Columbus II Chassis Subassembly Product Guide

Order Number: 695450-001

If an FCC declaration of conformity marking is present on the board, the following statement applies:

FCC Declaration of Conformity

This device 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.

For questions related to the EMC performance of this product, contact:

Intel Corporation
5200 N.E. Elam Young Parkway
Hillsboro, OR 97124
1-800-628-8686

This equipment 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 equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit other than the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canadian Department of Communications Compliance Statement:

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numerique német pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Réglement sur le broullage radioélectrique édicté par le ministére des Communications du Canada.

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1 System Description

Chassis Feature Summary

The Columbus II's galvanized metal chassis minimizes EMI and radio frequency interference (RFI). The removable side cover is attached to the chassis with three screws and provides easy access to the server board and power supply. You can secure this cover to the chassis with a padlock (not provided, see page 13 for padlock size). The removable front panel provides access to the 3.5- and 5.25-inch peripheral bays in the front of the chassis.

Table 1. Chassis Feature Summary

Feature	Description
Drives	One 3.5-inch diskette drive bay, accessible from front.
	Three 5.25-inch-wide bays that are externally accessible, designed to hold half-height standard removable media devices; the bays can be converted into a single full-height bay.
	Internal bay for 3.5-inch hard disk drives: space for up to six 1-inch-high drives or up to three 1.6-inch-high drives.
Expansion slot covers	Up to eight expansion slot can be used; every slot opening that does not have an add-in board installed must have a slot cover installed.
Server board	Server AT† form-factor, 12 × 13 inches, ATX I/O.
Power supply	275-watt or 300-watt power supply, integrated cooling fan. Detachable AC power cord.
Cooling	Two system fans inside the chassis and one power supply fan provide cooling and airflow.

Chassis Front Controls and Indicators

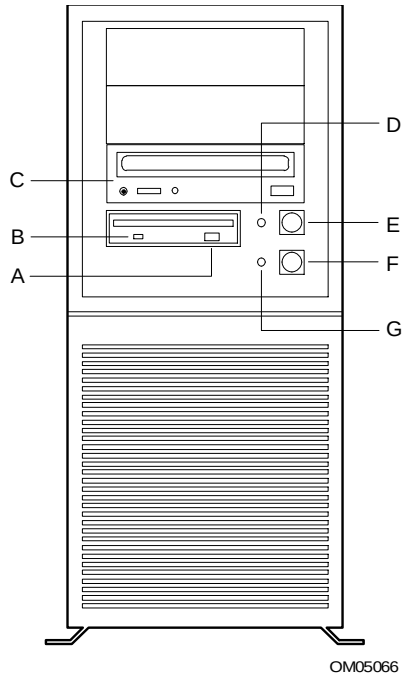


Figure 1. Front Controls and Indicators

A. Diskette ejector button*
B. Diskette drive activity LED*
C. CD-ROM drive*
D. System power on LED
E. Power button
F. Reset button
G. Hard drive LED

* Items shown may not be included in the chassis.

Chassis Back I/O Ports and Features

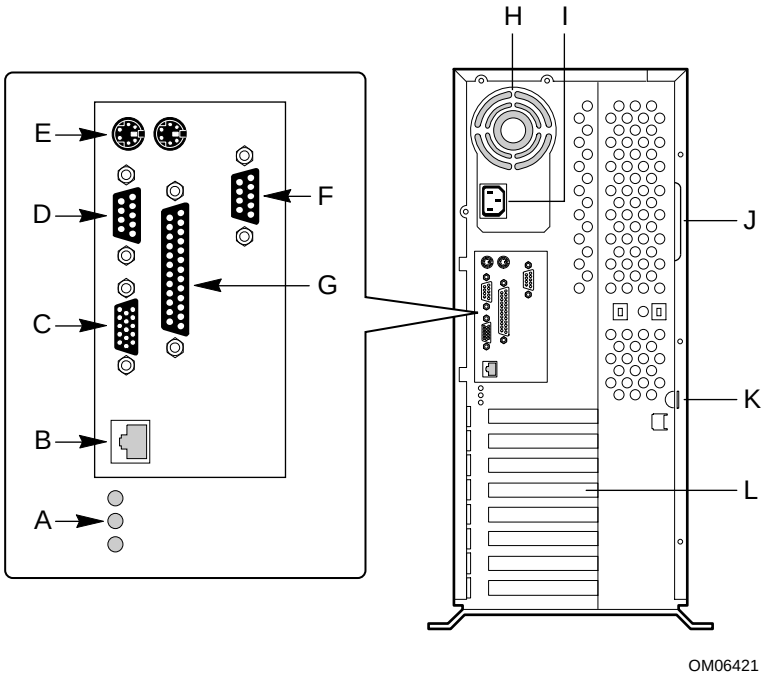


Figure 2. Back I/O Ports and Features

A. Network LEDs*
B. Network connector port*
C. VGA† monitor connector*
D. Serial port A, COM1*
E. Mouse and keyboard connectors*
F. Serial port B, COM2 (extended via ribbon cable from back panel to server board)*
G. Parallel port*
H. Power supply fan
I. AC input power connector
J. Side cover grip handle
K. Loop for padlock (padlock not supplied, see page 13 for padlock size)
L. Eight slot covers

* Typical baseboard I/O connectors shown

Chassis Side View

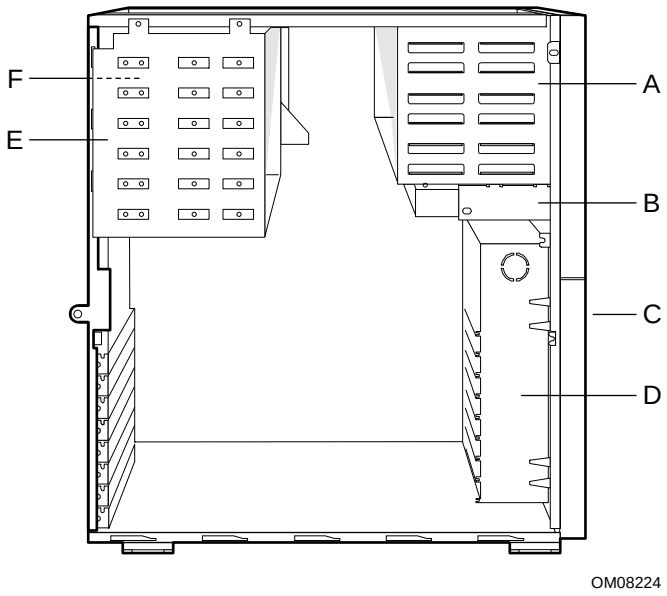


Figure 3. Chassis Side View

A. 5.25-inch external bays
B. 3.5-inch diskette drive
C. Plastic front bezel
D. Plastic fan housing and card guide assembly
E. 3.5-inch internal peripheral bay
F. Power supply (behind the 3.5-inch peripheral bay)

Peripherals

Internal Bay for 3.5-inch Drives

An internal bay is provided for drives that are 3.5 inches wide and either 1 inch or 1.6 inches high. The possible combinations (height and quantity) are as follows:

- Up to a total of six drives, each 1 inch high
- Up to a total of three drives, each 1.6 inches high
- Up to a total of four drives, two that are 1.6 inches high plus two that are 1 inch high

The side cover provides easy access to drives in the internal bay. The bay swings out and can be removed.

Drives can consume up to 11 watts of power. Drives must be specified to run at a maximum ambient temperature of 50 °C.

The system was designed to allow the user to install a Redundant Array of Independent Disks (RAID). A software implementation with onboard SCSI or an add-in board can be used to set up RAID applications.

External Bays for 5.25-inch Removable Media Devices

The chassis has three 5.25-inch half-height bays that are accessible from the front of the system. These bays are intended to provide space for tape backup or other removable devices. As shipped, a CD-ROM drive may be installed in the lowest of the three bays.

You can convert the 5.25-inch bays to a single full-height bay. We recommend that you do not use these bays for hard disk drives, because they generate EMI, ESD susceptibility increases, and the drive will not be adequately cooled.

Power Supply

Your chassis includes either a 300 watt or a 275 watt power supply

300 Watt Power Supply

The 300 watt universal-type power supply is designed to minimize EMI and RFI. The supply operates within the following voltage ranges and is rated as follows:

- 100-120 V~ at 50/60 Hertz (Hz); 4.6 A maximum
- 200-240 V~ at 50/60 Hz; 2.3 A maximum

The DC output voltages of the power supply are +5 V, +12 V, +3.3 V, -5 V, -12 V, and +5 V standby. Power to the server board is provided through the power cable to the 24-pin main power connector. The Auxiliary power connector provides the interface to the IMB bus and sensing signals for the Baseboard Management Controller on the server board. Through this interface, LANDesk® Server Manager can monitor the power supply.

275 Watt Power Supply

The 275 watt universal-type power supply is designed to minimize EMI and RFI. The supply operates within the following voltage ranges and is rated as follows:

- 100-120 V~ at 50/60 Hertz (Hz); 6.3 A maximum
- 200-240 V~ at 50/60 Hz; 3.15 A maximum

The DC output voltages of the power supply are +5 V, +12 V, +3.3 V, -5 V, -12 V, and +5 V standby. Power to the server board is provided through the power cable to the 24-pin main power connector. The Auxiliary power connector provides the interface to the IMB bus and sensing signals for the Baseboard Management Controller on the server board.

System Cooling

The chassis includes three fans for cooling and airflow. One of these is the integrated fan in the power supply.

NOTE

The side cover must be on the system for proper cooling.

System Security

To help prevent unauthorized entry or use of the system, the chassis includes a physical padlock loop and a chassis intrusion switch that can be monitored by Server Management software.

Security with Mechanical Locks and Monitoring

Secure the side cover to the chassis by inserting a padlock (not provided) through the metal loop protruding through the slot in the back edge of the side cover.

- A padlock loop on the rear of the system side cover can be used to prevent access to the microprocessors, memory, and add-in cards. A variety of lock sizes can be accommodated by the .300 diameter loop.

Activate the side cover intrusion alarm switch. When the side door is opened, the switch transmits an alarm signal to the server board, where server management software processes the signal. The system can be programmed to respond to an intrusion by powering down or by locking the keyboard, for example.

