (508) 263-3600
TFree: (800) 286-9526 Fax: (508) 263-5111

Ahead Systems, Inc.:CA.....Main: (510) 623-0900
Fax: (510) 623-0960

Ahern Communications Corp.:MA.....Main: (617) 471-1100
TFree: (800) 451-5067 Fax: (617) 328-9070

Aim Tech:NH.....Main: (603) 883-0220
TFree: (800) 289-2884 Fax: (603) 883-5582 Tech: (800) 801-2884

Aladdin Software Security Inc.:NY.....Main: (212) 564-5678
TFree: (800) 223-4277 Fax: (212) 564-3377

Aladdin Systems Inc.:CA.....Main: (408) 761-6200
Fax: (408) 761-6206 Tech: (408) 761-6200

Alberta Printed Circuits LTD:AL.....Main: (403) 250-3406

Aldus Corporation (see Adobe Systems):

Alexander LAN Inc.:NH.....Main: (603) 880-8800
Fax: (603) 880-8881

Algorithm Inc.:GA.....Main: (770) 232-4951
Fax: (770) 232-4951

Alias Research (see Wavefront):

Alki Software Corp.:WA.....Main: (206) 286-2600
TFree: (800) 669-9673 Fax: (206) 286-2785 Tech: (206) 286-2780

All Components, Inc.:TX.....Main: (214) 233-0203
TFree: (800) 779-0234 Fax: (214) 851-1990 Tech: (214) 233-0203

Allaire Corp.:MA.....Main: (617) 761-2000
Fax: (617) 497-6543 Tech: (617) 761-2121

Allegiant:CA.....Main: (619) 587-0500
TFree: (800) 255-8258 Fax: (619) 587-1314 Tech: (619) 587-0500

Allegro New Media:NJ.....Main: (201) 808-1992
TFree: (800) 424-1992 Fax: (201) 808-2645 Tech: (201) 808-1992

Allegro Systems Ltd:AZ.....Main: (520) 795-6000
Fax: (520) 795-0158

Alliance Research/ORA Elect./Datascap:CA.....Main: (818) 772-2700
TFree: (800) 877-7448 Fax: (818) 718-8626 Tech: (818) 772-2700

Alliant Tech Systems, Inc.:MD.....Main: (410) 266-1700
Fax: (410) 224-0887

Allied Telesyn International (ATI):CA.....Main: (415) 964-2771
TFree: (800) 424-4284 Fax: (408) 736-0100 Tech: (800) 424-4284

AlMicro:FL.....Main: (813) 539-7283
TFree: (800) 653-4933 Fax: (813) 531-0200

Allsop Computer Accessories:WA.....Main: (360) 734-9090
TFree: (800) 426-4303 Fax: (360) 734-9858 Tech: (360) 734-9090

Alltech Electronics:CA.....Main: (714) 453-5011
TFree: (800) 878-5758 Fax: (215) 698-4080 Tech: (800) 878-5758

Almo Distributing (see Almo Corp):

ALOS Micrographics Corporation:NY.....Main: (914) 457-4400
TFree: (800) 431-7105 Fax: (914) 457-9083 Tech: (914) 457-4400

Alpha Software Corp:MA.....Main: (617) 229-2924
TFree: (800) 451-1018 Fax: (617) 272-4876 Tech: (900) 555-2574

AlphaBlox Corp:CA.....Main: (415) 526-1700
Fax: (415) 526-1701

Alpharel Inc.:CA.....Main: (619) 625-3000
TFree: (800) 992-6784 Fax: (619) 546-7671 Tech: (800) 633-6784

Alps Electric, USA:CA.....Main: (408) 432-6000
TFree: (800) 950-2577 Fax: (408) 432-6035 Tech: (800) 449-2577

ALR, Inc. (Advanced Logic Research):CA.....Main: (800) 257-1230
TFree: (800) 257-1230 Fax: (714) 581-9240 Tech: (800) 257-1230

Alsoft:TX.....Main: (713) 353-4090
TFree: (800) 257-6381 Fax: (713) 353-9868 Tech: (713) 353-1510

Alta Technology Corp.:UT.....Main: (801) 562-1010
Fax: (801) 254-2020

Altec Lansing Consumer Prod:PA.....Main: (717) 296-4434
TFree: (800) 648-6663 Fax: (717) 296-2213 Tech: (800) 648-6663

Altex Electronics-Austin:TX.....Main: (512) 832-9131
TFree: (800) 531-5369 Fax: (512) 832-9131

Altex Electronics Corp:TX.....Main: (210) 655-8882
TFree: (800) 531-5369 Fax: (210) 637-3276

Altex Electronics-Dallas:TX.....Main: (214) 386-8882
TFree: (800) 531-5369 Fax: (214) 386-9182

Altex Electronics-Mail Ord:TX.....Main: (210) 637-3200
TFree: (800) 531-5369 Fax: (210) 637-3264

Altex Electronics-San Antonio, TX.....Main: (210) 655-8882
 TFree:(800) 531-5369 Fax:(210) 637-3276
Altsys (see Macromedia):
Alysis:CA.....Main: (415) 566-2263
 TFree:(800) 825-9747 Fax:(415) 928-2896 Tech:(800) 825-9747
Amber Wave Systems:MA.....Main: (508) 266-2900
 Fax:(508) 266-1159
Amcom Corp.:NV.....Main: (702) 261-9992
 TFree:(800) 807-1117 Fax:(702) 261-9230 Tech:(702) 261-9992
Amdahl Corp.:CA.....Main: (408) 746-6000
 TFree:(800) 538-8460
Amdek Corporation:CA.....Main: (408) 473-1200
 TFree:(800) 722-6335 Fax:(408) 922-5729 Tech:(408) 435-2770
America Online:VA.....Main: (703) 448-8700
 TFree:(800) 827-6364 Fax:(703) 883-1509
American Bible Society:NY.....Main: (212) 408-1200
 TFree:(800) 322-4253 Fax:(212) 408-1512 Tech:(212) 408-1200
American Business Info (CDROM Div):NE.....Main: (402) 593-4500
 Fax:(402) 596-0475
American Business System:MA.....Main: (508) 250-9600
 TFree:(800) 356-4034 Fax:(508) 250-8027 Tech:(508) 250-9600
American Covers, Inc.:UT.....Main: (801) 553-0600
 TFree:(800) 228-8987 Fax:(801) 553-1212 Tech:(800) 228-8987
American Cybernetics:AZ.....Main: (602) 968-1945
 TFree:(800) 899-0100 Fax:(602) 966-1654
American Ink Jet Corp:MA.....Main: (508) 670-9200
 Fax:(508) 667-0200 Tech:(508) 670-9200
American Laser Games:NM.....Main: (505) 880-1718
 TFree:(800) 880-1718 Fax:(505) 880-1557 Tech:(505) 880-1718
American Megatrends, Inc.:CA.....Main: (770) 246-8600
 TFree:(800) 828-9264 Fax:(770) 246-8790 Tech:(770) 246-8645
American MPC Research:CA.....Main: (310) 801-0108
 Fax:(310) 801-0138 Tech:(310) 801-0108
American Ntl Standards Institute:NY.....Main: (212) 642-4900
 Fax:(212) 398-0023
American On-Line, Ventana Press:NC.....Main: (919) 942-0220
 Fax:(919) 544-9472 Tech:(800) 209-3342
American Power Conversion Corp:RI.....Main: (401) 789-5735
 TFree:(800) 541-8896 Fax:(401) 789-3180 Tech:(800) 800-4272
American Small Bus Computer (see Viagraphix):
AmeriQuest Technologies, Inc.:CA.....Main: (714) 437-0099
 TFree:(800) 555-1671 Fax:(800) 222-6081 Tech:(714) 437-0099
AmeriQuest/NCD:FL.....Main: (305) 967-2397
 TFree:(800) 255-4489 Fax:(305) 967-1143
Amicus Networks Inc.:TX.....Main: (512) 418-8828
 Fax:(512) 418-8829
AMP, Inc.:PA.....Main: (717) 986-7777
 TFree:(800) 522-6752 Fax:(717) 986-7575
Ampex Corp:CA.....Main: (415) 367-2685
 Tech:(415) 367-2685
AMS, Inc.:CA.....Main: (818) 814-8851
 TFree:(800) 886-2671 Fax:(818) 814-0782 Tech:(800) 886-3536
Amtext Software Corporation:ON.....Main: (613) 967-7900
 TFree:(800) 810-7345 Fax:(613) 967-7902 Tech:(613) 967-7900
ANA Tech:CO.....Main: (303) 973-6722
 Fax:(303) 973-7092

Analog Devices, Inc.:MA.....Main: (617) 329-4700
 TFree:(800) 426-2564 Fax:(617) 461-3091 Tech:(800) 426-2564
Anawave Software Inc:CA.....Main: (714) 250-7262
 TFree:(800) 711-6030 Fax:(714) 250-7265 Tech:(714) 250-7263
Ancom Inc.:CA.....Main: (714) 692-8899
 Fax:(714) 692-0958 Tech:(714) 692-8899
Andatacom On-The-Net:CA.....Main: (619) 453-9191
 TFree:(800) 334-9191 Fax:(619) 453-9294 Tech:(619) 453-9809
Anderson Investor's Software Inc.:MO.....Main: (314) 862-4801
 TFree:(800) 286-4106 Fax:(314) 863-4730
Andromeda Research:OH.....Main: (513) 831-9708
 Fax:(513) 831-7562
Andyne Computing Limited:ON.....Main: (613) 548-4355
 Fax:(613) 548-7801
ANGOSS Software International:ON.....Main: (616) 593-1122
 Fax:(416) 593-5077 Tech:(416) 593-1122
AniCom Inc.:NC.....Main: (919) 967-2890
 TFree:(800) 949-4559 Fax:(919) 933-9503
Annabooks:CA.....Main: (619) 673-0870
 TFree:(800) 462-1042 Fax:(619) 673-1432
Ansoft Corp.:PA.....Main: (412) 261-3200
 Fax:(412) 471-9427
Antec, Inc.:CA.....Main: (510) 770-1200
 Fax:(510) 770-1288 Tech:(510) 770-9590
Anthem Technology Systems:CA.....Main: (408) 453-1200
 TFree:(800) 359-3580 Fax:(408) 441-4503
Anvil Cases:CA.....Main: (818) 968-4100
 TFree:(800) 359-2684 Fax:(818) 968-1703
Apertus Technologies Inc.:MN.....Main: (612) 828-0300
 TFree:(800) 328-3998 Fax:(612) 828-0454
Apex Data Inc:CA.....Main: (510) 623-1231
 TFree:(800) 841-2739 Fax:(510) 249-1600 Tech:(510) 249-1605
APEX Software Corp:PA.....Main: (412) 681-4343
 TFree:(800) 858-2739 Fax:(412) 681-4384 Tech:(412) 681-4378
Apogee Software Inc:CA.....Main: (408) 369-9001
 TFree:(800) 854-6705 Fax:(408) 369-9018
Apple Computer Inc.:CA.....Main: (408) 996-1010
 TFree:(800) 538-9696 Fax:(408) 974-9976 Tech:(800) 919-2775
Applications Techniques Inc:MA.....Main: (508) 433-5201
 TFree:(800) 433-5201 Fax:(508) 433-8466 Tech:(508) 433-8464
Applied Computer Systems:CA.....Main: (408) 739-8676
 Fax:(408) 739-7169
Applied Microsystems Corp:WA.....Main: (206) 882-2000
 TFree:(800) 426-3925 Fax:(206) 883-3049 Tech:(800) 275-4262
Applied Optical Media:PA.....Main: (610) 429-3701
 TFree:(800) 321-7259 Fax:(610) 429-3810 Tech:(800) 321-7259
Applix, Inc:MA.....Main: (508) 870-0300
 TFree:(800) 827-7549 Fax:(508) 366-9313 Tech:(800) 827-7549
Approach Software (see Lotus Develop.):
APS Technologies:MO.....Main: (800) 235-8935
 TFree:(800) 235-8935 Tech:(816) 483-6200
Apsylog, Inc.:CA.....Main: (415) 812-7700
 TFree:(800) 277-9564 Fax:(415) 812-7700 Tech:(415) 812-7700
AR Industries (CP+):CA.....Main: (714) 418-1400
 TFree:(800) 274-4277 Fax:(714) 839-6282 Tech:(800) 274-4277

Arabesque Software (see NetManagement):
Arcade Software:FL Main: (407) 333-7500
 Fax:(407) 333-7730 Tech:(800) 227-2232
Archetype Interactive:CA Main: (510) 849-4045
 Fax:(510) 849-4046 Tech:(510) 849-4045
Archive Software (see Conner Peripherals):
Arco Computer Products, Inc.:FL Main: (305) 925-2688
 Fax:(305) 925-2889 Tech:(305) 925-2688
Areal Technology, Inc:CA Main: (408) 241-8290
 Fax:(408) 436-6844 Tech:(408) 241-8290
Ares Software:CA Main: (415) 578-9090
 TFree:(800) 783-2737 Fax:(415) 378-8999 Tech:(415) 578-9090
Argent Software:TX Main: (860) 489-5553
 Tech:(512) 327-9814
Arista Enterprises:NY Main: (516) 435-0200
 TFree:(800) 274-7824 Fax:(516) 435-4545 Tech:(800) 274-7824
Aristo Computers Inc:OR Main: (503) 626-6333
 TFree:(800) 327-4786 Fax:(503) 626-6492
Aristosoft Inc:CA Main: (510) 426-5355
 TFree:(800) 338-2629 Fax:(510) 426-6703 Tech:(510) 426-7763
Arnet Corp (See Digi International):
Arrow Electronics, Inc:NY Main: (516) 391-1300
 TFree:(800) 932-7769 Fax:(516) 391-1640
Arrowfield International, Inc:CA Main: (714) 669-0101
 TFree:(800) 227-9628 Fax:(714) 669-0526
Ars Nova Software:WA Main: (206) 828-8174
 TFree:(800) 445-4866 Fax:(206) 828-2132 Tech:(206) 828-2711
Artecon, Inc.:CA Main: (619) 931-5500
 TFree:(800) 833-2783 Fax:(619) 931-5527
Articulate Systems:MA Main: (617) 935-5656
 TFree:(800) 443-7077 Fax:(617) 935-0490 Tech:(617) 935-2220
Artissoft, Inc:AZ Main: (520) 670-7000
 TFree:(800) 846-9726 Fax:(520) 670-7107 Tech:(520) 670-7000
Artist Graphics, Inc.:MN Main: (612) 631-7800
 TFree:(800) 627-8478 Fax:(612) 631-7802 Tech:(612) 631-7800
Asante Technologies:CA Main: (408) 435-8388
 TFree:(800) 662-9686 Fax:(408) 432-7511 Tech:(800) 622-7464
Ascend Communications:CA Main: (510) 769-6001
 TFree:(800) 621-9578 Fax:(415) 688-4343 Tech:(800) 272-3634
ASCII Group Inc., The:MD Main: (301) 718-2600
 Fax:(301) 718-0435
ASD Software, Inc:CA Main: (909) 624-2594
 Fax:(909) 624-9574 Tech:(909) 624-2594
Ashlar Inc.:CA Main: (408) 746-1800
 TFree:(800) 877-2745 Fax:(408) 746-0749 Tech:(800) 877-2745
Ashton-Tate (see Borland):
ASIC Northwest, Inc.:OR Main: (541) 923-3755
 Fax:(541) 923-8752
AskSam Systems:FL Main: (904) 584-6590
 TFree:(800) 800-1997 Fax:(904) 584-7481 Tech:(904) 584-6590
Aspect Software Engineering (see Microsoft):
Association for Computing Machinery:NY Main: (212) 626-0500
 Fax:(212) 944-1318
AST Research:CA Main: (714) 727-4141
 TFree:(800) 876-4278 Fax:(714) 727-9355 Tech:(800) 727-1278

Astec Standard Power:CA Main: (619) 957-1880
 Fax:(619) 930-0774
Astound Inc.:CA Main: (415) 845-6200
 TFree:(800) 982-9888 Fax:(415) 845-6201 Tech:(905) 862-5292
Astrobyte:CO Main: (303) 861-4861
 Fax:(303) 861-4876
Asus Computer International:CA Main: (408) 474-0567
 Fax:(408) 474-0568
Asymetrix Corp:WA Main: (206) 637-1673
 TFree:(800) 448-6543 Fax:(206) 637-1504 Tech:(206) 637-1600
AT&T Global Information Solutions:OH Main: (800) 746-4722
 TFree:(800) 746-4722 Tech:(800) 831-4314
AT&T National Parts Sales Center:CO Main: (800) 222-7278
 TFree:(800) 222-7278 Fax:(800) 527-4360
Atcom/Info:CA Main: (619) 699-4000
 Fax:(619) 699-4040
ATI Technologies, Inc.:ON Main: (905) 882-2600
 Fax:(905) 882-2620 Tech:(905) 882-2626
ATS Inc.:TX Main: (214) 265-8787
 Fax:(214) 265-1019
Attachmate Corp:WA Main: (206) 644-4010
 TFree:(800) 426-6283 Fax:(206) 747-9924 Tech:(800) 388-3270
Attain:MA Main: (617) 776-1110
 TFree:(800) 925-5615 Fax:(617) 776-1626 Tech:(617) 776-2711
Altair Software:MA Main: (508) 456-3946
 TFree:(800) 456-3966 Fax:(508) 456-8383
AudioNet:TX Main: (214) 748-6660
 Fax:(214) 748-6657
Aura Memories:CA Main: (408) 252-2872
 Fax:(408) 252-2876
Auspex:CA Main: (408) 986-2000
 TFree:(800) 735-3177 Fax:(408) 986-2020 Tech:(408) 986-2000
Autodesk, Inc:CA Main: (415) 507-5000
 TFree:(800) 964-6432 Fax:(415) 507-5100 Tech:(206) 487-2934
Automap (see Microsoft):
AVA Instrumentation Inc.:CA Main: (408) 336-2281
 Fax:(408) 461-1883
Avalan Technology Inc:MA Main: (508) 429-6482
 Fax:(508) 429-3179
Avalon Hill Game (Monarch Avalon):MD Main: (410) 254-9200
 TFree:(800) 999-3222 Fax:(410) 254-0991 Tech:(410) 426-9600
Avantos Performance Systems:CA Main: (510) 654-4600
 TFree:(800) 282-6867 Fax:(510) 654-1276 Tech:(510) 654-4727
Avatar/DCA (see Attachmate):
Avax International:ON Main: (519) 833-2900
 Fax:(519) 833-7469
Avax International:ON Main: (519) 833-2900
 Fax:(519) 833-7469
Avery International:TX Main: (214) 283-9176
 TFree:(800) 252-8379 Tech:(214) 888-2699
Avery Label:CA Main: (818) 969-3311
 TFree:(800) 252-8379 Fax:(818) 969-5262 Tech:(214) 776-2699
Avnet, Inc.:NY Main: (516) 466-7000
 Fax:(516) 466-1203
Award Software International, Inc:CA Main: (415) 968-4433
 Fax:(415) 968-0214 Tech:(415) 968-4433

Axis Communications, Inc.:MA Main: (617) 938-1188
 TFree: (800) 444-2947 Fax: (617) 938-6161
Az-Tech Software:MO Main: (816) 776-2700
 TFree: (800) 227-0644 Fax: (816) 776-8398 Tech: (816) 776-2700
Azerty Inc.:NY Main: (716) 662-0200
 TFree: (800) 888-8080 Fax: (716) 662-7616 Tech: (716) 662-7616
Azure Technologies Inc.:MA Main: (800) 233-3800
 TFree: (800) 233-3800 Fax: (508) 435-0448
B & L Associates Inc.:MA Main: (617) 444-1404
 Fax: (617) 444-5805
Baker & Taylor Entertainment:IL Main: (708) 965-8060
 Fax: (708) 470-7860 Tech: (708) 965-8060
Balboa Software:ON Main: (800) 763-8542
 TFree: (800) 763-8542 Fax: (416) 730-9715 Tech: (416) 730-8980
Baler Software Corp. (see Tech Tools):
Balt, Inc.:TX Main: (817) 697-4953
 TFree: (800) 749-2258 Fax: (817) 697-6258 Tech: (817) 697-4953
Banana Programming:MT Main: (406) 543-1928
 Fax: (406) 549-3522
Banner Blue Software (see Broderbund):
Banyan Systems Inc.:MA Main: (508) 898-1000
 TFree: (800) 222-6926 Fax: (508) 898-1755 Tech: (508) 898-1000
Barbey Electronics:PA Main: (610) 376-7451
 Fax: (610) 372-8622 Tech: (610) 376-7451
BASF Magnetics Corp.:MA Main: (617) 271-4000
 TFree: (800) 343-4600 Fax: (617) 275-9602 Tech: (800) 225-3326
Basic Needs Inc.:CA Main: (619) 738-7020
 TFree: (800) 633-3703 Fax: (619) 738-0515 Tech: (800) 633-3703
Bate Tech Software Inc.:CO Main: (303) 763-8333
 Fax: (303) 763-2783
Battery Express:WV Main: (800) 666-2296
 TFree: (800) 666-2296 Fax: (304) 428-2297 Tech: (304) 428-2296
Battery Technology Inc. (BTI):CA Main: (213) 728-7874
 TFree: (800) 982-8284 Fax: (213) 728-7996 Tech: (800) 982-8284
Bay Networks, Inc.:CA Main: (408) 988-2400
 TFree: (800) 822-9638 Fax: (408) 988-5525 Tech: (800) 252-6926
Bayer Corp. (AGFA Division):NJ Main: (201) 440-2500
 Fax: (201) 440-5733
BayWare Inc.:CA Main: (415) 286-4492
 TFree: (800) 538-8867 Fax: (415) 578-1884 Tech: (415) 286-4488
BBN Inc.:MA Main: (617) 873-2000
 TFree: (800) 472-4565 Fax: (617) 873-5011
BCAM International, Inc.:NY Main: (516) 752-3550
 TFree: (800) 248-3746 Fax: (516) 752-3558
BE Inc.:CA Main: (415) 462-4100
 Fax: (415) 462-4129
Beckman Industrial (see Wavetek):
Belden Wire And Cable:IN Main: (317) 983-5200
 TFree: (800) 235-3361 Fax: (317) 983-5294 Tech: (317) 983-5200
Belkin Components:CA Main: (310) 898-1100
 TFree: (800) 223-5546 Fax: (310) 898-1111 Tech: (800) 223-5546
Belmont Distributing (see Almo Distributing):
Benefit Software Inc.:CA Main: (805) 568-0240
 TFree: (800) 533-1388 Fax: (805) 568-0239
Berkeley Software Design Inc.:CO Main: (719) 593-9445
 TFree: (800) 800-4273 Fax: (719) 598-4238 Tech: (800) 487-2738
Berkeley Systems Inc.:CA Main: (510) 540-5555
 Fax: (510) 849-9426 Tech: (510) 549-2300
Berkshire Products:GA Main: (770) 271-0088
 Fax: (770) 932-0082
Best Data Products, Inc.:CA Main: (818) 773-9600
 Fax: (818) 773-9619 Tech: (818) 773-9600
Best Power:WI Main: (608) 565-7200
 TFree: (800) 356-5794 Fax: (608) 565-2929 Tech: (800) 356-5737
Best Programs Inc.:VA Main: (703) 709-5200
 TFree: (800) 368-2405 Fax: (703) 318-0499 Tech: (800) 331-8514
BestWare, Inc.:NJ Main: (201) 586-2200
 TFree: (800) 322-6962 Fax: (201) 586-8885 Tech: (800) 322-6962
Bethesda Softworks:MD Main: (301) 926-8300
 TFree: (800) 677-0700 Fax: (301) 926-8010 Tech: (301) 963-2002
Beverly Hills Software:CA Main: (310) 358-8311
 Fax: (310) 358-0326
Bible Research Systems:TX Main: (512) 251-7541
 TFree: (800) 423-1228 Fax: (512) 251-4401 Tech: (512) 251-7541
Biblesoft:WA Main: (206) 824-0547
 TFree: (800) 877-0778 Fax: (206) 824-1828 Tech: (206) 870-1463
Bindview:TX Main: (800) 749-8439
 TFree: (800) 749-8439 Fax: (713) 881-9200
BitShop:MD Main: (301) 345-6789
Bitstream Inc.:MA Main: (617) 497-6222
 TFree: (800) 522-3668 Fax: (617) 868-0784 Tech: (617) 497-7514
Bit Base, Inc. (see Santa Fe Software):
Black Belt Systems:MT Main: (406) 367-5513
 TFree: (800) 852-6442 Fax: (406) 367-2329 Tech: (406) 367-5509
Black Box Corporation:PA Main: (412) 746-5530
 Fax: (412) 746-0746 Tech: (412) 746-5565
Black Ice Software, Inc.:NH Main: (603) 673-1019
 Fax: (603) 672-4112 Tech: (603) 673-1019
Blackstar Publishing Company:NY Main: (212) 679-3288
 Fax: (212) 889-2052
Blastronix:CA Main: (209) 795-0738
 Fax: (209) 795-0646
Blue Ribbon Sound Works, The:GA Main: (404) 315-0212
 TFree: (800) 226-0212 Fax: (404) 315-0213 Tech: (404) 315-0212
Blue Willow, Inc.:CO Main: (303) 932-1600
 TFree: (800) 932-1600 Fax: (303) 932-1800
BlueSky Software:CA Main: (619) 459-6365
 TFree: (800) 793-0364 Fax: (619) 459-6366
Bluestone Inc.:NJ Main: (609) 181-4600
 Fax: (609) 727-5077 Tech: (609) 778-7900
BMDP Statistical Software, Inc.:CA Main: (310) 207-8800
 TFree: (800) 238-2637 Fax: (310) 207-8844 Tech: (310) 207-8800
Boardwatch Magazine:CO Main: (303) 973-6038
 Fax: (303) 973-3731
Boca Research:FL Main: (407) 997-9683
 Fax: (407) 994-5848 Tech: (407) 241-8088
Boffin Limited:MN Main: (612) 894-0595
 Fax: (612) 894-6175
BookMaker Corp.:CA Main: (415) 354-8160
 TFree: (800) 766-8531 Fax: (415) 856-4734 Tech: (415) 354-8166

Borland International:CA.....Main: (408) 431-1000
C++ DOS (900 Advisor).....Main: (900) 555-1004
C++ DOS (Credit Card Advisor).....Main: (800) 368-3366
C++ Installation.....Main: (408) 461-9133
C++ OS/2 (900 Advisor).....Main: (900) 555-1005
C++ OS/2 (Credit Card Advisor).....Main: (800) 437-8884
C++ WIN (900 Advisor).....Main: (900) 555-1005
C++ WIN (Credit Card Advisor).....Main: (800) 782-5552
Customer Service.....Main: (510) 354-3828
D-Base DOS (Credit Card Advisor).....Main: (800) 368-9222
D-Base DOS Installation.....Main: (408) 431-9060
D-Base for DOS (900 Advisor).....Main: (900) 555-1003
D-Base WIN (900 Advisor).....Main: (900) 555-1003
D-Base WIN (Credit Card Advisor).....Main: (800) 285-1119
D-Base WIN Installation.....Main: (408) 461-9110
Database Engine Installation.....Main: (408) 461-9123
Database Engine Support.....Main: (800) 839-9777
Delphi (900 Advisor).....Main: (900) 555-1015
Delphi (Credit Card Advisor).....Main: (800) 330-3372
Delphi Installation.....Main: (408) 461-9195
Local Interbase Server (900 Advisor).....Main: (900) 555-1013
Local Interbase Server (Credit Card Adv.).....Main: (800) 819-8881
Local Interbase Server Installation.....Main: (408) 461-9189
Paradox DOS (900 Advisor).....Main: (900) 555-1000
Paradox DOS (Credit Card Advisor).....Main: (800) 468-9990
Paradox DOS Installation.....Main: (408) 461-9155
Paradox WIN (900 Advisor).....Main: (900) 555-1006
Paradox WIN (Credit Card Advisor).....Main: (800) 452-1333
Paradox WIN Installation.....Main: (408) 461-9166
Pascal (900 Advisor).....Main: (900) 555-1007
Pascal (Credit Card Advisor).....Main: (800) 344-2266
Pascal Installation.....Main: (408) 461-9177
ReportSmith (900 Advisor).....Main: (900) 555-1011
ReportSmith (Credit Card Advisor).....Main: (800) 673-2288
ReportSmith Installation.....Main: (408) 461-9150
Boston Computer Exchange:MA.....Main: (617) 542-4414
 TFree: (800) 262-6399 Fax: (617) 542-8849 Tech: (617) 542-4414
Bottom Line Industries Inc:CA.....Main: (818) 700-1922
 TFree: (800) 344-6044 Fax: (818) 700-4549 Tech: (818) 700-1922
Bourbaki Inc:ID.....Main: (208) 342-5849
 TFree: (800) 289-1347 Fax: (208) 342-5823 Tech: (208) 342-5849
Box Hill Systems Corp.:NY.....Main: (212) 989-4455
 TFree: (800) 727-3863 Fax: (212) 989-6817
Boxer Software:AZ.....Main: (602) 485-1635
 TFree: (800) 982-6937 Fax: (602) 485-1636
BradyGames:IN.....Main: (317) 581-3500
 TFree: (800) 545-5914 Fax: (317) 581-4596 Tech: (317) 581-3500
Brain-Storm Technologies Inc.:CA.....Main: (818) 760-7974
 TFree: (800) 289-7974 Tech: (818) 760-7974
Breakthrough Technologies Inc:AZ.....Main: (602) 258-2715
 TFree: (800) 323-1809 Fax: (602) 258-2805
Brightwork Development (see MacAvee)
Brilliance Labs Inc.:FL.....Main: (352) 936-5909
BroadVision:CA.....Main: (415) 943-3600
 Fax: (415) 943-3699

Broderbund Software Inc:CA.....Main: (415) 382-4400
 TFree: (800) 521-6263 Fax: (415) 382-4419 Tech: (415) 382-4700
Brother International:NJ.....Main: (908) 356-8880
 TFree: (800) 284-4357 Fax: (800) 947-1445 Tech: (901) 373-6256
Dealer parts.....Main: (901) 373-6371
Fax Service.....Main: (800) 284-4329
Printer service.....Main: (800) 276-7746
Word Processor Service.....Main: (901) 373-6256
BTG, Inc.:VA.....Main: (703) 556-9290
 TFree: (800) 899-6200 Fax: (703) 556-9290
Buerg Software And Computers:CA.....Main: (707) 769-5477
 Fax: (707) 769-5479
Buffalo Creek Software:IA.....Main: (515) 225-9552
Buffalo Inc:OR.....Main: (503) 585-3414
 TFree: (800) 345-2356 Fax: (503) 585-4505 Tech: (503) 585-4174
Bulldog Computer Products:IL.....Main: (800) 438-6039
Bureau of Electronic Publishing (see Thynx):
Burr-Brown Corp:AZ.....Main: (520) 746-1111
 TFree: (800) 227-3947 Fax: (520) 746-7401 Tech: (800) 548-6132
Business Resource Software, Inc:TX.....Main: (512) 251-7541
 TFree: (800) 423-1228 Fax: (512) 251-4401 Tech: (512) 251-7541
BusLogic Inc:CA.....Main: (408) 492-9090
 Fax: (408) 492-9118 Tech: (408) 492-9090
Button Ware Inc (see Outlook Software):
BYTE Magazine:NH.....Main: (603) 924-9281
 Fax: (603) 924-2550
C H Products:CA.....Main: (619) 598-2518
 TFree: (800) 624-5804 Fax: (619) 598-2524 Tech: (619) 598-2518
C H Products (Joystick Tech.):CA.....Main: (619) 598-2518
 TFree: (800) 624-5804 Fax: (619) 598-2524 Tech: (619) 598-2518
C-Star Technology:MN.....Main: (612) 943-1565
 Fax: (612) 943-0291
Cable Connection:CA.....Main: (408) 395-6700
 Fax: (408) 354-3980
Cables To Go:OH.....Main: (513) 275-0886
 TFree: (800) 826-7904 Fax: (800) 331-2841 Tech: (513) 275-0886
Cabletron Systems Inc:NH.....Main: (603) 332-9400
 Fax: (603) 337-2211 Tech: (603) 332-9400
Cactus Development Company, Inc:TX.....Main: (512) 453-2244
 TFree: (800) 336-9444 Fax: (512) 453-3757 Tech: (512) 453-2244
Cadix International Inc:GA.....Main: (770) 804-9951
 Fax: (770) 804-9949 Tech: (770) 804-9951
CADRE Technologies (see Cayenne Software):
Caere Corp:CA.....Main: (408) 395-7000
 TFree: (800) 535-7226 Fax: (408) 354-2743 Tech: (408) 395-8319
Cake Walk Music Software:MA.....Main: (617) 926-2480
 TFree: (800) 234-1171 Fax: (617) 924-6657 Tech: (617) 924-6275
Cal-Abco:CA.....Main: (818) 704-9100
 TFree: (800) 669-2226 Fax: (818) 704-7733 Tech: (800) 473-8325
CalComp Inc.:CA.....Main: (714) 821-2000
 TFree: (800) 225-2667 Fax: (714) 821-2832 Tech: (800) 458-5888
Calculus, Inc:CA.....Main: (415) 854-3130
 Fax: (415) 854-1248
Caldera, Inc:UT.....Main: (801) 377-7687
 TFree: (800) 850-7779 Fax: (801) 377-8752 Tech: (801) 377-7687

Calera Recognition Systems (see Caere):

Caligari Corporation:CA Main: (415) 390-9600
TFree:(800) 351-7620 Fax:(415) 390-9755 Tech:(415) 390-9600

Caliper Corporation:MA Main: (617) 527-4700
Fax:(617) 527-5113 Tech:(617) 527-4700

Cambrix Publishing:CA Main: (818) 992-8484
TFree:(800) 992-8781 Fax:(818) 992-8781 Tech:(818) 992-8484

Camelot Corporation:TX Main: (214) 733-3005
TFree:(800) 528-7822 Fax:(214) 733-0574 Tech:(214) 733-3005

Camintonn/Z-Ram:CA Main: (714) 454-1500
TFree:(800) 368-4726 Fax:(714) 830-4726 Tech:(714) 454-1500

Campbell Services Inc:MI Main: (810) 559-5955
TFree:(800) 559-5955 Fax:(810) 559-1034 Tech:(900) 454-8324

Canon Business Machines Inc:CA Main: (714) 556-4700

Canon Computer Systems, Inc:CA Main: (714) 438-3099
TFree:(800) 423-2366 Fax:(714) 438-3099 Tech:(800) 423-2366

Canon Financial Services, Inc:NJ Main: (609) 387-8585

Canon Information Systems, Inc:CA Main: (714) 438-7100

Canon Research Center America Inc:CA Main: (415) 354-1200

Canon Software America Inc:NY Main: (516) 228-7070

Canon Trading USA, Inc:CA Main: (714) 753-4170

Canon USA, Inc:NY Main: (516) 488-6700
Fax:(516) 354-5805 Tech:(800) 423-2366

Canon USA, Inc (E):NJ Main: (908) 521-7000
TFree:(800) 221-3333 Tech:(908) 521-7000

Canon USA, Inc (E):VA Main: (703) 807-3400
Tech:(703) 807-3400

Canon USA, Inc (Hawaii):HI Main: (808) 522-5930
Tech:(808) 522-5930

Canon USA, Inc (MW):IL Main: (708) 250-6200
Fax:(708) 250-1572 Tech:(708) 250-6200

Canon USA, Inc (S):GA Main: (770) 448-1430
Tech:(770) 448-1430

Canon USA, Inc (SW):TX Main: (214) 830-9600
Tech:(214) 830-9600

Canon USA, Inc (W):CA Main: (714) 753-4002
Tech:(714) 753-4000

Canon USA, Inc (W):CA Main: (408) 982-5200
Tech:(408) 982-5200

... Affiliated Business Solutions, Inc Main: (609) 387-8700

... Ambassador Business Solutions, Inc Main: (708) 706-3400

... Astro Business Solutions, Inc Main: (310) 217-3000

... C S Polymer, Inc Main: (804) 249-5500

... South Tech, Inc Main: (804) 443-8000

Canon Virginia, Inc:VA Main: (804) 881-6000
TFree:(800) 423-2366 Tech:(804) 881-6000

