Intel® Server System P4000SC Family Quick Installation User's Guide

Thank you for buying an Intel® Server System. The following information will help you assemble your Intel® Server System and install components.

If you are not familiar with ESD [Electrostatic Discharge] procedures used during system integration, see the complete ESD procedures described in your *Service Guide*.

This guide and other supporting documents are located on the web at: http://www.intel.com/support.

G63272-001

(This page is intentionally left blank.)

Table of Contents

System Overview 1
General Installation Process 3
- Preparing the System 3
- Remove the Side Cover 3
- Remove the Air Duct 3
- Remove Processor Heat Sink(s) 3
- Install the Processor(s) 3
- Install Heat Sink(s) 4
- Install DIMM Memory Modules 5
- Install Tool-less CD-ROM or DVD-ROM Drive 5
- Install Hard Drive 6
- Install PCI-e Card Assembly 7
- Install Intel® Remote Management Module 4 NIC (optional) 9
- Install RMM4 EMI Cover (optional) 9
- Install Alternate Serial Port (optional) 9
- Install Intel® RAID Smart Battery (optional) 10
- Install Second Power Supply Module (optional) 10
- Rack Mount Configuration (optional) 10
- Install Feet (pedestal only) 10
- Install Air Duct 11
- Install Side Cover 11
- Finishing Up 11
- Install Software 11

Reference 12
- HDD Cage Cable Connection 12
- Front Panel Controls and Indicators 13
- Cable Routing Diagram 13

Warning

Read all caution and safety statements in this document before performing any of the instructions. Also see the *Intel® Server Board and Server Chassis Safety Information* document at: http://www.intel.com/support/motherboards/server/sb/cs-010770.htm for complete safety information.

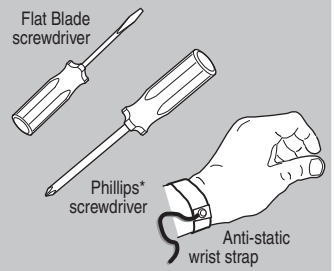
Warning

Installation and service of this product to be performed only by qualified service personnel to avoid risk of injury from electrical shock or energy hazard.

Caution

Observe normal ESD [Electrostatic Discharge] procedures during system integration to avoid possible damage to server board and/or other components.

Tools Required



Intel is a registered trademark of Intel Corporation or its subsidiaries in the United States and other countries. *Other names and brands may be claimed as the property of others. Copyright © 2012, Intel Corporation. All rights reserved.

Intel® Server System P4000SC Family Product Configuration

Intel® Server System	System Fan			Hard Drive			Power Supply			Intel® Remote Management Module
	One Fixed PCI Zone Fan (92 x 32 mm)	One Fixed CPU Zone Fan (92 x 32 mm)	Five Hot Swap System Fans (80 x 38 mm)	4 x 3.5" Fixed	4 x 3.5" Hot Swap	8 x 3.5" Hot Swap	One Fixed 550W	Two Hot Swap 460W	Two Hot Swap 750W	
P4304SC2SFEN	■	■		■			■			
P4304SC2SHDR	■	■			■			■		RMM4 Lite
P4308SC2MHGC			■			■			■	RMM4

