AcerAltos 9100 Series

User's Guide

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save them for future reference.

2. Follow all warnings and instructions marked on the product.

3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

4. Do not use this product near water.

5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.

7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

8. This product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace the outlet. Do not defeat the purpose of the grounding-type plug.

9. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.

10. If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed 15 amperes.

11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

12. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.

13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    a. When the power cord or plug is damaged or frayed

    b. If liquid has been spilled into the product

    c. If the product has been exposed to rain or water

    d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

    e. If the product has been dropped or the cabinet has been damaged

    f. If the product exhibits a distinct change in performance, indicating a need for service

14. Use only the proper type of power supply cord (provided in your keyboard/manual accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SVT/SJT, rated 8A 125V minimum. Maximum length is 15 feet (4.6 meters).

FCC Class A Radio Frequency
Interference Statement

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.

2. Increase the separation between the equipment and receiver.

3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

4. Consult the dealer or an experienced radio/television technician for help.

Notice 1:

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2:

Shielded interface cables, if any, must be used in order to comply with the emission limits.

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Chapter 1   System Board

1.1   Features

The AA9100 is a dual-processor system board that supports Intel Pentium II CPU's through an add-in CPU board.

This high-performance 64-bit system board utilizes both the ISA and the PCI local bus architecture. Two ISA and five PCI bus slots reside on the board to allow installation of either master or slave devices.

A 50-pin SCSI interface and two 68-pin Ultra Wide SCSI interfaces come with the system board to connect SCSI devices. External I/O interfaces include a parallel port and a video port, RJ-45 and USB connectors, and keyboard and mouse ports.

The system board supports two server management features, ASM Pro and Remote Diagnostic Manager (RDM), that allow better server management. ASM Pro detects problems in a CPU thermal condition, CPU working voltage detection (±12V/±5V/3.3V/1.5V), and calculating PCI bus utilization. It also detects if the CPU fan or chassis fan malfunctions. RDM allows execution of the RDM diagnostic program from a remote RDM station to fix detected problems or to reboot the system.

1.2   Major Components

The system board is comprised of the following major components:

- CPU board slot
- Two ISA and five PCI bus slots
- 256-KB Flash ROM for system BIOS
- System clock/calendar with battery backup
- 50-pin SCSI and two 68-pin Ultra Wide SCSI interfaces
- On board 10/100 network interface
- Two 24-pin RDM interfaces
- E-IDE hard disk and diskette drive interfaces
- Onboard VRAM and VRAM sockets for video memory upgrade
- Power connector for redundant 420-watt system power supply
- Super I/O, VGA, memory, and Advanced Server Management (ASM) controller chipsets
- External ports:
    - PS/2-compatible keyboard port
    - PS/2-compatible mouse port
    - Parallel port
    - Video port
    - Serial ports 1 and 2
    - RJ-45 connector
    - Universal Serial Bus (USB) connectors

1.3   Layout

Figure 1-1 shows the system board components.
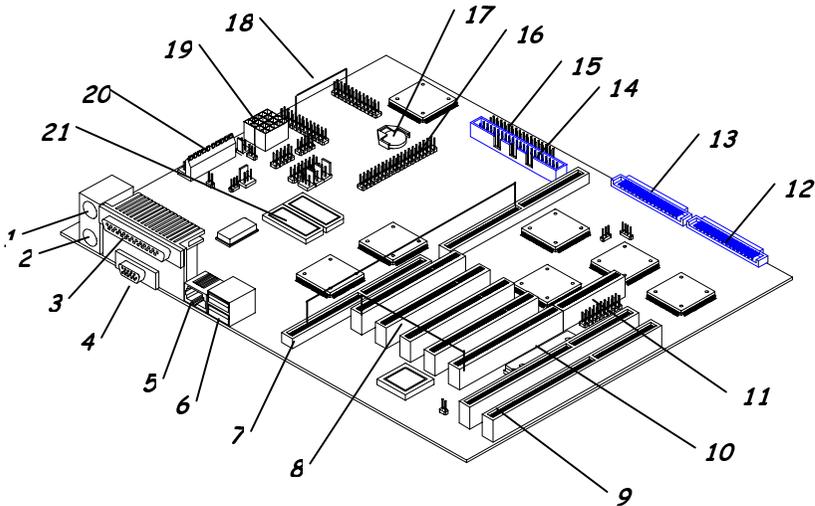
1	Mouse port	12	Ultra Wide SCSI connector 2
2	Keyboard port	13	Ultra Wide SCSI connector 1
3	Parallel port	14	Narrow SCSI connector
4	Video port	15	Diskette drive connector
5	LAN connector	16	EIDE connector
6	USB connector	17	Battery
7	CPU board slot	18	RDM connectors
8	PCI slots	19	Power connectors
9	ISA slots	20	Power connector
10	Flash ROM BIOS	21	Video expansion RAM
11	Reserved		

Figure 1-1   System Board Layout

1.4 Jumpers and Connectors

1.4.1 Jumper and Connector Locations

Figure 1-2 shows the jumper and connector locations on the system board.
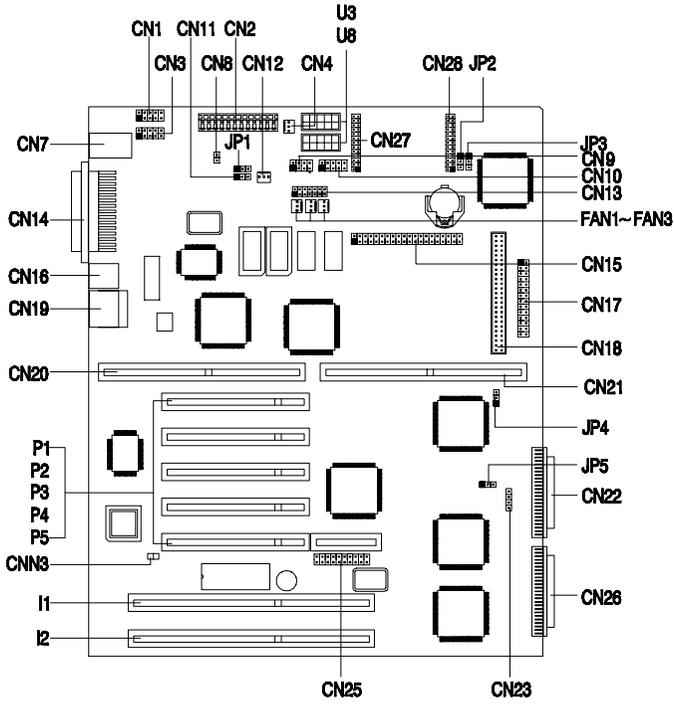
Figure 1-2   System Board Jumper and Connector Locations

> *Jumpers are prefixed "JP". Connectors are prefixed "CN". The blackened pin of a jumper represents pin 1.*

1.4.2 Jumper Settings

Table 1-1 lists the system board jumpers with their corresponding settings and functions.

Table 1-1   System Board Jumper Settings

Jumper	Setting	Function
Software Shutdown Control for CN4 JP1	1-2* 2-3	Enabled Disabled
BIOS Type JP2	1-2* 2-3	Acer Reserved
Password Security JP3	1-2 2-3*	Check password Bypass password
SCSI Channel 1 High-Byte Termination JP4	1-2 2-3* Open	Terminator always set to ON SCSI terminator set to ON or OFF by software Terminator set to OFF
VGA Feature JP5	1-2* 2-3	Normal (Auto) Onboard VGA always disabled

_____

*   Default setting

1.4.3   Connector Functions

Table 1-2 lists the different connectors on the system board and their respective functions.

Table 1-2   Connector Functions

Connector	Function
CN1	COM 1
CN2, U3, U8	Power connectors
CN3	COM 2
CN4	Software shutdown connector for 420-watt SPS
CN7	PS/2 mouse/keyboard connectors
CN8	Power switch
CN9	Power LED and keylock connector
CN10	Monitor signal connector for redundant power supply
CN12	Software shutdown connector for redundant power supply
CN13	Backplane board LED connector
CN14	Printer port (above) / video port (below)
CN15	IDE connector
CN16	LAN connector
CN17	Diskette drive connector
CN18	Channel 1 narrow SCSI connector
CN19	Universal serial bus (USB) ports
CN22	Channel 1 wide SCSI connector
CN23	Hard disk LED connector
CN25	SMM connector
CN26	Channel 2 wide SCSI connector
CN27, CN28	RDM connectors
CNN3	Connector for chassis intrusion prevention
FA1, FA2, FA3	Fan connectors

1.5 Installing Components on the System Board

The following sections describe how to install components into the system board, including how to install a CPU board and optional PCI card, and how to upgrade system board video memory.

Before beginning the installation, please take a moment to read the sections below. They contain important ESD precautions and 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 Chapter 5, System Housing.

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 components you are installing.

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 procedures after installing a system component:

1. See to it that the components are installed according to the 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.

Always observe the following electrostatic discharge (ESD) precautions before installing a system component:

1. Do not remove a component from its antistatic packaging until you are ready to install it.

2. Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.

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

1.6   Video Memory Upgrade

Larger video memory allows you to display higher resolutions and more colors. The system board comes with a 1-MB video memory onboard upgradable to 2 MB.

Follow these steps to upgrade the video memory:

1. Locate the video DRAM upgrade sockets labeled U36 and U37 on the system board. See Figure 1-1.

2. Gently insert a video chip into each of the upgrade sockets.

> *Make sure that the pin 1 indicator on the chip matches the notched corner of the socket.*
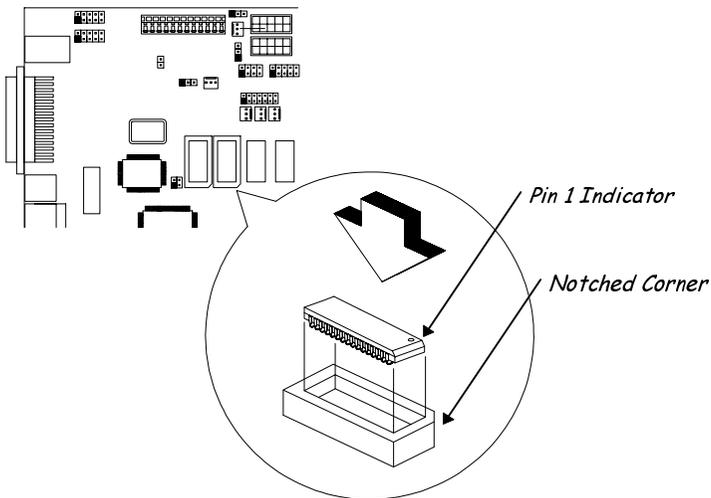
Figure 1-3   Installing a Video Memory Chip

1.7   ASM Pro

The ASM Pro is a server management tool based on the Simple Network Management Protocol (SNMP). It detects server problems related to a CPU thermal condition, ±12V/±5V/3.3V/1.5V detection, or calculating PCI bus utilization.

This feature is designed primarily for server supervisors and management information system (MIS) personnel to help them detect errors or potential trouble spots in their network servers through a single management station.

ASM Pro consists of two major parts:

- ASM-Station - a Windows-based monitoring station that communicates with the ASM-Agents.

- ASM-Agent(s) - the individual servers managed by the ASM-Station.

Refer to the ASM Pro user's manual for more information.

1.8   Remote Diagnostic Manager

The Remote Diagnostic Manager (RDM) is a network management tool that utilizes modems and telephone lines to control a host of servers from a remote station. It monitors and analyzes the server condition, updates the BIOS settings if necessary, or reboots the server in the event of failure and quickly return it to normal operation. This capability to execute the RDM program from a remote site bridges the distance barrier in fixing server problems and reduces wasted time due to system failure.

Refer to the RDM *User's Guide* for detailed instructions on RDM installation.

1.9   Error Messages

Do not continue using the computer if you receive an error message of any type. Note the message and take corrective action. This section explains the different types of error messages and corresponding corrective measures.

There are two general types of error messages:

- Software

- System

1.9.1   Software Error Messages

Software error messages are returned by your operating system or application. These messages typically occur 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.

1.9.2   System Error Messages

A system error message indicates a problem with the computer itself. A message of this type normally appears during the power-on self-test, before the operating system prompt appears.

Table 1-3 lists the system error messages.

Table 1-3   System Error Messages

Message	Action
CMOS Battery Error	Replace the RTC chip or contact your dealer.
CMOS Checksum Error	Check the RTC chip and the necessary jumper. If the battery is still good, run Setup.
Display Card Mismatch	Run Setup.
Diskette Drive Controller Error or Not Installed	Check and connect the control cable to the diskette controller.
Diskette Drive Error	Diskette may be defective. If not, replace the diskette drive.
Diskette Drive A Type Mismatch	Run Setup and select the proper drive type.
Diskette Drive B Type Mismatch	Run Setup and select the proper drive type.
Equipment Configuration Error	Run Setup.
Hard disk Controller Error	Run Setup.
Hard disk 0 Error	Check all cable connections. Replace hard disk.
Hard disk 1 Error	Check all cable connections. Replace hard disk.
Keyboard Error or No Keyboard Connected	Check and connect the keyboard to the system unit.
Keyboard Interface Error	Replace the keyboard or contact your dealer.

Table 1-3   System Error Messages (continued)

Message	Action
Memory Error at: MMMM:SSSS:OOO (W:XXXX, R:YYYY) where: M: MB, S: Segment, O: Offset, X/Y: write/read pattern	Check DIMMs on the CPU board. Contact your dealer.
Memory Size Mismatch CPU Clock Mismatch	Run Setup. Check if the values shown in the memory parameters are correct. If correct, exit Setup and reboot the system. If the error message reappears, seek technical assistance.
Onboard Serial Port 1 Conflict	Run Setup and disable the port.
Onboard Serial Port 2 Conflict	Run Setup and disable the port.
Onboard Parallel Port Conflict	Run Setup and disable the port.
Pointing Device Error	Check and connect pointing device.
Pointing Device Interface Error	Replace the pointing device or contact your dealer.
Press F1 key to continue or Ctrl-Alt-Esc for Setup	Press F1 or CTRL + ALT + ESC to enter Setup.
Real Time Clock Error	Check the RTC chip. If it is still good, run Setup. If not, replace the RTC chip.
CPU BIOS Code Mismatch	Contact your dealer.

1.9.3   Correcting Error Conditions

As a general rule, if an error message says "Press F1 to continue," it 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 them down when the system is correctly configured. An incorrect configuration is a major cause of power-on error messages, especially for a new system.

2. Remove the system unit cover. Check that the jumpers on the system board and any expansion boards are set correctly.

3. Check that all connectors and boards are securely plugged in.

If you go through 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.

In either case, contact an authorized service center for assistance.

Chapter 2   CPU Board

The CPU board carries two sockets to support a powerful dual-CPU configuration. The sockets accommodate Intel Pentium II CPUs running at 266 MHz or 300 MHz and incorporates the first-level and second-level cache and boasts a new generation of power.

The board comes with four DRAM banks composed of four 168-pin dual-inline memory module (DIMM) sockets that accommodate ECC/EDO (extended data output) DIMMs.

Designed to work with Intel 440FX PCIset, the board includes the PCI bridge/memory controller (PMC) and the data bus accelerator (DBX) chipsets. The PMC provides bus control signals and address paths for transfers between the host bus, PCI bus, and the main memory. The DBX supports multiple-bit error detection and single-bit error correction through the ECC/parity feature.

2.1 Layout
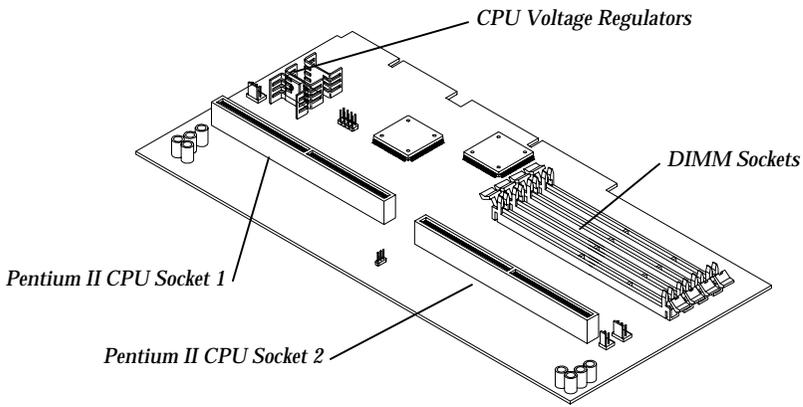
Figure 2-1   CPU Board Layout

2.2 Jumper Locations
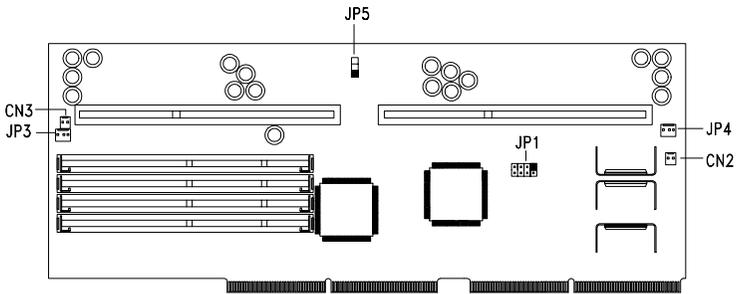
Figure 2-2   Pentium II CPU Board Jumper Locations

2.3   Jumper Settings

Table 2-1   Settings for CPU Core/Bus Frequency Ratio (JP1)

JP1 Settings				CPU Core/Bus Freq.
1-2	3-4	5-6	7-8	
1	1	1	1	2/1
1	1	0	1	3/1
1	1	1	0	4/1 *
1	1	0	0	5/2
1	0	0	1	7/2

0 - Pins open   1 - Pins Closed

Table 2-2   Clock Settings (JP5)

JP5		CPU Clock Speed
1-2	2-3	
1	0	66 MHz*
0	1	60 MHz

0 - Pins open   1 - Pins closed

_____

*   Default setting

2.4 Memory Upgrade

The system board comes with four 168-pin sockets, labeled DIMM1 to DIMM4, that accommodate single-density and double-density DIMMs. The sockets support both fast-page mode and EDO DIMMs for a total of 512-MB system memory using 128-MB DIMMs. Table 2-3 lists some possible memory configurations.

2.4.1 Memory Configurations

Table 2-3   Possible Memory Configurations

DIMM1	DIMM2	DIMM3	DIMM4	Total Memory
32 MB				32 MB
32 MB	32 MB			64 MB
32 MB	32 MB	32 MB		96 MB
32 MB	32 MB	32 MB	32 MB	128 MB
32 MB	32 MB	64 MB	64 MB	192 MB
64 MB				64 MB
64 MB	64 MB			128 MB
64 MB	64 MB	64 MB		192 MB
64 MB	64 MB	64 MB	64 MB	256 MB
64 MB	64 MB	128 MB	128 MB	384 MB
128 MB				128 MB
128 MB	128 MB			256 MB
128 MB	128 MB	128 MB		384 MB
128 MB	128 MB	128 MB	128 MB	512 MB

The above configurations are only some of the available memory combinations. When upgrading memory, simply install DIMMs into any of the empty sockets.

2.4.2   Installing a DIMM

To install a DIMM, align it with the socket and press it down until the holding clips secure the DIMM in place.

The DIMM socket is slotted to ensure proper installation. If you slip in a DIMM but does not completely fit, you may have inserted it the wrong way.   Reverse the orientation of the DIMM.
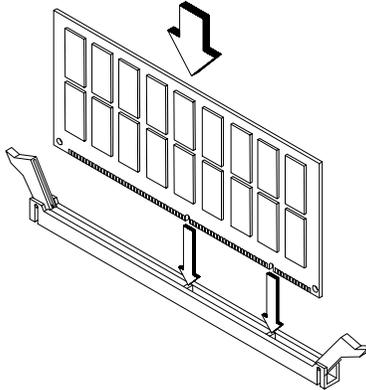
Figure 2-3   Installing a DIMM

2.4.3 Removing a DIMM

To remove a DIMM, press the holding clips on both sides of the socket outward to release the DIMM.

