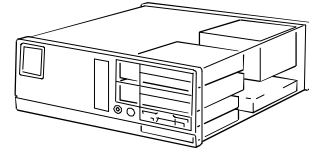


M4-5x4 / M4-5x4 S / PCS D4/100 En / PCS D4/100 n

CHARACTERISTICS

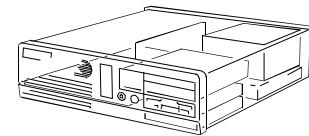
Microprocessor	M4-554, M4-554 S: i486 DX2 @ 50 MHz M4-564, M4-564 S: i486 DX2 @ 66 MHz M4-584, M4-584 S, PCS D4/100 En/n: DX4 @ 100 MHz
Architecture	ISA/PCI
Case	TIN BOX: M4-5x4, PCS D4/100 En SLIM TIN BOX: M4-5x4 S, PCS D4/100 n
Memory	Min. 4 MB (M4-554) or 8 MB, max. 64 MB. On the motherboard there are two banks each with a socket into which the following SIMMs can be installed: EXM 28-004 One 1 MBx36 (4 MB) SIMM EXM 28-016 One 4 MBx36 (16 MB) SIMM EXM 29-032 One 8 MBx36 (32 MB) SIMM EXM 40-004 One 1 MBx32 (4 MB) SIMM EXM 40-008 One 2 MBx32 (8 MB) SIMM EXM 41-008 One 2 MBx36 (8 MB) SIMM
Memory access rate	70 ns
Memory cache	1 st level: integrated in the processor 2 nd level: not present on the M4-554 (S) 128 KB on the PCS 256 KB on the M4-564 (S), M4-584 (S)
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	CONNER CFA 425 A 425 MB CONNER CFA 850 A 850 MB CONNER CFA 1275 A 1.2 GB CONNER CABO CFS 425 A 425 MB CONNER CABO CFS 635 A 635 MB CONNER CABO CFS 850 A 850 MB CONNER CABO CFS 1275 A 1.2 GB

TIN BOX



FQC1A

SLIM TIN BOX



GMF7A

MOTHERBOARD

BA2197/BA2205 -
 Monoprocessor with integrated LAN controller

BA2198/BA2206 -
 Monoprocessor without integrated LAN controller

BIOS

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

Last level:
 Rev. 1.25 Update 1

RISER BUS EXPANSION BOARD

TIN BOX: IN2034
 SLIM TIN BOX: IN2037

CD-ROM	CDU 33/A (AT) 550 MB CDU 561 (SCSI) 550 MB CDU 56 D (IDE AT) 656 MB
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 HP35470A/HP35480A 1.3-2 GB
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	Onboard Trident TGUI9440 AGi component with 1 MB or 2 MB video memory and the DPMS, DDC features
Audio subsystem	Mozart OTI 605 (MI2074)
LAN subsystem	Component AM79C970 for Ethernet 10BaseT control (on the BA2205 and BA2197 only) Adapter board MI2075 needs to be installed for 10Base5 and 10Base2.
HDU controller	Component 82C832: two Fast IDE Local Bus interfaces
FDU/parallel/serial controller	Component FDC 37C665: two floppy disks, 2 serial ports, 1 parallel port
Mouse	PS/2 standard interface
Keyboard	Compact 101/102-key keyboard: ANK 27-101/N, ANK 27-102/N Super compact 101/102-key keyboard: ANK 28-101/N, ANK 28-102/N

POWER SUPPLY

TIN BOX:

SP 200 BBN
(ASTEC SA201-3451-200, ELIA EPA200-BB, MINEBA AF000145)
180 W / 120 - 240 V

SLIM TIN BOX:

