Chapter 1

System Board

1.1 Features

The V59LT is a high-performance system board with a 64-bit architecture. It supports the Intel P54C and P55C CPUs running at 100/120/133/150/166/200 MHz. It also supports 6x86L/6x86MX Cyrix/IBM and AMD K6 CPUs. The system board utilizes the Peripheral Component Interconnect (PCI) local bus architecture that maximizes the system performance by enabling high-speed peripherals to match the speed of the microprocessor with its 120 MB or 132 MB per second transfer rate in burst mode.

The system is an all-in-one Pentium-based system designed to support both CRT(Cathode Ray Tube)- and LCD(Liquid Crystal Display)-based desktop systems. The multiple-LCD panel support feature allows you to save space. However, if you prefer to have a high-quality video display and space is not a problem to you, you may use a regular CRT monitor.

The system offers a complete multimedia solution by integrating the video, a Sound Blaster Pro-compatible audio, and network controllers into its board design. The onboard 3D VGA controller allows the system to support 3D applications. It has a built-in LVDS (low-voltage differential signaling) interface for LCD support. The audio controller provides a Sound Blaster- and Microsoft Sound System-compatible audio interface. An AIO (audio I/O) board may be installed to enable the system to accommodate external audio devices such as speakers, microphones, mixers, etc. The integrated network controller supports the 10Base-T/100Base-TX protocols and the Wake-on LAN function that enables system boot via network access.

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

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

As added enhancements, the board also incorporates Plug-and-Play (PnP), Wireless Communication, Hardware Monitor and Wake-on Ring-in, Power Management, and Software Shutdown features.

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

1.2 Major Components

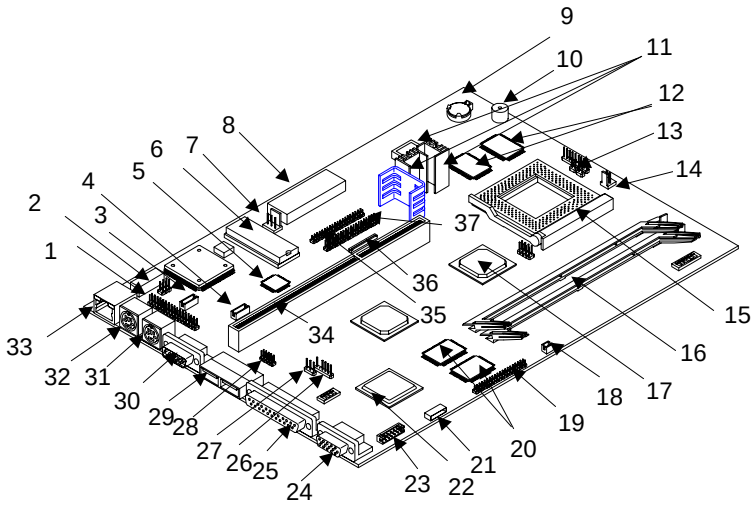
The system board has the following major components:

- A ZIF (zero insertion force) socket that supports 3.3V Intel Pentium processor (P54C/P55C) and AMD K6 running at 120, 133, 150, 160, 200, 233, or 266 MHz (with 60 or 66 external clock)
- Two 168-pin DIMM sockets that accept 4-, 8-, 16-, 32-, and 64-MB Standard or EDO DRAMs, with ECC/Parity mode; allows 128-MB maximum system memory
- 512-KB pipelined-burst second-level cache
- 256-KB Flash ROM
- Onboard 2-MB or 4-MB video memory
- Enhanced PCI local bus IDE controller
- Onboard 3D VGA controller with built-in LCD interface

- Onboard Sound Blaster and Windows Sound System compatible audio controller
- Onboard 10Base-T/100Base-TX full-duplex Ethernet controller with LAN boot and Wake-on LAN features
- Host/.hub controller for USB that is auto-configurable and requires no termination; supports hot plugging and port consolidation
- APM-compliant DMI BIOS
- Ultra I/O controller
- One riser card slot for future expansion
- I/O interfaces
    - Dual-16C550 buffered serial ports
    - One SPP/ECP/EPP parallel port
    - VGA CRT port
    - LCD interfaces for DSTN (dual-scan super twisted nematic), TFT (thin-film transistor), and Super TFT displays
    - Audio interface (CD-in)
    - Fax/modem interfaces (such as Modem, Modem Wake, Modem Ring-in, and Fax/modem connectors)
    - Fast Ethernet interface
    - USB ports
    - IrDA connector for wireless communication
    - PS/2 mouse and keyboard ports