> *Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.*
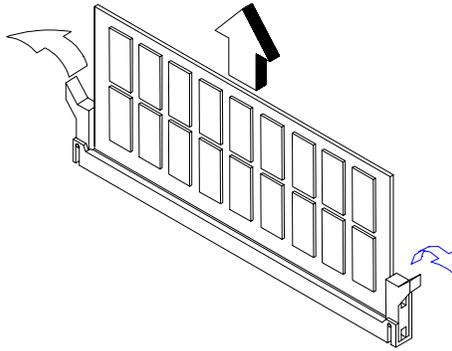
Figure 2-4   Removing a DIMM

2.4.4 Reconfiguring the System

You may enter Setup after installing or removing a DIMM to reconfigure the system.

Follow these steps to reconfigure the system:

1. Turn the system on. A memory error message may appear, indicating that the total memory does not match the value stored in CMOS.

2. Press `CTRL` + `ALT` + `ESC` to enter Setup. A warning message appears indicating an incorrect memory configuration.

3. Press `ESC` twice to exit and reboot the system.

The system boots with the new memory configuration.

2.5　Installing the Processor Heat Sink and Fan

The Pentium II processor module comes with holes on one side to hold the clips of the heat sink and fan. The upper set of holes (near the latches) on the processor are wider and should match the wider ends of the clips on the heat sink. The lower set of holes are smaller and should match the narrow ends of the heat sink clips.
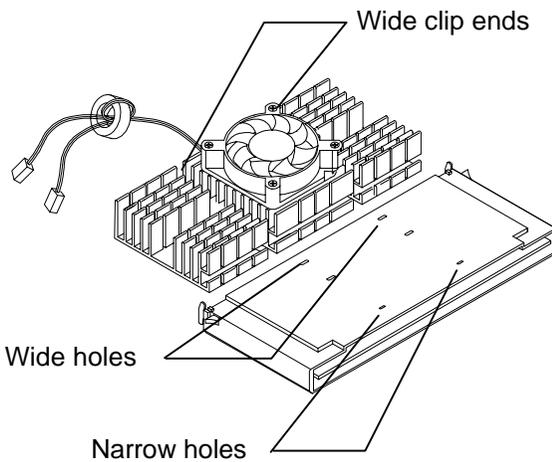
Figure 2-5　Matching the Fan-Heat Sink Clips with the Holes on the Processor

Follow these steps when installing the heat sink and fan to the Pentium II processor module:

1. Remove the thermal tape protector at the back of the heat sink.

2. Insert the wide clip ends to the wide holes on the processor and the narrow clip ends to the narrow holes.
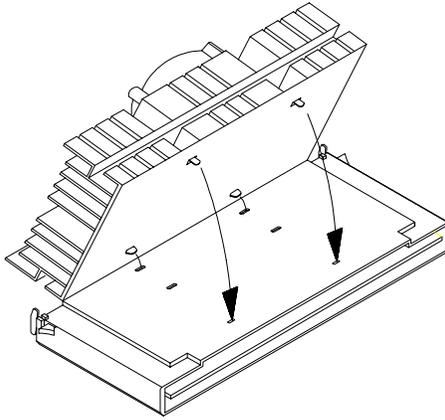
Figure 2-6   Inserting the Clip Ends to the Processor Holes

3. Use a screwdriver to press and lock in the wide end of a clip first. Then without lifting the screwdriver, point it downward to press and lock the narrow end of the clip. See Figures 7 and 8 for the illustration of this step.
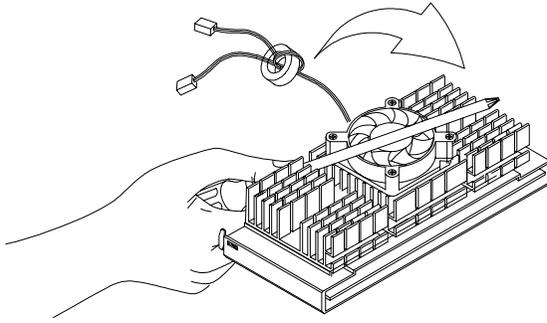
Figure 2-7   Locking a Wide Clip End
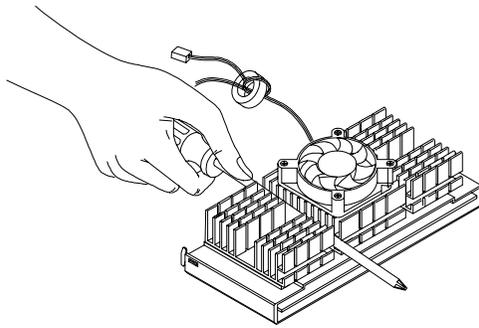
Figure 2-8   Locking a Narrow Clip End

4.   Repeat step 3 to lock the other clip.

2.6   Installing a Pentium II Processor

Follow these steps to install the Pentium II processor to the socket on the CPU board.

1. Place the retention mechanism over the processor socket on the CPU board. Secure it with the screws that came with the package.
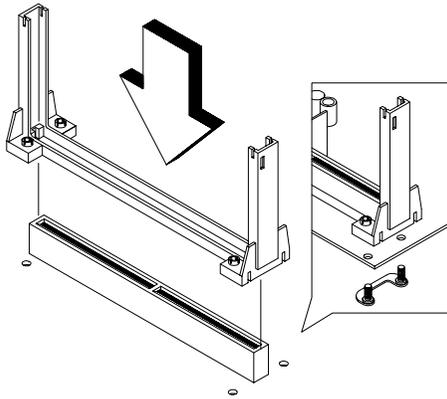
Figure 2-9   Installing the Pentium II Retention Mechanism

2. With the processor module edge connectors pointing downward, align the processor to the posts of the retention mechanism then lower it down. See Figure 2-10.

> *The edge connectors of the Pentium II module are slotted such that they only fit in one direction. Make sure that module groove matches the one on the processor socket.*

3. Press down the processor module until the edge connectors completely fit into the socket.
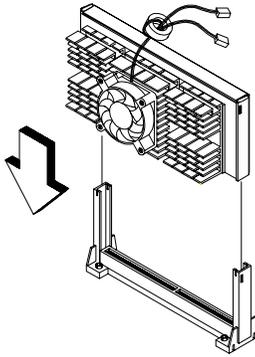
Figure 2-10 Installing a Pentium II Processor

4. Press the latches on the sides to lock the processor module into place.
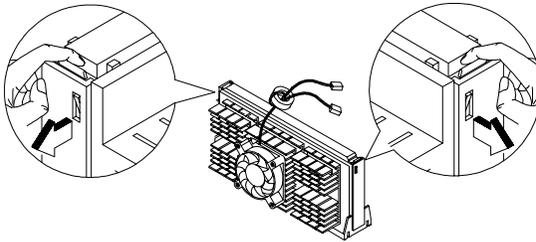
Figure 2-11 Securing the Pentium II Processor

5. Connect the fan connectors.

2.7   Removing a Pentium II Processor

Follow these steps to remove the Pentium II CPU module from the slot.

1.   Remove the fan connections.

2.   Unlock the latches the secure that processor module.
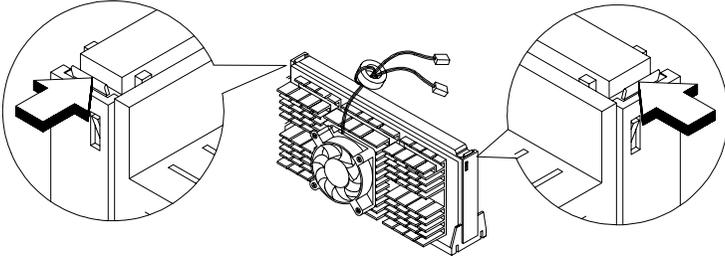
Figure 2-12 Unlocking the Module Latches

2.   Firmly hold the processor module and pull it out of the socket.
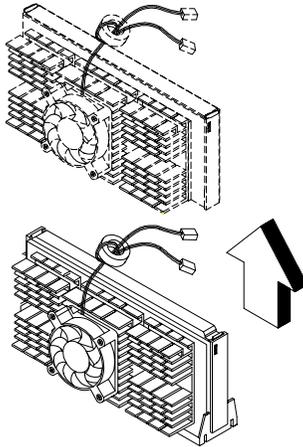
Figure 2-13 Removing the Pentium II Processor

2.8   CPU Board Installation

After setting the jumpers and installing memory modules and CPUs, install the CPU board into the CPU board slot on the system board.

Follow these steps to install the CPU board:

1.   Position the CPU board over the slot on the system board such that the component side (CPU side) faces upward.

2.   Gently insert the edge connector of the board into the slot.
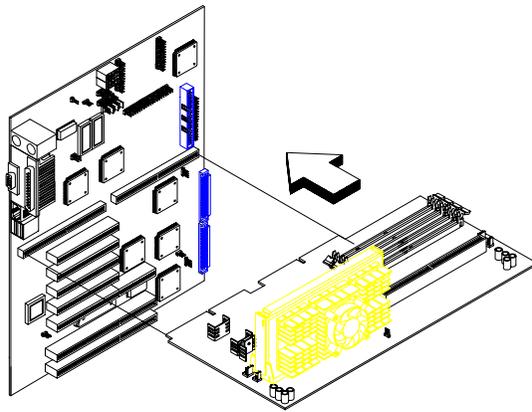
Figure 2-14 Installing the CPU Board

Make sure that the CPU board is properly seated in the slot.

Chapter 3   BIOS Utility

Most systems are already configured by the manufacturer or the dealer. There is no need to run Setup when starting the computer unless you get a Run Setup message.

If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

Before you run Setup, make sure that you have saved all open files. The system reboots immediately after you exit Setup.

3.1   Entering Setup

To enter Setup, press the key combination ⌈CTRL⌉+⌈ALT⌉+⌈ESC⌉ .

> *You must press ⌈CTRL⌉+⌈ALT⌉+⌈ESC⌉ while the system is booting. This key combination does not work during any other time.*

The BIOS Utilitymain menu then appears:

```
┌──────────────────────────────────────────────────────────────┐
│                         BIOS Utility                         │
├──────────────────────────────────────────────────────────────┤
│                                                              │
│                                                              │
│              Basic System Configuration                      │
│             Advanced System Configuration                    │
│               PCI System Configuration                       │
│                   System Security                            │
│            Remote Diagnostic Configuration                   │
│               Load Setup Default Settings                    │
│                                                              │
│                                                              │
│                                                              │
├──────────────────────────────────────────────────────────────┤
│ ↑↓ = Move Highlight Bar,  ↵  = Select,  Esc = Exit and Reboot │
└──────────────────────────────────────────────────────────────┘
```
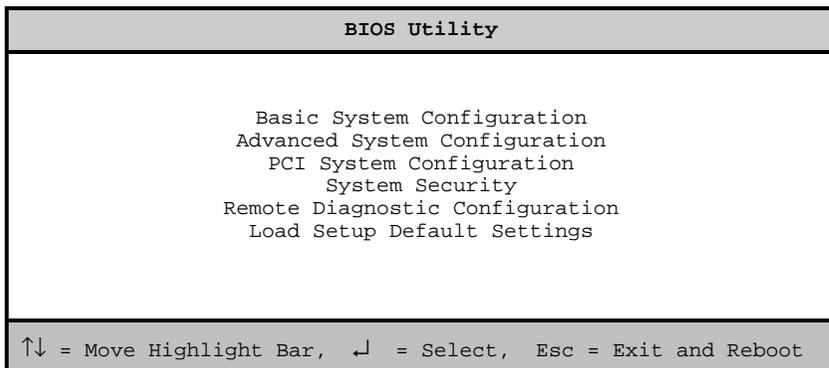
> *The parameters on the following screens show default values. These values may not be the same as those in your system.*
>
> *The grayed items (denoted with asterisks) on the following screens have fixed settings and are non-configurable.*

3.2   Basic System Configuration

Select Basic System Configuration to input configuration values such as date, time, and disk types.

The following screen shows the Basic System Configuration menu.

```
                  Basic System Configuration        Page 1/2

  Date ..................... [MM/DD/YY]
  Time ..................... [HH:MM:SS]
  Diskette Drive A ......... [1.44 MB  3.5-inch]
  Diskette Drive B ......... [       None      ]

  Onboard IDE ............. [Disabled ]

                                     Cylinder   Head    Sector

  IDE Drive 0  (  0 MB)..... [None]

  IDE Drive 1  (  0 MB)..... [None]


  Total Memory ............ [ xxx]  MB


  ↑↓ = Move Highlight Bar,   → ← = Change Setting
  PgDn/PgUp = Move Screen,   F1 = Help,   Esc =  Exit
```

The command line at the bottom of the menu tells you how to highlight items, change settings, and move from one screen to another.

Press ⬆ or ⬇ on the cursor-edit keypad to highlight the desired parameter.

Press ➡ or ⬅ to select the desired option for a parameter.

Press PGDN to move to the next page or PGUP to return to the previous page.

Press ESC to exit the configuration menu.

The following screen shows page 2 of the Basic System Configuration menu.

```
              Basic System Configuration        Page 2/2

    Enhanced IDE Features
        Hard Disk Block Mode  .......... [Enabled ]
        Advanced PIO Mode  ............. [Enabled ]
        Hard Disk Size > 504MB  ........ [Enabled ]
        Hard Disk 32-bit Access  ....... [Enabled ]

    Large Memory Support Mode ......... [Normal  ]
    Num Lock After Boot  .............. [Enabled ]
    Memory Test  ...................... [Disabled]
    Quiet Boot  ....................... [Disabled]
    Configuration Table  .............. [Enabled ]



    ↑↓ = Move Highlight Bar,   → ← = Change Setting
    PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit
```

The following sections explain the different parameters and their settings.

3.2.1   Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you need not enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

Date

Highlight the items on the date parameter and press ⊞ or ⊟ to set the date following the month-day-year format.

Valid values for month, day, and year are:

- Month   **1** to **12**

- Day   **1** to **31**

- Year   **00** to **99**

Time

Highlight the items on the time parameter and press ⏵ or ⏴ to set the time following the hour-minute-second format.

Valid values for hour, minute, and second are:

- Hour   **00** to **23**

- Minute   **00** to **59**

- Second   **00** to **59**

3.2.2   Diskette Drives

To enter the configuration value for the first diskette drive (drive A), highlight the Diskette Drive A parameter. Press ⏵ or ⏴ key to view the options and select the appropriate value.

Possible settings for the Diskette Drive parameters:

- [None   ]

- [360 KB,   5.25-inch]

- [1.2 MB,   5.25-inch]

- [720 KB,   3.5-inch]

- [1.44 MB,   3.5-inch]

- [2.88 MB,   3.5-inch]

Follow the same procedure for Diskette Drive B. Choose **None** if you do not have a second diskette drive.

3.2.3 Onboard IDE

When set to **Enabled**, this parameter enables the IDE drives installed in the system. Setting to **Disabled** deactivates the IDE drives and grays the IDE Drive parameters.

3.2.4 IDE Drives

Move the highlight bar to the IDE Drive 0 parameter to configure the first IDE drive (drive C). Press ➡ or ⬅ to display the IDE hard disk types with their respective values. Select the type that corresponds to your drive. Follow the same procedure for the other drives, if any. Choose **None** if you do not have other drives.

Selecting the "Auto" Option

If you do not know the exact type of your IDE drive, select the option **Auto**. During the power-on self-test (POST), when the system performs self-testing and self-initialization before loading the operating system and applications, the BIOS utility automatically determines your IDE drive type. You can see the drive type and its values when you enter the BIOS Utility.

```
                          Cylinder  Head  Sector
IDE Drive 0 (xx MB).... [Auto]    xx    xx    xx
```

If desired, you can save the values under the option **User**.

```
                              Cylinder Head Sector
IDE Drive 0 (xx MB).... [User]    xx    xx    xx
```

The next time you boot the system, the BIOS utility does not have to auto-configure your IDE drive as it detects the saved disk information during POST.

We recommend that you copy the IDE disk drive values and keep them in a safe place in case you have to reconfigure the disk in the future.

Follow the same procedure to auto-configure other IDE drives.

Selecting the "User" Option

There are cases when you cannot use the option **Auto**, instead you have to select **User**. Choose the **User** option when you have installed an hard disk that was previously formatted but does not use the disk native parameters or structure, that is, the disk type may be in the hard disk types list but the number of cylinders, heads, and sectors differ.

Follow these steps to configure a hard disk with the **User** option:

1. Highlight an hard disk parameter.

2. Select the option **User** and press ENTER .

3. Type in the number of cylinders, heads, and sectors of the drive under the appropriate columns.

4. Choose **YES** when asked if you want to save CMOS data.

3.2.5   Total Memory

The system automatically detects the total amount of onboard memory during the POST and sets the memory parameters accordingly. If you install additional memory, the system automatically adjusts this parameter to display the new memory size.

3.2.6   Enhanced IDE Features

Hard Disk Block Mode

This function enhances disk performance depending on the hard disk in use. If you set this parameter to **Enabled**, it allows data transfer in block (multiple sectors) by increasing the data transfer rate to 256 bytes per cycle. If your system does not boot after enabling this parameter, change the setting to **Disabled**. This parameter is normally set to **Enabled** .

Advanced PIO Mode

Enabling this parameter improves system performance by allowing the use of faster hard drives. If your hard disk does not support this function, set this parameter to **Disabled** . The default if **Enabled** .

Hard Disk Size > 504 MB

If enabled, BIOS allows you to use a hard disk with a capacity of more than 504 MB. This is made possible through the Logical Block Address (LBA) mode translation. Other operating systems require this parameter to be set to **Disabled** .

To prevent data loss, set this parameter set to **Enabled** if you are using a hard disk with more than 504 MB capacity that was previously configured through LBA mode. If you use a hard disk configured through cylinder-head-sector (CHS) mode, set this parameter to **Disabled** . The default is **Enabled** .

Hard Disk 32-bit Access

Enabling this parameter improves system performance by allowing the use of the 32-bit hard disk access. This enhanced IDE feature only works under DOS, Windows 3.x, Windows 95, and Novell NetWare. If your software or hard disk does not support this function, set this parameter to **Disabled** . The default is **Enabled** .

3.2.7   Num Lock After Boot

This parameter allows you to activate the Num Lock function upon booting. The default setting is **Enabled**.

3.2.8   Memory Test

When set to **Enabled**, this parameter allows the system to perform a RAM test during the POST routine. When set to **Disabled**, the system detects only the memory size and bypasses the test routine. The default setting is **Disabled** .

3.2.9   Quiet Boot

This parameter enables or disables the quiet boot function. When set to **Enabled**, BIOS is in graphical mode and displays only an identification logo during POST and while booting. After which the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurred while booting, the system automatically switches to text mode.

Even if your setting is **Enabled**, you may also switch to the text mode while booting by pressing ⌊F9⌋ after you hear a beep that indicates the activation of the keyboard.

When set to **Disabled**, BIOS is in the conventional text mode where you see the system initialization details on the screen. Default is **Disabled**.

3.2.10 Configuration Table

This parameter allows you to display the configuration table after POST but before booting. The configuration table gives a summary of the hardware devices and settings that BIOS detected during POST. Following is a sample configuration table. Default is **Enabled**.

```
CPU ID      :Pentium II         Base Memory:   :   xxx KB
CPU Clock   :xxx MHz            Extended Memory:  xxxx KB
Math Coprocessor:Installed      Shadow RAM    :   xxx KB
IDE Drive 0 :   xxx MB          Internal Cache :  xxx KB, Enabled
IDE Drive 1 :   xxx MB          External Cache :  xxx KB, Enabled
Diskette Drive A: xx-MB, xx-inch   Serial Port(s) :  3F8h, 2F8h
Diskette Drive B: None          Parallel Port :   378h
ECC/Parity Mode:  ECC           Pointing Device:  Installed
USB Host Controller:  Disabled  CPU L2 ECC    :   BSP, AP
```

3.3   Advanced System Configuration

The Advanced System Configuration option allows you to configure the advanced system memory functions.

> *Do not change any settings in the Advanced Configuration if you are not a qualified technician to avoid damaging system.*

The following screen shows page one of the Advanced System Configuration parameters.

```
         Advanced System Configuration          Page 1/1


  Internal Cache (CPU Cache) .......... [Enabled ]
  External Cache (CPU Cache) .......... [Enabled ]
  Cache Scheme ........................ [Write back]

  ECC/Parity Mode Selection ........... [   ECC   ]
    Operation of ECC .................. [correction enable]

  Memory at 15MB-16MB Reserved for ..... [     System    ] Use

  MP Fault Tolerance .................. [Enabled ]




  ↑↓ = Move Highlight Bar,   → ← = Change Setting
  PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit
```

3.3.1   Internal Cache (CPU Cache)

This parameter enables or disables the first-level cache memory integrated in the Pentium II CPU.

