

AcerAltos 21000

System Guide



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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 6A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

FCC Class B Radio Frequency Interference Statement

Note:

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

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/television technician for help.

Notice 1:

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

Notice 2:

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

About this Manual

Getting Started

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

Manual Structure

This system guide consists of five chapters and an index.

Chapter 1 Getting Started

This chapter helps you get started. It illustrates how to prepare the system for installation, connect the cables, and start up the system.

Chapter 2 System Housing

This chapter describes the assembly and disassembly of the system housing. It also shows you how to install the main board, power supply, fan module, storage devices, and other housing components.

Chapter 3 System Boards

This chapter describes the main board, the memory board, the SCSI backplane board, and the LCD display module. Also, It introduces the system's 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 AcerAltos 21000 system.

Chapter 4 BIOS Utility

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

Chapter 5 Diagnostics and Utilities

This chapter describes the software utilities that enhance the system's operation and remote operation functions.

Appendix A LCD Module Event Log List

This chapter shows lists of error messages that can be displayed in the LCD display module.

Conventions

The following are the conventions used in this manual:

Text entered by user

Represents text input by the user.

Option Items

Represents options that you can select on the screen.

, , , etc.

Represent the actual keys that you have to press on the keyboard.



NOTE

Gives bits and pieces of additional information related to the current topic.



CAUTION

Gives precautionary measures to avoid possible hardware or software problems.



IMPORTANT

Reminds you to take specific actions relevant to the accomplishment of procedures.

Table of Contents

Chapter 1 Getting Started

1.1 Preinstallation Requirements.....	1-1
1.1.1 Selecting a Site	1-1
1.1.2 Checking the Package Contents	1-2
1.1.3 Preparing the System Unit	1-3
1.2 Basic Connections.....	1-4
1.2.1 Connecting a Keyboard.....	1-4
1.2.2 Connecting a Mouse	1-5
1.2.3 Connecting a VGA Monitor	1-6
1.3 System Startup	1-7
1.4 Power-on Problems.....	1-8

Chapter 2 System Housing

2.1 External and Internal Structure.....	2-2
2.1.1 Front Panel.....	2-2
2.1.2 Rear Panel	2-4
2.1.3 LCD Display Module	2-6
2.1.4 Internal Components.....	2-12
2.2 Opening the Housing Panels.....	2-14
2.2.1 Removing the Left and Right Panels.....	2-14
2.2.2 Opening the Front Panel Door	2-15
2.3 Installing and Removing Storage Devices	2-17
2.3.1 Installing and Removing a 3.5-inch Storage Device	2-17
2.3.2 Installing and Removing a 5.25-inch Storage Device.....	2-20

2.4 Installing a Hot-swappable SCSI Drive	2-23
2.5 Installing and Removing a Hot-swappable Redundant Power Supply Module	2-25
2.6 Installing and Removing a Hot-swappable Redundant Housing Fan	2-29
2.7 Installing an Expansion Board	2-32
2.8 Removing and Installing the Thermal Air Guide	2-34
2.8.1 Removing the Thermal Air Guide.....	2-34
2.8.2 Reinstalling the Thermal Air Guide	2-35
2.9 Cable Connections.....	2-37

Chapter 3 System Boards

3.1 Main Board	3-1
3.1.1 Layout	3-3
3.1.2 Jumpers and Connectors	3-4
3.1.3 Installing and Removing an Intel Pentium II Xeon CPU.....	3-7
3.1.4 Installing and Removing the Termination Board.....	3-10
3.1.5 Installing and Removing a VRM (Voltage Regulator Module)	3-12
3.2 Memory Board	3-14
3.2.1 Layout	3-14
3.2.2 Memory Configurations.....	3-14
3.2.3 Removing and Installing the Memory Board.....	3-15
3.2.4 Installing and Removing a DIMM	3-17
3.3 SCSI Backplane Board.....	3-18
3.3.1 Features	3-18
3.3.2 Layout	3-19

3.3.3 Hard Disk ID Switch Settings	3-20
3.3.4 Dual Channel Configuration	3-21
3.4 LCD Display Module.....	3-22

Chapter 4 BIOS Utility

4.1 Entering Setup	4-2
4.2 System Information	4-3
4.2.1 Processor	4-4
4.2.2 Processor Speed	4-4
4.2.3 Bus Frequency.....	4-5
4.2.4 L1 Cache	4-5
4.2.5 L2 Cache	4-5
4.2.6 Floppy Drive A.....	4-5
4.2.7 Floppy Drive B.....	4-5
4.2.8 IDE Primary Channel Master	4-5
4.2.9 IDE Primary Channel Slave	4-5
4.2.10 Total Memory	4-6
4.2.11 Serial Port 1.....	4-6
4.2.12 Serial Port 2.....	4-6
4.2.13 Parallel Port.....	4-6
4.2.14 Pointing Device	4-6
4.2.15 Memory Parity Mode.....	4-6
4.2.16 Onboard USB	4-7
4.3 Product Information.....	4-8
4.3.1 Product Name.....	4-8
4.3.2 System S/N	4-8
4.3.3 Main Board ID.....	4-9

4.3.4 Main Board S/N	4-9
4.3.5 System BIOS Version	4-9
4.3.6 System BIOS ID	4-9
4.3.7 BIOS Release Date	4-9
4.4 Disk Drives.....	4-10
4.4.1 Floppy Drives	4-12
4.4.2 IDE Drives	4-12
4.5 Power Management	4-16
4.5.1 Power Management Mode	4-16
4.5.2 ACPI BIOS	4-17
4.6 Startup Configuration	4-18
4.6.1 Fast POST Mode.....	4-18
4.6.2 Silent Boot.....	4-19
4.6.3 Num Lock After Boot	4-19
4.6.4 Memory Test	4-19
4.6.5 Initialize SCSI Before IDE.....	4-19
4.6.6 System Boot Drive.....	4-20
4.6.7 Boot From IDE CD-ROM	4-20
4.6.8 Single Processor MP Table.....	4-20
4.6.9 MP Table Compliant	4-21
4.6.10 CPU Clock Ratio.....	4-21
4.7 Advanced Configuration.....	4-22
4.7.1 Onboard Devices Configuration	4-23
4.7.2 PnP/PCI System Configuration	4-29
4.7.3 Memory/Cache Configuration	4-32
4.7.4 Non-PnP ISA Device Configuration	4-33
4.7.5 System Event Configuration	4-36

4.8 System Security Setup.....	4-42
4.8.1 Disk Drive Control.....	4-42
4.8.2 Setup Password.....	4-43
4.8.3 Power-on Password.....	4-47
4.9 Date and Time.....	4-48
4.9.1 Date.....	4-49
4.9.2 Time.....	4-49
4.10 Remote Diagnostic Configuration.....	4-50
4.11 Load Setup Default Settings.....	4-51
4.12 Abort Settings Change.....	4-52

Chapter 5 Diagnostics and Utilities

5.1 Advanced Server Manager.....	5-1
5.2 Remote Diagnostic Manager.....	5-3

Appendix A LCD Module Event Log List

Introduction

The AcerAltos 21000 is a powerful 64-bit quad-processor system loaded 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.

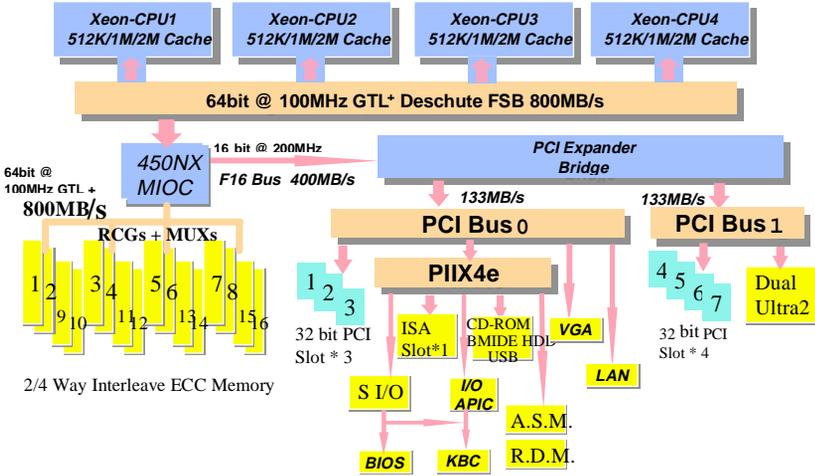
Intel Pentium II Xeon Processor with the Intel 450NX Chipset

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 IIs, 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 8GB 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 AcerAltos 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 ASM Pro feature that monitors voltage stability and CPU temperature, prevents data loss by prompt ECC memory error reporting, maximizes system resources by indicating the PCI bus utilization, and promotes efficiency by minimizing system downtime.

A feature related to ASM Pro is Remote Diagnostic Management (RDM) that permits system diagnosis from a remote site through a modem. 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 prevent unauthorized access to the internal components and system use. Also, a microswitch located on the left side of the housing panel warns you of intrusion.

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

Check the following items from the package:

- AcerAltos 21000 System
- AcerAltos 21000 System Guide
- CD-ROM Driver Kits
- System keys (hung inside the front panel door)

If any of the above items are damaged or missing, contact your dealer immediately.

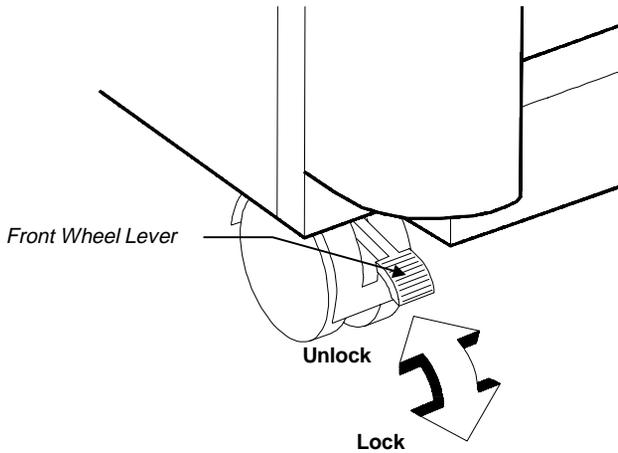
Save the boxes and packing materials for future use.

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 site.

The system housing design allows for easy transport in spite of its size. It comes with four wheels that facilitate short-distance transits. The two front wheels each include a lever to lock the wheels after you have positioned the system into place.



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



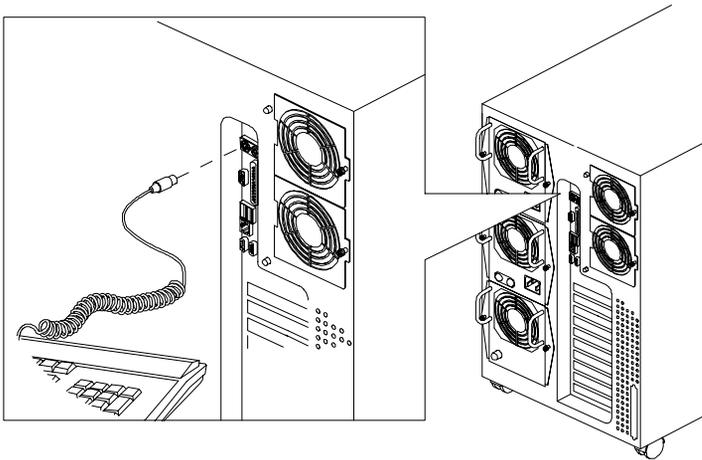
Make sure to unlock the wheels when you want to move the system again.

