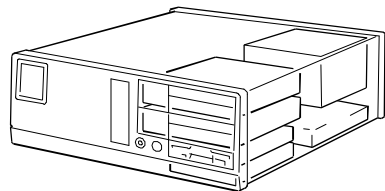


M4-Pxx/PCS 51xx/PCS 61xx

This section describes the following personal computers:

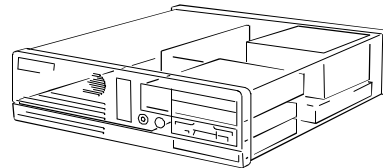
PERSONAL COMPUTER	PROCESSOR	SYSTEM CLOCK	CASE
M4-P75	Pentium @ 75 MHz	50 MHz	TIN BOX
M4-P75 S	Pentium @ 75 MHz	50 MHz	SLIM TIN BOX
M4-P90 S	Pentium @ 90 MHz	60 MHz	SLIM TIN BOX
M4-P100	Pentium @ 100 MHz	66 MHz	TIN BOX
M4-P100 S	Pentium @ 100 MHz	66 MHz	SLIM TIN BOX
M4-P133	Pentium @ 133 MHz	66 MHz	TIN BOX
M4-P133 S	Pentium @ 133 MHz	66 MHz	SLIM TIN BOX
PCS 5120	Pentium @ 75 MHz	50 MHz	SLIM TIN BOX
PCS 5130	Pentium @ 100 MHz	66 MHz	SLIM TIN BOX
PCS 5140	Pentium @ 133 MHz	66 MHz	SLIM TIN BOX
PCS 6120	Pentium @ 75 MHz	50 MHz	TIN BOX
PCS 6130	Pentium @ 100 MHz	66 MHz	TIN BOX
PCS 6140	Pentium @ 133 MHz	66 MHz	TIN BOX
PCS 6150	Pentium @ 150 MHz	60 MHz	TIN BOX
PCS 6160	Pentium @ 166 MHz	66 MHz	TIN BOX

TIN BOX



FQC1A

SLIM TIN BOX



GMF7A

CHARACTERISTICS

Architecture	ISA/PCI
Processor socket	BA2237/2270, BA2280, BA2284: socket 5 BA2262: socket 7
Memory	Min. 8/16 MB, max. 128 MB with 8-16-32 MB increments. On the motherboard there are four sockets for the installation of the following SIMMs: (Fast Page Mode) EXM 40-004 One 1 MBx32 (4 MB) SIMM (EDO RAM) EXM 51-008 One 2 MBx32 (8 MB) SIMM EXM 51-016 One 4 MBx32 (16MB) SIMM EXM 51-032 One 8 MBx32 (32 MB) SIMM
Memory access rate	Fast Page Mode: 70 ns EDO RAM: 60 ns
Memory cache	1 st level: integrated in the processor 2 nd level: 256 KB
Floppy Disk	First floppy disk drive: Panasonic JU-257A 1.44 MB Mitsubishi MF-355 1.44 MB Sony MP-F17W 1.44 MB Sony MPF420-1 1.44 MB Epson SMD 1040-418 1.44 MB Mitsumi D359T3 1.44 MB TEAC FD235HF 1.44 MB Y-E DATA YD-702B/YD-702D 1.44 MB Second floppy disk drive (optional): Toshiba ND08 DE 1.2 MB Panasonic JU 475-3/4/5 1.2 MB
Hard Disk	Hard Disk IDE: Quantum FR 640 AT 640 MB Quantum TR 850 AT 850 MB Fujitsu M1614TA 1 GB IBM DJAA-31700 1.6 GB Quantum FR 1280 AT (M4 only) 1.2 GB Seagate ST32140A (M4 only) 2 GB Conner CFS 635 A (PCS only) 635 MB Conner CFS 1275 A (PCS only) 1.2 GB SCSI Hard Disk: SEAGATE ST 31230N (M4 only) 1 GB (with AHA2940 SCSI controller)

MOTHERBOARD

BA2237/2270
BA2262
BA2280
BA2284

ISA/PCI architecture.

BIOS

The ROM BIOS is a FLASH EPROM.
The BIOS code can be updated from diskette.
Supported features:
Plug&Play, APM, DMI, CD-ROM boot (PCS only).

Last level:
Rev. 1.21

RISER BUS EXPANSION BOARD

TIN BOX: IN 2049
SLIM TIN BOX: IN 2050

CD-ROM	IDE CD-ROM: SONY CDU 76 E 656 MB GOLDSTAR GCD R 540B 656 MB PANASONIC CR 581 656 MB MITSUMI CRMC-FX400D 656 MB SCSI CD-ROM: SONY CDU 76 S 650 MB (with AHA2940 SCSI controller)
Streaming Tape	Floppy disk interface: Irwin 31250A 80-120 MB Conner CTM420 250-420 MB SCSI interface (with AHA2940 controller): Wangtek 5150ES 150 MB Wangtek 5525ES/ES-ACA 320 MB Wangtek 51000HT 1-1,2 GB DAT HP35470A/35480A 1.3-2 GB
Expansion slots on the Riser bus	TIN BOX: - 2 PCI - 1 shared PCI/ISA - 2 ISA Full Size SLIM TIN BOX: - 1 PCI - 1 shared PCI/ISA - 1 ISA Full Size
Video	Integrated on the motherboard: Trident TGUI9680 component (on BA2237/2270, BA2262) or TGUI9680-1 (on BA2280/BA2284) with 1 or 2 MB of video memory and the DPMS, DDC features Implemented on the PCI board installed on the expansion bus (M4-P133): MGA Millennium with 2, 4 or 8 MB of video memory without DPMS, DDC features
Audio subsystem (MI2114)	3D audio board (MI2112) + Mozart OTI 605 board (MI2074/MI2109) (optional on the M4)
IDE HDU interface	Interface for the management of two Fast IDE Local Bus drives
SCSI HDU interface	Optional interface (M4-P1xx only) provided by the SCSI controller (AHA2940) on the expansion bus
IDE-AT interface	Interface for connecting two FDUs or one FDU and one CD-ROM or STU
Mouse	PS/2 standard interface
Keyboard	PS/2 standard interface Compact 101/102-key keyboard: ANK 27-101/N, ANK 27-102/N Super compact 101/102-key keyboard: ANK 28-101, ANK 28-102