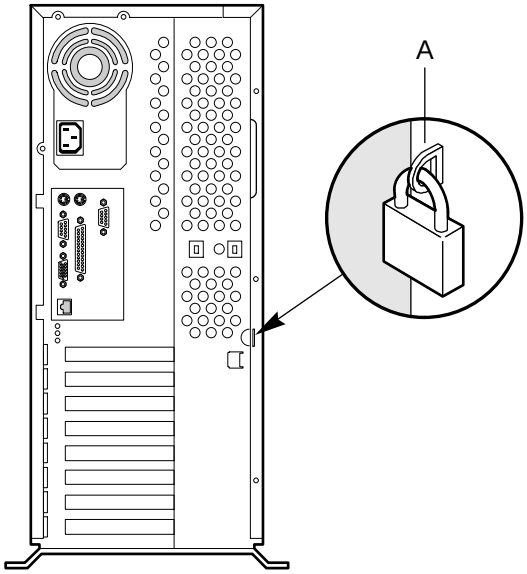


Figure 4. System Security

A. Padlock loop

2 Working Inside the System

Tools and Supplies Needed

- Phillips (cross-head) screwdriver (#2 bit)
- Antistatic wrist strap (recommended)

Safety: Before You Remove the Side Cover

Before removing the system side cover to work inside the system, observe these safety guidelines.

1. Turn off all peripheral devices connected to the system.
2. Turn off the system by using the push-button on/off power switch on the front of the system. Then unplug the AC power cord from the system or wall outlet.
3. Label and disconnect all peripheral cables and all telecommunication lines connected to I/O connectors or ports on the back of the system.
4. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to chassis ground of the system—any unpainted metal surface—when handling components.

Warnings and Cautions

These warnings and cautions apply whenever you remove the side cover of the system to access components inside the system. Only a technically qualified person should integrate and configure the system.

⚠ WARNINGS

System power on/off: The on/off button (a convex button) on the front panel DOES NOT turn off the system AC power. To remove power from system, you must unplug the AC power cord from the wall outlet or the system.

Hazardous conditions, power supply: Hazardous voltage, current, and energy levels are present inside the power supply. There are no user serviceable parts inside it; servicing should be done by technically qualified personnel.

Hazardous conditions, devices and cables: Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the system and disconnect the power cords, telecommunications systems, networks, and modems attached to the system before opening it. Otherwise, personal injury or equipment damage can result.

⚠ CAUTIONS

Electrostatic discharge (ESD) and ESD protection: ESD can damage disk drives, boards, and other parts. We recommend that you do all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground—any unpainted metal surface—on your system when handling parts.

ESD and handling boards: Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. After removing a board from its protective wrapper or from the system, place it component-side up on a grounded, static-free surface. If you place the server board on a conductive surface, the battery leads may short out. If they do, this will result in a loss of CMOS data and will drain the battery. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

Cooling and airflow: For proper cooling and airflow, always install the chassis side cover before turning on the system. Operating it without the cover in place can damage system parts.

Side Cover

Removing the Side Cover

You need to remove the system side cover and in some cases the front cover to gain access to components inside the system.

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Turn off all peripheral devices connected to the system.
3. Turn off the system by using the power on/off switch on the front panel, AND unplug the AC power cord.
4. Label and disconnect all peripheral cables attached to the I/O panel on the back of the system.
5. If there is a padlock installed on the back of the system, unlock and remove it.
6. Remove and save the three screws from the side cover; you will need them later to reattach the cover.
7. Place the fingertips of your left hand under the built-in handle on the back of the cover.
8. Using an even pull, slide the cover backward, about an inch, until it stops.
9. Using your left hand, pull the back end of the cover toward you to disengage its bottom row of tabs from the notches in the chassis.
10. Using both hands, lift the cover upward to disengage the top row of tabs from the notches in the top edge of the chassis. Set the cover aside.

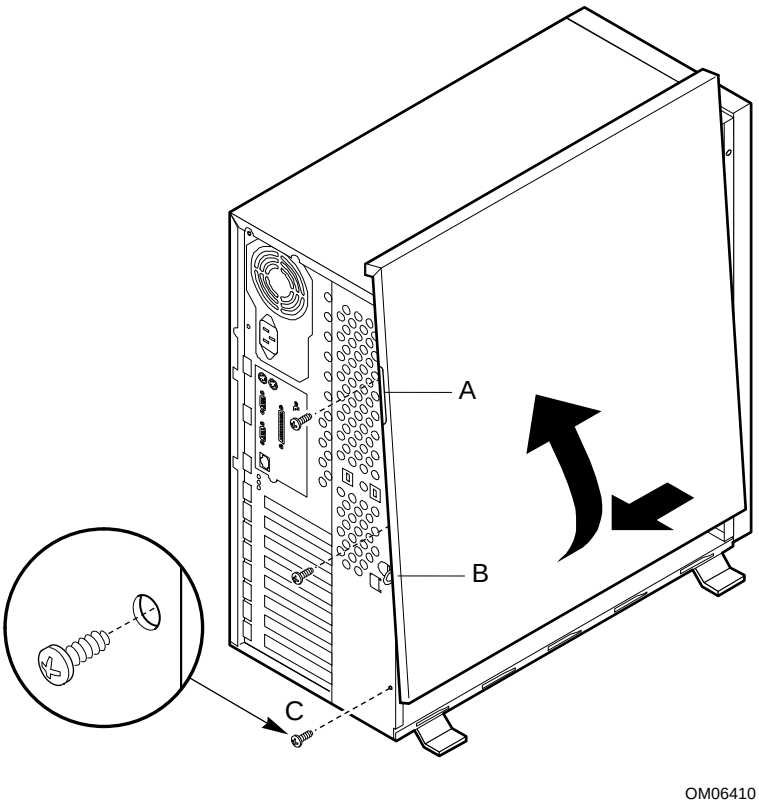


Figure 5. Removing the Side Cover

A. Built-in handle
B. Metal loop (for padlock)
C. Retaining screws (3)

Installing the Side Cover

CAUTION

Do not damage EMI strips: When you install the side cover, do not damage the EMI gaskets mounted on the cover. Replace any damaged strips, or your system may not meet EMI requirements.

1. Before replacing a side cover, check that you have not left loose tools or parts inside the system.
2. Check that cables, add-in boards, and other components are properly installed.
3. Position the cover over the chassis so that the top row of tabs aligns with slots in the top of the chassis. Slide the cover toward the front of the system until the cover tabs firmly engage in the chassis.
4. Attach the cover to the chassis with the three screws you removed earlier, and tighten them firmly.
5. To prevent unauthorized access inside the system, insert and lock a padlock through the metal loop protruding through the slot in the back of the side cover.
6. Connect all external cables and the power cord to the system.

Front Cover

Removing the Front Cover

1. Remove side cover.
2. Remove and save the screw from the front cover; you will need it later to reattach the cover.
3. Squeeze the two plastic tabs inside the front cover, and push them through the chassis slots.
4. Pull the left side of the cover out slightly, about 15°, until the cover clears the power and reset buttons. Slide the cover to the right until the tabs disengage from the chassis slots. Set the cover aside.

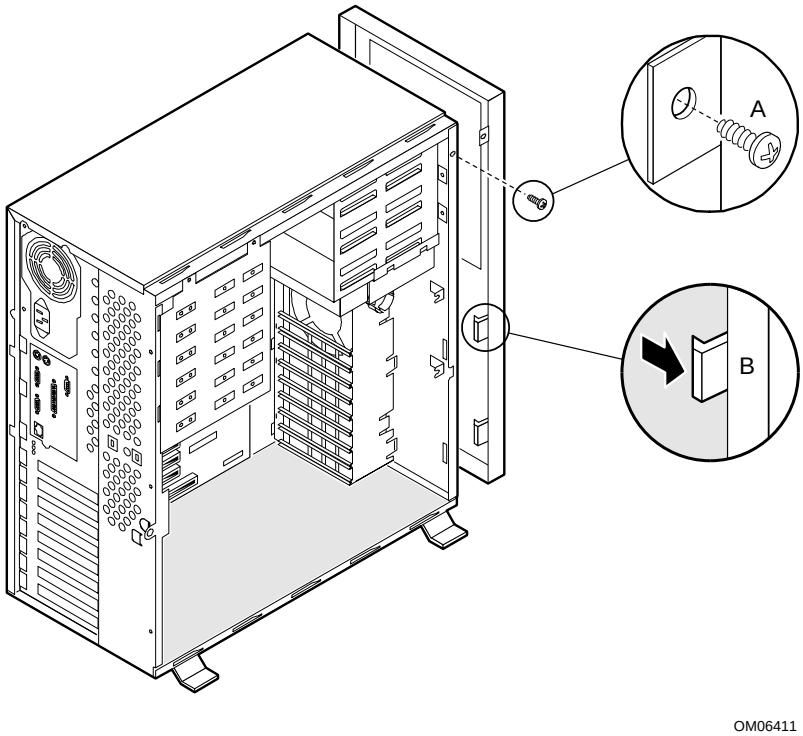


Figure 6. Removing the Front Cover

A. Retaining screw
B. Plastic tab (2)

Installing the Front Cover

1. Before replacing the front cover, make sure you did not leave any tools or loose parts inside the chassis.
2. Insert the plastic tabs on the front cover into the slots on the right of the chassis. Squeeze the front panel and chassis together along the left side until the plastic tabs snap into their slots.
3. Reinstall and tighten the screw.

Add-in Boards

Installing an Add-in Board

⚠ CAUTIONS

Do not overload server board: Do not overload the server board by installing add-in boards that draw excessive current.

ESD and handling boards: Add-in boards can be extremely sensitive to ESD and always require careful handling. After removing the board from its protective wrapper or from the server board, place it component-side up on a grounded, static-free surface or conductive foam pad—if available. Do not slide the board over any surface.

1. Remove side cover.
2. Remove and save the expansion slot screw and cover.
3. Remove add-in board from its protective wrapper. Be careful not to touch the components or gold edge connectors. Place board component-side up on an antistatic surface.
4. Record the serial number of the add-in board in your equipment log.
5. Set jumpers or switches according to the manufacturer's instructions.
6. Hold board by its top edge or upper corners. Firmly press it into an expansion slot on the server board. The tapered foot of the board retaining bracket must fit into the mating slot in the expansion slot frame.
   - Install an ISA board component-side UP.
   - Install a PCI board component-side DOWN.
7. Align the rounded notch in the retaining bracket with the threaded hole in the frame. The bracket fits the space that was occupied by the slot cover.
8. Use the screw removed earlier. Insert it into the threaded hole, and push the rounded notch against the screw. Tighten it firmly to prevent the bracket from interfering with adjacent brackets. Attach cables if necessary.
9. Reinstall the side cover.

