Chapter 4 Installing Optional Components

4.1 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.

4.1.1 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.

4.1.2 Preinstallation 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. To turn off the system:

   i. Press the power button located on the front of the system unit for at least four seconds. Quickly pressing the button puts the system in Suspend mode only.

   ii. Turn off the system main power switch located on the rear panel. If the system main power switch is not available, unplug the system.

2. Open the system according to the instructions in section 4.2.1.

3. Follow the ESD precautions in section 4.1.1 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.

Not turning off the system properly before you start installing components may damage your system.

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

4.1.3 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 2.3.2 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.

4.2 Removing and Replacing the Housing Cover

Before you proceed, make sure that you have turned off the system and all peripherals connected to it. Read section 4.1.2 for preinstallation instructions.

This section tells you how to open the housing cover when you need to install additional components inside the system unit.

4.2.1 Removing the Housing Cover

1. Turn off power to the system unit and unplug all cables.

2. Place the system unit on a flat, steady surface.

3. Remove the four screws from the rear panel. Set the screws aside. You will need them when replacing the housing cover.

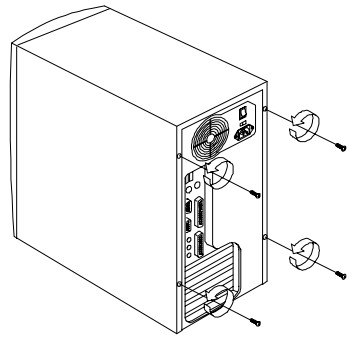

Figure 4-1 Removing the Screws

4. Push the housing cover slightly backward as indicated in Figure 4-2.

5. Pull the housing cover upward and remove it from the chassis.

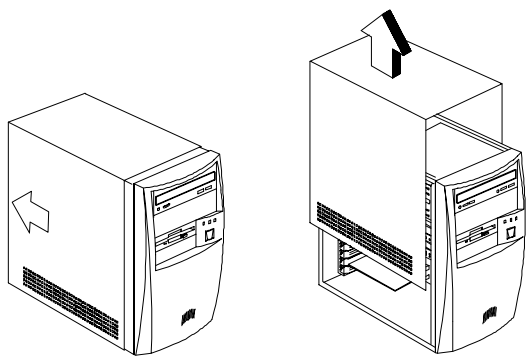

Figure 4-2 Removing the Housing Cover

4.2.2 Replacing the Housing Cover

1. Replace the housing cover as shown in Figure 4-3.

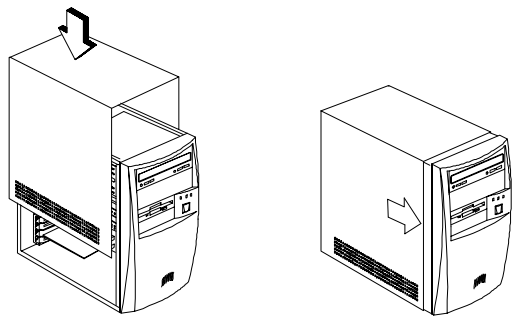

Figure 4-3 Replacing the Housing Cover

2. Secure the housing cover with the necessary screws.

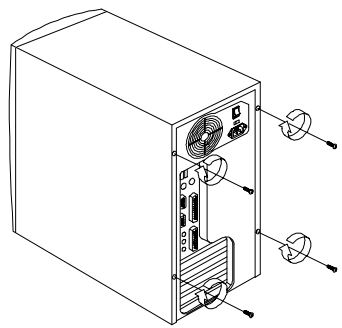

Figure 4-4 Securing the Screws

4.3 Installing and Removing Expansion Boards

4.3.1 Installing a PCI Card

To install a PCI card:

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

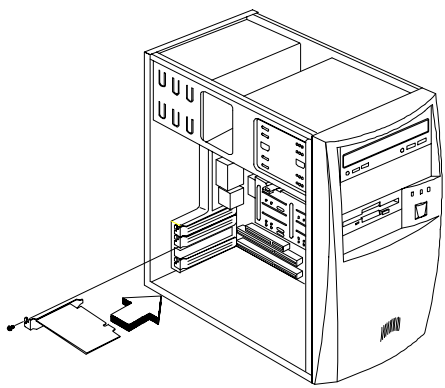

Figure 4-5 Installing a PCI Card

4.3.2 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.

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.