POWER SUPPLY

M4-Pxx:

SP 200 BBN (ASTEC
SA 201-3451-200,
LITE ON PA-4022-6F)
180 W / 120 - 240 V

M4-Pxx S:

SP 100 SBN (ASTEC
SA131-3400-200,
LITE ON PA-4111-4F)
100 W / 120 - 240 V

PCS 61xx:

SP 200 BC (EVER
POWER SB 200 PN,
ASTEC SA201-3451-200,
LITE ON PA-4022-6F)
180 W / 120 - 240 V

PCS 51xx:

SP 100 SCN
(DVE DSP-0584-110 A,
ASTEC SA131-3400-200,
LITE ON PA-4111-4F)
100 W / 120 -240 V

MOTHERBOARD

NAME	LEVEL	NOTES
BA2237	Lev. Nasc	Olivetti ISA/PCI motherboard.
BA2270	Lev. Nasc	Replaces the BA2237.
	Lev. 01	Recovered incorrect connection (inverted signals) of the HDU LED connector on the printed circuit
	Lev. 02	<ul style="list-style-type: none">- Introduction of the Trident TGUI9680-1 video controller in place of the TGUI9680, therefore not fitted with ferrite L12 and replacing the 10 μF capacitor C137 with a 0.1 μF capacitor- Replacement of the eight 100 μF 16V tantalum capacitors with similar 10V capacitors in positions C188, C200, C219, C230, C237, C238, C246, C261
BA2262	Lev. Nasc	Olivetti ISA/PCI motherboard
BA2280	Lev. Nasc	Olivetti ISA/PCI motherboard
BA2284	Lev. Nasc	Trigem ISA/PCI motherboard

ONBOARD CONTROLLERS

MOTHERBOARD	INTEGRATED CONTROLLERS
<p>BA2237/2270 BA2262 BA2280</p>	<p>Intel OverDrive Ready Socket 5 (Socket 7 with a VRM connector on the BA2262): The following processors can be accommodated in these sockets:</p> <ul style="list-style-type: none"> - Pentium 75 @ 75/50 MHz - Pentium 90 @ 90/60 MHz - Pentium 100 @ 100/66 MHz - Pentium 133 @ 133/66 MHz - Pentium 150 @ 150/60 MHz - Pentium 166 @ 166/66 MHz <p>ME2039/ME2044 2nd level cache installed in the specific connector. 82437FX (System Controller) Chip set component integrating the following functions:</p> <ul style="list-style-type: none"> - Cache and DRAM control - Control over transfers between CPU, cache, memory and PCI bus. <p>82438FX Two chip set components integrating the data path between CPU and memory. PIIX 82371FB Chip set component integrating the following functions:</p> <ul style="list-style-type: none"> - Bridge between the PCI and ISA buses - Fast IDE interface for connecting up to four IDE devices (HDUs and CD-ROMs) - Interrupt and DMA control - Timer - System Power Management <p>37C932 Component integrating the following functions:</p> <ul style="list-style-type: none"> - Floppy disk control (two drives) - Interface for a parallel port - Interface for two serial ports - Keyboard and mouse - Real Time Clock - CMOS <p>Trident TGUI9680 or TGUI9680-1 (on BA2280 only) Video controller Flash EEPROM The system BIOS is contained in a 128 KB 28F001BX-T Flash EEPROM.</p>
<p>BA2284</p>	<p>Similar to boards BA2237/2270, BA2262, BA2280 with the difference that the following components are used in place of component 37C932:</p> <p>37C665 Super I/O controller integrating the following functions:</p> <ul style="list-style-type: none"> - Floppy disk control (two drives) - Interface for a parallel port - Interface for two serial ports <p>8042 Keyboard and mouse interface DS12887A Real Time Clock and CMOS.</p>

RISER BUS EXPANSION BOARD

NAME	LEVEL	NOTES
IN2049	Lev. Nasc	TIN BOX - Allows installation of optional AT or PCI boards.
	Lev. 01	Replacement of the 1 μ F capacitors in positions C37, C38, C40, C42, C44, C48, C51, C53 with 0.1 μ F capacitors 0805 cases with a 25 V working voltage
IN2050	Lev. Nasc	SLIM TIN BOX - Allows installation of optional AT or PCI boards.

MATROX MILLENNIUM VIDEO CONTROLLER BOARD

NAME	LEVEL	NOTES
GO2089	Lev. Nasc	PCI video controller board on the Riser bus.

