

Acer Altos 22000
User's guide

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Record the model number, serial number, purchase date, and place of purchase information in the space provided below. The serial number and model number are recorded on the label affixed to your computer. All correspondence concerning your unit should include the serial number, model number, and purchase information.

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Notices

FCC notice

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Notice: Shield cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Notice: Peripheral devices

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this equipment. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.



.....
Caution! Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this computer.

Use conditions

This part complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice: Canadian users

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Remarque à l'intention des utilisateurs canadiens

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Important safety instructions

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

1. Follow all warnings and instructions marked on the product.
2. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
3. Do not use this product near water.
4. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
5. 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.
6. 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.

7. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
8. 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 the fuse rating.
9. 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.
10. 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.
11. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
12. When the power cord or plug is damaged or frayed
 - a. If liquid has been spilled into the product
 - b. If the product has been exposed to rain or water
 - c. 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.
 - d. If the product has been dropped or the cabinet has been damaged
 - e. If the product exhibits a distinct change in performance, indicating a need for service.
 - f. Replace the 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.

13. **Warning!** Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep them away from children and dispose of used batteries promptly.
14. Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

Laser compliance statement

The CD-ROM drive in this computer is a laser product. The CD-ROM drive's classification label (shown below) is located on the drive.

CLASS 1 LASER PRODUCT

CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

APPAREIL A LASER DE CLASSE 1 PRODUIT

LASERATTENTION: RADIATION DU FAISCEAU LASER INVISIBLE EN CAS D'OUVERTURE. EVITER TOUTE EXPOSITION AUX RAYONS.

LASER KLASSE 1

VORSICHT: UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET, NICHT DEM STRAHLL AUSSETZEN

PRODUCTO LÁSER DE LA CLASE I

ADVERTENCIA: RADIACIÓN LÁSER INVISIBLE AL SER ABIERTO. EVITE EXPONERSE A LOS RAYOS.

ADVARSEL: LASERSTRÅLING VEDÅBNING SE IKKE IND I STRÅLEN

VARO! LAVATTAESSA OLET ALTTINA LASERSÄTEILYLLE.

VARNING: LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD ÅLÅ TUIJOTA SÄTEESEENSTIRRA EJ IN I STRÅLEN

VARNING: LASERSTRÅLNING NAR DENNA DEL ÅR ÖPPNADSTIRRA EJ IN I STRÅLEN

ADVARSEL: LASERSTRÅLING NAR DEKSEL ÅPNESSTIRR IKKE INN I STRÅLEN

Lithium battery statement

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with

the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

ADVARSEL!

Lithiumbatteri - Eksplosjonsfare ved feilagtig håndtering. Udsiftingning må kun ske med batteri af samme fabrikat og type. Léver det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS

Päristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

VORSICHT!

Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.



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1 Getting started

The Acer Altos 22000 is a powerful 64-bit quad-processor system loaded with a host of new and innovative features. The system offers a new standard for flexible productivity ideal for local or wide area networks and multiuser server environments.

Overview

The Acer Altos 22000 is a PCI bus based quad-processor system built on an extended ATX baseboard. It comes with four Slot 2 processor slots utilizing one, two, or four Intel® Pentium® III Xeon™ processors. The system board also integrates the Intel® 82559 10/100 Mbps PCI Ethernet chipset that supports WOL (Wake on LAN) and AOL (Alert on LAN) for better remote site management. The dual-channel Ultra 160/m SCSI architecture, with bandwidths of up to 160 MB/s for each channel, supports up to eight SCSI hard disk drives.

For expandability, the system board includes two 32-bit/33 MHz PCI bus slots, two 64-bit/66 MHz PCI bus slots, and four 64-bit/33 MHz PCI bus slots. In addition, the memory board with sixteen DIMM slots allows memory installation to a maximum of 16-GB using sixteen 1024-MB registered ECC (error-correcting code) SDRAM (synchronous DRAM) modules.

For connectivity, the system board supports two USB (Universal Serial Bus) connectors, and other standard features such as two UART NS16C550 serial ports, one enhanced parallel port with Enhanced Parallel Port (EPP)/Extended Capabilities Port (ECP), a diskette drive interface, and an embedded IDE hard disk interface.

The system is fully compatible with MS-DOS V6.X, Novell Netware, Novel SFT III, SCO UNIX Openserver, SCO Unixware, Linux, Sun Solaris, Windows NT 4.0, and Windows 2000.

Processors

The Pentium III Xeon processors are built using advanced Intel 0.18-micron process technology that enables faster processor speeds, new performance enhancing features and lower power consumption. They are available in speeds of 550 MHz, 700 MHz, and 800 MHz. They also incorporate 512 KB/1MB/2MB Advanced Transfer Cache (on-die, full-speed level 2 (L2) cache with ECC) providing scalability to meet most platform computing needs.

Memory

The add-on memory board with sixteen DIMM sockets allows memory upgrade to a maximum of 16-GB using sixteen 1024-MB registered ECC SDRAM modules. For data integrity, the BIOS default setting value for the ECC function of the memory system is enabled.



Note: The SDRAM should work under 3.3 volts only; 5-volt memory devices are not supported.

The system board only supports registered PC-100 (100 MHz) SDRAM modules and above; PC-66 (66 MHz) modules are not supported.

System chipsets

Server Works HE north and south bridge

The Server Works HE north chipset incorporated as a north bridge is in charge of the host bus interfacing and memory bus control. The memory bus control supports four way interleaved PC-100 SDRAM registered ECC DIMM up to 16 GB. The north bridge provides one 32-bit PCI bus running at 33 MHz.

Also, the Champion I/O bridge (CIOB) subset supports peer-to-peer 64-bit PCI buses running at 66 MHz or 33 MHz with a total bandwidth of up to 1 GB/s.

The south bridge subset provides the legacy ISA interface, USB port, ATA33, and SM bus. The BMC (Baseboard Management Control) was embedded on the motherboard and connected with the south bridge to provide the ASM (Advanced Server Management) and RDM (Remote Diagnostic Management) function and also industry standard IPMI (Internet Protocol Multicast Initiative) protocol as well.

SCSI subsystem

The dual-channel AIC-7899 single-chip host adapter delivers Ultra160/m SCSI data transfer rates which doubles the Ultra-2 SCSI data transfer rate of up to 160 MByte/sec. With two channels, it delivers a total of 320

MByte/sec bandwidth. In addition, the AIC-7899 features a 66 MHz, 64-bit PCI interface that supports zero wait-state memory which also operates on 33 MHz, 32-bit PCI buses. It supports up to 15 devices on a 12-meter cable (or 25 meters in a point-to-point configuration), making it ideal for both clustering and RAID configurations.

LAN subsystem

Another cost-effective feature for network solutions is the integration of Intel's 82559 10/100 Mbps Fast Ethernet controller which supports:

- Advanced Configuration and Power Interface (ACPI) 1.20A based power management
- wake on Magic Packet
- wake on interesting packet
- advanced System Management Bus (SMB) based manageability
- Wired for Management (WfM) 2.0 compliance
- IP checksum assist
- PCI 2.2 compliance
- PC 98, and PC 99 compliance

Video subsystem

The ATI Rage XL harbors 2D and 3D display capabilities that bring life to any multimedia and work applications. It also supports hardware DVD decoding with a remarkable color depth and high resolution of up to 1600x1200 to enhance any visual experience on your system.

The onboard ATI Rage XL chipset comes with 2 MB of video memory and supports up to 1024x768 display mode at high colors with a 4 MB video memory option.

Expansion slots

The hot plug function minimizes system down time by allowing the removal and placement of PCI devices without shutting down the system. The system board has eight PCI buses contained in three PCI segments:

- two 32-bit/33 MHz PCI bus slots (PCI slots 1 and 2)

- two 64-bit/66 MHz PCI bus slots with hot plug capability (PCI slots 3 and 4)
- two 64-bit/33 MHz PCI bus slots with hot plug capability (PCI slots 5 and 6)
- two 64-bit/33 MHz PCI bus slots (PCI slots 7 and 8)

Hardware management support

The system board supports the power-management function that conforms to the power-saving standards of the U.S. Environmental Protection Agency (EPA) Energy Star program. It also offers Plug-and-Play which helps save users from configuration problems, thus making the system more user-friendly.

Additional features includes hardware support for ASM (Advanced Server Manager) and RDM (Remote Diagnostic Management). ASM detects problems in CPU thermal condition, CPU working voltage detection ($\pm 12V/\pm 5V/3.3V/1.5V$), and PCI bus utilization calculation. It also detects if the CPU fan or the chassis fan malfunctions. Meanwhile, RDM allows execution of the RDM diagnostic program from a remote RDM station to fix detected problems or to reboot the system.

► Features summary

The main board has the following major components:

- Four Slot 2 CPU connectors that support one, two, or four Intel Pentium III Xeon processors with an external front side bus of up to 100 MHz on the main board and the next generation of Pentium processors:
 - Intel Pentium III Xeon running at 550 MHz with integrated 512K, 1MB, or 2MB L2 write-back cache. One VRM (voltage regulator module) for each CPU and one VRM for the L2 cache of two CPUs
 - Intel Pentium III Xeon running at 700 or 800 MHz with integrated 512K, 1MB, or 2MB L2 write-back cache. VRM installation is not necessary because the CPU already includes a VRM
- Adaptec® AIC-7899 SCSI controller chipset supports dual channel 64-bit LVD Ultra 160/m device connections in 66 MHz PCI bus:
 - Channel A - one 50-pin fast SCSI and one 68-pin Ultra 160/m SCSI connector
 - Channel B - one 68-pin Ultra 160/m SCSI connector
- Onboard 10/100 Mb/s Intel 82559 LAN chip that supports WOL and AOL
- Sixteen DIMM sockets that accept 64-, 128-, 256-, 512-, and 1024-MB SDRAMs with a maximum memory upgrade of 16-GB
- Supports eight PCI slots:
 - two 32-bit/33 MHz PCI slots
 - two 64-bit/66 MHz PCI slots with hot-plug capability
 - four 64-bit/33 MHz PCI slots with hot-plug capability in two of the slots
- 256-KB Flash ROM for system BIOS
- System clock/calendar with battery backup
- Server management functions (ASM and LANDesk)
- PCI SVGA on-board supports analog CRT monitors. Supports up to 1024x768 resolution with on-board VGA RAM
- ASM (Advanced Server Manager) hardware logic circuit
- BMC (Baseboard Management Controller) onboard

- LCD screen controller for the Message Pad (front panel LCD/LED interface)
- I²C ready
- One channel IDE Ultra ATA33 interface, one 34-pin standard floppy drive connector, and one 20-pin connector for slim type floppy drive for 4U chassis
- Auxiliary power connector for ATX power supply
- Super I/O chipset
- External ports:
 - USB connector
 - PS/2-compatible keyboard port
 - PS/2-compatible mouse port
 - Front panel LCD/LED interface
 - RJ-45 jack
 - Video port
 - Parallel port
 - Serial port 1 and 2

Preinstallation requirements

Selecting a site

Before unpacking and installing the system, select a suitable site for the system for maximum efficiency. 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.

Checking the package contents

Check the following items from the package:

- Acer Altos 22000 system
- Acer Altos 22000 User's guide
- CD-ROM driver kits
- System keys (hung inside the front panel door)

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

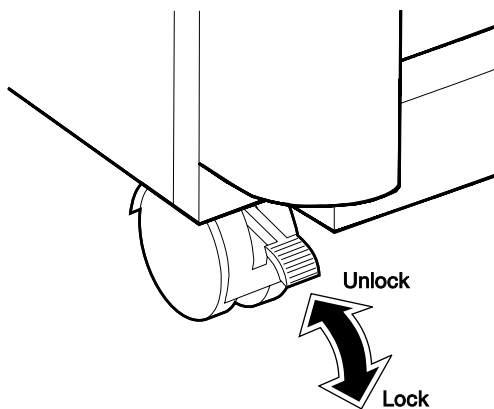
Save the boxes and packing materials for future use.

Preparing the system unit

Do the following to begin setting up the system:

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

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

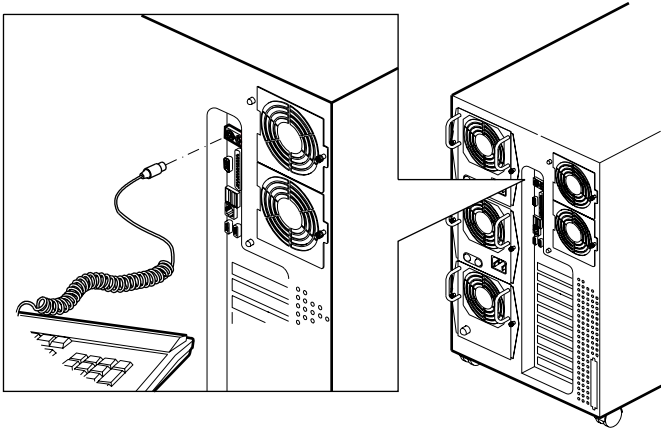


2. After moving, lock the wheels by pressing down the levers.
Make sure to unlock the wheels when you want to move the system again.

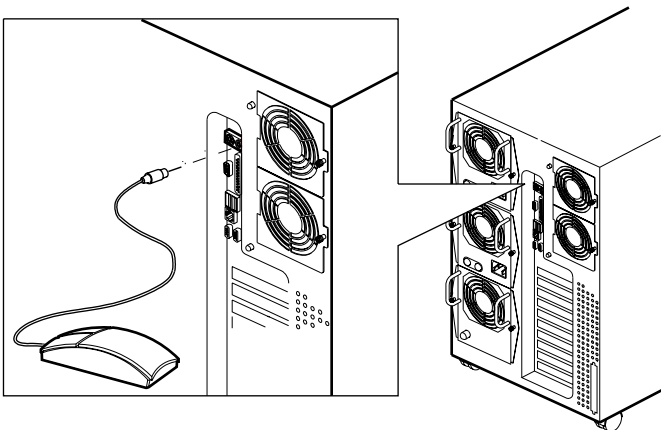
Basic connections

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

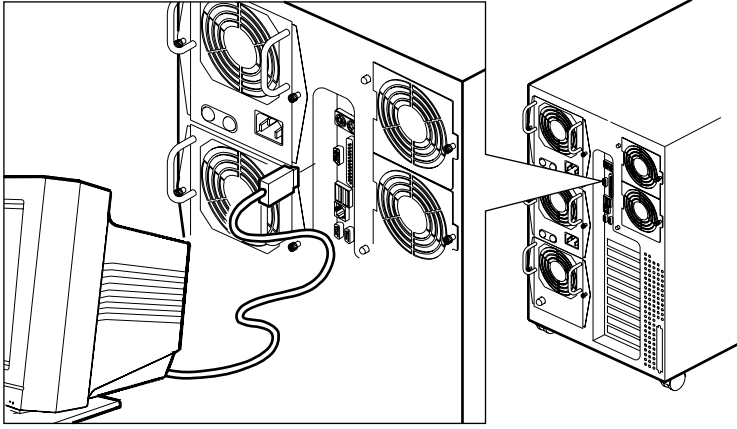
Connecting the keyboard



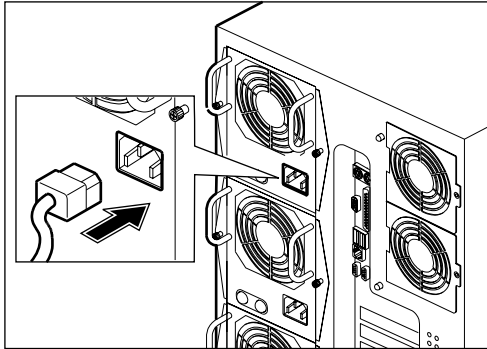
Connecting the mouse



Connecting the VGA monitor



Connecting the power cable



Note: The system needs a total of 860W (two 430W power supply modules) of power to operate. Make sure to connect a power cable for each power supply module.

▶ 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.

To power on the system:

1. Turn on the power switch to activate the power supply. If you installed two power supplies, activate both of them.
2. Open the front panel door and press the On/Off button. The system starts up and displays a welcome message. After that, a series of power-on self-test (POST) messages appears. The POST messages indicate if the system is running well or not.



Note: If the system does not turn on or boot after pressing the On/Off button, go to the next section for the possible causes of the boot failure.

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

- Power indicator LED on the front bezel lights up (green)
- Power, Num Lock, and Caps Lock LED indicators on the keyboard light up
- Power supply power LED located at the back of the system lights up (green)

▶ 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 external power cable may be loosely connected.

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

- No power comes from the grounded power outlet.

Have an electrician check your power outlet.

- Loose or improperly connected internal power cables.

Refer to page 80 for the cable connections and check the internal cable connections. If you are not confident to perform this step, ask a qualified technician to help you.




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



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

2 System tour



This chapter discusses the features and components of your computer.

► External and internal structure

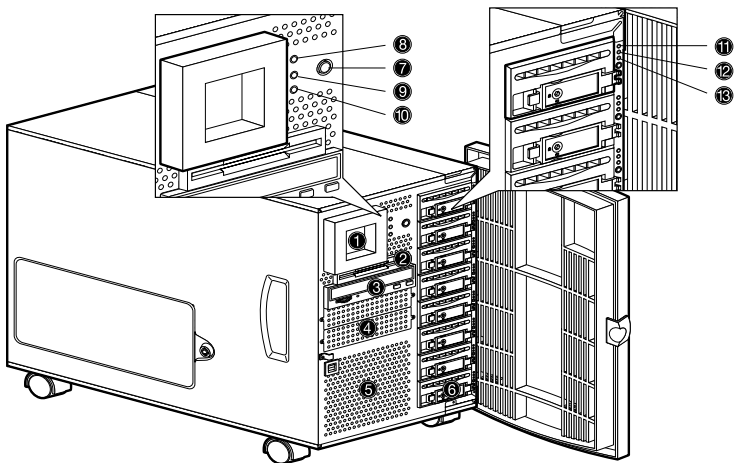
Front panel

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

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



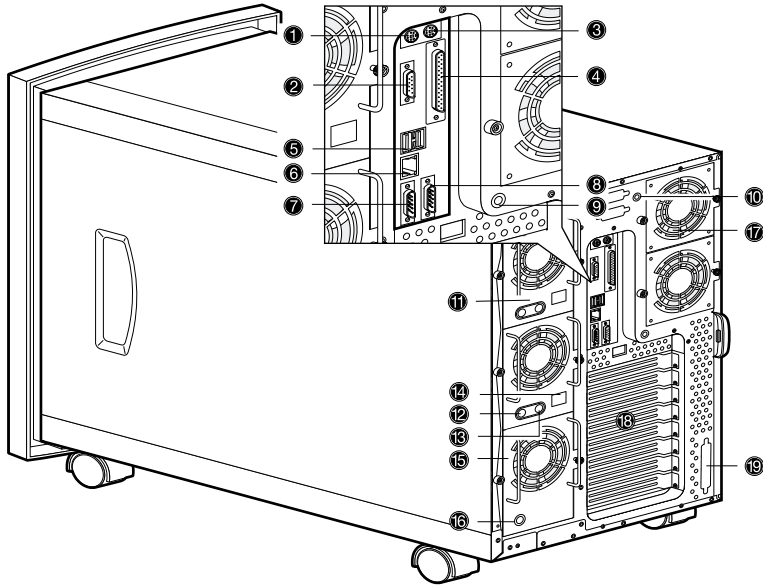
Note: One pair of system keys are hung inside the front panel door. Additional duplicate keys can be found at the back of the system.



