

M4-75/90/100/133 (S) AND PCS VERSIONS

This section describes the following personal computers:

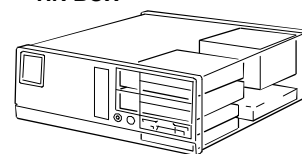
PERSONAL COMPUTER	PROCESSOR	SYS. CLOCK	BOX
M4-75	Pentium @ 75 MHz	50 MHz	TIN
M4-75 S	Pentium @ 75 MHz	50 MHz	SLIM TIN
M4-90	Pentium @ 90 MHz	60 MHz	TIN
M4-90 S	Pentium @ 90 MHz	60 MHz	SLIM TIN
M4-100	Pentium @ 100 MHz	66 MHz	TIN
M4-100 S	Pentium @ 100 MHz	66 MHz	SLIM TIN
M4-133	Pentium @ 133 MHz	66 MHz	TIN
M4-133 S	Pentium @ 133 MHz	66 MHz	SLIM TIN
PCS P/75 E/En	Pentium @ 75 MHz	50 MHz	TIN
PCS P/90 E/En	Pentium @ 90 MHz	60 MHz	TIN
PCS P/100 En	Pentium @ 100 MHz	66 MHz	TIN
PCS P/133 En	Pentium @ 133 MHz	66 MHz	TIN
PCS P/75 n	Pentium @ 75 MHz	50 MHz	SLIM TIN
PCS P/90 n	Pentium @ 90 MHz	60 MHz	SLIM TIN
PCS P/100 n	Pentium @ 100 MHz	66 MHz	SLIM TIN
PCS P/133 n	Pentium @ 133 MHz	66 MHz	SLIM TIN
PCS P/75 E/En Educator	Pentium @ 75 MHz	50 MHz	TIN

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CHARACTERISTICS

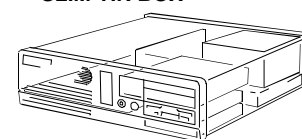
Architecture	ISA/PCI
Memory	Min. 8 MB, max. 128 MB. On the motherboard there are four sockets organized in two banks for the installation of the following SIMMs: EXM 40-004 One 1 MBx36 (4 MB) SIMM EXM 40-008 One 2 MBx36 (8 MB) SIMM EXM 28-016 One 4 MBx36 (16 MB) SIMM EXM 40-032 One 8 MBx36 (32 MB) SIMM - Two KITS are always needed - Bank 0 must always be filled
Memory access rate	70 ns
Memory cache	1 st level: integrated in the processor 2 nd level: 256 KB

TIN BOX



FQC1A

SLIM TIN BOX



GMF7A

Floppy Disk	First floppy disk drive: Panasonic JU 257 A - 1.44 MB Sony MP-F17 W 1.44 MB Sony MPF420-1 1.44 MB Mitsubishi MF 355 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/D 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	CONNER CFA 425 A 425 MB CONNER CFA 850 A 850 MB CONNER CFA 1275 A 1.2 GB
Streaming Tape	Floppy disk interface: IRWIN 31250A 80-120 MB CONNER CTM420 250-420 MB SCSI interface (ASC-2/2F controller): Wangtek 5150ES 150 MB Wangtek 5525ES/ES-ACA 320 MB Wangtek 51000HT 1-1.2 GB DAT 1300 1.3-2 GB
CD-ROM	CR-503-B (SCSI ASC-2F) 550 MB CDU 76 E (IDE) 656 MB
Expansion slots on the Riser bus	TIN BOX: 1 PCI Full Size 1 shared PCI/ISA Half size 3 ISA Full Size SLIM TIN BOX: 1 PCI Full Size 1 shared PCI/ISA Half Size 1 ISA Full Size
Video controller	PCI Trident TGUI9660XGi/TGUI9680XGi integrated on the motherboard and with 1 MB or 2 MB of video memory and the DPMS, DDC features
Audio subsystem	Mozart OTI 605 (MI2074) standard on PCS P/75 E/En Educator only
HDU controller	Component UM8673: 2 Fast IDE Local Bus interfaces, each of which capable of connecting two hard disks
FDU/parallel/serial controller	Component SMC 37C665: 2 floppy disks, 2 serial ports, 1 parallel port
Mouse	PS/2 standard interface
Keyboard	101/102-key compact keyboard: ANK 27-101/N, ANK 27-102/N 101/102-key super compact keyboard: ANK 28-101/N, ANK 28-102/N

MOTHERBOARD

BA2199/2233/2259

Monoprocessor with integrated video controller.

