M300-15

CHARACTERISTICS

Microprocessor	INTEL 386SX
Clock	25 MHz
Architecture	16-bit XT/AT
Memory	From 4 MB to 16 MB on motherboard Bank 0 2 MB soldered 1MB x 4 bit chips Bank 1 2 MB obtained using 2 1MB x 9 SIMM modules Bank 2 Two sockets in which to install the following SIMMs: 1 M x 9 **EXM 27-820** (2 MB) 4 M x 9 **EXM 27-821** (8 MB) Bank 3 Same as bank 1 6 MB and 12 MB configurations are not possible. When installing 16 MB the soldered 2 MB are lost.
Video memory	512 KB - 70 ns
Memory access	80 ns - 70 ns
Coprocessor	25 MHz i387SX
Floppy Disk	1.2 MB 5,25" Panasonic JU 475-3-4-5 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 1.44 MB YE DATA YD-702B
Hard Disk	40 MB Quantum LPS 52 AT 40 MB W.D. AC 140 40 MB QUANTUM Pionner ELS42 AT 85 MB W.D. Caviar 280 85 MB CONNER CP30084 85 MB QUANTUM Pioneer ELS85 AT 120 MB CONNER CP30126 120 MB W.D. AC 2120 120 MB QUANTUM Pioneer ELS127 AT 170 MB CONNER CP30174E 210 MB QUANTUM LPS 240 AT 210 MB CONNER CP30204 210 MB CONNER CP30204 / CP30256 240 MB CONNER CP30254
Streaming Tape	80/120 MB IRWIN 287 with floppy interface 80/120 MB IRWIN 3125 with floppy interface
Slots	Four 16-bit connectors on the BUS expansion board
Video controller	VGA-compatible OAK OTI067 integrated on the motherboard
Integrated HDU and FDU controllers	Integrated on the motherboard Floppy disk controller: National 87310 Hard disk interface: MSI Buffer and logic gates
Mouse	AT- and PS/2-compatible
Keyboard	101/102-key ANK 26-101, ANK 26-102

MOTHERBOARD

BA 320 4 MB

2 MB soldered +
2 SIMMs

BIOS

Rev. 1.07

EXPANSION BUS

IN133

POWER SUPPLY

PS11 R 220 V
PS11 R 115 V

PS11 AR 220 V
PS11 AR 110 V

MOTHERBOARD

	LEVEL	D.R.S. CODE	ROM BIOS	NOTES
BA320	Nasc.		Rev. 1.04 PZCS	Motherboard with 2 MB soldered
	Lev. 01		Rev. 1.06 PD7Y	New BIOS. See the BIOS section of this chapter for the differences between the two releases.
	Lev. 02		Rev. 1.07 PD5B	- Cuts and trimmings have been made to solve the parity error problem that occurred when boards operating in master mode are installed on the bus. - New BIOS
	Lev. 03		Rev. 1.07	For improved EMI margins, the four 100 pF LC filters on the keyboard mouse interface have been replaced with 470 pF filters.
	Lev. 04		Rev. 1.07	- The keyboard and mouse connectors have been replaced with shielded connectors. - The ACER 87310 I/O controller is introduced as an alternative to the National 87310 I/O controller
	Lev. 05		Rev. 1.07	Wiring made to correct the problem of too high of a current (600 nA) absorbed by the CMOS. This high absorption discharges the batteries.

MOTHERBOARD INTEGRATED CONTROLLERS

MOTHERBOARD	INTEGRATED CONTROLLERS	
BA320	**386SX CPU**	25 MHz microprocessor
	Socket for **i387SX** numeric coprocessor	
	8042	Keyboard and mouse controller
	OAK OTI067	V.G.A. video controller
	82C206	128 byte Non-Volatile RAM with battery back-up
		Real Time Clock
		DMA controller
		Interrupt controller
		Timer
	87310	Serial and parallel port controller
	ACER	Floppy disk controller
	MSI buffer	Intelligent hard disk interface
	27C010	BIOS Eprom
	OPTI 82C283	Memory controller
		AT BUS controller
		Data BUS controller
	EYE	For execution of tests on the video subsystem