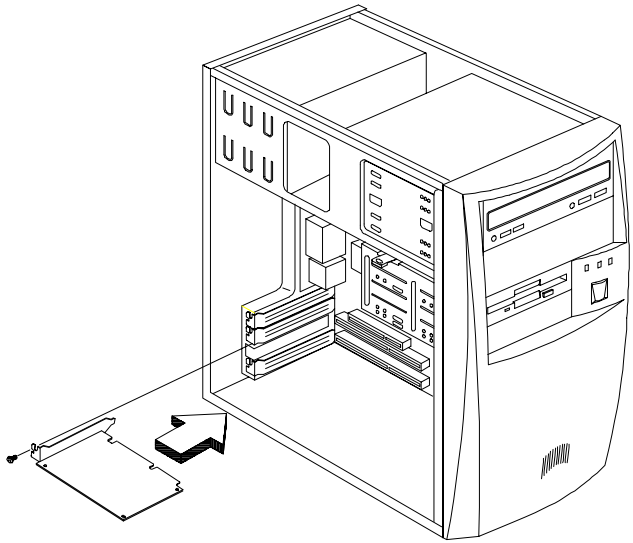

Figure 4-6 Installing an ISA Card

4.4 Installing Additional Memory

The system memory is upgradable to a maximum of 256 MB via two 168-pin DIMM sockets on board. These DIMM sockets accept DRAMs with 8-, 16-, 32-, 64-, and 128-MB capacities, 60 ns (nanoseconds) or less access time, and with ECC. See Figure 2-1 for the location of the DIMM sockets. Section 4.4.1 tells how to install DIMMs.

Table 4-1 lists possible memory configurations.

Table 4-1 Memory Configurations

DIMM1	DIMM2	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	16 MB
	32 MB	32 MB
	64 MB	64 MB
	128 MB	128 MB
8 MB	16 MB	24 MB
16 MB	32 MB	48 MB
32 MB	64 MB	96 MB
64 MB	128 MB	192 MB
8 MB	8 MB	16 MB
16 MB	16 MB	32 MB
32 MB	32 MB	64 MB
64 MB	64 MB	128 MB
128 MB	128 MB	256 MB

4.4.1 Installing a DIMM

1. Open the clips on the socket.
2. Align the DIMM with the socket.
3. Press the DIMM into the socket until the clips lock into the DIMM.

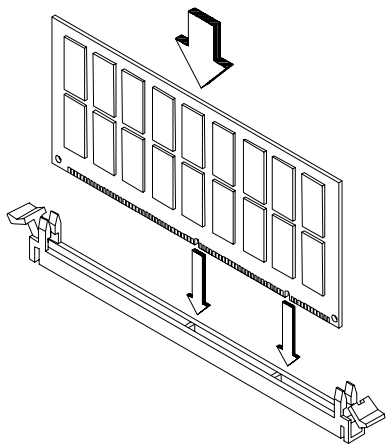

Figure 4-7 Installing a DIMM

The DIMM socket is slotted to ensure proper installation. If you insert a DIMM but it does not fit easily into the socket, you may have inserted it incorrectly. Turn the DIMM around and try to insert it again.

4.4.2 Removing 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.

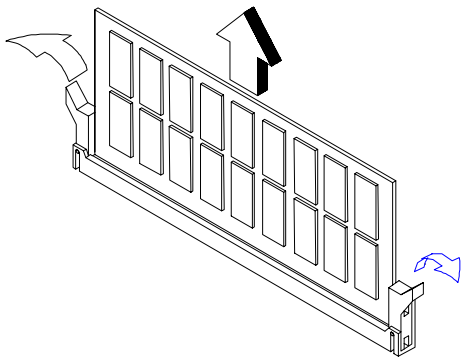

Figure 4-8 Removing a DIMM

4.4.3 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.

4.5 Upgrading the CPU

The board supports a Pentium II processor or a Celeron processor. Both processors come in a new enclosed packaging technology called S.E.C. (Single-Edge Contact) cartridge. The only difference between the two is that the Pentium II processor comes with 256-KB or 512-KB built-in second-level cache, while the Celeron processor comes only with an internal cache. Both are capable of increasing the performance of 32-bit software and multimedia applications.

4.5.1 Removing the Processor Card

Observe the ESD precautions when installing or removing a system component. See section 4.1.1.

Before you can replace or upgrade your processor, you need to remove the previously installed processor on the system board.