3.3.2   External Cache (CPU Cache)

This parameter enables or disables the second-level cache memory.

Cache Scheme

This parameter allows you to select **Write back** or **Write through** for the cache mode.   **Write back** updates the cache but not the memory when there is a write instruction.   It updates the memory only when there is an inconsistency between the cache and the memory.   **Write through** updates both the cache and the memory whenever there is a write instruction.

3.3.3   ECC/Parity Mode Selection

This parameter allows you to select **ECC**, **Parity**, or **Disabled** .   The **ECC** option allows single-bit error detection and automatic correction.   The automatic correction depends on the setting of the parameter Operation of ECC.   See section 3.3.4 for details.

ECC also detects multiple-bit errors but does not correct them.   Instead, it issues a non-maskable interrupt (NMI) signaling the operating system of the multiple-bit error detection.

The **Parity** option allows parity check.   If it detects any parity errors, it sets up the parity error flag in the chipset.   This signals the operating system of the parity error detection.

Fast-page mode DIMMs with parity support both ECC and parity mode.   EDO DIMMs with parity support only ECC mode.

Both the ECC and parity check features require parity DIMMs. You must disable this parameter if you installed DIMMs without parity.

3.3.4   Operation of ECC

This parameter allows you to enable or disable the error correction function. In the option **Correction Enabled**, ECC automatically corrects any single-bit errors detected.   For multiple-bit errors detected, ECC issues an NMI to signal the operating system of the multiple-bit error detection.

In the option **Correction Disabled**, ECC detects both single-bit and multiple-bit errors but does not correct a multiple-bit error; it issues an NMI to signal the operating system of the error detection.

This parameter is grayed if the ECC/Parity Mode Selection parameter is set to either **Parity** or **Disabled** . Refer to section 3.3.3.

3.3.5   Memory at 15MB-16MB

To prevent memory address conflicts between the system and expansion boards, reserve this memory range for the use of either the system or an expansion board. Before setting this parameter, check your add-on card manual to determine if your add-on card needs this memory space. If not, set this parameter to **System Use**.

3.4   PCI System Configuration

The PCI System Configuration allows you to specify the settings for your PCI devices.

```
┌─────────────────────────────────────────────────────────────────────┐
│            PCI System Configuration            Page 1/2               │
├─────────────────────────────────────────────────────────────────────┤
│                                                                       │
│   PCI IRQ Setting  ...........[  Auto  ]                              │
│                                INTA    INTB    INTC    INTD           │
│      PCI Slot 1 ............  [--]    [--]    [--]    [--]            │
│      PCI Slot 2 ............  [--]    [--]    [--]    [--]            │
│      PCI Slot 3 ............  [--]    [--]    [--]    [--]            │
│      PCI Slot 4 ...........   [--]    [--]    [--]    [--]            │
│      PCI Slot 5 ............  [--]    [--]    [--]    [--]            │
│      Onboard LAN ...........  [--]                                    │
│      Onboard SCSI1 .........  [--]                                    │
│      Onboard SCSI2 .........  [--]                                    │
│                                                                       │
│   VGA Palette Snoop ..........[Disabled]                             │
│                                                                       │
│   PCI Slot Latency Time ......[20]                                    │
│                                                                       │
├─────────────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,    → ← = Change Setting                     │
│  PgDn/PgUp = Move Screen,    F1 = Help,   Esc  =  Exit                │
└─────────────────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────────────────┐
│            PCI System Configuration            Page 2/2               │
├─────────────────────────────────────────────────────────────────────┤
│   Onboard LAN  ...............[Enabled ]                             │
│   USB Host Controller ........[Disabled]                            │
│   Onboard SCSI1  .............[Enabled ]                            │
│        Boot SCSI1 Device .....[Enabled ]                            │
│   Onboard SCSI2  .............[Enabled ]                            │
│        Boot SCSI2 Device .....[Enabled ]                            │
│                                                                       │
│   RAID Port Boot .............[Disabled]                             │
│   PCI IRQ Sharing ............[No ]                                   │
│   Plug & Play OS .............[No ]                                   │
│   Reset Resources Assignment .[No ]                                  │
│                                                                       │
├─────────────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,    → ← = Change Setting                     │
│  PgDn/PgUp = Move Screen,    F1 = Help,   Esc  =  Exit                │
└─────────────────────────────────────────────────────────────────────┘
```

3.4.1   PCI IRQ Setting

This parameter allows for **Auto** or **Manual** configuration of PCI devices. If you use plug-and-play (PnP) devices, set this parameter to **Auto**. The system then automatically assigns IRQ to the PnP devices. If your PCI device is not a PnP, you can manually assign the interrupt for each device. Refer to your manual for technical information about the PCI card.

> *When the PCI IRQ Setting is set to* **Auto**, *all the IRQ setting fields become gray and non-configurable.*

PCI Slots

These parameters allow you to specify the appropriate interrupt for each of the PCI devices. You can assign IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10, IRQ11, IRQ12, IRQ14, or IRQ15 to the slots.

The items PCI Slot 4 and Onboard SCSI share the same IRQ. Setting an interrupt for the former automatically sets that same interrupt for the latter.

> *Make sure that the interrupt you assign in any of the PCI slots are not used by other devices to avoid conflicts.*

3.4.2   Onboard LAN

This item allows you to manually assign the interrupt for the onboard LAN when the PCI IRQ Setting parameter is set to **Manual** . This parameter is grayed and not user-configurable when the PCI IRQ Setting is set to **Auto** and when the Onboard LAN parameter is set to **Disabled** .

3.4.3 Onboard SCSI1/Onboard SCSI2

These items allow you to manually assign the interrupts for the onboard SCSI controllers when the PCI IRQ Setting parameter is set to **Manual**. These parameters are grayed and not user-configurable when the PCI IRQ Setting is set to **Auto** and when the Onboard SCSI1 and Onboard SCSI2 parameters on page 2 are set to **Disabled** .

> *Make sure to assign an IRQ to this item if you set the PCI IRQ Setting parameter to* **Manual***.*

Press ⬆ or ⬇ to move between fields. Press ➡ or ⬅ to select options.

3.4.4 VGA Palette Snoop

This parameter permits you to use the palette snooping feature if you installed more than one VGA card in the system.

The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAM DAC (Digital Analog Converter, a color data storage) of each VGA card installed in the system. The snooping process lets the CPR send a signal to all the VGA cards so that they can update their individual RAM DACs. The signal goes through the cards continuously until all RAM DAC data has been updated. This allows display of multiple images on the screen.

> *Some VGA cards have required settings for this feature. Check your VGA card manual before setting this parameter.*

3.4.5   USB Host Controller

This parameter allows you to enable or disable the onboard USB host controller and the external USB ports.

Onboard SCSI1

This parameter allows you to enable or disable the onboard SCSI1 device.

Boot SCSI1 Device

This parameter allows you to enable or disable the onboard SCSI1 as a boot device priority.

Onboard SCSI2

This parameter allows you to enable or disable the onboard SCSI2 device.

Boot SCSI2 Device

This parameter allows you to enable or disable the onboard SCSI2 as a boot device priority.

3.4.6   PCI IRQ Sharing

When set to **Yes**, this parameter allows you to assign the same IRQ to more than one PCI device installed in the system. When set to **No**, you must assign different IRQs to the PCI devices.

3.4.7 Plug & Play OS

When this parameter is set to **Yes**, BIOS initializes only PnP boot devices such as SCSI cards. When set to **No**, BIOS initializes all PnP boot and non-boot devices such as sound cards.

Set this parameter to **Yes** *only if your operating system is Windows 95.*

3.4.8 Reset Resources Assignment

Set this parameter to **Yes** to avoid an IRQ conflict when installing non-PnP or PnP ISA cards. This clears all resource assignments and allows BIOS to reassign resources to all installed PnP devices the next time the system boots. After clearing the resource data, the parameter resets to **No**.

3.5   Power Saving Configuration

The Power Saving Configuration parameters are configurable when your system and OS support the power management feature.

The following screens show the Power Saving Configuration parameters and their default settings. Default is **Disabled**.

```
                  Power Saving Configuration        Page 1/1


 Power Management Mode ................[Disabled]
    IDE Hard Disk Standby Timer  .......[15] Minute(s)
    System Standby Timer  ..............[ 5] Minute(s)
    System Suspend Timer  ..............[15] Minutes

 Monitored Activities
    IRQ 0 ...... [Disabled]          IRQ 8 ...... [Disabled]
    IRQ 1 ...... [Enabled ]          IRQ 9 ...... [Disabled]
    IRQ 3 ...... [Disabled]          IRQ 10 ..... [Disabled]
    IRQ 4 ...... [Disabled]          IRQ 11 ..... [Disabled]
    IRQ 5 ...... [Disabled]          IRQ 12 ..... [Enabled ]
    IRQ 6 ...... [Enabled ]          IRQ 13 ..... [Enabled ]
    IRQ 7 ...... [Disabled]          IRQ 14 ..... [Enabled ]
                                     IRQ 15 ..... [Disabled]

   ↑↓ = Move Highlight Bar,   → ← = Change Setting
   PgDn/PgUp = Move Screen,   F1 = Help,   Esc  =  Exit
```

All of the power saving options in the above screen have no effect if the power management mode is disabled.

3.5.1   Power Management Mode

This parameter allows you to reduce power consumption. When this parameter is set to **Enabled**, you can configure the system timers.   Setting to **Disabled** deactivates the power management feature and all the timers.

> *For system models with RDM module installed, enabling the RDM feature disables the power management parameters.*

IDE Hard Disk Standby Timer

This parameter allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to the normal speed. Set this parameter to **Off** if your hard disk does not support this function.

System Standby Timer

This parameter sets the system to a "fast-on" power saving mode. It automatically enters the standby mode after a specified period of inactivity. Any keyboard or mouse action, or any enabled monitored activities occurring through IRQ channels, resume system operation.

System Suspend Timer

This parameter sets the system to a "fast-on" power saving mode. It automatically enters the standby mode after a specified period of inactivity. Any keyboard or mouse action, or any enabled monitored activities occurring through the IRQ channels, resume system operation.

3.5.2   Monitored Activities

This parameter allows you to monitor system activities occurring through the IRQ and determine whether or not to enter power saving mode.

For example, if you assign IRQ3 to a fax/modem and you set this item to **Enabled**, any fax/modem activity wakes up the system from suspend mode.

3.6 System Security

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

Enter the Setup program and select System Security to display the following screen.

```
                         System Security              Page 1/1

 Disk Drive Control
    Diskette Drive ................ [          Normal         ]
    Hard Disk Drive ............... [          Normal         ]
    System Boot Drive ............. [Drive A then C]
 Onboard Communication Ports
    Serial Port 1 Base Address .... [   3F8h    ]
    Serial Port 2 Base Address .... [   2F8h    ]
    Parallel Port Base Address .... [3BCh (IRQ 7]
       Operation Mode ............. [Standard & Bidirectional] Mode
          *ECP DMA Channel ........ [-]

 Onboard PS/2 Mouse (IRQ12) ... [Enabled ]

 Setup Password .................. [  None  ]
 Power On Password ............... [  None  ]

    ↑↓ = Move Highlight Bar,   → ← = Change Setting
    PgDn/PgUp = Move Screen,    F1 = Help,   Esc  =  Exit
```

3.6.1 Disk Drive Control

The disk drive control features allow you to enable or disable the read/write functions of a disk drive. These features can also control the diskette drive or the hard disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives are operational.

Table 3-1 lists the drive control settings and their corresponding functions.

Table 3-1   Drive Control Settings

Diskette Drive	
Setting	**Description**
Normal	Diskette drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector
Disabled	Disables all diskette functions
Hard Disk Drive	
Setting	**Description**
Normal	Hard disk drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector
Disabled	Disables all hard disk functions
System Boot Drive	
Setting	**Description**
Drive A then C	The system checks drive A first. If there is a diskette in the drive, the system boots from drive A. Otherwise, it boots from drive C.
Drive C then A	The system checks drive C first. If there is a hard disk (drive C) installed, the system boots from drive C. Otherwise, it boots from drive A.
C:	The system always boots from drive C.
A:	The system always boots from drive A.

3.6.2   Onboard Communication Ports

Serial Port 1 Base Address

This parameter allows you to set the serial port 1 logical base address.

Table 3-2   Serial Port 1 Settings

Setting	Description
3F8h	Serial port 1 with address 3F8h using IRQ4
2F8h	Serial port 1 with address 2F8h using IRQ3
3E8h	Serial port 1 with address 3E8h using IRQ4
2E8h	Serial port 1 with address 2E8h using IRQ3
Disabled	Disables serial port 1

Serial Port 2 Base Address

This parameter allows you to set the serial port 2 logical base address.

Table 3-3   Serial Port 2 Settings

Setting	Description
3F8h	Serial port 2 with address 3F8h using IRQ4
2F8h	Serial port 2 with address 2F8h using IRQ3
3E8h	Serial port 2 with address 3E8h using IRQ4
2E8h	Serial port 2 with address 2E8h using IRQ3
Disabled	Disables serial port 2

If you assign 3F8h to serial port 1, you may only assign 2F8h or 2E8h to serial port 2.

If you assign 2F8h to serial port 1, you may only

Parallel Port Base Address

The system has one parallel port. Table 3-4 lists the options for selecting the parallel port address. You also have the option to disable the parallel port.

Table 3-4   Parallel Port Settings

Setting	Function
3BCh (IRQ 7)	Corresponds to the parallel port with address 3BCh
378h (IRQ 7)	Corresponds to the parallel port with address 378h
278h (IRQ 5)	Corresponds to the parallel port with address 278h
Disabled	Disables the parallel port

To deactivate the parallel port, select the **Disabled** option. If you install an add-on card with a parallel port whose address conflicts with the onboard parallel port, the system automatically disables the onboard functions.

Check the parallel port address on the add-on card and change the address to one that does not conflict.

Operation Mode

This item allows you to set the operation mode of the parallel port. Table 3-5 lists the different operation modes.

Table 3-5   Parallel Port Operation Mode Settings

Setting	Function
Standard Parallel Port (SPP)	Allows normal speed one-way operation
Standard and Bidirectional	Allows normal speed operation in a two-way mode
Enhanced Parallel Port (EPP)	Allows bidirectional parallel port operation at maximum speed
Extended Capabilities Port (ECP)	Allows parallel port to operate in bidirectional mode and at a speed higher than the maximum data transfer rate

ecp dma channel

This item becomes active only if you select **Extended Capabilities Port (ECP)** as the operation mode. It allows you to select DMA channel 1 or DMA channel 3 depending on the available system resource.

3.6.3   Onboard PS/2 Mouse (IRQ12)

This parameter enables or disables the onboard PS/2 mouse. When set to **Enabled**, it allows you to use the onboard PS/2 mouse assigned with IRQ12. When set to **Disabled**, it deactivates the mouse and frees IRQ12 for the use of other devices.

3.6.4 Setup Password

The setup password prevents unauthorized access to the BIOS utility.

Setting a Setup Password

1. Make sure that jumper JP3 is set to pins 2-3 (bypass).

> *You cannot enter the BIOS utility if a setup password does not exist and jumper JP3 is set to pins 1-2 (check).*
>
> *The jumper JP3 is set to pins 2-3 (bypass) by default.*

2. Enter BIOS utility and select System Security

3. Highlight the Setup Password parameter and press the ← or → key. The password prompt appears:
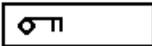
4. Type a password. The password may consist of up to seven characters.

> *Be very careful when typing your password because the characters do not appear on the screen.*

5. Press ENTER. A prompt asks you to retype the password to verify your first entry.
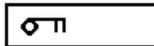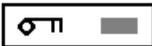
6. Retype the password then press ENTER.

   After setting the password, the system automatically sets the Setup Password parameter to **Present**.

7. Press ESC to exit the System Security screen and return to the main menu.

8. Press ESC to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.

9. Select Yes to save the changes and reboot the system.

10. While rebooting, turn off the system then open the housing.

11. Set jumper JP3 to pins 1-2 to enable the password function.

The next time you want to enter the BIOS utility, you must key-in your Setup password.

Changing or Removing the Setup Password

Should you want to change your setup password, do the following:

1. Enter the BIOS utility and select System Security.

2. Highlight the Setup Password parameter.

3. Press the ← or → key to display the password prompt and key-in a new password.

   or

   Press the ← or → key and select **None** to remove the existing password.

4. Press ESC to exit the System Security screen and return to the main menu.

5. Press ESC to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.

6.   Select Yes to save the changes and reboot the system.

Bypassing the Setup Password

If you forget your setup password, you can bypass the password security feature by hardware. Follow these steps to bypass the password:

1.   Turn off and unplug the system.

2.   Open the system housing and set JP3 to pins 2-3 to bypass the password checking.

3.   Turn on the system and enter the BIOS utility. This time the system does not require you to type in a password.

> *You can either change the existing Setup password or remove it by selecting* **None**. *Refer to the previous section for the procedure.*

3.6.5   Power On Password

The power on password secures your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system.

To set a power on password, highlight the Power On Password parameter and follow the same procedure as in setting a setup password. See section 3.6.4.

3.7   Load Setup Default Settings

Use this option to load the default settings for the optimized system configuration. When you load the default settings, some of the parameters are grayed-out with their fixed settings. These grayed parameters are not user-configurable.

The following dialog box appears when you select Load Setup Default Settings from the main menu.

```
Load Setup Default Settings
Are you sure?

      [Yes]        [No]
```
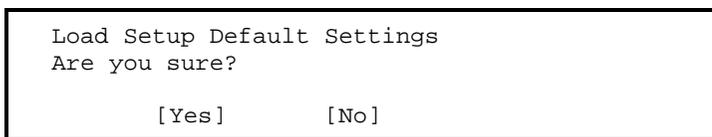
Select **[Yes]** to load the default settings.

Some settings may differ from the factory settings.

3.8 Leaving Setup

Examine the system configuration values. When you are satisfied that all the values are correct, write them down. Store the recorded values in a safe place. In the future, if the battery loses power or the CMOS chip is damaged, you will know what values to enter when you rerun Setup.

Press ESC to leave the system configuration setup. The following screen appears:

```
Do you want to save CMOS data?

        [Yes]         [No]
```

Use the arrow keys to select your response. Select **Yes** to store the new data in CMOS. Select **No** to retain the old configuration values. Press ENTER .

Chapter 4   SCSI*Select* Configuration Utility

4.1   SCSI*Select* Configuration Utility Overview

The SCSI*Select* configuration utility allows you to change SCSI controller settings without opening the computer or changing jumpers.

4.1.1   Default Values

Table 4-1 lists the settings you can change with the SCSI*Select* utility and the default value for each setting. Some settings apply globally to the SCSI controller and all SCSI devices on the bus; other settings apply individually to each device on the bus.

> *The AcerAltos 9100 Series motherboard is equipped with dual SCSI controllers, enhancing your system's performance.*

Table 4-1   Default Settings for SCSI Controller and All Devices

Global Settings for SCSI Controller and All Devices	Default Value
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	Enabled
Boot Device Option	0 (zero)
Host Adapter BIOS[1]	Enabled
Support Removable Disks Under BIOS as Fixed Disks	Boot only
Extended BIOS Translation for DOS Drives > 1 Gbyte	Enabled[2]
Display <Ctrl-A> Message During BIOS Initialization	Enabled
Multiple Lun Support	Disabled
BIOS Support for Bootable CD-ROM	Enabled
BIOS Support for Int13 Extensions	Enabled
Support for Ultra SCSI Speed	Enabled
Individual Settings for Each SCSI Device	**Default Value**
Initiate Sync Negotiation	Yes
Maximum Sync Transfer Rate	40 MBytes/sec.
Enable Disconnection	Yes
Send Start Unit SCSI Command[1]	No
Initiate Wide Negotiation	Yes

[1] Settings are valid only if host adapter BIOS is enabled.

[2] Do not change this setting from the default.

