

A graphic for Chapter 1, featuring the word "Chapter" in a script font above the number "1" in a large, bold, sans-serif font. The text is enclosed in a double-bordered rectangular box with a drop shadow effect.

Chapter 1

System Board

1.1 Features

The V58LA is an all-in-one Pentium-based system board that utilizes the PCI local bus architecture. It is capable of offering multimedia and network functions by simply integrating a VGA controller with 3D support, a Sound Blaster-compatible audio chip, and a Fast Ethernet controller.

The system memory is expandable to 256 MB via two onboard 168-pin DIMM (double in-line memory module) sockets. To further enhance system performance, the board also comes with 256-/512-KB pipelined-burst second-level cache and 1/2/4-MB video memory.

Standard onboard I/O interfaces comprise of two UART 16C550 serial ports, a parallel port with Enhanced Parallel Port (EPP)/Extended Capabilities Port (ECP) feature, PS/2 keyboard and mouse ports, and VGA port. Two Universal Serial Bus (USB) interfaces are added to the design to enable the system to support more peripherals. For full multimedia support, video, audio and network interfaces are also provided.

Other special features supported are Hardware Monitoring and Wake-on Ring-in functions. For details, read the following sections.

The system is fully compatible with Windows 95, Windows NT, NetWare, MS-DOS V6.X, OS/2, and UNIX operating systems.

1.2 Major Components

The system board has the following major components:

- A ZIF (zero insertion force) socket that supports 3.3V Intel Pentium P54C/P55C processor running at 90/60, 100/66, 120/60, 133/66, 150/60, 166/66, 200/66, or 233/66 MHz. Also supports Cyrix M1/M2 or AMD K5/K6 processor
- Two 168-pin DIMM sockets that accept SDRAMs with 8, 16, 32, 64, and 128-MB capacities (256-MB maximum system memory)
- 256-KB or 512-KB pipelined-burst second-level cache
- Onboard video memory (1-/2-/4-MB SGRAM)
- One riser card slot for future expansion
- Enhanced PCI local bus IDE controller
- Onboard VGA with 2D/3D support
- Onboard 16-bit PnP audio controller, Sound Blaster-compatible
- Onboard 100Base-TX/10Base-T Ethernet controller with Wake-on LAN solution (optional)
- APM-compliant DMI BIOS
- Ultra I/O controller
- Two 16C550 buffered serial ports and one SPP/ECP/EPP parallel port
- Two USB interfaces, Open HCI 1.0a compliant
- VGA AMC connector to support TV-tuner, MPEG and H/W capture
- Audio interface, includes fax/modem and CD-audio
- Fast Ethernet interface
- PS/2 mouse and keyboard interface

1.3 Layout

Figure 1-1 shows the board layout and the locations of the important components.