1.3 Layout

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



1	*Audio I/O connector*
2	*LAN LED connector*
3	*Fax/modem connector*
4	*CD-in connector*
5	*Audio controller*
6	*System BIOS chip*
7	*Standby power connector*
8	*Power connector*
9	*Battery*
10	*Buzzer*
11	*Voltage regulators with heatsink*
12	*512-KB pipelined-burst cache*
13	*HDD LED/System power LED/ Standby LED /System reset button connector*
14	*CPU fan or H/W monitoring connector*
15	*CPU socket*
16	*DIMM sockets*
17	*Ultra I/O controller*
18	*12.1-inch DSTN contrast connector*
19	*TTL LCD interface*
20	*Video memory*
21	*LVDS interface*
22	*3D video controller*
23	*LCD power connector*
24	*VGA CRT port*
25	*Parallel port*
26	*IrDA connector*
27	*Modem Ring-in connector*
28	*USB connector*
29	*USB ports or COM2 port*
30	*COM1 port*
31	*PS/2 mouse port*
32	*PS/2 keyboard port*
33	*Ethernet port*
34	*Riser card slot*
35	*CD-ROM connector*
36	*FDD connector*
37	*IDE connector*

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.

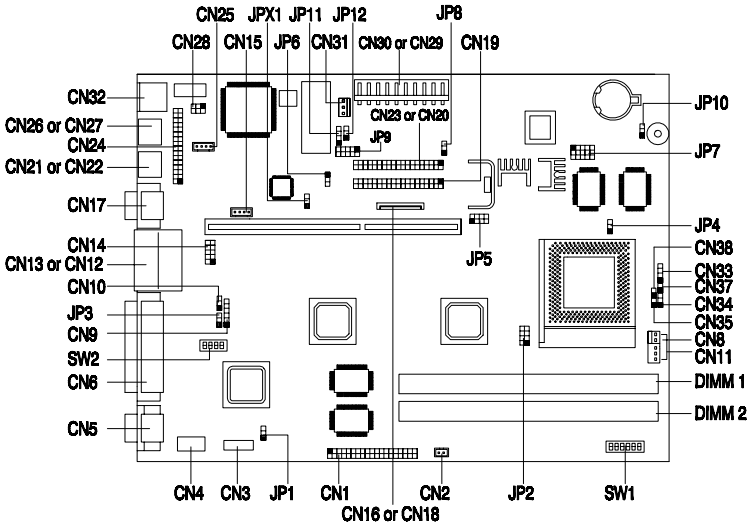


Figure 1-2 Jumper and Connector Locations

The shaded pin indicates pin 1.

1.4.2 Jumper Settings

The following table lists the jumper settings and their corresponding functions:

Table 1-1 Jumper Settings

Jumper	Setting	Function
JP1	1-2 2-3	**Panel Select** 5V panel (13.3-inch S-TFT) 3.3V panel (12.1-inch DSTN and 12.1-inch TFT)
JP2, JP5	Closed, Open Open, Closed	**CPU Voltage Type Selection** Single-voltage CPU Dual-voltage CPU
JP3	1-2 2-3 *	**Boot Option** Boot Block boot Normal boot
JP4	1-2 2-3 *	**Burst Mode** Linear burst Interleaved burst
JP6	1-2 2-3 *	**IDE Channel 2 Device Assignment** Slave Master
JP7	**A B C D E** 1 1 0 0 0 0 1 0 1 0 1 1 0 1 0 0 1 1 1 0 1 1 1 1 0 0 1 0 0 1	**CPU Core Voltage Select** **Vout Select** 2.1V 2.8V 2.9V 3.2V 3.3 3.5V
JP8	1-2 2-3	**H/W Monitor for CPU I/O Voltage** 3.3V 3.52V

* Default

Table 1-1 Jumper Settings (continued)

