

# ***System Board***

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## **1.1 Features**

The V58 is a Pentium-based system board that utilizes the PCI local bus architecture. It supports Intel Pentium P54C/P55C, Cyrix M1/M2, and AMD K5/K6 processors. It has three ISA and four PCI slots for future expansion. The system memory is expandable to 192 MB via three onboard 168-pin DIMM (double in-line memory module) sockets. The board also comes with either 256- or 512-KB pipelined-burst second-level cache.

Onboard I/O interfaces include 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. A Universal Serial Bus (USB) interface is added to the design to enable the system to support more peripherals.

Other special features supported are Wireless communication, Hardware monitoring and Wake-on ring-in functions. These features are discussed in the later part of this chapter.

The system is fully compatible with Windows 95, Windows NT, NetWare, MS-DOS v6.X, OS/2, and UNIX operating systems.

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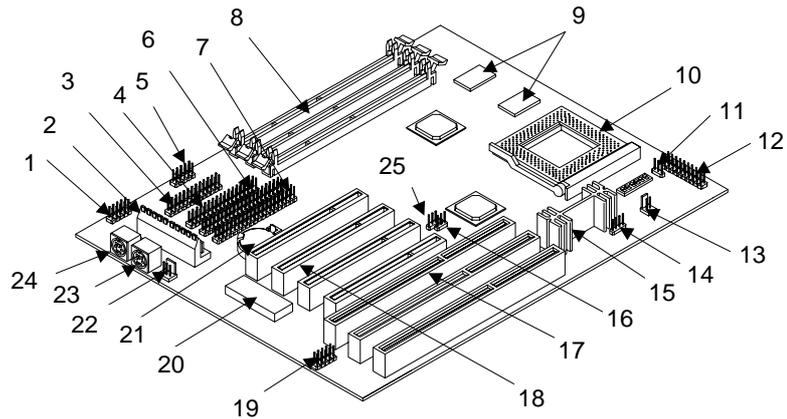
## 1.2 Major Components

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
- Three 168-pin DIMM sockets that accept SDRAMs with 16-, 32-, 64-, and 128-MB capacities (192-MB maximum system memory)
- 256-KB or 512-KB pipelined-burst second-level cache
- Three ISA slots and four PCI slots for future expansion
- Enhanced PCI local bus IDE controller
- APM-compliant DMI BIOS
- Ultra I/O controller
- Two IDE interfaces capable of supporting a maximum of four IDE devices
- Two 16C550 buffered serial connectors
- One SPP/ECP/EPP parallel connector
- USB interface
- IrDA interface
- Modem ring-in interface for Wake-on ring-in feature
- PS/2 mouse and keyboard interface

## 1.3 Layout

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



- |    |                             |    |                                 |
|----|-----------------------------|----|---------------------------------|
| 1  | COM1 connector              | 14 | HDD LED connector               |
| 2  | Power connector             | 15 | Voltage regulator with heatsink |
| 3  | Parallel/Printer connector  | 16 | InfraRed (IrDA) connector       |
| 4  | Floppy disk drive connector | 17 | ISA slots                       |
| 5  | COM2 connector              | 18 | PCI slots                       |
| 6  | IDE2 connector              | 19 | USB connector                   |
| 7  | IDE1 connector              | 20 | BIOS chip                       |
| 8  | DIMM sockets                | 21 | Battery                         |
| 9  | Second-level cache          | 22 | Resume Power connector          |
| 10 | CPU socket                  | 23 | PS/2 mouse port                 |
| 11 | Power button connector      | 24 | PS/2 keyboard port              |
| 12 | Multifunction connector     | 25 | Ring-in connector               |
| 13 | 2-pin fan 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.