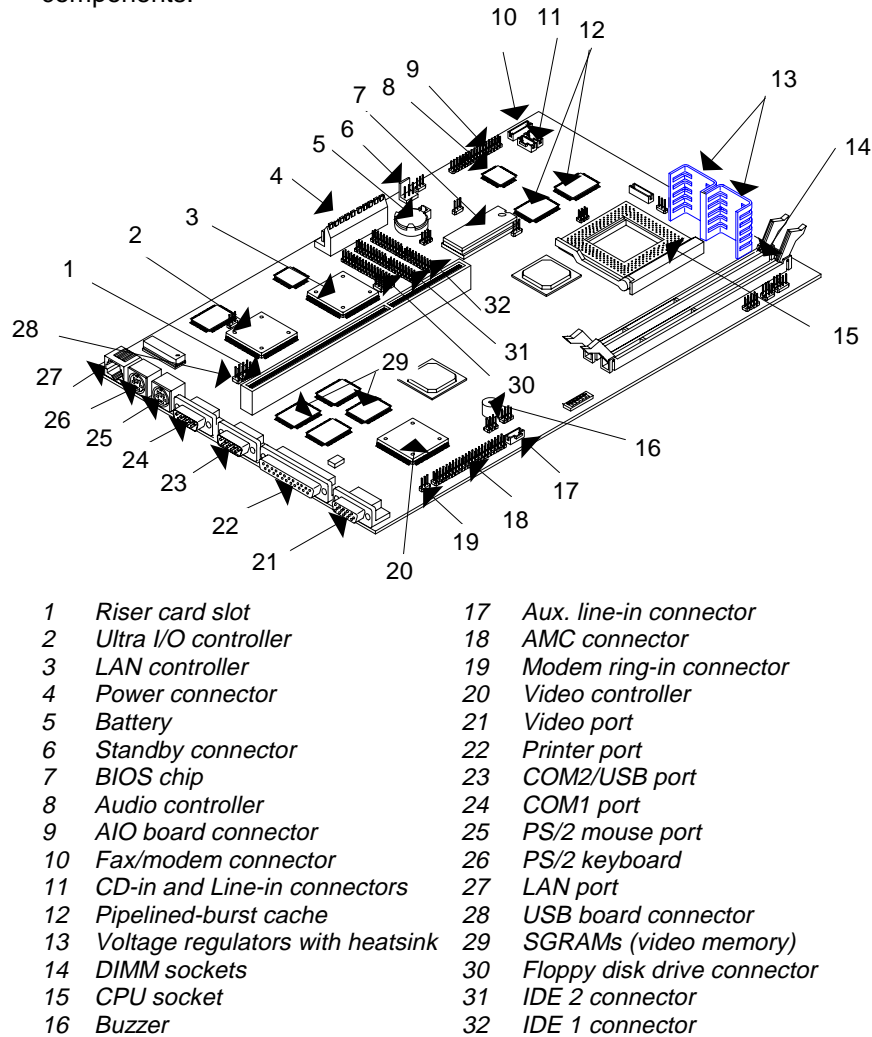


Figure 1-1 System Board Layout



The heatsink becomes very hot when the system is on. NEVER touch the heatsink with any metal or with your hands.

1.4 Jumpers and Connectors

1.4.1 Jumper and Connector Locations

Figure 1-2 shows the jumper and connector locations.

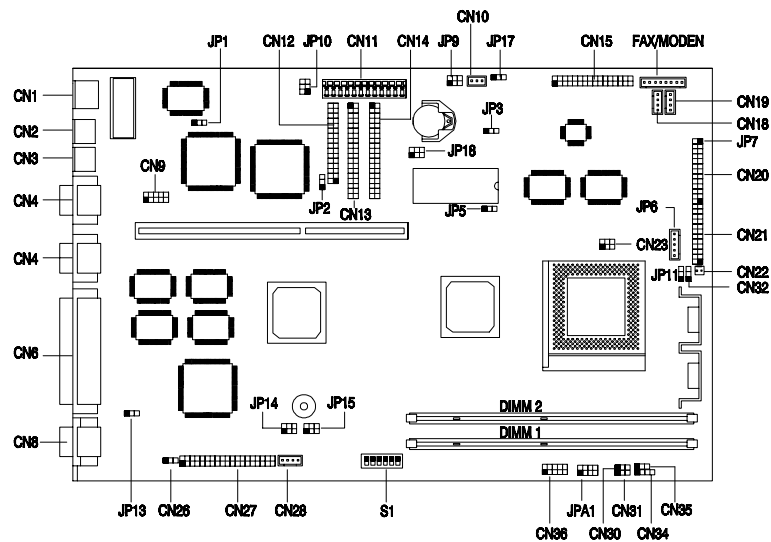


Figure 1-2 Jumper and Connector Locations



The shaded pin indicates pin 1.

1.4.2 Jumper Settings

The following tables list the jumper settings and their corresponding functions:

Table 1-1 Jumper Settings

Jumper	Setting	Function
JP1	1-2 2-3	BIOS Logo Acer OEM
JP2	1-2 2-3	LED Function for IDE and FDD for IDE only
JP3	1-2 2-3 *	Suspend/Reset Switch Function Suspend Reset
JP5	1-2 2-3	L2 Cache Mode Intel or Cyrix M1/M2 "1+4" mode Cyrix M1/M2 linear-burst mode
JP10	3-5, 4-6 1-3, 2-4	Power Supply Type With standby power current $\geq 1A$ With standby power current $< 1A$
CN23	1-3, 2-4 3-5, 4-6	CPU Voltage Option Single-voltage CPU (P54C) Dual-voltage CPU (P55C)
CN36	1-2 3-4 5-6 7-8 9-10	Vcore Select 2.8V 2.9V 3.2V 3.31V 3.52V
S1	Switch 1 On Off	Password Check Bypass password Check password

Table 1-1 Jumper Settings (continued)