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

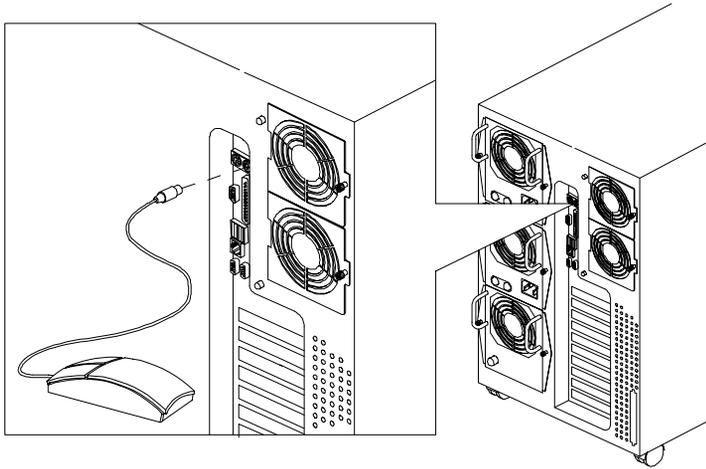
1.2 Basic Connections

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.

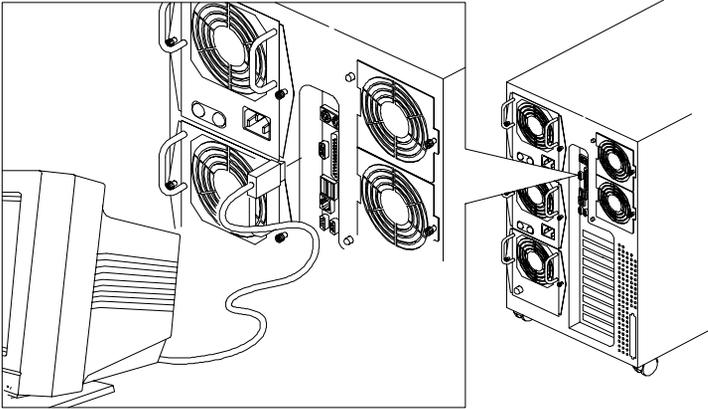
1.2.1 Connecting a Keyboard



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 comes from the grounded power outlet.**

-  Have an electrician check your power outlet.

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

-  Refer to section 2.5.1 for the cable connections and check the internal cable connections. If you are not confident to perform this step, ask a qualified technician to help you.



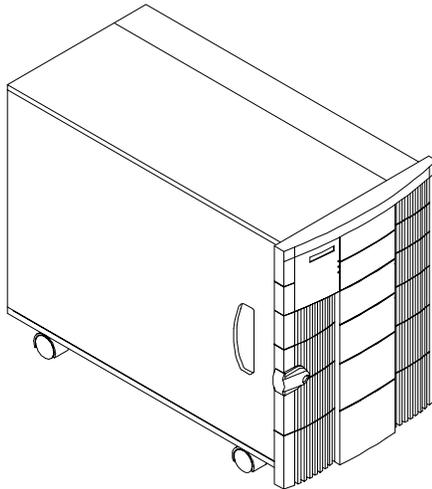
Make sure all power cords are disconnected from the electrical outlet before performing this task.



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

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 rack mount cabinet by using the Rack Mount Kit. For more information about the rack mount kit, please refer to your dealer.



2.1 External and Internal Structure

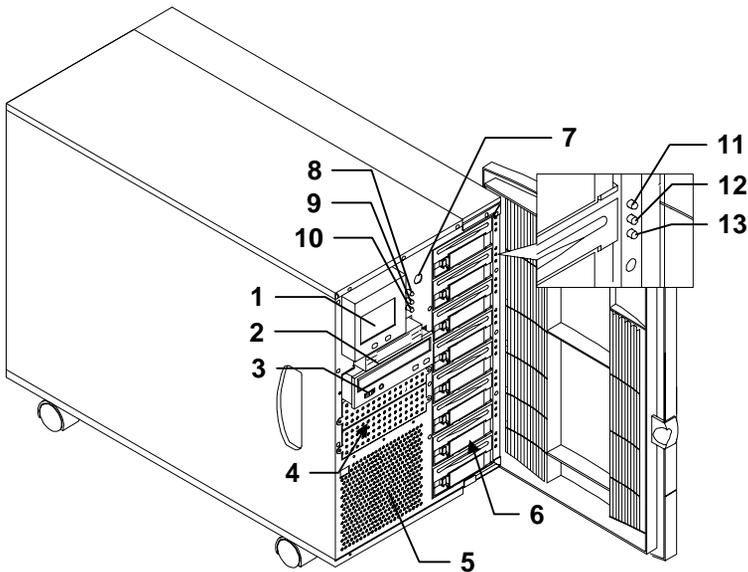
2.1.1 Front Panel

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.



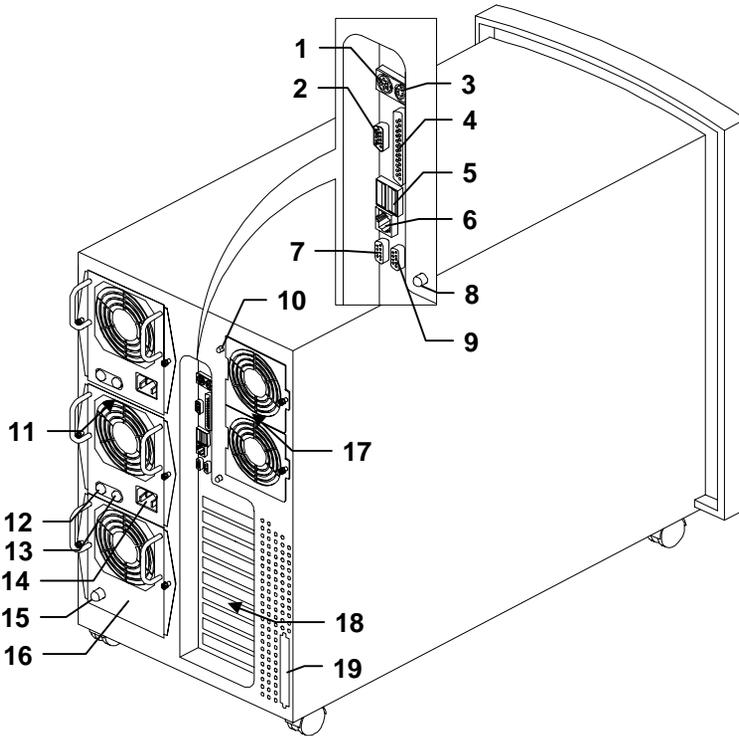
One pair of system keys are hung inside the front panel door. Additional duplicate keys can be found at the back of the system.



#	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 basic system.
3	CD-ROM Drive	Also a SCSI CD-ROM drive comes with the basic system.
4	5.25-inch Drive Bays	Two empty 5.25-inch drive bays allow installation of additional devices.
5	Ventilation	Exhausts heat built-up inside the housing.
6	SCSI HDD Bays	Eight empty SCSI HDD bays allow installation of hot-swap SCSI drives.
7	Power Switch	The power switch turns the system on.
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 HDD Access LED	Lights up (green) when at least one of the hard disks is currently accessing.
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 ready to go.
12	SCSI HDD Busy	Lights up when the HDD is currently accessing.
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 CRT monitors.
3	PS/2 mouse port	Connects to the PS/2 mouse.

#	Item	Description
4	Parallel port	Connects to parallel devices (e.g., printer).
5	USB ports	Connects to USB devices.
6	LAN port	Connects to the network cable.
7	COM 2 port	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	COM 1 port	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 fail 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.

* 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.

#	Item	Description
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	SCSI knock-out port	Allows installation of an external SCSI port.

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. However, if you hooked up a special purpose driver to control the LCD module, this driver defines the messages. See the driver manual for more information. For a lists 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.

Voltage

```
CPU1   : 2.00 V
CPU2   : 2.02 V
CPU3   : 2.02 V
CPU4   : 1.98 V
CPU12L2 : 2.50 V
CPU34L2 : 2.54 V
<Enter> Next
```

→

```
5V     : 5.04 V
5STBY  : 4.95 V
3.3V   : 3.27 V
3.3STBY : 1.98 V
12V    : 11.90 V
2.8SCSI : 2.80 V
<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 fan 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

	Power	Fan
SPS1:	OK	OK
SPS2:	OK	OK
FM3 :	OK	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.

Event Log Submenu

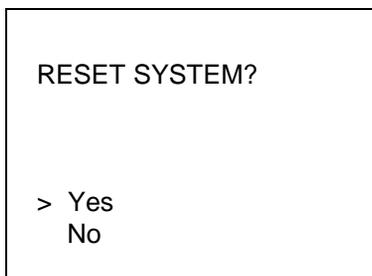
```
Event: 6
12:31 10/29'1998
PS/2 Keyboard
Interface Error

>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.

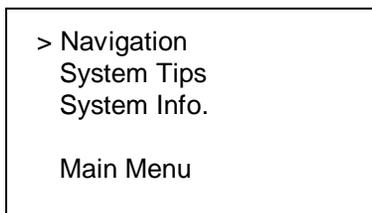
An event is any malfunction or breakdown in the normal operation of the system. Each event is displayed one by one. To display other events, press the Select button (left button) to choose down or up and then press the Enter button (right button) to view other events. Choose Back to go back to the main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

Reset System Submenu



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



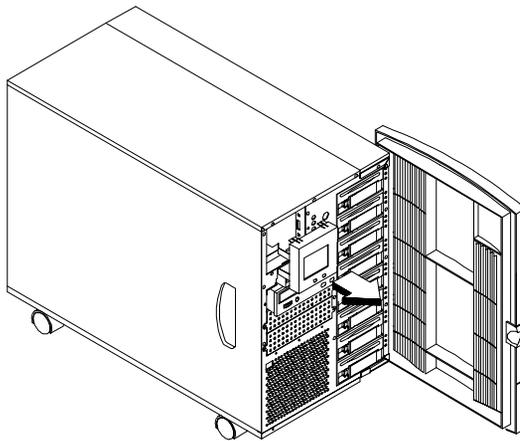
Provides useful information regarding the operation of the LCD display screen. Press the Select button (left button) to choose and then press the Enter button (right button) to confirm.

Replacing the LCD Display Screen

The system housing can be configured as a stand-alone tower housing or a rack mounted housing (please refer to the AcerAltos Rack Installation Guide for more information on rack installation). With each configuration, the LCD display screen is placed differently. For more information about the rack mount 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. 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

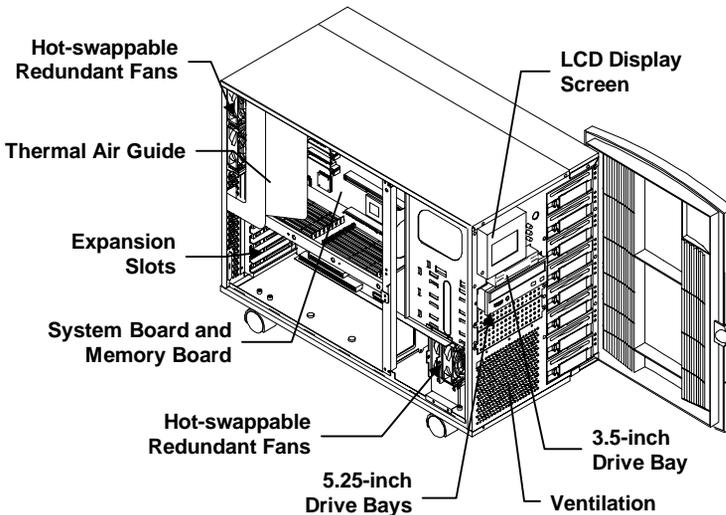
The housing is symmetrically divided into the left and right panels. The system's internal components are accessible through these panels.

Left Panel

The main part of the left panel houses the system board, memory board, and expansion boards. On the rear end 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.