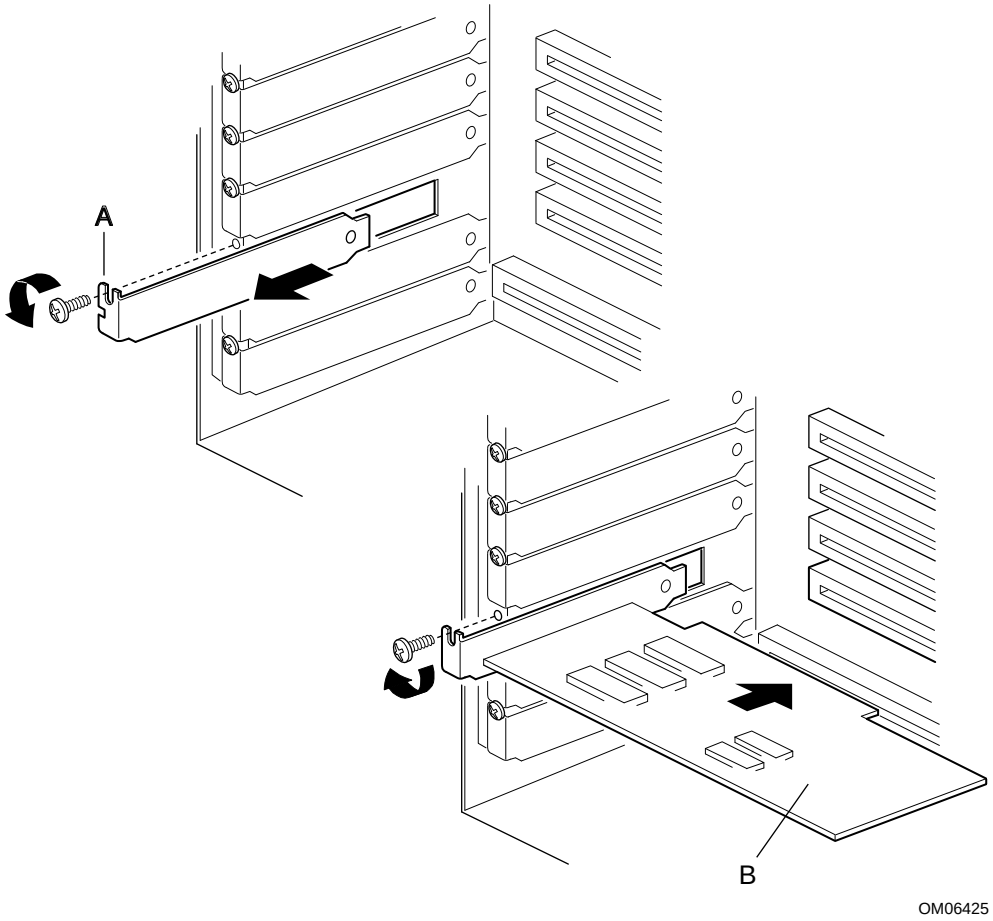


Figure 7. Installing an Add-in Board

A. Expansion slot cover and screw
B. Add-in board, use same screw

Removing an Add-in Board

⚠ CAUTION

Slot covers must be installed on all vacant expansion slots. This maintains the electromagnetic emissions characteristics of the system and ensures proper cooling of system components.

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Disconnect any cables attached to the board you are removing.
3. Remove and save the screw from the board retaining bracket.
4. Holding the board by its top edge or upper corners, carefully pull it out. Do not scrape the board against other components.
5. Store board in an antistatic protective wrapper.
6. If you are not reinstalling a board in the same slot, install a slot cover over the vacant slot. The tapered foot of the cover must fit into the mating slot in the expansion slot frame.

7. Use the screw removed earlier. Insert it into the threaded hole, and push the rounded notch against screw. Tighten it firmly to prevent the bracket from interfering with adjacent brackets.

Diskette Drive

Removing the Diskette Drive

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Remove the side cover.
3. Disconnect the power cable and signal cable from the diskette drive. The connectors are keyed for ease in reconnecting them to the drive.
4. Remove and save the screw that secures the diskette drive carrier to the 5.25-inch drive bay.

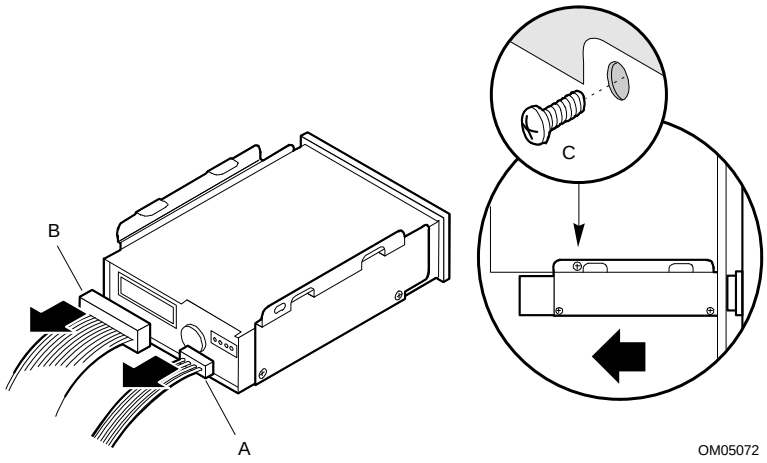


Figure 8. Removing the Diskette Drive from the Chassis

A. Power cable
B. Signal cable
C. Chassis screw

5. Slide the carrier back toward the power supply to disengage the tabs from the slots in the bottom of the 5.25-inch drive bay.
6. Remove the carrier from the chassis, and place it component-side up on an antistatic surface. If not reinstalling the same drive, place it in a protective wrapper.
7. Remove the four screws that hold the carrier to the drive, and set them and the carrier aside.
8. Place the drive in an antistatic protective wrapper.
9. Reinstall the side cover.

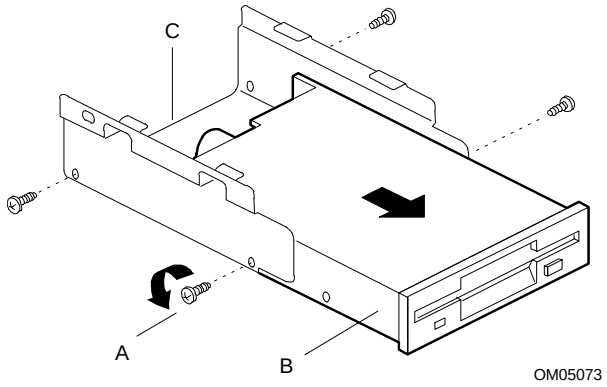


Figure 9. Removing the Diskette Drive from the Carrier

A. Screws (4)
B. Drive
C. Carrier

Installing the Diskette Drive

1. Remove the new 3.5-inch diskette drive from its protective wrapper, and place it component-side up on an antistatic surface. Record the drive model and serial numbers in your equipment log.
2. Set any jumpers or switches according to the drive manufacturer's instructions.
3. Place the drive carrier on the component-side of the drive, and align the four mounting holes.
4. Attach the carrier to the drive with four screws of the appropriate size and length (reuse the screws you removed before). Tighten the screws firmly.
5. Position the carrier under the bottom 5.25-inch bay, and slide the assembly toward the front of the system to engage the carrier tabs in the slots under the bottom bay. Make sure the front of the drive fits correctly in the front opening of the system.
6. Secure the assembly to the 5.25-inch bay with the screw you removed earlier; tighten the screw firmly.
7. Connect the signal and power cables to the drive. The red stripe on the signal cable must face toward the center of the drive.
8. Reinstall the side cover.

Hard Drives

Drive Cabling Considerations

This section summarizes device cabling requirements and constraints. The number of devices you can install depends on:

- The number supported by the bus
- The number of physical drive bays available
- The height of drives in the internal bays (1-inch or 1.6-inch high)
- The combination of SCSI and IDE devices

IDE Requirements

An 18-inch long IDE cable that supports two drives is standard in the system. If you install an IDE hard drive, we recommend placing it in the lowest internal drive bay to make cabling easier, particularly if you also have an IDE device in the externally accessible bay.

For proper IDE operation, note the cable length specified in the following figure. If no drives are present on an IDE channel, the cable must be removed. If only one drive is installed, it must be connected at the end of the cable.

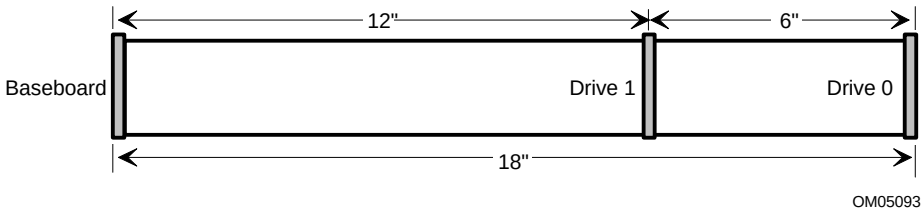


Figure 10. IDE Cable Dimensions

NOTE

To disable either IDE controller: if you plan to disable either IDE controller to reuse the interrupt for that controller, you must physically unplug the IDE cable from the board connector (IDE0 or IDE1) if a cable is present. Simply disabling the drive by configuring the SSU option does not free up the interrupt.

SCSI Requirements

All SCSI devices must be unterminated except the peripheral at the end of the SCSI cable. Hard drives usually provide an active termination, while CD-ROM drives do not. Because we recommend putting hard drives only in the internal bays, this means that you should route the SCSI cable so that the last device on the cable is a hard drive in the internal bay.

Installing a 5.25-inch Peripheral Device

Three 5.25-inch half-height bays provide space for tape backup, CD-ROM, or other removable media drives.

CAUTIONS

Only single-ended SCSI devices supported: the internal SCSI interface in this system supports only single-ended SCSI devices. Connecting differential SCSI drive types to this interface can result in electrical damage to the server board and peripherals.

Do not install hard drives in 5.25-inch bays: for several reasons, we recommend that you do NOT install hard drives in the 5.25-inch bays: the drives cannot be properly cooled in this location; a hard drive generates EMI and is more susceptible to ESD in this location.

NOTES

Save the filler panels and EMI shields: system EMI integrity and cooling are both protected by having drives installed in the bays or filler panels and EMI shields covering the bays. When you install a drive, save the panel and shield to reinstall in case you should later remove the drive and not reinstall one in the same bay.

Bus termination when installing SCSI devices: It is important that your cabling and connections meet the SCSI bus specification. Otherwise, the bus could be unreliable and data corruption could occur or devices may not work at all. The SCSI bus needs to be terminated at the end of the cable, and this is usually provided by the last SCSI device on the cable.