Follow these steps to remove the processor card:

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.

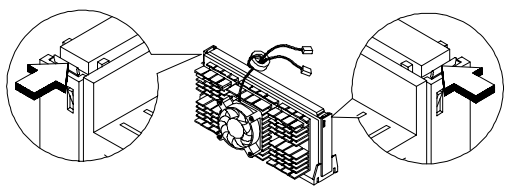

Figure 4-9 Pressing the Latches

2. Pull the processor to totally detach it from the CPU connector.

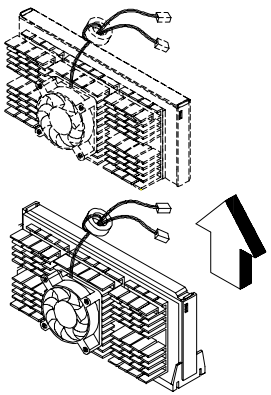

Figure 4-10 Removing a Processor Card

4.5.2 Installing a Processor Card

Observe the ESD precautions when installing or removing a system component. See section 4.1.1

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

Follow these steps to install a processor card:

1. Place the retention mechanism over the CPU connector on the system board and press it until it clicks into place.

2. Press the four rivets to secure the retention mechanism. Make sure all four rivets are properly inserted into the holes on the system board.

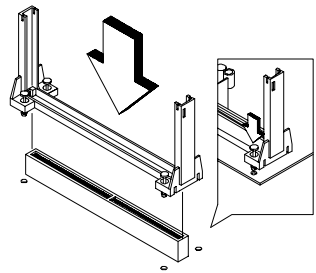

Figure 4-11 Installing the Retention Mechanism

3. Remove the processor card from its protective packaging. Make sure that the latches on the sides of the module are not pressed.

4. Remove the thermal tape protector at the back of the fan sink.

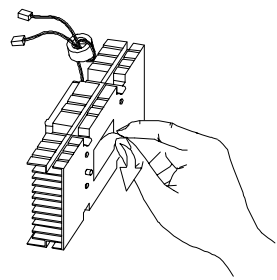

Figure 4-12 Removing the Tape Protector from the Fan Sink

5. Insert the wide clip ends into the wide holes on the processor and the narrow clip ends into the narrow holes.

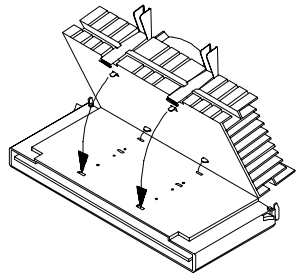

Figure 4-13 Inserting the Clip Ends into the Processor Holes

6. Using your fingers, push down the metal bracket until it clicks into the CPU cartridge and then push the metal bracket's handle to lock the metal bracket into place.

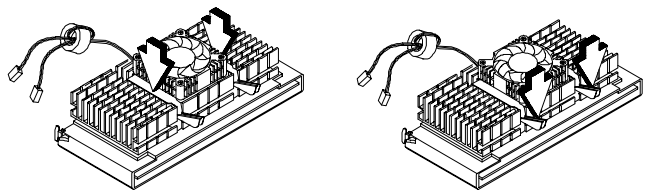

Figure 4-14 Locking the Metal Bracket

7. With the processor card golden fingers pointing downward, align the processor to the posts of the retention mechanism.