BA2260

166 MHz monoprocessor with integrated video controller.

BIOS

The ROM BIOS is a FLASH EPROM. The BIOS code can be updated from diskette. Supported features: Plug&Play, DMI, APM.

Last level:
Rev. 1.13

RISER BUS EXPANSION BOARD

TIN BOX: IN2048
SLIM TIN BOX: IN2037

POWER SUPPLY

M4-75/90/100/133:

SP 200 BBN
(ASTECSA201-3451-200, ELIA EPA200-BB, MINEBA AF000145)
180 W / 120 - 240 V

M4-75/90/100/133 S:

SP 100 SBN
(ASTECSA131-3400-200)
100 W / 120 - 240 V

PCS P/xx E/En:

SP 200 BC
(EVER POWER SB 200 PN)
180 W / 120 - 240 V

PCS P/xx n:

SP 100 SCN
(DVE DSP-0584-110 A)
100 W / 120 - 240 V

MOTHERBOARD

NAME	LEVEL	NOTES
BA2199	Lev. Nasc	Monoprocessor TRIGEM motherboard with integrated video controller
	Lev. 01	Corrected audio circuitry management
	Lev. 02	Replaced the 15 KOhm resistors in position R467 with 6 KOhm resistors
	Lev. 03	Replaced the 15 KOhm resistors in positions R500 and R501 with 2.2 KOhm resistors
	Lev. 04	Replaced the 85C5501 chipset in position U1 with the new SIS5501 mask 1D revision
	Lev. 05	Replaced the 1 µF capacitor in position C13 with a 100 µF capacitor
	Lev. 06	To solve the problem with brightness under Windows 3.xx, a new printed circuit is introduced which modifies the TGUI9660 video controller IREF circuit checking the voltage with a 12 V zener diode
	Lev. 07	Replaced the 200 KOhm resistor in position R54 with a 470 KOhm resistor, and inserted three 1 KOhm resistors in position P1 (side B), 2 SMD on pins 143 and 145 and 1 axial on pins 62 and 107
BA2233	Lev. Nasc	Monoprocessor motherboard with integrated video controller, similar to BA2199
	Lev. 01	Inserted three 1 KOhm resistors in position P1 (side B), 2 SMD on pins 143 and 145 and 1 axial on pins 62 and 107
	Lev. 02	New TGUI9680 XGi video controller replacing the TGUI9660 XGi
	Lev. 03	New video connector
BA2259	Lev. Nasc	Monoprocessor motherboard with integrated video controller, similar to BA2199
	Lev. 01	Replaced component SIS_85C5501/1D with component SIS_85C5501/1E1
BA2260	Lev. Nasc	133 MHz monoprocessor motherboard with integrated video controller
	Lev. 01	New TGUI9680 XGi video controller replacing the TGUI9660 XGi
	Lev. 02	New video controller

ONBOARD CONTROLLER

MOTHERBOARD	INTEGRATED CONTROLLERS
BA2199 BA2233 BA2259	Processor Pentium @ 75/90/100 MHz 85C551 This chip set component integrates the following functions: - PCI bus control - Second level cache memory control - Memory control. 85C502 This chip set component integrates the following functions: - Local bus extension (BUS PCI) control. 85C503 This chip set component integrates the following functions: - Interface between the PCI local bus and ISA AT bus - Controls the I/O peripherals. 8742 Keyboard controller and mouse interface Trident TGUI9660XGi/TGUI9680XGi Video controller Flash EEPROM The system BIOS is contained in a 128 KB 28F001BX Flash EEPROM SMC 37C665 Super I/O controller integrating the following functions: - Floppy disk control - Interface for two serial ports - Parallel port interface. UM8673 Provides an IDE PCI hard disk interface that allows the connection of fast local bus hard disks.
BA2260	Similar to BA2199/2233/2259 but with a Pentium @ 133 MHz processor.

