

M386/25

CHARACTERISTICS

Microprocessor	Intel 80386
Clock	25 MHz
Architecture	XT/AT
Memory	2 MB soldered on system board Possibility of installing on system board 256 Kb x 9 EXM 26-801 and 1M x 9 EXM 26-807 SIMM modules to expand memory to 10 MB Possibility of installing a 4 MB memory board expandable up to 8 MEM 26-806 . This board can be expanded using kit EXM 26-807
Memory access	80 ns
Coprocessor	1) Intel 80387 2) Weitek 3167
Floppy disk	1.2 MB 5.25" Panasonic JU 475-3 1.2 MB 5.25" Panasonic JU 475-4 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	40 MB Conner CP 3046 - AT Quantum LPS 52 - AT 100 MB Conner CP 30106 - AT Quantum LPS 105 - AT 200 MB Conner CP 3206 - AT
Streaming tape	80 - 120 MB IRWIN 285
AT Expansion slots	5 Present 5 Available
Video adapter	Integrated on System Board - Super VGA 82C452.
Hard disk and floppy disk controller	Integrated on system board FDU controller: National DP8473 HDU controller: Logic ports and MSI Buffers implementing an AT interface for intelligent hard disks.
Cache controller	82385
Cache size	32 KB
Mouse	PS/2- and AT-compatible
Keyboard	101/102-key Compact ANK27-101 ANK27-102.

SYSTEM BOARD

BA247

BA255

BA263

BIOS

ROM L PEQS - U65

ROM H PEQR - U66

Rev. 1.09

POWER SUPPLY

PS14 220 V

Level: 04 MI

PS14 115 V

Level: 04 MI

CONSOLE

IF 638

Level: 01 MI

SYSTEM BOARD

	LEVEL	D.R.S. CODE	ROM BIOS	INTEGRATED CONTROLLERS / NOTES
BA247	Lev. Nasc.	412907	ROM L PEPY - U65 ROM H PEPX - U66 Rev. 1.04	82385 Cache controller 82C206 Non-volatile RAM NVRAM Real Time Clock RTC DMA controller Interrupt controller 8042 Keyboard and mouse controller 82C452 Super VGA video adapter 16C552 Serial port controller Parallel port controller DP8473 Floppy disk controller BCU Bus control unit DPU Data path unit MCU Memory control unit IOU Input output unit
	Lev. 01 MI		Rev. 1.04	Solved bootstrap problems after shutdown procedure from UNIX SCO
	Lev. 02 MI		Rev. 1.04	Solved: - EMI problems. Quality improvement. - Parity error problem caused randomly by WE* and CAS* signals.
	Lev. 03 MI		Rev. 1.04	Solved read problems of Bit 4 port 61 (refresh signal)
	Lev. 04 MI		Rev. 1.04	Solved serial port malfunctions
	Lev. 05 MI		Rev. 1.04	Solved RTC and FDC oscillator problems
	Lev. 06 MI		Rev. 1.04	Solved floppy disk bootstrap lock problem caused by FDC 8473 24 MHz oscillator circuit triggering failure
	Lev. 07		ROM L PEQS - U65 ROM H PEQR - U66 Rev. 1.08	New BIOS Changes for field only
	Lev. 08		Rev. 1.08	Replaced video controller 82C452 with video controller 82C452A. This change is only to be executed in case of field failure.
	Lev. 09		ROM L PEQM - U65 ROM H PEQN - U66 Rev. 1.09	Solved compatibility problems with NEC Multisync video and HGC board (high resolution video controller)
	Lev. 10		Rev. 1.09	WD16C551 Step C (LB9U) component is replaced with WD16C551 Step D (LB9V) component. Changes for field only

