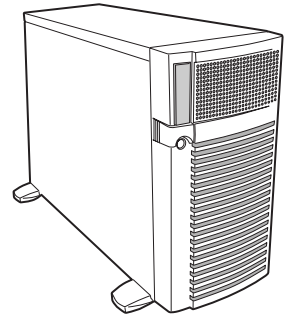# Intel® SC5000 Server Chassis Subassembly Product Guide

A Guide for Technically Qualified Assemblers of Intel® Identified Subassemblies/Products

Order Number: 744708-005

If an FCC declaration of conformity marking is present on the system, 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.

Disclaimer

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Intel SC5000 Server Chassis Subassembly Product Guide

1 Chassis Description

Kit Contents

The SC5000 chassis subassembly kit includes this Product Guide; a power cord; two chassis feet; and a box that includes six 5.25-inch external drive rails and mounting screws (Figure 1, B), mounting screws for the chassis feet (Figure 1, D), mounting screws for the server board (Figure 1, C), and mounting screws for IDE drives (Figure 1, A).
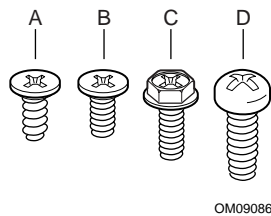
OM09086

Figure 1. Screw Description

    A.   Flat head 6-32 x 5mm [.200]
    B.   Flat head M3 x 5mm [.200]
    C.   Hex head 6-32 x 6mm [.256]
    D.   Round head M4 x 8mm [.315]

Feature Summary

Table 1.   Feature Summary

Feature	Description
Drive Bays	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; two of the bays can be converted into a single full-height bay.
	Five 5.25-inch wide bays that are not externally accessible, designed to hold half-height IDE drives.
	An optional hot-swap bay for 3.5-inch hard disk drives: space for up to five 1-inch high, SCA2 hard drives.
Expansion slot covers	Up to seven expansion slots can be used; every slot that does not have an add-in board installed must have a slot cover installed.
Power supply	300 watt power factor correction (PFC) power supply, integrated cooling fan. Detachable AC power cord.
	Optional 350 watt hot-swap redundant 1+1 PFC power supply.
Cooling	Two system fans inside the chassis and one power supply fan provide cooling and airflow. The optional 350 watt power supply has two fans.

Chassis Front Controls and Indicators
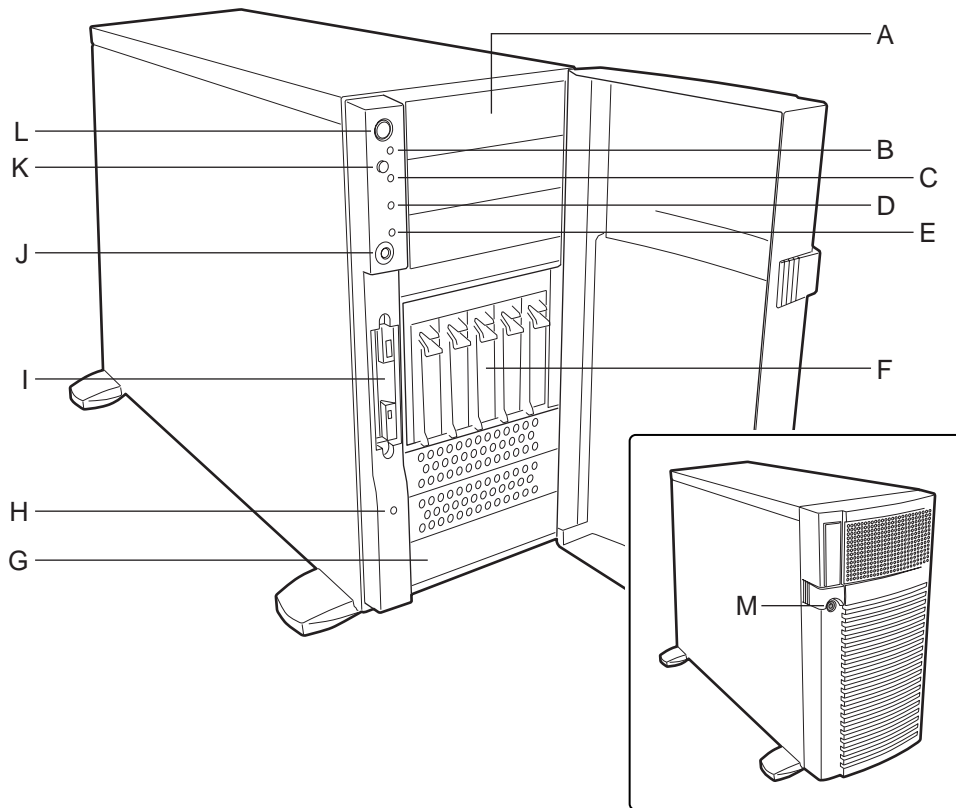
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Figure 2. Front Controls and Indicators

- A. External drive bay (5¼")
- B. Power/Sleep LED
- C. Network activity LED
- D. Hard drive activity LED
- E. General Fault LED
- F. Hot swap drive carriers*
- G. Internal drive bays
- H. Chassis intrusion switch
- I. Diskette drive bay; diskette drive shown installed*
- J. Reset button
- K. Power On/Off button
- L. Sleep button
- M. Security lock

 * Items shown may not be included in the chassis.

Chassis Back I/O Ports and Features
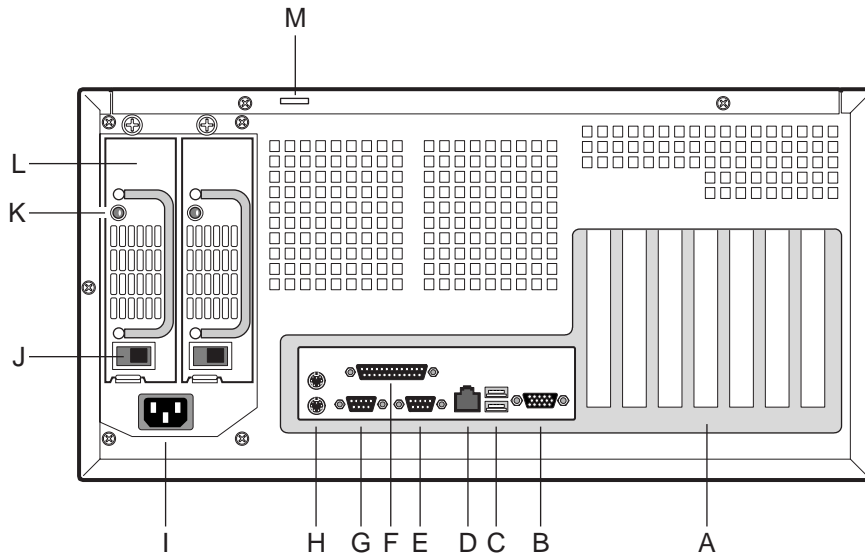
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Figure 3. Back Controls and Indicators

A. Expansion slot covers
B. VGA monitor connector*
C. Universal Serial Bus (USB) connectors
D. NIC connector
E. Serial port B, COM2
F. Parallel port
G. Serial port A, COM1
H. Keyboard/Mouse connectors
I. AC input power connector
J. Power On/Off switch*
K. Power supply failure LED (LED lit means proper operation)*
L. Power supply*
M. Lock loop

* Items shown may not be included in the chassis.

Chassis Side View
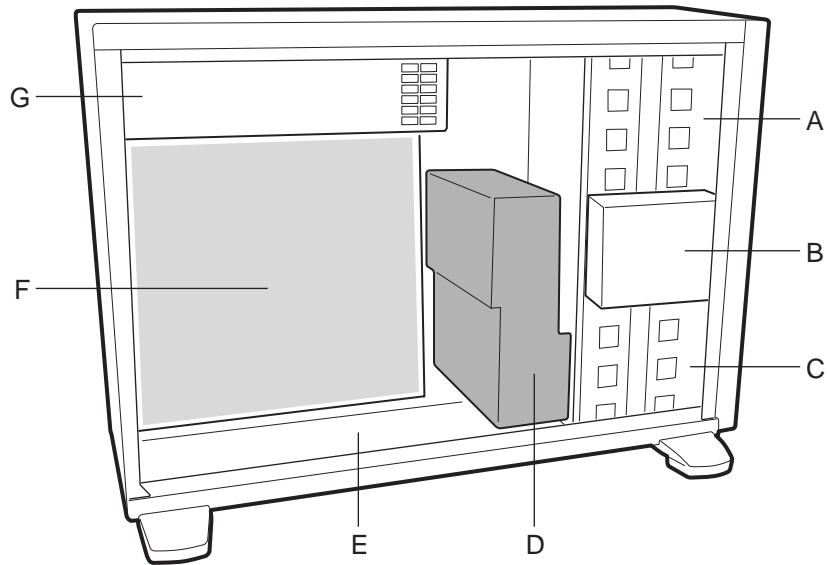
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Figure 4. Chassis Side View

    A.   5.25-inch removable media drive bays

    B.   Diskette drive*

    C.   5.25-inch hard drive bays

    D.   Foam epac fan carrier

    E.   Main chassis

    F.   Server board*

    G.   Power supply

  * Items shown may not be included in the chassis.

Peripherals

5.25-inch Removable Media Drive Bays

The upper three bays are designed for removable media peripherals. You can install up to three half height peripherals or one full height and one half height peripherals.

5.25-inch Hard Drive Bays

The lower five drive bays are designed for hard drives. An optional hot swap drive bay can replace the top three of these drive bays.

3.5-inch Hot Swap Drive Bay

The optional hot swap drive bay supports up to five 3.5-inch SCA LVDS hard drives. Five carriers are included with the system. If no drive is installed in a carrier, a plastic air baffle must be installed to ensure proper hard drive cooling.

The hot swap drive bay accepts 1-inch peripherals that consume up to 14 Watts of power. Drives must be specified to operate at a maximum ambient temperature of 50 ºC.

Power Supply

The SC5000 chassis comes with either a 300 watt power supply or a 350 watt 1+1 redundant power supply.

Checking the Power Cords

⚠ **WARNING**

Do not attempt to modify or use a supplied AC power cords if they are not the exact type required.

The power supply cords are the main disconnect device to mains (AC power). The socket outlet shall be installed near the equipment and shall be readily accessible.

If a power cord supplied with the chassis is not compatible with the AC wall outlet in your region, get one that meets the following criteria:

- The cord must be rated for the available AC voltage and have a current rating that is at least 125% of the current rating of the server.
- The connector that plugs into the wall outlet must be a grounding-type male plug designed for use in your region. It must have certification marks showing certification by an agency acceptable in your region.
- The connector that plugs into the AC receptacle on the power supply must be an IEC 320, sheet C13, type female connector.
- In Europe, the cord must be less than 4.5 meters (14.76 feet) long, and it must be flexible <HAR> (harmonized) or VDE certified cordage to comply with the chassis' safety certifications.

Chassis Security

To help prevent unauthorized entry or use of the server, the chassis includes two chassis intrusion switches that can be monitored by Server Management software, a padlock loop at the rear of the chassis, and a door lock.

Monitoring

Two chassis intrusion switches are preinstalled. When the access cover is removed or the front bezel door is opened, the switch transmits a signal to the BMC on the server board. Server management software can be programmed to respond to an intrusion by powering down or by locking the keyboard, for example.

Mechanical Locks

A padlock loop on the rear of the chassis access cover can be used to prevent access to the internal of the chassis. A variety of lock sizes can be accommodated by the .270 diameter loop. The front bezel has a two position lock to prevent access to the hard drives and the interior of the chassis.
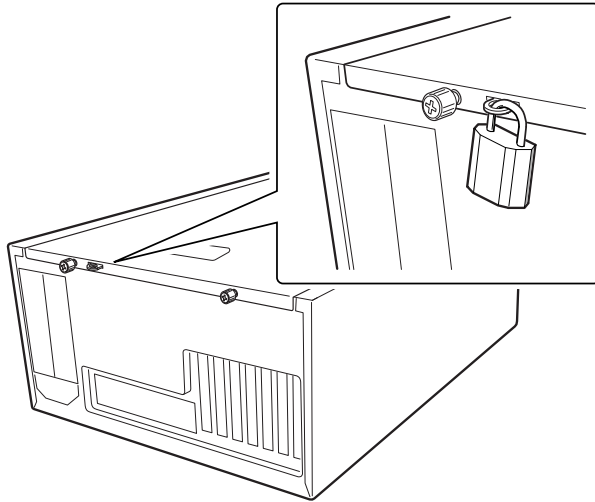
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Figure 5. Lock Loop
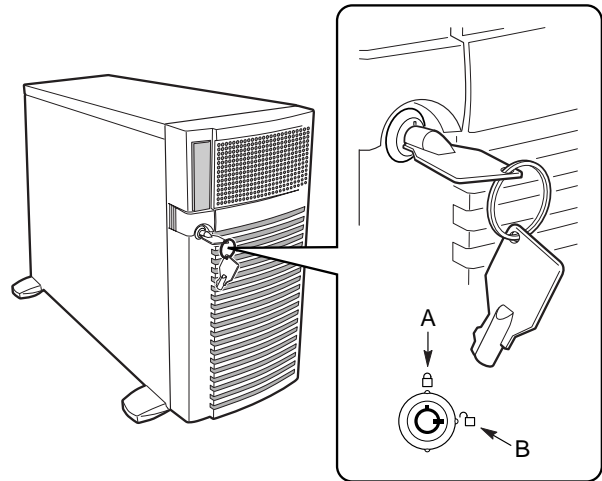
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Figure 6. Door Lock

A.   Front bezel locked
B.   Front bezel unlocked

Intel SC5000 Server Chassis Subassembly Product Guide

2 Setting Up the Chassis

This chapter describes how to set your server up for the first time.

Tools and Supplies Needed

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

Safety: Before You Remove the Access Cover

Before removing the access cover for any reason, observe these safety guidelines.

1. Turn off all peripheral devices connected to the server.
2. Turn off the server by pressing the power button on the front of the chassis. Then unplug the AC power cord from the chassis 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 chassis.
4. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to chassis ground—any unpainted metal surface—when handling components.

Warnings and Cautions

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

⚠ **WARNINGS**

> **The power button on the front panel DOES NOT turn off the AC power. To remove power from server, you must unplug the AC power cord from the wall outlet or the chassis.**

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

> **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.**

⚠ **CAUTIONS**

ESD can damage disk drives, boards, and other parts. Perform 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 server when handling parts.

Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. Do not touch the connector contacts. After removing a board from its protective wrapper or from the server, place the board 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. Do not slide board over any surface.

For proper cooling and airflow, always install the access cover before turning on the server. Operating it without the cover in place can damage system parts.

Remove the Access Cover

Facing the front of the chassis, the access cover is on the right side for pedestal-mounted (tower) servers, and on the top for rack-mounted servers.