1. Remove the side and front system covers. Place the front cover on a flat surface.
2. Remove the screws and filler panel from the bay, and set them aside.
3. Push the tab on the left side of the EMI metal shield to the right to disengage it from the chassis. Save the shield.

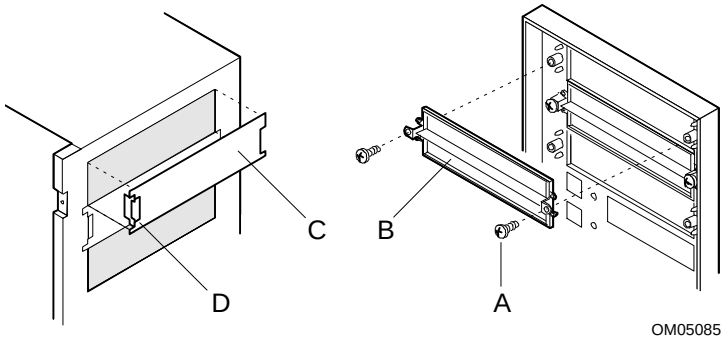


Figure 11. Remove Filler Panels and EMI Shields

A. Screws (2)
B. Filler panel
C. EMI shield
D. Tab

4. Remove the drive from its protective wrapper, and place it on an antistatic surface.
5. Record the drive model and serial numbers in your equipment log.
6. Set any jumpers and/or switches on the drive according to the drive manufacturer's instructions.

7. Using two screws of the appropriate size and length (not supplied), attach each plastic slide rail with its metal grounding plate to the drive.
8. Position the drive so the plastic slide rails engage in the bay guide rails. Push the drive into the bay until the slide rails lock in place.

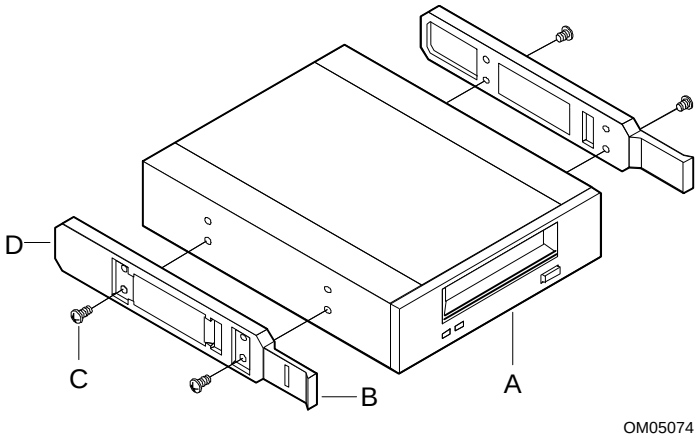


Figure 12. Snap-in plastic slide rails

A. Tape drive or other removable media device
B. Tab on slide rail
C. Screws (4)
D. Slide rails (2)

9. Connect a power cable to the drive. The connectors are keyed and can be inserted in only one way.
10. Connect a signal cable to the drive. The connectors are keyed and can be inserted in only one way.

    SCSI drive: Attach connectors on the cable to the SCSI device or devices you are installing.
    IDE drive: The server board has two IDE connectors. Each can support an IDE signal cable up to 18 inches long. See the figure on page 23 for the cable dimensions.
12. Reinstall the front and side system covers.

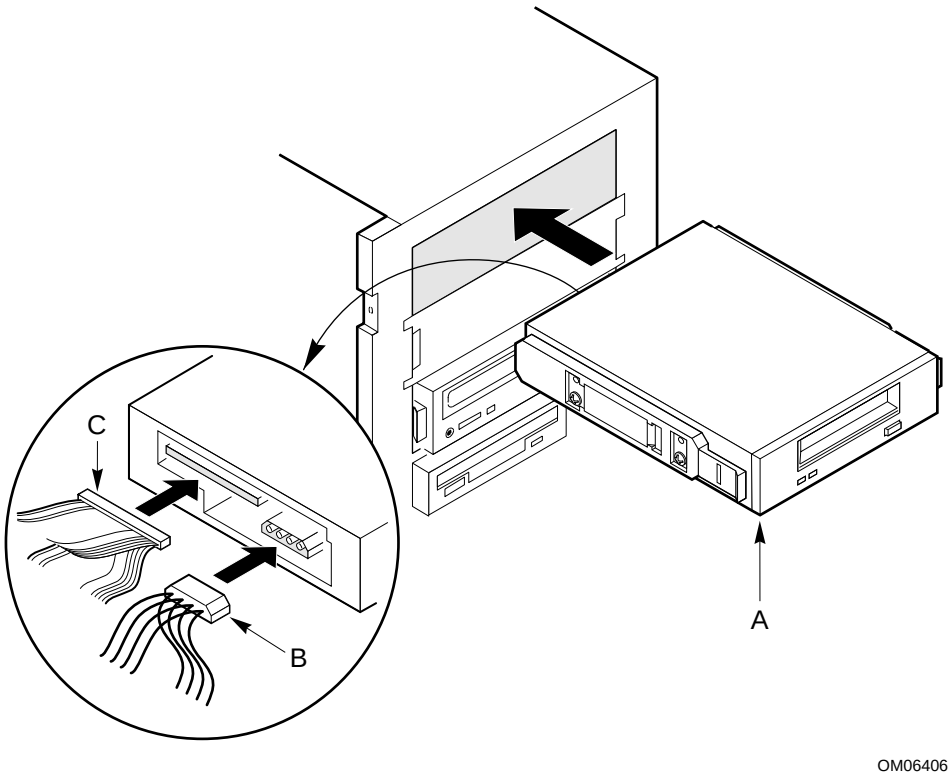


Figure 13. Installing a Removable Media Device

A. Removable media device
B. Power cable
C. Data cable

Removing a 5.25-inch Peripheral Device

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Remove the side and front covers.
3. Disconnect the power and signal cables from the drive.
4. The drive has two protruding plastic, snap-in rails attached. Squeeze the rail tabs toward each other as you carefully slide the drive forward out of the bay, and place it on an antistatic surface.
5. Remove and save the four screws and two slide rails.
6. If you leave the bay empty, install a stainless steel EMI shield on the bay and a filler panel on the front cover for proper cooling and airflow.
7. If you do not replace the device with another SCSI device, and it was installed at the end of the SCSI signal cable, modify the cable and termination arrangement so that a proper termination exists at the end of the cable (it can be a termination device only, not necessarily a SCSI peripheral).
8. Reinstall the front and side covers.

Installing a Hard Drive in the Internal Bay

The internal peripheral bay has space for these possible drive combinations (height and quantity):

- Six drives, each 1 inch high
- Three drives, each 1.6 inches high
- Two 1.6-inch drives plus two 1-inch drives

1. Observe the safety and ESD precautions at the beginning of this chapter. Also see the cabling considerations on page 22.
2. Remove side system cover.
3. Disconnect power and signal cables from all drives installed in the bay.
4. Remove and save the three screws holding the bay to the chassis.
5. Swing the bay out to the left of the chassis.
6. Slide the bay upward to disengage its tabs from the chassis.
7. Remove the bay from the chassis, and place it on an antistatic surface.

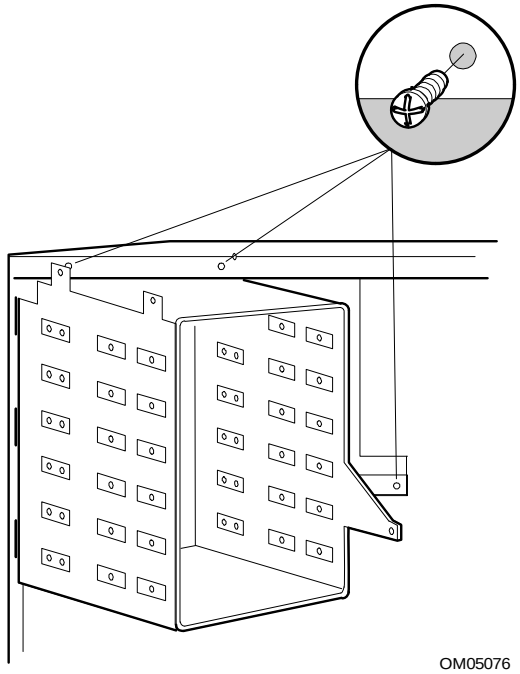


Figure 14. Removing the Internal 3.5-inch Drive Bay

8. Remove the new drive from its protective wrapper and place it on an antistatic surface.
9. Record the drive model and serial numbers in your equipment log.
10. Set any jumpers and/or switches according to the drive manufacturer's instructions.
11. Position the hard drive, component-side facing down, in the bay. Align the screw holes in the drive with those in the bay, and secure the drive to the bay with four screws (not supplied).
12. Reinstall the bay in the chassis: insert the tabs on the bay into their slots in the chassis. Slide the bay downward until the tabs interlock with the slots.
13. Swing the bay to the right into the chassis.
14. Secure the bay with the three screws you removed earlier; tighten the screws firmly.

15. Attach power and signals cables to any drives installed in the bay. For proper cooling and airflow, neatly fold and secure the excess signal cable (use a tie wrap or cable clip) so that it does not drape across the server board or add-in boards.

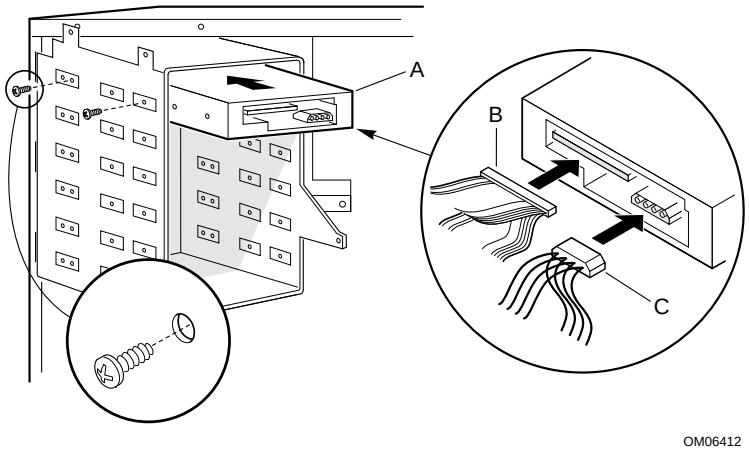


Figure 15. Installing and Cabling a 3.5-inch SCSI Device in the Internal Bay

A. Hard drive
B. Data cable
C. Power cable

16. Reinstall the side cover.

Removing a Hard Drive from the Internal Bay

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Remove side system cover.
3. Disconnect the power and signal cables from the drives in the 3.5-inch bay.
4. Remove and save the three screws holding the bay to the chassis.
5. Swing the bay out to the left of the chassis.
6. Slide the bay upward to disengage its tabs from the chassis.
7. Remove the bay from the chassis, and place it on an antistatic surface.
8. Remove the screws that attach the drive to the bay.
9. Remove the drive from the bay, and place the drive on an antistatic surface.
10. To reinstall the internal bay, insert the tabs on the bay into their slots in the chassis. Slide the bay downward until the tabs interlock with the slots.
11. Swing the bay to the right into the chassis.
12. Secure the bay to the chassis with the screws you removed earlier; tighten the screws firmly.
13. Reinstall the side cover.

