

A graphic consisting of a black rectangle with a white border. Inside the rectangle, the word "Chapter" is written in a cursive font, and the number "1" is written in a large, bold, sans-serif font below it.

Chapter 1

System Board

This high-performance system board is built on an ATX baseboard utilizing an Intel Pentium® II processor running at 233/66, 266/66, and 300/66 MHz. It has two ISA, four PCI, and one AGP slots (with one PCI- and ISA-shared slot) for future expansion. The onboard three DIMMs sockets allow memory upgrade to a maximum of 384 MB and supports both SDRAM and EDO DRAM memory.

It also supports the USB (Universal Serial Bus) connector, and other standard features such as two UART NS16C550 serial ports, one enhanced parallel port with Enhanced Parallel Port (EPP)/Extended Capabilities Port (ECP) feature, a diskette drive interface, and an embedded hard disk interface. The system has an optional IrDA (Infrared Data Association) interface for remote control function. The board also include a built-in 10/100 Mb/s Intel 82558 LAN chip that supports Wake-On-LAN (WOL).

The system supports the power-management function that conforms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also offers the Plug-and-Play feature. This feature saves the user from configuration troubles, thus making the system more user-friendly.

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

1.1 Features

The system board has the following features and components:

- Intel Pentium II CPU processor (233/66, 266/66, and 300/66 MHz.)
- 384-MB maximum system memory
- Three DIMM sockets that accept 8-, 16-, 32-, 64- and 128-MB DIMMs
- 256-KB or 512-KB pipelined-burst second-level cache built-in Pentium II CPU
- Integrates an enhanced PCI local bus IDE controller
- Intel 440LX chipset supports AGP (Accelerated Graphics Port) and Ultra DMA/33 functions
- 256KB Flash ROM for system BIOS
- Two ISA, four PCI, and one AGP expansion slots (one PCI- and ISA-shared slot)
- Dual NS16C550 buffered serial ports and one SPP/ECP/EPP parallel port
- Intel 82558 LAN chip, supports WOL.
- USB interface that enables the system to support more peripherals
- IrDA Interface supported (optional)
- PS/2 mouse and keyboard interface
- Power-management function