Canyon Software:CA Main: (415) 453-9779
TFree:(800) 280-3691 Fax:(415) 453-6195 Tech:(415) 453-9779

CAP Automation:TX Main: (817) 560-7007
TFree:(800) 826-5009 Fax:(817) 560-8249 Tech:(817) 560-7007

Capital Computing Services:NC Main: (919) 828-7770
Fax:(919) 833-8975

Capsoft Development Corporation:UT Main: (801) 763-3900
TFree:(800) 500-3627 Fax:(801) 763-3999 Tech:(801) 763-3960

Capstone (Intracorp Entertainment):FL Main: (305) 373-7700
Fax:(305) 577-6173 Tech:(305) 373-7770

Caravelle Inc.:ON Main: (613) 225-1172
TFree:(800) 363-5292 Fax:(613) 225-4777

Caravelle Networks Corp:ON Main: (613) 225-1172
Fax:(613) 225-4777 Tech:(613) 225-1172

Cardiff Software, Inc:CA Main: (619) 752-5200
TFree:(800) 659-8755 Fax:(619) 931-4550 Tech:(619) 931-4565

Cardinal Technologies Inc:PA Main: (717) 293-3000
Fax:(717) 293-3055 Tech:(717) 293-3124

Carina Software:CA Main: (510) 355-1266
TFree:(800) 493-8555 Fax:(510) 355-1268 Tech:(510) 838-1487

Cartesia Software:NJ Main: (609) 397-1611
TFree:(800) 334-4291 Fax:(609) 397-5724

Casady & Greene:CA Main: (408) 484-9228
TFree:(800) 359-4920 Fax:(408) 484-9218 Tech:(408) 484-9228

Cascade:MA Main: (508) 692-2600
Fax:(508) 692-9214

Casio Inc:NJ Main: (201) 361-5400
TFree:(800) 634-1895 Fax:(201) 361-3819 Tech:(800) 962-2746

Castelle:CA Main: (408) 496-0474
TFree:(800) 289-7555 Fax:(408) 492-1964 Tech:(408) 496-0474

Cayenne Software, Inc:MA Main: (617) 273-9003
TFree:(800) 528-2388 Fax:(401) 555-6801 Tech:(800) 548-7645

Cayman Systems:MA Main: (617) 279-1101
TFree:(800) 473-4776 Fax:(617) 438-5560 Tech:(617) 279-1101

CCOM Information Systems:NJ Main: (908) 603-7750
Fax:(908) 603-7751

CD Concepts Inc.:IN Main: (317) 651-9848
Fax:(317) 651-1223 Tech:(317) 651-9848

CD Technologies:CA Main: (408) 752-8500
Fax:(408) 752-8501 Tech:(408) 752-8499

CD World Publishing Plus:AZ Main: (602) 839-3031
TFree:(800) 839-1140 Fax:(602) 839-2872 Tech:(602) 839-2847

CD-ROM Direct:MA Main: (617) 332-2445
TFree:(800) 332-2404 Fax:(617) 332-1783

CD-Rom Strategies, Inc.:CA Main: (714) 453-1702
TFree:(800) 454-1702 Fax:(714) 453-1311 Tech:(714) 453-1702

CDB Systems, Inc.:CO Main: (303) 444-7071
Fax:(303) 444-0035 Tech:(303) 444-7071

CE Software:IA Main: (515) 221-1801
TFree:(800) 523-7638 Fax:(515) 221-1806 Tech:(515) 221-1803

Cedar Software:VT Main: (802) 888-5275
Fax:(802) 888-3009

Centerline:MA Main: (617) 498-3000
TFree:(800) 669-2687 Fax:(617) 868-6655

Centigram Communications Corp:CA Main: (408) 944-0250
Fax:(408) 428-3732

Central Data Corp.:IL Main: (217) 359-8010
TFree:(800) 482-0315 Fax:(217) 359-6904

Central Point Software (see Syntec):

Centron Software Inc.:NC Main: (910) 215-5708
TFree:(800) 848-2424 Fax:(910) 692-2173 Tech:(910) 215-5708

Centura Software Corp:CA Main: (415) 321-9500
TFree:(800) 444-8782 Fax:(415) 321-5471 Tech:(415) 321-4484

Century Microelectronics, Inc:CA Main: (408) 748-7788
Fax:(408) 748-8688

Century Software Inc.:UT.....Main: (301) 268-3088
 TFree: (800) 877-3088 Fax: (801) 268-2772 Tech: (800) 877-3088
Certus (see Semantek):
CH Products:CA.....Main: (619) 598-2518
 Fax: (619) 598-2524
Chaco Communications Inc.:CA.....Main: (408) 996-1115
 Fax: (408) 865-0571
Chain Store Guide Information Services:FL Main: (813) 664-6800
 TFree: (800) 927-9292 Fax: (813) 664-6810
Champion Business Systems, Inc.:CO.....Main: (303) 792-3606
 TFree: (800) 243-2626 Fax: (303) 792-0255
Changeling, Inc.:TX.....Main: (512) 419-7085
 TFree: (800) 769-2768 Fax: (512) 419-7288 Tech: (512) 419-7085
Chaplet Systems USA, Inc:CA.....Main: (408) 732-7950
 Fax: (408) 732-6050
Chase Advanced Technologies:CT.....Main: (203) 526-2400
 TFree: (800) 511-3477 Fax: (203) 526-2410 Tech: (203) 526-2400
Chatsworth Products Inc:CA.....Main: (818) 882-8595
 Fax: (818) 718-0473
CheckFree:OH.....Main: (614) 825-3500
 TFree: (800) 882-5280 Tech: (614) 825-3500
CheckMark Software:CO.....Main: (970) 225-0522
 TFree: (800) 444-9222 Fax: (970) 225-0611 Tech: (970) 225-0387
Chemtronics, Inc:CA.....Main: (404) 424-4888
 TFree: (800) 645-5244 Fax: (404) 424-4267 Tech: (800) 424-9300
Cherry Electrical Products:IL.....Main: (708) 662-9200
 Fax: (708) 360-3566
Cheyenne Software Inc:NY.....Main: (516) 465-4000
 TFree: (800) 243-9462 Fax: (516) 484-2489 Tech: (800) 243-9832
Cheyenne Software Inc:CA.....Main: (510) 490-2928
 TFree: (800) 603-0073 Fax: (510) 490-9490 Tech: (510) 490-9470
Chicago Case Co:IL.....Main: (312) 927-1600
 TFree: (800) 927-2602 Fax: (312) 927-2820 Tech: (312) 927-1600
Chicago-Soft Ltd.:NH.....Main: (603) 643-4571
 Fax: (603) 643-4571
Chinon America (Electronic Imaging):NJ.....Main: (908) 654-0404
 TFree: (800) 932-0374 Fax: (908) 654-6656
Chinon America (Info Equipment Div):CA.....Main: (310) 533-0274
 TFree: (800) 441-0222 Fax: (310) 533-1727 Tech: (800) 441-0222
Chipcom Corp (see 3Com Corp):
Chips And Technologies, Inc:CA.....Main: (408) 434-0600
 TFree: (800) 944-6284 Fax: (408) 894-2091
ChipSoft Inc (see Intuit):
Chorus Systems:CA.....Main: (408) 879-4100
 TFree: (800) 972-4678 Fax: (408) 879-4102
Chuck Atkinson Programs (CAP):TX.....Main: (817) 560-7007
 TFree: (800) 826-5009 Fax: (817) 560-8249 Tech: (817) 829-4005
Cipher Data Products (see Overland Data Inc):
Ciprico Inc:MN.....Main: (612) 551-4000
 TFree: (800) 727-4669 Fax: (612) 551-4002 Tech: (612) 551-4131
Cirque Corp.:UT.....Main: (801) 467-1100
 TFree: (800) 454-3375 Fax: (801) 467-0208 Tech: (801) 467-1100
Cirrus Logic, Inc:CA.....Main: (510) 623-8300
 Fax: (510) 252-6020 Tech: (510) 623-8300
Cisco Systems:CA.....Main: (408) 526-4000
 TFree: (800) 553-6387 Fax: (408) 526-4100 Tech: (800) 553-2447
Citizen America Corp:CA.....Main: (310) 453-0614
 TFree: (800) 556-1234 Fax: (310) 453-2814 Tech: (310) 453-0614
Citizen CBM America Corporation:CA.....Main: (310) 209-1233
 TFree: (800) 843-8270 Tech: (310) 440-1399
Citrix Systems, Inc:FL.....Main: (954) 755-0559
 TFree: (800) 437-7503 Fax: (954) 341-6880 Tech: (800) 424-8749
CLARION:MA.....Main: (800) 672-7729
 TFree: (800) 672-7729 Fax: (508) 480-7950 Tech: (800) 344-1314
Clarion Software (see Top Speed Corp):
Claris Corp:CA.....Main: (408) 987-7000
 TFree: (800) 325-2747 Fax: (408) 987-7447 Tech: (408) 727-9004
Clarity Software:CA.....Main: (415) 691-0320
 TFree: (800) 235-6736 Fax: (415) 964-4383
Clark Development Company:UT.....Main: (801) 261-1686
 Fax: (801) 261-8987 Tech: (801) 261-1686
Clary Corp:CA.....Main: (818) 359-4486
 TFree: (800) 442-5279 Fax: (818) 305-0254 Tech: (800) 551-6111
Classic IPO Partners:CA.....Main: (818) 564-8106
 TFree: (800) 370-2746 Fax: (818) 564-8554 Tech: (818) 564-8106
Classic Software, Inc:MI.....Main: (313) 913-8075
 TFree: (800) 677-2952 Fax: (313) 913-4087 Tech: (313) 913-8075
CLEAR Software, Inc:MA.....Main: (617) 965-6755
 TFree: (800) 338-1759 Fax: (617) 965-5310 Tech: (617) 965-5019
Cleo Communications (see Interfact Sys):
Clickable Software:CA.....Main: (415) 456-5582
 Fax: (415) 456-4018
Client/Server Connection:NY.....Main: (914) 241-9100
 Fax: (914) 241-7878
Clipper Products:OH.....Main: (513) 528-7011
 TFree: (800) 543-0324 Fax: (513) 528-7676
CMD Technology Inc:CA.....Main: (714) 454-8000
 TFree: (800) 426-3832 Fax: (714) 454-8314
CMH Software:MT.....Main: (406) 293-3616
 TFree: (800) 680-7638 Fax: (406) 293-5075
CMS Enhancements (see Amerquest Technology):
CNet Technology, Inc:CA.....Main: (408) 954-8000
 TFree: (800) 486-2638 Fax: (408) 954-8866 Tech: (408) 954-8800
Coconut Computing Inc (See ITU Engineering):
Codenoll Technology Corp:NY.....Main: (914) 965-6300
 TFree: (800) 553-7978 Fax: (914) 965-9811 Tech: (914) 965-6300
Cogent Data Tech, Inc. (Adaptec):WA.....Main: (206) 603-0333
 TFree: (800) 426-4368 Fax: (206) 603-9223
CogniTech Corp:CA.....Main: (770) 518-4577
 TFree: (800) 947-5075 Fax: (770) 518-4588 Tech: (770) 518-3285
Cognitronix:CA.....Main: (619) 549-8955
 TFree: (800) 217-0932 Tech: (619) 549-8955
Cognos Inc:MA.....Main: (617) 229-6600
 TFree: (800) 426-4667 Fax: (617) 229-9844
Coleman Research Corp.:FL.....Main: (407) 244-3700
Collabra Software Inc:CA.....Main: (415) 254-1900
 TFree: (800) 474-7427 Fax: (415) 940-6440 Tech: (800) 474-7427
Colorado Memory Systems (HP):CO.....Main: (970) 669-8000
 Fax: (970) 667-0997 Tech: (970) 635-1500
ColorAge, Inc:MA.....Main: (508) 667-8585
 TFree: (800) 437-3336 Fax: (508) 667-8821 Tech: (508) 663-8213

Columbia Data Products Inc.:FL Main: (407) 869-6700
 TFree:(800) 613-6288 Fax:(407) 862-4725
Columbia Power & Data (see Computer Sys):
Com-Kyle Inc.:CA Main: (408) 734-9660
 TFree:(800) 722-1123 Fax:(408) 744-1650
Comark, Inc.:IL Main: (708) 924-6700
 TFree:(800) 888-5390 Fax:(708) 351-7204 Tech:(800) 955-1488
Comfy:CA Main: (408) 865-1777
 TFree:(800) 992-6639 Fax:(408) 865-1877 Tech:(408) 865-1777
Command Communications Inc.:CO Main: (303) 751-7000
 TFree:(800) 288-6794 Fax:(303) 752-1903 Tech:(800) 288-6794
Command Software Systems, Inc.:FL Main: (407) 575-3200
 TFree:(800) 423-9147 Fax:(407) 575-3026 Tech:(407) 575-3200
Common Ground Software:CA Main: (415) 917-2360
 TFree:(800) 598-3821 Fax:(415) 917-2369 Tech:(800) 598-3821
CommTouch Software Inc.:CA Main: (408) 245-8682
 Fax:(408) 245-3466
Compaq Computer Corp.:TX Main: (713) 518-1913
 TFree:(800) 888-5858 Tech:(800) 652-6672
... Customer Service Main: (800) 345-1518
... Enduser Techsupport Main: (800) 652-6672
... Servers Techsupport Main: (800) 386-2172
Compatible Systems Corp.:CO Main: (303) 444-9532
 TFree:(800) 356-0283 Fax:(303) 444-9595 Tech:(800) 356-0283
Compex Technology Inc (see Kenpax):
Compex, Inc.:CA Main: (714) 630-7302
 TFree:(800) 279-8891 Fax:(714) 630-6521 Tech:(714) 630-5451
Compix Media, Inc.:CA Main: (213) 487-8222
 Fax:(213) 487-9251 Tech:(213) 487-3215
Complete PC, The (see Boca Research):
Compsee, Inc.:NC Main: (407) 724-4321
 TFree:(800) 628-3888 Fax:(407) 723-2895 Tech:(407) 724-4321
Compton's NewMedia:CA Main: (800) 862-2206
 Fax:(716) 871-7591 Tech:(800) 893-5458
Compu-Teach:WA Main: (206) 885-0517
 TFree:(800) 448-3224 Fax:(206) 883-9169 Tech:(206) 885-0517
CompuCover Inc.:FL Main: (904) 862-4448
 TFree:(800) 874-6391 Fax:(904) 863-2200
CompuLink Management Center, Inc.:CA Main: (310) 212-5465
 Fax:(310) 212-5064 Tech:(310) 212-5465
CompuMart (James Publishing):TX Main: (214) 238-1133
 TFree:(800) 864-1155 Fax:(214) 238-1132
CompuSA, Inc.:TX Main: (214) 982-4000
 TFree:(800) 266-7872
CompuServe, Inc.:OH Main: (614) 457-8600
 TFree:(800) 848-8199 Tech:(800) 848-8199
Computational Mechanics Inc.:TX Main: (512) 467-0618
 Fax:(512) 467-1382
Computer Associates International, Inc.:NY Main: (516) 342-6000
 TFree:(800) 531-5236 Fax:(516) 342-5329 Tech:(516) 342-6888
Computer Discount Warehouse (CDW):IL Main: (847) 465-6000
 TFree:(800) 400-4239 Fax:(847) 465-7700 Tech:(800) 383-4239
Computer Friends, Inc.:OR Main: (503) 626-2291
 TFree:(800) 547-3303 Fax:(503) 643-5379
Computer Hotline Magazine:TX Main: (214) 233-5131
 TFree:(800) 866-3241

Computer Industry Almanac:NV Main: (702) 749-5053
 TFree:(800) 577-6810 Fax:(702) 749-5864 Tech:(702) 749-5053
Computer Intelligence InfoCorp:CA Main: (619) 450-1667
 Fax:(619) 452-7491
Computer Knacks, Inc.:NJ Main: (908) 530-0262
 TFree:(800) 551-1433 Fax:(908) 741-0972 Tech:(908) 530-0262
Computer Library (Information Access):NY Main: (212) 503-4400
 Fax:(212) 503-4414 Tech:(212) 503-4444
Computer Parts Outlet, Inc.:FL Main: (407) 265-1265
 TFree:(800) 475-1655 Fax:(407) 265-1209 Tech:(407) 265-1655
Computer Parts Unlimited:CA Main: (805) 532-2550
 TFree:(800) 644-4494 Fax:(805) 532-2599
Computer Peripherals Inc.:CA Main: (714) 454-2441
 TFree:(800) 854-7600 Fax:(714) 454-8527 Tech:(714) 454-2441
Computer Products Plus (see AR Industry):
Computer Reseller News Magazine:NY Main: (516) 733-6700
 TFree:(516) 733-8636
Computer Retail Week Magazine:NY Main: (516) 733-6700
 TFree:(800) 842-0780 Fax:(516) 733-8636
Computer Shopper Magazine:NY Main: (800) 274-6384
Computer Support Corp.:TX Main: (214) 661-8960
 Fax:(214) 661-5429 Tech:(214) 661-8960
Computer Systems And Education:WA Main: (360) 693-6165
 Fax:(360) 693-6109 Tech:(800) 791-1181
Computer Teaching Corp.:IL Main: (217) 352-6363
 Fax:(217) 352-3104
Computer Technology Review:CA Main: (213) 208-1335
 Fax:(310) 208-1054
Computer Tyne Software Lab:MO Main: (417) 866-1222
 TFree:(800) 548-5353 Fax:(417) 866-1665
ComputerPREP, Inc.:AZ Main: (602) 275-7700
 TFree:(800) 228-1027 Fax:(602) 275-1603
ComputerTrend Systems, Inc.:CA Main: (818) 333-5121
 TFree:(800) 677-6477 Fax:(818) 369-6803
Computone Corp.:GA Main: (770) 475-2725
 TFree:(800) 241-3946 Fax:(770) 664-1510 Tech:(770) 475-2725
Computone Corp.:GA Main: (770) 475-2725
 TFree:(800) 241-3946 Fax:(770) 664-1510 Tech:(770) 475-2725
Computron Software Inc.:NJ Main: (201) 935-3400
Compware Corp.:MI Main: (810) 737-7300
Comtech Publishing:NV Main: (702) 825-9000
 TFree:(800) 456-7005 Fax:(702) 825-1818 Tech:(702) 825-9000
Comtech Research:OH Main: (419) 278-6790
 Fax:(419) 278-7744
Control Corp.:MN Main: (612) 631-7654
 TFree:(800) 926-6876 Fax:(612) 631-8117 Tech:(800) 926-6876
Concetric Data:MA Main: (508) 366-1122
 TFree:(800) 325-9035 Fax:(508) 366-2954 Tech:(800) 325-9035
Concept Software:OH Main: (216) 943-4341
 Fax:(216) 943-4346
Concord Communications:MA Main: (508) 460-4646
 TFree:(800) 851-8725 Fax:(508) 481-9772
Connectix Corp.:CA Main: (415) 571-5100
 TFree:(800) 950-5880 Fax:(415) 571-5195 Tech:(800) 950-5880
ConnectSoft Inc.:WA Main: (206) 827-6467
 TFree:(800) 234-9497 Fax:(206) 822-9095 Tech:(800) 234-9497

Conner Peripherals, Inc. (see Seagate): Main: (714) 641-1230
Conner Tape Products:CA Fax:(714) 966-5534 Tech:(800) 426-6637
Contact East:MA TFree:(800) 225-5334 Fax:(508) 688-7829
Contact Software International, Inc.:TX Main: (214) 418-1866
 Tech:(214) 484-4349
Contango, Inc (Creative Insights):CA Main: (415) 548-0283
 Fax:(415) 548-9512 Tech:(415) 548-0283
Contour Design, Inc.:NH Main: (603) 893-4556
 TFree:(800) 462-6678 Fax:(603) 893-4558 Tech:(603) 893-4556
Control Data Systems (CDC):MN Main: (612) 482-2100
 TFree:(800) 345-6628 Fax:(612) 482-2000 Tech:(800) 345-6628
Copia International, Ltd.:IL Main: (708) 662-8898
 TFree:(800) 689-8898 Fax:(708) 665-9841 Tech:(708) 665-9841
Core International:FL Main: (407) 997-6055
 Fax:(407) 997-6202 Tech:(407) 997-6033
Corel Systems Corp:ON Main: (613) 728-3733
 TFree:(800) 772-6735 Fax:(613) 761-9176 Tech:(613) 728-7070
Cornerstone Imaging:CA Main: (408) 435-8900
 TFree:(800) 562-2552 Fax:(408) 435-8998 Tech:(800) 562-2552
Cornerstone Training:NJ Main: (908) 251-6300
CoStar:CT Main: (203) 661-9700
 TFree:(800) 426-7827 Fax:(203) 661-1540 Tech:(203) 661-9700
Cougar Mountain Software, Inc:ID Main: (208) 375-4455
 TFree:(800) 388-3038 Fax:(208) 375-4455 Tech:(800) 375-4455
Covey Leadership Center:FL Main: (407) 644-4416
 TFree:(800) 304-9799 Fax:(407) 644-5919 Tech:(407) 644-4416
Cox Recorders/Energy Reserve Inc.:NC Main: (704) 825-8146
 Fax:(704) 825-4498
Cray Research Inc.:MN Main: (612) 452-6650
 Fax:(612) 683-7199
Creative Assistance Software:NC Main: (704) 544-0001
 Fax:(704) 544-8031 Tech:(704) 544-0001
Creative Labs Inc.:CA Main: (408) 428-6600
 TFree:(800) 998-1000 Fax:(408) 428-6611 Tech:(405) 742-6622
Creative Labs, Inc.:CA Main: (408) 428-6600
 TFree:(800) 998-5227 Fax:(405) 742-6633 Tech:(405) 742-6622
Creative Multimedia Corp:OR Main: (503) 241-4351
 Fax:(503) 241-4370 Tech:(503) 241-1530
Crescent Software:MA Main: (617) 280-3000
 TFree:(800) 352-2742 Fax:(617) 280-4025 Tech:(617) 280-3000
Crosstalk Communication(Attachmate):GA Main: (770) 442-4000
 TFree:(800) 426-6283 Fax:(770) 944-2435 Tech:(206) 957-7764
Crosswise Corp.:CA Main: (408) 598-9060
 TFree:(800) 747-9060 Fax:(408) 426-3859 Tech:(800) 747-9060
Crystal Services (see Seagate):BC Main: (604) 681-3435
 TFree:(800) 877-2340 Fax:(604) 681-2934 Tech:(604) 669-8379
CS Electronics:CA Main: (714) 259-9100
 Fax:(714) 259-0911
CTX International Inc:CA Main: (909) 595-6146
 TFree:(800) 282-2205 Fax:(909) 595-6293 Tech:(800) 282-2205
Cubix Corp:NV Main: (702) 888-1000
 TFree:(800) 829-0550 Fax:(702) 888-1001
Curtis Manufacturing Co (Rolodex):NJ Main: (800) 727-7656
 TFree:(800) 955-5544 Fax:(201) 348-0239 Tech:(800) 955-5544

Cway Software:PA Main: (215) 368-9494
 Fax:(215) 368-7233 Tech:(215) 368-9494
CyberMedia Inc.:CA Main: (310) 581-4700
 TFree:(800) 721-7824 Fax:(310) 581-4720 Tech:(310) 581-4710
Cybex Corp:AL Main: (205) 430-4000
 Fax:(205) 430-4030
CyLink Corp.:CA Main: (408) 735-5800
 Fax:(408) 735-6643
Cyma Systems Inc:AZ Main: (602) 303-2962
 TFree:(800) 292-2962 Fax:(602) 303-2969
Cypress Research:CA Main: (408) 752-2700
 Fax:(408) 752-2735 Tech:(408) 752-2700
Cypress Semiconductor Corp.:CA Main: (408) 943-2600
 Fax:(408) 943-2741
Cyrix Corp:TX Main: (214) 968-8388
 TFree:(800) 327-6284 Fax:(214) 699-9857 Tech:(800) 424-9749
D-Link Systems, Inc:CA Main: (714) 455-1688
 TFree:(800) 326-1688 Fax:(714) 455-2521 Tech:(714) 455-1688
DacEasy, Inc:TX Main: (214) 248-0305
 TFree:(800) 322-3279 Fax:(214) 248-8207 Tech:(214) 248-0205
Dalco Electronics:OH Main: (513) 743-8042
 TFree:(800) 445-5342 Fax:(513) 743-9251 Tech:(800) 543-2526
Dallas Semiconductor:GA Main: (770) 623-5813
 Fax:(770) 623-5826
Damark International, Inc:MN Main: (800) 729-9000
 TFree:(800) 729-9000 Tech:(800) 729-9000
Danpex Corp.:CA Main: (408) 437-7557
 TFree:(800) 452-1551 Fax:(408) 437-7559 Tech:(408) 437-7557
Dantz Development Corp:CA Main: (510) 253-3000
 TFree:(800) 225-4880 Fax:(510) 253-9099 Tech:(510) 253-3050
Dariana Software (see E-Ware):
Data Access Corp:FL Main: (305) 238-0012
 TFree:(800) 451-3539 Fax:(305) 238-0017 Tech:(305) 238-0012
Data Assist, Inc.:OH Main: (614) 888-8088
 TFree:(800) 326-8088 Fax:(614) 888-8072 Tech:(800) 326-8088
Data Code Inc.:FL Main: (407) 351-3441
 TFree:(800) 762-1480 Fax:(407) 351-5019
Data Conversion Laboratory:NY Main: (718) 357-8700
 Fax:(718) 357-8776
Data Depot Inc:FL Main: (813) 446-3402
 TFree:(800) 275-1913 Fax:(813) 443-4377 Tech:(800) 275-1913
Data Fellows:CA Main: (408) 244-9090
 Fax:(408) 244-9494 Tech:(408) 244-9090
Data General Corp:MA Main: (508) 898-5096
 TFree:(800) 328-2436 Fax:(508) 366-1319 Tech:(800) 344-3577
Data I/O Corp:WA Main: (206) 861-6444
 Tech:(800) 247-5700
Data Pro Accounting Software:FL Main: (813) 885-9459
 TFree:(800) 836-6377 Fax:(813) 882-8143 Tech:(813) 888-5847
Data Race:TX Main: (210) 558-1900
 TFree:(800) 329-7223 Fax:(210) 558-1929 Tech:(210) 558-1900
Data Storage Marketing:CO Main: (303) 442-4747
 TFree:(800) 543-6090 Fax:(303) 442-7985 Tech:(800) 543-6098
Data Storage Marketing:TX Main: (214) 407-0222
 TFree:(800) 654-6311 Fax:(214) 407-9732

Data Technology Corp:CA.....Main: (408) 942-0000
 Fax: (408) 942-4027 Tech: (408) 262-7700
Data Views Corp:MA.....Main: (413) 586-4144
 Fax: (413) 586-3805
Data Watch:MA.....Main: (508) 988-9700
 Fax: (508) 988-0697 Tech: (508) 988-9700
Database America Companies:NJ.....Main: (201) 476-2000
 TFree: (888) 362-2533 Fax: (201) 476-2419 Tech: (201) 476-2000
DataCal Corp:AZ.....Main: (602) 813-3163
 TFree: (800) 459-7931 Fax: (602) 545-8090 Tech: (602) 545-8090
DataEase International:CT.....Main: (203) 374-2825
 TFree: (800) 243-5123 Fax: (203) 365-2397 Tech: (203) 374-2825
Dataproducts:CA.....Main: (805) 578-4000
 TFree: (800) 887-8848 Fax: (805) 578-4001 Tech: (805) 578-4555
DataQuest Interactive:CA.....Main: (408) 468-8000
 TFree: (800) 419-3282
Datashield Unison:IL.....Main: (312) 755-5400
 Fax: (312) 644-6505 Tech: (312) 755-5401
Datashield/Tripp Lite (see Tripp Lite):
DataSoft:AZ.....Main: (602) 930-5380
 TFree: (800) 824-2374 Fax: (602) 930-5241 Tech: (602) 930-5380
Datasouth Computer Corp:NC.....Main: (704) 523-5800
 TFree: (800) 476-2450 Fax: (704) 523-9298 Tech: (800) 476-2450
DataSpec (see Alliance Research):
Datator:CA.....Main: (714) 833-8000
 TFree: (800) 777-6621 Fax: (714) 833-9600
Datastorm Technologies, Inc:MO.....Main: (573) 443-3282
 TFree: (800) 315-3282 Fax: (573) 875-0595 Tech: (573) 875-0530
DataViz Inc.:CT.....Main: (203) 268-0030
 TFree: (800) 733-0030 Fax: (203) 268-4345 Tech: (203) 268-0030
Dataware Technologies, Inc:MA.....Main: (617) 621-0820
 Fax: (617) 494-0740
Datum Inc.:CA.....Main: (714) 380-8880
 Fax: (714) 380-8555
Dauphin Technology, Inc:IL.....Main: (708) 559-8443
 Fax: (708) 559-8918 Tech: (708) 559-8443
David Systems, Inc (see 3Com Corp):
Davidson & Associates:CA.....Main: (310) 793-0600
 TFree: (800) 545-7677 Fax: (310) 793-0601 Tech: (800) 556-6141
Day Runner:CA.....Main: (800) 232-9786
 TFree: (800) 232-9786 Fax: (714) 680-6825
Dayna Communications:UT.....Main: (801) 269-7200
 TFree: (800) 531-0600 Fax: (801) 269-7363 Tech: (801) 559-7200
DayStar Digital, Inc:GA.....Main: (770) 967-2077
 TFree: (800) 962-2077 Fax: (770) 967-3018 Tech: (770) 967-2077
Db-Tech Inc.:NJ.....Main: (908) 329-9000
 TFree: (800) 234-4500 Fax: (908) 329-0066
DCA/IRMA (see Attachmate):
DDC Publishing:NY.....Main: (212) 986-7300
 TFree: (800) 528-3897 Fax: (212) 689-6851 Tech: (800) 955-5284
Deadly Games:NY.....Main: (516) 537-6060
 Fax: (516) 537-3299 Tech: (516) 537-6060
DEC PC Support BBS:.....Main: (508) 496-8800
Decisive Technology Corp:CA.....Main: (415) 528-4300
 TFree: (800) 987-9995 Fax: (415) 967-6035
Deep River Publishing, Inc:ME.....Main: (207) 871-1684
 TFree: (800) 643-5630 Fax: (207) 871-1683 Tech: (207) 871-1684
Dell Computer Corp:TX.....Main: (512) 338-4400
 TFree: (800) 426-5150 Fax: (800) 727-8320 Tech: (800) 624-9896
DeLorme Mapping:ME.....Main: (207) 865-1234
 TFree: (800) 452-5931 Fax: (800) 575-2244 Tech: (207) 865-7098
Delphi (see News Corp/MCI Online Ventures):
Delrina Software:ON.....Main: (416) 441-3676
 TFree: (800) 268-6082 Fax: (416) 441-0333 Tech: (800) 268-6082
Delta Software Systems Inc:TN.....Main: (901) 758-0123
 Fax: (901) 758-0211
DeltaPoint Inc:CA.....Main: (408) 648-4000
 TFree: (800) 446-6955 Fax: (408) 648-4020 Tech: (408) 375-4700
Deltec/NSSI:CA.....Main: (619) 291-4211
 Fax: (800) 755-7078 Tech: (800) 755-7078
Deneba Software:FL.....Main: (305) 596-5644
 TFree: (800) 733-6322 Fax: (305) 273-9069 Tech: (305) 596-5644
Derby And Associates:CO.....Main: (303) 979-6054
 Fax: (303) 972-8043
DeScribe, Inc:FL.....Main: (813) 732-5500
 Fax: (916) 923-3447 Tech: (916) 646-1111
Technical Support Offices.....Main: (813) 732-5500
 Fax: (916) 923-3447 Tech: (916) 646-1111
DesignCAD:OK.....Main: (918) 825-4844
 TFree: (800) 233-3223 Fax: (918) 825-6359 Tech: (918) 825-4844
Develcon Electronics Ltd:.....Main: (306) 933-3300
 TFree: (800) 667-9333 Fax: (306) 931-1370
DFI, USA:CA.....Main: (916) 568-1234
 Fax: (916) 568-1233 Tech: (916) 568-1234
Dia-Nielsen:NJ.....Main: (609) 829-9441
 Fax: (609) 829-8814 Tech: (609) 829-9381
Diagnostic Technologies Inc:ON.....Main: (905) 542-8674
 Fax: (905) 542-8458 Tech: (905) 347-0486
DiagSoft Inc:CA.....Main: (408) 438-8247
 TFree: (800) 342-4763 Fax: (408) 438-7113 Tech: (408) 438-8247
Dialogic Corp:NJ.....Main: (201) 993-3000
 Fax: (201) 993-3093
Dialogic GammaLink:CA.....Main: (408) 744-1400
 TFree: (800) 329-4727 Fax: (408) 744-1900 Tech: (408) 745-2250
Diamond Computer (see Diamond Multimedia):
Diamond Entertainment Corp.:NJ.....Main: (908) 431-0700
Diamond Flower Electric Inst. (see DFI, USA):
Diamond Multimedia Systems:CA.....Main: (408) 325-7000
 TFree: (800) 468-5846 Fax: (408) 325-7070 Tech: (408) 325-7100
Digi International:TN.....Main: (615) 834-8000
 TFree: (800) 377-6686 Fax: (615) 333-0423 Tech: (800) 366-8844
Digi International:MN.....Main: (612) 912-3444
 TFree: (800) 344-4273 Fax: (612) 912-4952
Digi-Data Corp:MD.....Main: (301) 498-0200
 Fax: (301) 498-0771 Tech: (301) 498-0200
Digi-Key Corporation:MN.....Main: (218) 681-6674
 TFree: (800) 344-4539 Fax: (218) 681-3380
Digiboard, Inc (see Digi International):
Digicom Systems Inc:CA.....Main: (408) 262-1277
 TFree: (800) 833-8900 Fax: (408) 262-1390 Tech: (408) 934-1661

Digimarc Corp:OR.....Main: (503) 223-0118
TFree: (800) 344-4627 Fax: (503) 223-6015

Digit Head Inc:VA.....Main: (703) 524-0101
Fax: (703) 524-0102 Tech: (703) 524-0101

Digital Dynamics:CA.....Main: (408) 438-4444
Fax: (408) 438-6825 Tech: (408) 438-4444

Digital Equipment Corp:MA.....Main: (800) 354-9000
TFree: (800) 332-4636

Digital Equipment Corp:MA.....Main: (508) 841-3111
TFree: (800) 354-9000 Fax: (508) 841-6100

Digital Equipment Corp:NH.....Main: (603) 884-5111
TFree: (800) 354-9000

... **Computer Systems Division**.....Main: (800) 354-9000
TFree: (800) 332-7378 Tech: (800) 722-9332

... **Digital Components and Peripherals**.....Main: (800) 777-4343

... **Digital Learning Center**.....Main: (800) 332-5656

... **Digital Semiconductor**.....Main: (508) 568-6872

... **Digital Storage Information**.....Main: (800) 786-7967

... **Internet Business Group**.....Main: (800) 344-4825

... **Mobile Software Business**.....Main: (508) 486-2111

Digital Impact:OK.....Main: (918) 742-2022
TFree: (800) 775-4232 Fax: (918) 742-8176 Tech: (918) 742-2022

Digital Products Inc:MA.....Main: (617) 647-1234
TFree: (800) 243-2333 Fax: (617) 647-4474

Digital Products, Inc:MA.....Main: (617) 647-1234
TFree: (800) 243-2333 Fax: (617) 647-4474 Tech: (617) 647-1234

Digital Vision:MA.....Main: (617) 329-5400
TFree: (800) 346-0090 Fax: (617) 329-6286 Tech: (617) 329-5400

Dimension X Inc:CA.....Main: (415) 243-0900
Fax: (415) 243-0997

Disc Distributing Corp:CA.....Main: (310) 787-6800
TFree: (800) 688-4545 Fax: (310) 787-6817