SP 100 SBN
(ASTEC SA131-3400-200, MINEBA AF000149)
100 W / 120 - 240 V

MOTHERBOARD

NAME	LEVEL	NOTES
BA2197	Lev. Nasc	Monoprocessor motherboard for all M4-5x4 (S) systems, with integrated video and Lan controllers
BA2205	Lev. Nasc	Replaces the BA2197.
	Lev. 01	<ul style="list-style-type: none"> - As an alternative to the 3 mini-Vips for the interface towards the console, a single 11-pin Streep is now used - As an alternative to the four 2-pin Mini-Vips for CPU 3.3V/5V selection, a single 10-pin connector is now used - Component 82C602 rev. A is used as an alternative to component 82C602 (without modification to the settings of the 3.3V/5V jumpers) - Replacement of the 33 Ohm resistor in position R163 with a 0 Ohm resistor
	Lev. 02	- Replacement of the code of component AM79C970 (Ethernet controller) with the new AM79C970 rev. B2
	Lev. 03	<ul style="list-style-type: none"> - Removal of VAFC connector J16 - Flash Gold version used as alternative to the following connectors: 25x2 pins in positions J13 and J17, 8x2 pins in position J18, FDU P.L., HDU and F/C in positions J23, J31, J22, J15
Lev. 04	Replacement of component 74F245 in position U16 with a similar component as long as not supplied by Texas (machine clock duty cycle not at 50%)	
BA2198	Lev. Nasc.	Monoprocessor motherboard for all systems, with integrated video controller but without an integrated LAN controller
BA2206	Lev. Nasc	Replaces BA2198.
	Lev. 01	<ul style="list-style-type: none"> - As an alternative to the three mini-Vips for the interface towards the console, a single 11-pin Streep is now used - As an alternative to the four 2-pin Mini-Vips for CPU 3.3V/5V selection, a single 10-pin connector is now used - Component 82C602 rev. A is used as an alternative to component 82C602 (without modification to the settings of the 3.3V/5V jumpers) - Replacement of the 33 Ohm resistor in position R163 with a 0 Ohm resistor
	Lev. 02	<ul style="list-style-type: none"> - Removal of VAFC connector J16 - Flash Gold version used as alternative to the following connectors: 25x2 pins in positions J13 and J17, FDU P.L., FDU and F/C in positions J23, J31, J22, J15
Lev. 03	Replacement of component 74F245 in position U16 with a similar component as long as not supplied by Texas (machine clock duty cycle not at 50%)	

ONBOARD CONTROLLERS

MOTHERBOARD	INTEGRATED CONTROLLERS
BA2197 BA2205	<p>Intel OverDrive Ready Socket 3: This socket can accommodate the following processors</p> <ul style="list-style-type: none"> - i486 DX2 @ 50/66 MHz, INTEL DX4 @ 100 MHz, - OVD DX4 @ 100 MHz, AMD 486 DX2 @ 66 MHz, - AMD DX4 @ 100 MHz, Pentium P24 T, Pentium P24 CT. <p>82C802 This chip set component integrates the following functions:</p> <ul style="list-style-type: none"> - ISA bus control - Second level cache control - Memory control - DMA, interrupt, timer management - System Power Management for energy saving. <p>82C602 This chip set component integrates the following functions:</p> <ul style="list-style-type: none"> - 128 KB CMOS RAM - Real time clock. <p>8742 Keyboard controller and mouse interface</p> <p>Trident TGUI9440 AGi Video controller</p> <p>Flash EEPROM The system BIOS is contained in a 128 KB 28F001BX Flash EEPROM.</p> <p>FDC 37C665 Super I/O controller. This component integrates the following functions:</p> <ul style="list-style-type: none"> - Floppy disk controller (two drives) - Interface for two serial ports - Interface for one parallel port. <p>82C832 This component integrates the following functions:</p> <ul style="list-style-type: none"> - PCI bus control - Bridge between the CPU and PCI buses - Local Bus (IDE Fast) hard disk interface - IDE AT hard disk interface. <p>AM79C970 Ethernet 10BaseT LAN controller</p>
BA2198 BA2206	These boards do not have an integrated LAN controller.

RISER BUS EXPANSION BOARD

NAME	LEVEL	NOTES
IN2034	Lev. Nasc	Allows optional AT or PCI boards to be installed on systems with TIN BOXES.
IN2037	Lev. Nasc	Allows optional AT or PCI boards to be installed on systems with SLIM TIN BOXES.

AUDIO BOARD

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

LAN BOARD

NAME	LEVEL	NOTE
MI2075	Lev. Nasc	Ethernet 10BaseT LAN board.

