Altos 21000 Series
User's Guide

Document History	EDITION	PART NUMBER	DATE
	First Edition	49. AB704.001	March 1999

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IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Save these instructions 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. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. 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 your obsolete 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. Replace battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion. Refer battery replacement to a qualified serviceman.

15. Warning! Battery may explode if not handled properly. Do not recharge, disassemble or dispose of in fire. Keep away from children and dispose of used battery promptly.

16. Use only the proper type of power supply cord set (provided in your keyboard/manual accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SJT, rated 10A 125V minimum, maximum length is 15 feet (4.6 meters).

FCC Class A Radio Frequency
Interference Statement

WARNING!

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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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:

If the EUT was tested with special shielded cables, the operator's manual for such product shall also contain the following statement or its equivalent:

Shielded interface cables and/or AC power cord, if any, must be used in order to comply with the emission limits.

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About this Manual

This system guide aims to give you all the necessary information to enable you to set up and operate the Altos 21000 system.

Manual Structure

This user's guide consists of an introduction, five chapters, one appendix, and an index.

Introduction

Gives an overview of the Altos 21000 and its unique features and powerful architecture. It includes a brief introduction of the new generation Intel Pentium II Xeon processor that forms the heart of the Altos 21000 system.

Chapter 1   Getting Started

This chapter illustrates how to prepare the system for installation, connect the cables, start up the system, and turn off system power. Before you install any system components, refer to the "Installing Optional Components" section for important ESD precautions, and pre- and post-installation instructions.

The "Power-on Problems" section suggests corrective measures if the system does not boot after you have applied power.

Chapter 2   System Housing

This chapter describes the external and internal structure of the system housing and its assembly and disassembly. It describes the LCD display module and explains how to replace the LCD display screen. It also shows you how to install storage devices, a hot-swappable SCSI drive, redundant power supply module, redundant housing fan, expansion board and thermal air guide. At the end of the chapter is an illustration of cable connections and a power cable list. Other illustrations show how to combine and split the backplane board.

Chapter 3   System Boards

This chapter describes the main board, the memory board, the SCSI backplane board, and the LCD display module. It also describes how to install components on the system board.

Chapter 4   BIOS Utility

This chapter explains the BIOS parameter functions. It tells how to configure the system by setting the parameters.

Chapter 5   SCSI*Select* Configuration Utility

This chapter describes the SCSI*Select* Configuration Utility, which allows you to change SCSI controller settings without opening the computer or changing jumpers.

Appendix A Event Tables

This chapter contains the following tables: LCD Display Panel Event Types, RDM Events and POST Error Events.

Conventions

The following conventions are used in this manual:

`CTRL`, `ALT`, `ESC`	Represents the actual keys that you have to press on the keyboard.
	NOTE Gives bits and pieces of additional information related to the current topic.
	WARNING Alerts you to any danger that might result from doing or not doing specific actions.
	CAUTION Suggests precautionary measures to avoid potential hardware or software problems.
	IMPORTANT Reminds you to take specific action relevant to the accomplishment of the procedure at hand.
	TIP Tells how to accomplish a procedure with minimum steps through little shortcuts.

Introduction

The Altos® 21000 is a powerful 64-bit quad-processor system with a host of new and innovative features. The system offers a new standard for flexible productivity ideal for local or wide area networks and multi-user server environments.

Intel® Pentium® II Xeon™ Processor with the Intel 450NX Chipset

The Pentium II Xeon processor, like its predecessors, the Pentium Pro and Pentium II processors, implements a Dynamic Execution micro-architecture - a unique combination of multiple branch prediction, data flow analysis, and speculative execution. This means that the Pentium II Xeon can deliver higher performance than the Pentium Pro processor while maintaining binary compatibility with all previous Intel Architecture processors.

Also, the Pentium II Xeon processor is available in 512K, 1MB, and 2MB L2 cache options with the introduction of the Slot 2 socket. Unlike Slot 1 Pentium II processors, which access the L2 at half the processor speed, the Slot 2 accesses the L2 at full processor clock speed. An addition to the Pentium II Xeon processor is the Intel 450NX chipset, for servers with four or more processors, which supports a 100MHz front-side bus, USB (four ports), a south bridge to the ISA bus, provides up to 4GB of memory support and multiple 32-bit and 64-bit PCI buses.

In addition to meeting the mission-critical and fast system response time requirements of enterprise servers, the Altos 21000 is fault tolerant and capable of preventing faults from occurring. It also demonstrates graceful performance scalability when the system configuration is expanded.

System Architecture
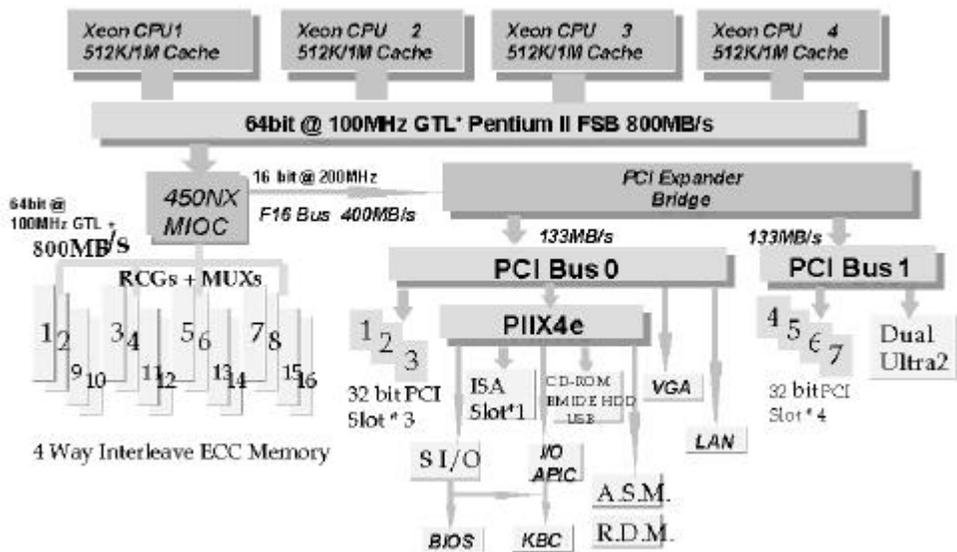
The system includes a main and memory subsystems with four Slot 2 processors and voltage regulators for the processors. The memory subsystem runs in 100 MHz timing and has a maximum size of up to 4GB.

Six PCI and 1 PCI/ISA shared slots are also incorporated for fast expandable I/O capabilities.

There are two LVD SCSI (Ultra-2) channels for high performance storage devices and one Narrow SCSI channel for backup (i.e., tape drives) or CD-ROM devices.

A high-speed 10/100Mbit Ethernet controller and a PCI VGA device are also provided.

For more information about the main board see section 3.1.

Server Management

The system comes with the Advanced Server Manager (ASM) Pro manageability hardware and software that monitors voltage stability, CPU temperature, and cooling fan status, reports ECC memory errors and PCI bus utilization, and increases overall efficiency by helping to minimize system downtime.

A complementary feature to ASM Pro is Remote Diagnostic Manager (RDM) that permits system diagnosis from a remote site through a modem when the server operating system stops running. RDM facilitates the fixing of detected problems, changing system configurations or rebooting in the event of system failure.

Hot-swappable Redundant Power Supply Subsystem

The system comes with a power backplane that holds up to three 430-watt power supply modules. The power subsystem supports a redundant configuration such that even if one power supply fails, the remaining two continue to work together to supply 860-watt power to a fully-configured system. You can also replace a faulty power supply module without opening the system housing or shutting down the system. See section 2.5 for more information.

Hot-swappable Redundant Housing Fan

The system comes with four housing fans that ventilate the system housing. In the event that any one of the fans fails to operate, you can simply replace it without shutting down the system. See section 2.6 for more information.

Security

The system housing comes with mechanical security locks on the front panel to detect unauthorized access to the internal components. A microswitch located on the left side of the housing panel detects and reports any intrusion via ASM Pro monitoring software.

The system BIOS protects the CMOS data and other system software with a power-on password, keyboard password, setup control, disk drive control, and monitor control.

Chapter 1   Getting Started

This chapter tells how to install and set up the system. It gives instructions on how to select a site for the system, prepare the system for use, connect basic peripherals, and start up the system.

1.1   Preinstallation Requirements

1.1.1   Selecting a Site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. The system is suitable to set up in an office environment.

Consider the following factors when choosing a site for the system:

- Near a grounded power outlet

- Clean and dust-free

- Sturdy surface free from vibration

- Well-ventilated and away from sources of heat

- Secluded from electromagnetic fields produced by electrical devices such as air conditioners, radio and TV transmitters, etc.

1.1.2   Checking the Package Contents

The System Contents sheet, located inside the box, lists what is included with the system. If any of the items are damaged or missing, contact your dealer immediately.

Save the boxes and packing materials for future use.

One pair of system keys is inside the front panel door.

1.1.3 Preparing the System Unit

Do the following to begin setting up the system:

1. Unlock the front wheels and move the system to your desired location.

   The four wheels on the bottom of the housing allow you to easily move the system short distances. The two front wheels each include a lever to lock the wheels after you have positioned the system.

Front Wheel Lever
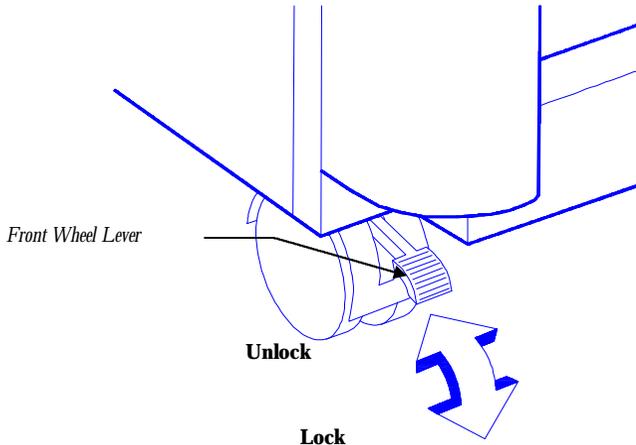
Unlock

Lock

2. After moving, lock the wheels by pressing the levers down.

Be sure to unlock the wheels when you want to move the system again.

3. Connect the system power cables into the power supply modules on the rear panel. See section 2.5.

1.2   Basic Connections

The system unit, keyboard, mouse, and monitor constitute the basic system. Before connecting any other peripherals, connect these peripherals first to test if the basic system is running properly.

1.2.1   Connecting a Keyboard
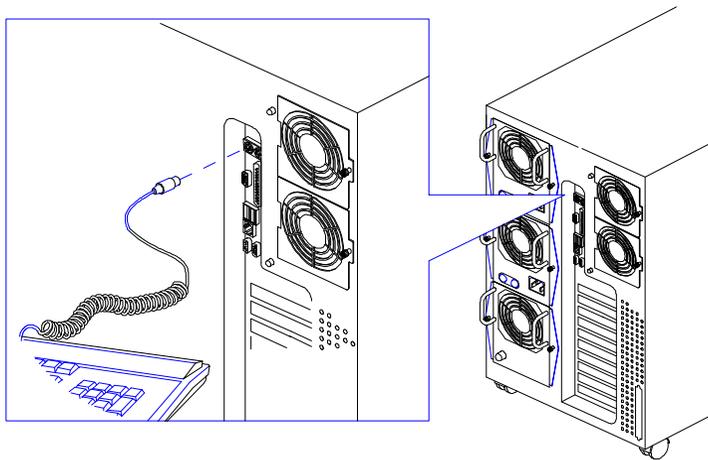
1.2.2 Connecting a Mouse
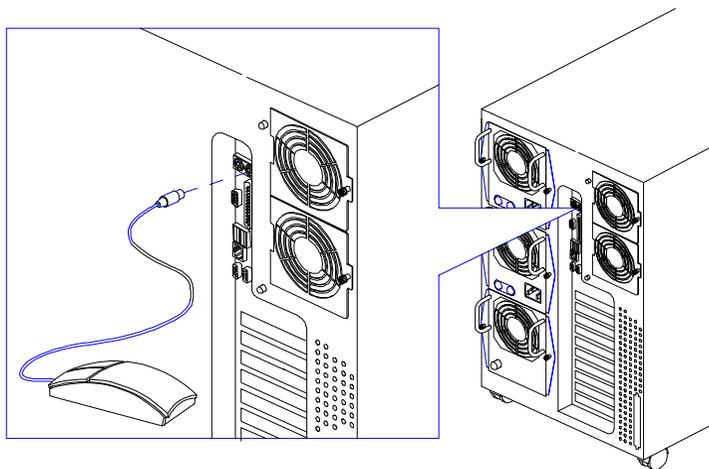
1.2.3 Connecting a VGA Monitor
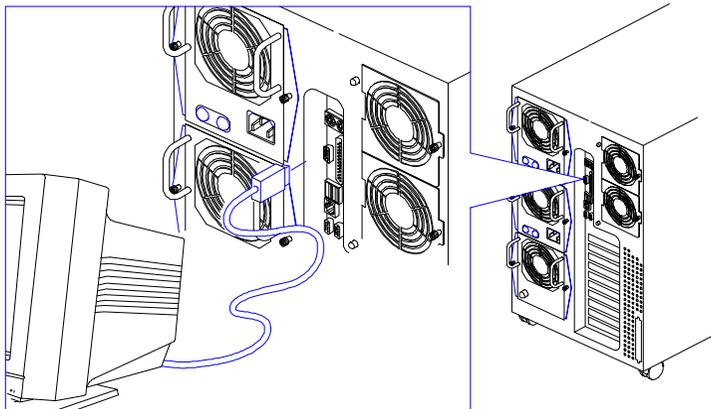
1.3   System Startup

After making sure that you have set up the system properly and connected all the required cables, you may now apply power to the system.

Turning On the System Power

To power on the system, press the power switch on the front panel (see section 2.1.1). The system starts up and displays a welcome message. After that, a series of power-on self-test (POST) messages appear on the LCD display screen. The POST messages indicate if the system is running well or not. See Appendix A for a list of LCD messages.

If the system does not turn on or boot after pressing the power switch, go to the next section for the possible causes of the boot failure.

Aside from the self-test messages, you can determine if the system is in good condition by checking if the following occurred:

● Power indicator LED on the front bezel lights up (green)

● Power, Num Lock, and Caps Lock LED indicators on the keyboard light up

● Power supply power LED located at the back of the system lights up (green)

1.4   Power-on Problems

If the system does not boot after you have applied power, check the following factors that might have caused the boot failure.

The pointing symbol (☛) indicates a possible cause of the problem. The check mark (✔) tells you how to correct the problem.

☛ **The external power cable may be loosely connected.**

✔ Check the power cable connection from the power source to the power socket on the rear panel. Make sure that each cable is properly connected to each power supply.

☛ **No power coming from the grounded power outlet.**

✔ Have an electrician check your power outlet.

☛ **Loose or improperly connected internal power cables.**

✔ Refer to section 2.9 for the cable connections and check the internal power cable connections. If you are not confident that you can perform this step, ask a qualified technician to help you.

☛ **Missing or improperly installed Voltage Regulator Module (VRM).**

✔ VRMs must be installed for proper system operation. See section 3.15 for details.

Make sure all power cords are disconnected from the electrical outlet before performing this task.

If you have gone through the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

Turning Off the System Power

To power off the system, press the power switch on the front panel for 4 seconds.

You must press the power switch for about 4 seconds to turn off the system. This feature prevents accidental system shutdown during Power On Self Test (POST).

1.5   Installing Optional Components

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

Turn off the system power and unplug the power cord and all peripherals before opening the system or connecting or removing any peripheral device. Always turn on any external peripheral device 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.

When you power off the system, the RDM module still receives standby electric current so that it can check the system's status. Be sure to unplug the power cord before you install or remove the RDM module. Refer to the RDM User's Guide.

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 chassis 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 unplug the power cord and all the peripherals connected to the unit before opening it.

2. Open the system according to the instructions in Chapter 2, 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. Check 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 3.1.2 for the correct system board 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.

Chapter 2 System Housing

The system housing is a heavy-duty steel chassis in a twin-tower design. The spacious housing boasts high expansion capability and flexible configuration. It can be converted to fit into a rackmount cabinet by using the Altos 21000 Rack Installation Kit. For more information about this kit, please refer to your dealer.
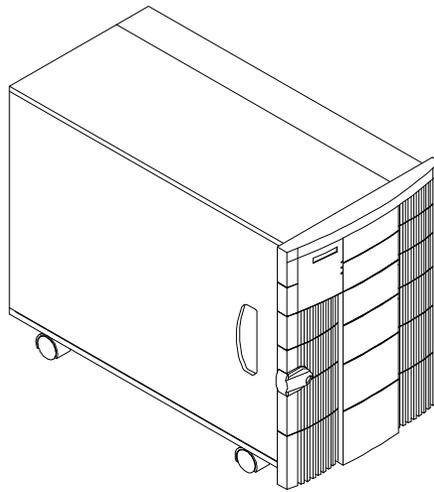
2.1　External and Internal Structure

2.1.1　Front Panel

The system front panel is divided into two sections. The left front panel consists of the diskette/CD-ROM/tape drive bays, power switch, LED indicators, and LCD display screen.

The right part contains the hot-swappable SCSI hard disk drive bays with 8 drive trays for SCSI drives.

One pair of system keys is inside the front panel door.
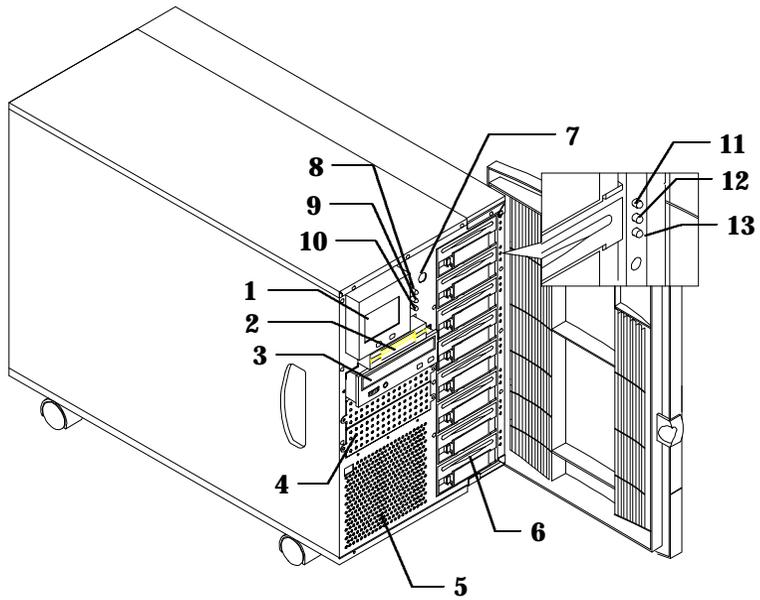
#	Item	Description
1	LCD Display Screen	Indicates boot status as well as any BIOS check point errors encountered upon system initialization. Refer to section 2.1.3 for more information.
2	3.5-inch Diskette Drive	A 3.5-inch diskette drive comes with the system.
3	CD-ROM Drive	EIDE CD-ROM drive.
4	5.25-inch Drive Bays	Two empty 5.25-inch drive bays allow installation of additional devices.
5	Ventilation Panel	Exhausts heat build-up inside the housing.
6	SCSI HDD Bays	Eight empty SCSI HDD bays allow installation of hot-swap SCA SCSI drives.
7	Power Switch	The power switch turns the system on/off.
8	System Power LED	Lights up (green) when the power is on. This also denotes that the system is running on a good supply of AC power.
9	System IDE Device / Add-on SCSI controller Access LED	Lights up (green) when at least one of the devices is being accessed.
10	RDM Active LED	Lights up (yellow) when an error condition occurs in the system.
11	SCSI HDD Power Status	Lights up (green) when the HDD is connected and powered up.
12	SCSI HDD Busy	Lights up when the HDD is currently being accessed.
13	SCSI HDD Failure	Lights up (orange) when the HDD installed on the backplane board is bad.

2.1.2 Rear Panel

The rear panel includes the system fan, the connectors for the keyboard, mouse, VGA monitor, printer, and serial devices, the slot openings for expansion boards, and the power supply.
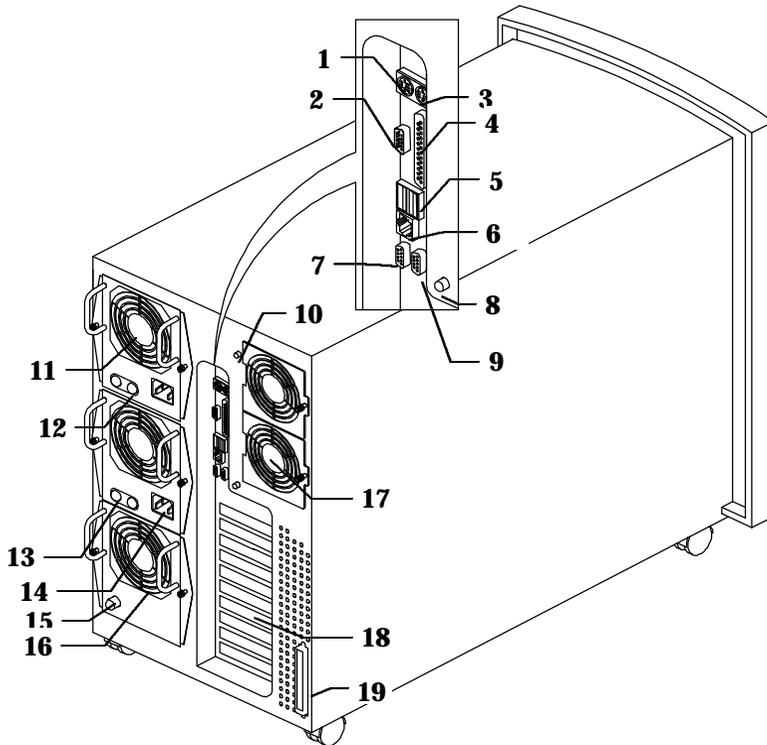
#	Item	Description
1	PS/2 keyboard port	Connects to PS/2 keyboards.
2	Video port	Connects to VGA monitors.
3	PS/2 mouse port	Connects to the PS/2 mouse.
4	Parallel port	Connects to parallel devices (printer).