Jumper	Setting			Function
JP9	1-2 3-4 5-6 7-8 9-10			**H/W Monitor for CPU Core Voltage** 2.8V 2.9V 3.2V 2.1V 1.8V
JP10	1-2 * 2-3			**CMOS Data** Normal Clear CMOS
JP12	1-2 * 2-3			**H/W Monitor Function** Enabled Disabled
JPX1	1-2 2-3 *			**Audio ROM Write Control** Enabled Disabled
SW1	**1** On Off Off On On	**2** Off Off On Off On	**3** On Off On On Off	**Host Clock/PCI Clock** 60 MHz/30 MHz 66 MHz/33 MHz 75 MHz/30 MHz 83 MHz/33 MHz 60 MHz/30 MHz (if U3 is ICS9148)
SW1	**4** Off On Off On On Off Off On On	**5** Off Off On On On On Off Off On	**6** -- -- -- -- Off Off Off On On	**Host Clock / CPU Core Clock Ratio** **P55C** **6x86MX** **P54C** 3.5 3.5 1.5 2.0 2.0 2.0 3.0 3.0 3.0 2.5 2.5 2.5 **K6** 2.5 3.0 3.5 4.0 4.5

* Default

Table 1-1 Jumper Settings (continued)

Jumper	Setting			Function
SW2	**1**	**2**	**3**	**LCD Panel Select**
	Off	Off	On	12.1-inch DSTN
	On	Off	Off	12.1-inch TFT
	Off	On	Off	13.3-inch S-TFT
	On	On	Off	15.5 SCC
	Off	Off	Off	CRT

1.4.3 Onboard Connectors

Table 1-2 lists the onboard connectors.

Table 1-2 Onboard Connectors

Connector	Function
CN1	12.1-inch DSTN/12.1-inch TFT LCD connector
CN2	12.1-inch DSTN contrast connector
CN3	13.3-inch STFT LVDS connector
CN4	LCD power connector
CN5	VGA CRT port
CN6	Parallel port
CN8	CPU fan connector
CN9	IrDA connector
CN10	Modem Ring-in connector
CN11	2-pin Fan power connector/ 5-pin H/W Monitoring function connector
CN12/CN13	Serial port/USB port
CN14	9-pin header USB port
CN15	CD-ROM line-in connector
CN16/CN18	FDD connector (34-pin header or FPC connector)
CN17	Serial port

Table 1-2 Onboard Connectors (continued)

Connector	Function
CN19	IDE channel 1 connector
CN20/CN23	IDE channel 2 connector (40-pin header or 50-pin 2.0-mm pitch header)
CN21/CN22	PS/2 mouse port (mini-DIN or 6-pin header)
CN24	Audio I/O and joystick interface
CN25	Fax/modem line-in/speaker-out connector
CN26/CN27	PS/2 keyboard connector (mini-DIN or 6-pin header)
CN28	LAN signal connector
CN29/CN30	Power supply connector
CN31	Power supply switch connector
CN32	RJ-45 Ethernet port
CN33	HDD LED connector
CN34	System power LED connector
CN35	Standby LED connector
CN37	System power button connector
CN38	System reset button connector

1.4.4 Front-panel Connectors

The following figure shows the pin orientation of the front-panel connectors available on the system board:

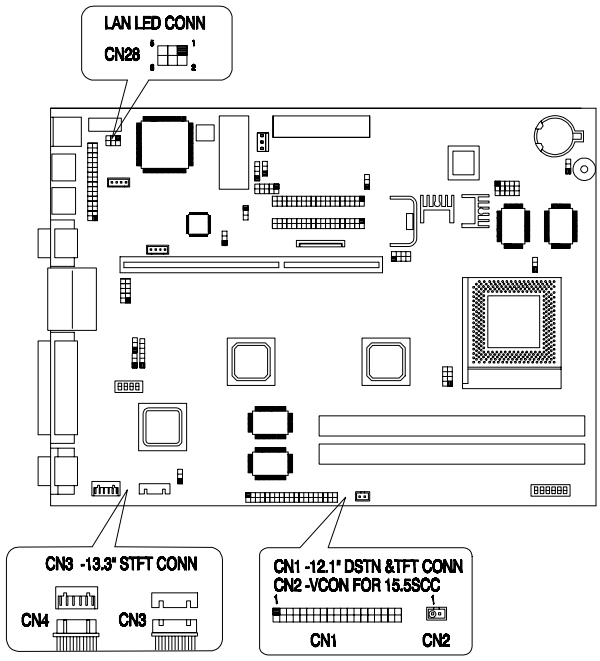


Figure 1-3 Front-panel Connectors

1.5 Installation Precautions

Before you install any system component, we recommend that you read the following sections. These sections contain important ESD precautions, pre- and post installation instructions.

