

M300

CHARACTERISTICS

Microprocessor	I386SX on motherboard to be inserted in BUS Slot 3
Clock	16 MHz
Architecture	AT/XT
Memory	System supports 12 MB: - 2 banks on motherboard in which to install: SIMM of 286 Kb - 4 SIMM = 1 MB of memory SIMM of 1M x 9 - 2 SIMM = 2 MB of memory - 4 SIMM = 4 MB of memory - From 2 to 4 MB on memory expansion board AMB 2678 - motherboard memory can be expanded using the expansion kit EXM 26-502 (2 1Mx9 SIMMs) - The memory board can be expanded using the expansion kit EXM 25-852 (18 chips)
Memory access	100 ns
Coprocessor	i80387 SX
Floppy Disk	1.2 MB 5.25" Panasonic JU 475-3 1.2 MB 5.25" Toshiba ND 08 DE 1.44 MB 3.5" Panasonic J-257 1.44 MB 3.5" Sony MP-F17 1.44 MB Mitsubishi MF355C
Hard Disk	20 MB CONNER CP3024 20 MB NEC D3126 40 MB CONNER CP346 40 MB CONNER CP3044/3046 40 MB NEC D4146 100 MB CONNER CP3106 100 MB CONNER CP30104/106 100 MB QUANTUM LPS 105 AT
Streaming Tape	40 MB IRWIN 245 - 80 MB IRWIN 285
AT Expansion slots	8 Present - 5 Available
Video adapter	GO481 VGA compatible board set in slot 6 of the Expansion BUS
Hard Disk Interface Floppy Disk controller Serial port	GO477 Multi-function board set in slot 8 of the Expansion BUS
BIOS ROM	64 KB (27C512)
Mouse	PS/2 and AT compatible GRD 25-025
Keyboard	101/102-key ANK 26-101 ANK 26-102

MOTHERBOARD

- 1) UC.097/093
- 2) UC.112/113

BIOS

Latest level:
 Rev. 1.10
 For the different versions see table:
Compatibility Notes

POWER SUPPLY

Hantarex 3613 B

VIDEO ADAPTER

GO481

MULTI-FUNCTION BOARD

GO477 Lev. 02 MI

EXPANSION BUS BOARD

IN 108
 8 slots: 5 AT and 3 XT

MOTHERBOARD

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
UC.097/09	Lev. 02	412614 N	Lev. 1.02	Malfunction revealed by the XENIX application rel. 2.3.
	Lev. 03		PEPD Lev.1.04	Solution: Replaced PAL 20R4 with a PALGL50
	Lev. 04		PEPD Lev.1.04	Solves the problem with the board at lev. 02
	Lev. 05		PEPD Lev.1.04	Problems: - No cold start - Malfunctions with the Olicom Token Ring board Solutions: - Replace PAL PLDR or PLD1 with PLD6 Pos. U41 With these modifications board level changes to 03/A, 04/A, 05/A
	Lev. 06		PEPE Lev. 1.06	Solves: - Conflict problems with second parallel port - Too short Conner HDU status signal at ready
	Lev. 07		PEPE Lev. 1.06	Trimming and substitutions of 2.7 V diode at position DZ2 with 2.4 V SMD diode at position DZ1
	Lev. 08		PEPF Lev. 1.07	Solves: - Optional ROM managment problems - Addition of keyboard fuse UC test The +12 V on the UC has been removed by trimming
	Lev. 09		PEPH Lev. 1.08	Solves keyboard LED control problems during POD. Introduction of PLD5 PAL instead of PLD2 PAL at position U41 to solve problem with Olicom Token Ring board. PLD5 PAL can be used on all system boards starting with level 06.
	Lev. 10			Replaced component 82335 with 82335SX

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
UC.112/113	Lev. Nasc.		ROM BIOS 1.07	Replace the UC097 and UC093 boards Implements correct interrupt management for the JEPSCRIPT board that is not handled on the previous boards
	Lev. 01		ROM BIOS 1.09	Also introduced for UC097 and UC093 boards to solve date and time loss.
	Lev. 02		ROM BIOS 1.10	Solves the loss of the 1st character after CTRL+ALT+DEL when Shadow Memory is disabled
	Lev. 03		ROM BIOS 1.10	Replaced component 82335 with 82335SX