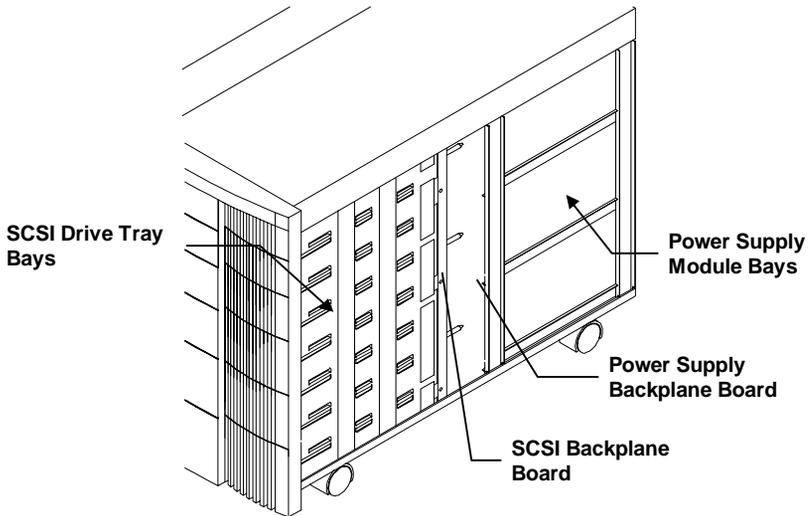


Right Panel

The power subsystem fills up most of 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 regular cooling. See section 2.5 for details on the power subsystem.

The lower section allows installation of a SCSI backplane board and a set of eight hot-swappable SCSI drive trays.

Here is a diagram of the components that reside on the right panel.



2.2 Opening the Housing Panels

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.



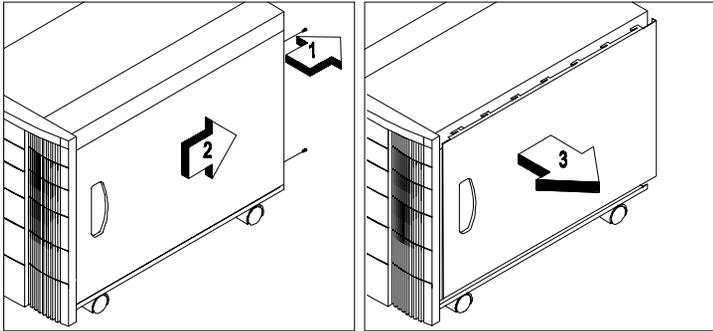
DO NOT attempt the procedures in the following sections unless you are confident of your capability to perform them. Otherwise, ask a service technician for assistance.

2.2.1 Removing the Left and Right Panels

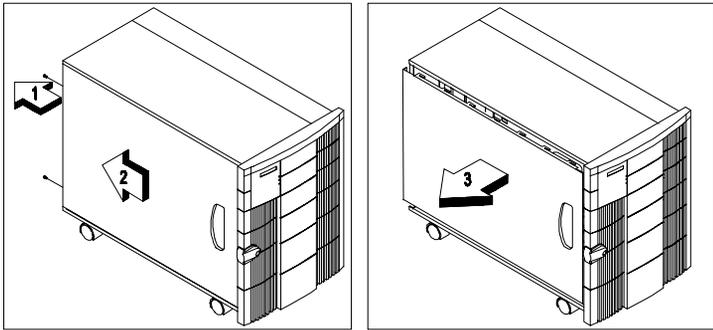
A microswitch is allocated on the left side of the housing panel. It helps indicate whether the panel is removed or intact.

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 replacing the panels.
4. Pull out the panel and detach it.



Right Panel



Left Panel

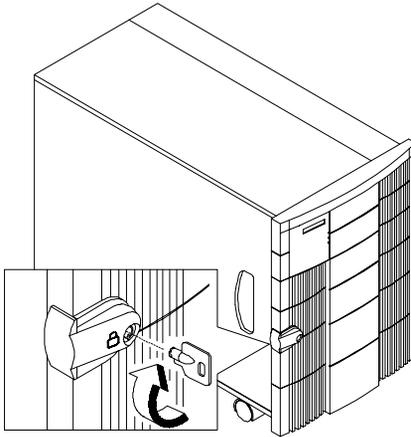
2.2.2 Opening the Front Panel Door

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

To open the front door:

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

-
2. Pull open the front door.



Removing the Front Panel Door

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

1. Unlock the door with the key (when necessary).
2. Open it to more than a 45° angle.
3. Lift it up a little, then move it 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, digital audio tape (DAT) drive or another hard disk drive.



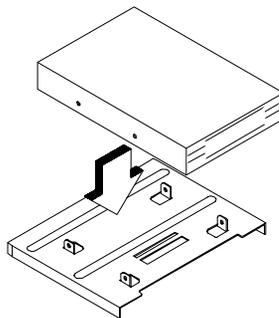
Your basic system comes with a CD-ROM drive and a 3.5-inch diskette drive already installed.

2.3.1 Installing and Removing a 3.5-inch Storage Device

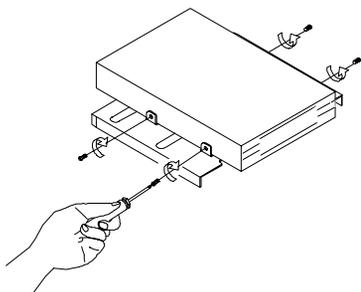
The housing comes with a drive guide for installing 3.5-inch storage devices.

To install a 3.5-inch storage device:

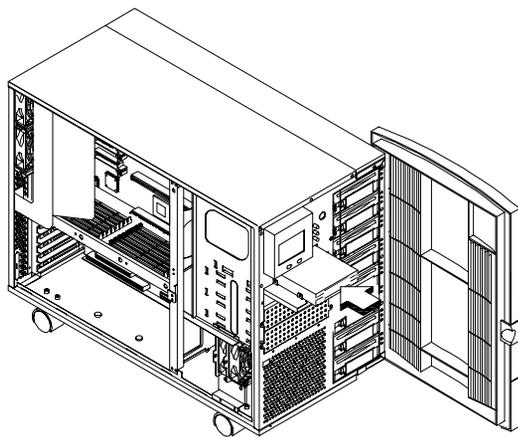
1. Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.
2. Attach the drive guide to the external device as shown below.



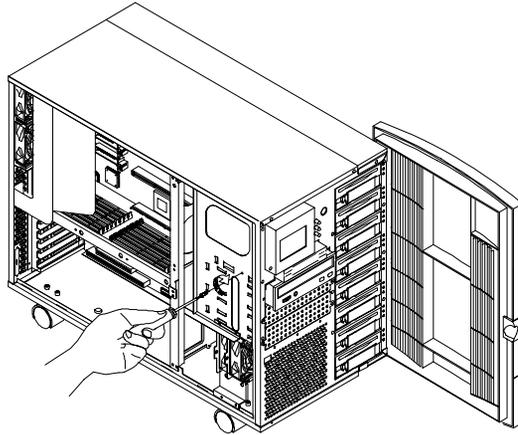
-
3. Secure the drive with four screws.



4. Insert the drive into the bay.



-
- Secure the drive with a screw. The screw hole is located on the side of the housing.



- Connect the power cable and signal cable to the external device.
- Close the left panel.

To remove a 3.5-inch storage device:

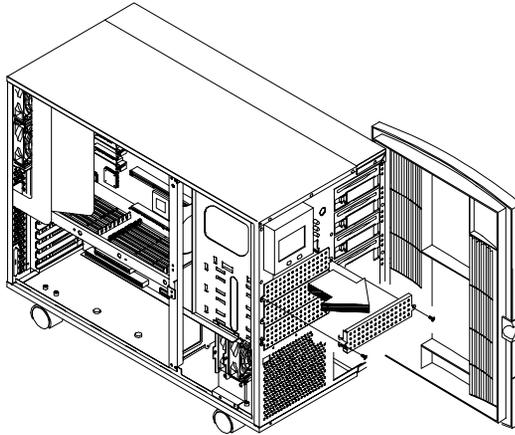
- Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.
- Disconnect the power and signal cables.
- Detach the external device by removing the screw located on the side and then gently pulling out the device.
- Remove the four screws and detach the 3.5-inch drive from the drive guide.

2.3.2 Installing and Removing a 5.25-inch Storage Device

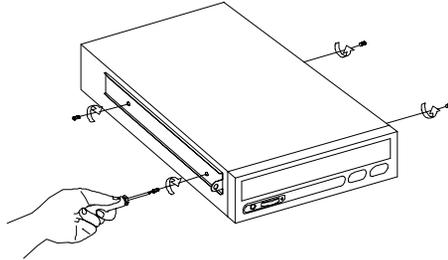
The housing comes with a drive guide for installing 5.25-inch internal storage devices.

To install a 5.25-inch storage device:

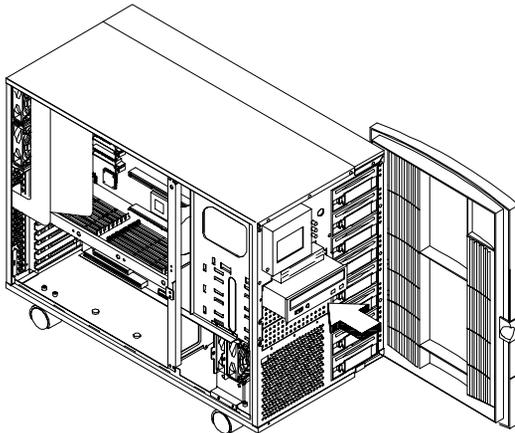
1. Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.
2. Remove two screws to detach the metal cover.



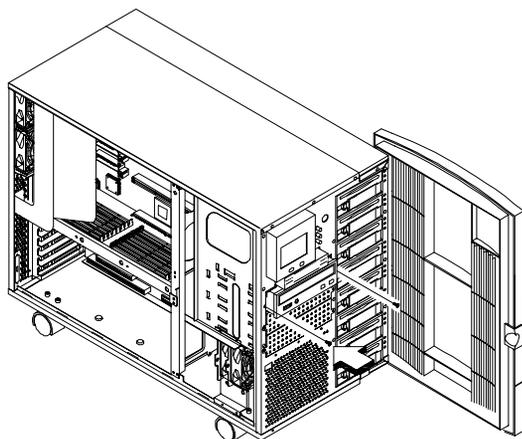
-
3. Attach the drive guides on the sides of the external device as shown below.



4. Insert the drive into the bay.



-
- Secure the drive with two screws as shown below.



- Connect the power cable and signal cables to the external device.
- Close the left panel.

To remove a 5.25-inch storage device:

- Open the front panel door and remove the left panel. See section 2.2 for more information on opening the housing panels.
- Disconnect the power and signal cables.
- Detach the external device by removing the screws and gently pulling out the device.
- Remove four screws to detach the drive from the drive guide.

2.4 Installing a Hot-swappable SCSI Drive

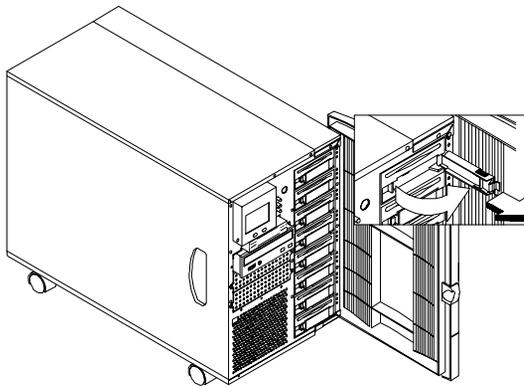


Remove all jumper connectors on the SCSI drive before installing it into the system. Also, for Single-Ended (SE) SCSI drives, remove the terminator jumper before connecting the SCSI drive to the system. For the location of the jumper connectors and the terminator jumper, please refer to your hard drive's instructions or manual.

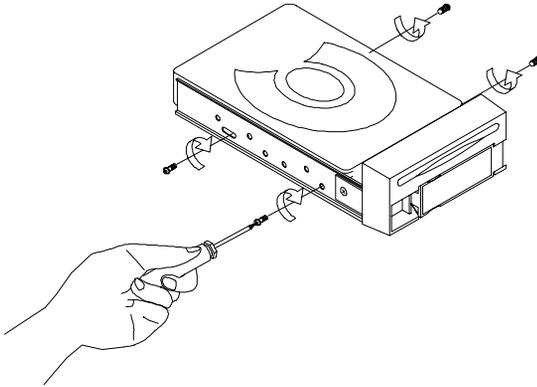
The system supports up to eight hot-swappable drive trays.

