

AcerAltos 19000Pro4

System Guide

Copyright

Copyright © 1997 by Acer Incorporated. All rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of this company.

Disclaimer

This company makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties, merchantability or fitness for any particular purpose. Any software described in this manual is sold or licensed "as is". Should the programs prove defective following their purchase, the buyer (and not this company, its distributor, or its dealer) assumes the entire cost of all necessary servicing, repair, and any incidental or consequential damages resulting from any defect in the software. Further, this company reserves the right to revise this publication and to make changes from time to time in the contents hereof without obligation to notify any person of such revision or changes.

Acer is a registered trademark of Acer Incorporated.
Intel is a registered trademark of Intel Corporation.
Pentium Pro is a trademark of Intel Corporation.

Other brand and product names are trademarks and/or registered trademarks of their respective holders.

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 A Radio Frequency Interference Statement

WARNING!

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice 1:

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

Notice 2:

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

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

About this Manual

Purpose

This system guide aims to give you all the necessary information to enable you to set up and operate the AcerAltos 19000 Pro4 system.

Manual Structure

This system guide consists of five chapters.

Chapter 1 System Introduction

This chapter generally describes the system's unique features and powerful architecture. It includes a brief introduction of the new generation Intel Pentium Pro CPU that forms the heart of the AcerAltos 19000 Pro4 system.

Chapter 2 Setting Up the System

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

Chapter 3 System Configuration

This chapter describes the six major system components that include the system housing, system board, memory board, front panel board, disk-array backplane boards, and power supply.

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 how to use the AFlash BIOS Utility and the EISA Configuration Utility.

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.

Screen messages

Denotes actual messages that appear onscreen.

ALT, ENTER, F8, 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.



WARNING

Alerts you to any damage that might result from doing or not doing specific actions.



CAUTION

Gives precautionary measures to avoid possible hardware or software problems.



IMPORTANT

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



TIP

Tells how to accomplish a procedure with minimum steps through little shortcuts.

Table of Contents

Chapter 1 System Introduction

1.1	Features	1-1
1.1.1	Intel Pentium Pro Microprocessor.....	1-1
1.1.2	System Architecture	1-3
1.1.3	SCSI Disk Array	1-5
1.1.4	Server Management.....	1-5
1.1.5	Redundant Power Supply Subsystem.....	1-6
1.1.6	Security.....	1-6
1.2	External Configuration	1-7
1.2.1	Front Panel	1-7
1.2.2	Rear Panel.....	1-13

Chapter 2 Setting Up the System

2.1	Pre-installation Requirements	2-1
2.1.1	Selecting a Site	2-1
2.1.2	Checking the Package Contents.....	2-2
2.1.3	Preparing the System Unit.....	2-3
2.2	Basic Connections	2-5
2.2.1	Keyboard.....	2-5
2.2.2	Mouse	2-6
2.2.3	VGA Monitor	2-7
2.3	System Startup	2-8
2.3.1	Unlocking the Front Panel Security.....	2-8
2.3.2	Turning On the System Power.....	2-9
2.4	Power-on Problems	2-10

Chapter 3 System Configuration

3.1	System Housing.....	3-1
3.1.1	Internal Structure.....	3-2
3.1.2	Opening and Removing the Housing Doors	3-4
3.1.3	ESD Precautions	3-10
3.1.4	Installing External Devices	3-11
3.1.5	Installing a Hot-swappable SCSI Drive	3-13
3.1.6	Installing an Expansion Board	3-17
3.1.7	Installing and Removing the Thermal Air Guide.....	3-19
3.2	System Board	3-22
3.2.1	Layout	3-22
3.2.2	Jumpers and Connectors.....	3-23
3.2.3	Installing a Pentium Pro CPU	3-29
3.3	Memory Board	3-33
3.3.1	Layout	3-33
3.3.2	Memory Configurations	3-34
3.3.3	Installing a DIMM.....	3-36
3.3.4	Removing a DIMM	3-37
3.3.5	Installing the Memory Board	3-38
3.3.6	Reconfiguring the System.....	3-40
3.4	SCSI Disk Array Backplane Board	3-41
3.4.1	Features	3-41
3.4.2	Layout	3-42
3.4.3	Jumper Settings	3-43
3.4.4	Hard Disk ID Switch Settings	3-44

3.4.5	Channel Configuration.....	3-45
3.4.6	Installing a Backplane Board	3-48
3.5	Front Panel Board.....	3-51
3.6	Power Subsystem	3-53
3.6.1	Power Supply Upgrade.....	3-54
3.6.2	Charger Board and Battery Box.....	3-62
3.6.3	Power Cable Connections	3-67

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	4-4
4.2.4	Internal Cache.....	4-4
4.2.5	External 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

4.3	Product Information	4-7
4.3.1	Product Name	4-7
4.3.2	System S/N	4-7
4.3.3	Main Board ID	4-8
4.3.4	Main Board S/N	4-8
4.3.5	System BIOS Version	4-8
4.3.6	System BIOS ID	4-8
4.3.7	BIOS Release Date	4-8
4.4	Disk Drives	4-9
4.4.1	Floppy Drives	4-10
4.4.2	IDE Drives	4-11
4.5	Startup Configuration	4-13
4.5.1	System POST Mode	4-14
4.5.2	Silent Boot	4-14
4.5.3	Num Lock After Boot	4-14
4.5.4	Memory Test	4-14
4.5.5	System Boot Drive	4-15
4.5.6	Boot From CD-ROM	4-15
4.6	Advanced Configuration	4-16
4.6.1	Onboard Devices Configuration	4-17
4.6.2	PnP/PCI System Configuration	4-23
4.6.3	Memory/Cache Configuration	4-25
4.6.4	Non-PnP ISA Device Configuration	4-26
4.7	System Security Setup	4-30
4.7.1	Disk Drive Control	4-31
4.7.2	Setup Password	4-32
4.7.3	Power-on Password	4-35

4.8	Date and Time	4-36
4.8.1	Date	4-36
4.8.2	Time.....	4-37
4.9	Remote Diagnostic Configuration.....	4-37
4.10	Load Setup Default Settings	4-37
4.11	Abort Settings Change	4-38
4.12	Reset Non-PnP ISA Device Setting	4-38
4.13	Leaving Setup.....	4-39

Chapter 5 Diagnostics and Utilities

5.1	ASM Pro	5-1
5.2	Remote Diagnostic Management	5-2
5.3	EISA Configuration Utility	5-3
5.3.1	Functions	5-3
5.3.2	Running ECU	5-4
5.3.3	Getting Help	5-4
5.3.4	Making Menu Selections	5-5
5.3.5	System Memory	5-6
5.3.6	PCI Devices IRQ Assignment.....	5-6
5.3.7	Peripheral Device Status.....	5-6
5.3.8	System Setting.....	5-6

List of Figures

1-1	Pentium Pro CPU Architecture	1-2
1-2	System Architecture	1-3
1-3	Front Panel	1-7
1-4	Front Panel Features.....	1-8
1-5	RDM LED.....	1-12
1-6	Rear Panel.....	1-13
2-1	Front Wheel Lever	2-3
2-2	Connecting the Power Cables	2-4
2-3	Connecting a Keyboard	2-5
2-4	Connecting a Mouse.....	2-6
2-5	Connecting a VGA Monitor.....	2-7
2-6	Unlocking the Front Panel Security	2-8
2-7	System Power On	2-9
2-8	Microswitch Location	2-11
3-1	System Housing	3-1
3-2	Left Panel System Components	3-2
3-3	Right Panel System Components	3-3
3-4	Unlocking and Opening the Left Panel Door	3-4
3-5	Unlocking and Opening the Lower Front Door	3-5
3-6	Unlocking and Opening the Right Panel Door.....	3-6
3-7	Removing the Right Panel Door	3-8
3-8	Removing the Upper Front Panel Cover.....	3-9
3-9	Removing the Upper Front Panel Door.....	3-9
3-10	Removing the Lower Front Panel Door.....	3-10
3-11	Attaching the Drive Guides.....	3-11
3-12	Installing an External Device.....	3-12
3-13	Unlocking the Drive Tray Switch.....	3-13

3-14	Pulling Out a Hot-swap Drive Tray	3-14
3-15	Connecting the Drive Cables (Wide SCSI Drive)....	3-15
3-16	Connecting the Drive Cables (Narrow SCSI Drive)	3-15
3-17	Installing a Hot-swap Drive Tray.....	3-16
3-18	Locking the Drive Tray Switch.....	3-17
3-19	Removing a Bracket Cover	3-17
3-20	Installing a PCI Expansion Board	3-18
3-21	Removing the Thermal Air Guide.....	3-20
3-22	Reinstalling the Thermal Air Guide.....	3-21
3-23	System Board Layout.....	3-22
3-24	Jumper and Connector Locations	3-23
3-25	Attaching the Sliding Heat Sink to the CPU.....	3-29
3-26	Installing a Pentium Pro CPU.....	3-30
3-27	Installing the Hook-Type Heat Sink and Fan.....	3-32
3-28	Memory Board Layout.....	3-33
3-29	Installing a DIMM	3-36
3-30	Removing a DIMM	3-37
3-31	Inserting the Memory Board	3-38
3-32	Attaching the Board Holding Clamp.....	3-39
3-33	SCSI Disk Array Backplane Board	3-42
3-34	Settings for Jumpers J3 and J4	3-43
3-35	Hard Disk ID Switch Settings.....	3-44
3-36	Single-Channel Configuration.....	3-45
3-37	Dual-Channel Configuration	3-47
3-38	Removing the Drive Bay Covers	3-48
3-39	Installing a Backplane Board	3-49

3-40	Fast-Wide SCSI HDDs or Ultra-Narrow HDDs (Single-Channel Configuration for Both Backplane Boards - 20 MB/sec or Below).....	3-50
3-41	Ultra-Wide SCSI HDDs (Dual-Channel Configuration for One Backplane Board - 40 MB/sec or Below)	3-50
3-42	Connecting the Backplane Power Cables	3-51
3-43	Front Panel Board Connections.....	3-52
3-44	Removing the Metal Bar Screws	3-54
3-45	Pulling-out the Metal Bar	3-55
3-46	Installing a Power Supply Module.....	3-56
3-47	Locking the Holding Clips	3-56
3-48	Reinstalling the Metal Bar	3-57
3-49	Securing the Metal Bar with Screws	3-58
3-50	Unlocking the Power Supply Holding Clips	3-59
3-51	Removing the Power Supply Module.....	3-60
3-52	Installing the Power Supply Compartment Metal Cover	3-61
3-53	Removing the Charger Compartment Metal Cover	3-62
3-54	Installing a Charger Board.....	3-63
3-55	Locking the Charger Board.....	3-64
3-56	Installing a Battery Box	3-65
3-57	Attaching the Charger Compartment Metal Cover ..	3-65
3-58	Removing a Battery Box	3-66
3-59	System Board Power Connections	3-67
3-60	System Boards and Power Subsystem Interconnections.....	3-68

List of Tables

1-1	LED Indicator Description.....	1-9
1-2	LCD Messages.....	1-11
3-1	Removing the Housing Doors.....	3-7
3-2	Jumper Settings	3-24
3-3	CPU Activation Jumpers	3-25
3-4	CPU Frequency Ratios (JP3)	3-26
3-5	Connector Functions	3-27
3-6	Memory Configurations	3-34
3-7	Terminator Settings for Single-Channel Configuration	3-46
3-8	Terminator Settings for Dual-Channel Configuration	3-47
3-9	Power Subsystem Configuration	3-53
4-1	Parallel Port Operation Mode Settings	4-21
4-2	Drive Control Settings	4-21
5-1	Keyboard Function Keys	5-5

System Introduction

1.1 Features

The AcerAltos 19000Pro4 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 area networks and multiuser server environments.

1.1.1 Intel Pentium Pro Microprocessor

The Intel Pentium Pro CPU is the heart of the AcerAltos 19000Pro4 system. Designed to work with the Orion chipset composed of a PCI bridge and memory controller, the Pentium Pro running at 200 MHz carries a new generation of power not present in its predecessors.

The system board has four CPU sockets to accommodate up to four Intel Pentium Pro CPUs for a multiprocessor configuration. This configuration doubles efficiency and reliability thereby upgrading overall system performance. The Pentium Pro supports a wide range of applications running under SMP network operating systems such as WindowsNT, UNIX, NetWare, etc.

The CPU also incorporates the first-level (L1) and second-level (L2) caches, the advanced peripheral interrupt controller (APIC), and the system bus controller. Figure 1-1 shows the CPU architecture.

First-level and Second-level Cache

The Pentium Pro has a 16-KB first-level and 256/512/1024-KB second-level cache. These caches produce a high hit rate that reduces the processor's external memory bandwidth requirements.

Advanced Peripheral Interrupt Controller (APIC)

The APIC unit inside the CPU along with the I/O APIC unit facilitate multiprocessor interrupt management. The APIC works with multiple I/O subsystems where each subsystem have its own interrupts that help minimize centralized system overhead.

Bus Controller

The bus controller integrated in the Pentium Pro CPU controls the system bus to make it perform its functions efficiently. It ensures that the bus serves as a reliable interconnection between one or two CPUs, I/O bridge, and memory controllers.

Pentium Pro CPU Architecture

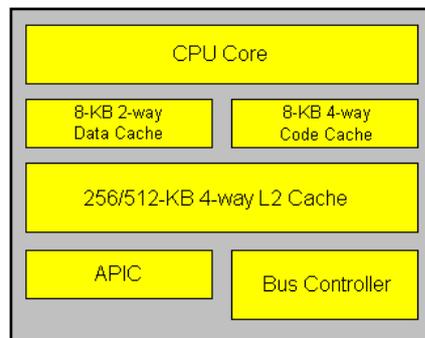


Figure 1-1 Pentium Pro CPU Architecture

1.1.2 System Architecture

The system bus, PCI buses, EISA bus, Orion PCI bridge (OPB), Orion memory controller (OMC), PCI/EISA Bridge (PCEB), and EISA system controller (ESC) comprise the basic system architecture.

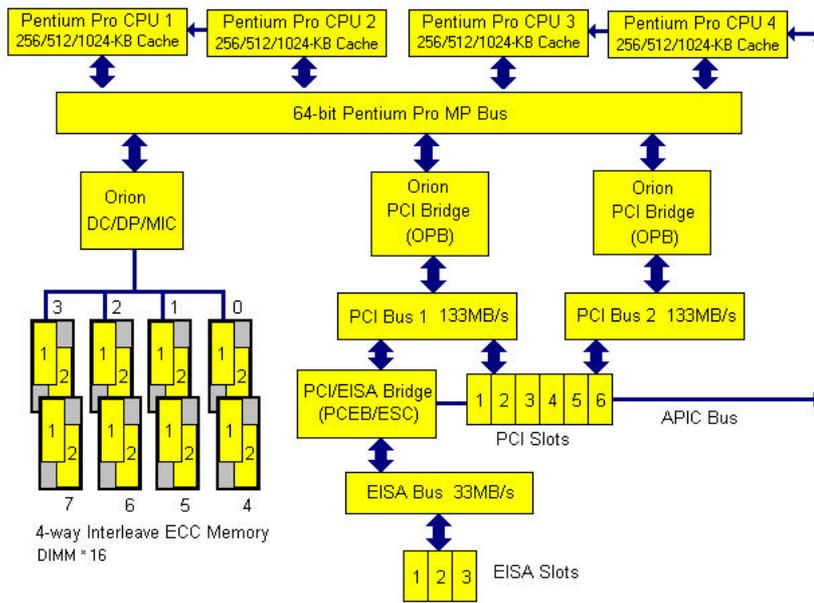


Figure 1-2 System Architecture

System Bus

The system bus is the CPU's major connection to all the system devices, primarily the PCI and EISA bridges, and the memory controllers. It can handle as many as eight outstanding transactions at a time through the transaction pipelining feature in which consecutive tasks from the CPU are queued in and transported to the designated devices on a first-in first-out basis. Pipelining allows for transaction overlapping in different phases as the CPU does not have to wait for each transaction to complete before it issues the next transaction. This produces significant improvement on overall system performance.

The bus architecture supports a number of features that ensure high reliability. It has an 8-bit error correction code (ECC) that protects the data lines and a 2-bit parity code that protects the address lines.

The bus uses the gunning transceiver logic (GTL+), a synchronous latched bus protocol that simplifies timing constraints. This protocol supports higher frequency system designs but requires a low voltage that reduces electromagnetic interference (EMI) resulting to a lower power consumption.

PCI and EISA Buses

The system supports two PCI buses created by the two PCI bridge chipsets (OPB). The PCI buses serve as the links between the PCI bridges and the PCI devices onboard. The presence of two buses instead of one reduces the I/O bottleneck and matches the higher bandwidth of the CPU for faster data transfers.

The EISA bus connects the EISA devices to the other system devices through the PCI/EISA bridge (PCEB) and the EISA system controller (ESC). The use of the PCEB and ESC maintains compatibility with the EISA environment.

Orion PCI Bridge

The Orion PCI bridge (OPB) is a low-cost I/O subsystem solution for high-performance systems. The OPB translates transactions between the system bus and the PCI buses using 32-byte buffers for inbound and outbound postings. The use of two OPBs in the system creates an architecture that allows faster data transfers.

Orion Memory Controller

The Orion memory controller (OMC) acts as an interface between the system bus and the system memory. It consists of the DRAM control (DC) chip and the data path (DP) chip. The OMC relates to the DRAM array through four memory interface controller (MIC) chips. The OMC supports 256-bit 4-way memory interleaving resulting to a more efficient memory traffic management.

1.1.3 SCSI Disk Array

The system supports an array of 14 hot-swappable disk drive trays through two 7-slot SCSI backplane boards (Acer BP-W7). The trays accommodate wide and narrow SCSI hard disks. With the AIC-7880 SCSI controller onboard, the transfer rate reaches up to 40 MB per second for ultra-wide SCSI.

1.1.4 Server Management

The system comes with the ASM Pro feature that allows voltage stability and CPU thermal monitoring, 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 related feature of ASM is the remote diagnostic management (RDM) that permits system diagnosis from a remote site through a modem. The RDM facilitate the fixing of detected problems, changing system configurations or rebooting in the event of system failure.

1.1.5 Redundant Power Supply Subsystem

The system comes with a power backplane that holds up to three 400-watt power supply modules. The power subsystem supports a redundant configuration such that even if one power supply fails, the remaining two continues to work together to supply the 800-watt requirement for a fully-configured system.