5	USB ports	Connects to USB devices.
6	LAN port	Connects to the RJ45 network connector.
7	Serial port 1	Connects to serial devices (e.g., serial mouse).
8	Hot-swap redundant fan fail LED 2	Lights up (green) when the hot-swap redundant fan is working properly.
9	Serial port 2	Connects to serial devices (e.g., serial mouse).
10	Hot-swap redundant fan fail LED 1	Lights up (green) when the hot-swap redundant fan is working properly.
11	Hot-swappable redundant Power Supply Modules	Removable and installable even when the system is operating. See section 2.5.
12	Power supply power LED	Lights up (green) when the power supply is on.
13	Power supply fan failure LED	Lights up (Yellow) when one of the power supply fans is faulty[*].
14	Power cable connector	Connects to the power cable.
15	Fan module fail LED	Lights up (Yellow) when one or two fans are faulty.
16	Fan module (includes two fans)	The fan module is used in place of the third power supply module if one is not available.
17	Hot-swap redundant Fan cage	Allows the system fan to be removed and installed even when the system is operating. See section 2.6.
18	Expansion slots	Expansion cards installation. See section 2.7.
19	External SCSI port	Allows connection of external SCSI devices.

---

[*] The power supply has two cooling fans. If both fans fail to operate, the power supply module will shut down. The LED indicators of the power supply module will be turned off.
 If the fans are functioning properly and the power supply fails, the fans will keep operating.

2.1.3   LCD Display Module

The LCD display is an 8-line by 16-character screen that indicates the boot status as well as any BIOS checkpoint errors encountered upon system initialization. Normally, the system BIOS and the micro-controller firmware send the LCD display messages that appear on the screen. For a list of LCD messages from the system BIOS, please refer to Appendix A.

Main Menu

```
> H/W Monitor
  Event Log
  Reset System
  Help
  <Menu> - Select
  <Enter> - Execute
```

The main menu consists of four submenus. To access these submenus, press the **Select** button (left button) to choose and then press the **Enter** button (right button) to activate the submenu.

H/W Monitor Submenu

```
> Temperature
  Voltage
  Fan
  Power
  Fuse
  Main Menu
```

The H/W monitor submenu has five items. To access these items, press the **Select** button (left button) to choose and then press the **Enter** button (right button) to access the menu item.

Temperature

```
CPU1:  35 DEG.C
CPU2:  35 DEG.C
CPU3:  35 DEG.C
CPU4:  35 DEG.C


<Enter> Back
```

This item displays the CPU temperature reading. It will only display the number of available CPUs inside the system. Whenever the CPU temperature exceeds the required threshold, an error message will be displayed and logged into the Event Log for later viewing. Refer to section 4.7.5 for more information about System Event Configuration in the BIOS.

Voltage

```
CPU1      :  2.00 V          5V        :    5.04 V
CPU2      :  2.02 V          5STBY     :    4.95 V
CPU3      :  2.02 V          3.3V      :    3.27 V
CPU4      :  1.98 V    →     3.3STBY   :    1.98 V
CPU12L2 :  2.50 V            12V       :   11.90 V
CPU34L2 :  2.54 V            2.8SCSI   :    2.80 V
<Enter> Next                <Enter> Back
```

This item displays the voltage reading of the CPU, L2 cache, and others. It will only display the number of available CPU inside the system. Whenever the voltage exceeds the required threshold, an error message will be displayed and logged into the Event Log for later viewing.

Fan

```
HFAN1:  OK
HFAN2:  OK
HFAN3:  OK
HFAN4:  OK
HFAN5:  OK
HFAN6:  OK
<Enter> Back
```

This item displays the hot-swap redundant fan condition. It will only display the number of available hot-swap redundant fans installed in the system. If any of the fans stop working, an error message will be displayed and logged into the Event Log for later viewing.

Power

```
SPS1:  OK
SPS2:  OK
FM3 :  OK



FM: Fan Module
<Enter> Back
```

This item displays the hot-swap redundant switching power supply and fan module condition. It will only display the number of available hot-swap redundant switching power supplies and fan modules installed in the system. If any of the SPS or fan modules malfunction, an error message will be displayed and logged into the Event Log for later viewing.

Fuse

```
KB/Mouse  :  OK
USB1      :  OK
USB2      :  OK
SCSI1     :  OK
SCSI2     :  OK


<Enter> Back
```

This item displays the fuse condition for the keyboard, mouse, USB devices, and SCSI devices. If any of the fuses break down, an error message will be displayed and logged into the Event Log for later viewing. Contact your dealer for more information about fuse replacement.

Event Log Submenu

```
Event:    6
12:31 10/29'1998
PS/2 Keyboard
Interface Error



>Down     Up      Back
```

The Event Log monitors and records any event that occurs during boot-up and during the operation of the system. Whenever an event occurs, the event log will immediately display the event and then log it into the event log table.

An event is any malfunction or breakdown in the normal operation of the system. Each event is displayed one by one. To display other events, press the **Select** button (left button) to choose down or up and then press the **Enter** button (right button) to view other events. Choose **Back** to go back to the main menu.

Reset System Submenu

```
RESET SYSTEM?




 > Yes
    No
```
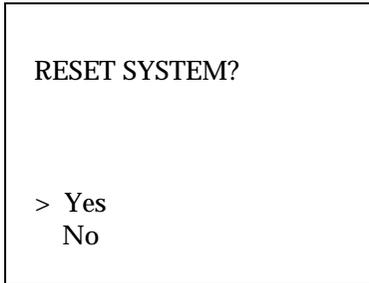
This submenu resets the system operation. Press the **Select** button (left button) to choose and then press the **Enter** button (right button) to confirm.

Help Submenu

```
 > Navigation
    System Tips
    System Info.

    Main Menu
```
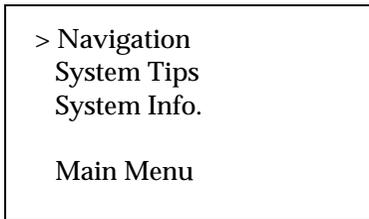
Provides useful information regarding the operation of the LCD display screen. Press the **Select** button (left button) to choose and then press the **Enter** button (right button) to confirm.

Replacing the LCD Display Screen

The system housing can be configured as a standalone tower housing or a rackmounted housing (please refer to the Rack Installation Guide that comes with the Altos 21000 Rack Installation Kit for more information on rack installation). With each configuration, the LCD display screen is placed differently. For more information about the rackmount installation and configuration, please refer to its user's guide.

To replace the LCD display screen:

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

2. Press on the edges of the top and bottom of the plastic shell to release the tabs that hold the LCD screen in place. Carefully pull out the LCD display screen. There is a connector at the back of the LCD display.
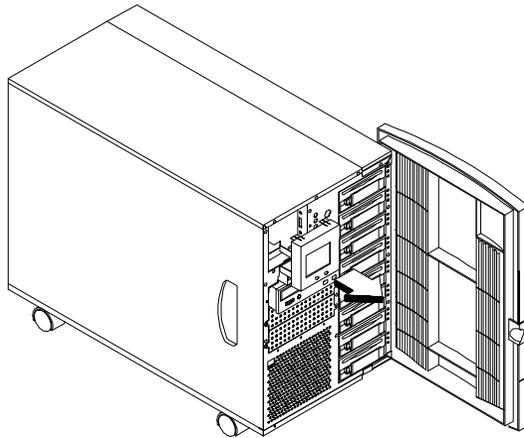
3. Disconnect the LCD connector.

4. Connect the LCD connector at the back of the new LCD display screen.

5. Attach the LCD display screen to the housing.

2.1.4 Internal Components

The housing is symmetrically divided into the left and right panels. The system's internal components are accessible through these panels.

Left Panel

The main part of the left panel houses the system board, memory board, and expansion boards. At the rear of the left panel are the keyboard, mouse, video, parallel, and serial ports, and the slot openings for installation of ISA and PCI expansion boards.

The front panel display occupies the upper front section of the left panel. The section below the front panel display accommodates one 3.5-inch and three 5.25-inch drives. These devices on the front section are externally accessible.

Here is a diagram of the system components on the left panel of the system housing.
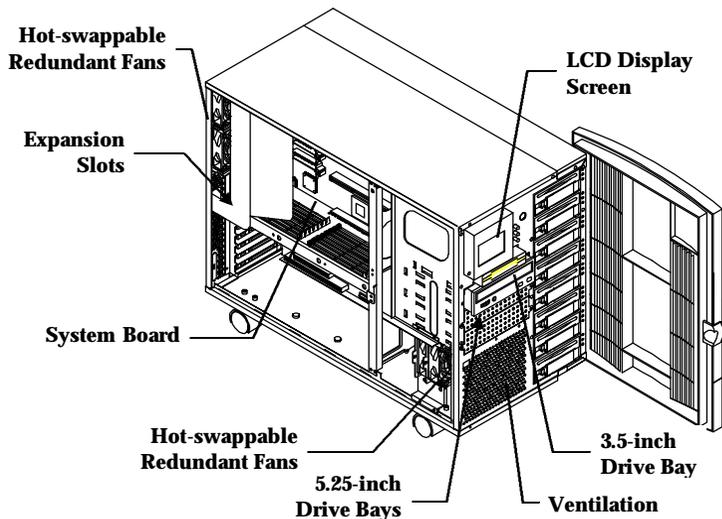
Right Panel

The power subsystem occupies the rear right panel. It consists of a power backplane board and a metal rack that holds up to three 430-watt redundant power supply modules. A fan module should be installed whenever a power supply is removed to provide the system with proper cooling. See section 2.5 for details on the power subsystem.

The front section of the right panel has a SCSI backplane board and a set of eight hot-swappable SCSI drive trays.

The following diagram shows the right panel with the right panel door removed.

Power Supply
Module Bays

Power Supply Backplane
Board (Inside)

SCSI Backplane
Board (Inside)

SCSI Drive Tray
Bays
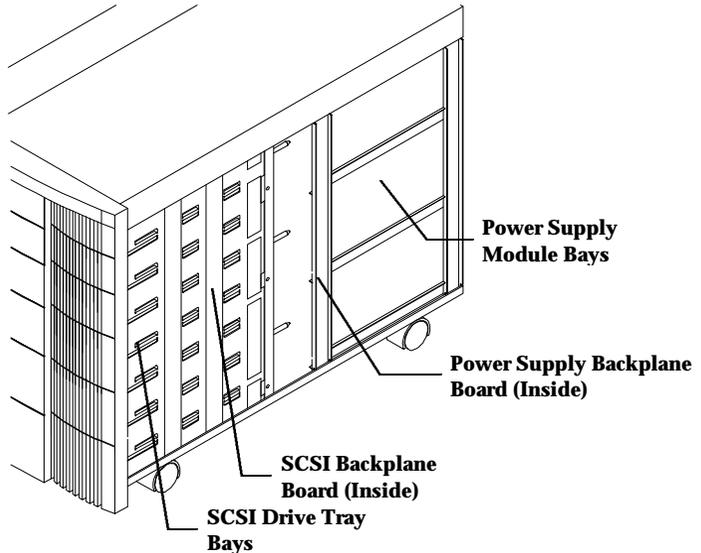
2.2   Opening the Housing Panels

Before opening the system housing, refer to section 1.5 for important precautions and instructions.

The system housing has one front door and two side panels. Always observe the following ESD (electrostatic discharge) precautions before installing any system component:

1. Do not remove any system component from its packaging unless 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 in the following sections unless you are a qualified service technician.

2.2.1   Removing the Left and Right Panels

A microswitch is located on the left side of the housing panel. It helps indicate whether the panel is removed or intact.

To remove the left or right panel:

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

2. Place the system unit on a flat, steady surface and lock the wheels by pressing down the levers.

3. Remove the screws of the left or right panel. Set the screws aside. You will need them when reinstalling the panels.

4. Pull the panel out and detach it.
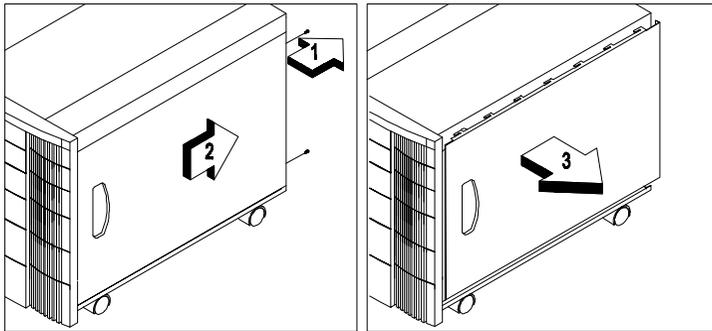
Right Panel
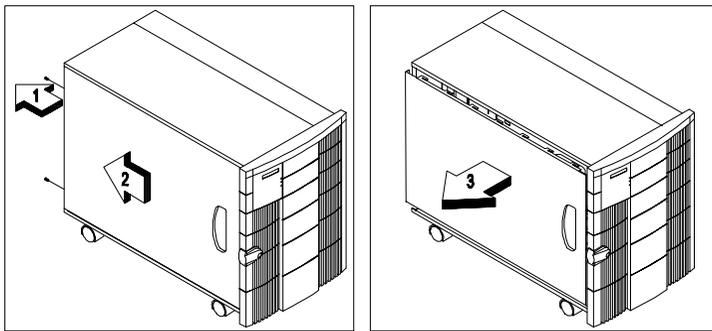
Left Panel

2.2.2   Opening the Front Panel Door

A security lock secures the front door to protect against unauthorized access.

To open the front door:

1.   Insert the key into the lock and turn it clockwise until it points to the unlocked padlock icon.

2.   Pull the front door open.
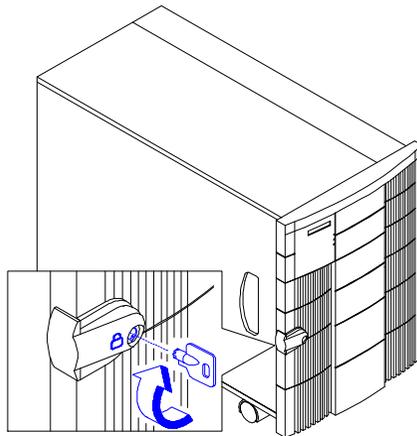
Removing the Front Panel Door

The doors are attached to the main housing by detachable hinges. Follow these steps to remove the door:

1. Unlock the door with the key (if necessary).

2. Open the door to a 45° angle (or more).

3. Lift it up a little, then pull the front panel door away from the housing.

2.3   Installing and Removing Storage Devices

The housing supports one 3.5-inch and four 5.25-inch internal storage devices. The empty drive bays on the upper front panel allows you to install additional drives such as a CD-ROM drive, tape drive or another hard disk drive.

Your system comes with a CD-ROM drive and a 3.5-inch diskette drive already installed.

2.3.1   Installing and Removing a 3.5-inch Storage Device

The housing comes with a drive guide for installing 3.5-inch storage devices.

To install a 3.5-inch storage device:

1.   Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.

2. Attach the drive guide to the external device as shown below.
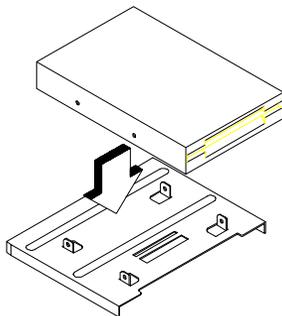
3. Secure the drive with four screws.
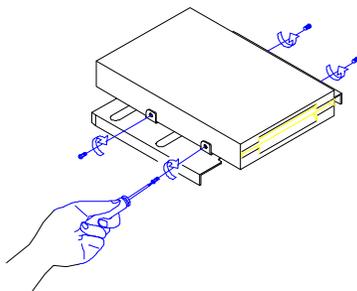
4.   Insert the drive into the bay.
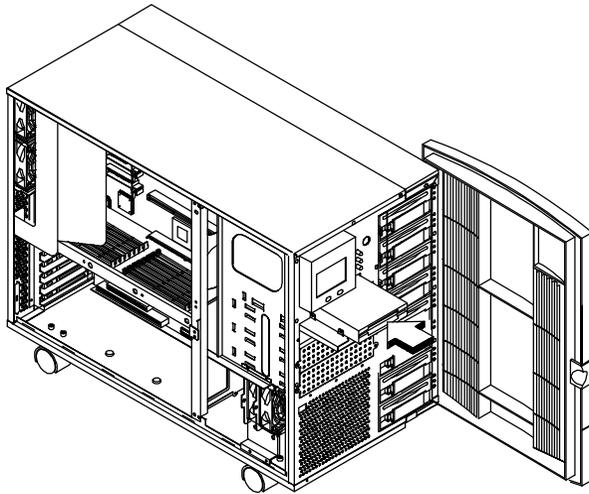
5. Secure the drive with a screw.   The screw hole is located on the side of the housing.
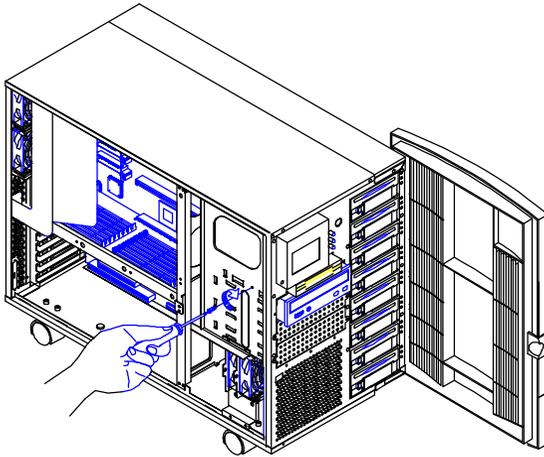
6. Connect the power cable and signal cable to the external device.

7. Close the left panel.

To remove a 3.5-inch storage device:

1. Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.

2. Disconnect the power and signal cables.

3. Detach the external device by removing the screw located on the side and then gently pulling the device out.

4. Remove the four screws and detach the 3.5-inch drive from the drive guide.

2.3.2   Installing and Removing a 5.25-inch Storage Device

The housing comes with a drive guide for installing 5.25-inch internal storage devices.

To install a 5.25-inch storage device:

1. Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.

2. Remove two screws to detach the metal cover.
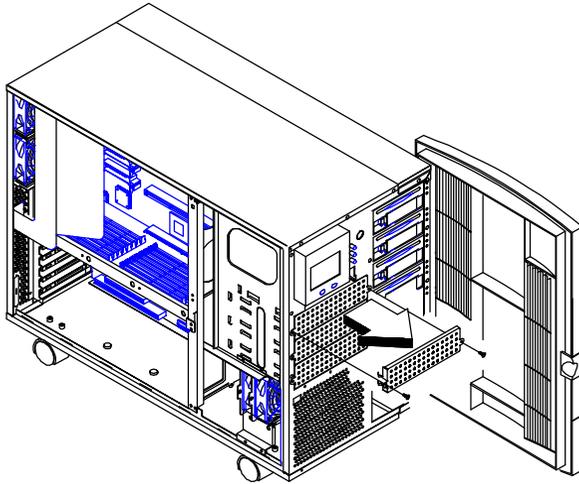
3. Attach the drive guides on the sides of the external device as shown below.
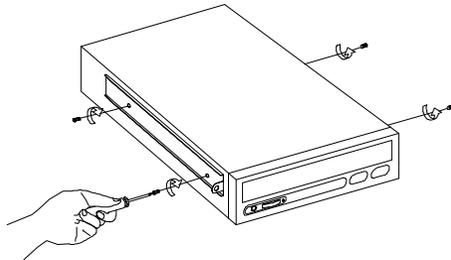
4. Insert the drive into the bay.
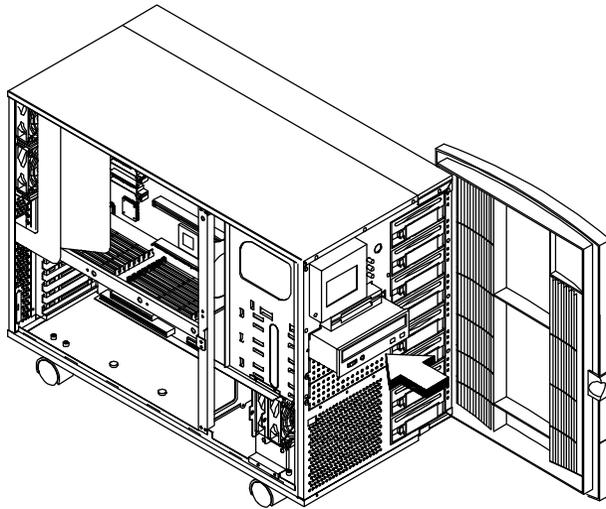
5. Secure the drive with two screws as shown below.
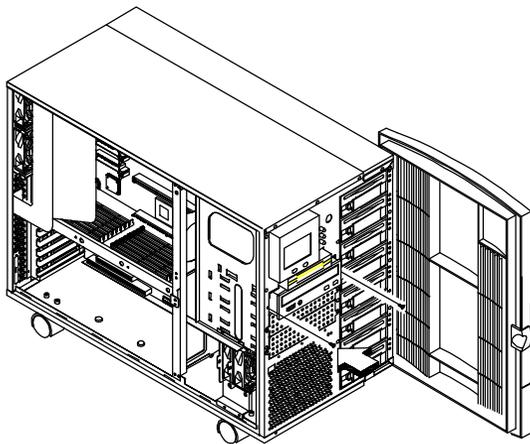
6. Connect the power cable and signal cables to the external device.

7. Close the left panel.

To remove a 5.25-inch storage device:

1. Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.

2. Disconnect the power and data cables.

3. Detach the external device by removing the screws and gently pulling the device out.

4. Remove four screws to detach the drive from the drive guide.

2.4 Installing a Hot-swappable SCSI Drive

Remove all jumper connectors on the SCSI drive before installing it into the system. The backplane will then automatically set the SCSI ID. Refer to section 3.3 for more information about the SCSI backplane board.