1.2 System Board Layout

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

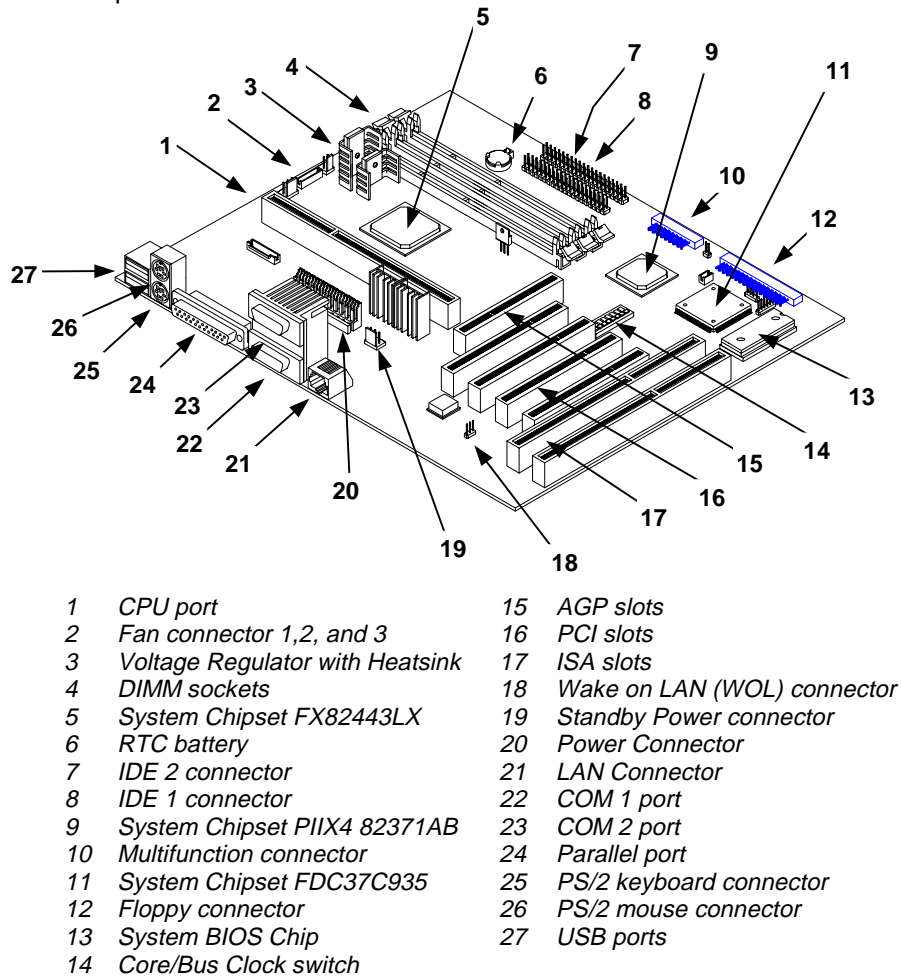


Figure 1-1 System Board Layout



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

1.3 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.

1.4 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 1.3 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 Pentium II Processor

The board supports the Pentium II processor - a module that consists of a Pentium Pro technology-based CPU and a second-level cache. It utilizes the new enclosed packaging technology called S.E.C (single-edge contact) cartridge, that allows the second-level cache to remain tightly coupled to the processor. It is capable of increasing the performance of 32-bit software and multimedia applications

The Pentium II processor also supports the following features:

- 64-bit Pentium Pro technology-based CPU running a 233 or 266 MHz
- MMX technology support for multimedia functions
- 32-KB internal cache size
- 256-/512-KB write-back second-level cache size
- Non-blocking architecture to prevent CPU stalls during cache, memory and I/O accesses

1.5.1 Installing a Pentium II Processor



Observe the ESD precautions when installing or removing a system component.

Follow these steps to install a Pentium II processor:

1. Place the retention mechanism over the CPU connector on the system board. Secure it with the screws that came with the package.

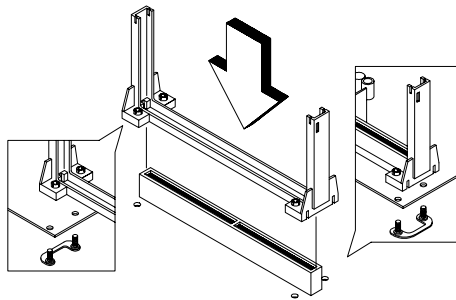


Figure 1-2 Installing the Retention Mechanism

2. Remove the Pentium II processor from its protective packaging. Make sure that the latches on the sides of the module are not pressed.
3. With the processor card golden fingers pointing downward, align the processor to the posts of the retention mechanism.
4. Lower the processor into to the CPU connector on the system board until the golden fingers touch the connector.

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5. Press down the processor until the golden fingers completely fit into the connector and the latches on the sides lock the processor into place.

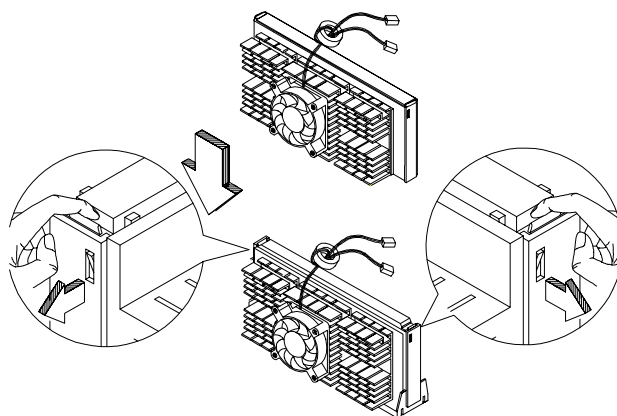


Figure 1-3 Installing a Pentium II Processor

1.5.2 Removing a Pentium II Processor



Observe the ESD precautions when installing or removing a system component.

Follow these steps to remove the Pentium II processor:

1. Press the latches on both sides of the processor to release it from the retention mechanism. You will hear a click sound once the latch is released.
2. Pull the processor to totally detach it from the CPU connector.