No.	Item	Description
1	LCD message pad	Indicates boot status as well as any BIOS checkpoint errors encountered upon system initialization.
2	3.5-inch diskette drive	A 3.5-inch diskette drive comes with the basic system.
3	CD-ROM drive	A SCSI CD-ROM drive comes with the basic system.
4	5.25-inch drive bays	Two empty 5.25-inch drive bays allow installation of additional devices.
5	Ventilation	Exhausts heat built-up inside the housing.
6	SCSI HDD bays	Eight empty SCSI HDD bays allow installation of hot-swap SCSI drives.
7	Power switch	The power switch turns the system on.
8	System power LED	Lights up (green) when the power is on. This also denotes that the system is running on a good supply of AC power.
9	System HDD access LED	Lights up (green) when at least one of the hard disks is currently accessing.
10	RDM active LED	Lights up (yellow) when an error condition occurs in the system.
11	SCSI HDD power status	Lights up (green) when the HDD is connected and ready to go.
12	SCSI HDD busy	Lights up when the HDD is currently accessing.
13	SCSI HDD failure	Lights up (orange) when the HDD installed on the backplane board is bad.

Rear panel

The rear panel includes the system fan, the connectors for the keyboard, mouse, VGA monitor, printer, and serial devices, the slot openings for expansion boards, and the power supplies.



No.	Item	Description
1	PS/2 keyboard port	Connects to PS/2 keyboards.
2	Video port	Connects to CRT monitors.
3	PS/2 mouse port	Connects to the PS/2 mouse.
4	Parallel port	Connects to parallel devices (e.g., printer).
5	USB ports	Connects to USB devices.
6	LAN port	Connects to the network cable.

No.	Item	Description
7	COM 2 port	Connects to serial devices (e.g., serial mouse).
8	COM 1 port	Connects to serial devices (e.g., serial mouse).
9	Hot-swap redundant fan fail LED 2	Lights up (green) when the hot-swap redundant fan is working properly.
10	Hot-swap redundant fan fail LED 1	Lights up (green) when the hot-swap redundant fan is working properly.
11	Hot-swappable redundant power supply modules	Power the whole system. Can also be replaced even when the system is operating. See “Installing and removing a hot-swappable redundant power supply module” on page 66.
12	Power supply power LED	Lights up (green) when the power supply is on.
13	Power supply fan fail LED	Lights up (yellow) when one of the power supply fans is faulty.*
14	Power cable connector	Connects to the power cable.
15	Fan module (includes two fans)	The fan module is used in place of the third power supply module if one is not available.
16	Fan module fail LED	Lights up (yellow) when one or two fans are faulty.
17	Hot-swap redundant fan cage	Allows the system fan to be removed and installed even when the system is operating. See “Installing and removing housing fans” on page 69.
18	Expansion slots	Expansion cards installation. See “Installing a PCI expansion board” on page 73.
19	SCSI knock-out port	Allows installation of an external SCSI port.

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

LCD message pad

The LCD message pad is an 8-line by 16-character screen that indicates the boot status as well as any BIOS checkpoint errors encountered upon system initialization. Normally, the system BIOS and the micro-controller firmware send the LCD display messages that appear on the screen. However, if you hooked up a special purpose driver to control the LCD module, this driver defines the messages. See the driver manual for more information. For a list of LCD messages from the system BIOS, please refer to Appendix A.

Main menu

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

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

H/W monitor submenu

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

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

Temperature

```

CPU1: 35 Deg.C
CPU2: 35 Deg.C
CPU3: 35 Deg.C
CPU4: 35 Deg.C

<Enter>  Back
  
```

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

Voltage

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

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

Fan

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

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

Power

```
          Power Fan
SPS1:    OK    OK
SPS2:    OK    OK
Fm3 :    OK    OK

<Enter> Back
```

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

Fuse

```
KBMouse: OK
USB1   : OK
USB2   : OK
SCSI1  : OK
SCSI2  : OK

<Enter>  Back
```

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

Event log submenu

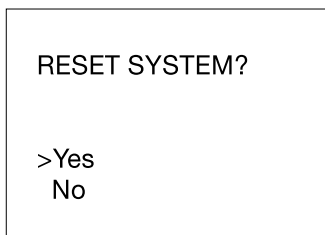
```
Event: 6
12:31 1/29'2000
PS/2 Keyboard
Interface Error

>Down Up Back
```

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

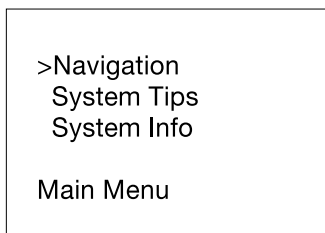
An event is any malfunction or breakdown in the normal operation of the system. Each event is displayed one by one. To display other events, press the Select button (left button) to choose down or up and then press the Enter button (right button) to view other events. Choose Back to go back to the main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

Reset system submenu



This submenu resets the system operation. Press the Select button (left button) to choose and then press the Enter button (right button) to confirm.

Help submenu



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

Replacing the LCD message pad

The system housing can be configured as a standalone tower housing or a rack-mounted housing. With each configuration, the LCD message pad may be placed differently. For more information about the rack mount installation and configuration, please refer to its user's guide.

To replace the LCD message pad:

1. Turn off the power to the system unit and unplug all cables.
2. Carefully pull out the LCD message pad. There is a connector at the back of the LCD display.
3. Disconnect the LCD connector.

4. Connect the LCD connector at the back of the new LCD message pad.
5. Attach the LCD message pad to the housing.

LCD message pad event log list

This section shows a lists of error messages that can be displayed in the LCD message pad.

Event types supported

Acer BIOS will support the following types for RAS models:

Event type	Description
01h	Single-bit ECC memory error
02h	Multi-bit ECC memory error
07h	POST memory resize, last byte is memory bank number
08h	POST error. In addition to 2 DWORD bitmap, Acer BIOS defines a new byte to recognize POST error message ID
09h	PCI parity error
0Ah	PCI system error
0Bh	CPU failure, including cache error
10h	System limit exceeded
14h	System re-configuration (ESCD data changed)
16h	Log area Reset/Cleared
81h	Setup password fail
82h	Power on password fail
83h ⁶	RDM events, see next table

Event type	Description
84h	Unknown H/W event detected
85h	CPU disabled by BIOS
86h	I/O Check Error
87h ⁸	Wake up on LAN
88h ⁸	AC power recovery

RDM events

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

Event	Description
xx CPU Thermtrip# issued	When the system crashed, xx CPU issued Thermtrip# signal.
xx CPU disabled	When the system crashed, a CPU's temperature exceeded the threshold so RDM disabled.

POST error events

POST error message	ID (Dec)	POST results bitmap (Dec)
PS/2 Keyboard Interface Error	20	10
PS/2 Keyboard Error or Not Connected	21	9
PS/2 Keyboard Locked	22	8
PS/2 Point Device Error	30	31
PS/2 Point Device Interface Error	31	31
Floppy Disk Controller Error	40	16
Floppy Drive A Error	41	14
Floppy Drive B Error	43	15
IDE 1st Channel Master Drive Error	50	58
IDE 1st Channel Slave Drive Error	51	58
IDE 2nd Channel Master Drive Error	52	59
IDE 2nd Channel Slave Drive Error	53	59
CPU BIOS Update Code Mismatch	60	32
Real Time Clock Error	70	06
CMOS Battery Bad	71	03
CMOS Checksum Error	72	05

POST error message	ID (Dec)	POST results bitmap (Dec)
NVRAM Checksum Error	90	50
I/O Resource Conflict(s)	120	40
Memory Resource Conflict(s)	121	39
IRQ Setting Error	122	41
Expansion ROM Allocation Failed	123	39
Onboard Serial 1 IRQ Conflict(s)	180	61
Onboard Serial 2 IRQ Conflict(s)	181	62
Onboard Parallel Port IRQ Conflict(s)	182	60
Onboard Floppy Drive IRQ Conflict(s)	183	57
Onboard Point Device IRQ Conflict(s)	184	31
Onboard IDE Secondary Channel IRQ Conflict(s)	185	59
Onboard ECP Parallel Port DMA Conflict(s)	186	60
Onboard Floppy Drive DMA Conflict(s)	187	57
Onboard Floppy Drive I/O Address Conflict(s)	188	57
Onboard IDE Secondary Channel I/O Address Conflict(s)	189	59
Onboard Serial Port 1 I/O Address Conflict(s)	190	61
Onboard Serial Port 2 I/O Address Conflict(s)	191	62
Onboard Parallel I/O Address Conflict(s)	192	60
Onboard Serial 1 Conflict(s)	193	61

POST error message	ID (Dec)	POST results bitmap (Dec)
Onboard Serial 2 Conflict(s)	194	62
Onboard Parallel Conflict(s)	195	60
Onboard IDE Primary Channel IRQ Conflict(s)	196	58
Onboard IDE Primary Channel I/O Address Conflict(s)	197	58
ECC Facility Fail	210	35
I2C Interface or Device(s) Error	211	37
System Management RAM Bad	11	36
CPU Clock Mismatch	61	38
PnP ISA Card(s) Disabled	198	29

Send error codes to LCD

Event type	Description
01h	Single-bit ECC memory error
02h	Multi-bit ECC memory error
07h	POST memory resize
08h	POST error
09h	PCI parity error
0Ah	PCI system error
08h	CPU failure, including cache error
10h	System limit exceeded
14h	System reconfiguration (ESCD data changed)

Event type	Description
16h	Log area Reset/Cleared
81h	Setup password fail
82h	Power-on password fail
83h	RDM events
84h	Unknown H/W event detected
85h	CPU disabled by BIOS
86h	I/O check error
87h	Wake up on LAN
88h	AC power recovery

Internal components

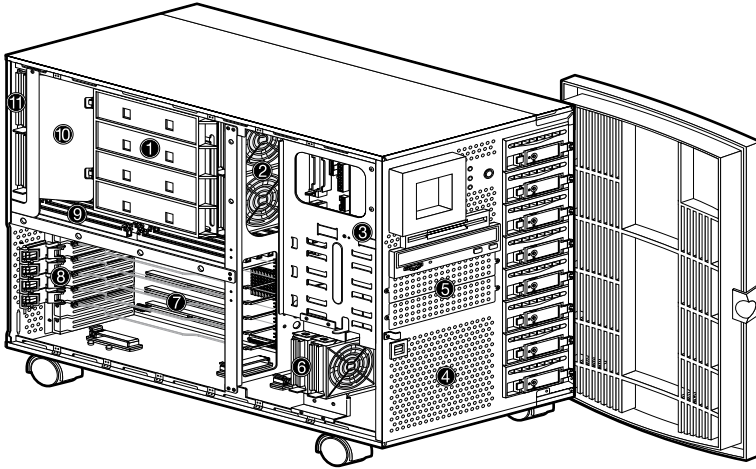
The housing is symmetrically divided into the left and right panels. The system's internal components are accessible through these panels.

Left panel

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

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

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



No.	Item	Description
1	CPU cage	Allows a maximum installation of four Pentium III Xeon processors.
2	CPU cage fans	Cool off excessive heat generated by the CPUs.
3	3.5-inch drive bay	Allows the installation of one 3.5-inch drive.
4	Ventilation	Ventilates the housing.
5	5.25-inch drive bays	Allows the installation of three 5.25-inch drives.
6	Hot-swappable redundant fans	Cool off the housing. Can also be replaced without turning off the system.
7	System board	Contains the connectors for attaching additional system components.
8	Expansion slots	Allows you to add new capabilities to the system by inserting expansion boards.

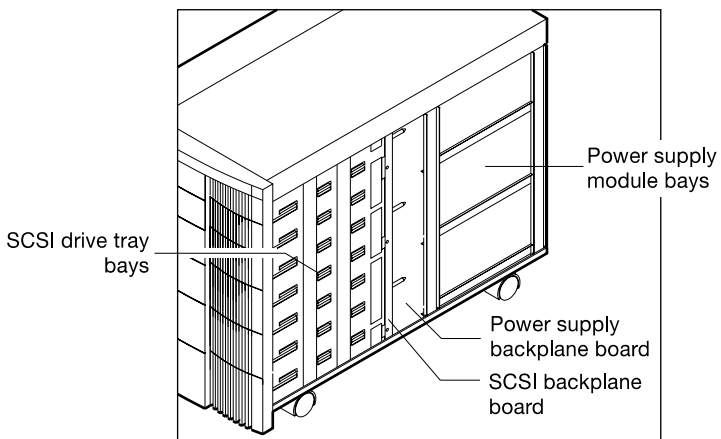
No.	Item	Description
9	Memory board	Allows you to installation system memory of up to 16-GB.
10	Thermal air guide	Cool off excessive heat generated by the CPUs.
11	Hot-swappable redundant fans	Cool off the housing. Can also be replaced without turning off the system.

Right panel

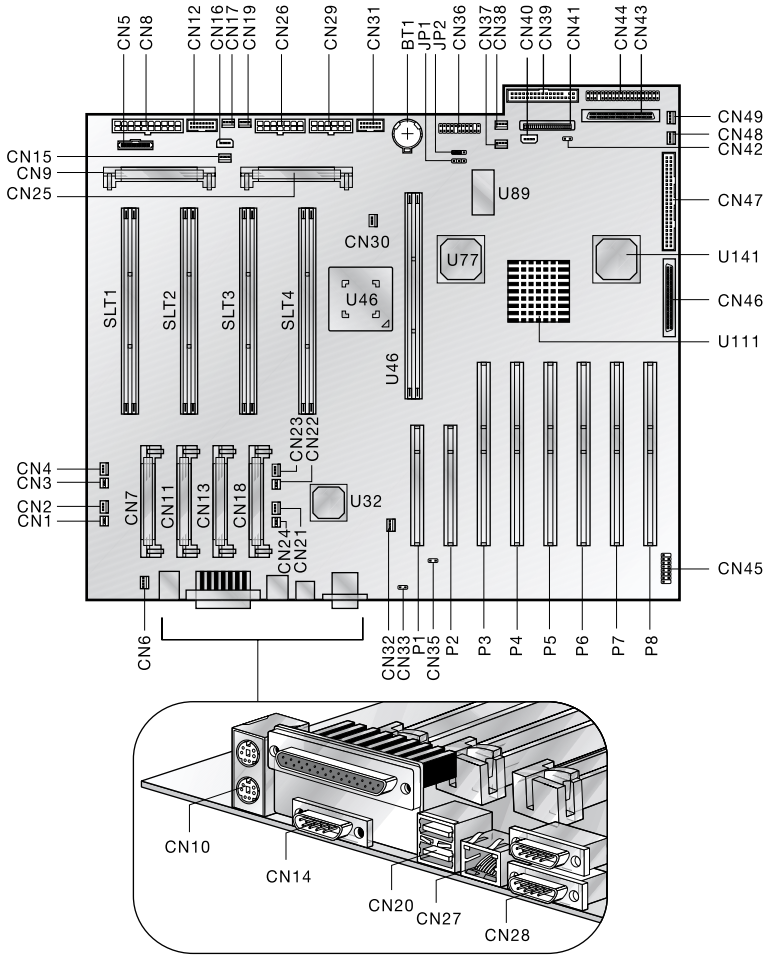
The power subsystem fills up most of the rear right panel. It consists of a power backplane board and a metal rack that holds up to three 430-watt redundant power supply modules. A fan module should be installed whenever a power supply is removed to provide the system with regular cooling.

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

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



Mainboard layout



Item	Description
BT1	Battery
CN1	CPU 2 thermal sensor connector

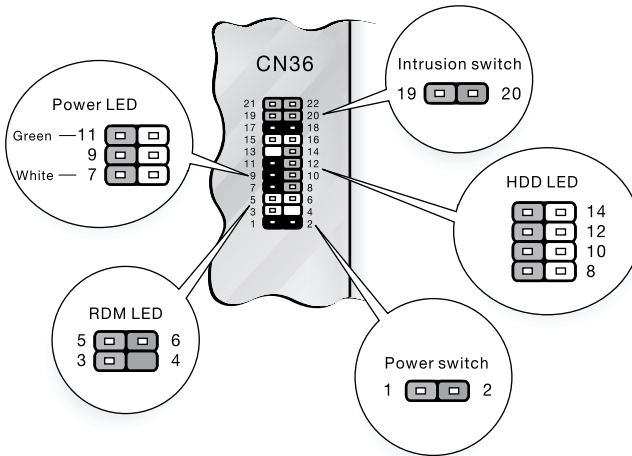
Item	Description
CN2	CPU 2 fan connector (reserved)
CN3	CPU 1 thermal sensor connector
CN4	CPU 1 fan connector (reserved)
CN5	ITP connector
CN6	Housing fan connector 6
CN7	Voltage regulator module (VRM) slot for CPU slot 1
CN8	Power cable connector
CN9	Voltage regulator module (VRM) slot for CPU slot 2
CN10	Above: PS/2 mouse port Below: PS/2 keyboard port
CN11	Voltage regulator module (VRM) slot for L2 cache of CPU slots 1 and 2
CN12	LCD panel connector (LCD message pad)
CN13	Voltage regulator module (VRM) slot for CPU slot 3
CN14	Above: Parallel port Below: VGA monitor port
CN15	SCSI backplane message connector
CN16	IPMI connector (reserved)
CN17	Housing fan connector 3
CN18	Voltage regulator module (VRM) slot for L2 cache of CPU slots 3 and 4
CN19	Housing fan connector 4
CN20	USB ports

Item	Description
CN21	CPU 3 fan connector (reserved)
CN22	CPU 4 thermal sensor connector
CN23	CPU 4 fan connector (reserved)
CN24	CPU 3 thermal sensor connector
CN25	Voltage regulator module (VRM) slot for CPU slot 4
CN26	Power cable connector
CN27	LAN port
CN28	Above: COM2 port Below: COM1 port
CN29	Power cable connector
CN30	Memory and I/O chipset fan connector
CN31	Power control connector
CN32	Housing fan connector 5
CN33	NMI switch connector
CN34	Memory board slot
CN35	Debug board connector
CN36	LED/switch board connector
CN37	SCSI LED connector
CN38	SCSI LED connector
CN39	Floppy drive connector
CN40	Wake on LAN conenctor
CN41	Slim type floppy drive connector
CN42	System event LED connector

Item	Description
CN43	Channel B wide/LVD Ultra SCSI connector (68-pin)
CN44	IDE connector
CN45	PHP board connector
CN46	Channel A wide/LVD Ultra SCSI connector (68-pin)
CN47	Channel A narrow/SE SCSI connector (50-pin)
CN48	Housing fan connector 1
CN49	Housing fan connector 2
JP1	BIOS setting 1-2 : OEM BIOS 2-3 : Acer BIOS
JP2	Password 1-2 : Bypass password 2-3 : Check password
P1-P2	32-bit/33 MHz PCI slots
P3-P4	64-bit/66 MHz PCI slots with hot plug capability
P5-P6	64-bit/33 MHz PCI slots with hot plug capability
P7-P8	64-bit/33 MHz PCI slots
SLT1 to SLT4	Slot 2 CPU slots 1 to 4
U32	VGA controller chipset
U46	System controller chipset (north bridge)
U77	System controller chipset (south bridge)

Item	Description
U89	BIOS chipset
U111	I/O bridge chipset
U141	SCSI controller chipset

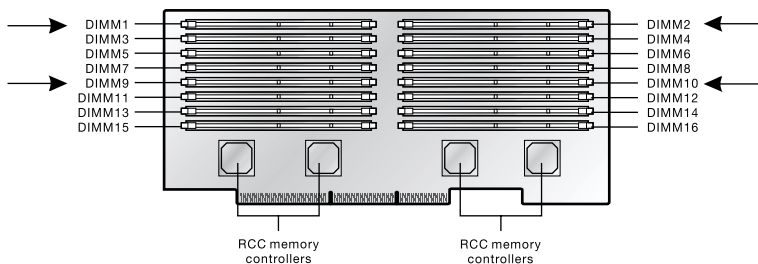
LED/switchboard connector (CN36)



Note: When connecting the Power LED cable, make sure that the side with the label is facing inward. The other cables can be connected without preference to which side.

Memory board

The memory board comes already installed with the basic system. A total of sixteen 168-pin DIMM sockets reside on the board. The sockets accept 64-MB, 128-MB, 256-MB, 512-MB, and 1024-MB DIMMs for a maximum of 16 GB memory configuration.



Note: For more information about the availability and installation of 1024-MB SDRAMs, please contact the customer service personnel.