Two important segments of the power subsystem configuration are the charger board and battery box. Together, these two components function like an uninterruptible power supply (UPS). Providing an additional support to the three 400-watt power supply modules, the battery automatically charges whenever the system is on. The battery gives a fully-configured system the ability to run continuously through short interruptions in wall power or for a maximum of six minutes in the event of total AC power shutdown.

1.1.6 Security

The system housing comes with mechanical security locks on both the front panel and the side panel preventing unauthorized access to the internal components and system use.

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

1.2 External Configuration

1.2.1 Front Panel

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

The lower part contains the externally accessible hard disk drive bays with 14 drive trays for narrow or wide SCSI drives. (The basic system consists of only seven drive trays.)

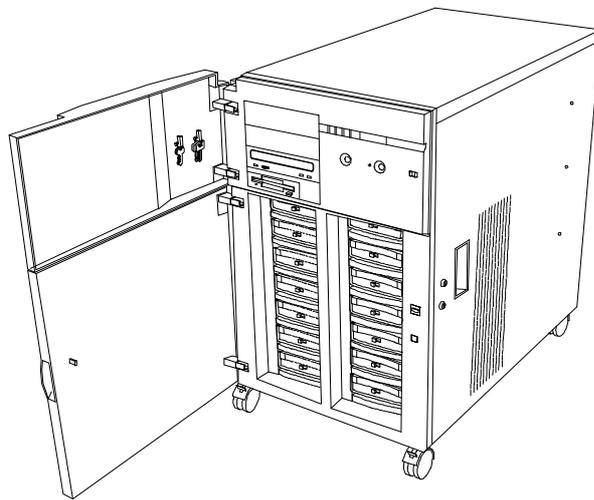


Figure 1-3 Front Panel



One pair of system keys and one pair of power switch keylock are hung inside the upper front door. Additional duplicate keys can be found at the back of the system.

Front Panel Features

Figure 1-4 gives a closer look of the upper front panel features.

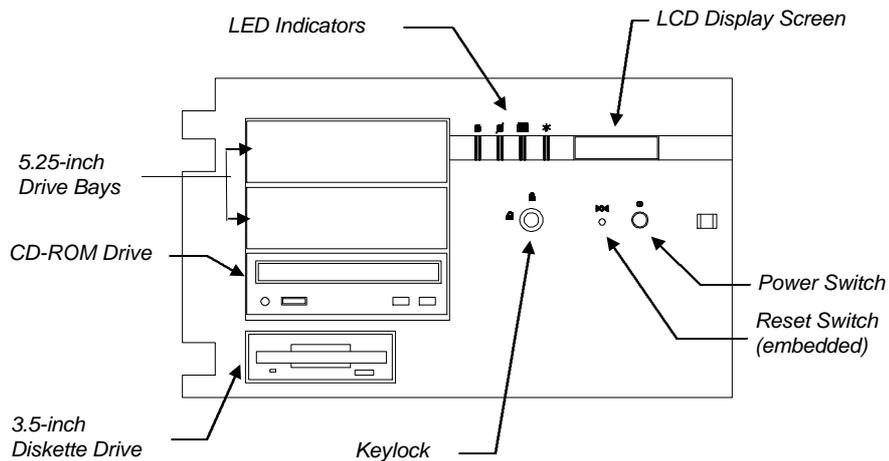


Figure 1-4 Front Panel Features

CD-ROM Drive

The basic system comes with a SCSI CD-ROM drive already installed.

3.5-inch Diskette Drive

A 3.5-inch diskette drive also comes with the basic system.

5.25-inch Drive Bays

Two empty 5.25-inch drive bays allow installation of additional devices.

Power Switch

The power switch allows you to turn the system power on or off.

Reset Switch

Pressing the reset switch generates a hardware reset pulse that restarts the system initializing all the registers, buffers, and memory subsystems.

Keylock

The keylock gives security to the system against unauthorized users. Turning the keylock to the unlocked position enables the power and reset switches. Turning the keylock to the locked position disables both switches whether the system is on or off. Supposing the system is on and you intend to reset or turn it off, make sure that the keylock is unlocked. Otherwise, the switches do not respond.

LED Indicators

Table 1-1 LED Indicator Description

LED Icons	Description
Power Status 	Green Indicates that power is on. This color also denotes that the system is running on a good supply of AC power. Red Indicates that power is on. The AC power supply fails and the system is running on battery power.
Battery Status 	Green Indicates that a battery is present and in good condition. The battery LED shows this color during normal system operation, during which the battery automatically charges. When the power status LED is red, a green battery LED also indicates that the system is running on battery power. When this

	happens, shutdown the system immediately because the battery keeps a fully-configured system running only for about eight minutes.
--	--

Table 1-1 LED Indicator Description (continued)

LED Icons	Description
Battery Status (continued)	Red Normally, this color indicates that the battery is bad. However, there are times when the battery LED turns red for a few seconds due to other factors and NOT because the battery is bad. See below.
Hard Disk Busy 	Green Indicates that at least one of the hard disks is currently accessing.
Hard Disk Failure 	Green Indicates that all the hard disks installed on the backplane board are in good condition. Red Indicates that one of the hard disks installed on the backplane board is bad.

In these instances, the battery LED may turn red for a few seconds but DOES NOT necessarily indicate that the battery is bad.

- System Startup

At system power on, the battery LED shows red light when the system performs initialization and self-tests. The red light should remain for only a few seconds and eventually turn to green.

- Resumption of AC power supply while the system is running on battery power.

When AC power is cut-off, the battery automatically supplies the system power. The sudden return of AC power at this time when the system is running on battery may cause the battery LED to change to red. Simultaneously, the message "Battery Fails !" may appear on the LCD screen. When this happens, allow the battery to recover for a while. Wait for the battery LED to return to green and the LCD message to disappear.



If the battery LED remains red for several seconds and the message "Battery Fails !" still shows on the LCD screen, change the battery or call your dealer or a technician for assistance.

LCD Display Screen

The LCD display is a two-line by 16-character screen that indicates the boot status as well as any BIOS check point errors encountered upon system initialization. Normally, the system BIOS and the microcontroller 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 define the messages. See the driver manual for more information.

Table 1-2 lists the LCD messages from the system BIOS and the microcontroller at power on.

Table 1-2 LCD Messages

Message	Description
Hello! Welcome !	This is the first message that appears on the LCD screen. This message indicates that the microcontroller works fine.
POST Checkpoints	During the system power-on self-tests (POST), the LCD screen shows which POST check-point is currently being tested.
Power #1 Fails !	After POST, the microcontroller checks the power subsystem status. If it detects that power supply module 1 is bad, this message appears on the LCD screen.
Power #2 Fails !	If the microcontroller detects that power supply module 2 is bad, this message appears on the LCD screen.
Power #3 Fails !	If the microcontroller detects that power supply module 3 is bad, this message appears on the LCD screen.
Battery Fails !	Normally, this message indicates that the battery is bad and must be replaced with a new one. There are times when this message appears for a few seconds but do not necessarily mean that the battery is bad. Refer to the previous page for these instances.

Table 1-2 LCD Messages (continued)

Message	Description
Power Fan Fails !	This message indicates that one or more fans on the power subsystem failed.
AC Power Fails !	This message indicates that there is no power coming from the AC line and the system is currently running only on battery power.
The system is running well !	This message appears after POST and other tests. It shows that the system has passed all the tests and is running fine.

RDM LED

The RDM LED located on the lower right panel enables the remote diagnostic management feature. Refer to the RDM User's Guide for information on the RDM feature.

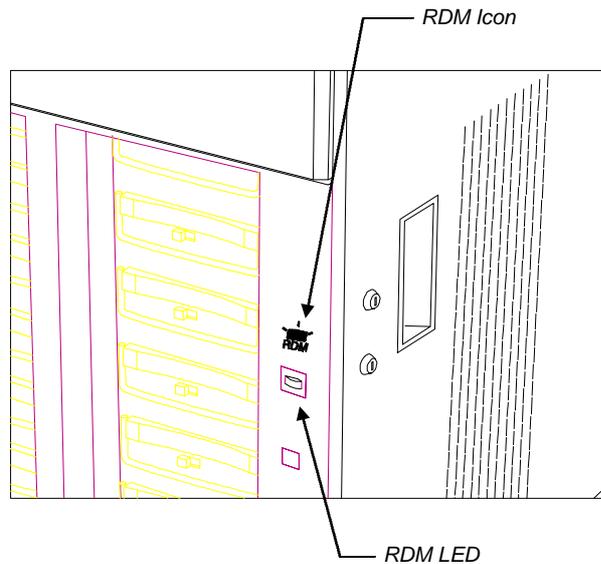


Figure 1-5 RDM LED

1.2.2 Rear Panel

The rear panel includes the connectors for the keyboard, mouse, VGA monitor, printer, and serial devices. Below the connectors are the slot openings for expansion boards. On the lower left is the socket for the system power cable.

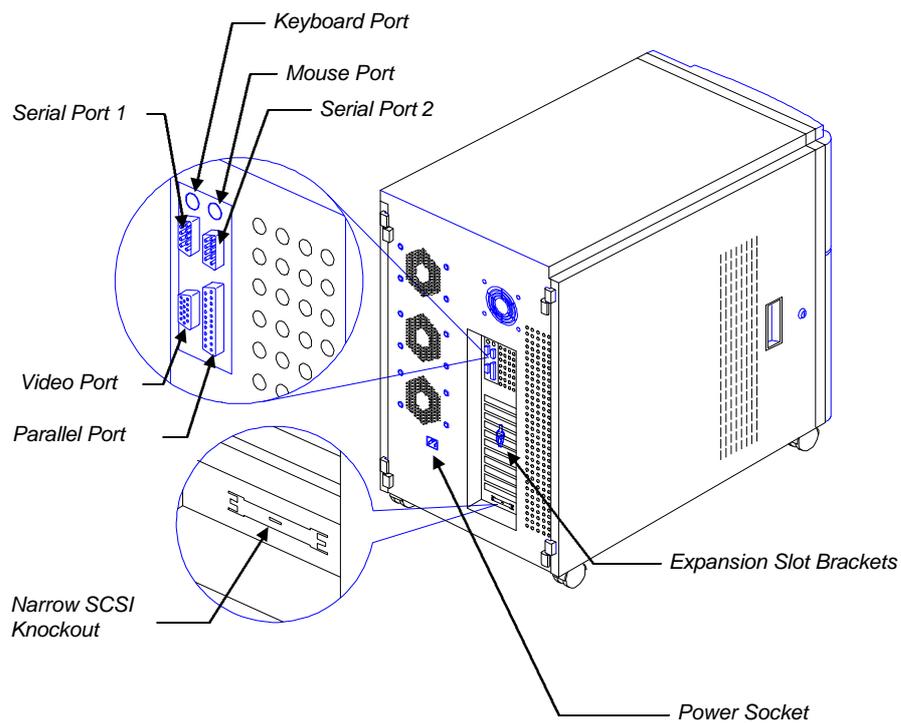


Figure 1-6 Rear Panel

Chapter 2

Setting Up the System

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.

2.1 Pre-installation Requirements

2.1.1 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.

2.1.2 Checking the Package Contents

Check the following items from the package:

- AcerAltos 19000Pro4 System
- AcerAltos 19000Pro4 System Guide
- AcerAltos 19000Pro4 EISA Configuration Utility
- VGA Manual and Driver Kit
- ASM Pro Manual and Driver Kit
- RDM Manual and Driver Kit
- SCSI Manuals and Driver Kit
- System keys (hung inside the upper front door)

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

Save the boxes and packing materials for future use.

2.1.3 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.

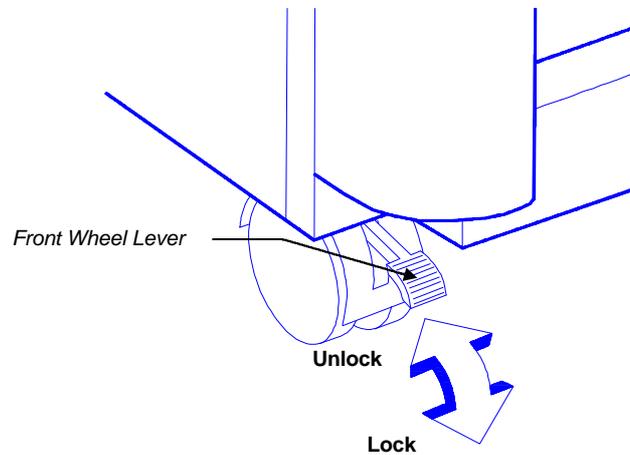


Figure 2-1 Front Wheel Lever

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 socket below the fan outlets on the rear panel.

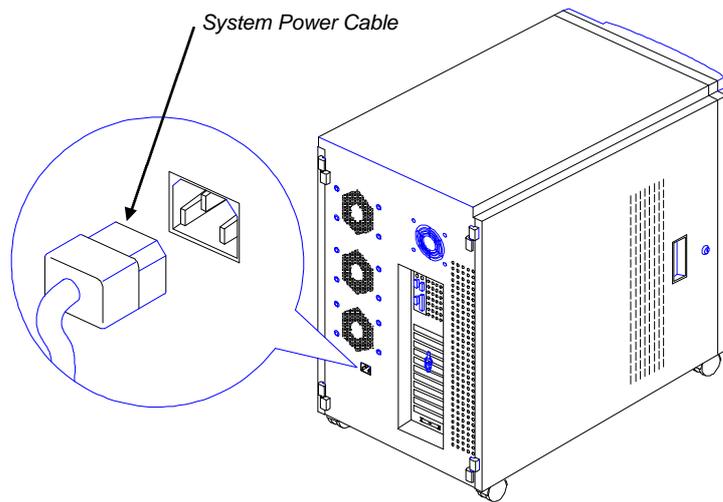


Figure 2-2 Connecting the System Power Cable

2.2 Basic Connections

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

2.2.1 Keyboard

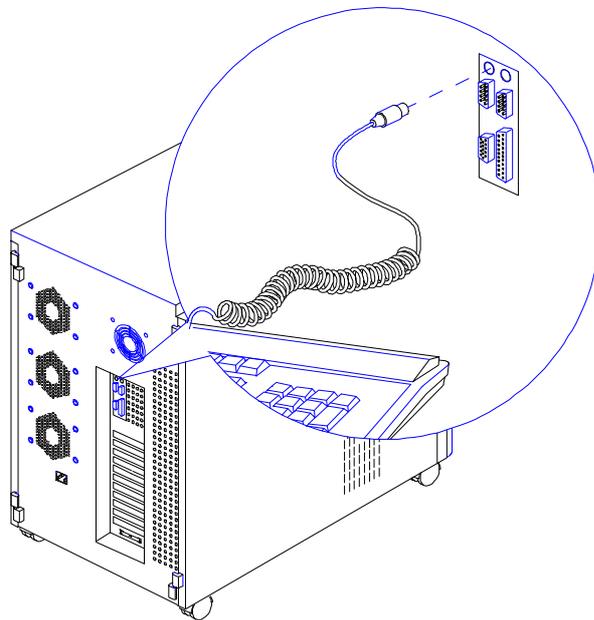


Figure 2-3 Connecting a Keyboard

2.2.2 Mouse

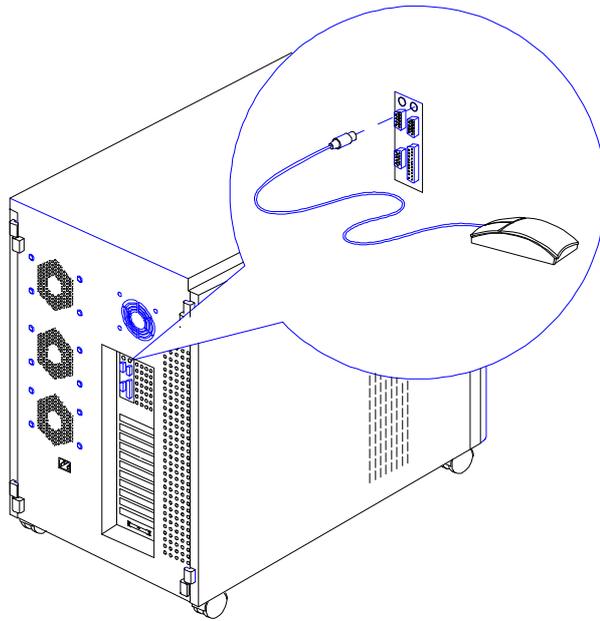


Figure 2-4 Connecting a Mouse

2.2.3 VGA Monitor

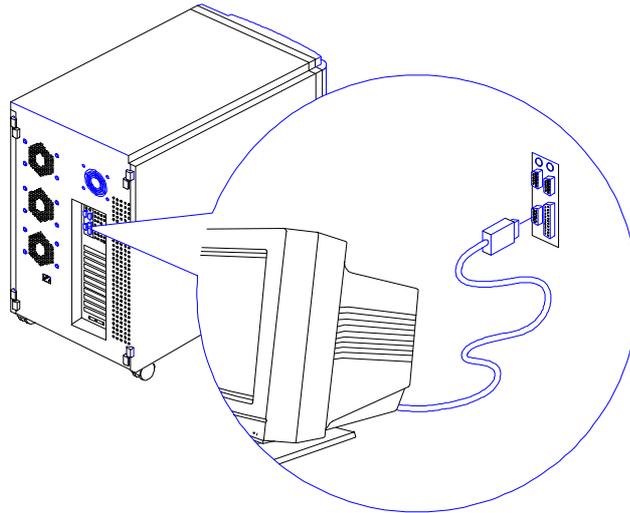


Figure 2-5 Connecting a VGA Monitor

2.3 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.

2.3.1 Unlocking the Front Panel Security

The system has a keylock on the front panel to prevent unauthorized use. Before power on, open the lock with the key that comes with the system. (The system keys are attached inside the upper front door.)

To unlock, insert the key and turn it counter-clockwise until it reaches the unlocked icon.

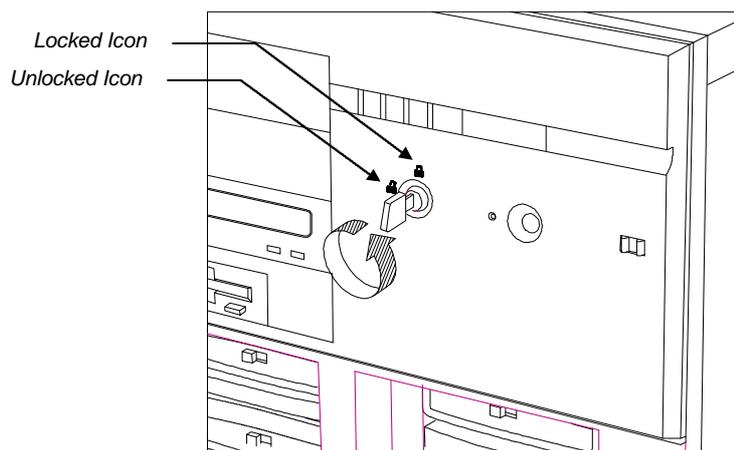


Figure 2-6 Unlocking the Front Panel Security



After locking or unlocking, remove the key from the front panel to prevent unauthorized users from tampering with the system.