Fans

For cooling and airflow, the system contains two removable chassis fans to cool the boards and removable media drives. The integrated power supply fan provides more cooling and airflow.

Removing a Fan

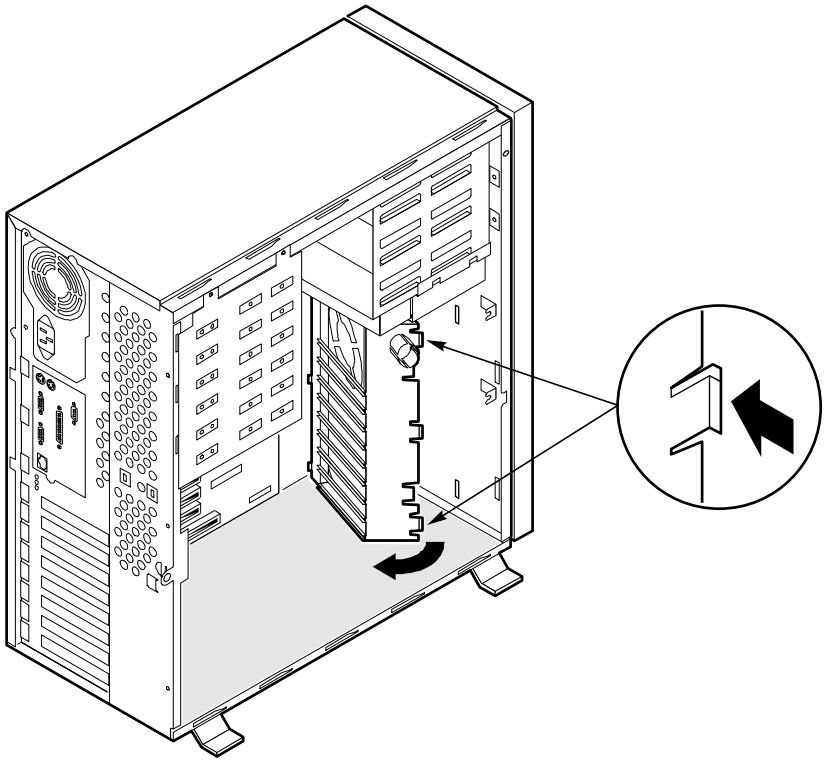


Figure 16. Removing the Fan Housing Assembly

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Remove the system side and front covers.
3. Label and disconnect any cables attached to add-in boards.
4. Remove all add-in boards. As you remove a board, label it with its slot number so you can reinstall the board in the same slot.
5. Disconnect the fan power cable connector from the fan header on the server board.
6. Remove the plastic snap-on fan housing assembly by firmly pressing the plastic tabs on the assembly inward until you can pull the tabs out of the slots in the chassis.
7. Swing the assembly to the left until you can disengage the plastic tabs on the other edge of the assembly from the slots in the chassis. Remove the assembly from the chassis, and place it on a flat surface.
8. Unsnap the fan from the housing by pressing out on the plastic tabs that hold the fan in place. Remove the fan from the housing, and set it aside.

Installing a Fan

NOTE

A general rule about the correct airflow direction: the removable fan pulls air from in front of the chassis so that it flows across the boards and out the back. Thus, the fan must be oriented for the correct airflow direction. If you place the fan so the label faces the back of the chassis, this should provide the correct orientation. You can confirm this by checking the embossed arrows on the side of the fan as you place it in its bracket:

⇒ Arrow points horizontally toward back of chassis

⇑ Arrow points vertically up

Replace a failed fan with the same type as the one removed, with a tachometer signal, or an approved fan. For a list of approved fans, contact your customer service representative.

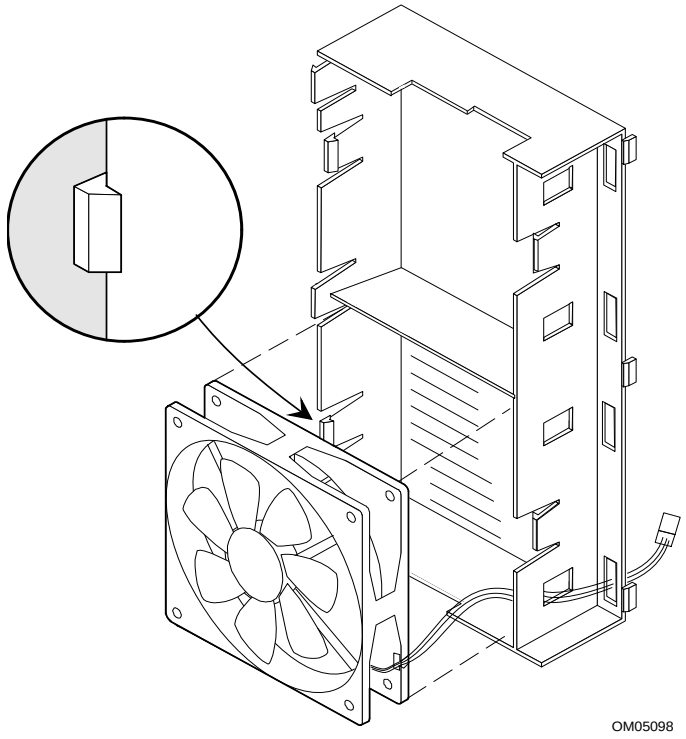


Figure 17. Installing Fan

1. Position the cable side of the fan, label-side facing the card guides, over the plastic guide posts in the fan housing. Thread the fan power cable through the two openings on the side of the housing, as shown in the figure. Do not pinch the cable as you snap the fan into the housing.
2. Insert the assembly's inner edge plastic tabs, the ones near the fan cable, into the slots in the chassis.

3. Carefully swing the assembly to the right, like closing a door, until the outer edge tabs on the fan housing snap into the slots in the front of the chassis. To align these tabs correctly, you may need to repeat step 2.
4. Reconnect the fan power cable connector on the server board.
5. Reinstall all add-in boards, each in the slot it was removed from.
6. Reconnect to the add-in boards any cables you removed.
7. Reinstall the side and front covers.

Front Panel Board

Removing the Front Panel Board

The front panel board contains the system controls and indicators. It is mounted on a snap-on standoff and a threaded standoff inside the chassis.

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Remove the side cover.
3. Disconnect the 3.5-inch diskette drive cables, and remove the diskette drive carrier from the chassis. Save the screw to use later.
4. On the front panel board, remove and save the screw from the threaded standoff to use later.
5. Grasp the front panel board, and carefully pull it toward the back of the system until it pops off the snap-on standoff.
6. Disconnect the front panel board signal cable from the server board.
7. Remove the front panel board from the system, and place it on an antistatic foam pad or a grounded workstation.

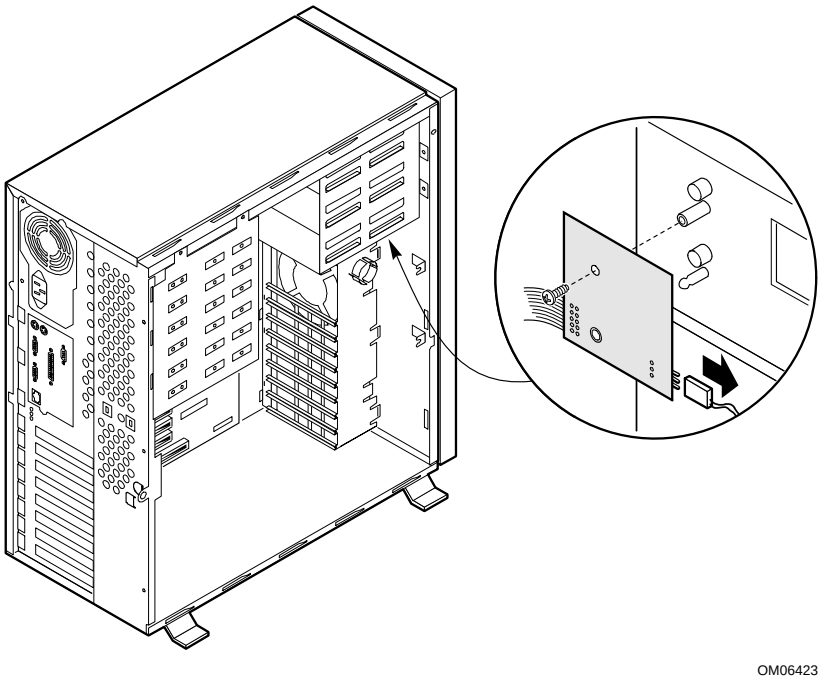


Figure 18. Removing The Front Panel Board

Installing the Front Panel Board

1. Reconnect the front panel board signal cable to the server board.
2. Position the front panel board over the snap-on standoff and the threaded standoff inside the chassis.
3. Carefully press the board onto the snap-on standoff until it snaps in place.
4. Reinstall and tighten firmly the screw that secures the board to the chassis.
5. Reinstall the 3.5-inch diskette drive carrier, and connect the drive cables.
6. Reinstall the side cover.

Server Board

Removing the Server Board

⚠ CAUTIONS

The server board can be extremely sensitive to ESD and always requires careful handling. After removing it from the system, place it component-side up on a nonconductive, static-free surface to prevent shorting out the battery leads. If you place the board on a conductive surface, the battery leads may short out. This will result in a loss of CMOS data and will drain the battery. Do not slide the server board over any surface.

If you place the server board on a conductive surface, the battery leads may short out. If they do, this will result in a loss of CMOS data and will drain the battery.