Memory configurations

Every four slots of memory form a 4-way interleaving group. You must configure four identical ECC registered SDRAM DIMMs in a group for your system to work properly. As shown in the above figure, DIMM slots 1,2,9, and 10 form one interleaving group.



Note: Use DIMMs that have been tested for compatibility. Use of nonqualified DIMMs may cause your system to malfunction. Contact your sales representative or dealer for a list of approved DIMMs.

The table below shows some working memory configurations:

DIMM1	DIMM2	DIMM9-10	DIMM3-4 and DIMM11-12	DIMM5-6 and DIMM13-14	DIMM7-8 and DIMM15-16	Total memory
128M*1	128M*1	128M*2				512M
128M*1	128M*1	128M*2	128M*4			1024M

DIMM1	DIMM2	DIMM9-10	DIMM3-4 and DIMM11-12	DIMM5-6 and DIMM13-14	DIMM7-8 and DIMM15-16	Total memory
128M*1	128M*1	128M*2	128M*4	128M*4		1536M
128M*1	128M*1	128M*2	128M*4	128M*4	128M*4	2048M
256M*1	256M*1	256M*2				1024M
256M*1	256M*1	256M*2	256M*4			2048M
256M*1	256M*1	256M*2	256M*4	128M*4		2560M
256M*1	256M*1	256M*2	256M*4	128M*4	128M*4	3072M
256M*1	256M*1	256M*2	256M*4	256M*4		3072M
256M*1	256M*1	256M*2	256M*4	256M*4	256M*4	4096M
512M*1	512M*1	512M*2				2048M
512M*1	512M*1	512M*2	512M*4			4096M
512M*1	512M*1	512M*2	512M*4	128M*4		4608M
512M*1	512M*1	512M*2	512M*4	128M*4	128M*4	5120M
512M*1	512M*1	512M*2	512M*4	256M*4		5120M
512M*1	512M*1	512M*2	512M*4	256M*4	256M*4	6144M
512M*1	512M*1	512M*2	512M*4	512M*4		6144M
512M*1	512M*1	512M*2	512M*4	512M*4	512M*4	8192M

► SCSI backplane board

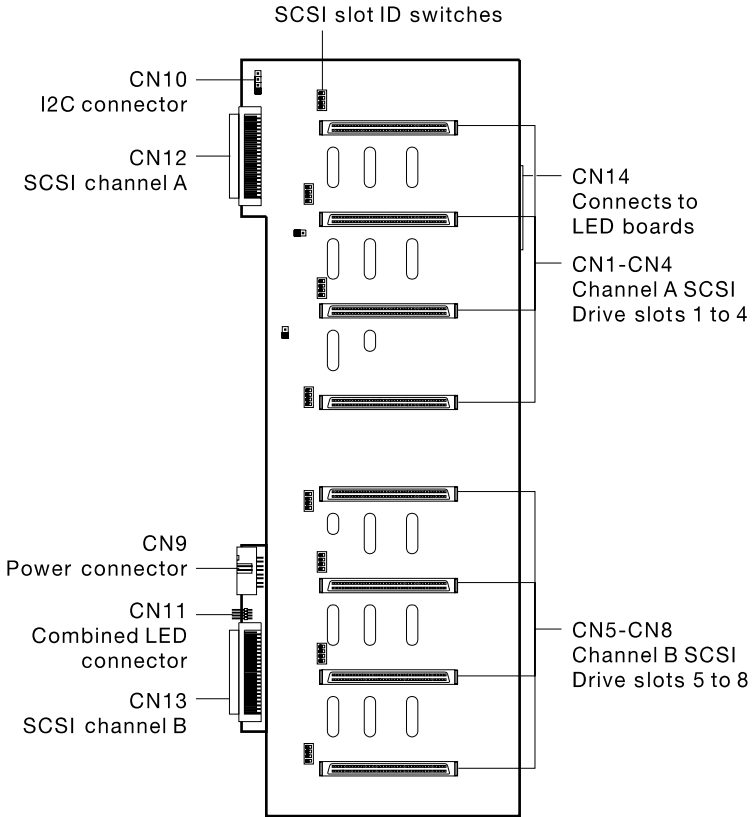
The SCSI backplane board provides a convenient interface between the SCSI drives and the system board. It includes eight SCSI drive slots to accommodate the drive trays and two SCSI channels to connect to the system board or SCSI controller board.

Features

The backplane board has the following major features:

- "Hot-swap" feature that allows replacement of a defective hard drive even while the system is in full operation (this feature requires a RAID controller board and RAID drivers)
- 2 channel configurations which support 4 SCSI hard drives per channel configuration
- Hard disk drive failure indication through the front panel board LED
- Ultra 160/m SCSI SCA disk drive support
- SCSI ID strapping that allows wide SCSI HDD ID configuration through the backplane switches, instead of configuring the individual drive IDs

















Layout



Hard disk ID switch settings

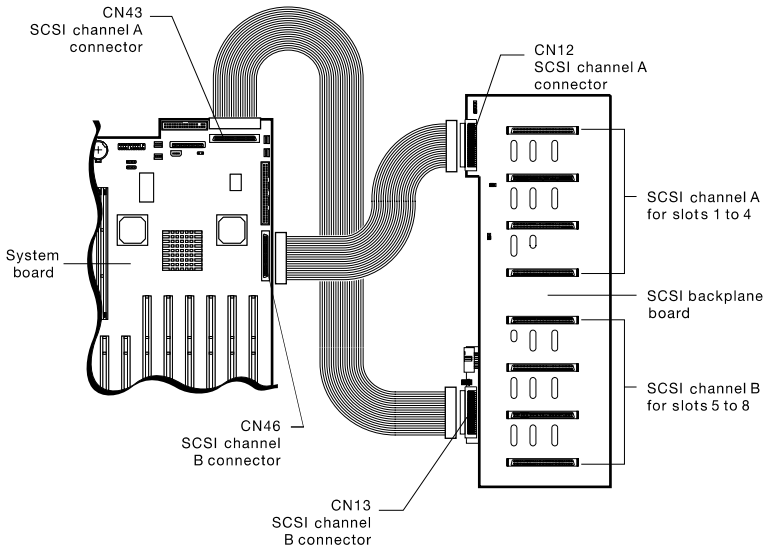
The backplane board comes with eight ID switches that allow you to define up to 16 hard disk IDs.

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

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

Dual channel configuration

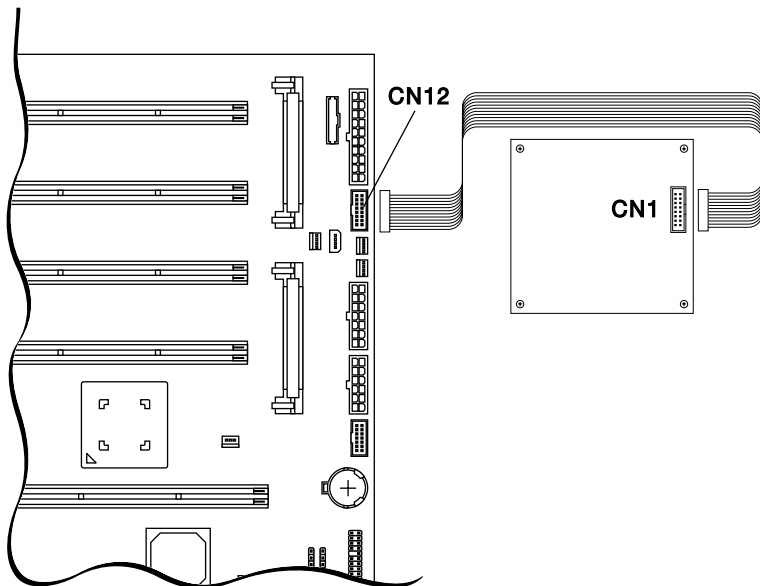
In a dual-channel configuration, channel A supports the devices in slots 1 to 4, and channel B supports the devices in slots 5 to 8.



▶ LCD display module

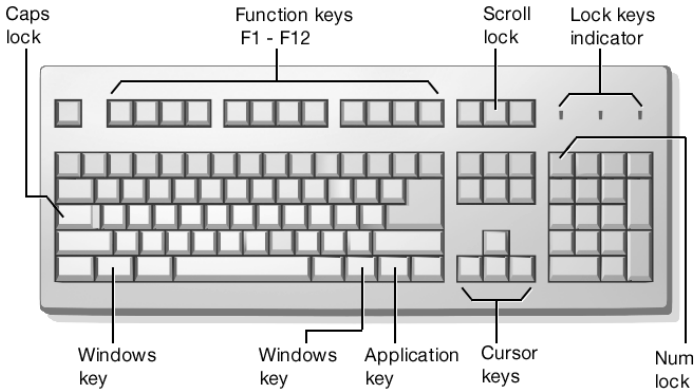
The system includes a front panel module that serves as an interface to the internal system components and relays external messages through the LCD display screen.

The figure below shows the LCD display module connections with the system board.



Keyboard

The keyboard that came with your system has full-sized keys that include separate cursor keys, two Windows keys, and twelve function keys.



Cursor keys

The cursor keys, also called the arrow keys, let you move the cursor around the screen. They serve the same function as the arrow keys on the numeric keypad when the Num Lock is toggled off.

Lock keys



The keyboard has three lock keys which you can toggle on and off to switch between two functions.

Lock Key	Description
Caps Lock	When activated, all alphabetic characters typed appear in uppercase (same function as pressing Shift + <letter>).

Lock Key	Description
Num Lock	When activated, the keypad is set to numeric mode; i.e., the keys function as a calculator (complete with arithmetic operators such as +, -, *, and /).
Scroll Lock	When activated, the screen moves one line up or down when you press the up arrow or down arrow respectively. Take note that Scroll Lock may not work with some applications.

Windows keys

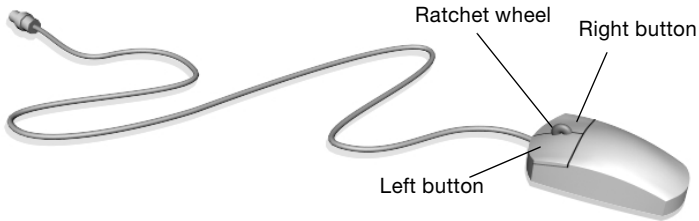
The keyboard has two keys that perform Windows-specific functions.

Key	Description
Windows logo key 	Start button. Combinations with this key perform special functions, such as: <ul style="list-style-type: none"> • Windows + Tab: Activate the next Taskbar button • Windows + E: Explore My Computer • Windows + F: Find Document • Windows + M: Minimize All • Shift + Windows + M: Undo Minimize All • Windows + R: Display Run dialog box
Application key 	Opens the applications context menu (same function as clicking the right button of the mouse).

▶ Mouse

Your mouse has one ratchet wheel and two buttons: a left button and a right button. Quickly pressing and releasing the buttons is called clicking. Sometimes, you will need to do a double-click (clicking the same button twice quickly) or a right-click (clicking the right button quickly).

The ratchet wheel in between the two buttons is added to provide easier scrolling capability. By simply moving the wheel with your index finger, you can quickly move through multiple pages, lines, or windows. The wheel may also function as a third button allowing you to quickly click or double-click an icon or a selected item.



Note: If you are left-handed, refer to your Windows manual for instructions on how to set up your mouse for left-handed use.

► Disk drives

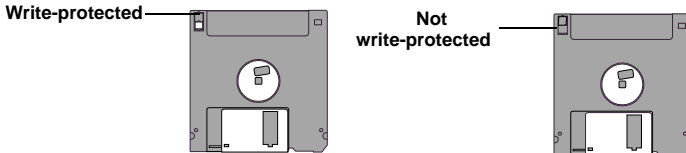
Your system comes with the following disk drives:

3.5-inch floppy disk drive

Your system's 3.5-inch floppy disk drive can handle 720-KB and 1.44-MB capacity diskettes.

The floppy diskettes are compact, lightweight, and easy to carry around. Here are some tips on how to take care of your diskettes:

- Always make backup copies of the diskettes that contain important data or program files.
- Keep diskettes away from magnetic fields and sources of heat.
- Avoid removing a diskette from a drive when the floppy drive activity light is on.
- Write-protect your diskettes to prevent accidental erasure. To do this, slide the write-protect tab to the write-protect position.



- When you put a label on a 3.5-inch diskette, make sure that the label is properly attached (flat on the surface) and within the labeling area (area with a slight surface depression) on the diskette. An improperly attached label may cause a diskette to get stuck in a drive when you are inserting or removing it.

CD-ROM drive

Your system comes with a CD-ROM drive. This drive is located on the front panel of your system. The CD-ROM drive allows you to play different types of Compact Discs (CDs) and video CDs. CDs, like diskettes, are also compact, lightweight, and easy to carry around. However, they are more delicate than diskettes and must be handled with extra care.

To insert a CD into your system's CD-ROM drive:

1. Gently push the eject button located on the front panel.
2. When the disc tray slides open insert the CD. Make sure that the label or title side of the disc is facing upward.

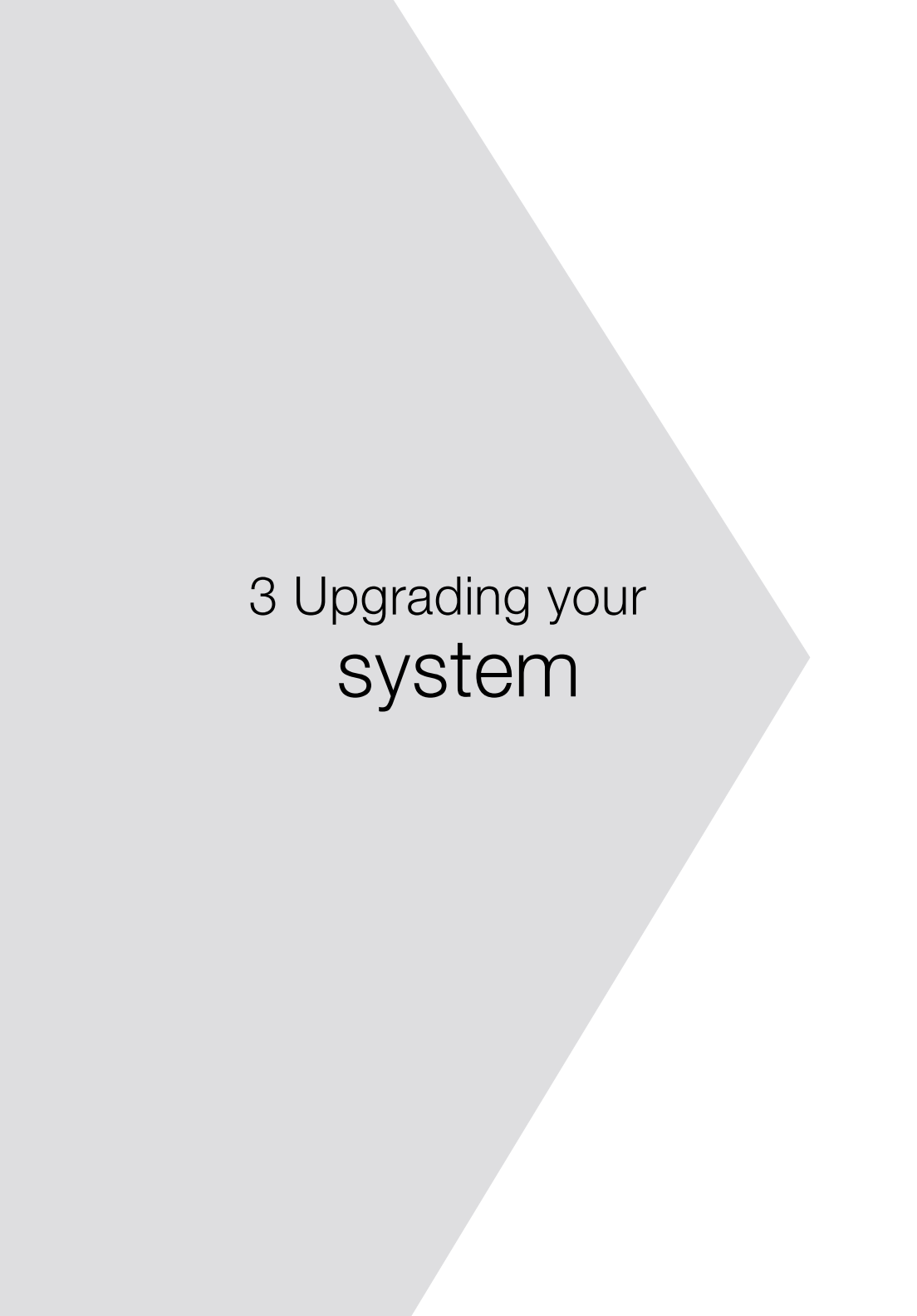


Caution! Hold the disc by the edges to avoid leaving smudges or fingerprints.

3. Push the eject button again to close the tray.

To take care of your CDs:

- Keep your discs in a disk case when not in use to avoid scratches or other damage. Any kind of dirt or damage can affect the data on the disc, impair the disc lens reader on the CD-ROM drive, or stop the system from successfully reading the disc.
- When handling discs, always hold them by the edges to avoid smudges or fingerprints.
- When cleaning discs, use a clean, dust-free cloth and wipe in a straight line from the center to the edge. Do not wipe in a circular motion.
- Clean your CD-ROM drive periodically. You may refer to the Cleaning Kit for instructions. Cleaning Kits can be purchased in any system or electronics shop.



3 Upgrading your system

This chapter discusses in details on how to upgrade key components to help expand your system and at the same time keep in step with the latest technology.

► ESD precautions

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

1. Do not remove a component from its antistatic packaging until you are ready to install it.
2. Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.



.....

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

▶ Opening the housing panels

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

1. Do not remove any system component from its packaging unless you are ready to install it.
2. Wear a wrist grounding strap before handling electronic components. Wrist grounding straps are available at most electronic component stores.



.....

Danger! *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.*

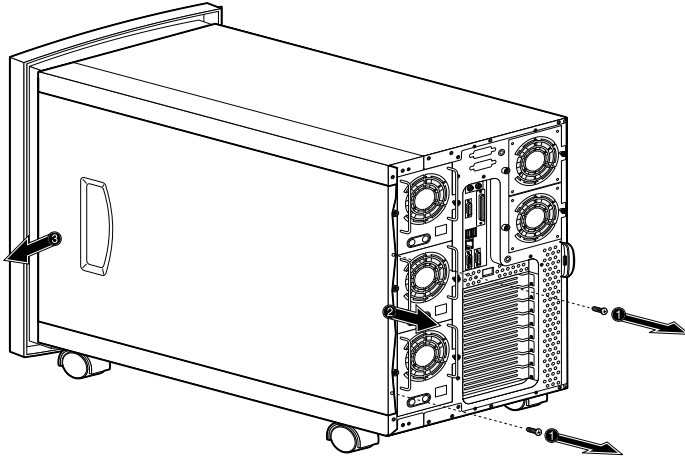
A microswitch is allocated on both sides of the housing panels. It helps indicate whether the panel is removed or intact. Also, a security lock secures the left panel and the PCI hot-plug door to protect against unauthorized access.

Removing the side panels

To remove the right panel:

1. Turn off the power to the system unit and unplug all cables.
2. Place the system unit on a flat, steady surface and lock the wheels by pressing down the levers.
3. Remove the screws of the right panel. Set the screws aside. You will need them when replacing the panels.

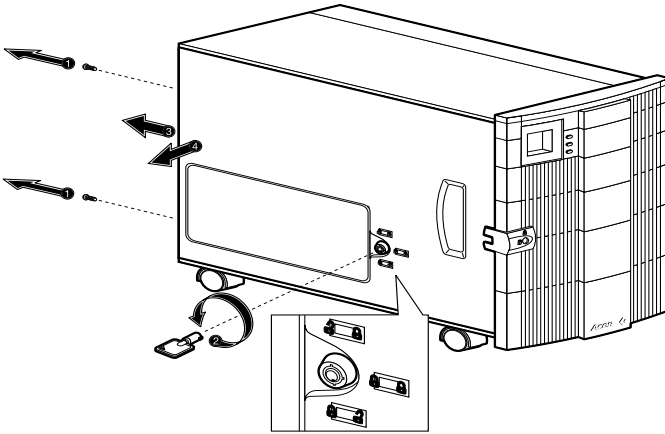
4. Pull out the panel and detach it.