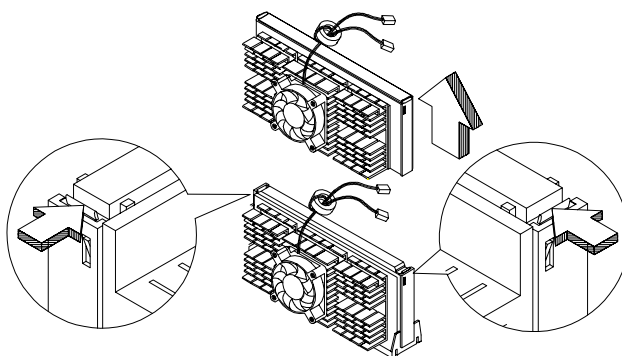


Figure 1-4 Removing a Pentium II Processor

1.6 Jumpers and Connectors

Figure 1-5 shows the jumper and connector locations.

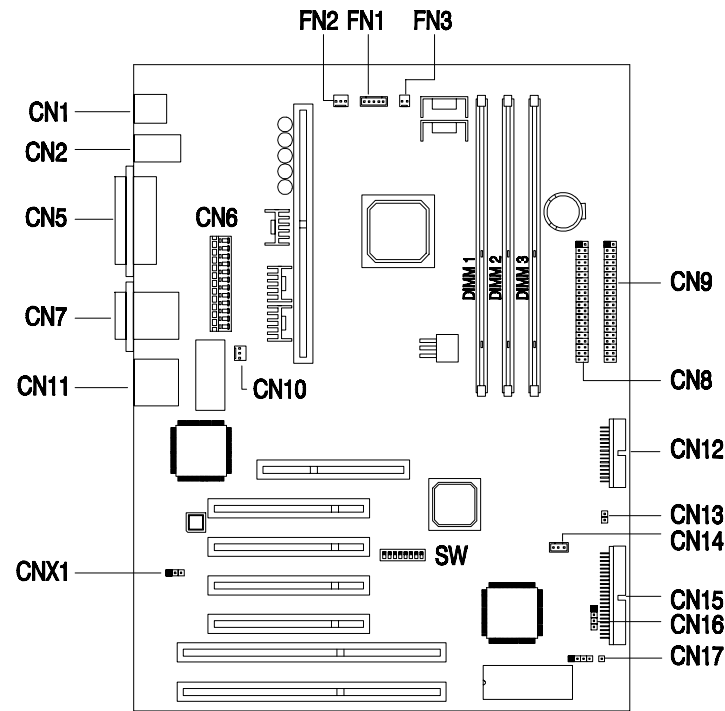


Figure 1-5 Jumper and Connector Locations



The shaded pin indicates pin 1.

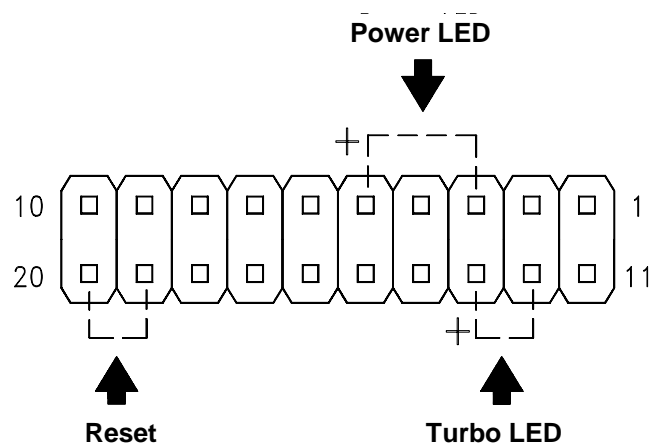


Figure 1-6 CN12 - Reset Sw., Power LED, and Turbo LED connector locations

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

Table 1-1 System Board Switch Settings

Switch	Setting	Function
SW1	On Off	60 MHz 66 MHz*
Sw2	On Off	Bypass Password* Check Password
SW3	On Off	OEM BIOS Acer BIOS*

* Default setting

Table 1-2 Core/Bus Pentium Clock Ratio

SW5	SW6	SW7	SW8	Core/Bus Pentium
On	On	On	On	2
Off	On	On	On	4 (266 MHz CPU)
On	Off	Off	On	3.5 (233 MHz CPU)*
Off	On	Off	On	4.5 (300 MHz CPU)