The system supports up to eight hot-swappable drive trays.

Follow these steps to install a hot-swap SCSI drive:

1.   Open the front panel door.

2.   Use your finger to release the drive tray as shown below and then pull it out.
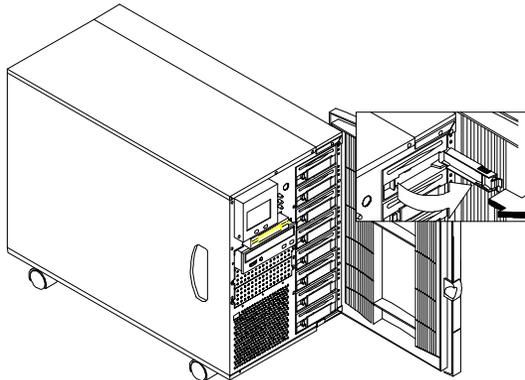
3. Secure the hard disk drive with four screws.
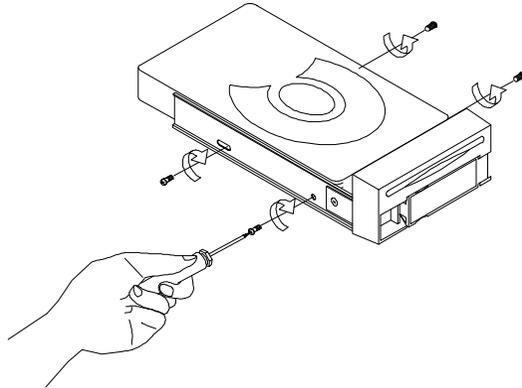
4. Install the tray into the drive bay, pushing it gently until it reaches the connector on the backplane board.

5. Push the lever back until it clicks into place.
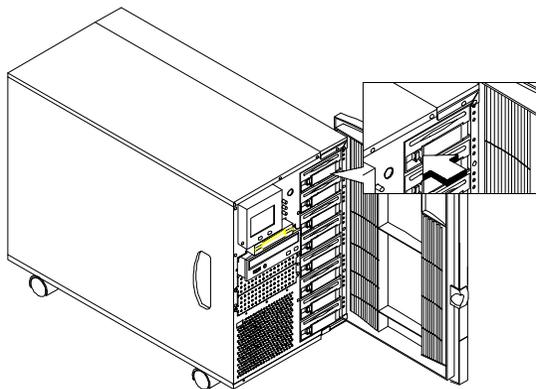
2.5 Installing and Removing a Hot-swappable Redundant Power Supply Module

The power subsystem consists of a power backplane and hot-swappable power supply modules. These components are held in place by a metal rack enclosure.

The backplane and the rack allow installation of up to three 430-watt power supply modules in a hot-swappable redundant configuration. A redundant power configuration enables a fully-configured system to continue running even if one power supply fails. The remaining two power supply modules still satisfy the minimum 860-watt system power requirement.

If a power supply module fan fails to operate, the power supply module will shut down. The power status LED indicator of the power supply module will be turned off. The fan module failure LED indicator will light up.

If the fans are functioning properly and the power supply fails, the fans will keep operating.

The power subsystem provides a standby electric current and a remote on and off feature to support remote cold reboot. See the *Remote Diagnostic Manager (RDM) User's Guide* for more information.

The power supply subsystem should supply a minimum 860W (2 power supply modules) DC power to the whole system. An additional power supply module can also be added for fail-safe redundancy.

Some configurations of the Altos 21000 system have two power supply modules while others have three power supply modules.

To install a power supply module:

1.   Insert the power supply into the housing.
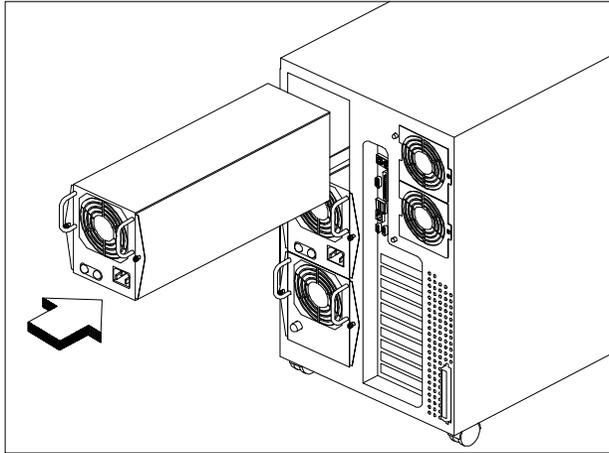
> *Make sure that the power supply is properly inserted, as shown above.*

2. Secure the power supply with the screw knobs on both sides.
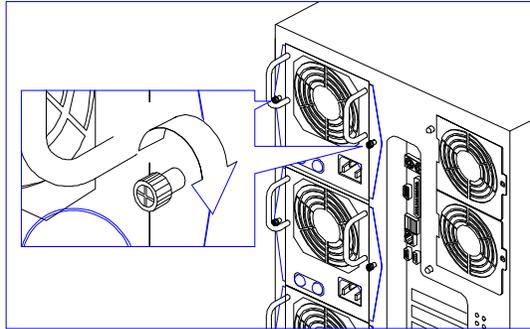
3. Connect a power cable to the power. Plug it into an electrical socket. The green LED on the back of the power supply lights up when the power supply is functioning properly.
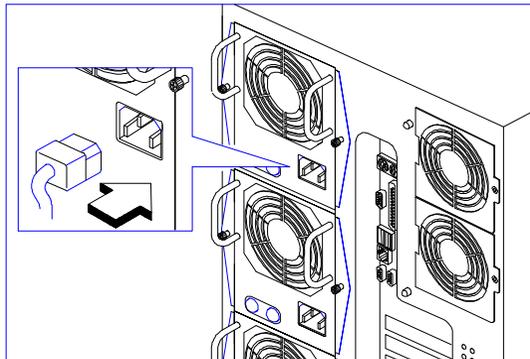
The power supply supplied with the system accepts input voltage of 100V~240V, 50~60Hz.

To remove a power supply module:

1. Detach the power cable from the electrical outlet and also from the power supply.

2. Unscrew the screw knobs and carefully pull out the power supply until it detaches from the housing.

Make sure the power supply subsystem is supplying a minimum of 860W (2 power supply modules) to the system.

2.6 Installing and Removing a Hot-swappable Redundant Housing Fan

Four housing fans are distributed inside the housing to cool the system. They are hot-swappable and redundant. You can simply take one out and put a new one in if a fan fails to operate. You don't even have to shut down the system.

To change a rear hot-swap housing fan:

1. Turn the screw knob counterclockwise to open the housing fan cage.
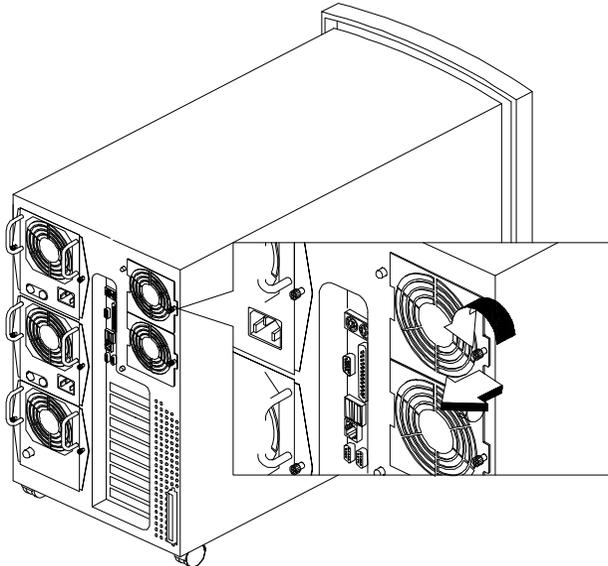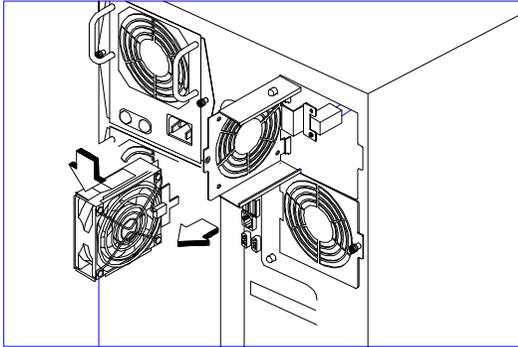
2. Push the clip down and pull the housing fan out.
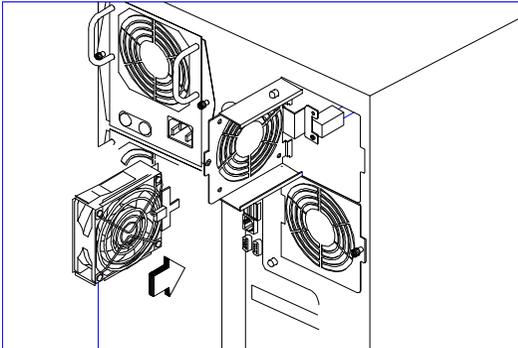
3. Slide in a new housing fan. The power indicator lights up.

4. Close the housing fan cage and turn the screw knob clockwise to lock it.

To change a front hot-swap housing fan:

1. Remove the left panel. See section 2.2 for more information on opening the housing panels.

2. Push the clip down and pull the housing fan out.

Clip
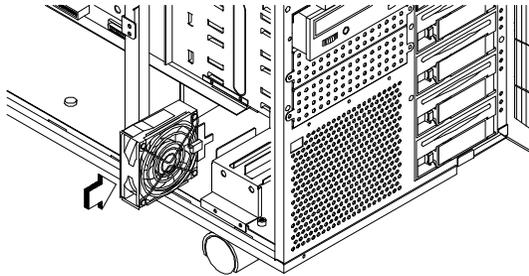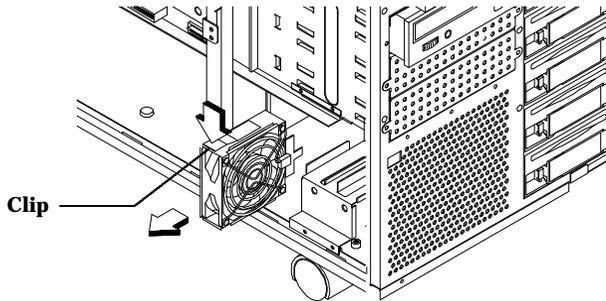
3. Insert a new housing fan.

4. Close the left panel.

2.7   Installing an Expansion Board

Follow these steps to install a PCI expansion board:

1. Remove the left panel of the housing. See section 2.2 for more information on opening the housing panels.

2. Remove the bracket cover opposite an empty PCI slot. Save the screw for
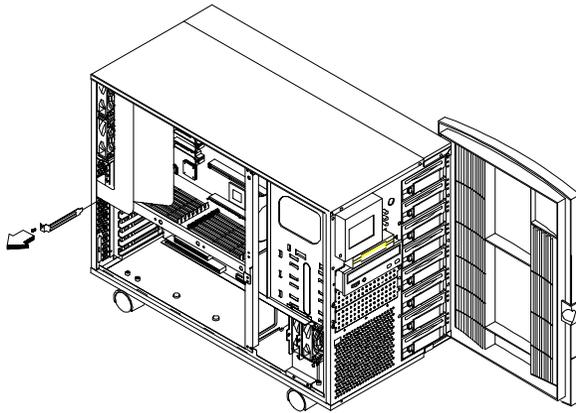
    later use.

3. Align the board with the slot.

4. Insert the board into the slot until it completely fits in.
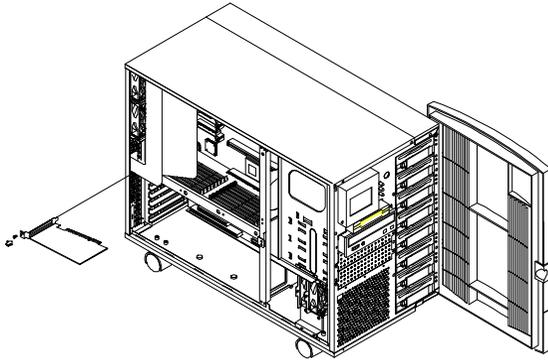
5. Secure the board with a screw.

6. Follow the same steps when installing an ISA board. Just make sure that you remove the bracket cover opposite an ISA slot.

2.8 Removing and Installing the Thermal Air Guide

On the left side of the housing, a metal air guide directs the hot air from the inside to the fan exhausts on the rear of the housing. The air guide helps maintain good air circulation within the housing.

To avoid electric shock and damage to the system, do not perform the following procedure while the system is on.

2.8.1 Removing the Thermal Air Guide

Follow these steps to remove the thermal air guide:

1. Unplug all power cables from the wall socket.

2. Open the left panel door. Refer to section 2.2 for instructions on opening the left panel door.

3. Remove the two screws that secure the air guide to the housing. Save the screws.
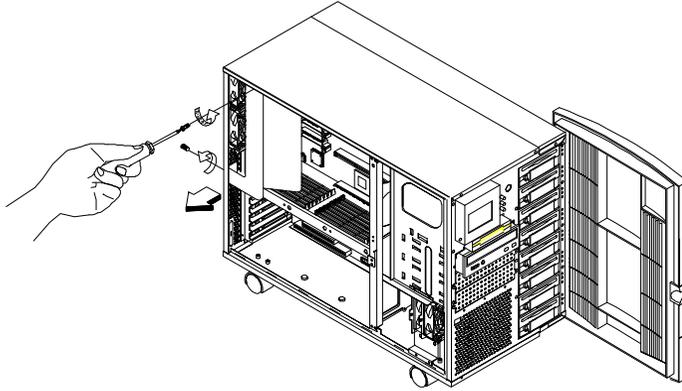
4. Carefully remove the air guide from the housing and set it aside.

2.8.2   Reinstalling the Thermal Air Guide

Follow these steps to replace the thermal air guide back into the housing:
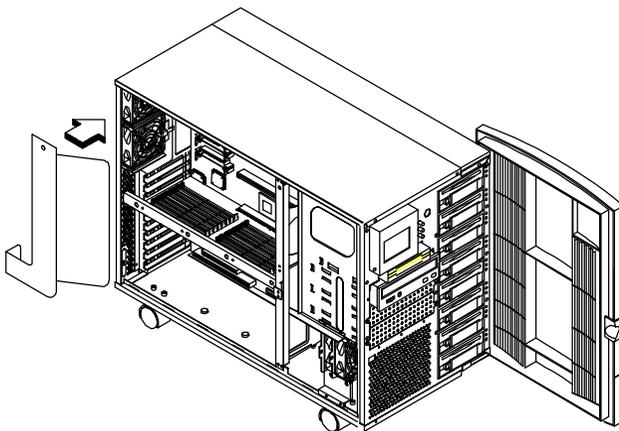
1.   Position the air guide in its place as shown below.

2.   Make sure that the air guide fits properly in place.
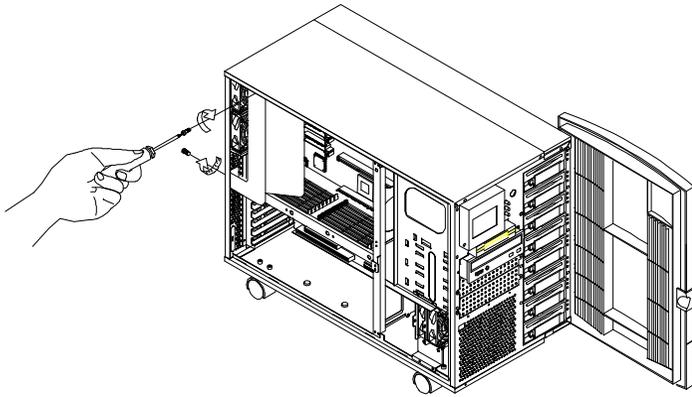
3. Secure the air guide with two screws.

4. Reattach the left panel door.

2.9   Cable Connections

The power backplane is complete with connectors to accommodate the power cables for all the system components. Each cable is labeled with a cable number, and each cable's point (head and tail) is also numbered, because each cable can only fit one way and is not interchangeable. For a list of all the cables and their respective connectors, please refer to the power cable list in this section.

The figure below illustrates the power cables that connect to the system board, power backplane board, and the SCSI backplane board.
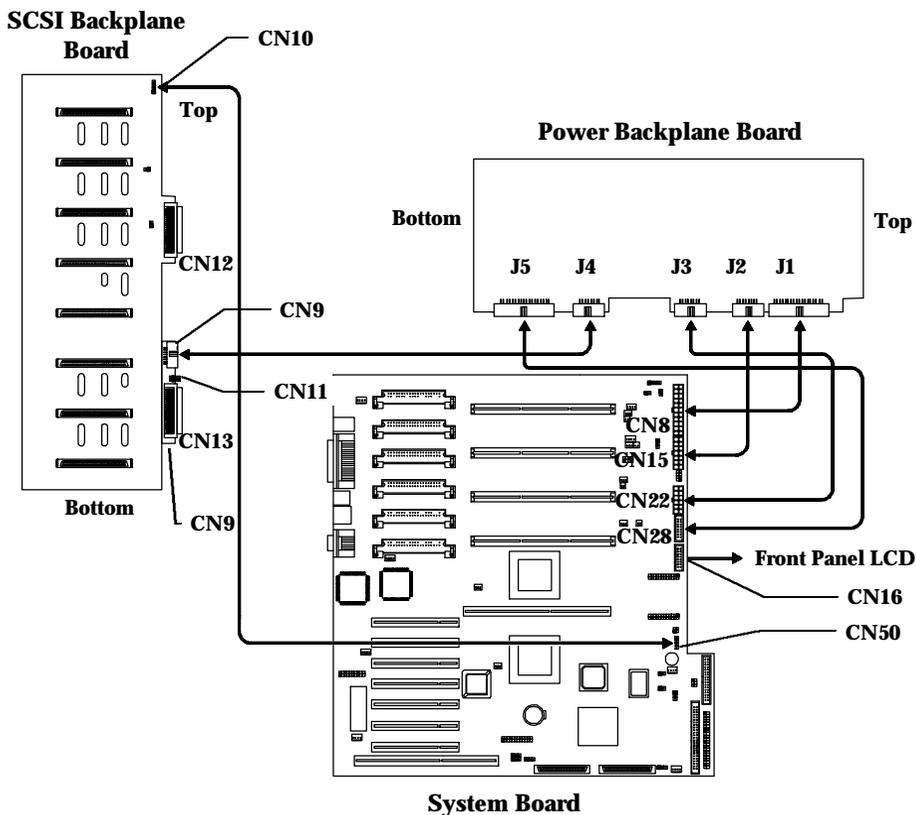
System Board Connector	SCSI Connector	Description
CN28	J5	Power Supply Status Connector
CN48	CN12	Channel A and B Connector
CN50	CN10	I2C Status Connector

Power Cable List

1. System Board and SCSI Backplane Board Power Connection

Cable #	System Board	SCSI Backplane Board	Power Backplane Board
C1	CN8 (C1:P2)		J1 (C1:P1)
C2	CN15 (C2:P2)		J2 (C2:P1)
C3	CN22 (C3:P2)		J3 (C3:P1)
C4		CN9 (C4:P5)	J4 (C4:P6)

2. I^2C Status Connector

Cable #	System Board	SCSI Backplane Board
C5	CN50	CN10

3. LCD Display Module Cable Connection

Cable #	System Board	LCD Display Module
C6	CN16	CN1

4. Switching Power Supply Status Connector

Cable #	System Board	SCSI Backplane Board
C7	CN28	J5

5. Floppy Disk Drive, IDE Devices, and SCSI Device Connectors

Cable #	System Board	Devices
C11	CN39	Floppy Disk Drive
C12	CN42	IDE Devices
C13	CN41	50-pin SCSI Devices

6. LVD SCSI Channel A and B Connector

Cable #	System Board	SCSI Backplane Board
C14	CN48	CN12

2.9.1　Combining the Backplane Board

> *Combining the backplane will allow you to use the external SCSI connector. (Channel B can be connected to the external cable connector attached to the system.)*

To combine the two channels of the Altos 21000 backplane board:

1. Make sure that the long cable with three connectors is connected to channel A in the shipped configuration of Altos 21000. The middle connector should be connected to the onboard SCSI Controller Channel A. The other two connectors should be connected to the backplane board as shown below.

SCSI Channel B

SCSI Channel A
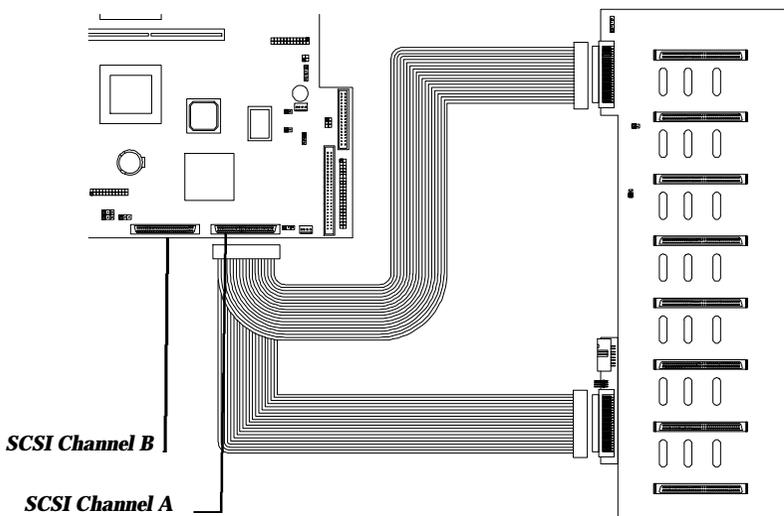
2. Change the SCSI ID setting to the setting you want. The range is 0 to 15. The default is split and the ID is set 0-3 on both channels. The switches for the ID setting are on the backplane board.

3. Press **CNTRL+A** when prompted during power-up or reset to access the Adaptec BIOS SCSI*Select* configuration utility, and select channel A. Set the

Termination option to **Disabled** on Channel A.   The default setting is **Enabled**.