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

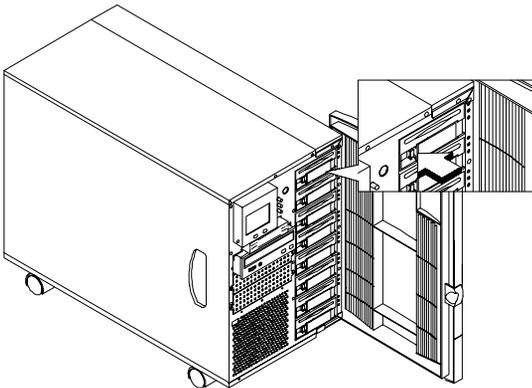
1. Open the front panel door.
2. Use your finger to release the drive tray as shown below and then pull it out.



-
- Secure the hard disk drive with four screws.



- Install the tray into the drive bay, pushing it gently until it reaches the connector on the backplane board.
- 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 up to 860-watt of system power requirement.



If fans fail to operate, the power supply module will shut down. The LED indicators of the power supply module will be turned off.

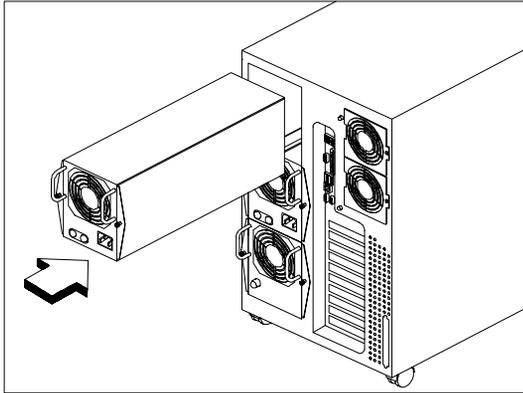
If the fans are functioning properly and the power supply fails, the fans will keep operating.

The power subsystem provides a standby current and a remote on/off feature to support cold reboot from a remote site. See Chapter 5 for an overview of the remote diagnostic management (RDM).

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.

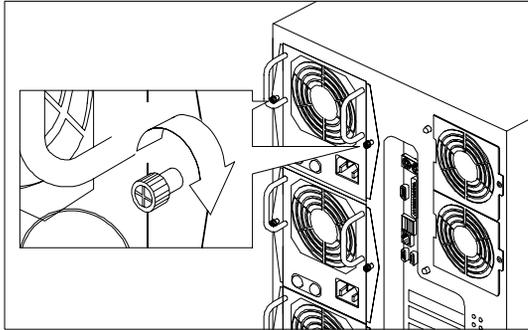
To Install a power supply module:

1. Insert the power supply into the housing.

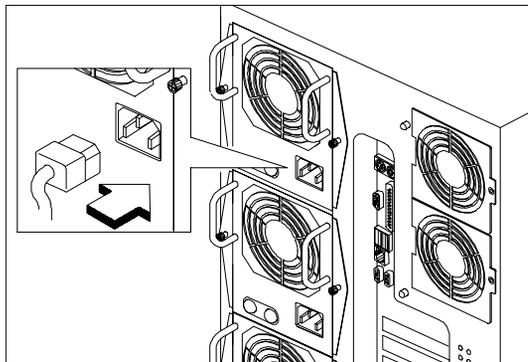


Make sure that the power supply is properly inserted.

-
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. You will see a green light 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. The power indicator light turns off.
2. Unscrew the screw knobs and carefully pull out the power supply until it detaches from the housing.



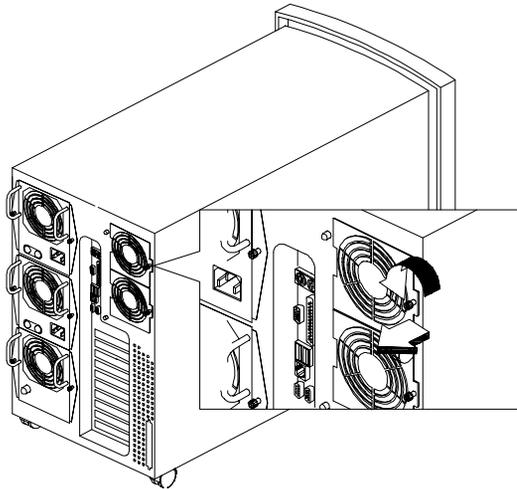
Make sure the power supply subsystem is supplying a minimum of 860W (2 power supply modules) to the system.

2.6 Installing and Removing a Hot-swappable Redundant Housing Fan

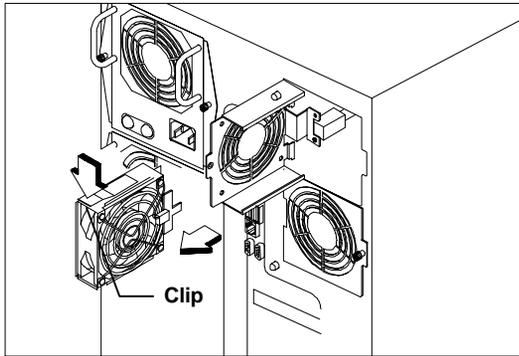
Four housing fans are distributed inside the housing to cool down the system. They are hot-swappable and redundant. You can simply take one out and put a new one in if a fan fails to operate. You don't even have to shut down the system.

To change a rear hot-swap housing fan:

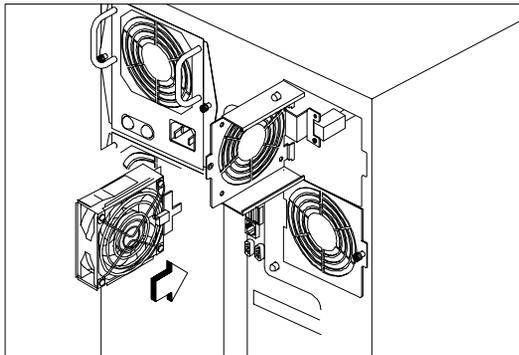
1. Turn the screw knob counterclockwise to open the housing fan cage.



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



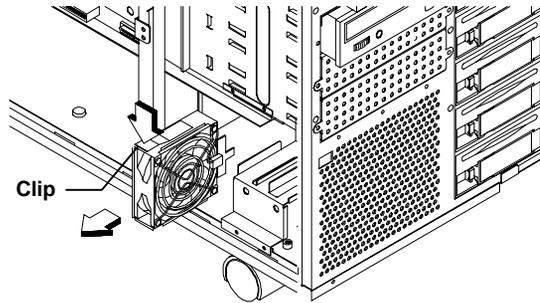
3. Slide in a new housing fan. The power indicator lights up.



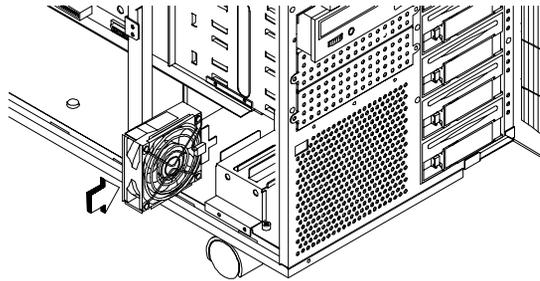
4. Close the housing fan cage and turn the screw knob clockwise to lock it.

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 down the clip and pull out the housing fan.



3. Insert a new one.

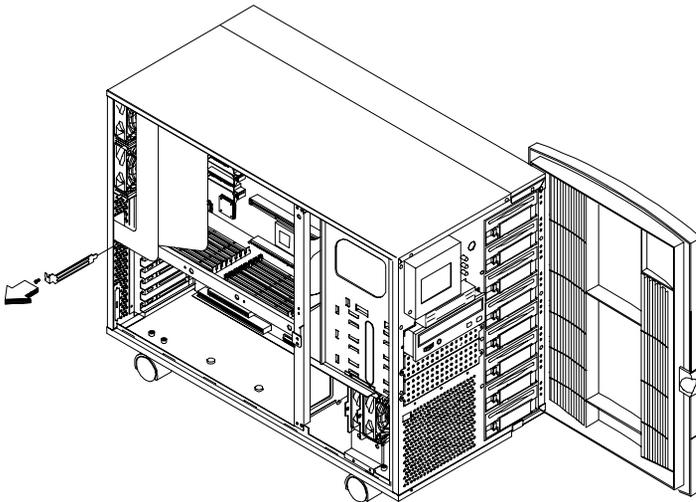


4. Close the left panel.

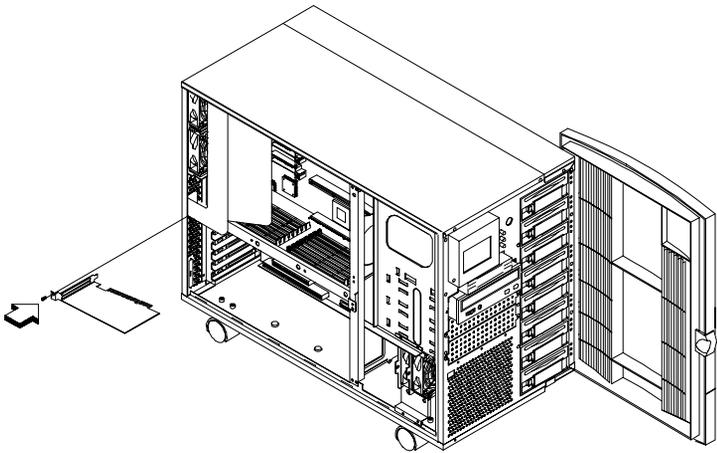
2.7 Installing an Expansion Board

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.



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



5. 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 thermal air guide directs the hot air from the inside to the fan exhausts on the rear of the housing. The air guide helps in maintaining good air circulation within the housing.

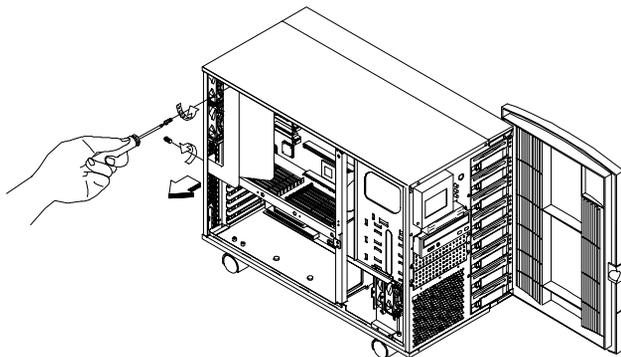


To avoid electric shock and damage to the system, DO NOT perform the following procedure while the system is ON.

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 door.
3. Remove the two screws that secure the air guide to the housing. Save the screws.

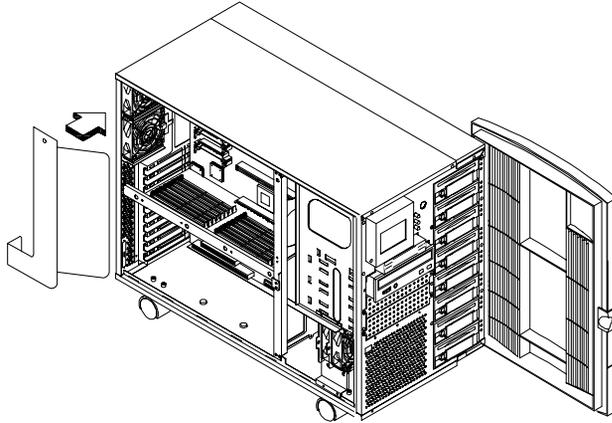


4. Carefully remove the air guide from the housing and set it aside.

2.8.2 Reinstalling the Thermal Air Guide

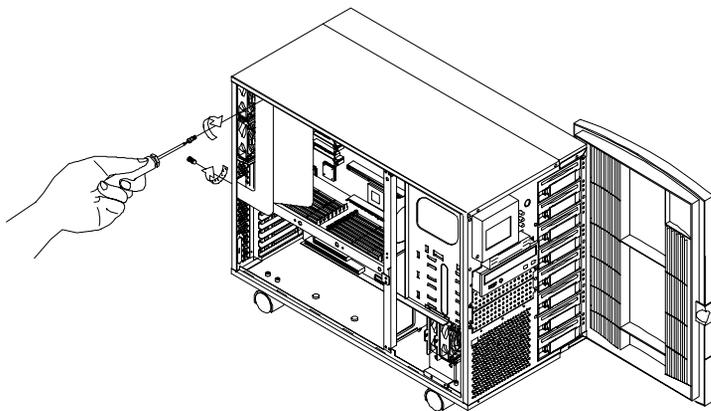
Follow these steps to replace the thermal air guide back into the housing:

1. Position the air guide in its place as shown below.



2. Make sure that the air guide fits properly in place.

-
- Secure the air guide with two screws.