2.3.2 Turning On the System Power

To power on the system, press the power switch on the front panel. The system starts up and displays a welcome message, then a series of power-on self-test (POST) messages on the LCD display screen. The POST messages indicate if the system is running well or failed any of the tests. See Table 1-1 for a list of the 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.

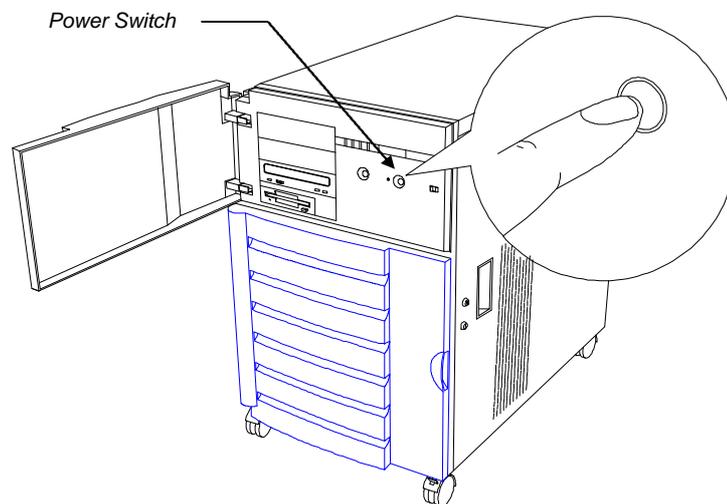


Figure 2-7 System Power On

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 panel lights up
- Power, Num Lock, and Caps Lock LED indicators on the keyboard light up

2.4 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 front panel security is not completely unlocked.**

 Insert the front panel key and turn it counter-clockwise until it points to the unlocked icon. See Figure 1-4.

 **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 the cable is properly connected.

 **No power comes from the grounded power outlet.**

 Have an electrician check your power outlet.

 **The right panel or left panel door, or both, may be ajar.**

 Close the panel door/s completely.

The system has two microswitches located right inside the lower front corners of the housing. The microswitches connect to the power backplane and are in direct contact with the left and right panel doors. When you open either one of the panel doors, the microswitch goes off thereby cutting off the system power. This provides additional system safety.

See Figure 2-8 for the microswitch location.

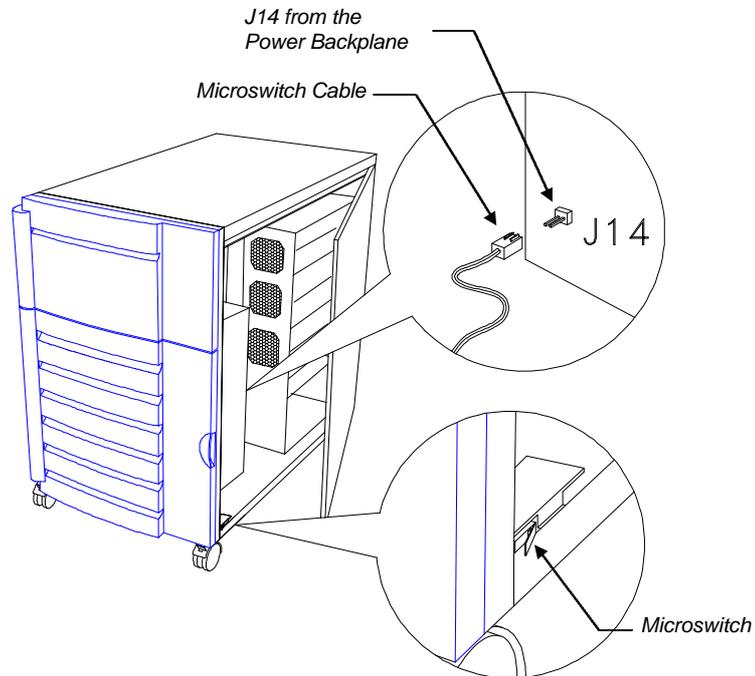


Figure 2-8 Microswitch Location

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

📄 Refer to section 3.6 in Chapter 3 for the power cable connections and check the internal cable connections. If you are not confident to perform this step, ask a qualified technician to help you.



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

System Configuration

The system hardware basically consists of six major components: housing, system board, memory board, front panel board, disk array backplane boards, and power supply subsystem. This chapter discusses the system hardware configuration in detail.

3.1 System Housing

The system housing is heavy-duty steel chassis in a twin-tower design. The spacious housing boasts high expansion capability and flexible configuration.

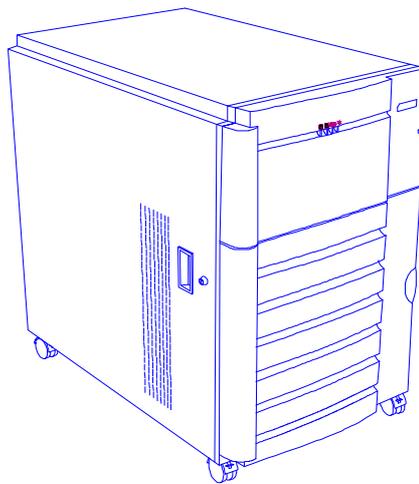


Figure 3-1 System Housing

3.1.1 Internal Structure

The housing is symmetrically divided into left and right panels. The system internal components are accessible through the 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 EISA and PCI expansion boards.

The upper front section of the left panel accommodates a 3.5-inch and three 5.25-inch drives while the lower section holds the seven hot-swappable SCSI drive trays. These devices on the front section are externally accessible. Right behind the drives is a seven-slot SCSI backplane board that connects the drives to the SCSI interface.

Figure 3-2 shows the system components on the left panel of the system housing.

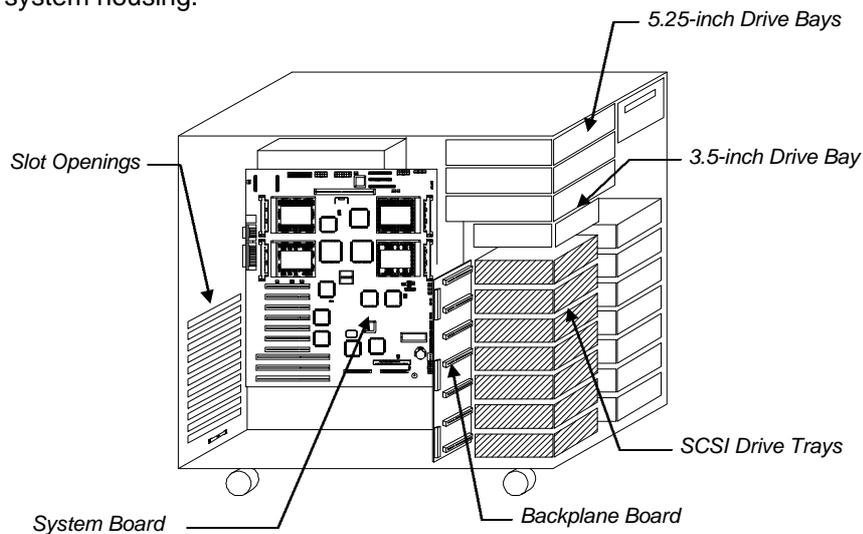


Figure 3-2 Left Panel System Components

Right Panel

The power subsystem fills up most part of the rear right panel. It consists of a power backplane and a metal rack that holds up to three 400-watt power supply modules. On the bottom compartment of the power supply rack are the charger and the battery box. The rear end carries the three built-in power supply fans that cool down the components and regulate the air flow inside each power supply. See section 3.6 for details on the power subsystem.

The front panel board occupies the upper front section of the right panel. The lower section allows installation of a second SCSI backplane board and another set of seven hot-swappable SCSI drive trays.

Figure 3-3 shows the components that reside on the right panel.

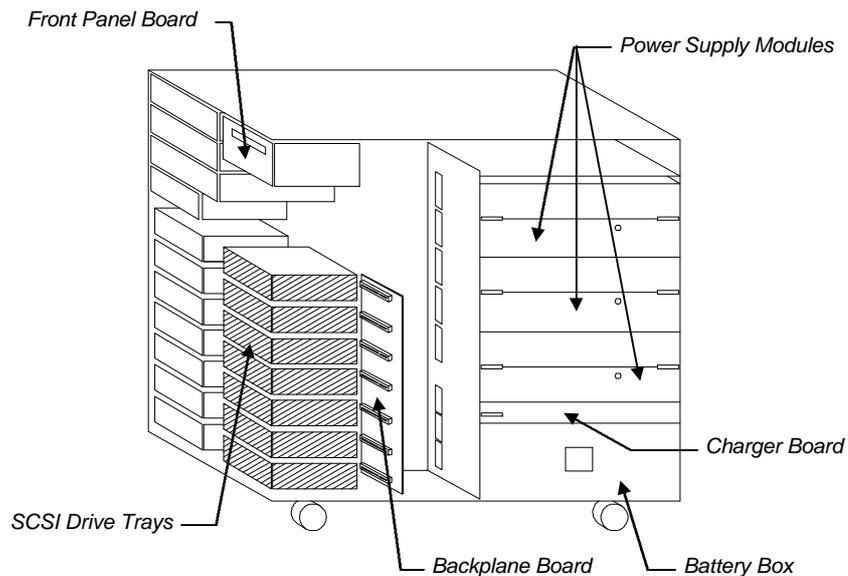


Figure 3-3 Right Panel System Components

3.1.2 Opening and Removing the Housing Doors

The system housing has four doors, two on the front, one on the left panel, and one on the right panel. The housing includes security locks to prevent unauthorized access to the internal components.

Opening the Left Panel Door

To open the left panel door, insert the key to the lock then turn it counter-clockwise until it reaches the unlocked icon. Pull the door open by the hollow holder.

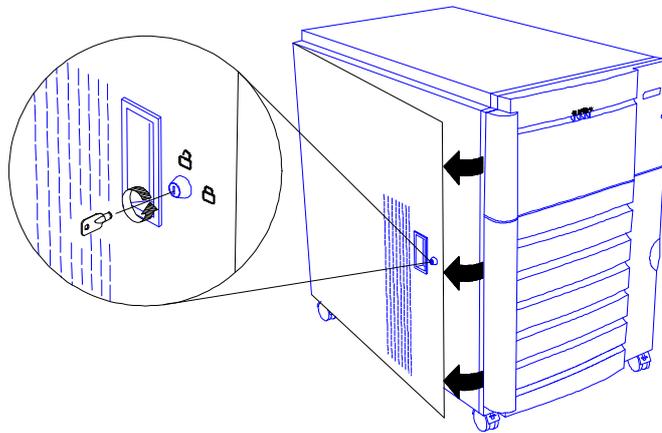


Figure 3-4 Unlocking and Opening the Left Panel Door

Opening the Lower Front and Right Panel Doors

There are two security locks on the right panel door. One secures the lower front door to protect the SCSI hard disks, and the other one secures the right panel internal components.

When you want to access the SCSI hard disks, insert the key to the lower lock and turn it clockwise until it points to the unlocked icon. Pull open the lower front door.

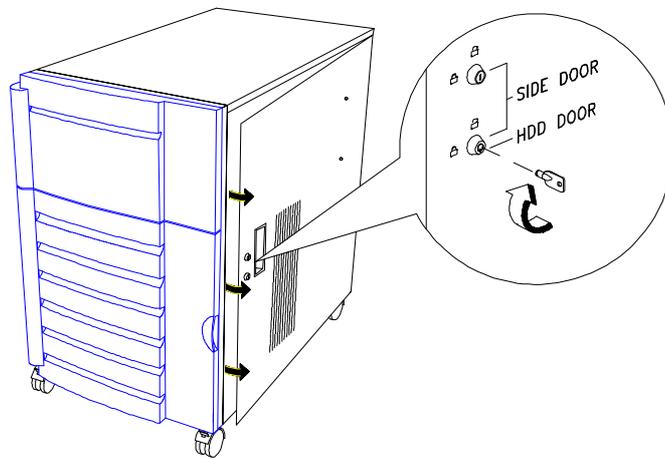


Figure 3-5 Unlocking and Opening the Lower Front Door

When accessing the components inside the right panel, open the lower lock then the upper lock on the right panel door. Pull the door open by the hollow holder.

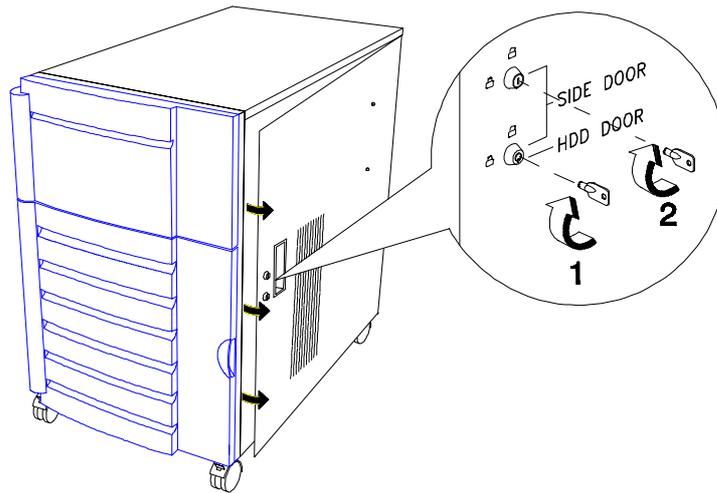


Figure 3-6 Unlocking and Opening the Right Panel Door

Removing the Doors

When installing components, unlock and remove the door or doors that hinder your way. Table 3-1 tells you which door to remove in specific instances to facilitate component installation.

Table 3-1 *Removing the Housing Doors*

When	Remove
Installing or removing external 3.5-inch or 5.25-inch devices	↻ Upper front door plus the upper front panel cover ✕ Left panel door
Installing or removing a SCSI backplane board (left side)	↻ Lower front door ✕ Left panel door
Installing or removing a SCSI backplane board (right side)	↻ Lower front door ✕ Right panel door ☒ Thermal air guide
Installing or removing hot-swappable SCSI hard disks	↻ Lower front door ✕ SPS dummy cover
Installing or removing the system board, memory board, or expansion boards	↻ Left panel door
Installing or removing the power supply modules, UPS, or battery charger	↻ Right panel door
Connecting or arranging cables	↻ Left panel door or Right panel door

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

1. Unlock the door with the key (when necessary).
2. Open it to more than 45° angle.
3. Lift it up for about an inch, then move it away from the housing.

Figures 3-7 to 3-10 show how to remove the housing doors and upper front panel cover.

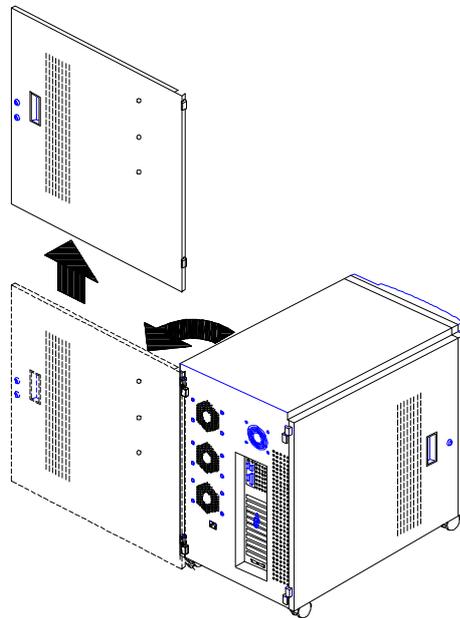


Figure 3-7 Removing the Right Panel Door

Follow the same steps to remove the left panel door.

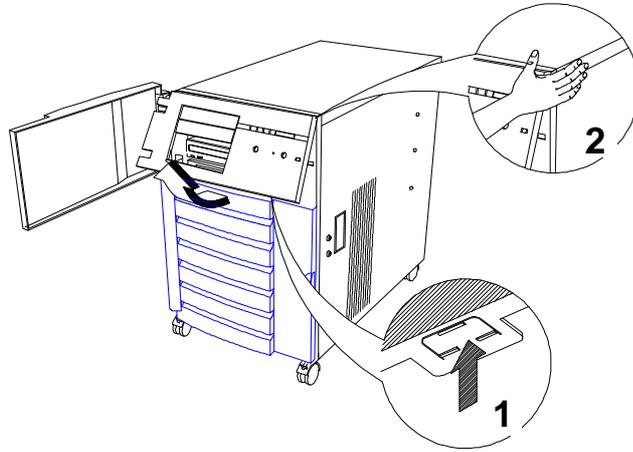


Figure 3-8 Removing the Upper Front Panel Cover

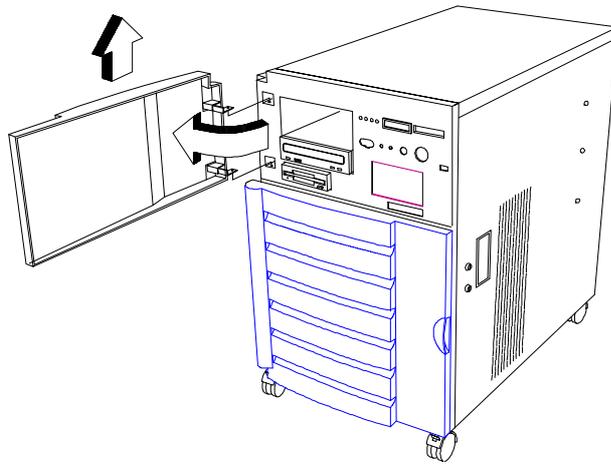


Figure 3-9 Removing the Upper Front Panel Door

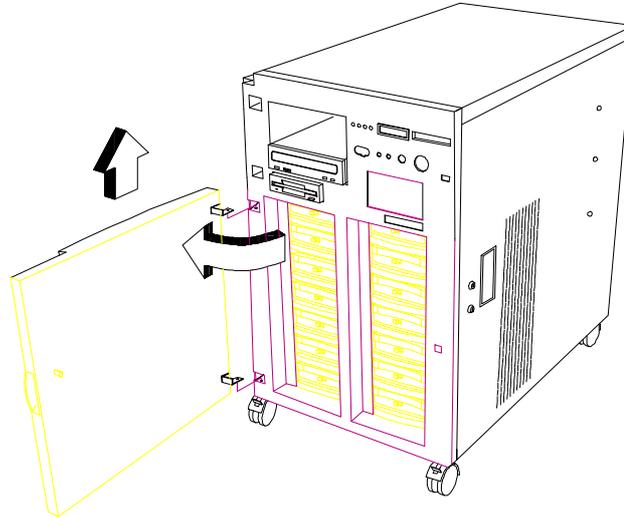


Figure 3-10 Removing the Lower Front Panel Door

3.1.3 ESD Precautions

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.