■ = Configuration Feature

Thermal Operation and Configuration Requirements

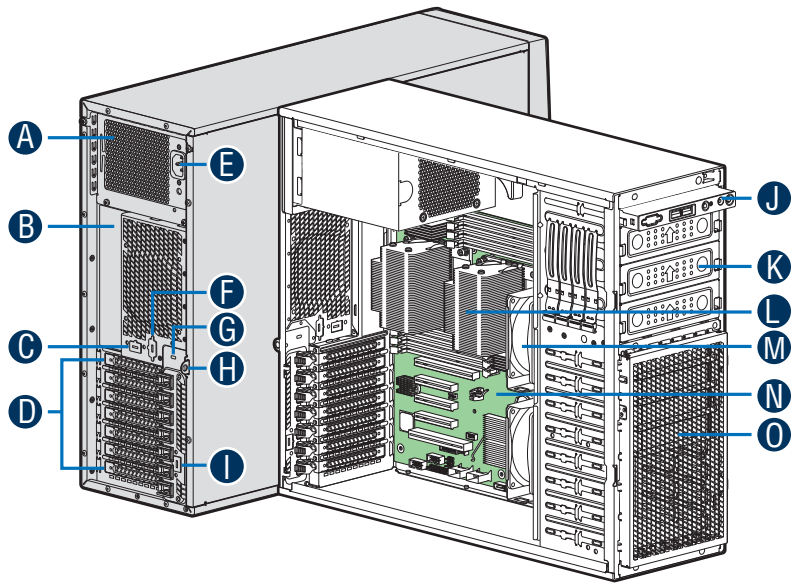
To keep the system operating within supported maximum thermal limits, the system must meet the following operating and configuration guidelines:

- Ambient in-let temperature cannot exceed 35° C and should not remain at this maximum level for long periods of time. Doing so may affect long term reliability of the system.
- The CPU-1 processor and CPU heatsink must be installed.
- DIMM Population on CPU-1: Install DIMMs in order; Channels A, B, and C. Start with 1st DIMM slot (blue) on each channel.
- DIMM Population on CPU-2: Install DIMMs in order; Channels D, E, and F. Start with 1st DIMM slot (blue) on each channel.
- All hard drive bays must be populated. Hard drive carriers either can be populated with a hard drive or supplied drive blank.
- The air duct must be installed at all times.
- In single power supply configurations, the second power supply bay must have the supplied filler blank installed at all times.
- The system top-cover must be installed at all times.

System Overview

Intel® Server System P4304SC2SFEN

System Features and Components

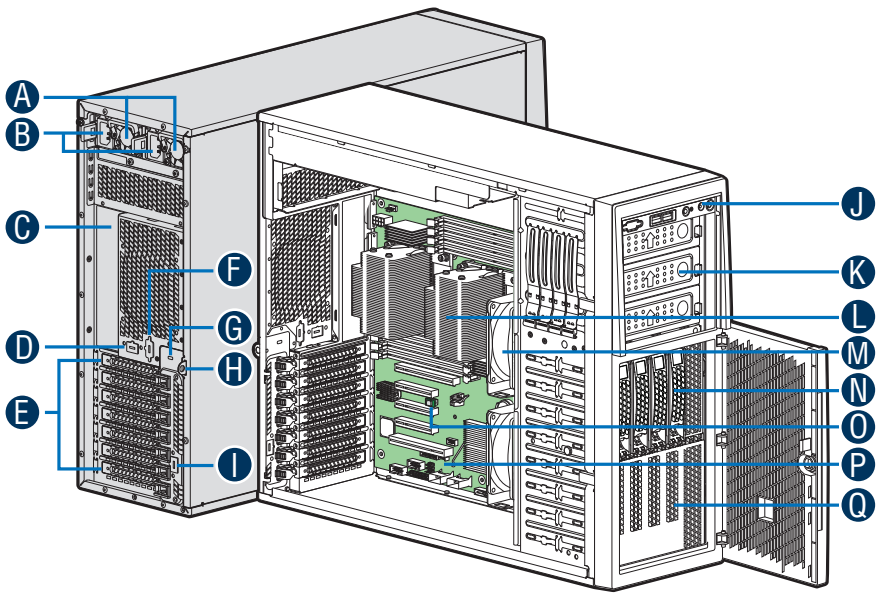


- A 550W Fixed Power Supply
- B I/O Ports
- C Alternate RMM4 Knockout
- D PCI Add-in Board Slot Covers
- E AC Input Power Connector
- F Serial Port Knockout
- G A Kensington* Cable Lock Mounting Hole
- H Padlock Loop
- I RMM4 Knockout
- J Front Control Panel
- K 5.25" Peripheral Bays
- L Heatsink
- M Fixed System Fan
- N Server Board
- O Fixed Hard Drive Carrier Tray

NOTE: Airduct is not shown.