1.5.1 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.

1.5.2 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 1.5.1 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.

1.5.3 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.

1.6 Memory Configuration

The system memory is upgradable to a maximum of 128 MB via three 168-pin DIMM sockets onboard. These DIMM sockets accept 16-, 32-, 64-, and 128-MB, 3.3V SDRAMs. See Figure 1-1 for the location of the DIMM sockets. Section 1.6.1 tells how to install DIMMs.

Table 1-3 lists the possible memory configurations.

Table 1-3 Memory Configurations

DIMM 1	DIMM 2	Total Memory
8MB	--	8 MB
8MB	8MB	16 MB
8MB	16 MB	24 MB
8MB	32 MB	40 MB
8MB	64 MB	72 MB
8MB	128 MB	136 MB
16 MB	--	16 MB
16 MB	8MB	24 MB
16 MB	16 MB	32 MB
16 MB	32 MB	48 MB
16 MB	64 MB	80 MB
16 MB	128 MB	144 MB
32 MB	--	32 MB
32 MB	8MB	40 MB
32 MB	16 MB	48 MB
32 MB	32 MB	64 MB

Table 1-3 Memory Configurations (continued)

DIMM 1	DIMM 2	Total Memory
32 MB	64 MB	96 MB
32 MB	128 MB	160 MB
64 MB	--	64 MB
64 MB	8MB	72 MB
64 MB	16 MB	80 MB
64 MB	32 MB	96 MB
64 MB	64 MB	128 MB
64 MB	128 MB	192 MB
128 MB	--	128 MB
128 MB	8MB	136 MB
128 MB	16 MB	144 MB
128 MB	32 MB	160 MB
128 MB	64 MB	192 MB
128 MB	128 MB	256 MB

1.6.1 Installing a DIMM

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

Follow these steps to install a DIMM:

1. Carefully slip a DIMM at a 25° angle into a socket making sure that the pin 1 of the DIMM matches pin 1 of the socket. Pin 1 is labeled 1 on both the DIMM and the socket.
2. Gently push the DIMM into the socket until it is properly seated.
3. Push the holding clip to lock the DIMM into position.

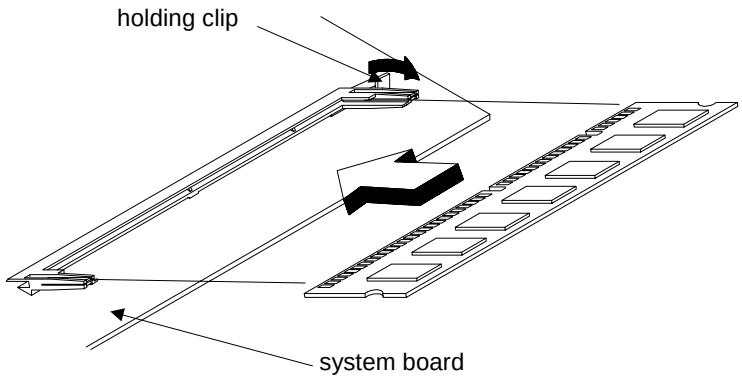


Figure 1-4 Installing a DIMM

1.6.2 Removing a DIMM

To remove a DIMM:

1. Push the holding clip of the socket outward to release the DIMM.
2. Gently pull the DIMM out of the socket.

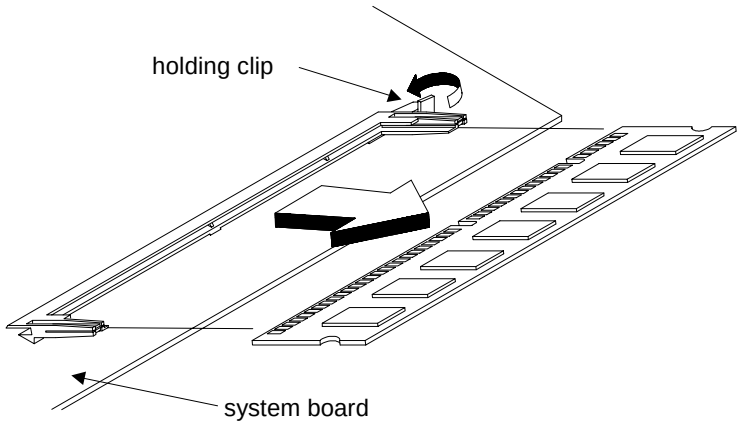


Figure 1-5 Removing a DIMM

1.6.3 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.