To remove the left panel:

1. Turn off the power to the system unit and unplug all cables.
2. Place the system unit on a flat, steady surface and lock the wheels by pressing down the levers.
3. If the left panel is locked, use the key provided with the system to unlock the left panel. Turn the key counterclockwise until it points to the Unlock left panel icon.
4. Remove the screws on the rear and set them aside. You will need them when replacing the panel.

5. Pull out the panel and detach it.



Icon	Description
	Locks the left panel and the PCI hot plug door.
	Unlocks the left panel and locks the PCI hot plug door.
	Locks the left panel and unlocks the PCI hot plug door.

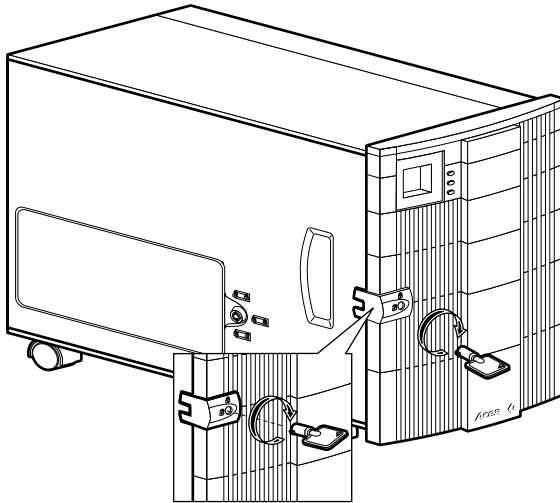
Opening the front panel door

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

To open the front door:

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

2. Pull open the front door.



Removing the front panel door

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

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

▶ Installing and removing storage devices

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



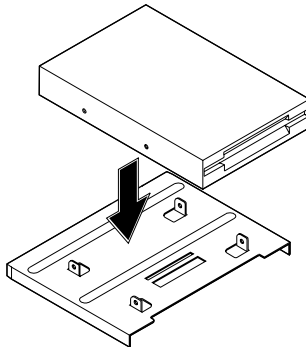
Note: Your basic system comes with a CD-ROM drive and a 3.5-inch diskette drive already installed.

Installing and removing a 3.5-inch storage device

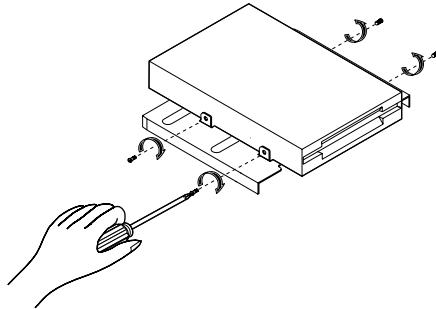
The housing comes with a drive guide for installing 3.5-inch storage devices.

To install a 3.5-inch storage device:

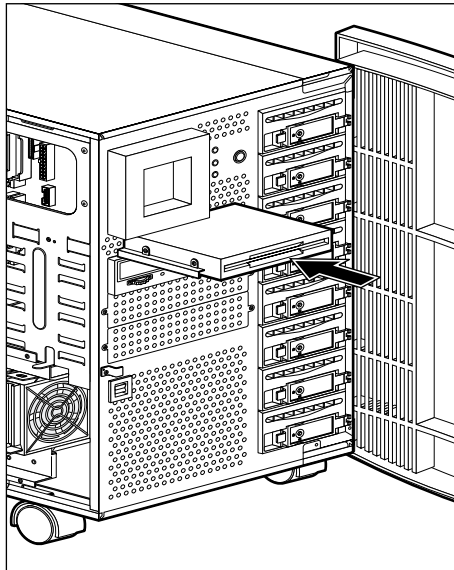
1. Open the front panel door and remove the left panel. See page 54 for more information on opening the housing panels.
2. Attach the drive guide to the external device as shown below.



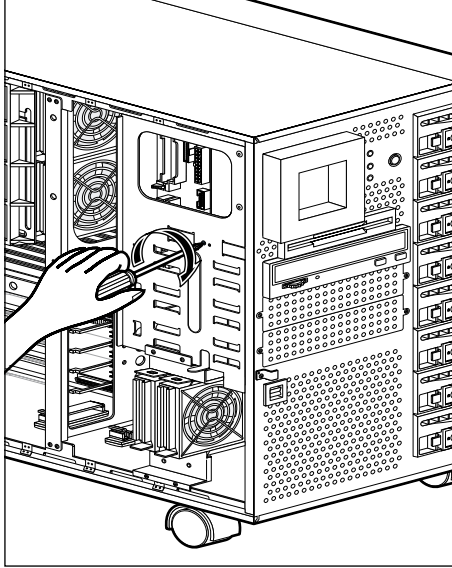
3. Secure the drive with four screws.



4. Insert the drive into the bay.



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



6. Connect the power cable and signal cable to the drive.
7. Reinstall the left panel.

To remove a 3.5-inch storage device:

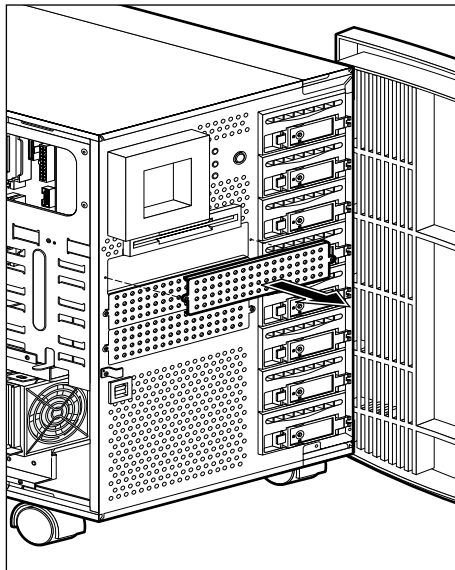
1. Open the front panel door and remove the left panel. See page 54 for more information on opening the housing panels.
2. Disconnect the power and signal cables.
3. Detach the external device by removing the screw located on the side and gently pull out the device.
4. Remove the four screws and detach the 3.5-inch drive from the drive guide.
5. Reinstall the left panel.

Installing and removing a 5.25-inch storage device

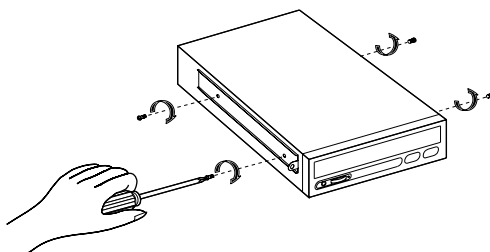
The housing comes with a drive guide for installing 5.25-inch internal storage devices.

To install a 5.25-inch storage device:

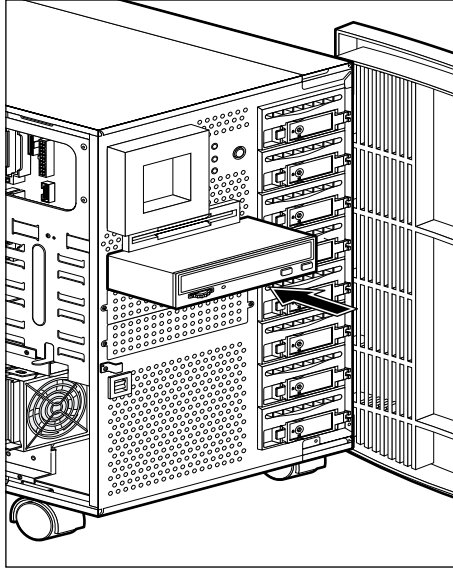
1. Open the front panel door and remove the left panel. See page 54 for more information on opening the housing panels.
2. Remove two screws to detach the metal cover. Keep the metal cover for future use.



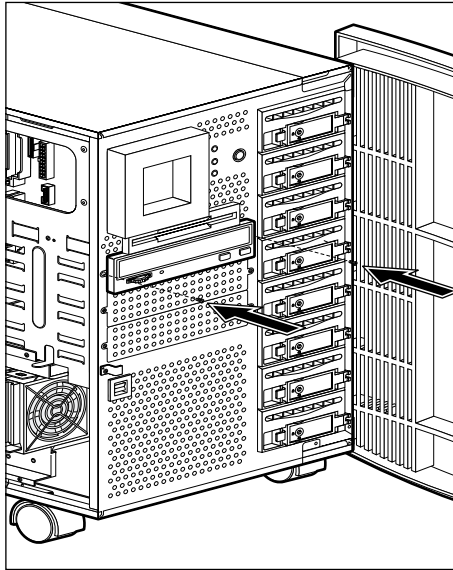
3. Attach the drive guides on the sides of the external device.



4. Insert the drive into the drive bay.



5. Secure the drive with two screws.



6. Connect the power cable and signal cables to the external device.
7. Reinstall the left panel.

To remove a 5.25-inch storage device:

1. Open the front panel door and remove the left panel. See page 54 for more information on opening the housing panels.
2. Disconnect the power and signal cables.
3. Detach the external device by removing the screws and gently pulling out the device.
4. Remove four screws to detach the drive from the drive guide.
5. Reinstall the metal cover to the empty drive bay.
6. Reinstall the left panel.

Installing a hot-swappable SCSI drive



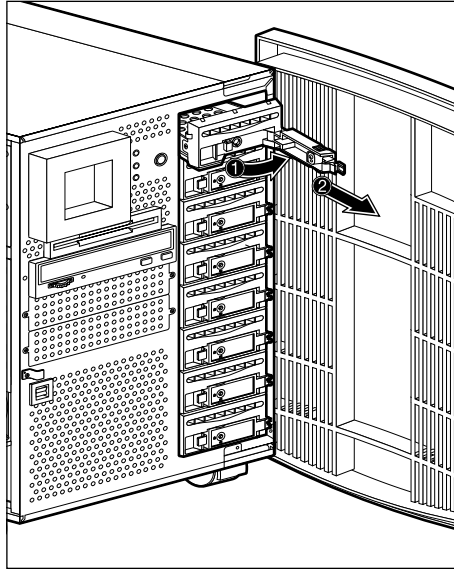
Note: Remove all jumper connectors on the SCSI drive before installing it into the system. Also, for Single-Ended (SE) SCSI drives, remove the terminator jumper before connecting the SCSI drive to the system. For the location of the jumper connectors and the terminator jumper, please refer to your hard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

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

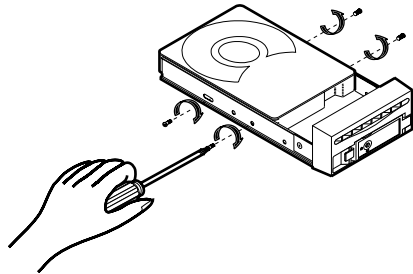
Follow these steps to install a hot-swap SCSI drive:

1. Open the front panel door.

2. Use your finger to release the drive tray as shown below and then pull it out.

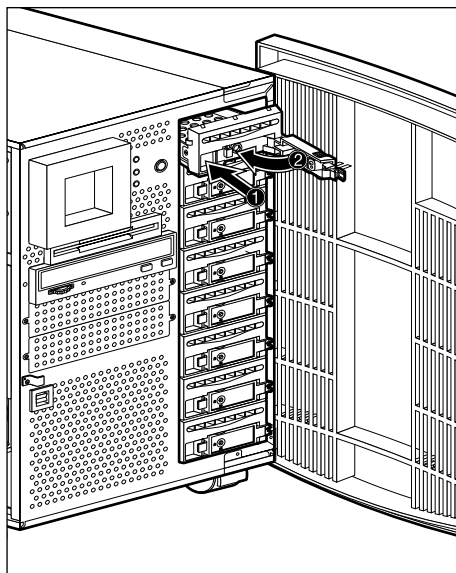


3. Secure the hard disk drive with four screws.



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

5. Push the lever back until it clicks into place.



► Installing and removing a hot-swappable redundant power supply module

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

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



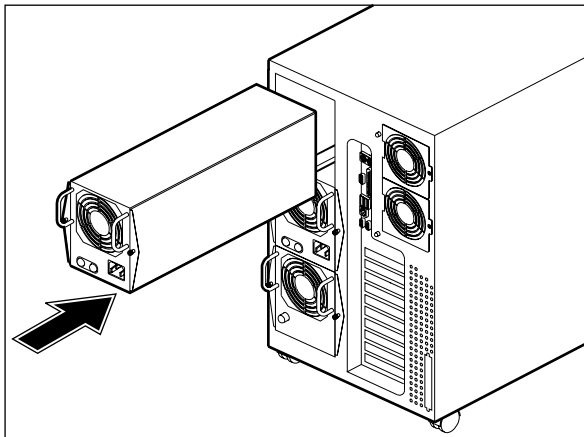
Note: If the fans fail to operate, the power supply module will shut down. The LED indicators of the power supply module will be turned off. If the fans are functioning properly and the power supply fails, the fans will keep operating.

The power subsystem provides a standby current and a remote on/off feature to support cold reboot from a remote site.

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

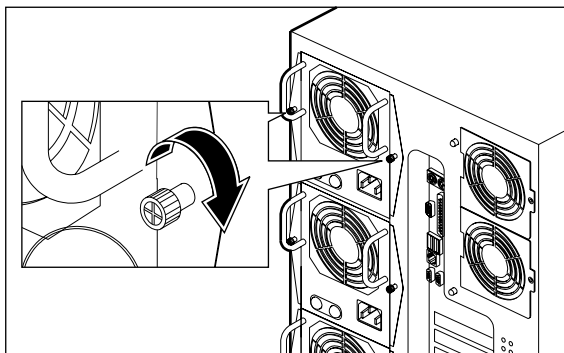
To install a power supply module:

1. Insert the power supply into the housing.

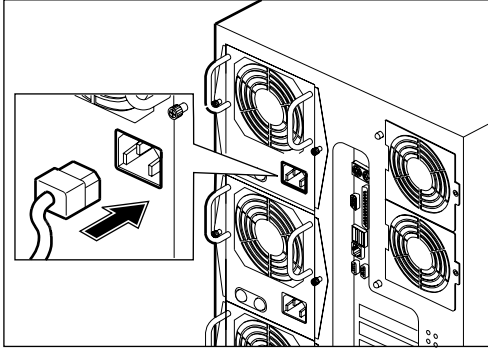


Note: Make sure that the power supply is properly inserted.

2. Secure the power supply with the screw knobs on both sides.



3. Connect a power cable to the power cable connector. Plug the other end of the cable into an electrical socket. You will see a green light when the power supply is functioning properly.



Note: The power supply supplied with the system accepts input voltage of 100V~240V, 50~60Hz.

To remove a power supply module:

1. Unplug the power cable from the electrical outlet and also from the power supply. The power indicator light turns off.
2. Unscrew the screw knobs and carefully pull out the power supply until it detaches from the housing.



Note: Make sure that the power supply subsystem is supplying a minimum of 860W (two 430W power supply modules) to the system.

▶ Installing and removing housing fans

Six fans are distributed inside the housing to cool down the system. The two front and two rear fans are hot-swappable and redundant. However, the two CPU cage fans are not (see page 69 for the location of the housing fans).



Warning! The CPU cage fans are not hot-swappable or redundant. Do not remove them when the system is running. You can replace a CPU cage fan by shutting down the system first (see page 71).

Hot-swappable, redundant fans can be replaced without shutting down the system. Allowing the system to operate continuously without interruption.

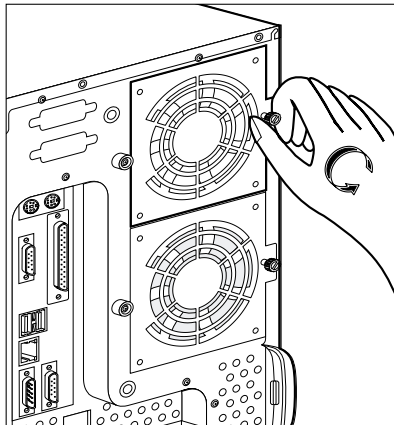


Warning! Make sure that the system is running with six housing fans (two in front, two at the back, and two for the CPU) for better system performance and cooling.

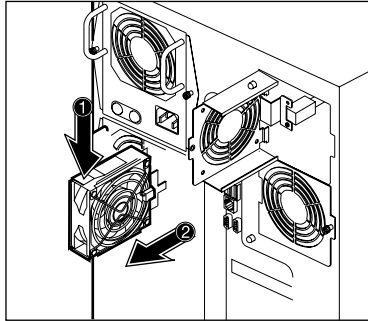
Replacing a rear hot-swap housing fan

To replace a rear hot-swap housing fan:

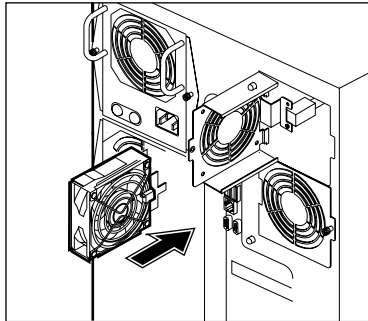
1. Turn the screw knob counterclockwise to open the housing fan cage.



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



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



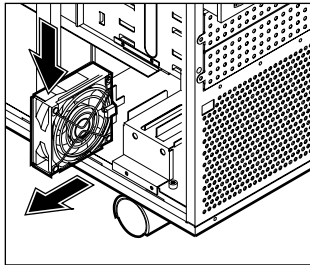
4. Close the housing fan cage and turn the screw knob clockwise to lock it.

Replacing a front hot-swap housing fan

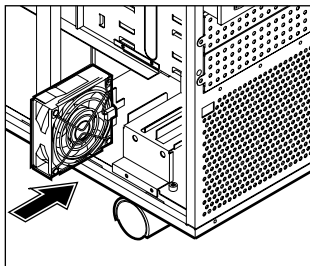
To replace a front hot-swap housing fan:

1. Remove the left panel. See page 54 for more information on opening the housing panels.

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



3. Insert a new one.



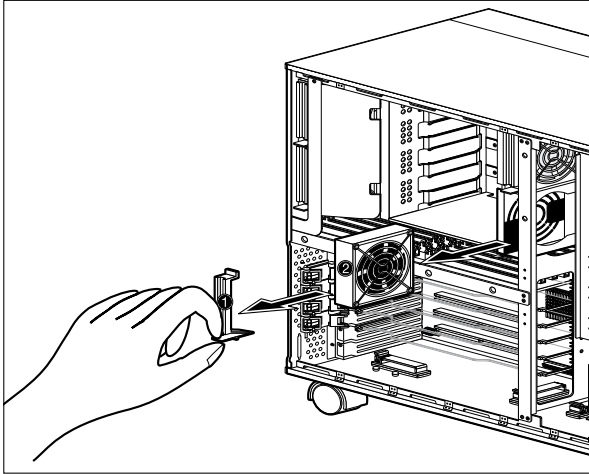
4. Reinstall the left panel.

Replacing a CPU cage fan

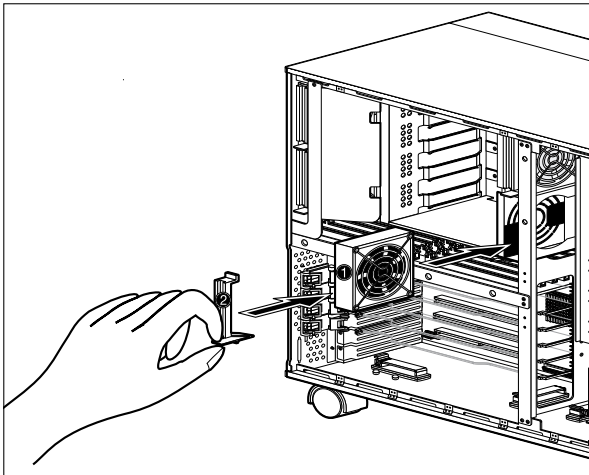
To replace a CPU cage housing fan:

1. Shut down the system and unplug all power cables.
2. Remove the left panel. See page 54 for more information on opening the housing panels.
3. Detach the CPU fan cable from the system board.
4. Squeeze and remove the plastic clip.