Intel® Server System P4304SC2SHDR

System Features and Components



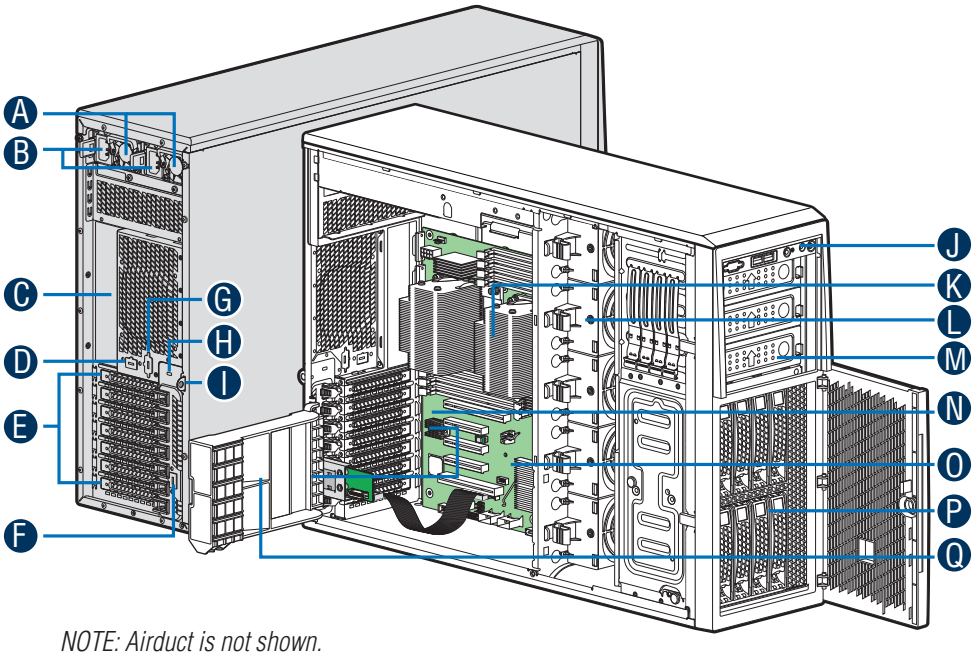
- A 460W Hot Swap Power Supply (Two)
- B AC Input Power Connector (Two)
- C I/O Ports
- D Alternate RMM4 Knockout
- E PCI Add-in Board Slot Covers
- F Alternate Serial Port Knockout
- G A Kensington* Cable Lock Mounting Hole
- H Padlock Loop
- I RMM4 Knockout
- J Front Control Panel
- K 5.25" Peripheral Bays
- L Heatsink
- M Fixed System Fan
- N 4 x 3.5" Hot-swap HDD Cage
- O Intel® Remote Management Module 4 Lite
- P Server Board
- Q EMI Cover

NOTE: Airduct is not shown.