Jumper	Setting	Function
S1	Switch 2	Onboard Sound
	On	Disabled
	Off	Enabled
	Switch 3	Onboard LAN
	On	Disabled
	Off	Enabled
	Switch 6	Clock Select
	On	Cypress CY2273
	Off	Clk 9148

Table 1-2 Host Bus Frequency Select

Jumper	60 MHz	66 MHz	75 MHz	83 MHz
CY2273				
JP14	1-3, 2-4	1-3, 2-4	3-5, 4-6	3-5, 4-6
JP15	1-3, 2-4	3-5, 4-6	1-3, 2-4	3-5, 4-6

Table 1-3 CPU/Host Bus Frequency Ratio Select

JP11	S1		CPU/Host Bus Frequency Ratio		
	switch 4	switch 5	Intel	AMD	Cyrix
2-3	On	On	2.5	2.5	2.5
2-3	Off	Off	1.5/3.5	1.5/3.5	3.5
2-3	Off	On	2.0	2.0	2.0
2-3	On	Off	3.0	3.0	3.0
1-2	Off	On		4.0	
1-2	On	On		4.5	

Table 1-4 CPU Type and Frequency Select

CPU Freq. (MHz)	JP11	JP14	JP15	S1 switch 4	S1 switch 5	CN23	CN36
Intel P54C							
P90	2-3	1-3, 2-4	1-3, 2-4	Off	Off	1-3, 2-4	7-8
P100	2-3	1-3, 2-4	3-5, 4-6	Off	Off	1-3, 2-4	7-8
P120	2-3	1-3, 2-4	1-3, 2-4	Off	On	1-3, 2-4	7-8
P133	2-3	1-3, 2-4	3-5, 4-6	Off	On	1-3, 2-4	7-8
P150	2-3	1-3, 2-4	1-3, 2-4	On	On	1-3, 2-4	7-8
P166	2-3	1-3, 2-4	3-5, 4-6	On	On	1-3, 2-4	7-8
P200	2-3	1-3, 2-4	3-5, 4-6	On	Off	1-3, 2-4	7-8
Intel P55C							
P150	2-3	1-3, 2-4	1-3, 2-4	On	On	3-5, 4-6	1-2
P166	2-3	1-3, 2-4	3-5, 4-6	On	On	3-5, 4-6	1-2
P200	2-3	1-3, 2-4	3-5, 4-6	On	Off	3-5, 4-6	1-2
P233	2-3	1-3, 2-4	3-5, 4-6	Off	Off	3-5, 4-6	1-2
Cyrix M1 (6x86)							
P150+	2-3	1-3, 2-4	1-3, 2-4	Off	On	1-3, 2-4	7-8
P166+	2-3	1-3, 2-4	3-5, 4-6	Off	On	1-3, 2-4	7-8
P200+	2-3	3-5, 4-6	1-3, 2-4	Off	On	1-3, 2-4	7-8
Cyrix M1 (6x86L)							
P150+	2-3	1-3, 2-4	1-3, 2-4	Off	On	3-5, 4-6	1-2
P166+	2-3	1-3, 2-4	3-5, 4-6	Off	On	3-5, 4-6	1-2
P200+	2-3	3-5, 4-6	1-3, 2-4	Off	On	3-5, 4-6	1-2
Cyrix MX							
PR166	2-3	1-3, 2-4	1-3, 2-4	On	On	3-5, 4-6	3-4
PR200	2-3	1-3, 2-4	3-5, 4-6	On	On	3-5, 4-6	3-4
PR233	2-3	3-5, 4-6	1-3, 2-4	On	On	3-5, 4-6	3-4

Table 1-4 CPU Type and Frequency Select (continued)

CPU Freq. (MHz)	JP11	JP14	JP15	S1 switch 4	S1 switch 5	CN23	CN36
AMD K5							
PR90	2-3	1-3, 2-4	1-3, 2-4	Off	Off	1-3, 2-4	9-10
PR100	2-3	1-3, 2-4	3-5, 4-6	Off	Off	1-3, 2-4	9-10
PR120	2-3	1-3, 2-4	1-3, 2-4	Off	On	1-3, 2-4	9-10
PR133	2-3	1-3, 2-4	3-5, 4-6	Off	On	1-3, 2-4	9-10
PR166	2-3	1-3, 2-4	3-5, 4-6	On	On	1-3, 2-4	9-10
AMD K6							
PR166	2-3	1-3, 2-4	3-5, 4-6	On	On	3-5, 4-6	5-6
PR200	2-3	1-3, 2-4	3-5, 4-6	On	Off	3-5, 4-6	5-6
PR233	2-3	1-3, 2-4	3-5, 4-6	Off	Off	3-5, 4-6	5-6

1.4.3 Onboard Connectors

Table 1-5 lists the onboard connectors.