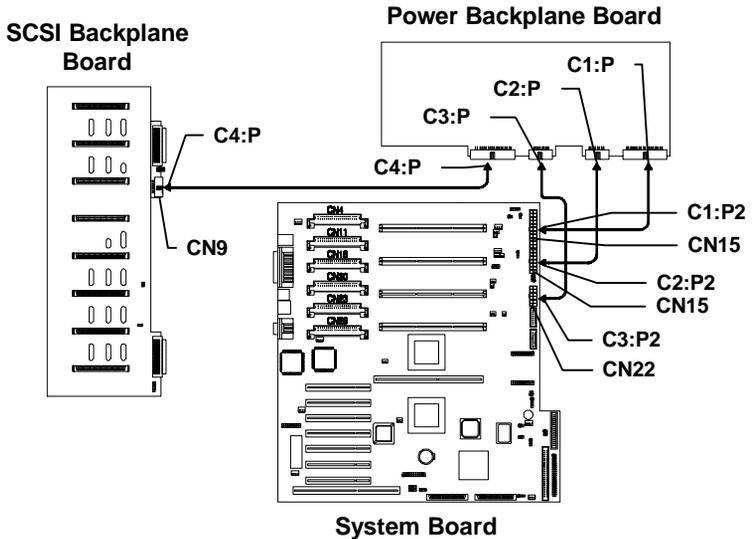


- Reattached the left panel door.

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 and the SCSI backplane board.



CN# - System board connectors

C# - Cable number

P# - Cable point (head and tail)



All power cables come with yellow stickers telling you which connectors to attach to the system board and to the power backplane.

Make sure to connect the cables correctly; otherwise, the system may not power up.

Power Cable List

- CN# - System board connectors
C# - Cable number
P# - Cable point (head and tail)

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. I²C 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

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 board configurations in detail.

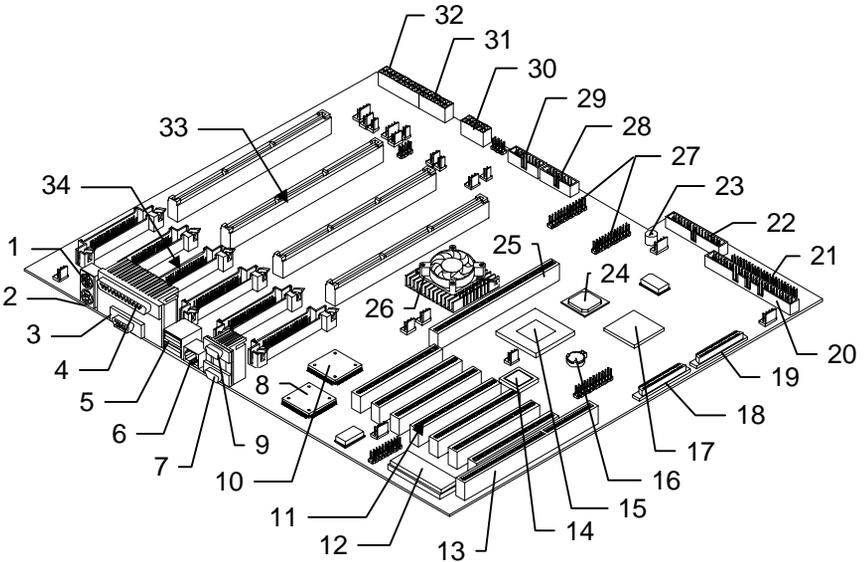
3.1 Main Board

The main board has the following major components:

- Four Slot 2 CPU (Central Processing Unit) connectors that support one, two, three, or four Intel Pentium II Xeon processors and the next generation of Pentium processors:
 - Intel Pentium II Xeon running at 400 with integrated 512K and 1MB L2 write-back cache
 - Intel Pentium II Xeon running at 450 with integrated 512K, 1MB, and 2MB L2 write-back cache
 - One VRM (Voltage Regulator Module) for each CPU and one VRM for the L2 cache of two CPUs
- 256-KB Flash ROM for system BIOS
- Supports two PCI buses through one PXB (PCI Expander Bridge)
- System clock/calendar with battery backup
- One 68-pin Wide SCSI connector for each SCSI channel
 - One narrow SCSI connector for connecting legacy SCSI devices, such as SCSI CD-ROM, DAT drives, etc.
- Server management functions
- PCI SVGA on-board, supports up to 1024 x 768 resolution
 - Onboard 2MB VGA RAM
- Enhanced IDE hard disk and diskette drive interfaces
- PCI local bus IDE (Integrated Device Electronics) controller

-
- One PCI enhanced IDE interfaces that support up to two IDE devices
 - One ISA and seven PCI slots (one PCI-/ISA-shared)
 - One dual channel PCI Ultra/Wide and LVD (Ultra2) SCSI controller
 - I2O ready
 - One 10/100 Ethernet LAN chip on board with Wake-up on LAN (WOL) function
 - 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

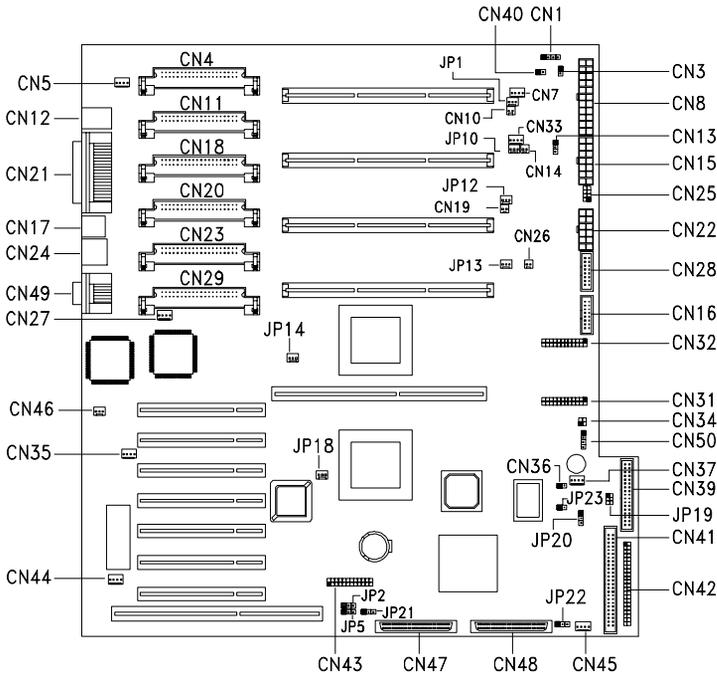


- | | |
|---------------------------------------|---|
| 1. PS/2 Mouse port | 19. Wide SCSI interface channel A |
| 2. PS/2 Keyboard port | 20. Narrow SCSI interface |
| 3. Video port | 21. IDE connector |
| 4. Parallel port | 22. FDD connector |
| 5. USB ports | 23. Buzzer |
| 6. LAN port | 24. PIIX4e (PCI to ISA Bridge) chipset |
| 7. COM2 port | 25. Memory board slot |
| 8. LAN controller chipset | 26. Memory and I/O Controller (MIOC) |
| 9. COM1 port | 27. RDM connector |
| 10. VGA controller chipset | 28. Front panel bard connector |
| 11. PCI slots 1 to 7* | 29. Power supply status/control connector |
| 12. BIOS chipset | 30. Power connector 3 |
| 13. ISA slot | 31. Power connector 2 |
| 14. IRQ Mapper chipset | 32. Power connector 1 |
| 15. PCI Expander Bridge (PXB) chipset | 33. Slot 2 sockets 1 to 4* |
| 16. Battery | 34. VRM sockets 1 to 6* |
| 17. AIC7896 SCSI controller | |
| 18. Wide SCSI interface channel B | |

* From top to bottom.

3.1.2 Jumpers and Connectors

The figure below shows the jumper and connector locations on the system board.



The blackened pin of a jumper or connector represents pin 1.

Jumper Settings

Jumper	Setting	Function
JP2	1-2* 2-3	BIOS Logo Acer OEM
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 LM80 Only Reserved
JP20	1-2* 2-3	VGA Auto VGA selection Disable on-board VGA

Connector List

Connector	Function
CN1	HDD LED connector
CN3	Reserved
CN4	Voltage Regulator Module (VRM) 1 connector
CN5	Fan connector 4
CN7	Fan connector (reserved)
CN8	Power cable connector
CN10	Slot 2 CPU 1 thermal connector
CN11	Voltage Regulator Module (VRM) 2 connector
CN12	PS/2 Keyboard (below) & PS/2 Mouse (above) port
CN13	Power LED connector
CN14	Slot 2 CPU 2 thermal connector
CN15	Power cable connector

* Default setting

Connector	Function
CN16	LCD (front panel) connector
CN17	USB connector
CN18	Voltage Regulator Module (VRM) 3 connector
CN19	Slot 2 CPU 3 thermal connector
CN20	Voltage Regulator Module (VRM) 4 connector
CN21	Parallel port (top), VGA port (bottom)
CN22	Power cable connector
CN23	Voltage Regulator Module (VRM) 5 connector
CN24	LAN (RJ-45) port
CN25	Reserved
CN26	Slot 2 socket 4 thermal connector
CN27	Fan connector for Slot 2 socket 3
CN28	Power status/control connector
CN29	Voltage Regulator Module (VRM) 6 connector
CN31 & 32	RDM (Remote Diagnostic management) connector
CN33	Fan connector (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	Reserved
CN39	FDD connector
CN40	Power button connector
CN41	Narrow SCSI connector
CN42	IDE connector

* These connectors (CN35 and CN44) are used for accepting the HDD activity information from the storage adapters. If the storage adapter's information is not passed to the main board via these connectors, the activities of the HDD which was connected to the adapter will not be reflected on LCD Display Module.

Connector	Function
CN43	Feature connector
CN44	HDD activity indication from Add-on card (see CN35)
CN45	Fan connector 1
CN46	Wake-on-LAN connector
CN47	Wide SCSI connector channel B
CN48	Wide SCSI connector channel A
CN49	Serial ports 1 (above) and 2 (below)
CN50	Backplane board connector (connects to CN10)
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	Reserved
JP22	Reserved
JP23	Reserved (Right door intrusion connector)

3.1.3 Installing and Removing an Intel Pentium II Xeon CPU

Intel's Pentium II Xeon CPU is a Slot 2 processor that uses a 330-contact connector which is a bit longer than a Slot 1 processor. Other than the size, the major improvement of the Slot 2 processor is at the L2 cache. Pentium II Xeon processors access the L2 cache at full clock speed, 400 MHz or 450 MHz, whereas a Slot 1 processor accesses the L2 at only half the CPU's clock speed. Thus, Slot 2 processor significantly boost performance and speed. Here are some of the other features of the Pentium II Xeon processor:

- 0.25 micron P6 microarchitecture core

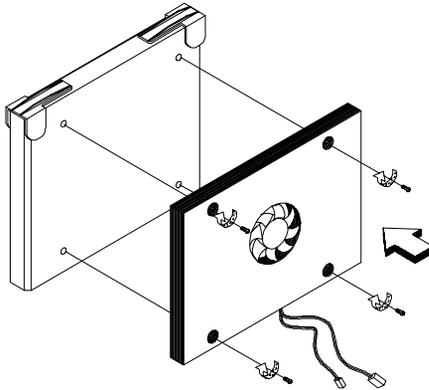
-
- 100 MHz System Bus and 60ns buffered EDO memory support
 - New System management features via System Management bus (Smbus)

The system board comes with four Slot 2 CPU sockets and their respective retention mechanism to secure the CPU.