System Overview

Intel® Server System P4308SC2MHGC

System Features and Components

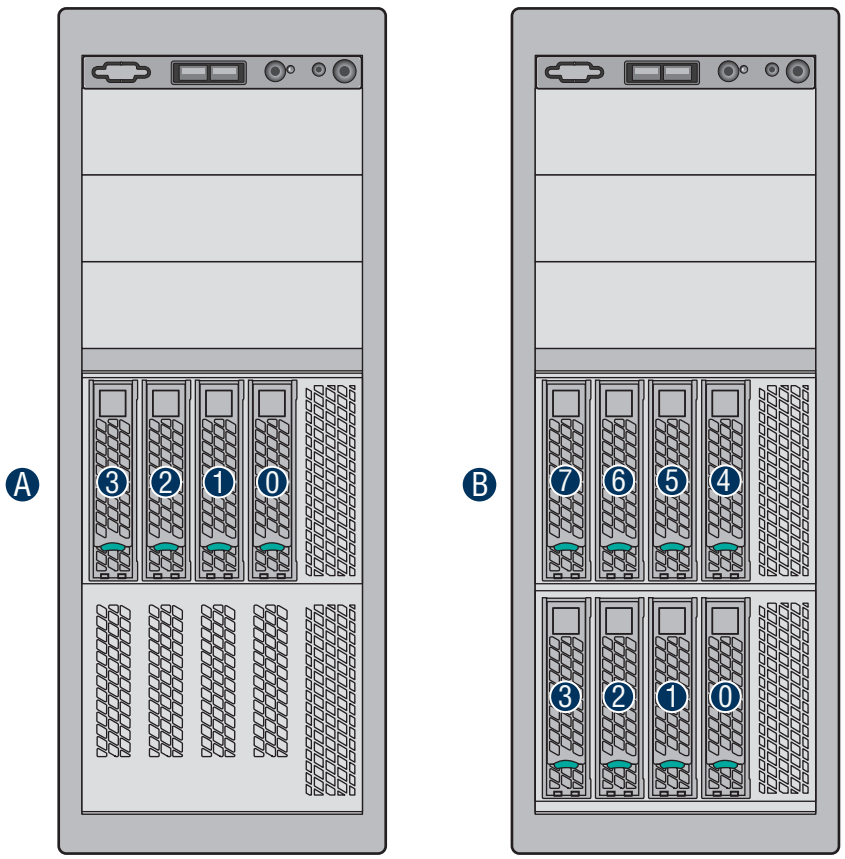


NOTE: Airduct is not shown.

- A 750W Hot Swap Power Supply (Two)
- B AC Input Power Connector (Two)
- C I/O Ports
- D Alternate RMM4 Knockout
- E PCI Add-in Board Slot Covers
- F RMM4 Knockout
- G Alternate Serial Port Knockout
- H A Kensington* Cable Lock Mounting Hole
- I Padlock Loop
- J Front Control Panel
- K Heatsink
- L Hot-swap System Fan
- M 5.25" Peripheral Bays
- N Server Board
- O Intel® Remote Management Module 4
- P 8 x 3.5" Hot-swap HDD Cage
- Q PCI Retainer

Hot Swap Hard Drive Bay Options and HDD Numbering

- A 4 x 3.5" Hot-Swap Drive Cage
- B 8 x 3.5" Hot-Swap Drive Cage



General Installation Process

The installation instructions in this section are for general components of Intel® Server System P4000SC family, but the illustrations are based on the Intel® Server System P4308SC2MHGC.

Minimum Hardware Requirements

To avoid integration difficulties and possible damage to your system, make sure you have components from each category below.

- *Processor*
- *Heat Sink*
- *Memory*
- *Hard Disk Drives*
- *Power*
- *Air Duct*

1 Preparing the System

Observe normal ESD (Electrostatic Discharge) procedures.

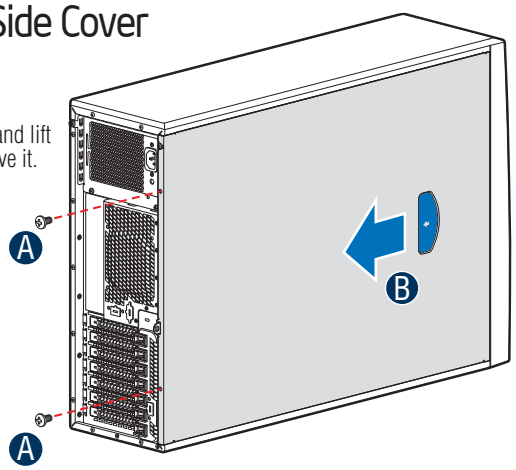
Place your Intel® Server System on a flat anti-static surface to perform the following integration procedures. Observe ESD procedures before reaching inside to make server board connections or install components.