Discis Knowledge Research:ON.....Main: (416) 250-6537
TFree: (800) 567-4321 Fax: (416) 250-6540 Tech: (800) 567-4321

Disctec:FL.....Main: (407) 671-5500
Fax: (407) 671-6606

Disney Interactive:CA.....Main: (818) 543-4300
Fax: (818) 846-0454 Tech: (800) 228-0988

Distinct Corp:CA.....Main: (408) 366-8933
Fax: (408) 366-0153 Tech: (408) 342-3216

Distributed Processing Tech:FL.....Main: (407) 830-5522
TFree: (800) 322-4378 Fax: (407) 260-6690 Tech: (407) 830-5522

Diversified Technology:MS.....Main: (601) 856-4121
TFree: (800) 443-2667 Fax: (601) 856-2888

DMA (see Semantek):

DocuMagix, Inc:CA.....Main: (408) 434-1138
TFree: (800) 362-8624 Fax: (408) 434-0915 Tech: (408) 434-1138

Dorak International Corp:CA.....Main: (818) 288-9171
Fax: (818) 288-6205 Tech: (818) 288-9171

Dr. Dobb's Journal (Miller Freeman):CA.....Main: (415) 358-9500

Dr. Solomon's Software:MA.....Main: (617) 273-7400
TFree: (800) 701-9648 Fax: (617) 273-7474 Tech: (617) 273-7400

Dr. T's Music Software:MA.....Main: (617) 272-9080
Fax: (617) 272-9097 Tech: (770) 428-0008

Dragon Systems, Inc:MA.....Main: (617) 965-5200
TFree: (800) 825-5897 Fax: (617) 527-0372 Tech: (617) 965-7670

Dream Theater:CA.....Main: (818) 773-4979
Fax: (818) 773-8314 Tech: (818) 773-4979

Dresselhaus Computer Products:CA.....Main: (909) 945-5600
Fax: (909) 989-2436 Tech: (909) 945-5600

DS Design:NC.....Main: (919) 319-1770
TFree: (800) 745-4037 Fax: (919) 460-5983

DSP Group Inc:CA.....Main: (408) 986-4300
Fax: (408) 986-4323

DSP Solutions, Inc:CA.....Main: (415) 919-4000
Fax: (415) 919-4040 Tech: (415) 919-4100

DTC Data Technology:CA.....Main: (408) 942-4000
Fax: (408) 942-4027 Tech: (408) 262-7700

DTK Computer Inc:CA.....Main: (818) 810-8880
TFree: (800) 289-2835 Fax: (818) 810-5233 Tech: (818) 810-8880

Dukane Corporation:IL.....Main: (708) 584-2300
Fax: (708) 584-5156

Durand Communications Inc:CA.....Main: (805) 961-8700
Fax: (805) 961-8701

dynacomp, Inc.:NY.....Main: (716) 346-9788

dynalink Technologies:QC.....Main: (514) 489-3007
Fax: (514) 489-3007 Tech: (514) 489-3007

dynatech Computer Power (see S.L. Waiber):

Dynatran:OR.....Main: (503) 646-9045
TFree: (800) 429-7650 Tech: (503) 646-9045

E-mu Systems, Inc:CA.....Main: (408) 438-1921
Fax: (408) 439-8612 Tech: (408) 438-1921

E-Tech Research Inc:CA.....Main: (408) 988-8108
TFree: (800) 328-5538 Fax: (408) 988-8109 Tech: (408) 988-8108

Eagle Data Protection, Inc.:UT.....Main: (801) 363-7300
TFree: (800) 909-3141 Fax: (801) 538-0200 Tech: (801) 363-7300

Eagle Technology:WI.....Main: (414) 241-3845
TFree: (800) 388-3268 Fax: (414) 241-5248 Tech: (414) 241-3845

Eastman Kodak Co:NY.....Main: (716) 724-4000
TFree: (800) 242-2424 Fax: (716) 724-3282 Tech: (800) 235-6325

Easy Software Products:MD.....Main: (301) 994-0377
Fax: (301) 994-0906

EBM Corporation:MI.....Main: (517) 426-6327
TFree: (800) 815-5719 Fax: (517) 426-7354

Eccentric Software:WA.....Main: (206) 628-2687
TFree: (800) 436-6758 Fax: (206) 628-2681 Tech: (206) 628-2687

Echo Speech Corporation:CA.....Main: (805) 684-4593
Tech: (805) 684-4593

Eclipse Tech Inc.:CA.....Main: (408) 523-5700

Edmark Corp.:WA.....Main: (206) 556-8400
TFree: (800) 426-0856 Fax: (206) 556-8430 Tech: (206) 556-8480

EDS Internet New Media:.....Main: (214) 604-7445
TFree: (800) 890-1841

EDS Unigraphics:MO.....Main: (314) 344-5900
Fax: (314) 344-4180

EDUCORP Multimedia:CA.....Main: (619) 536-9999
TFree: (800) 843-9497 Fax: (619) 536-2345 Tech: (619) 693-4030

Efficient Field Service:MA.....Main: (508) 251-7800
TFree: (800) 257-4745 Fax: (508) 251-4882

EFI Electronics Corp.:UT.....Main: (801) 977-9009
TFree: (800) 877-1174 Fax: (801) 977-0200 Tech: (801) 877-1174

Egghead Software:WA.....Main: (206) 391-0880
 TFree: (800) 391-0880

Eicon Technology Corp:TX.....Main: (214) 239-3270
 TFree: (800) 803-4266 Fax: (214) 239-3304

Eigentech, Inc.:NJ.....Main: (609) 985-9185
 TFree: (800) 676-8689 Fax: (609) 985-9185

Elan Computer Group:CA.....Main: (415) 964-2200
 TFree: (800) 536-3526 Fax: (415) 964-8588

Elan Computer Group Inc:CA.....Main: (415) 964-2200
 TFree: (800) 536-3526 Fax: (415) 964-8588

Elan Software Corp:CA.....Main: (310) 454-6800
 TFree: (800) 654-3526 Fax: (310) 454-4848 Tech: (310) 459-1222

Electronic Arts:CA.....Main: (415) 571-7171
 Fax: (415) 571-7995 Tech: (415) 572-2787

Electronic City:AZ.....Main: (602) 622-1173
 TFree: (800) 566-9337 Fax: (214) 604-3562 Tech: (214) 605-6000

Electronic Data Systems Corp (EDS):TX.....Main: (214) 605-6000
 TFree: (800) 566-9337 Fax: (214) 604-3562 Tech: (214) 605-6000

Electronic Engineering Control Inc.:OH.....Main: (800) 842-7714
 TFree: (800) 842-7714 Fax: (614) 464-9656 Tech: (614) 464-4470

Electronic Multimedia Enterprises:CT.....Main: (203) 406-4043
 TFree: (800) 548-7322 Fax: (203) 406-4043 Tech: (800) 548-7322

Electronic Press, Inc:MA.....Main: (617) 225-9023
 TFree: (800) 680-6856 Fax: (617) 225-7983 Tech: (800) 680-6856

Electronics Of Salina:KS.....Main: (913) 827-7377
 TFree: (800) 874-8204

Electronix Corp:OH.....Main: (937) 878-1828
 Fax: (937) 878-1972

Elgin Interactive Software:IL.....Main: (847) 697-9654
 Fax: (847) 697-9689

Elite Products:MD.....Main: (800) 576-2349
 TFree: (005) 762-349 Fax: (410) 987-3258

Elitegroup Computer System (ECS):CA.....Main: (510) 226-7333
 Fax: (415) 226-7350 Tech: (510) 226-7333

Elo TouchSystems, Inc.:TN.....Main: (510) 651-2340
 TFree: (800) 356-8682 Fax: (615) 482-6617 Tech: (615) 220-4999

Emblem Corp.:FL.....Main: (305) 541-4331
 TFree: (800) 323-8324 Fax: (305) 541-0074 Tech: (305) 541-4331

Emerald Systems (see NCE Storage Solutions):

EMPaC International Corp:CA.....Main: (510) 683-8800
 Fax: (510) 683-8662 Tech: (510) 226-4754

Empress Software Inc:MD.....Main: (301) 220-1919
 Fax: (301) 220-1997

Emulex:CA.....Main: (714) 662-5600
 TFree: (800) 854-7112 Fax: (714) 241-0792 Tech: (714) 513-8270

Enable Software, Inc.:NY.....Main: (518) 877-8600
 TFree: (800) 888-0684 Fax: (518) 877-3337 Tech: (518) 877-8236

Encore Computer Corp:FL.....Main: (954) 587-2900
 TFree: (800) 726-2230 Fax: (954) 797-5793

Endl Publications:CA.....Main: (408) 867-6642
 Fax: (408) 867-2115

Enhance Memory Products Inc:CA.....Main: (818) 343-3066
 TFree: (800) 343-0100 Fax: (818) 343-1436 Tech: (818) 343-3066

ENSONIQ Corp:PA.....Main: (610) 647-3930
 TFree: (800) 553-5151 Fax: (610) 647-8908

Envirogen:CA.....Main: (714) 574-1440
 TFree: (800) 228-8839 Fax: (714) 509-7028 Tech: (714) 574-1440

Environmental Systems Research Inst.:CA.....Main: (909) 793-2853
 TFree: (800) 447-9778 Fax: (909) 307-3025 Tech: (909) 793-3774

EO (see AT&T):

Epilogue Technology Corp:NM.....Main: (505) 271-9933
 Fax: (505) 271-9798 Tech: (617) 245-0804

Epson America, Inc.:CA.....Main: (312) 782-0770
 TFree: (800) 289-3776 Fax: (310) 782-5284 Tech: (800) 922-8911

Equilibrium Inc.:CA.....Main: (415) 332-4343
 Fax: (415) 332-4433 Tech: (415) 332-4343

Equinox Systems, Inc.:FL.....Main: (305) 746-9000
 TFree: (800) 275-3500 Fax: (305) 746-9101 Tech: (800) 275-3500

Ergo Computing, Inc:MA.....Main: (508) 535-7510
 Fax: (508) 535-7512 Tech: (800) 633-1922

ESoft Product Support:CO.....Main: (303) 699-6565
 Fax: (303) 699-6872 Tech: (303) 699-1300

EST (Engineering Service Technology):NH.....Main: (603) 673-9907
 Fax: (603) 673-9913

Europa Software:OR.....Main: (503) 417-2900
 Fax: (503) 417-2900

Evans & Sutherland:UT.....Main: (801) 588-1000
 TFree: (800) 383-7391 Fax: (510) 683-2186 Tech: (510) 498-1111

Everex Systems:CA.....Main: (510) 498-1111
 TFree: (800) 383-7391 Fax: (510) 683-2186 Tech: (510) 498-1111

Evolution Computing:AZ.....Main: (602) 967-8633
 TFree: (800) 874-4028 Fax: (602) 968-4325 Tech: (800) 874-4028

Ex Machina Inc.:NY.....Main: (212) 842-0000
 TFree: (800) 238-4738 Fax: (212) 545-7992 Tech: (212) 843-0000

Exabyte Corp:CO.....Main: (303) 442-4333
 Fax: (303) 417-7170 Tech: (800) 445-7736

Excalibur Communications, Inc.:OK.....Main: (918) 496-7881
 TFree: (800) 392-2522 Fax: (918) 491-0033 Tech: (918) 496-7881

Excite Inc.:CA.....Main: (415) 943-1200
 Fax: (415) 943-1299 Tech: (415) 943-1200

Expert Software:FL.....Main: (305) 567-9990
 TFree: (800) 759-2562 Fax: (305) 569-1350 Tech: (305) 567-9990

ExperVision Inc:CA.....Main: (408) 523-0900
 TFree: (800) 732-3897 Fax: (408) 523-0909 Tech: (800) 732-3897

Exponent Corp:NJ.....Main: (201) 808-9424
 TFree: (800) 772-7077 Fax: (201) 808-9419

Express Systems Inc.:WA.....Main: (206) 728-8300
 TFree: (800) 321-4606 Fax: (206) 728-8301 Tech: (800) 321-4606

Extended Systems Inc:MT.....Main: (800) 235-7576
 TFree: (800) 235-7576 Fax: (208) 377-1906 Tech: (800) 235-7576

EZI America Corp.:CA.....Main: (805) 987-5885
 Fax: (805) 987-7677

Fairhaven Software:MA.....Main: (508) 994-6400
 TFree: (800) 582-4747 Fax: (508) 994-6465 Tech: (508) 994-6464

Fantazia Concepts, Inc.:OH.....Main: (216) 951-5666
 Fax: (216) 951-9241 Tech: (216) 951-0877

Farallon Computing:CA.....Main: (510) 814-5100
 TFree: (800) 344-7489 Fax: (510) 814-5023 Tech: (510) 814-5000

Fargo Electronics Inc:MN.....Main: (612) 941-9470
 TFree: (800) 327-4622 Fax: (612) 941-7836 Tech: (612) 941-0050

FastComm Communications Corp:VA.....Main: (703) 318-7750
 TFree: (800) 521-2496 Fax: (703) 787-4625

Faulkner Information Services:NJ.....Main: (609) 662-2070
 TFree: (800) 843-0460 Fax: (609) 662-3380

FaxBack Inc:OR.....Main: (503) 445-1114
TFree:(800) 329-2225 Fax:(503) 690-6399 Tech:(503) 690-6360

Fedco Electronics, Inc:WI.....Main: (414) 922-6490
TFree:(800) 542-9761 Fax:(414) 922-6750 Tech:(800) 542-9761

FedWorld Info Net - http://www/fedworld.gov:

Fessenden Technologies:MO.....Main: (417) 485-2501
Fax:(417) 485-3133

FGS (see Sematek):

Fibermux (see ADC Fibermux Corp):

Ficus Systems:MA.....Main: (617) 938-7055
TFree:(800) 342-8799 Fax:(617) 938-7054 Tech:(617) 938-7055

Fidelity International Technologies:NJ.....Main: (908) 417-2230
Fax:(908) 417-5994 Tech:(908) 417-2230

Fierfox:CA.....Main: (408) 321-8344
Fax:(408) 467-1105 Tech:(206) 827-9066

Fifth Generation Sys (see Semantek):

Finenet Corp:CA.....Main: (800) 345-3638
TFree:(800) 345-3638

Financial Navigator Int'l:CA.....Main: (415) 962-0300
TFree:(800) 468-3636 Fax:(415) 962-0730

First Floor, Inc:CA.....Main: (415) 968-1101
TFree:(800) 339-6387 Fax:(415) 968-1193 Tech:(415) 968-1101

First Things First:OR.....Main: (503) 246-6200
Fax:(503) 452-1198 Tech:(503) 246-6200

Fitnessoft, Inc:UT.....Main: (801) 221-7777
TFree:(800) 607-7637 Fax:(801) 221-7707 Tech:(801) 221-7708

Flagship Systems Inc:TX.....Main: (214) 458-8828
Fax:(214) 458-8728

Flambeau Software, Inc:CA.....Main: (818) 500-0044
TFree:(800) 833-7355 Fax:(818) 957-0194 Tech:(818) 957-0097

Fluke Corporation:WA.....Main: (206) 347-6100
TFree:(800) 443-5853 Fax:(206) 356-5019 Tech:(800) 443-5853

Focus Enhancements:MA.....Main: (617) 938-8088
TFree:(800) 538-8865 Fax:(617) 938-7741 Tech:(617) 937-5500

Foley Hi-Tech Systems:CA.....Main: (415) 882-1730
Fax:(415) 882-1733 Tech:(415) 882-1730

Folio Corp:UT.....Main: (801) 229-6750
TFree:(800) 543-6546 Fax:(801) 229-6787 Tech:(801) 229-6650

Fore Systems Inc:PA.....Main: (412) 772-6600
Fax:(412) 635-3625 Tech:(412) 772-6600

Forefront:TX.....Main: (713) 961-1101
TFree:(800) 653-4933 Fax:(713) 961-1149

Foresight Resources Corp (see Softdesk):

FormGen, Inc:AZ.....Main: (602) 443-4109
Fax:(602) 951-6810 Tech:(602) 443-4109

Forte, Inc:CA.....Main: (619) 431-6400
Fax:(619) 431-6465

Fractal Design Corp:CA.....Main: (408) 688-8800
TFree:(800) 647-7443 Fax:(408) 688-8836 Tech:(408) 688-8800

Frame Technology Corp (see Adobe Systems):

Franklin Quest Co:UT.....Main: (801) 975-9999
TFree:(800) 827-1776 Fax:(800) 446-1492 Tech:(800) 827-1776

Frederick Engineering:MD.....Main: (410) 290-9000
Fax:(410) 381-7180 Tech:(410) 290-9000

FreeSoft Co.:PA.....Main: (412) 846-2700
Fax:(412) 847-4436 Tech:(412) 846-2700

Fry's Electronics:CA.....Main: (415) 496-1100

Frye Computer (see Seagate EMS):

FTP Software Inc:MA.....Main: (508) 685-4000
Fax:(508) 794-4488 Tech:(800) 382-4387

FTP Software Inc:MA.....Main: (508) 685-4000
TFree:(800) 282-4387 Fax:(508) 794-4488 Tech:(800) 382-4387

Fujitsu America, Inc:CA.....Main: (408) 432-1300
Fax:(408) 432-1318

Fujitsu Computer Products of America:CA.....Main: (408) 432-6333
TFree:(800) 626-4686 Fax:(408) 894-1709 Tech:(800) 826-6110

Fujitsu Personal Systems Inc:CA.....Main: (408) 982-9500
TFree:(800) 831-3183 Fax:(408) 496-0609 Tech:(408) 982-9500

Fullmark International:CA.....Main: (310) 539-1880
TFree:(800) 233-3855 Fax:(800) 233-3855 Tech:(800) 233-3855

Funk Software, Inc:MA.....Main: (617) 497-6339
TFree:(800) 828-4146 Fax:(617) 547-1031 Tech:(617) 497-6339

Future Domain Corp.:CA.....Main: (714) 253-0400
Fax:(714) 253-0913 Tech:(714) 253-0440

Future Thinking:MN.....Main: (612) 332-9262
Fax:(612) 332-9200 Tech:(612) 332-9262

FutureSoft Engineering Inc:TX.....Main: (713) 588-6868
TFree:(800) 989-8908 Fax:(713) 496-1090 Tech:(713) 588-6868

FutureTense Inc:MA.....Main: (508) 263-5480
Fax:(508) 263-7691

Futurus Corp:CA.....Main: (770) 242-7797
TFree:(800) 327-8296 Fax:(770) 242-7221 Tech:(770) 825-0379

FWB Inc:CA.....Main: (415) 325-4392
Fax:(415) 833-4655

G.V.C.:ON.....Main: (905) 738-9300
Fax:(905) 738-5563

Galaticomm Inc:FL.....Main: (305) 583-5990
TFree:(800) 328-1128 Fax:(305) 583-7846 Tech:(305) 321-2404

Gametek:FL.....Main: (305) 935-3995
TFree:(800) 927-4263 Fax:(305) 932-8651 Tech:(800) 927-4263

Gamma Productions, Inc:CA.....Main: (619) 794-6399
TFree:(800) 974-2662 Fax:(619) 794-7294

Gammalink:CA.....Main: (800) 329-4720
TFree:(800) 329-4720 Fax:(408) 744-1900

GammaLink (see Dialogic GammaLink):

Gap Development:CA.....Main: (714) 496-3774
Fax:(714) 496-3774 Tech:(714) 496-3774

Gates Arrow:CA.....Main: (803) 627-2100
TFree:(800) 332-2222 Fax:(864) 627-2447 Tech:(800) 332-2315

Gateway 2000 Inc.:SD.....Main: (605) 632-2000
TFree:(800) 846-2000 Fax:(605) 232-2023 Tech:(800) 846-2301

Gateway BBS:SD.....Main: (605) 632-2000
TFree:(800) 846-2000 Fax:(605) 232-2023 Tech:(800) 846-2301

Gateway Electronics:MO.....Main: (314) 427-6116
TFree:(800) 669-5810 Fax:(314) 427-3147 Tech:(800) 669-5810

Gateway Electronics:CO.....Main: (303) 458-5444
TFree:(800) 669-5810 Fax:(303) 458-6988 Tech:(800) 669-5810

Gateway Electronics:CA.....Main: (619) 279-6802
TFree:(800) 669-5810 Fax:(619) 279-7294 Tech:(800) 669-5810

Gazelle Systems (see GTM Software):

GBC Technologies:NJ.....Main: (609) 767-2500
TFree:(800) 229-2296 Fax:(609) 753-1123

GCC Technologies:MA.....Main: (617) 275-5800
TFree:(800) 422-7777 Fax:(617) 275-1115 Tech:(617) 276-8620

GDT Software:BC.....Main: (604) 473-3600
TFree:(800) 663-6222 Fax:(604) 473-3699 Tech:(604) 473-3678

General Computer Engineering:CA.....Main: (714) 999-2894
Fax:(714) 999-2793

General DataComm Inc:CT.....Main: (203) 574-1118
Fax:(203) 758-8507

General Magic Inc:CA.....Main: (408) 774-4000
Fax:(408) 774-4010

General Signal Networks (Telenex):NJ.....Main: (609) 234-7900
TFree:(800) 222-0187 Fax:(609) 778-8700

General Software:WA.....Main: (206) 454-5755
TFree:(800) 850-5755 Fax:(206) 454-5744

Generic Software (see AutoDesk):

Genicom:VA.....Main: (703) 802-9200
TFree:(800) 436-4266 Fax:(703) 802-9039 Tech:(703) 802-9200

Genoa Systems Corp:CA.....Main: (408) 362-2900
Fax:(408) 362-2998 Tech:(408) 362-2990

Genovation:CA.....Main: (714) 833-3355
TFree:(800) 822-4333 Fax:(714) 833-0322

Geographic Data Technologies Inc:NH.....Main: (800) 331-7881
TFree:(800) 331-7881 Fax:(603) 643-6808

GeoWorks:CA.....Main: (510) 814-1660
TFree:(800) 224-2411 Fax:(510) 814-4250 Tech:(510) 814-5745

Gibson Research:CA.....Main: (714) 362-8800
TFree:(800) 736-0637 Fax:(714) 830-0300 Tech:(714) 362-8900

Giga-Byte Technology Co Ltd:CA.....Main: (818) 854-9334
Fax:(818) 854-9339 Tech:(818) 854-9334

GigaTrend Inc:CA.....Main: (619) 931-9122
TFree:(800) 743-4442 Fax:(619) 931-9959 Tech:(619) 931-9122

Gilmore Systems:CA.....Main: (805) 379-3210
Fax:(805) 379-1341 Tech:(805) 379-3210

Global Computer Supply:CA.....Main: (800) 845-6225
TFree:(800) 845-6225 Fax:(310) 637-6191

Global Engineering Documents:CO.....Main: (303) 792-2181
TFree:(800) 854-7179 Fax:(303) 792-2192

Global Village Communications:CA.....Main: (408) 523-1000
TFree:(800) 736-4821 Fax:(408) 523-2407 Tech:(408) 523-1050

Globalink, Inc:VA.....Main: (703) 273-5600
TFree:(800) 255-5660 Fax:(703) 273-3866 Tech:(703) 934-2734

Globe Manufacturing, Inc:NJ.....Main: (908) 232-7300
TFree:(800) 227-3258 Fax:(908) 232-4729 Tech:(908) 227-3258

Globele Corporation:MN.....Main: (303) 545-6000
TFree:(800) 745-7000 Fax:(612) 941-8666

Go Ahead Software Inc:WA.....Main: (206) 882-1900
Fax:(206) 882-1117

Gold Disk Inc (see Astound Inc):

Gold Standard Multimedia Inc:FL.....Main: (352) 373-1100
TFree:(800) 375-0943 Fax:(352) 373-7124 Tech:(352) 373-1100

Golden Bow Systems:CA.....Main: (619) 298-9349
TFree:(800) 284-3269 Fax:(619) 298-9950 Tech:(800) 284-3269

Golden Coast Information Systems:CA.....Main: (619) 268-8447
Fax:(619) 278-0948

Golden Ribbon:CO.....Main: (303) 443-6966
Fax:(303) 443-1660

Golden Software:CO.....Main: (303) 279-1021
TFree:(800) 972-1021 Fax:(303) 279-0909 Tech:(303) 279-1021

GoldStar USA, Inc. (LGEAI):AL.....Main: (201) 816-2000
Tech:(800) 777-1192

Good Software (see Outlook Software):

GRACE Electronic Materials:MA.....Main: (617) 861-6600
TFree:(800) 832-4929 Fax:(617) 933-4318 Tech:(800) 832-4929

Gradient Technologies Inc:MA.....Main: (508) 624-9600
TFree:(800) 525-4343 Fax:(508) 229-0338

Grand Junction Network (see CISO Systems):

Granite Communications Inc:NH.....Main: (603) 881-8666
Fax:(603) 881-4042

Graphic Utilities, Inc:CA.....Main: (408) 577-0334
TFree:(800) 400-5253 Fax:(408) 577-0348 Tech:(800) 669-4723

Graphix Zone:CA.....Main: (714) 833-3838
TFree:(800) 828-3838 Fax:(714) 833-3990 Tech:(812) 829-1007

GraphOn Corp:CA.....Main: (408) 370-4080
Fax:(408) 370-5047

GraphPad Software:CA.....Main: (619) 457-3909
TFree:(800) 388-4723 Fax:(619) 457-8141

Graphsoft, Inc:MD.....Main: (410) 290-5114
Fax:(410) 290-8050 Tech:(410) 290-5114

Gravis:BC.....Main: (604) 431-5020
Fax:(604) 431-5155 Tech:(604) 431-1807

Graymark:CA.....Main: (800) 854-7393

Great Falls Computer (see Microtec):

Great Plains Software:ND.....Main: (701) 281-0555
TFree:(800) 456-0025 Fax:(701) 281-3328 Tech:(800) 456-0025

Great Wave Software:CA.....Main: (408) 438-1990
TFree:(800) 423-1144 Fax:(408) 438-7171 Tech:(800) 423-1144

Greenview Data:MI.....Main: (313) 996-1300
TFree:(800) 458-3348 Fax:(313) 996-1308 Tech:(313) 996-1300

Grolier Interactive Inc:CT.....Main: (203) 797-3530
TFree:(800) 285-4534 Fax:(203) 797-3130 Tech:(800) 356-5590

Group 1 Software:MD.....Main: (301) 731-2300
TFree:(800) 368-5806 Fax:(301) 731-0360 Tech:(301) 731-2300

Gruber Industries Inc:AZ.....Main: (602) 863-2655
TFree:(800) 658-5883 Fax:(602) 257-4313 Tech:(602) 581-1697

Gryphon Software Corp:CA.....Main: (619) 536-8815
TFree:(800) 795-0981 Fax:(619) 536-8932 Tech:(619) 536-8815

GSI, Inc:CA.....Main: (714) 261-7949
TFree:(800) 486-7800 Fax:(714) 757-1778

GTCO Corp (Graphic Technology):MD.....Main: (410) 381-6688
Fax:(410) 290-9065

GTEK Inc:MS.....Main: (800) 282-4835
TFree:(800) 282-4835 Fax:(601) 467-0935 Tech:(601) 467-8048

GTM Software:UT.....Main: (801) 235-7000
TFree:(800) 786-3278 Fax:(801) 235-7099 Tech:(801) 235-7000

Gupta Corp (Centura Software Corp):CA.....Main: (415) 321-9500
TFree:(800) 444-8782 Fax:(415) 321-5471

Gupta Corp (see Centura Software Corp):

GVC Technologies, Inc. (see MaxTech GVC):

GW Instruments Inc:MA.....Main: (617) 625-4096
Fax:(617) 625-1322

HAHT Software Inc:NC.....Main: (919) 783-7803
TFree:(800) 996-3222 Fax:(919) 783-7801

Hal Computer Systems (Fujiitsu):CAMain: (408) 379-7000
 Fax:(408) 341-5401
Harbinger Corp:GAMain: (404) 841-4334
 Fax:(404) 841-4399 Tech:(404) 841-4334
Harbor Electronics:CTMain: (203) 438-9625
 Fax:(203) 431-3001 Tech:(203) 438-9625
Hard Drive Associates Inc:ORMain: (503) 233-2821
 Fax:(503) 233-2911
Harlequin Incorporated:MAMain: (617) 374-2400
 Fax:(617) 252-6505
Harris Computer Systems (Concurrent):FLMain: (954) 974-1700
 TFree:(800) 666-4544 Fax:(954) 977-5580
Hauptpage Computer Works Inc:NYMain: (516) 434-1600
 TFree:(800) 443-6284 Fax:(516) 434-3198 Tech:(516) 434-3197
HavenTree Software Ltd:ONMain: (613) 544-6035
 TFree:(800) 267-0668 Fax:(613) 544-9632 Tech:(613) 544-6035
Hayes Microcomputer Products, Inc:GAMain: (770) 840-9200
 TFree:(800) 377-4377 Fax:(770) 441-1213 Tech:(770) 441-1617
HDC Computer Corp (see Express Systems):
HDS Network Systems:PAMain: (610) 277-8300
 TFree:(800) 437-1551 Fax:(610) 275-5739
Heathkit Educational Systems:MIMain: (616) 925-6000
 TFree:(800) 253-0570 Fax:(616) 925-2898 Tech:(616) 925-6000
Helix Software Company, Inc:NYMain: (718) 392-3100
 TFree:(800) 451-0551 Fax:(718) 392-4212 Tech:(718) 392-3735
Helpful Programs, Inc. (HPI):ALMain: (205) 880-8782
 TFree:(800) 448-4154 Fax:(205) 880-8705 Tech:(205) 880-8702
Hercules Computer Technology, Inc:CAMain: (510) 623-6030
 TFree:(800) 532-0600 Fax:(510) 623-1112 Tech:(510) 623-6050
Hermann Marketing:MOMain: (800) 523-9009
 TFree:(800) 523-9009 Fax:(314) 432-1818
Herne Data Systems Ltd:ONMain: (519) 366-2732
 Fax:(519) 366-2732
Heurikon Corp:WIMain: (608) 831-5500
 TFree:(800) 356-9602 Fax:(608) 831-4249
Hewlett-Packard:CAMain: (301) 670-4300
 TFree:(800) 752-0900 Tech:(208) 323-2551
... Disk Memory DivisionMain: (208) 396-6000
 Fax:(208) 333-3182 Tech:(208) 323-2551
... Fax Information - CanadaMain: (208) 344-4859
... Information Storage GroupMain: (970) 679-6000
... Mass Storage DivisionMain: (303) 635-1000
 TFree:(800) 231-9300 Tech:(970) 635-1000
... Peripheral GroupMain: (408) 447-6440
... Personal Computer ProductsMain: (800) 752-0900
... Personal Information Products GroupMain: (800) 762-0900
 TFree:(800) 762-0900
... RISC SystemsMain: (800) 752-0900
... Windows ClientMain: (800) 752-0900
Hi-Image:CAMain: (415) 358-8500
 TFree:(800) 345-3540 Fax:(415) 358-9535
Hilbert Computing:KSMain: (913) 780-5051
 Fax:(913) 829-2450 Tech:(913) 780-5051
Hilgraeve, Inc.:MIMain: (313) 243-0576
 TFree:(800) 826-2760 Fax:(313) 243-0645 Tech:(313) 243-0576

Hitachi America:CAMain: (914) 332-5800
 TFree:(800) 323-9712 Fax:(914) 332-5834 Tech:(800) 448-2244
Hitachi America:CAMain: (510) 661-0777
 Fax:(510) 661-6300
Hitachi America (Computer Division):CAMain: (415) 589-8300
 TFree:(800) 448-2244 Fax:(415) 583-4207
Hitachi Home Electronics America:CAMain: (714) 517-6000
 TFree:(800) 369-0422 Fax:(714) 517-6003 Tech:(800) 241-6558
HockWare, Inc.:NCMain: (919) 380-0616
 Fax:(919) 380-0757 Tech:(919) 380-0616
Hollywood Interactive Digital Entertain:CAMain: (818) 897-2020
 TFree:(800) 423-7779 Fax:(818) 897-1878 Tech:(818) 897-2020
Home Office Computing:DCMain: (202) 663-8452
Hopkins Tech:MNMain: (612) 931-9376
 TFree:(800) 397-9211 Fax:(612) 931-9377 Tech:(800) 397-9211
Horizons Technology, Inc.:CAMain: (619) 292-8331
 TFree:(800) 828-3808 Fax:(619) 292-9439 Tech:(619) 292-8320
Hot Wire Data Security Inc.:PAMain: (610) 435-7700
 TFree:(888) 468-9473 Fax:(610) 435-6449
Houston Instrument (see Summagraphics):
Howard W. Sams:INMain: (317) 298-5400
 TFree:(800) 428-7267 Fax:(317) 298-5604
Howling Dog Systems, Inc.:ONMain: (613) 599-7927
 TFree:(800) 267-4695 Fax:(613) 599-7926 Tech:(613) 599-7927
HPS Simulation:CAMain: (408) 554-8381
 Fax:(408) 241-6886 Tech:(408) 554-8381
HSC Software (see MetaTools, Inc.):
Hughes Network Systems:MDMain: (301) 428-5500
 Fax:(301) 428-1868 Tech:(301) 428-5500
Hummingbird Communications Ltd:ONMain: (416) 496-2200
 Fax:(416) 496-2207 Tech:(416) 496-2200
HyperGlot Software:TNMain: (615) 558-8277
 TFree:(800) 726-5087 Fax:(615) 588-6569 Tech:(800) 726-5087
Hyperion Software:CTMain: (203) 703-3000
 Fax:(203) 595-8500 Tech:(203) 703-3000
Hyundai Electronics America:CAMain: (408) 232-8000
 TFree:(800) 289-4986 Fax:(408) 232-8121 Tech:(800) 289-4986
Ibex Technologies, Inc.:CAMain: (916) 939-8888
 TFree:(800) 975-4239 Fax:(916) 939-8899 Tech:(916) 939-8888
IBM Corporation:TXMain: (800) 426-3333
IBM Corporation:NYMain: (914) 288-3000
IBM Corporation:GAMain: (404) 238-7000
... 3151 ASCII Terminal HotlineMain: (800) 426-3151
... ACIS Ordering InformationMain: (800) 222-7257
... AIX Systems Support CenterMain: (800) 547-1283
... Ambra Technical SupportMain: (800) 363-0066
... Ambra Telemarketing/Order Ctr (Canada) Main: (800) 252-6272
... Anti-Virus ServicesMain: (800) 742-2493
... Anti-Virus Services (Canada)Main: (416) 946-3786
... ARTIC Technical SupportMain: (800) 241-1620
... Asia Pacific South Developer AsslstMain: (612) 354-7684
... Authorized Dealer LocatorMain: (800) 447-4700
... Automated Fax SystemMain: (800) 426-3395
... Boca Raton Tech Serv Software Sys Test Main: (800) 426-2622
... Bulletin Board SystemMain: (919) 517-0001
... CAD AssistanceMain: (303) 924-7262