Installing an Intel Pentium II Xeon processor

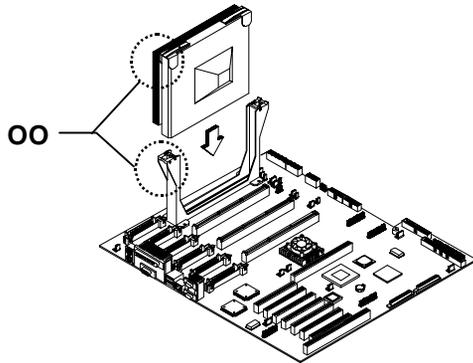
Follow these steps to install a Pentium II Xeon processor:

1. Attach the fansink module to the Pentium II Xeon processor and secure it with four screws.

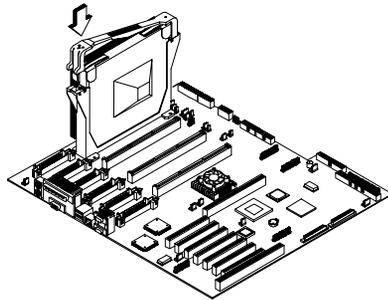


2. Remove the left panel of the housing. See section 2.2 for more information on opening the housing panels.
3. If there is an existing termination board installed in the CPU slot, remove it. Refer to section 3.1.4 for removing a termination board.

-
4. Insert the Pentium II Xeon processor into an empty Slot 2 socket.



5. Carefully press down the Pentium II Xeon processor until it is properly inserted.
6. 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. Match the O on the cover with the O on the retention mechanism first, then hooked them together and then insert the OO side to the retention mechanism and make sure they are clipped.

-
7. Connect the heatsink cables to the main board. Refer to section 3.1.2 for the location of the thermal and fan connectors.



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

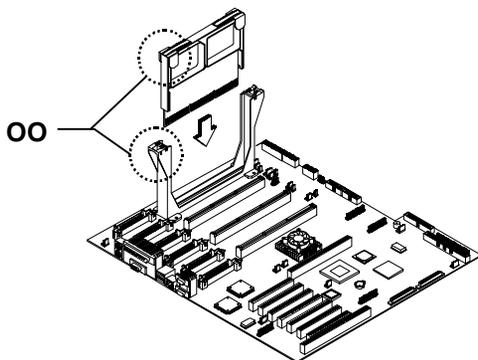
3.1.4 Installing and Removing the Termination Board

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

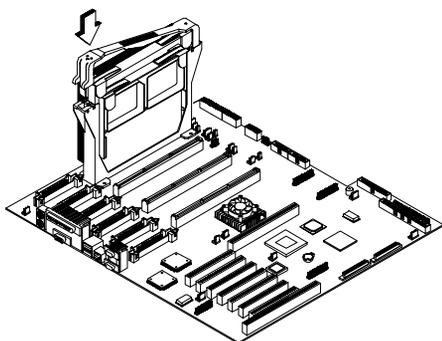
Installing a Termination Board

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 processor by pressing it down until it locks.

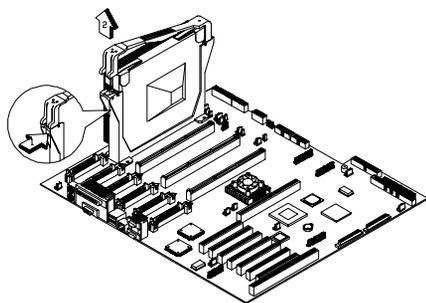


The retention mechanism cover only fits one way. Both shafts of the retention mechanism and the retention mechanism cover have a O and a OO sign. Match the O on the cover with the O on the retention mechanism first, then hooked them together and then insert the OO side to the retention mechanism and make sure they are clipped.

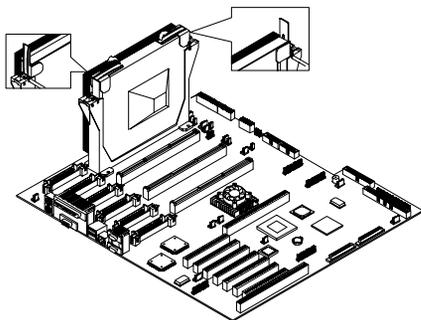
Removing an Intel Pentium II Xeon processor

Follow these steps to remove a Pentium II Xeon processor:

1. Remove the thermal and fan connector and then unclip the retention mechanism cover.



-
- Flip up both of the plastic ears of the Pentium II Xeon processor. This procedure detaches the processor from the socket.



- Carefully lift up the Pentium II Xeon processor 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 processor, you need three VRMs: two VRMs for each processor and one VRM for both of the L2 cache to share. Refer to section 3.1.2 for the location of the VRM sockets. The following table shows the VRM socket allocation:

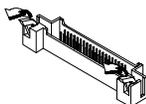
VRM Socket	Slot 2 Socket
VRM Socket 1 (CN4)	CPU 1
VRM Socket 2 (CN11)	L2 cache of CPU 1 and 2
VRM Socket 3 (CN18)	CPU 2
VRM Socket 4 (CN20)	CPU 3
VRM Socket 5 (CN23)	L2 cache of CPU 3 and 4
VRM Socket 6 (CN29)	CPU 4

VRM LED

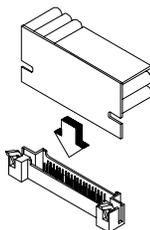
There is one LED indicator for each VRM module. Before system power-on, an LED would light up (green) if a VRM is required for the processor or the L2 cache. If you see a red light after power-on, then it means that the VRM is bad and that it needs to be replaced.

To install a VRM:

1. Find an empty VRM socket and flip the lever back.

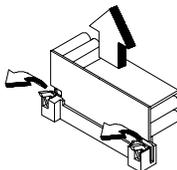


2. Carefully insert a VRM into the socket. This process will automatically lock the VRM in place.



To remove a VRM:

1. Push down both the locking mechanisms.
2. Take out the VRM.

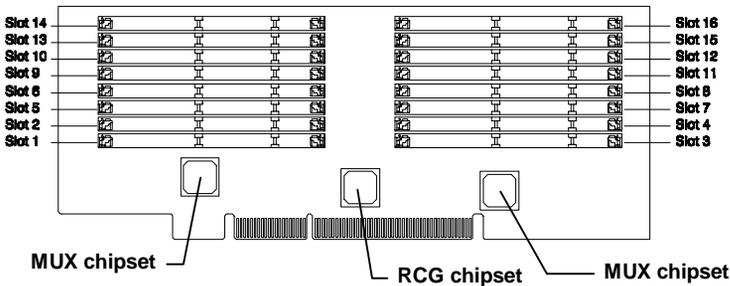


3.2 Memory Board

The memory board comes already installed with the basic system. A total of 16 168-pin DIMM sockets reside on the board. The sockets accept 64-MB, 128-MB, and 256-MB DIMMs for a maximum of 4 GB memory configuration. 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.

Each of the sockets represents one independent bank, which allows you to install DIMMs with different capacities to form a configuration.

3.2.1 Layout



3.2.2 Memory Configurations

Every four slots of memory (slot 1-4, 5-8, 9-12, and 13-16) 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.

The table below shows the working memory configurations.

Bank 0	Bank 1	Bank 2-3	Bank 4-7	Bank 8-11	Bank 12-15	Total Memory
64M*1	64M*1	64M*2				256M
64M*1	64M*1	64M*2	64M*4			512M
64M*1	64M*1	64M*2	64M*4	64M*4		768M
64M*1	64M*1	64M*2	64M*4	64M*4	64M*4	1024M
64M*1	64M*1	64M*2	64M*4	128M*4		1024M
64M*1	64M*1	64M*2	64M*4	128M*4	128M*4	1536M
128M*1	128M*1	128M*2				512M
128M*1	128M*1	128M*2	128M*4			1024M
128M*1	128M*1	128M*2	128M*4	64M*4		1280M
128M*1	128M*1	128M*2	128M*4	64M*4	64M*4	1536M
128M*1	128M*1	128M*2	128M*4	128M*4		1536M
128M*1	128M*1	128M*2	128M*4	128M*4	128M*4	2048M
256M*1	256M*1	256M*2				1024M
256M*1	256M*1	256M*2	256M*4			2048M
256M*1	256M*1	256M*2	256M*4	64M*4		2304M
256M*1	256M*1	256M*2	256M*4	64M*4	64M*4	2560M
256M*1	256M*1	256M*2	256M*4	128M*4		2560M
256M*1	256M*1	256M*2	256M*4	128M*4	128M*4	3072M
256M*1	256M*1	256M*2	256M*4	256M*4		3072M
256M*1	256M*1	256M*2	256M*4	256M*4	256M*4	4096M

3.2.3 Removing and Installing the Memory Board

Follow these steps to remove the memory board:

1. Remove the side panel, see section 2.2.1 for more instructions.
2. Remove the thermal air guide, see section 2.8 for more instructions.
3. Gently pull out the memory board using both hands.

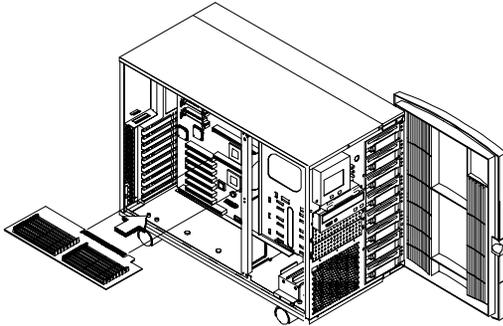
Follow these steps to install the memory board:

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

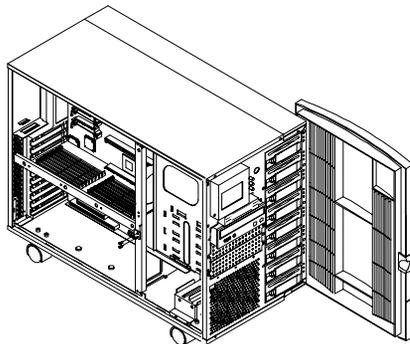


Install the memory board with the component side up.

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 below.



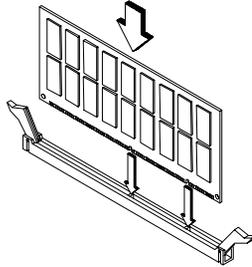
3.2.4 Installing and Removing a DIMM

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

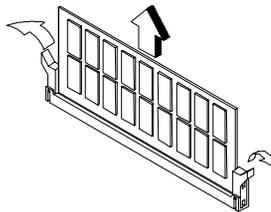


Removing a DIMM

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

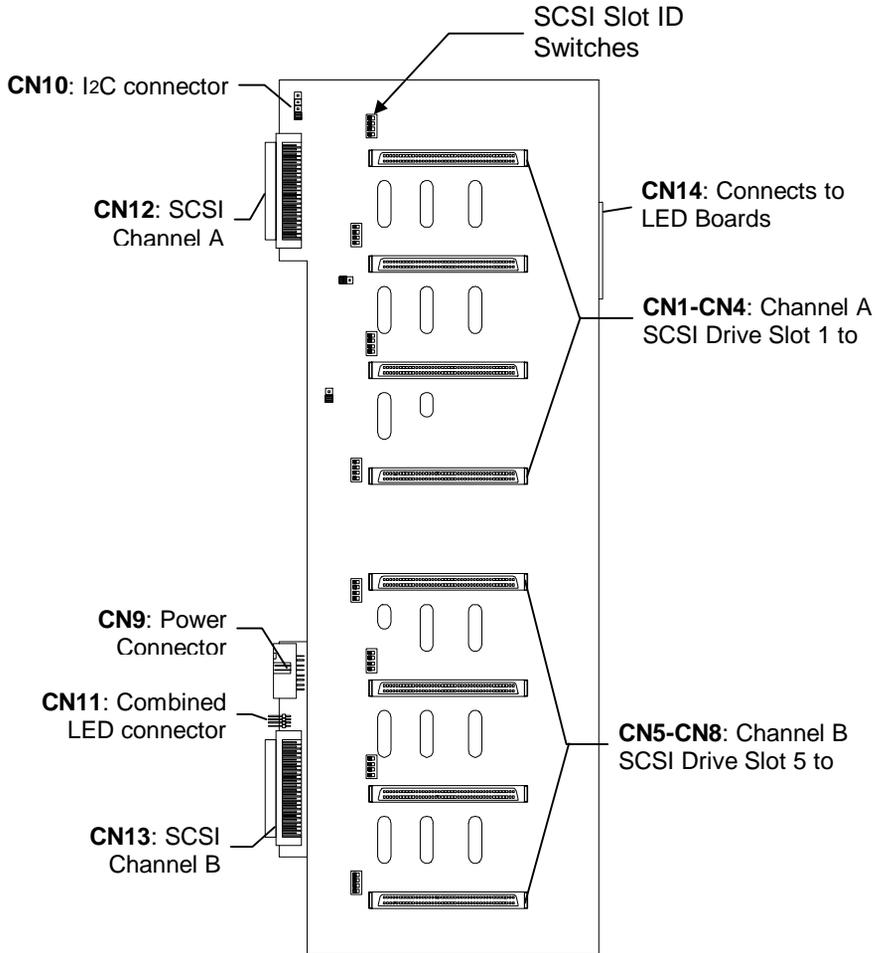
The SCSI backplane board provides a convenient interface between the SCSI drives and the system board. It includes eight SCSI drive slots to accommodate the drive trays and two SCSI channels to connect to the system board or SCSI controller board.