POWER SUPPLY

NAME	LEVEL	NOTES
SP 200 BBN (ASTEC SA201-3451-200, ELIA EPA200-BB, MIN- EBA AF000145)	Lev. Nasc	180 W power supply for TIN BOXES
SP 100 SBN (ASTEC SA131-3400- 200, MINEBA AF000149)	Lev. Nasc	100 W power supply for SLIM TIN BOXES.

BIOS

LEVEL	NOTE
Rev. 1.12	
Rev. 1.13	<ul style="list-style-type: none"> - Solves the AMD CPU and 128 KB cache failures. - Corrects the management of the machine ID and of the parallel port in the ICU - New Trident video BIOS - Introduction of the NFEU for the DMI environment
Rev. 1.14	<ul style="list-style-type: none"> - Solves HDU programming with CPU @ 100 MHz
Rev.1.19	<ul style="list-style-type: none"> - Solves Supervisor Password failures - Solves failures when using a 256 KB cache - Introduction of a new video BIOS and modifications for compatibility with Windows 95
Rev. 1.25-1	<ul style="list-style-type: none"> - New video BIOS

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SOFTWARE DRIVERS

NAME	LEVEL	NOTES
EVD for Trident TGUI 9440 AGi	Ver. 1.04-1	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, Microstation 5.0, GEM 3.xx
	Ver. 1.04-2	<ul style="list-style-type: none"> - Solves the problem with the incorrect frequency prompt for the 800x600 resolution under Windows NT
	Ver. 1.07-1	<ul style="list-style-type: none"> - Updates the TMONITOR.A1 file - Updates the TMONITOR.INF file to solve the problem occurring in OS/2
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.

SOFTWARE COMPATIBILITY

OPERATING SYSTEMS	NETWORKING & LAN PRODUCTS
DR-DOS, version 7.00 IBM PC-DOS, version 6.1 IBM OS/2, version 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 NETWARE, version 1.0 SUNSOFT PC-NFS, version 5.1 Microsoft Windows NT Server, ver. 3.5
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 MICROSTATION for Windows NT, version 5 MS-EXCEL, version 5.0 MS-WORD for Windows, version 6.0 MS-WORKS for Windows, version 2.0 MS-POWERPOINT, version 3.0 Xerox Ventura Publisher for Windows, ver. 4.1.1	GRAPHICS APPLICATIONS AUTOCAD, version 12 AUTOCAD for Windows, version 12.0 CHARISMA for Windows, version 4.0 Harward Graphics, ver. 3.0 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
WORD PROCESSORS	DESKTOP PUBLISHERS
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 5.0 WORDSTAR Professional, version 7.0	ALDUS PAGEMAKER for OS/2, ver. 3.01 XEROX Ventura Publisher for DOS/GEM edition, versions 2.0 / 3.0