INTEGRATED CONTROLLERS		INTEGRATED CONTROLLERS	
i386SX CPU		82335	- Address map and decoder - DRAM controller - Parity check - Synchronisms - Reset circuit
80387SX Coprocessor		82231	- Timer 8254 - DMA 8237 (2) - 74LS612 Memory Mappers (2) - RAM logic refresh - DMA arbiter
82230	- Clock generator 8284 - Coprocessor interface - Interrupt controller 8259 (2) - R.T.C. 6818 and CMOS RAM - BUS controller 82288 - Logic control of the data and address BUS		
PAL	See the System Board table		
PGA	Parallel port controller		

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BOARDS

FUNCTION	DESCRIPTION	D.R.S. CODE	CHARACTERISTICS
CPU motherboard	UC93	412614 N	1 MB on board RAM
BUS Adapter board	IN108	412062 Q	8 slot, 5 16-bit and 3 8-bit
Memory board	AMB 2678 (RA081)	412542 N	Memory 2 MB
Speaker board	GE012	359899 P	
Power supply 220 V	HANTAREX	412065 K	
Power supply 110 V	HANTAREX	412064 J	
Hard disk controller	GO477	412543 P	Multi-function board
Video adapter	GO481	412444 L	Analog video adapter

MEMORY MANAGEMENT OEMM386

OEMM386 controls system extended and expanded memory. OEMM386 can not be simultaneously used with other programs that handle system extended and expanded memory, such as: WINDOWS386, DESQview Novell, etc.

OEMM386 is to be configured by adding in CONFIG.SYS file its configuration parameters.

Two configuration modes for OEMM386 are illustrated below.

In CONFIG.SYS insert a string as follows:

DEVICE = drv:\path\OEMM386.SYS NOXRAM

In this case: 64 K is used as extended memory (for OEMM386), the remaining system memory is expanded memory.

DEVICE = drv:\path\OEMM386.SYS NOXRAM EMS = 0

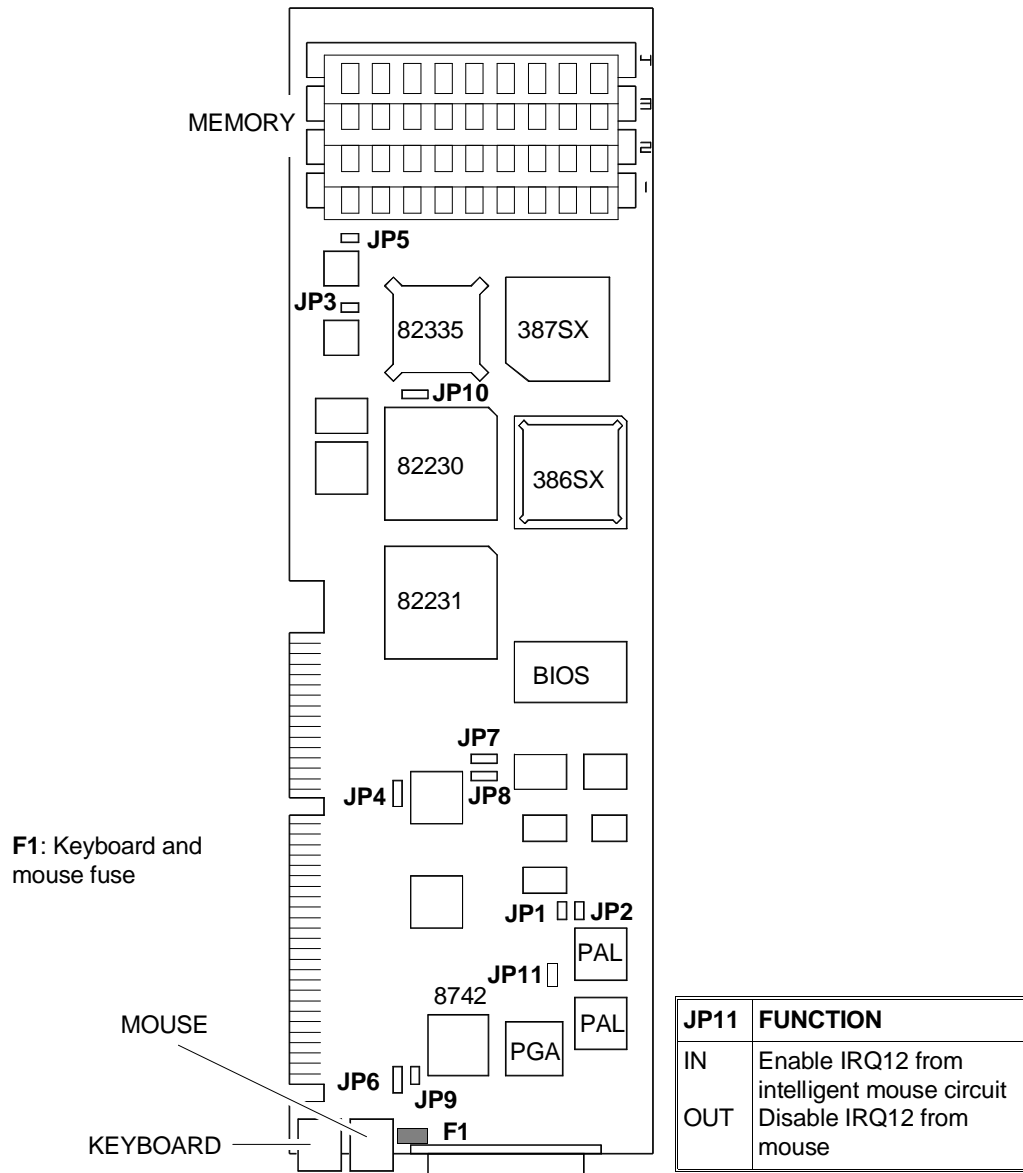
In this case: All system memory is extended memory.