5. Pull out the CPU cage fan and replace it with another one.



6. Replace the plastic clip to secure the CPU cage fan.



7. Connect the CPU fan cable to the system board.
8. Reinstall the left panel.

▶ Installing a PCI expansion board

The system board has eight PCI buses contained in three PCI segments:


- PCI slots 1 and 2 : 32-bit/33 MHz PCI bus slots
- PCI slots 3 and 4 : 64-bit/66 MHz PCI bus slots with hot plug capability
- PCI slots 5 and 6 : 64-bit/33 MHz PCI bus slots with hot plug capability
- PCI slots 7 and 8 : 64-bit/33 MHz PCI bus slots

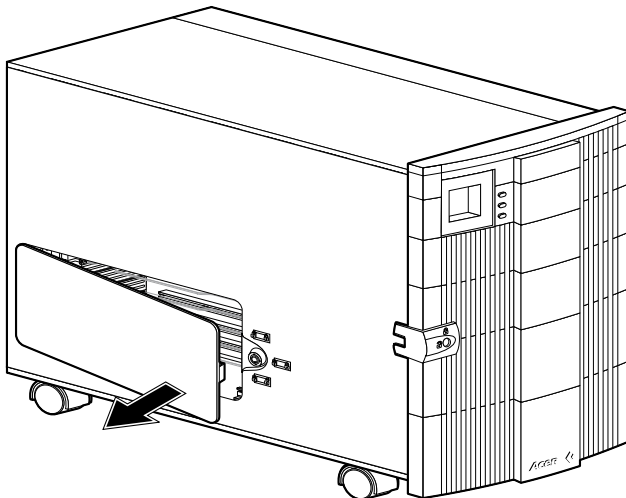
The hot plug function minimizes system down time by allowing the removal and placement of PCI devices without shutting down the system.

Installing a hot-plug PCI expansion board

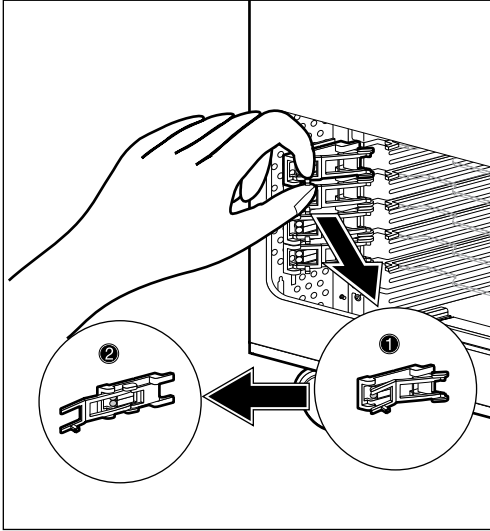
The system housing has a functional door that you can open to install hot-plug PCI devices.

Follow these steps to install a hot-plug PCI expansion board:

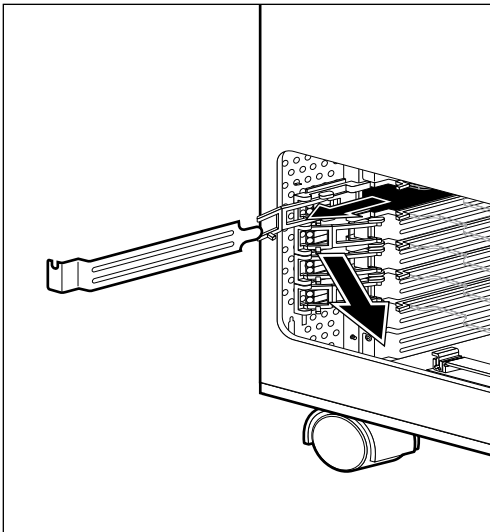
1. Insert the key into the key hole and turn it counterclockwise to the Open PCI hot plug door icon (). Look for an empty slot.



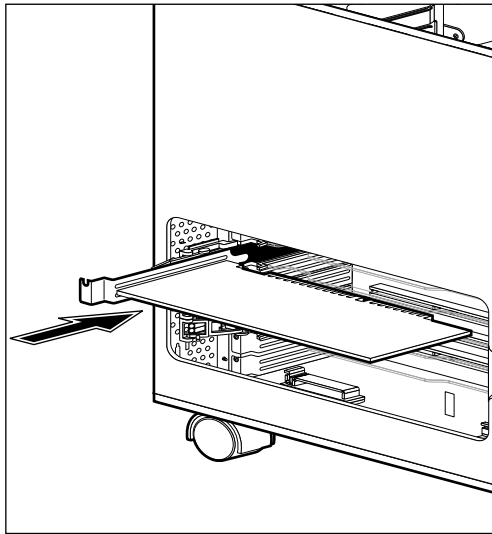
2. Release the plastic clip by pushing the clip's lever outward with your finger and holding the clip against the housing frame.



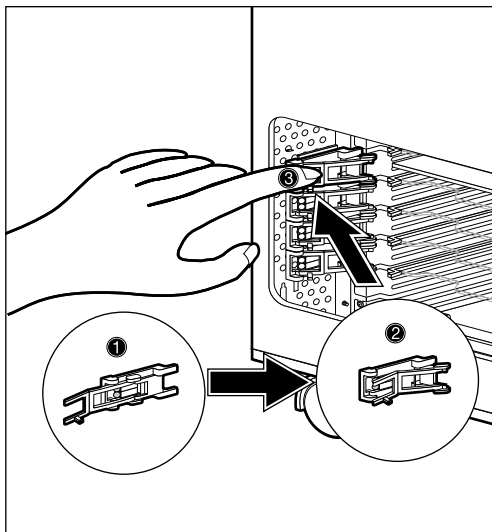
3. Pull out the metal bracket.



4. Align and insert the PCI board into the slot. Make sure that the board is completely inserted into the slot.



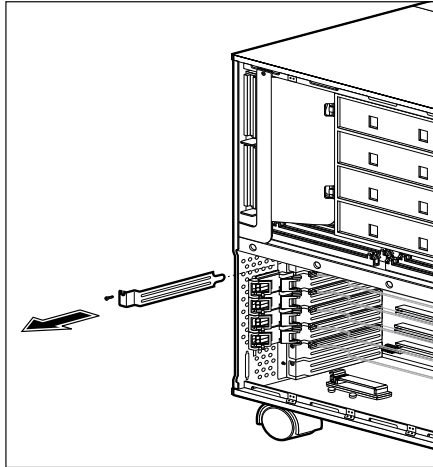
5. Release the plastic clip, fold it, and then push it with your finger until it locks into place.



Installing an ordinary PCI expansion board

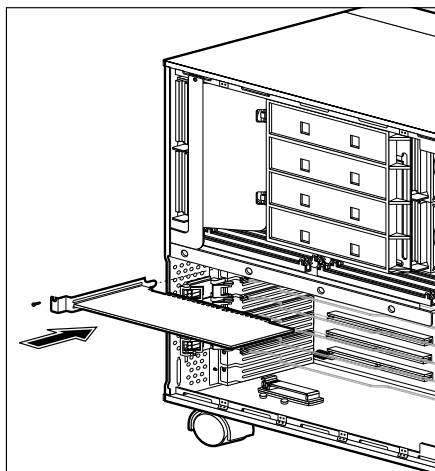
Follow these steps to install a PCI expansion board:

1. Shut down the system and unplug all power cables from the wall socket.
2. Remove the left panel of the housing. See page 54 for more information on opening the housing panels.
3. Unscrew and remove the bracket cover opposite an empty PCI slot. Save the screw for later use.



4. Align the board with the slot.
5. Insert the board into the slot until it completely fits in.

6. Secure the board with a screw.



7. Reattached the left panel door.

▶ Removing and installing the thermal air guide

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

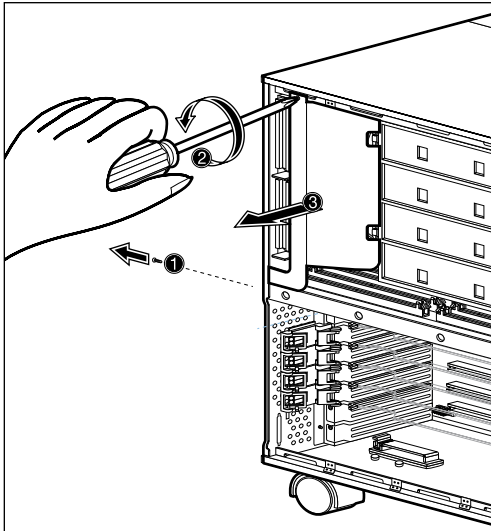


Note: To avoid electric shock and damage to the system, DO NOT perform the following procedure while the system is ON.

Removing the thermal air guide

Follow these steps to remove the thermal air guide:

1. Shut down the system and unplug all power cables from the wall socket.
2. Open the left panel door. Refer to page 54 for instructions on opening the door.
3. Remove the two screws that secure the air guide to the housing. Save the screws.

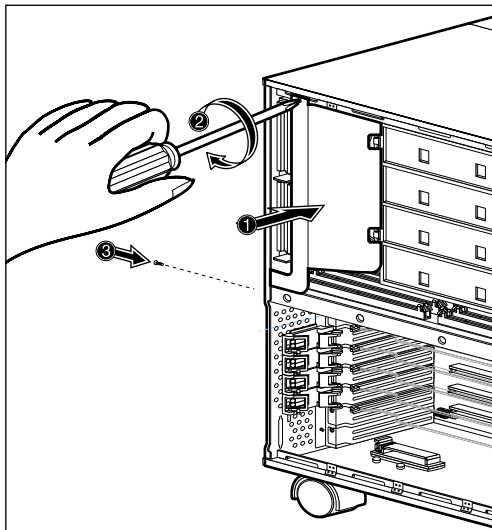


4. Carefully remove the air guide from the housing and set it aside.

Reinstalling the thermal air guide

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

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



3. Reattached the left panel door.

► Cable connections

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



Note: All power cables come with yellow stickers telling you which connectors to attach to the system board and to the power backplane. Make sure to connect the cables correctly; otherwise, the system may not power up.

Power Cable List

CN# - System board connectors

C# - Cable number

P# - Cable point (head and tail)

1. System board and SCSI backplane board power connection

Cable #	System board	SCSI backplane board	Power backplane board
C1	CN8 (C1:P2)		J1 (C1:P1)
C2	CN26 (C2:P2)		J2 (C2:P1)
C3	CN29 (C3:P2)		J3 (C3:P1)
C4		CN9 (C4:P5)	J4 (C4:P6)

2. I2C status connector

Cable #	System board	SCSI backplane board
C5	CN50	CN10

3. LCD display module cable connection

Cable #	System board	LCD display module
C6	CN12	CN1

4. Switching power supply status connector

Cable #	System board	SCSI backplane board
C7	CN31	J5

5. Floppy disk drive, IDE devices, and SCSI device connectors

Cable #	System board	Devices
C11	CN39	Floppy Disk Drive
C12	CN44	IDE Devices
C13	CN47	50-pin SCSI Devices

6. LVD SCSI channel A and B connector

Cable #	System board	SCSI backplane board
C14	CN43	CN12
	CN46	CN13

► Installing and removing the CPU and terminator board

Each Pentium III Xeon comes in a drop-in SC330 (330-pin slot connector) SECC (single edge contact connector) package.

The system board supports four Pentium III Xeon processors running at either one of these two types:

- 550 MHz with integrated 512K, 1MB, or 2MB L2 write-back cache
- 700 or 800 MHz with integrated 512K, 1MB, or 2MB L2 write-back cache with built-in VRM (voltage regulator module)



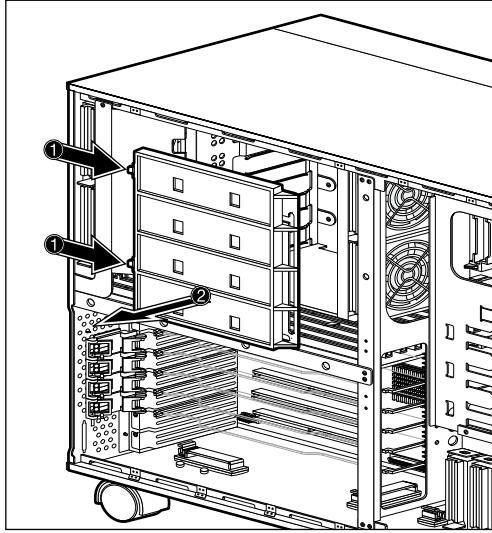
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Warning! CPUs installed must be of the same speed and type. Installing a variety of CPU types will cause your system to malfunction.

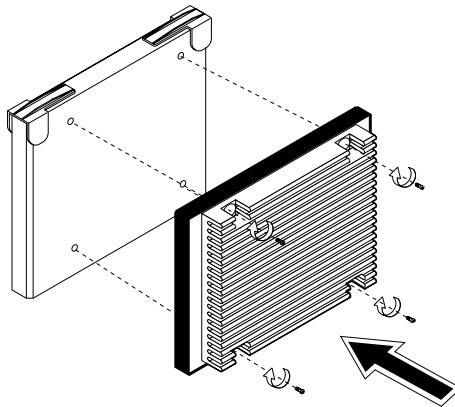
Follow these steps to install or remove a processor:

1. Turn off the power to the system unit and unplug all cables.
2. Open the front panel door and remove the left panel. See page 54 for more information on opening the housing panels.
3. Insert your fingers into the opening of the thermal air guide.

4. Press the clips at the same time and then gently detach the CPU cage cover.



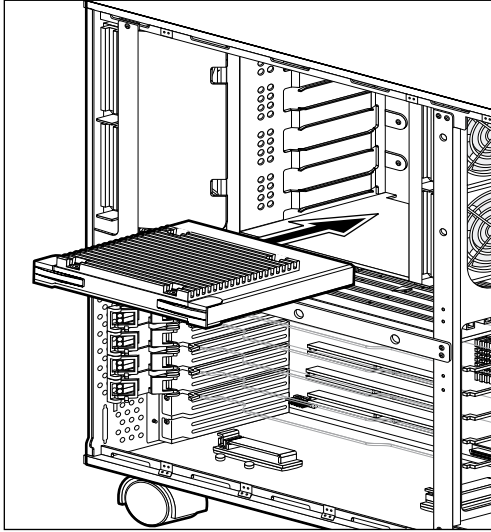
5. Secure the heatsink module to the CPU with four screws.



6. Insert the CPU into an empty slot in the cage. Carefully press down the CPU until it is properly inserted into the socket.



Note: You can install either a one, two, or four-CPU configuration into the system. However, three-CPU configurations are not supported.

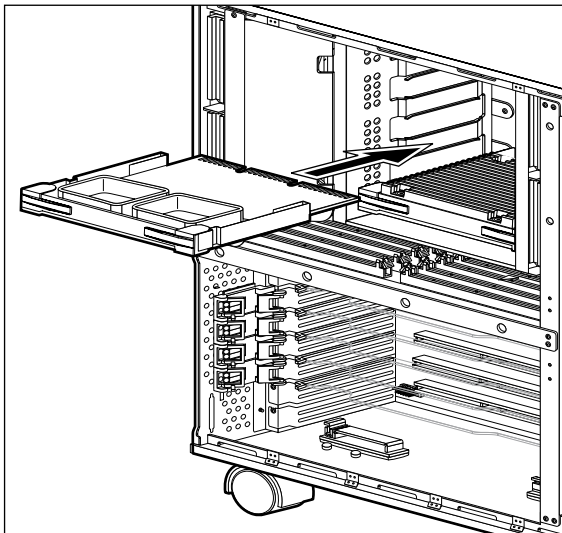


Note: The CPU and the terminator board only fits one way. Do not force it into the socket as this may damage both the socket and the CPU or the terminator board.

To remove the CPU, flip up the plastic ears and carefully pull out the Pentium III Xeon processor.

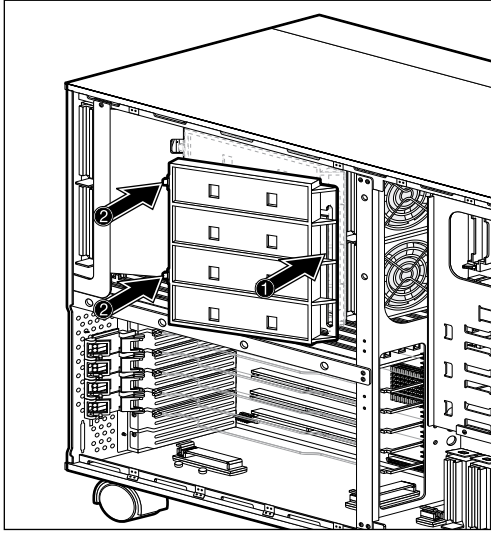
7. If you are installing a 550 MHz Pentium Xeon processor you need to install one VRM (voltage regulator module) for the CPU and another one for the L2 cache. See page 86 for more information. Skip this step if you are installing a 700 or 800 MHz Pentium Xeon processor.

8. Insert a terminator board into the empty slots. If you installed four CPUs, you do not have to install a terminator board.



To remove the terminator, flip up the plastic ears and carefully pull out the terminator.

9. Align one side of the cover to the rail of the CPU cage (near the CPU cage fan) and then gently press the cover until it snaps into place.



10. Reinstall the left panel.



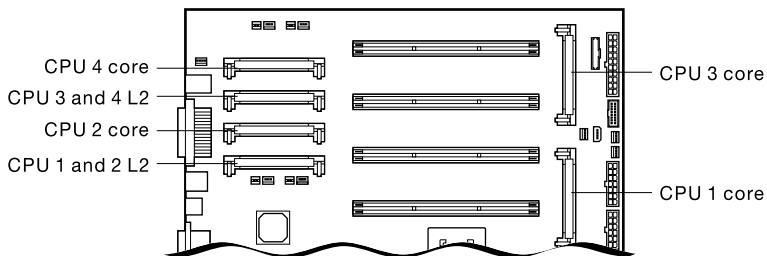
Warning! The heatsink becomes very hot when the system is on.
NEVER touch the heatsink with any metal or with your hands.

Installing and removing a VRM (voltage regulator module) for Intel Pentium III Xeon 550 MHz



Note: VRM installation is not necessary for Pentium III Xeon 700 and 800 MHz processor because the CPU already includes a VRM.

Each Pentium III Xeon processor requires two VRMs (voltage regulator modules), one for the processor and another one for the L2 cache. However, two L2 caches share one VRM. If you are installing two Pentium III Xeon processors, you need three VRMs: two VRMs for each processor and one VRM for the L2 cache of each to share. The following table shows the VRM socket allocation:



VRM slot	Slot 2 CPU slot
VRM Socket 1 (CN7)	CPU 4
VRM Socket 2 (CN11)	L2 cache of CPU 3 and 4
VRM Socket 3 (CN9)	CPU 3
VRM Socket 4 (CN13)	CPU 2
VRM Socket 5 (CN18)	L2 cache of CPU 1 and 2
VRM Socket 6 (CN25)	CPU 1

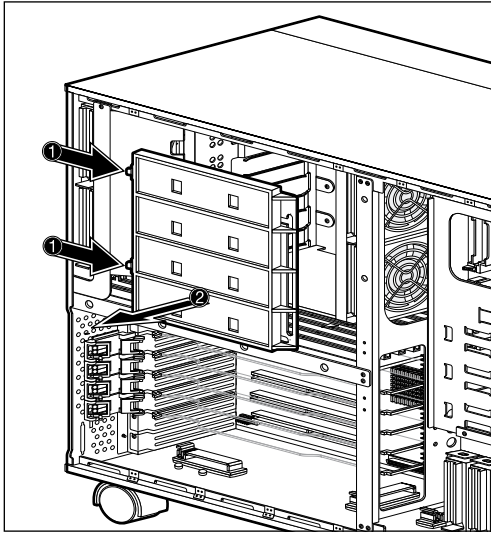
To install or remove a VRM:

1. Remove the thermal air guide (see page 78) if you are installing a VRM into VRM slot 1, 2, 4, or 5. Remove the CPU cage cover and the CPU fan if you are installing a VRM into VRM slot 3 and 6.