4.1.2　When to Use the SCSI*Select* Utility

Use the SCSI*Select* utility if you need to

- Change any of the default values listed in Table 4-1

- Check and/or change SCSI device settings that may conflict with those of other devices (e.g., SCSI ID)

- Perform low-level formatting on new SCSI disk devices

4.1.3　Running the SCSI*Select* Utility

To start SCSI*Select*, press **Ctrl+A** when the following is displayed during power-up or reset:

```
 Press <Ctrl> <A> for SCSISelect™ Utility!
```

This message appears after BIOS and POST information displays, and after the banner listing the Adaptec AIC-7880 version number.

4.2   SCSI*Select* Utility Options

When the SCSI*Select* utility detects the AIC-7880 SCSI controller in your computer, it displays the Options menu shown in Figure 4-1.

```
┌─────────────────────────────────────────────────────────────────────┐
│  Adaptec AIC7880 Ultra/Ultra W  ◄  SCSISelect (TM) ►   Utility       │
├─────────────────────────────────────────────────────────────────────┤
│   ┌──────── AIC-7880 Ultra/Ultra W at Bus:Device 01:06h ─────────┐   │
│   │                                                               │   │
│   │   Would you like to configure the host adapter, or run the    │   │
│   │   SCSI disk utilities? Select the option and press <Enter>.   │   │
│   │   Press <F5> to switch between color and monochrome modes.    │   │
│   │                                                               │   │
│   │             ┌──────────── Options ────────────┐               │   │
│   │             │ Configure/View Host Adapter settings │          │   │
│   │             │        SCSI Disk Utilities      │               │   │
│   │             └─────────────────────────────────┘               │   │
│   │                                                               │   │
│   └───────────────────────────────────────────────────────────────┘   │
│                                                                       │
├─────────────────────────────────────────────────────────────────────┤
│  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (   =default)  │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 4-1   Options Menu Screen

Use the ↑ and ↓ keys and the **Enter** key to make selections in the SCSI*Select* utility. Press **Esc** at any time to return to the previous menu.

> *You can press **F5** to toggle the display between color and monochrome modes. (This feature may not work on some kinds of monitors.)*

4.2.1   Configure/View Host Adapter Settings Menu

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options, as shown in Figure 4-2:

- **Host Adapter SCSI ID:** changes the host controller SCSI ID from its default value of 7

- **SCSI Parity Checking:** enables or disables host controller SCSI parity checking

- **Host Adapter SCSI Termination:** configures host controller SCSI termination

Advanced users can access Boot Device Options, SCSI Device Configuration, and Advanced Configuration Options through the following menu:

```
 Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ►  Utility


            You have more than one AIC 7880 Ultra/Ul     ┌ BUS Device ┐
            host adapter in your system. Move the        │   01:06h   │
            cursor to the bus:device of the one          │   01:0Ah   │
            to be configured and press <Enter>.          └────────────┘

                  <F5> - Toggle color/monochrome


 Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (    =default)
```

Figure 4-2   Configure/View Host Adapter Settings Screen (1 of 2)

AIC-7880 Ultra/Ultra W at Bus:Device 01:06h

Configuration

SCSI Bus Interface Definitions
     Host Adapter SCSI ID 7
     SCSI Parity Checking .... Enabled
     Host Adapter SCSI Termination .... Enabled

Additional Options
     Boot Device Options .... Press <Enter>
     SCSI Device Configuration .... Press <Enter>
     Advanced Configuration Options .... Press <Enter>

<F6> - Reset to Host Adapter Defaults

Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (=default)

Figure 4-2   Configure/View Host Adapter Settings Screen (2 of 2)

Use the cursor (↑ ↓) to move to your selection. Press **Enter** to display a pop-up menu of choices or to make selections. Press **Esc** at any time to return to the previous menu.

> *Press **F6** to reset all settings to the SCSI controller defaults. SCSI controller default settings are marked with an asterisk (*) throughout the selection submenus.*

Host Adapter SCSI ID

This option allows you to change the host controller SCSI ID. Figure 4-3 shows the available IDs for use with the AIC-7880. The default setting is SCSI ID 7. (We recommend that you not change this setting.) Some operating system software will not run unless the SCSI controller ID is set at ID 7.
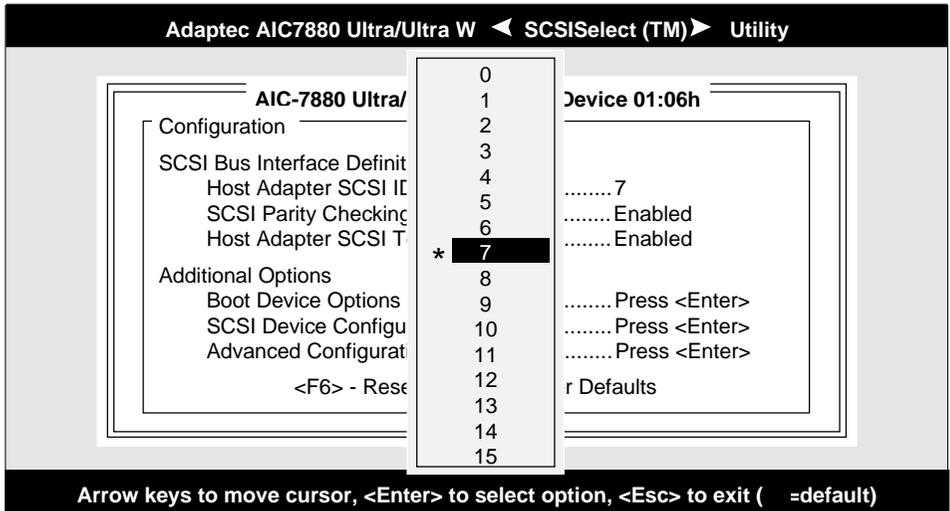
Figure 4-3   Host Adapter SCSI ID Selection Screen for AIC-7880

Each SCSI device on the SCSI bus, including the SCSI controller, must be set to a unique SCSI ID. The SCSI ID serves two purposes: it uniquely identifies each SCSI device on the bus, and it determines the device's priority on the bus during the Arbitration phase. The Arbitration phase determines which device controls the bus when two or more devices request use of it.

Use the cursor (↑ ↓) and **Enter** keys to select the SCSI ID, if you need to change it. Press **Esc** at any time to return to the previous menu.

SCSI Parity Checking

Select this option to enable or disable SCSI Parity Checking on the SCSI controller. Figure 4-4 displays your choices. The default setting is **Enabled**.

```
Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ►  Utility

        ┌─────────── AIC-7880 Ultra/Ultra W at Bus:Device 01:06h ───────────┐
        │ ┌ Configuration ─────────────────────────────────────────────────┐│
        │ │                                                                  ││
        │ │ SCSI Bus Interface Definitions                                   ││
        │ │      Host Adapter SCSI ID ................................ 7      ││
        │ │      SCSI Parity Checking................................. Enabled ││
        │ │      Host Adapter SCSI Termination ................ Enabled       ││
        │ │                              ┌──────────────┐                    ││
        │ │ Additional Options           │ * Enabled    │                    ││
        │ │      Boot Device Options .    │   Disabled   │ ........ Press <Enter> ││
        │ │      SCSI Device Configuration........................ Press <Enter> ││
        │ │      Advanced Configuration Options............... Press <Enter>  ││
        │ │           <F6> - Reset to Host Adapter Defaults                   ││
        │ └──────────────────────────────────────────────────────────────────┘│
        └──────────────────────────────────────────────────────────────────────┘

  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (   =default)
```

Figure 4-4   SCSI Parity Checking Selection

The SCSI controller always checks parity when reading from the SCSI bus to verify the correct transmission of data from your SCSI devices. You should disable SCSI Parity Checking if any attached SCSI devices do not support SCSI parity. (Most currently available SCSI devices do support SCSI parity.)

Use the cursor (↑ ↓) and **Enter** keys to make selections. Press **Esc** at any time to return to the previous menu.

Host Adapter SCSI Termination

This option allows you to configure host controller SCSI termination. Figure 4-5 shows the choices available if you have an AIC-7880. The default setting is **Low OFF/High ON**.
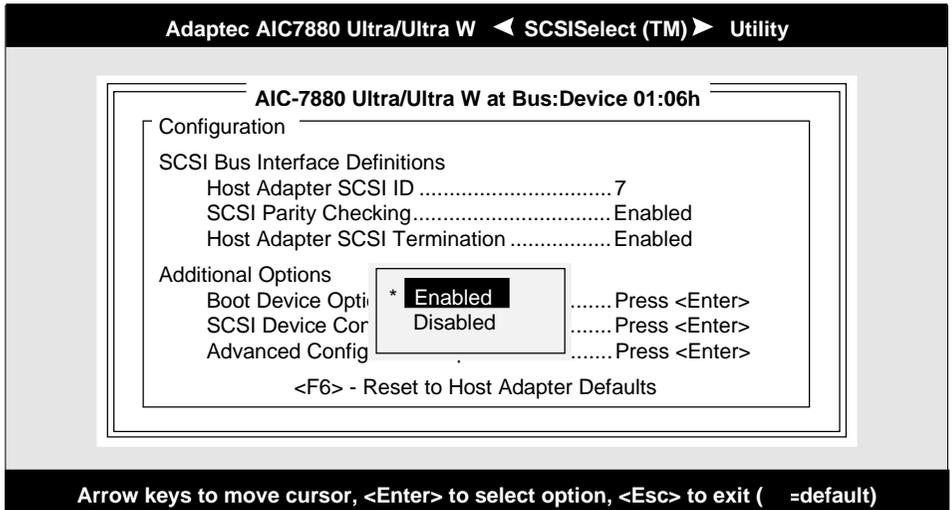
```
┌─────────────────────────────────────────────────────────────────────┐
│   Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ►  Utility        │
├─────────────────────────────────────────────────────────────────────┤
│                                                                       │
│       ┌──── AIC-7880 Ultra/Ultra W at Bus:Device 01:06h ────┐        │
│       │ ┌ Configuration                                      │        │
│       │ │                                                    │        │
│       │ │ SCSI Bus Interface Definitions                     │        │
│       │ │     Host Adapter SCSI ID ...............7          │        │
│       │ │     SCSI Parity Checking................Enabled    │        │
│       │ │     Host Adapter SCSI Termination ......Enabled    │        │
│       │ │                                                    │        │
│       │ │ Additional Options   ┌──────────┐                  │        │
│       │ │   Boot Device Opti   │ * Enabled │ ..Press <Enter> │        │
│       │ │   SCSI Device Con    │  Disabled │ ..Press <Enter> │        │
│       │ │   Advanced Config    └──────────┘ ..Press <Enter>  │        │
│       │ │            <F6> - Reset to Host Adapter Defaults    │        │
│       │ └────────────────────────────────────────────┘        │        │
│       └───────────────────────────────────────────────┘              │
│                                                                       │
├─────────────────────────────────────────────────────────────────────┤
│ Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( =default) │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 4-5   Host Adapter SCSI Termination Selection for AIC-7880

Use the cursor ($\uparrow \downarrow$) and **Enter** keys to make your selection.

> *Since the system contains both UltraWide (68-pin) SCSI devices and narrow (50-pin) SCSI devices, termination must be set to allow each section of the SCSI bus to be terminated. The narrow device in this system is terminated, causing the LOW byte on the motherboard to be turned off. On the other end, the back panel terminates both bytes (Low OFF/High ON).*
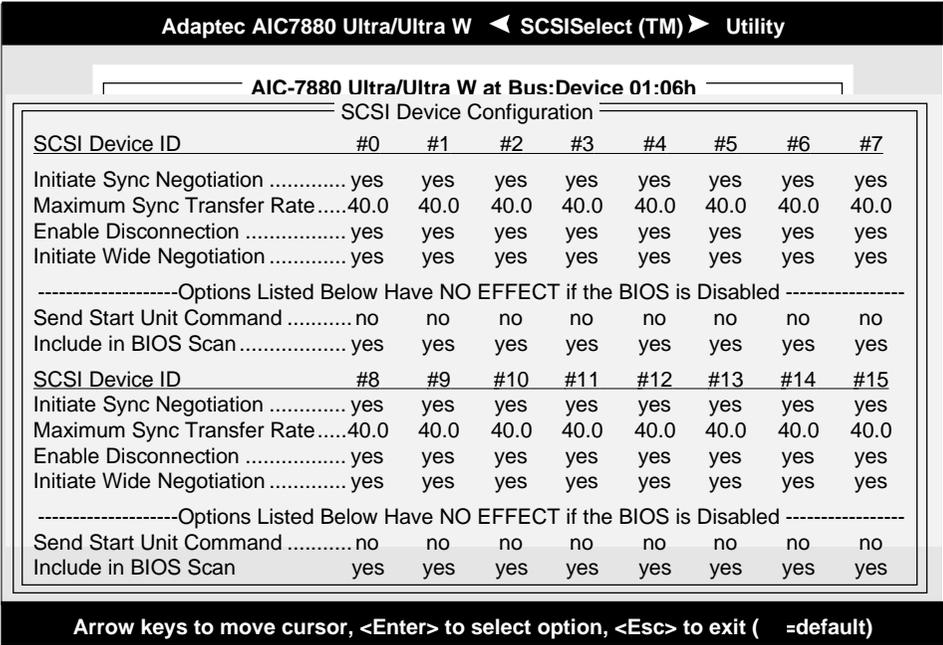
Boot Device Options

This option shows the target ID of the device you are booting from. The default setting is **0** (zero). We recommend that you not change this setting. Some operating systems will not run unless the boot device is set at zero.

Figure 4-6 shows the Boot Device Options screen.


```
     Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ►  Utility

          ┌──── AIC-7880 Ultra/Ultra W at Bus:Device 01:06h ────
          │ Configuration
          │
          │  SCSI Bus Interface Definitions
          │       Host Adapter SCSI ID .................................7
          │       SCSI Parity Checking..................................Enabled
     ┌══════════════════ Boot Device Configuration ══════════════════
     │
     │    Run SCSI Disk Utilities to get devices
     │    in your system
     │
     │    Boot Target ID ...........................................................0
     │----------Options Listed Below Have NO EFFECT if Multiple Lun Support is Disabled-----------
     │
     │    Boot Lun Number.........................................................0

     Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (   =default)
```

Figure 4-6   Boot Device Options Screen

SCSI Device Configuration

This option allows you to configure certain parameters of each SCSI device on the SCSI bus. A screen similar to Figure 4-7 appears. The screen shows a column of information for each SCSI ID, even if some SCSI IDs are not assigned to a device. To configure a specific SCSI device, you need to know which SCSI ID it uses. See *SCSI Disk Utilities* later in this section to learn how to determine which SCSI ID is used by which device.

```
┌──────────────────────────────────────────────────────────────────────┐
│        Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ►  Utility     │
├──────────────────────────────────────────────────────────────────────┤
│      ┌──────── AIC-7880 Ultra/Ultra W at Bus:Device 01:06h ────────┐  │
│      └────────────── SCSI Device Configuration ───────────────┐       │
│  SCSI Device ID            #0    #1    #2    #3    #4    #5    #6    #7 │
│                                                                        │
│  Initiate Sync Negotiation ............. yes   yes   yes   yes   yes   yes   yes   yes │
│  Maximum Sync Transfer Rate.....40.0  40.0  40.0  40.0  40.0  40.0  40.0  40.0 │
│  Enable Disconnection ................. yes   yes   yes   yes   yes   yes   yes   yes │
│  Initiate Wide Negotiation ............. yes   yes   yes   yes   yes   yes   yes   yes │
│  --------------------Options Listed Below Have NO EFFECT if the BIOS is Disabled ---------------- │
│  Send Start Unit Command ...........no    no    no    no    no    no    no    no │
│  Include in BIOS Scan .................. yes   yes   yes   yes   yes   yes   yes   yes │
│  SCSI Device ID            #8    #9    #10   #11   #12   #13   #14   #15 │
│  Initiate Sync Negotiation ............. yes   yes   yes   yes   yes   yes   yes   yes │
│  Maximum Sync Transfer Rate.....40.0  40.0  40.0  40.0  40.0  40.0  40.0  40.0 │
│  Enable Disconnection ................. yes   yes   yes   yes   yes   yes   yes   yes │
│  Initiate Wide Negotiation ............. yes   yes   yes   yes   yes   yes   yes   yes │
│  --------------------Options Listed Below Have NO EFFECT if the BIOS is Disabled ---------------- │
│  Send Start Unit Command ...........no    no    no    no    no    no    no    no │
│  Include in BIOS Scan          yes   yes   yes   yes   yes   yes   yes   yes │
├──────────────────────────────────────────────────────────────────────┤
│   Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (  =default) │
└──────────────────────────────────────────────────────────────────────┘
```
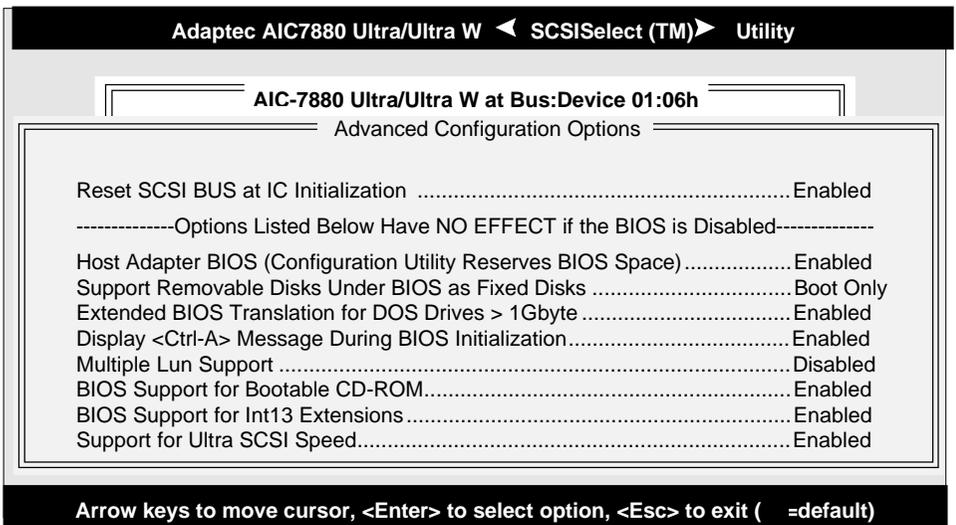
Figure 4-7   SCSI Device Configuration Screen for AIC-7880

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys (↑ ↓) to select a value, and press **Enter** to make your selection.

Initiate Sync Negotiation

This option determines whether the SCSI controller initiates synchronous negotiation with the SCSI device.

When set to **yes**, the SCSI controller initiates synchronous negotiation with the SCSI device. When set to **no**, the SCSI controller does not initiate synchronous negotiation. The SCSI controller, however, always *responds* to synchronous negotiation if the SCSI device initiates it. The default setting is **yes**.

Data is transferred in asynchronous mode if neither the SCSI controller nor the SCSI peripheral negotiates for synchronous data transfers.

*Some older SCSI-1 devices do not support synchronous negotiation. This may cause your computer to operate erratically or hang if Initiate Sync Negotiation is enabled. Set Initiate Sync Negotiation to **no** for these devices.*

Maximum Sync Transfer Rate

This option determines the maximum synchronous data transfer rate that the SCSI controller can support. The SCSI controller supports rates up to the UltraWide SCSI maximum of 40.0 MBytes/sec. The default value is **40.0**.

In most cases, you can use the maximum value of 40.0. If the SCSI controller is set *not* to negotiate for synchronous data transfer (i.e., Initiate Sync Negotiation is set to **no**), then the value selected here is the maximum rate that the SCSI controller accepts from the device during negotiation. (This is standard SCSI protocol.)

*Some older SCSI-1 devices do not support Fast SCSI data transfer rates. This may cause your computer to operate erratically or hang if the transfer rate is set too high. Set Initiate Sync Negotiation to **no** for these devices.*

Enable Disconnection

This option determines whether the SCSI controller allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Disconnect/Reconnect allows the SCSI controller to perform other operations on the SCSI bus while the SCSI device is temporarily disconnected.

When set to **yes**, the SCSI device may disconnect from the SCSI bus. The SCSI device, however, may choose not to disconnect, even if permitted by the SCSI controller (this can usually be configured on the SCSI device). When set to **no**, the SCSI device is not allowed to disconnect from the SCSI bus. The default setting is **yes**.