OEMM386 VERSION	COMPATIBILITY
Ver. 4.02	Can not be used for the M300
Ver. 4.06	Can give problems. (See OEMM386.DOC)
Ver. 4.08	For installation, see OEMM386.DOC

COMPATIBILITY NOTES

COMPONENT	NOTES
Intel 82355 on: UC093 UC097 UC112 UC113	Intel no longer supplies 82355 component, therefore 82355SX component is to be used. Parity is no longer handled with the introduction of this component. Component 82355SX can be used on UC093 and 097 from level 03 on, and on UC112 and 113 from original level onwards. To use the new component, make some trimming and replace a PAL. See FCO 3877542 R 509.
Multifunction board GO477	Floppy disk controller W.D. 37C65C ver. C can be used in place of the floppy disk controller W.D. 37C65C ver. B. The board level does not change

MOTHERBOARD COMPONENTS AND JUMPERS



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JP1	JP2	FUNCTION
OUT	OUT	100 ns Fast Page mode 4 DRAM pages active
OUT	IN	100 ns Fast Page mode 1 DRAM page active
IN	OUT	100 ns DRAM
IN	IN	120 ns DRAM

JP6	FUNCTION
1 - 2	To activate signal A20GATE through keyboard ctrl (normal)
2 - 3	To activate signal A20GATE in fast mode

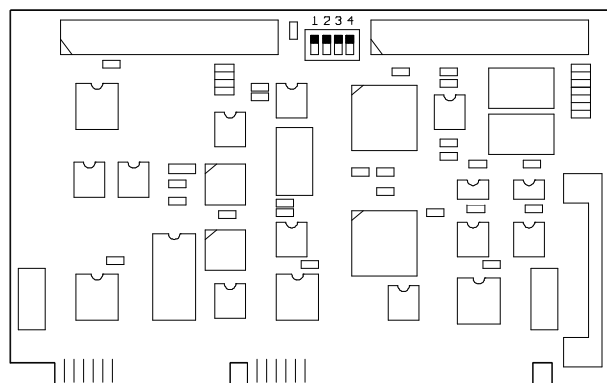
JP3 - JP5	FUNCTION
IN	Always (normal)
OUT	Factory used only

JP9	FUNCTION
IN	Video adapters - on-board BIOS (normal)
OUT	Video adapters - no BIOS on board

JP4-7-8-10	FUNCTION
1 - 2	For component 82335 B
2 - 3	For component 82335 A

JP11	FUNCTION
IN	Enable IRQ12 from intelligent mouse circuit
OUT	Disable IRQ12 from mouse

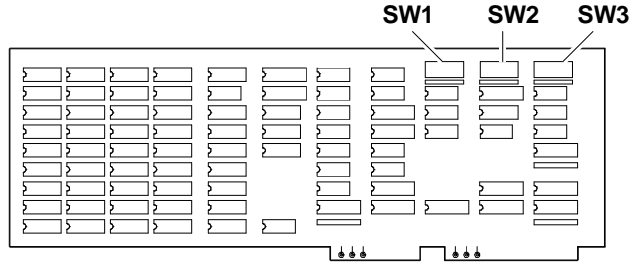
MULTI-FUNCTION BOARD GO477



SWITCH	POSITION	FUNCTION
1	ON OFF	Disables the board Floppy Disk Controller Enables the board Floppy Disk Controller (normal)
2	ON OFF	Disables the system hard disk Enables the system hard disk (normal)
3	ON OFF	Disables the serial port Enables the serial port (normal)
4	ON OFF	Serial port address COM2 Serial port address COM1 (normal)