1.7 CPU Upgrade

1.7.1 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. Remove the fan and heatsink attached to the CPU.

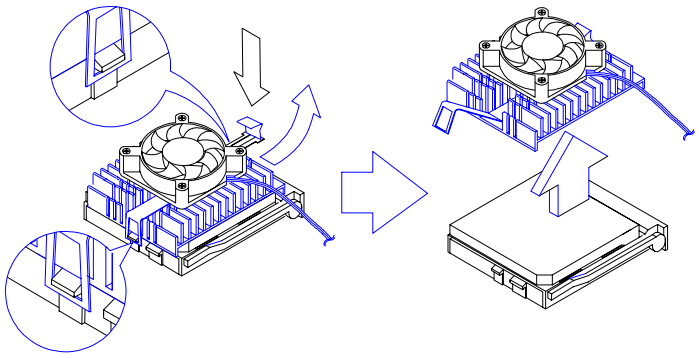


Figure 1-6 Removing the Fan and Heatsink

4. Pull up the socket lever. The CPU pins will be automatically released from the socket holes.
5. Detach the CPU from the socket.

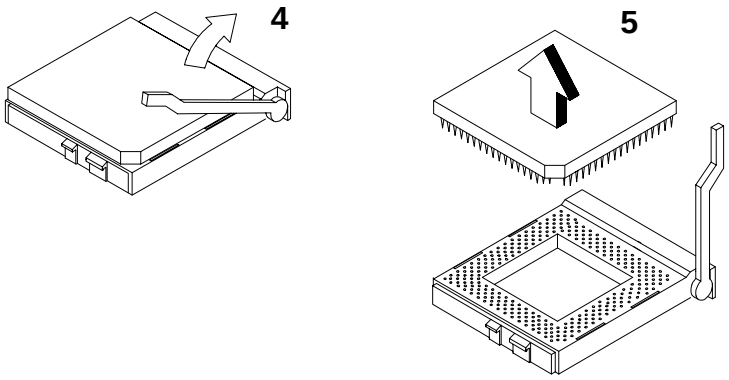


Figure 1-7 Removing the CPU

1.7.2 Installing the Upgrade CPU

Observe the ESD precautions when installing components. See section 1.5.1.

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.

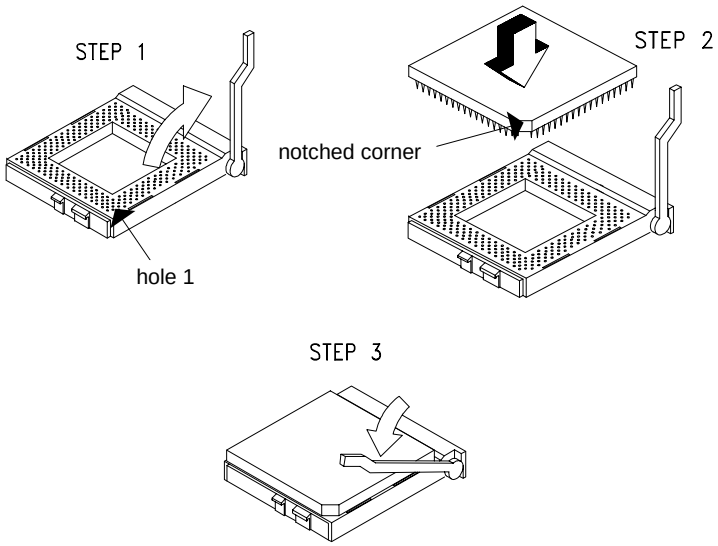


Figure 1-8 Installing a CPU

5. Place the heatsink with fan on top of the CPU and attach the spring clips to the socket flanges.

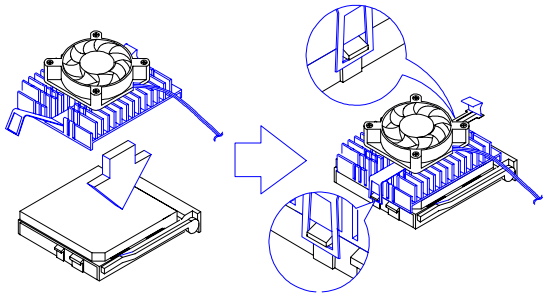


Figure 1-9 Attaching the Heatsink and Fan to the CPU

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

1.8 Video Function

The onboard video controller is capable of supporting 3D video applications and enhancing the video display at the same time. It also supports the Accelerated Graphics Port (AGP) bus. The AGP bus is the solution for 3D applications that require greater bandwidth. It is designed to speed up the VGA bus in order to meet the requirement of 3D applications.