IBM Corporation ... continued

... Canada BBS	Main:	(905)	316-4244
... Catalog Solutions Center	Main:	(800)	426-2255
... Continuous Speech Series (ICSS) Order	Main:	(800)	426-2255
... Continuous Speech Series Memb CAN	Main:	(800)	561-5255
... Continuous Speech Series Memb Info	Main:	(800)	627-8363
... Continuous Speech Series Tech Support Main	Main:	(800)	553-1623
... Credit Card Support Center	Main:	(800)	345-9186
... Credit Corporation	Main:	(203)	973-5100
... Cross System Product Ordering, Presale	Main:	(800)	426-2279
... Customer Education Schedules	Main:	(800)	426-8322
... Customer Relations Department	Main:	(201)	930-3443
... Customer Support Center	Main:	(800)	967-7882
... Customized Operational Services	Main:	(800)	999-0052
... DB2/2 Developer Asst Prgm Info/Reg	Main:	(404)	627-8363
... DB2/2 Technical Conference Enrollment	Main:	(800)	955-1236
... Dealer Support	Main:	(800)	426-7763
... Desktop Software Support Hotline	Main:	(800)	336-5430
... Developer Assistance Program Info/Reg	Main:	(800)	285-2936
... Developer Connection for OS/2	Main:	(800)	633-8266
... Direct (Supplies, Orders, Price Info)	Main:	(800)	426-2468
... Direct Response Marketing PCs, S/W	Main:	(800)	426-2968
... Direct Response Marketing-Education	Main:	(800)	426-4190
... DisplayWrite End-User Support	Main:	(800)	336-5430
... Drake Training and Technologies	Main:	(800)	959-3926
... Easy Options Technical Support	Main:	(800)	933-7573
... EduQuest Software Ordering	Main:	(800)	426-3327
TFree:(800) 426-3327	Tech:	(800)	426-6378
... Employee Sales Department	Main:	(800)	426-3675
... End User Support	Main:	(800)	772-2227
... End User Support-Fee Help Desk	Main:	(800)	937-3737
... Field Television Network Info	Main:	(800)	282-0226
... General Info	Main:	(800)	426-3333
... Hardware Authorized Service Ctr Locator	Main:	(800)	237-4824
... Hardware Service Information	Main:	(800)	624-6875
... Independence Series Prod. Info, Canada	Main:	(800)	465-7999
... Independence Series Product Info	Main:	(800)	426-4832
... Independence Series Product Info, TDD	Main:	(800)	426-4833
... Industrial PC Support Line	Main:	(800)	526-6602
... Information Network (IIN) Customer Asst	Main:	(800)	727-2222
... International Sales Information	Main:	(800)	426-1774
... Investments	Main:	(800)	426-7777
... Investments (InvestConnect-Touch tone)	Main:	(800)	426-8000
... Investments (Prospectus or literature)	Main:	(800)	426-9876
... Investments (TDD-Hearing Impaired)	Main:	(203)	352-5045
... IPDS Developer's Program Memb Info	Main:	(800)	627-8368
... IPDS Tech Support, Developer	Main:	(800)	553-1623
... IPDS Tech Support, End Users	Main:	(800)	241-1620
... ISSS Developer's Program Memb Info	Main:	(800)	627-8363
... ISSS Tech Support, Developer	Main:	(800)	553-1623
... ISSS Tech Support, End users	Main:	(800)	241-1620
... Kaleida Labs	Main:	(415)	966-0400
... LAN Automated Distribution/2	Main:	(800)	547-1283
... Licensed Education Centers Information	Main:	(800)	772-2227
... Link Customer Support Dept	Main:	(800)	543-3912
... Maintenance Agreements Dept	Main:	(800)	624-6875

IBM Corporation ... continued

... Manufacturing Systems Info	Main:	(800)	526-6602
... Materials Safety Information	Main:	(800)	426-4333
... Media Relations (product-specific)	Main:	(914)	642-3000
... Microelectronics (PowerPC, Blue Lgning)	Main:	(800)	426-0181
... Multi-Media Information	Main:	(800)	228-8584
... Multi-Media Technical Support	Main:	(800)	241-1620
... Multimedia (Ultimedia) Developer Asst	Main:	(800)	426-9402
... Multivendor Consulting	Main:	(800)	742-2493
... National Education Fulfillment Center	Main:	(800)	426-3327
... NSD Hardware Service PC Repair	Main:	(800)	426-7378
OEM Division	Main:	(914)	288-3000
TFree:(800) 636-2426			
OEM Sales	Main:	(800)	426-4579
Options by IBM	Main:	(800)	426-7299
OS/2 Application Asst Ctr (OS/2 AAC)	Main:	(800)	547-1283
OS/2 Application Solutions Catalog Ord	Main:	(800)	879-2755
OS/2 BBS Registration Information	Main:	(800)	547-1283
OS/2 CSD Ordering	Main:	(800)	494-3044
OS/2 Developer Magazine Subscriptions	Main:	(800)	926-8672
OS/2 Free Seminar Enrollment	Main:	(800)	937-3737
OS/2 Free Upgrade Order Status	Main:	(800)	677-2581
OS/2 Hardware Testing/Certification	Main:	(407)	443-4014
OS/2 Information and Sales (Canada)	Main:	(800)	465-1234
OS/2 Information and Sales (US)	Main:	(800)	342-6672
OS/2 Promotional Items	Main:	(914)	273-6755
OS/2 ServicePak Defect/Missing Diskette	Main:	(800)	897-2755
OS/2 Software Sales	Main:	(800)	776-8284
OS/2 Support BBS (Denmark)	Main:	(454)	588-7222
OS/2 Support BBS (Montreal, Canada)	Main:	(514)	938-3022
OS/2 Support BBS (Switzerland)	Main:	(415)	632-1800
OS/2 Support BBS (Toronto, Canada)	Main:	(416)	492-1823
OS/2 Support BBS (Toronto/Markham, Can)	Main:	(416)	946-4255
OS/2 Support BBS (Vancouver, Canada)	Main:	(604)	664-6466
OS/2 Support Center	Main:	(800)	992-4777
Part Number ID and Lookup	Main:	(303)	924-4015
PartnerLink (CSS/RICS) Dealer Support	Main:	(800)	426-3325
Parts Order Center	Main:	(800)	388-7080
PC Company Bulletin Board System	Main:	(919)	517-0001
PC Company Product Info Faxback	Main:	(800)	426-4329
PC Company Tech Support Faxback	Main:	(800)	426-3395
PC Direct Sales and Information	Main:	(800)	426-2968
PC Factory Outlet	Main:	(800)	426-7015
PC Help Center	Main:	(800)	772-2227
PCC Education Registration	Main:	(800)	937-3737
PenAssist Developer's Program	Main:	(404)	238-2200
Personal Dictation Series(IPDS) Order	Main:	(800)	426-2255
Personal Software Solutions Ctr	Main:	(800)	992-4777
Personal Systems Card Repair Service	Main:	(800)	759-8995
Personal Systems Direct Sales(PCs,S/W)	Main:	(800)	426-2969
Personal Systems HelpCenter	Main:	(800)	772-2227
TFree:(800) 772-2227 Fax:(800) 426-3395			
... Personal Systems Tech Presentations	Main:	(800)	547-1283
... Platinum Accounting Software Support	Main:	(800)	333-5242
... Platinum OEM Add-on Database Prods	Main:	(800)	999-1809

490 *PC Phone Book* *PC Phone Book* 491

InfoGold, American Multisystems:CA.....Main: (408) 945-2296
TFree:(800) 888-6615 Fax:(408) 945-2299

InfoMagic Inc:AZ.....Main: (520) 526-9565
TFree:(800) 800-6613 Fax:(520) 526-9573

Infonet Communications Inc:CA.....Main: (209) 446-2360
TFree:(800) 470-1555 Fax:(209) 438-8064 Tech:(209) 446-2360

Inforite Corp (see PennWare):

Information Builders:NY.....Main: (212) 763-4433
TFree:(800) 969-4636 Fax:(212) 629-8819

Information Builders Inc:NY.....Main: (212) 736-4433
TFree:(800) 969-4636 Fax:(212) 967-6406

Information Cybernetics Inc:MA.....Main: (888) 354-8585
TFree:(888) 354-8585 Fax:(617) 354-8899

Informative Graphics Corp:AZ.....Main: (602) 971-6061
Fax:(602) 971-1714 Tech:(602) 971-6061

Informix Software Inc:CA.....Main: (415) 926-6300

Inforonics Inc:MA.....Main: (508) 486-8976
Fax:(508) 486-0027

InfoVision Technologies Inc:MA.....Main: (508) 366-3660
Fax:(508) 366-2544

Infoworld:CA.....Main: (415) 572-7341
TFree:(800) 227-8365 Fax:(415) 358-1269

Ingram Book:TN.....Main: (800) 937-8000

Ingram Micro:CA.....Main: (714) 566-1000
TFree:(800) 274-4800 Fax:(714) 566-7720 Tech:(800) 234-9220

Inline Software:MA.....Main: (617) 938-8088
Fax:(617) 938-7741 Tech:(617) 935-1515

Inline, Inc:CA.....Main: (310) 690-6767
TFree:(800) 882-7117 Fax:(310) 691-5247 Tech:(800) 882-7117

Inmagic, Inc:MA.....Main: (617) 938-4442
Fax:(617) 938-6393 Tech:(617) 938-4442

Inmark Development Corp (see Rogue Waz):

Innovative Data Design (IDD):CA.....Main: (510) 680-6818
Fax:(510) 680-1165 Tech:(510) 680-6818

Innovative Electronics Corp:CO.....Main: (303) 288-5000
TFree:(800) 765-4432 Fax:(303) 288-5009

Innovative Quality Software:NV.....Main: (702) 435-9077
Fax:(702) 435-9106 Tech:(702) 435-9077

Inset Systems, Inc. (see Quarterdeck Office):

Insight Development Corp:CA.....Main: (510) 244-2000
TFree:(800) 825-4115 Fax:(510) 244-2020 Tech:(510) 244-2000

Insight Software Solutions:UT.....Main: (801) 295-1890
Fax:(801) 299-1781

Insignia Solutions:CA.....Main: (408) 327-6000
TFree:(800) 848-7677 Fax:(408) 327-6105 Tech:(408) 327-6000

Inso Corporation:IL.....Main: (312) 329-0700
TFree:(800) 333-1395 Fax:(312) 670-0820 Tech:(312) 527-4357

Int'l Electronic Research (IERC):CA.....Main: (213) 849-2481
Fax:(818) 848-8872

Integral Peripherals Inc:CO.....Main: (303) 449-8009
TFree:(800) 333-8009 Fax:(303) 449-8089 Tech:(303) 449-8009

Integrated Data Systems, Inc:GA.....Main: (912) 236-4374
Fax:(912) 236-6792 Tech:(912) 236-4374

Integrated Electronics Corp:CO.....Main: (303) 292-5537
Fax:(303) 292-0114

Integrated Information Technology:CA.....Main: (408) 727-1885
TFree:(800) 832-0770 Fax:(408) 980-0432 Tech:(408) 727-1676

Integrated Systems Inc:CA.....Main: (408) 542-1500
TFree:(800) 932-6284 Fax:(408) 542-1950 Tech:(800) 458-7767

Intel Application Support BBS:.....Main: (916) 356-3600

Intel Corp:CA.....Main: (408) 765-8080
TFree:(800) 238-0486 Fax:(408) 765-9904 Tech:(503) 266-7000

Intel PC Enhancement Division:OR.....Main: (503) 264-7354
TFree:(800) 538-3373 Fax:(503) 228-9707 Tech:(503) 264-7000

Inteltool Inc:IL.....Main: (630) 406-1041
TFree:(800) 227-3805 Fax:(630) 406-1079

Intellicom Inc:CA.....Main: (818) 407-3900
TFree:(800) 992-2882 Fax:(818) 882-2404 Tech:(818) 407-3900

IntelMedia Corp:MI.....Main: (800) 706-0077
TFree:(800) 706-0077 Fax:(616) 925-3668 Tech:(800) 706-0077

InterCon Systems:VA.....Main: (703) 709-5500
TFree:(800) 468-7266 Fax:(703) 709-5555 Tech:(703) 709-5520

InterCon Systems Corp:VA.....Main: (703) 709-5500
TFree:(800) 468-7266 Fax:(703) 709-3360 Tech:(703) 709-5520

Interface Group, The:MA.....Main: (617) 449-6600
Fax:(617) 449-2674

Interface Systems:MI.....Main: (313) 769-5900
TFree:(800) 233-2536 Fax:(313) 769-1047 Tech:(800) 233-2536

Intergraph Corp:AL.....Main: (800) 345-4856
TFree:(800) 345-4856 Fax:(205) 730-9441 Tech:(800) 633-7248

Intergraph Software Solutions:AL.....Main: (205) 730-2000
TFree:(800) 345-4856 Fax:(205) 730-9441 Tech:(800) 633-7248

Interleaf Inc:MA.....Main: (617) 290-0710
TFree:(800) 955-5323 Fax:(617) 290-4943 Tech:(800) 688-5151

Interleaf Inc:MA.....Main: (617) 290-0710
TFree:(800) 688-5151 Fax:(617) 290-4943

International Jensen (see Specialty Auto):

International Transware:CA.....Main: (415) 903-2300
Fax:(415) 903-9544 Tech:(415) 903-2300

Internex Information Services:CA.....Main: (408) 327-2355
Fax:(408) 496-5485 Tech:(408) 327-2200

Interphase Corp:TX.....Main: (214) 654-5000
TFree:(800) 327-8638 Fax:(214) 654-5500

Interplay Productions:CA.....Main: (714) 553-6655
TFree:(800) 969-4263 Fax:(714) 252-2820 Tech:(714) 553-6678

Interse Corp:CA.....Main: (408) 732-0932
Fax:(408) 732-7038

Intersolv:NC.....Main: (919) 461-4200
TFree:(800) 876-3101 Fax:(919) 461-4526 Tech:(800) 876-3101

Intex Solutions Inc:MA.....Main: (617) 449-6222
Fax:(617) 444-2318 Tech:(617) 449-6222

IntraServer Technology Inc:MA.....Main: (508) 429-0425
Fax:(508) 429-0430

Intuit, Inc:CA.....Main: (415) 322-0573
TFree:(800) 813-8025 Fax:(415) 852-9911 Tech:(415) 322-0573

Invisible Software, Inc:CA.....Main: (415) 570-5967
TFree:(800) 982-2962 Fax:(407) 260-1841 Tech:(407) 260-5007

IOMEGA Corp:UT.....Main: (801) 778-1000
TFree:(800) 697-8833 Fax:(801) 778-3460 Tech:(801) 456-5522

IPC Peripherals:CA.....Main: (510) 354-0800
Fax:(510) 354-0808 Tech:(510) 354-0800

Ipsilon:CA.....Main: (415) 446-4600
TFree: (888) 477-4566 Fax: (415) 855-1414 Tech: (415) 846-4600
IQ Software:GA.....Main: (770) 446-8880
Fax: (770) 448-0088

IQ Technologies Inc:WA.....Main: (206) 483-3555
TFree: (800) 752-6526 Fax: (206) 821-3961 Tech: (206) 823-2273

Irwin Magness Development Inc:CO.....Main: (303) 689-9998
ISDN*tek:CA.....Main: (415) 712-3000
Fax: (415) 712-3003

Island Software:CA.....Main: (415) 884-4400
TFree: (800) 255-4499 Fax: (415) 884-4500 Tech: (415) 884-4400

Isys/Odyssey Development Inc:CO.....Main: (303) 689-9998
Fax: (303) 689-9997

IT Designs USA, Inc.:CA.....Main: (408) 342-0435
TFree: (800) 437-7339 Fax: (408) 342-0435

ITAC Systems Inc.:TX.....Main: (972) 494-3073
TFree: (800) 533-4822 Fax: (972) 494-4159

ITT Pomona Electronics:CA.....Main: (909) 623-3463
Fax: (909) 629-3317

ITU Engineering:CA.....Main: (619) 456-2002
Fax: (619) 456-1905 Tech: (619) 456-2002

IVI Publishing:MN.....Main: (612) 996-6000
TFree: (800) 952-4773 Fax: (612) 996-6001

J-Mark Computer Corp.:CA.....Main: (818) 856-5800
Fax: (818) 960-5937 Tech: (818) 856-5800

J. D. Edwards:CO.....Main: (303) 488-4000
TFree: (800) 727-5333

J. River Inc.:MN.....Main: (612) 339-2521
Fax: (612) 339-4445

Jade Computer:CA.....Main: (310) 370-7474
TFree: (800) 421-5500 Fax: (310) 371-4288 Tech: (800) 421-5500

Jameco Electronics:CA.....Main: (415) 592-8097
TFree: (800) 831-4242 Fax: (415) 592-2503 Tech: (415) 592-8097

JASC, Inc.:MN.....Main: (612) 930-9171
TFree: (800) 622-2793 Fax: (612) 930-9172

Jasmine Multimedia Publishing:CA.....Main: (818) 780-3344
TFree: (800) 798-7535 Fax: (818) 780-8705 Tech: (818) 780-3344

Jazz Multimedia, Inc.:CA.....Main: (408) 727-8900
Fax: (408) 727-9092

JC Systems Inc.:DE.....Main: (302) 764-7455
JDR Microdevices:CA.....Main: (408) 494-1400
TFree: (800) 538-5000 Fax: (800) 538-5005 Tech: (800) 538-5002

Jensen Tools, Inc.:AZ.....Main: (602) 968-6241
TFree: (800) 426-1194 Fax: (602) 438-1890 Tech: (602) 968-6241

JETFAX, Inc.:CA.....Main: (415) 324-0600
TFree: (800) 753-8329 Fax: (415) 326-6003 Tech: (415) 324-0600

JetForm Corp:ON.....Main: (613) 230-3676
TFree: (800) 224-4104 Fax: (613) 751-4804 Tech: (613) 230-4700

JIAN:CA.....Main: (415) 254-5600
TFree: (800) 346-5426 Fax: (415) 254-5640 Tech: (415) 254-5600

JL Chatcom Inc.:CA.....Main: (818) 709-1778
TFree: (800) 456-1333 Fax: (818) 882-9134

JL Cooper Electronics:CA.....Main: (310) 306-4131
Fax: (310) 822-2252 Tech: (310) 306-4131

Johnson-Grace Co:CA.....Main: (714) 759-0700
Fax: (714) 729-4643 Tech: (714) 759-0700

Joseph Electronics:IL.....Main: (708) 297-6923
Fax: (708) 297-6923

Jostens Home Learning:CA.....Main: (619) 587-0087
TFree: (800) 548-8372 Fax: (619) 587-1629 Tech: (800) 548-8372

Jovian Logic Corp:CA.....Main: (510) 651-4823
Fax: (510) 651-1343 Tech: (510) 651-4823

JTS:CA.....Main: (408) 468-1800
Fax: (408) 468-1801 Tech: (408) 468-1736

Just Logic Technologies Inc.:QC.....Main: (514) 943-3749
TFree: (800) 267-6887 Fax: (514) 642-6480

JVC (Victor Company Of Japan, Ltd):CA.....Main: (714) 261-1292
Fax: (714) 261-9690

Kaetron Software:TX.....Main: (713) 298-1500
TFree: (800) 938-8900 Fax: (713) 298-2520 Tech: (713) 298-1547

Kalok Corp (see JTS):

Kalpna (see Cisco Systems):

Kasco Technologies, Inc.:NY.....Main: (212) 725-0220
Fax: (212) 725-8062 Tech: (212) 725-0220

Katz and Associates Inc.:NJ.....Main: (908) 464-7048
TFree: (800) 348-3774 Fax: (908) 464-4636

KDS (Korea Data Systems):CA.....Main: (714) 379-5599
Fax: (714) 379-5595 Tech: (714) 379-5599

Kennsco Inc.:MN.....Main: (612) 559-5100
Fax: (612) 559-5548

Kenpax:CA.....Main: (818) 855-7988
Fax: (818) 855-7980

Kensington Microware:CA.....Main: (415) 572-2700
TFree: (800) 535-4242 Fax: (415) 572-9675 Tech: (800) 535-4242

Kent Marsh Ltd:TX.....Main: (713) 522-5625
TFree: (800) 325-3587 Fax: (713) 522-8965 Tech: (713) 522-8906

Kerr Publications:MT.....Main: (406) 356-2126

Key Tronic Corp:WA.....Main: (509) 928-8000
TFree: (800) 262-6006 Fax: (509) 927-5248 Tech: (800) 262-6006

Keyfile Corp:NH.....Main: (603) 883-3800
TFree: (800) 453-9345 Fax: (603) 889-9259

Kidasa Software Inc:TX.....Main: (512) 328-0168
TFree: (800) 765-0167 Fax: (512) 328-0247 Tech: (800) 765-0167

KidSoft, L.L.C.:CA.....Main: (408) 255-3434
TFree: (800) 354-6150 Fax: (408) 342-3500 Tech: (408) 255-1328

Kinetix:CA.....Main: (415) 507-5000
Fax: (415) 507-5314

Kingston Technology Corp:CA.....Main: (714) 437-3334
TFree: (800) 337-8410 Fax: (714) 438-1820 Tech: (800) 435-0640

KL Group:NY.....Main: (616) 594-1026
TFree: (800) 663-4723 Fax: (416) 594-1919

Knowledge Adventure:CA.....Main: (818) 246-4400
TFree: (800) 542-4240 Fax: (818) 542-4205 Tech: (818) 246-4811

Knowledge Based Systems Inc:TX.....Main: (409) 260-5274
TFree: (800) 808-5274 Fax: (409) 260-1965

Knowledge Garden, Inc.:FL.....Main: (407) 615-8209
Fax: (407) 615-8461 Tech: (407) 615-8209

Knowledge Media, Inc.:CA.....Main: (916) 872-7487
TFree: (800) 782-3766 Fax: (916) 872-3826 Tech: (916) 872-7487

Knowledge Quest:CA.....Main: (714) 376-8150
Tech: (714) 376-8150

KnowledgePoint Software:CA.....Main: (707) 762-0333
TFree:(800) 727-1133 Fax:(707) 762-0802 Tech:(707) 762-0333

Kodak (see Eastman Kodak Co):

Konami Of America Inc:IL.....Main: (847) 215-5100

Korhental Associates, Inc.:NY.....Main: (212) 242-1790
TFree:(800) 527-7647 Fax:(212) 242-2599 Tech:(212) 242-1790

KorTeam International, Inc.:CA.....Main: (408) 733-7888
TFree:(800) 763-1688 Fax:(408) 733-9888 Tech:(408) 523-4757

Koss Corp:WI.....Main: (414) 964-5000
TFree:(800) 558-8305 Fax:(414) 964-8615 Tech:(800) 558-8305

Kyocera Electronics Inc:NJ.....Main: (908) 560-3400
TFree:(800) 459-6329 Fax:(908) 560-8380 Tech:(908) 560-3400

LA Computer:CA.....Main: (310) 533-7177
Fax:(310) 533-6955

LAB Tech:MA.....Main: (508) 657-5400
TFree:(800) 879-5228 Fax:(508) 658-9972 Tech:(800) 879-5228

Labtec Enterprises, Inc.:WA.....Main: (360) 896-2000
Fax:(360) 896-2020 Tech:(360) 896-2000

LaCie Limited:OR.....Main: (503) 520-9000
TFree:(800) 999-1179 Fax:(503) 520-9100 Tech:(503) 520-1266

LAN Source Technologies Inc:.....Main: (416) 535-3555
TFree:(800) 677-2727 Fax:(416) 535-6225 Tech:(416) 535-2668

LAN Times:CA.....Main: (415) 513-6800

LAN Times Testing Center:UT.....Main: (801) 342-6800
Fax:(801) 342-6837

LANart Corp:MA.....Main: (800) 292-1994
TFree:(800) 292-1994 Fax:(617) 444-3692

Landmark Research (see Quarterdeck Sel):

LANshark Systems, Inc:OH.....Main: (614) 751-1111
Fax:(614) 751-1112 Tech:(614) 751-1111

Lantec:UT.....Main: (801) 375-7050
Fax:(801) 375-7043 Tech:(801) 352-6832

Lantronix:CA.....Main: (714) 453-3990
TFree:(800) 422-7055 Fax:(714) 453-3995 Tech:(800) 422-7044

Lapis Technologies (Focus Enhancements):

Laser Age:UT.....Main: (801) 374-6925
TFree:(888) 527-3724 Fax:(801) 374-6925

Laser Magnetic Storage Intl(see Phillips):

Laser Master Technologies:MN.....Main: (612) 944-6069
TFree:(800) 950-8868 Fax:(612) 944-6932 Tech:(612) 944-6069

Laser Printers Accessories (see PCPI):

LaserGo, Inc:CA.....Main: (619) 578-3100
Fax:(619) 578-4502 Tech:(619) 578-3100

LaserMaster Corp (Mac):MN.....Main: (612) 944-9330
TFree:(800) 300-5479 Fax:(612) 944-0522 Tech:(612) 944-8008

LaserMaster Corp (PC):MN.....Main: (612) 944-9457
TFree:(800) 300-5479 Fax:(612) 944-0522 Tech:(612) 944-9331

LaserSoft, Inc:MN.....Main: (612) 944-8161
Fax:(612) 944-8648 Tech:(612) 944-7699

LaserTools Corp:CA.....Main: (510) 420-8777
Fax:(510) 420-1150 Tech:(510) 420-1319

Lasonic Electronics Corp.:CA.....Main: (818) 281-3957
Fax:(818) 576-7314 Tech:(818) 281-3957

Lattice, Incorporated:IL.....Main: (708) 769-4060
TFree:(800) 444-4309 Fax:(708) 769-4083 Tech:(708) 769-4060

Lazer Impact:TX.....Main: (512) 832-9151
TFree:(800) 777-4323 Fax:(512) 832-9321 Tech:(512) 966-3621

Lead Technologies, Inc.:NC.....Main: (704) 332-5532
TFree:(800) 637-4699 Fax:(704) 372-8161 Tech:(704) 372-9681

Leader Technologies:CA.....Main: (714) 757-1787
TFree:(800) 922-1787 Fax:(714) 822-1241 Tech:(505) 822-0700

Learned-Mahn, Inc.:ID.....Main: (208) 336-2281
TFree:(800) 727-5009 Fax:(208) 343-2105 Tech:(208) 342-0979

Learning Company, The:CA.....Main: (510) 792-2101
TFree:(800) 852-2255 Fax:(510) 792-9628 Tech:(800) 852-2255

LearnIT Corp.:FL.....Main: (352) 375-6655
TFree:(800) 352-4806 Fax:(352) 376-0022 Tech:(352) 375-6655

LearnKey, Inc.:UT.....Main: (801) 674-9733
TFree:(800) 865-0165 Fax:(801) 674-9734 Tech:(520) 717-1733

Legato Systems:CA.....Main: (415) 812-6000
Fax:(415) 812-6032 Tech:(415) 812-6100

Legi-tech:CA.....Main: (916) 447-1886
Fax:(916) 447-1109 Tech:(916) 447-1887

Lenel Systems International Inc.:NY.....Main: (716) 248-9720
TFree:(800) 225-3635 Fax:(716) 248-9185 Tech:(716) 248-9720

Leverage Technologists Inc:MD.....Main: (301) 309-8783

Lexmark International Inc:KY.....Main: (606) 232-2000
Fax:(606) 232-5179 Tech:(800) 453-9872

... Customer Support.....Main: (800) 258-8575

... Hardware Service Support.....Main: (800) 426-7378

... Printer Technical Support.....Main: (606) 232-3000
TFree:(800) 253-9778

Liant Software Corp.:MA.....Main: (508) 872-8700
Fax:(508) 626-2221

Liant Software Corp. (Product Div):TX.....Main: (512) 719-7060
TFree:(800) 349-9222 Fax:(512) 345-8010

Liant Software Corp. (R.M. Division):TX.....Main: (512) 343-1010
TFree:(800) 762-6265 Fax:(512) 343-9487 Tech:(512) 343-1010

Liant Software Corp. (Software Serv):TX.....Main: (512) 371-7028
Fax:(512) 371-7609

Libra Corp:UT.....Main: (801) 943-2084
TFree:(800) 453-3827

Lifeboat Assoc (Programmers Paradise):NJ.....Main: (908) 389-8950
TFree:(800) 445-7899 Fax:(908) 389-9227 Tech:(908) 389-0037

Lifestyle Software Group:FL.....Main: (904) 825-0220
TFree:(800) 289-1157 Fax:(904) 825-0223 Tech:(904) 794-7955

Light Source Computer Images Inc:CA.....Main: (415) 925-4200
TFree:(800) 231-7226 Fax:(415) 461-8011 Tech:(415) 461-3030

Lighten Inc:CA.....Main: (510) 528-4376
TFree:(800) 398-4545 Fax:(510) 236-2678

Lilly Software Associates Inc.:NH.....Main: (603) 926-9696
Fax:(603) 926-9698

Lind Electronic Design:MN.....Main: (612) 927-6303
TFree:(800) 659-5956 Fax:(612) 927-7444 Tech:(800) 659-5956

Link Instruments Inc.:NJ.....Main: (201) 808-8990
Fax:(201) 808-8786

Link Technologies (see Wyse Technology):

Linksys Group Inc.:CA.....Main: (714) 261-1288
TFree:(800) 546-5797 Fax:(714) 261-8868 Tech:(714) 261-1288

Liwski International, Inc:NY.....Main: (516) 454-8220
TFree:(800) 454-2154 Fax:(516) 454-8261 Tech:(800) 347-5454

Luski International, Inc:GA Main: (404) 447-9454
TFree:(800) 454-2154 Fax:(404) 368-8095 Tech:(800) 347-5454

Locus Computing Corp:CA Main: (310) 670-6500
TFree:(800) 423-2386 Fax:(310) 670-2980 Tech:(310) 337-5995

Logical Connection Inc (see Buffalo Inc):

Logitech Technology Inc:CA Main: (805) 388-9000
TFree:(800) 735-6442 Fax:(805) 383-2508 Tech:(805) 388-9000

Logitech, Inc.:CA Main: (510) 795-8500
TFree:(800) 231-7717 Fax:(510) 792-8901 Tech:(510) 795-8500

Lotus:MA Main: (617) 577-8500
TFree:(800) 343-5414 Fax:(617) 693-4551 Tech:(508) 988-2500

... Academic Main: (800) 343-5414
Tech:(800) 343-5414

... Business Sales and Service Main: (800) 343-5414
Tech:(800) 343-5414

... CC:Mail Main: (415) 961-8800
TFree:(800) 448-2500 Tech:(800) 448-2500

... Notes Support Main: (800) 828-7086
TFree:(800) 828-7086 Tech:(508) 988-2750

... Passport Main: (800) 266-8720
Tech:(800) 266-8720

... Word Processing Main: (770) 391-0011
TFree:(800) 343-5414 Fax:(770) 698-7659 Tech:(508) 988-2500

LSI Logic Corp:CA Main: (408) 943-8000
TFree:(800) 433-8778 Fax:(408) 433-8989

LucasArts Entertainment:CA Main: (800) 985-8227
TFree:(800) 985-8227 Fax:(818) 587-6629 Tech:(415) 507-4545

Lucid Corp:TX Main: (214) 994-8100
Fax:(214) 994-8103 Tech:(214) 994-8101

Lynx Real-Time Systems Inc:CA Main: (408) 879-3900
TFree:(800) 255-5969 Fax:(408) 879-3920

Lytec Systems Inc:UT Main: (801) 562-0111
TFree:(800) 735-1991 Fax:(801) 562-0256 Tech:(801) 562-0111

M-USA Business Systems:TX Main: (214) 386-6100
TFree:(800) 933-6872 Fax:(214) 404-1957 Tech:(214) 490-0100

MA Laboratories Inc.:CA Main: (408) 954-0608
Fax:(408) 954-0944

Mackie Designs Inc.:WA Main: (206) 487-4333
TFree:(800) 258-6883 Fax:(206) 487-4337

MacMillan Computer Publishing:IN Main: (317) 581-3500
TFree:(800) 428-5331 Fax:(800) 882-8583 Tech:(800) 545-5914

Macmillan New Media (see Elect Press):

Macromedia:TX Main: (214) 680-2060
Tech:(214) 680-2093

Macromedia, Inc.:CA Main: (415) 252-2000
TFree:(800) 470-7211 Fax:(415) 442-0190 Tech:(415) 252-9080

Madge Networks:CA Main: (408) 955-0700
TFree:(800) 876-2343 Fax:(408) 955-0970 Tech:(800) 876-2343

MaeDae Enterprises:CO Main: (719) 683-3860
TFree:(888) 683-3860 Fax:(719) 683-5199

MAG InnoVision Inc:CA Main: (714) 751-2008
TFree:(800) 827-3998 Fax:(714) 751-5522 Tech:(714) 751-2008

Magee Enterprises, Inc:GA Main: (770) 446-6611
TFree:(800) 662-4330 Fax:(770) 368-0719 Tech:(770) 662-5387

Magic Solutions, Inc.:NJ Main: (201) 587-1515
TFree:(800) 966-9695 Fax:(201) 587-8005 Tech:(800) 966-9695

Magna:CA Main: (408) 879-7919
TFree:(800) 806-2462 Fax:(408) 879-7979 Tech:(408) 879-7911

Magnavox (Phillips Consumer Electro.):TN Main: (615) 475-8869
Tech:(800) 722-6224

Magnetic Music:CA Main: (408) 684-2654
Fax:(408) 662-3134

Magus Software, Inc.:CA Main: (415) 940-1109
Fax:(415) 940-1238 Tech:(415) 940-1109

Mailor's Software:CA Main: (714) 492-7000
TFree:(800) 800-6245 Fax:(714) 492-7086 Tech:(714) 492-7000

Mainstay:CA Main: (805) 484-9400
TFree:(800) 484-9817 Fax:(805) 484-9428 Tech:(805) 484-9400

Maintenance Troubleshooting:DE Main: (302) 738-0532
Fax:(302) 738-3028

Mannesmann Tally:WA Main: (206) 251-5500
TFree:(800) 843-1347 Fax:(206) 251-5520 Tech:(206) 251-5500

Mansfield Software Group, Inc:CT Main: (860) 429-8402
Fax:(860) 487-1185 Tech:(860) 429-8402

ManTech Systems/InSync:VA Main: (703) 913-2400
Tech:(703) 913-2400

Manugistics, Inc:MD Main: (301) 984-5000
TFree:(800) 592-0050 Fax:(301) 984-5370 Tech:(301) 984-5489

MapInfo:NY Main: (518) 285-6000
TFree:(800) 327-8627 Fax:(518) 285-6070 Tech:(518) 285-6000

MapLinx Corp:TX Main: (214) 231-1400
TFree:(800) 352-3414 Fax:(214) 248-2690 Tech:(214) 231-1400

Mark IV Industries, Inc:NY Main: (716) 689-4972
Fax:(716) 689-1529 Tech:(716) 689-4972

Mark Of The Unicorn, Inc.:MA Main: (617) 576-2760
Fax:(617) 576-3609 Tech:(617) 576-3066

MarketArts:TX Main: (214) 235-9594
TFree:(800) 998-8439 Fax:(214) 783-8798 Tech:(214) 783-6793

MarketForce:TX Main: (817) 277-3000
TFree:(800) 766-7355 Fax:(817) 274-6700 Tech:(817) 277-3000

Marlin P. Jones & Assoc Inc:FL Main: (407) 848-8236
TFree:(800) 652-6733 Fax:(561) 848-1125 Tech:(407) 848-8236

Marshall Industries:CA Main: (818) 307-6000
TFree:(800) 877-9839 Fax:(818) 307-6187 Tech:(818) 307-6033

Masque Publishing:CO Main: (303) 290-9853
TFree:(800) 765-4223 Fax:(303) 290-6303 Tech:(303) 290-9853

Mass Micro Systems Mega Tape:

... A Division of Restore Technology Main: (408) 946-9207
TFree:(800) 950-9025 Fax:(408) 946-4746

Masterclips Graphics (see IMSI Software):

MasterSoft, Inc. (see Adobe Systems):

MathSoft, Inc:MA Main: (617) 577-1017
TFree:(800) 628-4223 Fax:(617) 577-8829 Tech:(970) 339-7119

MathSoft, Inc (see Adobe):

MathWorks Inc., The:MA Main: (508) 653-1415
Fax:(508) 653-2997 Tech:(508) 647-7200

Matrox Graphics Inc:QU Main: (514) 969-6320
TFree:(800) 361-1408 Fax:(514) 969-6363

Matrox Graphics Inc (MGA):QC Main: (514) 969-6320
TFree:(800) 361-1408 Fax:(514) 969-6363 Tech:(514) 685-0270

Maxell Corp Of America:NJ Main: (201) 795-5900
TFree:(800) 533-2836 Fax:(201) 796-8790 Tech:(201) 795-5900