	LEVEL	D.R.S. CODE	ROM BIOS	INTEGRATED CONTROLLERS / NOTES
BA255	Lev. Nasc. Lev. 01 MI		Rev. 1.04 Rev. 1.04	Solved floppy disk bootstrap lock problem caused by FDC 8473 24 MHz oscillator circuit triggering failure
	Lev. 02 MI		ROM L PEQS - U65 ROM H PEQR - U66 Rev. 1.08	New BIOS for video performance improvement, introduced Quantum hard disk and removed password bugs.
	Lev. 03 MI		Rev. 1.08	Replaced video controller 82C452 with video controller 82C452A. This modification to be made only in case of field failure
	Lev. 04 MI		ROM L PEQM - U65 ROM H PEQN - U66 Rev. 1.09	Solved compatibility problems with NEC Multisync video and MATROX board (high resolution video controller)
	Lev. 05 MI		Rev. 1.09	WD16C551 Step C component is replaced with WD16C551 Step D component. Field only modification.
BA263	Lev. Nasc.		Rev. 1.08	New P.C.B. for cutting and trimming recovery
	Lev. 01 MI		Rev. 1.08	Replaced video controller 82C452 with video controller 82C452A.
	Lev. 02 MI		ROM L PEQM - U65 ROM H PEQN - U66 Rev. 1.09	Solved compatibility problems with NEC Multisync video and MATROX board (high resolution video controller)
	Lev. 03 MI		Rev. 1.09	Introduced 16C551 component mask D to replace 16C551 component mask C, no longer produced
	Lev. 04 MI		Rev. 1.09	80386DX-25 step D0 CPU replaced with 80386DX-25 step E CPU

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USER DISKETTE/SYSTEM TEST/DRIVER

LEVEL	COMPATIBILITY
User Diskette Ver. 1.01 User Diskette Ver. 1.02 upd 1	BIOS 1.04 BIOS 1.04
EVD driver Ver. 4.0 Rev. 1.3	Added a Windows driver
EVD Ver. 5.0	Added DAM mode support (1024 x 768 x 256) for Windows 3.0, AutoCAD 386 Ver. 10.0 and AutoCAD 386 Ver. 11.0
System Test 1.05 System Test 1.06	BIOS 1.08 BIOS 1.08. New System Test version that allows tests to be executed both in stand alone mode and under manager file control

CONSOLE

	LEVEL	D.R.S. CODE	COMPATIBILITY
IF638	Nasc.	497314 P	Compatible with BIOS 1.04
	Lev. 01 MI		Changes that solve the loudspeaker sound problem still audible with volume control potentiometer at MIN position

PAL

CODE	FUN.	FUNCTION	NAME	LOC.	VIRGIN FUN.
977000D	GL9A	DMA Decode	PAL16L8D	U70	PLCC20
977013K	GL9Z	MCU PATCH	PAL20L8	U125	DIL24

COMPATIBILITY

DEVICE BOARD	COMPATIBILITY
Serial port component WD16C552	This component can be replaced by WD16C551 component which is pin to pin compatible
BIOS 1.08	Video performance improvement, introduced Quantum hard disk and removed password bags
EVD 4.0 Rel. 1.3	New Windows driver added
82C206 component on BA263	TEXAS component 82C206 is available in alternative to the C&T one in use. They are compatible and do not change the level of the system board on which they are used.

POWER SUPPLY UNIT

POWER SUPPLY	LEVEL	NOTES	
PS14 Ver. 220 V	Nasc.	Improved ventilation and electrical noise susceptibility.	
	Lev. 01		
	Lev. 02		Introduced a mylar protection between L101 inductance and support for compliance of the power supply unit with safety rules.
	Lev. 03		Removed mylar protection. The safety rules are respected using a new type of inductor.
	Lev. 04		Conformity with the new reinforced insulation rules and improvement of reliability. Modified TL7705 (IC351) component.
	Lev. 05		Compliance to EMI Standards.
PS14 Ver. 115 V	Lev. 06	Renewed power supply drive module.	
	Nasc.	This version has undergone the same modifications as the 220 V version (up to level 04).	
	Lev. 01		
	Lev. 02		
Lev. 03			
	Lev. 04		