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Loosen the captive thumbscrews that secure the access cover in place.
3. Slide the cover backward a short distance, until it stops.
4. Pull the entire cover outward, straight away from the chassis, to disengage the rows of tabs from the notches in the top and bottom edges of the chassis. Set the cover aside.
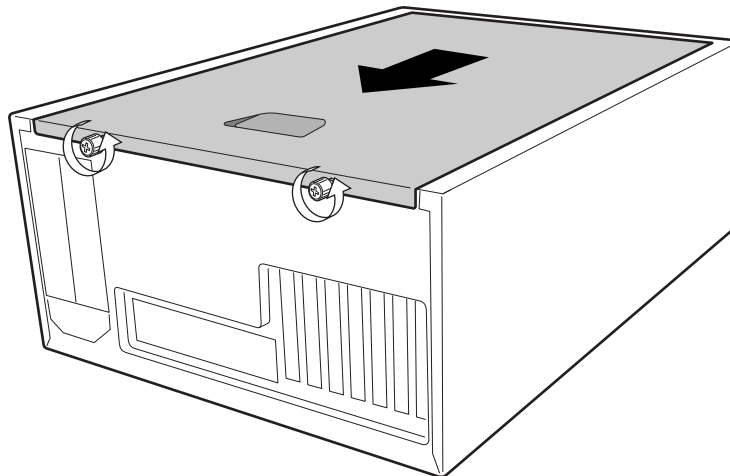
OM09083

Figure 7. Removing the Access Cover

Install the I/O Shield

⇒ **NOTE**

> An ATX 2.03-compliant I/O shield is provided with the server board. The shield is required by Electromagnetic Interference (EMI) regulations. It minimizes EMI and ensures proper cooling of the server. If the shield does not fit the chassis, obtain a properly sized shield from the chassis supplier.

The shield fits the rectangular opening near the power supply in the back of the chassis. The shield has cutouts that match the external I/O connectors (e.g., keyboard and mouse).

1. Install the shield from inside the chassis. Orient the shield so that the cutouts align with the corresponding I/O connectors on the server board. Make sure the metal fingers are on the inside of the chassis.

2. Position one edge so that the dotted groove is outside the chassis wall, and the lip of the shield rests on the inner chassis wall.

3. Hold the shield in place, and push it into the opening until it is seated. Make sure the I/O shield snaps into place all the way around.
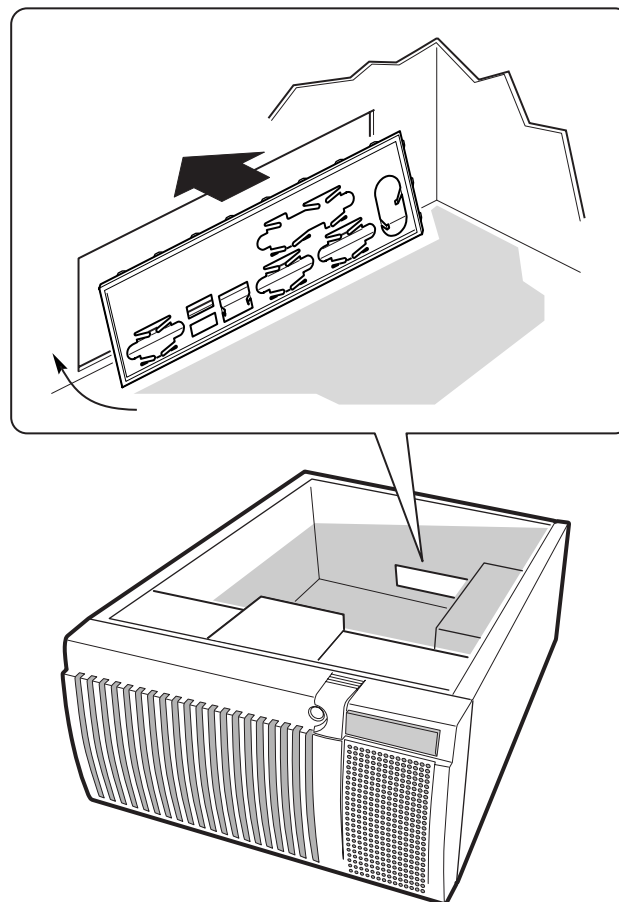
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Figure 8. Installing the I/O Shield

Install the Server Board Bumpers

Peel the adhesive backing from three rubber bumpers; stick the bumpers to the chassis wall (see Figure 9, A).
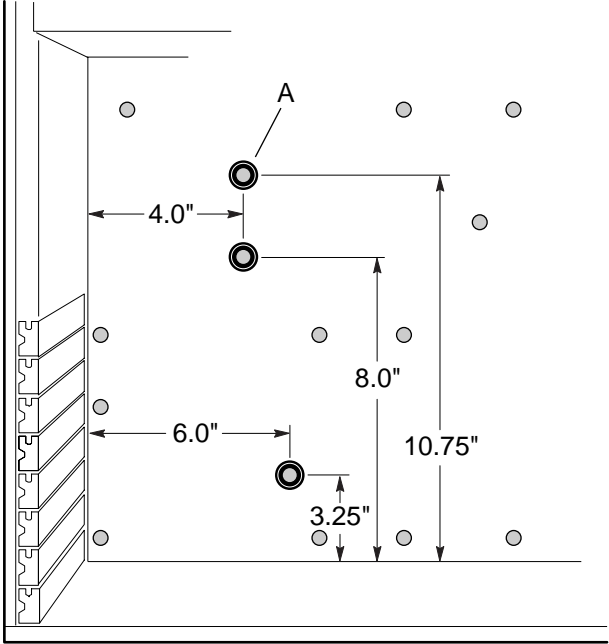
OM10344

Figure 9. Rubber Bumper Placement

A.   Rubber bumper

Install the Server Board

See your server board manual and/or quick start guide for more information on how to install your server board, processors, and memory.

⇒ **NOTE**

> You should install URMs and processors before installing the server board into the chassis.

1. Remove the top piece of foam epac from the system fans.
2. Tilt the board into the chassis I/O connector end first. Position the board so the screw holes line up with the standoffs. There are two positioning standoffs (Figure 10, D) that extend into the holes on the server board. These two standoffs will help you position the board correctly. Make sure the I/O connectors stick out through the I/O shield. Make sure that the metal tabs on the I/O shield are on top of the USB and NIC connectors, not inside.
3. 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.
4. Insert the remaining screws through the mounting holes and into the threaded standoffs. Make sure the board is properly seated, then tighten all the screws firmly, starting with the screws in the center of the board.
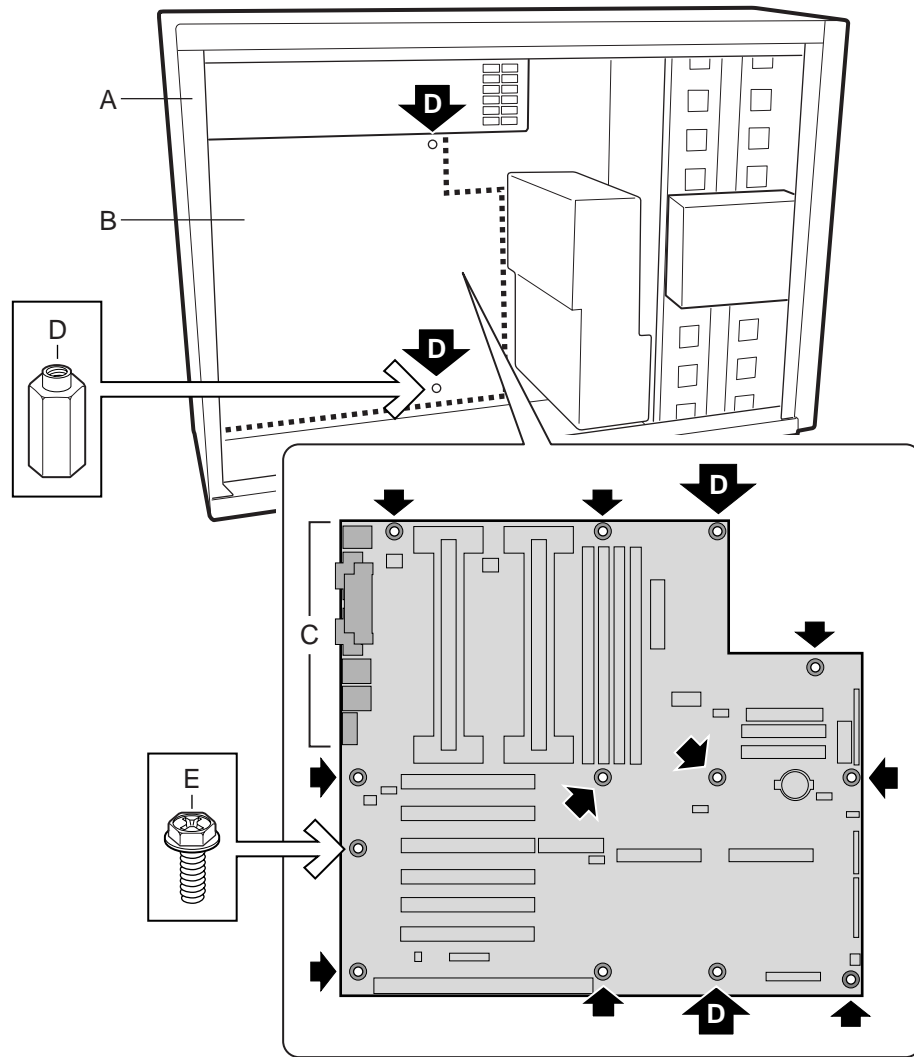
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Figure 10. Installing the Server Board

A. Chassis
B. Serverboard
C. I/O connectors
D. Positioning standoffs
E. Screw (6-32 hex head)

Connect Cables to the Server Board

See your server board product guide or quick start guide for connector locations.

1. Connect the power cables to the board.
   a. 300 watt power supply:
      - The large plug labeled P1 plugs to the main power connector on the server board.
      - The plug labeled P10 plugs to the AUX power connector on the server board (if available). Note that this cable may not be long enough for some server boards; it is not required for normal operation.
   b. 350 watt power supply:
      - The large plug labeled P1 plugs to the main power connector on the server board.
      - The plug labeled P10 plugs to the AUX power connector on the server board.
      - The plug labeled P13 plugs into the AUX SIG connector on the server board (if available).
2. Connect the front panel cable to the board.
3. Connect the "Sleep" cable to the ATX stake pins.
4. Connect the fan cables to the board.
5. Connect the IDE cable(s) to the board. Route the cable for the bottom hard drive bays between the foam epac and the chassis. You will not need to remove the lower foam epac. The IDE cables should lay as flat as possible so they don't obstruct the air flow from the fans.
6. Connect the floppy cable to the board.
7. Connect the SCSI cable(s) to the board.
   a. If the optional SCSI hot swap bay is installed:
      - The SCSI cable is already connected to the bay and is routed correctly.
      - Connect the SCSI cable to the LVD SCSI connector on your server board.
   b. If the optional SCSI hot swap bay is not installed
      - Route the cable between the foam epac and the chassis. You will not need to remove the lower foam epac.
      - Connect the SCSI cable to the server board.
8. Connect the chassis intrusion cable to the board. Pull the cable free from the clips under the inside edge at the rear of the chassis.

Install the Diskette Drive

> We highly recommend you use a magnetic screwdriver for this step. A nonmagnetic screwdriver may lose the screws between the chassis and the plastic bezel.

1. Using a magnetic screwdriver, remove the two screws that hold the diskette drive carrier to the front of the chassis.
2. Slide the carrier towards the rear of the chassis, until it comes free.
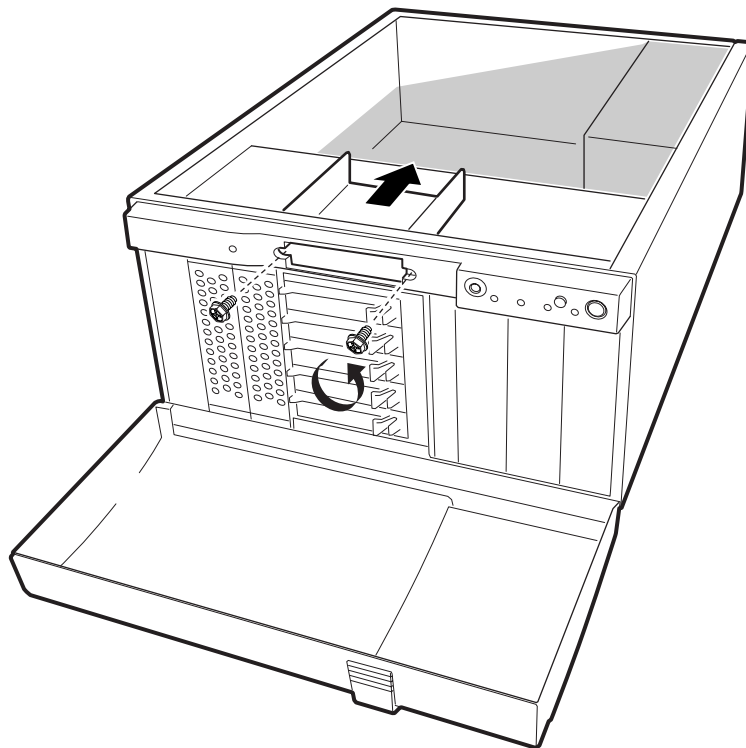
OM09177

Figure 11. Removing the Diskette Drive Carrier

3. Remove the 3.5-inch diskette drive from its protective wrapper. Record the drive model and serial numbers in your equipment log.

4. Set any jumpers or switches according to the drive manufacturer's instructions.

5. Slide the drive into the drive carrier component side down.

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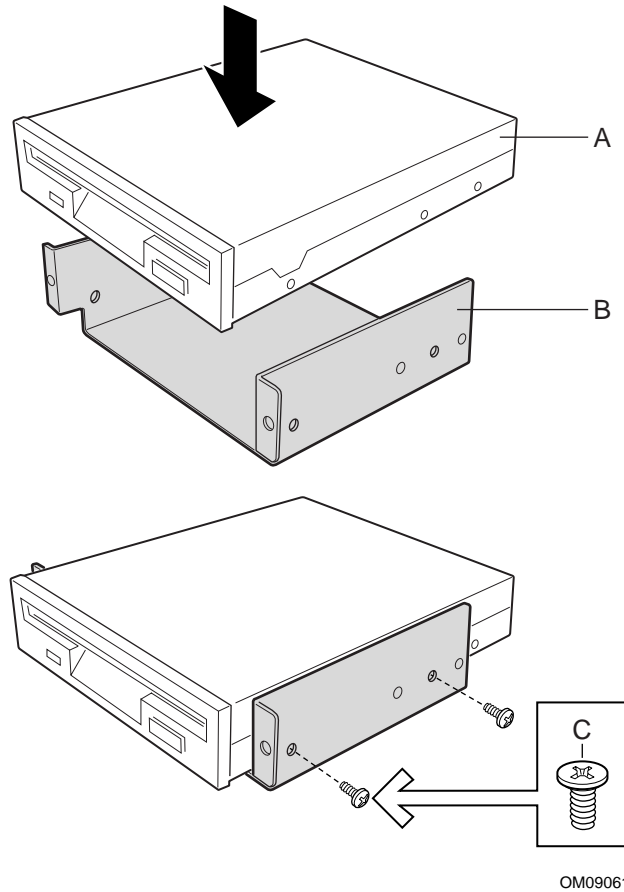
Figure 12. Installing the Diskette Drive into the Drive Carrier

A. Diskette drive
B. Carrier
C. Screw (M3 flat head)

6. Insert and tighten four screws (fine thread flat head) to attach the drive to the carrier.

7. Position the carrier so the front of the drive fits correctly in the front opening of the chassis. When properly positioned, the hole in the carrier aligns with the threaded hole in the frame.