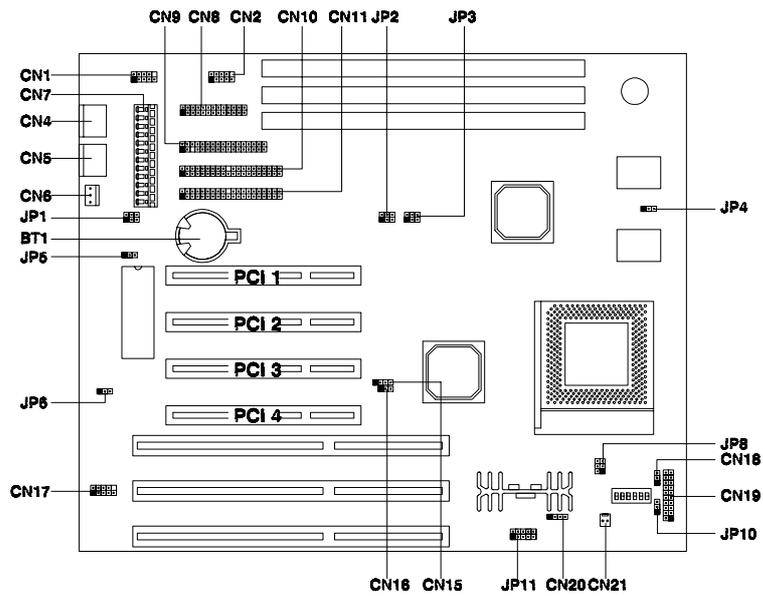


Figure 1-2 Jumper and Connector Locations



The shaded pin indicates pin 1.

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## 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    | 1-3, 2-4<br>3-5, 4-6 * | <b>Power Supply Type</b><br>Traditional power supply<br>Resume power supply                 |
| JP4    | 1-2<br>2-3 *           | <b>L2 Burst Mode</b><br>Linear burst<br>Interleave / 1+4 mode                               |
| JP5    | 1-2<br>2-3<br>3-4 *    | <b>BIOS Programming Voltage</b><br>12V for MX2 2MB<br>5V for SST, ATMEL<br>Normal operation |
| JP7    | 1-2<br>3-4<br>5-6 *    | <b>Hardware Monitoring</b><br><b>Vcore</b><br>3.2V<br>2.9V<br>2.8V                          |
| JP9    | 1-2<br>3-4 *           | <b>V/O</b><br>3.5V<br>3.3V  |
| JP10   | 1-2<br>2-3 *           | <b>Thermal Event</b><br>Disabled<br>Enabled   |
| JP8    | 1-3, 2-4<br>3-5, 4-6   | <b>CPU Type</b><br>Dual-voltage CPU (P55C)<br>Single-voltage CPU (P54C)                     |

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\* Default

*Table 1-1 Jumper Settings (continued)*

| Jumper    | Setting                            | Function  |
|-----------|------------------------------------|---|
| JP11      | 1-2 *<br>3-4<br>5-6<br>7-8<br>9-10 | <b>CPU Core Voltage</b><br>3.3V<br>2.8V<br>2.9V<br>3.2V<br>3.5V |
| S2 of SW1 | On<br>Off                          | <b>Boot Logo</b><br>OEM<br>Acer                                 |
| S3 of SW1 | On<br>Off                          | <b>Password Check</b><br>Check password<br>Bypass password      |

*Table 1-2 Host Bus Frequency Select*

| JP2        | JP3        | Host Bus |
|------------|------------|----------|
| 1-3, 2-4   | 3-5, 4-6   | 60 MHz   |
| 3-5, 4-6 * | 3-5, 4-6 * | 66 MHz * |
| 1-3, 2-4   | 1-3, 2-4   | 75 MHz   |
| 3-5, 4-6   | 1-3, 2-4   | 83.3 MHz |

*Table 1-3 CPU/Host Bus Frequency Ratio*

| SW1 Switch No. |                 |                 | Ratio   |     |       |     |
|----------------|-----------------|-----------------|---------|-----|-------|-----|
| S4             | S5<br>(BF1/X34) | S6<br>(BF0/Y33) | Intel   | M2  | 6x86L | K6  |
| Off            | Off             | Off             | 1.5/3.5 | 3.5 | 3     | 3.5 |
| Off            | Off             | On              | 2       | 2   | 2     |     |
| Off            | On              | On              | 2.5     | 2.5 | 2     | 2.5 |
| Off            | On              | Off             | 3       | 3   | 3     | 3   |

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### 1.4.3 Onboard Connectors

Table 1-4 lists the onboard connectors.