3.1.4 Installing External Devices

The housing supports one 3.5-inch and three 5.25-inch external devices. The empty drive bays on the upper front panel allow you install additional external devices 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.

Follow these steps to install an external device:

1. Remove the upper front panel door and the front panel cover. See Figures 3-5 and 3-6 for illustrations.
2. Attach the drive guides on the sides of the external device that you wish to install.

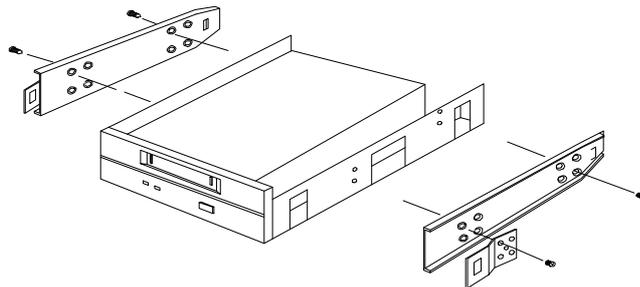


Figure 3-11 Attaching the Drive Guides



If you are installing a SCSI device, set its SCSI ID. Set the terminator if the SCSI device is the last one on a SCSI bus.

-
3. Insert the drive into the bay.

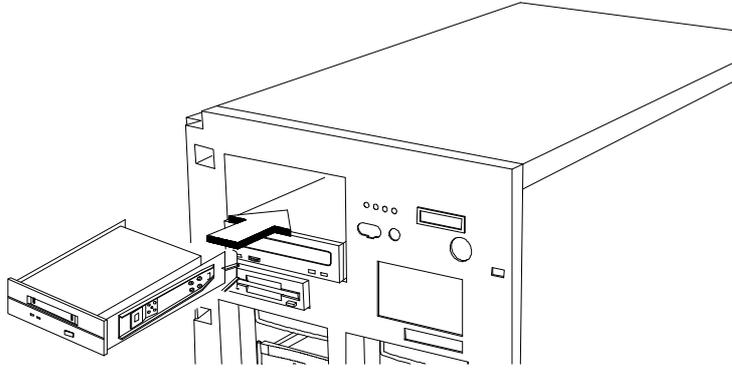


Figure 3-12 Installing an External Device

4. Connect the drive power and signal cables.

3.1.5 Installing a Hot-swappable SCSI Drive

The system supports three kinds of hot-swappable drive trays, one with wide SCSI interface board and one with narrow SCSI interface board. The third is the single connector architecture (SCA) type. The installation steps for the wide and narrow SCSI drives are basically the same except for connecting the wide SCSI drive ID cable.

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

1. Open the lower front door.
2. Push the drive tray switch to the Unlock/Power Off position.

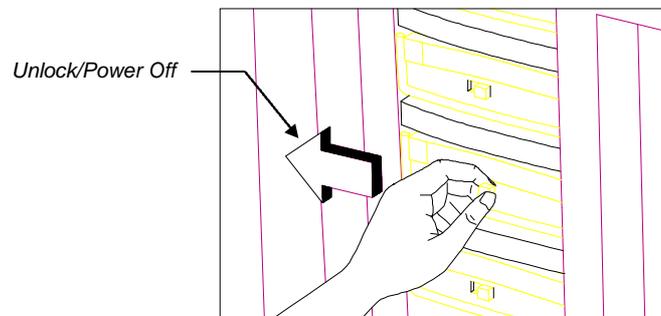


Figure 3-13 Unlocking the Drive Tray Switch

3. Hold the handle of a drive tray. Pull it upward until it is on a 90-degree angle with the tray and you hear a click. You may need to exert force to pull up the tray handle.
4. Pull out the drive tray.

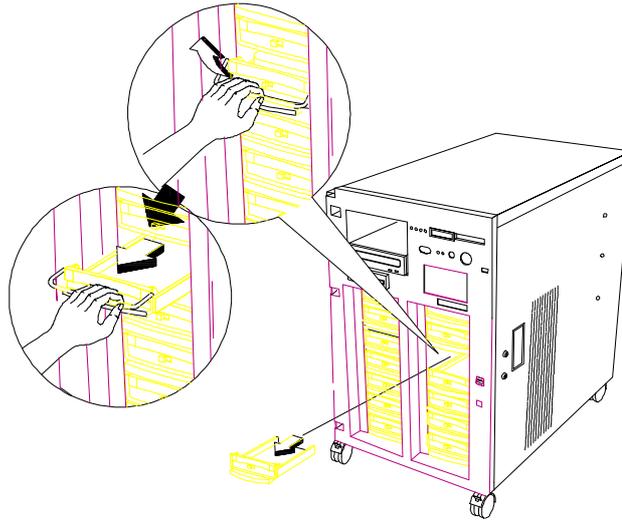


Figure 3-14 Pulling Out a Hot-swap Drive Tray

5. Remove the terminators and the drive ID on the wide SCSI drive that you wish to install.

For a narrow SCSI drive, remove the terminators only, then set the SCSI ID on the drive.



Make sure that you have closed J4 P3 pins on the backplane board for additional SCSI IDs. See section 3.4 for information on setting the drive ID.

-
6. Place the drive on the tray and connect the SCSI cable, drive ID cable (for wide SCSI only), and power cable. Make sure that all cables are properly and completely connected.

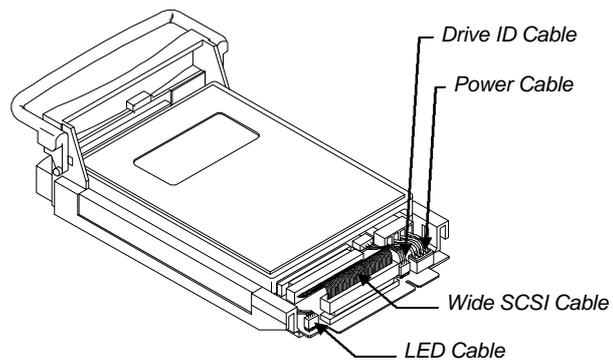


Figure 3-15 Connecting the Drive Cables (Wide SCSI Drive)

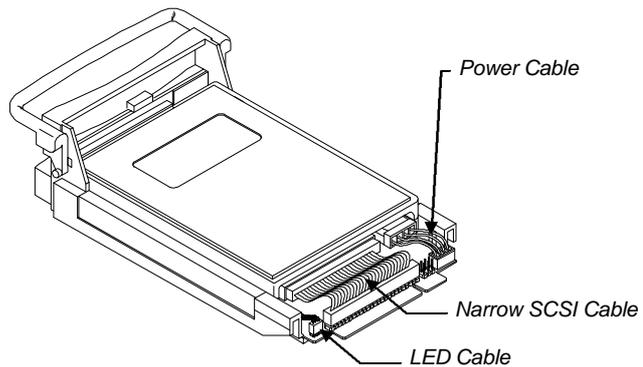


Figure 3-16 Connecting the Drive Cables (Narrow SCSI Drive)

-
7. Install the tray into the drive bay, pushing it gently until it reaches the connector on the backplane board.



Make sure to hold out the drive tray handle when inserting the tray back into the bay. Otherwise, the tray does not fit completely.

8. Push the drive handle into place.

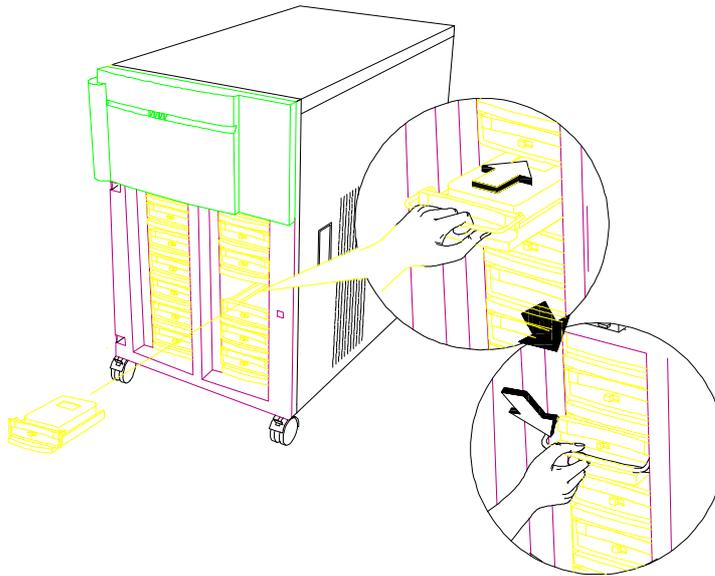


Figure 3-17 Installing a Hot-swap Drive Tray

-
9. Push the drive tray switch to the Lock/Power On position.

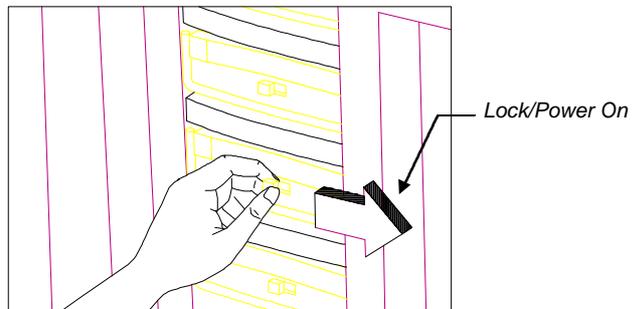


Figure 3-18 Locking the Drive Tray Switch

3.1.6 Installing an Expansion Board

Follow these steps to install a PCI expansion board:

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

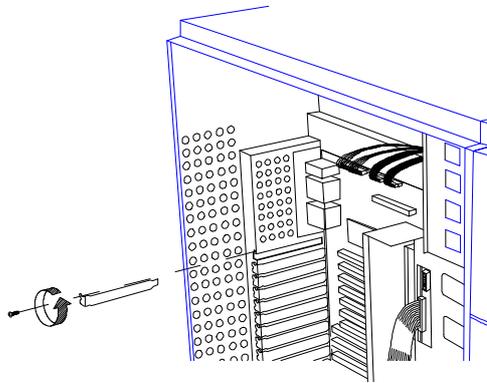


Figure 3-19 Removing a Bracket Cover

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

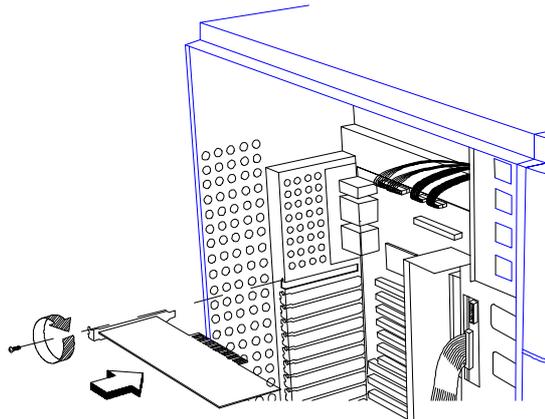


Figure 3-20 Installing a PCI Expansion Board

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



If you installed an EISA board, run the EISA configuration utility (ECU) to reconfigure the system. See Chapter 5 for information on ECU.

3.1.7 Installing and Removing the Thermal Air Guide

On the right side of the housing, a metal thermal air guide directs the hot air from the disk drives to the fan exhausts on the rear of the housing. The air guide helps in maintaining good air circulation within the housing.

You have to remove the thermal air guide to access the right backplane board or the power backplane connectors.



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

Removing the Thermal Air Guide

Follow these steps to remove the metal thermal air guide.

1. Unplug all power cables from the wall socket.
2. Open the right panel door. Refer to section 3.1.2 for instructions on opening the door.
3. Remove all the screws (about nine screws) that secure the air guide to the housing. Save the screws.
4. Carefully take out the air guide from the housing and set it aside.

See Figure 3-21 on the next page for an illustration of the above procedure.

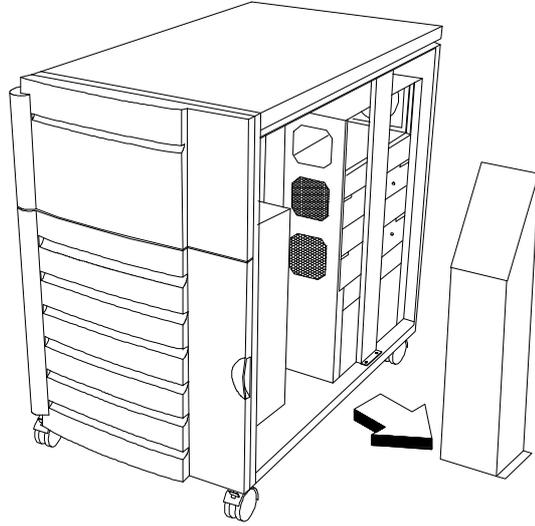


Figure 3-21 Removing the Thermal Air Guide

Reinstalling the Thermal Air Guide

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

1. Position the air guide on its place between the hard disk drives and the power supply rack.
2. Make sure that the air guide fits properly in place.
3. Secure the air guide with screws.
4. Close and lock the right panel door.

The following figure illustrates the above procedure.

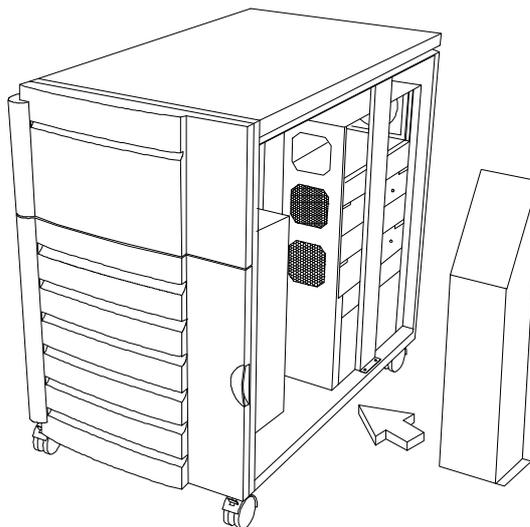
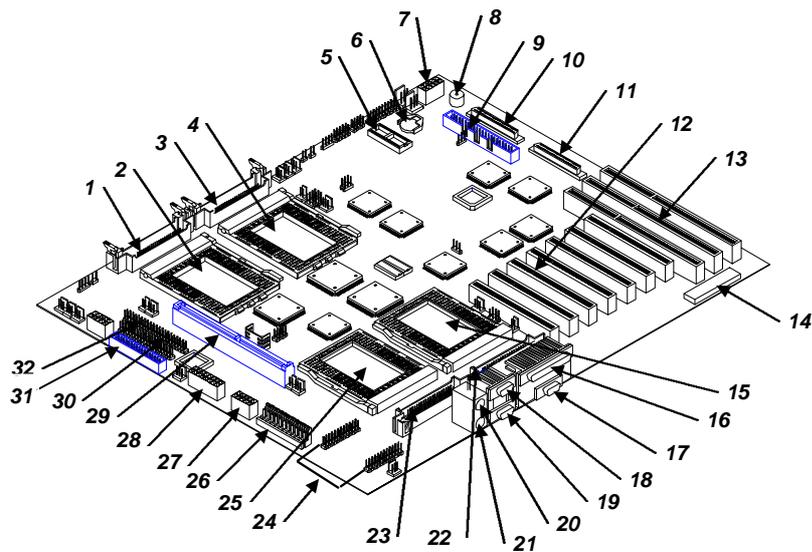


Figure 3-22 Reinstalling the Thermal Air Guide

3.2 System Board

The system board carries all the major system components including the two sockets for the Intel Pentium Pro CPUs. Figure 3-23 shows the major components on the system board.

3.2.1 Layout



- | | |
|---------------------------------------|-------------------------------|
| 1. VRM connector 1 | 17. Video port |
| 2. Pentium Pro CPU socket 1 | 18. Serial port 1 |
| 3. VRM connector 3 | 19. Serial port 2 |
| 4. Pentium Pro CPU socket 3 | 20. Mouse port |
| 5. BIOS | 21. Keyboard port |
| 6. Battery | 22. VRM connector 4 |
| 7. +12V, +5V downside power connector | 23. VRM connector 2 |
| 8. Buzzer | 24. RDM connectors |
| 9. Narrow SCSI interface | 25. Pentium Pro CPU socket 2 |
| 10. Wide SCSI interface 1 | 26. ±12V, ±5V power connector |
| 11. Wide SCSI interface 2 | 27. +12V, +5V power connector |
| 12. PCI slots | 28. VCC3 power connector |
| 13. EISA slots | 29. Memory board slot |
| 14. Keyboard controller | 30. IDE connector |
| 15. Pentium Pro CPU socket 4 | 31. Front Panel Connector |
| 16. Parallel port | 32. Diskette drive connector |

Figure 3-23 System Board Layout

3.2.2 Jumpers and Connectors

Figure 3-24 shows the jumper and connector locations on the system board.

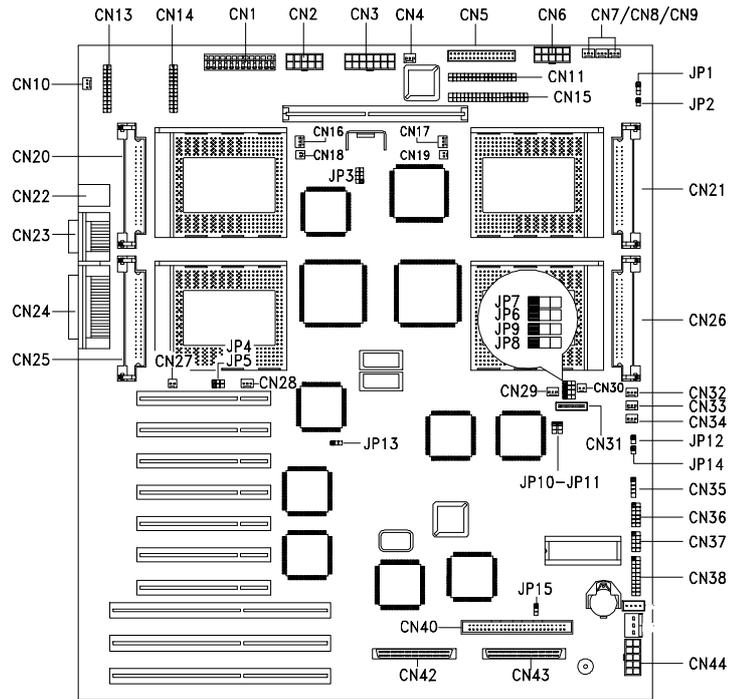


Figure 3-24 Jumper and Connector Locations



The blackened pin of a jumper represents pin 1.