8. Lower the processor into to the CPU connector on the system board until the golden fingers touch the connector.

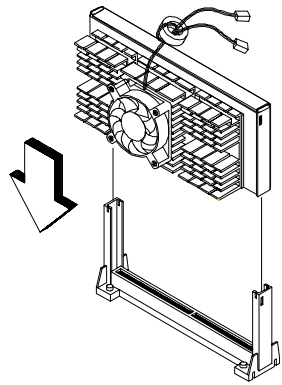

Figure 4-15 Installing a Processor Card

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

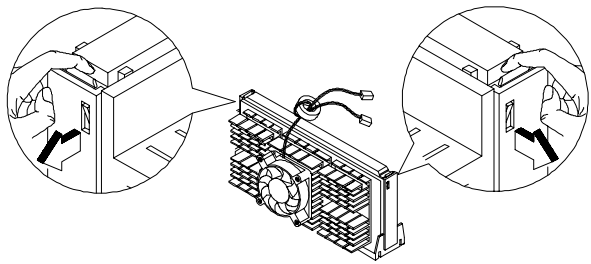

Figure 4-16 Locking the Processor

10. Connect the 3-pin and 2-pin fan / heatsink cables to FN1 and pins 3-4 of JP2401 on the system board, respectively.

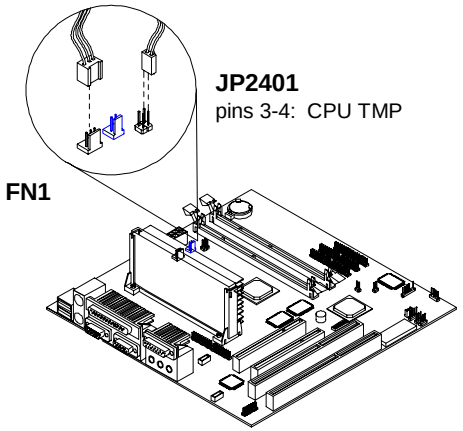

Figure 4-17 Connecting the Fan/Heatsink Cables

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

4.5.3 Installing the Celeron CPU

Observe the ESD precautions when installing or removing a system component. See section 4.1.1

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

Follow these steps to install a Celeron processor:

1. Place the retention mechanism over the CPU connector on the system board and press it until it clicks into place.

2. Press the four rivets to secure the retention mechanism. Make sure all four rivets are properly inserted into the holes on the system board.

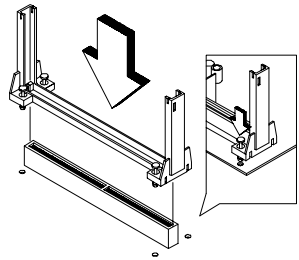

Figure 4-18 Installing the Retention Mechanism

3. Remove the Celeron processor from its protective packaging.

4. Attach the heatsink on top of the Celeron processor.

5. Align the fasteners underneath the processor card with the heatsink tabs.

6. Press the heatsink and fasteners together to lock the heatsink.

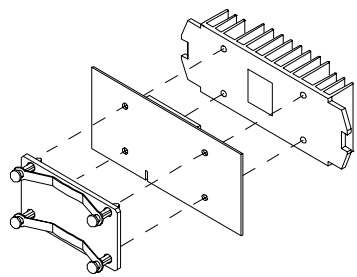

Figure 4-19 Attaching the Heatsink

7. Press down the processor until the golden fingers completely fit into the connector.

8. Snap the retention cover into place as shown in the figure below.

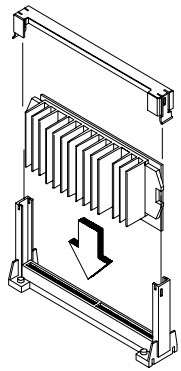

Figure 4-20 Installing the Celeron Processor

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

4.6 Connecting USB Devices

The USB ports on the rear panel enable the system to support additional serial devices without using up your system resources.
To connect a USB device, simply plug the device cable into a USB port marked on the rear panel. See the following figure:

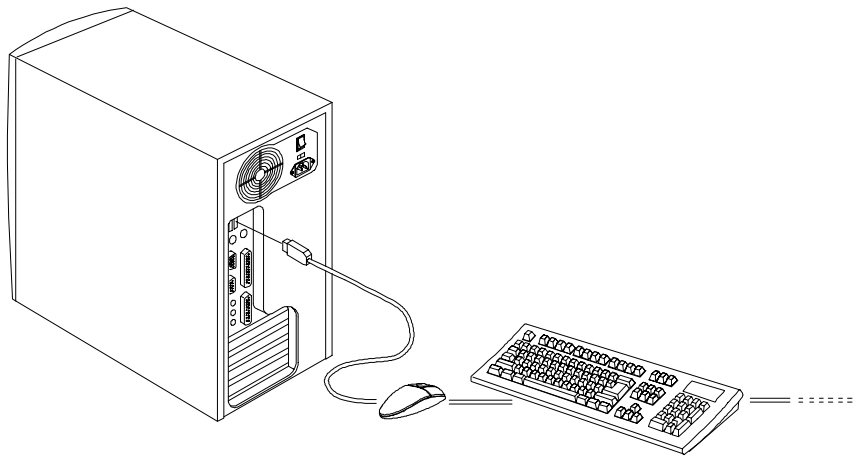

Figure 4-21 Connecting USB Devices

Most USB devices have a built-in USB port which allows you to daisy-chain other devices.