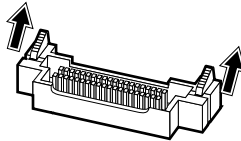
To remove the CPU cage cover and CPU fan cage:

- a. Insert your fingers into the opening of the thermal air guide.
- b. Press the clips at the same time and then gently detach the CPU cage cover.
- c. Detach the CPU fan cable from the system board.

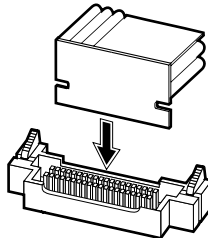
- d. Pull out the CPU fan cage.



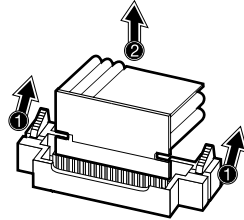
2. Find an empty VRM socket and flip the lever back.



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



To remove a VRM, push down both the locking mechanisms and take out the VRM.



4. Return the CPU fan cage and connect the CPU fan cables to the system board.
5. Attach the CPU cage cover and then reinstall the left panel.

▶ Installing and removing a DIMM

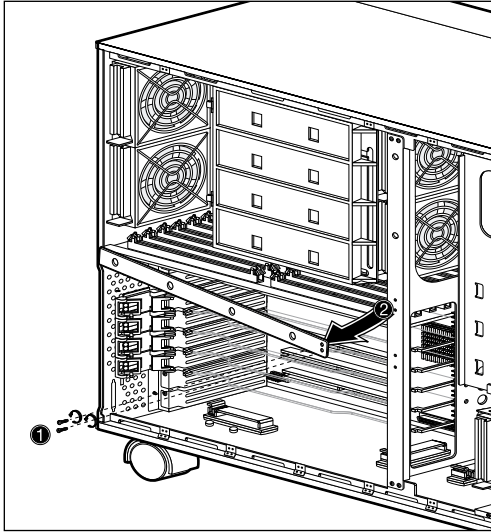
The system board only supports registered PC-100 (100 MHz) or PC-133 (133 MHz) ECC SDRAMs; PC-66 (66 MHz) are not supported.



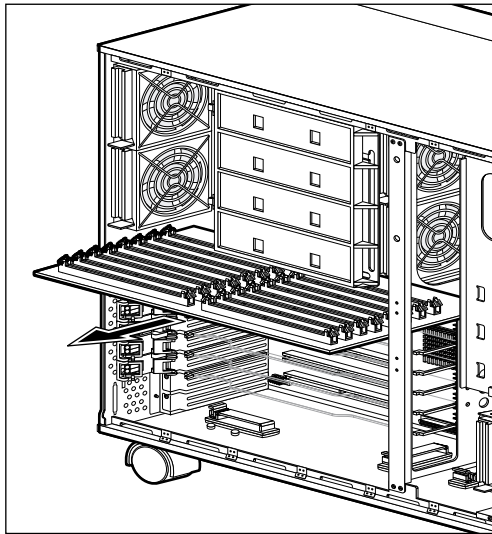
Warning! The SDRAM should work under 3.3 volts only; 5-volt memory devices are not supported.

Follow these steps to install or remove a DIMM:

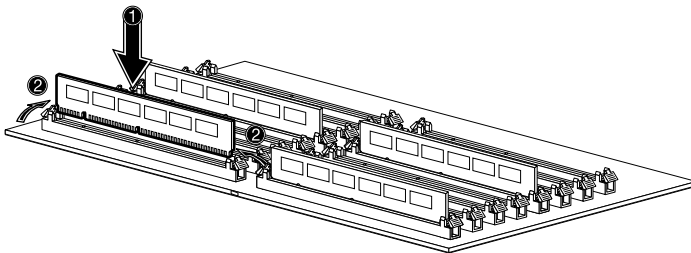
1. Remove the left panel, see page 54 for more instructions.
2. Remove the screws and detach the metal bracket holding the memory board. Set the screws aside.



3. Gently pull out the memory board using both hands and put it on a steady surface.

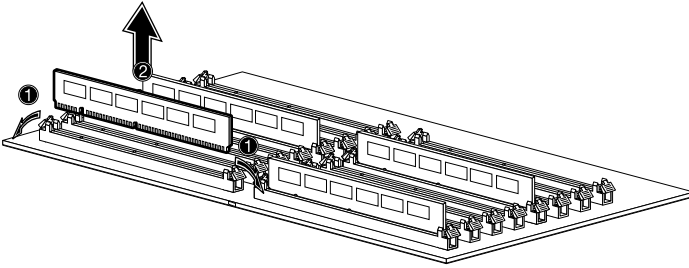


4. To install a DIMM, align the DIMM to an empty socket and press it down until the holding clips secure the DIMM in place.



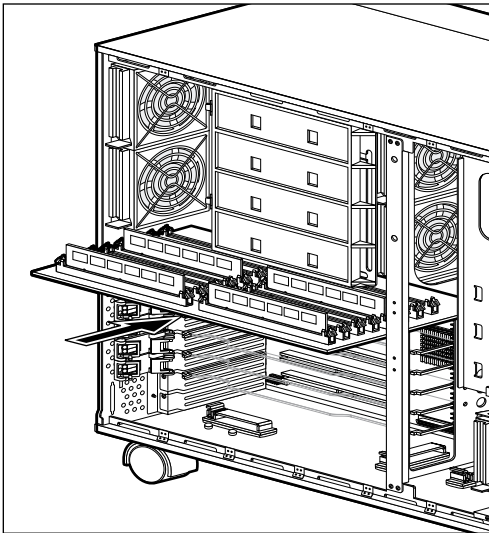
Note: For the proper memory configuration, see page 39. Also, the DIMM socket is slotted to ensure proper installation. If you slip in a DIMM but it does not completely fit, you may have inserted it the wrong way. Reverse the orientation of the DIMM.

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



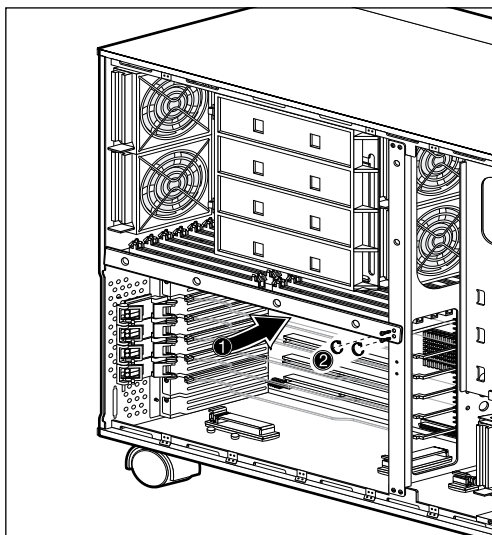
Note: Place your forefingers on the top of the DIMM before you press the holding clips to gently disengage the DIMM from the socket.

5. After installing or removing the DIMMs, align the memory board to the memory board slot on the system board (the DIMM sockets should be facing the CPU cage).




6. Insert one end of the metal bracket into the hole at the back of the housing.
7. Align the clamp rail with the board edge.

- Secure the metal bracket with the screws.



- Reinstall the left panel.

4 Setup utility



This chapter gives information about the system BIOS and tells how to configure the system by changing the settings of the BIOS parameters.

► Introduction

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

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



Note: 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.

▶ Entering Setup

To enter Setup, simultaneously press the key combination Ctrl+Alt+Esc.



Note: You must press Ctrl+Alt+Esc while the system is booting. This key combination does not work during any other time.

The system supports two Setup Utility levels: Basic and Advanced.

If you are an advanced user, you may want to check the detailed configuration of your system. Detailed system configurations are contained in the Advanced Level. To view the Advanced Level, press F8.

Use the Up and Down arrow keys to move around the Setup Utility screen.

Use the Left and Right arrow keys to move to the next page or to return to the previous page if the setup screen has more than one page available.

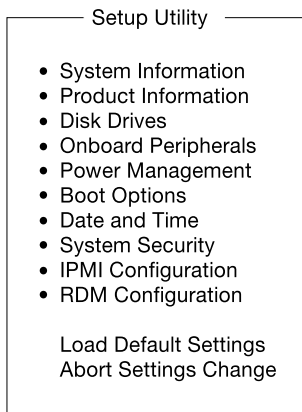
Use the Page Up, Page Down, +, or - keys to select the options if they are available.

Press Esc to return to the Main menu.

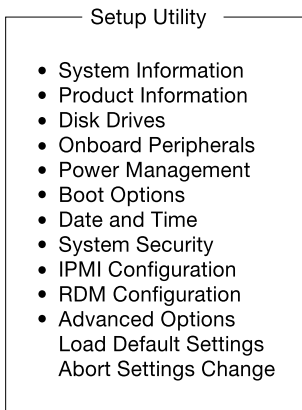


Note: A parameter with an asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level. Also, grayed items on the screens have fixed settings and are not user-configurable.

Basic Setup Utility screen



Advanced Setup Utility screen



▶ System information

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

System Information	
Processor.....	Pentium® III Xeon™
Processor Speed.....	700 MHz
Level 1 Cache.....	32 KB, Enabled
Level 2 Cache.....	1024 KB, Enabled
Diskette Drive A.....	1.44 MB, 3.5-inch
IDE Primary Channel Master.....	Hard Disk, xxxx MB
IDE Primary Channel Slave.....	None
Total Memory.....	512 MB
1st Bank.....	SDRAM, 512 MB
2nd Bank.....	None
3rd Bank.....	None
4th Bank.....	None
Serial Port 1.....	3F8h, IRQ 4
Serial Port 2.....	2F8h, IRQ 3
Parallel Port.....	378h, IRQ 7
PS/2 Mouse.....	Installed

Parameter	Description
Processor	Type of processor currently installed in your system
Processor speed	Clock speed of the processor currently installed in your system
Level 1 cache size	Total amount of first-level or the internal fast accessed memory size (i.e., the memory integrated into the CPU)
Level 2 cache size	Total amount of second-level cache memory size that comes with the CPU. The available cache size is 256/512 KB
Diskette drive A	System's current diskette drive A settings

Parameter	Description
IDE primary channel master	Current configuration of the IDE device connected to the master port of the primary IDE channel
IDE primary channel slave	Current configuration of the IDE device connected to the slave port of the primary IDE channel
Total memory	Total amount of onboard memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size
1st/2nd/3rd/4th bank	Type and size of DRAM installed in DIMM sockets 1, 2, 3, and 4 respectively. The None setting indicates that there is no DRAM installed
Serial port 1	Serial port 1 address and IRQ setting
Serial port 2	Serial port 2 address and IRQ setting
Parallel port	Parallel port address and IRQ setting
PS/2 mouse	Pointing device installation settings. Displays None if no pointing device is installed

▶ Product information

Product Information contains the general data about the system, such as the product name, serial number, BIOS version, etc. This information is necessary for troubleshooting (may be required when asking for technical support).

The following shows how the Product Information screen appears:

Product Information	
Product Name.....	Acer Altos 22000
System S/N.....	xxxxxxxxxx
Main Board ID.....	X7R
Main Board S/N.....	xxxxxxxxxx
System BIOS Version.....	VX.XX
SMBIOS Version.....	X.XX.X

Parameter	Description
Product name	Official name of the system
System S/N	System's serial number
Main board ID	Mainboard's identification number
Main board S/N	Mainboard's serial number
System BIOS version	Version of the BIOS utility
SMBIOS version	Version of the SMBIOS

▶ Disk drives

Select Disk Drives to input configuration values for disk drives.

The following screen shows the Disk Drives menu:

Disk Drives

Diskette Drive A.....[xx-MB, xx-inch]

- IDE Primary Channel Master
- IDE Primary Channel Slave

The following table describes the parameters in this screen. Settings in boldface are the default and suggested parameter settings.

Parameter	Description	Option
Diskette drive A	Selects the floppy disk drive type	1.44 MB, 3.5-inch None 360 KB, 5.25-inch 1.2 MB, 5.25-inch 720 KB, 3.5-inch 2.88 MB, 3.5-inch

Parameter	Description	Option
IDE primary channel master and slave	<p>These items let you select the IDE hard disk parameters that your system supports. Auto enables BIOS to automatically detect the parameters of installed HDDs during the POST (power-on self-test). If you prefer to enter HDD parameters manually, select User. Select None if no HDD is connected to the system.</p> <p>The IDE CD-ROM is always automatically detected</p>	

IDE channel type

The following screen appears if you select any of the IDE drive parameters:

IDE Primary Channel Master

Device Detection Mode.....	[Auto]
Device Type.....	Hard Disk
Cylinder.....	[xxxx]
Head.....	[xx]
Sector.....	[xx]
Size.....	[xxxx] MB
*Advanced PIO Mode.....	[Auto]
*DMA Transfer Mode.....	[Auto]

IDE Primary Channel Slave

Device Detection Mode.....	[Auto]
Device Type.....	Hard Disk



Note: A parameter with an asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level. See "Entering Setup" on page 98 for how to view the advanced level.

Parameter	Description	Option
Device detection mode	Lets you specify the type of hard disk installed in your system. If you want BIOS to automatically configure your hard disk, select Auto. If you know your hard disk type, you can enter the setting manually	Auto User None
Device Type	Indicates a hard disk type device	
Cylinder	Specifies the number of cylinders of your hard disk, and is automatically set depending on your Type parameter setting	User Input
Head	Specifies the number of heads of your hard disk, and is automatically set depending on your Type parameter setting	User Input
Sector	Specifies the number of sectors of your hard disk, and is automatically set depending on your Type parameter setting	User Input
Size	Specifies the size of your hard disk, in MB	User Input
Advanced PIO Mode	When set to Auto, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read/write timing that reduces hard disk activity time. This results in better hard disk performance. To disregard the feature, change the setting to Disabled. This parameter appears only when you are in the Advanced Level.	Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4
DMA transfer mode	The Ultra DMA and Multi-DMA modes enhance hard disk performance by increasing the transfer rate. However, besides enabling these features in the BIOS Setup, both the Ultra DMA and Multi-DMA modes require the DMA driver to be loaded.	Auto Multiword Mode 0, 1, 2 Disabled

▶ Onboard peripherals

Onboard Peripherals allows you to configure the onboard communication ports and the onboard devices. Selecting this option displays the following screen:

Onboard Peripherals	
Serial Port 1.....	[Enabled]
Base Address.....	[3F8h]
IRQ.....	[4]
Serial Port 2.....	[Enabled]
Base Address.....	[2F8h]
IRQ.....	[3]
Parallel Port.....	[Enabled]
Base Address.....	[378h]
IRQ.....	[7]
Operation Mode.....	[EPP]
ECP DMA Channel.....	[-]
Floppy Disk Controller.....	[Enabled]
IDE Controller.....	[Primary]
PS/2 Mouse Controller.....	[Enabled]
USB Host Controller.....	[Enabled]
USB Legacy Mode.....	[Disabled]
Onboard SCSI.....	[Enabled]
Onboard Ethernet Chip.....	[Enabled]

The following table describes the parameters in this screen. Settings in boldface are the default and suggested parameter settings.

Parameter	Description	Option
Serial port 1	Enables or disables serial port 1	Enabled Disabled
Base address	Sets the I/O base address of serial port 1	3F8h 2F8h 3E8h 2E8h

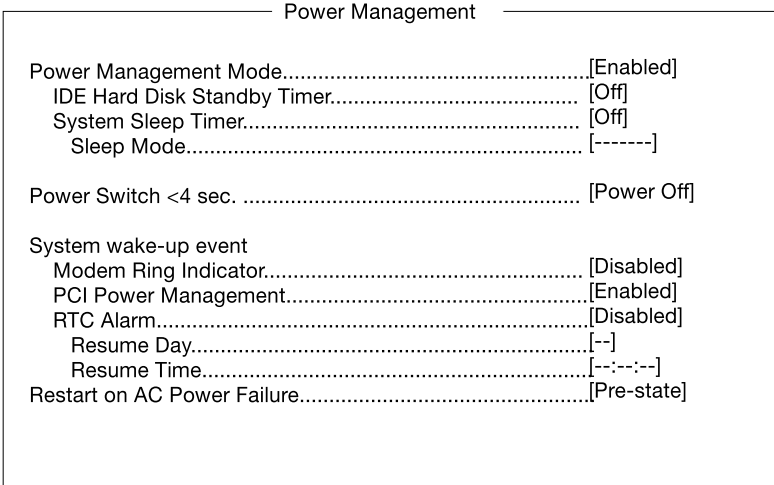
Parameter	Description	Option
IRQ	Sets the IRQ (interrupt request) channel of serial port 1	4 11
Serial port 2	Enables or disables serial port 2	Enabled Disabled
Base address	Sets the I/O base address of serial port 2	2F8h 3F8h 3E8h 2E8h
IRQ	Sets the IRQ (interrupt request) channel of serial port 2	11 4
Parallel port	Enables or disables the parallel port	Enabled Disabled
Base address	Sets the I/O base address of the parallel port	378h 278h 3BCh
IRQ	Sets the interrupt request (IRQ) channel of the parallel port Note: If you install an add-on card that has a parallel port whose address conflicts with the onboard parallel port, a warning appears on the screen. Check the parallel port address of the add-on card and change the address to one that does not conflict	7 5

Parameter	Description	Option
Operation mode	<p>Selects the operation mode of the parallel port.</p> <p>Standard Parallel Port (Standard) - allows normal speed one-way operation.</p> <p>Standard and Bidirectional (Bidirectional) - allows normal speed operation in a two-way mode</p> <p>Enhanced Parallel Port (EPP) - allows bidirectional parallel port operation at maximum speed</p> <p>Extended Capabilities Port (ECP) - allows parallel port to operate in bidirectional mode and at a speed higher than the maximum data transfer rate</p>	<p>Bidirectional</p> <p>EPP</p> <p>ECP</p> <p>Standard</p>
ECP DMA channel	Sets the DMA channel of the parallel port when the parallel operation mode is set to ECP	<p>1</p> <p>3</p>
Floppy disk controller	Enables and disabled the onboard floppy disk controller	<p>Enabled</p> <p>Disabled</p>
IDE controller	Enables or disables the onboard IDE controller	<p>Primary</p> <p>Disabled</p>
PS/2 mouse controller	Enables or disables the onboard PS/2 mouse controller	<p>Enabled</p> <p>Disabled</p>
USB host controller	Enables or disable the onboard USB controller	<p>Enabled</p> <p>Disabled</p>
USB legacy mode	When enabled, allows you to use a USB keyboard in DOS. Set this to Disabled to deactivate the USB keyboard function in DOS	<p>Disabled</p> <p>Enabled</p>
Onboard SCSI	Enables or disables the onboard SCSI feature	<p>Enabled</p> <p>Disabled</p>
Onboard ethernet chip	Enables or disables the onboard network feature	<p>Enabled</p> <p>Disabled</p>

▶ Power management

The Power Management menu allows you to configure the system power-management feature.

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



The following table describes the parameters in this screen. Settings in boldface are the default and suggested parameter settings.