*Table 1-4 Onboard Connectors*

| <b>Connector</b> | <b>Function</b>                      |
|------------------|--------------------------------------|
| CN1              | COM1 connector                       |
| CN2              | COM2 connector                       |
| CN3              | AT keyboard connector (optional)     |
| CN4              | PS/2 keyboard port                   |
| CN5              | PS/2 mouse port                      |
| CN6              | Resume power connector               |
| CN7              | Main power connector                 |
| CN8              | Printer/parallel connector           |
| CN9              | Floppy disk drive connector          |
| CN10             | IDE channel 2 connector              |
| CN11             | IDE channel 1 connector              |
| CN12             | Connector for clearing CMOS          |
| CN13             | WOL (wake-on LAN) connector          |
| CN15             | IrDA (InfraRed) connector            |
| CN16             | Modem ring-in connector              |
| CN17             | USB (Universal Serial Bus) connector |
| CN18             | Power button connector               |
| CN19             | Multifunction connector              |
| CN20             | HDD LED connector                    |
| CN21             | CPU fan connector                    |
| CN22             | CPU fan and H/W monitoring connector |

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## 1.4.4 Front Panel Connectors

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

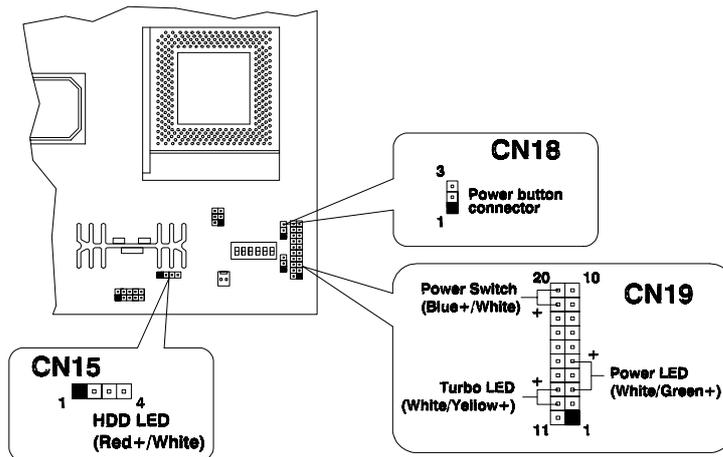


Figure 1-3 Front Panel Connectors

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## **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.

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## 1.6 Installing Memory

The system memory is upgradable to a maximum of 192 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 1-5 lists the possible memory configurations.

Table 1-5 Memory Configurations

| DIMM1  | DIMM2 | DIMM3 | Total Memory |
|--------|-------|-------|--------------|
| 16 MB  |       |       | 16 MB        |
| 16 MB  | 16 MB |       | 32 MB        |
| 16 MB  | 16 MB | 16 MB | 48 MB        |
| 32 MB  |       |       | 32 MB        |
| 32 MB  | 32 MB |       | 64 MB        |
| 32 MB  | 32 MB | 32 MB | 96 MB        |
| 64 MB  |       |       | 64 MB        |
| 64 MB  | 64 MB |       | 128 MB       |
| 64 MB  | 64 MB | 64 MB | 192 MB       |
| 128 MB |       |       | 128 MB       |
| 128 MB | 32 MB | 32 MB | 192 MB       |
| 128 MB | 64 MB |       | 192 MB       |



*The listed configurations are only some of the available memory combinations. You can use other combinations as long as you follow the above rules for upgrading memory.*

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## 1.6.1 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.

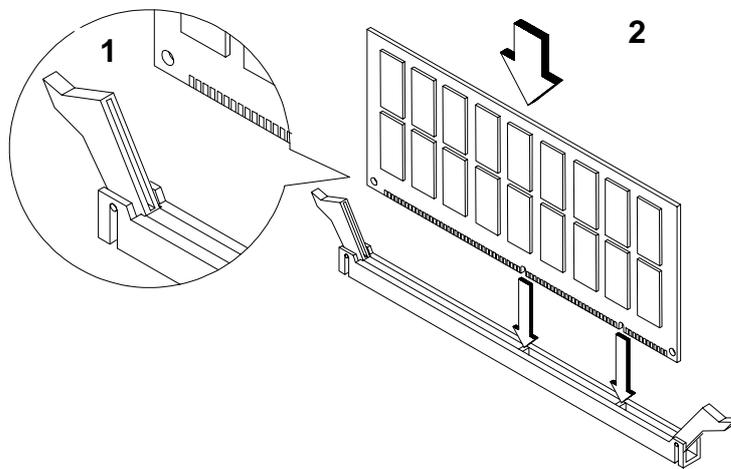


Figure 1-4 Installing a DIMM



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

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## 1.6.2 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.