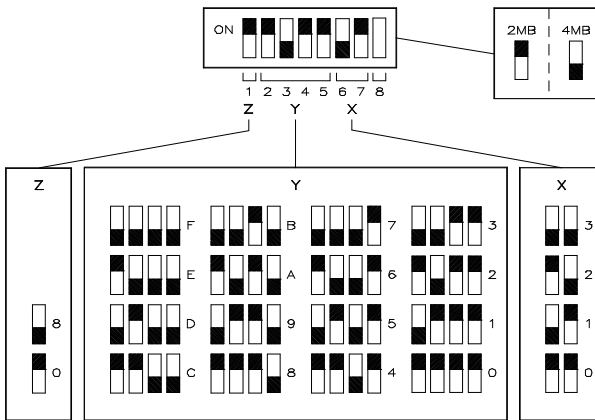
NOTE: The serial port must be disabled in presence of a multiport board configured for MS-DOS operations.

AMB 2678 MEMORY BOARD



SW1

XYZ: Selection of memory I/O addresses
 Normal address 120
 X = 1
 Y = 2
 Z = 0

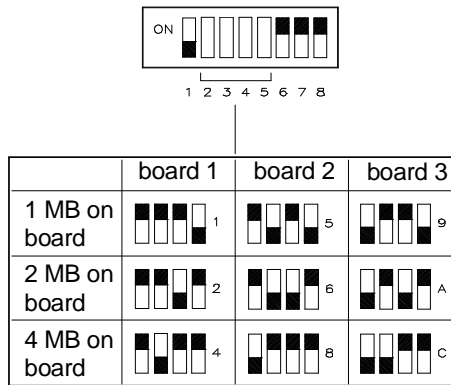


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SW2

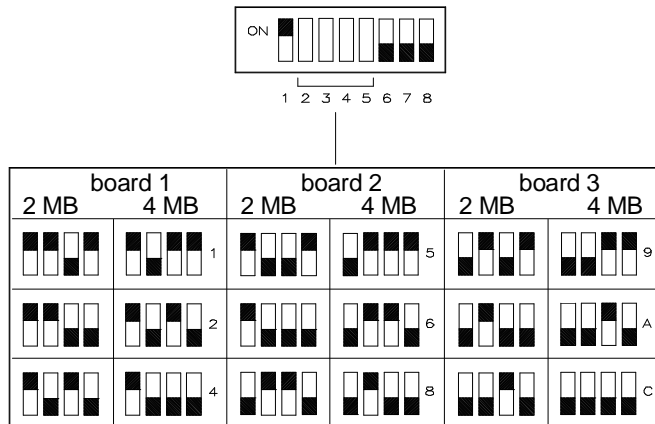
Start address of each board. Depends on the memory size installed on the system board.

NOTE: If installing a second or third board, boards already installed must have a capacity of 4 MB



SW3

Boards' end address. Depends on capacity of memory installed on board.