Table 1-5 Onboard Connectors

Connector	Function
CN1	Ethernet connector
CN2	PS/2 keyboard port
CN3	PS/2 mouse port
CN4	COM1 port
CN6	COM2 port (USB port - optional)
CN7	Printer port

Table 1-5 Onboard Connectors (continued)

Connector	Function
CN8	Monitor port
CN9	USB board connector
CN10	Standby power connector
CN11	Power connector
CN12	Floppy disk drive connector
CN13	IDE 2 connector
CN14	IDE 1 connector
CN15	AIO board connector
CN18	CD-in connector
CN19	Line-in connector
CN22	Two-pin fan connector
CN26	Modem ring-in connector
CN27	AMC connector
CN28	Auxiliary line-in connector (for add-on card)
CN30	Power LED connector
CN31	Message-in LED/HDD LED connector
CN32	Power button connector
CN34	External speakers connector
CN35	Reset/Suspend switch connector
JPA1 2-4 7-8	Turbo LED connector Power button connector (for Aspire 6-pin connector

1.5 ESD Precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.

1. Do not remove a component from its protective packaging until you are ready to install it.
2. Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system unit throughout any procedure requiring ESD protection.

1.6 Pre-installation Instructions

Always observe the following before you install a system component:

1. Turn off the system power and all the peripherals connected to the unit before opening it.
2. Open the system according to the instructions in the housing installation manual.
3. Follow the ESD precautions in section 1.5 before handling a system component.
4. Remove any expansion boards or peripherals that block access to the DIMM sockets or CPU socket.
5. See the following sections for specific instructions on the component you wish to install.



Do not attempt the procedures described in the following sections unless you are a qualified service technician.

1.7 Installing Memory

The system memory is upgradable to a maximum of 256 MB via two 168-pin DIMM sockets onboard. These DIMM sockets accept 8, 16, 32, 64, and 128-MB, 3.3V SDRAMs. See Figure 1-1 for the location of the DIMM sockets. Section 1.7.1 tells how to install DIMMs.

Table 1-6 lists the possible memory configurations.

Table 1-6 Memory Configurations

DIMM 1	DIMM 2	Total Memory
8 MB		8 MB
	8 MB	8 MB
8 MB	8 MB	16 MB
16 MB		16 MB
	16 MB	16 MB
16 MB	16 MB	32 MB
32 MB		32 MB
	32 MB	32 MB
32 MB	32 MB	64 MB
64 MB		64 MB
	64 MB	64 MB
64 MB	64 MB	128 MB
128 MB	128 MB	256 MB

1.7.1 Installing a DIMM

Follow these steps to install a DIMM:

1. Align pin 1 of the DIMM with pin 1 of the socket. Pin 1 is labeled 1 on both of the DIMM and the socket.
2. Gently push the DIMM until the holding clips lock the DIMM into a vertical position.

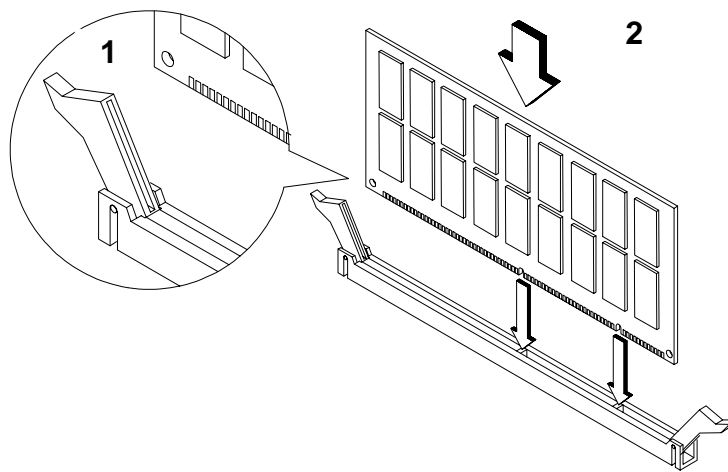


Figure 1-3 Installing a DIMM



Be careful when inserting DIMMs. Forcing a DIMM in or out of a socket can damage the socket or the DIMM (or both).