8. Secure the assembly to the front of the chassis with the two screws removed in step 1; tighten the screws firmly.

⇒ **NOTE**

Do not connect the data or power cables at this point.
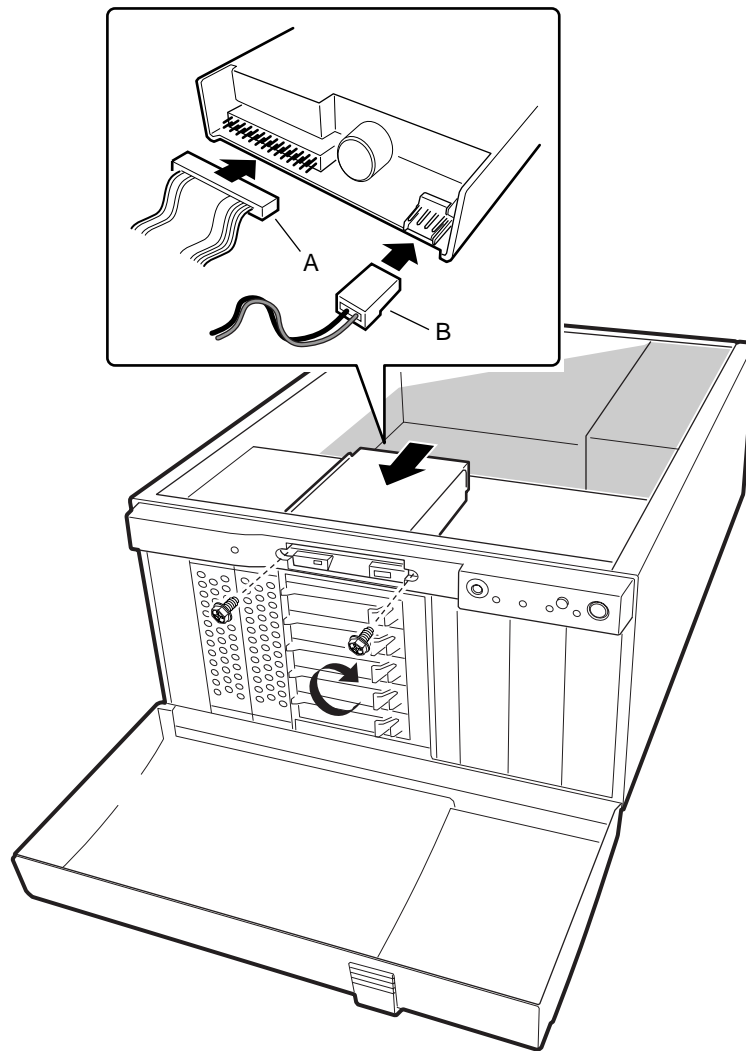
OM09178

Figure 13. Installing the Diskette Drive/Carrier Assembly

A.   Data cable
B.   Power cable

Hard Drives

Drive Cabling Considerations

The cables that ship with the SC5000 chassis are prefolded to fit the chassis. To minimize the chance of damaging a cable, you should keep the cables folded correctly. The number of devices you can install depends on:

- The number supported by the bus on your server board
- The number of physical drive bays available
- The combination of SCSI and IDE devices

IDE Requirements

If no drives are present on an IDE channel, the cable must be removed. If only one drive is installed, it should be connected at the end of the cable.

⟹ **NOTE**

> **To disable the IDE controller:** If you plan to disable the IDE controller to reuse the interrupt for that controller, you must physically unplug the IDE cable from the board connector if a cable is present. Simply disabling the drive by configuring the SSU option does not make the interrupt available.

SCSI Requirements

If the optional hot-swap bay is installed, one Ultra160 SCSI cable is provided with the chassis to connect the hot-swap backplane with the server board. This cable should be connected to the LVD connector on the server board.

Installing a 5.25-inch Removable Media Device

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

⟹ **NOTES**

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

1. Open the front bezel door.
2. Remove the two screws that hold the shield in place.
3. Pull the shield out of the chassis. Save the shield for use if you remove the peripheral.
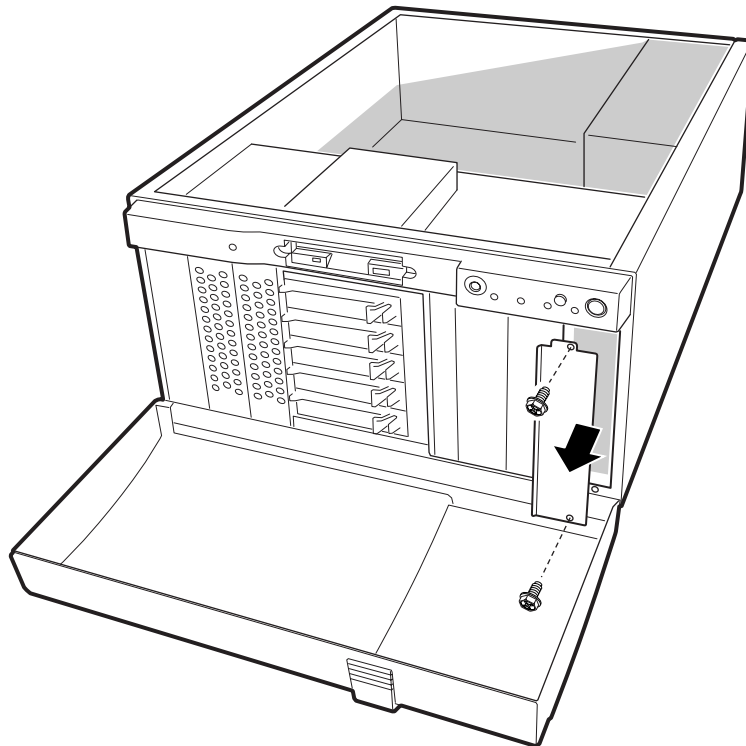
OM09174

Figure 14. Removing EMI Shields

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 or switches on the drive according to the drive manufacturer's instructions.
7. Using four screws of the appropriate size and length, attach two slide rails to the drive.
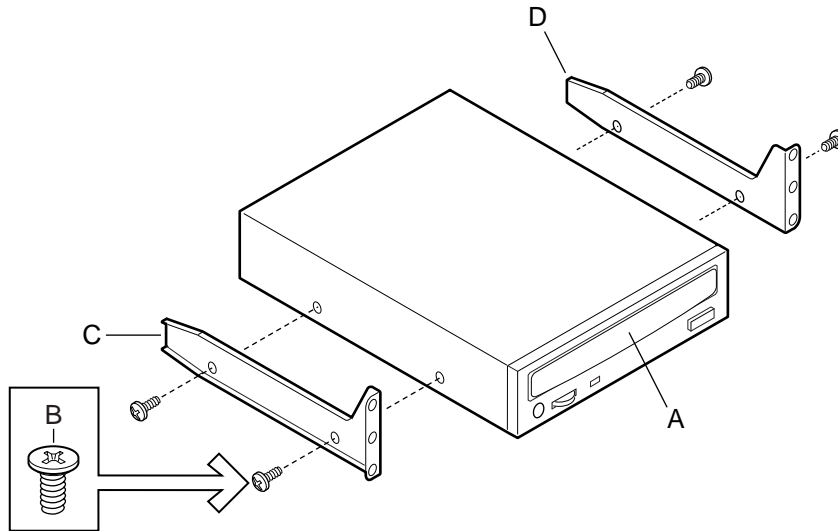
OM09076

Figure 15. Slide Rails

A.   CD-ROM drive or other removable media device
B.   Screws (M3 flat head)
C.   Left rail
D.   Right rail

8. Position the drive so the slide rails engage in the bay guide rails. Push the drive into the bay until the slide rails are flush with the chassis.

9.   Connect a signal cable to the drive. The connectors are keyed and can be inserted in only one way.
10. Connect a power cable to the drive. If your chassis contains the 350 watt power supply, use the plugs labeled P2-P5.
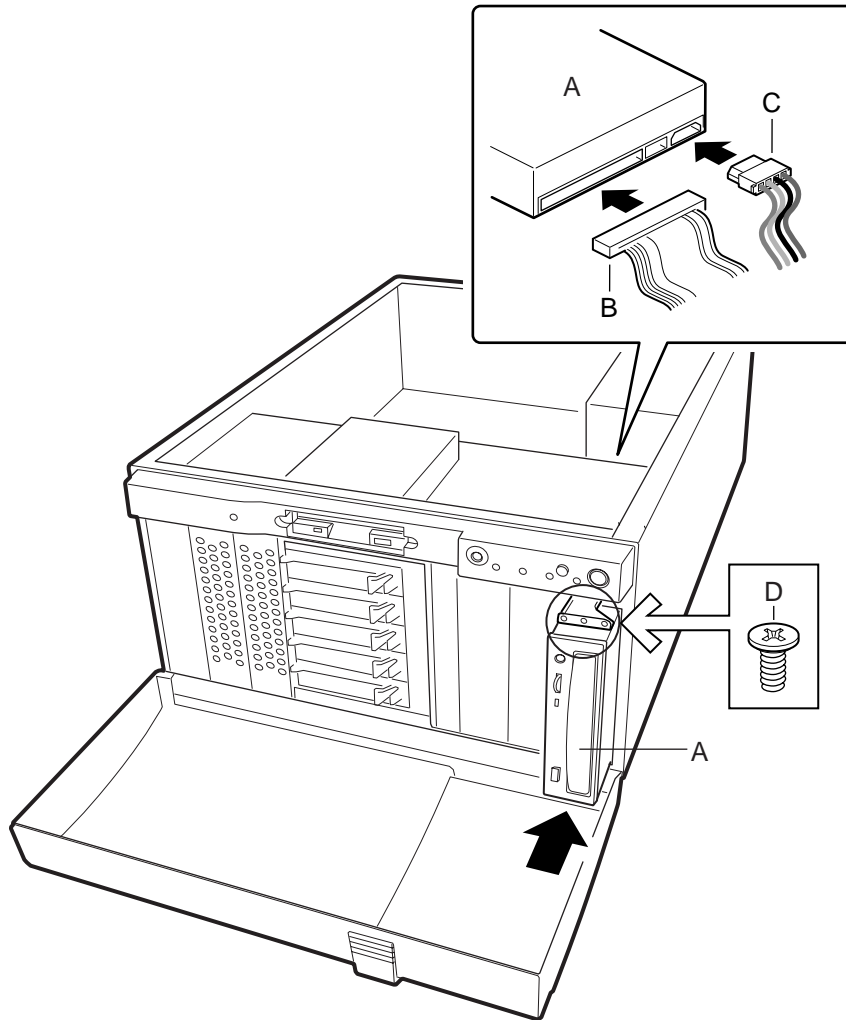
OM09072

Figure 16. Installing a Removable Media Device

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

Installing a 5.25-inch or 3.5-inch Hard Drive

Five (two if the optional hot swap drive bay is installed) 5.25-inch half-height bays provide space for hard drives.

1. If you haven't already done so, remove the top piece of foam epac from the system fans.
2. Remove and save the two screws that secure the drive carrier to the chassis.
3. Slide the drive carrier out of the chassis. You may need to push the drive from the inside of the chassis.
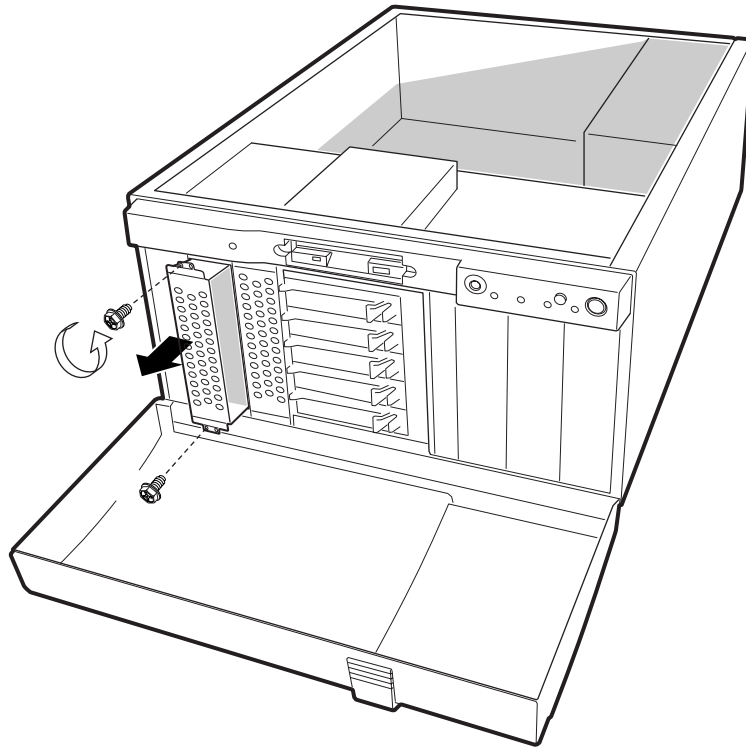
OM09176

Figure 17. Removing a Drive Carrier

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 or switches on the drive according to the drive manufacturer's instructions.

7. Place the drive into the carrier component side down and with the power and data connectors facing the rear of the carrier. The connectors should be flush with the read of the carrier.
8. Holding the drive in place, turn the carrier upside down.
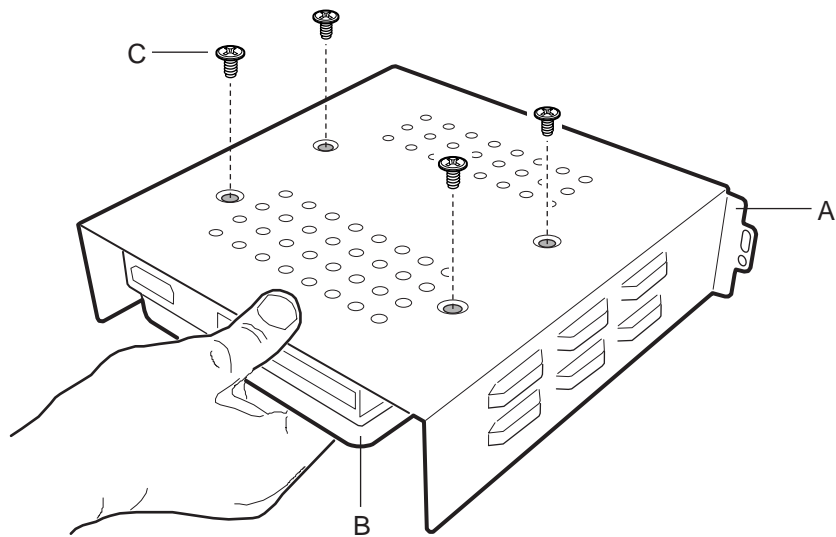
OM09069

Figure 18. Attaching a Hard Drive to a Carrier

A. Drive carrier
B. Hard drive
C. Screw (6-32 flat head)

9. Line up the screws holes in the carrier with the screw holes in the drive.
10. Using four screws of the appropriate size and length, attach the drive to the carrier.
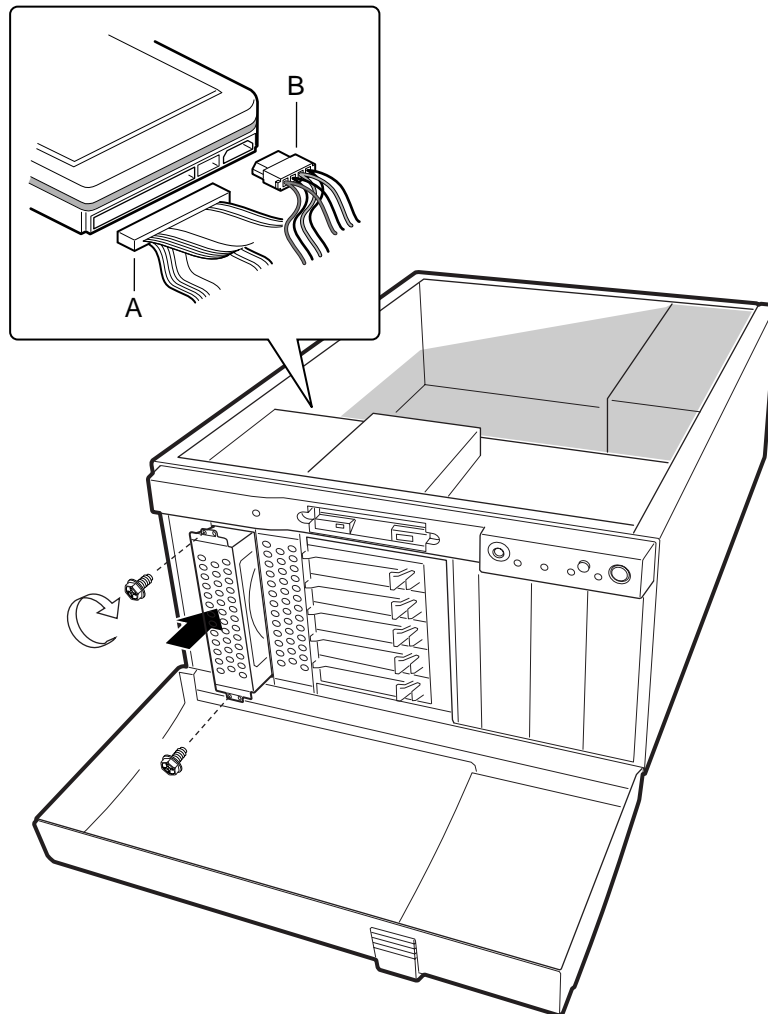
OM09179

Figure 19. Installing a Carrier

A. Data cable
B. Power cable

11. Slide the carrier into the chassis.
12. Insert and tighten the screws removed in Step 1.
13. Attach data and power cables to the drive. You **must** use the power plugs labeled P6 and P7 to connect to drives in the bottom two carriers. Use the plugs labeled P11 and P12 to connect to drives in the next two carriers or to the hot swap bay.