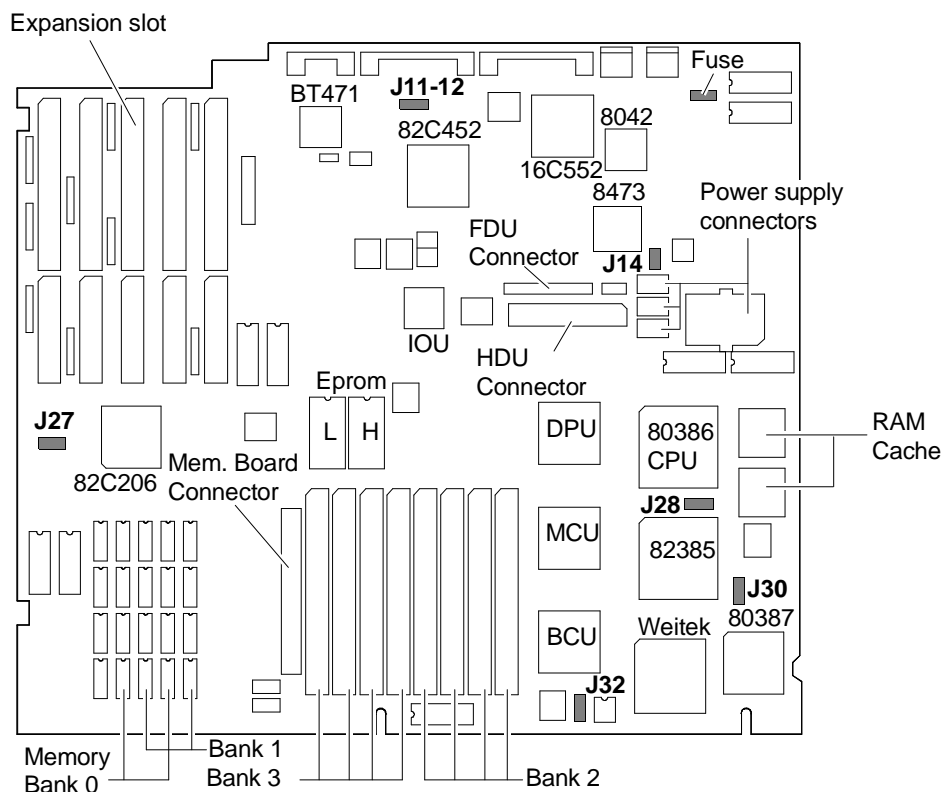
SOFTWARE COMPATIBILITY

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 INTERACTIVE 386/ix, Ver. 2.02 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 UNIX System V/386, Rev. 3.2 SCO XENIX 386, Rev. 2.3	During installation on hard disk, a formatted DSDD disk is required. PS/2 mouse not recognised PS/2 mouse not recognised

HARDWARE COMPATIBILITY

MODEMS	I/O INTERFACE PRODUCTS
Hayes Smartmodem 1200B Hayes Smartmodem 2400B Telenetics Expressdata 24i (24i-12i) Ven-tel PC Modem Half-Card (PCM-XT) Hayes Smartmodem 1200	FUTURE DOMAIN HOST ADAPTER (TMC-830) IBM Asynchronous COM. CARD (1502074) IBM PRINTER ADAPTER (1505200) IBM SERIAL/PARALLEL
MULTIPOINT	MOUSE
Anvil Stallion Intelligent 16 Port Controller Chase MSC Connect/AT8 Intelligent 8 Port Computone System Intelliport 16 Port AT16 Consensus Powerports 8 Port Intelligent Ctr. Digiboard Digichannel COM/xi Intelligent 8 Port Specialix Si Intelligent I/O Controller	IBM PS/2 Mouse (6450350) Logitech Bus Mouse (PF-3F) Microsoft Bus Mouse, Rev. C Microsoft Serial-PS2 Mouse Microsoft Serial Mouse MSC PC Mouse PS/2 Olivetti Bus Mouse (GRD 25-019) Olivetti New Advanced Mouse (GRD 25-025)
GRAPHICS PRODUCTS	NETWORK & LAN PRODUCTS
AST RESEARCH AST - 3G PLUS AST RESEARCH AST - VGA PLUS ATI EGA WONDER HERCULES GRAPHICS CARD (GB102) HERCULES INCOLOR CARD (GB222) IBM MONO Display/Printer Adapter (1504900) MATROX PG - 1281 ORCHID PRODESIGNER VGA PLUS PARADISE EGA 480 PARADISE VGA PRO CARD QUADRAM QUAD EGA PLUS (QC 8601) TECMAR VGA AD VIDEO - 7 VEGA DELUXE	CARD (6450215) AT&T Starlan Network IBM OS/2 Lan Server/Requester IBM PC Network IBM Token Ring Network MADGE Token-Ring Network MS OS/2 Lan Manager Novell Advanced network Ver.2.15 Novell Netware 386 with ISA Adapter PROTEON Token Ring Network 3COM 3 + Network /Ethernet) 3COM 3 + Open Lan Manager IONET Network
DISPLAY UNITS	OTHER PRODUCTS
JVC QUAD-SYNC Color (GD-H6116VFW) NEC Multisync Monitor (APC-H431) OLIVETTI HIRES Color (DSM 26-115) PRINCETON RGB Monitor (HX-12) ZENITH RGB/COMPOSITE Monitor (ZVM-135)	OLIVETTI OD-810 WORM (WRM 25-810) PLUS Development 20MB Hardcard SOFTWARE SECURITY Parallel Port Block WELCH-ALLYN Barcode Reader (HBD-100, R. A)