1.7.2 Removing a DIMM

To remove a DIMM:

1. Press the holding clips on both sides of the socket outward to release the DIMM.
2. Gently pull the DIMM out of the socket.

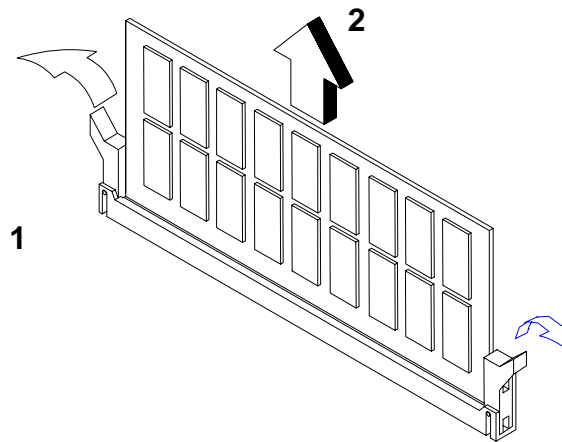


Figure 1-4 Removing a DIMM

1.7.3 Reconfiguring the System

The system automatically detects the amount of memory installed. Run Setup to view the new value for total system memory and make a note of it.

1.8 Second-level Cache

The board may come with either 256-KB or 512-KB pipelined-burst second-level cache. Refer to the following table for the possible cache configurations.

Table 1-7 Second-level Cache Configurations

Cache Size	Data RAM (12 ns)	Location	Tag RAM (12 ns)	Cacheable Memory
256 KB	32K x 32 x 2 pcs.	U24, U25	32K x 8 x 1 pc	64 MB
512 KB	64K x 32 x 2 pcs.	U24, U25	32K x 8 x 1 pc	64 MB

1.9 Upgrading the CPU

1.9.1 Removing the CPU

In case you want to replace or upgrade your CPU, you need to remove the previously installed CPU first.

Follow these steps to remove the CPU:

1. Locate the CPU socket with CPU mounted on the system board.
2. Detach the fan cable connector.
3. Pull up the socket lever. The CPU pins will be automatically released from the socket holes.
4. Detach the CPU from the socket.

1.9.2 Installing the Upgrade CPU



Observe the ESD precautions when installing components. See section 1.5.

Before you proceed, make sure that there is no CPU installed in the CPU socket.

Follow these steps to install the upgrade CPU:

1. Pull up the socket lever.
2. Insert the CPU, making sure that pin 1 (indicated by a notched corner) of the CPU connects to hole 1 of the socket.
3. Pull down the socket lever to lock the CPU into the socket.