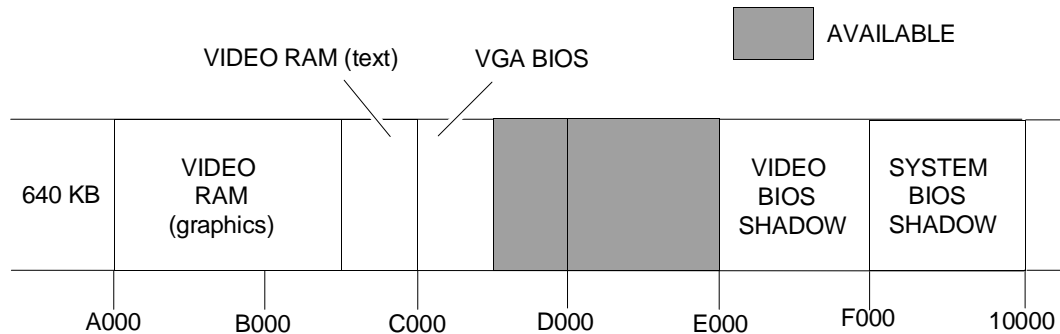
SOFTWARE COMPATIBILITY

OPERATING SYSTEMS	NOTES
IBM DISK Operating System, Ver. 3.30 IBM DISK Operating System, Ver. 4.01 IBM Operating System/2, Ver. 1.10 and 1.20 IBM Operating System/2 Extended Edition, Ver. 1.10 Olivetti's Microsoft Disk Operating System, Ver. 3.30a Olivetti's Microsoft Disk Operating System, Ver. 4.01 Olivetti's Microsoft OS/2, Ver. 1.10 and 1.20 SCO XENIX 386, Rev. 2.3	During installation on hard disk a formatted DSDD disk is required. PS/2 mouse not acknowledged. PS/2 mouse not acknowledged.

HARDWARE COMPATIBILITY

MODEM	I/O INTERFACE PRODUCTS
Hayes Smartmodem 1200B Hayes Smartmodem 2400B Quadram Quadmodem II QM2024 Telenetics Expressdata 24i 24i - 12i VEN-TEI PC modem Half Card PCM-XT Hayes Smartmodem 1200	FUTURE DOMAIN HOST ADAPTER (MCS-350) IBM PS/2 Dual Async Adapter/A (6450347)
MEMORY EXPANSIONS	MOUSE
AST Rampage 286 RAMP286 AST Rampageplus 286 BOCARAM / ATPLUS INTEL Aboveboard plus 8 PCMB4525	IBM PS/2 Mouse (6450350) Logitech BUS mouse P7-3F Microsoft BUS Mouse rev.C Microsoft Serial-PS/2 Mouse Microsoft Serial Mouse MSC PC Mouse PS/2 Olivetti New Advanced Mouse (GRD 25-025) Olivetti BUS Mouse (GRD 25-019)
DISPLAY UNITS	NETWORKING & LAN PRODUCTS
IBM color graphics monitor 5153 IBM enhanced color graphics monitor 5154 IBM monochrome monitor 5151 IBM PS/2 Color Display 8512 IBM PS/2 Color Display 8514 JVC Quad-sync color monitor GD-H6116VFW NEC multisync monitor APC-H431 Princeton RGB monitor HX-12	AT&T Starlan Network IBM OS/2 lan server/requester IBM PC Network IBM Token Ring Network Madge Token-ring network Novell Advanced netware ver. 2.15 Novell Netware 386 3COM Network (Ethernet) 3COM 3+ open lan manager 10NET Network
GRAPHICS PRODUCTS	
AST research AST-3G plus AST research AST-VGA plus ATI EGA WONDER EVEREX VIEWPOINT VGA adapter EV-678 Genoa Super EGA Hires Hercules graphics card GB102 Hercules incolor card GB222 IBM Enhanced graphics adapter 5154001	IBM VGA adapter Paradise EGA 480 Paradise VGA Pro card Quadram quad EGA Plus QC8601 Quadram quad VGA spectra QC9001 Tecmar VGA AD Video-7 VEGA deluxe

SYSTEM MEMORY MAP



ADDRESS	SIZE	FUNCTION
00 0000 - 09 FFFF	640 K	System RAM
0A 0000 - 0B FFFF	128 K	Video RAM
0C 0000 - 0D FFFF	128 K	I/O ROM
0E 0000 - 0F FFFF	128 K	BIOS ROM
10 0000 - 1F FFFF	1024 K	2 MB RAM configuration
20 0000 - 3F FFFF	2048 K	4 MB RAM configuration
40 0000 - 7F FFFF	8192 K	Memory expansion board
80 0000 - C9 FFFF	4736 K	
CA 0000 - CA 1FFF	8 K	WORM
CA 2000 - FD FFFF	3320 K	
FE 0000 - FF FFFF	128 K	BIOS ROM

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DMA CHANNELS

CHANNEL	FUNCTION
DRQ 0	Reserved
DRQ 1	Integrated CD-ROM
DRQ 2	Floppy disk
DRQ 3	Video
DRQ 4	Reserved
DRQ 5	EXP. SLOT
DRQ 6	EXP. SLOT
DRQ 7	EXP. SLOT