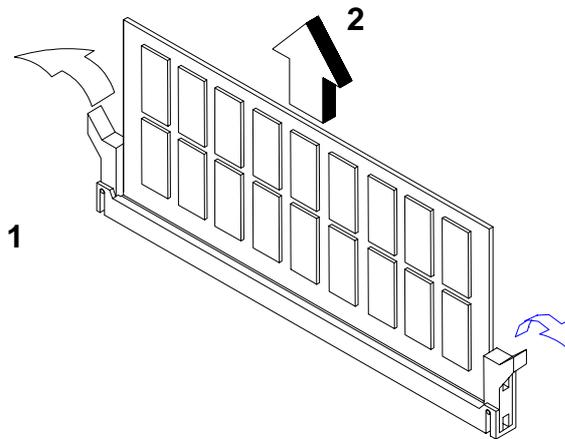


Figure 1-5 Removing a DIMM

## 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.

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## 1.7 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 1-6 *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. | U6, U7   | 32K x 8 x 1 pc  | 64 MB            |
| 512 KB     | 64K x 32 x 2 pcs. | U6, U7   | 32K x 8 x 1 pc  | 64 MB            |

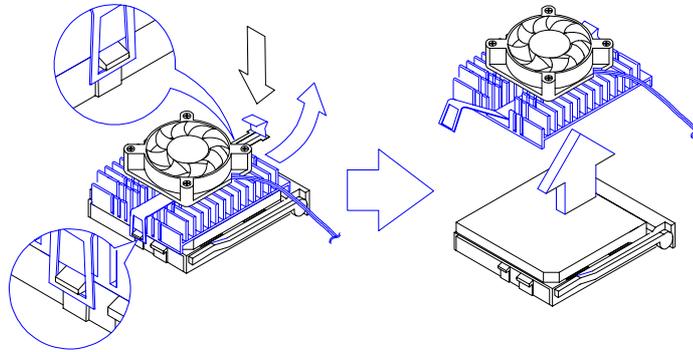
## 1.8 Upgrading the CPU

### 1.8.1 Removing the CPU

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

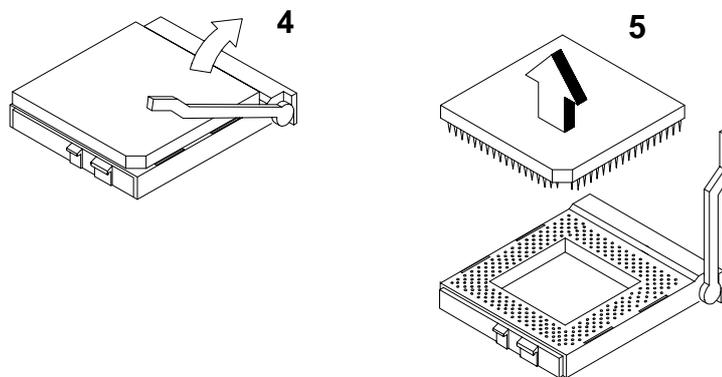
Follow these steps to remove the CPU:

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*

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## 1.8.2 Installing the Upgrade CPU