2.9.2   Splitting the Backplane Board (Default Configuration)

To split the backplane board:

Connect the separate Ultra II SCSI cable from channel A (CN48) on the Main board to CN12 on the backplane board.

Connect channel B (CN47) on the Main board to CN13 on the backplane board. See the example below.

SCSI Channel A

SCSI Channel B
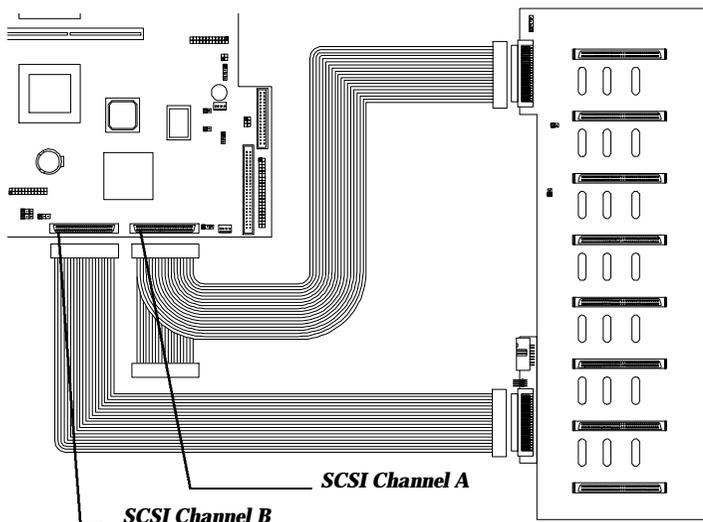
> *Be sure the termination option in the Adaptec BIOS SCSISelect Configuration Utility is **Enabled** (default).*

Chapter 3   System Boards

The system boards consist of the main board, the memory board, the SCSI backplane board, and the LCD display module. This chapter discusses the system boards in detail.

3.1   Main Board

The main board has the following major components:

- Four Slot 2 CPU connectors that support one, two, three, or four Intel Pentium II Xeon processors:

- 512-KB Flash ROM for system BIOS

- Supports two PCI buses through one PXB (PCI Expander Bridge)

- One 68-pin Ultra2 Wide SCSI connector for each SCSI channel

    - One 50-pin SCSI connector

- Server management functions

- PCI SVGA on-board with 2MB VGA RAM

- Enhanced IDE hard disk and diskette drive interfaces

- Seven PCI slots with one ISA and one PCI-/ISA-shared

- One dual channel PCI Ultra/Wide and LVD (Ultra2) SCSI controller

- One 10/100 Ethernet LAN chip on board

- External ports

  - PS/2 keyboard and mouse ports

  - Two buffered high-speed serial ports

  - One SPP/ECP/EPP high-speed parallel port

  - Two USB ports

  - VGA port

  - Front panel LCD/LED interface

3.1.1 Layout

1. PS/2 Keyboard port
2. PS/2 Mouse port
3. Video port
4. Parallel port
5. USB ports
6. LAN port
7. Serial port 2
8. LAN controller chipset
9. Serial port 1
10. VGA controller chipset
11. PCI slots 1 to 7*
12. BIOS chipset
13. ISA slot
14. IRQ Mapper chipset
15. PCI Expander Bridge (PXB) chipset
16. Battery
17. AIC7896 SCSI controller
18. Wide SCSI interface channel B
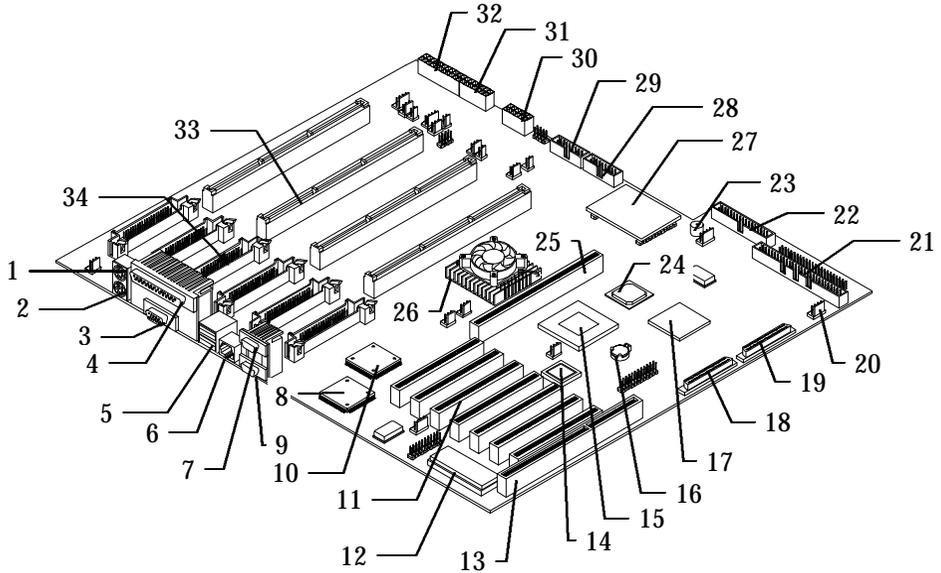
19. Wide SCSI interface channel A
20. Narrow SCSI interface
21. IDE connector
22. FDD connector
23. Buzzer
24. PIIX4e (PCI to ISA Bridge) chipset
25. Memory board slot
26. Memory and I/O Controller (MIOC)
27. RDM daughter board
28. Front panel connector
29. Power supply status/control
    connector
30. Power connector 3
31. Power connector 2
32. Power connector 1
33. Slot 2 sockets 1 to 4*
34. VRM sockets 1 to 6*

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* From left to right in this figure.

3.1.2 Jumpers and Connectors

The figure below shows the jumper and connector locations on the system board.
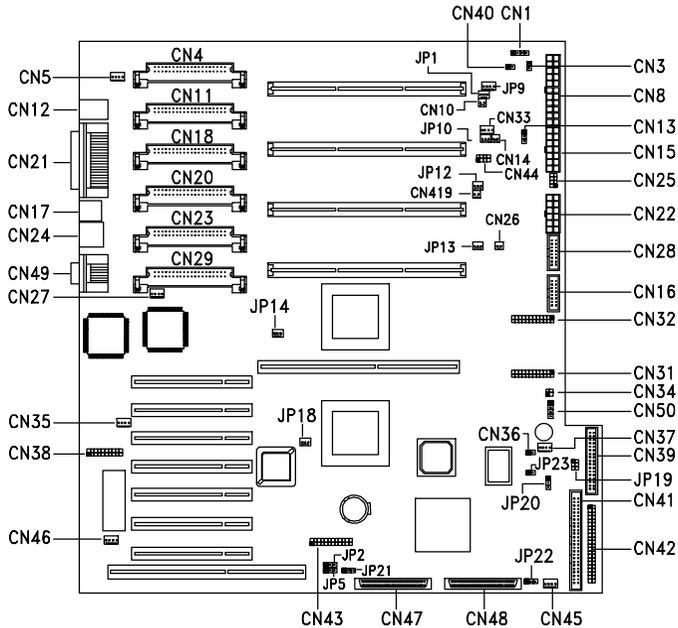
> *In this figure, the blackened pin of a jumper or connector represents pin 1.*

Jumper Settings

Jumper	Setting	Function
JP2	1-2* 2-3	**BIOS Logo** Acer None
JP5	1-2 2-3*	**Password Security** Check password Bypass password
JP19	5-6 & 2-3* 4-5 & 1-2	**Housing Door Open Alarm** Use onboard LM80 controller Reserved
JP20	1-2* 2-3	**VGA** Auto VGA selection Disable on board VGA

* Default

Connector List

Connector	Function
CN1	HDD LED connector
CN3	Reset button (reserved)
CN4	Voltage Regulator Module (VRM) 1 connector
CN5	Housing Fan connector 4
CN7	Housing Fan connector 5 (reserved)
CN8	Power cable connector
CN10	CPU 1 thermal connector
CN11	Voltage Regulator Module (VRM) 2 connector
CN12	PS/2 Keyboard (bottom) & PS/2 Mouse (top) port
CN13	Power LED connector
CN14	CPU 2 thermal connector

Connector	Function
CN15	Power cable connector
CN16	LCD (front panel) connector
CN17	USB connectors
CN18	Voltage Regulator Module (VRM) 3 connector
CN19	CPU 3 thermal connector
CN20	Voltage Regulator Module (VRM) 4 connector
CN21	Parallel port (top) and VGA port (bottom)
CN22	Power cable connector
CN23	Voltage Regulator Module (VRM) 5 connector
CN24	LAN (RJ-45) port
CN25	RAS LED control (reserved)
CN26	Slot 2 socket 4 thermal connector
CN27	Housing Fan connector 3
CN28	Power status/control connector
CN29	Voltage Regulator Module (VRM) 6 connector
CN31 & 32	RDM (Remote Diagnostic Manager) connectors
CN33	Housing Fan connector 6 (reserved)
CN34	RDM LED connector
CN35	HDD activity indication from Add-on card
CN36	Housing Intrusion Switch connector (left panel)
CN37	Fan connector 2
CN38	ASM/RDM Test connector (reserved)
CN39	FDD connector
CN40	Power button connector
CN41	Narrow SCSI connector
CN42	IDE connector
CN43	Graphics controller feature connector
CN44	HDD activity indication from Add-on card*
CN45	Housing Fan connector 1
CN46	Wake-on-LAN connector (reserved)
CN47	Wide SCSI connector channel B

Connector	Function
CN48	Wide SCSI connector channel A
CN49	Serial port 1 (bottom) and Serial port 2 (top)
CN50	Backplane board connector (connects to CN10 on Backplane board)
JP1	CPU 1 fan connector
JP10	CPU 2 fan connector
JP12	CPU 3 fan connector
JP13	CPU 4 fan connector
JP14	MIOC chipset fan connector
JP18	PXB U64 fan connector
JP21 & 22	SCSI Termination jumpers (reserved)
JP23	Right door intrusion connector (reserved)

* CN35 and CN44 are used for accepting the HDD activity information from the storage adapters. This information is displayed by the system IDE Device/Add-on SCSI Controller Access LED.

3.1.3 Installing and Removing an Intel Pentium II Xeon Processor

This section describes how to install and remove an Intel Pentium II Xeon processor.

Installing an Intel Pentium II Xeon processor

Follow these steps to install a Pentium II Xeon processor:

1. Attach the fan/heatsink module to the Pentium II Xeon processor and secure it with four screws.
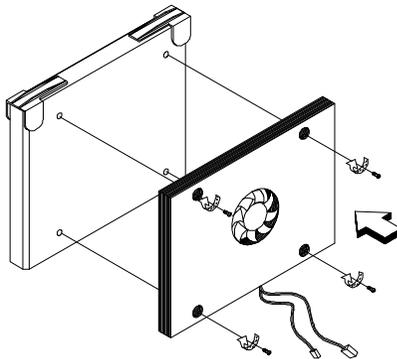
> ⚠ *The thermal cable and heatsink fan cable must be on the bottom.*

2. Remove the left panel of the housing. See section 2.2 for more information on opening the housing panels.

3. If there is an existing termination board installed in the CPU slot, remove it. Refer to section 3.1.4 for information about removing a termination board.

4. Insert the Pentium II Xeon processor into an empty Slot 2 socket.
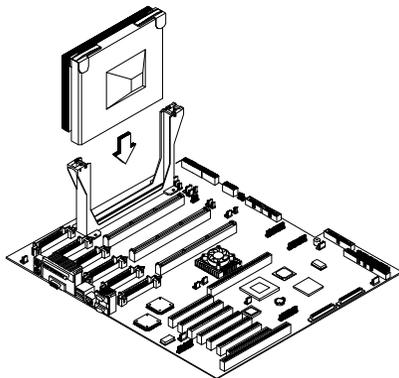
5. Carefully press the Pentium II Xeon processor down until it is properly inserted.

6. Connect the CPU fan and the thermal cables. See section 3.1.2.

7. Use the retention mechanism cover to secure the processor as shown below.
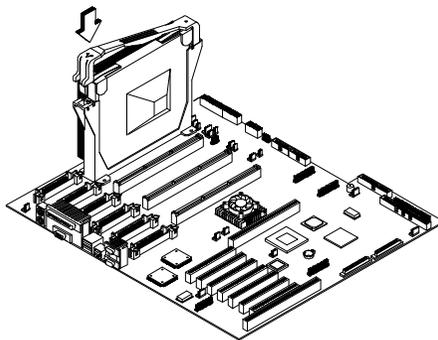
The retention mechanism cover only fits one way. Both shafts of the retention mechanism and the retention mechanism cover have a O and a OO sign. First match the O on the cover with the O on the retention mechanism first, then hook them together, and finally, insert the OO side into the retention mechanism and make sure they are clipped.

Refer to the VRM table (section 3.1.5) for information about installing VRMs. A VRM LED with green light indicates that a VRM has to be installed in its socket.

3.1.4 Installing and Removing the Termination Board

When you are not using all the Slot 2 sockets, you must install a termination board into each empty slot.

Installing a Termination Board

Follow these steps to install the termination board:

1. Position the termination board over the empty slot.

2. Carefully insert the golden fingers of the termination board into the slot until the board fits completely.
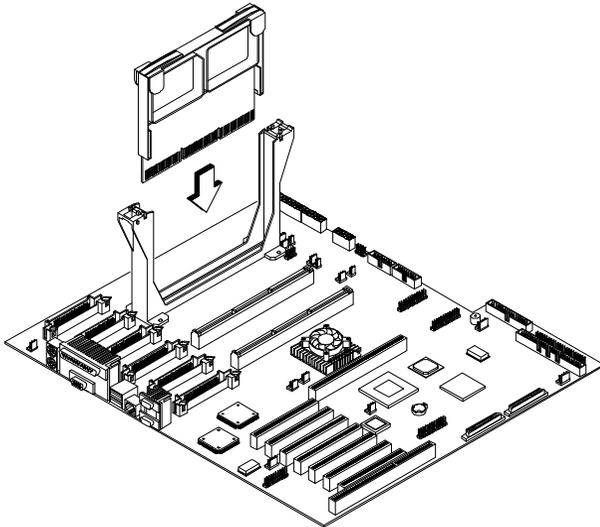
3. Use the retention mechanism cover to secure the termination board by pressing it down until it locks.
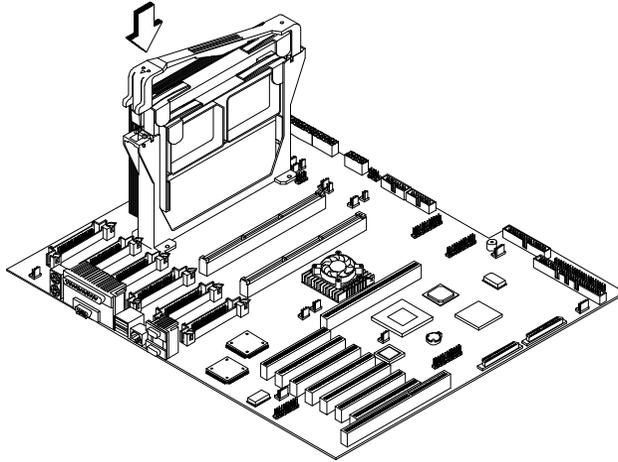
The retention mechanism cover only fits one way. Both shafts of the retention mechanism and the retention mechanism cover have a O and a OO sign. First, match the O on the cover with the O on the retention mechanism, then hook them together, and finally, insert the OO side into the retention mechanism and make sure they are clipped.

Removing an Intel Pentium II Xeon Processor

Follow these steps to remove a Pentium II Xeon processor:

1. Unclip the retention mechanism cover.
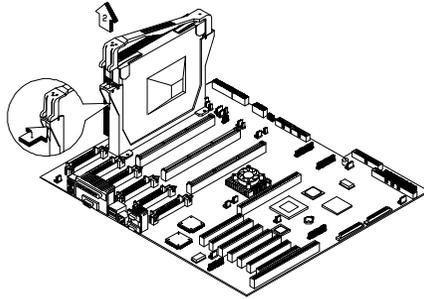
2. Flip up both of the plastic tabs of the Pentium II Xeon processor. This procedure detaches the processor from the socket.
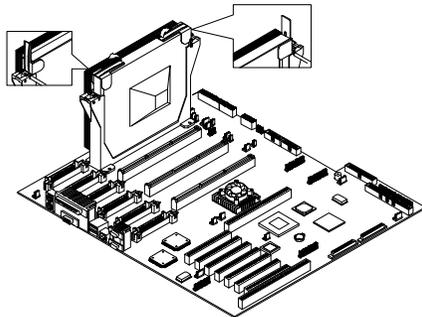
3. Carefully lift the Pentium II Xeon processor up and remove it.

3.1.5   Installing and Removing a VRM (Voltage Regulator Module)

Each Pentium II Xeon processor requires two VRMs (Voltage Regulator Modules), one for the processor and another one for the L2 cache. However, two L2 caches share one VRM. If you are installing two Pentium II Xeon processors, you need three VRMs: two VRMs for each processor and one VRM for both of the L2 cache to share. Refer to section 3.1.1 for the location of the VRM sockets. The following table shows the VRM socket allocation:

VRM Socket	Slot 2 Socket
VRM Socket 1 (CN4)	CPU 1
VRM Socket 2 (CN11)	L2 cache of CPU 1 and 2
VRM Socket 3 (CN18)	CPU 2
VRM Socket 4 (CN20)	CPU 3
VRM Socket 5 (CN23)	L2 cache of CPU 3 and 4
VRM Socket 6 (CN29)	CPU 4

VRM LED

There is one LED indicator for each VRM module. Before system power-on, an LED would light up (green) if a VRM is required for the processor or the L2 cache. If you see a red light, it means that the VRM is bad or is missing and corrective action needs to be taken. Please see the following table for proper VRM installation.

CPU Installed	Required VRM Sockets
1	1, 2
1, 2	1, 2, 3
1, 2, 3	1, 2, 3, 4, 5
1, 2, 3, 4	1, 2, 3, 4, 5, 6

To install a VRM:

1. Find an empty VRM socket and flip the lever back.
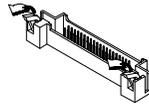
2. Carefully insert a VRM into the socket. This process will automatically lock the VRM in place.
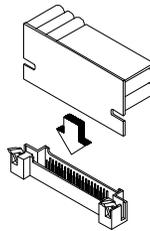
To remove a VRM:

1. Push both the locking mechanisms down.

2. Take the VRM out.
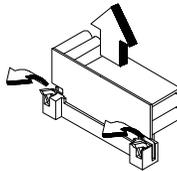
3.2 Memory Board

A total of sixteen 168-pin DIMM sockets reside on the memory board. The sockets accept 64-MB, 128-MB, and 256-MB ECC/EDO buffered DIMMs for a maximum of 4 GB of total memory.

3.2.1 Layout
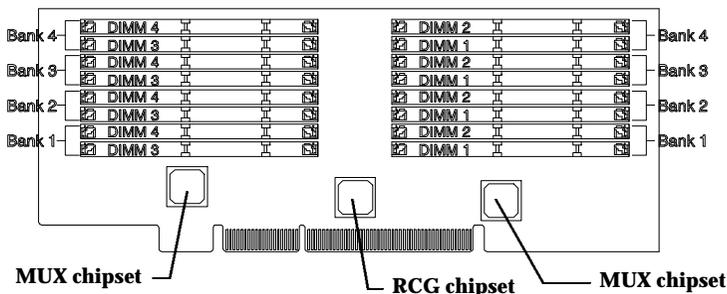
The Memory Control Interface consists of one RAS/CAS Generator (RCG) and two Data Path Multiplexer (MUX) chipsets which belong to the Intel 450NX chipset.

3.2.2 Memory Configurations

Every four DIMMs in a bank forms a 4-way interleaving group. You must configure four identical EDO/ECC buffered DIMMs in a group for your system to work properly. Please contact your dealer for a list of qualified DIMMs. Use of non-qualified DIMMs may cause your system to malfunction.

Rules for Adding Memory

• A bank is made up of 4 sequential DIMM slots.

• Each bank must be fully populated with the same size, type, speed, and vendor.

• The memory can have different sizes, but speed and type must be the same.

The table below shows some of the possible memory configurations.

Bank 1	Bank 2	Bank 3	Bank 4	Total Memory
64MB*4				256MB
64MB*4	64MB*4			512MB
64MB*4	64MB*4	64MB*4		768MB
64MB*4	64MB*4	64MB*4	64MB*4	1024MB
64MB*4	64MB*4	128MB*4		1024MB
64MB*4	64MB*4	128MB*4	128MB*4	1536MB
128MB*4				512MB
128MB*4	128MB*4			1024MB
128MB*4	128MB*4	64MB*4		1280MB
128MB*4	128MB*4	64MB*4	64MB*4	1536MB
128MB*4	128MB*4	128MB*4		1536MB
128MB*4	128MB*4	128MB*4	128MB*4	2048MB
256MB*4				1024MB
256MB*4	256MB*4			2048MB
256MB*4	256MB*4	64MB*4		2304MB
256MB*4	256MB*4	64MB*4	64MB*4	2560MB
256MB*4	256MB*4	128MB*4		2560MB
256MB*4	256MB*4	128MB*4	128MB*4	3072MB
256MB*4	256MB*4	256MB*4		3072MB
256MB*4	256MB*4	256MB*4	256MB*4	4096MB

You can combine DIMMs with different capacities to form other combinations.

3.2.3   Installing the Memory Board

Follow these steps to install the memory board:

1. Align the memory board with the memory board slot on the system board.

Install the memory board with the component side up.

2. Insert the board into the slot until it fits into place.
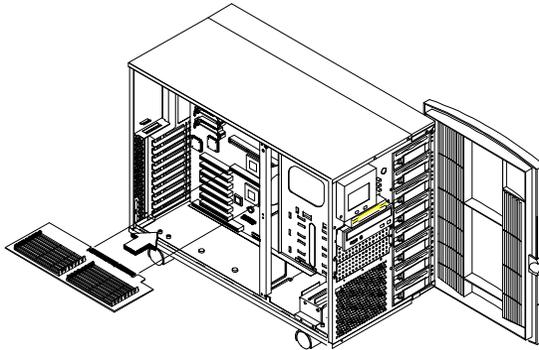
3. Insert one end of the metal bracket into the hole located at the back of the housing.