You should leave Enable Disconnection set to **yes** if two or more SCSI devices are connected to the SCSI controller. This optimizes SCSI bus performance. If only one SCSI device is connected to the SCSI controller, set Enable Disconnection to **no** to achieve slightly better performance.

Initiate Wide Negotiation

This option allows communication between all devices (lower 8-bit or upper 8-bit) on the wide (16-bit) SCSI bus. When set to **yes**, each device can connect on the bus. When set to **no** (disabled), communication can only occur on the lower 8-bits of the 16-bit SCSI bus. The default setting is **yes**.

Send Start Unit Command

This option, which is supported by some SCSI devices, determines whether the Start Unit Command (SCSI command 1B) is sent to the SCSI device (most devices do not require this). Enabling this option reduces the load on your computer's power supply by allowing the SCSI controller to power-up SCSI devices one-at-a-time when you boot your computer. Otherwise, the devices all power-up at the same time. Most devices require you to set a jumper before they can respond to this command.

When set to **yes**, the Start Unit Command is sent to the SCSI device during bootup. When set to **no**, each SCSI device powers-up in its normal fashion. The default setting is **no**.

The Send Start Unit Command setting is valid only if the host adapter BIOS is enabled.

If this option is enabled for more than one SCSI device, the Start Unit Command is sent first to the device with the lowest SCSI ID. When this device responds to the SCSI controller, the Start Unit Command is sent to the next highest SCSI ID with a setting of **yes**. The process continues until all supported devices respond to the SCSI controller.

> *If many drives are set to **yes** for Send Start Unit Command, the boot time varies depending on how long it takes each drive to spin up.*

Advanced Configuration Options

When you select Advanced Configuration Options, a screen similar to Figure 4-8 appears. Do not change these options unless absolutely necessary.

```
 Adaptec AIC7880 Ultra/Ultra W  ◄ SCSISelect (TM) ►  Utility

         AIC-7880 Ultra/Ultra W at Bus:Device 01:06h
                   Advanced Configuration Options

  Reset SCSI BUS at IC Initialization .............................................................Enabled
  --------------Options Listed Below Have NO EFFECT if the BIOS is Disabled--------------
  Host Adapter BIOS (Configuration Utility Reserves BIOS Space).................Enabled
  Support Removable Disks Under BIOS as Fixed Disks ................................Boot Only
  Extended BIOS Translation for DOS Drives > 1Gbyte ..................................Enabled
  Display <Ctrl-A> Message During BIOS Initialization....................................Enabled
  Multiple Lun Support ......................................................................................Disabled
  BIOS Support for Bootable CD-ROM............................................................Enabled
  BIOS Support for Int13 Extensions...............................................................Enabled
  Support for Ultra SCSI Speed.......................................................................Enabled

  Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (    =default)
```

Figure 4-8   Advanced Configuration Options Screen

Use the cursor keys ($\uparrow$ $\downarrow$) to move between options. Press **Enter** to display a pop-up menu with a selection of options. Use the cursor keys ($\uparrow$ $\downarrow$) to select an option, and press **Enter** to make your selection.

Host Adapter BIOS

This option enables or disables the SCSI controller BIOS. Default is **Enabled**.

The SCSI controller BIOS must be enabled if you want the computer to boot from a SCSI hard disk drive connected to the SCSI controller. Several SCSI*Select* options cannot be used unless the SCSI controller BIOS is enabled.

Support Removable Disks Under BIOS as Fixed Disks

This option allows you to control which removable-media drives are supported by the SCSI controller BIOS. It is only valid if the SCSI controller BIOS is enabled. The default setting is **Boot Only**. The following choices are available:

- **Boot Only** – Only the removable-media drive designated as the boot device are treated as a hard disk drive.

- **All Disks** – All removable-media drives supported by the BIOS are treated as hard disk drives.

- **Disabled** – No removable-media drives are treated as hard disk drives. In this situation, software drivers are needed because the drives are not controlled by the BIOS.

> *Support for removable-media drives means only that the SCSI controller BIOS **allows** you to use a removable-media drive as if it were a hard disk drive; it does **not** mean you can remove the disk media during operation. If a removable-media SCSI device is controlled by the SCSI controller BIOS, **do not** remove the media while the drive is powered-on or you may lose data! If you want to be able to remove media while the power is on, install the removable-media device driver and set this option to **Disabled**.*

Extended BIOS Translation for DOS Drives > 1 GByte

This option allows you to enable or disable extended translation for SCSI hard disks with a capacity greater than 1 GByte. It is only valid if the SCSI controller BIOS is enabled. The default setting is **Enabled**. Do not change this setting from the default.

If this option is enabled, the following translation schemes are used:

• SCSI hard disks < 1 GByte use a translation scheme of 64 heads, 32 sectors per track

• SCSI hard disks > 1 GByte use a translation scheme of 255 heads, 63 sectors per track

Display <Ctrl-A> Message During BIOS Initialization

This option allows entering the SCSI *Select* utility during BIOS initialization. The default setting is **Enabled**.

Multiple Lun Support

This option allows access to multiple logical unit numbers per SCSI ID. The default setting is **Disabled**.

BIOS Support for Bootable CD-ROM

When this option is enabled, a bootable CD-ROM device may be used to directly load an operating system. The default setting is **Enabled**.

BIOS Support for Int13 Extensions

This option allows access to attached SCSI devices through BIOS Int13 functions. The default setting is **Enabled**.

Support for Ultra SCSI Speed

This option enables UltraWide SCSI data transfers at 40 MB/sec. If enabled, be
sure the device is capable of running at this rate. The default setting is **Enabled**.

4.2.2   SCSI Disk Utilities

When you select SCSI Disk Utilities from the Options menu the SCSI*Select* utility
scans the SCSI bus and lists all SCSI devices installed on the SCSI bus. You will see
a screen similar to Figure 4-9. You can easily determine from this screen which
SCSI ID is assigned to each device on the SCSI bus.

```
╔══════════════════════════════════════════════════════════════════════╗
║        Adaptec AIC7880 Ultra/Ultra W  ◄  SCSISelect (TM)►   Utility     ║
╠══════════════════════════════════════════════════════════════════════╣
║    ┌──────────── AIC-7880 Ultra/Ultra W at Bus:Device 01:06h ──────────┐ ║
║    ┌═════════════════ Select SCSI Disk and press <Enter> ═══════════════┐ ║
║    │           SCSI ID #0:   IBM DORS-32160W                            │ ║
║    │           SCSI ID #1:   No device                                  │ ║
║    │           SCSI ID #2:   No device                                  │ ║
║    │           SCSI ID #3:   No device                                  │ ║
║    │           SCSI ID #4:   Sony CD-ROM CDU-76S                        │ ║
║    │           SCSI ID #5:   No device                                  │ ║
║    │           SCSI ID #6:   No device                                  │ ║
║    │           SCSI ID #7:   AIC-7880    Ultra/Ultra W                  │ ║
║    │           SCSI ID #8:   No device                                  │ ║
║    │           SCSI ID #9:   No device                                  │ ║
║    │           SCSI ID #10: No device                                   │ ║
║    │           SCSI ID #11: No device                                   │ ║
║    │           SCSI ID #12: IBM DORS-32160W                             │ ║
║    │           SCSI ID #13: No device                                   │ ║
║    │           SCSI ID #14: No device                                   │ ║
║    │           SCSI ID #15: No device                                   │ ║
║    └────────────────────────────────────────────────────────────────┘ ║
╠══════════════════════════════════════════════════════════════════════╣
║    Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (  =default) ║
╚══════════════════════════════════════════════════════════════════════╝
```

Figure 4-9   SCSI Disk Utilities Screen for AIC-7880

When you highlight a disk device by moving to it with the cursor keys and press **Enter**, a small menu window appears. You then select **Format Disk** or **Verify Media** from this menu.

Use the cursor keys (↑ ↓) to move between options. Press **Enter** to display a pop-up menu with a selection of values. Use the cursor keys (↑ ↓) to select a value, and press **Enter** to make your -selection.

Format Disk

The **Format Disk** utility performs a low-level format on disk devices.

Most SCSI disk devices are preformatted and do not need to be formatted again. The Adaptec **Format Disk** utility is compatible with the vast majority of SCSI disk drives. Run it on hard disk drives or removable-media drives that were previously used with a non-Adaptec SCSI controller.

> *A low-level format destroys all data on the drive. Be sure to back up your data before performing this operation. You **cannot** abort a low-level format once it is started.*

Verify Disk Media

The **Verify Disk Media** utility scans the selected device's media for defects. If the utility finds bad blocks, it prompts you to reassign them; if you select **yes**, those blocks will no longer be used.

> *You can press **Esc** at any time to abort the **Verify Disk Media** utility.*

4.3   Configuring Multiple SCSI Controllers

The AHA-2940/W/UW SCSI controller is used as an example in the following discussion.

To use multiple PCI SCSI controllers, do the following:

- Install the boot SCSI controller in the lowest PCI **Device** number. The **Device** number is determined by the slot number on the PCI bus.

    To find out the **Device** number of the AHA-2940 SCSI controller(s), run the SCSI*Select* utility (by pressing the key combination **Ctrl** + **A** when it is displayed onscreen at bootup). Look on the first screen of SCSI*Select* in the upper right hand corner for **Bus:Device xx:xxh** (given in hex).

    If the **Device** number is high, move the AHA-2940 to a PCI slot at the other end of the motherboard and rerun SCSI*Select* to see if the number is lower.

    This step is a recommended solution for most PCI motherboards. You can also simply switch the AHA-2940 SCSI controller into another PCI slot if the boot order is not what is desired.

- If you are booting from the AHA-2940 and using ISA/EISA-based host adapters as secondary devices, you must disable the BIOS on all ISA/EISA-based SCSI controllers.

- If you are booting from ISA/EISA-based SCSI controllers and using the AHA-2940 as a secondary device, see your ISA/EISA-based SCSI controller documentation to ensure the SCSI controller is at the lowest BIOS base address. ISA/EISA-based SCSI controllers which have their BIOS enabled boot before the AHA-2940.

4.4   Disk Drives Over 1 Gbyte

4.4.1   Extended Translation

Adaptec SCSI controllers have always supported the full range of disk drive capacities under all major operating systems. As disk drives have recently grown beyond 1 GByte in formatted capacity, they have run up against the DOS 1024-cylinder limit.

To continue its support for all SCSI disk drive capacities under DOS, Adaptec has included an extended translation scheme for the AIC-7880 SCSI controllers. This feature supports disk drives of up to 8 GBytes capacity under DOS. *Extended BIOS Translation for DOS Drives > 1 GByte* in this chapter explains how to change the setting of this option in the SCSI*Select* utility.

4.4.2   The DOS 1 GByte Limit

All current versions of DOS are limited to 1024 cylinders per drive. The standard translation scheme for SCSI host controllers, using 64 heads and 32 sectors, provides a maximum accessible capacity of 1 GByte.

To eliminate the 1 GByte limit, Adaptec's extended translation feature uses 255 heads and 63 sectors, extending the disk drive capacity limit under DOS to 8 GBytes.

*If you have already partitioned a large disk drive with one translation method, conversion to another method will make your data unusable. Be sure to **back up** your disk drive prior to any change in the translation method used.*

4.4.3   When to Use Extended Translation

Drives With Mixed Partitions

Use standard translation, not extended translation, on drives formatted with two or more partitions for different operating systems. Partitions for UNIX and NetWare can be larger than 1 GByte when using standard translation.

> The term UNIX, as used here, includes all versions of AT&T/USL UNIX, SCO v3.2.4 (or later), and ISC v3.0 (or later).

Using Fdisk

To install a new disk, or to re-partition an existing disk, use the *fdisk* DOS utility as you normally would. The cylinder size increases to 8 MBytes when you enable extended translation. The size of the partition you request must therefore be a multiple of 8 MBytes. If you request a partition size that is not a multiple of 8 MBytes, *fdisk* rounds up to the nearest whole multiple of 8 MBytes.

Questions and Answers About Extended Translation

What happens if I enable extended translation with SCSI drives that are less than 1 GByte in capacity?

Drives handled by the BIOS use extended translation if their formatted capacity is greater than 1 GByte. Drives with less than 1 GByte of formatted capacity use standard translation regardless of whether extended translation is enabled.

4.5   SCSI Troubleshooting Checklist

The AIC-7880 SCSI controller has been tested for compatibility with a wide range of SCSI devices. Most problems that occur during installation result from errors in preparing and connecting devices on the SCSI bus.

Answer these questions first if a problem occurs during installation:

- Are the power cables and SCSI interface cables properly connected?

  Connect internal SCSI devices to your computer's power supply. Connect the power cables of external SCSI devices to a grounded line power outlet. Follow the instructions in the computer and SCSI device documentation.

- Is pin-1 orientation maintained throughout the SCSI bus?

- Are the PCI bus and slot parameters set correctly in your computer's **Setup** program?

  The PCI bus is designed to assign IRQ, port address, and BIOS address settings automatically to the SCSI controller. But you may need to assign some of these values manually in the **Setup** program.

- Is each SCSI device, including the SCSI controller, set to a unique SCSI ID?

- Is SCSI termination set correctly?

  If your problem is still not resolved, continue with the next section.

4.6   BIOS Startup Messages

After you have configured your SCSI controller, the SCSI controller BIOS displays a message when you boot your computer. Normally, this message lists the SCSI ID, manufacturer, model number and other information for each SCSI device that the BIOS detects.

If an initialization failure occurs, however, the SCSI controller BIOS displays a specific error message followed by a *BIOS Installation Failure* message. Here are some of these error messages and their meaning:

```
WARNING!!!

A drive larger than 1 gigabyte has been detected with 64 head / 32 sector
partitioning. This drive is not compatible with the 255 head / 63 sector
translation which has been enabled on this adapter. Data could be
corrupted! Please check your system setup!

Press any key to continue.
```

This message occurs only if Extended BIOS Translation is enabled in the SCSI*Select* utility. It means that the BIOS detected a large capacity drive with invalid partition information in the master boot record.

If you are using a drive larger than 1 GByte under MS-DOS 5.0 or above and this message appears, do the following:

1.   Run the SCSI*Select* utility and set Extended BIOS Translation to **Disabled**. (See Extended BIOS Translation for DOS Drives > 1 GByte in the Advanced Configuration Options section)

2.   Exit from the SCSI*Select* utility and back up the data on the disk drive, if you want to save it.

3.   Perform a SCSI low-level format with the **Format Disk** utility under SCSI Disk
     Utilities in the SCSI*Select* utility.

> ⚠ *All data on the target drive will be lost when you
> run the **Format Disk** utility. Back up your data
> before you run it!*

4.   In the SCSI*Select* Advanced Configuration Options menu, set Extended BIOS -
     Translation to **Enabled**.

5.   Partition the drive again.

6.   Restore data to the drive, if necessary.

4.6.1   Device connected, but not ready

This message appears if the SCSI controller receives no answer when it requests
data from an installed SCSI device. The SCSI controller skips this device and
moves on to the next device on the bus.

Do the following if you see this message when you request data from a SCSI drive:

1.   Run the SCSI*Select* utility and access SCSI Device Configuration. Locate the
     host controller's SCSI ID and set Send Start Unit Command to **yes**.

2.   Exit the SCSI*Select* utility and request data from the drive again.

3.   If the message still appears, follow the drive manufacturer's instructions to
     make sure the drive is set to spin-up when the power is switched ON.

4.6.2   Start unit request failed

The BIOS was unable to send a Start Unit Command to the device. Run the SCSI*Select* utility and disable Send Start Unit Command for the device.

Time-out failure during SCSI Inquiry command!

> or

Time-out failure during SCSI Test Unit Ready command!

> or

Time-out failure during Start Unit command!

An unexpected time-out occurred. Check SCSI bus termination. Try disconnecting the SCSI peripheral cables from the SCSI controller and then starting the computer. If the computer successfully restarts, check SCSI bus termination and cable connections. One of the devices on the SCSI bus may be defective.

4.6.3   Disk Drive Configuration Problems

This section describes situations that may occur if your computer has multiple disk drives, including combinations of standard disk drives and SCSI disk drives.

> *“Standard disk drive” means a disk drive attached to the computer through a standard ISA/EISA, non-SCSI disk controller—for example, an IDE drive.*

Standard hard disk drives can be set to the *installed* or *not installed* state by the **Setup** program supplied with the host computer. The **Setup** program allows you to select the number of standard hard disks that are recognized by the computer, regardless of whether they are physically installed. SCSI drives are not controlled through the **Setup** program.

If both SCSI and non-SCSI disk drives are installed, then the non-SCSI disk drive is *always* the boot device.

Booting the Computer from a SCSI Drive

The following items may apply for multiple SCSI controller configurations. See the section "Configuring Multiple SCSI Controllers" for more detailed information.

- Be sure that both standard hard disks are mapped out of the computer using the **Setup** program by setting the **Setup** program to **Onboard IDE-Disabled**.

- Be sure that the SCSI boot drive is set to SCSI ID 0 and that there are no SCSI ID conflicts. Check the drive installation manual for information about setting the SCSI ID for that device. You can use the SCSI*Select* utility to determine the SCSI IDs of devices on the SCSI bus.

- Be sure that parity checking is consistently enabled or disabled on all devices on the SCSI bus. See the section "SCSI Parity Checking".

- Try enabling Include in BIOS Scan in the SCSI Device Configuration option of the SCSI*Select* utility. See the section "SCSI Device Configuration".

- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.

- Be sure that the SCSI bus is properly terminated. See the section "Setting SCSI Bus Termination".

- Be sure that the intended boot disk has an active partition and has been formatted.

- Check cable connections and pin-1 orientation.

Using a Standard Drive as C and a SCSI Drive as D

- Use the **Setup** program to map the second standard hard disk (if one exists) out of the configuration.

- Disable Onboard SCSI Boot in Setup.

- Be sure that the SCSI drive to be used as drive D is set to SCSI ID 0. Check the drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus.

- Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.

- Verify that the SCSI controller and the SCSI devices are properly configured and installed.

- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. Doing this ensures that the new initial values are loaded.

- Be sure that the SCSI bus is properly terminated.

- Be sure that the disk is formatted and has a partition.

- Check cable connections and pin-1 orientation.

Using a SCSI Drive as C and Another SCSI Drive as D

- Make sure your computer's CMOS **Setup** is set to **Onboard IDE-Disabled**, as is required for SCSI host controllers. Also ensure Onboard SCSI Boot is Enabled.

- Be sure that the SCSI drive to be used as drive C is set to SCSI ID 0. Check the disk drive manual for information on setting the SCSI ID for that device. You can also use the SCSI*Select* utility to determine the SCSI addresses of peripherals on the SCSI bus.

- Set the SCSI drive to be used as drive D to SCSI ID 1. Check the drive manual for information on setting the SCSI ID for that device.

- Try enabling **Include in BIOS Scan** in the SCSI Device Configuration option of the SCSI*Select* utility. See the section "SCSI Device Configuration".

- Be sure to cycle the power OFF and ON after changing any values on a SCSI controller, in a **Setup** program, or on a SCSI device. This ensures that the new initial values are loaded.

- Be sure that SCSI parity checking is consistently enabled or disabled on all devices on the SCSI bus.

- Verify that the SCSI controllers and the SCSI devices are properly configured and installed.

- Be sure that the SCSI bus is properly terminated.

- Be sure that, if necessary, the disk has a partition and is formatted.

Computer Hangs, or SCSI Controller Cannot Always Find the Drives

- Check SCSI parity for consistency and be sure SCSI termination is set correctly.

- Check cable length and integrity. Check pin-1 orientation.

- If the SCSI controller LED remains on when the computer hangs, the host adapter may be interfering with your computer's operation. It may be installed in a motherboard slot that does not support First-Party DMA (i.e., Bus Master) data transfers. See your computer documentation.

Chapter 5   System Housing

This chapter describes the features of the system housing and tells you how to install the basic system components such as disk drives, system board, or expansion boards. Descriptive illustrations accompany the installation procedures.

If you receive a complete system, the basic components are already installed.

Turn OFF the system power before opening the system or connecting or removing any peripheral device. Always turn ON any external peripheral device first before you turn on the system.