MODEM/FAX BOARD

NAME	SUPPLIER	COUNTRY	LEVEL	NOTES
GO2099	Dataflex	U.K.	Lev. Nasc	Modem/fax board for telematic communication and data transmission.
GO2100	B&V	Italy	Lev. Nasc	
GO2101	3X	France	Lev. Nasc	
GO2102	3X	Germany	Lev. Nasc	
GO2103	3X	Italy	Lev. Nasc	
GO2104	3X	Denmark	Lev. Nasc	
GO2105	3X	Holland	Lev. Nasc	
GO2106	3X	Finland	Lev. Nasc	
GO2107	3X	Sweden	Lev. Nasc	
GO2110	Creatix	Belgium	Lev. Nasc	
GO2111	3X	U.K.	Lev. Nasc	
GO2112	Dataflex	Germany	Lev. Nasc	
GO2113	Vayris	Spain	Lev. Nasc	
GO2119	Creatix	Finland	Lev. Nasc	
GO2120	Creatix	Sweden	Lev. Nasc	
MI2092	Creatix	Italy	Lev. Nasc	
MI2093	Creatix	U.K.	Lev. Nasc	
MI2094	Creatix	Norway	Lev. Nasc	
MI2095	Creatix	France	Lev. Nasc	
MI2096	Creatix	Spain	Lev. Nasc	
MI2101	Creatix	Denmark	Lev. Nasc	
MI2102	Creatix	Holland	Lev. Nasc	
MI2103	Creatix	Austria	Lev. Nasc	

AUDIO BOARD

NAME	LEVEL	NOTES
MI2074	Lev. Nasc	Mozart Audio Board (OTI605).
MI2109	Lev. Nasc	Mozart Audio Board used together with the MI2112 board to create the MI2114
MI2112	Lev. Nasc	3D audio board (3D SOUND).
	Lev. 01	For sound quality improvements, replacement of a 33 KOhm resistor R33 with a 6.8 KOhm resistor.
MI2114	Lev. Nasc	Modification to the Mozart Audio Board MI2109 (signal trimmings and wirings) in order to be able to accommodate the MI2112 board for 3D sound.

POWER SUPPLY

NAME	LEVEL	PERSONAL COMPUTER	NOTES
SP 200 BBN (ASTECSA 201-3451-200, LITE ON PA-4022-6F)	Lev. Nasc	M4-Pxx	180 W power supply.
SP 100 SBN (ASTECSA 131-3400-200, LITE ON PA-4111-4F)	Lev. Nasc	M4-Pxx S	100 W power supply.
SP 200 BC (EVER POWER SB 200 PN, ASTECSA 201-3451-200, LITE ON PA-4022-6F)	Lev. Nasc	PCS 61xx	180 W power supply.
SP 100 SCN (DVE DSP-0584-110 A, ASTECSA 131-3400-200, LITE ON PA-4111-4F)	Lev. Nasc	PCS 51xx	100 W power supply.

BIOS

LEVEL	NOTES
Rev. 1.03	
Rev. 1.05-2	
Rev. 1.09	- New Amiflash utility rel. 5.13.
Rev. 1.12	- Enabling of interrupt IRQ9 (non-maskable).
Rev. 1.13	- Addition of 3D sound - Management floppy disk boots in absence of CD-ROM boots - Acknowledgement of Pentium CPUs @ 166 MHz - Solves the problem of enabling/disabling the peripherals through the Setup Utility or ICU.
Rev. 1.20	- Configuration of board WinTv with IRQ15 - Reserved I/O 378h (parallel port) - External cache management (512 KB) - Bus-dedicated E000 segment - Solves the problem of installing the CD-ROM without mouse
Rev. 1.21	- Solves the problem of recovery via mouse with the Suspend and Stand-by timers set - Solves the problem of ICU modified values that are lost at the successive boot - Solves the problem of booting from an FDU different than the factory 1.44 MB

SOFTWARE DRIVERS

DRIVER	LEVEL	NOTES
EVD for Trident TGUI 9680/9680-1	Ver. 2.02	Video drivers for: Windows 3.1x, Windows NT 3.x, Windows 95, OS/2 2.1x & 3.0 Warp, WordPerfect 5.1-6.0, Ventura 2.x-3.x, Lotus 2.1-2.2, Word 5.0-5.5, AutoCAD 9-10-11-12, AutoSHADE 1.1-2.0 & 3D Studio, Microstation 5.0, GEM 3.xx.
	Ver. 2.03	<ul style="list-style-type: none"> - Addition of file TMONITOR.X2M which cancels the 1280x1024x16/256 color resolution interlaced by the DSM 28-144MS, DSM 27-615, DSM 40-151, DSM 50-144 monitors - Addition of monitor DSM 50-148 - Two new drivers: one for OS/2 and one for Windows (to use 75 KB of conventional memory and solve the problem with printing a 256 color Paintbrush image on an HP Laserjet printer)
	Ver. 2.04	<ul style="list-style-type: none"> - Monitor table updated to include: DSM 50-149, DSM 50-151, DSM 51-151 - Addition of file TMONITOR.X1M for EDO DRAM memory (1 MB) - Two new drivers, one for OS/2 and one for Windows, and modification of the Windows NT driver version
	Ver. 2.05	<ul style="list-style-type: none"> - Introduction of Windows 95 - Replacement of file TMONITOR.SYS which, in case of a DDC monitor, does not modify the config.sys file - New version of SMONITOR.EXE
	Ver. 2.06	<ul style="list-style-type: none"> - Reintroduction of AUTOCAD 2.10T to solve some problems
	Ver. 2.07	<ul style="list-style-type: none"> - Updates to the Windows 95 drivers
	Ver. 2.08-1	<ul style="list-style-type: none"> - Solves the problems of the following monitors under Windows 95: DSM 28-143PS, DSM 28-143PS2, DSM 50-148, DSM 50-149 - Solves the problems with the 320x200, 320x240, 640x400 modes under Windows 95 - New drivers for OS/2 and AutoCAD
	Ver. 2.09	<ul style="list-style-type: none"> - Modification of the AutoCAD driver
	Ver. 3.0	<ul style="list-style-type: none"> - Support for the TGUI 9680-1 controller.
EVD for Matrox Millennium	Ver. 1.0	Video drivers (PCI bus) for: Windows 3.1x, Windows NT 3.51, Windows 95, ACAD, Microstation, OS/2 2.11 & 3.0 Warp.
Mozart OT1605 audio drivers	Ver. 4.0	Audio drivers for: Windows 3.1x, Windows NT 3.1/3.5, Windows 95, OS/2 2.11 & 3.0 Warp, Win/OS2.