SYSTEM BOARD COMPONENTS, JUMPERS



BHC8A

JUMPER	POSITION	FUNCTION
J30	OUT * IN	25 MHz 80387 math coprocessor operation. 80387 math coprocessor enabled to tune into clock of optional oscillator to install in U124.
J32	OUT * IN	BIOS EPROM enabled. BIOS EPROM disabled.
J27	OUT * IN	Normal operation. Erases CMOS RAM (before installing this jumper, the battery must be disconnected).
J11-12	OUT * IN	Normal operation. Indicates the RS232 threshold level.
J14	IN	This jumper must always be inserted.
J28	OUT * IN	Normal operation. To be able to use a different model of cache controller 82385.

FUSE

2 A, 5 V keyboard and mouse fuse.

I/O ADDRESS MAP

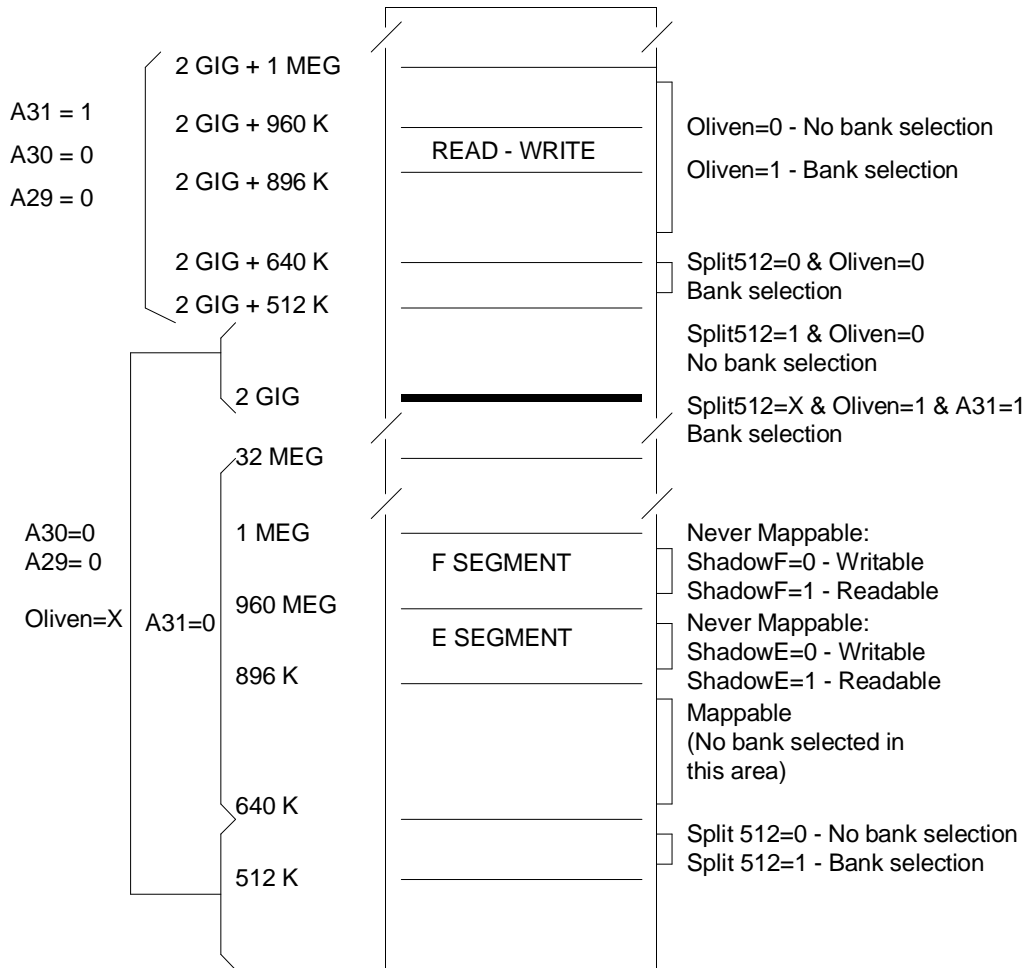
ADDRESS	FUNCTION	ADDRESS	FUNCTION
000-01F h	DMA Controller (all channels)	2F8-2FF h	Serial Port COM2 (alternate)
020-021F h	Interrupt controller 1	378-37B h	Parallel port 1
040-043 h	Timer	3B4-3B5 h	Video adapter
60 h	Data Keyboard controller	3BA h	Video adapter
61 h	System Control Port B	3C0-3CF h	Video adapter
64 h	Commands Keyboard controller	3D4-3D5 h	Video adapter
70 - 71 h	Real time clock, NMI Mask, CMOS RAM	3DA h	Video adapter
080-08F h	DMA page registers	3F0-3F7 h	Floppy disk controller
0A0-0A1 h	Interrupt controller 2	3F8-3FF h	Serial port COM1
0C0-0DF h	DMA channels 4-7	46E8 h	VGA Control Registers