Maxi Switch, Inc:AZ Main: (520) 294-5450
 Fax: (520) 294-6890 Tech: (520) 746-9378
Maximized Software:CA Main: (714) 955-5800
 TFree: (888) 629-7638 Fax: (714) 955-5801
Maximum Strategy Inc.:CA Main: (408) 383-1600
 Fax: (408) 383-1616
Maxis Software:CA Main: (510) 933-5630
 TFree: (800) 336-2947 Fax: (510) 927-3736 Tech: (510) 927-3905
Maxoptix Corp.:CA Main: (510) 353-9700
 TFree: (800) 848-3092 Fax: (510) 353-1845 Tech: (800) 848-3092
MaxTech Corporation:CA Main: (310) 483-5015
 TFree: (800) 936-7629 Fax: (310) 802-9605
MaxTch GVC:NJ Main: (201) 586-3008
 TFree: (800) 289-4821 Fax: (201) 586-3308 Tech: (201) 586-8686
Maxtor Corp.:CO Main: (303) 651-6000
 TFree: (800) 262-9867 Fax: (303) 678-2260 Tech: (800) 262-9867
Maxtor Corp.:CA Main: (408) 432-1700
 TFree: (800) 262-9867 Fax: (408) 432-4510 Tech: (800) 262-9867
Maxus Group:CA Main: (818) 851-9779
 Fax: (909) 598-8838
Maynard Electronic (see Conner Periph):
McAfee Associates, Inc.:CA Main: (408) 988-3832
 Fax: (408) 970-9727 Tech: (408) 988-3832
McAfee East:NJ Main: (408) 988-3832
 TFree: (800) 552-9876 Fax: (408) 970-9727 Tech: (908) 530-9650
McGraw-Hill, Inc Direct Marketing:OH Main: (800) 262-4729
 TFree: (800) 262-4729 Fax: (614) 759-3641
MCM Electronics:OH Main: (513) 434-0031
 TFree: (800) 543-4330 Fax: (513) 434-6959 Tech: (800) 824-8324
MCS Products, Inc.:NY Main: (212) 989-2500
 Tech: (212) 989-2500
MECA Software LLC:CT Main: (203) 256-5000
 Fax: (203) 255-6300 Tech: (203) 255-7562
MECC (Minnesota Educational Comp.):MN Main: (612) 569-1500
 TFree: (800) 685-6322 Fax: (612) 569-1551
Media Vision Inc:CA Main: (510) 770-8600
 TFree: (800) 348-7116 Fax: (510) 770-8648 Tech: (900) 555-1133
MediaForm, Inc.:PA Main: (610) 458-9200
 TFree: (800) 220-1215 Fax: (610) 458-9554 Tech: (610) 458-9200
Mediamagic (see IPC Technology):
Meditools Inc:CA Main: (805) 566-6200
 TFree: (800) 472-9025 Fax: (805) 566-6385 Tech: (805) 566-6239
Mega Drive Systems:CA Main: (310) 247-0006
 TFree: (800) 322-4744 Fax: (310) 970-8033 Tech: (310) 970-8000
Megahertz Corp:UT Main: (801) 320-7000
 TFree: (800) 527-8677 Fax: (801) 320-6010 Tech: (801) 320-7777
Megaimage Inc.:CA Main: (909) 469-1760
 TFree: (800) 250-1876 Fax: (909) 469-1761 Tech: (800) 555-4736
Megamedia Corp:CA Main: (408) 428-9920
 TFree: (800) 634-2633 Fax: (408) 428-9924 Tech: (408) 428-9920
Megatech Software:CA Main: (310) 320-8287
 TFree: (800) 258-6342 Fax: (310) 539-8450 Tech: (310) 320-8287
Memorex Telex Corp:TX Main: (972) 444-3500
 TFree: (800) 944-4455 Fax: (972) 444-3501
Mentat Inc.:CA Main: (310) 208-2650
 Fax: (310) 208-3724

Mentor Electronics, Inc.:OH Main: (216) 951-1884
 Fax: (216) 951-0107 Tech: (216) 951-1884
Mercury Interactive Corp:CA Main: (408) 523-9900
 TFree: (800) 837-8911 Fax: (408) 523-9911
Mergent International:CT Main: (860) 257-4223
 TFree: (800) 688-1199 Fax: (860) 257-4245 Tech: (800) 688-3227
Meridian Data Inc.:CA Main: (408) 438-3100
 TFree: (800) 767-2537 Fax: (408) 438-6816 Tech: (800) 755-8324
Meridian Software Inc.:NC Main: (919) 518-1070
 Fax: (919) 518-1170
Merisel:CA Main: (213) 615-3080
 TFree: (800) 645-7778 Tech: (800) 832-4003
Merit Studios, Inc:TX Main: (214) 385-2353
 Fax: (214) 385-8205 Tech: (214) 385-2957
Meritec:OH Main: (216) 354-3148
 Fax: (216) 354-0509
Merritt Computer Products, Inc:TX Main: (214) 339-0753
 TFree: (800) 530-1693 Fax: (214) 339-1313 Tech: (214) 339-0753
Metacard Corp:CO Main: (303) 447-3936
 Fax: (303) 499-9855
MetaTools, Inc.:CA Main: (805) 566-6200
 Fax: (805) 566-6385 Tech: (805) 566-6200
Methode Electronics Inc:IL Main: (708) 867-9600
 TFree: (800) 323-6858 Fax: (708) 867-9130 Tech: (708) 867-9600
Metro Software Inc.:AZ Main: (520) 292-0313
 Fax: (520) 292-1563
Metz Software, Inc.:WA Main: (206) 641-4525
 TFree: (800) 447-1712 Fax: (206) 644-6026 Tech: (206) 641-4525
Micah Development Corp.:MA Main: (617) 641-1500
 TFree: (800) 653-1783 Fax: (617) 641-1973 Tech: (617) 641-2017
Micro 2000 Inc:CA Main: (818) 547-0125
 TFree: (800) 864-8008 Fax: (818) 547-0397 Tech: (800) 511-3032
Micro Accessories Inc:CA Main: (510) 226-6310
 TFree: (800) 777-6687 Fax: (510) 226-6316 Tech: (510) 226-6310
Micro Computer Cable Company:MI Main: (313) 946-9700
 Fax: (313) 946-9645 Tech: (801) 796-8700
Micro Design International, Inc.:FL Main: (407) 677-8333
 TFree: (800) 920-8205 Fax: (407) 677-8365
Micro Firmware, Inc.:OK Main: (405) 321-8333
 TFree: (800) 767-5465 Fax: (405) 573-5535 Tech: (405) 321-8333
Micro Focus:CA Main: (415) 856-4161
 Fax: (415) 856-6134
Micro House International, Inc.:CO Main: (303) 443-3388
 TFree: (800) 926-8299 Fax: (303) 443-3323 Tech: (303) 443-3389
Micro Solutions:IL Main: (815) 756-3411
 TFree: (800) 890-7227 Fax: (815) 756-2928 Tech: (815) 745-4500
Micro Sports Inc.:TN Main: (615) 877-6310
 TFree: (800) 937-7737 Tech: (706) 673-4715
Micro Star:CA Main: (619) 931-4949
 TFree: (800) 444-1343 Fax: (619) 931-4950 Tech: (619) 931-4949
MicroBiz Corp:NJ Main: (201) 512-0900
 TFree: (800) 637-8268 Fax: (201) 512-1919 Tech: (201) 512-0900
Microchip Technology Inc.:AZ Main: (602) 786-7200
Microcom Inc:MA Main: (617) 551-1000
 TFree: (800) 822-8224 Fax: (617) 551-1021 Tech: (617) 551-1414

MicroData Corp.:FL.....Main: (813) 573-5900
 TFree:(800) 539-0123 Fax:(813) 572-5085 Tech:(408) 261-7090
Microdyne Corp.:FL.....Main: (904) 687-4633
 TFree:(800) 255-3967 Fax:(904) 687-3392 Tech:(800) 255-3967
Microdyne Corp.(Corporate Hq):VA.....Main: (703) 329-3700
 TFree:(800) 255-3967 Fax:(703) 329-3722 Tech:(800) 255-3967
Micrografx, Inc.:TX.....Main: (214) 234-1789
 TFree:(800) 733-3729 Fax:(214) 234-2410 Tech:(214) 234-2694
MicroHelp Inc.:GA.....Main: (770) 516-0899
 TFree:(800) 922-3383 Fax:(770) 516-1099
Microid Research, Inc.:MA.....Main: (508) 851-6080
 TFree:(508) 851-6615 Tech:(617) 985-6432
Microleague Interactive Software(Out of Bus):
MicroLogic Software Inc.:CA.....Main: (510) 652-5464
 TFree:(800) 888-9078 Fax:(510) 652-7079 Tech:(510) 652-5464
Microlytics & Selectronics:NY.....Main: (716) 248-9150
 TFree:(800) 239-1320 Fax:(716) 248-3868 Tech:(716) 248-9150
Micromedia:CA.....Main: (415) 252-2000
 Tech:(415) 252-2000
 Main: (919) 558-9225
MicroMedium Inc.:NC.....Main: (919) 558-9338
 TFree:(800) 764-2115 Fax:(919) 558-9338
Micron Technology Inc.:ID.....Main: (208) 368-4000
 TFree:(800) 932-4992 Fax:(208) 368-4431
MicroNet Technology Inc.:CA.....Main: (714) 453-6000
 Fax:(714) 453-6001 Tech:(714) 453-6060
MicroNet Technology, Inc.:CA.....Main: (714) 453-6100
 TFree:(800) 800-3475 Fax:(714) 453-6101 Tech:(714) 453-6060
Micronetics Design Corp.:MD.....Main: (301) 258-2605
 TFree:(800) 433-7581 Fax:(301) 840-8943
Micronics Computers Inc.:CA.....Main: (510) 651-2300
 TFree:(800) 577-0977 Tech:(510) 661-3000
Micronics Computers, Inc.:CA.....Main: (510) 651-2300
 TFree:(800) 577-0977 Fax:(510) 651-6992 Tech:(510) 661-3000
Microplex Systems Ltd.:BC.....Main: (604) 444-4232
 TFree:(800) 665-7798 Fax:(604) 444-4239
Micropolis Corp.:CA.....Main: (818) 709-3300
 TFree:(800) 395-3000 Fax:(818) 701-2809 Tech:(818) 709-3325
MicroProcessors Unlimited:OK.....Main: (918) 267-4961
 Fax:(918) 267-9879 Tech:(918) 267-4961
Microprose Software:MD.....Main: (410) 771-1151
 TFree:(800) 876-1151 Fax:(410) 771-9150 Tech:(410) 771-1151
MicroRidge Systems Inc.:OR.....Main: (541) 593-1656
 Fax:(541) 593-5652 Tech:(541) 689-3265
Microrim Inc.:WA.....Main: (206) 649-9500
 TFree:(800) 628-6990 Fax:(206) 649-2789 Tech:(206) 649-9551
Microsoft Corporation:WA.....Main: (206) 882-8080
 TFree:(800) 426-9400 Fax:(206) 936-7329 Tech:(800) 322-1233
... Access.....Main: (206) 635-7050
... Authorized Support Centers.....Main: (800) 936-3500
... Autopap.....Main: (206) 635-7146
... Basic PDS.....Main: (206) 635-7053
... Bob.....Main: (206) 635-7044
... Bulletin Board System.....Main: (206) 936-6735
... Canadian Support.....Main: (905) 568-3503
... CD-ROM Installation.....Main: (206) 635-7033
... Consulting Services.....Main: (800) 426-9400

Microsoft Corporation ... continued

Delta.....Main: (206) 635-7019
Developer Network.....Main: (800) 759-5474
Download Service-USA.....Main: (206) 936-6735
Excel for the Macintosh.....Main: (206) 635-7080
Excel for Windows and OS/2.....Main: (206) 635-7070
Excel SDK.....Main: (206) 635-7048
Fast Tips, Business Systems.....Main: (800) 936-4400
Fast Tips, Desktop Applications.....Main: (800) 936-4100
Fast Tips, Development Tools.....Main: (800) 936-4300
Fast Tips, Home Products.....Main: (800) 936-4100
Fast Tips, Personal Op Systems.....Main: (800) 936-4200
FORTRAN.....Main: (206) 635-7015
Forum on CompuServe.....Main: (800) 848-8199
Fox prods, MS-DOS, Windows & UNIX.....Main: (206) 635-7191
Fox products, Macintosh.....Main: (206) 635-7192
FTP Site - http://ftp.microsoft.com
Hardware-Mouse, BallPoint, etc......Main: (206) 635-7040
Macro Assembler (MASM).....Main: (206) 646-5109
Magic School Bus and Kids Products.....Main: (206) 635-7140
Money.....Main: (206) 635-7131
MS Plus.....Main: (206) 635-7122
MS-DOS 6.0/MS-DOS 6.2 Upgrades.....Main: (206) 646-5104
Multimedia Products.....Main: (206) 635-7172
Office for the Macintosh.....Main: (206) 635-7055
Office for Windows.....Main: (206) 635-7056
PowerPoint.....Main: (206) 635-7145
Premier Support/Sales & Info.....Main: (800) 936-3500
Priority Comprehensive.....Main: (900) 555-2100
Priority Comprehensive-CC.....Main: (800) 936-5900
Priority Desktop App-CC (Canada).....Main: (800) 668-7975
Priority Desktop Applications.....Main: (900) 555-2000
Priority Desktop Applications-CC.....Main: (800) 936-5700
Priority Develop. w/Desktop-CC.....Main: (800) 936-5800
Priority Development w/Desktop.....Main: (900) 555-2300
Priority Home Products.....Main: (900) 555-2400
Priority Home Products-CC.....Main: (800) 936-5600
Priority Personal Op Sys-CC.....Main: (800) 936-5700
Priority Personal Operating Sys.....Main: (900) 555-2000
Profiler.....Main: (206) 635-7015
Profit.....Main: (800) 723-3333
Project.....Main: (206) 635-7155
Publisher.....Main: (206) 635-7140
QuickBasic.....Main: (206) 646-5101
QuickC.....Main: (206) 635-7010
Scenes and Games.....Main: (206) 637-9308
Schedule.....Main: (206) 635-7049
Solution Provider Line.....Main: (800) 765-7768
Solution Provider Sales & Info.....Main: (800) 426-9400
Support Consulting Line.....Main: (800) 936-1565
Support Network Sales & Info.....Main: (800) 936-3500
Switcher Line.....Main: (206) 635-7041
TechNet.....Main: (800) 344-2121
Test for Windows.....Main: (206) 635-7052
Toronto, Canada BBS.....Main: (905) 507-3022
TT/TDD (Text Telephone).....Main: (206) 635-4948

Microsoft Corporation ... continued

... Video for Windows Main: (206) 635-7172
 ... Visual Basic Main: (206) 646-5105
 ... Visual Basic Professional Toolkt Main: (206) 646-5105
 ... Visual C/C++ Main: (206) 635-7007
 ... Windows 95 Main: (206) 635-7007
 ... Windows Developer Standards Support Main: (206) 635-3329
 ... Windows Entertainment Products Main: (206) 635-9008
 ... Windows NT(Installation Support) Main: (206) 637-7018
 ... Windows/Windows for Workgroups Main: (206) 637-7098
 ... Word for MS-DOS Main: (206) 635-7210
 ... Word for the Macintosh Main: (206) 462-9673
 ... Word for Windows Main: (206) 635-7160
 ... Works for the Macintosh Main: (206) 635-7150
 ... Works for the MS-DOS Main: (206) 635-7150
 ... World Wide Web - <http://www.microsoft.com>

Microspeed, Inc:CA Main: (510) 490-1403
 TFree:(800) 232-7888 Fax:(510) 490-1665 Tech:(800) 232-7888

Microspot:CA Main: (408) 253-2000
 TFree:(800) 622-7568 Fax:(408) 253-2055 Tech:(408) 257-4000

Microstar Laboratories Inc:WA Main: (206) 453-2345
 Fax:(206) 453-3199

Microstar Software Ltd.:ON Main: (613) 596-2233
 TFree:(800) 267-9975 Fax:(613) 596-5934

MicroSupply (Corporate):WA Main: (206) 885-5420
 Fax:(206) 885-9181 Tech:(206) 885-5420

MicroSupply: AZ:AZ Main: (602) 829-1258
 Fax:(602) 829-1966 Tech:(602) 829-1258

MicroSupply: CO:CO Main: (303) 792-5474
 Fax:(303) 792-5667

MicroSupply: NV:NV Main: (702) 739-3393
 Fax:(702) 798-9897

MicroSupply: OH:OH Main: (216) 498-9916
 Fax:(216) 498-9948

MicroSupply: OR:OR Main: (503) 827-0359
 Fax:(503) 627-0360

MicroSupply: UT:UT Main: (801) 972-3680
 Fax:(801) 972-3808

MicroSupply: WA:WA Main: (208) 922-1127
 Fax:(208) 922-1224 Tech:(208) 922-1127

MicroSystems Development Tech.:CA Main: (408) 296-4000
 Fax:(408) 296-5877 Tech:(408) 296-4000

Microsystems Software (CyberWare):MA Main: (508) 879-9000
 TFree:(800) 489-2001 Fax:(508) 826-8515 Tech:(508) 879-9000

Microsystems Software (HandiWare):MA Main: (508) 879-9000
 TFree:(800) 489-2001 Fax:(508) 826-8515 Tech:(508) 879-9000

MicroTac Software (see Globalink Inc):

Microtech Corp:VA Main: (540) 937-3298
 Fax:(540) 937-3299

Microtech International:CT Main: (203) 468-6223
 TFree:(800) 777-4276 Fax:(203) 468-6466 Tech:(800) 626-4276

Microtek Lab Inc:CA Main: (310) 297-5000
 TFree:(800) 654-4160 Fax:(310) 297-5050 Tech:(310) 297-5100

Microtest, Inc.:AZ Main: (602) 952-6400
 TFree:(800) 526-9675 Fax:(602) 952-6401 Tech:(602) 952-6650

MicroTouch Systems, Inc:MA Main: (508) 659-9000
 TFree:(800) 642-7686 Fax:(508) 659-9100 Tech:(508) 659-9200

Microware Education Centers:CA Main: (408) 567-9700
 TFree:(800) 444-7300 Fax:(408) 567-9797

MicroWay, Inc.:MA Main: (508) 746-7341
 Fax:(508) 746-4678 Tech:(508) 746-7341

Midak:AZ Main: (602) 266-9029
 TFree:(800) 264-9029 Fax:(602) 266-6252

MIDI Solutions, Inc.:BC Main: (604) 794-3013
 TFree:(800) 561-6434 Fax:(604) 794-3396 Tech:(604) 794-3013

Midisoft Corporation:WA Main: (206) 391-3610
 TFree:(800) 776-6434 Fax:(206) 391-3422 Tech:(206) 313-3495

Milan Technology (Digi Lan Connect):CA Main: (408) 744-2770
 TFree:(800) 344-4273 Fax:(408) 744-2790 Tech:(408) 744-2751

Miles Tek:TX Main: (817) 455-7444
 TFree:(800) 524-7444 Fax:(817) 455-2111

Miller Freeman, Inc.:CA Main: (415) 905-2200
 TFree:(800) 227-4675 Fax:(415) 905-2232 Tech:(415) 905-2200

Mindscape:CA Main: (415) 897-9900
 TFree:(800) 234-3088 Fax:(415) 897-2747 Tech:(415) 898-5157

Ministor Peripherals (Out of Business):

Miramar Systems:CA Main: (805) 966-2432
 Fax:(805) 965-1824 Tech:(805) 966-2432

Misco Power Up:NJ Main: (908) 264-8200
 TFree:(800) 876-4726 Fax:(908) 264-5955 Tech:(800) 876-4726

Mitsubishi Electronics:CA Main: (213) 217-5732
 TFree:(800) 843-2515 Tech:(800) 344-6352

Mitsubishi Electronics of America:CA Main: (714) 220-2500
 TFree:(800) 344-6352 Fax:(714) 229-3854 Tech:(800) 344-6352

Mitsumi Electronics Corp:NY Main: (516) 752-7730
 TFree:(800) 648-7864 Fax:(516) 752-7490 Tech:(415) 691-4465

Mitsumi Electronics Corp:TX Main: (214) 550-7300
 Fax:(214) 550-7424 Tech:(415) 691-4465

MKS (Mortice Kern Systems):ON Main: (519) 884-2251
 TFree:(800) 265-2797 Fax:(519) 884-8861 Tech:(519) 884-2270

MMB Development Corporation:CA Main: (310) 318-1322
 TFree:(800) 832-6022 Fax:(310) 318-2162

MMF Cash Drawer Co:IL Main: (847) 537-7890
 TFree:(800) 323-8181 Fax:(847) 537-1120 Tech:(800) 323-8181

Mobius Computer Corp.:CA Main: (510) 460-5252
 TFree:(800) 682-4871 Fax:(510) 460-5249

Monotype Typography Inc.:IL Main: (847) 718-0500
 TFree:(800) 666-6897 Fax:(847) 718-0500 Tech:(800) 666-6897

Monster Cable:CA Main: (415) 871-6000
 Fax:(415) 871-0641 Tech:(415) 871-6000

Moon Valley Software:CA Main: (805) 781-3890
 TFree:(800) 473-5509 Fax:(805) 781-3898 Tech:(800) 473-5509

Most Significant Bits, Inc.:OH Main: (216) 934-1385
 TFree:(800) 755-4619 Fax:(216) 934-1386 Tech:(216) 934-1397

Motion Works Inc:BC Main: (604) 685-9975
 Fax:(604) 685-6105

Motorola:AL Main: (205) 430-8000
 TFree:(800) 221-4380 Fax:(203) 430-8973 Tech:(205) 726-0798

Motorola Inc.:IL Main: (708) 576-5000
 Fax:(708) 576-7653 Tech:(800) 311-6456

Motorola Inc:TX Main: (512) 891-2500
 Fax: (512) 891-2552
Motorola ISG:MA Main: (508) 261-4307
 TFree: (800) 544-0062 Fax: (508) 339-1105 Tech: (508) 261-0366
MountainGate:NV Main: (702) 851-9393
 TFree: (800) 556-0222 Fax: (702) 851-5533 Tech: (800) 447-8302
Mouse Systems Corp:CA Main: (510) 656-1117
 TFree: (800) 886-6423 Fax: (510) 770-1924 Tech: (510) 656-1117
Mouser Electronics:TX Main: (817) 483-4422
 TFree: (800) 346-6873 Fax: (817) 483-0931
MPI Media Group:IL Main: (708) 460-0555
 TFree: (800) 777-2223 Fax: (708) 460-0175 Tech: (708) 460-0555
Mueller Technical Research:IL Main: (708) 726-0709
 Fax: (708) 726-0710
Multi-Ad Services:IL Main: (309) 692-1530
 TFree: (800) 447-1950 Fax: (309) 692-6566 Tech: (515) 288-2628
Multi-Net Communications:OR Main: (503) 883-8099
 TFree: (800) 235-7789 Fax: (503) 883-7879
Multi-Tech Systems, Inc:MN Main: (612) 785-3500
 TFree: (800) 328-9717 Fax: (612) 785-9874 Tech: (800) 972-2439
Multi-Tech Systems, Inc:MN Main: (612) 785-3500
 TFree: (800) 328-9717 Fax: (612) 785-9874 Tech: (800) 972-2439
Multicom Publishing:CA Main: (415) 777-5300
 TFree: (800) 850-7272 Fax: (415) 777-4729 Tech: (800) 850-7272
Multimedia Integrated:CA Main: (415) 872-7100
 Fax: (415) 872-7133 Tech: (415) 872-7120
Multimedia Learning, Inc:TX Main: (214) 869-8282
 TFree: (800) 870-6608 Fax: (214) 869-8280 Tech: (214) 869-8282
Music Quest, Inc:TX Main: (214) 881-7408
 TFree: (800) 876-1376 Fax: (214) 422-7094 Tech: (214) 881-7408
Musicator:CA Main: (510) 251-2500
 TFree: (800) 551-4050 Fax: (510) 251-2500 Tech: (916) 756-9807
Musicare, Inc:WA Main: (206) 881-9797
 TFree: (800) 997-4266 Fax: (206) 881-9664 Tech: (206) 881-1419
Musitek:CA Main: (805) 646-8051
 TFree: (800) 676-8055 Fax: (805) 646-8099 Tech: (805) 646-5841
Mustang Software, Inc:CA Main: (805) 873-2500
 TFree: (800) 999-9619 Fax: (805) 873-2599 Tech: (805) 873-2555
Mustek Inc:CA Main: (714) 250-8850
 TFree: (800) 468-7835 Fax: (714) 250-3372 Tech: (714) 247-1300
Muth America:AZ Main: (602) 276-5533
 TFree: (800) 445-8782 Fax: (602) 276-7823 Tech: (800) 445-8782
Mylex Corp:CA Main: (510) 796-6100
 Fax: (510) 745-7654 Tech: (510) 796-6100
Nanao USA Corp:CA Main: (310) 325-5202
 TFree: (800) 800-5202 Fax: (310) 530-1679 Tech: (310) 325-5202
Narrative Communications:MA Main: (617) 290-5300
 Fax: (617) 290-5312
Nat'l Assoc Of Serv Manager:IL Main: (847) 310-9930
 Fax: (847) 310-9934
National Computer Dist (see AmeriQuest):
National Computer Systems Inc:MN Main: (612) 829-3000
 TFree: (800) 431-1421
National Semiconductor:CA Main: (408) 721-5000
 TFree: (800) 272-9959 Fax: (408) 721-7662 Tech: (800) 231-6072

National Technical Info Service:VA Main: (703) 487-4600
 Fax: (703) 321-8547
Natural Intelligence Inc:MA Main: (617) 876-4876
 TFree: (800) 999-4649 Fax: (617) 492-7425 Tech: (617) 876-7680
NavPress Software:TX Main: (512) 835-6900
 Fax: (512) 834-1888
NCE Storage Systems (NCE CompGrp):CA Main: (619) 452-7974
 TFree: (800) 446-6456 Fax: (619) 452-3271 Tech: (619) 658-9720
NCR Microelectronics (see Symbios Logic):
NDC Communications, Inc:CA Main: (408) 428-9108
 TFree: (800) 632-1118 Fax: (408) 730-0889 Tech: (408) 428-9108
Neamco:MA Main: (617) 269-7600
 TFree: (800) 937-1300 Fax: (617) 268-0473 Tech: (617) 269-7600
NEBS Software (One-Write Plus):NH Main: (603) 880-5100
 TFree: (800) 225-9550 Fax: (603) 880-5102 Tech: (603) 880-5100
NEC Technologies Inc:MA Main: (508) 264-8000
 TFree: (800) 632-4636 Fax: (800) 366-0476 Tech: (800) 388-8888
net.Genesis Corp:MA Main: (617) 577-9800
 Fax: (617) 577-9850
Net2Net Corp:MA Main: (508) 568-0600
 TFree: (800) 741-8722 Fax: (508) 568-8858
NetCarta Corporation:CA Main: (408) 461-8920
 Fax: (408) 461-8939 Tech: (408) 461-8920
Netcom Online Communications Serv:CA Main: (408) 881-1815
 TFree: (800) 638-2661 Fax: (408) 325-6479 Tech: (408) 881-1810
NetManage, Inc:CA Main: (408) 973-7171
 TFree: (800) 457-4243 Tech: (408) 973-8181
Netrix:VA Main: (703) 742-6000
 Fax: (703) 742-4049 Tech: (800) 776-1477
Netscape Communications Corporation:CA Main: (415) 254-1900
 Fax: (415) 528-4124
Network 1 Software & Technology Inc:NY Main: (212) 293-3068
 Fax: (212) 293-3090
Network Appliance (NetApp):CA Main: (415) 428-5100
 TFree: (800) 220-4622 Fax: (415) 428-5151
Network Computing Devices:CA Main: (415) 694-0650
 TFree: (800) 866-4080 Fax: (415) 961-7711 Tech: (415) 691-7445
Network General Corp:CA Main: (415) 473-2000
 TFree: (800) 764-3337
Network Peripherals:CA Main: (707) 449-1104
 Fax: (707) 452-1417 Tech: (408) 321-9218
Network, Inc (Netelligent):TX Main: (214) 929-1700
 TFree: (800) 544-5255 Fax: (214) 929-1720 Tech: (214) 929-6984
New Horizons Computer Learning Ctr:CA Main: (714) 556-1220
 TFree: (800) 811-2530 Fax: (714) 556-4612
New Media Corp:CA Main: (714) 453-0100
 Fax: (714) 453-0114 Tech: (714) 453-0314
New Vision Technology Inc:ON Main: (613) 727-8184
 Fax: (613) 727-8190 Tech: (613) 727-0884
New World Computing, Inc:CA Main: (818) 889-5650
 TFree: (800) 325-8898 Tech: (818) 889-5650
New-Ware:CA Main: (619) 455-6225
Newbridge Networks Corp:VA Main: (703) 834-3600
 Fax: (703) 471-7080
Newer Technology Inc:KS Main: (316) 943-0222
 TFree: (800) 678-3726 Fax: (316) 943-0555

NewGen Systems Corp.:CA.....Main: (714) 641-8600
 TFree: (800) 756-0556 Fax: (714) 641-2800 Tech: (714) 436-5150
Newport Systems (see Cisco Systems):
News Corp/MCI Online Ventures:NY.....Main: (212) 462-5000
 TFree: (800) 695-4005 Fax: (212) 462-6000
NexGen Inc.:CA.....Main: (408) 435-0202
 TFree: (800) 863-9436 Fax: (408) 435-0262 Tech: (408) 325-8028
NHC Communications:QC.....Main: (514) 735-2741
 TFree: (800) 361-1965 Fax: (514) 735-8057 Tech: (800) 361-1965
Nimax Inc.:CA.....Main: (619) 452-2220
 TFree: (800) 876-4629 Fax: (619) 452-6669
Nirvana Systems, Inc.:TX.....Main: (512) 345-2545
 TFree: (800) 880-0338 Fax: (512) 345-4225 Tech: (512) 345-2592
Nisus Software Inc.:CA.....Main: (619) 481-1477
 TFree: (800) 922-2993 Fax: (619) 481-6154 Tech: (619) 481-1477
Nolo Press:CA.....Main: (510) 704-2248
 TFree: (800) 728-3555 Fax: (800) 645-0895 Tech: (510) 549-4660
Nombas, Inc.:MA.....Main: (617) 391-6595
 Fax: (617) 391-3842
NORTEL:TX.....Main: (214) 684-1000
 TFree: (800) 667-8437 Fax: (214) 684-3866
North Edge Software (see Timeslips Corp):
Northgate Computer Systems:MN.....Main: (612) 947-4600
 TFree: (800) 548-1993 Fax: (612) 947-4608 Tech: (800) 446-5037
Norton-Lambert Corp.:CA.....Main: (805) 964-6767
 Fax: (805) 683-5679 Tech: (805) 964-6767
NovaLink Technologies Inc.:CA.....Main: (800) 668-2546
 TFree: (800) 668-2546 Fax: (510) 249-9666
NovaStor Corporation:CA.....Main: (805) 579-6700
 Fax: (805) 579-6710 Tech: (805) 579-6700
Novell Corporation:UT.....Main: (800) 526-7937
 TFree: (800) 526-7937 Tech: (800) 638-9273
Novell Corporation:UT.....Main: (801) 429-7000
 TFree: (800) 453-1267 Tech: (800) 638-9273
... Applications.....Main: (800) 228-9907
... Borland Office.....Main: (900) 555-5020
 TFree: (800) 861-2725
... ConvertPerfect.....Main: (801) 228-9934
 TFree: (800) 321-7431
... DataPerfect.....Main: (900) 555-6020
 TFree: (800) 861-2132
... Desktop Systems.....Main: (408) 434-2300
 TFree: (800) 274-4374
... Edutainment.....Main: (801) 228-9939
 TFree: (800) 861-2401
... Extended Annual Support-Classic.....Main: (800) 861-3380
... Extended Annual Support-Priority.....Main: (800) 861-2220
... French.....Main: (801) 228-9941
 TFree: (800) 321-6844
... Gateways.....Main: (800) 861-2135
... Grammatik DOS/Win.....Main: (801) 228-9933
... GroupWise.....Main: (800) 861-2140
... GroupWise Gateway.....Main: (800) 861-2142
... GroupWise Unix.....Main: (800) 861-2143
... Hard Disk-Gift Shop.....Main: (801) 228-3783

Novell Corporation... continued
... Hard Disk-Kitchen.....Main: (801) 228-2388
... Hard Disk-Specials.....Main: (801) 228-3760
... Hearing Impaired (TDD).....Main: (801) 228-9906
 TFree: (800) 321-3256
... InfoCentral.....Main: (801) 228-9938
... Inform.....Main: (800) 861-2133
 TFree: (800) 861-2133
... InfoShare (FAX).....Main: (800) 228-9960
... InfoShare Fax-back Service.....Main: (801) 429-3239
 TFree: (800) 228-9960
... Intellitag (DOS).....Main: (801) 228-9925
... Intellitag (UNIX).....Main: (801) 228-9935
... Language Modules.....Main: (801) 226-6990
 TFree: (800) 321-7431
... Letter/Elect/Dictionary/Clip Art.....Main: (801) 228-9933
... NAS.....Main: (800) 321-0034
... NetWare.....Main: (800) 861-2134
... Office UNIX.....Main: (800) 861-2136
... Office/Priority Service.....Main: (800) 861-2136
... On-Site Support.....Main: (801) 228-9999
 Fax: (801) 222-1977
... Piracy-BSA.....Main: (800) 688-2721
... Piracy-WordPerfect.....Main: (800) 747-2837
... PlanPerfect.....Main: (800) 321-3248
... Premium Support.....Main: (801) 429-7703
... Presentations (DOS).....Main: (801) 226-8766
 TFree: (800) 861-2090
... Presentations (WIN).....Main: (801) 228-9900
 TFree: (800) 861-2050
... Quattro Pro (DOS).....Main: (800) 861-3773
... Quattro Pro (WIN).....Main: (800) 861-2774
... Sales, CAN/French Speaking.....Main: (800) 321-2318
... Sales, Certification.....Main: (800) 233-3382
... Sales, Customer Registration.....Main: (801) 222-4500
... Sales, Direct Sales.....Main: (801) 226-6800
 TFree: (800) 321-4566
... Sales, Easy Move/Special Lic......Main: (800) 228-5040
... Sales, Educational Institutions.....Main: (800) 321-3220
... Sales, Hearing Impaired (TDD).....Main: (801) 228-9906
 TFree: (800) 321-3256
... Sales, International.....Main: (801) 229-1667
... Sales, Mini-Main Info/Orders.....Main: (801) 228-9911
 TFree: (800) 321-3280
... Sales, Orders Resolution.....Main: (800) 321-2319
... Sales, Software Subscription.....Main: (800) 282-2892
... Sales, Workgroups/Office.....Main: (800) 861-2507
... Shell 4.0.....Main: (801) 228-9937
... Shell 4.0 Macros.....Main: (801) 228-9928
... Soft Shoppe.....Main: (800) 526-6215
... SoftSolutions.....Main: (800) 861-2146
... Spanish.....Main: (800) 321-8492
... WP 5.1+ DOS, Fax.....Main: (801) 228-9977
 TFree: (800) 861-2316
... WP 5.1+ DOS, Features.....Main: (801) 228-9970
 TFree: (800) 861-2164