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

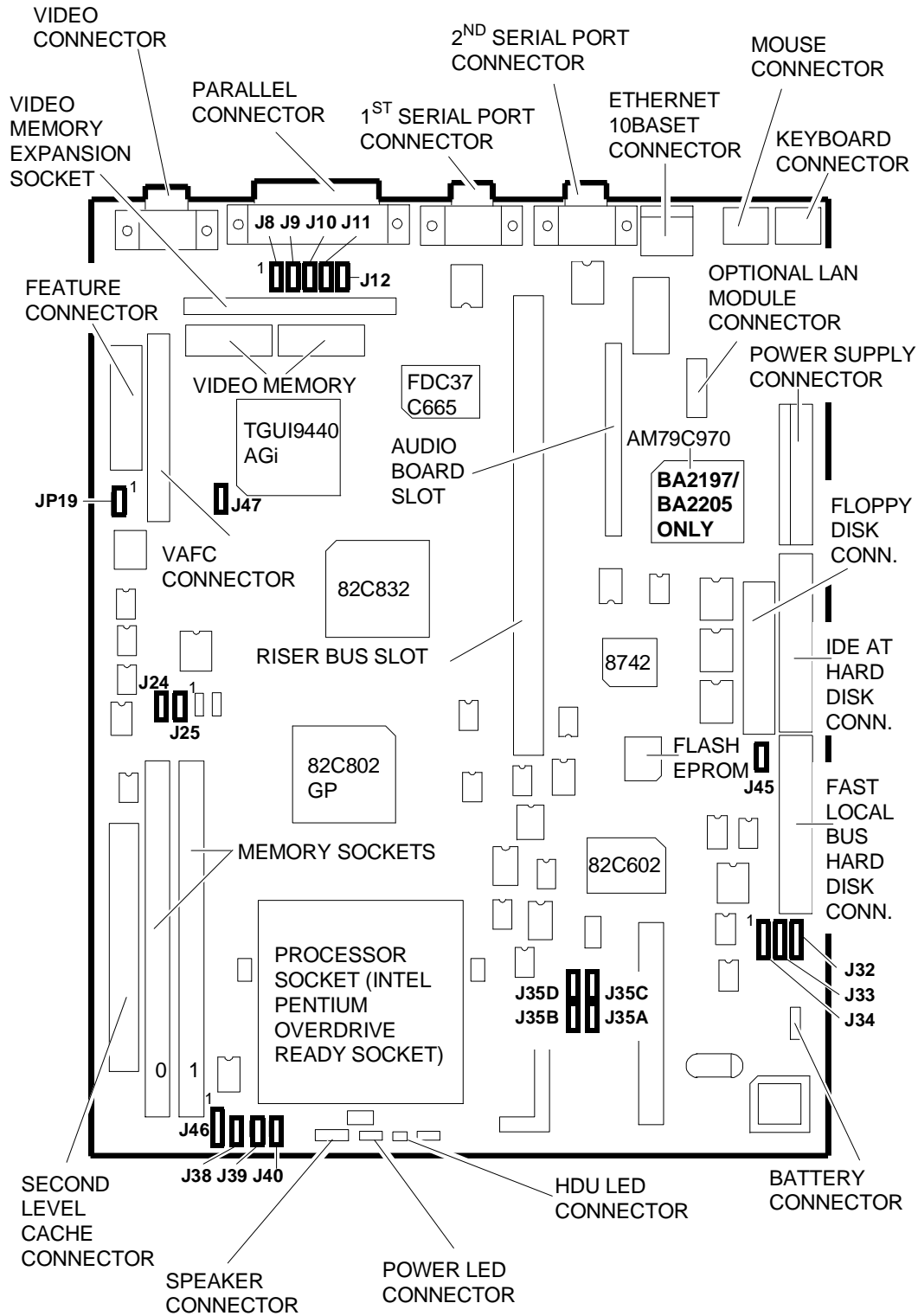
HARDWARE COMPATIBILITY

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 MULTIPOINTS	NETWORKING & LAN (ISA) PRODUCTS
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 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 TP Ethernet Combo adapter INTEL TOKEN EXPRESS ISA/16S Adapter MADGE 16/4 AT RING NODE Adapter NOVELL NE2000 PLUS Ethernet Adapter OLICOM Ethernet OC2121/2122/2123 Adapter OLICOM TOKEN RING OC3121 Adapter IBM ETHERNET Adapter (PnP) CX INTEL ETHEREXPRESS 16 (ISA PnP)
GRAPHICS PRODUCTS	
ATI Mach 64 V Graphics Accelerator MATROX MGA 2 + PCI MATROX MGA IMPRESSION PLUS MATROX MGA IMPRESSION /3Z Number Nine GXE Graphics Accelerator Number Nine GXE64 PCI Graphics Accelerator ORCHID KELVIN 64 SPEA VIDEO 7 MERCURY THUNDER /24 for Windows	
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 (ISA) Mod 1 * FAST SCREEN MACHINE (ISA) Mod 2 INTEL SMART VIDEO RECORDER LIFE VIEW VIDEO (Video II Capture Board) PRO MOVIE STUDIO REEL MAGIC SCSI REEL MAGIC SONY VIDEO BLASTER VIDEOLÓGIC DVA 4000/ISA WIN/TV	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.
	MPC BOARDS
	LOGITECH AUDIOMAN ORCHID SOUND WAVE 32 PRO AUDIO SPECTRUM 16 SDLC PRO AUDIO SPECTRUM PAS 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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* Compatibility depends on whether specific operations have been carried out, as indicated in the related "Compatibility Guide".