4. Align the clamp rail with the board edge.

5.   Secure the metal bracket with a screw as shown.
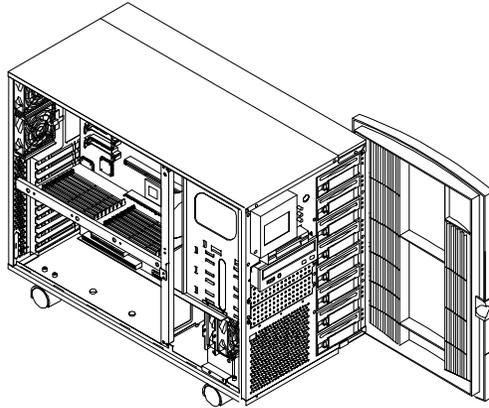
*Be sure to install the metal bracket properly.
It protects the memory board and keeps it in
place*

3.2.4 Installing and Removing a DIMM

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 it does not completely fit, you may have inserted it the wrong way. Reverse the orientation of the DIMM.
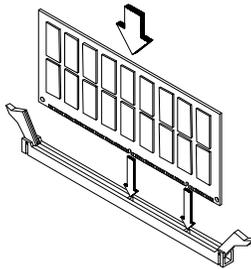
Removing a DIMM

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.
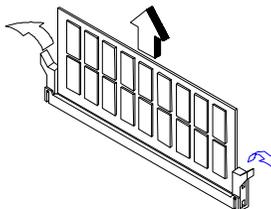
3.3   SCSI Backplane Board

The SCSI backplane board provides a convenient interface between the SCSI drives and the system board. It includes eight SCSI drive slots to accommodate the drive trays and two SCSI channels to connect to the system board or SCSI controller board.

See Sections 2.9.1 and 2.9.2 for more information about the SCSI backplane board.

3.3.1   Features

The backplane board 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 installed.

- 2 channel configurations that support 4 SCSI hard drives per channel

- Indicates hard disk drive failure through an LED on the drive tray

- Supports Ultra2 SCSI SCA (Single Connector Adapter) disk drives

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

We recommend setting the IDs on the backplane board instead of on the individual drives. See section 3.3.2 for the location of the SCSI connector ID switches.

If you set the IDs on the backplane board, be sure to remove all jumper connectors on the SCSI drive before installing it into the system.

3.3.2 Layout

CN10: I²C Bus Connector

SCSI Connector
ID Switches (8)

CN12: SCSI
Channel A

CN14: Connects to
LED Boards

CN1-**CN4**: Channel A
SCSI Drive Connectors 1 to

CN9: Power
Connector

CN11: Combined
LED Connector

CN13: SCSI
Channel B

CN5-**CN8**: Channel B
SCSI Drive Connectors 5 to 8
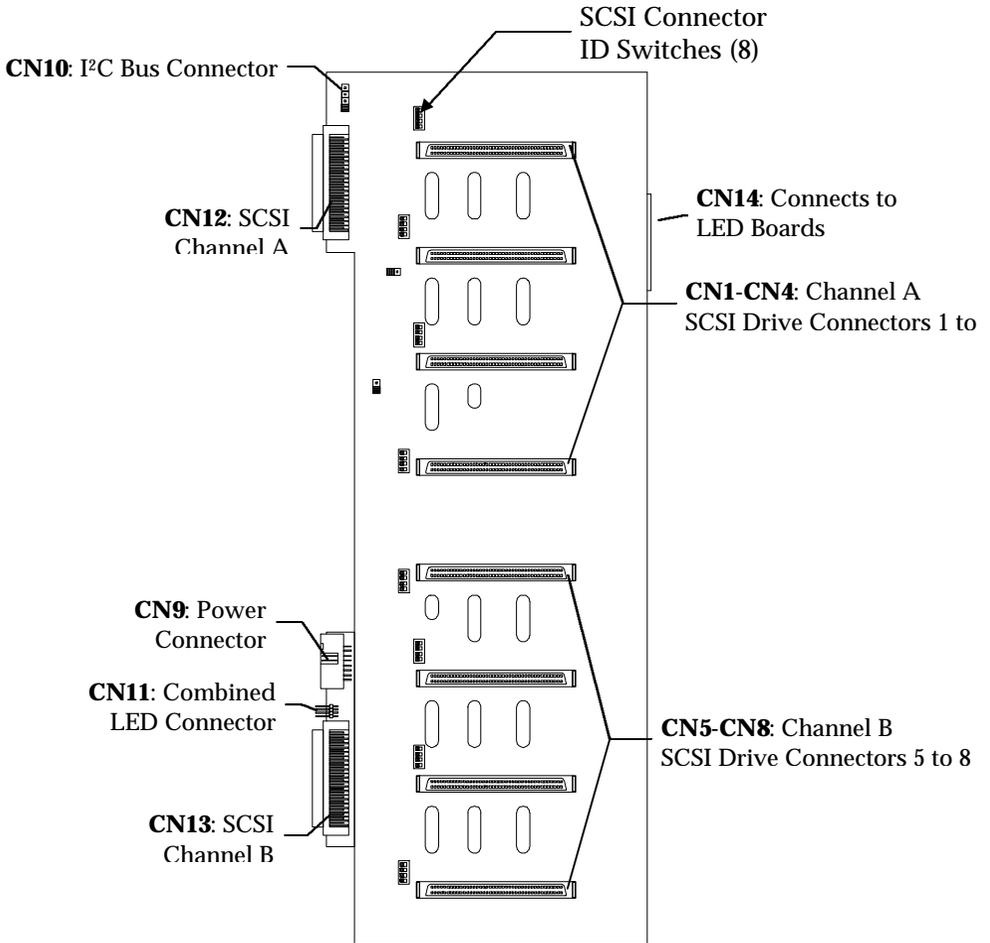
3.3.3 Hard Disk ID Switch Settings

The backplane board comes with eight ID switches that allow you to define up to 16 hard disk IDs.

The illustration below shows the switch settings with the corresponding hard disk IDs.

3.3.4   Backplane Configuration

In a dual channel backplane configuration, channel A supports the hard disk drives in bays 1 to 4, and channel B supports the hard disk drives in bays 5 to 8.
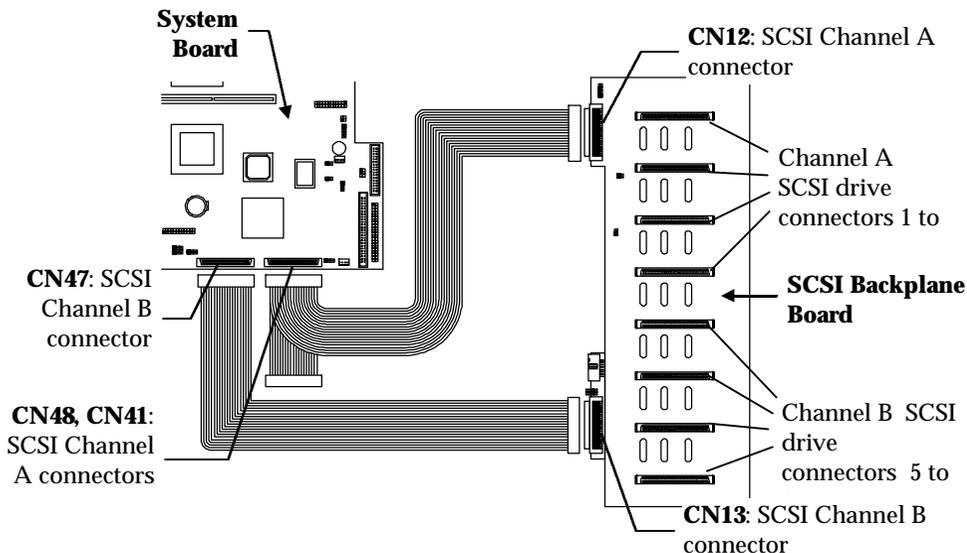
In a combined backplane configuration, Channel A supports the hard drives in bays 1 to 8. Please refer to section 2.9.1 for information about combining the two channels of the backplane.

Channel B can be connected to the external connector cable attached to the system.

> *When connecting legacy 50-pin SCSI devices on the mainboard 50-pin SCSI connector (CN41), be sure the IDs do not conflict with the SCSI IDS of the drives located on channel A SCSI drive connectors 1 to 4.*

3.4   LCD Display Module

The system includes a front panel module that serves as an interface to the internal system components and relays external messages through the LCD display screen. Refer to section 2.1.3 for more information.

The figure below shows the LCD display module connections with the system board.
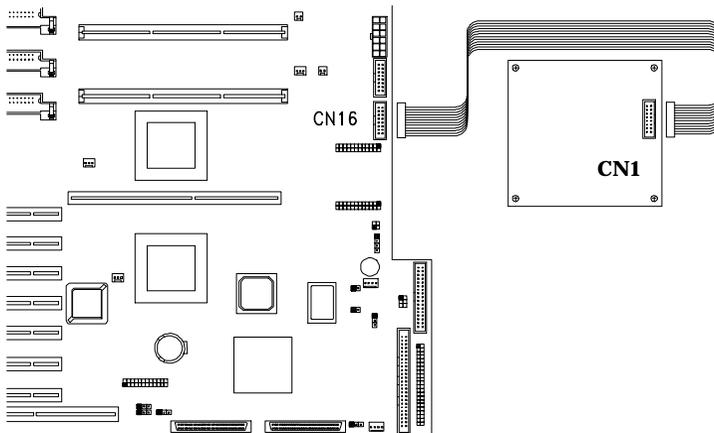
3.5 Front Panel Connectors

The figures on this page and the following two pages show the pin orientation of the front-panel connectors.

Power Switch, Hard Drive Disk, and Power LED Connectors
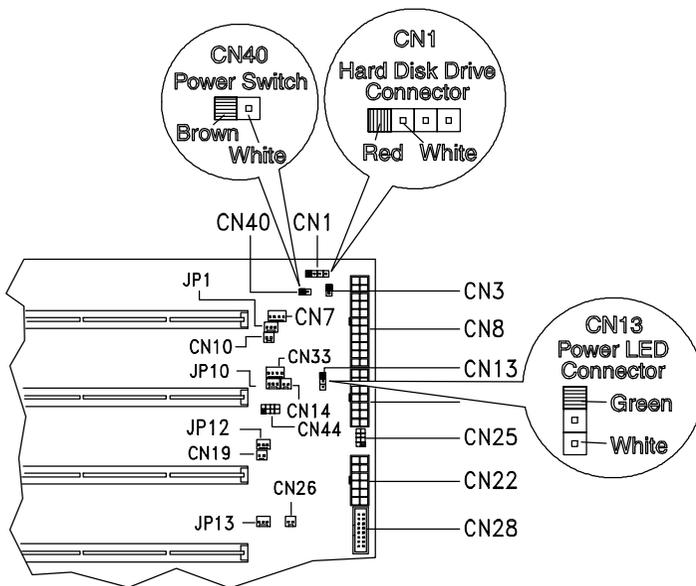
Backplane, Fan, RDM, and Door Housing Connectors
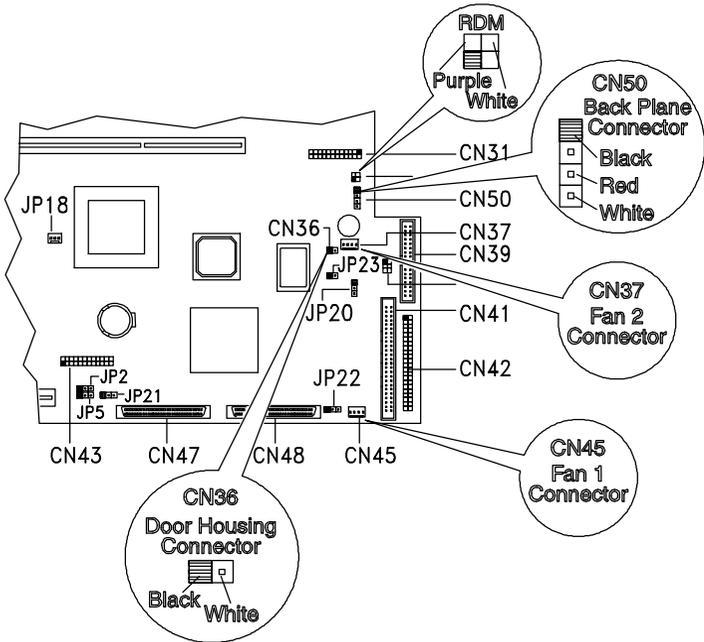
Fan Connectors
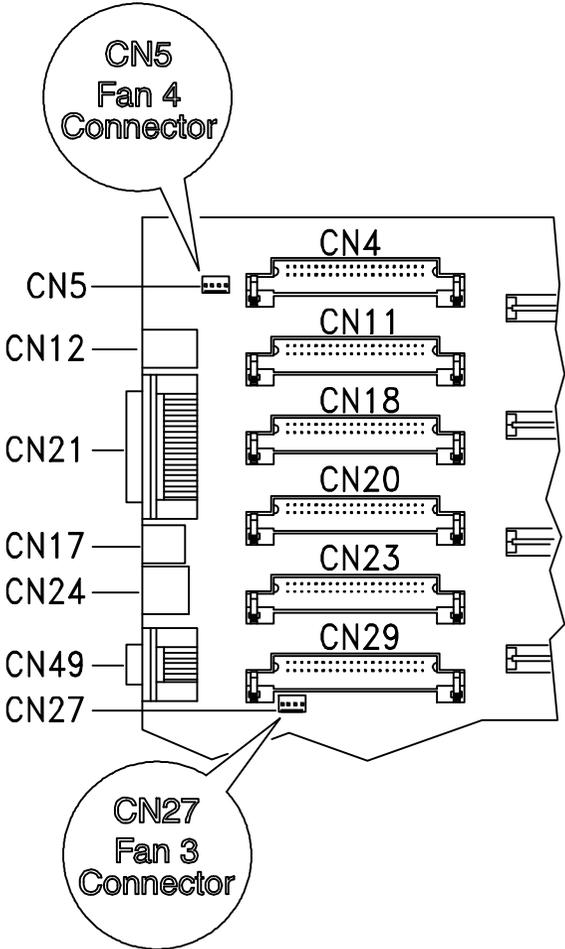
Chapter 4   BIOS Utility

The BIOS Utility allows you to view your system's configuration settings.

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. For example:

Equipment Configuration Error

Press Ctrl_Alt_Esc key to enter Setup or F1 key to continue…

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

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.

4.1 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 any other time.

The BIOS Utility main menu then appears:

```
                        BIOS Utility
───────────────────────────────────────────────────────────
                      System Information
                     Product Information
                         Disk Drives
                       Power Management
                    Startup Configuration
                    Advanced Configuration
                       System Security
                        Date and Time
               Remote Diagnostic Configuration
                    Load Default Settings
                     Abort Settings Change




───────────────────────────────────────────────────────────
↑↓←→ = Move highlight bar, ↵  = Select, Esc = Exit
```
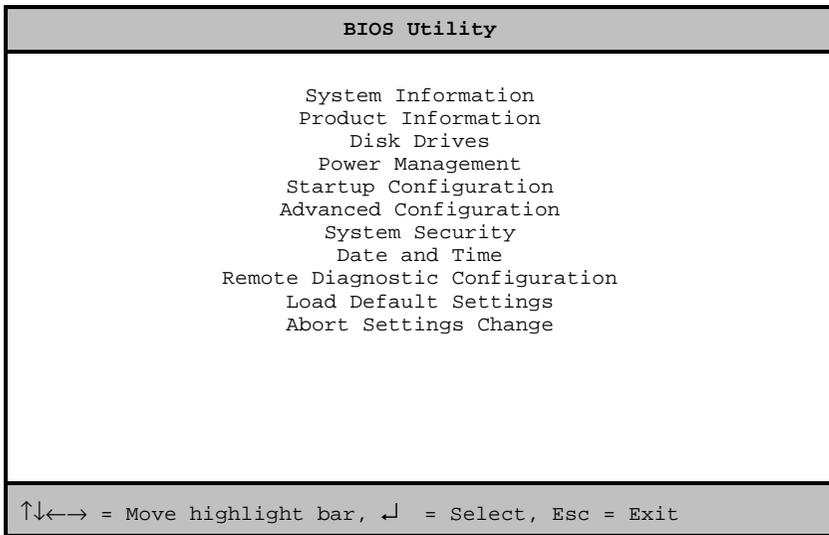
The parameters on the screens show default values. These values may not be the same as those in your system.

4.2   System Information

The following screen appears if you select System Information from the main menu:

```
                    System Information            Page 1/2

   Processor ......................Pentium II Xeon™
   Processor Speed ................450 MHz
   Bus Frequency ..................100 MHz
   L1 Cache .......................32 KB, Enabled
   L2 Cache .......................1024 KB, Enabled
   Floppy Drive A .................1.44 MB, 3.5-inch
   Floppy Drive B .................None
   IDE Primary Channel Master......CD-ROM
   IDE Primary Channel Slave.......None
   Total Memory ...................xxx MB
     1st Bank......................EDO
     2nd Bank......................None
     3rd Bank......................None
     4th Bank......................None


   PgDn/PgUp = Move Screen, Esc  =  Back to Main Menu
```

The System Information menu shows the current basic configuration of your system.

The command line at the bottom of the menu tells you how to move from one screen to another and return to the main menu.

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

Press ESC to return to the main menu.

The following screen shows page 2 of the System Information menu.

```
                    System Information           Page 2/2

   Serial Port 1 .................... 3F8h, IRQ 4
   Serial Port 2 .................... 2F8h, IRQ 3
   Parallel Port  ................... 378h, IRQ 7
   Pointing Device .................. Installed
   Memory Parity Mode ............... ECC
   Onboard USB ...................... Disabled




   PgDn/PgUp = Move Screen, Esc  =  Back to Main Menu
```

The following sections explain the parameters.

> *The parameters in the System Information*
> *screens show default settings. These*
> *settings are non-configurable from these*
> *screens. Select other configuration options*
> *from the BIOS Utility main menu to change*
> *the settings.*

4.2.1   Processor

The Processor parameter specifies the type of processor currently installed in your system. The system is designed to support the Intel Pentium II Xeon processor.

4.2.2   Processor Speed

The Processor Speed parameter specifies the speed of the CPUs currently installed in your system. The system supports Intel Pentium II Xeon processors running at 450 MHz and above[*]. The default setting is **450 MHz**.

4.2.3   Bus Frequency[*]

The Bus Frequency parameter specifies the system external clock. The bus frequency can be either 66 or 100 MHz. The default setting is **100 MHz**.

4.2.4   L1 Cache

This parameter specifies the first-level or the internal memory size (i.e., the memory integrated into the CPU), and whether it is enabled or disabled. The default setting is **32KB Enabled**.

4.2.5   L2 Cache

This parameter specifies the second-level cache memory size currently supported by the system, and whether it is enabled or disabled. The default setting is **1024KB Enabled**.

4.2.6   Floppy Drive A

This parameter specifies the type of drive designated as Floppy Drive A. The default setting is **1.44 MB, 3.5-inch**.

---

[*] Pending Intel future releases and Acer internal engineering qualification.

4.2.7　Floppy Drive B

This parameter specifies the type of drive designated as Floppy Drive B. The default setting is **None**.

4.2.8　IDE Primary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the primary IDE channel. The default setting is **CD-ROM**.

4.2.9　IDE Primary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the primary IDE channel. The default setting is **None**.

4.2.10　Total Memory

This parameter specifies the total system memory.　The memory size is automatically detected by BIOS during the POST.　If you install additional memory, the system automatically adjusts this parameter to display the new memory size.

1st Bank/2nd Bank/3rd Bank/4th Bank

These parameters indicate the type of memory installed in the system.　The default setting for the first bank is **EDO**, and for the second, third, and fourth banks the default setting is **None**.

4.2.11 Serial Port 1

This parameter indicates the serial port 1 address and IRQ setting. The default setting is **3F8h, IRQ 4**.

4.2.12 Serial Port 2

This parameter indicates the serial port 2 address and IRQ setting. The default setting is **2F8h**, **IRQ3**.

4.2.13 Parallel Port

This parameter indicates the parallel port address and IRQ setting. The default setting is **378h, IRQ 7**.

4.2.14 Pointing Device

The BIOS utility automatically detects if there is a mouse connected to the system. If there is, this parameter displays the **Installed** setting. Otherwise, this is set to **None**. The default setting is **Installed**.

4.2.15 Memory Parity Mode

This parameter indicates the setting of the memory parity mode. It may be set to **Enabled** or **Disabled**. The default setting is **ECC**.

4.2.16 Onboard USB

This parameter specifies whether the onboard USB controller is enabled or not. The default setting is **Disabled**.

4.3   Product Information

The Product Information contains general data about the system. It includes the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting and may be required when asking for technical support.