RISER BUS EXPANSION BOARD

NAME	LEVEL	NOTES
IN2048	Lev. Nasc	Allows the installation of optional AT or PCI boards on TIN BOX systems.
IN2037	Lev. Nasc	Allows the installation of optional AT or PCI boards on SLIM TIN BOX systems.

AUDIO BOARD

NAME	LEVEL	NOTES
MI2074	Lev. Nasc	Mozart audio board (OTI605).

POWER SUPPLY

NAME	LEVEL	PERSONAL COMPUTER	NOTES
SP 200 BBN (ASTECC SA201-3451-200, ELIA EPA200-BB, MINEBA AF000145)	Lev. Nasc	M4-75/90/100/133	180 W power supply.
SP 100 SBN (ASTECC SA131-3400-200)	Lev. Nasc	M4-75/90/100/133 S	100 W power supply.
SP 200 BC (EVER POWER SB 200 PN)	Lev. Nasc	PCS P/xx E/En	180 W power supply.
SP 100 SCN (DVE DSP-0584-110 A)	Lev. Nasc	PCS P/xx n	100 W power supply.

BIOS

LEVEL	NOTES
Rev. 1.12	<ul style="list-style-type: none"> - New Trident X51V-06 video BIOS - Updated Super I/O chipset - Parallel port DMA channel in Enhanced Mode option is added
Rev. 1.13	<ul style="list-style-type: none"> - Solves some of the problems with the previous version - New Trident X51V-07 video BIOS - Release number included in the code for factory purposes.

SOFTWARE DRIVERS

DRIVER	LEVEL	NOTES
EVD for Trident TGUI 9660 XGi	Ver. 1.06	Video drivers for: Windows 3.1x, Windows NT 3.x, 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, GEM 3.xx
EVD for Trident TGUI 9660/9680 XGi	Ver. 2.02	<ul style="list-style-type: none"> - Solves the problem with the vertical refresh rate with 800x600 resolutions on the DSM28-039 PS and DSM28-142PS monitors - Updates the EVD.HLP file
	Ver. 2.07-1	<ul style="list-style-type: none"> - Addition of the TMONITOR.X2M file which clears the 1280x1024x16/256 colors resolution interlaced by the DSM 28-144MS, DSM 27-615, DSM 40-151, DSM 50-144 monitors - Addition of the following monitors: DSM 50-148, DSM 50-149, DSM 50-151, DSM 51-151 - Addition of the TMONITOR.X1M file 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 - Introduction of the Windows 95 environment - Replacement of the TMONITOR.SYS file which, in the case of the DCC monitor, does not modify the config.sys file - New SMONITOR.EXE version - Reintroduction of Autocad 2.10T to solve some problems
Mozart OTI605 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.