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Remove side cover.
3. Label and disconnect all internal cables connected to add-in boards.
4. Remove all add-in boards.
5. Label and disconnect all internal cables connected to the server board.
6. Remove the internal 3.5-inch hard drive bay and the diskette drive carrier.
7. Remove the fan housing assembly.
8. Remove the server board retaining screws and set them aside.
9. Pull the board toward you slightly to disengage it from two snap-in standoffs, and then slide the board toward the front of the server until the board's I/O connectors clear the rear of the chassis.
10. Remove the server board, and place it component-side up on a nonconductive, static-free surface or in an antistatic bag.
11. Remove and save the EMI gasket that covers the I/O connectors on the board.

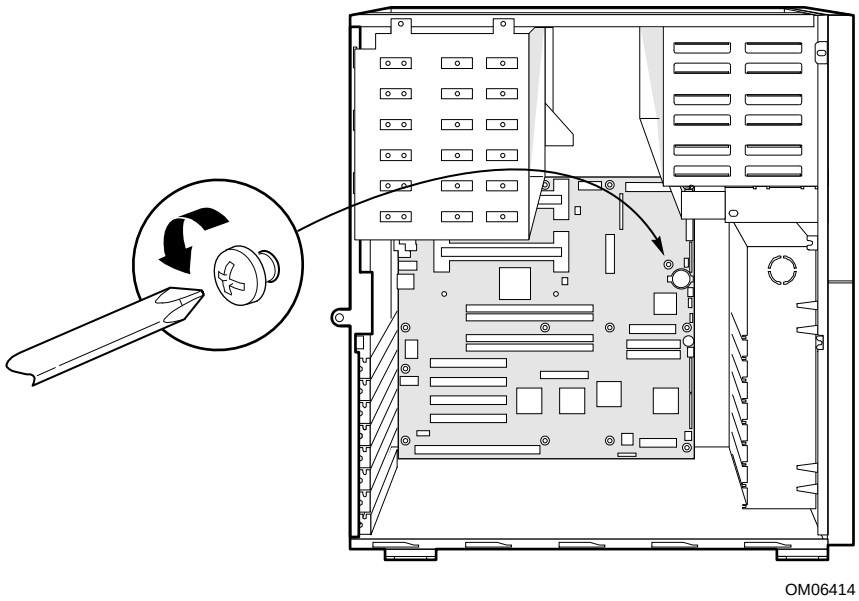


Figure 19. Removing the Server Board

Installing the Server Board

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Place the EMI gasket over the I/O connectors on the server board.
3. Position the board over the two snap-in standoffs and threaded standoffs inside the chassis, and slide it carefully toward the rear of the system until the I/O connectors protrude through the back panel.
4. Press the board onto the snap-in standoff, and insert one screw through one of the mounting holes of the board and into a threaded standoff. Do not tighten the screw until the next step.
5. Insert the remaining screws through the mounting holes and into the threaded standoffs. Make sure the board is properly seated, and then tighten all the screws firmly.
6. Connect all internal cables to the server board.
7. Reinstall the fan housing assembly.
8. Reinstall the internal 3.5-inch hard drive bay and the diskette drive carrier.
9. Reinstall add-in boards.
10. Connect all internal cables to add-in boards.
11. Reinstall the side cover.
12. Connect all peripheral device cables to the I/O panel on the rear of the system.

3 Technical Reference

300 Watt Power Supply Specifications

Input Voltages

The 300 watt power supply, designed to minimize EMI and RFI, provides sufficient power for a maximum configuration of the server. The input voltage ranges are:

- 100-120 V~ at 50/60 Hz; 4.6 A maximum current
- 200-240 V~ at 50/60 Hz; 2.3 A maximum current

Output Voltages

The table below lists the total watts available for each voltage. Adjust your loads so that the combined total wattage for your system configuration is less than 300 watts.

For information about calculating the power usage for your system configuration, see the calculation worksheets on page 47.

Table 2. Power Supply Output Voltages

Voltage	Maximum Continuous Current	Peak Current	Watts
+3.3 V	16.0 A		52.8 W
+5.0 V	26.0 A		130.0 W
–5.0 V	0.25 A		1.25 W
+5V Standby	0.75 A		3.75 W
+12.0 V	10.0 A	13.0 A	120.0 W
–12.0 V	0.5 A		6.0 W

NOTE

As an overall current usage limitation on the power supply, do not exceed a combined power output of 167 watts for the +5 V and +3.3 V outputs.

The ISA slots on the server board are rated at a maximum of 4.5 amperes per slot. The ISA specification recommends supporting an average of 2.0 amperes per slot. The average current usage should not exceed 3.0 amperes per slot; that is 15 watts.

The PCI slots on the server board are rated at a maximum of 5 amperes per slot. The maximum power allowed for each slot is 20 Watts a +5 volts. The average current usage per slot should not exceed 3.0 amperes per slot; that is, 15 watts.

275 Watt Power Supply Specifications

Input Voltages

The 275 watt power supply, designed to minimize EMI and RFI, provides sufficient power for a maximum configuration of the server. The input voltage ranges are:

- 100-120 V~ at 50/60 Hz; 6.3 A maximum current
- 200-240 V~ at 50/60 Hz; 3.5 A maximum current

Output Voltages

The table below lists the total watts available for each voltage. Adjust your loads so that the combined total wattage for your system configuration is less than 275 watts.

For information about calculating the power usage for your system configuration, see the calculation worksheets on page 47.

Table 3. Power Supply Output Voltages

Voltage	Maximum Continuous Current	Peak Current	Watts
+3.3 V	11.0 A		36.3 W
+5.0 V	26.0 A		130.0 W
–5.0 V	0.5 A		2.5 W
+5V Standby	0.1 A		00.5 W
+12.0 V	10.0 A	13.0 A	120.0 W
–12.0 V	0.5 A		6.0 W

NOTE

As an overall current usage limitation on the power supply, do not exceed a combined power output of 147 watts for the +5 V and +3.3 V outputs.

The ISA slots on the server board are rated at a maximum of 4.5 amperes per slot. The ISA specification recommends supporting an average of 2.0 amperes per slot. The average current usage should not exceed 3.0 amperes per slot; that is 15 watts.

The PCI slots on the server board are rated at a maximum of 5 amperes per slot. The maximum power allowed for each slot is 20 Watts a +5 volts. The average current usage per slot should not exceed 3.0 amperes per slot; that is, 15 watts.

The cooling efficiency varies per slot; therefore, ensure that adequate cooling is available in the target slot—especially in an expansion slot drawing more than 2.0 amperes.

Environmental Specifications

Table 4. Environmental Specifications

Temperature	
Nonoperating	–40° to 70 °C (–55° to 150 °F)
Operating	10° to 35 °C (41° to 95 °F); derated 0.5 °C for every 1000 ft (305 m)
Humidity	
Nonoperating	95% relative humidity (noncondensing) at 30 °C (86 °F)
Operating wet bulb	Not to exceed 33 °C (91.4 °F) (with diskette drive or hard disk drive)
Shock	
Operating	2.0 g, 11 msec, 1/2 sine
Acoustic noise	Typically <45 dBA at 18° to 24 °C (65° to 75 °F) with five internal hard disk drives (measured at 1 meter from the system with the peripherals idle). The noise of the variable-speed system fan will increase with temperature and power load**. Your selection of peripherals may change the noise level.**
Electrostatic discharge (ESD)	Tested to 20 kilovolts (kV); no component damage
AC Input Power	
100-120 V~	100-120 V~, 4.6 A, 50/60 Hz
200-240 V~	200-240 V~, 2.3 A, 50/60 Hz

4 Regulatory Information

NOTE

Integration of this subassembly is a regulated activity. You must adhere to the assembly instructions in this guide to ensure and maintain compliance with existing product regulations. Use only the described, regulated components specified in this guide. Use of other products / components will void the UL listing of the product, will most likely void other compliance markings provided, and may result in noncompliance with product regulations in the region(s) in which the product is sold.

Regulatory Compliance

This subassembly, when correctly integrated per this guide, complies with the following safety and electromagnetic compatibility (EMC) regulations.

Safety Standards

UL 1950 - CSA 950-95, 3rd Edition, July 28, 1995

The Standard for Safety of Information Technology Equipment including Electrical Business Equipment. (USA and Canada)

EN 60 950, 2nd Edition, 1992 (with Amendments 1, 2, and 3)

The Standard for Safety of Information Technology Equipment including Electrical Business Equipment. (European Union)

IEC 950, 2nd edition, 1991 (with Amendments 1, 2, 3 and 4)

The Standard for Safety of Information Technology Equipment including Electrical Business Equipment. (International)

EMKO-TSE (74-SEC) 207/94

Summary of Nordic deviations to EN 60 950. (Norway, Sweden, Denmark, and Finland)

EMC Regulations
FCC Class B

Title 47 of the Code of Federal Regulations, Parts 2 and 15, Subpart B, pertaining to unintentional radiators. (USA)

CISPR 22, 2nd Edition, 1993, Amendment 1, 1995

Limits and methods of measurement of Radio Interference Characteristics of Information Technology Equipment. (International)

EN 55 022, 1995

Limits and methods of measurement of Radio Interference Characteristics of Information Technology Equipment. (Europe)

EN 50 082-1, 1992

Generic Immunity Standard. Currently, compliance is determined via testing to IEC 801-2, -3 and -4. (Europe)

VCCI Class B (ITE)

Implementation Regulations for Voluntary Control of Radio Interference by Data Processing Equipment and Electronic Office Machines. (Japan)

ICES-003, Issue 2

Interference-Causing Equipment Standard, Digital Apparatus. (Canada)

Australian Communication Authority (ACA)

Australian C-tick mark, limits and methods of measurement radio interference characteristics of information technology equipment to ASNZS 3548 (Australian requirements based on CISPR 22 requirements).

New Zealand Ministry of Commerce

Australian C-tick mark, limits and methods of measurement radio interference characteristics of information technology equipment to ASNZS 3548 (New Zealand requirements based on CISPR 22 requirements). New Zealand authorities accept ACA C-Tick Compliance Mark.

Regulatory Compliance Markings

This Astor chassis subassembly is provided with the following Product Certification Markings.

- UL and cUL Listing Marks
- CE Mark
- The CE marking on this product indicates that it is in compliance with the European community's EMC (89/336/EEC) and low voltage directives (73/23/EEC).
- NEMKO Mark
- FCC, Class B Markings (Declaration of Conformity)
- ICES-003 (Canada Compliance Marking)

Electromagnetic Compatibility Notice (USA)

This equipment 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 equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on; the user is encouraged to try to correct the interference by one or more of the following measures:

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

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment. The customer is responsible for ensuring compliance of the modified product.