In addition, the VGA has a built-in LVDS interface, allowing the system to support LCDs. For more details on this feature, see section 1.16.

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

1.8.1 Supported Video Resolutions

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

Table 1-4 Supported Video Resolutions

Resolution	bpp	V-Freq. (Hz)	H-Freq. (KHz)
640 x 480	8/16/24/32	60	31.4
640 x 480	8/16/24/32	72	37.5
640 x 480	8/16/24/32	75	37.5
640 x 480	8/16/24/32	85	43.3
640 x 480	8/16/24/32	90	48.0
640 x 480	8/16/24/32	100	52.9
640 x 480	8/16/24/32	120	63.7
640 x 480	8/16/24/32	160	84.1
640 x 480	8/16/24/32	200	100.2
800 x 600	8/16/24/32	48	33.8

Table 1-4 Supported Video Resolutions (continued)

Resolution	bpp	V-Freg. (Hz)	H-Freq. (KHz)
800 x 600	8/16/24/32	56	35.2
800 x 600	8/16/24/32	60	37.8
800 x 600	8/16/24/32	70	44.5
800 x 600	8/16/24/32	72	48.0
800 x 600	8/16/24/32	75	46.9
800 x 600	8/16/24/32	85	53.7
800 x 600	8/16/24/32	90	57.1
800 x 600	8/16/24/32	100	62.5
800 x 600	8/16/24/32	120	76.0
800 x 600	8/16/24	160	99.6
800 x 600	8/16	200	125.9
1024 x 768	8/16/24/32	43	35.5
1024 x 768	8/16/24/32	60	48.4
1024 x 768	8/16/24/32	70	56.5
1024 x 768	8/16/24/32	72	58.2
1024 x 768	8/16/24/32	75	60.0
1024 x 768	8/16/24/32	85	68.7
1024 x 768	8/16/24/32	90	76.2
1024 x 768	8/16/24/32	100	79.0
1024 x 768	8/16/24	120	96.7
1024 x 768	8/16	140	113.3
1024 x 768	8	150	120.6
1152 x 864	8/16/24/32	43	45.9
1152 x 864	8/16/24/32	47	44.9
1152 x 864	8/16/24/32	60	54.9
1152 x 864	8/16/24/32	70	66.1
1152 x 864	8/16/24/32	75	75.1

Table 1-4 Supported Video Resolutions (continued)

Resolution	bpp	V-Freg. (Hz)	H-Freq. (KHz)
1152 x 864	8/16/24/32	80	76.4
1152 x 864	8/16/24	85	77.1
1152 x 864	8/16	100	90.2
1152 x 864	8/16	120	108.7
1280 x 1024	8/16/24	43	50
1280 x 1024	8/16/24	47	50
1280 x 1024	8/16/24	60	64.0

1.9 Audio Function

The onboard 16-bit audio controller features an audio subsystem that is compatible with Sound Blaster, Sound Blaster Pro and Microsoft Sound System standards.

The board also comes with the following connectors for full audio function support:

- An audio I/O (AIO) connector
- CD-in connector
- CD-ROM connector

You may disable the audio feature in the BIOS Utility.

1.9.1 Installing an AIO Board (optional)

The AIO board allows you to connect external audio peripherals to your system.

To install an AIO board, simply plug in the AIO cable connector to the connector marked CN24 on the system board. See the following figure.

Refer to Figure 1-2 for the location of the connectors.