Jumper Settings

Table 3-2 Jumper Settings

Jumper	Setting	Function
JP1		Reserved
JP2		Reserved
JP10		Reserved
JP11	1-2 2-3*	Password Security Check password Bypass password
JP12		Reserved
JP13	1-2* 2-3	Onboard VGA Enabled Disabled
JP14		Reserved
JP15	1-2 2-3* Open	CPU Bus Frequency 60 MHz 66 MHz 50 MHz
JPX1		Reserved
JPX2		Reserved
JPX3		Reserved



DO NOT change the settings of the reserved jumpers. Doing so may cause system malfunction.

The following sections describe and illustrate the jumpers that are not listed in the above table.

* Default setting

CPU Activation Jumpers

Jumpers JP4, JP5, JP6, JP7, JP8, and JP9 allow you to select the CPU to activate at a time. Table 3-3 lists the settings and the corresponding functions of these jumpers.

Table 3-3 CPU Activation Jumpers

Group 1 CPUs (CPU1 and CPU3)		
JP6	JP7	Function
2-3	Open	CPU1 only
1-2	1-2	CPU3 only
1-2	2-3	CPU1 and CPU3
Group 2 CPUs (CPU2 and CPU4)		
JP4	JP5	Function
2-3	Open	CPU2 only
1-2	1-2	CPU4 only
1-2	2-3	CPU2 and CPU4
Groups 1 and 2 CPUs		
JP8	JP9	Function
2-3	1-2	Group 1 only
1-2	2-3	Group 2 only
2-3	2-3	Group 1 and Group 2

CPU Frequency Jumper

Table 3-4 lists the CPU frequency ratios depending on JP3 settings.

Table 3-4 CPU Frequency Ratios (JP3)

JP3 Settings				Core/Bus
1-2	3-4	5-6	7-8	
C	C	C	C	2
C	C	O	C	3
C	C	C	O	4
C	C	O	O	5
O	C	C	C	2.5
O	C	O	C	3.5

C = Closed (Processor pin connected to Vss)

O = Open



DO NOT change jp3 settings unless you are qualified to do so. Ask a technician if you need help when configuring the jumper.

Connector List

Table 3-5 Connector Functions

Connector	Function
CN1	Power connector for $\pm 12V$, $\pm 5V$
CN2	Power connector for $\pm 12V$, $\pm 5V$
CN3	Power connector for VCC3
CN4	Power switch connector
CN5	Front panel connector
CN6	Power connector for $\pm 12V$, $\pm 5V$
CN7	System fan connector
CN8	System fan connector
CN9	System fan connector
CN10	System fan connector
CN11	Diskette drive connector
CN12	RDM LED connector
CN13	RDM connector (to FP11 on the front panel board)
CN14	RDM connector (to FP11 on the front panel board)
CN15	IDE connector
CN16	CPU2 fan connector
CN17	CPU1 fan connector
CN18	CPU2 temp. connector
CN19	CPU1 temp. connector
CN20	Voltage regulator module 2 (VRM2)
CN21	Voltage regulator module 1 (VRM1)
CN22	Keyboard/mouse connector
CN23	Serial ports 1 and 2
CN24	Video port/Parallel port
CN25	Voltage regulator module 4 (VRM4)

Table 3-5 Connector Functions (continued)

Connector	Function
CN26	Voltage regulator module 3 (VRM3)
CN27	CPU4 temp. connector
CN28	CPU4 fan connector
CN29	CPU3 fan connector
CN30	CPU3 temp. connector
CN31	ITP connector
CN32	System fan connector
CN33	System fan connector
CN34	System fan connector
CN35	HDD LED connector
CN36	Extended controller connector
CN37	Redundant power signal connector
CN38	Intel feature connector
CN40	Narrow SCSI connector
CN42	Wide SCSI connector 2
CN43	Wide SCSI connector 1
CN44	Down-side power connector for +12V, +5V

3.2.3 Installing a Pentium Pro CPU

The basic system includes two Intel Pentium Pro CPUs installed in CPU sockets 1 and 2 (CPU1 and CPU2). Two other second zero-insertion force (ZIF) CPU sockets come with the system board for a multiprocessor configuration. Your CPU package may include either a sliding heat sink or a hook-type heat sink. The following sections describe the installation procedures.

Installation with the Sliding Heat Sink

Follow these steps to install a CPU with a sliding heat sink:

1. Release the heat sink locks.
2. Attach the heat sink by sliding its rails along the longer sides of the rectangular Pentium Pro CPU. Make sure that the heat sink completely covers the CPU.
3. Hold the CPU and the heat sink firmly together then slide the locks on the sides of the heat sink to secure the CPU.

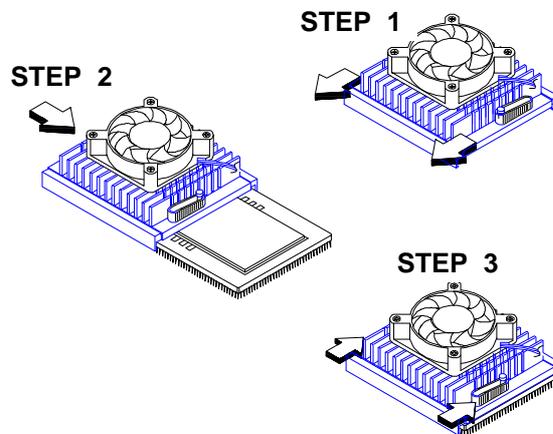


Figure 3-25 Attaching the Sliding Heat Sink to the CPU

-
- Lift up the CPU socket lever.
 - Look at the underside of the CPU and note the area where the pins are denser or closely embedded. Gently insert the CPU pins into the socket, matching the denser pins with the denser holes on the socket.



Be careful not to bend any pins.

- Push down the socket lever.
- Connect the CPU fan cable to connector CN17 (for CPU 1) on the system board. See Table 3-5 for other CPU cable connectors.
- Connect the thermal sensor cable to connector CN19 (for CPU1) on the system board. See Table 3-5 for other connectors.

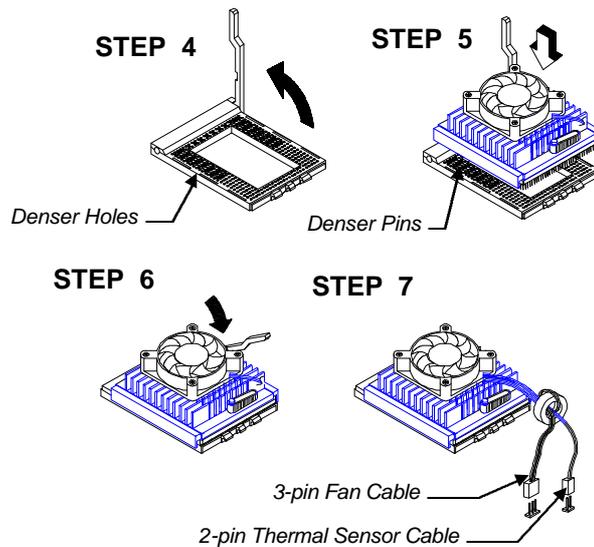


Figure 3-26 Installing a Pentium Pro CPU

Installation with the Hook-Type Heat Sink

Follow these installation steps if your CPU board comes with the hook-type heat sink:

1. Lift up the CPU socket lever.
2. Look at the underside of the CPU and note the area where the pins are denser or closely embedded. Gently insert the CPU pins into the socket, matching the denser pins with the denser holes on the socket.
3. Push down the socket lever.
4. Place the heat sink and fan over the CPU such that the rear heat sink hook matches the holding tab on the socket base, and the front heat sink hook (locking hook) matches the tab on the front of the socket. See the figure on the following page.

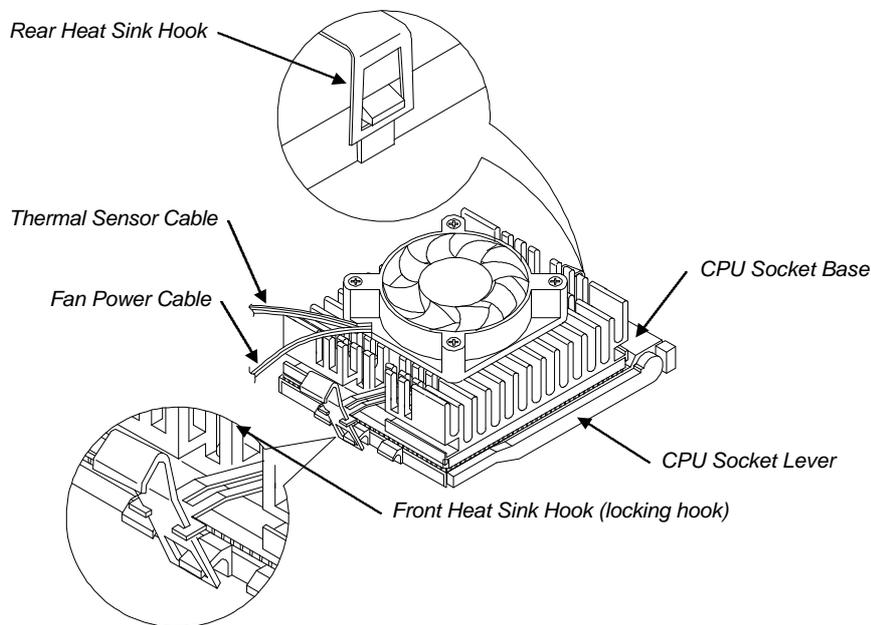


Figure 3-27 Installing the Hook-Type Heat Sink and Fan

5. Link the rear heat sink hook to the holding tab at the base of the socket, then the front hook to the holding tab on the front. This locks the heat sink and fan to the CPU socket.



To remove the heat sink and fan, simply press the upper part of the front heat sink hook inward.

6. Connect the CPU fan cable to connector CN17 (for CPU 1) on the system board. See Table 3-5 for other connector functions.
7. Connect the thermal sensor cable to CN19 (for CPU1) on the system board. See Table 3-5 for other connector functions.

3.3 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 32-MB, 64-MB, 128-MB, and 256-MB DIMMs for a maximum of 4 GB memory configuration.

3.3.1 Layout

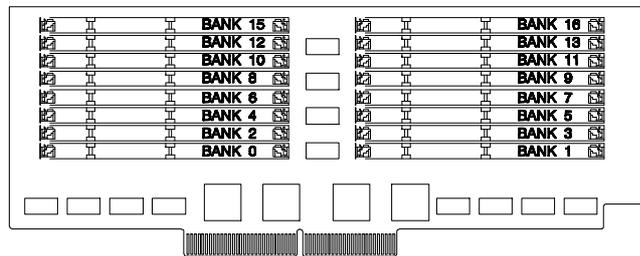


Figure 3-28 Memory Board Layout

3.3.2 Memory Configurations

Table 3-6 Memory Configurations

Bank 0	Bank 1	Bank 2-3	Bank 4-7	Bank 8-11	Bank 12-15	Total Memory
32MB * 1						32MB
32MB * 1	32MB * 1					64MB
32MB * 1	32MB * 1	32MB * 2				128MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4			256MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	32MB * 4		384MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	32MB * 4	32MB * 4	512MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	64MB * 4		512MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	64MB * 4	64MB * 4	768MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	128MB * 4		768MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	128MB * 4	128MB * 4	1280MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	256MB * 4		1280MB
32MB * 1	32MB * 1	32MB * 2	32MB * 4	256MB * 4	256MB * 4	2304MB
64MB * 1						64MB
64MB * 1	64MB * 1					128MB
64MB * 1	64MB * 1	64MB * 2				256MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4			512MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	32MB * 4		640MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	32MB * 4	32MB * 4	768MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	64MB * 4		768MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	64MB * 4	64MB * 4	1024MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	128MB * 4		1024MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	128MB * 4	128MB * 4	1536MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	256MB * 4		1536MB
64MB * 1	64MB * 1	64MB * 2	64MB * 4	256MB * 4	256MB * 4	2560MB
128MB * 1						128MB
128MB * 1	128MB * 1					256MB
128MB * 1	128MB * 1	128MB * 2				512MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4			1024MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4	32MB * 4		1152MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4	32MB * 4	32MB * 4	1280MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4	64MB * 4		1280MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4	64MB * 4	64MB * 4	1536MB

Table 3-6 *Memory Configurations (continued)*

Bank 0	Bank 1	Bank 2-3	Bank 4-7	Bank 8-11	Bank 12-15	Total Memory
128MB * 1	128MB * 1	128MB * 2	128MB * 4	128MB * 4		1536MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4	128MB * 4	128MB * 4	2048MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4	256MB * 4		2048MB
128MB * 1	128MB * 1	128MB * 2	128MB * 4	256MB * 4	256MB * 4	3072MB
256MB * 1						256MB
256MB * 1	256MB * 1					512MB
256MB * 1	256MB * 1	256MB * 2				1024MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4			2048MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	32MB * 4		2176MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	32MB * 4	32MB * 4	2304MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	64MB * 4		2304MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	64MB * 4	64MB * 4	2560MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	128MB * 4		2560MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	128MB * 4	128MB * 4	3072MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	256MB * 4		3072MB
256MB * 1	256MB * 1	256MB * 2	256MB * 4	256MB * 4	256MB * 4	4096MB

3.3.3 Installing a DIMM

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



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

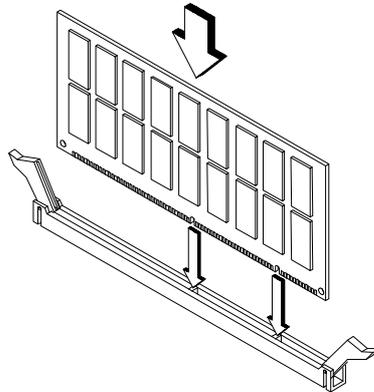


Figure 3-29 Installing a DIMM

3.3.4 Removing a DIMM

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



Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

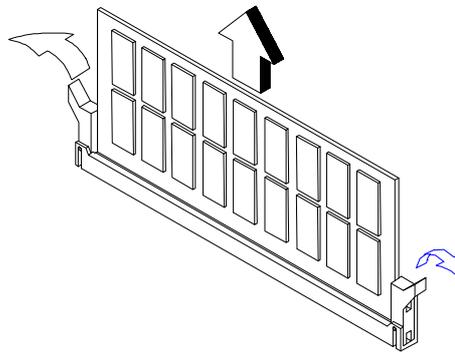


Figure 3-30 Removing a DIMM

3.3.5 Installing the Memory Board

Follow these steps to install the memory board:

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



Install the memory board with the component side up.

2. Insert the board into the slot until it fits into place.

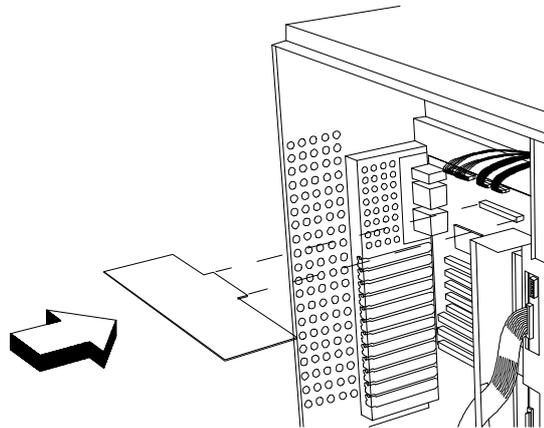


Figure 3-31 Inserting the Memory Board

-
3. Insert one end of the board holding clamp into the hole on the bracket behind the disk drives.
 4. Align the clamp rail with the board edge.
 5. Insert the other end of the clamp into the hole on the rear panel bracket.



Make sure to install the holding clamp properly. It protects the memory board and keeps it in place

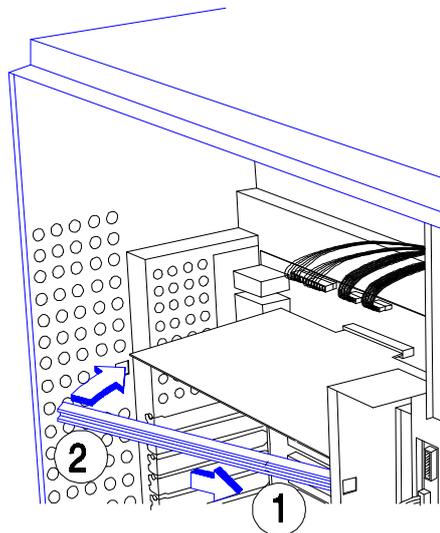


Figure 3-32 Attaching the Board Holding Clamp

3.3.6 Reconfiguring the System

You must enter Setup after installing or removing SIMMs to reconfigure the system.

Follow these steps to reconfigure the system:

1. Turn the system on. A memory error message appears, indicating that the total memory does not match the value stored in CMOS.
2. Press **CTRL** + **ALT** + **ESC** to enter Setup. A warning message appears indicating an incorrect memory configuration.
3. Press **ESC** twice to exit and reboot the system.

The system boots with the new memory configuration.



For some operating systems, it may be necessary to run the EISA Configuration Utility after changing the memory size. Please refer to the documentation that comes with the operating system.

3.4 SCSI Disk Array Backplane Board

The SCSI disk array backplane board (Acer BP-W7) provides a convenient interface between the SCSI drives and the system board. It includes seven SCSI drive slots to accommodate the drive trays, two SCSI channels to connect to the system board or SCSI controller board, and one SCSI channel out for external devices.