The following screen shows the Product Information items:

```
                  Product Information          Page 1/1

   Product Name ......................... xxxxxxxxx
   System S/N ........................... xxxxxxxxx
   Main Board ID ........................ X5
   Main Board S/N ....................... xxxxxxxxx
   System BIOS Version .................. v3.00
   System BIOS ID ....................... xxx.xx xxx-xx
   BIOS Release Date .................... xx/xx/xx




   Esc  = Back to Main Menu
```
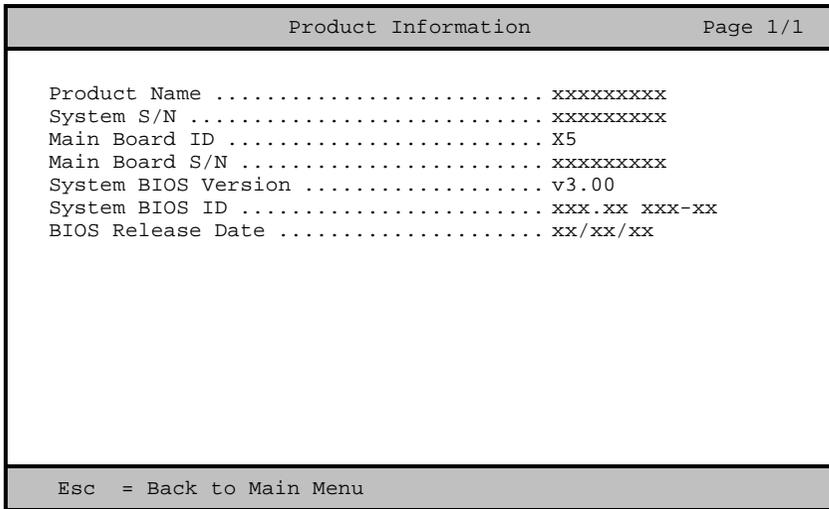
4.3.1   Product Name

This parameter specifies the official name of the system.

4.3.2   System S/N

This parameter specifies the system's serial number.

4.3.3   Main Board ID

This parameter specifies the system board's identification number. The default setting is **X5**.

4.3.4   Main Board S/N

This parameter specifies the system board's serial number.

4.3.5   System BIOS Version

This parameter specifies the version of the BIOS utility.

4.3.6   System BIOS ID

This parameter specifies the identification number of the BIOS utility.

4.3.7   BIOS Release Date

This parameter specifies the official date the BIOS version was released.

4.4 Disk Drives

The Disk Drives menu lets you configure the system hard disk and disk drive settings. If your hard disk supports the enhanced IDE features, you may set the functions using this menu.

The following screen shows the Disk Drives parameters and their default settings:

```
                        Disk Drives              Page 1/1

    Floppy Drive A .......... [xx-MB, xx-inch]
    Floppy Drive B .......... [xx-MB, xx-inch]

    ‣  IDE Primary Channel Master
    ‣  IDE Primary Channel Slave




    ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```
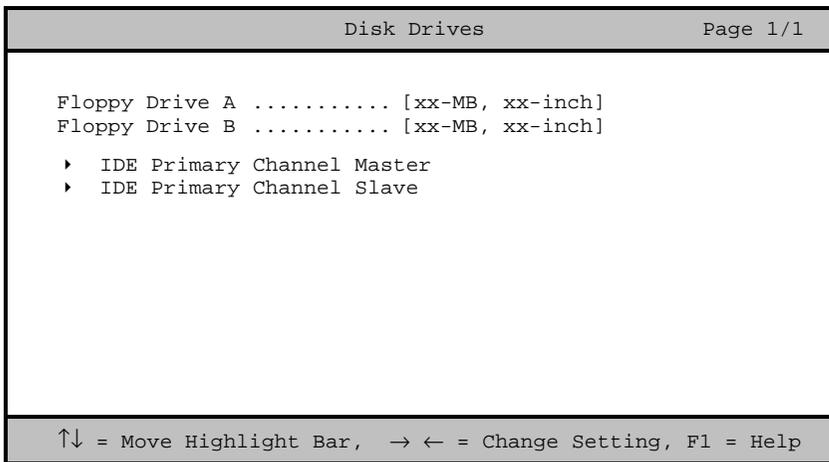
The triangle mark that precedes an item within a menu indicates that there is a detailed menu for that particular item. Select the item to display the menu.

From the Disk Drives screen, select the IDE Primary Channel Master or IDE Primary Channel Slave items to display their respective menus.

Selecting the IDE Primary Channel Master item displays the following menu:

```
┌─────────────────────────────────────────────────────────────┐
│          IDE Primary Channel Master          Page 1/1        │
├─────────────────────────────────────────────────────────────┤
│                                                              │
│   Type ................................. [Auto]              │
│      Cylinder ......................... [    ]               │
│      Head ............................. [    ]               │
│      Sector ........................... [    ]               │
│      Size ............................. [    ] MB            │
│                                                              │
│   Hard Disk Block Mode ................ [Auto]               │
│   Advanced PIO Mode ................... [Auto]               │
│   Hard Disk Size > 504MB .............. [Auto]               │
│   Hard Disk 32 Bit Access ............. [Enabled]            │
│   CD-ROM Drive DMA Mode ............... [Disabled]           │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
├─────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help   │
└─────────────────────────────────────────────────────────────┘
```

The parameters for the IDE Primary Channel Slave menu are the same as in the above screen.

4.4.1   Floppy Drives

To configure the first floppy drive (drive A), highlight the Floppy Drive A parameter. Press ⮕ or ⬅ to view the options, then select the appropriate value.

Possible settings for the Floppy 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 to configure floppy drive B. Choose **None** if you do not have a second floppy drive.

4.4.2   IDE Drives

There are two IDE drive option items under the Disk Drives menu. Select the IDE Primary Channel Master item if you want to configure an IDE device set as master. Select the IDE Primary Channel Slave item if you want to configure an IDE device set as slave.

To configure an IDE device designated as master:

1.   Select the IDE Primary Channel Master option to display its menu.

2.   If the IDE device is a hard disk drive, highlight the parameter Type, then press ➡ or ⬅ to display the IDE hard disk drive types with their respective values for cylinder, head, sector, and size.

   You may do any of the following:

   •   Select the type that corresponds to your IDE hard disk drive.

   •   If you have installed an IDE hard disk that was previously formatted but does not use the disk native parameters or structure, i.e., the disk may be formatted according to the user-specified number of cylinders, heads, and sectors, select the **User** option. Then enter the appropriate drive information.

   •   If there is no device connected, choose **None**.

3.   If you do not know the exact type of your IDE device, select the **Auto** option to let the BIOS utility automatically detect the installed IDE drive type.

For any IDE device, we strongly recommend that you set the IDE drive parameter to Auto.

To configure an IDE device designated as slave:

1. Select the IDE Primary Channel Slave option to display its menu.

2. Highlight the parameter Type, then press ➡ or ⬅ to display the IDE drive types with their respective values for cylinder, head, sector, and size. Refer to the above procedure for configuring a master device to configure the slave device.

Hard Disk Block Mode

This function enhances disk performance depending on the hard disk in use. If you set this parameter to **Auto**, the BIOS utility automatically detects if the installed hard disk drive supports the Block Mode function. If supported, it allows data transfer in block (multiple sectors) at a rate of 256 bytes per cycle. To disregard the feature, change the setting to **Disabled**. The default setting is **Auto**.

Advanced PIO Mode

When set to **Auto**, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read/write timing that reduces hard disk activity time. This results in better hard disk performance. To disregard the feature, change the setting to **Disabled** . The default setting is **Auto**.

Hard Disk Size > 504 MB

When set to **Auto**, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows you to use a hard disk with a capacity of more than 504 MB. The default setting is **Auto**.

Hard Disk 32-bit Access

Enabling this parameter improves system performance by allowing the use of the 32-bit hard disk access. The default setting is **Enabled**.

CD-ROM Drive DMA Mode

This parameter allows you to enable or disable the CD-ROM drive DMA mode. Set this parameter to **Enabled** to enable the DMA mode for the CD-ROM drive. This improves system performance since it allows direct memory access to the CD-ROM. To deactivate the function, set the parameter to **Disabled**. The default setting is **Disabled**.

4.5   Power Management

The Power Management menu lets you configure the system power management features.

The following screen shows the Power Management parameters with their default settings:

```
                     Power Management              Page 1/1

   Power Management Mode ..................[Disabled]
      IDE Hard Disk Standby Timer .........[---]
      System Sleep Timer ..................[---]
         Stop CPU Clock in Sleep State ....[---]

   ACPI BIOS .............................[Disabled]




   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```
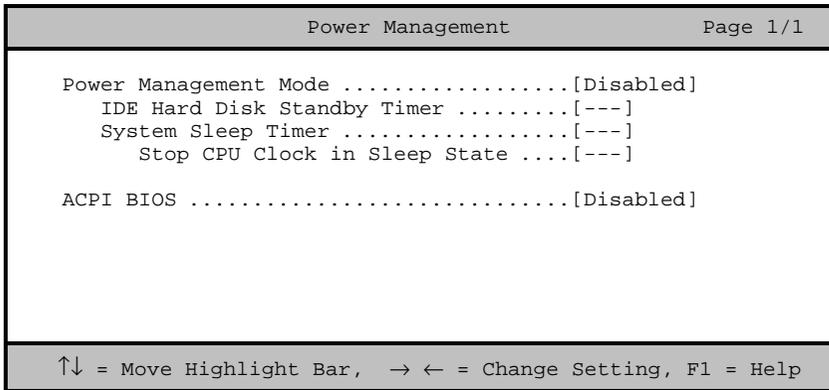
4.5.1   Power Management Mode

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

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 normal speed. Set this parameter to **Off** if your hard disk does not support this function.

System Sleep Timer

This parameter sets the system to the lowest power-saving mode. It automatically enters into the sleep or the suspend mode after a specified period of inactivity. Any keyboard or mouse action, or any LAN activity detected resumes system operation.

Stop CPU Clock in Sleep State

If you want to stop the CPU clock when the system enters the sleep or suspend mode, set this parameter to **Yes**. If not, then select **No**.

4.5.2   ACPI BIOS

ACPI (Advanced Configuration and Power Interface) enables the operating system to monitor and control the amount of power supplied to each device attached to the system. When enabled, ACPI uses the OS (Operating System) to turn off the peripheral devices (such as a CD-ROM) that are not in use. The default setting is **Disabled**.

4.6 Startup Configuration

The Startup Configuration allows you to specify your preferred setting for bootup.

The following screen appears when you select the Startup Configuration option from the main menu:

```
                   Startup Configuration          Page 1/1

    Fast POST Mode ........................[Disabled ]
    Silent Boot ...........................[Disabled ]
    Num Lock After Boot ...................[Enabled ]
    Memory Test ...........................[Disabled]

    Initialize SCSI Before IDE ............[Disabled]
    System Boot Drive .....................[Drive A Then C]
    Boot from IDE CD-ROM ..................[Enabled]

    Single Processor MP Table .............[Enabled ]
    MP Table Compliant ....................[v1.4]

    CPU Clock Ratio .......................[ 4.5 ]

    ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```
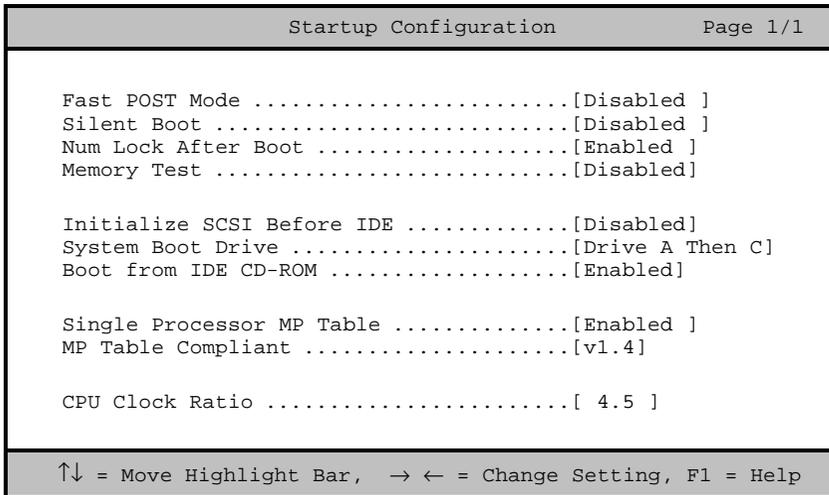
4.6.1 Fast POST Mode

This parameter allows the system to boot faster by skipping some POST routines. The default setting is **Disabled**.

4.6.2   Silent Boot

This parameter enables or disables the Silent 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 occurs while booting, the system automatically switches to the 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. The default setting is **Disabled**.

4.6.3   Num Lock After Boot

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

4.6.4   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**.

4.6.5   Initialize SCSI Before IDE

Enabling this parameter allows SCSI devices installed in the system to be initialized before IDE devices. You may enable this parameter if you have a SCSI boot drive. This drive should be the first drive to boot. When this parameter is

disabled, the IDE drives are normally initialized first during POST. The default setting is **Disabled**.

4.6.6   System Boot Drive

This parameter allows you to specify the system search sequence. The selections are: The default setting is **Disabled**.

- **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.

The default setting is **Drive A then C**.

4.6.7   Boot From IDE CD-ROM

When set to **Enabled**, the system checks for a bootable CD in the IDE CD-ROM drive. If a CD is present, the system boots from the CD-ROM; otherwise, it boots from the drive specified in the System Boot Drive parameter. When set to **Disabled**, the system boots from the drive specified in the System Boot Drive parameter. The default setting is **Enabled**.

4.6.8   Single Processor MP Table

Enabling this parameter allows BIOS to create a multiprocessor (MP) table for Windows NT use. In a single-processor system running Windows NT, you may disable this parameter to enhance system performance. If you install another CPU for a dual (or multiprocessor) system, enable this parameter and then reinstall Windows NT.

In cases when this parameter is enabled before installing Windows NT in a single-processor system, you may upgrade to a multiprocessor system without reinstalling Windows NT. The default setting is **Enabled**.

4.6.9   MP Table Compliant

This parameter shows the multiprocessor specification compliance version. The default setting is **V1.4**.

4.6.10 CPU Clock Ratio

Sets this parameter for the Core/BUS ratio of your system. The clock speed of the BUS does not necessarily equal the CPU's (core). The bus clock speed is often slower than the CPU clock speed. The default setting is **4.5**.

4.7   Advanced Configuration

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

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

The following screen shows the Advanced Configuration parameters.

```
┌─────────────────────────────────────────────────────────┐
│                  Advanced Configuration                 │
├─────────────────────────────────────────────────────────┤
│                                                         │
│              Onboard Devices Configuration              │
│               PnP/PCI System Configuration              │
│                Memory/Cache Configuration               │
│             Non-PnP ISA Device Configuration            │
│                System Event Configuration               │
│                                                         │
│                                                         │
│                                                         │
│                                                         │
│                                                         │
│                                                         │
│                                                         │
├─────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help │
└─────────────────────────────────────────────────────────┘
```
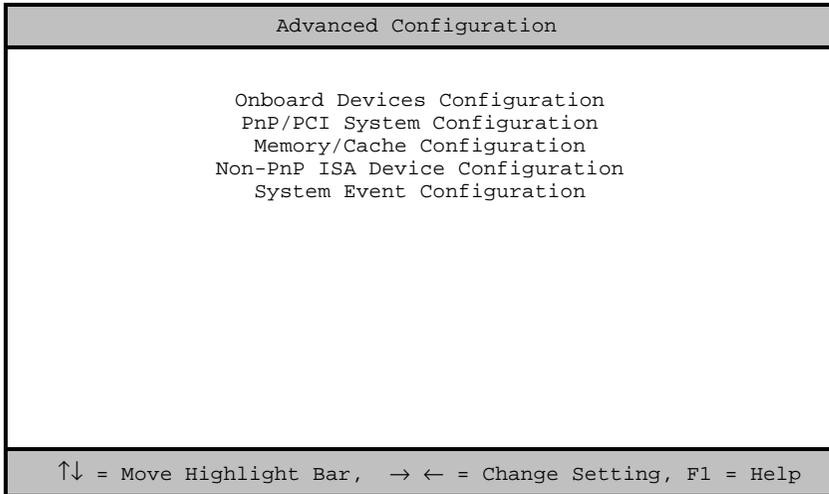
4.7.1 Onboard Devices Configuration

The Onboard Devices Configuration allows you to configure the onboard communication ports and the onboard devices. Selecting this option from the Advanced Configuration menu displays the following screen:

```
            Onboard Devices Configuration       Page 1/2

   Serial Port 1 ......................[Enabled]
      Base Address .....................[3F8h]
      IRQ ..............................[4]
   Serial Port 2 ......................[Enabled ]
      Base Address .....................[2F8h]
      IRQ ..............................[3]
   Parallel Port ......................[Enabled ]
      Base Address .....................[378h]
      IRQ ..............................[7]
      Operation Mode ...................[    EPP    ]
      ECP DMA Channel ..................[-]




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

The following screen shows page 2 of the Onboard Devices Configuration menu:

```
              Onboard Devices Configuration      Page 2/2

   Onboard Floppy Disk Controller ......[Enabled]
   Onboard IDE Primary Channel .........[Enabled]

   Onboard PS/2 Mouse (IRQ 12) .........[Enabled]
   Onboard USB .........................[Disabled]

   Onboard SCSI ........................[Enabled]
      Boot from Onboard SCSI Device ....[Enabled]

   Onboard Ethernet Chip ...............[Enabled]

   SMBUS Interrupt(IRQ9) ...............[Disabled]



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

Serial Port 1

This parameter allows you to enable or disable the serial port 1. The Base Address and IRQ items are configurable only if this parameter is enabled. The default setting is **Enabled**.

Base Address

This function lets you set a logical base address for serial port 1. The options are:

- 3F8h

- 2F8h

- 3E8h

- 2E8h

The default setting is **3F8h**.

IRQ

This function lets you assign an interrupt for serial port 1. The options are **IRQ 3** and **4**. The default setting is **4**.

Serial Port 2

This parameter allows you to enable or disable the serial port 2. The Base Address and IRQ items are configurable only if this parameter is enabled. The default setting is **Enabled**.

Base Address

This function lets you set a logical base address for serial port 2. The options are:

- 3F8h

- 2F8h

- 3E8h

- 2E8h

The default setting is **2F8h**.

IRQ

This function lets you assign an interrupt for serial port 2. The options are **IRQ 3** and **4**. The default setting is **3**.

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 assign 3F8h or 3E8h to serial port 2.

Parallel Port

This parameter allows you to enable or disable the parallel port. The default setting is **Enabled**.

Base Address

This function lets you set a logical base address for the parallel port. The options are:

- 3BCh

- 378h

- 278h

The default setting is **378h**.

IRQ

This function lets you assign an interrupt for the parallel port. The options are **IRQ 5** and **7**. The default setting is **7**.

The Base Address and IRQ parameters are configurable only if Parallel Port is enabled.

If you install an add-on card that has a parallel port whose address conflicts with the parallel port onboard, 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. The table below lists the different operation modes.

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 assign DMA channel 1 or DMA channel 3 for the ECP parallel port function.

Onboard Floppy Disk Controller

This parameter lets you enable or disable the onboard floppy disk controller. The default setting is **Enabled**.

Onboard IDE Primary Channel

This parameter lets you enable or disable the primary IDE channel. When enabled, it allows you access the devices connected to the primary channel. When disabled, it deactivates the connected devices. The default setting is **Enabled**.

Onboard PS/2 Mouse (IRQ 12)

This parameter enables or disables the onboard PS/2 mouse. When enabled, it allows you to use the onboard PS/2 mouse assigned with IRQ12. When disabled, it deactivates the mouse and makes IRQ12 available for use by other devices. The default setting is **Enabled**.

Onboard USB

This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it deactivates the function. The default setting is **Disabled**.

Onboard SCSI

This parameter lets you enable or disable the SCSI controller on board. When enabled, it activates the SCSI function of the system. When disabled, it deactivates the function. The default setting is **Enabled**.

Boot from Onboard SCSI Device

When set to **Enabled**, the system checks for a bootable SCSI device. If a SCSI device is present, the system boots from that device; otherwise, it boots from the drive specified in the System Boot Drive parameter. When set to **Disabled**, the system boots from the drive specified in the System Boot Drive parameter. The default setting is **Enabled**.

Onboard Ethernet Chip

This parameter lets you enable or disable the LAN function on board. When enabled, it activates the LAN of the system. When disabled, it deactivates the function. The default setting is **Enabled**.

SMBUS Interrupt (IRQ9)

The System Management Bus (SMBus) is used for controlling and getting information from devices on a motherboard. It was designed for hybrid devices based on analog semiconductor technologies and with limited digital capabilities. Enabling this feature will reserve IRQ9 for SMBUS use. The default setting is **Disabled**.

4.7.2 PnP/PCI System Configuration

The PnP/PCI System Configuration allows you to specify the settings for your PCI devices. Selecting this option displays the following screens:

```
┌─────────────────────────────────────────────────────────────────┐
│            PnP/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 ..............[--]    [--]    [--]    [--]         │
│      PCI Slot 6 ..............[--]    [--]    [--]    [--]         │
│      PCI Slot 7 ..............[--]    [--]    [--]    [--]         │
│      Onboard LAN .............[--]                                 │
│      Onboard SCSI ............[--]                                 │
│                                                                   │
├─────────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help         │
└─────────────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────────────┐
│            PnP/PCI System Configuration        Page 2/2           │
├─────────────────────────────────────────────────────────────────┤
│                                                                   │
│    PCI IRQ Sharing  ...............[No]                            │
│    VGA Palette Snoop ..............[Disabled]                      │
│    Reset Resource Assignments .....[No]                            │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
├─────────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help         │
└─────────────────────────────────────────────────────────────────┘
```

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 IRQs to PnP devices. If your PCI device is not PnP, you can manually assign the interrupt for each device. Refer to your PCI card manual for more information. The default setting is **Auto**.

*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.

To avoid conflicts, make sure that the interrupt you assign to the various PCI slots is not used by another device.

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

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**.

Onboard SCSI

This item allows you to manually assign the interrupt for the onboard SCSI 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**.

PCI IRQ Sharing

Setting this parameter to **Yes** allows you to assign the same IRQ to two different devices. To disable the feature, select **No**. The default setting is **No**.

If there are no IRQs available to assign for the remaining device function, we recommend that you enable this parameter.

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. The default setting is **Disabled**.

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

Reset Resource Assignments

Set this parameter to **Yes** to avoid 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**. The default setting is **No**.

4.7.3 Memory/Cache Configuration

The Memory/Cache Configuration allows you to specify the appropriate settings for your system memory. Selecting the option displays the following screen:

```
            Memory/Cache Configuration          Page 1/1

   CPU Cache ..........................[Enabled ]

   System BIOS Cacheable ..............[Enabled ]
   Video BIOS Cacheable ...............[Enabled ]

   Memory at 15MB-16MB Reserved for ....[  System  ]
   Memory Parity Mode .................[    ECC    ]


   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```
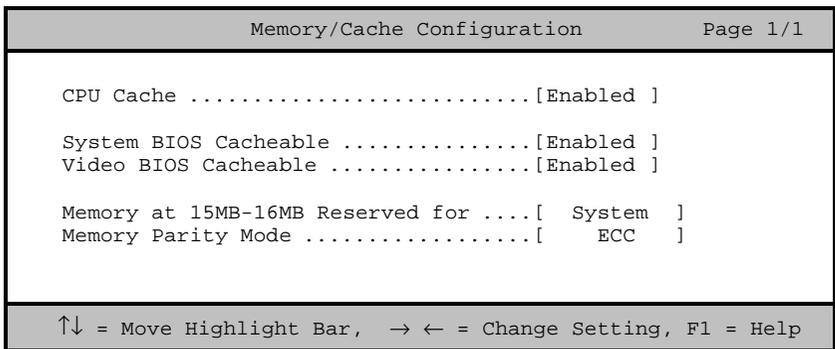
CPU Cache

This parameter enables or disables the first-level or internal memory. The default setting is **Enabled**.