Parameter	Description	Option
Power management mode	Allows you to reduce power consumption. When this parameter is set to Enabled, you can configure the IDE hard disk and system timers. Setting it to Disabled deactivates the power-management feature and its timers	Enabled Disabled

Parameter	Description	Option
IDE hard disk standby timer	Allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to OFF if your hard disk does not support this function	Off 1 minute 15 minutes
System sleep timer	This parameter sets the system to the lowest power-saving mode after a specified period of inactivity. Any keyboard or mouse action or any activity detected from the IRQ channels resumes system operation	Off On
Sleep mode	Lets you specify the power-saving mode that the system will enter after a specified period of inactivity. This parameter becomes configurable only if the System Sleep Timer is on. Any keyboard or mouse action, or any enabled monitored activities occurring through the IRQ channels resume system operation	Standby Suspend
Power switch < 4 sec.	When set to Power Off, the system automatically turns off when the power switch is pressed for less than 4 seconds. When set to Suspend, the system enters the suspend mode when the power switch is pressed for less than 4 seconds	Power off Suspend
System wake-up event	The system wake-up event allows the system to resume operation when the modem ring indicator is enabled	
Modem ring indicator	When Enabled, any fax/modem activity wakes up the system from suspend mode	Enabled Disabled
PCI power management	Enables or disabled the PCI power management function	Enabled Disabled
RTC alarm	Allows you to set a certain time on a certain day to wake-up your system from suspend mode	Disabled Enabled

Parameter	Description	Option
Resume day	If RTC alarm is enabled, the system will resume operation on the day indicated here	User input
Resume time	If RTC alarm is enabled, the system will resume operation at the time indicated here	User input
Restart on AC power failure	Reboots the system when a power failure occurs. If disabled, the system does not automatically reboot from a power failure	Disabled Enabled

▶ Boot options

This option allows you to specify your preferred settings for bootup.

The following screen appears if you select Boot Options from the main menu:

— Boot Options —

Boot Sequence
 1st [Floppy Disk A:]
 2nd [Hard Disk C:]
 3rd [IDE CD-ROM]

Primary Display Adapter.....[Auto]

Fast Boot.....[Auto]
 Silent Boot.....[Enabled]
 Num Lock After Boot.....[Enabled]
 Memory Test.....[Disabled]
 *Configuration Table.....[Enabled]

Update BIOS with Boot Block.....[Disabled]
 *Post Error Stop.....[Disabled].



Note: A parameter with an asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level. See “Entering Setup” on page 98 for how to view the advanced level.

The following table describes the parameters in this screen. Settings in boldface are the default and suggested parameter settings.

Parameter	Description	Option
Boot sequence	<p>This parameter allows you to specify the boot search sequence during POST.</p> <p>1st. The system checks this drive first.</p> <p>2nd. The system then checks this drive if it can not boot from the 1st specified drive.</p> <p>3rd. If the 1st and 2nd searches fail then it boots from this drive.</p> <p>BIOS will display an error message if the drive(s) specified is not bootable</p>	
Primary display adapter	Lets you activate the onboard video controller as your primary display adapter, or automatically disable it once BIOS detects that there is a video card installed in your system	Onboard Auto
Fast boot	Allows the system to boot faster by skipping some POST routines	Disabled Auto
Silent boot	<p>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 booting the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurs while booting, the system automatically switches to the text mode.</p> <p>Even if your setting is Enabled, you may also switch to the text mode while booting by pressing the Delete key when you see the "Press DELETE key to enter setup" message on the screen.</p> <p>When set to Disabled, BIOS is in the conventional text mode where you see the system initialization details on the screen</p>	Enabled Disabled
Num lock after boot	Allows you to activate the Num Lock function upon booting	Enabled Disabled

Parameter	Description	Opiton
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	Enabled Disabled
Configuration table	Displays preboot system configuration table when enabled	Enabled Disabled
Update BIOS with boot block	When enabled, it automatically flashes the BIOS file from the hard disk drive in case the system fails to boot up	Disabled Enabled
Post error stop	When enabled, the system automatically stop when an error occurs during POST. User has to press F1 to continue. If disabled, the system do not stop even when an error occurs during POST	Disabled Enabled

► 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.

Date and Time

Date.....[WWW MMM DD, YYYY]
 Time.....[HH:MM:SS]

Parameter	Description
Date	Set the date following the weekday-month-day-year format. Valid values for weekday, month, day, and year are: Weekday: Sun, Mon, Tue, Wed, Thu, Fri, Sat Month: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec Day: 1 to 31 Year: 1980 to 2079
Time	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

▶ System security

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

The following screen appears if you select System Security from the Main menu:

System Security

Supervisor Password.....[None]
 User Password.....[None]

Disk Drive Control
 Floppy Drive.....[Normal]
 Hard Disk Drive.....[Normal]

Processor Serial Number.....[Enabled]

Supervisor password

The supervisor password prevents unauthorized access to the BIOS utility.

Setting and changing a password

To set or change a password:

1. Make sure that JP2 is set to 1-2 (bypass password). See “Mainboard layout” on page 34 for the location of JP2.



.....

Note: You cannot enter the BIOS utility if a Setup password does not exist and JP2 is set to 2-3 (password check enabled). By default, JP2 is set to 1-2 (bypass password).

2. Enable the supervisor password parameter in the System Security menu by pressing the left or right arrow keys. The Supervisor Password window appears:

Supervisor Password

Enter your new Supervisor Password twice. Supervisor Password may be up to 7 characters long.

Enter Password.....[xxxxxxxxx]
 Enter Password again.....[xxxxxxxxx]

Set or Change Password

3. Type a password in the Enter Password field. The password may consist of up to seven characters.
4. Press the Enter key. Retype your password in the Enter Password again field to verify your first entry.
5. Highlight Set or Change Password and press the Enter key.
6. Press the ESC key to return to the System Security menu and then press the ESC key again to exit Setup. The Exit Setup screen appears:

Settings have been changed.
 Do you want to save to CMOS settings?

[Yes] [No]

7. Choose Yes to save your settings and exit the Setup utility. Your password will be saved to CMOS.

For the password to take effect you must set jumper JP2 to 2-3 (check password):

1. Turn off and unplug the computer.

2. Open the computer housing and set JP2 to 2-3 (check password) to check the password function. See “Mainboard layout” on page 34 for the location of JP2.
3. Close your computer’s housing and reboot your system.

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

Removing a password

To remove your supervisor password:

1. Disable the Supervisor Password parameter in the System Security menu by pressing the left or right arrow key to select None.
2. Press the ESC key to return to the System Security menu and then press the ESC key again to exit Setup. The Exit Setup screen appears:

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

3. Choose Yes to save your settings and exit Setup. Your previous password will be removed from CMOS.



Note: Remember to set JP2 to 1-2 (bypass password) because you won't be able to access Setup if a password does not exist and JP2 is set to 2-3 (check password).

Bypassing a supervisor password

To bypass the supervisor password:

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

1. Turn off and unplug the computer.
2. Open the computer housing and set JP2 to 1-2 (bypass password) to bypass the password function. See “Mainboard layout” on page 34 for the location of JP2.

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



Note: You can either change the existing supervisor password or remove it by selecting None.

User password

The user 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 Setup utility, select System Security, and then highlight the User Password parameter. Follow the same procedure as in setting the “Supervisor password” on page 117.



Note: Make sure to set JP2 to 2-3 to enable the user password.

User Password

Enter your new User Password twice. User Password may be up to 7 characters long.

Enter Password.....[xxxxxxx]
 Enter Password again.....[xxxxxxx]

Set or Change Password

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 (under DOS mode only).

Floppy drive and hard disk drive

Setting	Description
Normal	Floppy drive or 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

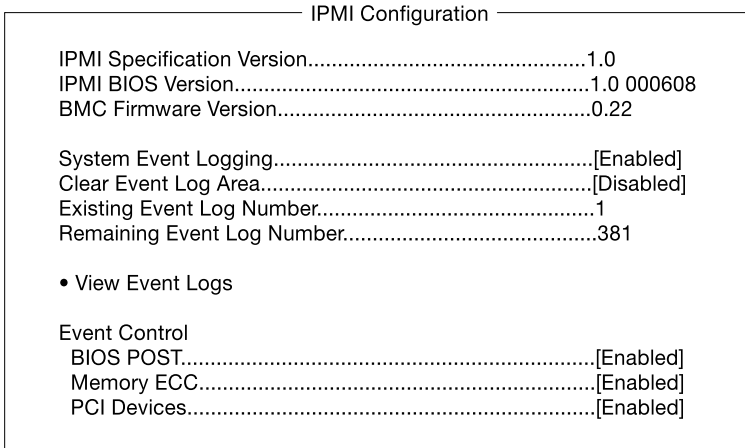
Processor serial number

The Pentium III processor incorporates an individual serial number in each chip that can identify individual CPUs. When Enabled, CPUs can be identified by processor serial number. Disable this parameter to deactivate this feature.

▶ IPMI configuration

Intelligent Platform Management Interface

The system event log enables you to record and monitor events that occur in your system like system temperature changes, fan stops, and others. This feature also allows you to specify the appropriate settings for your system’s event handling.



The following table describes the parameters in the IPMI configuration screen. Settings in boldface are the default and suggested parameter settings.

Parameter	Description	Option
IPMI specification version	Specifies the version of Intelligent Platform Management Interface (IPMI)	
IPMI BIOS version	Shows the version of IPMI BIOS	
BMC firmware version	Specifies the version of BaseBoard Management Controller (BMC) Firmware	

Parameter	Description	Option
System Event logging	Enables or disables the event logging function of your system	Enabled Disabled
Clear event log area	Clears the event log whenever the event log area is full	Disabled Enabled
Existing event log number	Number of events currently located in the event log area	
Remaining event log number	Number of space that is still available for logging system events	
View event logs	Opens the system event log file for viewing	
Event control		
BIOS POST	BIOS checks the bad processors and memory modules during POST. When this parameter is Enabled, BIOS will stop POST operation whenever it finds a bad processor or memory. Otherwise, if Disabled the system will continue running	Enabled Disabled
Memory ECC	ECC or error correcting code tests the accuracy of data as it passes in and out of memory. This parameter enables or disables the monitoring of this function	Enabled Disabled
PCI devices	PCI or Peripheral Component Interconnect is a 32-bit bus that supports a 64-bit extension for new processors, such as the Pentium. It can run at clock speeds of 33 or 66 MHz. This parameter monitors the activity of this bus when set to enabled	Enabled Disabled

► RDM configuration

```

RDM Configuration

RDM v4.3 BIOS Version.....000613
Console Redirection.....[Disabled]

Hidden Partition.....[Disabled]

Communication Protocol.....[N,8,1]
COM Port Baud Rate.....[57600]
*Detect Tone.....[Enabled]
Remote Console Phone No.....[      ]
Dial Out Retry Times.....[2]

*Modem Initial Command.....[      ]

Emergency Management
RDM Work Mode.....[Disabled]
Waiting Mode Password.....[      ]
Paging Times.....[1]
Paging No.:
1. [      ]
2. [      ]

```



Note: A parameter with an asterisk (*) mark indicates that the parameter appears only when you are in the Advanced Level. See “Entering Setup” on page 98 for how to view the advanced level.

The following table describes the parameters in the console redirection screen. Settings in boldface are the default and suggested parameter settings.

Parameter	Description	Option
RDM 4.3 BIOS version	Shows the version number of the RDM BIOS	

Parameter	Description	Opiton
Console redirection	This parameter lets you enable or disable the connection to the RDM manager station. If enabled and conditions are met, the RDM enabled server automatically dials the RDM manager station using the phone number specified in the Remote Console Phone No. parameter when the server reboots. Once the connection is established, both the RDM server and RDM manager station display the same screen which enables the RDM manager station to function the same as the server console. Setting this to Disabled deactivates the RDM manager station	Disabled Enabled
Hidden partition	If you want the hidden partition to become accessible, set this parameter to Enabled. When enabled, the server boots to the hidden partition, vice versa	Disabled Enabled
Communication protocol	This parameter specifies the parity, stop bits, and data length for the COM port to be used for the RDM connection. This is fixed at N(none), 8, 1 setting and is non-configurable	N, 8, or 1
COM port baud rate	This parameter lets you set the transfer rate of the COM for the RDM connection. The parameter setting depends on your modem specification; therefore, before you change the setting of this parameter, check your modem user guide	9600 57600
Detect tone	When enabled, RDM checks for the existence of the telephone tone first before it dials out. when disabled, RDM proceeds with the dialing process without checking for the telephone tone	Enabled Disabled

Parameter	Description	Option
Remote console phone no.	<p>This parameter allows you to set the phone number of the RDM manager station that the RDM module must dial once RDM is activated and the Remote Console is enabled. To set, simply highlight the parameter and enter the Remote Console phone number.</p> <p>If the remote console phone number is using an extension line, then you must enter six commas (,) after the phone number and before the extension number, if any. When entering the extension number, we recommend that you insert a comma after each number. The commas specify delay.</p> <p>If this parameter is left blank, the Remote Console calling function is disregarded</p>	User input
Dial out retry times	<p>This parameter lets you specify the maximum number of times the RDM server must retry to connect to the RDM manager station once the server fails and RDM is activated. If the server has completed the specified number of tries and the connection still fails, the server bypasses RDM and goes into normal mode</p>	2 4 8 Infinite
Modem initial command	<p>Some modems require specific commands for initialization. This parameter allows you to specify the required command to enable your system to support special types of modems. If you do not specify any command, BIOS uses the default method to initialize the modem*</p>	User input

Parameter	Description	Option
Emergency management		
RDM work mode	<p>When detecting system failure, the RDM module will take some actions according to the mode.</p> <ol style="list-style-type: none"> 1. Waiting: Paging and waiting RDM Station to call in. 2. Reboot: Paging, then reboot. 3. Disabled: No action <p>Note: If Waiting is selected, password must be set to at least three characters</p>	Disabled Waiting Reboot
Waiting mode password	Prevents unauthorized access to the server	User input
Paging times	Allows you to set the number of times that the RDM module must dial when the server fails or hangs	1,2,4, or 8
Paging No.	Allows you to set the pager number that the RDM module must dial when the server fails or hangs	User input

* Specify an initialization command only when you receive a Modem Initial Command Fail error message. Otherwise, leave this parameter blank.

▶ Advanced options



.....

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

The following screen shows the Advanced Options parameters:

Advanced Options

- Memory/Cache Options
- PnP/PCI Options
- CPU Frequency

Memory/Cache options

Memory/Cache Options allows you to configure the advanced system memory functions.

Memory/Cache Options	
Level 1 Cache	[Enabled]
Level 2 Cache.....	[Enabled]
Memory at 15MB-16MB Reserved for.....	[System]

Parameter	Description	Option
Level 1 cache	Enables or disables the first-level or internal memory, that is, the memory integrated into the CPU	Enabled Disabled
Level 2 cache	Enables or disables the second-level cache memory which is incorporated in the CPU module	Enabled Disabled
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	System Expansion board

PnP/PCI options

PnP/PCI Options allows you to specify the settings for your PCI devices. Selecting this option displays the following screen:

```

----- PnP/PCI Configuration -----
PCI IRQ Setting.....[ Auto ]
                                INTA  INTB  INTC  INTD
PCI Slot 1.....[--]  [--]  [--]  [--]
PCI Slot 2.....[--]  [--]  [--]  [--]
PCI Slot 3.....[--]  [--]  [--]  [--]
PCI Slot 4.....[--]  [--]  [--]  [--]
PCI Slot 5.....[--]  [--]  [--]  [--]
PCI Slot 6.....[--]  [--]  [--]  [--]
PCI Slot 7.....[--]  [--]  [--]  [--]
PCI Slot 8.....[--]  [--]  [--]  [--]
Onboard VGA.....[--]
Onboard SCSI.....[--]  [--]
Onboard LAN.....[--]
USB Host Controller.....[--]

PCI IRQ Sharing.....[Yes ]
VGA Palette Snoop.....[Disabled]
Plug and Play OS.....[Yes]
Reset Resource Assignments.....[No ]
    
```

Parameter	Description	Option
PCI IRQ setting	Select Auto to let BIOS automatically configure the plug-and-play (PnP) devices installed on your system; otherwise, select Manual Note: Refer to your manual for technical information about the PCI card	Auto Manual
PCI slots 1 to 8	When you set the PCI IRQ Setting parameter to Auto, these parameters specify the auto-assigned interrupt for each of the PCI devices. If you set the PCI IRQ Setting parameter to Manual, you need to specify the interrupt that you want to assign for each PCI device installed in your system	User input

Parameter	Description	Option
Onboard VGA	Allows you to manually assign the interrupt for the onboard VGA when the PCI IRQ Setting parameter is set to Manual. This parameter is grayed and not user-configurable when the PCI IRQ Setting is set to Auto	User input
Onboard SCSI	Allows you to manually assign the interrupt for the onboard SCSI when the PCI IRQ Setting parameter is set to Manual. This parameter is grayed and not user-configurable when the PCI IRQ Setting is set to Auto	User input
Onboard LAN	When you set the PCI IRQ Setting parameter to Auto, this parameter specifies the auto-assigned interrupt for the onboard LAN. If you set the PCI IRQ Setting parameter to Manual, you need to specify the interrupt that you want to assign for the onboard LAN installed in your system	User input
USB host controller	Allows you to manually assign the interrupt for the USB host controller when the PCI IRQ Setting parameter is set to Manual. This parameter is grayed and not user-configurable when the PCI IRQ Setting is set to Auto	User input
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. Note: If there are no IRQs available to assign for the remaining device function, we recommend that you enable this parameter	Yes No

Parameter	Description	Opiton
VGA palette snoop	<p>This parameter permits you to use the palette snooping feature if you installed more than one VGA card in the system.</p> <p>The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAMDAC (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 RAMDACs. The signal goes through the cards continuously until all RAMDAC data has been updated. This allows the display of multiple images on the screen.</p> <p>Note: Some VGA cards have required settings for this feature. Check your VGA card manual before setting this parameter</p>	<p>Disabled</p> <p>Enabled</p>
Plug and play OS	<p>When this parameter is set to Yes, BIOS initializes only PnP boot devices such as SCSI cards. When set to No, BIOS initializes all PnP boot and non-boot devices such as sound cards.</p> <p>Note: Set this parameter to Yes only if your operating system is Windows 95/98</p>	<p>Yes</p> <p>No</p>
Reset resource assignments	<p>Set this parameter to Yes to avoid IRQ conflicts when installing non-PnP or PnP ISA cards. This clears all resource assignments and allows BIOS to reassign resources to all installed PnP devices the next time the system boots. After clearing the resource data, the parameter resets to No</p>	<p>No</p> <p>Yes</p>

CPU Frequency

This parameter displays your CPU's speed and bus frequency. Selecting this option displays the following screen:

CPU Frequency

Bus Frequency100 MHz
 Processor Speed.....500 MHz

Single Processor MP Table.....[Enabled]
 MP Table Version.....[V1.4]

Parameter	Description	Option
Bus frequency	The bus frequency refers to the speed by which data is transferred between internal computer components and the CPU or the main memory of the CPU. A fast bus allows data to be transferred faster, which makes applications run faster	
Processor speed	The processor speed is the speed at which a microprocessor executes instructions. Clock speeds are expressed in megahertz (MHz), with 1 MHz being equal to 1 million cycles per second. The faster the clock, the more instructions the CPU can execute per second	

Parameter	Description	Option
Single Processor MP Table	<p>Enabling this parameter allows BIOS to create a multiprocessor (MP) table for Windows NT use. In a single-processor system running Windows NT, you may disable this parameter to enhance system performance. If you install another CPU for a dual system, enable this parameter then re-install Windows NT.</p> <p>In cases when this parameter is enabled before installing Windows NT in a single-processor system, you may upgrade to a multiprocessor system without reinstalling Windows NT.</p>	Enabled Disabled
MP Table version	Version number of the MP table.	

▶ Load 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 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.

▶ Abort settings change

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

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

Do you want to abort settings change?

[Yes] [No]

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

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

▶ Exit 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 the ESC key to leave Setup. The following dialog box appears:

<p>Do you really want to exit SETUP?</p> <p>[Yes] [No]</p>

Use the arrow keys to select your response. Press the Enter key.

If you made any changes to the Setup utility, the dialog box below is displayed.

<p>Settings have been changed. Do you want to save to CMOS settings?</p> <p>[Yes] [No]</p>

Use the arrow keys to select your response. Select Yes to save the changes in CMOS. Select No to retain the previous configuration values. Press the Enter key to exit.