2 Remove the Side Cover

A Remove the screws.

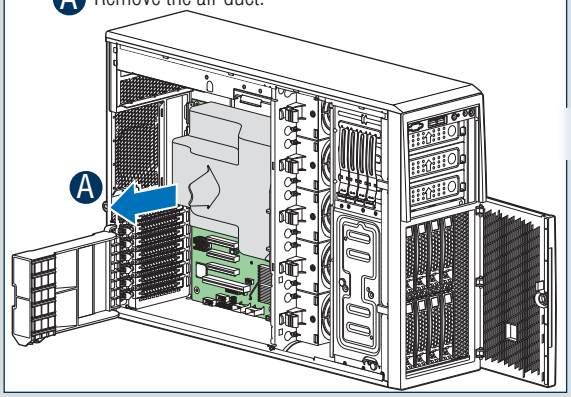
B Slide the side cover back and lift the cover outward to remove it.

NOTE:
A non-skid surface or a stop behind the chassis may be needed to prevent the chassis from sliding on your work surface.



3 Remove the Air Duct

A Remove the air duct.



4 Remove Processor Heatsink(s)

⚠ CAUTION: The heatsink has thermal interface material (TIM) on the underside of it. Use caution so that you do not damage the thermal interface material. *Use gloves to avoid sharp edges.*

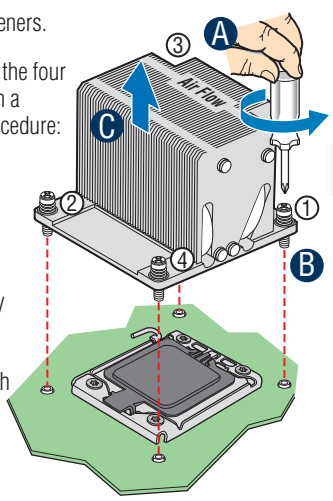
The heatsink is attached to the server board/processor socket with captive fasteners.

Using a #2 Phillips* screwdriver, loosen the four screws located on the heatsink corners in a diagonal manner using the following procedure:

A Using a #2 Phillips* screwdriver, start with screw 1 and loosen it by giving it two rotations and stop. (IMPORTANT: Do not fully loosen.)

B Proceed to screw 2 and loosen it by giving it two rotations and stop. Similarly, loosen screws 3 and 4. Repeat steps A and B by giving each screw two rotations each time until all screws are loosened.

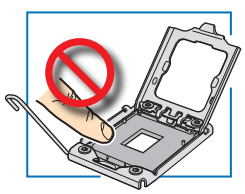
C Lift the heatsink straight up.



5 Install the Processor(s)

⚠ CAUTION:

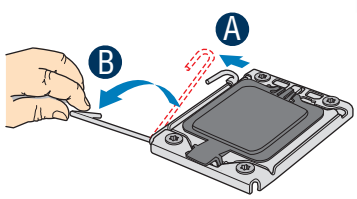
1. When opening a socket, DO NOT TOUCH the gold socket wires.
2. When unpacking a processor, hold by the edges only to avoid touching the gold contact wires.



A. Open the Socket Lever

A Push the lever handle down and away from the socket to release it.

B Rotate the lever open all the way.



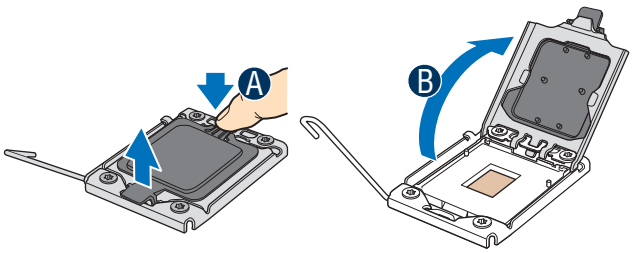
General Installation Process

Install the Processor(s) ... *continued*

B. Open the Load Plate

A Push the rear tab with your finger tip to bring the front end of the load plate up slightly.