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SOFTWARE COMPATIBILITY

OPERATING SYSTEMS	NETWORKING & LAN PRODUCTS
DR-DOS, version 7.00 IBM PC-DOS, version 6.1 IBM OS/2, versions 2.11 * IBM OS/2 Warp, version 3.0 MS-DOS, versions 5.0* / 6.00 / 6.22 SCO UNIX O.D.T., release 3.0 SOLARIS, version 2.4	10NET PLUS, version 5.0 BANYAN VINES, version 5.53 IBM PC LAN PROGRAM, version 1.30 IBM PC LAN SUPPORT Program, ver. 1.2 IBM OS/2 LAN SERVER, version 3.0 INTEL LANDESK MANAGER, version 1.5 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), ver. 3.32 MS-MAIL, version 3.2 Microsoft LAN MANAGER for OS/2, ver. 2.2 NOVELL Netware 386, versions 3.12 / 4.02 * PERSONAL NETWORKARE, version 1.0 SUNSOFT PC-NFS, version 5.1 Microsoft Windows NT Server, ver. 3.5 VOCALCHAT LAN, version 2.0 VOCALCHAT GTI, version 2.2
WINDOWS	
MS-WINDOWS, version 3.1 MS-WINDOWS for WORKGROUPS, ver. 3.11 WINDOWS NT, version 3.5	
WINDOWS APPLICATIONS	
ADOBE PHOTOSHOP, version 3.0 ADOBE PREMIERE for Windows, version 1.1 ALDUS PAGEMAKER, version 5.0 AMI PRO for Windows, version 3.0 COREL DRAW for Windows, version 5.0 COREL Ventura Publisher for Windows, ver. 4.2 FRAME MAKER 4 for Windows, version 4.02P2b LOTUS 1-2-3 for Windows, version 4.01 LOTUS Freelance Graphics for Windows, ver. 2.01 MS-EXCEL, version 5.0 MS-WORD for Windows, version 6.0 MS-WORKS for Windows, version 2.0 MS-POWERPOINT, version 3.0 PHOTOMAGIC, version 1.0 WINDOWS DRAW, version 3.00 Xerox Ventura Publisher for Windows, ver. 4.1.1	GRAPHICS APPLICATIONS
WORD PROCESSORS	AUTOCAD, version 12 AUTOCAD for Windows, version 12 CHARISMA for Windows, version 4.0 Harward Graphics for Windows, ver. 1.02 LOTUS Freelance Graphics for OS/2, ver. 2.0 LOTUS Freelance PLUS, version 4.0 MICROGRAFX DESIGNER, version 4.01 PC PAINTBRUSH 5+, version 1.0
AMI PRO for OS/2, version 3.0A 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 6.0 WORDSTAR Professional, version 7.0	DESKTOP PUBLISHERS
	ALDUS PAGEMAKER for OS/2, ver. 3.01 GEM/3 DESKTOP PUBLISHER, ver. 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".