Table 1-3 Onboard Connectors

Connector	Function
CN1	USB Connector
CN2	Keyboard and Mouse Connector
CN5	Parallel Port
CN6	Power Connector
CN7	Serial Port (Com1 and Com2)
CN8	Secondary IDE Connector
CN9	Primary IDE Connector
CN10	Standby Power Connector
CN11	LAN Connector
CN12	Multifunction Connector (see Figure 1-5)
CN13	Power SW Connector
CN14	Modem Ring Connector
CN15	Floppy Connector
CN16	HDD LED Connector
CN17	IRDA Board Connector
FN1	CPU Fan Connector (5 pin)
FN2	CPU Fan Connector (3 pin)
FN3	CPU Fan Connector (2 pin)
CNx1	Wake on LAN (WOL) Connector

1.7 Installing Memory

The system memory is expandable to 384 MB by adding DIMMs (Dual In-line Memory Modules). See Figure 1-1 for the location of the DIMM sockets. Section 1.7.1 tells how to install DIMMs.

The 168-pin DIMM sockets on the system board accept 8-, 16-, 32-, 64- and 128-MB DIMMs, with 16 MBit and 64 MBit SDRAM technology support. Table 1-5 lists the possible memory configurations.

Table 1-4 Memory Configurations

DIMM 1	DIMM 2	DIMM 3	Total Memory
8 MB	-	-	8 MB
16 MB	-	-	16 MB
32 MB	-	-	32 MB
64 MB	-	-	64 MB
128 MB	-	-	128 MB
8 MB	8 MB	-	16 MB
8 MB	16 MB	-	24 MB
8 MB	32 MB	-	40 MB
8 MB	64 MB	-	72 MB
8 MB	128 MB	-	136 MB
8 MB	-	8 MB	16 MB
8 MB	-	16 MB	24 MB
8 MB	-	32 MB	40 MB
8 MB	-	64 MB	72 MB
8 MB	-	128 MB	136 MB
16 MB	8 MB	-	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

Table 1-4 *Memory Configurations*

DIMM 1	DIMM 2	DIMM 3	Total Memory
16 MB	-	8 MB	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	8 MB	-	40 MB
32 MB	16 MB	-	48 MB
32 MB	32 MB	-	64 MB
32 MB	64 MB	-	96 MB
32 MB	128 MB	-	160 MB
32 MB	-	8 MB	40 MB
32 MB	-	16 MB	48 MB
32 MB	-	32 MB	64 MB
32 MB	-	64 MB	96 MB
32 MB	-	128 MB	160 MB
64 MB	8 MB	-	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
64 MB	-	8 MB	80 MB
64 MB	-	16 MB	96 MB
64 MB	-	32 MB	96 MB
64 MB	-	64 MB	112 MB
64 MB	-	128 MB	192 MB
128 MB	8 MB	-	136 MB
128 MB	16 MB	-	144 MB
128 MB	32 MB	-	160 MB

Table 1-4 Memory Configurations

DIMM 1	DIMM 2	DIMM 3	Total Memory
128 MB	64 MB	-	192 MB
128 MB	128 MB	-	256 MB
128 MB	-	8 MB	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
8 MB	8 MB	8 MB	24 MB
8 MB	8 MB	16 MB	32 MB
8 MB	8 MB	32 MB	48 MB
8 MB	8 MB	64 MB	80 MB
8 MB	8 MB	128 MB	144 MB
8 MB	16 MB	8 MB	32 MB
8 MB	16 MB	16 MB	40MB
8 MB	16 MB	32 MB	56 MB
8 MB	16 MB	64 MB	88 MB
8 MB	16 MB	128 MB	152 MB
8 MB	32 MB	8 MB	48 MB
8 MB	32 MB	16 MB	56 MB
8 MB	32 MB	32 MB	72 MB
8 MB	32 MB	64 MB	104 MB
8 MB	32 MB	128 MB	168 MB
8 MB	64 MB	8 MB	80 MB
8 MB	64 MB	16 MB	88 MB
8 MB	64 MB	32 MB	104 MB
8 MB	64 MB	64 MB	136 MB
8 MB	64 MB	128 MB	200 MB
8 MB	128 MB	8 MB	144 MB