SOFTWARE COMPATIBILITY

OPERATING SYSTEMS	NETWORKING & LAN PRODUCTS
DR-DOS, version 7.00 IBM PC-DOS, version 6.1 IBM OS/2 Warp, version 3.0 MS-DOS, versions 6.0, 6.2 SCO UNIX O.D.T., release 3.0 SOLARIS, version 2.4	10NET PLUS, version 5.0 BANYAN VINES, version 5.53 * DEC PATHWORKS for OS/2, version 5.0 IBM PC LAN PROGRAM, version 1.34 IBM PC LAN SUPPORT Program, ver. 1.2 IBM OS/2 LAN SERVER, version 4.0
WINDOWS	INTEL LANDESK MANAGER, version 1.5
MS-WINDOWS, version 3.1 MS-WINDOWS for WORKGROUPS, ver. 3.11 WINDOWS NT, version 3.51 WINDOWS 95	INTEL NET SATSFAXTION, version 2.5 LOTUS CC: FAX (DOS), version 1.20 LOTUS CC: MAIL (DOS), version 4.02 LOTUS CC: MAIL ROUTER (DOS), ver. 4.0 LOTUS CC: MAIL ADE (DOS), version 1.0 LOTUS CC: MAIL Import/Export (DOS),
WINDOWS APPLICATIONS	ver. 3.32
ADOBE PHOTOSHOP, version 3.0 ADOBE PREMIERE for Windows, version 1.1 ALDUS PAGEMAKER, version 5.0 AMI PRO for Windows, version 3.01 COREL DRAW for Windows, version 5.0 COREL DRAW for Windows 95, version 6.0 * COREL Ventura Publisher for Windows, ver. 4.2 FRAME MAKER 4 for Windows, version 4.02P2b LOTUS 1-2-3 for Windows, version 5.0 LOTUS Freelance Graphics for Windows, ver. 2.01 Microstation for Windows NT, version 5.00.00.22 MS-WORKS for Windows, version 2.0 MS-POWERPOINT, version 4.0 PHOTOMAGIC, version 1.0 Windows DRAW, version 3.00 Xerox Ventura Publisher for Windows, ver. 4.1.1	MS-MAIL, version 3.2 Microsoft LAN MANAGER for OS/2, ver. 2.2 Microsoft Windows NT Server, version 3.51 Novell Netware 386, ver. 4.02, 3.12 *, 4.10 * PERSONAL NETWORK, version 1.0 SUNSOFT PC-NFS PRO, version 1.1 VOCALCHAT GT1, version 2.2 VOCALCHAT LAN, version 2.0
WORD PROCESSORS	GRAPHICS APPLICATIONS
LOTUS AMI PRO for OS/2, version 3.0 MS-WORD for DOS, version 6.0 MS-WORD for OS/2, version 5.5 WORD PERFECT, version 6.0a WORD PERFECT for OS/2, version 5.0 WORDSTAR Professional, version 7.0	AUTOCAD, versions 12, 13 CHARISMA for Windows, version 4.01 HARWARD GRAPHICS, ver. 3.0 LOTUS Freelance Graphics for OS/2, ver. 2.0 LOTUS Freelance Graphics PLUS, ver. 4.0 MICROGRAFX DESIGNER, version 4.1 PC PAINTBRUSH 5+, version 1.0
	DESKTOP PUBLISHERS
	ALDUS PAGEMAKER for OS/2, ver. 3.01 GEM/3 Desktop Publisher, version 2.0 XEROX Ventura Publisher for DOS/GEM edition, version 3.0