3.4.1 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.
- Indicates hard disk drive failure through a front panel board LED
- Supports wide SCSI or narrow SCSI disk drives
- Supports mixed configuration of both fast-and-wide (16-bit) and fast-and-narrow (8-bit) SCSI drives in a single channel
- Allows ‘split’ and ‘combine’ SCSI-channel configurations
- SCSI ID strapping that allows wide SCSI HDD ID configuration through the backplane switches instead of configuring the individual drive IDs
- Supports other external SCSI devices through the SCSI channel out interface

3.4.2 Layout

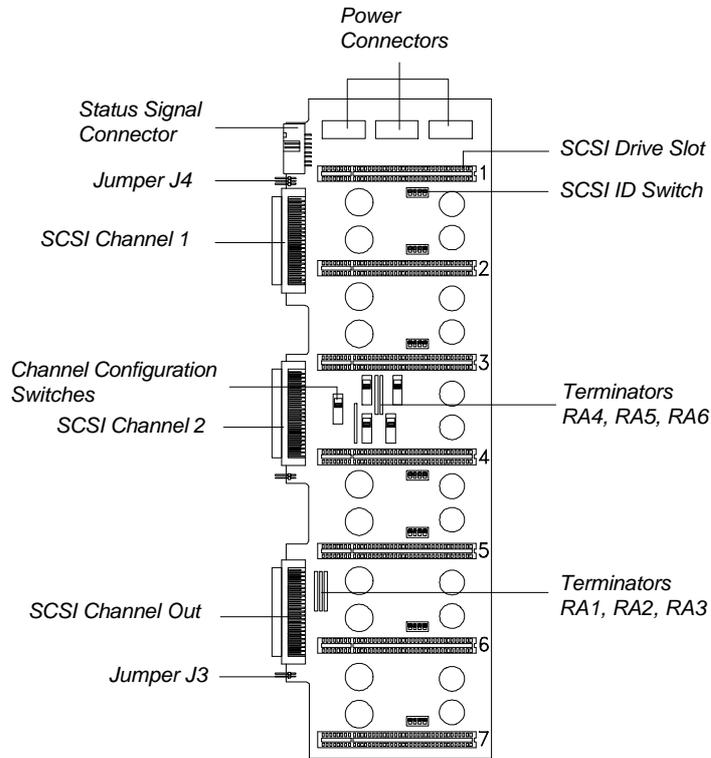


Figure 3-33 SCSI Disk Array Backplane Board

3.4.3 Jumper Settings

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

Figure 3-34 shows the settings for jumpers J3 and J4.

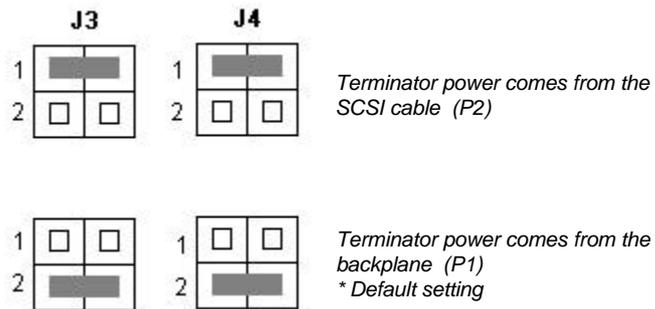


Figure 3-34 Settings for Jumpers J3 and J4



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

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

3.4.4 Hard Disk ID Switch Settings

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

Figure 3-35 illustrates 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	

Figure 3-35 Hard Disk ID Switch Settings



Normally, hard disk ID7 is assigned to the SCSI controller board.

3.4.5 Channel Configuration

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

In a single-channel configuration, channel 1 supports the SCSI devices plugged into slots 1 to 7. Set the channel configuration switches to “Combine” and set the terminators accordingly (Table 3-7) to achieve a single-channel configuration. See Figure 3-33 for the locations of the switches and terminators.

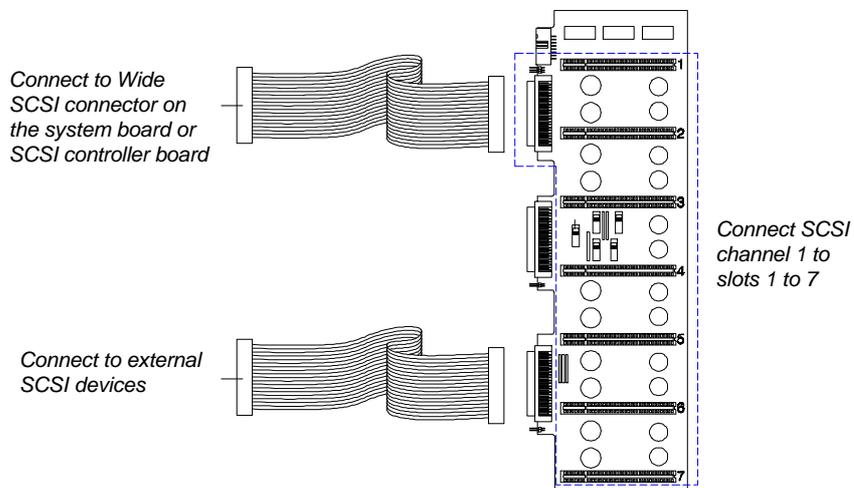


Figure 3-36 Single-Channel Configuration

Table 3-7 lists the terminator settings for the single-channel configuration.

Table 3-7 Terminator Settings for Single-Channel Configuration

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



For configurations with external device, terminate the signal at the external device. Do not forget to remove the terminators on all the SCSI drives.

Dual-Channel Configuration

In a dual-channel configuration, channel 1 supports the devices in slots 1 to 3, and channel 2 supports the devices in slots 4 to 7. Set the channel configuration switches to “Split” and set the terminators accordingly (Table 3-8) to achieve a dual-channel configuration. See Figure 3-33 for the locations of the switches and terminators.

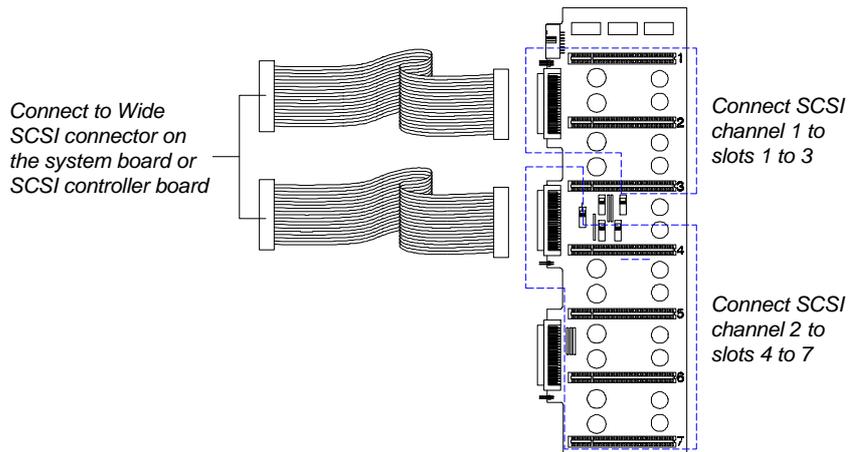


Figure 3-37 Dual-Channel Configuration

Table 3-8 lists the terminator settings for the dual-channel configuration.

Table 3-8 Terminator Settings for Dual-Channel Configuration

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

3.4.6 Installing a Backplane Board

The housing supports two backplane boards. The basic system includes a backplane already installed on the right panel. Should you need to install more SCSI hot-swap drives, you need to install another backplane on the left panel.

Follow these steps to install a backplane board:

1. Remove the upper and lower front panel doors. See section 3.1.2 for illustrations.
2. Remove the drive bay plastic covers.

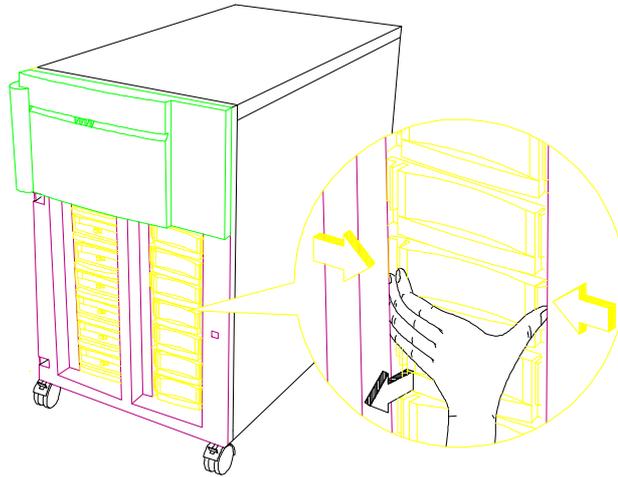


Figure 3-38 Removing the Drive Bay Covers

-
3. Position the backplane to the front of the housing and push it back until it fits into place. See Figure 3-39.



Make sure that you have configured the terminators, switches, and jumpers on the backplane before installing it into the housing.

4. Secure the backplane with eight screws.

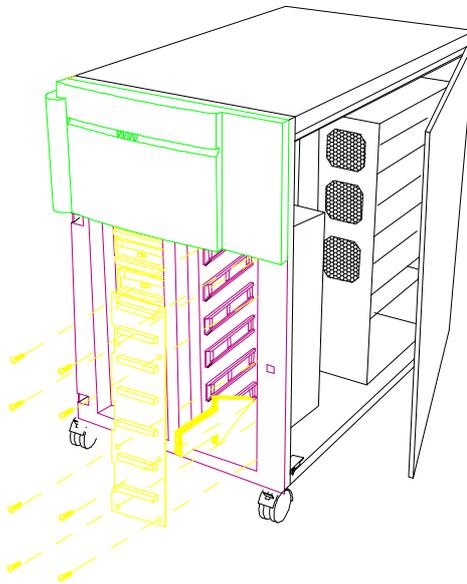


Figure 3-39 Installing a Backplane Board

5. See Figures 3-40 and 3-41 for the cable connections.

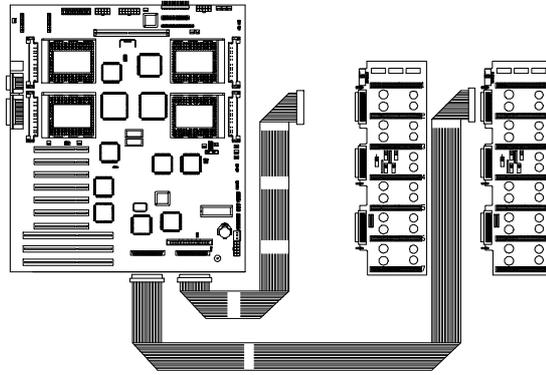


Figure 3-40 Fast-Wide SCSI HDDs or Ultra-Narrow HDDs (Single-Channel Configuration for Both Backplane Boards - 20 MB/sec or Below)

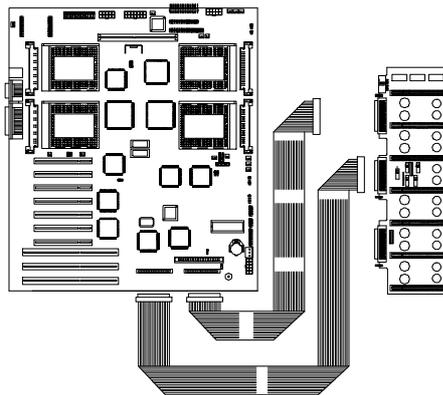


Figure 3-41 Ultra-Wide SCSI HDDs (Dual-Channel Configuration for One Backplane Board - 40 MB/sec or Below)



Due to the SCSI cable length limitation for ultra-wide transfer, do not connect more than four ultra-wide hard disk drives.

If you have a SCSI controller board or a RAID controller board to accommodate the SCSI cables, connect the cable from the backplane to the corresponding channel on the controller board.

6. Connect three power cables into the connectors on the backplane board.

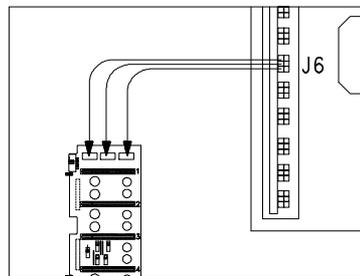


Figure 3-42 Connecting the Backplane Power Cables

3.5 Front Panel Board

The system includes a front panel controller board that serves as an interface to the internal system components and relays external messages through the LED indicators and the LCD display screen.

Refer to section 1.2.1 in Chapter 1 for details on the front panel board functions.

Figure 3-43 shows the front panel board connections with the internal components.

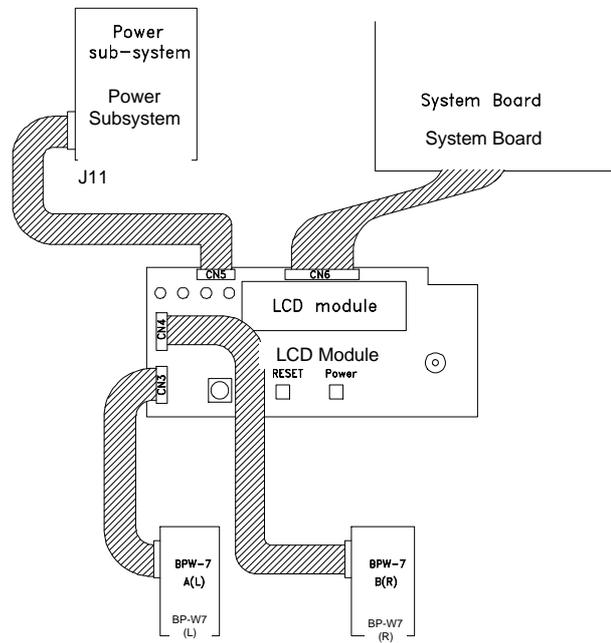


Figure 3-43 Front Panel Board Connections

3.6 Power Subsystem

The power subsystem consists of a power backplane, swappable power supply modules, an optional charger board, and an optional battery box. These components are held in place by a metal rack enclosure.

The backplane and the rack allow installation of up to three 400-watt power supply modules in a redundant configuration. A redundant power configuration enables a fully-configured system to continue running even if one power supply fails. The remaining two power supply modules still satisfy the 800-watt system power requirement.

The charger board and the battery provide a reliable power backup in case of a total AC power shutdown. Through the charger, the battery continuously loads power whenever the system power is on.

The power subsystem provide 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).

Table 3-9 Power Subsystem Configuration

400W Power Module		Configuration
Normal	Redundant	
1 unit	2 units or 3 units	1~2 Pentium Pro CPUs BP-W7 (L) 7 SCSI hard disks Full add-on card configuration
2 units	3 units	1~2 Pentium Pro CPUs BP-W7 (L) BP-W7 (R) 14 SCSI hard disks Full add-on card configuration

3.6.1 Power Supply Upgrade

The basic system comes with only one 400-watt power supply module installed. The power subsystem design allows you to upgrade the basic power configuration by adding one or two more power supply modules.



Make sure to unplug the power cable from the wall socket before you install or remove a power supply module.

Installing a Power Supply

Follow these steps to install a power supply module:

1. Remove the right panel door as in Figure 3-4.
2. Remove the two screws that secure the metal bar over the power supply enclosure. Save the screws.

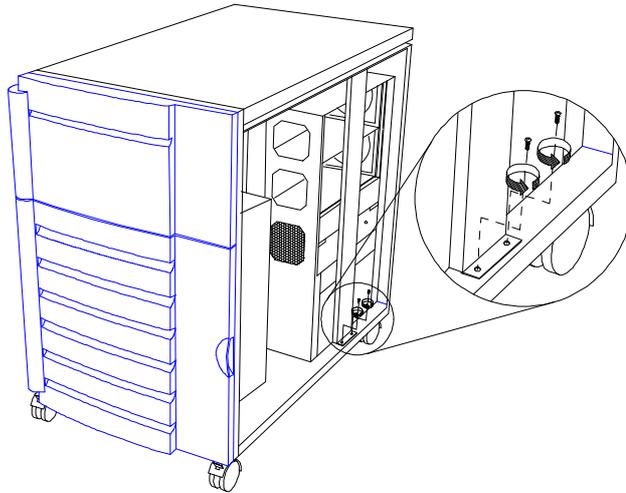


Figure 3-44 Removing the Metal Bar Screws

-
3. Pull-out the metal bar from the lower end and unhook the upper end from the housing roof.

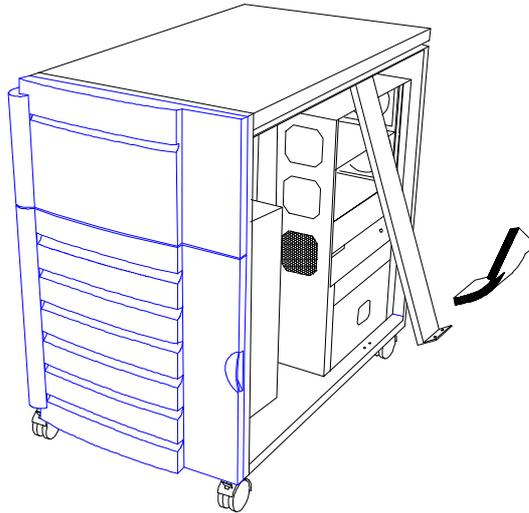


Figure 3-45 Pulling-out the Metal Bar

4. Remove the metal cover of the compartment where you intend to install a power supply module.
5. Unpack a new power supply module.
6. Firmly hold the power supply and align it with a compartment on the power supply rack. Pressing the holding clips on the sides, push back the power supply until its golden fingers completely fit into the slot on the power backplane. See Figure 3-46.

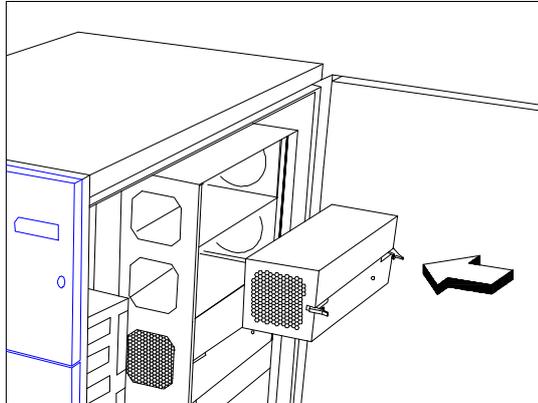


Figure 3-46 Installing a Power Supply Module

7. Press the holding clips inward to lock the power supply module.

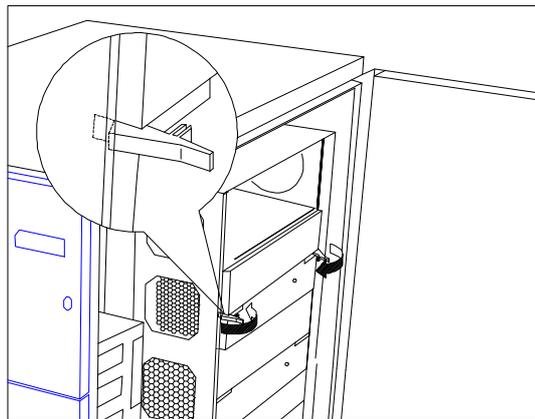


Figure 3-47 Locking the Holding Clips

-
8. Reinstall the metal bar by inserting the hook to the rail on the housing roof.