Table 1-4 Memory Configurations

DIMM 1	DIMM 2	DIMM 3	Total Memory
8 MB	128 MB	16 MB	152 MB
8 MB	128 MB	32 MB	168 MB
8 MB	128 MB	64 MB	200 MB
8 MB	128 MB	128 MB	264 MB
16 MB	8 MB	8 MB	32 MB
16 MB	8 MB	16 MB	40 MB
16 MB	8 MB	32 MB	56 MB
16 MB	8 MB	64 MB	88 MB
16 MB	8 MB	128 MB	152 MB
16 MB	16 MB	8 MB	40 MB
16 MB	16 MB	16 MB	48 MB
16 MB	16 MB	32 MB	64 MB
16 MB	16 MB	64 MB	96 MB
16 MB	16 MB	128 MB	160 MB
16 MB	32 MB	8 MB	56 MB
16 MB	32 MB	16 MB	64 MB
16 MB	32 MB	32 MB	80 MB
16 MB	32 MB	64 MB	112 MB
16 MB	32 MB	128 MB	176 MB
16 MB	64 MB	8 MB	88 MB
16 MB	64 MB	16 MB	96 MB
16 MB	64 MB	32 MB	112 MB
16 MB	64 MB	64 MB	144 MB
16 MB	64 MB	128 MB	208 MB
16 MB	128 MB	8 MB	152 MB
16 MB	128 MB	16 MB	160 MB
16 MB	128 MB	32 MB	176 MB
16 MB	128 MB	64 MB	208 MB

Table 1-4 Memory Configurations

DIMM 1	DIMM 2	DIMM 3	Total Memory
16 MB	128 MB	128 MB	272 MB
32 MB	8 MB	8 MB	48 MB
32 MB	8 MB	16 MB	56 MB
32 MB	8 MB	32 MB	72 MB
32 MB	8 MB	64 MB	104 MB
32 MB	8 MB	128 MB	168 MB
32 MB	16 MB	8 MB	56 MB
32 MB	16 MB	16 MB	64 MB
32 MB	16 MB	32 MB	80 MB
32 MB	16 MB	64 MB	112 MB
32 MB	16 MB	128 MB	176 MB
32 MB	32 MB	8 MB	72 MB
32 MB	32 MB	16 MB	80 MB
32 MB	32 MB	32 MB	96 MB
32 MB	32 MB	64 MB	128 MB
32 MB	32 MB	128 MB	192 MB
32 MB	64 MB	8 MB	104 MB
32 MB	64 MB	16 MB	112 MB
32 MB	64 MB	32 MB	128 MB
32 MB	64 MB	64 MB	160 MB
32 MB	64 MB	128 MB	224 MB
32 MB	128 MB	8 MB	168 MB
32 MB	128 MB	16 MB	176 MB
32 MB	128 MB	32 MB	192 MB
32 MB	128 MB	64 MB	224 MB
32 MB	128 MB	128 MB	288 MB
64 MB	8 MB	8 MB	80 MB
64 MB	8 MB	16 MB	88 MB

Table 1-4 Memory Configurations

DIMM 1	DIMM 2	DIMM 3	Total Memory
64 MB	8 MB	32 MB	104 MB
64 MB	8 MB	64 MB	136 MB
64 MB	8 MB	128 MB	200 MB
64 MB	16 MB	8 MB	88 MB
64 MB	16 MB	16 MB	96 MB
64 MB	16 MB	32 MB	112 MB
64 MB	16 MB	64 MB	144 MB
64 MB	16 MB	128 MB	208 MB
64 MB	32 MB	8 MB	104 MB
64 MB	32 MB	16 MB	112 MB
64 MB	32 MB	32 MB	128 MB
64 MB	32 MB	64 MB	160 MB
64 MB	32 MB	128 MB	224 MB
64 MB	64 MB	8 MB	136 MB
64 MB	64 MB	16 MB	144 MB
64 MB	64 MB	32 MB	160 MB
64 MB	64 MB	64 MB	192 MB
64 MB	64 MB	128 MB	256 MB
64 MB	128 MB	8 MB	200 MB
64 MB	128 MB	16 MB	208 MB
64 MB	128 MB	32 MB	224 MB
64 MB	128 MB	64 MB	256 MB
64 MB	128 MB	128 MB	320 MB
128 MB	8 MB	8 MB	144 MB
128 MB	8 MB	16 MB	152 MB
128 MB	8 MB	32 MB	168 MB
128 MB	8 MB	64 MB	200 MB
128 MB	8 MB	128 MB	264 MB