Only peripherals (computer input/output devices, terminals, printers, etc.) that comply with FCC Class B limits may be attached to this computer product. Operation with noncompliant peripherals is likely to result in interference to radio and TV reception.

All cables used to connect to peripherals must be shielded and grounded. Operation with cables, connected to peripherals, that are not shielded and grounded may result in interference to radio and TV reception.

NOTE

If a Class A device is installed within this system, then the system is to be considered a Class A system. In this configuration, operation of this equipment in a residential area is likely to cause harmful interference.

FCC Declaration of Conformity

Product Type: COLRED, COLROS, COLBUC, COLNIT

This device 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.

Intel Corporation
5200 N.E. Elam Young Parkway
Hillsboro, OR 97124-6497
Phone: 1 (800)-INTEL4U

Cet appareil numérique respecte les limites bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le Ministre Canadian des Communications.

(English translation of the notice above) This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Canadian Department of Communications.

Electromagnetic Compatibility Notices (International)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

(English translation of the notice above) This is a Class B product based on the standard of the Voluntary Control Council For Interference (VCCI) from Information Technology Equipment. If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

When used near a radio or TV receiver, it may become the cause of radio interference.

Read the instructions for correct handling.

This equipment has been tested for radio frequency emissions and has been verified to meet CISPR 22 Class B.

Installation Safety Instructions

⚠ CAUTION

Integration of this assembly shall be done only by technically qualified personnel.

Follow these guidelines to meet and maintain safety and product regulatory requirements when integrating this Astor chassis subassembly.

Read and adhere to all of these instructions and the instructions supplied with this assembly. If you do not follow these instructions, the UL listing will be void, and the product will most likely be noncompliant with other regional product laws and regulations.

The following warning is provided on the server board configuration label, which is provided with the Intel server board boxed product. There is insufficient space on the server board to place this label. Therefore, the label must be placed permanently on the inside of the system enclosure panel, as close to the battery as possible.

⚠ WARNING

Danger of explosion if battery is incorrectly replaced. Replace with only the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

⚠ ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

⚠ ADVARSEL!

Lithiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

⚠ VARNING

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

⚠ VAROITUS

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

Use Only for Intended Applications

This product was evaluated as Information Technology Equipment (ITE) that may be installed in offices, homes, schools, computer rooms and similar locations. The suitability of this product for other Product Categories and Environments other than ITE applications, (such as medical, industrial, alarm systems, and test equipment) may require further evaluation.

When you integrate this subassembly, observe all warnings and cautions in the Installation Guide.

To avoid injury, be careful of:

- Sharp pins on connectors
- Sharp pins on printed circuit assemblies
- Rough edges and sharp corners on the chassis
- Hot components (like processors, voltage regulators, and heat sinks)
- Damage to wires that could cause a short circuit

WARNING

Do not open the power supply. Risk of electric shock and burns from high voltage and rapid overheating. Refer servicing of the power supply to qualified technical personnel.

To maintain the UL listing and compliance to other regulatory certifications and/or declarations , the following regulated components must be used, and conditions adhered to. Information for system configurations can be found through Intel's web address (http://www.intel.com).

- **Columbus II chassis** (chassis is provided with power supply and fans)—UL listed.
- **Server board**—you must use an Intel UL Recognized Server board.
- **Add-in boards**—must have a printed wiring board flammability rating of minimum UL94V-1. Add-in boards containing modem telecommunication circuitry must be UL recognized or listed accessory.
- **Peripheral storage devices**—must be UL recognized or UL listed accessory and TUV or VDE licensed. Maximum capacity for this chassis is 10 devices; maximum of any one device is 25W. Total system configuration is not to exceed maximum loading conditions of power supply.
  - When using a UL Recognized Peripheral Storage Device, the plastic bezel must be made of a UL recognized plastic with a flammability rating of 5V.

A Equipment Log and Worksheets

Equipment Log

Use the blank equipment log provided here to record information about your system. You will need some of this information when you run the SSU.

Item	Manufacturer Name and Model Number	Serial Number	Date Installed
Chassis			
Server board			
Processor speed and cache			
Video display			
Keyboard			
Mouse			
Diskette drive A			
Diskette drive B			
Tape drive			
CD-ROM drive			
Hard disk drive 1			
Hard disk drive 2			
Hard disk drive 3			
Hard disk drive 4			

Continued

Equipment Log (continued)

Current Usage

As an overall current usage limitation on the power supply, do not exceed a combined power usage for the +5 and +3.3 volt outputs of 147 watts (for a 275 watt power supply) or 167 watts (for a 300 watt power supply).

Calculating Power Usage

The total combined wattage for the system configuration **must be less than the wattage of your power supply (275 or 300 watts).** Use the two worksheets in this section to calculate the total used by your system. For current and voltage requirements of add-in boards and peripherals, see your vendor documents.

Worksheet, Calculating DC Power Usage

1. List the current for each board and device in the appropriate voltage level column.
2. Add the currents in each column. Then go to the next worksheet.

Table 5. Power Usage Worksheet 1

	Current (maximum) at voltage level:				
Device	**+3.3 V**	**+5 V**	**–5 V**	**+12 V**	**–12 V**
Boards, processors, and memory (get totals from your board manual)					
Front panel board					
3.5-inch diskette drive		0.3 A			
CD-ROM drive		0.4 A		1.0 A	
Second 5.25-inch device					
Third 5.25-inch device					
1st hard drive					
2nd hard drive					
3rd hard drive					
4th hard drive					
Cooling fan 1, 120 mm				0.6 A	
Cooling fan 2, 120 mm				0.6 A	
Total Current					

Worksheet, Total Combined Power Used by the System

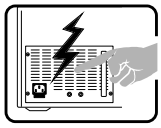
1. From the previous worksheet, enter the total current for each column.
2. Multiply the voltage by the total current to get the total wattage for each voltage level.
3. Add the total wattage for each voltage level to arrive at a total combined power usage on the power supply.

Table 6. Power Usage Worksheet 2

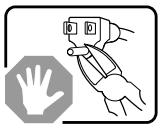
Voltage level and total current (V X A = W)	**Total Watts for each voltage level**
(+3.3 V) X (_____ A)	_____ W
(+5 V) X (_____ A)	_____ W
(–5 V) X (_____ A)	_____ W
(+12 V) X (_____ A)	_____ W
(–12 V) X (_____ A)	_____ W
Total Combined Wattage	_____ **W**

WARNINGS

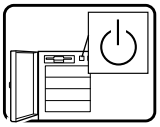
Before removing any covers, unplug all power supply cords from the power supply or wall outlet. Save any screws that held the covers on to use when you reassemble the system. When you finish upgrading the system, place the covers back onto the system and secure with the original screws.



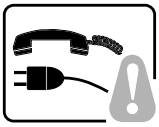
The power supply in this product contains no user-serviceable parts. There may be more than one supply in this product. Refer servicing only to qualified personnel.



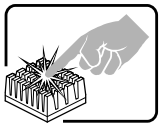
Do not attempt to modify or use the supplied AC power cord if it is not the exact type required. A product with more than one power supply will have a separate AC cord for each supply.



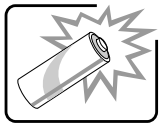
The DC push-button on/off switch on the front panel does not turn off system AC power. To remove power from the system, you must unplug each AC power cord from the wall outlet or power supply.



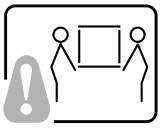
Ensure that the system is disconnected from its power source and from all telecommunication links, networks, and modem lines whenever the chassis cover is to be removed. This may require disconnecting multiple power cords. Do not operate the system with the cover removed.



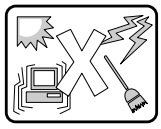
A microprocessor and heat sink may be hot if the system has been running. Also, there may be sharp pins and edges on some board and chassis parts. Contact should be made with care. Consider wearing protective gloves.



Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.



Depending on the weight of the product, two people together should lift it.

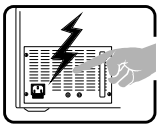


The system is designed to operate in a typical office environment. In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppresser and disconnect telecommunication lines to your modem during an electrical storm. Choose a site that is:

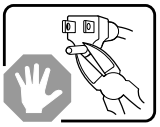
- Clean and free of airborne particles (other than normal room dust).
- Well ventilated and away from sources of heat including direct sunlight.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cords, because they serve as the product's main power disconnect.

WARNUNG

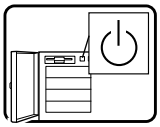
Bevor Sie eine Abdeckung entfernen, müssen Sie die Stromzufuhr unterbrechen, indem Sie alle Stecker aus allen Stromquellen bzw. Steckdosen ziehen. Legen Sie die aus der Abdeckung herausgenommenen Schrauben beiseite. Wenn Sie mit dem Aufrüsten des Systems fertig sind, sollten Sie alle abgenommenen Abdeckungen wieder aufsetzen und mit den Originalschrauben befestigen.



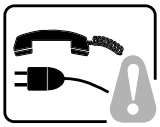
Benutzer können am Netzgerät dieses Produkts keine Reparaturen vornehmen. Das Produkt enthält möglicherweise mehrere Netzgeräte. Wartungsarbeiten müssen von qualifizierten Technikern ausgeführt werden.



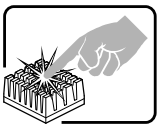
Versuchen Sie nicht, das mitgelieferte Netzkabel zu ändern oder zu verwenden, wenn es sich nicht genau um den erforderlichen Typ handelt. Ein Produkt mit mehreren Netzgeräten hat für jedes Netzgerät ein eigenes Netzkabel.



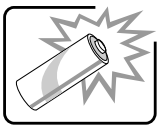
Der Wechselstrom des Systems wird durch den Ein-/Aus-Schalter für Gleichstrom nicht ausgeschaltet. Ziehen Sie jedes Wechselstrom-Netzkabel aus der Steckdose bzw. dem Netzgerät, um den Stromanschluß des Systems zu unterbrechen.



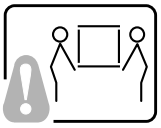
Das System darf weder an eine Stromquelle angeschlossen sein noch eine Verbindung mit einer Telekommunikationseinrichtung, einem Netzwerk oder einer Modem-Leitung haben, wenn die Gehäuseabdeckung entfernt wird. Dazu müssen gegebenenfalls mehrere Netzkabel aus ihren Steckdosen gezogen werden. Nehmen Sie das System nicht ohne die Abdeckung in Betrieb.