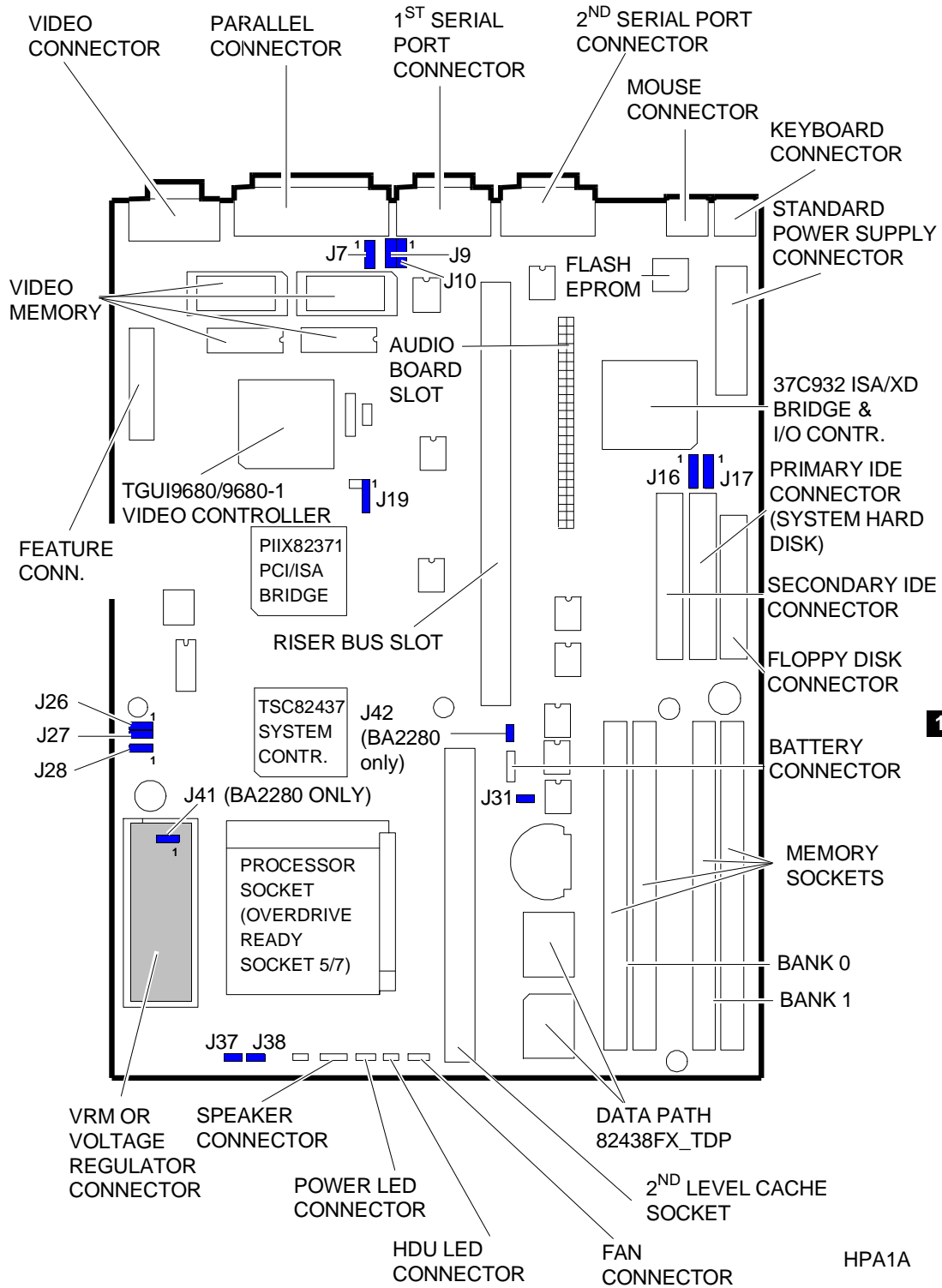
* Compatibility depends on whether specific operations have been carried out, as indicated in the related "Compatibility Guide".