Hot-Swap SCSI Hard Disk Drives

The chassis may contain the optional hot swap drive bay and 5 drive carriers, but no hard disk drives. Refer to the Intel customer support website for a list of approved SCSI devices.

⚠ CAUTION

Electrostatic discharge (ESD) and ESD protection: ESD can damage disk drives, add-in boards, and other components. This server can withstand normal levels of environmental ESD while you are hot-swapping SCSI hard disk drives. However, we recommend doing all procedures in this manual only at an ESD-protected workstation. If one is not available, you can provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground of the server—any unpainted metal surface—when handling components.

Installing a Hot Swap Hard Disk Drive

1. Press the latch on the top of the carrier handle down, pull the carrier handle toward you, and pull the carrier from the chassis.
2. Remove the four screws that hold the air baffle to the carrier.
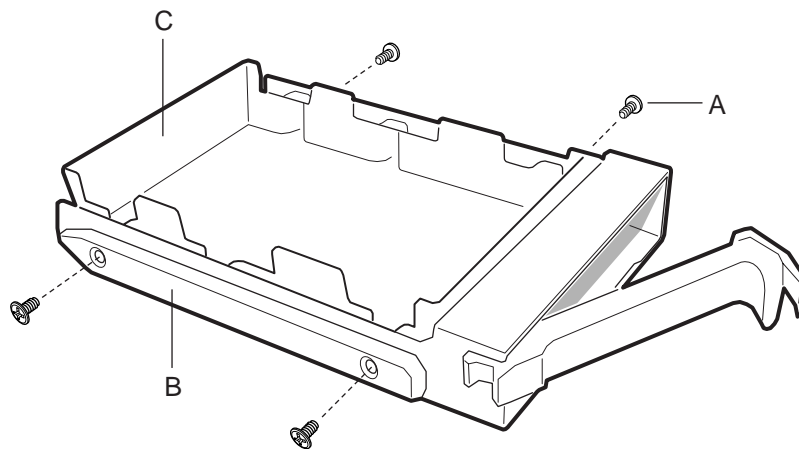
OM09067

Figure 20. Removing the Air Baffle From the Drive Carrier

A. Screw (save for reuse (6-32 flat head))
B. Drive carrier
C. Air baffle

3. Remove the 3.5-inch hard drive from its wrapper and place it on an antistatic surface.
4. Record the drive model and serial number in your equipment log.
5. Orient the drive as shown in Figure 21.
6. Using the four screws removed earlier, attach the carrier to the drive.

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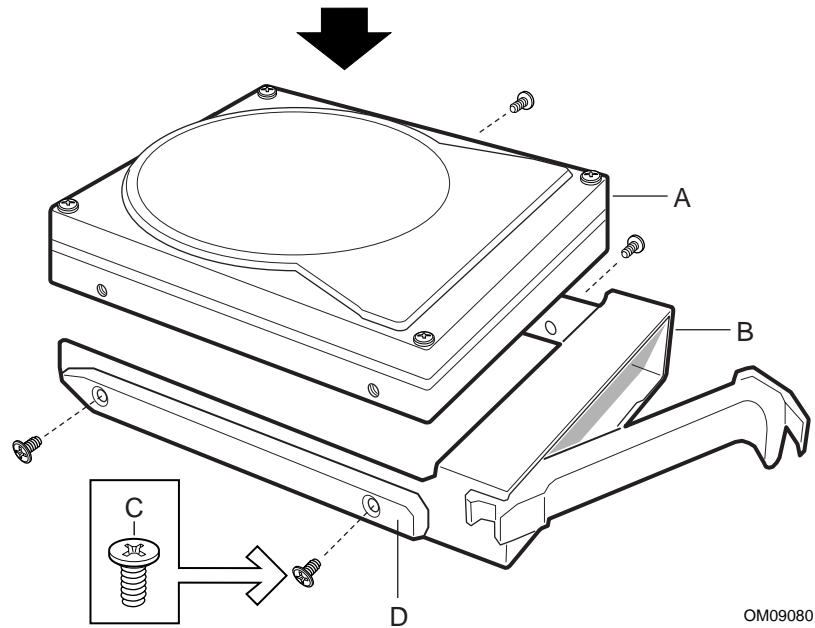
Figure 21. SCA Hard Disk Drive and Hot Swap Drive Carrier

A. Hard drive
B. Drive carrier
C. Screw (6-32 flat head)
D. Positioning rail

7. Position the drive carrier so it engages the guide rails.
8. Push the drive into the chassis until the tab (Figure 22, B) engages the hole in the drive bay (Figure 22, A).
9. Push the carrier handle up until the latch clicks.
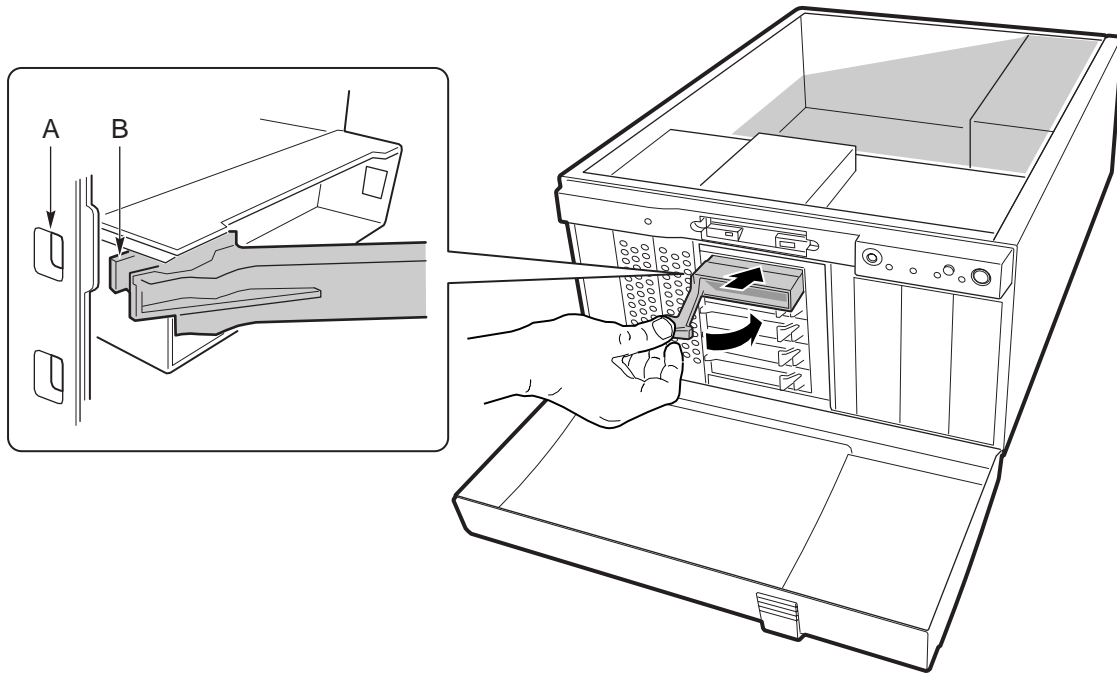
OM09089

Figure 22. Inserting a Hot Swap Drive

A. Hole
B. Tab

Installing an Add-in Board

You may want to install an operating system before installing any add-in cards. If so, skip this step and return to it when you are ready.

⚠ **CAUTIONS**

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

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 and save the snap-in expansion slot cover.
2. Remove the screw for the expansion slot.
3. Remove add-in board from its protective wrapper. Be careful not to touch the components or gold edge connectors. Place board on an antistatic surface.
4. Record the type and 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 slot in the expansion slot frame.
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 tighten it firmly. Attach cables if necessary.
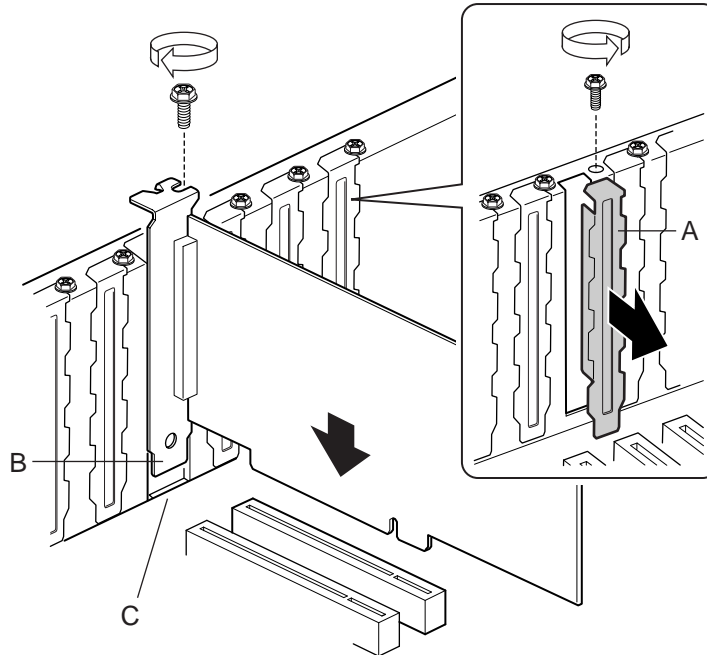
OM09171

Figure 23. Installing an Add-in Board

A. Snap-in slot cover
B. Tapered foot
C. Slot

Install the Upper Foam Epac

1. If the hot swap bay is installed, connect the SCSI I2C cable to it.
2. Connect data and power cables to the diskette drive.
3. Make sure the fan cables are in their slots in the lower foam epac.
4. The power cables for the lower IDE drive bays run behind the foam epac. If the hot swap bay is installed, they run over the bay.
5. Place the upper part of the foam epac into the chassis. The SCSI I2C and diskette drive data cables should lay over it.
6. Press the foam epac into place. You may need to wiggle the fans to get it to sit flush with the lower foam epac.
7. Tilt the side of the upper foam epac that is against the chassis (the side farthest away from the power supply) up so it forms an opening between the foam epac and the slotted access cover support rail on the chassis.
8. Lay the SCSI I2C and diskette drive data cables in this gap on the shoulder of the foam epac.
9. Being careful not to pinch the cables, tilt the foam epac back into place.

Install the Access Cover

1. Place the cover so the tabs go into the slots on the server. The cover should be flush against the chassis.
2. Slid the cover forward until it stops.
3. Tighten the two captive screws into the rear of the chassis.
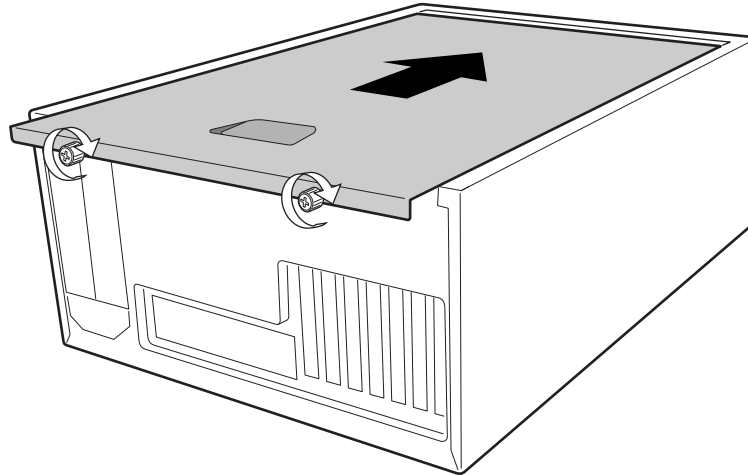
OM09170

Figure 24. Installing the Access Cover

Install the Chassis Feet (Pedestal Mode)

If you are installing this server into a rack system, skip these steps and read the instructions that came with your rack kit.

1. Move the chassis to the edge of your workbench.
2. Use four screws to attach each foot to the chassis. The holes in the feet will line up with only one set of holes in the chassis. On the front foot, the middle hole should be towards the front of the chassis. Hole locations for the front foot are marked "F" and "1,2". On the back foot, the middle hole should be towards the back of the chassis. Hole locations for the rear foot are marked "F".
3. You are now ready to attach a monitor, keyboard, and mouse to your server, and turn it on.
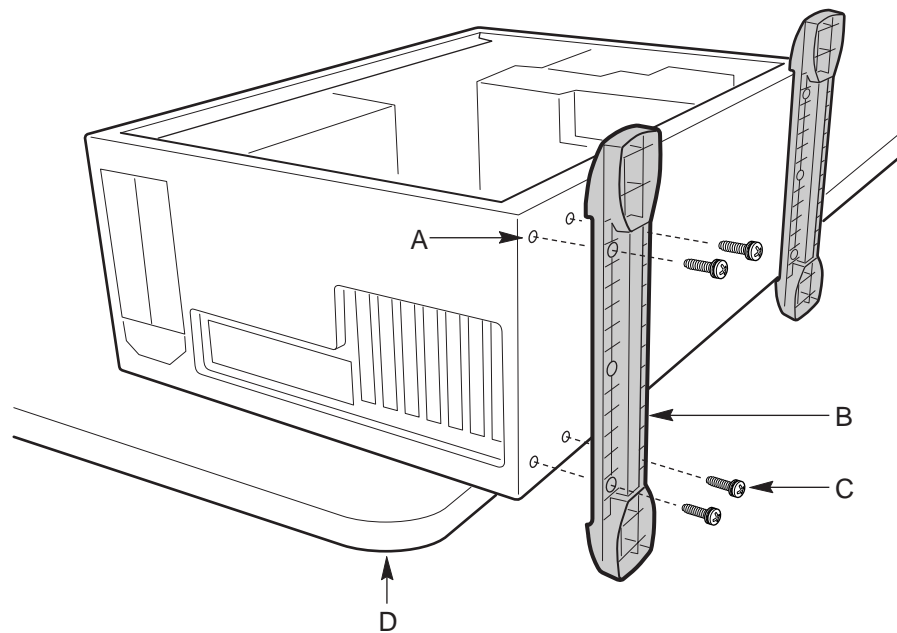
OM09071

Figure 25. Installing the Chassis Feet

A. Screw hole
B. Chassis foot
C. Screw (M4 round head)
D. Workbench

3 Working Inside Your Server

This chapter describes how to replace components in your server after it has been set up. All references to top, sides, and directions in this chapter refer to a chassis in a pedestal mount.