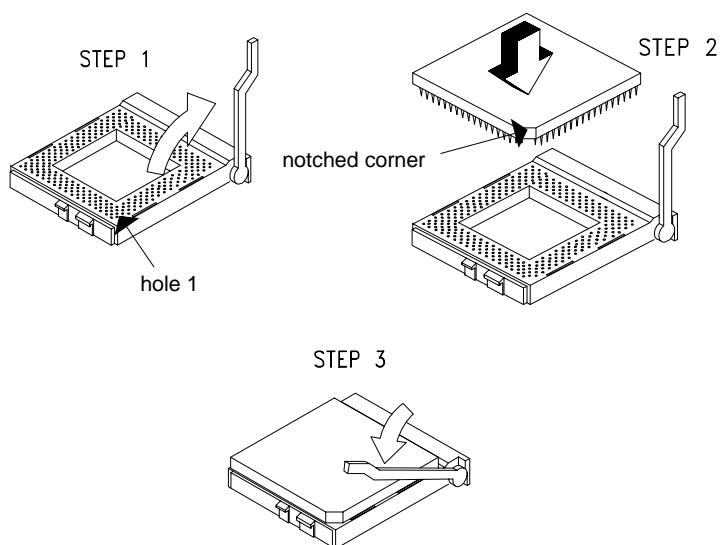


Figure 1-5 Installing a CPU

4. Attach the heatsink and fan to the CPU.

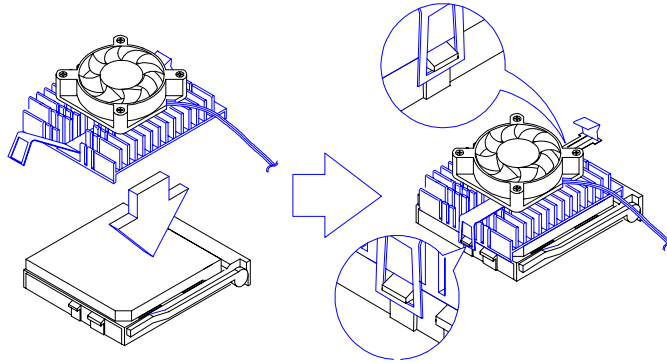


Figure 1-6 Attaching the Heatsink and Fan to the CPU

5. Plug the fan cable to the fan connector on the system board.

1.10 IDE Hard Disk Support

The system board supports four IDE hard disks, or any other IDE devices, through the two onboard PCI IDE interfaces. See Figure 1-2 for the location of the IDE interfaces.

Follow the instructions in the housing installation manual on how to install a hard disk in the system. Connect the cables according to the IDE hard disk configuration in Table 1-8.

Table 1-8 IDE Hard Disk Configuration

IDE Connector	Master	Slave
Channel 1	Hard disk 0	Hard disk 1
Channel 2	Hard disk 2	Hard disk 3 / IDE CD-ROM drive

1.11 Video Memory

1.11.1 Video Memory Configurations

The system board may come with 1, 2, or 4-MB SGRAM video memory. Larger video memory allows you to display higher resolutions and more colors.

The following table lists the possible video memory configurations.

Table 1-9 Video Memory Configurations

Memory Size	SGRAM	Location
4 MB	256K x 32 x 4 pcs.	U31, U32, U33, U34
2 MB	256K x 32 x 2 pcs.	U33, U34
1 MB	256K x 32 x 1 pc.	U34

1.11.2 Supported Video Resolutions

The following table lists the video resolutions supported by the onboard VGA:

Table 1-10 Supported Video Resolutions

Resolution	bpp	V-Freq. (Hz)	H-Freq. (KHz)	Pixel Clock (MHz)
640 x 480	8/16	60	31.4	25.2
640 x 480	8/16	72	37.5	31.2
640 x 480	8/16	75	37.5	31.5
640 x 480	8/16	90	47.9	39.9
640 x 480	8/16	100	52.9	44.9
800 x 600	8/16	48 <i>int.</i>	33.8	36.0
800 x 600	8/16	56	35.1	36.0
800 x 600	8/16	60	37.8	40.0

Table 1-10 *Supported Video Resolutions (continued)*

Resolution	bpp	V-Freq. (Hz)	H-Freq. (KHz)	Pixel Clock (MHz)
800 x 600	8/16	70	44.5	44.9
800 x 600	8/16	72	48.0	50.0
800 x 600	8/16	75	46.8	49.5
800 x 600	8	90	57.0	56.6
800 x 600	8	100	62.5	67.5
1024 x 768	8/16	43 <i>int.</i>	35.5	44.9
1024 x 768	8/16	60	48.3	65.0
1024 x 768	8/16	70	56.4	75.0
1024 x 768	8/16	72	58.2	75.0
1024 x 768	8/16	75	60.0	78.8
1024 x 768	8/16	90	76.2	100
1024 x 768	8/16	100	79.0	110
1152 x 864	8	43 <i>int.</i>	45.8	65.0
1152 x 864	8	60	54.9	80.0
1152 x 864	8	70	66.1	100
1152 x 864	8	75	75.1	110
1280 x 1024	8	43 <i>int.</i>	50.0	80.0
1280 x 1024	8	47 <i>int.</i>	50.0	80.0
1280 x 1024	8	60	63.9	110
1280 x 1024	8	70	74.6	126
1280 x 1024	8	72	78.8	130
1280 x 1024	8	75	79.9	135

1.12 Expansion Cards

1.12.1 Installing a Riser Card

A riser card is a card that contains the PCI and ISA slots. This enables you to add functions to your system further enhance its performance.

To install a riser card:

1. Locate the riser card slot on the system board.
2. Gently insert a riser card into the slot. Make sure that the card is properly seated into the slot.