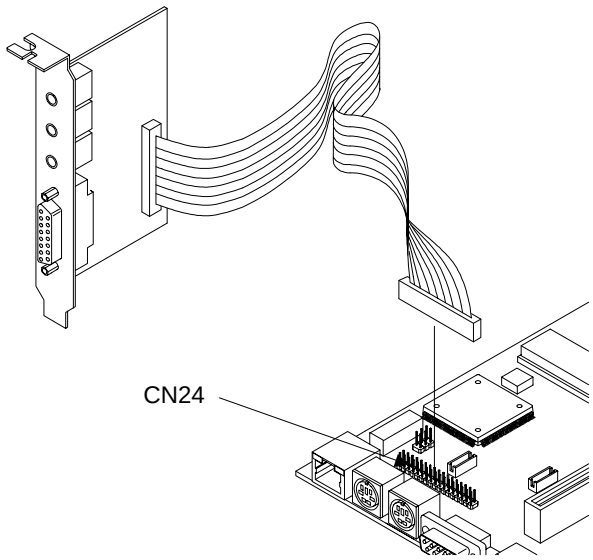


Figure 1-10 Installing an AIO Board

1.9.2 Connecting Audio Devices

The AIO board consists of the following ports:

- Microphone port
- Line-in port
- Line-out port
- MIDI/game port

These ports accommodate external audio devices. To connect an audio device, simply plug in the device's connector to its corresponding port on the AIO board.

Figure 1-11 shows the various devices that you can connect to the AIO board.

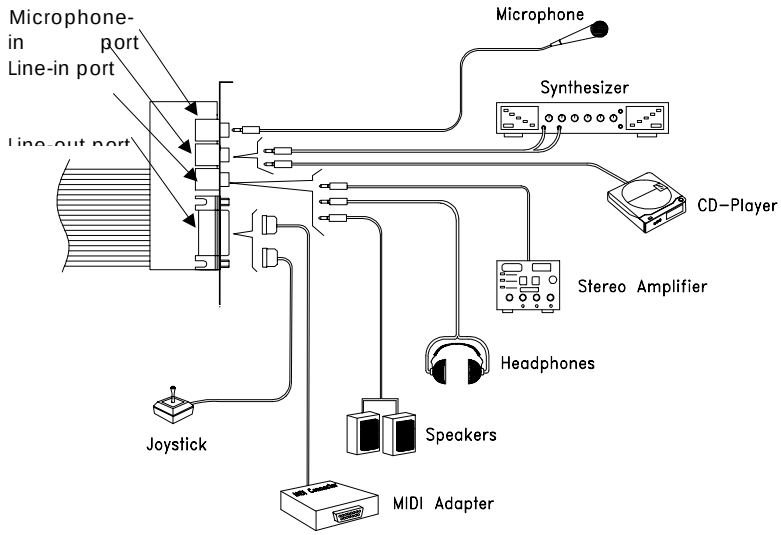


Figure 1-11 External Audio Devices

1.10 Expansion Card Installation

1.10.1 Installing the Riser Card

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

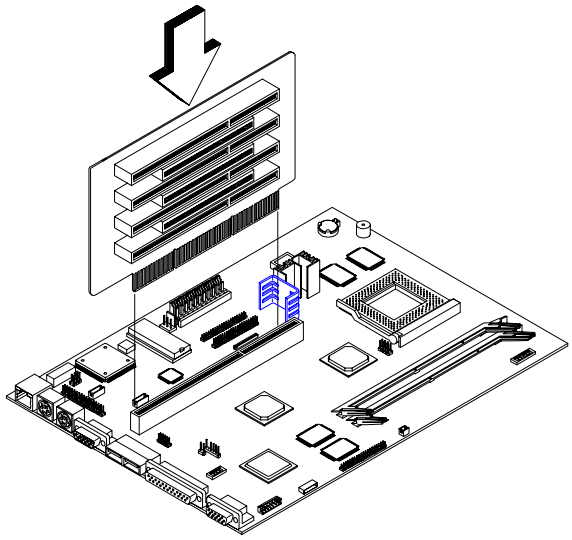


Figure 1-12 Installing a Riser Card

1.10.2 Installing a PCI Card

To install a PCI card:

1. Locate an empty PCI slot 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.

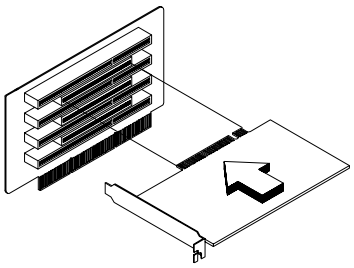


Figure 1-13 Installing a PCI Card

1.10.3 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. Enter BIOS Utility and set the Reset Resource Assignment parameter to Yes to clear the resource data assigned to the PnP devices. Refer to section 2.6.7.
3. Install non-PnP ISA cards.
4. Turn on the system.
5. 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.