HARDWARE COMPATIBILITY

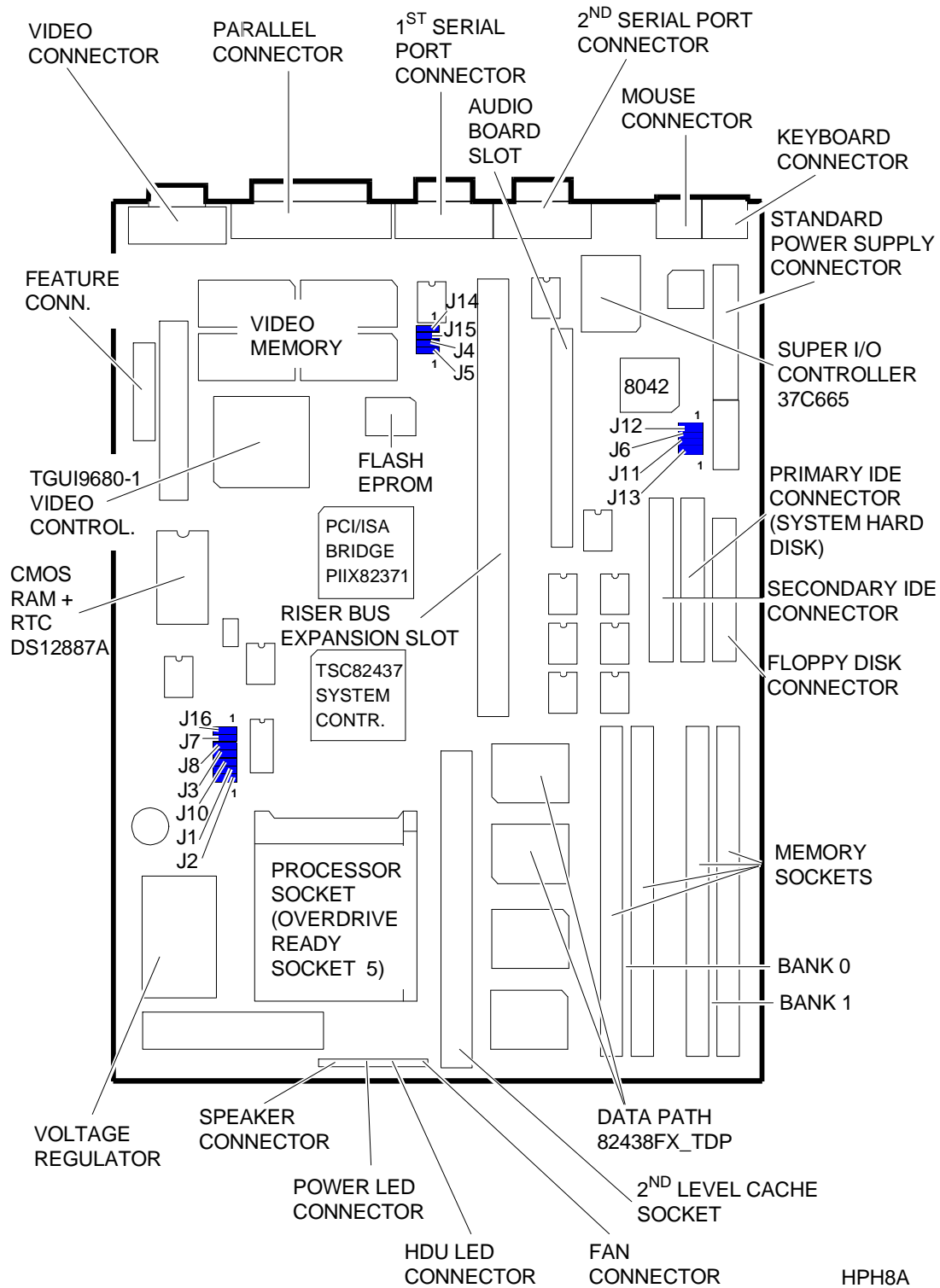
MODEMS	NETWORKING & LAN (ISA) PRODUCTS
AT&T Modem/Fax Dataport 14,4 W/Fax HAYES SMART MODEM 2400 B INTEL SatisfAXtion Modem/Fax 400 (Windows 95) INTEL SatisfAXtion Modem/Fax 400 (Windows 3.11) DIGICOM MODEM FAX Mod. SNM41PC HAYES OPTIMA FAX/MODEM 288 (external)	ACCTON ETHERCOAX 16 Adapter 3COM Etherlink II Adapter (3C503) 3COM Etherlink 16 Adapter (3C507) 3COM Etherlink II/16 Adapter (3C503/16 TP) 3COM TOKENLINK III Adapter (3C509) Combo 3COM TOKENLINK PLUS Adapter (3C603) DEC Etherworks III Thinwire Adapter DE203 * D-LINK DE-220T IBM ETHERNET Adapter CX IBM TOKEN RING PC Adapter II INTEL Etherexpress 16 Adapter INTEL Etherexpress 16 Flash Ethernet Adapter INTEL TOKEN EXPRESS ISA/16S Adapter MADGE 16/4 AT RING NODE Adapter NOVELL NE2000 PLUS Ethernet Adapter OLICOM Ethernet OC2121/2122/2123/2125 Ad. OLICOM Ethernet OC2173 ISA/IV Adapter OLICOM TOKEN RING Network PCA 16/4 Adapter (OC3121) OLICOM TOKEN RING OC3118 Adapter
MOUSE	NETWORKING & LAN (PCI) PRODUCTS
IBM PS/2 MOUSE LOGITECH RADIO MOUSE M-RB24 MS BALL POINT MOUSE MS SERIAL MOUSE (PS/2)	3COM Etherlink III 3C590-TP0 Parallel Tasking DEC TULIP PCI Ethernet 21040-AA Adapter INTEL ETHEREXPRESS PRO/100 Adapter OLICOM OC3136 PCI 16/4 Token Ring Ad. * SMC ETHERPOWER 10/100 Z'NYX 32 Bit LAN Ethernet ZX312 Combo Ad.
INTELLIGENT MULTIPOINTS	DISPLAY UNITS
CHASE AT 16+ Serial I/O Controller CHASE AT I/O LITE CHASE AT I/O PRO COMPUTONE 16 Multiport Serial I/O Controller DIGIBOARD MULTIPOINT PC/8 SPECIALIX S1/8	NEC MULTISYNC 4FG / 5FG / 6FG SONY Multiscan CPD 1430 / 1730 SONY Multiscan GDM 2036
GRAPHICS PRODUCTS	MPC BOARDS
PCI: ATI Mach 64 Graphics Pro Turbo MATROX MGA 2 + PCI MATROX MGA IMPRESSION PLUS MATROX MGA 2 + PCI Number Nine GXE64 Graphics Acc. Number Nine GXE64 PCI Graphics Acc. ORCHID KELVIN 64 * AT: INFOTRONIC IPG 64 * MATROX MGA IMPRESSION 3Z/A Number Nine GXE Graphics Accelerator SPEA VIDEO 7 MERCURY THUNDER /24 for Windows *	LOGITECH AUDIOMAN ORCHID SOUND WAVE 32 PRO AUDIO SPECTRUM 16 SDLC PRO AUDIO SPECTRUM PAS 16 BASIC PRO AUDIO FUSION DOUBLE CD 16 Kit ROLAND SCC-1 SOUND BLASTER PRO 2 SOUND BLASTER 16 APS SOUND BLASTER 16 SCSI 2
MULTIMEDIA DEVICES (DVO/DVI)	
INTEL SMART VIDEO RECORDER LIFE VIEW VIDEO (Video II Capture Board) REEL MAGIC SONY * SCREEN MACHINE (ISA) Mod 2 VIDEOLOGIC DVA 4000/ISA * WIN/TV *	

* Compatibility depends on whether specific operations have been carried out, as indicated in the related "Compatibility Guide".

COMPONENTS AND JUMPERS ON MOTHERBOARD BA2237/BA2270, BA2262, BA2280



COMPONENTS AND JUMPERS ON MOTHERBOARD BA2284



JUMPERS ON MOTHERBOARDS BA2237/BA2270, BA2262, BA2280

Jumpers J26 and J27 - CPU Bus Clock

J26	J27	TYPE OF PROCESSOR	PROCESSOR CLOCK	SYSTEM CLOCK
2-3	2-3	Pentium 75	75 MHz	50 MHz
2-3	1-2	Pentium 90 Pentium 120 Pentium 150	90 MHz 120 MHz 150 MHz	60 MHz
1-2	2-3	Pentium 100 Pentium 133 Pentium 166	100 MHz 133 MHz 166 MHz	66 MHz