COMPONENTS AND JUMPERS ON MOTHERBOARD BA2197/BA2205 E BA2198/BA2206



FQA1A

MOTHERBOARD JUMPERS

Jumper J38 - CPU Type (not present)

OUT INTEL CPU - AMD DX4 CPU
IN AMD DX2 CPU

Jumpers J39 and J40 - CPU Type

J39: IN INTEL DX, DX2, DX4 CPU
J40: IN AMD PLUS (DX4) CPU - Not present

Jumper J46 - CPU Internal Cache Mode of Operation

Position 1-2 Write-back
Position 2-3 Write-through

Jumpers J24 and J25 - CPU and PCI Bus Clocks

J24: Position 2-3 CPU @ 33 MHz, synchronous PCI bus clock
J25: Position 1-2

J24: Position 2-3 CPU @ 25 MHz, synchronous PCI bus clock
J25: Position 2-3

Jumper J33 - Floppy disk Write Protection

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

Jumpers J10 and J11 - Parallel Port DMA Channel Selection

J10: Position 1-2 DMA channel DRQ1 in use, DMA acknowledge channel DACK1 in use
J11: Position 1-2

J10: Position 2-3 DMA channel DRQ3 in use, DMA acknowledge channel DACK3 in use
J11: Position 2-3 (Default)

Jumper J47 - PAL Snooping Enable/Disable

Position 1-2 Enables VGA Snooping (Default)
Position 2-3 Disables VGA Snooping

Jumper J12 - Parallel Port Interrupt Channel Selection

Position 1-2 Interrupt channel IRQ5 in use
Position 2-3 Interrupt channel IRQ7 in use (Default)

Jumper J45 - Non FAST HDU Interface Enable (2nd HDU controller)

Position 1-2 Enables the non-fast HDU interface
Position 2-3 Disables the non-fast HDU interface (Default)

Jumper J19 - Onboard Video Controller Enable/Disable

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

Jumper J32 - Flash EPROM Writes Enable/Disable

Position 1-2 Enables writes to Flash EPROM (Default)
Position 2-3 Disables writes to Flash EPROM

Jumper J34 - Setup Utility Enable/Disable

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

Jumpers J8 and J9 - Serial Port Bootstrap Disable

J8: Position 1-2 Disables bootstrap from the serial ports
J9: Position 1-2

J8: Position 2-3 Enables bootstrap from the serial ports (Default)
J9: Position 2-3

Connector J35 - CPU Power Supply Voltage

J35A: IN CPU at 3.45 V
J35B: IN
J35C: OUT
J35D: OUT

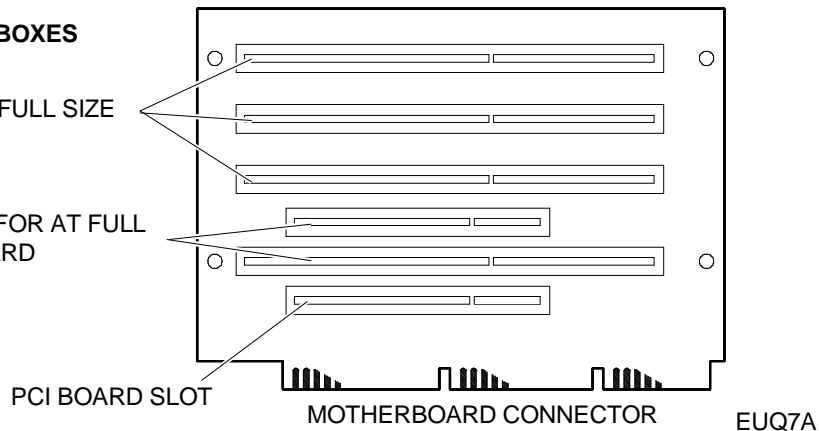
J35A: OUT CPU at 5 V
J35B: OUT
J35C: IN
J35D: IN