BOARDS

FUNCTION	DESCRIPTION	D.R.S. CODE	CHARACTERISTICS
CPU system board	BA 320	553059A	2 MB
220 V power supply	PS11 R	553028T	
110 V power supply	PS11 R	553027J	
BUS Adapter board	IN133	978844C	

USER DISKETTE

LEVEL	COMPATIBILITY
Rel. 1.00	This release needs BIOS REl. 1.06 or later to work properly. The video drivers for the 72 Hz OS/2 mode of operation are in directory OS2DRV. The video drivers for the Windows 72 Hz mode of operation are in directory WIN_30.

SYSTEM TEST

LEVEL	COMPATIBILITY
Rev. 1.00	This release is compatible with MS-DOS rel. 5.00 ver. 2.00. This release needs BIOS Rel. 1.06 or later to work properly.

POWER SUPPLY UNITS

POWER SUPPLY	LEVEL	DESCRIPTION
PS11 R 110 V	Nasc.	Manufactured by ASTEC - Due to production problems, this power supply was never manufactured at NASC level.
PS11 R 220 V	Nasc.	Manufactured by ASTEC
	Lev. 01	A capacitor has been added and a resistor has been removed to improve the manufacturing cycle.
	Lev. 02	- Inductor L5 has been added to the mains input area to improve the EMI radio interference margins. - New printed circuit to solve the problem with random voltage drops.
PS11 R 110 V	Nasc.	Manufactured by HANTAREX
PS11 R 220 V	Nasc.	Manufactured by HANTAREX
PS11 AR 220 V	Lev. 01	Manufactured by ASTEC - Due to production problems, this power supply was never available at NASC level.
	Lev. 02	Jumper J103 has been replaced by a 10 Ohm resistance to solve the problem of the ripple not reflecting the specified values during minimum load conditions on the +5 V line.
PS11 AR 110 V	Nasc.	Manufactured by MAGNETEK
PS11 AR 220 V	Nasc.	Manufactured by MAGNETEK

COMPATIBILITY NOTES

BOARD OR HW/SW DEVICE	DESCRIPTION
OS/2 video drivers	The video drivers for the 72 Hz OS/2 mode of operation are in the directory OS2DRV on the user diskette
80386 SX processor	The AMD 80386SX-25 CPU is introduced as an alternative to the INTEL 80386SX CPU. The level of the boards does not change.
EOD 400 USER DISKETTE Rel. 1.03	Release 1.03 is replaced by release 1.05 which implements the ASPI4DOS.SYS driver that supports multitasking Windows 3.xx V86 and the ASPIDISK.SYS driver that supports the DOS 3.31 extended partition.
85 MB and 170 MB CONNER and 85 MB Western Digital hard disks	The 85 MB and 170 MB CONNER hard disks are not compatible with the 85 MB Western Digital drives.

SOFTWARE DRIVERS

DRIVER	NOTES
EVD Rel. 1.00 for WINDOWS 3.0	These drivers must be installed using the Windows SET UP utility. The resolutions available are: - 640 x 480 256 colours (mode 53h) - 1024 x 768 16 colours (mode 56h)
EVD Rel. 1.00 upd 1 for WINDOWS 3.0	Improves the features of the previous release
EVD Rel. 2.00	Improves the high resolution mode (1024x768x16 and 640x480x256)

BIOS

LEVEL	NOTES
Rev. 1.06	This BIOS release is the same as that for the M300-08 with the following differences: - The AT bus clock, programmable through OPI82c283, has a 8.33 MHz clock on the M300-15 against the 10MHz clock of the M300-08 - Machine identifiers different on the two systems
Rev. 1.07	During the POD, the DOC clock in the BIOS DATA AREA is initialized before control is relinquishedp to any ROM option installed in the system.

HARD DISK SELF-ACKNOWLEDGE

The M300-15 has the the hard disk self-acknowledge feature.
Through the BUILT IN SETUP or the SET UP utility of the System Test or Customer Test, the type of hard disk installed in the system can be defined.