Tools and Supplies Needed

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

Safety: Before You Remove the Access Cover

Before removing the access cover for any reason, observe these safety guidelines.

1. Turn off all peripheral devices connected to the server.
2. Turn off the server by pressing the power button on the front of the chassis. Then unplug the AC power cord from the chassis 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 chassis.
4. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to chassis ground—any unpainted metal surface—when handling components.

Warnings and Cautions

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

⚠ WARNINGS

The power button on the front panel DOES NOT turn off the AC power. To remove power from server, you must unplug the AC power cord from the wall outlet or the chassis.

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

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.

⚠ **CAUTIONS**

ESD can damage disk drives, boards, and other parts. Perform 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 server when handling parts.

Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. Do not touch the connector contacts. After removing a board from its protective wrapper or from the server, place the board 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.

For proper cooling and airflow, always install the access cover before turning on the server. Operating it without the cover in place can damage system parts.

Replacing Fans

The SC5000 chassis contains two replaceable system fans. The power supply fan(s) are not replaceable. Your replacement fan should be the same size and type as the fan you are removing.

1. Remove the access cover.
2. Remove the top part of the foam epac.
3. Disconnect the fan cable from the server board.
4. Remove the fan from the lower part of the foam epac.
5. Place the new fan into the foam epac. Make sure the airflow is towards the server board. For most fans, this means the label should face the server board.
6. Connect the fan cable to the server board.
7. Replace the upper foam epac.
8. Replace the access cover.

Replacing a Power Supply

⚠ WARNINGS

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.**

350 Watt Hot Swap Power Supply Modules

1. Turn off the power switch on the module.
2. Loosen the thumbscrew that holds the module in place.
3. Grasp the handle with your right hand, press the latch with your thumb, and pull the power supply from the chassis.
4. Push the new power supply into the chassis until the latch clicks into place.
5. Tighten the thumbscrew.
6. Turn the power supply on.
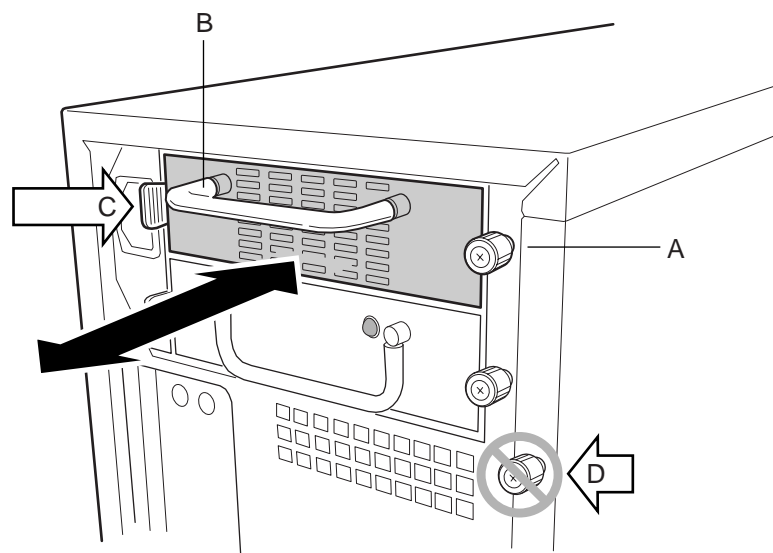
OM09063

Figure 26. Hot Swapping a Power Supply

A. Thumbscrew
B. Handle
C. Latch
D. Chassis Cover Thumbscrew

350 Watt AC Power Supply Housing

1. Disconnect the A/C power to the power supply.
2. Remove the hot swap modules.
3. Remove the access cover.
4. Disconnect all the power cables.
5. Remove and save the four screws at the rear of the chassis (Figure 27, B).
6. Remove and save the two screws from inside the chassis at the fan end of the power supply housing (Figure 27, A).
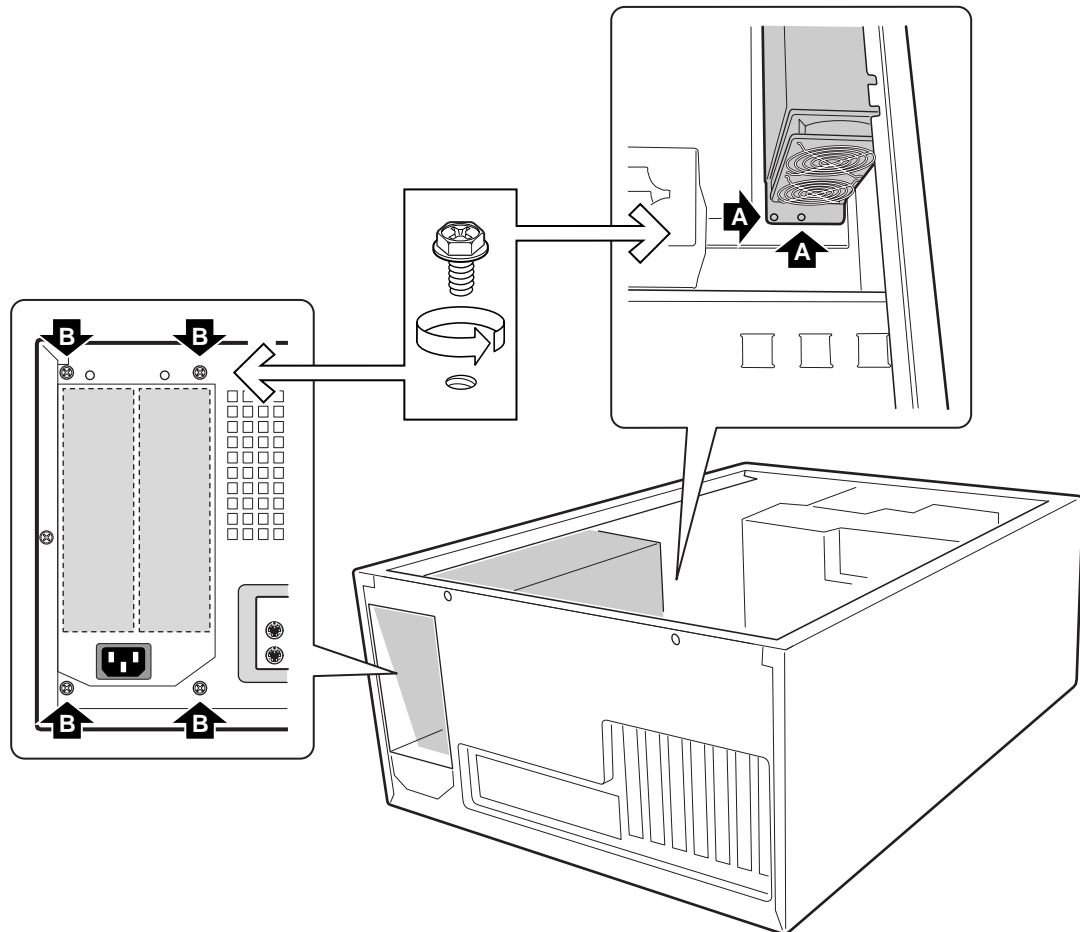
OM09090

Figure 27. Replacing the 350 Watt AC Power Supply Module

A. Screw locations
B. Screw locations

7. Remove the power supply from the chassis.
8. Remove the two screws that hold the bracket to the power supply.
9. Remove the bracket from the power supply.

OM09183
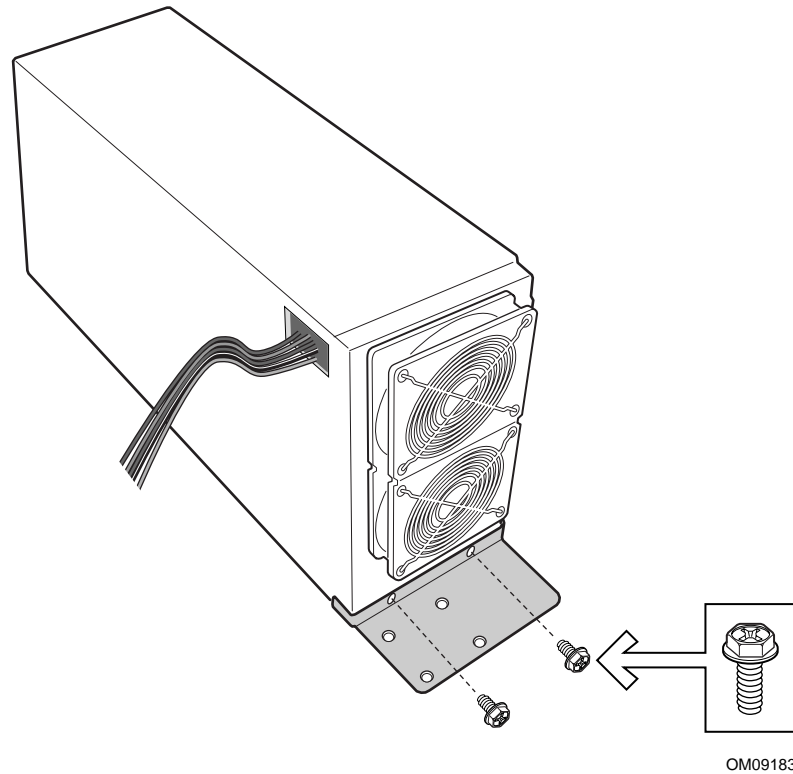
Figure 28. Removing the 350 Watt Power Supply Bracket

10. Place the bracket on the new power supply and attach it with the two screws removed earlier.
11. Install the new power supply into the chassis.
12. Insert and tighten the six screws (four at the rear, two at the fan end) that hold the power supply to the chassis.
13. Connect the power cables to the server board and peripherals.
14. Replace the access cover.
15. Reinstall the hot swap modules.
16. Connect the A/C power to the power supply.

300 Watt Power Supply

1. Disconnect the A/C power to the power supply.
2. Remove the access cover.
3. Disconnect all the power cables.
4. Remove and save the four screws that hold the power supply and bracket to the chassis.
5. Remove the power supply and bracket from the chassis.
6. Remove and save the two screws that hold the power supply to the bracket.
7. Install the new power supply onto the bracket using the two screws removed above.
8. Insert the power supply/bracket into the chassis.
9. Insert and tighten the four screws that hold the power supply/bracket to the chassis.
10. Connect the power cables to the server board and peripherals.
11. Replace the access cover.
12. Connect the A/C power to the power supply.
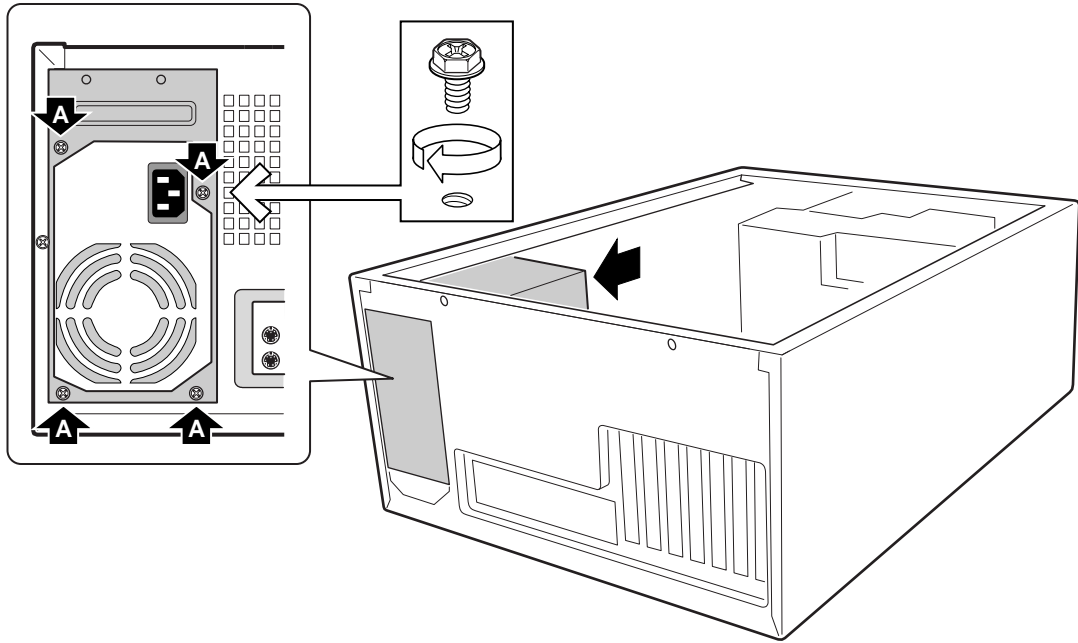
OM10266

Figure 29. Replacing the 300 Watt AC Power Supply

A.   Screw locations

Replacing the Front Panel Board

1. Open the access cover.
2. Disconnect the front panel cable from the server board.
3. Disconnect the Sleep cable.
4. If installed, disconnect the HS Bay I2C cable from the connector on the front panel.
5. Remove and save the three screws holding the front panel board to the chassis.
6. Remove the front panel board from the chassis.
7. Place the new front panel board in the chassis.
8. Insert and tighten the three screws removed earlier.
9. Re-connect the front panel board cables.
10. Replace the access cover.
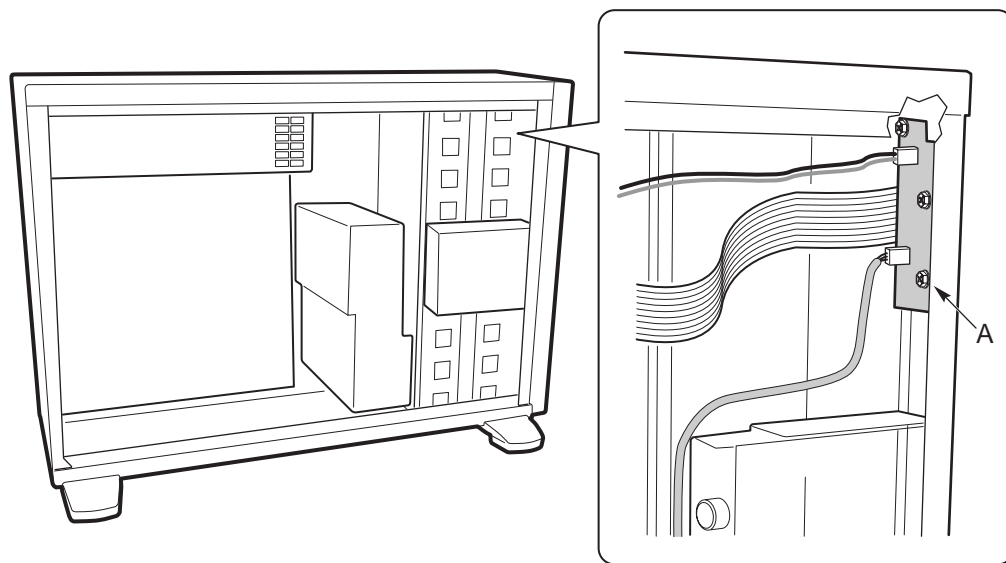
OM10265