Jumpers J38 and J37 - Ratio Between the CPU Internal and External Clocks

J38 (BF)	J37 (BF1)	TYPE OF PROCESSOR	RATIO BETWEEN THE CPU INTERNAL AND EXTERNAL CLOCKS
ON	ON	P54C 150-166	2/5 (BF=0, BF1=0) CPU clock x 2.5
OFF	ON		1/3 (BF=1, BF1=0) CPU clock x 3
ON	OFF	P54C 120-133	1/2 (BF=0, BF1=1) CPU clock x 2
OFF	OFF	P54C 75-90-100	2/3 (BF=1, BF1=1) CPU clock x 1.5

Jumper J28 - AT Bus Clock

J28	AT Bus Clock	PCI Bus Clock
1-2	PCI/3 bus clock	25 MHz - P54C 75
2-3	PCI/4 bus clock	30/33 MHz - P54C 90 – 166 MHz

Jumper J41 - Processor Power Supply Voltage Selection (BA2280 Only)

Position 1-2 3.5 V - Pentium 166 processor
 Position 2-3 3.3 V - Pentium 75/90/100/133/150 and OverDrive (Default) processors.

Jumper J17 - Floppy Disk Write Protection

Position 1-2 Floppy disk not write protected (Default)
 Position 2-3 Floppy disk write protected.

Jumper J9 - Flash EPROM Writes Enable/Disable

Position 2-3 Enables Flash EPROM programming - 12 V (Default)
 Position 1-2 Disables Flash EPROM programming - 12 V.

Jumper J16 - Setup Utility Enable/Disable

Position 1-2 Disables access to the Setup Utilities
 Position 2-3 Grants access to the Setup Utilities (Default).

Jumpers J7 and J10 - Boot from Serial Port Disable

J7: Position 1-2 Disables the serial ports
 J10: Position 1-2

 J7: Position 2-3 Enables the serial ports (Default).
 J10: Position 2-3

Jumper J31 - CMOS RAM Reset

IN CMOS RAM reset
 OUT Normal operation (Default).

Jumper J19 - Onboard Video Controller Enable/Disable

Position 1-2 Disables the onboard video controller
 Position 2-3 Enables the onboard video controller (Default).

Jumper J42 - Battery Circuit Open/Close (on BA2280 only)

Position IN Standard battery provided with the system (Default)
 Position OUT Non-standard battery equipped with cable for connection to the motherboard.

JUMPERS ON MOTHERBOARD BA2284**Jumpers J7 and J8 - CPU Bus Clock**

J7	J8	TYPE OF PROCESSOR	PROCESSOR CLOCK	SYSTEM CLOCK
2-3	1-2	Pentium 75	75 MHz	50 MHz
1-2	1-2	Pentium 90 Pentium 120 Pentium 150	90 MHz 120 MHz 150 MHz	60 MHz
2-3	2-3	Pentium 100 Pentium 133 Pentium 166	100 MHz 133 MHz 166 MHz	66 MHz

Jumpers J1 and J2 - Ratio Between the CPU Internal and External Clocks

J1 (BF1)	J2 (BF0)	TYPE OF PROCESSOR	RATIO BETWEEN THE CPU INTERNAL AND EXTERNAL CLOCK
1-2	1-2	P54C 150-166	2/5 (BF0=0, BF1=0) CPU clock x 2.5
1-2	2-3		1/3 (BF0=1, BF1=0) CPU clock x 3
2-3	1-2	P54C 100(50 MHz)-120-133	1/2 (BF0=0, BF1=1) CPU clock x 2
2-3	2-3	P54C 75-90-100(66 MHz)	2/3 (BF0=1, BF1=1) CPU clock x 1.5

Jumper J11 - AT Bus Clock

J11	AT BUS CLOCK	PCI BUS CLOCK
1-2	PCI/3 bus clock	25 MHz - P54C 75
2-3	PCI/4 bus clock	30/33 MHz - P54C 90 – 166 MHz

Jumper J10 - Processor Power Supply Voltage Selection

Position 1-2 3.3 V - Pentium 75/90/100/133/150 processors and OverDrives (Default)
 Position 2-3 3.5 V - Pentium 166 processors.

Jumper J13 - Floppy Disk Write Protection

IN Floppy disk write protected
 OUT Floppy disk not write protected (Default).

Jumper J4 - Enable/Disable Flash EPROM Programming by using the 12 V Programming Voltage

IN Enables Flash EPROM programming by applying 12 V (Default)
 OUT Disables Flash EPROM programming by applying 12 V

Jumper J5 - Flash EPROM Programming Enable/Disable

IN Enables Flash EPROM programming (Default)
OUT Disables Flash EPROM programming.

Jumper J6 - Setup Utility Enable/Disable

Position 1-2 Enables access to the Setup Utilities (Default)
Position 2-3 Disables access to the Setup Utilities.

Jumpers J14 and J15 - Boot from Serial Port Disable

J14: Position 1-2 Enables the serial ports
J15: Position 1-2
J14: Position 2-3 Disables the serial ports (Default).
J15: Position 2-3

Jumper J3 - CMOS RAM Reset

IN CMOS RAM Reset
OUT Normal operation (Default).