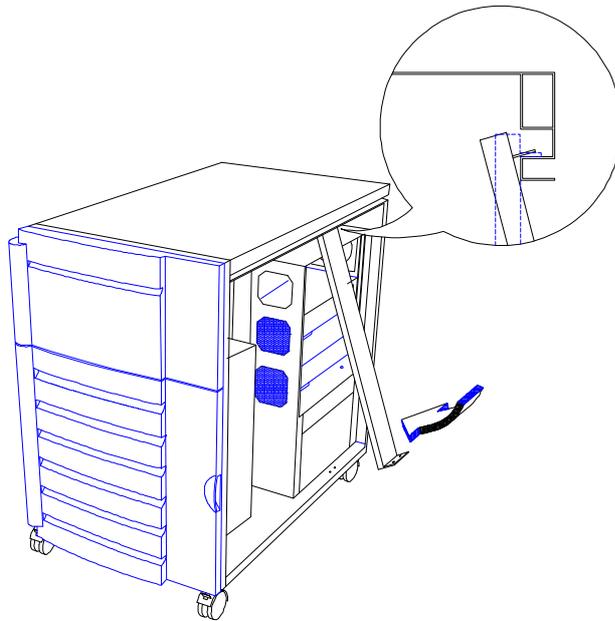


Figure 3-48 Reinstalling the Metal Bar

-
- Secure the lower end of the bar to the housing using two screws.

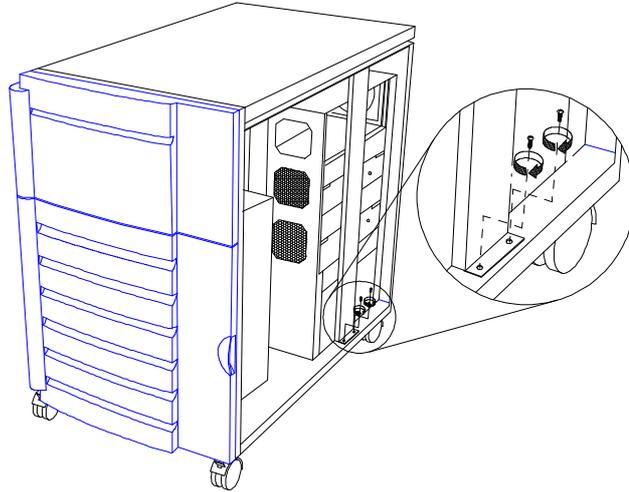


Figure 3-49 Securing the Metal Bar with Screws

- Replace the right panel door to the housing.

Changing a Power Supply Module

Should a power supply module becomes defective, remove the power supply and replace it with a new one.

Follow these steps to change a power supply module:

1. Remove the right panel door as in Figure 3-4.
2. Remove the metal bar over the power supply rack as in section 3.6.1.
3. Unlock the power supply module holding clips by pressing them outward.

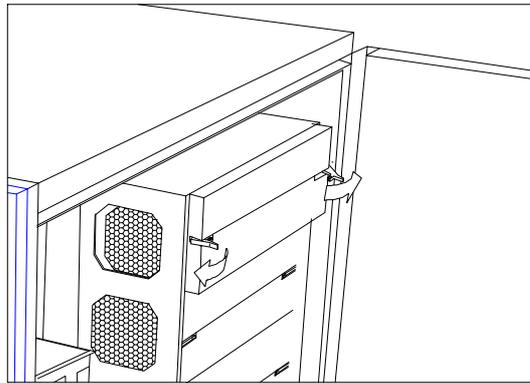


Figure 3-50 Unlocking the Power Supply Holding Clips

-
4. Firmly hold on the clips to pull the power supply module out.

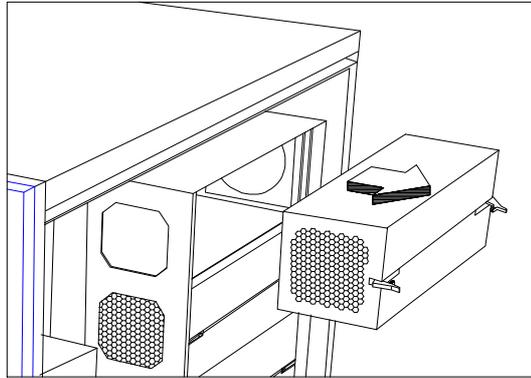


Figure 3-51 Removing the Power Supply Module

5. Install a new power supply module following the procedure in the preceding section, Installing a Power Supply.



If you are not planning to install a power supply module, make sure to reinstall the compartment metal cover. See the next section for the steps.

Installing the Power Supply Compartment Metal Cover

The power supply compartment metal cover has two important functions:

1. It prevents you from accidentally touching the power backplane.
2. It guides the thermal air flow to the fan exhausts on the rear of the housing.

Follow these steps to install the metal cover:

1. Insert the tab on the right side of the metal cover into the groove on the compartment.
2. Carefully push the metal cover until it fits in place.

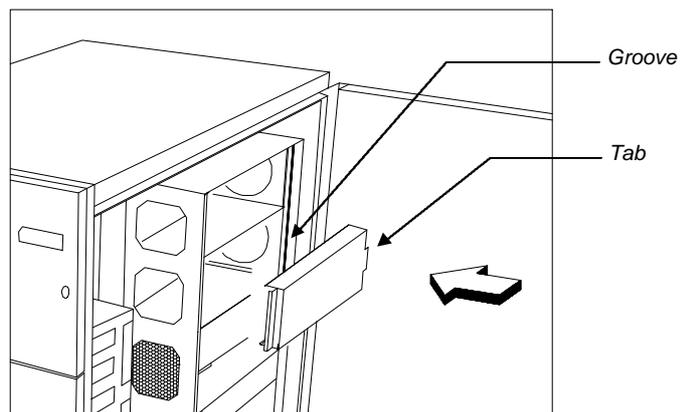


Figure 3-52 Installing the Power Supply Compartment Metal Cover

3.6.2 Charger Board and Battery Box



Unplug the power cable from the wall socket and remove all power supply units before you install or remove a battery box or a charger board.

Installing a Charger Board and a Battery Box

Follow these steps to install a charger and a battery box:

1. Remove the right panel door as in Figure 3-4.
2. Remove the two screws that secure the metal bar over the power supply enclosure. Save the screws.
3. Pull-out the metal bar from the lower end and unhook the upper end from the housing roof. See Figure 3-45.
4. Unpack a charger board.
5. Remove the screws that secure the charger compartment metal cover.

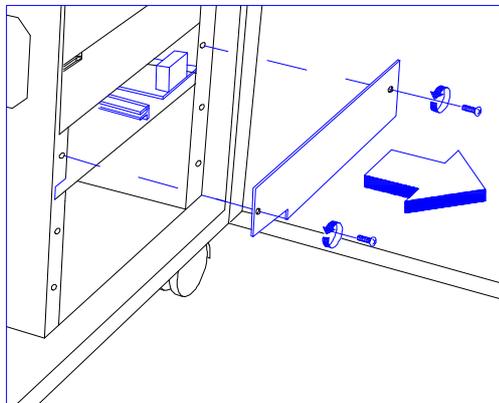


Figure 3-53 Removing the Charger Compartment Metal Cover

-
- Align the charger board with the rails on the charger compartment, then push it back until its golden fingers reach the slot on the power backplane.



The charger board does not completely fit until you press the holding clip in. Do not force the board in.

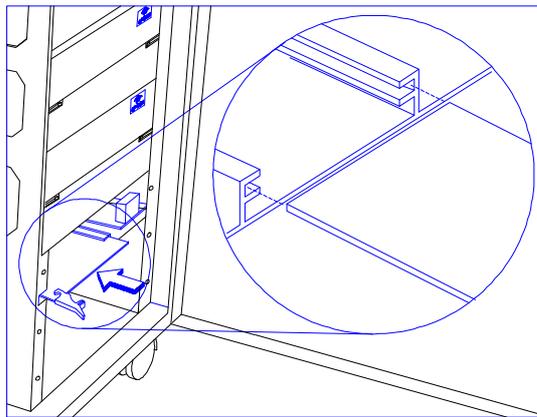


Figure 3-54 Installing a Charger Board

-
7. Press the holding clip inward to lock the charger board to the enclosure.

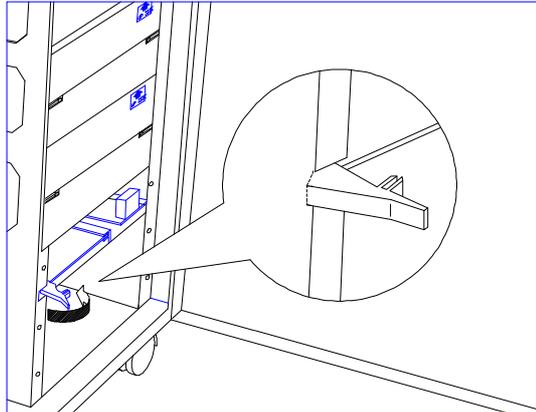


Figure 3-55 Locking the Charger Board

8. Unpack a battery box.
9. Firmly hold the battery box with both hands and insert it to the bottom compartment, below the charger.

See Figure 3-56 on the next page.



Make sure that the “Up Side” mark on the battery box points upward. If your battery box does not have this mark, ensure that the other labels on the module are upright.

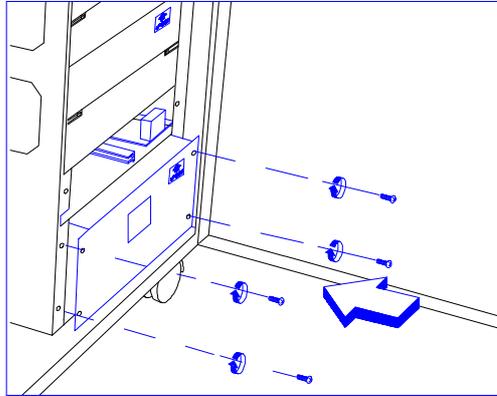


Figure 3-56 Installing a Battery Box

10. Secure the battery box with screws.
11. Attach the charger compartment metal cover and secure it with screws.

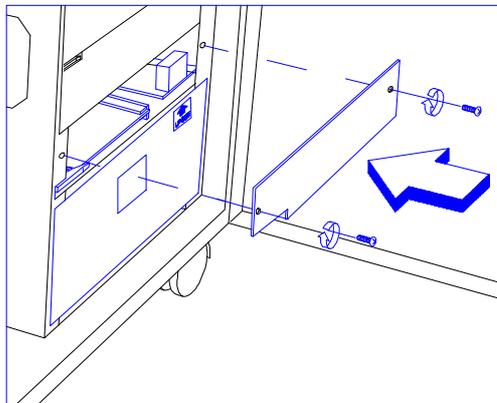


Figure 3-57 Attaching the Charger Compartment Metal Cover

Removing the Battery Box

Follow these steps to remove the battery box from the metal rack:

1. Remove the screws that secure the battery box to the enclosure.
2. Holding on the hole in the center, pull the battery box out for about an inch.
3. Firmly hold the battery box by the sides using both hands to remove it completely.

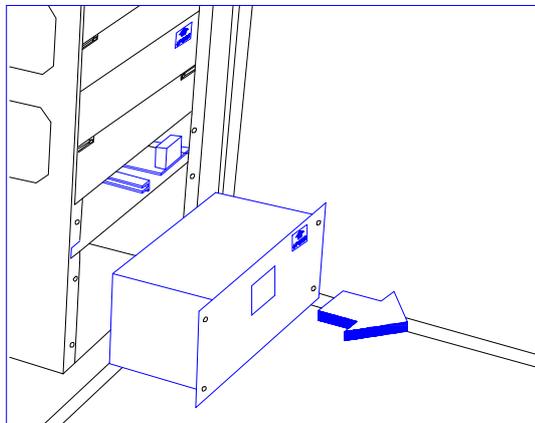


Figure 3-58 Removing a Battery Box

Removing the Charger Board

Follow these steps to remove the charger board:

1. Remove the screws that secure the charger compartment metal cover.
2. Press the holding clip outward to unlock the charger board.
3. Pull the charger board out.

3.6.3 Power Cable Connections

The power backplane is complete with connectors to accommodate the power cables for all the system components.

Figure 3-59 illustrates the power cables that connect to the system board.

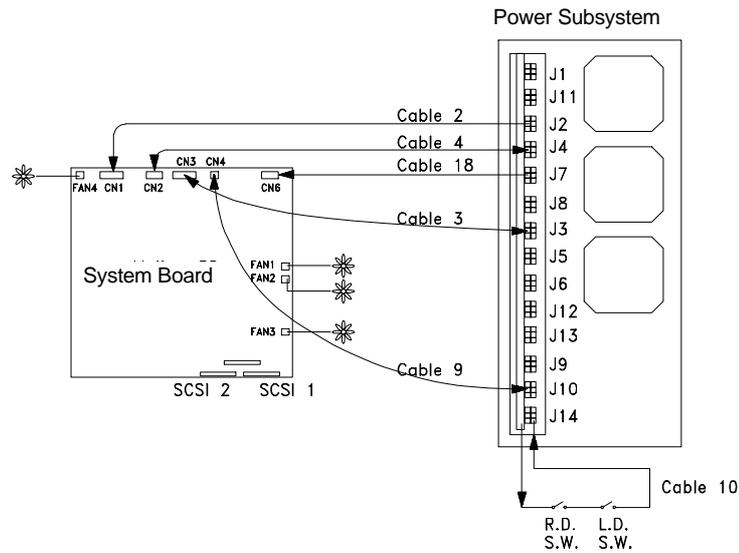


Figure 3-59 System Board Power Connections



Power cables 3, 4 and 18 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.

Figure 3-60 shows the system board, SCSI backplane board, front panel board, and power subsystem interconnections.

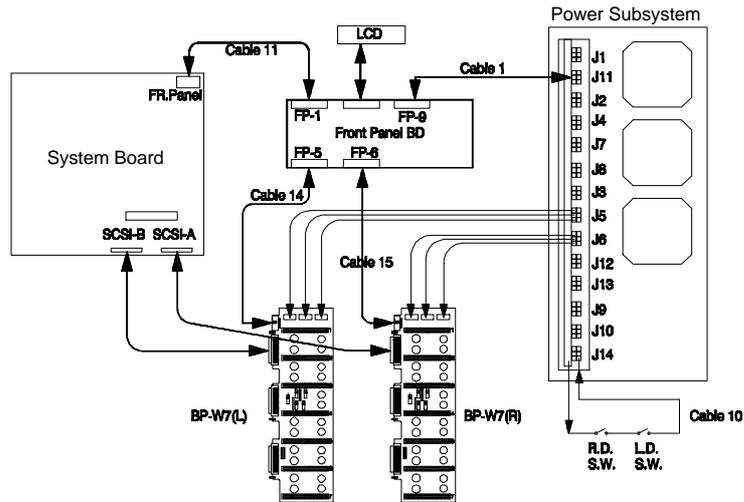


Figure 3-60 System Boards and Power Subsystem Interconnections

BIOS Utility

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



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

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

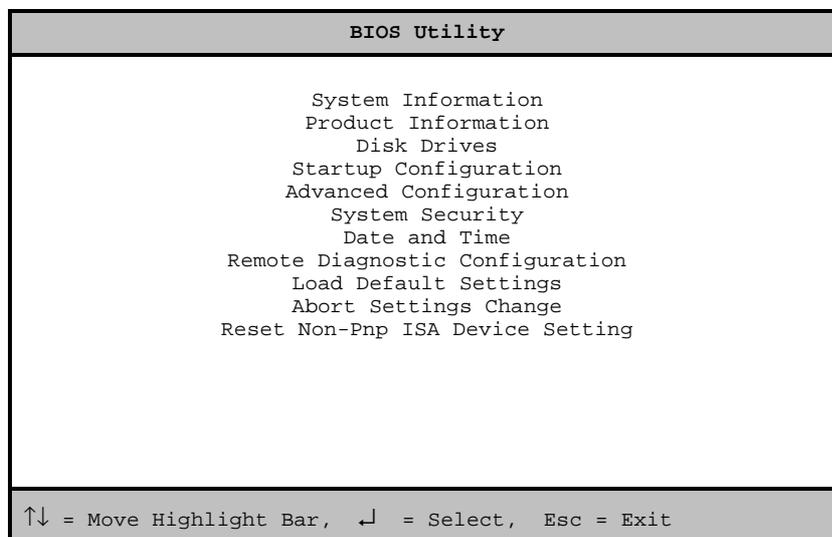
4.1 Entering Setup

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 1/1

Processor ..... Pentium Pro
Processor Speed ..... xxx MHz
Bus Frequency ..... xx MHz
Internal Cache ..... xx KB, Enabled
External Cache ..... xxx KB, Enabled
Floppy Drive A ..... x.xx MB, x.x-inch
Floppy Drive B ..... None
IDE Primary Channel Master.. Hard Disk, xxx MB
IDE Primary Channel Slave.. None
Total Memory ..... xx MB
Serial Port 1 ..... 3F8h, IRQ 4
Serial Port 2 ..... 2E8h, IRQ 3
Parallel Port ..... 378h, IRQ 7
Pointing Device ..... None

Note: New values after change will not be displayed until
      next reboot

PgUp PgDn = 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 sections explain the parameters.



The parameters on the screens show default values. These values may not be the same as those in your system.

The items on the screens have fixed settings and are not user-configurable.

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 Pro CPU.

4.2.2 Processor Speed

The Processor Speed parameter specifies the speed of the CPU currently installed in your system. The system supports Intel Pentium Pro CPU running at 200 MHz.

4.2.3 Bus Frequency

The Bus Frequency parameter specifies the system external clock. The bus frequency can be either 50, 60 or 66 MHz.

4.2.4 Internal 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. For information on how to configure the system memory, see section 3.3.3.

4.2.5 External Cache

This parameter specifies the second-level cache memory size currently supported by the system, and whether it is enabled or disabled. For information on how to configure the system memory, see section 3.3.3.

4.2.6 Floppy Drive A

This parameter specifies the type of drive designated as Floppy Drive A. For information on how to configure the floppy drives, see section 4.4.1.

4.2.7 Floppy Drive B

This parameter specifies the system's current floppy drive B settings. For information on how to configure the floppy drives, see section 4.4.1.