For information on this feature, see the previous chapter on the M300-08.

SHADOW MEMORY FEATURE AND MEMORY REMAPPING

These are utilities that can be selected from the Customer Test or the System Test.

Shadow memory feature:
For faster access to the system BIOS. The ROM BIOS code is copied into the system RAM (Shadow RAM) at the same logic addresses.

Remapping feature
Used to regain 256 KB of system memory that would otherwise be lost.

For information on these features, see the previous chapter on the M300-08.

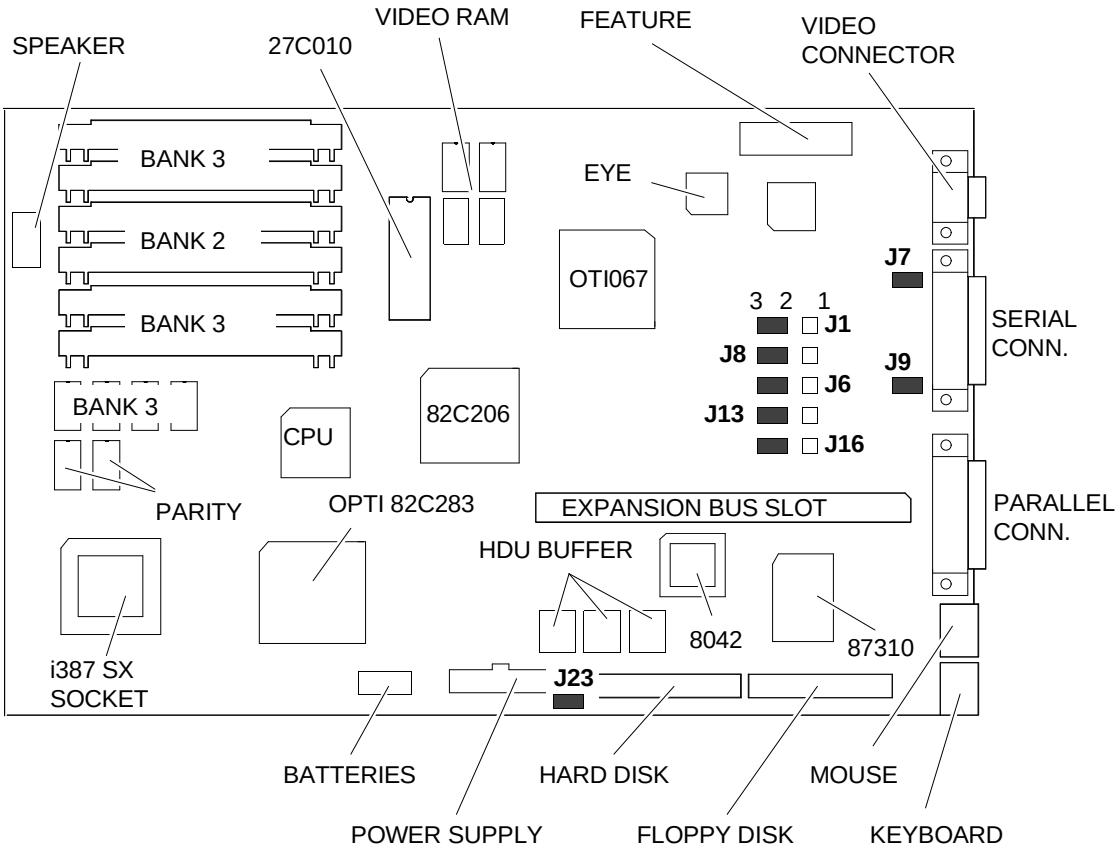
SOFTWARE COMPATIBILITY

OPERATING SYSTEMS	**NOTES**
IBM DISK Operating System, Ver. 3.30 MS-DOS (Compaq) 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 and 1.20 INTERACTIVE 386/ix, Ver. 2.02 SCO UNIX System V/386, Rev. 3.2 SCO XENIX 386, Rev. 2.3	 A formatted DSDD diskette is required during installation on hard disk PS/2 mouse not acknowledged PS/2 mouse not acknowledged
WINDOWS	
GEM/3 Desktop, IBM-PC Ver. 3.02 MS-WINDOWS /286 Ver. 2.11	MS-WINDOWS /386 Ver. 2.11 MS-WINDOWS 3 Ver. 3.0