Figure 30. Replacing the Front Panel Board

A.   Screw

Replacing the Hot Swap Backplane and SAF-TE Card

1. Open the access cover.
2. Remove the top part of the foam epac.
3. Remove all of the drive carriers from the hot swap bay.
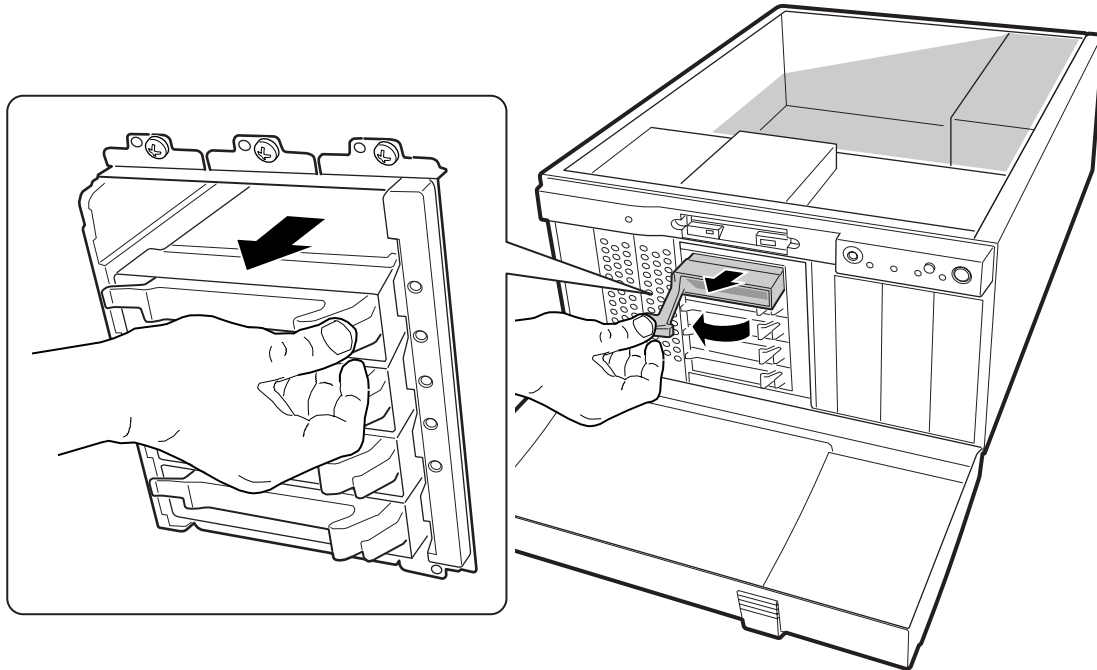
OM09087

Figure 31. Removing the Hot Swap Drive Carriers

4. Remove and save the six screws holding the hot swap bay to the chassis.
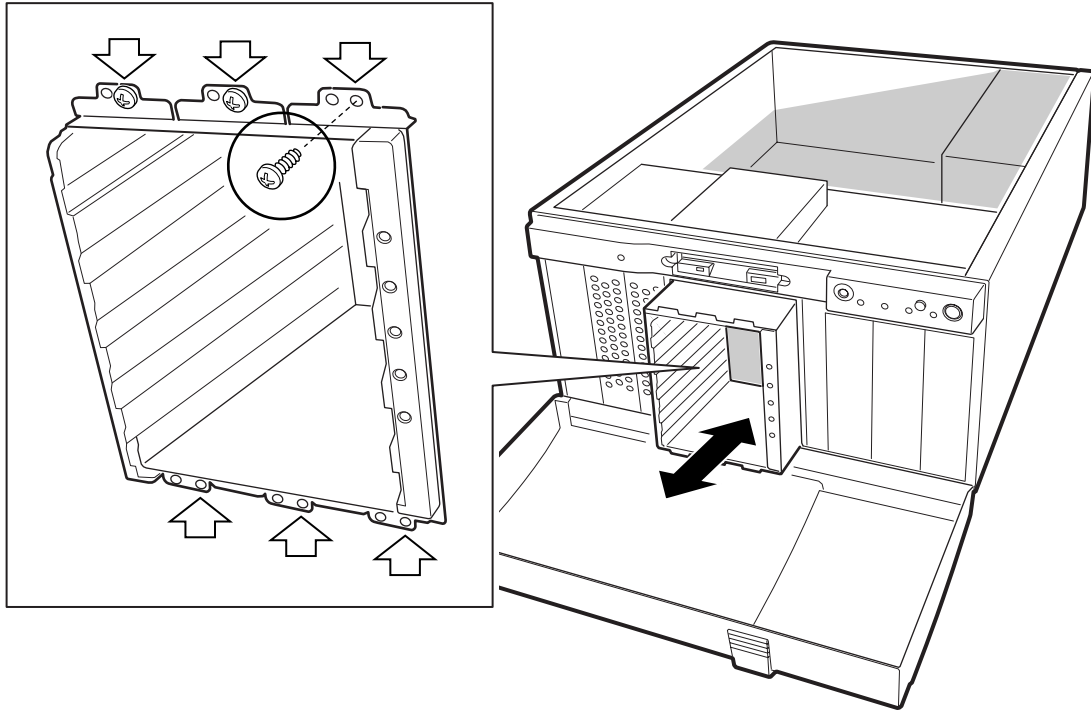
OM09075

Figure 32. Removing the Hot Swap Drive Bay

5. Disconnect the power cables and I2C cable from the hot swap bay.
6. Pull the hot swap bay half way out of the chassis.
7. Disconnect the SCSI cable from the bay.
8. Remove the hot swap bay from the chassis.

9. Remove and save the four screws that hold the backplane to the bay.
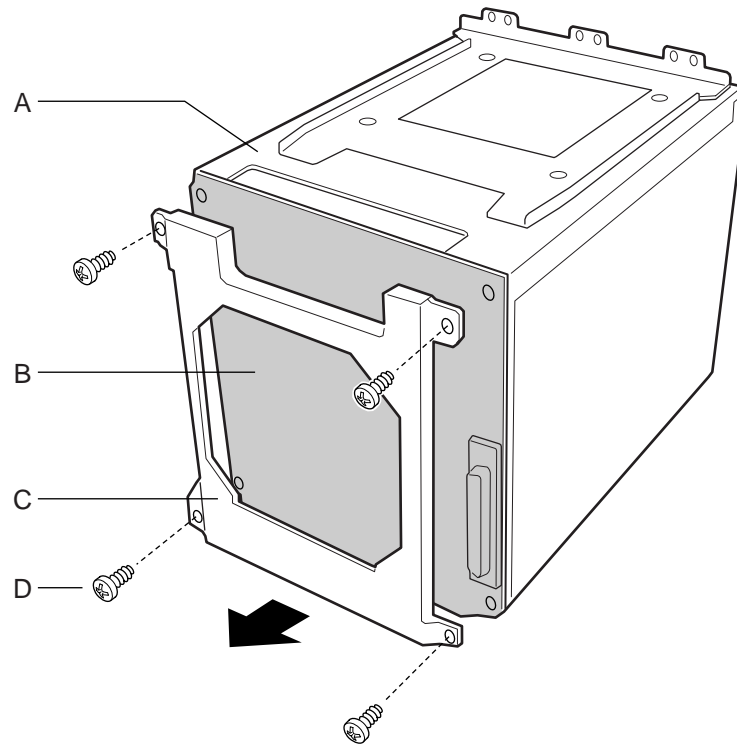
OM09066

Figure 33. Removing the Hot Swap Backplane

A. Hot swap bay
B. Hot swap backplane
C. Bracket
D. Screw

10. Carefully pull the backplane straight out from the bay. The SAF-TE card is connected to the backplane and may get damaged if you don't pull it straight out.
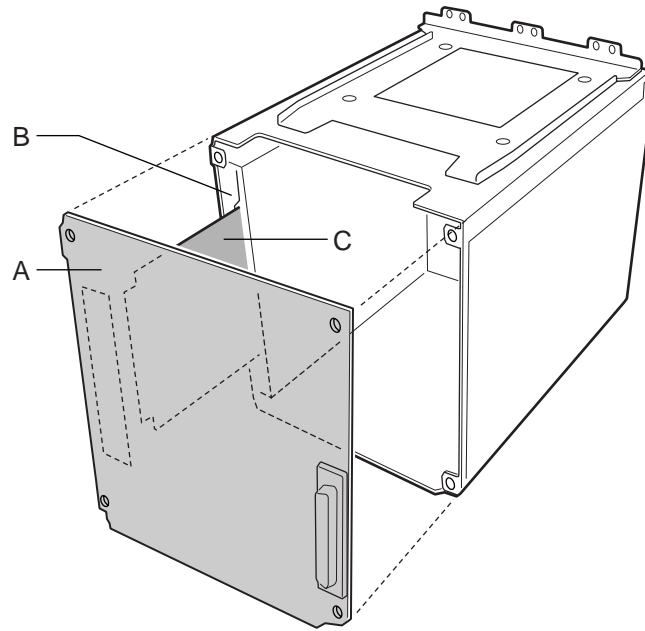
OM09182

Figure 34. Replacing the Hot Swap Backplane

A. Hot swap backplane
B. Notch for SAF-TE card
C. SAF-TE card

11. If you are replacing the hot swap backplane, do the following:
    a. Remove the SAF-TE card from the old hot swap backplane.
    b. Plug the SAF-TE card into the new hot swap backplane.
12. If you are replacing the SAFE-TE card, do the following:
    a. Remove the old SAF-TE card from the hot swap backplane.
    b. Plug the new SAF-TE card into the hot swap backplane.
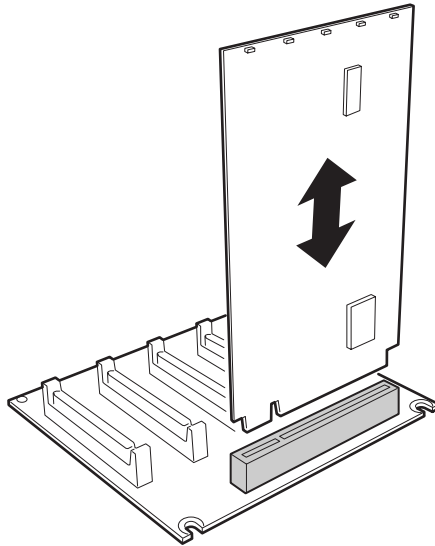
OM09181

Figure 35. SAF-TE Card and Hot Swap Backplane

13. Carefully slide the SAF-TE card/hot swap backplane assembly into place on the hot swap bay.
    There are two notches on the bay that the SAF-TE card slides through.
14. Place the bracket on the backplane.
15. Insert and tighten the four screws that hold the backplane in place.
16. Slide bay half way into the chassis.
17. Connect the SCSI cable to the backplane.
18. Slide the bay the rest of the way into the chassis.
19. Insert and tighten the six screws that hold the bay in the chassis.
20. Connect the power cables and I2C cable to the backplane.
21. Install the top half of the foam epac.
22. Replace the access cover.
23. Replace the hot swap drives and carriers.

4 Technical Reference

Power Supply Specifications

Input Voltages

300 watt power supply

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

350 watt 1+1 power supply

- 100-120 V~ at 50/60 Hz; 6 A
- 200-240 V~ at 50/60 Hz; 3 A

Output Voltages

300 watt power supply

The table below lists the total wattage available from the power subsystem for each voltage. If you configure your system heavily, ensure that your loads do not exceed the combined total wattage of 300 watts. For information about calculating the power usage for your configuration, see page 65.

Table 2.   Power Supply System Output Capability

Voltage	Maximum Current
+3.3 V	16 A
+5.0 V	26 A
-5 V	.25 A
+5V Standby	800 mA
+12.0 V	10 A sustained
	13 A/12 sec peak
−12.0 V	.5 A

⚠ **CAUTION**

> Do not exceed a combined power output of 167 watts for the +5 V and +3.3 V outputs. Exceeding a combined 167 watts will overload the power subsystem and may cause the power supplies to overheat and malfunction.

The expansion slots on the server board are rated for no more than 25W for any one slot. The average current usage per slot should not exceed 13 watts.

350 watt power supply

The table below lists the total wattage available from the power subsystem for each voltage. If you configure your system heavily, ensure that your loads do not exceed the combined total wattage of 350 watts. For information about calculating the power usage for your configuration,

Table 3.   Power Supply System Output Capability

Voltage	Maximum Current
+3.3 V	28 A
+5.0 V	32 A
-5 V	NA
+5V Standby	2000 mA
+12.0 V	12 A sustained 15 A/12 sec peak
–12.0 V	.5 A

⚠ CAUTION

Do not exceed a combined power output of 195 watts for the +5 V and +3.3 V outputs. Exceeding a combined 195 watts will overload the power subsystem and may cause the power supplies to overheat and malfunction.

The expansion slots on the server board are rated for no more than 25W for any one slot. The average current usage per slot should not exceed 13 watts.

Environmental Specifications

Table 4.   Environmental Specifications

Temperature		
	Non-operating	–40° to 70 °C
	Operating	5° to 35 °C; derated 0.5 °C for every 1000 ft (305 m) to a maximum of 10,000 ft
Humidity		
	Non-operating	95% relative humidity (non-condensing) at 30 °C
Shock		
	Operating	2.0 g, 11 msec, 1/2 sine
	Packaged	Operational after a 24" free fall, although cosmetic damage may be present
Acoustic noise		300W Supply: <47 dBA 350W Supply: <50dBA @ 18° to 28 °C (65° to 82 °F) with six internal hard disk drives (measured at one meter from the chassis with the peripherals active). The noise of the variable speed power supply fans will increase with temperature and power load. **Your selection of peripherals may change the noise level.**
Electrostatic discharge (ESD)		Tested to 15 kilovolts (kV); no component damage

5 Regulatory Information

⚠ WARNING

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

The SC5000 chassis subassembly, when correctly integrated per this guide, complies with the following safety and electromagnetic compatibility (EMC) regulations.

Safety Compliance

- UL 1950 - CSA 950 (US/Canada)
- EN 60 950 (European Union)
- IEC60 950 (International)
- CE – Low Voltage Directive (73/23/EEC) (European Union)
- EMKO-TSE (74-SEC) 207/94 (Nordics)

EMC Compliance

- FCC (Class B) – Radiated & Conducted Emissions (USA)
- ICES-003 (Class B) – Radiated & Conducted Emissions (Canada)
- CISPR 22 (Class B) – Radiated & Conducted Emissions (International)
- EN55022 (Class B) – Radiated & Conducted Emissions (European Union)
- EN50082-1 (Immunity) (European Union)
- VCCI (Class B) – Radiated & Conducted Emissions (Japan)
- AS/NZS 3548 (Class B) – Radiated & Conducted Emissions (Australia)
- CE – EMC Directive (89/336/EEC) (European Union)

Regulatory Compliance Markings

This product is provided with the following Product Certification Markings.

- UL & cUL Listing Mark
- 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
- German GS Mark
- Russian GOST Mark
- FCC, Class B Markings (Declaration of Conformity)
- ICES-003 (Canada EMC Compliance Marking)
- VCCI, Class B Mark
- Australian C-Tick Mark
- Taiwan BSMI Class A Markings

Electromagnetic Compatibility Notices

FCC Declaration of Conformity (USA)

Product Type: HUD

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: 1-800-628-8686

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 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.

ICES-003 (Canada)

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.

VCCI (Japan)

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.

BSMI (Taiwan)

The BSMI ID number 3892I906 is located on the outside rear area of the product.

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，
可能會造成射頻干擾，在這種情況下，使用者會
被要求採取某些適當的對策。

Lithium Battery Replacement

⚠ CAUTION

Refer to technically qualified persons only for replacement of battery.

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 chassis, 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.