Table 1-4 Memory Configurations

DIMM 1	DIMM 2	DIMM 3	Total Memory
128 MB	16 MB	8 MB	152 MB
128 MB	16 MB	16 MB	160 MB
128 MB	16 MB	32 MB	176 MB
128 MB	16 MB	64 MB	208 MB
128 MB	16 MB	128 MB	272 MB
128 MB	32 MB	8 MB	168 MB
128 MB	32 MB	16 MB	176 MB
128 MB	32 MB	32 MB	192 MB
128 MB	32 MB	64 MB	224 MB
128 MB	32 MB	128 MB	288 MB
128 MB	64 MB	8 MB	200 MB
128 MB	64 MB	16 MB	208 MB
128 MB	64 MB	32 MB	224 MB
128 MB	64 MB	64 MB	256 MB
128 MB	64 MB	128 MB	320 MB
128 MB	128 MB	8 MB	264 MB
128 MB	128 MB	16 MB	272 MB
128 MB	128 MB	32 MB	288 MB
128 MB	128 MB	64 MB	320 MB
128 MB	128 MB	128 MB	384 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.

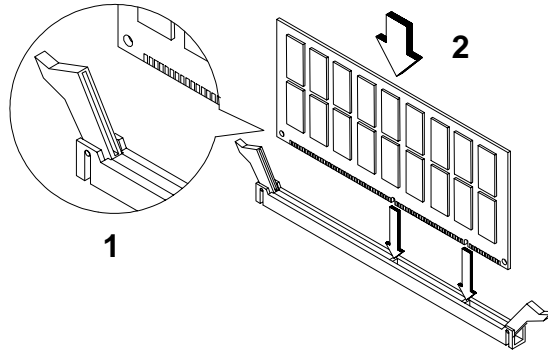


Figure 1-7 Installing a DIMM



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.

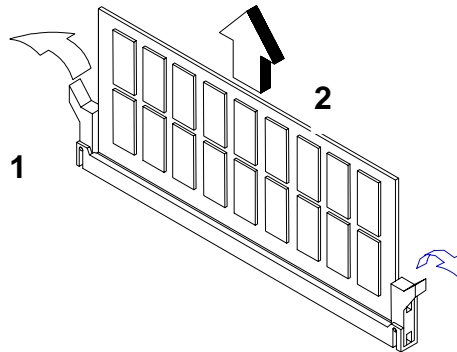


Figure 1-8 Removing a DIMM

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 Installing Expansion Cards

1.8.1 Installing the PCI Card

To install PCI cards:

1. Locate the PCI slot(s) on the mainboard.
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.

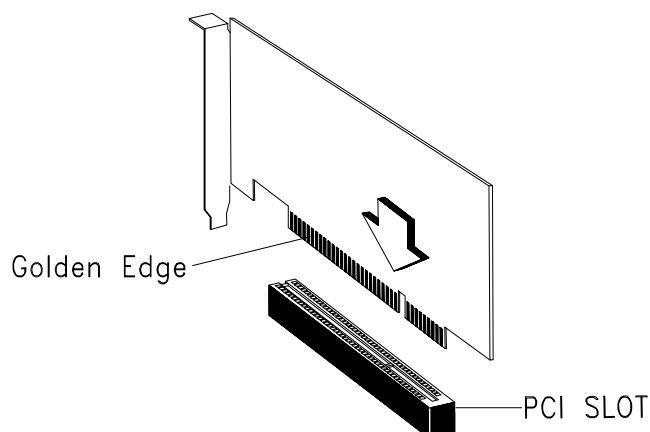


Figure 1-9 Installing a PCI Card

1.8.2 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. 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.