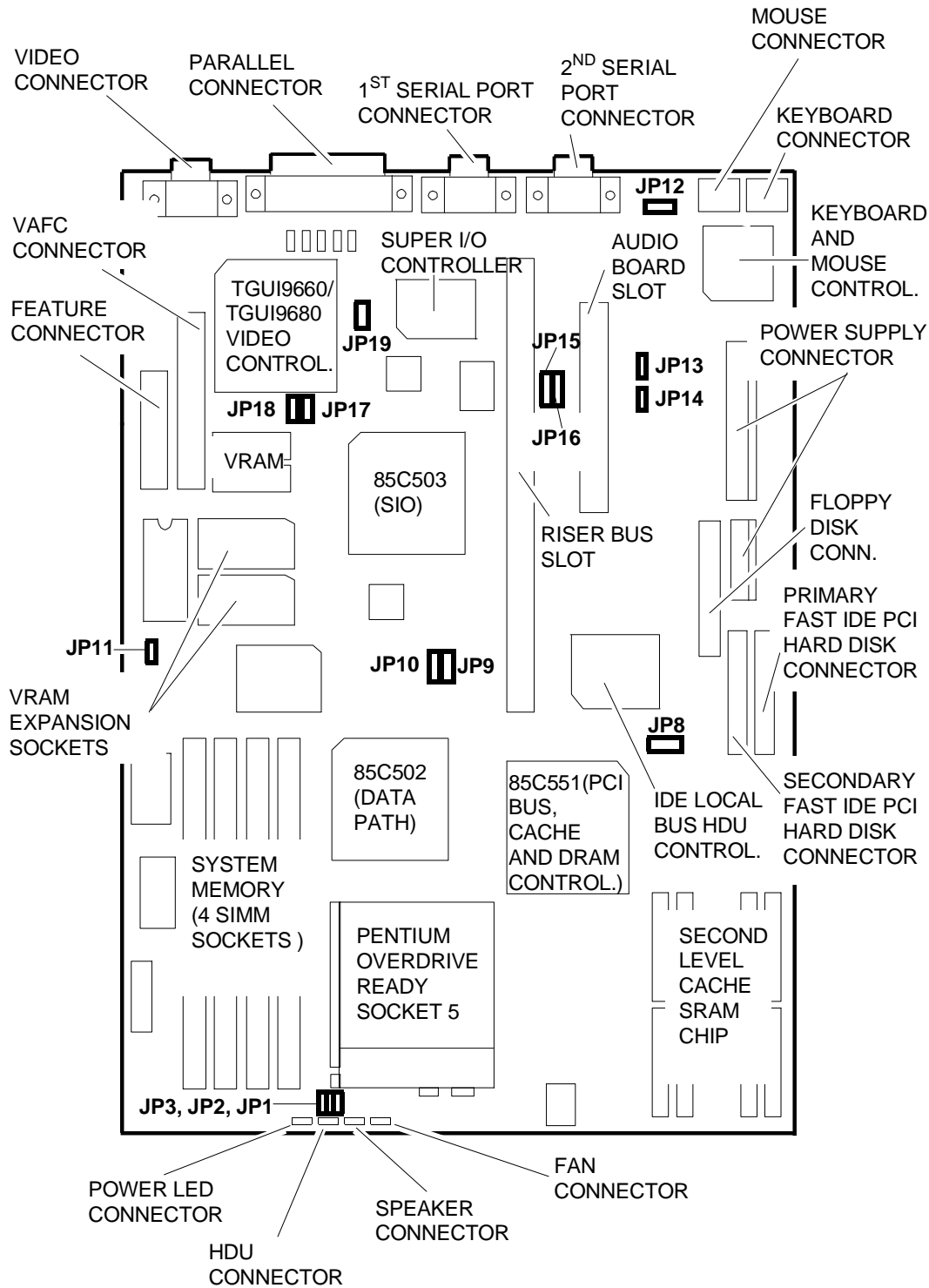
HARDWARE COMPATIBILITY

MODEMS	MOUSE
AT&T Modem/Fax Dataport 14,4 W/Fax HAYES SMART MODEM 2400 B INTEL SatisFAXtion Modem/400 DIGICOM MODEM FAX Mod. SNM41PC HAYES OPTIMA FAX/MODEM 288 (external)	IBM PS/2 MOUSE LOGITECH RADIO MOUSE MS BALL POINT MOUSE MS SERIAL MOUSE (PS/2)
INTELLIGENT MULTIPOINT CARDS	NETWORKING & LAN (ISA) PRODUCTS
CHASE AT 16+ Serial I/O Controller CHASE AT IO LITE * COMPUTONE 16 Multiport Serial I/O Controller CHASE AT I/O PRO DIGIBOARD MULTIPOINT PC/8 SPECIALIX SI/8	ACCTON ETHERCOAX 16 Adapter ACCTON ETHERPOCKET EN211 Adapter * 3COM ETHERLINK II Adapter (3C503) 3COM ETHERLINK 16 Adapter (3C507) 3COM ETHERLINK III Adapter (3C509) Combo 3COM TOKENLINK III Adapter (3C619) * 3COM TOKENLINK PLUS Adapter (3C603) DEC Etherworks III Thinwire Adapter DE203 D-LINK TOKEN RING DT-220 Adapter IBM TOKEN RING 16/4 Adapter * IBM TOKEN RING PC Adapter II INTEL Etherexpress 16 Ethernet Adapter INTEL Etherexpress 16 Flash C Ethernet Adapt. INTEL TOKEN EXPRESS ISA/16S Adapter MADGE 16/4 AT RING NODE Adapter NOVELL NE2000 PLUS Ethernet Combo Adapt. OLICOM Ethernet OC2121/2122/2123 Adapter OLICOM TOKEN RING OC3121 Adapter IBM ETHERNET Adapter (PnP) CX INTEL ETHEREXPRESS 16 (ISA PnP)
GRAPHICS PRODUCTS	
Number Nine GXE Graphics Accelerator (ISA) * MATROX MGA IMPRESSION 3Z/A (ISA) THUNDER/24 for Windows (ISA) * ATI Mach 64 V Graphics Accelerator (PCI) MATROX MGA 2 + PCI (PCI) MATROX MGA IMPRESSION PLUS (PCI) NUMBER NINE GXE64 Graphics Accel. (PCI) ORCHID KELVIN 64 (PCI)	
DISPLAY UNITS	
NEC MULTISYNC 4FG / 5FG / 6FG SONY Multiscan CPD 1430 / 1730 SONY Multiscan GDM 2036	
MULTIMEDIA DEVICES (DVO/DVI)	NETWORKING & LAN (PCI) PRODUCTS