Equipment Rack Precautions

⚠ WARNINGS

ANCHOR THE EQUIPMENT RACK: **The equipment rack must be anchored to an unmovable support to prevent it from falling over when one or more servers are extended in front of it on slide assemblies. The equipment rack must be installed according to the manufacturer's instructions. The anchors must be able to withstand a force of up to 113 kg (250 lbs). You must also consider the weight of any other device installed in the rack.**

MAIN AC POWER DISCONNECT: **You are responsible for installing an AC power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the server(s).**

GROUNDING THE RACK INSTALLATION: **To avoid the potential for an electrical shock hazard, you must include a third wire safety grounding conductor with the rack installation. If server power cords are plugged into AC outlets that are part of the rack, then you must provide proper grounding for the rack itself. If server power cords are plugged into wall AC outlets, the safety grounding conductor in each power cord provides proper grounding only for the server. You must provide additional, proper grounding for the rack and other devices installed in it.**

Overcurrent protection: The server is designed for an AC line voltage source with up to 20 amperes of overcurrent protection. If the power system for the equipment rack is installed on a branch circuit with more than 20 amperes of protection, you must provide supplemental protection for the server. If more than one server is installed in the rack, the power source for each server must be from a separate branch circuit. The overall current rating of a server configured with three power supplies is under 12 amperes.

⚠ CAUTIONS

Temperature: The operating temperature of the server, when installed in an equipment rack, must not go below 5 °C (41 °F) or rise above 35 °C (95 °F). Extreme fluctuations in temperature can cause a variety of problems in your server.

Ventilation: The equipment rack must provide sufficient airflow to the front of the server to maintain proper cooling. It must also include ventilation sufficient to exhaust a maximum of 4,100 Btu's per hour for the server. The rack selected and the ventilation provided must be suitable to the environment in which the server will be used.

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 Hudson 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 non-compliant with other regional product laws and regulations.

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 configurations can be found on Intel's Server Builder Website at http://channel.intel.com/go/serverbuilder. If you do not have access to Intel's web address please contact your local Intel representative.

- **SC5000 chassis** (chassis is provided with power supply and fans)—UL listed.
- **Server board**—you must use the Intel® S840HM2 Server Board.
- **Add-in boards**—must have a printed wiring board flammability rating of minimum UL94V-1. Add-in boards containing external power connectors and/or lithium batteries must be UL Recognized or UL Listed. Add-in boards containing modem telecommunication circuitry must be UL Listed.

- **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 19W. Total server 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 UL94V-1.

Intel SC5000 Server Chassis Subassembly Product Guide

A Equipment Log and Worksheets

Equipment Log

Use the blank equipment log provided here to record information about your server. 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			
Memory			
Video display			
Keyboard			
Mouse			
Diskette drive A			
CD-ROM drive			
Additional 5.25" Peripheral			
Hard disk drive			
Hard disk drive			
Hard disk drive			
Hard disk drive			
Hard disk drive			
Hard disk drive			
Hard disk drive			

Equipment Log (continued)

Item	Manufacturer Name and Model Number	Serial Number	Date Installed

Current Usage

300 Watt Power Supply

As an overall current usage limitation on the power subsystem, do not exceed a combined power output of 167 watts for the +5 V and +3.3 V outputs. Exceeding a combined 167 watts will overload the power subsystem and may cause the power supplies to overheat and malfunction.

Calculating Power Usage

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

Worksheet, Calculating DC Power Usage

Table 5.   300 Watt Power Usage Worksheet 1

Device	Current (maximum) at voltage level:					
	+3.3 V	**+5 V**	**−5 V**	**+12 V**	**−12 V**	**5V standby**
Baseboard, Front Panel board and Fans						
Processor(s)						
Memory						
3.5-inch diskette drive						
CD-ROM drive						
Second 5.25-inch device						
Third 5.25-inch device						
1st hard drive						
2nd hard drive						
3rd hard drive						
4th hard drive						
5th hard drive						
6th hard drive						
SCSI Backplane		1.3				
Expansion Board 1						
Expansion Board 2						
Expansion Board 3						
Expansion Board 4						
Expansion Board 5						
Expansion Board 6						
Expansion Board 7						
Total Current						
Maximum Ratings (for comparison)	16 A	26 A	0.25 A	10 A	.5 A	.8 A

Worksheet, Total Combined Power Used by the Server

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 the total combined power usage for the power subsystem.

Table 6.   300 Watt 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
(5 V standby) X (_____ A)	_____ W
Total Combined Wattage	_____ **W**

⚠ CAUTION

As an overall current usage limitation on the power subsystem, do not exceed a combined power output of 167 watts for the +5 V and +3.3 V outputs. Exceeding a combined 167 watts will overload the power subsystem and may cause the power supplies to overheat and malfunction.

350 Watt Power Supply

As an overall current usage limitation on the power subsystem, do not exceed a combined power output of 195 watts for the +5 V and +3.3 V outputs. Exceeding a combined 195 watts will overload the power subsystem and may cause the power supplies to overheat and malfunction.

Calculating Power Usage

The total combined wattage for your configuration **must be less than 350 watts.** Use the two worksheets in this section to calculate the total used by your configuration. For current and voltage requirements of add-in boards and peripherals, see your vendor documents.

Worksheet, Calculating DC Power Usage

Table 7.   350 Watt Power Usage Worksheet 1

Device	Current (maximum) at voltage level:					
	+3.3 V	+5 V	−5 V	+12 V	−12 V	5V standby
Baseboard, Front Panel board and Fans						
Processor(s)						
Memory						
3.5-inch diskette drive						
CD-ROM drive						
Second 5.25-inch device						
Third 5.25-inch device						
1st hard drive						
2nd hard drive						
3rd hard drive						
4th hard drive						
5th hard drive						
6th hard drive						
SCSI Backplane		1.3				
Expansion Board 1						
Expansion Board 2						
Expansion Board 3						
Expansion Board 4						
Expansion Board 5						
Expansion Board 6						
Expansion Board 7						
Total Current						
Maximum Ratings (for comparison)	28 A	32 A	NA	15 A	.5 A	.8 A

Worksheet, Total Combined Power Used by the Server

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 the total combined power usage for the power subsystem.

Table 8.   350 Watt 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
(5 V standby) X (_____ A)	_____ W
Total Combined Wattage	_____ **W**

⚠ **CAUTION**

As an overall current usage limitation on the power subsystem, do not exceed a combined power output of 195 watts for the +5 V and +3.3 V outputs. Exceeding a combined 195 watts will overload the power subsystem and may cause the power supplies to overheat and malfunction.

B Warnings

WARNING: English (US)

AVERTISSEMENT: Français

WARNUNG: Deutsch
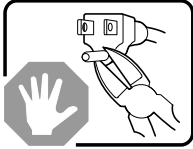
AVVERTENZA: Italiano

ADVERTENCIAS: Español

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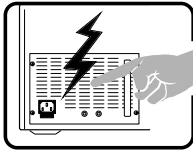
The power supply in this product contains no user-serviceable parts. There may be more than one supply in this product. Refer servicing only to qualified personnel.

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 power cord for each supply.
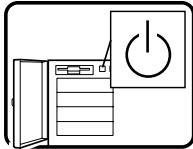
The power button on the system does not turn off system AC power. To remove AC power from the system, you must unplug each AC power cord from the wall outlet or power supply.

The power cord(s) is considered the disconnect device to the mains (AC) power. The socket outlet that the system plugs into shall be installed near the equipment and shall be easily accessible.
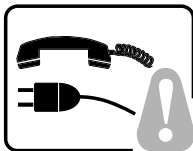
SAFETY STEPS: Whenever you remove the chassis covers to access the inside of the system, follow these steps:

1. Turn off all peripheral devices connected to the system.
2. Turn off the system by pressing the power button.
3. Unplug all AC power cords from the system or from wall outlets.
4. Label and disconnect all cables connected to I/O connectors or ports on the back of the system.
5. 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.
6. Do not operate the system with the chassis covers removed.
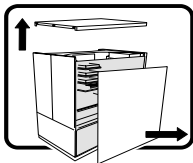
After you have completed the six SAFETY steps above, you can remove the system covers. To do this:

1. Unlock and remove the padlock from the back of the system if a padlock has been installed.
2. Remove and save all screws from the covers.
3. Remove the covers.
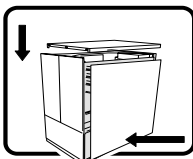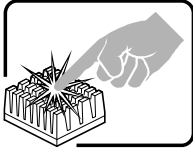
For proper cooling and airflow, always reinstall the chassis covers before turning on the system. Operating the system without the covers in place can damage system parts. To install the covers:
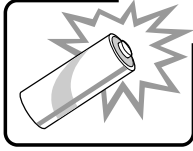
1. Check first to make sure you have not left loose tools or parts inside the system.
2. Check that cables, add-in boards, and other components are properly installed.
3. Attach the covers to the chassis with the screws removed earlier, and tighten them firmly.
4. Insert and lock the padlock to the system to prevent unauthorized access inside the system.
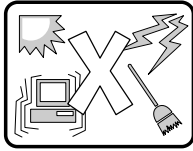5. Connect all external cables and the AC power cord(s) to the system.

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. Dispose of used batteries according to manufacturer's instructions.

The system is designed to operate in a typical office environment. 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.
- 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.
- 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.

AVERTISSEMENT: Français
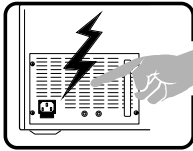
Le bloc d'alimentation de ce produit ne contient aucune pièce pouvant être réparée par l'utilisateur. Ce produit peut contenir plus d'un bloc d'alimentation. Veuillez contacter un technicien qualifié en cas de problème.
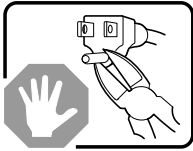
Ne pas essayer d'utiliser ni modifier le câble d'alimentation CA fourni, s'il ne correspond pas exactement au type requis. Le nombre de câbles d'alimentation CA fournis correspond au nombre de blocs d'alimentation du produit.
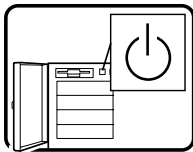
Notez que le commutateur CC de mise sous tension /hors tension du panneau avant n'éteint pas l'alimentation CA du système. Pour mettre le système hors tension, vous devez débrancher chaque câble d'alimentation de sa prise.
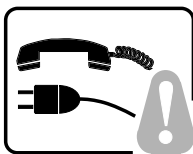
CONSIGNES DE SÉCURITÉ - Lorsque vous ouvrez le boîtier pour accéder à l'intérieur du système, suivez les consignes suivantes :

1. Mettez hors tension tous les périphériques connectés au système.
2. Mettez le système hors tension en mettant l'interrupteur général en position OFF (bouton-poussoir).
3. Débranchez tous les cordons d'alimentation c.a. du système et des prises murales.
4. Identifiez et débranchez tous les câbles reliés aux connecteurs d'E-S ou aux accès derrière le système.
5. Pour prévenir les décharges électrostatiques lorsque vous touchez aux composants, portez une bande antistatique pour poignet et reliez-la à la masse du système (toute surface métallique non peinte du boîtier).
6. Ne faites pas fonctionner le système tandis que le boîtier est ouvert.
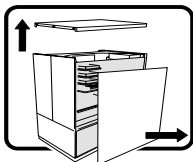
Une fois TOUTES les étapes précédentes accomplies, vous pouvez retirer les panneaux du système. Procédez comme suit :

1. Si un cadenas a été installé sur à l'arrière du système, déverrouillez-le et retirez-le.
2. Retirez toutes les vis des panneaux et mettez-les dans un endroit sûr.
3. Retirez les panneaux.
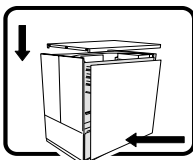
Afin de permettre le refroidissement et l'aération du système, réinstallez toujours les panneaux du boîtier avant de mettre le système sous tension. Le fonctionnement du système en l'absence des panneaux risque d'endommager ses pièces. Pour installer les panneaux, procédez comme suit :

1. Assurez-vous de ne pas avoir oublié d'outils ou de pièces démontées dans le système.
2. Assurez-vous que les câbles, les cartes d'extension et les autres composants sont bien installés.
3. Revissez solidement les panneaux du boîtier avec les vis retirées plus tôt.
4. Remettez le cadenas en place et verrouillez-le afin de prévenir tout accès non autorisé à l'intérieur du système.
5. Rebranchez tous les cordons d'alimentation c. a. et câbles externes au système.

AVERTISSEMENT: **Français** (suite)
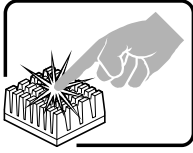
Le microprocesseur et le dissipateur de chaleur peuvent être chauds si le système a été sous tension. Faites également attention aux broches aiguës des cartes et aux bords tranchants du capot. Nous vous recommandons l'usage de gants de protection.
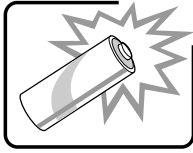
Danger d'explosion si la batterie n'est pas remontée correctement. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabricant. Disposez des piles usées selon les instructions du fabricant.
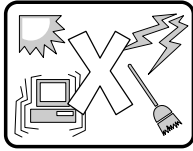
Le système a été conçu pour fonctionner dans un cadre de travail normal. L'emplacement choisi doit être :

- 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).

WARNUNG: Deutsch
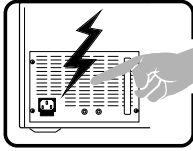
Benutzer können am Netzgerät dieses Produkts keine Reparaturen vornehmen. Das Produkt enthält möglicherweise mehrere Netzgeräte. Wartungsarbeiten müssen von qualifizierten Technikern ausgeführt werden.
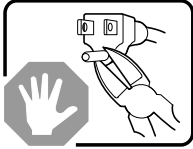
Versuchen Sie nicht, das mitgelieferte Netzkabel zu ändern oder zu verwenden, wenn es sich nicht genau um den erforderlichen Typ handelt. Ein Produkt mit mehreren Netzgeräten hat für jedes Netzgerät ein eigenes Netzkabel.
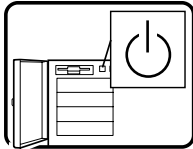
Der Wechselstrom des Systems wird durch den Ein-/Aus-Schalter für Gleichstrom nicht ausgeschaltet. Ziehen Sie jedes Wechselstrom-Netzkabel aus der Steckdose bzw. dem Netzgerät, um den Stromanschluß des Systems zu unterbrechen.
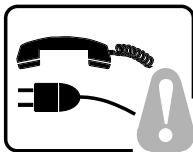
SICHERHEISMASSNAHMEN: Immer wenn Sie die Gehäuseabdeckung abnehmen um an das Systeminnere zu gelangen, sollten Sie folgende Schritte beachten:

1. Schalten Sie alle an Ihr System angeschlossenen Peripheriegeräte aus.
2. Schalten Sie das System mit dem Hauptschalter aus.
3. Ziehen Sie den Stromanschlußstecker Ihres Systems aus der Steckdose.
4. Auf der Rückseite des Systems beschriften und ziehen Sie alle Anschlußkabel von den I/O Anschlüssen oder Ports ab.
5. Tragen Sie ein geerdetes Antistatik Gelenkband, um elektrostatische Ladungen (ESD) über blanke Metallstellen bei der Handhabung der Komponenten zu vermeiden.
6. Schalten Sie das System niemals ohne ordnungsgemäß montiertes Gehäuse ein.
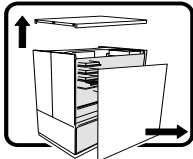
Nachdem Sie die oben erwähnten ersten sechs SICHERHEITSSCHRITTE durchgeführt haben, können Sie die Abdeckung abnehmen, indem Sie:

1. Öffnen und entfernen Sie die Verschlußeinrichtung (Padlock) auf der Rückseite des Systems, falls eine Verschlußeinrichtung installiert ist.
2. Entfernen Sie alle Schrauben der Gehäuseabdeckung.
3. Nehmen Sie die Abdeckung ab.
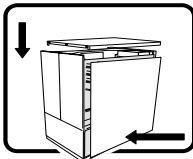
Zur ordnungsgemäßen Kühlung und Lüftung muß die Gehäuseabdeckung immer wieder vor dem Einschalten installiert werden. Ein Betrieb des Systems ohne angebrachte Abdeckung kann Ihrem System oder Teile darin beschädigen. Um die Abdeckung wieder anzubringen:

1. Vergewissern Sie sich, daß Sie keine Werkzeuge oder Teile im Innern des Systems zurückgelassen haben.
2. Überprüfen Sie alle Kabel, Zusatzkarten und andere Komponenten auf ordnungsgemäßen Sitz und Installation.
3. Bringen Sie die Abdeckungen wieder am Gehäuse an, indem Sie die zuvor gelösten Schrauben wieder anbringen. Ziehen Sie diese gut an.
4. Bringen Sie die Verschlußeinrichtung (Padlock) wieder an und schließen Sie diese, um ein unerlaubtes Öffnen des Systems zu verhindern.
5. Schließen Sie alle externen Kabel und den AC Stromanschlußstecker Ihres Systems wieder an.