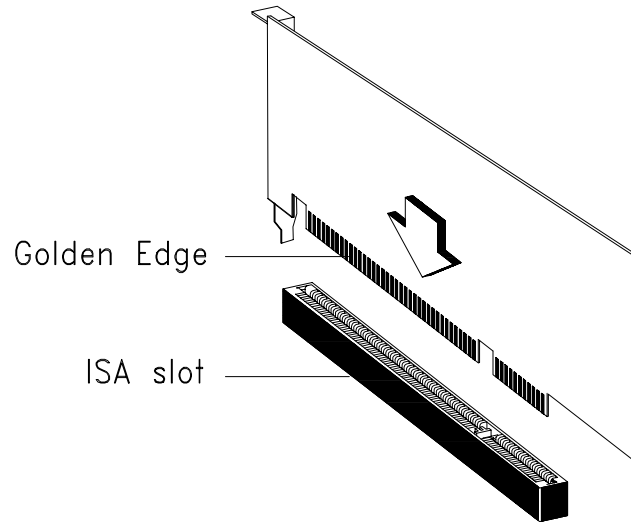


Figure 1-10 Installing an ISA Card

1.8.3 Installing the AGP Card

When installing AGP card, make sure that the IRQs required by these cards are not previously assigned to PCI or ISA devices to avoid resource conflicts.

Follow these steps when installing AGP card:

1. Locate the AGP slot on the mainboard.
2. Insert an AGP card into the slot. Make sure that the card is properly seated.

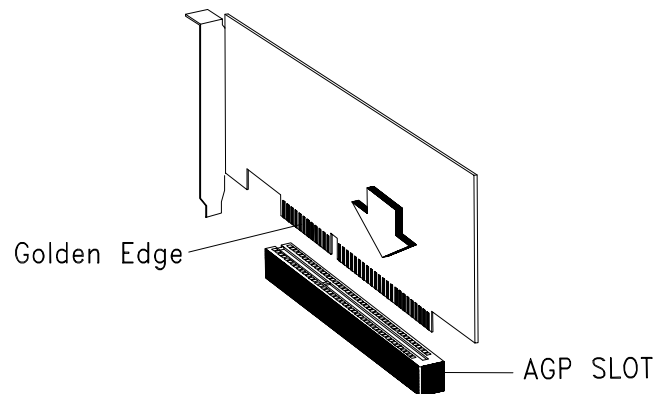


Figure 1-11 Installing an AGP Card

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



BIOS detects and configures only PnP cards.

1.9 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 1.6 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.

1.10 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.

1.11 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 Acer ADM (Advanced Desktop Management) or Intel LDCM (LAN Desk Client Manager). Acer 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.

1.12 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

1.12.1 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.






1.12.2 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
Bad CMOS Battery	Replace battery. Contact your dealer.
CMOS Checksum Error	Run Setup.
DRAM Configuration Error	Check and modify DRAM configuration to agree with Table 1-5.
Equipment Configuration 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.
Hard Disk Controller Error	Check and connect the cable to the hard disk drive or controller.
Hard Disk 0 Error	Check all cable connections. Check the hard disk and replace if necessary.
Hard Disk 1 Error	Check all cable connections. Check the hard disk and replace if necessary.
Hard Disk 0 Extended Type Error	Run Setup.
Hard Disk 1 Extended Type Error	Run Setup.
I/O Parity Error	Contact your dealer.
Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.

Table 1-5 *System Error Messages (continued)*

Error Message	Corrective Action
Keyboard Interface Error	Contact your dealer.
Keyboard Locked	Unlock the keyboard.
Memory Error	Check DIMMs on the system board. Contact your dealer.
Memory Size Mismatch	Run Setup.
Serial 1 Conflict	Run Setup. Disable Onboard Serial 1.
Serial 2 Conflict	Run Setup. Disable Onboard Serial 2.
Parallel Port Conflict	Run Setup. Disable Onboard Parallel Port.
Pointing Device Error	Check or connect the pointing device. Contact your dealer.
Pointing Device Interface Error	Contact your dealer.
Press F1 key to continue or Ctrl-Alt-Esc for Setup	Press  or    .
Press Esc to turn off NMI, any key to reboot	Press  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.

1.12.3 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.