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.
- 2 channel configurations which support 4 SCSI hard drives per channel configuration
- Indicates hard disk drive failure through a front panel board LED
- Supports ultra-2 SCSI SCA (Single Connector Attachment) disk drives
- SCSI ID strapping that allows wide SCSI HDD ID configuration through the backplane switches, instead of configuring the individual drive IDs

3.3.2 Layout



3.3.3 Hard Disk ID Switch Settings

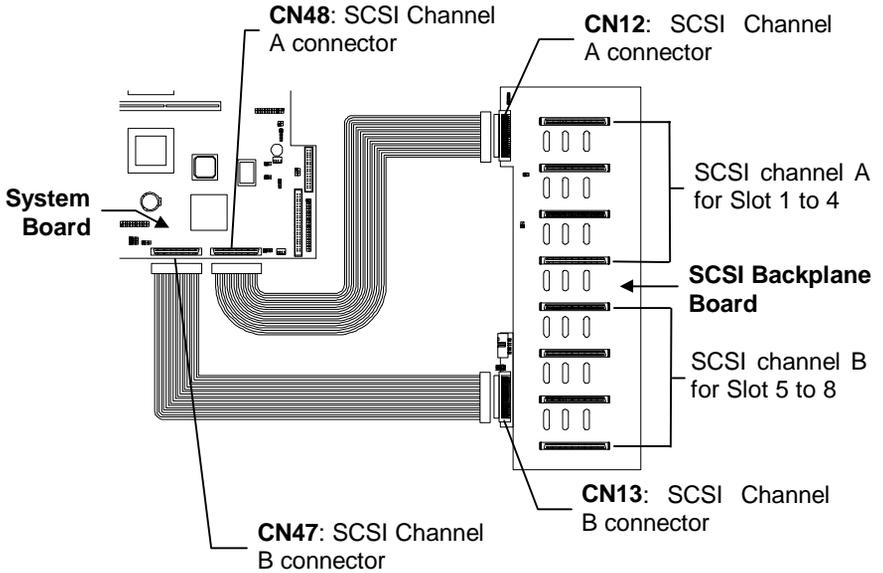
The backplane board comes with eight ID switches that allow you to define up to 16 hard disk IDs.

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

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

3.3.4 Dual Channel Configuration

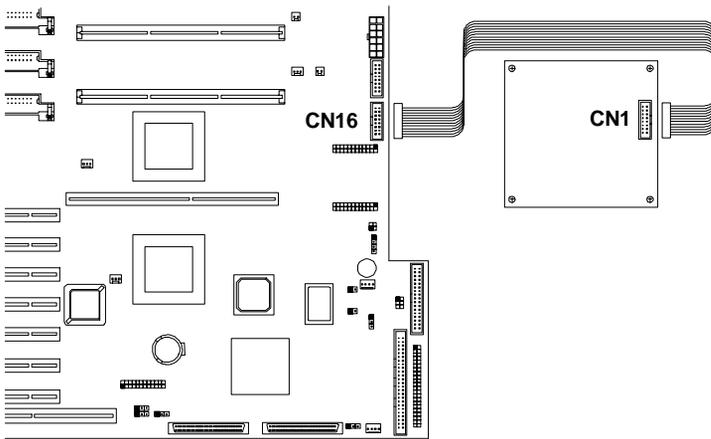
In a dual-channel configuration, channel A supports the devices in slots 1 to 4, and channel B supports the devices in slots 5 to 8.



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.



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.

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.

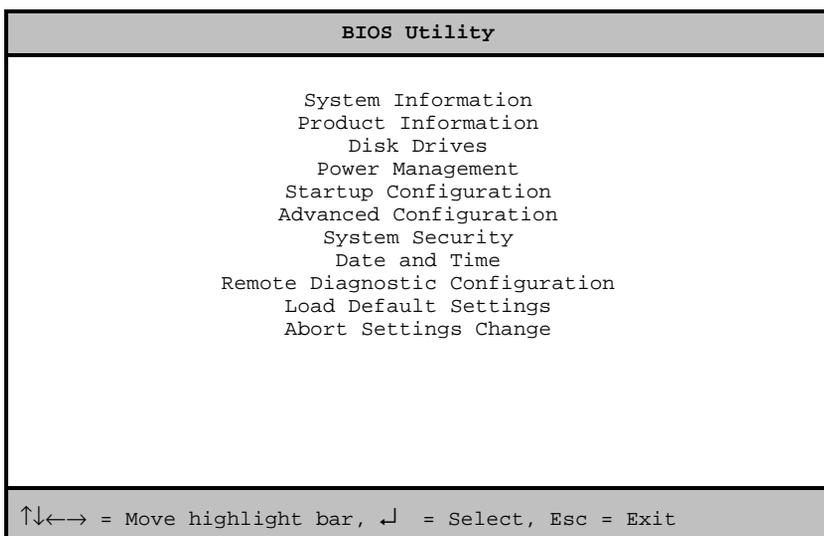
4.1 Entering Setup

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 during any other time.*

The BIOS Utility main menu then appears:



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.....xxx MHz
Bus Frequency.....xxx MHz
L1 Cache.....xx KB, Enabled
L2 Cache.....xxx KB, Enabled
Floppy Drive A.....x.xx MB, x.x-inch
Floppy Drive B.....None
IDE Primary Channel Master.....None
IDE Primary Channel Slave.....None
Total Memory.....xxx MB
  1st Bank.....None
  2nd Bank.....None
  3rd Bank.....None
  4th Bank.....EDO

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	Disabled	
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 CPU.

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 400 and 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.

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.

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.

4.2.6 Floppy Drive A

This parameter specifies the type of drive designated as Floppy Drive A.

4.2.7 Floppy Drive B

This parameter specifies the system's current Floppy Drive B settings.

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.

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.

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.

4.2.11 Serial Port 1

This parameter indicates the serial port 1 address and IRQ setting.

4.2.12 Serial Port 2

This parameter indicates the serial port 2 address and IRQ setting.

4.2.13 Parallel Port

This parameter indicates the parallel port address and IRQ setting.

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*.

4.2.15 Memory Parity Mode

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

4.2.16 Onboard USB

This parameter specifies whether the onboard USB controller is enabled or not.

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..... xxxxxxxxxx
System S/N..... xxxxxxxxxx
Main Board ID..... xxxxxxxxxx
Main Board S/N..... xxxxxxxxxx
System BIOS Version..... vx.xx
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.

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.

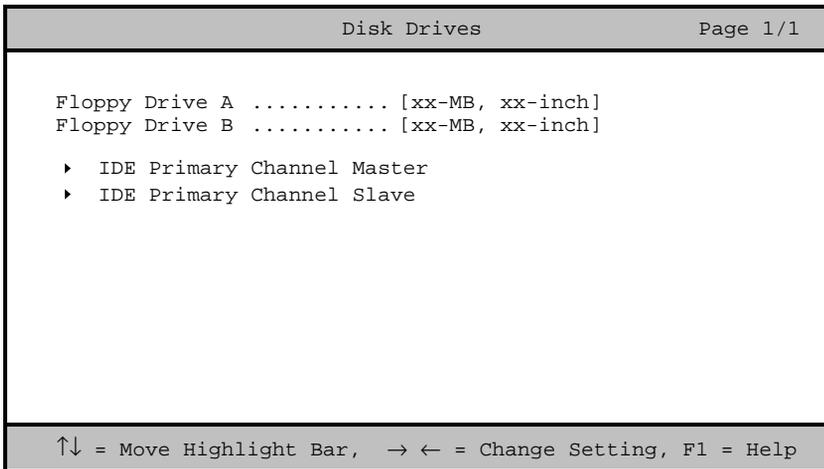
4.3.7 BIOS Release Date

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:



The triangle mark that precede 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. Highlight the parameter Type, then press  or  to display the IDE 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 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.
- You may save the values under the option `User`. The next time you boot the system, the BIOS utility does not have to auto-configure your IDE drive as it detects the saved disk information during POST.



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

- 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`.

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*.

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*.

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. This is made possible through the Logical Block Address (LBA) mode translation. However, this enhanced IDE feature works only under DOS, Windows 3.x, and Windows 95 environments. Other operating systems require this parameter to be set to *Disabled*.

Hard Disk 32-bit Access

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

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 the system performance since it allows direct memory access to the CD-ROM. To deactivate the function, set the parameter to *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.

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 if you select the Startup Configuration option from the main menu:

Startup Configuration		Page 1/1
Fast POST Mode	[Auto]	
Silent Boot	[Enabled]	
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	[Disabled]	
Single Processor MP Table	[Enabled]	
MP Table Compliant	[v1.4]	
CPU Clock Ratio	[4]	
↑↓ = 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 `Auto`.

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 `[F8]` 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.

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. When this parameter is disabled, the IDE drives are normally initialized first during POST.

4.6.6 System Boot Drive

This parameter allows you to specify the system search sequence. The selections are:

- 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.

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.



Note that the CD-ROM drive mentioned above refers to an IDE CD-ROM drive. When setting the boot options for a SCSI CD-ROM drive, see section 4.7.1 for details on SCSI device boot parameters.

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.

4.6.9 MP Table Compliant

This parameter shows the multiprocessor specification compliance version. The default setting is V1.4. If you install an older operating system, particularly SCO UNIX v3.2.x.x or earlier, set this parameter to V1.1.

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.

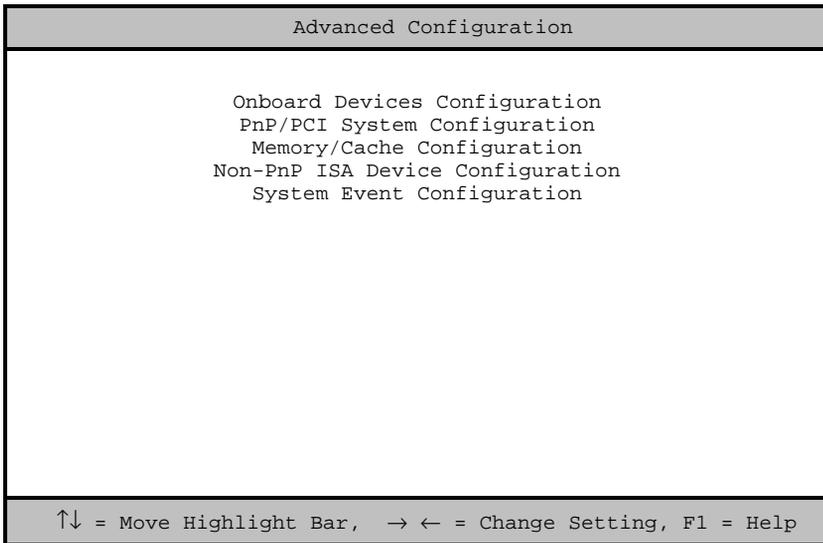
4.7 Advanced Configuration

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



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

The following screen shows the Advanced Configuration parameters.