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

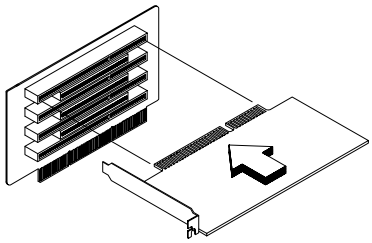


Figure 1-14 Installing an ISA Card

1.11 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.

1.12 Wireless Communication Support (optional)

The board comes with an infrared (IrDA) interface for wireless communication function (see Figure 1-2 for the location of the IrDA connector). This function enables the system to communicate with SIR-aware peripherals without the aid of cables.

The supported wireless communication function complies with the IrDA specification, i.e., it is capable of supporting 115.2 kilobits per second (Kbps) data transfer rate at a maximum distance of one meter.

1.13 Hardware Monitor Function

The Hardware Monitor function allows you to check 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.

1.14 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.

1.15 Wake-on LAN Function

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

1.16 LCD Panel Support

The board comes with LCD connectors that allow you to use 18-bit flat LCD panels for display, in case you do not want to use a regular CRT display. These connectors can accommodate 12.1-inch TFT/DSTN, 13.3-inch S-TFT LCD panels.

For full multiple-LCD panel support, the board utilizes a 3D video controller with built-in LVDS and NS LVDS interface. For more details on the onboard video controller, see section 1.8.

1.17 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

1.17.1 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.

1.17.2 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 1-5 lists the system error messages in alphabetical order.

Table 1-5 System Error Messages

Error Message	Corrective Action
Memory Error at MMMM:SSSS:OOOOh (R:xxxxh, W:xxxxh)	Replace the DRAM chips or the DIMMs
System Management Memory Bad	Replace the DRAM chips or the DIMMs
Keyboard Interface Error	Check the keyboard interface circuit or change the keyboard.
Keyboard Error or Keyboard Not Connected	Reconnect or replace the keyboard.
Keyboard Locked	Unlock the keyboard.
Pointing Device Error	Reconnect or replace the pointing device.
Pointing Device Interface Error	Check the keyboard interface circuit.
Pointing Device IRQ Conflict	Enter SETUP and change the setting of IRQ12.
IDE Drive 0 Error IDE Drive 1 Error IDE Drive 2 Error IDE Drive 3 Error	Replace the disk drive or the hard disk drive controller. Check the HDD cable connections and CMOS setup configuration.
IDE Drive 0 (1, 2, 3) Auto Detection Failed	Replace the disk drive or the hard disk drive controller. Check the HDD cable connections and CMOS setup configuration.

Table 1-5 POST Error Messages (continued)

Error Message	Corrective Action
Floppy Drive A Error Floppy Drive B Error	Replace the floppy drive.
Floppy Disk Controller Error	Check the floppy drive cable and its connections. If the cable is good and properly connected, the floppy disk controller may be the problem. Change the floppy disk controller or disable the onboard controller by installing another add-on card with a controller.)
CPU Clock Mismatch	When the user changes the CPU frequency, this message will be shown once. Then the BIOS will adjust CPU clock automatically.
Serial Port 1 Conflict Serial Port 2 Conflict	Change the onboard serial port address in Setup or change the add-on card serial port address.
Parallel Port Conflict	Change onboard parallel port address in CMOS SETUP or set the parallel port address of add-on card to others.
Real Time Clock Error	Check RTC circuit or replace the RTC.
CMOS Battery Bad	Replace the onboard lithium battery
CMOS Checksum Error	Run Setup again and reconfigure the system.
NVRAM checksum Error	Run EISA configuration Utility (ECU) to restore the original EISA configuration data.
On Board xxx ... Conflict(s)	Try to reassign or disable on board device resources.
PCI Device Error	Check the PCI card. Replace if bad.
System Resource Conflict	Run Setup to reconfigure the system.
IRQ Setting Error	Run Setup to reconfigure the system.
Expansion ROM Allocation Fail	Change the I/O expansion ROM address.

1.17.3 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. Check that all connectors and boards are secure. Consult the system housing installation guide for assistance.

If you have purchased a new hard disk drive and cannot access it, it may be because your disk is not physically formatted. Physically format the disk using the FDISK and FORMAT commands.

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.