ACTIONMEDIA II CAPTURE MODULE FAST SCREEN MACHINE (IS) Mod 1 INTEL SMART VIDEO RECORDER LIFE VIEW VIDEO (Video II Capture Board) PRO MOVIE STUDIO REEL MAGIC SONY SCREEN MACHINE (ISA) Mod 2 VIDEO BLASTER * VIDEOLOGIC DVA 4000/ISA WIN/TV	DEC TULIP PCI Ethernet 21040-AA Adapter Z'NYX 32 Bit LAN Ethernet ZX312 Combo Ad.
	MPC BOARDS
	LOGITECH AUDIOMAN ORCHID SOUND WAVE 32 PRO AUDIO SPECTRUM 16 SDLC PRO AUDIO SPECTRUM 16 BASIC PRO AUDIO FUSION DOUBLE CD 16 Kit SOUND BLASTER PRO 2 SOUND BLASTER 16 APS SOUND BLASTER 16 SCSI 2

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COMPONENTS AND JUMPERS ON MOTHERBOARD BA2199/2233/2259/2260



FQG1A

MOTHERBOARD JUMPERS

Jumper JP1 - Pipeline Enable/Disable

Position 1-2 Enables pipelining
Position 2-3 Disables pipelining (Default)

Jumpers JP2 and JP3 - CPU Internal Cache Mode of Operation

JP2: Position 1-2 WRITE-BACK cache (Default)
JP2: Position 2-3 WRITE-THROUGH cache
JP3: Position 1-2 WRITE-THROUGH cache
JP3: Position 2-3 WRITE-BACK cache (Default)

Jumper JP8 - Second Level Cache Size

Position 1-2 256 KB cache (Default)
Position 2-3 512 KB cache

Jumpers JP9 and JP10 - System Clock Selection

JP9: Position 1-2 75 MHz Pentium with a 50 MHz system clock
JP10: Position 1-2

JP9: Position 2-3 90 MHz Pentium with a 60 MHz system clock
JP10: Position 1-2

JP9: Position 2-3 100/133 MHz Pentium with a 66 MHz system clock
JP10: Position 2-3

Jumper JP11 - CMOS RAM Cancellation

IN Clears the CMOS RAM
OUT Normal operation

Jumper JP12 - Password Enable/Disable

Position 1-2 Enables the password (Default)
Position 2-3 Disables the password

Jumper JP14 - Floppy Disk Write Protection

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

Jumpers JP15 and JP16 - Parallel Port DMA Channel Selection

JP15: Position 1-2 DMA channel DRQ1 used, DMA acknowledge channel DACK1 used
JP16: Position 1-2

JP15: Position 2-3 DMA channel DRQ3 used, DMA acknowledge channel DACK3 used
JP16: Position 2-3