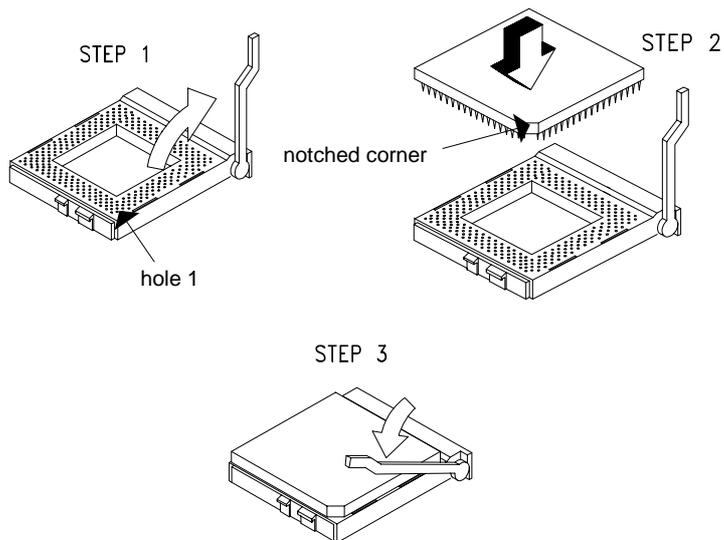


*Observe the ESD precautions when installing components. See section 1.5.1.*

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

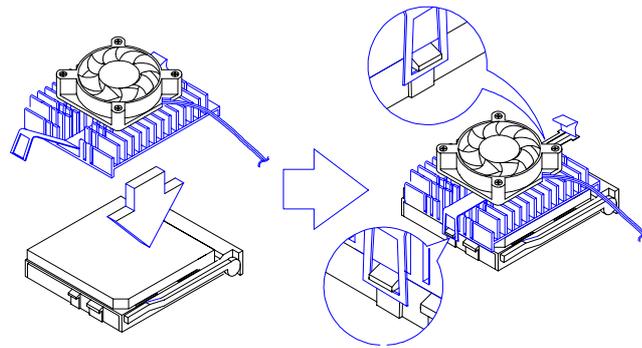
Follow these steps to install the upgrade CPU:

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*

- 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*

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

## 1.9 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 1-7.

*Table 1-7 IDE Hard Disk Configuration*

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

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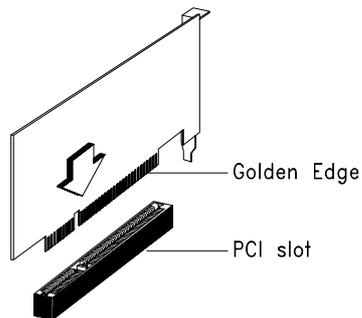
## 1.10 Expansion Cards

### 1.10.1 Installing the PCI Cards

To install PCI cards:

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 1-10 Installing a PCI Card*

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## 1.10.2 Installing the 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. Turn on the system, enter BIOS utility and set the Reset Resource Assignments parameter to *Yes* to clear the resource data assigned to the PnP devices. Refer to section 2.4.7.
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.

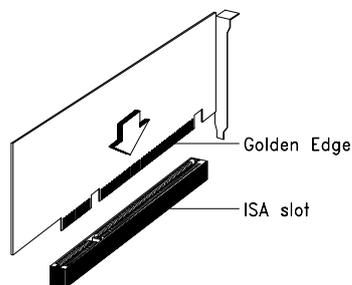


Figure 1-11 Installing an ISA Card

## 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

The system supports wireless communication via onboard infrared interface (see Figure 1-2 for the location of the IrDA connector). This feature enables the system to communicate with SIR-aware peripherals without the aid of cables.

The onboard infrared interface is IrDA-compliant, allowing data transfer at a rate of 115.2 kilobits per second (Kbps) at a maximum distance of one meter.

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## **1.13 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.

## **1.14 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.

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## **1.15 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

### **1.15.1 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.

### **1.15.2 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 1-8 lists the system error messages in alphabetical order.

*Table 1-8 System Error Messages*

| <b>Error Message</b>                         | <b>Corrective Action</b>   |
|--|--|
| Bad CMOS Battery                             | Replace battery. Contact your dealer.  |
| CMOS Checksum Error                          | Run Setup. See Chapter 2.  |
| 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 1-4.   |
| Equipment Configuration Error                | Run Setup. See Chapter 2.  |
| 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.   |
| 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. See Chapter 2.  |

**Table 1-8**      *System Error Messages (continued)*

| <b>Error Message</b>                               | <b>Corrective Action</b>   |
|--|--|
| Onboard Serial 1 Conflict                          | Run Setup and disable Onboard Serial 1. See Chapter 2.                       |
| Onboard Serial 2 Conflict                          | Run Setup and disable Onboard Serial 2. See Chapter 2.                       |
| Onboard Parallel Port Conflict                     | Run Setup and disable Onboard Parallel Port. See Chapter 2.                  |
| 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 <b>F1</b> or <b>CTRL</b> <b>ALT</b> <b>ESC</b> .                       |
| Press Esc to turn off NMI, any key to reboot       | Press <b>ESC</b> 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. See Chapter 2.  |
| Shadow RAM Fail                                    | Contact your dealer.   |
| System Memory Address Error                        | Check DIMMs on system board or contact your dealer.                          |

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### 1.15.3 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.