To avoid damaging the system, do not open the housing for service or upgrades, unless you are a qualified technician.

Before attempting the procedures described in this chapter, read the ESD precautions and pre- and post-installation instructions in sections 1.5.2 and 1.5.3.

5.1 Positioning the System Housing

5.1.1 Standalone System
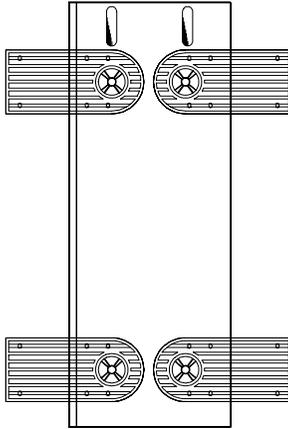
For a standalone system, rotate the legs outward to stabilize the housing.

5.1.2   Against a Wall

Figure A   **Figure B**
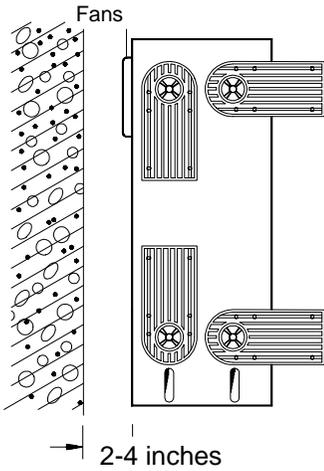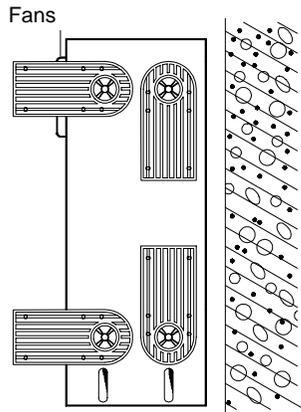
Fans   Fans

2-4 inches

Fans Facing a Wall

When standing the housing with the fans facing a wall, leave a space of 2-4 inches from the wall to allow air circulation, then position the legs as in Figure A.

Fans Facing Out

When standing the housing with the fans facing out, you can put the system close to the wall and position the legs as in Figure B.

5.2   Transporting the System
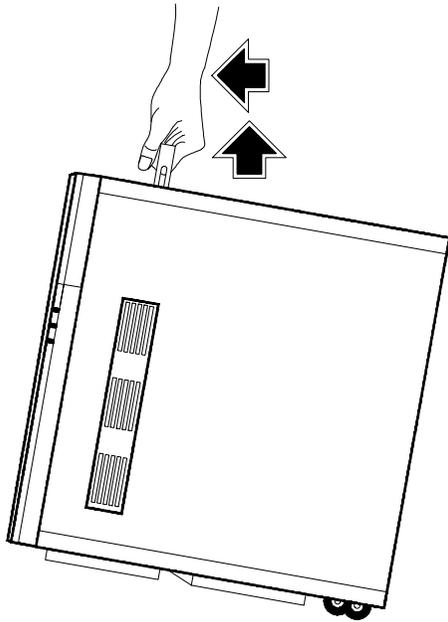
The housing has a handle on top and two wheels behind the feet to facilitate moving to short distances.

> Rotate the feet inward before moving the housing.

When transporting the housing, pull out the handle, at the same time lifting the unit front a few inches from the floor. Slide the housing forward with the wheels supporting the rear.

5.3 Features

5.3.1 Front Panel

Power LED
Hard Disk Drive LED
RDM LED

Power Switch
5.25-inch Drive Bay
3.5-inch Drive

Keylock

SCSI Hard Disk Drive Trays

5.3.2 Rear Panel

Power Supply Bays

Power Socket 1

Power Socket 2

Keyboard Port

Video Port

RJ-45 Connector
(network connection)

USB Connector

Mouse Port

Parallel Port

COM 1

COM 2

Expansion Slots
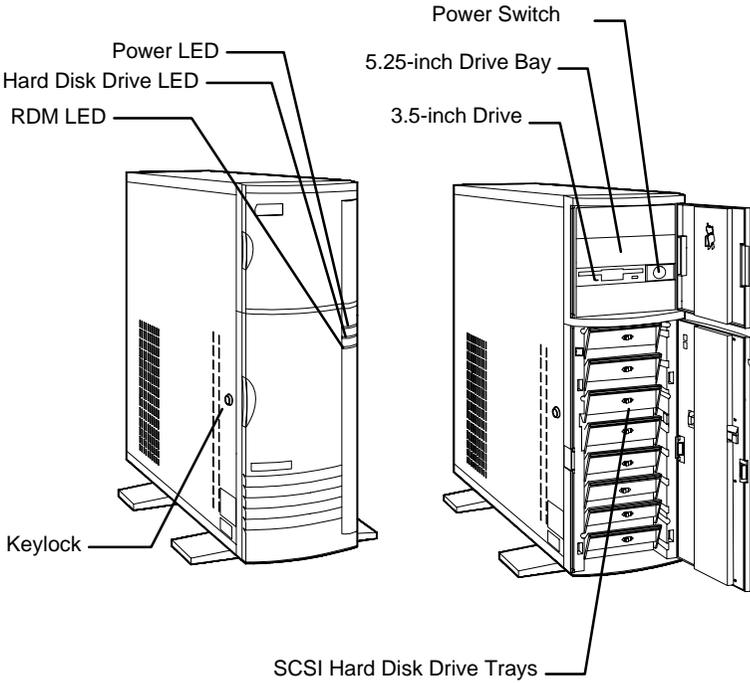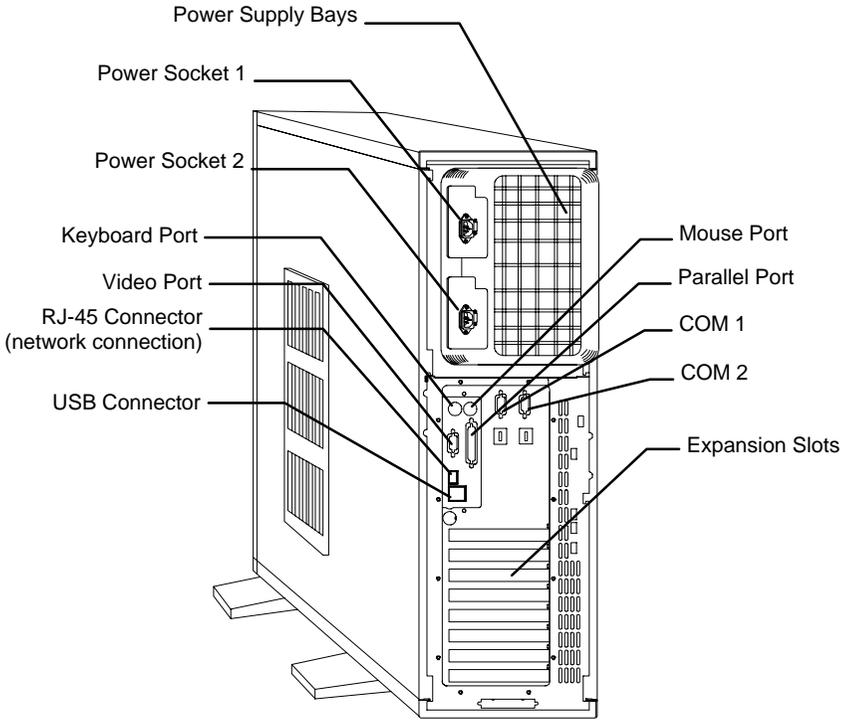
5.3.3 Internal Structure

The following figure shows the housing internal structure and some of the basic system components.

Power Supply
Metal Plate
(covering
two/one
redundant
power supply
modules)

3.5-inch and 5.25-inch
Drive Bays

CPU Board

Expansion Slot
Brackets

System Board

Backplane Board

SCSI Drive Trays
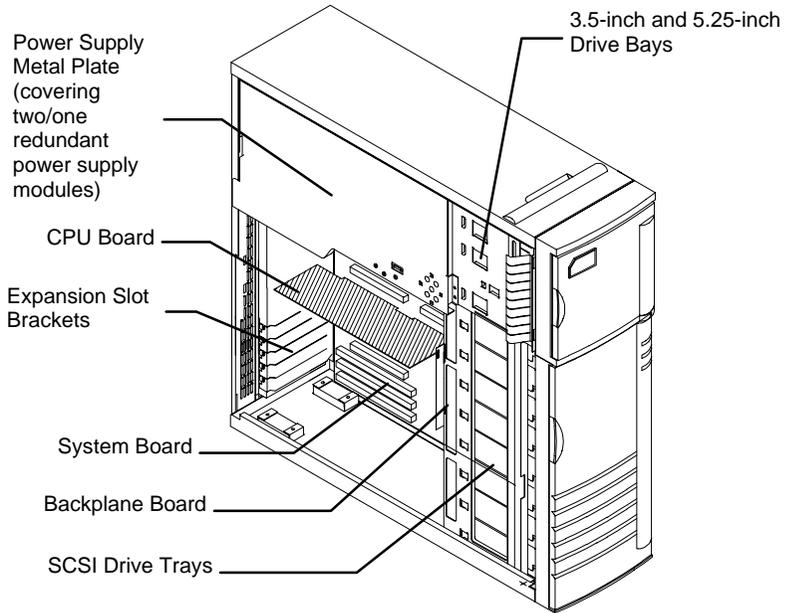
5.4   Opening the Housing Panels

⚠️ *Before opening the system housing, please refer to section 1.5 for ESD precautions and pre- and post-installation instructions.*

5.4.1   Upper Front Panel
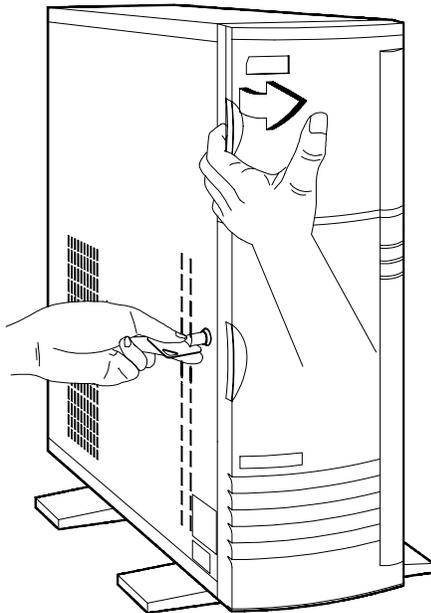
Hold the left edge of the upper front panel to open it and gain access to the diskette drive bays.

The housing keys are inside the front panel.

5.4.2 Lower Front Panel
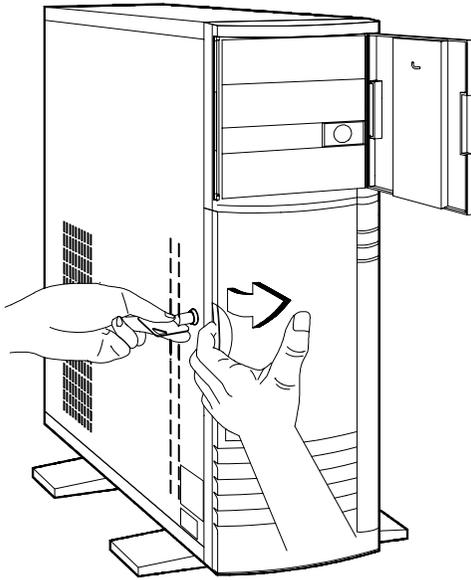
Unlock the housing with the key. Pull the lower panel to access the drive trays.

You cannot remove the key after you have unlocked the housing. You can remove it only when you lock the housing again.

5.4.3 Left Panel
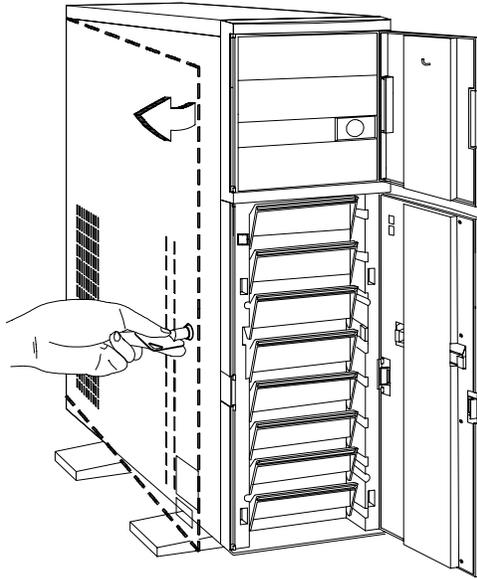
Pull on the key to swing the left panel open.

5.5 Installing Disk Drives

⚠️ *Turn off the power switch and unplug the power cord before installing or removing diskette drives.*

5.5.1 3.5-inch Floppy Drive

1. Open the lower front panel.

2. Remove the upper panel including its frame by pressing the latch underside and pulling the panel out.
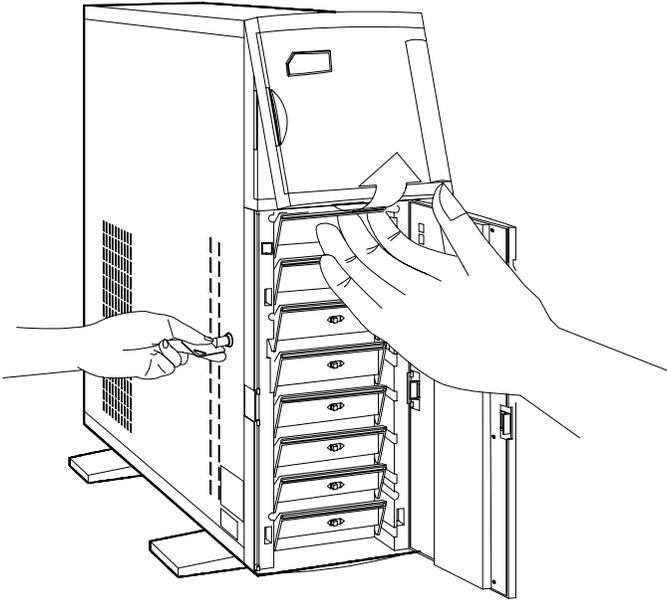
3. Remove the screw attaching the 3.5-inch drive frame to the housing.

4. Secure a 3.5-inch drive on the frame with four screws.
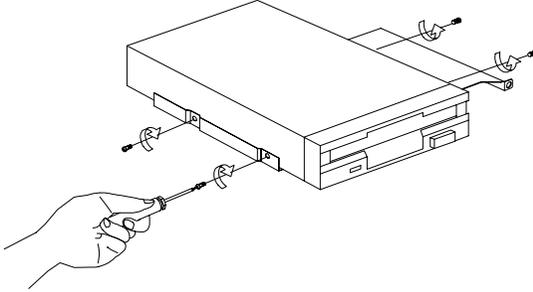
5. Insert the drive into the drive bay and secure it with a screw.
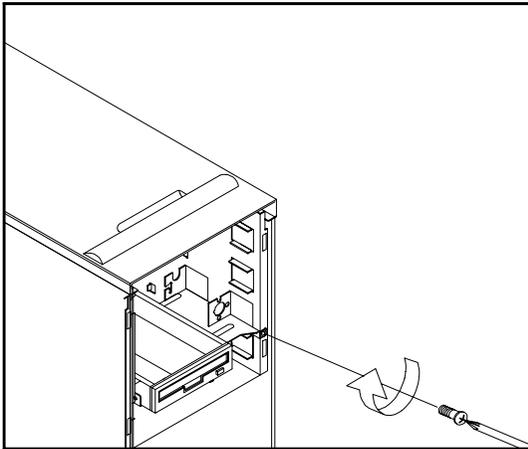
6. Connect the diskette drive cables.

5.5.2 5.25-inch Drive

You may install a CD-ROM, digital audio tape (DAT), hard disk, diskette drive or any other 5.25-inch device into the drive bay.

1.   Open the lower front panel.

2.   Remove the upper panel including its frame by pressing the latch underside and pulling the panel out.

3.   Secure the drive guides on the sides of a 5.25-inch drive.
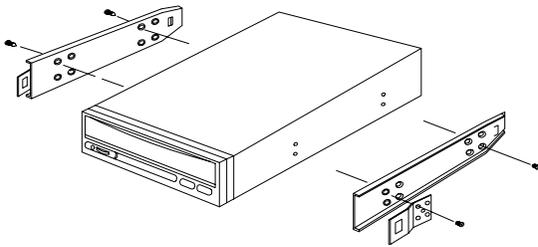
4.   Insert the drive into the drive bay.
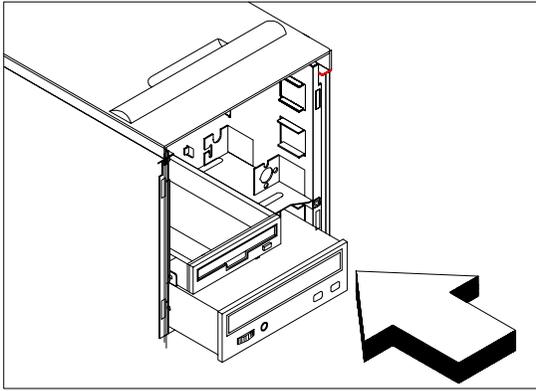
5. Connect the signal and power cables to the drive.

5.5.3 Hard Disk

1. Unlock the drive bay. Pull out a drive tray.
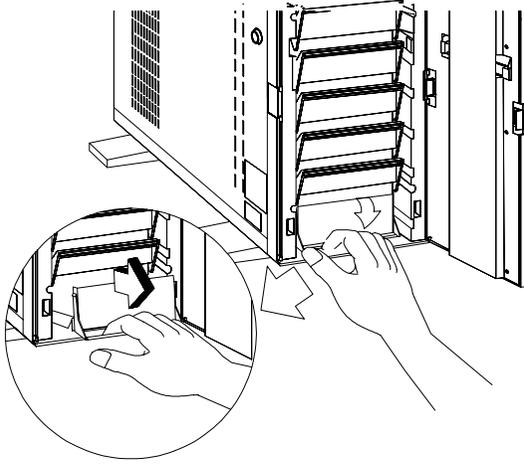
2. Place a hard disk on the tray and secure it with four screws.
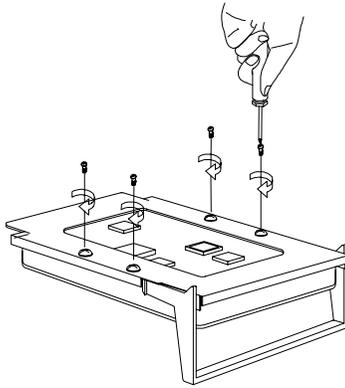
3. Insert the tray back into the housing. Make sure to push back the drive tray handle in place before pushing the tray in completely. The tray does not fit in if the handle is not in place.
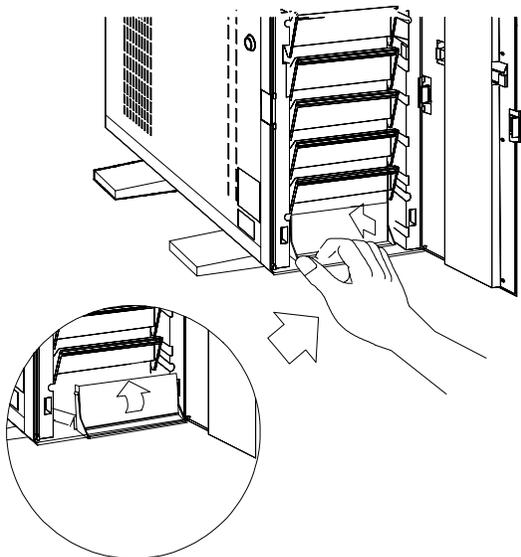
5.6 Installing a System Board

The housing accommodates various system board sizes. You can rearrange the pegs on the system board plate to fit the board that you wish to install.
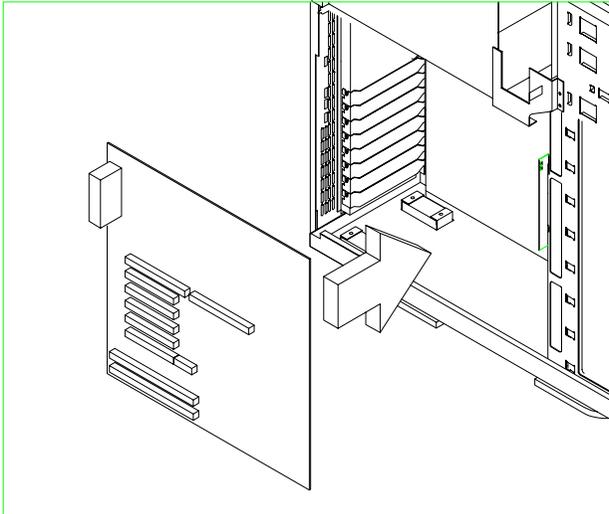
1. If you have not done so, open the housing following the steps in section 4.