1F0-1F8 h	Hard disk drive	8000F0-8000FF	Coprocessor
278-27B h	Parallel port 2 (alternate)	-	

INTERRUPT LEVELS

LEVEL	NAME	CONTROLLER	FUNCTION
1	IRQ0	1	Timer OUT channel 0
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

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SYSTEM MEMORY MAP



COMPATIBLE HARD DISKS

TYPE	MODEL	CAPACITY	CYL	T	WPC	LZ	SET
1	NEC D5146H half size	40 MB	615	8	128	664	17
2	Miniscribe M8425 3,5"	20 MB	612	4	128	663	17
3	Seagate ST277R	62 MB	820	6	-1	819	26
4	NEC D5147H	62 MB	615	8	384	664	26
5	NEC D5652 ES	136 MB	820	10	-1	822	34
6	Micropolis 1355 ESDI	135 MB	1021	8	-1	1023	34
7	Micropolis 1353 ESDI	67 MB	1021	4	-1	1023	34
8	NEC D5452	68 MB	823	10	512	822	17
9	FUJITSU M2227D	40 MB	615	8	512	614	17
10	FUJITSU M2227D RLL	60 MB	615	8	512	614	26
11	ESDI	304 MB	814	15	-1	1	51
12	ESDI	81 MB	977	5	-1	1	34
13	-	136 MB	820	10	-1	1	34
14	CONNER CP3206	200 MB	683	16	-1	682	38
15	RESERVED						
16	CONNER CP3142	40 MB	635	4	-1	639	33
17	CONNER CP346	40 MB	805	4	-1	804	26
18	CONNER CP3106	100 MB	776	8	-1	775	33
19	CONNER CP3206	200 MB	683	16	-1	682	38
20	Quantum LPS105 AT	100 MB	776	8	-1	775	33
21	Quantum PD210 AT	200 MB	873	13	-1	872	36

Where: CYL: No. of disk cylinders

T: No. of disk heads

WPC: Precompensation cylinder number

LZ: Head parking cylinder number

SET: No. of disk sectors