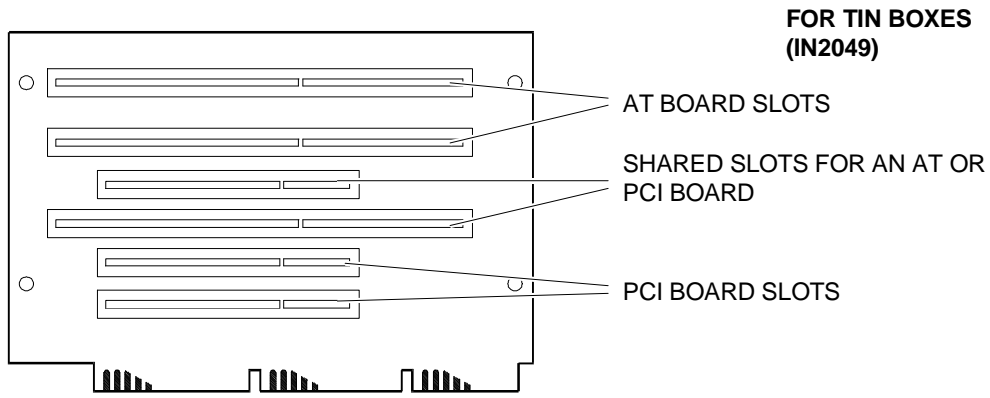
Jumper J16 - Onboard Video Controller Enable/Disable

Position 1-2 Disables the onboard video controller
Position 2-3 Enables the onboard video controller (Default).

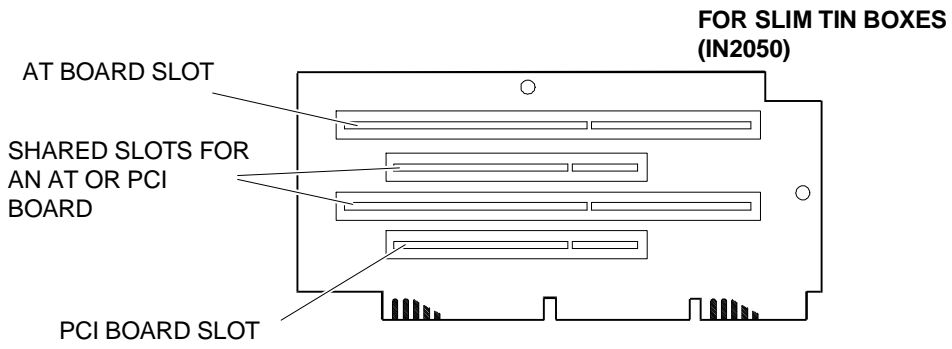
Jumper J12 - 16-Bit Audio Encoding Enable/Disable

Position 1-2 Enables 16-bit encoding (Default)
Position 2-3 Disables 16-bit encoding.

RISER BUS EXPANSION BOARD



HPA3A



HPA2A

INTERRUPT LEVELS

INTERRUPT	ONBOARD DEVICE	AUDIO BOARD		PCI
		DOS	WINDOWS	
INIT	CPU reset, shutdown 286	(1)	(1)	(1)
SMI	Reserved - Interrupt del system management	(1)	(1)	(1)
NMI	Reserved - Parity error	(1)	(1)	(1)
IRQ0	Reserved - System timer	(1)	(1)	(1)
IRQ1	Reserved - Keyboard	(1)	(1)	(1)
IRQ2	Reserved - Interruption from 2 nd PIC in cascade	(1)	(1)	(1)
IRQ3	* Serial port 2 (COM2)			
IRQ4	* Serial port 1 (COM1)			
IRQ5	* Video controller			
IRQ6	* Floppy disk controller			
IRQ7	* Parallel port 1	Sound Blaster (2)	MIDI port (2)	
IRQ8	Reserved - Real Time Clock	(1)	(1)	(1)
IRQ9		MIDI (2) port	Windows sound system (2)	PCI video contr.
IRQ10		MIDI port	Windows sound system	
IRQ11	Free			
IRQ12	* PS/2-compatible mouse. Can be disabled by means of the Setup Utility			
IRQ13	Reserved - Integrated math processor	(1)	(1)	(1)
IRQ14	* 1 st EIDE controller (hard disk)			PCI SCSI Contr.
IRQ15	* 2 nd EIDE controller (CD-ROM)			

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* Onboard devices that can be disabled (the related interrupts are free).

(1) Onboard devices that cannot be disabled (interrupts not free).

(2) Devices that can use different interrupts (free interrupts can be assigned).

DMA CHANNELS

DMA CHANNEL	DEVICE OR FUNCTION
0	Free
1	Audio subsystem
2	Floppy disk
3	Free / Parallel port in the Enhanced Mode
4	Reserved
5	Free
6	Free
7	Free

I/O ADDRESSES

I/O PORT (h)	DEVICE OR FUNCTION
000 - 00F	DMA controller
020 - 03F	Interrupt controller
040 - 043	System timer
048 - 04B	System timer
060	Keyboard controller
061	NMI controller, speaker controller
064	Keyboard controller
070 bit 7	NMI enable
070 bit 6-0	Clock-calendar
071	Clock-calendar
080 - 08F	DMA page registers
090	Olivetti proprietary register
092	Port A
0A0 - 0BF	Interrupt controller
0C0 - 0DE	DMA controller
0F0 - 0F1	RESET for numeric errors
170 - 177	Secondary EIDE channel
1F0 - 1F7	Primary EIDE channel
278 - 27B	Secondary LPT2 parallel port
2F8 - 2FF	Primary COM2 serial port
376	Secondary EIDE channel command port
378 - 37F	Primary LPT1 parallel port
3BC - 3BF	Alternative LPT3 parallel port
3E8 - 3EF	Alternative COM3 serial port
3F0 - 3F5	Floppy disk controller
3F6	Primary IDE channel command port
3F7 (write only)	Floppy disk controller
3F7 bit 7	Floppy disk controller
3F7 bit 6-0	Primary IDE channel status port
3F8 - 3FF	Primary COM1 serial port
4F0-BFF	Free (range 4D0-4D1 is allocated for the Reserved Chip Set)
C00-CF7	Free
CF8-CFF	PCI
D00-FFF	Free

SYSTEM MEMORY MAP