HARDWARE COMPATIBILITY

MODEMS	**I/O INTERFACE PRODUCTS**
Hayes Smart modem 2400B FAXY PC MAXTER FURY 2400 PC MODEM AT&T 2224 CEO MODEM FURY 2400 MAXTER MODEM FURY 2400 TI/MNP Hayes Smart modem 1200 B	IBM PRINTER ADAPTER (1505200) STB 4-ON THE FLOOR
MULTIPORT	**MOUSE**
CHASE AT8 COMPUTONE AT 8 COMPUTONE AT 16 INTEL Bell ICC.6 SPECIALIX SI / 8	IBM PS/2 Mouse (6450350) IBM PS/2 Mouse Serial Logitech Bus Mouse (PF-3F) Logitech 3 button mouse MS-BUS mouse MS-MOUSE serial
GRAPHIC PRODUCTS	**NETWORKING & LAN PRODUCTS**
AST VGA plus FASTWRITE 1024i FASTWRITE VGA HERCULES GRAPHICS CARD IBM VGA Adapter MATROX PG - 1281 MAXON MVGA-16 Adapter ORCHID PRODESIGNER VGA PLUS HERCULES INCOLOR CARD (GB222) PARADISE VGA PRO CARD	10 NET INTERFACE BOARD 200 series 3COM Etherlink adapter 3C501 3COM Etherlink II adapter 3C503 3COM Etherlink plus adapter 3C505 3COM Etherlink plus adapter 3C505 DECNET PCSA adapter IBM PC NETWORK adapter II IBM TOKEN RING 16/4 adapter IBM TOKEN RING adapter II MADGE AT RING NODE adapter MICOM NP1000 adapter NOVELL NE1000 adapter NOVELL NE2000 adapter
DISPLAY UNITS	
IBM enhanced graphics monitor 5151 IBM color graphics monitor 5153 IBM PS/2 Monochrome display 8503 IBM PS/2 color display 8512 IBM PS/2 color display 8513 IBM PS/2 color display 8514 NEC MULTISYNC II	NEC MULTISYNC 2A NEC MULTISYNC 3D NEC MULTISYNC 4D NEC MULTISYNC 5D PHILIPS 7BM749 PHILIPS 9CM082

MOTHERBOARD COMPONENTS



JUMPER J1	Position **1-2** Position **2-3**	The BUILT IN SETUP is not performed The BUILT IN SETUP is performed **
JUMPER J6 & J8	Position **1-2** Position **2-3**	Serial port disabled Serial port enabled ****
JUMPER J9	Position **IN**	RING Indicator signal (RS232 threshold voltage)FAIL-SAFE disabled
JUMPER J7	Position **IN**	Input signals (RS232 threshold voltage) FAIL-SAFE disabled
JUMPER J16	Position **1-2** Position **2-3**	Write operations on floppy disk disabled Write operations on floppy disk enabled ****
JUMPER J23	Position **IN** Position **OUT**	One hard disk only installed ** Two hard disks installed
JUMPER J13	Position **1-2** Position **2-3**	Mouse interrupt 12 disabled Mouse interrupt 12 enabled **

NOTE: When installing expansion boards that require interrupt 12 on the AT BUS, jumper J13 should be set in position 1-2. In this way, it is no longer possible to use the PS/2 mouse.

IN: Jumper installed
OUT: Jumper not installed
** indicates the default position.