Novell Corporation . . . continued	
.. WP 5.1+ DOS, Graphics/Tables	Main: (801) 228-9972
TFree: (800) 861-2101	
.. WP 5.1+ DOS, Installation	Main: (801) 228-9974
TFree: (800) 861-2055	
.. WP 5.1+ DOS, Macro/Merge	Main: (801) 228-9971
TFree: (800) 861-2745	
.. WP 5.1+ DOS, Network	Main: (801) 228-9973
TFree: (800) 861-2116	
.. WP 5.1+ DOS, Printer-Dot Matrix	Main: (801) 228-9976
TFree: (800) 861-2333	
.. WP 5.1+ DOS, Printer-Laser/PS	Main: (801) 228-9975
TFree: (800) 861-2351	
.. WP 5.2 WIN, Features	Main: (801) 228-9907
TFree: (800) 228-1029	
.. WP 5.2 WIN, Graphics	Main: (801) 228-9907
TFree: (800) 228-6013	
.. WP 5.2 WIN, Installation	Main: (801) 228-9907
TFree: (800) 228-6076	
.. WP 5.2 WIN, Macro/Merge	Main: (801) 228-9907
TFree: (800) 228-1032	
.. WP 5.2 WIN, Networks	Main: (801) 228-9907
TFree: (800) 228-6066	
.. WP 5.2 WIN, Printer-Dot Matrix	Main: (801) 228-9907
TFree: (800) 228-1017	
.. WP 5.2 WIN, Printer-Laser/PS	Main: (801) 228-9907
TFree: (800) 228-6076	
.. WP 6.0 DOS, Fax	Main: (800) 228-2066
.. WP 6.0 DOS, Features	Main: (801) 228-9950
TFree: (800) 228-9038	
.. WP 6.0 DOS, Graphics/Tables	Main: (801) 228-9952
TFree: (800) 228-9006	
.. WP 6.0 DOS, Installation	Main: (801) 228-9954
TFree: (800) 228-9012	
.. WP 6.0 DOS, Macro/Merge	Main: (801) 228-9951
TFree: (800) 228-9013	
.. WP 6.0 DOS, Networks	Main: (801) 228-9953
TFree: (800) 228-9019	
.. WP 6.0 DOS, Printer-Dot Matrix	Main: (801) 228-9956
TFree: (800) 228-9032	
.. WP 6.0 DOS, Printer-Laser/PS	Main: (801) 228-9955
TFree: (800) 228-9027	
.. WP 6.0 WIN, Features	Main: (801) 228-9960
TFree: (800) 228-9907	
.. WP 6.0 WIN, Graphics/Tables	Main: (801) 228-9962
TFree: (800) 228-8720	
.. WP 6.0 WIN, Installation	Main: (801) 228-9964
TFree: (800) 228-7610	
.. WP 6.0 WIN, Macro/Merge	Main: (801) 228-9961
TFree: (800) 228-2021	
.. WP 6.0 WIN, Networks	Main: (801) 228-9963
TFree: (800) 228-8807	
.. WP 6.0 WIN, Printer-Dot Matrix	Main: (801) 228-9966
TFree: (800) 228-6646	
.. WP 6.0 WIN, Printer-Laser/PS	Main: (801) 228-9965
TFree: (800) 228-2803	

Novell Corporation . . . continued	
.. WP Communications, Fax	Main: (801) 228-9915
.. WP DOS	Main: (900) 555-9595
TFree: (800) 861-2480	
.. WP DOS, Features	Main: (900) 555-2233
TFree: (800) 861-2410	
.. WP DOS, Graphics/Tables	Main: (900) 555-3344
TFree: (800) 228-9006	
.. WP DOS, Installation	Main: (900) 555-5566
TFree: (800) 228-9012	
.. WP DOS, Macro/Merge	Main: (900) 555-4455
TFree: (800) 228-9013	
.. WP DOS, Network	Main: (800) 228-9019
.. WP DOS, Printer-Dot Matrix	Main: (900) 555-4080
TFree: (800) 228-9032	
.. WP DOS, Printer-Laser/PS	Main: (900) 555-4090
TFree: (800) 228-9027	
.. WP MAC 2.1.x	Main: (801) 226-5522
TFree: (800) 336-3614	
.. WP MAC 3.0	Main: (801) 228-9932
TFree: (800) 228-2875	
.. WP MAC French Speaking	Main: (800) 321-2173
.. WP Macintosh	Main: (800) 228-2875
.. WP Magazine, Information	Main: (801) 226-5555
TFree: (800) 228-9656	
.. WP Magazine, Subscriptions	Main: (801) 228-9626
TFree: (800) 228-9626	
.. WP Manufacturing, Receptionist	Main: (801) 861-5049
.. WP Manufacturing, Research-Canada	Main: (801) 861-5000
.. WP Manufacturing, Research-US	Main: (801) 861-5000
TFree: (800) 526-6215	
.. WP OS/2	Main: (801) 225-4900
.. WP System 370	Main: (801) 222-5100
.. WP UNIX Features	Main: (900) 555-3010
TFree: (800) 861-2030	
.. WP UNIX Print	Main: (900) 555-5010
TFree: (800) 861-2040	
.. WP UNIX/Xenix Features	Main: (801) 226-5333
TFree: (800) 861-2030	
.. WP UNIX/Xenix Print	Main: (801) 228-9903
.. WP VAX/VMS All in One	Main: (801) 226-3355
.. WP WIN, Features	Main: (900) 555-4010
TFree: (800) 861-2310	
.. WP WIN, Graphics/Tables	Main: (900) 555-4020
TFree: (800) 861-2320	
.. WP WIN, Installation	Main: (900) 555-4060
TFree: (800) 861-2360	
.. WP WIN, Macro/Merge	Main: (900) 555-4030
TFree: (800) 861-2330	
.. WP WIN, Network	Main: (900) 555-4070
TFree: (800) 861-2370	
.. WP WIN, Printer-Dot Matrix	Main: (900) 555-4050
TFree: (800) 861-2350	
.. WP WIN, Printer-Laser/PS	Main: (900) 555-4040
TFree: (800) 861-2340	
.. WP Works DOS/WIN	Main: (801) 228-9936

Now Software:OR.....Main: (503) 274-2800
TFree:(800) 237-2078 Fax:(503) 274-0670 Tech:(503) 274-2815

NuIQ Software, Inc.:NY.....Main: (914) 833-3479
TFree:(800) 844-6526 Fax:(914) 833-3623 Tech:(914) 833-3479

NuKote International, Inc:TX.....Main: (214) 250-2785
TFree:(800) 874-5898 Fax:(615) 794-4424 Tech:(800) 251-3365

Number Nine Computer Corp:MA.....Main: (617) 674-0009
TFree:(800) 438-6463 Fax:(617) 674-2919 Tech:(617) 674-8595

Numeria Software Corp:WA.....Main: (206) 622-2233
TFree:(800) 956-2233 Fax:(206) 622-5382 Tech:(206) 292-8324

NVIDIA Corp.:CA.....Main: (408) 720-6100
Fax:(408) 720-6111 Tech:(408) 720-7137

O'Reilly and Associates, Inc.:CA.....Main: (707) 829-0515
TFree:(800) 998-9938 Fax:(707) 829-0104

Oak Technology:CA.....Main: (408) 737-0888
Fax:(408) 737-3838

Oberon Software:MA.....Main: (617) 494-0990
TFree:(800) 654-1364 Fax:(617) 494-0414 Tech:(800) 654-1364

Object Design, Inc.:MA.....Main: (617) 674-5000
TFree:(800) 962-9620 Fax:(617) 674-5010 Tech:(617) 674-5040

Ocean Information Systems Inc:CA.....Main: (818) 339-8888
TFree:(800) 325-2496 Fax:(818) 859-7668

Ocean Isle Soft (see Stac Electronics):

OCL/Clare Guard:CA.....Main: (707) 545-6440
TFree:(800) 545-6254 Fax:(707) 525-7410 Tech:(800) 545-6254

Octel Communications Inc.:CA.....Main: (408) 321-2000
Fax:(408) 324-2702

Odyssey Computing, Inc.:CA.....Main: (619) 675-3660
TFree:(800) 965-7224 Fax:(619) 675-1130

Oki America, Inc.:NJ.....Main: (201) 646-0011
Fax:(201) 646-9229 Tech:(201) 646-0011

Oki Semiconductor:CA.....Main: (408) 720-1900
TFree:(800) 832-6654 Fax:(408) 720-1918 Tech:(800) 832-6654

Okidata Corp:NJ.....Main: (609) 235-2600
TFree:(800) 654-3282 Fax:(609) 778-4184 Tech:(800) 634-0089

Okna Corp.:NJ.....Main: (201) 909-8600
TFree:(800) 438-6562 Fax:(201) 909-0688 Tech:(201) 909-8600

Oilcom USA:TX.....Main: (214) 423-7560
TFree:(800) 265-4266 Fax:(214) 423-7261 Tech:(800) 654-2661

Olivr Corp:MA.....Main: (617) 861-6111
Fax:(617) 863-6155

Omni Data Systems:MO.....Main: (314) 230-3200
TFree:(800) 766-2449

Omni Development Inc.:WA.....Main: (206) 523-4152
TFree:(800) 315-6664 Fax:(206) 523-5896

Omnicomp Graphics Corp:TX.....Main: (713) 464-2990
Fax:(713) 827-7540

OmniData International Inc:UT.....Main: (801) 753-7760
Fax:(801) 753-6756

Omniprint, Inc.:CA.....Main: (714) 457-0229
TFree:(800) 878-6880 Fax:(714) 457-9016 Tech:(714) 457-0229

Omnitech Gencorp:FL.....Main: (305) 599-9898
TFree:(800) 222-9618 Fax:(305) 594-2997

Omnitrend:CT.....Main: (860) 678-7679
Fax:(860) 678-7679 Tech:(860) 678-7679

Omron Corp.:CA.....Main: (408) 727-1444
TFree:(800) 362-4411 Fax:(408) 970-1149 Tech:(408) 727-1444

On Technology Corp:MA.....Main: (617) 374-1400
TFree:(800) 767-6683 Fax:(617) 374-1433 Tech:(800) 767-6683

Ontrack Computer Systems:MN.....Main: (612) 937-5161
TFree:(800) 872-2599 Fax:(612) 937-0880 Tech:(612) 937-2121

OnTrack Media Corp.:CA.....Main: (415) 331-1692
TFree:(800) 505-5627 Fax:(415) 331-1695 Tech:(415) 331-1692

OnWord Press:NM.....Main: (505) 474-5120
TFree:(800) 223-6397 Fax:(505) 474-5020

Opcode Systems:CA.....Main: (415) 856-3333
Fax:(415) 856-3332 Tech:(415) 856-3331

Open Doors Software:MN.....Main: (800) 923-8463
TFree:(800) 923-8463

Open Environment:MA.....Main: (617) 562-0900

Open Systems Inc.:MN.....Main: (612) 829-0011
TFree:(800) 328-2276 Fax:(612) 829-1400 Tech:(800) 582-5000

OPTI, Inc:CA.....Main: (408) 486-8000
Fax:(408) 486-8001

Optibase Inc:TX.....Main: (214) 774-3800
TFree:(800) 451-5101 Fax:(214) 239-1273

Optical Data Systems Inc:TX.....Main: (214) 234-6400
Fax:(214) 234-1467

Optima Technology Corp:CA.....Main: (714) 476-0515
Fax:(714) 476-0613

ORA Electronics (see Alliance Research):

Oracle Corp:CA.....Main: (415) 506-7000
TFree:(800) 542-1170 Fax:(415) 506-7200 Tech:(415) 506-1500

Orange Cherry/New Media Schoolhouse:NY:Main: (914) 764-4104
TFree:(800) 672-6002 Fax:(914) 764-0104 Tech:(914) 764-4104

Orange Micro, Inc:CA.....Main: (714) 779-2772
Fax:(714) 779-9978 Tech:(518) 283-8860

Orchid Technology:CA.....Main: (510) 651-2300
TFree:(800) 577-0977 Fax:(510) 651-6692 Tech:(510) 661-3000

Origin Systems, Inc:TX.....Main: (512) 434-4263
Fax:(512) 794-8959 Tech:(512) 434-4357

Osborne/McGraw Hill:CA.....Main: (510) 549-6600
TFree:(800) 227-0900 Fax:(510) 549-6603

OSC (see Micromedia):

OTC:WA.....Main: (509) 536-0468
TFree:(800) 468-8788 Fax:(509) 533-1290 Tech:(509) 536-0468

Outlook Software:TX.....Main: (214) 774-0708
TFree:(800) 925-5700 Fax:(214) 774-0689

Output Tech Corp:WA.....Main: (509) 536-0468
TFree:(800) 468-8788 Fax:(509) 533-1290 Tech:(509) 536-0468

Overland Data, Inc.:CA.....Main: (619) 571-5555
TFree:(800) 729-8725 Fax:(619) 571-0982

P.A.C.E.:UT.....Main: (801) 753-1067
TFree:(800) 359-6670

P.N.Y. Electronics, Inc.:NJ.....Main: (201) 438-6300
TFree:(800) 234-4597 Fax:(201) 438-9097 Tech:(201) 438-6300

Pacific Data Products:CA.....Main: (619) 552-0880
TFree:(800) 737-7105 Fax:(619) 552-0889 Tech:(619) 587-4690

Pacific HiTech:UT.....Main: (801) 261-1024
TFree:(800) 765-8369 Fax:(801) 261-0310 Tech:(801) 261-1024

Pacific Magtron, Inc.:CAMain: (408) 774-1188
 Fax:(408) 733-0138 Tech:(408) 733-1188

Pacific Micro Data, Inc.:CAMain: (714) 955-9090
 TFree:(800) 933-7575 Fax:(714) 955-9490 Tech:(714) 955-9090

Pacific Microelectronics, Inc.:CAMain: (415) 948-6200
 TFree:(800) 628-3475 Fax:(415) 948-6296 Tech:(415) 948-6200

Packard Bell:CAMain: (818) 865-1555
 TFree:(800) 733-4411 Fax:(801) 579-0093 Tech:(800) 733-4433

Palindrome Corp (Seagate Software):ILMain: (708) 505-3300
 TFree:(800) 288-4912 Fax:(708) 505-7917 Tech:(800) 327-2232

Panacea (Spacotec):
 ... Sales, Marketing, and Tech SupportMain: (508) 970-0330
 TFree:(800) 788-9994 Fax:(508) 970-0199 Tech:(508) 970-0330

Spacotec IMC Corp.Main: (603) 437-5022
 TFree:(800) 729-7420 Fax:(508) 970-0199 Tech:(508) 970-1760

Panamax:CAMain: (415) 499-3900
 TFree:(800) 472-5555 Fax:(415) 472-5540 Tech:(800) 472-5555

Parasonic Comm. & Systems (Corp Hq):NJ Main: (201) 348-7000
 TFree:(800) 233-8182 Tech:(800) 222-0584

Parasonic Office Automation:CAMain: (714) 373-7412
 TFree:(800) 726-2797 Tech:(800) 726-2797

CD Rom/Opticals/Monitors/ScannersMain: (800) 726-2797

Laptop Computer InformationMain: (800) 662-3537

Manuals and Repair PartsMain: (800) 833-9626

Printer ProductsMain: (800) 222-0584

Window DriversMain: (800) 993-2333

Pantheon:WAMain: (206) 628-3411
 TFree:(800) 668-1647 Fax:(206) 628-3412

PaperClip Software, Inc.:NJMain: (201) 487-3503
 Fax:(201) 487-0613 Tech:(201) 487-3503

Paperless Corp:TXMain: (972) 235-4008
 TFree:(800) 658-6486 Fax:(972) 680-2566

Parcel Online Systems Inc.:TXMain: (214) 789-1990
 Fax:(214) 991-8446

ParaCom Corp.:MAMain: (617) 935-6614
 Fax:(617) 938-1760

Paradigm Software Development Inc.:WAMain: (206) 728-2281
 TFree:(800) 967-5947 Fax:(206) 728-8401 Tech:(206) 728-4508

Paradise (see Western Digital Corp):

Paragraph International:CAMain: (408) 364-7700

Parallax, Inc.:CAMain: (916) 624-8333
 TFree:(888) 512-1024 Fax:(916) 624-8003 Tech:(916) 624-8333

Parana Supplies Corp:CAMain: (310) 793-1325
 TFree:(800) 472-7262 Fax:(310) 793-1343 Tech:(800) 472-7262

Parc Place Digital:CAMain: (408) 481-9090
 TFree:(800) 759-7272 Fax:(408) 481-9095 Tech:(800) 253-3415

Parsons Technology:IAMain: (319) 395-9626
 TFree:(800) 223-6925 Fax:(319) 395-0102 Tech:(319) 395-7314

Parts Now Inc.:WIMain: (608) 276-8688
 TFree:(800) 886-6688 Fax:(608) 276-9593 Tech:(608) 276-9415

Passport Designs, Inc.:CAMain: (415) 726-0280
 TFree:(800) 443-3210 Fax:(415) 726-2254 Tech:(415) 726-3826

Patton & Patton Software Corp:CAMain: (408) 778-6557
 TFree:(800) 525-0082 Fax:(408) 778-9972 Tech:(408) 778-6557

Paul Mace Software Inc.:ORMain: (503) 488-2322
 TFree:(800) 944-0191 Fax:(503) 488-1549 Tech:(503) 488-0224

PC & MAC Connection:NHMain: (603) 446-7721
 TFree:(800) 800-5555 Fax:(603) 446-7791

PC Checks & Supplies Inc.:ALMain: (205) 969-0024
 TFree:(800) 322-5317 Fax:(800) 322-5318

PC DOCS:MAMain: (617) 273-3800
 TFree:(800) 933-3627 Fax:(904) 656-5559 Tech:(904) 942-3627

PC Dynamics, Inc:CAMain: (818) 889-1741
 TFree:(800) 888-1741 Fax:(818) 889-1014 Tech:(818) 889-1742

PC Guardian:CAMain: (415) 459-0190
 TFree:(800) 288-8126 Fax:(415) 459-1162 Tech:(415) 459-0190

PC Magazine (Ziff-Davis):NYMain: (212) 503-5255
 Fax:(212) 503-5799

PC Power & Cooling Inc:CAMain: (619) 931-5700
 TFree:(800) 722-6555 Fax:(619) 931-6988

PC Repair Corporation:PAMain: (717) 232-7272
 TFree:(800) 727-3724

PC Service Source:TXMain: (800) 727-2787
 TFree:(800) 727-2787 Fax:(214) 406-9081

PC Service Source (Corporate Hq):TXMain: (214) 406-8583
 TFree:(800) 727-2787 Fax:(214) 406-9081

PC Today (Peed Corp):NEMain: (402) 479-2141
 TFree:(800) 544-1426 Fax:(402) 458-4569

PC-Kwik Corp.:ORMain: (503) 644-5644
 TFree:(800) 888-5945 Fax:(503) 646-8267 Tech:(800) 888-5945

PC-Sig/Spectra Pub. (see CD World):

PC411, Inc.:CAMain: (310) 645-1114
 TFree:(800) 243-8411 Fax:(310) 645-1112 Tech:(310) 645-1114

PCMCI:CAMain: (408) 433-2273
 Fax:(408) 433-9558

PCPI:CAMain: (619) 485-8411
 Fax:(619) 487-5809 Tech:(619) 485-8411

Peachtree Software:GAMain: (770) 279-0919
 TFree:(800) 247-3224 Fax:(770) 564-8080 Tech:(770) 923-2552

Pegasus:CAMain: (510) 938-5340
 Fax:(510) 938-5341 Tech:(510) 938-5340

Pelikan, Inc. (see NuKote International):

Pen Magic Software (see Pivotal Soft.):

Penril Datability Networks:MDMain: (301) 921-8600
 TFree:(800) 473-6745 Fax:(301) 921-8376 Tech:(800) 473-6745

Pentax Technologies Corp:COMain: (303) 460-1600
 TFree:(800) 543-6144 Fax:(303) 460-1628 Tech:(303) 460-1820

PeopleSoft:CAMain: (510) 225-3000
 TFree:(800) 947-7753 Fax:(510) 225-3100

Perceptive Solutions, Inc:TXMain: (214) 954-1774
 TFree:(800) 486-3278 Fax:(214) 953-1774 Tech:(214) 954-1774

PerfectData Corp.:CAMain: (805) 581-4000
 Fax:(805) 522-5788

Persoft, Inc.:WIMain: (608) 273-4357
 TFree:(800) 368-5283 Fax:(608) 273-8227 Tech:(608) 273-4357

Persona Technologies (see Monster Cable Co):

Personal Training Systems:CAMain: (415) 462-2100
 TFree:(800) 832-2499 Fax:(415) 462-2101 Tech:(800) 832-2499

Personics Corp (Data Watch Corp):MAMain: (508) 988-9700
 TFree:(800) 445-3311 Fax:(508) 988-0897 Tech:(508) 658-0040

Phase3 Software, Inc.:CAMain: (805) 644-7815
 TFree:(800) 851-5650 Fax:(805) 644-4572 Tech:(805) 644-0870

PHD - Professional Help Desk: C:1 Main: (203) 356-7700
 TFree: (800) 484-3725 Fax: (203) 356-7900 Tech: (203) 356-7700
Phillips Consumer Electronics: TN Main: (423) 521-4316
 TFree: (800) 531-0039 Fax: (615) 521-4586 Tech: (615) 475-8869
Phillips Corporation: TN Main: (423) 521-4316
 Tech: (800) 835-3506
Phillips Laser Magnetic Storage: CO Main: (719) 593-7900
 Tech: (719) 593-4393
Phoenix Technologies: MA Main: (617) 551-4000
 TFree: (800) 677-7300 Fax: (617) 551-3750 Tech: (617) 551-4000
Phoenix Technologies: CA Main: (408) 654-9000
 TFree: (800) 677-7305 Fax: (312) 541-0514 Tech: (312) 541-0262
PhotoDisc, Inc.: WA Main: (206) 441-9355
 TFree: (800) 528-3472 Fax: (206) 441-9379 Tech: (206) 441-9355
Physician Micro Systems, Inc.: WA Main: (206) 441-8490
 Fax: (206) 441-8915
Pliceon: CA Main: (408) 943-1309
 TFree: (800) 366-2983 Fax: (408) 943-1309 Tech: (800) 366-2983
Pinnacle Data Systems Inc.: OH Main: (614) 487-1150
 TFree: (800) 882-8282 Fax: (614) 487-8568
Pinnacle Micro, Inc.: CA Main: (714) 789-3000
 TFree: (800) 553-7070 Fax: (714) 789-3150 Tech: (714) 789-3200
Pinnacle Publishing: WA Main: (206) 251-1900
 TFree: (800) 788-1900 Fax: (206) 251-5057 Tech: (206) 251-3513
Pinnacle Software: PQ Main: (514) 345-9578
 Fax: (514) 733-8644 Tech: (514) 345-9578
Pinpoint Publishing: CA Main: (707) 523-0400
 TFree: (800) 788-5236 Fax: (707) 523-0469
Pioneer New Media Technologies: CA Main: (310) 952-2111
 TFree: (800) 444-6784 Fax: (310) 952-2990 Tech: (800) 872-4159
Pivotal Graphics, Inc.: CA Main: (408) 954-2700
 Fax: (408) 954-0118 Tech: (408) 954-2700
Pivotal Software: BC Main: (604) 988-9982
 Fax: (604) 988-0035 Tech: (604) 988-9982
Pixar Interactive: CA Main: (510) 236-4000
 TFree: (800) 888-9856 Fax: (510) 236-0388 Tech: (800) 937-3179
PKware, Inc.: WI Main: (414) 354-8699
 Fax: (414) 354-8559 Tech: (414) 354-8699
PlainTree Systems: MA Main: (617) 290-5800
 TFree: (800) 370-2724 Fax: (617) 290-0963 Tech: (800) 831-1095
Platinum Software Corp.: CA Main: (714) 727-1250
 Fax: (714) 450-4491
Platinum Technology Inc.: VA Main: (703) 620-6500
 TFree: (800) 442-6861 Fax: (800) 442-4230 Tech: (800) 833-7528
Play Inc.: CA Main: (916) 851-0800
 TFree: (800) 306-7529 Fax: (916) 851-0801 Tech: (916) 851-0900
Plexor: CA Main: (408) 980-1838
 TFree: (800) 886-3935 Fax: (408) 986-1010 Tech: (800) 886-3935
Plus Development Corp (see Quantum Corp):
PNY Electronics: NJ Main: (201) 438-6300
 TFree: (800) 234-4597 Fax: (201) 438-9097 Tech: (201) 438-6300
Polaris Software: CA Main: (619) 735-2300
 TFree: (800) 338-5943 Fax: (619) 738-0113 Tech: (619) 735-2300
Polaroid Corporation: MA Main: (617) 386-2000
 TFree: (800) 225-2770 Fax: (617) 386-3263 Tech: (800) 225-1618

polygon, Inc.: MO Main: (314) 432-4142
 Fax: (314) 997-9696 Tech: (314) 432-4142
Port Inc.: CT Main: (203) 852-1102
 TFree: (800) 242-3133 Fax: (203) 866-0221 Tech: (203) 852-1102
Portable Graphics, Inc.: TX Main: (512) 719-8000
 TFree: (800) 574-7333 Fax: (512) 832-0752 Tech: (800) 574-7333
Portrait Display Labs: CA Main: (510) 227-2700
Positive Software Co.: WA Main: (509) 735-9194
 TFree: (800) 735-6860 Fax: (509) 735-6299 Tech: (509) 735-9194
Power BBS Computing: NY Main: (516) 938-0506
 Fax: (516) 681-3226 Tech: (516) 822-7396
Power Computing Corp.: TX Main: (800) 671-6227
 TFree: (800) 671-6227 Fax: (512) 388-6798 Tech: (800) 708-6227
Power Computing Corp.: TX Main: (512) 246-7807
 TFree: (800) 671-6227 Fax: (512) 388-6798 Tech: (800) 708-6227
Powercom America, Inc.: CA Main: (714) 632-8889
 TFree: (800) 666-8931 Tech: (714) 632-8868
Powercore Inc (see CE Software):
PowerProduction Software: CA Main: (310) 937-4411
 Fax: (310) 937-4416 Tech: (310) 937-4411
PowerQuest Corp.: UT Main: (801) 226-8977
 TFree: (800) 379-2566 Fax: (801) 226-8941 Tech: (801) 226-6834
Powersoft Corp.: MA Main: (508) 287-1500
 TFree: (800) 395-3525 Fax: (508) 287-1600 Tech: (508) 287-1500
Practical Peripherals: GA Main: (770) 441-0896
 TFree: (800) 934-2937 Fax: (770) 734-4601 Tech: (770) 840-9966
Prairie Group: IA Main: (515) 225-3720
 TFree: (800) 346-5392 Fax: (515) 225-2422 Tech: (515) 225-4122
Precision Digital Images Corp.: WA Main: (206) 882-0218
 TFree: (800) 678-6505 Fax: (206) 867-9177
Premenos Corp.: CA Main: (510) 602-2000
 TFree: (800) 426-3836 Fax: (510) 602-2024 Tech: (800) 578-4334
Prentice Hall, Inc (Simon & Schuster): NJ Main: (201) 767-5937
 TFree: (800) 947-7700
Prescience (Waterloo Maple Software):
Prim Systems (see AST):
Primavera Systems, Inc.: PA Main: (610) 667-8600
 TFree: (800) 423-0245 Fax: (610) 667-7894 Tech: (610) 668-3030
Princeton Graphic Systems (Out of Business):
Printronix, Inc.: CA Main: (714) 863-1900
 Fax: (714) 660-8682 Tech: (714) 863-1900
Pro CD, Inc.: MA Main: (508) 750-0055
 Fax: (508) 750-0070 Tech: (508) 777-7766
Pro-C Limited: OT Main: (519) 725-5143
 Fax: (519) 725-1803 Tech: (519) 725-5143
Process Software Corp.: MA Main: (508) 879-6994
 TFree: (800) 722-7770 Fax: (508) 879-0042 Tech: (508) 879-6994
Processor Magazine (Peed Corp): NE Main: (402) 479-2141
 TFree: (800) 247-4880 Fax: (402) 479-2120 Tech: (800) 247-4880
Procom Technology: CA Main: (714) 852-1000
 TFree: (800) 800-8600 Fax: (714) 852-1221 Tech: (800) 800-8600
PRODIGY Service Information: Main: (800) 776-0845
Prodigy Services Company: NY Main: (914) 448-8000
 TFree: (800) 776-3449 Fax: (914) 448-8083 Tech: (800) 284-5933
Programmer's Paradise, Inc.: NJ Main: (908) 389-8950
 TFree: (800) 445-7899 Fax: (908) 389-9227 Tech: (908) 389-8950

Programmer's Super Shop:MAMain: (617) 740-2510
 TFree:(800) 421-8006 Fax:(617) 740-2728
Programmers Warehouse (see Breakthrough):
Progress Software Corp:MAMain: (617) 280-4000
 TFree:(800) 477-6473 Fax:(617) 280-4895
Progressive Networks Inc.:WAMain: (206) 674-2700
 Fax:(206) 674-2699
Prometheus Products:ORMain: (503) 692-9600
 TFree:(800) 477-3473 Fax:(503) 691-5197 Tech:(503) 692-9601
Promise Technology Inc:CAMain: (408) 452-0948
 Fax:(408) 452-1534 Tech:(408) 452-1180
Prostar Interactive MediaWorks:BCMain: (604) 273-4099
 TFree:(800) 432-2949 Fax:(604) 273-4046 Tech:(604) 273-4099
Proteon, Inc:MAMain: (508) 898-2800
 TFree:(800) 666-4400 Fax:(508) 366-9146 Tech:(508) 898-3100
Protek Technologies Pte. Ltd.:MOMain: (314) 434-0588
 TFree:(800) 426-0522 Fax:(314) 434-1993 Tech:(800) 426-0522
Provantage Corp:OHMain: (330) 494-3781
 TFree:(800) 336-1166 Fax:(330) 494-5260
ProVUE Development:CAMain: (714) 841-7779
 Tech:(714) 841-7779
Proxim Inc:CAMain: (415) 960-1630
 TFree:(800) 229-1630 Fax:(415) 960-1984 Tech:(800) 229-1630
Proxima Corp:CAMain: (619) 457-5600
 TFree:(800) 447-7694 Fax:(619) 457-9647 Tech:(800) 447-7694
PSI Integration (see Supra):
Psion Inc:MAMain: (508) 371-0310
 Fax:(508) 371-9611
Psychosis Ltd (see Sony Interactive):
Public Software Library:TXMain: (713) 524-6394
 TFree:(800) 242-4775 Fax:(713) 524-6398
Pure Data (Wild Card Technologies):ONMain: (905) 731-6444
 TFree:(800) 661-8210 Fax:(905) 731-7017 Tech:(800) 396-7877
QLLogic:CAMain: (800) 662-4471
 TFree:(800) 662-4471 Fax:(714) 668-5090 Tech:(800) 737-6524
QMS Inc:ALMain: (334) 633-4300
 TFree:(800) 523-2696 Tech:(334) 633-4500
QNX Software Systems Ltd:ONMain: (613) 591-0931
 TFree:(800) 676-0566 Fax:(613) 591-3579
Quadrail Corp:TXMain: (512) 719-3399
 Fax:(512) 719-3606
Quadtel Corp (see Phoenix Corp):
Qualcomm Inc.:CAMain: (619) 587-1121
 Fax:(619) 658-2100
Qualitas:MDMain: (301) 907-6700
 TFree:(800) 733-1377 Fax:(301) 718-6061 Tech:(301) 907-7400
Qualix Group Inc:CAMain: (415) 572-0200
 TFree:(800) 245-8649 Fax:(415) 572-1300
Qualtec Data Products, Inc:CAMain: (510) 490-8911
 TFree:(800) 628-4413 Fax:(510) 490-8471 Tech:(800) 628-4413
Quantum Corp:CAMain: (408) 894-4000
 TFree:(800) 624-5545 Fax:(408) 894-3282 Tech:(800) 826-8022
Quark Inc:COMain: (303) 894-8888
 TFree:(800) 676-4575 Fax:(303) 894-3399 Tech:(303) 894-8899
Quarter-Inch Cartridge Dr Stds:CAMain: (805) 963-8553
 Fax:(805) 962-1541

Quarterdeck Office Systems:CAMain: (310) 309-3200
 TFree:(800) 354-3260 Fax:(310) 309-3217 Tech:(310) 309-4250
Quarterdeck Select:FLMain: (813) 523-9700
 TFree:(800) 683-6696 Fax:(813) 532-4222 Tech:(800) 683-0854
Que Corp:INMain: (317) 581-3500
 TFree:(800) 428-5331 Fax:(800) 448-3804
Que Software/Prentice Hall Comp.:INMain: (800) 992-0244
 TFree:(800) 992-0244 Tech:(317) 571-3833
Quercus Systems:CAMain: (408) 867-7399
 TFree:(800) 440-5944 Fax:(408) 867-7489 Tech:(408) 867-7399
Qume:CAMain: (408) 473-1500
 TFree:(800) 457-4447 Fax:(408) 473-1510
Qume Corp (see Data Technology):
Quyen Systems, Inc.:MDMain: (301) 258-5087
 TFree:(800) 827-1856 Fax:(301) 258-5088 Tech:(301) 258-5087
Rabbit Software (see Tangram):
Racal-Datcom Inc:FLMain: (954) 846-1601
 TFree:(800) 722-2555 Fax:(954) 846-4942 Tech:(954) 846-6080
Racal-Interlan:MAMain: (508) 263-9929
 TFree:(800) 242-4526 Fax:(508) 263-8655 Tech:(800) 526-8255
RAD:NJMain: (201) 529-1100
 Fax:(201) 529-5777
Radio Shack:TXMain: (817) 390-3204
 TFree:(800) 843-7422 Fax:(817) 390-3292 Tech:(800) 843-7422
Radius Inc:CAMain: (408) 541-6100
 TFree:(800) 227-2795 Fax:(408) 541-6150 Tech:(408) 541-5700
RAG Electronics Inc:CAMain: (805) 498-9933
 TFree:(800) 732-3457 Fax:(805) 498-3733
Rail Systems Center:PAMain: (412) 751-8470
 Fax:(412) 754-0176
Raima Corp.:WAMain: (206) 557-0200
 TFree:(800) 327-2462 Fax:(206) 557-5200 Tech:(206) 557-5333
Rainbow Technology:CAMain: (510) 252-0708
 Fax:(510) 252-0716 Tech:(510) 252-0708
Raosoft, Inc. (Northwest Nexus):WAMain: (206) 525-4025
 Fax:(206) 525-4947 Tech:(206) 525-4025
Raster OPS (see True Vision Raster OPS):
Ray Dream:CAMain: (415) 960-0765
 TFree:(800) 846-0111 Fax:(415) 960-1198 Tech:(415) 960-0767
Rayovac Corp:WIMain: (608) 275-4694
 TFree:(800) 237-7000 Fax:(608) 275-4577
Reach Software:CAMain: (408) 733-8685
 TFree:(800) 624-5356 Fax:(408) 733-9265
ReadMe.DOC:PAMain: (717) 264-0843
 TFree:(800) 678-1473 Fax:(717) 264-8614
Ready-To-Run Software Inc.:MAMain: (508) 692-9922
 TFree:(800) 743-1723 Fax:(508) 692-9990
Real Time Integration Inc.:WAMain: (206) 883-7563
 Fax:(206) 883-0463
Reality Online, Inc:PAMain: (610) 277-7600
 TFree:(800) 346-2024 Fax:(610) 278-6115 Tech:(800) 777-7424
Reality Tech. (see Reality Online):
RealWorld Corp:NHMain: (603) 224-2200
 TFree:(800) 678-6336 Fax:(603) 224-1955 Tech:(603) 288-3433
Red Wing Business Systems, Inc:MNMain: (612) 388-1106
 TFree:(800) 732-9464 Fax:(612) 388-7950