System BIOS Cacheable

Set this parameter to **Enabled** if you want the system BIOS to run directly from the cache memory, thus allowing your system to function faster. Set this to **Disabled** to run the system BIOS from RAM. The default setting is **Enabled**.

Video BIOS Cacheable

Set this parameter to **Enabled** if you want the video BIOS to run directly from the cache memory, thus allowing your system to function faster. Set this to **Disabled** to run the video BIOS from RAM. The default setting is **Enabled**.

Memory at 15MB-16MB Reserved for

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. The default setting is **System** .

Memory Parity Mode

This parameter allows you to select the DRAM operating mode. Setting to **ECC** turns on the error check and correct (ECC) function. ECC automatically corrects any single-bit errors detected. For multiple-bit errors detected, ECC only issues an NMI to signal the operating system of the multiple-bit error detection. Setting to **Disabled** deactivates the function. The default setting is **ECC**.

4.7.4   Non-PnP ISA Device Configuration

The Non-PnP ISA Device Configuration allows you to specify the appropriate settings for. Selecting the option displays the following screen:

```
┌─────────────────────────────────────────────────────────────────┐
│      System Resources Used by Non-PnP ISA Card      Page 1/4      │
├─────────────────────────────────────────────────────────────────┤
│                                                                   │
│    IRQ 0 ----- [---] ...................IRQ 7  ----- [---]         │
│    IRQ 1 ----- [---] ...................IRQ 8  ----- [---]         │
│    IRQ 2 ----- [---] ...................IRQ 10 ----- [---]         │
│    IRQ 3 ----- [---] ...................IRQ 11 ----- [---]         │
│    IRQ 4 ----- [---] ...................IRQ 12 ----- [---]         │
│    IRQ 5 ----- [---] ...................IRQ 13 ----- [---]         │
│    IRQ 6 ----- [---] ...................IRQ 14 ----- [---]         │
│    IRQ 6 ----- [---] ...................IRQ 15 ----- [---]         │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
├─────────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help         │
└─────────────────────────────────────────────────────────────────┘
```

```
       System Resources Used by Non-PnP ISA Card      Page 2/4

    DMA 0 ----- [---] ...................DMA 4 ----- [---]
    DMA 1 ----- [---] ...................DMA 5 ----- [---]
    DMA 2 ----- [---] ...................DMA 6 ----- [---]
    DMA 3 ----- [---] ...................DMA 7 ----- [---]


    Expansion ROM Region

    C8000h - CBFFFh .....................[No ]
    CC000h – CFFFFh .....................[No ]
    D0000h – D3FFFh .....................[No ]
    D4000h – D7FFFh .....................[No ]
    C8000h – DBFFFh .....................[No ]
    DC000h – DFFFFh .....................[No ]




    ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

```
       System Resources Used by Non-PnP ISA Card      Page 3/4


    I/O Region

    100h – 10Fh ---- [No ]          1E0h – 1EFh ---- [No ]
    110h – 11Fh ---- [No ]          1F0h – 1EFh ---- [---]
    120h – 12Fh ---- [No ]          200h – 20Fh ---- [No ]
    130h – 13Fh ---- [No ]          210h – 21Fh ---- [No ]
    140h – 14Fh ---- [No ]          220h – 22Fh ---- [No ]
    150h – 15Fh ---- [No ]          230h – 23Fh ---- [No ]
    160h – 16Fh ---- [No ]          240h – 24Fh ---- [No ]
    170h – 17Fh ---- [---]          250h – 25Fh ---- [No ]
    180h – 18Fh ---- [No ]          260h – 26Fh ---- [No ]
    190h – 19Fh ---- [No ]          270h – 27Fh ---- [No ]
    1A0h – 1AFh ---- [No ]          280h – 28Fh ---- [No ]
    1B0h – 1BFh ---- [No ]          290h – 29Fh ---- [No ]
    1C0h – 1CFh ---- [No ]          2A0h – 2AFh ---- [No ]
    1D0h – 1DFh ---- [No ]          2B0h – 2BFh ---- [No ]




    ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

```
   System Resources Used by Non-PnP ISA Card    Page 4/4


   I/O Region

   2C0h – 2CFh ---- [No ]          3A0h – 3AFh ---- [No ]
   2D0h – 2DFh ---- [No ]
   2E0h – 2EFh ---- [No ]
   2F0h – 2FFh ---- [No ]
   300h – 30Fh ---- [No ]
   310h – 31Fh ---- [No ]
   320h – 32Fh ---- [No ]
   330h – 33Fh ---- [No ]
   340h – 34Fh ---- [No ]
   350h – 35Fh ---- [No ]
   360h – 36Fh ---- [No ]
   370h – 37Fh ---- [No ]
   380h – 38Fh ---- [No ]
   390h – 39Fh ---- [No ]



   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

4.7.5 System Event Configuration

The system event configuration enables you to record and monitor events that occur in your system like extreme system temperature, fan stops, and others. This feature allows you to specify the appropriate settings for your system's event handling. Selecting the option displays the following screen:

```
            System Event Configuration        Page 1/2


   System Event Logging

     Event Log BIOS Version ............ x.x xxxxxx
     Total Event Log Number ............ 1
     Remain of Event Log Area .......... 99%
     Event Logging ....................[Enabled]
     Clear Event Log ..................[Disabled]
     View Event Logs

   Event Control
     Temperature/Voltage/Fan ...........[Disabled]
     ECC ..............................[Disabled]
     PCI ..............................[Disabled]
     I/O Check ........................[Disabled]



   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

System Event Logging

Allows you to record monitored events that occur during the operation of your system.

Event Log BIOS Version

This parameter specifies the version of the Event Log BIOS.

Total Event Log Number

The number of events currently located in the event log area. The default setting is **1**.

Remain of Event Log Area

The percentage of space that is still available for logging system events. The default is **99%.**

Event Logging

This parameter allows you to enable or disable the event logging function of your system. The default setting is **Enabled** .

Clear Event Log

Clears the event log whenever the event log area is full. The default setting is **Disabled** .

View Event Logs

Opens the system event log file for viewing.

```
              View Event Logs            Page 1/1

  No  Type                 Time            Status

  1   System Limit Exceeded  12:20 Oct 02,1998   Viewed
      3rd CPU Fan Bad

  2   System Limit Exceeded  13:54 Sep 29,1998   Viewed
      3rd CPU Fan Bad

  3   Log Area Reset/Cleared 13:54 Sep 29,1998   Viewed


  ESC = Back to Main Menu
```

Events Control

This parameter monitors the following events and logs them into the event log file if there is a change in status.

Temperature/Voltage/Fan

Enable or disable the monitoring of the system's temperature, volume, and CPU fan. The default setting is **Enabled**.

ECC

ECC or Error-Correcting Code tests the accuracy of data as it passes in and out of memory. This parameter enables or disables the monitoring of this function. The default setting is **Enabled**.

PCI

PCI or Peripheral Component Interconnect is a 32-bit bus that supports a 64-bit extension for new processors, such as the Pentium. It can run at clock speeds of 33 or 66 MHz. This parameter monitors the activity of this bus when set to enabled. The default setting is **Enabled**.

I/O Check

Monitors the ISA for uncorrectable errors. This parameter monitors the activity of this bus when set to **Enabled**. The default setting is **Enabled**.

```
┌─────────────────────────────────────────────────────────────┐
│            System Event Configuration        Page 2/2        │
├─────────────────────────────────────────────────────────────┤
│                                                              │
│   Critical Event Process                                     │
│     Stop POST After CPU or Memory Reduction .....[Disabled]  │
│     Halt System If No CPU or Memory Available ...[Enabled]   │
│                                                              │
│   Threshold Setting                                          │
│     CPU Warning Temperature .....................[ 67] °C    │
│     CPU Fatal Temperature .......................[ 72] °C    │
│     System Temperature ..........................[ 49] °C    │
│     System Voltage ..............................[ 10] %     │
│     LCD Temperature .............................[ 40] °C    │
│                                                              │
│                                                              │
│                                                              │
├─────────────────────────────────────────────────────────────┤
│  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help   │
└─────────────────────────────────────────────────────────────┘
```

Critical Event Process

Stop POST After CPU or Memory Reduction

BIOS checks the bad CPUs and memory modules during POST. When this parameter is **Enabled**, BIOS will stop POST operation whenever it finds a bad CPU or memory. Otherwise, if **Disabled** the system will continue running. The default setting is **Disabled**.

Halt System If No CPU or Memory Available

When **Enabled**, the system will stop working when no CPU or memory is installed. Otherwise, if **Disabled** the system will continue running. The default setting is **Enabled**.

Threshold Setting

CPU Warning Temperature

You can set a threshold for the CPU's temperature level here and every time the CPU's temperature exceeds this level a warning will be logged into the event log file. A typical warning degree threshold setting is 55°C.

CPU Fatal Temperature

When the CPU's temperature reaches this threshold level a fatal warning will be logged into the event log file. A typical fatal degree threshold setting is 75°C.

System Temperature

When the system's temperature reaches this threshold level a warning will be logged into the event log file. A typical warning degree threshold setting is 55°C.

System Voltage

When the system's voltage reading exceeds the safety operating range, it will be logged into the event log file.

LCD Temperature

When the LCD's temperature reaches this threshold level a warning will be logged into the event log file. A typical warning degree threshold setting is 55°C.

4.8   System Security Setup

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

The following screen appears when you select System Security from the main menu:

```
┌──────────────────────────────────────────────────────────────┐
│                  System Security              Page 1/1        │
├──────────────────────────────────────────────────────────────┤
│                                                              │
│    Disk Drive Control                                        │
│       Floppy Drive .......... [   Normal     ]               │
│       Hard Disk Drive ....... [   Normal     ]               │
│                                                              │
│    Setup Password............ [   None   ]                   │
│    Power On Password......... [   None   ]                   │
│       Operation Mode......... [   Normal ]                   │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
│                                                              │
├──────────────────────────────────────────────────────────────┤
│    ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help  │
└──────────────────────────────────────────────────────────────┘
```
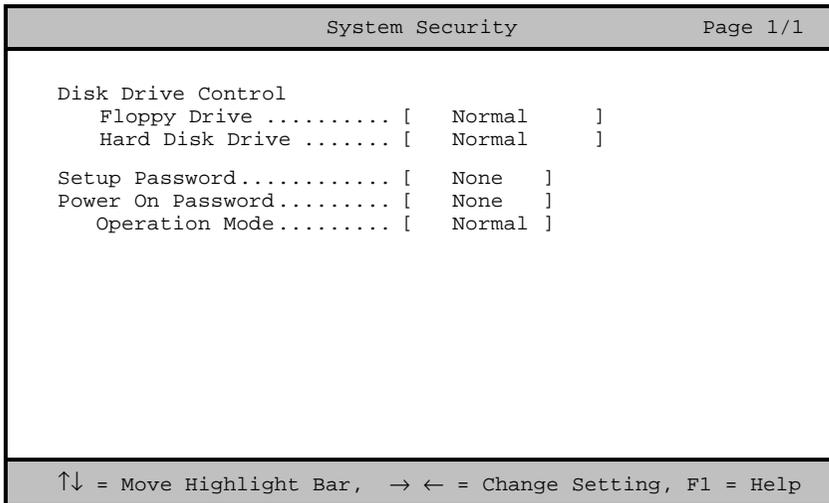
4.8.1   Disk Drive Control

The disk drive control features allow you to control the floppy 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.

Setting	Description
Floppy Drive	
Normal	Floppy 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 floppy disk functions

The default setting for the floppy drive is **Normal**.

Setting	Description
Hard Disk Drive	
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

The default setting for the hard disk drive is **Normal**.

4.8.2   Setup Password

The Setup Password prevents unauthorized access to the BIOS utility. The default setting is **None** .

Setting a Password

1. Make sure that JP5 is set to **2-3** (bypass password).

> *You cannot enter the BIOS utility if a Setup password does not exist and JP5 is set to **1-2** (password check enabled).*
>
> *By default, JP5 is set to **2-3** (bypass password).*

2. Enter BIOS utility and select **System Security**.

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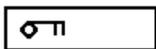
4. Type a password. The password may consist of up to seven characters.

> *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.
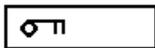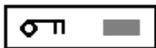
6. Retype the password then press ENTER.

   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. Turn off and unplug the system then open the housing (see Section 2.2).

11. Set JP5 to **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 ← or → to display the password prompt and key-in a new password.

   or

   Press ← or → 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.

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 (see Section 2.2) and set JP5 to **2-3** to bypass the password function.

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.*

4.8.3   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 this password, enter the BIOS utility, select System Security, then highlight the Power-on Password parameter. Follow the same procedure as in setting the Setup password. The default setting is **None** .

> *Make sure to set JP5 to pins **1-2** to enable*
> *the Power-on Password.*

Operation Mode

This function lets you enable or disable the password prompt display. When set to **Normal**, the password prompt appears before system boot. When set to **Keyboard Lock**, the password prompt does not appear; however, your system will not respond to any keyboard or mouse input until you enter the correct password. The default setting is **Normal** .

4.9   Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you do not need to 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.

The following screen appears if you select Date and Time from the main menu:

```
                            Date and Time                Page 1/1

    Date ............................ [xxx xx xx, 199x]
    Time ............................ [xx:xx:xx]




    ↑↓ = Move Highlight Bar,   → ← = Change Setting, F1 = Help
```

4.9.1   Date

Highlight the items in the Date parameter and press ⇥ or ⇤ to set the date following the weekday-month-day-year format.

Valid values for weekday, month, day, and year are:

- Weekday   `Sun, Mon, Tue, Wed, Thu, Fri, Sat`

- Month   1 to 12

- Day   1 to 31

- Year   1980 to 2079

4.9.2   Time

Highlight the items in 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

4.10   Remote Diagnostic Configuration

The Remote Diagnostic Configuration parameter allows you to configure your RDM settings. Please refer to the *Remote Diagnostic Manager (RDM) User's Guide* for more information on remote diagnostic configuration.

The following screen is the first of two Remote Diagnostic Configuration screens in the BIOS utility. It shows the remote diagnostic parameters with their default settings:

```
          Remote Diagnostic Configuration      Page 1/2

   RDM 4.0 BIOS Version ...................980911

   Remote Console ........................[Disabled]

   Hidden Partition ......................[Disabled]

      Communication Protocol ..............[ N, 8, 1 ]
      COM Port Baud Rate ..................[57600]
      Telephone Type ......................[ Tone ]
        Detect Tone ......................[Enabled]

   Remote Console Phone No. ...............[----]
   Dial Out Retry Times ...................[ 2 ]

   Modem Initial Command. .................[----]


   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

The following is the second of two Remote Diagnostic Configuration screens in the BIOS utility. It shows the remote diagnostic parameters with their default settings:

```
┌─────────────────────────────────────────────────────────────────┐
│           Remote Diagnostic Configuration Page 2/2              │
├─────────────────────────────────────────────────────────────────┤
│                                                                 │
│   RDM Daughter Board Version .............R01-A7                │
│   RDM Work Mode .........................[Disabled]            │
│   Waiting Mode Password ..................[---]                 │
│                                                                 │
│   System Critical Paging No. .............[---]                 │
│      1.. ................................[---]                  │
│      2.. ................................[---]                  │
│      3.. ................................[---]                  │
│   Paging Times. ..........................[ 1 ]                 │
│                                                                 │
│   RDM Host Name ..........................[---]                 │
│   Location ...............................[---]                 │
│   Administrator ..........................[---]                 │
│   Phone Number ...........................[---]                 │
│   Email Address ..........................[---]                 │
│                                                                 │
│                                                                 │
├─────────────────────────────────────────────────────────────────┤
│   ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help     │
└─────────────────────────────────────────────────────────────────┘
```

4.11   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.
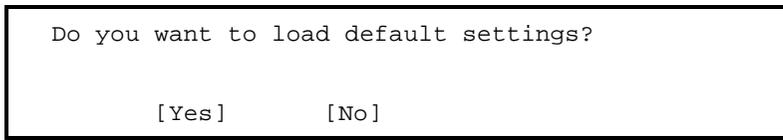
```
Do you want to load default settings?


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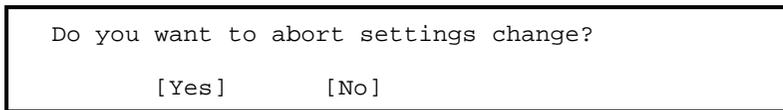
Select **Yes** to load the default settings.

Select **No** to ignore the message and return to the BIOS utility.

4.12   Abort Settings Change

Use this option to disregard your changes to the BIOS and reload your previous settings.

The following dialog box appears when you select Abort Settings Change from the main menu.

```
Do you want to abort settings change?
        [Yes]        [No]
```

Select **Yes** to disregard your changes and reload your previous settings. After reload, the main menu appears on screen.

Select **No** to ignore the message and return to the BIOS utility.

Chapter 5   SCSI*Select* Configuration Utility

5.1   SCSI*Select* Configuration Utility Overview

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

5.1.1   Default Values

The following table 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 Altos 21000 Series system is equipped with a dual SCSI channel controller that enhances your system's performance and flexibility.*

Table 5-1   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 Channel/ Boot SCSI ID	A/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
BIOS Support for Bootable CD-ROM	Enabled
BIOS Support for Int13 Extensions	Enabled
Individual Settings for Each SCSI Device	**Default Value**
Initiate Wide Negotiation	Yes
Maximum Sync Transfer Rate	80 MBytes/sec.
Enable Disconnection	Yes
Send Start Unit Command[1]	Yes
Initiate Wide Negotiation	Yes

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

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

5.1.2   When to Use the SCSI*Select* Utility

Use the SCSI*Select* utility if you need to

- Change any of the default values listed in the settings table

- 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

5.1.3   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-7896 BIOS version number.

5.2   SCSI*Select* Utility Options

When the SCSI*Select* utility detects the AIC-7896 SCSI controller in your computer, it displays the following screen.
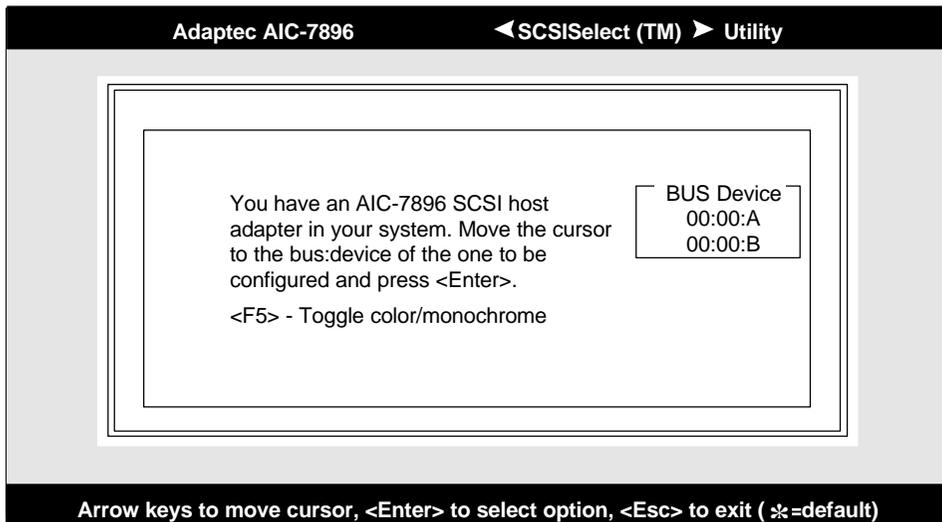

Figure 5-1   SCSISelect Screen

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 all monitors.)*

5.2.1 Configure/View Host Adapter Settings Menu

When you select the Configure/View Host Adapter Settings option from the screen shown below, the Configure/View Host Adapter Settings menu (shown on the next page) appears.
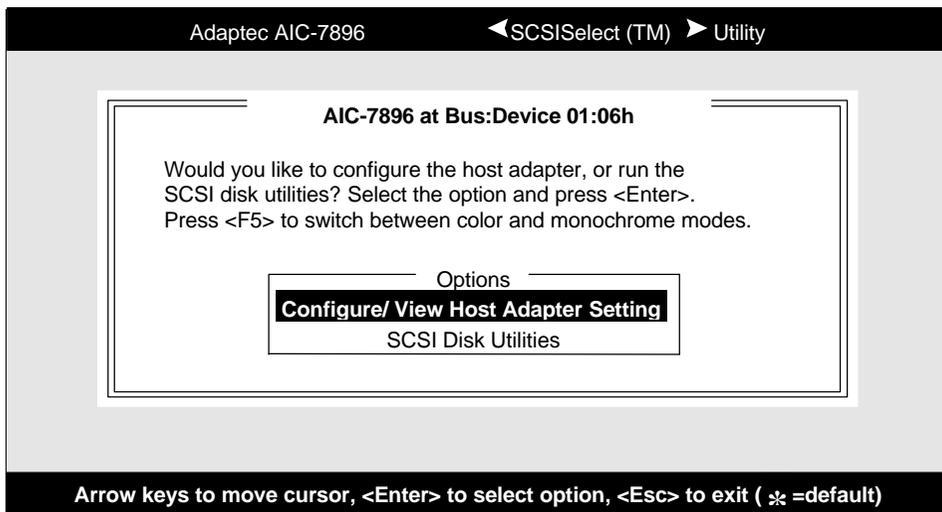
```
┌─────────────────────────────────────────────────────────────────┐
│   Adaptec AIC-7896          ◀ SCSISelect (TM) ▶ Utility          │
├─────────────────────────────────────────────────────────────────┤
│                                                                   │
│      ┌──────────── AIC-7896 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 Setting │  │    │
│      │              │     SCSI Disk Utilities  │              │    │
│      │              └──────────────────────────┘              │    │
│      │                                                        │    │
│      └────────────────────────────────────────────────────────┘   │
│                                                                   │
├─────────────────────────────────────────────────────────────────┤
│ Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ✳ =default) │
└─────────────────────────────────────────────────────────────────┘
```

Figure 5-2   Configure/View Host Adapter Settings Screen (1 of 2)

The Configure/View Host Adapter Settings menu lists three settings under SCSI Bus Interface Definitions and three additional options.