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. For information on how to configure IDE devices, see section 4.4.2.

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. For information on how to configure IDE devices, see section 4.4.2.

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.

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*.

4.3 Product Information

The Product Information contains general data about the system. It includes the product name, serial number, BIOS version, etc. These information are 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 .....Quad Pentium Pro Enterprise Server
System S/N .....M000008
Main Board ID .....X3
Main Board P/N .....55.59901.001
System BIOS Version .....V3.0
System BIOS ID .....R01-A0
BIOS Release Date .....xx/xx/xx

Esc = Back to Main Menu
```

4.3.1 Product Name

This parameter specifies the product 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.

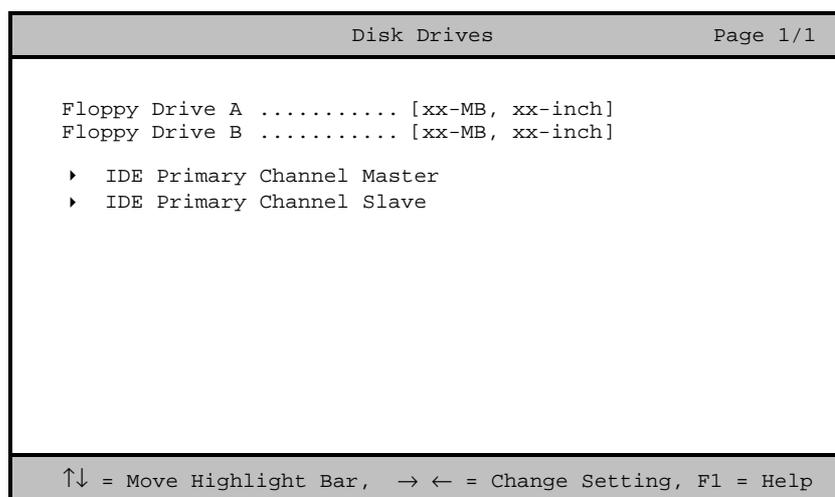
4.3.7 BIOS Release Date

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

4.4 Disk Drives

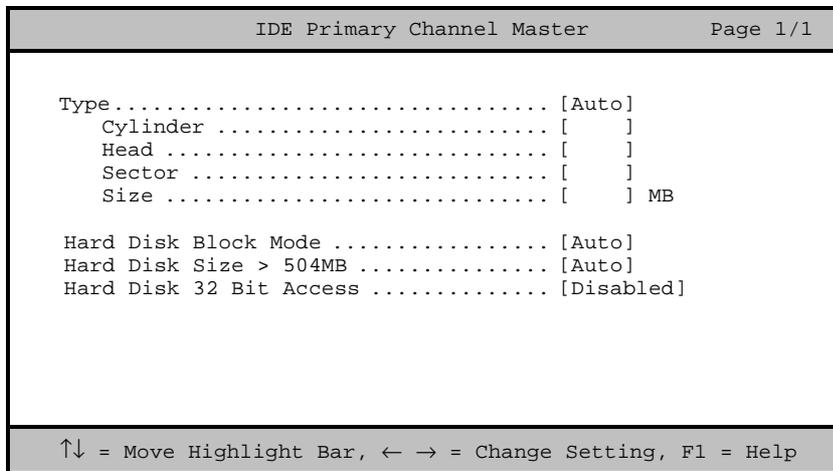
The Disk Drives menu lets you configure the IDE hard disk and disk drive settings.

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 and IDE Primary Channel Slave items to display their respective menus. The screen on the next page shows the menu.



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 key 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 if you want to configure an IDE device set as master. Select the IDE Primary Channel Slave 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.



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. Follow step 2 of the procedure when configuring a master 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*.

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, enhanced IDE feature works only under DOS and Windows 3.x, 95 environment. 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, 95, and Novell NetWare. If your software or hard disk does not support this function, set this parameter to *Disabled*.

4.5 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

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

System Boot Drive .....[Drive A Then C]
Boot From CD-ROM .....[Disabled]

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

4.5.1 System POST Mode

This parameter allows the system to perform the POST routines in Diagnostic and Normal modes. The Diagnostic mode shows the current status on the front panel LCD display. The default setting is Normal.

4.5.2 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 occurred 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.

4.5.3 Num Lock After Boot

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

4.5.4 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.

4.5.5 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.

4.5.6 Boot From CD-ROM

When set to *Enabled*, the system checks for a bootable CD in the 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.

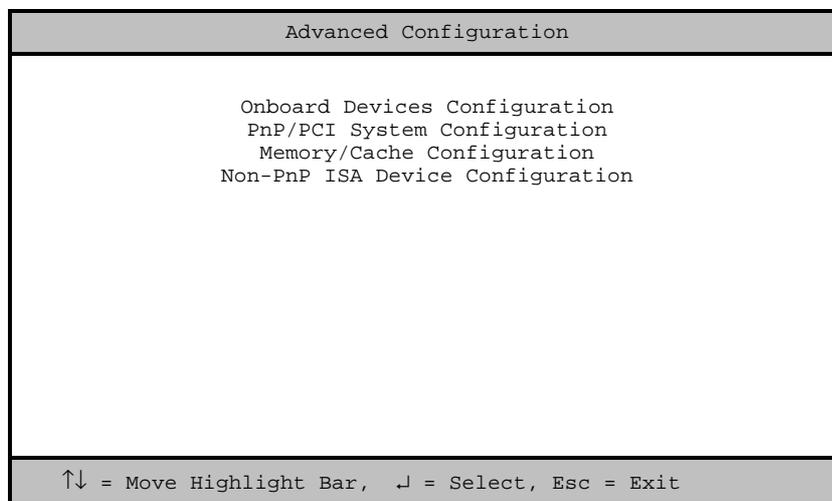
4.6 Advanced Configuration

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.



4.6.1 Onboard Devices Configuration

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

Onboard Devices Configuration		Page 1/2
Serial Port 1	[Enabled]	
Base Address	[3F8h]	
IRQ	[4]	
Serial Port 2	[Enabled]	
Base Address	[2F8h]	
IRQ	[3]	
Parallel Port	[Enabled]	
Base Address	[378h]	
IRQ	[7]	
Operation Mode	[Standard]	
ECP DMA Channel	[-]	

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

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

Onboard Devices Configuration		Page 2/2
Onboard Floppy Disk Controller	[Enabled]	
Onboard IDE Primary Channel	[Enabled]	
Onboard PS/2 Mouse (IRQ 12)	[Enabled]	
Onboard SCSI1	[Enabled]	
Boot from SCSI1 Device	[Enabled]	
OnboardSCSI2	[Enabled]	
Boot from SCSI2 Device	[Enabled]	
Onboard Ethernet Chip	[Enabled]	
↑↓ = Move Highlight Bar, ← → = Change Setting, F1 = Help PgUp/PgDn = Move Screen		

Serial Port 1

This parameter allows you to enable or disable the serial port 1.

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.



The Base Address and IRQ parameters are configurable only if Serial Port 1 is enabled.

Serial Port 2

This parameter allows you to enable or disable the serial port 2.

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.

Note that the Base Address and IRQ parameters are configurable only if Serial Port 2 is enabled.



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 onboard, the system automatically disables the onboard functions.

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

OPERATION MODE

This item allows you to set the operation mode of the parallel port. Table 4-1 lists the different operation modes.

Table 4-1 Parallel Port Operation Mode Settings

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

ECP DMA CHANNEL

This item becomes active only if you select Extended Capabilities Port (ECP) as the operation mode. It allows you to 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 access to the devices connected to the primary channel. When disabled, it deactivates the 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 of other devices.

4.6.2 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 screen.

PnP/PCI System Configuration		Page 1/1			
PCI IRQ Setting	[Auto]				
		INTA	INTB	INTC	INTD
PCI Slot 1	[--]	[--]	[--]	[--]	[--]
PCI Slot 2	[--]	[--]	[--]	[--]	[--]
PCI Slot 3	[--]	[--]	[--]	[--]	[--]
PCI Slot 4	[--]	[--]	[--]	[--]	[--]
PCI Slot 5	[--]	[--]	[--]	[--]	[11]
PCI Slot 6	[--]	[--]	[11]	[11]	[--]
PCI Slot 7	[--]	[11]	[--]	[--]	[--]
PCI OB SCSI1	[11]				
PCI OB SCSI2	[11]				
PCI IRQ Sharing	[No]				
VGA Palette Snoop	[Disabled]				
↑↓ = Move Highlight Bar, ← → = Change Setting, F1 = Help					

PCI IRQ Setting

This function is fixed at `Auto` setting and is nonconfigurable. It automatically configures the plug-and-play (PnP) devices installed in your system.

Refer to your manual for technical information about the PCI card.

PCI SLOTS

These parameters specify the auto-assigned interrupt for each of the PCI devices. Like the PCI IRQ Setting parameter, these are also nonconfigurable.

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.

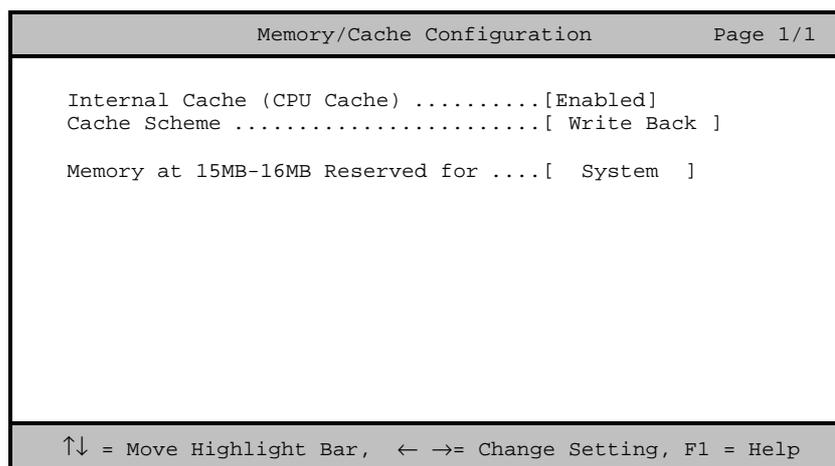
The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAM DAC (Digital Analog Converter, a color data storage) of each VGA card installed in the system. The snooping process lets the CPR send a signal to all the VGA cards so that they can update their individual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

4.6.3 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.



Internal Cache (CPU Cache)

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

Cache Scheme

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

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.

4.6.4 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.

Non-PnP ISA Device Configuration		Page 1/4
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 --- [No]	
IRQ 05 --- [No]	IRQ 13 --- [---]	
IRQ 06 --- [---]	IRQ 14 --- [No]	
IRQ 07 --- [No]	IRQ 15 --- [No]	
↑↓ = 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.

Non-PnP ISA Device Configuration		Page 2/4
System Resources Used by Non-PnP ISA Cards		
DMA		
DMA 0 ---- [No]	DMA 4 -----[---]	
DMA 1 ---- [No]	DMA 5 -----[No]	
DMA 2 ---- [---]	DMA 6 -----[No]	
DMA 3 ---- [No]	DMA 7 -----[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		

Non-PnP ISA Device Configuration		Page 3/4
I/O Region		
100h-10Fh ----[No]	1E0h-1EFh --- [No]	
110h-11Fh ----[No]	1F0h-1FFh --- [---]	
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		

Non-PnP ISA Device Configuration		Page 4/4
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 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 if 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		

4.7.1 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.

Table 4-2 lists the drive control settings and their corresponding functions.

Table 4-2 Drive Control Settings

Setting	Description
Floppy Drive	
Normal	Diskette drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector
Disabled	Disables all diskette functions
Hard Disk Drive	
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

4.7.2 Setup Password

The Setup Password prevents unauthorized access to the BIOS utility.

Setting a Password

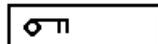
1. Make sure that JP11 is set to 2-4 (bypass password).



You cannot enter the BIOS utility if a Setup password does not exist and JP11 is set to 1-2 (password check enabled).

By default, JP11 is set to 2-4 (bypass password).

2. Enter BIOS utility and select System Security.
3. Highlight the Setup Password parameter and press the  or  key. The password prompt appears:

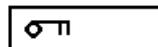
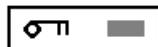


4. Type a password. The password may consist of up to seven characters.



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

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



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

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

7. Press **ESC** to exit the System Security screen and return to the main menu.
8. Press **ESC** to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.
9. Select *Yes* to save the changes and reboot the system.
10. While rebooting, turn off the system then open the housing.
11. Set JP11 to 1-2 to enable the password function.

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

Changing or Removing the Setup Password

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

1. Enter the BIOS utility and select System Security.
2. Highlight the Setup Password parameter.
3. Press **←** or **→** to display the password prompt and key-in a new password.

or

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

-
4. Press **ESC** to exit the System Security screen and return to the main menu.
 5. Press **ESC** to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.
 6. Select **Yes** to save the changes.

Bypassing the Setup Password

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

1. Turn off and unplug the system.
2. Open the system housing and JP11 is set to 2-4 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.*

4.7.3 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 JP11 to 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 the system boots. When set to `Network`, the password prompt does not appear; however, the keyboard is locked after the system has booted and remains locked until the correct password is entered.

4.8 Date and Time

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

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

Date and Time		Page 1/1
Date	[xxx xx xx, 199x]	
Time	[xx:xx:xx]	
↑↓ = Move Highlight Bar, ← → = Change Setting, F1 = Help		

4.8.1 Date

Highlight the items on 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:

- Week days Sun, Mon, Tue, Wed, Thu, Fri, Sat
- Month 1 to 12
- Day 1 to 31
- Year **

4.8.2 Time

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

Valid values for hour, minute, and second are:

- Hour 00 to 23
- Minute 00 to 59
- Second 00 to 59

4.9 Remote Diagnostic Configuration

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

4.10 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.

4.11 Abort Settings Change

Use this option to disregard the 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 load previous settings?

[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.

4.12 Reset Non-PnP ISA Device Setting

Selecting this option from the main menu resets all the Non-PnP ISA Device Configuration parameter settings to their defaults.

Refer to section 4.6.4 for details on the Non-PnP ISA device parameters.

4.13 Leaving Setup

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

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

```
Settings have been changed.  
Do you want to save CMOS settings?  
  
[Yes]          [No]
```

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

Chapter 5

Diagnostics and Utilities

5.1 ASM Pro

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

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

The 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 Management

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

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

5.3 EISA Configuration Utility

The EISA Configuration Utility (ECU) is a program that allows you to easily configure your EISA computer. Use this utility when you set up your EISA computer for the first time or any time you change your configuration by adding or removing an EISA or ISA board. The program stores the configuration information in the computer's nonvolatile memory where it is available whenever you use your computer.

5.3.1 Functions

The ECU does the following:

- Automatically detects and configures the system memory.
- Supports EISA and ISA boards, PCI devices, and plug-and-play ISA boards.
- Automatically detects EISA boards, PCI devices, and plug-and-play ISA boards installed in the computer.
- Helps you configure EISA board by providing the appropriate switch and jumper settings.
- Notifies you immediately if a conflict occurs during configuration.
- Creates and maintains the System Configuration Information (SCI) file as a backup for the computer's nonvolatile memory.
- Supports configuration (CFG) file extensions.

5.3.2 Running ECU

Follow these steps to run ECU:

1. Restart the system using DOS.
2. Insert the EISA Configuration diskette in drive A.
3. At DOS prompt, type:

a:\cf

4. Press to display the Main Menu.

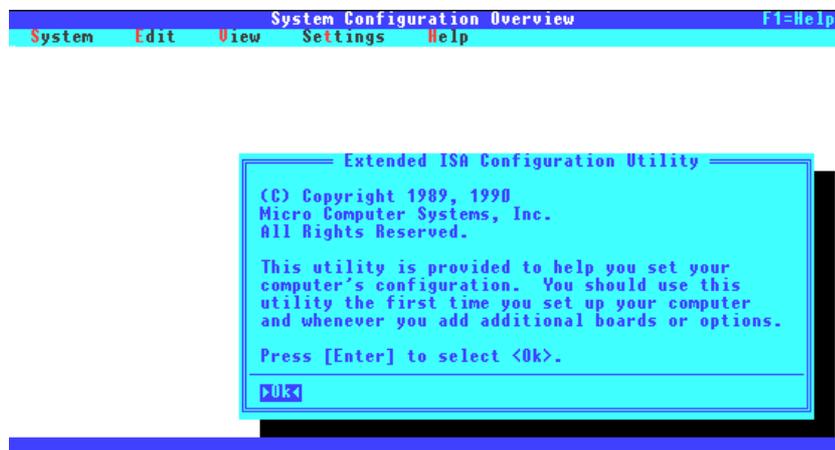


Figure 5-1 ECU Main Menu

5.3.3 Getting Help

The ECU automatically displays information about each choice on the Main Menu and the second-level menus. The utility also allows you to access an online help once you begin the configuration process.

Press **F1** to display the help menu. Press **ESC** to remove the help menu on the screen.

5.3.4 Making Menu Selections

You can use the keyboard or the mouse to make menu selections.

Using the Keyboard

Table 5-1 Keyboard Function Keys

Key	Function
Tab or ↓	Moves the cursor to the next field
SHIFT + Tab or ↑	Moves the cursor to the previous field
↑ or ↓	Moves the cursor between items within a list
ENTER	Selects an item
ESC	Cancels the most recent action
PGUP , PGDN , ↑ or ↓	Scrolls a screen
HOME	Moves the cursor to the top of a list
END	Moves the cursor to the bottom of a list
CTRL + HOME	Moves the cursor to the beginning of a menu
CTRL + END	Moves the cursor to the end of a menu
INSERT	Inserts screen options or selections

Using the mouse

Follow these steps to use the mouse when making menu selections:

1. Position the cursor over the desired option then click on the left mouse button to select it.
2. When a sub-menu appears, click on the left button again to make a selection.
3. If a scroll bar appears on the right side of the screen, place the mouse cursor over the arrow at the top or at the bottom of the scroll bar, then click and hold the left mouse button to scroll up or down the page.

5.3.5 System Memory

The ECU automatically detects and configures the size of your system memory. When the memory size is changed, enter the ECU and exit/save the configuration change.

5.3.6 PCI Devices IRQ Assignment

The settings of the PCI slots must be consistent with the settings in the PnP/PCI System Configuration in section 4.6.2.

5.3.7 Peripheral Device Status

The settings of the Peripheral Device Status must be consistent with the settings in the Onboard Devices Configuration in section 4.6.1.

5.3.8 System Setting

This parameter has two options, the Special System Ports and the EISA Reserved Devices. These options are set to `Enabled` by default.