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 .....[Disabled]
  Base Address .....[3F8h]
  IRQ .....[4]
Serial Port 2 .....[Enabled ]
  Base Address .....[2F8h]
  IRQ .....[3]
Parallel Port .....[Enabled ]
  Base Address .....[3Bch]
  IRQ .....[5]
  Operation Mode .....[ Standard ]
  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 Floppy Disk Controller .....[Enabled]
Onboard IDE Primary Channel .....[Enabled]

Onboard PS/2 Mouse (IRQ 12) .....[Enabled]
Onboard USB .....[Disabled]
Onboard SCSI .....[Disabled]
  Boot from Onboard SCSI Device ....[-----]

Onboard Ethernet Chip .....[Enabled]

SMBUS Interrupt(IRQ9) .....[Enabled]
```

↑↓ = 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.

Base Address

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

- 3F8h
- 2F8h
- 3E8h
- 2E8h

IRQ

This function lets you assign an interrupt for serial port 1. The options are IRQ 3 and 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.

Base Address

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

- 3F8h
- 2F8h
- 3E8h
- 2E8h

IRQ

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



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.

Base Address

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

- 3BCh
- 378h
- 278h

IRQ

This function lets you assign an interrupt for the parallel port. The options are IRQ 5 and 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 on board, 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 (as required in Windows 95).

Onboard Floppy Disk Controller

This parameter lets you enable or disable the onboard floppy disk controller.

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.

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.

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.

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.

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.

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.

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.

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
```

```
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.



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.



Make sure that the interrupt you assign to the various PCI slots are not used by other devices to avoid conflicts.

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*.



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.



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.

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 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 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.

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.

4.7.4 Non-PnP ISA Device Configuration

The Non-PnP ISA Device Configuration parameters allow you to specify the settings for cards without the plug-and-play (PnP) feature.

System Resources Used by Non-PnP ISA Cards

IRQ

IRQ 00 --- [---]	IRQ 08 --- [---]
IRQ 01 --- [---]	IRQ 09 --- [No]
IRQ 02 --- [---]	IRQ 10 --- [No]
IRQ 03 --- [No]	IRQ 11 --- [No]
IRQ 04 --- [No]	IRQ 12 --- [---]
IRQ 05 --- [No]	IRQ 13 --- [---]
IRQ 06 --- [---]	IRQ 14 --- [---]
IRQ 07 --- [No]	IRQ 15 --- [---]

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



The items marked No are currently not in use, while those marked Yes are in use by PnP devices..

DMA

DMA 00 --- [No]	DMA 04 --- [---]
DMA 01 --- [No]	DMA 05 --- [No]
DMA 02 --- [---]	DMA 06 --- [---]
DMA 03 --- [No]	DMA 07 --- [No]

Expansion ROM Region

C8000h - CBFFFh	-----	[No]
CC000h - CFFFFh	-----	[No]
D0000h - D3FFFh	-----	[No]
D4000h - D7FFFh	-----	[No]
D8000h - DBFFFh	-----	[No]
DC000h - DFFFFh	-----	[No]

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

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
PgUp/PgDn = Move Screen

I/O Region

2C0h-2CFh	----	[No]	3A0h-3AFh	----	[No]
2D0h-2DFh	----	[No]	3B0h-3BFh	----	[No]
2E0h-2EFh	----	[No]	3C0h-3CFh	----	[No]
2F0h-2FFh	----	[No]	3D0h-3DFh	----	[No]
300h-30Fh	----	[No]	3E0h-3EFh	----	[No]
310h-31Fh	----	[No]	3F0h-3FFh	----	[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
PgUp/PgDn = Move Screen



Refer to your non-PnP ISA device manual when setting the following parameters.

IRQ/DMA

These items allow you to assign specific IRQ and DMA channels to non-PnP ISA devices. The system will not use such IRQ and DMA channels when it automatically assigns channels to PnP devices.

Expansion ROM Region

These items specify the memory regions available for add-on card use. It allows you to manually assign specific regions to non-PnP devices so that the system will not use those regions anymore when it automatically configures PnP devices.

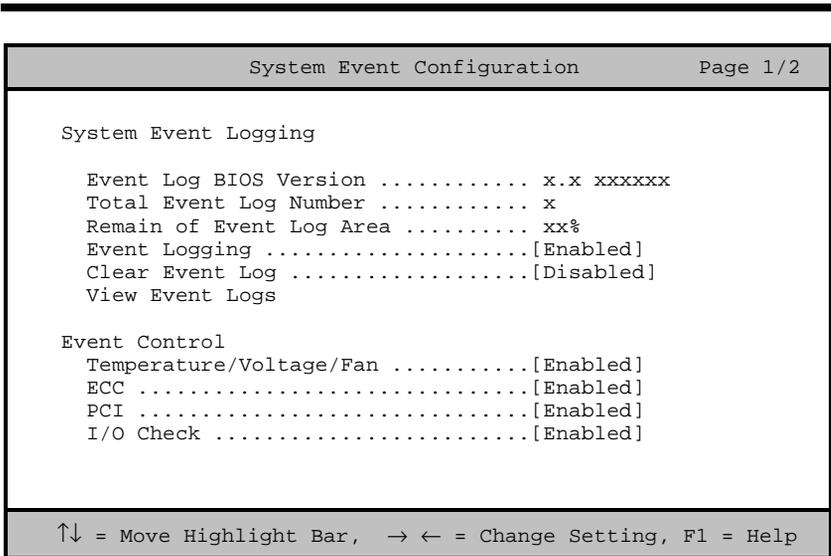
I/O Region

The items under this parameter allow you to reserve 16-byte memory address ranges for non-PnP devices. When the system configures PnP devices, the address ranges that you marked will not be used anymore.

You can assign memory addresses to non-PnP devices at random as long as you cover the address range required by the device. For example, for a card that requires 178h-188h address, you have to set regions 170h-17Fh and 180h-18Fh to *Yes*.

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 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.

Remain of Event Log Area

The percentage of space that is still available for logging system events.

Event Logging

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

Clear Event Log

Clears the event log whenever the event log area is full. The default 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 3rd CPU Fan Bad	12:20 Oct 02,1998	Viewed	
2	System Limit Exceeded 3rd CPU Fan Bad	13:54 Sep 29,1998	Viewed	
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 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 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 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 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	[xx] °C
CPU Fatal Temperature	[xx] °C
System Temperature	[xx] °C
System Voltage	[xx] %
LCD Temperature	[xx] °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.

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.

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 drive functions
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

4.8.2 Setup Password

The Setup Password prevents unauthorized access to the BIOS utility.

Setting a Password

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

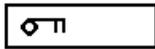


You cannot enter the BIOS utility if a Setup password does not exist and JP5 is set to 1-2 (password check enabled).

By default, JP5 is set to 2-3 (bypass password).

2. Enter BIOS utility and select System Security.

-
- Highlight the Setup Password parameter and press the  or  key. The password prompt appears:

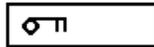


- Type a password. The password may consist of up to seven characters.



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

- Press . A prompt asks you to retype the password to verify your first entry.



- Retype the password then press .

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

- Press  to exit the System Security screen and return to the main menu.
- Press  to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.
- Select *Yes* to save the changes and reboot the system.
- While rebooting, turn off the system then open the housing.
- 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  to exit the System Security screen and return to the main menu.
5. Press  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 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.



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

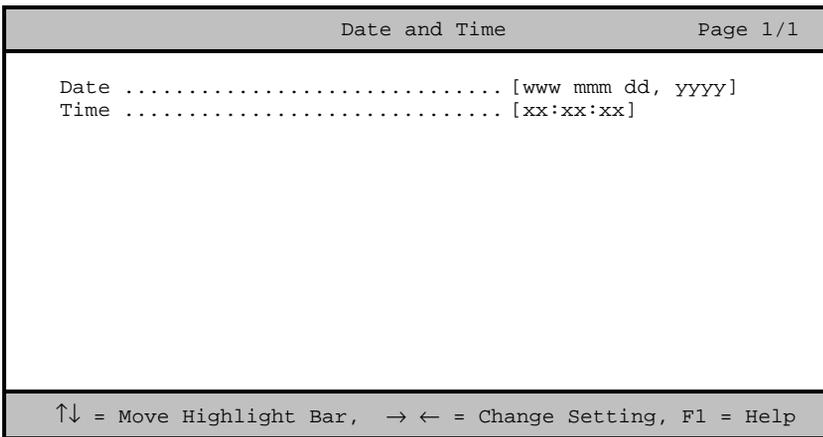
Operation Mode

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.

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:



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 Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
- 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

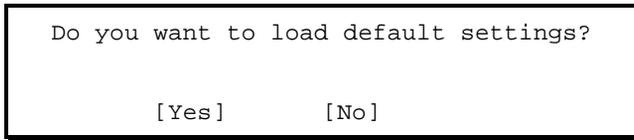
4.10 Remote Diagnostic Configuration

The Remote Diagnostic Configuration parameter allows you to configure your RDM settings. Refer to the RDM User's Guide for more information on RDM.

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]

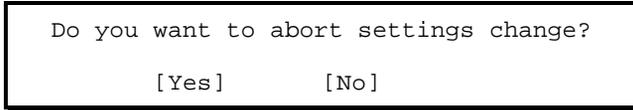
Select **Yes** to load the default settings.

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 **Diagnostics and Utilities**

5.1 Advanced Server Manager

ASM Pro is a server management tool based on the Simple Network Management Protocol (SNMP). It remotely monitor, record, highlight, and recover system events through the LAN at runtime stage.

- Monitor system status (H/W and OS) after OS is up.
- Recover critical event by “smart reboot” (works with RDM).
- Record all events into file (NVRAM - H/W specific events).
- Integrate with 3rd party management software.
- Provide visualization interface and statistics tools.

ASM Pro also detect, record, and recover hardware problems during POST (Power-On Self Test).

- Checks the main board and housing status when system is first powered.
- Recover critical events by isolating faulty CPU and memory.
- Record all events into NVRAM.

These features are designed primarily for server supervisors and management information system (MIS) personnel to help them detect errors or potential trouble spots in their network servers through a centralized management console.

ASM Pro consists of two major parts:

- ASM-Station - a Windows-based monitoring station that communicates with the ASM-Agents.
- ASM-Agent(s) - the individual servers managed by the ASM-Station.

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

5.2 Remote Diagnostic Manager

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

- Recover critical event by “smart reboot” - isolate faulty CPU and reboot.
- Monitor hardware status after OS is down.
- Records all hardware events into NVRAM and notify system administration.
- Run diagnostic program, upgrade BIOS, change COMs setup.
- Power on/off the system.

Refer to the RDM user’s manual for more information.

Appendix A LCD Module Event Log List

Event Types Supported

Acer BIOS will support the following types for RAS models:

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, Acer 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 ⁶	RDM events, see next table
84h	Unknown H/W event detected
85h	CPU disabled by BIOS
86h	I/O Check Error
87h ⁸	Wake up on LAN
88h ⁸	AC power recovery

RDM Events

Event	Description
Failure time	Once heartbeat protocol stop for 30 seconds, RDM presumes system dead and records the current time sent by FSC/ASM.
Power off	RDM powers off the system when the CPU temperature exceeds the fatal degree.
Power on	RDM powers on the system automatically when the CPU temperature declines to the warning degree - 10.
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.

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 1 st Channel Master Drive Error	50	58
IDE 1 st Channel Slave Drive Error	51	58
IDE 2 nd Channel Master Drive Error	52	59
IDE 2 nd 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	185	59

POST Error Message	ID (Dec)	POST Results Bitmap(Dec)
Conflict(s)		
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

Send Error Codes to LCD

Event Type	Description
01h	Single-bit ECC memory error
02h	Multi-bit ECC memory error
07h	POST memory resize
08h	POST error.
09h	PCI parity error
0Ah	PCI system error

Event Type	Description
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
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