INTERRUPT LEVELS

LEV.	FUNCTION	LEV.	FUNCTION
RQ0	Channel 0 of output timer	RQ8	Real Time Clock
IRQ1	Keyboard interface	IRQ9*	Reserved
IRQ2	Interrupt from PIC2	IRQ10	Available
IRQ3	Serial port 2	IRQ11	Available
IRQ4	Serial port 1	IRQ12	Mouse
IRQ5	Available	IRQ13	Coprocessor
IRQ6	Floppy disk ctrl	IRQ14	Hard disk controller
IRQ7	Parallel port	IRQ15	Available

* Redirected via software to IRQ2

I/O ADDRESS MAP

ADDRESS	FUNCTION	ADDRESS	FUNCTION
000-01F	DMA controller	2F8-2FF	Serial port 2
020-021	First interrupt controller	300-377	
022-03F	82335 registers (only on reset)	378 - 37B	Parallel port 1
040-043	Timer	37C-3B3	
044-05F		3B4-3B5	Video adapter
060	Keyboard controller	3B6-3B9	
061	System Port B controller	3BA	Video adapter
062-063		3BB-3BF	
064	Keyboard controller	3C0-3CF	Video adapter
065-06F		3D0-3D3	
070-071	RTC/CMOS and NMI mask	3D4-3D5	Video adapter
072-080		3D6-3D9	
081-08F	DMA page registers	3DA	Video adapter
090-09F		3DB-3EF	
0A0-0A1	Interrupt controller 2	3F0-3F7	Floppy disk controller
0A2-0BF		3F8-3FF	Serial port 1
0C0-0DF	DMA registers 4 - 7	400-46E7	
0E0-1EF		46E8	VGA control registers
1F0-1F8	Hard disk drive	46E9-FFFF	
1F9-277		8000F0-8000FF	Coprocessor
278-27B	Parallel port 2		
27C-2F7			

COMPATIBLE HARD DISKS

TYPE	MODEL	CAPACITY	CYL	T	WPC	LZ	SET
01	Standard 85 ms	10 MB	306	4	128	305	17
02	OPE XM5221 half size	20 MB	615	4	256	700	17
03	WREN II full size	38 MB	925	5	128	924	17
04	CDC WREN 1 35ms full size	28 MB	697	5	128	696	17
05	ST4096	76 MB	1024	9	-1	1023	17
06	OPE XM5340	40 MB	820	6	256	819	17
07	NEC D5146H	40 MB	615	8	128	664	17
08	WREN II slim size	40 MB	981	5	-1	980	17
09	CDC WREN II slim size	40 MB	981	5	128	980	17
10	Micropolis 1324 full size	51 MB	1024	6	-1	1023	17
11	CDC WREN II full size	53 MB	925	7	128	924	17
12	Micropolis 1325 full size	68 MB	1024	8	-1	1023	17
13	CDC WREN II full size	69 MB	925	9	128	924	17
14	Micropolis 1323 A full size	42 MB	1024	5	-1	1023	17
15	RESERVED						
16	OPE XM5220 85 ms half size	20 MB	612	4	128	656	17
17	Tandom TM362 85 ms 3,5"	20 MB	612	4	-1	663	17
18	Seagate ST251 40 ms half size	40 MB	820	6	-1	819	17
19	Rodime RO3055 40 ms 3,5"	43 MB	872	6	0	871	17
20	Miniscribe M8425 3,5"	20 MB	612	4	0	663	17
21	Seagate ST277R	62 MB	820	6	-1	819	26
22	OPE XM5340/60	62 MB	820	6	128	819	26
23	NEC D5147H	62 MB	615	8	384	664	26
24	NEC D5652	136 MB	820	10	-1	822	34
25	Micropolis 1355 ESDI	135 MB	1021	8	-1	1023	34
26	Micropolis 1353 ESDI	67 MB	1021	4	-1	1023	34
27	NEC D5452	68 MB	823	10	512	822	17
28	FUJITSU M2227D	40 MB	615	8	512	614	17
29	FUJITSU M2227D RLL	60 MB	615	8	512	614	26
30	CDC 94205-77	62 MB	981	5	-1	980	26
31	CONNER CP3142	40 MB	635	4	-1	639	33
32	CONNER CP3022	20 MB	615	4	-1	614	17
33	CONNER CP3106	100 MB	776	8	-1	775	33
34	Miniscribe 8051	40 MB	745	4	-1	744	28
35	Quantum PC40 AT	40 MB	965	5	-1	964	17
36	CONNER CP346	40 MB	805	4	-1	804	26

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Where: CYL: No. of disk cylinders
T: No. of disk heads
LZ: Head parking cylinder number
SET: No. of disk sectors