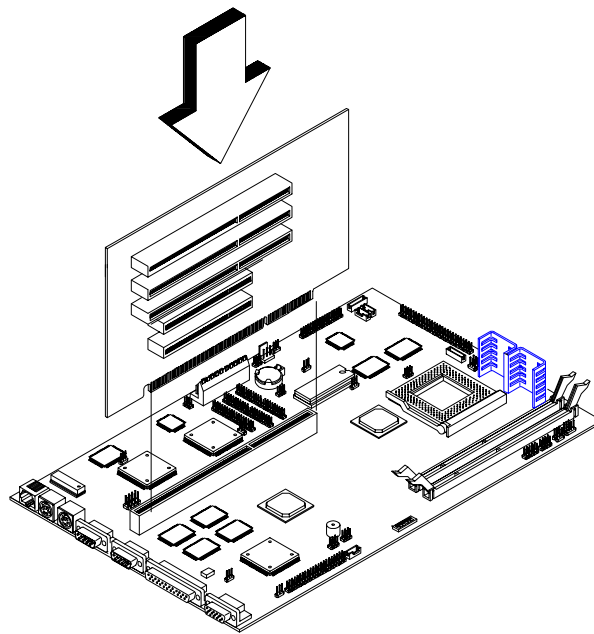


Figure 1-7 Installing a Riser Card

1.12.2 Installing a PCI Card

To install a PCI card:

1. Locate the PCI slot(s) on the slot board.
2. Remove the bracket on the housing opposite to the empty PCI slot.
3. Insert a PCI card into the slot. Make sure that the card is properly seated.
4. Secure the card to the housing with a screw.

When you turn on the system, BIOS automatically detects and assigns resources to the PCI devices.

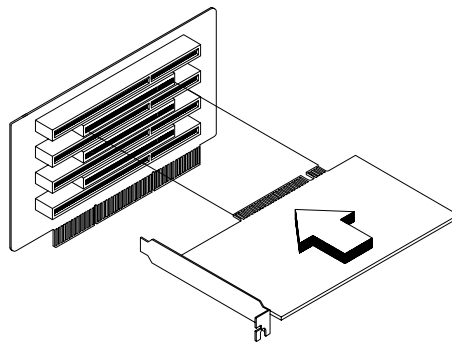


Figure 1-8 Installing a PCI Card

1.12.3 Installing ISA Cards

Both PnP and non-PnP ISA cards require specific IRQs. When installing ISA cards, make sure that the IRQs required by these cards are not previously assigned to PCI devices to avoid resource conflicts.

Follow these steps when installing ISA cards:

1. Remove all PnP cards installed in the system, if any.
2. Install non-PnP ISA cards.
3. Turn on the system.
4. Use Windows 95 or ICU to manually assign the appropriate IRQs to the cards. This ensures that BIOS will not use the resources assigned to the non-PnP ISA cards.



BIOS detects and configures only PnP cards.

5. Turn off the system.
6. Locate the expansion slots and install the PnP ISA and PCI cards.
7. Turn on the system. This time PnP BIOS automatically configures the PnP ISA and PCI cards with the available resources.

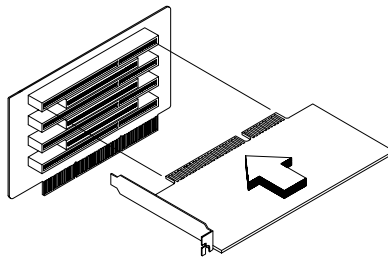


Figure 1-9 Installing an ISA Card

1.13 Post-installation Instructions

Observe the following after installing a system component:

1. See to it that the components are installed according to the step-by-step instructions in their respective sections.
2. Make sure you have set all the required jumpers. See section 1.4.2. for the correct jumper settings.
3. Replace any expansion boards or peripherals that you removed earlier.
4. Replace the system cover.
5. Connect the necessary cables and turn on the system.

1.14 USB

USB is a new serial bus design that is capable of cascading low-/medium-speed peripherals (less than 12Mbps) such as keyboard, mouse, joystick, scanner, printer and modem/ISDN. With USB, complex cable connections at the back panel of your PC can be eliminated.

See Figure 1-1 for the location of the USB interface on the system board.

1.15 Hardware Monitor Function

The Hardware Monitor function of the system board allows you to check the system resources, either locally or in a computer network, via software such as ADM (Advanced Desktop Management) or Intel LDCM (LAN Desk Client Manager)). ADM and Intel LDCM are desktop management programs that offer SMART (System Monitoring Analysis and Reporting Technology) monitor function for checking local or network connected systems. In addition, it also enables the PC products and applications to be OS independent.