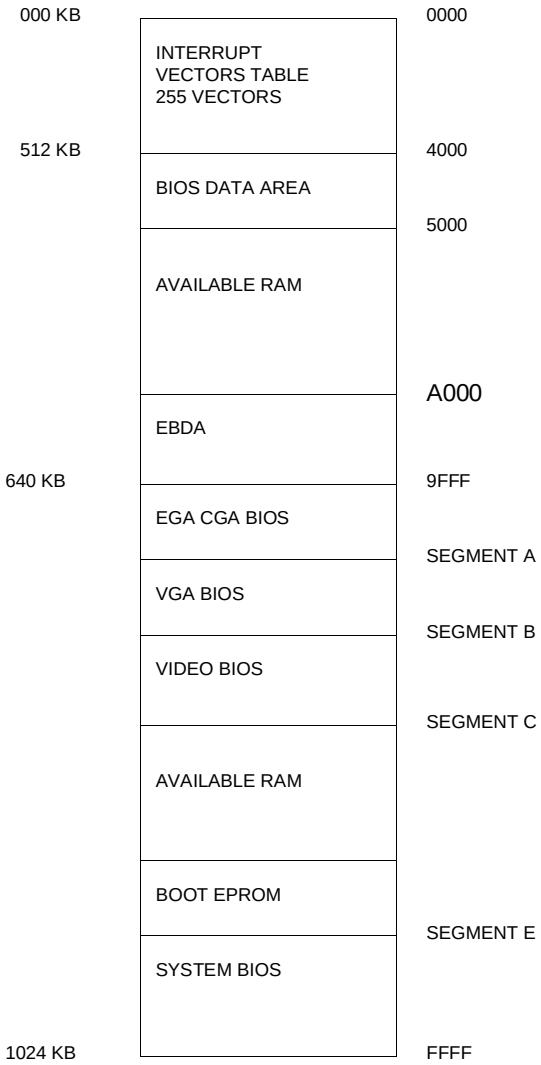
INTERRUPT LEVELS

LEVEL	NAME	CONTROLLER	FUNCTION
1	IRQ0	1	Timer channel 0 OUT
2	IRQ1	1	Keyboard
3 - 10	IRQ2	1	Interrupt to Controller 1 from Controller 2
3	IRQ8	2	Real time clock
4	IRQ9	2	Available
5	IRQ10	2	Available
6	IRQ11	2	Available
7	IRQ12	2	Available
8	IRQ13	2	Coprocessor
9	IRQ14	2	Hard Disk controller
10	IRQ15	2	Available
11	IRQ3	1	Serial port 2
12	IRQ4	1	Serial port 1
13	IRQ5	1	Parallel port 2
14	IRQ6	1	Floppy Disk controller
15	IRQ7	1	Parallel port 1

I/O ADDRESS MAP

ADDRESS	FUNCTION	ADDRESS	FUNCTION
000-01F h	DMA controller (channels 0 - 3)	27C - 2F7 h	
020-021F h	Interrupt controller 1	2F8-2FF h	Serial port COM2 (alternative)
022 h	82C283 Address registers	300 - 377 h	
023 h		378-37B h	Parallel port 1 (default)
024 h	82C283 Data registers	37C - 3B3 h	
040-043 h	Timer	3B4-3B5 h	Video adapter
044 - 05F h		3B6 - 3B9 h	
60 h	Keyboard data controller	3BA h	Video adapter
61 h	System control port B	3BB - 3BF h	
062 - 063 h		3C0-3CF h	Video adapter
64 h	Keyboard commands controller	3D0 - 3D3 h	
065 - 06F h		3D4-3D5 h	Video adapter
070 - 071 h	Real time clock, NMI, CMOS RAM	3D6 - 3D9 h	
072 - 080 h		3DA h	Video adapter
081-08F h	DMA page registers	3DB - 3EF h	
090 - 09F h		3F0-3F7 h	Floppy disk controller
0A0-0A1 h	Interrupt controller 2	3F8-3FF h	Serial port COM1 (default)
0A2 - 0BF h		400 - 46E7 h	
0C0-0DF h	DMA channels 4-7	46E8 h	VGA control registers
1E0 - 1EF h		46E9 - FFFF	
1F0-1F8 h	Hard disk drive	8000F0-8000FF	i387 SX coprocessor
1F9 - 277 h			
278-27B h	Parallel port 2 (alternative)		

SYSTEM MEMORY MAP



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