Fortsetzung

Intel SC5000 Server Chassis Subassembly Product Guide
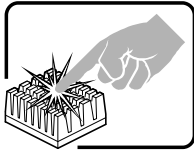
Der Mikroprozessor und der Kühler sind möglicherweise erhitzt, wenn das System in Betrieb ist. Außerdem können einige Platinen und Gehäuseteile scharfe Spitzen und Kanten aufweisen. Arbeiten an Platinen und Gehäuse sollten vorsichtig ausgeführt werden. Sie sollten Schutzhandschuhe tragen.
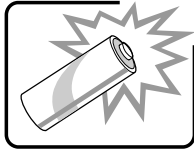
Bei falschem Einsetzen einer neuen Batterie besteht Explosionsgefahr. Die Batterie darf nur durch denselben oder einen entsprechenden, vom Hersteller empfohlenen Batterietyp ersetzt werden. Entsorgen Sie verbrauchte Batterien den Anweisungen des Herstellers entsprechend.
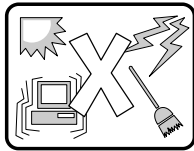
Das System wurde für den Betrieb in einer normalen Büroumgebung entwickelt. Der Standort sollte:

- sauber und staubfrei sein (Hausstaub ausgenommen);
- gut gelüftet und keinen Heizquellen ausgesetzt sein (einschließlich direkter Sonneneinstrahlung);
- keinen Erschütterungen ausgesetzt sein;
- keine starken, von elektrischen Geräten erzeugten elektromagnetischen Felder aufweisen;
- in Regionen, in denen elektrische Stürme auftreten, mit einem Überspannungsschutzgerät verbunden sein; während eines elektrischen Sturms sollte keine Verbindung der Telekommunikationsleitungen 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.

AVVERTENZA: Italiano
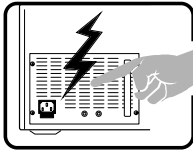
Rivolgersi ad un tecnico specializzato per la riparazione dei componenti dell'alimentazione di questo prodotto. È possibile che il prodotto disponga di più fonti di alimentazione.
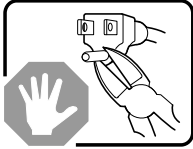
Non modificare o utilizzare il cavo di alimentazione in c.a. fornito dal produttore, se non corrisponde esattamente al tipo richiesto. Ad ogni fonte di alimentazione corrisponde un cavo di alimentazione in c.a. separato.
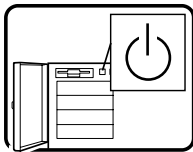
L'interruttore attivato/disattivato nel pannello anteriore non interrompe l'alimentazione in c.a. del sistema. Per interromperla, è necessario scollegare tutti i cavi di alimentazione in c.a. dalle prese a muro o dall'alimentazione di corrente.
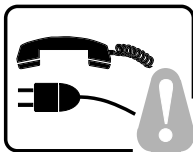
PASSI DI SICUREZZA: Qualora si rimuovano le coperture del telaio per accedere all'interno del sistema, seguire i seguenti passi:

1. Spegnere tutti i dispositivi periferici collegati al sistema.
2. Spegnere il sistema, usando il pulsante spento/acceso dell'interruttore del sistema.
3. Togliere tutte le spine dei cavi del sistema dalle prese elettriche.
4. Identificare e sconnettere tutti i cavi attaccati ai collegamenti I/O od alle prese installate sul retro del sistema.
5. Qualora si tocchino i componenti, proteggersi dallo scarico elettrostatico (SES), portando un cinghia anti-statica da polso che è attaccata alla presa a terra del telaio del sistema – qualsiasi superficie non dipinta – .
6. Non far operare il sistema quando il telaio è senza le coperture.
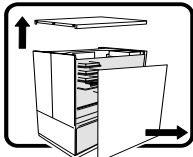
Dopo aver seguito i sei passi di SICUREZZA sopracitati, togliere le coperture del telaio del sistema come seque:

1. Aprire e rimuovere il lucchetto dal retro del sistema qualora ve ne fosse uno installato.
2. Togliere e mettere in un posto sicuro tutte le viti delle coperture.
3. Togliere le coperture.
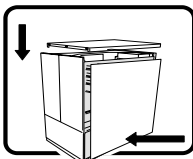
Per il giusto flusso dell'aria e raffreddamento del sistema, rimettere sempre le coperture del telaio prima di riaccendere il sistema. Operare il sistema senza le coperture al loro proprio posto potrebbe danneggiare i componenti del sistema. Per rimettere le coperture del telaio:

1. Controllare prima che non si siano lasciati degli attrezzi o dei componenti dentro il sistema.
2. Controllare che i cavi, dei supporti aggiuntivi ed altri componenti siano stati installati appropriatamente.
3. Attaccare le coperture al telaio con le viti tolte in precedenza e avvitarle strettamente.
4. Inserire e chiudere a chiave il lucchetto sul retro del sistema per impedire l'accesso non autorizzato al sistema.
5. Ricollegare tutti i cavi esterni e le prolunghe AC del sistema.
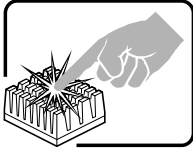
Se il sistema è stato a lungo in funzione, il microprocessore e il dissipatore di calore potrebbero essere surriscaldati. Fare attenzione alla presenza di piedini appuntiti e parti taglienti sulle schede e sul telaio. È consigliabile l'uso di guanti di protezione.
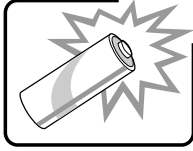
Esiste il pericolo di un esplosione se la pila non viene sostituita in modo corretto. Utilizzare solo pile uguali o di tipo equivalente a quelle consigliate dal produttore. Per disfarsi delle pile usate, seguire le istruzioni del produttore.
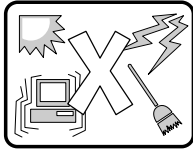
Il sistema è progettato per funzionare in un ambiente di lavoro tipo. Scegliere una postazione che sia:

- 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: Español
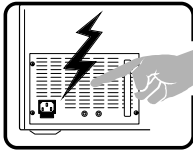
El usuario debe abstenerse de manipular los componentes de la fuente de alimentación de este producto, cuya reparación debe dejarse exclusivamente en manos de personal técnico especializado. Puede que este producto disponga de más de una fuente de alimentación.
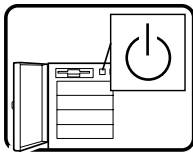
No intente modificar ni usar el cable de alimentación de corriente alterna, si no corresponde exactamente con el tipo requerido.

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.
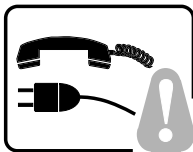
INSTRUCCIONES DE SEGURIDAD: Cuando extraiga la tapa del chasis para acceder al interior del sistema, siga las siguientes instrucciones:

1. Apague todos los dispositivos periféricos conectados al sistema.
2. Apague el sistema presionando el interruptor encendido/apagado.
3. Desconecte todos los cables de alimentación CA del sistema o de las tomas de corriente alterna.
4. Identifique y desconecte todos los cables enchufados a los conectores E/S o a los puertos situados en la parte posterior del sistema.
5. Cuando manipule los componentes, es importante protegerse contra la descarga electrostática (ESD). Puede hacerlo si utiliza una muñequera antiestática sujetada a la toma de tierra del chasis — o a cualquier tipo de superficie de metal sin pintar.
6. No ponga en marcha el sistema si se han extraído las tapas del chasis.
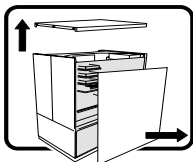
Después de completar las seis instrucciones de SEGURIDAD mencionadas, ya puede extraer las tapas del sistema. Para ello:

1. Desbloquee y extraiga el bloqueo de seguridad de la parte posterior del sistema, si se ha instalado uno.
2. Extraiga y guarde todos los tornillos de las tapas.
3. Extraiga las tapas.
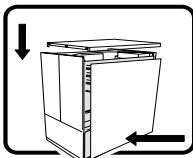
Para obtener un enfriamiento y un flujo de aire adecuados, reinstale siempre las tapas del chasis antes de poner en marcha el sistema. Si pone en funcionamiento el sistema sin las tapas bien colocadas puede dañar los componentes del sistema. Para instalar las tapas:

1. Asegúrese primero de no haber dejado herramientas o componentes sueltos dentro del sistema.
2. Compruebe que los cables, las placas adicionales y otros componentes se hayan instalado correctamente.
3. Incorpore las tapas al chasis mediante los tornillos extraídos anteriormente, tensándolos firmemente.
4. Inserte el bloqueo de seguridad en el sistema y bloquéelo para impedir que pueda accederse al mismo sin autorización.
5. Conecte todos los cables externos y los cables de alimentación CA al sistema.

ADVERTENCIAS: **Español** (continúa)

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.

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.

Intel SC5000 Server Chassis Subassembly Product Guide

C Warranty

Limited Warranty for Intel® Server Chassis Subassembly Products

Intel warrants that the Products (defined herein as the Intel® chassis subassembly and all of its various components and software delivered with or as part of the Products) to be delivered hereunder, if properly used and installed, will be free from defects in material and workmanship and will substantially conform to Intel's publicly available specifications for a period of three (3) years after the date the Product was purchased from an Intel authorized distributor. Software of any kind delivered with or as part of products is expressly provided "as is" unless specifically provided for otherwise in any software license accompanying the software.

If any Product furnished by Intel which is the subject of this Limited Warranty fails during the warranty period for reasons covered by this Limited Warranty, Intel, at its option, will:

- **REPAIR** the Product by means of hardware and/or software; OR
- **REPLACE** the Product with another Product; OR
- **REFUND** the then-current value of the Product if Intel is unable to repair or replace the Product.

If such Product is defective, transportation charges for the return of Product to buyer within the USA will be paid by Intel. For all other locations, the warranty excludes all costs of shipping, customs clearance, and other related charges. Intel will have a reasonable time to make repairs or to replace Product or to refund the then-current value of the Product.

In no event will Intel be liable for any other costs associated with the replacement or repair of Product, including labor, installation or other costs incurred by buyer.

This Limited Warranty, and any implied warranties that may exist under state law, apply only to the original purchaser of the Product.

Extent of Limited Warranty

Intel does not warrant that Products to be delivered hereunder, whether delivered stand-alone or integrated with other Products, including without limitation semiconductor components, will be free from design defects or errors known as "errata". Current characterized errata are available upon request.

This Limited Warranty does not cover damages due to external causes, including accident, problems with electrical power, usage not in accordance with product instructions, misuse, neglect, alteration, repair, improper installation, or improper testing.

Warranty Limitations and Exclusions

These warranties replace all other warranties, expressed or implied including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Intel makes no expressed warranties beyond those stated here. Intel disclaims all other warranties, expressed or implied including, without limitation, implied warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not allow the exclusion of implied warranties, so this limitation may not apply.

All expressed and implied warranties are limited in duration to the limited warranty period. No warranties apply after that period. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you.

Limitations of Liability

Intel's responsibility under this, or any other warranty, implied or expressed, is limited to repair, replacement or refund, as set forth above. These remedies are the sole and exclusive remedies for any breach of warranty. Intel is not responsible for direct, special, incidental, or consequential damages resulting from any breach of warranty under another legal theory including, but not limited to, lost profits, downtime, goodwill, damage to or replacement of equipment and property, and any costs of recovering, reprogramming, or reproducing any program or data stored in or used with a system containing this product. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights that vary from jurisdiction to jurisdiction.

Any and all disputes arising under or related to this Limited Warranty shall be adjudicated in the following forums and governed by the following laws: for the United States of America, Canada, North America and South America, the forum shall be Santa Clara, California, USA and the applicable law shall be that of the State of California, USA; for the Asia Pacific region, the forum shall be Singapore and the applicable law shall be that of Singapore; for Europe and the rest of the world, the forum shall be London and the applicable law shall be that of the United Kingdom.

In the event of any conflict between the English language version and any other translated version(s) of this Limited Warranty, the English language version shall control.

How to Obtain Warranty Service

To obtain warranty service for this Product, you may contact Intel or your authorized distributor.

North America—Call Intel at 1-800-628-8686 during the warranty period during normal business hours (pacific time), excluding holidays. Please be prepared to provide: (1) your name, address, and telephone numbers; (2) model name and serial number of the Product; (3) an explanation of the problem. The customer service representative may need additional information from you depending on the nature of the problem.

In Europe, Asia, or South America—Contact your original authorized distributor for warranty service.

Any replacement Product is warranted under this written warranty and is subject to the same limitations and exclusions for the remainder of the original warranty period.

Telephone Support

If you can't find the information you need on Intel's World Wide Web site (http://www.intel.com), call your local distributor or an Intel Customer Support representative.

Country	Customer Support Telephone Number	Hours (Monday-Friday)	Billing
United States	1-900-555-5800	7:00 - 17:00	$2.50/minute
United States & Canada	1-800-404-2284	7:00 - 17:00 PST	Credit card calls $25.00/incident

European Community
  English:
  Francaise:
  Deutsch:
  Italiano:
	
	+44-131-458-6847
	+44-131-458-6848
	+44-131-458-6954
	+44-131-458-6951
		UK time
		8:00 - 17:00 (M, Th, F)
		8:00 - 16:00 (Tues - W)
			Credit Card Calls $25.00/incident Levied in local currency at the applicable credit card exchange rate plus applicable VAT

Asia-Pacific
  Australia:
  Hong Kong:
  Korea:
  Manila:
  PRC:
  Singapore:
  Taiwan:
	
	+1-800-649-931
	+852-2-844-4456
	+822-767-2595
	+886-2-718-9915
	+852-2-844-4456
	+65-831-1311
	+886-2-718-9915
		Singapore local time
		Oct-April: 6:00 - 16:00
		April-Oct: 5:00 - 16:00
			Credit card calls $25.00/incident

Everywhere else	+916-377-7000	7:00 - 17:00 PST	Credit card calls $25.00/incident

Returning a Defective Product

Before returning any product, call your authorized dealer/distribution authority.

- From Europe:
  — in English   +44 1793 431144
  — in French   +44 1793 421777
  — in German   +44 1793 421333
- All other locations: +(503) 264-7000

If the customer support group verifies that your product is defective, you will receive a Return Material Authorization (RMA)number to place on the outer package of the product. Intel can not accept any product without an RMA number on the package.