To enable the Hardware Monitor function, you need to install either ADM or Intel LDCM. Contact your dealer for information on the availability of the software. Refer to the software documentation for more details on the Hardware Monitor function.

1.16 Wake-on Ring-in Function

The Wake-on Ring-in function enables the system to resume from suspend mode by monitoring the fax/modem (or any device of similar type) activities. Any signal or activity detected from the Modem ring-in connector automatically returns the system to normal operation. Refer to Figure 1-2 for the location of the Modem ring-in connector on the system board.

1.17 Wake-on LAN Function

The system board comes with a 100Base-TX/10Base-T Ethernet controller with Wake-on LAN support. This special feature allows the system to be turned on via network. Common network functions, such as remote access, file sharing, etc. are also supported.

1.18 Error Messages

In the event that you receive an error message, do not continue using the computer. Note the message and take corrective action immediately. This section describes the different types of error messages and suggests corrective measures.

There are two general types of error messages:

- Software
- System

1.18.1 Software Error Messages

Software error messages are returned by your operating system or application. These messages typically appear after you boot the operating system or when you run your applications. If you receive this type of message, consult your application or operating system manual for help.

1.18.2 System Error Messages

A system error message indicates a problem with the computer itself. These messages normally appear during the power-on self-test, before the operating system prompt appears. Table 1-11 lists the system error messages in alphabetical order.

Table 1-11 System Error Messages

Error Message	Corrective Action
Bad CMOS Battery	Replace battery. Contact your dealer.
CMOS Checksum Error	Run Setup.
Floppy Drive Controller Error	Check and connect the cable to the floppy drive or controller.
Floppy Drive Error	Floppy may be bad. If not, check the floppy drive and replace if necessary.
DRAM Configuration Error	Check and modify DRAM configuration to agree with Table 1-6.
Equipment Configuration Error	Run Setup.
Hard Disk Controller Error	Check and connect the cable to the hard disk drive or controller.
Hard Disk 0 (1, 2, 3) Auto Detection Failed	Replace the hard disk drive controller. Check the HDD cable connections and CMOS setup configuration
I/O Parity Error	Contact your dealer.
PS/2 Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.

Table 1-11 *System Error Messages (continued)*

Error Message	Corrective Action
PS/2 Keyboard Interface Error	Contact your dealer.
PS/2 Keyboard Locked	Unlock the keyboard.
Memory Error	Check DIMMs on the system board. Contact your dealer.
Memory Size Mismatch	Run Setup.
Onboard Serial 1 Conflict	Run Setup. Disable Onboard Serial 1.
Onboard Serial 2 Conflict	Run Setup. Disable Onboard Serial 2.
Onboard Parallel Port Conflict	Run Setup. Disable Onboard Parallel Port.
PS/2 Pointing Device Error	Check or connect the pointing device. Contact your dealer.
PS/2 Pointing Device Interface Error	Contact your dealer.
Press F1 key to continue or Ctrl-Alt-Esc for Setup	Press F1 or CTRL ALT ESC .
Press Esc to turn off NMI, any key to reboot	Press ESC to disregard NMI error. Press any key to reboot the system.
Protected Mode Test Fail	Contact your dealer.
RAM BIOS Error	Contact your dealer.
Real Time Clock Error	Run Setup.
Shadow RAM Fail	Contact your dealer.
System Memory Address Error	Check DIMMs on system board or contact your dealer.

1.18.3 Correcting Error Conditions

As a general rule, the "Press F1 to continue" error message is caused by a configuration problem which can be easily corrected. An equipment malfunction is more likely to cause a fatal error, i.e., an error that causes complete system failure.

Here are some corrective measures for error conditions:

1. Run Setup. You must know the correct configuration values for your system before you enter Setup, which is why you should write these values down when the system is correctly configured. An incorrect Setup configuration is a major cause of power-on error messages, especially for a new system.
2. Remove the system cover according to the directions in the system housing installation guide. Check that the system board and any expansion boards are set correctly.
3. If you cannot access a new disk, it may be because your disk is not physically formatted. Physically format the disk using the FDISK and FORMAT commands.
4. Check that all connectors and boards are secure. Consult the system housing installation guide for assistance.

If you follow the corrective steps above and still receive an error message, the cause may be an equipment malfunction.

If you are sure that your configuration values are correct and your battery is in good condition, the problem may lie in a damaged or defective chip. Contact an authorized service center for assistance.