Relay Technology, Inc.:VA Main: (703) 506-0500
 TFree:(800) 795-8674 Fax:(703) 506-0510 Tech:(703) 902-8700
Relialogic Corp.:CA Main: (510) 770-3990
 TFree:(800) 998-3966 Fax:(510) 770-3994 Tech:(510) 770-3990
Remco Software, Inc.:ND Main: (701) 225-8336
Remote Control Intl (see Telemagic):
Reply Corp.:CA Main: (408) 942-4804
 TFree:(800) 955-5295 Fax:(408) 942-4897 Tech:(408) 956-2909
Research Information Systems:CA Main: (619) 438-5526
 TFree:(800) 722-1227 Fax:(619) 438-5573
Reseller Management:MA Main: (617) 558-4723
 Fax:(617) 558-4757
ResNova Software Inc.:CA Main: (714) 379-9000
 Fax:(714) 379-9014 Tech:(714) 379-9018
Responsive Software:CA Main: (415) 945-3876
 TFree:(669) 461-1 Fax:(510) 644-1013
Retix:CA Main: (310) 828-3400
 Fax:(310) 828-2255 Tech:(800) 255-2333
Revelation Technologies, Inc.:CT Main: (203) 973-1000
 TFree:(800) 262-4747 Fax:(203) 975-8744 Tech:(800) 262-4747
Rexon Data Storage (see Tecmar Technologies):
RGB Spectrum:CA Main: (510) 814-7000
 Fax:(510) 814-7026
Rhode Island Soft Systems, Inc.:RI Main: (401) 767-3106
 TFree:(800) 959-7477 Fax:(401) 767-3108 Tech:(401) 767-3106
Ricoh Corp (Scanners):CA Main: (714) 259-1310
 TFree:(800) 955-3453 Fax:(714) 556-3505 Tech:(210) 520-0951
Ricoh Corp-Peripherals Products:CA Main: (800) 955-3453
 TFree:(800) 955-3453 Fax:(408) 432-9266 Tech:(800) 955-3453
Rinda Technologies, Inc.:IL Main: (312) 736-6633
 Fax:(312) 736-2950
Ring King Visibles, Inc.:IA Main: (319) 263-8144
 TFree:(800) 272-2366 Fax:(800) 272-2382 Tech:(800) 553-9647
RKS Software Inc.:VA Main: (703) 534-1726
 Fax:(703) 534-4358
RNS Inc.:CA Main: (805) 968-4262
 TFree:(800) 262-8023 Fax:(805) 968-6478
Road Scholar Software:TX Main: (714) 266-7623
 TFree:(800) 243-7623 Fax:(713) 266-4525 Tech:(713) 266-7623
Rocket Science Games, Inc.:CA Main: (415) 452-5000
 TFree:(800) 987-6253 Fax:(415) 442-5001 Tech:(916) 939-1008
Rogue Wave Software:CA Main: (415) 691-9000
 TFree:(800) 364-6275 Fax:(415) 691-9099
Roland Corp US:CA Main: (213) 685-5141
 Fax:(213) 722-0911
Roland Corp. (MIDI Products):CA Main: (213) 685-5141
 Fax:(213) 722-0911
Roland DG America (Plotters):CA Main: (714) 727-2100
 TFree:(800) 542-2307 Fax:(714) 727-2112 Tech:(800) 542-2307
Roland Digital Group:CA Main: (714) 727-2100
 TFree:(800) 542-2307 Fax:(714) 727-2112 Tech:(800) 542-2307
Ross Systems:GA Main: (404) 851-1872
 Fax:(404) 257-0434
Ross Technology Inc.:TX Main: (512) 349-3108
 TFree:(800) 767-7937 Fax:(512) 349-3101

RSA Data Security (Security Dynamics):CA Main: (415) 595-8782
 Fax:(415) 595-1873
RTZ Software:CA Main: (408) 252-2946
 Fax:(408) 257-5274
Rupp Technology Corporation:AZ Main: (602) 941-4789
 TFree:(800) 844-7775 Fax:(602) 941-5505 Tech:(602) 941-5602
Rybs Electronics:CO Main: (303) 444-6073
 Fax:(303) 449-9259 Tech:(303) 444-7927
S.L. Waiber:NJ Main: (609) 866-8888
 TFree:(800) 638-9098 Fax:(609) 866-1945 Tech:(609) 866-8888
S3:CA Main: (408) 980-5400
 Fax:(408) 980-5444
Saber Software (see McAfee):
SAI Inc (Microleague Multimedia):PA Main: (717) 872-6567
 TFree:(800) 545-9009 Fax:(717) 871-9959 Tech:(717) 872-2422
Sampo Corp Of America:GA Main: (770) 449-6220
 Fax:(770) 447-1109 Tech:(770) 449-6220
Sams Publishing:IN Main: (317) 581-3500
 TFree:(800) 545-5914 Fax:(317) 581-4669 Tech:(800) 545-5914
Samsung America, Inc:CA Main: (310) 802-2211
 TFree:(800) 229-2239 Fax:(310) 802-3011
Samsung Electronics America:NJ Main: (201) 229-4000
 TFree:(800) 446-0262 Fax:(201) 592-1444 Tech:(800) 446-0262
Samsung Electronics America:CA Main: (310) 537-7000
 Fax:(310) 537-1300 Tech:(800) 726-7864
Samsung Electronics America (Info Sys):NJ Main: (201) 229-4000
 TFree:(800) 726-7864 Fax:(201) 229-4110 Tech:(201) 229-4000
SanDisk Corp.:CA Main: (408) 562-0595
 Fax:(408) 562-3403 Tech:(408) 562-3400
Santa Cruz Operations:CA Main: (408) 425-7222
 Fax:(408) 427-5443 Tech:(800) 347-4381
Santa Fe Software:CA Main: (619) 673-5313
 TFree:(800) 833-8892 Fax:(619) 673-7399 Tech:(619) 673-5313
SAP America Inc.:PA Main: (610) 725-4500
 Fax:(610) 725-4555
Saros Corp.:WA Main: (206) 646-1066
 TFree:(800) 827-2767 Fax:(206) 462-0879 Tech:(206) 450-1500
SAS Institute Inc:NC Main: (919) 677-8000
 Fax:(919) 677-8123
Savin Corp:CT Main: (203) 967-5000
 Fax:(203) 967-5014 Tech:(203) 967-5460
Savet Technology, Inc:NY Main: (716) 264-1290
 TFree:(800) 836-7730 Fax:(716) 624-6080 Tech:(800) 836-7730
SBT Accounting Systems:CA Main: (415) 444-9900
 TFree:(800) 944-1000 Fax:(415) 444-9903 Tech:(415) 444-9700
Scala, Inc.:VA Main: (703) 713-0900
 Fax:(703) 713-1960 Tech:(703) 713-0900
Sci:CA Main: (310) 577-1518
SciTech Software Inc.:CA Main: (916) 894-8400
 Fax:(916) 894-9069
Scitor Corp:CA Main: (415) 462-4200
 Fax:(415) 462-4201 Tech:(415) 462-4200
SCO:CA Main: (408) 425-7222
 TFree:(800) 726-8649 Fax:(408) 458-4227 Tech:(312) 380-4030
Scopus Technology Inc.:CA Main: (510) 597-5800
 Fax:(510) 428-1027

Seagate Enterprise Mgmt Software:MA.....Main: (617) 451-5000
TFree:(800) 961-0501 Fax:(617) 451-6711 Tech:(617) 451-5400

Seagate Technologies:CA.....Main: (408) 438-6550
TFree:(800) 468-3472 Fax:(408) 429-6356 Tech:(408) 438-8222

Sealevel Systems:SC.....Main: (864) 843-4343
Fax:(864) 843-3067 Tech:(864) 843-4343

Searchlight Software:OH.....Main: (216) 631-9290
TFree:(800) 988-5483 Fax:(216) 631-9289 Tech:(800) 988-9290

Seattle Lab:WA.....Main: (206) 402-6003
Fax:(206) 828-9011

Seiko Instruments USA:CA.....Main: (408) 922-5800
TFree:(800) 553-5312 Fax:(408) 922-5840 Tech:(800) 553-5312

SemWare Corp.:GA.....Main: (770) 641-9002
TFree:(800) 467-3692 Fax:(770) 640-6213 Tech:(770) 641-9002

Sequel Inc.:CA.....Main: (408) 987-1000
TFree:(800) 848-5837 Fax:(408) 987-1111 Tech:(408) 987-1417

Sequent Computer Systems Inc.:OR.....Main: (503) 626-5700
TFree:(800) 346-2683

Sequoia Publishing, Inc.:CO.....Main: (303) 972-4167
TFree:(800) 873-7126 Fax:(303) 972-0158 Tech:(303) 972-4167

Server Technology:CA.....Main: (408) 745-0300
TFree:(800) 835-1515 Fax:(408) 745-0392 Tech:(800) 835-1515

Server Technology Inc.:CA.....Main: (408) 745-0300
TFree:(800) 835-1515 Fax:(408) 745-0392

Service 2000 (see Kennsco Inc):

Service News Magazine:ME.....Main: (207) 846-0600
Fax:(207) 846-0657

SES (Scientific & Engin. Software):TX.....Main: (512) 328-5544
Fax:(512) 327-6646

SES, Inc.:TX.....Main: (512) 328-5544
Fax:(512) 327-6646

SES, Inc.:TX.....Main: (512) 328-5544
Fax:(512) 327-6646 Tech:(512) 328-3377

Set Enterprises, Inc.:AZ.....Main: (602) 837-3628
TFree:(800) 351-7765 Fax:(602) 837-5644 Tech:(602) 837-3628

SGS-Thomson Microelectronics:AZ.....Main: (602) 485-6201
Fax:(602) 485-6330

Shaffstall Corp.:IN.....Main: (317) 842-2077
TFree:(800) 248-3475 Fax:(317) 842-8294

Shapeware (Out of Business):

Sharp Electronics Corp.:NJ.....Main: (201) 529-8200
TFree:(800) 237-4277 Fax:(201) 529-9636 Tech:(800) 237-4277

Sherwood Kimtron:CA.....Main: (510) 266-5600
TFree:(800) 777-8755 Fax:(510) 266-5627 Tech:(800) 777-8755

Shiva Corporation:MA.....Main: (617) 270-8300
TFree:(800) 458-3550 Fax:(617) 270-8852 Tech:(617) 270-8300

ShowCase Corporation:MN.....Main: (507) 288-5922
TFree:(800) 829-3555 Fax:(507) 287-2803 Tech:(507) 288-5922

Shugart Corporation:CA.....Main: (520) 294-0898
Fax:(714) 367-8843 Tech:(714) 770-1100

Sierra On-Line:WA.....Main: (209) 649-9800
TFree:(800) 757-7707 Fax:(209) 644-7697 Tech:(209) 644-4343

Sigma Data:NH.....Main: (603) 526-6909
TFree:(800) 446-4525 Fax:(603) 526-6915

Sigma Designs, Inc.:CA.....Main: (510) 770-2698
TFree:(800) 845-9086 Tech:(970) 339-7120

Monitors.....Main: (510) 770-2900
TFree:(800) 845-8086 Fax:(510) 770-2920 Tech:(510) 770-2900

Multimedia Division.....Main: (510) 770-0100
TFree:(800) 845-8086 Fax:(510) 770-2640 Tech:(970) 339-7120

Silicon Graphics, Inc.:CA.....Main: (415) 833-3900
TFree:(800) 676-6272 Fax:(415) 960-0197 Tech:(800) 800-4744

Simon & Schuster Software:NY.....Main: (212) 698-7000
TFree:(800) 223-2348 Tech:(317) 581-3833

Sir-Tech Software, Inc.:NY.....Main: (315) 393-6451
TFree:(800) 447-1230 Fax:(315) 393-1525 Tech:(315) 393-6644

Sirius Publishing:AZ.....Main: (602) 951-3288
Fax:(602) 951-3884 Tech:(602) 951-8405

Skill Dynamics.....Main: (800) 426-8322

Skill Dynamics (Canada) (IBM Ed):.....Main: (800) 661-2131

SkiSoft:MA.....Main: (617) 863-1876
Fax:(617) 861-0086

SL Waber Inc:NJ.....Main: (609) 866-8888
TFree:(800) 634-1485 Fax:(609) 866-1945 Tech:(800) 257-8384

Smartronics Inc.:NH.....Main: (603) 437-1975
Fax:(603) 434-5470

SMC:NY.....Main: (516) 435-6000
TFree:(800) 762-4968 Fax:(516) 273-1803 Tech:(800) 762-4968

Smith Micro Software Inc:CA.....Main: (714) 362-5850
Fax:(714) 362-2300

SMS Technology (Televido Multimedia):CA.....Main: (408) 954-8333
TFree:(800) 345-6050 Fax:(408) 954-0622

Snow Software:FL.....Main: (813) 784-8899
Fax:(813) 786-5904

Socket Communications:CA.....Main: (510) 744-2700
TFree:(800) 552-3300 Fax:(510) 744-2727 Tech:(510) 744-2720

SoftArc, Inc.:ON.....Main: (905) 415-7000
TFree:(800) 763-8272 Fax:(905) 415-7151 Tech:(905) 415-7000

Softbank Comdex, Inc.:MA.....Main: (617) 449-6600
Fax:(617) 449-2674

Softbite International:IL.....Main: (708) 833-0006
Fax:(708) 833-0584 Tech:(800) 336-6060

SoftBooks, Inc.:CA.....Main: (714) 586-1284
TFree:(800) 992-6464 Tech:(714) 586-1039

SoftCad USA:CA.....Main: (510) 376-0117
TFree:(800) 763-8223 Fax:(510) 376-0118 Tech:(800) 763-8223

SoftCraft, Inc.:WI.....Main: (608) 257-3300
TFree:(800) 351-0500 Fax:(608) 257-6733 Tech:(608) 257-3300

Softdesk Retail Products:MO.....Main: (816) 891-1040
TFree:(800) 231-8574 Fax:(816) 891-8018 Tech:(816) 891-8418

SoftKey International:MA.....Main: (617) 494-1200
TFree:(800) 227-5609 Fax:(617) 494-1219 Tech:(770) 428-0008

SoftKey International (Tech Support):GA.....Main: (617) 494-1200
Fax:(770) 427-1150 Tech:(770) 428-0008

Softkone:FL.....Main: (904) 878-8564
TFree:(800) 634-8670 Fax:(904) 877-9763 Tech:(904) 878-8564

SofTouch Systems, Inc.:OK.....Main: (405) 947-8080
TFree:(800) 944-3028 Fax:(405) 632-6537 Tech:(800) 944-3028

SoftQuad Inc.:CA.....Main: (416) 544-9000
TFree:(800) 387-2777 Fax:(416) 544-0300 Tech:(416) 544-8879

Softronics, Inc.:CO.....Main: (719) 593-9540
TFree:(800) 225-8590 Fax:(719) 548-1878 Tech:(719) 593-9550

SoftTalk, Inc. (Callware Technologies):MA... Main: (301) 481-8916
TFree:(800) 944-1000 Fax:(415) 444-9901

Software Business Technologies:CA... Main: (415) 444-9900
TFree:(800) 944-1000 Fax:(415) 444-9901

Software Directions, Inc.:NJ... Main: (201) 584-8466
TFree:(800) 346-7638 Fax:(201) 584-7771 Tech:(201) 584-3882

Software Marketing (see Softkey Intl):
Software Publishers Assoc.:DC... Main: (202) 452-1600
TFree:(800) 388-7478 Fax:(202) 223-8756

Software Publishing Corp.:CA... Main: (408) 537-3000
TFree:(800) 336-8360 Fax:(408) 537-3500 Tech:(408) 988-6005

Software Support, Inc.:FL... Main: (800) 873-4357
TFree:(800) 756-4463 Fax:(407) 333-9080 Tech:(800) 873-4357

Software Toolworks (see Mindscape):
Software Ventures:CA... Main: (510) 644-9277
TFree:(800) 336-6477 Fax:(510) 848-0885 Tech:(510) 644-1325

Sola Electric:IL... Main: (708) 439-2800
TFree:(800) 289-7652 Fax:(708) 439-1160 Tech:(800) 289-7652

Solectek Accessories:CA... Main: (619) 450-1220
TFree:(800) 437-1518 Fax:(619) 457-2681 Tech:(800) 437-1518

Solidex:CA... Main: (602) 991-7626
TFree:(800) 722-1888 Fax:(602) 596-9035 Tech:(800) 722-1888

Solomon Software:OH... Main: (419) 424-0422
TFree:(800) 476-5666 Fax:(419) 424-3400 Tech:(419) 424-0422

Solsource Computers:CA... Main: (619) 929-7800
Fax:(619) 929-7810

Sonera Technologies:NJ... Main: (908) 747-6886
TFree:(800) 932-6323 Fax:(908) 747-4523 Tech:(908) 747-6886

Sonic:PA... Main: (610) 437-1000
TFree:(800) 899-2595 Fax:(610) 437-4568

Sonic Foundry:WI... Main: (608) 256-3133
TFree:(800) 577-6642 Fax:(608) 256-7300 Tech:(608) 256-3133

Sonic Systems:CA... Main: (408) 736-1900
TFree:(800) 535-0725 Fax:(408) 736-7228 Tech:(800) 535-0725

Sony Corp of America:NJ... Main: (201) 930-1000
TFree:(800) 222-7669 Tech:(201) 930-7669

Sony Electronics:CA... Main: (714) 489-3556
TFree:(800) 352-7669 Tech:(800) 326-9551

... CD-Rom Discman Support... Main: (800) 766-9236

... Computer Peripheral - TechFax (Canada) Main: (800) 961-7669

... Computer Peripheral - TechFax (USA) Main: (800) 883-7669

... Magic Link Personal Communicator Supt Main: (800) 556-2442

... Media Support... Main: (800) 766-9328

... Monitors... Main: (800) 222-7669
TFree:(800) 222-7669 Fax:(941) 731-4370 Tech:(800) 222-7669

... PlayStation Support... Main: (800) 345-7669

... Service Centers... Main: (800) 282-2848

... Service Parts - Monitors... Main: (800) 488-7669

... Service Parts - Storage Devices... Main: (800) 492-0699

Sony Interactive Studios:CA... Main: (415) 655-8000
Fax:(415) 655-8001 Tech:(415) 655-5683

Sophisticated Circuits:WA... Main: (206) 485-7979
TFree:(800) 827-4669 Fax:(206) 485-7172 Tech:(206) 485-7979

Sound Source Unlimited:CA... Main: (805) 494-9996
TFree:(800) 877-4778 Fax:(805) 495-0016 Tech:(805) 494-9996

SourceMate Information Systems, Inc.:CA... Main: (414) 381-1011
TFree:(800) 877-8896 Fax:(415) 381-6902 Tech:(414) 381-1793

Spalding Software:GA... Main: (770) 449-0594
Fax:(770) 449-0052 Tech:(770) 449-0594

SPARC International Inc.:CA... Main: (408) 748-9111
Fax:(408) 748-9777

Specialix:CA... Main: (408) 378-7919
TFree:(800) 423-5364 Fax:(408) 378-0786 Tech:(800) 423-5364

Specialized Products Co.:TX... Main: (214) 550-1923
TFree:(800) 866-5353 Fax:(214) 550-1386 Tech:(800) 527-5018

Spectragraphics:CA... Main: (619) 450-0611
TFree:(800) 821-4822 Fax:(619) 450-0218 Tech:(900) 934-3200

Spectrum HoloByte, Inc.:CA... Main: (510) 522-1164
Fax:(510) 522-9357 Tech:(510) 522-1164

Spectrum Multimedia:WI... Main: (608) 836-7069
Tech:(608) 836-7069

Spider Island Software:CA... Main: (714) 453-8095
Fax:(714) 453-8044 Tech:(714) 453-8095

Spinnaker Software (see Softkey):
Sprague Magnetics:CA... Main: (818) 994-6602
TFree:(800) 553-8712 Fax:(818) 994-2153 Tech:(800) 553-8712

Spry Inc:WA... Main: (206) 957-8000
TFree:(800) 957-8956 Fax:(206) 957-6000

Spyglass:IL... Main: (708) 505-1010
Fax:(708) 505-4944

SRW Computer Components:CA... Main: (800) 547-7766
TFree:(800) 547-7766 Fax:(714) 259-8037 Tech:(800) 547-7766

Stac Electronics (Mac):CA... Main: (619) 794-4300
TFree:(800) 305-7822 Fax:(619) 794-3717 Tech:(619) 794-3700

Stallion Technologies, Inc.:CA... Main: (408) 477-0440
TFree:(800) 347-7979 Fax:(408) 477-0444 Tech:(800) 729-2342

Stampede Technologies, Inc.:OH... Main: (513) 291-5035
TFree:(800) 763-3423 Fax:(513) 291-5040

Standard Microsystems Corp (SMC):NY... Main: (516) 453-6000
TFree:(800) 762-4968 Fax:(708) 916-6304 Tech:(800) 762-4968

Star Media Systems Corp.:IL... Main: (708) 305-4843
TFree:(800) 775-3314 Fax:(708) 355-4843 Tech:(708) 305-4843

Star Micronics America:NJ... Main: (908) 572-5550
Fax:(908) 572-5693 Tech:(908) 572-5550

Starfish Software:CA... Main: (408) 461-5800
TFree:(888) 782-7347 Fax:(408) 461-5900 Tech:(970) 522-4610

Starquest Connectivity Software:CA... Main: (510) 704-2000
TFree:(800) 763-0050 Fax:(510) 704-2001 Tech:(510) 704-2000

State Of The Art:CA... Main: (916) 791-7730
TFree:(800) 447-5700 Fax:(916) 791-5525 Tech:(800) 447-5700

STB Systems Inc.:TX... Main: (214) 234-8750
TFree:(800) 234-4334 Fax:(214) 234-1306 Tech:(214) 234-8750

Steinberg/Jones:CA... Main: (818) 993-4051
Fax:(818) 701-7452 Tech:(818) 993-4161

STF Technologies, Inc.:MO... Main: (816) 463-7972
TFree:(800) 771-6202 Fax:(816) 463-7958 Tech:(816) 463-2021

Storage Dimensions:CA... Main: (408) 954-0710
TFree:(800) 765-7895 Fax:(408) 944-1200 Tech:(408) 894-1325

Storage Technology Corporation:CO... Main: (303) 673-5151
TFree:(800) 786-7835 Fax:(303) 673-7577

Storm Software:CA Main: (315) 691-6600
 TFree:(800) 275-5734 Fax:(415) 691-9825 Tech:(415) 969-9555
Strata Distributing, Inc.:CA Main: (510) 656-9848
 Fax:(510) 656-9891 Tech:(510) 656-9848
Strata, Inc.:UT Main: (801) 628-5218
 TFree:(800) 678-7282 Fax:(801) 628-9756 Tech:(801) 628-9751
Strategic Mapping (see Software Support):
Strategic Networks Consulting Inc.:MA Main: (617) 871-5195
 TFree:(800) 999-7621 Fax:(617) 871-5339
Strategic Simulations Inc:CA Main: (408) 737-6800
 TFree:(800) 601-7529 Fax:(408) 737-6814 Tech:(408) 737-6850
Strategic Studies Group:FL Main: (904) 469-8880
 Fax:(904) 469-8885 Tech:(904) 469-8880
Street Electronics (see Echo Speech Corp):
Streetwise Software:CA Main: (310) 829-7827
 TFree:(800) 743-6765 Fax:(310) 828-8258 Tech:(310) 998-3361
Structured Software:TX Main: (800) 235-9901
 Fax:(214) 612-2035 Tech:(800) 235-9901
SubLOGIC:IL Main: (217) 359-8482
 Fax:(217) 352-1472 Tech:(800) 637-4983
Summagraphics Corp:TX Main: (512) 835-0900
 TFree:(800) 444-3425 Fax:(512) 835-1916 Tech:(800) 444-3425
Sun Microsystems Computer Co:CA Main: (415) 960-3200
 TFree:(800) 786-7638 Fax:(415) 968-9506 Tech:(800) 872-4786
SunSoft (see Sun Microsystems Computer):
Superbase, Inc:NY Main: (516) 244-1500
 TFree:(800) 315-7944 Fax:(516) 244-0250 Tech:(800) 315-7940
Supernac Technology (see Radius):
Supra Corp:OR Main: (503) 967-2400
 TFree:(800) 727-8772 Fax:(503) 967-2401 Tech:(541) 967-2400
... A Division of Diamond Multimedia Corp Main: (360) 604-1400
 TFree:(800) 727-8772 Fax:(360) 604-1401 Tech:(800) 727-8772
... Amiga and other systems Main: (503) 967-2493
... Dealer Main: (503) 967-2495
... facillitate Main: (541) 967-2492
... International Main: (360) 604-1400
... MAC Main: (503) 967-2492
... PC Main: (503) 967-2490
Surflog LLC:CA Main: (415) 731-2732
 Fax:(415) 731-0584
SusTeen Inc.:CA Main: (310) 787-1589
 Fax:(310) 787-1590 Tech:(310) 787-1589
Swan Technologies, Corp:MA Main: (800) 533-1131
 TFree:(800) 446-2499 Fax:(508) 480-0156 Tech:(800) 488-7926
Swan Technologies, Corp. (Support):PA Main: (814) 238-1820
 TFree:(800) 468-7926 Fax:(814) 237-6136 Tech:(800) 468-7926
Swift International (see Expert Software):
Sybase Inc.:CA Main: (510) 922-3500
 TFree:(800) 879-2273 Fax:(510) 658-9441
Sybase, Inc:CA Main: (510) 523-8233
 TFree:(800) 227-2346 Fax:(510) 523-2373 Tech:(800) 227-2346
Symantec Corp:CA Main: (408) 253-9600
 TFree:(800) 441-7234 Fax:(408) 253-3968 Tech:(900) 555-7700
... ACT! for Windows and MAC Main: (408) 253-9600
 TFree:(800) 441-7234 Tech:(541) 465-8645

Symantec Corporation ... continued
Enterprise Developer Main: (408) 253-9600
 TFree:(800) 441-7234 Tech:(541) 465-7860
... Norton Admstr-Ntwrks,Deskclck & NAV Main: (310) 453-4600
 TFree:(800) 441-7234 Fax:(310) 453-0636 Tech:(541) 465-8484
... Norton AntiVirus & SAM Main: (310) 453-4600
 TFree:(800) 441-7234 Fax:(310) 453-0636 Tech:(541) 465-8420
... Norton Desktop Main: (310) 453-4600
 TFree:(800) 441-7234 Tech:(503) 465-8420
... Norton PC Anywhere Main: (310) 453-4600
 TFree:(800) 441-7234 Tech:(541) 465-8430
... Norton Utilities & DiskDoublr Main: (310) 453-4600
 TFree:(800) 441-7234 Tech:(541) 465-8440
... Symantec C++ Main: (408) 253-9600
 TFree:(800) 441-7234 Tech:(541) 465-8470
... Customer Operations Main: (503) 345-3322
 TFree:(800) 441-7234 Fax:(503) 334-7400 Tech:(503) 465-8430
Symbios Logic:CO Main: (719) 596-5795
 TFree:(800) 856-3093 Fax:(719) 536-3301 Tech:(800) 334-5454
Symbol Technologies Inc.:NY Main: (516) 738-2400
 TFree:(800) 722-6234 Fax:(516) 738-2831
Synchronics:TN Main: (901) 761-1166
 TFree:(800) 852-5852 Fax:(901) 683-8303 Tech:(800) 852-8755
Synergy Interactive Corp.:CA Main: (415) 437-2000
 TFree:(800) 734-9466 Fax:(415) 431-3684 Tech:(800) 734-9466
Synergy Software:PA Main: (610) 779-0522
 TFree:(800) 876-8376 Fax:(610) 370-0548 Tech:(610) 779-0522
Synergy Solutions (see Aftisoft):
Synex:NY Main: (718) 499-6293
 TFree:(800) 447-9639 Fax:(718) 768-3997 Tech:(718) 369-2944
SynOptics Common (see Bay Network):
SysQuest Technology:CA Main: (510) 226-4000
 TFree:(800) 245-2278 Fax:(510) 226-4102 Tech:(800) 249-2440
SysConnect:CA Main: (408) 437-3800
 TFree:(800) 752-3334 Fax:(408) 437-3866 Tech:(408) 437-3857
Systems Compatibility (see Inso):
Systems Plus, Inc.:CA Main: (415) 969-7047
 TFree:(800) 222-7701 Fax:(415) 969-8936 Tech:(415) 969-7066
SystemSoft Corp.:MA Main: (508) 651-0088
 TFree:(800) 449-7973 Fax:(508) 651-8188 Tech:(508) 651-0088
Syttron Corp (see Arcada):
T/Maker Company:CA Main: (415) 962-0195
 TFree:(800) 986-2537 Fax:(415) 962-0201 Tech:(415) 962-0195
Tab Books/McGraw-Hill:PA Main: (717) 794-2191
 TFree:(800) 233-1128 Fax:(717) 794-2103
Tadiran:NY Main: (516) 621-4980
 TFree:(800) 537-1368 Fax:(516) 621-4517
Tadpole Technology Inc.:TX Main: (512) 219-2200
 TFree:(800) 232-1881 Fax:(512) 219-2222
Tallgrass Technologies (see Exabyte):
Talxon Software Corp:TX Main: (713) 984-7626
 Fax:(713) 984-7576
Tandem Computers Inc.:CA Main: (408) 285-6000
 TFree:(800) 482-6336
Tandon (TSL Holdings Inc):CA Main: (805) 582-6119

Tandy Corp:TX Main: (817) 390-3011
Fax: (817) 390-2647 Tech: (817) 390-3011

Tangent Computers Inc:CA Main: (800) 342-9388
TFree: (800) 342-9388 Fax: (415) 342-9380 Tech: (800) 800-6060

Tangram:NC Main: (610) 647-0440
TFree: (800) 482-6472 Fax: (919) 851-6004 Tech: (800) 722-2482

Targus:CA Main: (714) 523-5429
Fax: (714) 523-0153 Tech: (714) 523-5429

Tatung Company Of America:CA Main: (213) 979-7055
TFree: (800) 872-2850 Fax: (310) 637-8484 Tech: (800) 872-2850

Taylor Graphics:MI Main: (313) 295-3302
TFree: (800) 346-3629 Fax: (313) 295-3308

TDA/IPC:WA Main: (206) 402-7000
TFree: (800) 624-2101 Fax: (206) 402-1900 Tech: (206) 402-7000

TDA/WINK Data Products (see TDA/IPC):

TDK Electronics Corp:NY Main: (516) 625-0100
TFree: (800) 835-8273 Fax: (516) 625-0651 Tech: (800) 835-8273

TEAC America, Inc:CA Main: (213) 726-0303
Fax: (213) 727-7656 Tech: (213) 726-0303

Tech Data Corp:FL Main: (813) 539-7429
TFree: (800) 553-7976 Fax: (813) 539-7816 Tech: (800) 222-7926

Tech Smith Corp:MI Main: (517) 333-2100
Fax: (517) 333-1888

Tech Tools:NH Main: (603) 888-8400
TFree: (800) 501-2677 Fax: (603) 888-8413 Tech: (603) 888-6721

Techmar Technologies Inc.:ON Main: (905) 475-1077
TFree: (800) 565-9002 Fax: (905) 475-1088

Techni-Tool Inc:PA Main: (610) 941-2400
Fax: (610) 828-5623 Tech: (610) 941-2400

Technical Communications Corp:MA Main: (508) 287-5100
Fax: (508) 371-1280

Technology Concepts (see Prometheus):

Technology Group Inc., The:MD Main: (410) 576-2040
Fax: (410) 576-1968 Tech: (410) 576-2040

Technology Works:TX Main: (512) 794-8533
TFree: (800) 814-3306 Fax: (512) 794-8520 Tech: (800) 933-6113

Tecmar (see Rexon Data Storage):

Tecra Tool:CO Main: (303) 338-9224
TFree: (800) 284-0808 Fax: (303) 338-9289 Tech: (800) 284-0808

Teknosys, Inc.:FL Main: (813) 620-3494
TFree: (800) 873-3494 Fax: (813) 620-4039 Tech: (813) 620-3494

Tekram Technology:TX Main: (512) 833-6550
TFree: (800) 556-6218 Fax: (512) 833-7276 Tech: (512) 833-8158

TekSoft Inc.:AZ Main: (602) 942-4982
Fax: (602) 866-9016

Tektronix:OR Main: (503) 682-7737
TFree: (800) 835-9433 Fax: (503) 682-2980 Tech: (800) 547-8949

Teldar Corp:AZ Main: (602) 814-8400

Telebit Corp.:MA Main: (508) 441-2181
TFree: (800) 835-3248 Fax: (508) 441-9060 Tech: (800) 835-3248

Telemagic:CA Main: (619) 431-4000
Fax: (619) 431-4066 Tech: (619) 929-0193

Televideo Multimedia:CA Main: (408) 954-8333
TFree: (800) 345-6050 Fax: (408) 954-0622 Tech: (800) 345-6050

Telitone Corp.:WA Main: (206) 487-1515
TFree: (800) 426-3926 Fax: (206) 487-2288

Template Graphics Software:CA Main: (619) 457-5359
Fax: (619) 452-2547

Teradyne:MA Main: (617) 482-2700
Fax: (617) 422-2910

Texas Instruments Inc:TX Main: (214) 995-6611
TFree: (800) 848-3927 Fax: (800) 443-2984 Tech: (800) 848-3927

Texas Memory Systems Inc:TX Main: (713) 266-3200
Fax: (713) 266-0332

Texas Microsystems:TX Main: (713) 541-8200
TFree: (800) 627-8700 Fax: (713) 541-8226

The Coriolis Group Inc.:AZ Main: (602) 483-0192
TFree: (800) 410-0192 Fax: (602) 483-0193

The Inference Corp:CA Main: (415) 893-7200
TFree: (800) 332-9923 Fax: (310) 322-3242

The Other 90% Technologies, Inc.:CA Main: (415) 460-1010
Fax: (415) 460-1919 Tech: (800) 222-2363

Thermalloy, Inc.:TX Main: (214) 243-4321
Fax: (214) 241-4656 Tech: (214) 243-4321

Thomas Computer Corporation:FL Main: (407) 855-2020
TFree: (800) 621-3906 Fax: (407) 851-9700

Thomas-Conrad Corp (see Compaq Computer Gp):

Thomson Software Products:CT Main: (203) 845-5000
TFree: (800) 833-0085 Fax: (203) 845-5252

Three-Sixty Intracorp:TX Main: (409) 776-0876
TFree: (800) 468-7226 Fax: (409) 774-0960 Tech: (409) 776-2187

Thrust Master Inc.:OR Main: (503) 615-3200
Fax: (503) 615-3300

Thynx:NJ Main: (609) 514-1600
TFree: (800) 828-4766 Fax: (609) 514-1818 Tech: (609) 514-1600

Tiara Computer Sys (see Internex Info):

TigerSoftware:FL Main: (800) 335-4054
TFree: (800) 477-8443 Fax: (305) 529-2990

Timberline Software:OR Main: (503) 626-6775
Fax: (503) 641-7498

Time Motion Tools:CA Main: (619) 679-0303
TFree: (800) 779-8170 Fax: (800) 779-8171 Tech: (619) 679-0303

Timeslips Corp:TX Main: (214) 248-9293
TFree: (800) 285-0999 Fax: (214) 248-9245 Tech: (508) 768-7490

Tivoli Systems:TX Main: (512) 794-9070
Fax: (512) 794-0623 Tech: (512) 794-9070

TMS Sequia:OK Main: (405) 377-0880
TFree: (800) 944-7654 Fax: (405) 377-0452

Tool Kit Specialists (see Com-Kyle):

Top Speed Corp:FL Main: (954) 785-4555
TFree: (800) 354-5444 Fax: (954) 946-1650 Tech: (954) 785-4555

Toray Industries:CA Main: (415) 341-7152
TFree: (800) 867-2973 Fax: (415) 341-0845 Tech: (415) 341-7152

Toshiba Amer Consumer Prod:IL Main: (708) 541-9400
TFree: (800) 253-5429 Fax: (708) 541-1927 Tech: (708) 541-9400

Toshiba Amer Information Systems:CA Main: (714) 583-3000
TFree: (800) 457-7777 Fax: (800) 950-4373 Tech: (714) 455-0407

Toshiba America:

... CD Rom Support Main: (312) 380-4047

... Disk Products Main: (714) 583-3000
Tech: (714) 455-0407

... Disk Products/Parts Main: (714) 455-0407

Toshiba America, Inc. continued
 ... Disk Products/Repairs Main: (714) 583-3131
 ... Disk Products/Warranty Main: (714) 583-3129
 ... Laptop Support Main: (800) 999-4273
 ... PC Support Main: (800) 999-4273
 ... Printer Support Main: (800) 468-6744
Tosoh USA, Inc.:CA Main: (415) 286-2385
 TFree:(800) 238-6764 Fax:(415) 286-2392 Tech:(415) 286-2385
Total Computer Supplies:MI Main: (810) 673-5000
Total Management, Inc.:IN Main: (812) 476-5049
 TFree:(800) 553-5783 Fax:(812) 476-5145 Tech:(800) 553-5783
Totally Hip Software Inc.:BC Main: (604) 685-6525
 Fax:(604) 685-4057
TouchStone Software Corp.:CA Main: (714) 969-7746
 TFree:(800) 531-0450 Fax:(714) 969-4444 Tech:(714) 374-2801
Trade/Ex Electronic Commerce System:FL Main: (813) 222-2050
 Fax:(813) 222-5658
Transcend Information Inc.:CA Main: (714) 921-2000
 TFree:(800) 886-5590 Fax:(714) 921-2111
Trantor Systems, Ltd (see Adaptec):
Traquair Data Systems Inc.:NY Main: (607) 266-6000
 Fax:(607) 266-8221
Traveling Software:WA Main: (206) 483-8088
 TFree:(800) 343-8080 Fax:(206) 485-6786 Tech:(206) 487-8803
Trend Micro Devices, Inc.:CA Main: (310) 936-1188
 Fax:(310) 936-1196 Tech:(310) 936-1188
Tri-Mark Engineering:TN Main: (615) 966-3667
 Fax:(615) 675-3458 Tech:(615) 966-3667
Tri-Star Computer:AZ Main: (602) 731-4926
 TFree:(800) 800-2993 Fax:(602) 731-4979 Tech:(602) 731-4926
Tribe Computer Works:CA Main: (510) 814-3900
 TFree:(800) 778-7423 Fax:(510) 814-3980 Tech:(510) 814-3900
Tribe Computer Works(Zoom Tele.):CA Main: (510) 814-3900
 TFree:(800) 778-7423 Fax:(510) 814-3980
Trident Microsystems, Inc.:CA Main: (415) 691-9211
 Fax:(415) 691-9260 Tech:(415) 934-2123
TriniTech, Inc.:FL Main: (813) 442-8882
 TFree:(800) 909-3424 Fax:(813) 442-5897 Tech:(813) 442-8882
Trio Information Systems:NC Main: (919) 846-4990
 Fax:(919) 846-4997 Tech:(919) 846-4985
Tripp Lite/Datashield:IL Main: (312) 755-5400
 Fax:(312) 644-6505 Tech:(312) 755-5401
Triton Technologies, Inc (Artisoft):AZ Main: (520) 670-7100
 TFree:(800) 322-9440 Fax:(520) 670-7101 Tech:(520) 670-4287
Trius, Inc.:MA Main: (508) 794-9377
 TFree:(800) 468-7487 Fax:(508) 688-6312 Tech:(508) 794-0140
True Vision Raster OPS:CA Main: (817) 754-2120
 TFree:(800) 729-2656 Fax:(817) 750-9054 Tech:(800) 729-2656
Truevision (Rasterops):IN Main: (317) 841-0332
 TFree:(800) 729-2656 Fax:(317) 576-7717 Tech:(317) 841-0332
Tseng Laboratories Inc:PA Main: (215) 968-0502
 Fax:(215) 860-7713 Tech:(215) 968-0502
TSSI/Rexon Service:CA Main: (800) 286-0651
 Fax:(818) 717-9975 Tech:(800) 992-9916
Tucker Electronics:TX Main: (214) 348-8800
 TFree:(800) 527-4642 Fax:(214) 348-0367

Tulin Technology:CA Main: (408) 432-9057
 Fax:(408) 943-0782 Tech:(408) 432-9057
Turbopower Software Company:CO Main: (719) 260-6641
 TFree:(800) 333-4160 Fax:(719) 260-7151 Tech:(719) 260-6641
Turtle Beach Systems:CA Main: (510) 624-6200
 TFree:(800) 884-0190 Fax:(510) 624-6291 Tech:(510) 624-6250
Tut Systems (Tutankhamon Elec):CA Main: (510) 682-6510
 TFree:(800) 570-6822 Fax:(510) 682-4125 Tech:(800) 998-4888
Twelve Tone Systems (see Cake Walk Music):
Twilight Technologies:MI Main: (810) 695-8933
 Fax:(810) 695-8706
TwinBridge Software Corp.:CA Main: (213) 263-3926
 TFree:(800) 894-6114 Fax:(213) 263-8126 Tech:(213) 263-5931
Twinhead Corp.:CA Main: (408) 945-0808
 TFree:(800) 995-8946 Fax:(408) 945-1080 Tech:(408) 945-0808
Tyan Computer Corp.:CA Main: (408) 956-8000
 Fax:(408) 956-8044
Typhoon Software:CA Main: (805) 966-7633
 TFree:(800) 499-0888 Fax:(805) 962-6811 Tech:(805) 966-7633
U.S. Robotics, Inc.:IL Main: (847) 982-5010
 TFree:(800) 550-7800 Fax:(847) 982-0823 Tech:(800) 982-5151
Ulead Systems, Inc.:CA Main: (310) 523-9393
 TFree:(800) 858-5323 Fax:(310) 523-9399 Tech:(310) 523-9391
Ultra-X Inc.:CA Main: (408) 988-4721
 TFree:(800) 722-3789 Fax:(408) 261-7077
UltraCoach:CA Main: (909) 625-0463
 TFree:(800) 400-1390 Fax:(909) 625-4504
UMAX Technologies, Inc.:CA Main: (510) 651-9488
 Fax:(510) 651-8834 Tech:(800) 468-8629
Underware:MA Main: (617) 267-9743
 TFree:(800) 343-7308 Fax:(617) 424-1839
Unicorn Multimedia:NV Main: (702) 597-0818
 Fax:(702) 597-0008
Unimark Inc.:KS Main: (913) 649-2424
 TFree:(800) 255-6356 Fax:(913) 649-5795
Unison Software, Inc.:CA Main: (408) 988-2800
 Fax:(408) 988-2236 Tech:(408) 988-2800
Unisys Corp.:NY Main: (800) 448-1424
 TFree:(800) 448-1424 Fax:(716) 742-6738 Tech:(800) 328-0440
Univel (see Novell):
Universal Software:CA Main: (310) 866-1274
University Research & Development:PA Main: (412) 363-0990
 TFree:(800) 338-0517
Unixware (see Novell):
USA Flex (see Comark, Inc.):
V Communications Inc.:CA Main: (408) 296-4224
 TFree:(800) 648-8266 Fax:(408) 296-4441 Tech:(408) 296-4385
V-One Corp:MD Main: (301) 838-8900
 Fax:(301) 838-8909
ValueStor Inc:CA Main: (408) 437-2300
 TFree:(800) 873-8258 Fax:(408) 437-9333 Tech:(408) 437-2310
ValueWare Software:TN Main: (800) 441-7604
 TFree:(800) 441-7604
Varta Batteries:NY Main: (914) 592-2500
 TFree:(800) 468-2782 Fax:(914) 592-2667

Vartech, Inc. (Out of Business):
VDONet Corp.:CA Main: (415) 846-7700
 Fax:(415) 846-7900

Velocity Inc.:CA Main: (415) 274-8840
 TFree:(800) 856-2489 Fax:(415) 776-8099 Tech:(415) 274-8840

Velocity, Inc.:CA Main: (415) 776-8000
 TFree:(800) 856-2489 Fax:(415) 776-8099 Tech:(415) 776-8000

Ven-Tel Inc:CA Main: (408) 436-7400
 TFree:(800) 538-5121 Fax:(408) 436-7451 Tech:(800) 538-5121

Ventana Communications Group:NC Main: (919) 544-9404
 TFree:(800) 743-5369 Fax:(919) 544-9472 Tech:(919) 544-9404

Ventura Software (see Corel):

VenturCom Inc.:MA Main: (617) 661-1230
 TFree:(800) 334-8649 Fax:(617) 577-1607

Verbatim Corp.:CA Main: (408) 773-3807
 TFree:(800) 538-8589 Fax:(408) 746-3877 Tech:(800) 538-8589

Verbatim Corp.:NC Main: (704) 547-6500
 TFree:(888) 837-2284 Fax:(704) 547-6565

Verbox Voice Systems, Inc.:NJ Main: (908) 225-5225
 TFree:(800) 483-7239 Fax:(908) 225-7764 Tech:(800) 483-7239

VeriFone:CA Main: (415) 591-5504
 TFree:(800) 654-1674 Fax:(415) 598-5504

VeriSign Inc.:CA Main: (415) 961-7500
 Fax:(415) 961-7300

Verity Inc.:CA Main: (408) 541-1500
 Fax:(408) 542-2031 Tech:(408) 542-2222

Vermont Microsystems:VT Main: (802) 655-2860
 TFree:(800) 354-0055 Fax:(802) 655-9058 Tech:(800) 354-0055

Versant Object Technology:CA Main: (415) 329-7500
 TFree:(800) 837-7268 Fax:(415) 325-2380

Vertex Industries:NJ Main: (201) 503-1919
 Fax:(201) 472-0814 Tech:(201) 777-3500

Vertisoft Systems:SC Main: (803) 295-5875
 TFree:(800) 466-5875 Fax:(800) 466-4719 Tech:(803) 269-9969

Vertisoft Systems (Corporate):CA Main: (415) 956-5999

Viacom New Media C/O Star Pak:CO Main: (303) 339-7114
 TFree:(800) 469-2539 Fax:(303) 339-7022 Tech:(303) 339-7114

ViaGrafix Corp:OK Main: (918) 825-7555
 TFree:(800) 233-3223 Fax:(918) 825-6359 Tech:(918) 825-4844

Victory Enterprises Tech:TX Main: (512) 450-0801
 TFree:(800) 727-3475 Fax:(512) 450-0869

Video Electronic Standards Assn:CA Main: (408) 435-0333
 Fax:(408) 435-8225

Videodiscovery, Inc.:WA Main: (206) 285-5400
 TFree:(800) 548-3472 Fax:(206) 285-9245 Tech:(800) 548-3472

VideoLogic, Inc:CA Main: (415) 875-0606
 TFree:(800) 578-5644 Fax:(415) 875-4167

Viewpoint DataLabs:UT Main: (801) 229-3000
 TFree:(800) 328-2738 Fax:(801) 229-3300 Tech:(801) 229-3000

ViewSonic Corp.:CA Main: (909) 869-7976
 TFree:(800) 888-8583 Fax:(909) 468-1202 Tech:(909) 468-5800

Vireo Software Inc:MA Main: (508) 264-9200
 Fax:(508) 264-9205

Virgil Corp.:CA Main: (415) 433-9025
 TFree:(800) 662-8256 Fax:(415) 433-8411 Tech:(415) 433-9025

Virgin Interactive Entertainment:CA Main: (714) 833-8999
 Fax:(714) 833-8717 Tech:(714) 833-1999

Virtual Comtech International, Inc.:MI Main: (616) 399-8934
 Fax:(616) 399-8934 Tech:(616) 399-8934

Virtual I/O:WA Main: (206) 382-7410
 TFree:(800) 646-3759 Fax:(206) 382-8810 Tech:(206) 382-4558

Virtual Reality Laboratories:CA Main: (805) 545-8515
 TFree:(800) 829-8754 Fax:(805) 781-2259 Tech:(805) 545-8515

Virtual Technologies (see Virtual Comtech):

Virtual Vegas:CA Main: (310) 581-3636
 TFree:(800) 958-3427 Fax:(310) 581-3645 Tech:(310) 581-3649

Virtus Corp.:NC Main: (919) 467-9700
 TFree:(800) 847-8871 Fax:(919) 460-4530 Tech:(919) 467-9700

Visio Corp:WA Main: (206) 521-4500
 TFree:(800) 248-4746 Fax:(206) 521-4501 Tech:(206) 521-4600

Vision Imaging (see Advanced Media):

Vision Research Inc.:NJ Main: (201) 696-4500
 TFree:(800) 737-6588 Fax:(201) 696-0560

Visionary Software (see First Things First):

Visioneer Communications:CA Main: (415) 812-6400
 TFree:(800) 787-7007 Fax:(415) 493-0399 Tech:(541) 884-5548

Visiware:NY Main: (212) 737-6967
 Fax:(212) 794-5038 Tech:(212) 737-6967

Visual Business Systems:MA Main: (508) 263-9900
 Fax:(508) 263-9957

Visual Numerics:TX Main: (713) 784-3131
 TFree:(800) 222-4675 Fax:(713) 781-9260

Viziflex Seels:NJ Main: (201) 487-8080
 TFree:(800) 307-3357 Fax:(201) 487-6637

VMark Software Inc.:MA Main: (508) 366-3888
 TFree:(800) 486-9636 Fax:(508) 366-3669 Tech:(800) 729-3553

VocalTec Inc.:NJ Main: (201) 768-9400
 Fax:(201) 768-8893 Tech:(201) 768-9400

Voxware, Inc.:NJ Main: (609) 497-1212

Voyager Company, The:NY Main: (212) 431-5199
 TFree:(800) 446-2001 Fax:(212) 431-5799 Tech:(212) 219-2522

Voyetra Technologies:NY Main: (914) 966-0600
 TFree:(800) 233-9377 Fax:(914) 966-1102 Tech:(914) 966-0600

VST Power Systems:MA Main: (508) 287-4600
 Fax:(508) 287-4068 Tech:(508) 287-4600

Wacom Technology Corp:WA Main: (360) 750-8882
 TFree:(800) 922-9348 Fax:(360) 750-8924 Tech:(360) 750-8882

Waite Group Press:CA Main: (415) 924-2575
 TFree:(800) 368-9369 Fax:(415) 924-2576 Tech:(317) 581-3833

Walker Richer & Quinn Inc:WA Main: (206) 217-7500
 TFree:(800) 872-2829 Fax:(206) 217-0293 Tech:(206) 217-7000

Wall Data Inc:WA Main: (206) 814-4525
 TFree:(800) 927-8622 Fax:(206) 814-4305 Tech:(800) 927-8622

Walnut Creek CDROM:CA Main: (510) 674-0783
 TFree:(800) 786-9907 Fax:(510) 674-0821 Tech:(510) 603-1234

Wang Laboratories, Inc.:MA Main: (508) 967-5000
 TFree:(800) 225-0654 Fax:(508) 967-0829 Tech:(800) 247-9264

Wangtek/WangDAT (see Rexon Data Storage):

Waver Software:UT Main: (801) 572-2555
 Fax:(801) 572-2444 Tech:(801) 255-0600

Washburn & Co.:NYMain: (716) 385-5200
 TFree:(800) 836-8026 Fax:(716) 381-7549 Tech:(800) 836-8026
Watergate Software Inc.:CAMain: (510) 596-1770
 Fax:(510) 653-4784 Tech:(510) 704-0160
Waterloo Maple Software:ONMain: (519) 747-2373
 TFree:(800) 267-6583 Fax:(519) 747-5284 Tech:(800) 267-6583
Watermark Software:MAMain: (617) 229-2600
 Fax:(617) 229-2989
Wavefront:ONMain: (416) 362-9181
 Fax:(416) 362-1276 Tech:(800) 465-0868
Wavefront Communications:MNMain: (612) 638-9594
 Fax:(612) 639-1878
WaveMetrics Inc.:ORMain: (503) 620-3001
 Fax:(503) 620-6754
Wavetek:CAMain: (619) 279-2955
 TFree:(800) 622-5515 Fax:(619) 450-0325 Tech:(619) 279-2200
Wayzata Technology Inc.:MNMain: (218) 326-0597
 TFree:(800) 735-7321 Fax:(218) 326-0598
WebManage Technologies Inc.:NYMain: (914) 697-7555
 Fax:(914) 697-7556
WebMaster Inc.:CAMain: (408) 345-1800
 Fax:(408) 247-9372
WeiSheng Enterprise Co (Compucase):CAMain: (310) 464-2646
 Fax:(310) 464-2648
Weitek Corp:CAMain: (408) 526-0300
 TFree:(800) 880-2885 Fax:(408) 577-1066 Tech:(408) 522-7600
Westbrook Technologies Inc.:CTMain: (203) 483-6666
 Fax:(203) 483-3350 Tech:(203) 483-6666
Westech Corp.:NJMain: (800) 829-4767
 TFree:(800) 829-4767 Fax:(201) 729-0431 Tech:(800) 745-4378
Western Digital Corp:CAMain: (714) 932-5000
 TFree:(800) 832-4778 Fax:(714) 932-6294 Tech:(800) 832-4778
Western Micro Technology Inc.:CAMain: (408) 379-0177
 TFree:(800) 338-1600 Fax:(408) 341-4762
Western Scientific Inc.:CAMain: (619) 565-6699
 TFree:(800) 443-6699 Fax:(619) 565-6938
Western Telematic Inc:CAMain: (714) 586-9950
 TFree:(800) 854-7226 Fax:(714) 583-9514 Tech:(800) 854-7226
Westwood Studios (see Virgin Interactive):
White Pine Software Inc.:NHMain: (603) 886-9050
 TFree:(800) 241-7463 Fax:(603) 886-9051
Whittaker Xyplex:MAMain: (508) 952-4700
 TFree:(800) 338-5316 Fax:(508) 952-4702 Tech:(800) 435-7997
WildCard Technologies Inc.:ONMain: (905) 731-6444
 Fax:(905) 731-7017
Willies Computer Software:TXMain: (713) 498-4832
 TFree:(800) 966-4832 Fax:(713) 568-3334 Tech:(713) 983-9427
Willow Peripherals (Pulse Systems):NYMain: (718) 402-0203
 TFree:(800) 444-1585 Fax:(718) 402-9603 Tech:(800) 933-6003
Windata:MAMain: (508) 952-0170
 TFree:(800) 553-8008 Fax:(508) 952-0168
Windows User Magazine:NYMain: (212) 302-2626
Windsoft International Inc.:FLMain: (407) 240-2300
 TFree:(800) 542-4455 Fax:(407) 240-2323 Tech:(407) 240-3350
Windsor Technologies Inc.:CAMain: (415) 456-2200
 Fax:(415) 456-2244 Tech:(415) 456-2200

Wingra Technologies Inc.:WIMain: (608) 238-4454
 Fax:(608) 238-8986
WinSoft Corp.:CAMain: (714) 833-8838
 TFree:(800) 494-6763 Fax:(714) 833-8983 Tech:(714) 833-8838
WinWay Corp.:CAMain: (916) 965-7878
 TFree:(800) 494-6929 Fax:(916) 965-7878 Tech:(916) 965-7878
Wired Magazine:CAMain: (415) 222-6200
 TFree:(800) 325-3841 Fax:(415) 222-6209
Wiz Technology Inc.:CAMain: (714) 443-3000
 Fax:(714) 443-2333 Tech:(714) 443-2374
Wizware Multimedia, Ltd.:PAMain: (610) 866-9613
 TFree:(800) 548-7969 Fax:(610) 691-8258 Tech:(900) 225-5570
Wizardworks Group Inc.:MNMain: (612) 559-5140
 Fax:(612) 577-0631 Tech:(612) 559-5303
Wollongong (Attachmate):WAMain: (800) 426-6283
 TFree:(800) 426-6283 Fax:(206) 747-9924 Tech:(800) 688-3270
Wonderware Corp.:CAMain: (714) 727-3200
 Fax:(714) 727-3270 Tech:(714) 727-3299
WordPerfect Corporation (see Novell):
WordStar International (see Softkey):
Wordstar USA (see Softkey Intl):
Working Software Inc.:CAMain: (408) 423-5696
 TFree:(800) 229-9675 Fax:(408) 423-5699
World Software Corp:NJMain: (201) 444-3228
 TFree:(800) 962-6360 Fax:(201) 444-9065 Tech:(201) 444-3290
Worldcomm Systems Inc.:NYMain: (516) 231-9800
 Fax:(516) 231-1557
Worthington Data Solutions:CAMain: (408) 458-9938
 TFree:(800) 345-4220 Fax:(408) 458-9964
Wrox Press:ILMain: (312) 465-3559
 TFree:(800) 814-4527 Fax:(312) 465-4063
WRQ:WAMain: (206) 217-7500
 TFree:(800) 872-2829 Fax:(206) 217-0293 Tech:(206) 217-7500
Wyse Technology:CAMain: (408) 473-1200
 TFree:(800) 800-9973 Fax:(408) 473-2401 Tech:(800) 800-9973
X-10 (USA), Inc:NJMain: (201) 784-9700
 TFree:(800) 411-2888 Fax:(201) 784-9464 Tech:(201) 784-1936
X3 Secretariat (see ICA Info Tech):
XBR Communication:POMain: (514) 735-9040
 Fax:(514) 735-4969
Xconsortium:MAMain: (617) 374-1000
 Fax:(617) 374-1025
Xebec (Out of Business):
XenoSoft (Cislin, Fred):CAMain: (510) 644-9366
 TFree:(800) 821-2797
Xerox Corp:NYMain: (716) 423-5090
 Tech:(800) 822-2979
Xerox Corporation:NYMain: (508) 977-2000
 TFree:(800) 248-6550 Tech:(800) 248-6550
Xerox/X-Soft:CAMain: (415) 424-0111
 TFree:(800) 334-6200 Fax:(415) 813-7181
Xinet Inc.:CAMain: (510) 845-0555
 Fax:(510) 644-2680
Xing Technology Corp.:CAMain: (805) 473-0145
 TFree:(800) 298-6448 Fax:(805) 473-0147

Xircom, Inc:CA	Main: (805) 376-9300
TFree:(800) 438-4526 Fax:(805) 376-9311 Tech:(805) 376-9200	
Xtend Micro Products:CA	Main: (714) 699-1400
TFree:(800) 232-9836 Fax:(714) 699-1434	
XTree Company (see Symantec Corp):	
Xylogics Inc (Bay Networks):MA	Main: (617) 272-8140
TFree:(800) 892-6639 Fax:(617) 273-5392	
Yamaha Corporation Of America:CA	Main: (714) 522-9011
TFree:(800) 823-6414 Fax:(714) 527-5782 Tech:(714) 522-9000	
Yamaha Systems Technology, Inc.:CA	Main: (408) 467-2300
TFree:(800) 543-7457 Fax:(408) 437-8791	
YBM Magnex Inc.:PA	Main: (215) 956-9300
TFree:(800) 692-5296 Fax:(215) 579-3444 Tech:(215) 579-0400	
Young Chang America:CA	Main: (310) 926-3200
Fax:(310) 404-0748	
Young Minds Inc:CA	Main: (909) 335-1350
TFree:(800) 964-4964 Fax:(909) 798-0488	
Z-Code Software (NetMet Manage):CA	Main: (408) 973-7171
Fax:(415) 898-8299	
Z-Ram (see Camintonn Z-Ram):	
Zebra Technologies:IL	Main: (847) 634-6700
TFree:(800) 423-0422 Fax:(847) 913-8766 Tech:(847) 634-6700	
Zedcor:AZ	Main: (520) 881-2310
TFree:(800) 482-4567 Fax:(520) 881-1841 Tech:(520) 881-2310	
Zenith Data Systems Corp:IL	Main: (847) 808-5000
Fax:(847) 808-4434 Tech:(800) 227-3360	
Zenographics, Inc:CA	Main: (714) 851-6352
TFree:(800) 366-7494 Fax:(714) 851-1314 Tech:(714) 851-2191	
Zeos International (Div of Micron):MN	Main: (612) 663-4591
TFree:(800) 423-5891 Fax:(612) 663-5224 Tech:(612) 633-7337	
Ziff-Davis Publishing (PC Week News):	Main: (212) 503-5446
Ziff-Davis Publishing CO:NY	Main: (212) 503-5446
Zilog Inc:CA	Main: (408) 370-8000
Fax:(408) 370-8056	
Zoom Telephonics, Inc.:MA	Main: (617) 423-1072
TFree:(800) 666-6191 Fax:(617) 423-3923 Tech:(617) 423-1076	
ZSoft Corp (see Softkey):	
ZyLAB Corp:MD	Main: (301) 590-0900
TFree:(800) 544-6339 Fax:(301) 590-0903	
ZyPCsom, Inc.:CA	Main: (510) 783-2501
Fax:(510) 783-2414 Tech:(510) 783-2501	
ZyXEL USA:CA	Main: (714) 693-0808
TFree:(800) 255-4101 Fax:(714) 693-8811 Tech:(714) 693-0808	

Index

8514 video standard	32
@ (at).....	128
A	
Addresses, COM: ports	54
Addresses, hardware I/O map	55
Addresses, software interrupts	56
ADOS.COM	118
Alphabet-Decimal-Hexadecimal-EBCDIC	30
ANSI.SYS	118 - 123
APPEND.EXE	124
ASCII and Numerics	9
ASCII Codes	10
ASSIGN.COM	125
ATTRIB.EXE	126 - 127
Audio Error Codes	57
B	
BACKINFO.EXE	128
BACKUP.EXE	129 - 130
BASIC Language	
GWBasic	207 - 209
QBASIC	262
BASIC.EXE	131
BASICA.EXE	51
Battery connector, 286/386/486	106
Bell modem standards	132
BREAK	133
BUFFERS	275 - 277
BUSSETUP.EXE	17
Bytes and bits	
C	
Cache, Disk	284
Calendar keyboard shortcuts	311
CALL	134
Cardfile Keyboard Shortcuts	311
CCITT communication standards	106
CD	135
CDC to Seagate Hard Drive conversion	326
Centronics printer interface	44
CGA video card pinout	49
CGA video standard	32
CHCP	136
CHDIR	135
CHKDSK.EXE	137
CHKSTATE.SYS	138, 232
CHOICE.COM	138
Clipboard keyboard shortcuts	311
CLS	139
CMOS hard disk types	315 - 316
Code Page	
ANSI.SYS	118 - 123
CHCP	136
COUNTRY	145
DISPLAY.SYS	165
GRAFTABL	205
NLSCFUNC	252
PRINTER.SYS	259

SELECT	273
SORT	285 - 286
Color Codes, resistors	42
COM: port addresses and interrupts	54
COM: port UARTs	108
COMMAND.COM	113 - 115, 140 - 141
COMP.EXE	142
CoProcessor Types	39
COPY	143 - 144
COUNTRY.SYS	145
CPU Processor Types	38 - 39
CTTY	146
CV.COM AND CV.EXE	147
D	
DATE	147
Dates of IBM hardware releases	40
DBLBOOT.BAT	148
DBLSPACE.EXE	149 - 150
DBLSPACE.SYS	151
DEBUG.EXE	152 - 154
Decimal-Alphabet-Hexadecimal-EBCDIC	30
Decimal-Hexadecimal-ASCII	10
Decimal-Powers of 2-Hexadecimal	18
DEFRAG.EXE	155
DEL	156
DELOLDOS.EXE	157
DELTREE.EXE	158
DEVICE	159
DEVICEHIGH	160 - 162
Diablo 630 Printer Control Codes	69
Diagnostic error codes	62
Diagnostic Loopback Plugs	45
DIR	161
Disk Cache	284
Disk Drive Power Connectors	52
DISKCOMP.COM	163
DISKCOPY.COM	164
DISPLAY.SYS	165
DMA Channels	54
DOS	111
DOS Command List	114
DOS History	116 - 117
DOSKEY.COM	167
DOSHELL.EXE & DOSHELL.COM	170 - 172
DOSSWAP	279
Drive specifications, hard disk	315
DRIVER.SYS	171
DRVPARM	173 - 174
DRVBOOT.BAT	174
DRVSPACE.EXE	175 - 179
DRVSPACE.SYS	180
DVORAK.SYS	181
E	
EBCDIC-Alphabet-Decimal-Hexadecimal	30
ECHO	182
EDIT.COM	183
EDLIN.EXE	184 - 185
EGA video card pinouts	49
EGA video standard	32
EGA.SYS	186
EMM386.EXE	186 - 189
Environment Variables, DOS SET	274

Epson FX-80 Printer Codes	71
Epson LQ860 Printer Control Codes	75
ERASE	156
Error Codes, audio	57
Error codes, XT/AT class	62
ERRORLEVEL, IF command	214
EXE2BIN.EXE	190
EXIT	191
EXPAND.EXE	192
F	
FASTHELP.EXE	193
FASTOPEN.EXE	194
Fax and Modem	105
FC.EXE	195
FCBS	196 - 198
FDISK.EXE	197
File Manager keyboard shortcuts	312
FILES	198
FIND.EXE	199
Floppy Drive Manufacturers Directory	442
Floppy Drive Specifications	441
FOR	200
FORMAT.EXE	201 - 203
G	
Game Control Cable	51
GOTO	204
GPIO Interface	48
GRAFTABL.COM	205
Graphics standards, video	32
GRAPHICS.COM	206
GW-BASIC.EXE	207 - 209
H	
Hard Disk CMOS drive types	315 - 316
Hard drive conversion, CDC to Seagate	326
Hard drive manufacturers directory	318
Hard Drive reference list	440
Hard Drive Spec Notes	440
Hard Drive Specifications	315
Hard drive table syntax and notations	317
Hardware I/O map	55
Hardware interrupts	53
Hardware releases, IBM	40
Hardware, PC chapter	31
Hayes modem commands	109
Help program keyboard shortcuts	312
HELP Ver 6.0	210
HELP.EXE	209
Hercules video standard	32
Hexadecimal to Decimal Conversion	20
Hexadecimal-Alphabet-Decimal-EBCDIC	30
Hexadecimal-Decimal-ASCII	10
Hexadecimal-Powers of 2-Decimal	18
HGC video card pinouts	49
High Memory	
DEVICEHIGH	160 - 162
DOS	166 - 169
EMM386.EXE	186 - 189
HIMEM.SYS	211 - 213
LH	228
LOADHIGH	228
MEM	230 - 232
HIMEM.SYS	211 - 213

HP GL plotter control codes	97	MMIR	229
HP Laserjet PCL3 control codes	82	MNP error correction	106
HP Laserjet PCL5 control codes	87	MODE	238
HP Laserjet Printer Codes	82, 87	Display Device Status	239
I I/O hardware map	55	To Configure Printer	240
IBM Hardware Releases	40	To Configure Serial Port	241
IBM Proprietary control codes	102	To Redirect Printing	241 - 242
IBMBIO.SYS	113 - 115	To Set Device Code Pages	243
IBMDOS.SYS	113 - 115	To Set Display Mode	244
IEEE 488 Interface	48	To Set Typematic Rate	238
IF	214	MODE.COM	105
Imprimis to Seagate hard drive conversion	326	Modem and BBSs	109
INCLUDE	215	Modem command settings, Hayes compatible	108
INSTALL	215	Modem standards	106
INTERLNK	216 - 218	Monitor cable pinouts	49
INTERLNK.EXE	217	MORE.COM	245
Interrupts, COM: ports	54	Motherboard switch settings	40
Interrupts, hardware	53	Mouse 6 Pin Mini DIN Connector	50
Interrupts, software	56	Mouse 9 Pin D-Shell Connector	51
INTERSVR.EXE	219 - 220	Mouse 9 Pin Microsoft Import Connector	246
IO.SYS	113 - 115	MOVE.EXE	111
IRQ hardware interrupts	53	MS-DOS Commands	113 - 115
ISO definition	43	MS-DOS vs. PC-DOS	247 - 248
J JOIN.EXE	220	MSAV	249
K KBDUF.SYS	221	MSBACKUP.EXE	250
KEYB	222 - 223	MSCDEX.EXE	251
KEYB.COM	222 - 223	MSD.COM & MSD.EXE	113 - 115
Keyboard codes, ANSI.SYS	122	MSDOS.SYS	252
Keyboard connector pinout	50	MSHERC.COM	247 - 248
Keyboard lockout connector	52	MWAV.EXE	249
Keyboard Scan Codes	34	MWBACKUP	296 - 297
KEYBOARD.SYS	222 - 223	MWUNDEL.EXE	297
KEYBxx.COM	224	N NEC Pinwriter Printer Codes	81
Kilobytes and megabytes	17	NLSFUNC.EXE	252
L Label, used with GOTO	204	Notes, blank page	8
LABEL.EXE	225	Numeric Prefixes	17
Laserjet printer codes, HP	82, 87	NUMLOCK	253
LASTDRIVE	226	O Object Packager keyboard shortcuts	312
LH	228	Operating System	140 - 141
Light Pen Interface	51	COMMAND.COM	113 - 115
LINK	226 - 227	Operating system files, DOS	113 - 115
LOADFIX.COM	227	P Paintbrush keyboard shortcuts	312
LOADHIGH	228	Paper sizes	43
Loopback Diagnostic Plugs	45	Parallel Loopback Diagnostic Plugs	45
M Math CoProcessor Types	39	Parallel port pinouts	32, 44
MD	229	Parallel Printer Interface	254
MDA video card pinouts	49	PATH	255 - 256
MDA video standard	32	PAUSE	455
Media Player keyboard shortcuts	314	PC Industry Phone Book	40
Megabytes and Kilobytes	17	PC Motherboard switch settings	111
MEM.EXE	230 - 232	PC-DOS commands	113 - 115
MEMMAKER.EXE	231	PC-DOS vs. MS-DOS	455
Memory map	53	Phone Book, PC Industry	33
MENUCOLOR	233	Pixels	43
MENUDEFAULT	234	Plotter paper sizes	255
MENUITEM	235	POWER	52
Microprocessor types	38 - 39	Power connectors, disk drives	52
MIRROR.COM	236 - 237	Power LED connector	52
		Power supply connectors, PS8 & 9	52

POWER.EXE	256
Powers of 2-Decimal-Hexadecimal	18
Prefixes, numeric	17
Print Manager keyboard shortcuts	313
Print Screen, GRAPHICS command	206
PRINT.EXE	257-259
Printer Control Codes	67
Diablo 630	69
Epson FX-80	71
Epson LQ860	75
HP GL plotter	97
HP Laserjet PCL3	82
HP Laserjet PCL5	87
IBM Proprieter	102
NEC Pinwriter	81
Printer Interface, parallel	32, 44
PRINTER.SYS	259
PRINTFIX.COM	260
Program Manager keyboard shortcuts	313
PROMPT	261
Proprieter control codes, IBM	102
PS-8 and PS-9 Power Connector	52
Q QBASIC	262
R RAMDRIVE.SYS	263
RD	264-265
RECOVER.EXE	264
References	6
REM	266
REN	266-268
RENAME	266-268
REPLACE.EXE	267
Resistor Color Codes	42
RESTORE.EXE	269
RMDIR	264-265
RS232C Interface	46
S Scan Codes, Keyboards	34
Scan frequencies, video	32
SCANDISK.EXE	270-272
Seagate to CDC Hard drive conversion	326
Seagate to Imprimis hard drive conversion	326
SELECT.EXE	273
Serial cable configurations	47
Serial I/O Interfaces	46
Serial interfacing notes	47
Serial Loopback Diagnostic Plugs	45
Serial Pinouts - DB25 and DB9	46
Serial port UARTs	108
Serial/COM: Port addresses and interrupts	54
SET	274
SETUP.EXE	275-277
SETVER.EXE	276
SHARE.EXE	278
SHELL	279
SHIFT	280
SIZER	281-284
SMARTDRV.EXE	284
SMARTDRV.SYS	285
SMARTMON.EXE	56
Software interrupts	

SORT.EXE	285-286
Sound Recorder keyboard shortcuts	314
SPATCH.BAT	287
Speaker connector	52
STACKS	287
SUBMENU	288
SUBST.EXE	289
Super VGA video standard	32
SWITCHAR	290-291
SWITCHES	290
SYS.COM	292

T Table of Contents	7
Telecommunications	105
Telephone Book, PC Industry	455
TIME	293
Trade Names, Trade Marks and References	6
TREE.COM	294-295
TRUENAME	294
TYPE	295

U UART chips	108
UARTS and serial communications	105
UNDELETE.EXE	296-297
UNFORMAT.COM	298-299
UNINSTALL.EXE	300

V V.x modem standards	106
Variables, environment	274
VDISK.SYS	263
VER	300
VERIFY	301
VGA card pinout	49
VGA video standard	32
Video card pinouts	49
Video Standards	32
VOL	302
VSAFE.COM	303

W WINA20.386	304
Windows	
Calendar keyboard shortcuts	311
Cardfile keyboard shortcuts	311
Clipboard keyboard shortcuts	311
File Manager keyboard shortcuts	312
Help program keyboard shortcuts	312
Keyboard shortcuts	308
Media Player keyboard shortcuts	314
Object Packager keyboard shortcuts	312
Paintbrush keyboard shortcuts	312
Print Manager keyboard shortcuts	313
Program Manager keyboard shortcuts	313
Sound Recorder keyboard shortcuts	314
Write keyboard shortcuts	314
Windows keyboard shortcuts	308
Write keyboard shortcuts	314

X XCOPY.EXE	305-306
XGA video standard	32
XT Motherboard switch settings	40