2. When ready, align the system board holes to the pegs with the external ports facing the rear of the housing.

3. Secure the board with eight screws.

5.7   Installing an Expansion Board

1. Remove an expansion slot bracket cover. Save the screw to secure the
    expansion board.
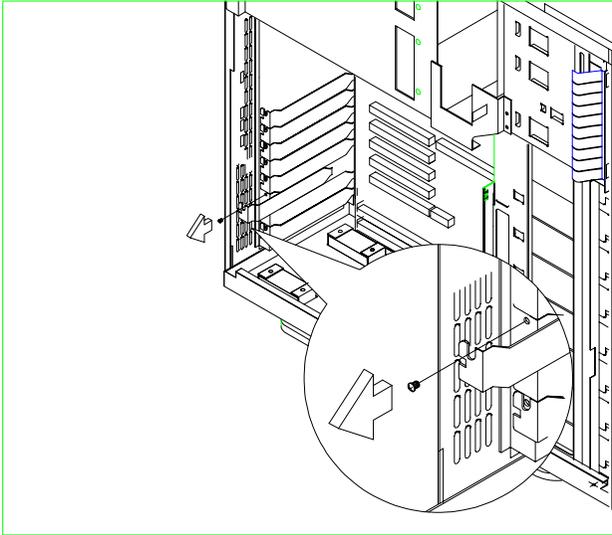
2.	Align an expansion board with the open slot and insert the edge connectors into the expansion bus connector.

3.	Secure the board with a screw.
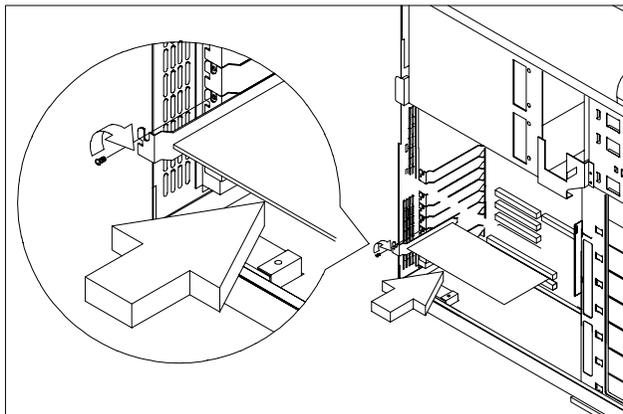
5.8   Reinstalling a CPU Board

If your system board has had the CPU board removed, follow these steps to reinstall the CPU board:

1.   Locate the CPU board connector in the system board.

2.   Insert the board into the connector.

> *Make sure that the board is properly seated in the connector.*

3.   Secure the board with a screw.
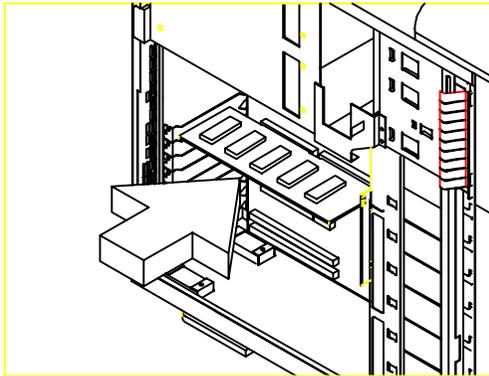
4.   Align the plastic support bar with the board edge.

5.   Insert the right end of the plastic bar to the hole on the side of the backplane board and the left end to the hole on the rear panel.
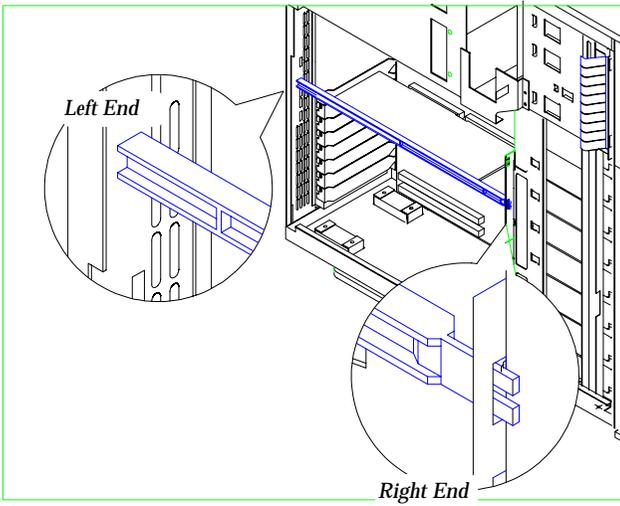
Left End

Right End

6.   Insert the left end of the metal support bar tabs to the holes on the rear panel and align the right end to the screw holes on the side of the backplane board.

7.   Secure the metal bar with two screws.
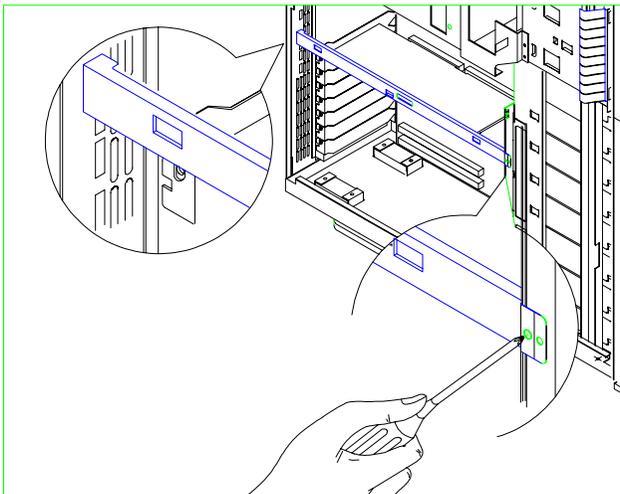
5.9 Connecting External Devices

5.9.1 Connecting a Monitor
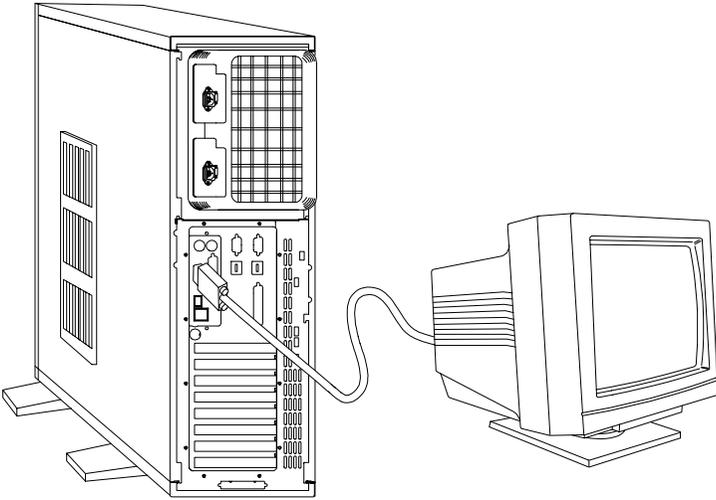
5.9.2　Connecting a Keyboard
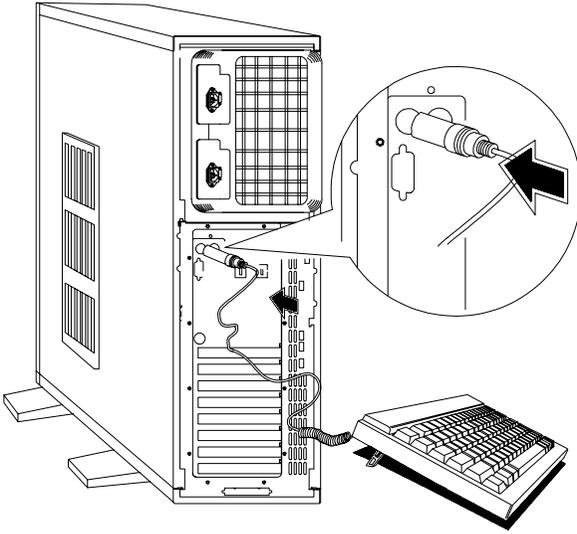
5.9.3 Connecting a Mouse

Mouse
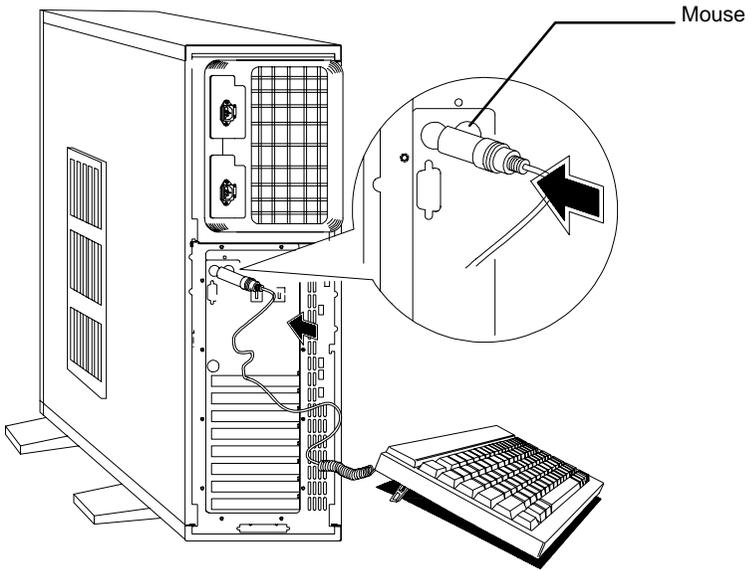
5.9.4 Connecting a Printer
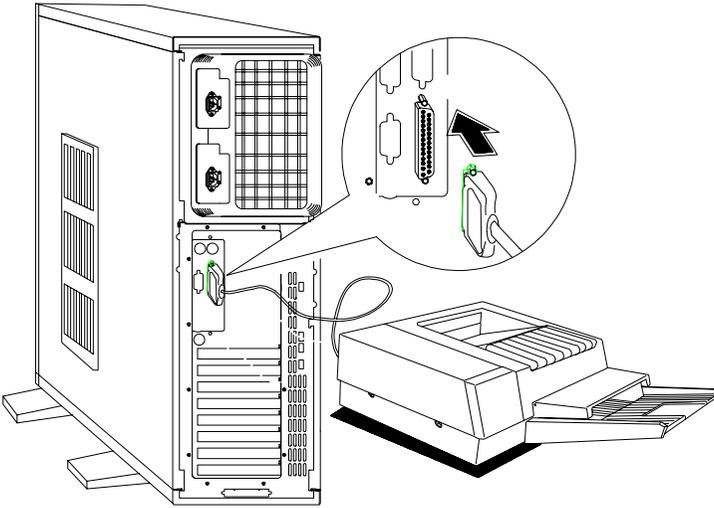
5.10 Complete System Connections
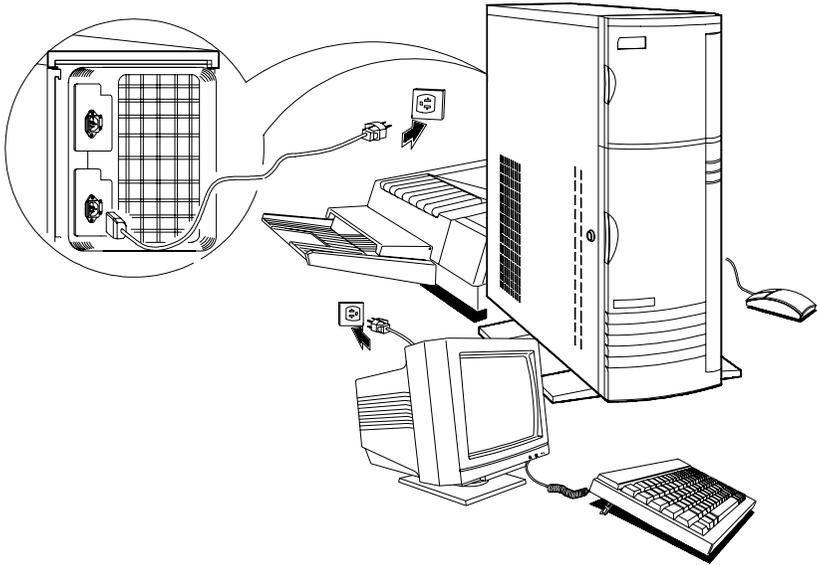
Appendix A System Resources

A.1   Memory Map

Table A-1   System Memory Map

Address	Size	Function
0000000 ~ 009FFFF	640 KB system memory	Onboard DRAM
00A0000 ~ 00BFFFF	128 KB video RAM	Reserved for graphics display buffer, non-cacheable
00C0000 ~ 00C7FFF	32 KB for VGA BIOS	Reserved for onboard VGA
00C8000 ~ 00CFFFF	32 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00D0000 ~ 00D3FFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00D4000 ~ 00D7FFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00D8000 ~ 00DBFFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00DC000 ~ 00DFFFF	16 KB I/O expansion ROM	Reserved for ROM on I/O adapters
00E0000 ~ 00E7FFF	32 KB for SCSI BIOS	Reserved SCSI BIOS
00E8000 ~ 00EFFFF	32 KB	Reserved onboard (video RAM BIOS)
00F0000 ~ 00FFFFF	64 KB BIOS	System ROM BIOS (ROM) System RAM BIOS (DRAM)
0100000 ~ 0F9FFFF	System memory	Onboard DRAM
0FA0000 ~ 0FFFFFF	384 KB I/O card memory	Reserved for memory map I/O card, non-cacheable
1000000 ~ Upper limit[1]	System memory	Onboard DRAM

---

[1]   Upper limit means the maximum size of main memory.

A.2 I/O Address Map

Table A-2   System I/O Address Map

Hex Range	Device
Standard I/O Addresses	
000 ~ 01F	DMA controller 1, (8237)
020 ~ 027	Interrupt controller 1, (8259)
030 ~ 037	Interrupt controller 1, (8259)
040 ~ 047	System timer (8254-1)
050 ~ 057	System timer (8254-1)
060 ~ 06F	Keyboard controller (8742)
070 ~ 07F	Real-time clock, NMI mask
080 ~ 09F	DMA page register 74LS612, speed status register
0A0 ~ 0BF	Interrupt controller 2, (8259)
0C0 ~ 0DF	DMA controller 2, (8237)
0F0	Clear math coprocessor busy
0F1	Reset math coprocessor
0F8 ~ 0FF	Math coprocessor
0CF8	PCI configuration address regulation
0CFC	PCI configuration data regulation
1F0 ~ 1F7	Hard disk
278 ~ 27F	Parallel port 2
2F8 ~ 2FF	Serial port 2
378 ~ 37F	Parallel port 1
3B0 ~ 3BF	Monochrome display
3C0 ~ 3CF	EGA, VGA, SVGA
3D0 ~ 3DF	CGA, VGA, SVGA

Table A-2   System I/O Address Map (continued

3F0 ~ 3F7	Diskette drive controller
3F7 ~ 3FF	Serial port 1
Special I/O Addresses	
4A0[*]	Software power down Software reset RAID port card detect Onboard VGA enabled/disable Flash ROM programming RDM reset
4A1[*]	Fan status VRM ID
4A2[*]	PCI utilization counter
4A3*	PCI utilization counter
4A4*	Redundant power supply status
4A5*	LAN disabled Keyboard/mouse power status Housing fan enabled USB power status PCI counter stop control SCSI termination power status PCI counter clear CPU MUX select I^2C clock I^2C data
4A6*	RDM I/O ports
4A7*	Backplane board hard disk failed indication
4A7~4AF*	ASM controller Secondary PCI device IRQ select

---

[*]   Special I/O port

A.3   Interrupt Channels

Table A-3   Interrupt Channels

IRQ	System Device
IRQ0	Timer output 0
IRQ1	Keyboard
IRQ2	Reserved
IRQ3	Serial port 2
IRQ4	Serial port 1
IRQ5	Reserved
IRQ6	Diskette drive
IRQ7	Parallel port
IRQ8	Real-time clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 mouse
IRQ13	Math coprocessor
IRQ14	IDE hard disk
IRQ15	Reserved

A.4   PCI INT x# Map

Table A-4   PCI INTx# Map

PCI Bus#	PCI INTx	PCI Device
PCI Bus 0	INTA	PCI slots 1, 2, 3
	INTB	PCI slots 1, 2, 3
	INTC	PCI slots 1, 2, 3
	INTD	PCI slots 1, 2, 3; LAN
PCI Bus 1	INTA	PCI slots 4, 5
	INTB	PCI slots 4, 5
	INTC	PCI slots 4, 5, SCSI channel 1
	INTD	PCI slots 4, 5, SCSI channel 2

A.5   System Security

Table A-5   System Security

Parameter	Default Setting
Disk Drive Control	
Diskette Drive	Normal
Fixed Disk Drive	Normal
System Boot Drive	Drive A then C
On-board Communication Ports	
Serial Port 1	3F8h
Serial Port 2	2F8h
Parallel Port	3Bch (IRQ 7)
Operation Mode	Standard and Bidirectional mode
Onboard PS/2 Mouse	Enabled
Setup Password	None
Power-On Password	None

Appendix B Drive Tray Management System (DTMS)

B.1   Features

The BP-W8 wide SCSI backplane subsystem consists of a backplane board and drive trays that support wide SCSI hard disk drives. The BP-W8 backplane is specifically designed for a tower housing that accommodates up to eight SCSI drives.

The backplane subsystem has the following major features:

- "Hot-swap" feature that allows replacement of a defective hard drive even while the system is in full operation. This feature requires a RAID controller board and RAID drivers.

- Two LEDs on the SCSI drive front panel to indicate power and drive failure.

- Supports a mixed configuration of wide (16-bit) SCSI drives in a single channel.

- Allows 'split' and 'combine' SCSI-channel configurations.

- SCSI ID strapping that allows wide SCSI HDD ID configuration through the backplane switches instead of configuring the individual drive IDs.

- Supports drive trays with wide SCSI connectors.

- Fixed 2.85-volt and controlled impedance of 90 ohms for more stable hard disk performance (for ultra SCSI, the impedance is 90 ohms ±10%).

B.2   Major Components

B.2.1   Backplane Board
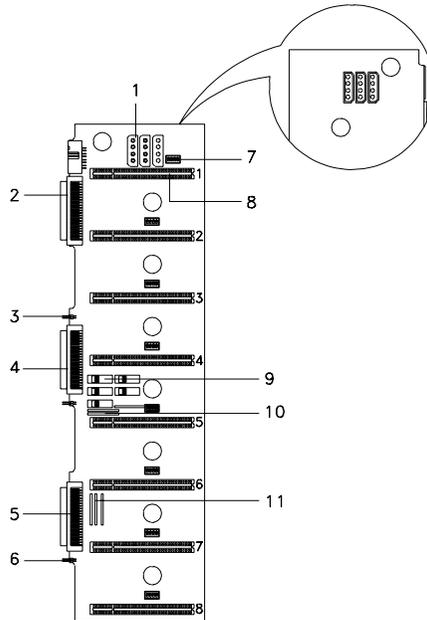
1	Power connectors	7	SCSI ID switch
2	SCSI channel 1 (input)	8	SCSI drive slot
3	HDD ID/power jumper (J3)	9	Channel configuration switches
4	SCSI channel 2 (input)	10	Terminators RA4, RA5, RA6
5	SCSI channel 3 (output)	11	Terminators RA1, RA2, RA3
6	HDD ID/power jumper (J4)		

Figure B-1   Backplane Board Components

B.2.2   Hot-swap SCSI Drive Tray

The backplane subsystem comes with a 68-pin wide SCSI drive tray.