- **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:
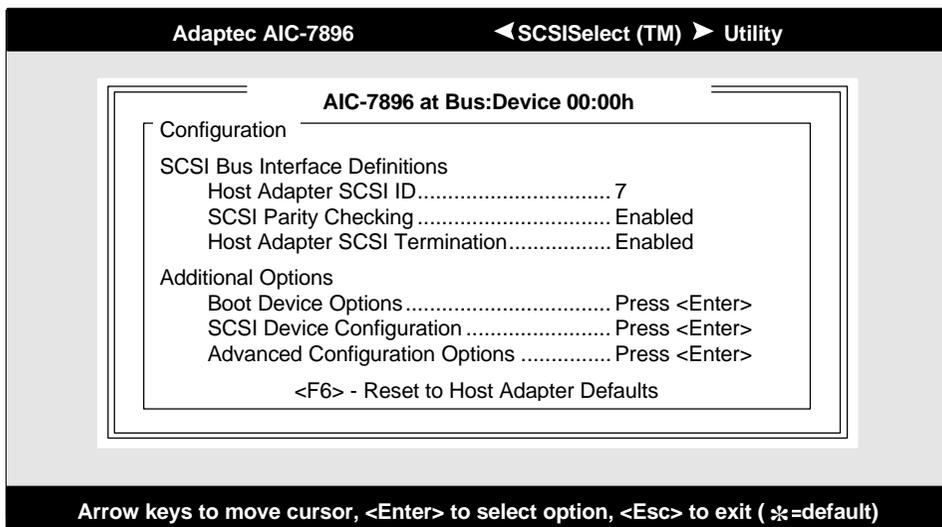
```
┌────────────────────────────────────────────────────────────────────────┐
│      Adaptec AIC-7896           ◄ SCSISelect (TM) ► Utility              │
├────────────────────────────────────────────────────────────────────────┤
│                                                                          │
│   ┌────────────── AIC-7896 at Bus:Device 00:00h ──────────────┐         │
│   │  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 5-3   Configure/View Host Adapter Settings Screen (2 of 2)

Use the cursor ($\uparrow \downarrow$) 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. The figure below shows the available IDs for use with the AIC-7896. 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.
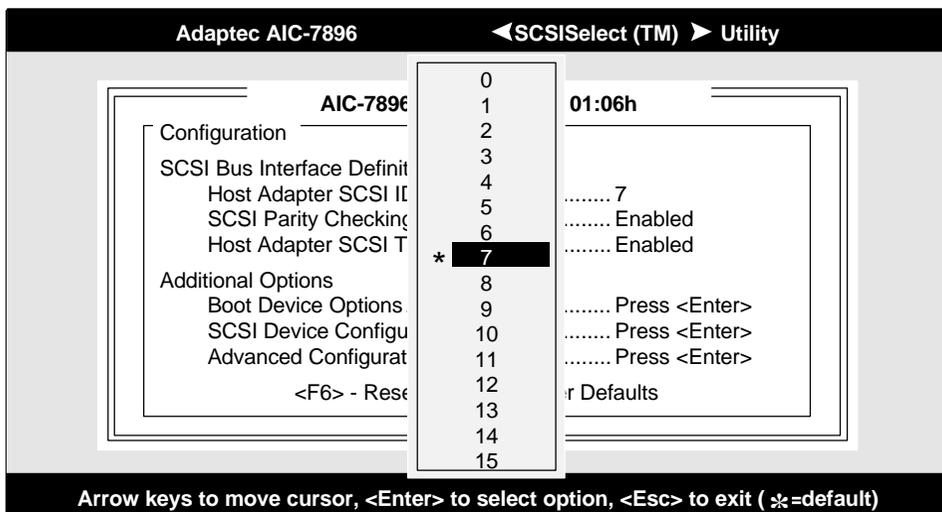

Figure 5-4   Host Adapter SCSI ID Selection Screen for AIC-7896

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 ($\uparrow$ $\downarrow$) 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. The figure below displays your choices. The default setting is **Enabled**.
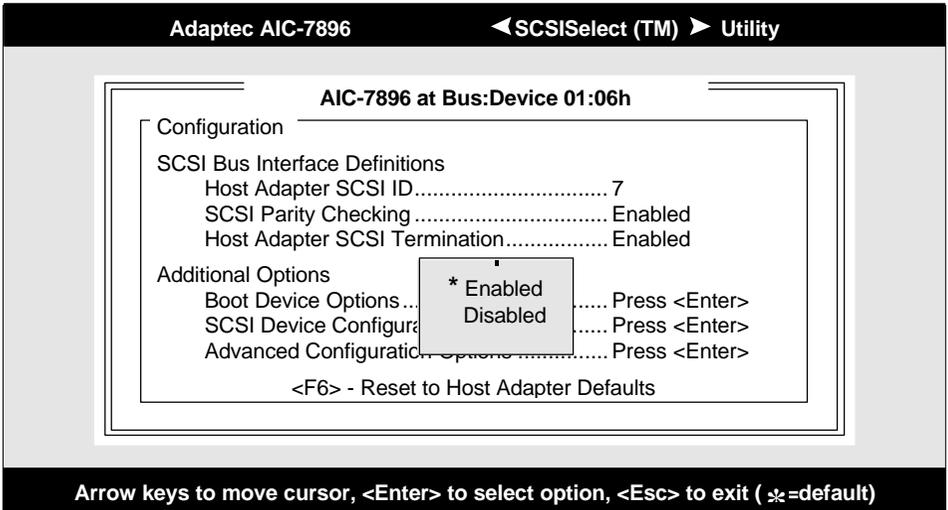
Figure 5-5   SCSI Parity Checking Selection

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. The following figure shows the choices available if you have an AIC-7896.

```
┌─────────────────────────────────────────────────────────────────┐
│   Adaptec AIC-7896          ◄ SCSISelect (TM) ►  Utility          │
├─────────────────────────────────────────────────────────────────┤
│   ┌─────────────────────────────────────────────────────────┐     │
│   │          AIC-7896 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 5-6   Host Adapter SCSI Termination Selection for AIC-7896

Use the cursor (↑ ↓) and **Enter** keys to make your selection.

> *If you configure the system backplane as combined, the Host Adapter SCSI Termination setting must be **Disabled**.*

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.

The figure below shows the Boot Device Options screen.

```
Adaptec AIC-7896              ◄SCSISelect (TM) ► Utility

                    AIC-7896 at Bus:Device 00:00h
  Configuration
    SCSI Bus Interface Definitions
        Host Adapter SCSI ID................................ 7
        SCSI Parity Checking ................................ Enabled

                    Boot Device Configuration
    Select SCSI peripherals from which to boot
    To view peripherals by ID# select "SCSI Disk Utilities" from previous menu

    Boot Channel.......................................................................A First
    Boot SCSI…………………………………………………………………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 5-7   Boot Device Options Screen

Boot Channel

MultiChannel devices allow you to boot from either channel. Use this option to identify the channel which should be scanned first during bootup. The default is **A First**.

Boot SCSI ID

This option allows you to identify the SCSI device to be used as a boot device. The range is 0 to 15; the default is **0**.

Boot LUN Number

The AIC-7896 supports up to eight logical units. This option allows you to identify the Logical Unit Number (LUN) to use during bootup. The default is **0**. The setting is valid only if BIOS Multiple LUN Support is enabled.

SCSI Device Configuration

This option allows you to configure certain parameters of each SCSI device on the SCSI bus. A screen similar to the figure below 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 AIC-7896				SCSISelect (TM)		Utility	

AIC-7896 at Bus:Device 01:06h

SCSI Device Configuration

SCSI Device ID	#0	#1	#2	#3	#4	#5	#6	#7
Sync Transfer Rate (MB/Sec)	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
Initiate Wide Negotiation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enable Disconnection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Send Start Unit Command	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enable Write-back cache	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

------------------Options Listed Below Have NO EFFECT if the BIOS is Disabled ----------------

BIOS Multiple LUN Support	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
Sync Transfer Rate (MB/Sec)	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
Initiate Wide Negotiation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enable Disconnection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Send Start Unit Command	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enable Write Back Cache	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

------------------Options Listed Below Have NO EFFECT if the BIOS is Disabled ----------------

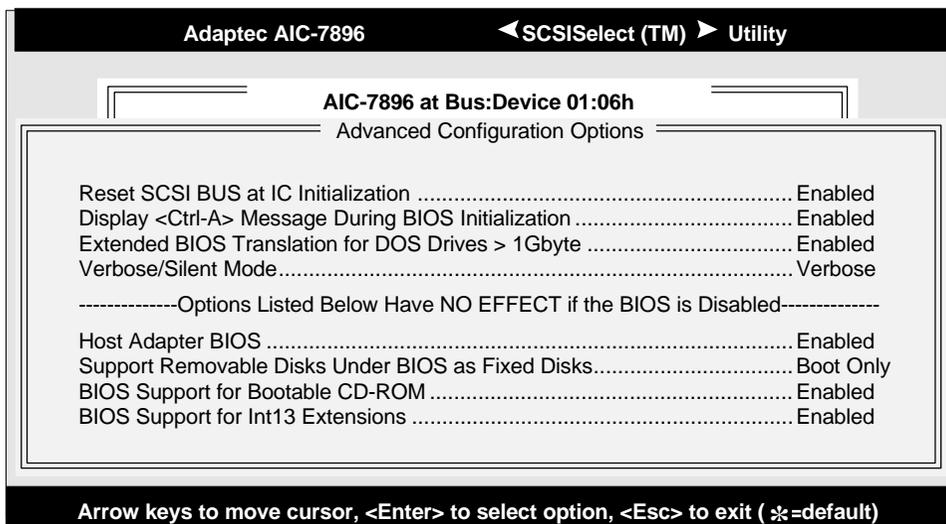| BIOS Multiple LUN Support	No	No	No	No	No	No	No	No
Include in BIOS Scan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Figure 5-8   SCSI Device Configuration Screen for AIC-7896

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.

> *Some older SCSI-1 devices do not support synchronous negotiation, so your computer might operate erratically if Initiate Sync Negotiation is enabled. Set Initiate Sync*

- **Sync Transfer Rate** – The setting for this option determines the maximum synchronous data transfer rate that the channel can support.

  The AIC–7896 has a 16-bit channel that provides an effective maximum synchronous transfer rate of 80.0 Mbytes/sec (40.0 Mbytes/sec per 8-bit channel).

  The Maximum synchronous transfer rates available are dependent on the Initiate Wide Negotiation setting. The available settings are shown below.

80.0	40.0
53.4	26.7
40.0	20.0
32.0	16.0
26.8	13.4
20.0	10.0
16.0	8.0
13.4	6.7
10.0	5.0
ASYN	ASYN

Initiate Wide Negotiation = yes   Initiate Wide Negotiation = no

Some older SCSI-1 devices do not support Fast or Ultra SCSI data transfer rates (20.0, 10.0, 8.0, and 6.7). This may cause your computer to operate erratically or hang at the higher transfer rates. Refer to the device's documentation and set the transfer rate

accordingly.

- **Initiate Wide Negotiation** – The setting for this option determines whether the channel initiates negotiation with the SCSI device for Wide SCSI data transfers. When set to **Yes** for a SCSI device, the channel initiates Wide negotiation with the SCSI device. When set to **No**, the channel does not initiate Wide negotiation with the device. The channel, however, always responds to Wide negotiation if the SCSI device initiates it. The default setting is **Yes**.

> *To enable Ultra2 Speed (80 MB), first enable Initiate Wide Negotiation. Then select the highest available setting in the Maximum Sync Transfer rate option.*

- **Enable Disconnection** – The setting for this option determines whether the channel allows a SCSI device to disconnect from the SCSI bus (sometimes called Disconnect/Reconnect). Enabling disconnection allows the channel 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 channel (this can usually be configured on the SCSI device). When set to **No**, the SCSI device cannot disconnect from the SCSI bus. The default setting is **Yes**.

   To optimize SCSI bus performance, leave Enable Disconnection set to **Yes** if the channel connects to two or more SCSI devices. If the channel connects to only one SCSI device, set Enable Disconnection to **No** to achieve slightly better performance.

The following settings are only effective if the BIOS is enabled.

- **Send Start Unit Command** – The setting for this option, which is supported by some SCSI devices, determines whether the channel sends the Start Unit command (SCSI command 1B) 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 channel to turn on SCSI devices one-at-a-time when the computer boots. Otherwise, all SCSI devices turn on at the same time. Most devices require you to set a jumper before they can respond to this command.

  When set to **Yes**, the channel sends the Start Unit command to the SCSI device during bootup. When set to **No**, each SCSI device powers up when the computer powers up. The default setting is **No**.

- **BIOS Multiple LUN Support** – The setting for this option determines whether booting from a SCSI device that has multiple LUNs is supported. The default setting is **Disabled**.

  BIOS Multiple LUN Support must be enabled in order to use the Boot LUN Number during bootup.

- **Include in BIOS Scan** – This setting gives the AIC-7896 the ability to ignore any SCSI devices attached to the SCSI bus during bootup. The AIC-7896 BIOS scans a specific SCSI ID looking for a stand-alone disk device to control. If Include in BIOS Scan is set to **Yes** for a SCSI ID the BIOS scans the ID, and the disk device at that ID becomes accessible through Int 13h; if the option is set to **No**, the BIOS does not scan the SCSI ID. The default setting for Include in BIOS Scan is **Yes**.

Advanced Configuration Options

When you select Advanced Configuration Options, a screen similar to the figure below appears. Do not change these options unless absolutely necessary.

```
┌─────────────────────────────────────────────────────────────────────┐
│      Adaptec AIC-7896          ◄SCSISelect (TM) ►  Utility          │
├─────────────────────────────────────────────────────────────────────┤
│   ┌────────────┐                                       ┌──────────┐  │
│   │            │  AIC-7896 at Bus:Device 01:06h        │          │  │
│   └────────────┤  Advanced Configuration Options       ├──────────┘  │
│                                                                       │
│    Reset SCSI BUS at IC Initialization ........................ Enabled   │
│    Display <Ctrl-A> Message During BIOS Initialization ........ Enabled   │
│    Extended BIOS Translation for DOS Drives > 1Gbyte .......... Enabled   │
│    Verbose/Silent Mode........................................ Verbose    │
│    -------------Options Listed Below Have NO EFFECT if the BIOS is Disabled------------- │
│    Host Adapter BIOS .......................................... Enabled   │
│    Support Removable Disks Under BIOS as Fixed Disks........... Boot Only │
│    BIOS Support for Bootable CD-ROM .......................... Enabled    │
│    BIOS Support for Int13 Extensions ......................... Enabled    │
│                                                                       │
├─────────────────────────────────────────────────────────────────────┤
│   Arrow keys to move cursor, <Enter> to select option, <Esc> to exit ( ✲=default) │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 5-9   Advanced Configuration Options Screen

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

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**.

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**.*

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**.

5.2.2   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 the figure below. You can easily determine from this screen which SCSI ID is assigned to each device on the SCSI bus.

```
 Adaptec AIC-7896              ◄SCSISelect (TM) ► Utility

                  AIC-7896 at Bus:Device 01:06h
                   Select SCSI Disk and press <Enter>

               SCSI ID #0:   IBM  DRVS-09D    Ultra2-LVD
               SCSI ID #1:   No device
               SCSI ID #2:   No device
               SCSI ID #3:   No device
               SCSI ID #4:   No device
               SCSI ID #5:   No device
               SCSI ID #6:   No device
               SCSI ID #7:   AIC-7896
               SCSI ID #8:   No device
               SCSI ID #9:   No device
               SCSI ID #10:  No device
               SCSI ID #11:  No device
               SCSI ID #12:  No device
               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 5-10 SCSI Disk Utilities Screen for AIC-7896

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

*Use SCSI Disk Utilities to check the hard
disk drive firmware revision. (Select **SCSI
Disk Utilities** from the Configure/View Host
Adapter Settings screen. Use the arrow
keys to highlight a disk device, then press
Enter to display the firmware revision.)*

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.*

5.3 Configuring Multiple SCSI Controllers

*The AHA-3950U2B 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-3950U2B 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-3950U2Bto 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-3950U2B SCSI controller into another
  PCI slot if the boot order is not what is desired.*

- If you are booting from the AHA-3950U2B 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-3950U2B 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-3950U2B.

5.4   SCSI Troubleshooting Checklist

The AIC-7896 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.

5.5　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.

5.5.1   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.

5.5.2   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.

Appendix A Event Tables

A.1   LCD Display Panel Event Types

The following table list the types of events displayed in the LCD display panel:

Event Type	Description
01h	Single-bit ECC memory error
02h	Multi-bit ECC memory error
07h	POST memory resize, last byte is memory bank number
08h	POST error. In addition to 2 DWORD bitmap, BIOS defines a new byte to recognize POST error message ID
09h	PCI parity error
0Ah	PCI system error
0Bh	CPU failure, including cache error
10h	System limit exceeded
14h	System re-configuration (ESCD data changed)
16h	Log area Reset/Cleared
81h	Setup password fail
82h	Power on password fail
83h	RDM events, see next table
84h	Unknown H/W event detected
85h	CPU disabled by BIOS
86h	I/O Check Error
87h	Wake up on LAN
88h	AC power recovery

A.2 RDM Events

Event	Description
Failure time	Once heartbeat protocol stops for 30 seconds, RDM presumes that the operating system stops and records the current time sent by FSC/ASM.
Power off	RDM powers off the system when the CPU temperature exceeds the fatal threshold.
Power on	RDM powers on the system automatically when the CPU temperature declines to the warning threshold - minus 10 degrees.
Reboot	In Reboot mode, RDM will reboot the system if the temperature is at a safe degree.
Remote login password fail	In Waiting mode, if someone tries to connect in and there is a password fail, RDM will record this event.
Remote login	In Waiting mode, someone logs in successfully.
Remote power off	In Waiting mode, Remote site powers off the system manually.
Remote reboot	In Waiting mode, Remote site reboots the system manually.
xx CPU IERR# issued	When system crashed, xx CPU issued IERR# signal.
xx CPU Thermtrip# issued	When system crashed, xx CPU issued Thermtrip# signal.
xx CPU disabled	When system crashed, if a CPU's temperature exceeds the threshold, RDM will disable it.

A.3 POST Error Events

POST Error Message	ID (Dec)	POST Results Bitmap(Dec)
PS/2 Keyboard Interface Error	20	10
PS/2 Keyboard Error or Not Connected[2]	21	9
PS/2 Keyboard Locked	22	8
PS/2 Point Device Error	30	31
PS/2 Point Device Interface Error	31	31
Floppy Disk Controller Error	40	16
Floppy Drive A Error	41	14
Floppy Drive B Error	43	15
IDE 1st Channel Master Drive Error	50	58
IDE 1st Channel Slave Drive Error	51	58
IDE 2nd Channel Master Drive Error	52	59
IDE 2nd Channel Slave Drive Error	53	59
CPU BIOS Update Code Mismatch	60	32
Real Time Clock Error	70	06
CMOS Battery Bad	71	03
CMOS Checksum Error	72	05
NVRAM Checksum Error	90	50
I/O Resource Conflict(s)	120	40
Memory Resource Conflict(s)	121	39
IRQ Setting Error	122	41
Expansion ROM Allocation Failed	123	39
Onboard Serial 1 IRQ Conflict(s)	180	61
Onboard Serial 2 IRQ Conflict(s)	181	62
Onboard Parallel Port IRQ Conflict(s)	182	60
Onboard Floppy Drive IRQ Conflict(s)	183	57
Onboard Point Device IRQ Conflict(s)	184	31
Onboard IDE Secondary Channel IRQ Conflict(s)	185	59

POST Error Message	ID (Dec)	POST Results Bitmap(Dec)
Onboard ECP Parallel Port DMA Conflict(s)	186	60
Onboard Floppy Drive DMA Conflict(s)	187	57
Onboard Floppy Drive I/O Address Conflict(s)	188	57
Onboard IDE Secondary Channel I/O Address Conflict(s)	189	59
Onboard Serial Port 1 I/O Address Conflict(s)	190	61
Onboard Serial Port 2 I/O Address Conflict(s)	191	62
Onboard Parallel I/O Address Conflict(s)	192	60
Onboard Serial 1 Conflict(s)	193	61
Onboard Serial 2 Conflict(s)	194	62
Onboard Parallel Conflict(s)	195	60
Onboard IDE Primary Channel IRQ Conflict(s)	196	58
Onboard IDE Primary Channel I/O Address Conflict(s)	197	58
ECC Facility Fail	210	35
I2C Interface or Device(s) Error	211	37
System Management RAM Bad	11	36
CPU Clock Mismatch	61	38
PnP ISA Card(s) Disabled	198	29

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