B Open the load plate as shown.

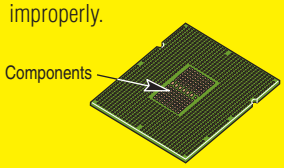


C. Remove the Processor Protective Cover

A Take the processor out of the box and remove the protective shipping cover.

D. Install the Processor

⚠ CAUTION: The underside of the processor has components that may damage the socket wires if installed improperly.



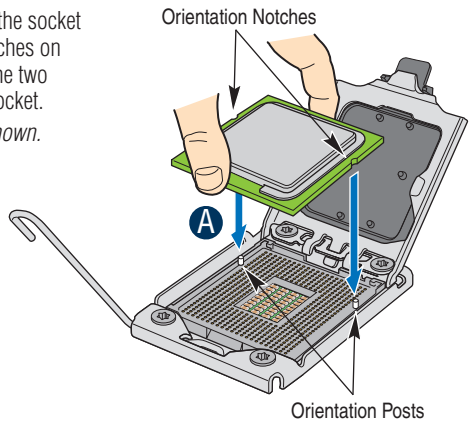
Processor must align correctly with the socket opening before installation.

DO NOT DROP processor into the socket!

Install the Processor(s) ... *continued*

A Orient the processor with the socket so that the orientation notches on the processor align with the two orientation posts on the socket.

Install the processor as shown.

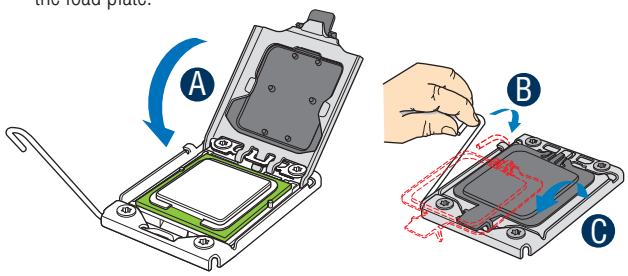


E. Close Load Plate and Socket Lever

A Close the load plate all the way as shown.

B Close the socket lever.

C Remove the protective cover after it been automatically disengaged from the load plate.



6 Install Heat Sink(s)

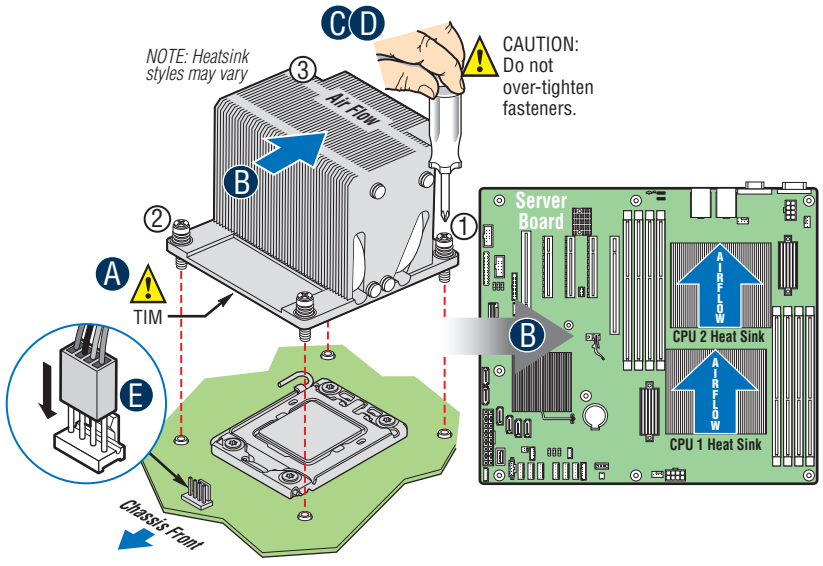
A If a protective film covers the thermal interface material (TIM) on the underside of the heatsink, remove the protective film.