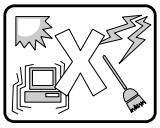
Der Mikroprozessor und der Kühler sind möglicherweise erhitzt, wenn das System in Betrieb ist. Außerdem können einige Platinen und Gehäuseteile scharfe Spitzen und Kanten aufweisen. Arbeiten an Platinen und Gehäuse sollten vorsichtig ausgeführt werden. Sie sollten Schutzhandschuhe tragen.



Bei falschem Einsetzen einer neuen Batterie besteht Explosionsgefahr. Die Batterie darf nur durch denselben oder einen entsprechenden, vom Hersteller empfohlenen Batterietyp ersetzt werden. Entsorgen Sie verbrauchte Batterien den Anweisungen des Herstellers entsprechend.



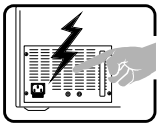
Je nachdem, wieviel das Produkt wiegt, sollte es von zwei Personen zusammen hochgehoben werden.



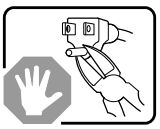
Das System wurde für den Betrieb in einer normalen Büroumgebung entwickelt. Der Standort sollte:

- sauber und staubfrei sein (Hausstaub ausgenommen);
- gut gelüftet und keinen Heizquellen ausgesetzt sein (einschließlich direkter Sonneneinstrahlung);
- keinen Erschütterungen ausgesetzt sein;
- keine starken, von elektri-schen Geräten erzeugten elektromagnetischen Felder aufweisen;
- in Regionen, in denen elek-trische Stürme auftreten, mit einem Überspannungs-schutzgerät verbunden sein; während eines elektrischen Sturms sollte keine Verbin-dung der Telekommunikati-onsleitungen mit dem Modem bestehen;
- mit einer geerdeten Wechselstromsteckdose ausgerüstet sein;
- über ausreichend Platz verfügen, um Zugang zu den Netzkabeln zu gewährleisten, da der Stromanschluß des Produkts hauptsächlich über die Kabel unterbrochen wird.

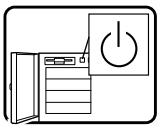
AVERTISSEMENT



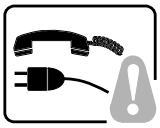
Le bloc d'alimentation de ce produit ne contient aucune pièce pouvant être réparée par l'utilisateur. Ce produit peut contenir plus d'un bloc d'alimentation. Veuillez contacter un technicien qualifié en cas de problème.



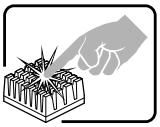
Ne pas essayer d'utiliser ni modifier le câble d'alimentation CA fourni, s'il ne correspond pas exactement au type requis. Le nombre de câbles d'alimentation CA fournis correspond au nombre de blocs d'alimentation du produit.



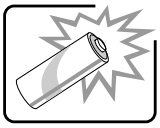
Notez que le commutateur CC de mise sous tension /hors tension du panneau avant n'éteint pas l'alimentation CA du système. Pour mettre le système hors tension, vous devez débrancher chaque câble d'alimentation de sa prise.



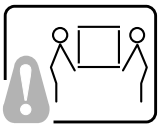
Assurez vous que le système est débranché de son alimentation ainsi que de toutes les liaisons de télécommunication, des réseaux, et des lignes de modem avant d'enlever le capot. Cette opération nécessitera peut-être le débranchement de plusieurs câbles d'alimentation. Ne pas utiliser le système quand le capot est enlevé.



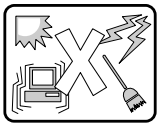
Le microprocesseur et le dissipateur de chaleur peuvent être chauds si le système a été sous tension. Faites également attention aux broches aiguës des cartes et aux bords tranchants du capot. Nous vous recommandons l'usage de gants de protection.



Danger d'explosion si la batterie n'est pas remontée correctement. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabricant. Disposez des piles usées selon les instructions du fabricant.



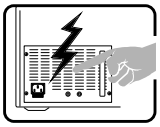
Selon le poids du produit, deux personnes devraient être en mesure de le soulever.



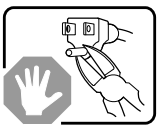
Le système a été conçu pour fonctionner dans un cadre de travail normal. L'emplacement choisi doit être:

- Propre et dépourvu de poussière en suspension (sauf la poussière normale).
- Bien aéré et loin des sources de chaleur, y compris du soleil direct.
- A l'abri des chocs et des sources de vibrations.
- Isolé de forts champs électromagnétiques géenérés par des appareils électriques.
- Dans les régions sujettes aux orages magnétiques il est recomandé de brancher votre système à un supresseur de surtension, et de débrancher toutes les lignes de télécommunications de votre modem durant un orage.
- Muni d'une prise murale correctement mise à la terre.
- Suffisamment spacieux pour vous permettre d'accéder aux câbles d'alimentation (ceux-ci étant le seul moyen de mettre le système hors tension).

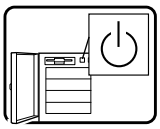
AVVERTENZA



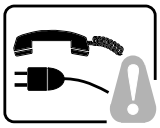
Rivolgersi ad un tecnico specializzato per la riparazione dei componenti dell'alimentazione di questo prodotto. È possibile che il prodotto disponga di più fonti di alimentazione.



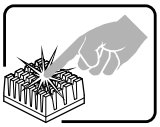
Non modificare o utilizzare il cavo di alimentazione in c.a. fornito dal produttore, se non corrisponde esattamente al tipo richiesto. Ad ogni fonte di alimentazione corrisponde un cavo di alimentazione in c.a. separato.



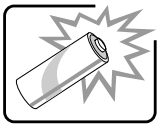
L'interruttore attivato/disattivato nel pannello anteriore non interrompe l'alimentazione in c.a. del sistema. Per interromperla, è necessario scollegare tutti i cavi di alimentazione in c.a. dalle prese a muro o dall'alimentazione di corrente.



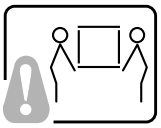
Prima di rimuovere il coperchio del telaio, assicurarsi che il sistema sia scollegato dall'alimentazione, da tutti i collegamenti di comunicazione, reti o linee di modem. È possibile sia necessario scollegare più cavi di alimentazione. Non avviare il sistema senza aver prima messo a posto il coperchio.



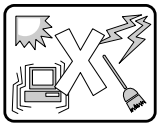
Se il sistema è stato a lungo in funzione, il microprocessore e il dissipatore di calore potrebbero essere surriscaldati. Fare attenzione alla presenza di piedini appuntiti e parti taglienti sulle schede e sul telaio. È consigliabile l'uso di guanti di protezione.



Esiste il pericolo di un esplosione se la pila non viene sostituita in modo corretto. Utilizzare solo pile uguali o di tipo equivalente a quelle consigliate dal produttore. Per disfarsi delle pile usate, seguire le istruzioni del produttore.



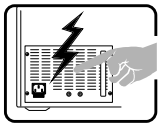
Se il prodotto è molto pesante, dovrebbe essere sollevato da due persone.



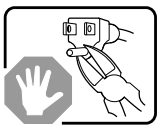
Il sistema è progettato per funzionare in un ambiente di lavoro tipo. Scegliere una postazione che sia:

- Pulita e libera da particelle in sospensione (a parte la normale polvere presente nell'ambiente).
- Ben ventilata e lontana da fonti di calore, compresa la luce solare diretta.
- Al riparo da urti e lontana da fonti di vibrazione.
- Isolata dai forti campi magnetici prodotti da dispositivi elettrici.
- In aree soggette a temporali, è consigliabile collegare il sistema ad un limitatore di corrente. In caso di temporali, scollegare le linee di comunicazione dal modem.
- Dotata di una presa a muro correttamente installata.
- Dotata di spazio sufficiente ad accedere ai cavi di alimentazione, i quali rappresentano il mezzo principale di scollegamento del sistema.

ADVERTENCIAS

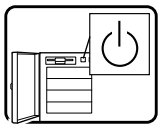


El usuario debe abstenerse de manipular los componentes de la fuente de alimentación de este producto, cuya reparación debe dejarse exclusivamente en manos de personal técnico especializado. Puede que este producto disponga de más de una fuente de alimentación.

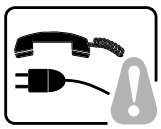


No intente modificar ni usar el cable de alimentación de corriente alterna, si no corresponde exactamente con el tipo requerido.

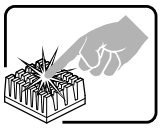
El número de cables suministrados se corresponden con el número de fuentes de alimentación de corriente alterna que tenga el producto.



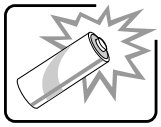
Nótese que el interruptor activado/desactivado en el panel frontal no desconecta la corriente alterna del sistema. Para desconectarla, deberá desenchufar todos los cables de corriente alterna de la pared o desconectar la fuente de alimentación.



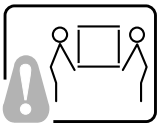
Asegúrese de que cada vez que se quite la cubierta del chasis, el sistema haya sido desconectado de la red de alimentación y de todos los enlaces de telecomunicaciones, de red y de líneas de módem. Para ello es posible que se tenga que desconectar varias cables de alimentación. No ponga en funcionamiento el sistema mientras la cubierta esté quitada.



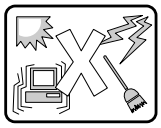
Si el sistema ha estado en funcionamiento, el microprocesador y el disipador de calor pueden estar aún calientes. También conviene tener en cuenta que en el chasis o en el tablero puede haber piezas cortantes o punzantes. Por ello, se recomienda precaución y el uso de guantes protectores.



Existe peligro de explosión si la pila no se cambia de forma adecuada. Utilice solamente pilas iguales o del mismo tipo que las recomendadas por el fabricante del equipo. Para deshacerse de las pilas usadas, siga igualmente las instrucciones del fabricante.



En caso de que el producto sea demasiado pesado, deben levantarlo entre dos personas.



El sistema está diseñado para funcionar en un entorno de trabajo normal. Escoja un lugar:

- Limpio y libre de partículas en suspensión (salvo el polvo normal)
- Bien ventilado y alejado de fuentes de calor, incluida la luz solar directa.
- Alejado de fuentes de vibración.
- Aislado de campos electromagnéticos fuertes producidos por dispositivos eléctricos.
- En regiones con frecuentes tormentas eléctricas, se recomienda conectar su sistema a un eliminador de sobrevoltage y desconectar el módem de las líneas de telecomunicación durante las tormentas.
- Provisto de una toma de tierra correctamente instalada.
- Provisto de espacio suficiente como para acceder a los cables de alimentación, ya que éstos hacen de medio principal de desconexión del sistema.