Appendix A: ASM Pro quick installation guide

This appendix shows you how to set up ASM Pro and its agent software.

► Installing ASM Pro

System requirements

ASM Console

- Intel Pentium or higher processor
- 64MB of RAM (128MB recommended)
- 20MB free hard disk space
- Microsoft Windows 95, Windows 98, Windows NT, or Windows 2000 operating system
- Ethernet card
- Modem

ASM Server and Desktop agents

- Intel Pentium or higher processor
- 64MB of RAM (128MB recommended)
- 20MB free hard disk space
- Novell NetWare, SCO OpenServer, SCO UnixWare, Linux RedHat, Microsoft Windows NT, or Windows 2000 operating system
- Ethernet card
- Modem (optional for RAS/OOB^{*})

System setup

Make sure that your computer meets the system requirements before proceeding. You may also want to change your screen to 800 x 600 resolution or higher for optimum viewing.

* RAS (Remote Access Services) and OOB (Out-of-Band)

Installing ASM Console

To install ASM Console:

1. Insert the Resource CD into the CD-ROM drive on your system.
2. Click on the Startup icon.
3. Click on Software Installer, and select ASM Console.
4. Follow the Installation Wizard.
5. Click Finish to complete the installation.



Note: Remember to remove all diskettes or CDs from the drives before rebooting the system.

Installing ASM Server Agent

ASM Server Agent can be installed on four different operating systems. The installation diskette contains the installation files for the following operating systems:

- Novell NetWare 5.x, 4.11
- SCO OpenServer 5.0
- SCO Unixware 7.x
- Microsoft Windows NT 4.0 Server
- Linux RedHat 6.2
- Microsoft Windows 2000 (Server and Advanced Server)

Installing the Novell NetWare Server Agent



Note: Make sure the SNMP (Simple Network Management Protocol) is configured properly.

ASM Server Agent requires SNMP.NLM running with *Control Community set to 'public'*; to allow ASM Console to communicate with ASM Server Agent.

ASMAGENT.NCF is the script file that loads all related modules of ASM Server Agent. To load the SNMP use the following command:

```
load snmp control=public
```

If you load SNMP.NLM before ASM Server Agent, make sure that the Control Community has been set up properly. For more information, please refer to related documents about the SNMP Agent for NetWare (NetWare SNMP).

Check AUTOEXEC.NCF to see if you have loaded SNMP. Notice that because of the auto loading feature of NLM, you can not directly find where SNMP is loaded. The most common module is TCPIP.NLM which auto loads SNMP.NLM. If you are using TCP/IP, load SNMP by using the command line *load snmp control=public* before loading TCPIP.

For NetWare 4.x and Netware 5.x users, if you are using INETCFG.NLM to configure the network, be sure to configure SNMP and make sure that the SNMP.NLM is running with *Control Community set to 'public'*.

To install the Novell NetWare Server Agent:

1. Use the diskette maker utility on the Startup Resource CD to create your NetWare installation diskette.
2. Insert the diskette into the NetWare server's drive.
3. At the NetWare server console, type:

```
Load A: setup
```

4. You are asked if you want to install the ASM Server Agent on your system. Select Yes to install.

The setup program detects the NetWare version and the model of the server. It copies related NLM files into the SYS: SYSTEM directory and C: of your NetWare server, and some needed command lines are added into AUTOEXEC.NCF in SYS: SYSTEM.

5. If the Mylex GAM driver and GAM service is installed in your NetWare system, the setup program asks you to install the Bbp agent.
6. Press any key to continue. The ASM Server Agent Configuration Utility is launched.
7. The Password option is highlighted. Set up a password, and exit the utility.



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Note: A password is required when using the ASM Console to remotely change or set any values for the agent, such as threshold values and any trap handling method. If the password is disabled, there is no security protection for the agent when the Console tries to change or set these values.

8. Reboot the system to activate the ASM drivers.



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Note: ASM Server Agent automatically starts after the server is restarted and running.

Installing the SCO OpenServer Agent



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Note: Make sure the SNMP (Simple Network Management Protocol) is configured properly.

ASM Server Agent requires SNMP running with *community set to 'public'*. The IP address of ASM Console should be in */etc/snmpd.trap* so that ASM Console can communicate with ASM Server Agent.

Follow these steps to install the SCO Server Agent:

If the ASM installation diskette is already available, go to Step 2. Otherwise, perform Steps 1 to make the ASM installation diskette from the diskette image file on the ASM package CD-ROM.

1. Use the Diskette Maker utility on the Startup Resource CD to create your SCO OpenServer installation diskette.
2. If you are in the desktop window, click on the Software Manager icon. If you are at the UNIX shell prompt, type "custom" and press Enter.
3. From Software Manager or the custom program, select Software and then Install New.
4. The "Begin Installation" screen appears. Follow the onscreen instructions. Click on Continue to accept the defaults.
5. When the Select Media screen appears, highlight Floppy Disk Drive 0 and select Continue.
6. At the Install Preferences menu, select Full. The *asmconfig* screen appears.



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Note: If the SCO Server Agent has been installed, the program asks if you want to preserve the existing config file. Choose Reinstall to overwrite the previously installed SCO Server Agent, or choose Upgrade if you know the existing password.

7. A password is required for a new installation. The system prompts you to enter a new password, and after you have entered it once, prompts you to reenter it.
8. After you set up the password, select the *SNMP_Config* option, and enter the IP address of the ASM Console system. (You can run *asmconfig* at a later time to add or change the ASM Console IP address. See the ASM Server Agent Utilities chapter in the ASM Pro manual for information about running *asmconfig*.)



Note: If the SCO Server Agent has been installed, target IP addresses appear on this screen.

The installation process adds the ASM agent driver to the SCO operating system, and the following message appears before the kernel relinks.

Adding device to system configuration files. . .

When the installation is complete, the following message appears:

Installation Complete.

9. Exit Software Manager or the custom program, and reboot the system.

Configuring ASM Server Agent for SCO OpenServer

You may disable the password if you are installing ASM Server Agent to use only UPS (Uninterruptible Power Supply) or RDM functions.

You can use the `asmconfig` utility to set up a password for the agent. A password is required when you are using ASM Console to remotely change or set any values for the agent.

Refer to the ASM Server Agent Utilities chapter in the ASM Pro manual for instructions on how to use the `asmconfig` utility.

Installing the SCO UnixWare Server Agent



Note: All of the following procedures require root permission.

To install the SCO UnixWare Server Agent:

1. Make the ASM installation diskette from the DD file on the ASM package CD-ROM.
2. Mount the CD-ROM drive. For example, mount the CD-ROM to `/mnt`.
3. Insert an empty 1.44MB diskette into your floppy drive and execute the command:

```
# dd if={PATH}/asmuw.dd of=/dev/rdisk/f03ht
```

Here, `{PATH}` denotes the directory where `asmuw.dd` is located. For example, `/mnt/UnixWare`.

4. Insert the ASM installation diskette into your floppy drive and, at the shell prompt, execute this command to begin ASM installation:

```
# pkgadd -d diskette1 asm
```

The installation process copies the ASM Server Agent package into the /usr/asm directory, and automatically makes changes to the following system configuration files:

```
/etc/netmgt/snmpd.comm
```

```
/etc/netmgt/snmpd.peers
```

```
/etc/inittab
```

After the installation is complete, ASM Server Agent can be manually started by executing the command:

```
# /usr/asm/asmsmuxd
```

or it will automatically be started on the next system reboot.



Note: Before starting ASM SMUX Agent asmsmuxd, execute the ASM Agent Configuration Utility asmcfg to configure at least "SNMP", "ASM_Password" and other parameters. Refer to "Chapter 4 - ASM Server Agent Utilities" in the ASM Pro manual for detailed instructions on using the ASM Configuration Utility.

Installing the Microsoft Windows NT Server Agent



Note: Before installing the ASM software, make sure that the TCP/IP and its related SNMP service are installed on the server.

Follow these steps to install the Windows NT agent:

1. Insert the installation CD-ROM into your drive after booting NT and logging in as the system administrator.
2. Click on the Start button and select Run. A dialog box appears that allows you to specify the setup program in the NT directory of the installation CD.
3. Verify the path and click OK. The Welcome screen appears.
4. Click Next. You are asked to stop SNMP service.

5. Click Yes. You are prompted to choose a destination directory. If you only want to install ASM SNMP agent and Remote Console, you can choose Typical. If you want to choose more components, click Custom. There are five components in ASM agent:

- SNMP agent
- DMI

ASM Pro agent defines a proprietary ASM.MIF that supports the same items as the SNMP agent.

- Server Mif

The server.mif that defined by DMTF will be installed.

- Remote Console

The Remote Console Server is installed which can be remote control by Remote Console Client

- MMC

This component is only supported on Windows 2000. And it is integrated with Microsoft Management Console.

6. Click Next, for the default directory, or click on Browse to find your own destination directory. Check any components you want to install, and click OK.

The asmcfg utility launches automatically.

You may skip steps 7 through 11 if you are installing ASM Server Agent solely for the purpose of utilizing UPS and/or RDM functions.

7. Enter a password and click OK. A password is required when using the ASM Console to remotely change or set any value for the NT Agent. If the password is disabled, there is no security protection for the agent when the ASM Console tries to change or set these values.
8. Enter the IP address of the ASM Console system, then click ADD to add trap destinations. Click OK to end the asmcfg utility. This IP address tells the Agent where to report (trap).
9. Click Yes to save your changes. The view readme file dialog box appears.
10. Click Yes to view, No to continue.
11. Click Finish to exit setup.

► Installing RDM

This section gives step-by-step instructions on how to install the RDM module, the RDM function in agent side and console side of ASM Pro software.

System requirements

Before you begin the installation, make sure that you have the following:

RDM server requirements

Hardware

- External modem
- RDM module
- RDM LED indicator
- Pager

Software

- Novell NetWare v4.1 or later, and/or
- SCO OpenServer 5.0 or later, and/or
- Microsoft Windows NT 4.0 or later, and/or
- SCO UnixWare 7.0 or later
- ASM (Advanced System Manager) agent
- RDM v4.3 package

RDM Manager Station requirements

Hardware

- Pentium or faster PC
- At least 16-MB RAM
- At least 5-MB free hard disk space
- Modem

Software

- Microsoft Windows 95/98, Microsoft NT Workstation 4.0, or Windows 2000
- ASM Console 4.3 Console

RDM server setup

This section describes how to set up the RDM server.

Installing RDM module



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Note: The RDM module is installed at the Acer factory. The following RDM module instructions is provided in the event you need to reinstall the RDM module.

ESD precautions

Electrostatic discharge (ESD) can damage your processor, disk drives, expansion boards, and other components. Always observe the following precautions before you install a system component.

- Do not remove a component from its protective packaging until you are ready to install it.
- Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system requiring ESD protection at all times.

Preinstallation instructions

Always observe the following before you install a system component:

- Turn off and unplug the system and all the peripherals connected to the unit before opening it.
- Open the system housing.
- Follow the ESD precautions listed above before handling a system component.
- Remove any expansion boards or peripherals that block access to the desired system board slot or connectors.
- See the following sections for specific instructions on the component you wish to install.

Installing the RDM module

1. Open the system housing.
2. Align the module connectors with their corresponding connectors on the system board.
3. Gently insert the module. Make sure not to bend the pins and that the module is properly seated.
4. Replace the housing cover.
5. Enter BIOS Setup to set the desired RDM Work Mode.

Connecting communication peripherals

Modem

The RDM server and the RDM manager station communicate via modem protocol. Therefore, you need to connect an external modem with a baud rate of not less than 9600 bps to both systems. To connect an external modem, connect the RS232C serial cable to the modem data port and the appropriate COM port of the system.



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Note: The modem at the RDM server side must be connected to the COM2 port, while the modem at the RDM manager station side can be connected to either the COM1 or COM2 port. Use only modems that are purchased locally to ensure compatibility with your telephone system. The modem must have a transfer rate of at least 28.8K.

When the modem is turned ON, the CD/DCD (Carrier Detect/Data Carrier Detect) signal light on the front panel must be OFF for RDM to function properly. If this is not the case, refer to the modem's user's guide and check the section on DIP switches for information on how to adjust the CD/DCD light. If your modem does not have a DIP switch, then we recommend that you replace it with another model that supports such switches.

Telephone

To connect the modem to a telephone outlet, plug in the telephone connector to the telephone outlet. Then, insert the telephone line connector to the modem line port.

Pager

The pager is necessary for notification purposes only.

Post-installation instructions

Observe the following after installing a system component:

- Make sure that the components are installed according to the step-by-step instructions in their respective sections.
- Replace any expansion boards or peripherals that you removed earlier.
- Replace the system cover.
- Connect the necessary cables.
- Turn on the system and the peripherals connected to it.

Installing RDM agent software

You must do the following to ensure successful installation of the RDM agent software:

1. Create a hidden RDM partition.

The hidden RDM partition is a DOS partition on the hard disk that allows you to run preinstalled diagnostic tools when necessary, without using a diskette or a CD. It also allows you to access your system from a remote RDM manager station.

To create a hidden RDM partition, do the following:

- Prepare a "clean" hard disk, i.e., a hard disk without any operating system installed on it.
- Insert a DOS bootable floppy diskette into the diskette drive.
- After booting from the floppy diskette drive, use the DOS FDISK command to create a DOS partition. The minimum partition size is 33 MB.
- Activate the partition and exit FDISK; then reboot the system.
- Format the DOS partition. When formatting is completed, label the partition as RDM for easy identification.
- Install (or transfer) the DOS operating system to the partition.
- Run `\agent\install.bat*` to install the RDM driver and hide the RDM partition. These settings will take effect only after you reboot the system.

After you create the hidden partition, you can now install other operating systems on the same hard disk. But before doing so, make sure that the Hidden Partition parameter in the RDM BIOS

is set to Disabled. For more information on RDM BIOS, refer to RDM BIOS chapter of the ASM Pro manual.



Important! If you are using an IDE hard disk with a capacity less than 540 MB, make sure that you disable the LBA mode. Otherwise, you will be required to use the LBA mode that you set for the other operating systems when you create the hidden RDM partition.



Note: When you boot the system to the hidden partition, you cannot use other utilities (e.g., FDISK.EXE) to change the hidden partition settings.

Deleting the hidden partition



Important! You cannot recreate the RDM hidden partition once you delete it. Before proceeding, make sure that you will not need to create a hidden partition in the future.

Follow these steps to delete the hidden partition:

- Insert a bootable diskette into the diskette drive.
 - Enter the BIOS Setup and set the Hidden Partition parameter in the RDM BIOS to Enabled.
 - After the system boots from the diskette drive, use FDISK to delete the RDM hidden partition. Do not delete other partitions or change or reformat the active partition.
 - Exit FDISK and reboot the system.
 - Enter the BIOS Setup and set the Hidden Partition parameter in the RDM BIOS to Disabled.
2. Install an operating system.

RDM supports the following operating systems:

- Novell NetWare
- Microsoft Windows NT and Windows 2000
- SCO OpenServer
- SCO UnixWare

You can install any or all of the operating systems. For the installation instructions, refer to the documentation that came with the OS package.

3. Install the RDM Agent Driver.



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Note: Before you proceed, make sure that you have installed the necessary components and peripherals, for both the RDM server and RDM station.

The RDM agent driver or the server driver is contained in the Advanced System Manager Pro (ASM Pro) software package. Therefore, to install the RDM agent driver, you need to install the ASM agent software. For information on how to install the ASM software, refer to the documentation that comes with the ASM package.

4. Enable the driver.

After installing the ASM Agent driver, the system automatically enables the RDM driver. You do not need to enable the RDM driver manually unless you have previously disabled it for some reason.



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Note: We strongly recommend that you do NOT disable the RDM driver. If you disable the RDM driver, RDM manager station will not be able to establish remote access to the server in the event of a system failure.

NetWare

To enable the RDM driver in a Netware environment, type:

```
# LOAD MAGENT
```

To disable the driver, type:

```
# UNLOAD MAGENT
```

Windows NT

To enable the RDM driver in a Windows NT environment, open a command prompt and type:

```
STARTRDM.EXE
```

To disable the RDM driver in a Windows NT environment, open a command prompt and type:

```
CANCEL.EXE
```

SCO OpenServer

To enable the RDM drivers in an SCO OpenServer environment, type:

```
#/XSNMPD/RDMTESTTART
```

where #/XSNMPD is the directory that contains the RDM drivers.

To disable, type:

```
#/XSNMPD/RDMTEST CANCEL
```

SCO UnixWare

To enable the RDM drivers in an SCO Unixware environment, type:

```
#/USR/ASM/RDMTEST START
```

To disable, type:

```
#/USR/ASM/RDMTEST CANCEL
```

► Installing AWM and Microsoft IIS

System requirements

- Intel 486 or higher processor
- 64MB of RAM
- 10MB free hard disk space
- Windows NT Server 4.0 or Windows 2000 with the following:
 - Microsoft Internet Information Server 2.0 or later (4.0 is recommended)
 - Microsoft Active Server Pages (ASP)
 - SNMP Service
- Ethernet card
- Modem

Installing AWM

To install AWM:

1. Insert the Resource CD into the CD-ROM drive on your system.
2. Click on the Startup icon.
3. Click on Software Installer, and select AWM.
4. Follow the Installation Wizard.
5. Click Finish to complete the installation.



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Note: For Windows NT 4.0, AWM will automatically install WbEM core or WbEM SNMP Provider if not installed. For Windows 2000, the WbEM core is built-in. AWM will only install the WbEM SNMP Provider if it is not yet installed. After installing either of these components, the system needs to reboot.

Setting up Microsoft IIS

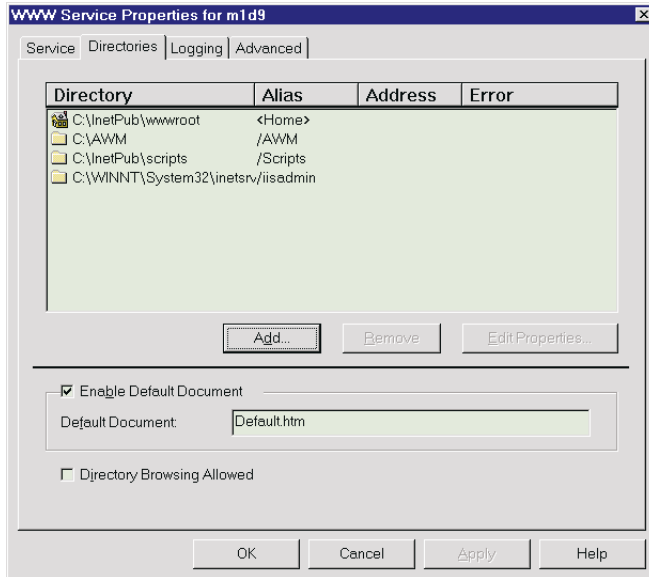


.....

Note: If you have IIS version 4.0 or later the directory is automatically added.

To set up Microsoft IIS:

1. Open your IIS configuration program and check the virtual directory setting.
2. Check the virtual directory. If there is no virtual directory for AWM, create one and name it AWM. Point it to the directory where the AWM main files are installed (e.g. C:/AWM).



3. After adding the virtual directory, click the Execute checkbox and then click OK to save changes and exit.

The screenshot shows the 'Directory Properties' dialog box with the following fields and options:

- Directory:** C:\AWM (with a 'Browse...' button)
- Home Directory:** (with a folder icon)
- Virtual Directory:** (selected)
 - Alias:** /AWM
- Account Information:**
 - User Name:** (empty text box)
 - Password:** (password masked text box)
- Virtual Server:** (unchecked)
 - Virtual Server IP Address:** (empty text box)
- Access:**
 - Read
 - Execute
 - Require secure SSL channel (Not installed)
 - Enable Client Certificates
 - Require Client Certificates

Buttons at the bottom: OK, Cancel, Help