Jumper JP17 - Video Memory Data Bus: Operation with a 1 or 2 MB VRAM

IN 64-bit operation - 2 MB VRAM (Default for the M4-90/100/133,
M4-90/100/133 S, PCS P/90 E/En/n, PCS P100/133 En/n)
OUT 32-bit operation - 1 MB VRAM (Default for the M4-75, M4-75 S,
PCS P/75 E/En/n, PCS P/75 E/En Educator)

Jumper JP18 - Video Controller Interlaced/Non-Interlaced Mode of Operation

IN Selects the interlaced mode
OUT Selects the non-interlaced mode (Default)

Jumpers JP19 and JP20 - Onboard Video Controller Enable/Disable

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

RISER BUS EXPANSION BOARD

IN2048: FOR TIN BOXES

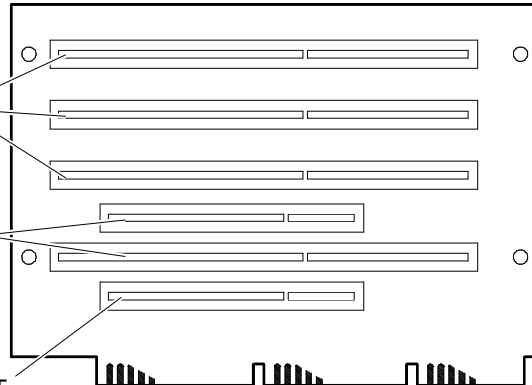
3 SLOTS FOR FULL SIZE AT
BOARDS

SHARED SLOTS FOR AN AT
FULL SIZE OR PCI BOARD

PCI BOARD SLOT

MOTHERBOARD CONNECTOR

EUQ7A



IN2037: FOR SLIM TIN BOXES

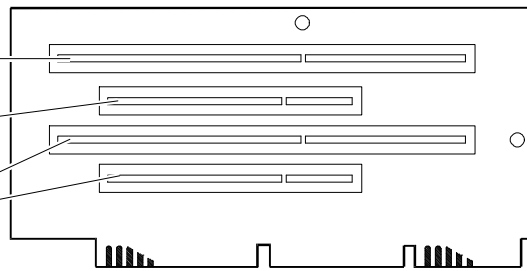
AT FULL SIZE BOARD SLOT

PCI HALF SIZE BOARD SLOT

SHARED SLOTS FOR AN AT
FULL SIZE OR PCI BOARD

MOTHERBOARD CONNECTOR

EUU9A



INTERRUPT LEVELS

INTERRUPT	FUNCTION
IRQ0	Timer
IRQ1	Keyboard
IRQ2	Reserved
IRQ3	Serial port 2
IRQ4	Serial port 1
IRQ5	Free
IRQ6	Floppy disk controller
IRQ7	Parallel port
IRQ8	Clock - calendar
IRQ9	Free
IRQ10	Free
IRQ11	Video controller
IRQ12	Mouse (PS/2-compatible)
IRQ13	Integrated math processor
IRQ14	Primary interface for hard disks on the PCI local bus
IRQ15	Secondary interface for hard disks on the PCI local bus or for CD-ROMs (if there is no device connected to the secondary IDE interface, IRQ15 results as being free)

DMA CHANNEL

DMA CHANNEL	DEVICE OR FUNCTION
0	Reserved
1	Free
2	Floppy disk transfers
3	Free
4	Reserved
5	Free
6	Free
7	Free

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I/O ADDRESSES

I/O PORT (h)	DEVICE OR FUNCTION
000 - 1FF	Reserved for the interrupt and DMA controllers, keyboard, system timer
200 - 2F7	Free
2F8 - 2FF	COM2
300 - 31F	Free
320 - 327	IDE controller (hard disk)
328 - 36F	Free
370 - 377	FDU controller
378 - 37F	LPT1
380 - 3AF	Free
3B0 - 3EF	Video controller
3F0 - 3F7	FDU controller
3F8 - 3FF	COM1
400 - BFF	Free
C00 - CF7	Free
CF8 - CFF	PCI
D00 - FFF	Free

SYSTEM MEMORY MAP