**68-pin Wide SCSI
Drive Tray**
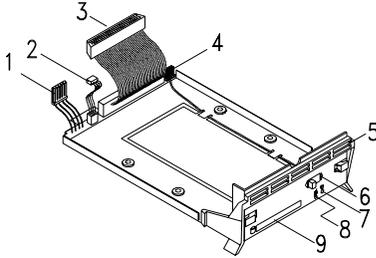
1	Power connector
2	8/12-pin wide SCSI ID cable[1]
3	68-pin wide SCSI connector
4	Power control connector (J4)
5	Drive tray handle
6	Power switch
7	Power LED
8	Faulty drive LED
9	Drive activity LED window

Figure B-2   Hot-swap SCSI Drive Tray Components

---

[1]   The 8-pin connector connects to J2 on the drive tray while the 12-pin connector on the other end connects to the SCSI hard disk.

B.3   Jumper Settings

The backplane has two jumpers, J3 and J4, that allow you to select the terminator power source. J3 supports the four upper drive slots (slots 1, 2, 3, and 4) on the backplane. J4 supports the four lower drive slots (slots 5, 6, 7, and 8).

Figure B-2 shows the settings for jumpers J3 and J4.
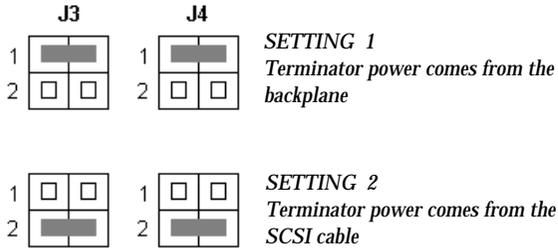
Figure B-2   Jumper Settings for 4-pin J3 and J4

You may also set J3 to setting 1 and J4 to setting 2, or vice versa.

For single-channel configuration, settings 1 and 2 for J3 are disabled since terminators RA4, RA5, and RA6 are removed.

Some versions of the backplane board come with a 6-pin J3 and J4 jumpers. The two additional pins are for setting more hard disk IDs. Note that the hard disk ID switches in these versions have only three on/off switches. See section 4 for details on hard disk ID settings.

Figure B-3 shows the settings for backplane boards with a 6-pin J3 and J4 jumpers.
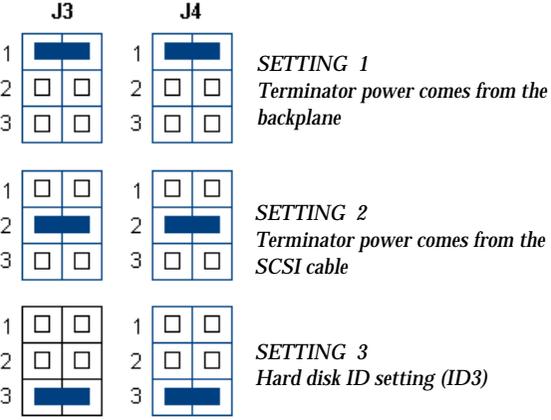
Figure B-3   Jumper Settings for 6-pin J3 and J4

B.4   Hard Disk ID Setting Options

The wide SCSI hot-swap drive tray includes an 8/12-pin ID cable (see Figure 2). This cable allows you to define the hard disk ID using the ID switches on the backplane board.

The narrow SCSI drive tray comes with a 6-pin ID connector but no cable since narrow SCSI drive specifications vary depending on the brand. The ID setting feature on the backplane board does not work if you do not connect an ID cable.

If you are using a narrow SCSI drive tray and you want to use this feature, ask your vendor for information on the ID cable that corresponds to your SCSI hard disk drive.

Figure B-4 shows the pin definition of ID cable connector J2 on the drive tray to help you connect the cable properly. Make sure to match pin 1 on the cable with pin 1 on J2.

8-Pin Connector for
Wide SCSI ID Cable

ID3 ___ 1 ○ ○ 5
ID2 ___ 2 ○ ○ 6
ID1 ___ 3 ○ ○ 7
ID0 ___ 4 ○ ○ 8

6-Pin Connector for
Narrow SCSI ID Cable

ID2 ___ 1 ○ ○ 4
ID1 ___ 2 ○ ○ 5
ID0 ___ 3 ○ ○ 6
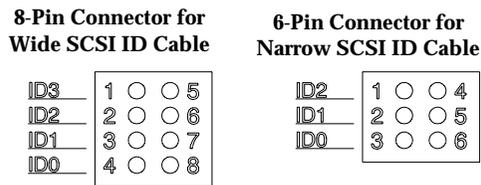
Figure B-4   ID Cable Connector Pin Definitions

Figure B-5 shows the ID switch default settings with the corresponding hard disk IDs for backplane boards with 4-pin J3 and J4 jumpers, and 4-on/off ID switches.

ID Switch Setting	Hard Disk ID	Hard Disk ID	ID Switch Setting
ON ▪▪▪▪	0	8	▪▪▪▫
ON ▫▪▪▪	1	9	▫▪▪▫
ON ▪▫▪▪	2	10	▪▫▪▫
ON ▫▫▪▪	3	11	▫▫▪▫
ON ▪▪▫▪	4	12	▪▪▫▫
ON ▫▪▫▪	5	13	▫▪▫▫
ON ▪▫▫▪	6	14	▪▫▫▫
ON ▫▫▫▪	7	15	▫▫▫▫

Figure B-5   Hard Disk ID Switch Settings
(for backplane versions with 4-on/off switches)

B.5 SCSI Channel Configurations

You may configure the backplane as single-channel (combine) or dual-channel (split) controller.

B.5.1 Single-Channel Configuration

In a single-channel configuration, channel 1 supports the SCSI devices plugged into slots 1 to 8. Set the channel configuration switches to "Combine" and set the terminators accordingly (Table B-1) to achieve a single-channel configuration. See Figure B-1 for the locations of the switches and terminators.
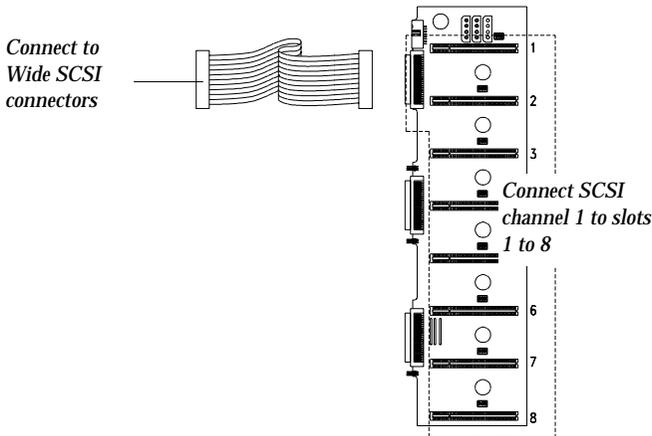
Figure B-6   Single-Channel Configuration

Table B-1 lists the terminator settings for the single-channel configuration.

Table B-1   Terminator Settings for Single-Channel Configuration

Terminator	Setting
With External Device	
	Removed
Without External Device	
RA1, RA2, RA3 RA4, RA5, RA6	Installed Removed

B.5.2 Dual-Channel Configuration

In a dual-channel configuration, channel 1 supports the devices in slots 1 to 4, and channel 2 supports the devices in slots 5 to 8. Set the channel configuration switches to "Split" and set the terminators accordingly (Table B-2) to achieve a dual-channel configuration. See Figure B-1 for the locations of the switches and terminators.
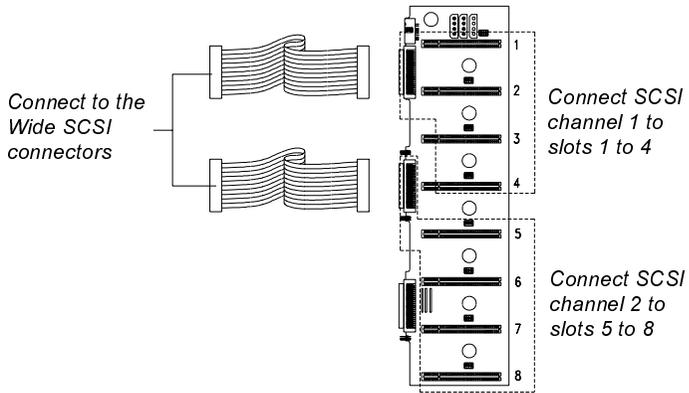
Figure B-7   Dual-Channel Configuration

Table B-2 lists the terminator settings for the dual-channel configuration.

Table B-2   Terminator Settings for Dual-Channel Configuration

Terminator	Setting
RA1, RA2, RA3	Installed
RA4, RA5, RA6	Installed

B.5.3   Installing a SCSI Hard Disk

Follow these steps to install a SCSI hard disk on a hot-swap drive tray:

1. Remove the terminators on each SCSI drive that you will install.

2. Position the drive over the hot-swap tray and connect the SCSI cable, drive ID cable, and power cable.
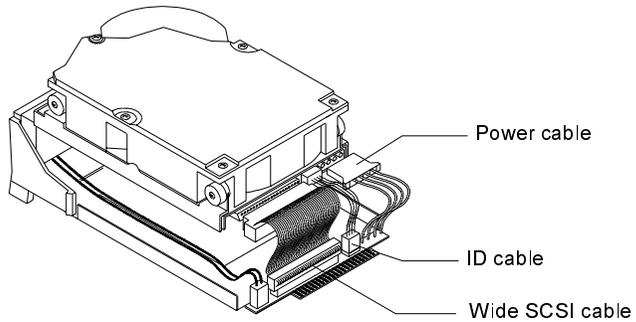
Figure B-8   Connecting the Drive Cables (wide SCSI drive)

3. Secure the drive to the tray using four screws.
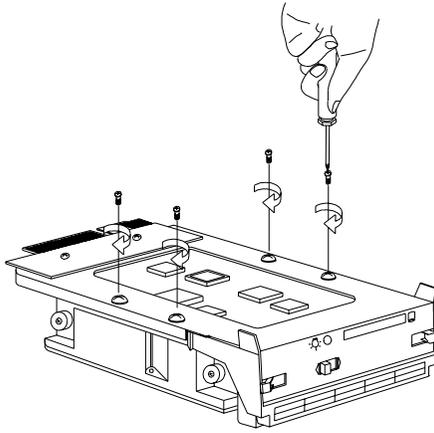
Figure B-9   Securing a Drive to the Hot-swap Tray

4. Install the drive tray into the backplane board.   See Figure B-10 on the following page.

> *Make sure that the power switch on the drive tray is set to the Unlock/Power Off position before you plug it to the board.*
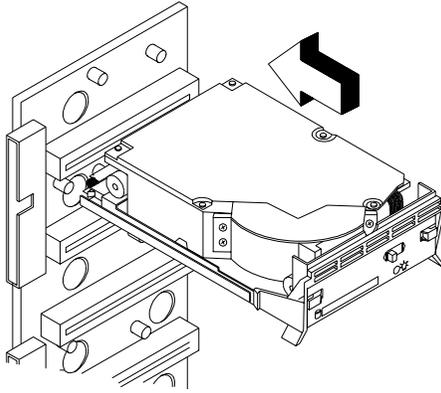
Figure B-10   Installing the Hot-swap Drive Tray

5. Slide the power switch of the drive tray to the Lock/Power On position. The
    power LED lights up.

B.6　Using the Hot-swap Feature

The backplane board supports a hot-swap feature that allows you to change defective drives even while the system is running.

> *The hot-swap feature requires the RAID controller board and RAID drivers.*

The faulty drive indicator[1] on the hot-swap drive tray lights up whenever the drive that it carries becomes bad or defective. When this happens, you can replace the defective drive without shutting off the system or even quitting any running application by utilizing the hot-swap feature.

Follow these steps to use the hot-swap feature:

1. Set the hot-swap drive tray power switch to the Unlock/Power Off position.

2. Pull out the drive tray.

3. Take out the defective drive from the tray.

4. Configure the new hard disk. If you are not using an ID cable, make sure that the new drive ID is the same as the old drive ID. If you are using an ID cable, make sure that you connect the cable properly.

5. Install the new disk according to the installation steps in section 5.

> *Make sure that the power switch on the drive tray is set to the Unlock/Power Off position before you plug it to the backplane board.*

---

[1]　This feature requires a software that coordinates the system signals prompting the indicator to light up.

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Release Note

AcerAltos 9100 Update

Thank you for purchasing an AcerAltos 9100 server. We want to provide you with the latest information about your new server. This document contains the following:

- Jumper Settings for Pentium II 300 MHz Processor Upgrade

- Novell IntranetWare Notes

- SCO OpenServer Notes

- Certified Add-on Components for the AcerAltos 9100 Server

Jumper Settings for Pentium II 300 MHz Processor Upgrade

The table below updates the Core/Bus Frequency data in Table 2-1 in the User's Guide. (The shaded area shows the jumper settings for a Pentium II 300 MHz processor.)

Table 2-1   Settings for CPU Core/Bus Frequency Ratio (JP1)

JP1 Settings				CPU Core/Bus Freq.
1-2	3-4	5-6	7-8	
1	1	1	1	2/1
1	1	0	1	3/1
1	1	1	0	4/1[*]
1	1	0	0	5/2
1	0	0	1	7/2
1	**0**	**1**	**0**	**9/2**

0 - Pins open   1 - Pins Closed

Novell IntranetWare 4.11 Notes

4 GB Hard Drive Fix

If you are installing IntranetWare 4.11 from the media CD, using a 4 GB primary bootable hard drive with an Adaptec AIC7880 as a primary controller (with Extended BIOS Translation for DOS Drives > 1Gbyte enabled), you may see the following error message:

> The size of the active DOS partition is xx MB. It should be at least 15MB to continue with the installation.
>
> Press <F1> for more information

---

[*]   Default setting

Do the following:

1. Download 4GBFIX.EXE from the Novell web site (http://developer.novell.com/devres/system/revj/trouble/index.htm) to a blank diskette.

2. Run 4GBFIX.EXE to uncompress the file(s) to a diskette. Follow the instructions contained in the readme.txt file for NetWare installation.

SCO OpenServer Notes

SCO OpenServer 5.0.2

Intel EtherExpress Pro 10/100 B PCI NIC

The driver built into SCO OpenServer 5.0.2 AHS for an Intel Pro/100 card should not be used. This driver needs to be removed first (Intel Ether Express PRO/100B LAN Adapter). After removing the driver, install Intel's SCO driver diskette, included in the server software box.

3COM 3C905 10/100 NIC

Use the 3C905 SCO MDI driver included in Acer StartUp. The driver diskette is generated from the Diskette Maker utility in Acer StartUp.

Video ATI Mach64 PCI

After adding more memory you may experience video problems (such as the SCO login screen blanking out or seeing a mouse trail on your screen). If this happens, invoke "mkdev graphics" to choose the driver and finish the video reconfiguration. This should correct the problem.

SCO OpenServer 5.0.4

Intel EtherExpress Pro 10/100 B PCI NIC

The driver built into SCO OpenServer 5.0.4 for an Intel Pro/100 card should not be used. This driver needs to be removed first (Intel Ether Express PRO/100B LAN Adapter). After removing the driver, install Intel's SCO driver diskette, included in the server software box.

3COM 3C905 10/100 NIC

To use 3C905 PCI NIC, you must first remove the built-in driver in SCO 5.0.4 (titled "3Com EtherLink XL PCI(3c900) 3ComFast Eth").

After removing this driver, use the 3C905 SCO MDI driver included in Acer StartUp. This driver is generated from the Diskette Maker utility in Acer StartUp.

Mylex DAC960PL Controller

If you install SCO OpenServer 5.0.4 with a Mylex DAC960PL as the primary controller and have a CD-ROM or tape drive connected to an onboard AIC 7880 controller, do the following:

1. Download the Mylex driver for SCO OpenServer 5.0.4 from the Mylex website (www.mylex.com).

2. Disable "boot device" in the BIOS PCI setup for onboard Adaptec controller.

3. From the SCO OpenServer 5.0.4 installation "boot" prompt, enter the following string:

   restart link=mdac Sdsk=(0, 0, 0, 1) Srom=alad(0, 5, 0) Stp=alad(0, 2, 0)

   Follow the onscreen prompts to finish the installation.

NOTE: *Stp=alad(0, 2, 0) is optional only if there is a tape drive connected to the onboard controller.*

ArcServe Tape Utility

The SCO OpenServer 5.0.4 operating system cannot be configured when using both ArcServe and the SCO Symmetric Multiprocessing package. This configuration will cause a system panic during the system multi-boot stage.

Solution: The workaround is to use the SCO OpenServer 5.0.2 *alad* driver. This can be done as follows:

1. On a running SCO UNIX system, mount the OpenServer 5.0.4 CD-ROM:

   mount /dev/cd0 /mnt

2. Change to the images directory with this command:

   cd /mnt/images/alad

3. After you have installed the SCO OpenServer 5.0.4 operating system and are running uniprocessor:

   a. Copy the *driver.o* and *space.c* files to /etc/conf/pack.d/alad/

   b. Relink the kernel and reboot.

Certified Add-on Components

The following components have been certified for use with the AcerAltos 9100 server. This list is subject to periodic updates.

Windows NT 4.0 Server

Network Interface Controllers
3COM 3C905TX 10/100
Intel EtherExpress Pro 10/100 B PCI
Madge Ringnode 16/4

SCSI Hard Drives
IBM 2.1 GB DCAS 32160, UW
IBM 4.3 GB DCAS 34330, UW
Seagate 4.3 GB ST34572, UW
IBM 9.1 GB DCHS-09U

CD-ROM
NEC CDR 1610A, 16X, Narrow SCSI

Memory
Acer 32 MB EDO/ECC DIMM, 4 X 72
Acer 64 MB EDO/ECC DIMM, 8 X 72
Acer 128 MB EDO/ECC DIMM, 16 X 72

SCSI RAID Controller
Mylex DAC960 PL, Fast/Wide 2 Channel (BIOS 3.00.07,FW 3.5-00-5)

Tape Drives
Sony 12GB SDT 9000, SCSI DAT
Sony 8GB SDT 7000, SCSI DAT
Tandberg 4/8 SLR 5, SCSI

Novell IntranetWare 4.11

Network Interface Controllers
3COM 3C905TX 10/100
Intel EtherExpress Pro 10/100 B PCI
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Acer 128 MB EDO/ECC DIMM, 16 X 72

SCSI RAID Controller
Mylex DAC960 PL, Fast/Wide 2 Channel (BIOS 3.00.07,FW 3.5-00-5)

Tape Drives
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Sony 8GB SDT 7000, SCSI DAT
Tandberg 4/8 SLR 5, SCSI

SCO OpenServer 5.0.2

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Memory
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Acer 64 MB EDO/ECC DIMM, 8 X 72
Acer 128 MB EDO/ECC DIMM, 16 X 72

SCSI RAID Controller
Mylex DAC960 PL, Fast/Wide 2 Channel (BIOS 3.00.07,FW 3.5-00-5)

Tape Drives
Sony 12GB SDT 9000, SCSI DAT
Sony 8GB SDT 7000, SCSI DAT
Tandberg 4/8 SLR 5, SCSI

Serial I/O
Digi PCI C/X with c/conn 8-port
Digi PCI C/X with c/conn 16-port
Specialix 8-port RTA/RJ
Specialix 16-port RTA/RJ
Specialix PCI R/IO

SCO OpenServer 5.0.4

Network Interface Controllers
3COM 3C905TX 10/100
Intel EtherExpress Pro 10/100 B PCI
Madge Ringnode 16/4

SCSI Hard Drives
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IBM 4.3 GB DCAS 34330, UW
Seagate 4.3 GB ST34572, UW
IBM 9.1 GB DCHS-09U

CD-ROM
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Memory
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Acer 64 MB EDO/ECC DIMM, 8 X 72
Acer 128 MB EDO/ECC DIMM, 16 X 72

SCSI RAID Controller
Mylex DAC960 PL, Fast/Wide 2 Channel (BIOS 3.00.07,FW 3.5-00-5)

Tape Drives
Sony 12GB SDT 9000, SCSI DAT
Sony 8GB SDT 7000, SCSI DAT
Tandberg 4/8 SLR 5, SCSI

Serial I/O
Digi PCI C/X with c/conn 8-port
Digi PCI C/X with c/conn 16-port
Specialix 8-port RTA/RJ
Specialix 16-port RTA/RJ
Specialix PCI R/IO