RISER BUS EXPANSION BOARD

IN2034: FOR TIM BOXES

3 SLOTS FOR AT FULL SIZE
BOARDS

SHARED SLOTS FOR AT FULL
SIZE OR PCI BOARD

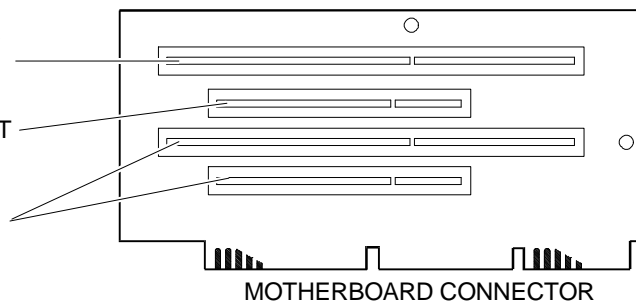


IN2037: SLIM TIN BOXES

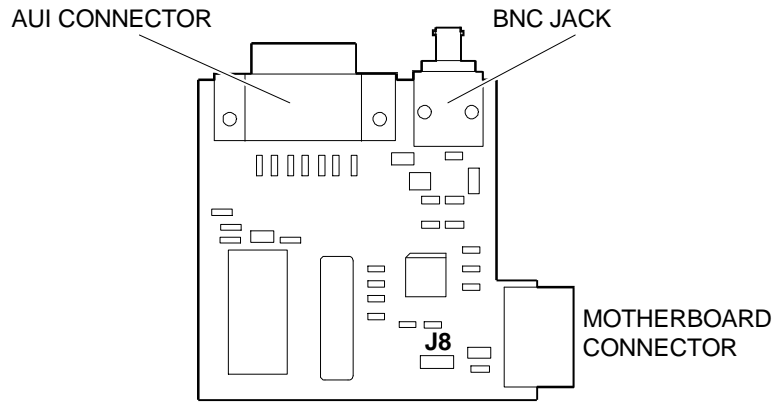
AT FULL SIZE BOARD SLOT

PCI HALF SIZE BOARD SLOT

SHARED SLOTS FOR AT
FULL SIZE OR PCI BOARD



LAN BOARD MI2075



FQG8A

This optional board implements the following:

- Ethernet standard 10BASE-2 network transceivers
- BNC jack
- 15 pin D-shell AUI connector.

It is used to attach personal computers to Ethernet networks based on the 10BASE-2 or 10BASE-5 standard.

This board has jumper J8 which is used for the selection of the type of connection to be used.

- J8 in position 1-2 BNC jack (Default)
- J8 in position 2-3 AUI connector

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INTERRUPT LEVELS

INTERRUPT	FUNCTION
IRQ0	Timer
IRQ1	Keyboard
IRQ2	Reserved
IRQ3	Serial port 2
IRQ4	Serial port 1
IRQ5	Free (or parallel port 2, if selected)
IRQ6	Floppy disk drive controller
IRQ7	Parallel port 1
IRQ8	Clock - calendar
IRQ9	Free
IRQ10	Free
IRQ11	Free
IRQ12	Mouse (PS/2-compatible)
IRQ13	Integrated math coprocessor
IRQ14	Hard disk interface on the PCI local bus
IRQ15	Free

DMA CHANNELS

DMA CHANNEL	DEVICE OR FUNCTION
0	Free
1	Free
2	Floppy disk transfers
3	Reserved for the use of the parallel port in 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	Proprietary register
092	Port A
0A0 - 0BF	Interrupt controller
0C0 - 0DE	DMA controller
0F0 - 0F1	RESET for numeric errors
170 - 177	Secondary IDE channel
1F0 - 1F7	Primary IDE channel
278 - 27B	Secondary LPT2 parallel port
2F8 - 2FF	Primary COM2 serial port
376	Secondary IDE channel command port
378 - 37F	Primary LPT1 parallel port
3BC - 3BF	Alternate LPT3 parallel port
3E8 - 3EF	Alternate 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
F8 - 3FF	Primary COM1 serial port

SYSTEM MEMORY MAP