B Align the heat sink fins to the front and back of the chassis for correct airflow. Airflow goes from front-to-back of chassis.

C Using a #2 Phillips* screwdriver, finger-tighten each fastener diagonally, according to the white-circled numbers.

D Securely re-tighten each fastener again in the same order as performed in Step C.

E (Optional:Please check your chassis *User Guide*)Attach active heatsink fan power cable to server board as shown.



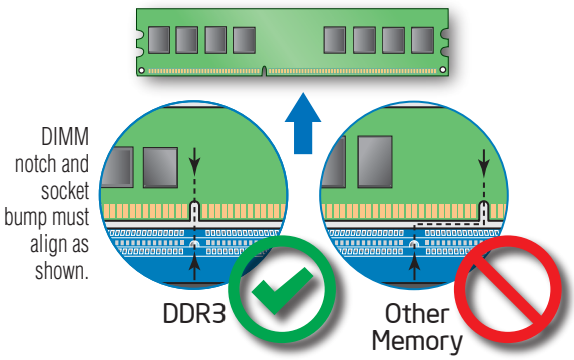
General Installation Process

7 Install DIMM Memory Modules

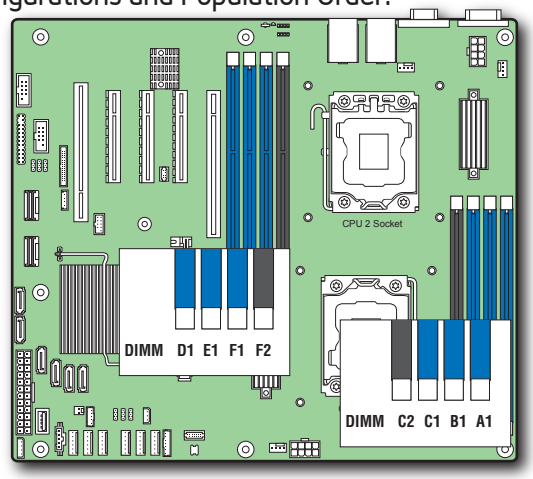
DDR3 DIMM Memory Identification:

CAUTION: Observe normal ESD (ElectroStatic Discharge) procedures to avoid possible damage to system components.

This server board supports up to 8 DDR3 800/1066/1333/1600 ECC UDIMM/RDIMM.



Memory Configurations and Population Order:



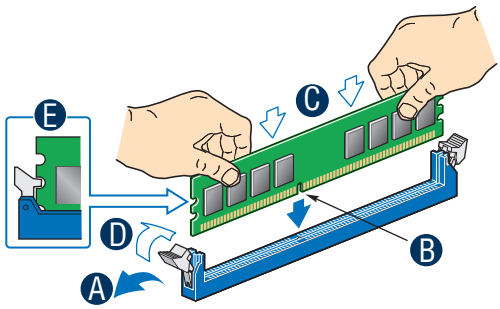
Memory Type:
Minimum of one 1GB, DDR3 800/1066/1333/1600 MHz ECC UDIMM/RDIMM.
NOTE: For additional memory configurations, see the Techinical Product Specification for Intel® Server Board S2400SC at:
http://www.intel.com/support/motherboards/server
Memory sizing and configuration is supported only for qualified DIMMs approved by Intel®. For a list of supported memory, see the tested memory list at:
http://serverconfigurator.intel.com/default.aspx

Install DIMM Memory Modules ... *Continued*

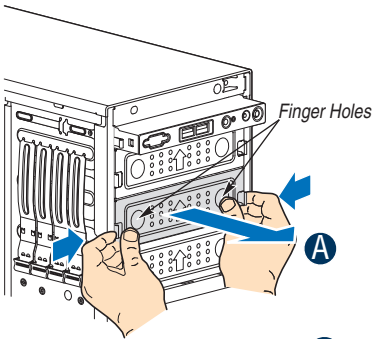
To Install DIMMs:

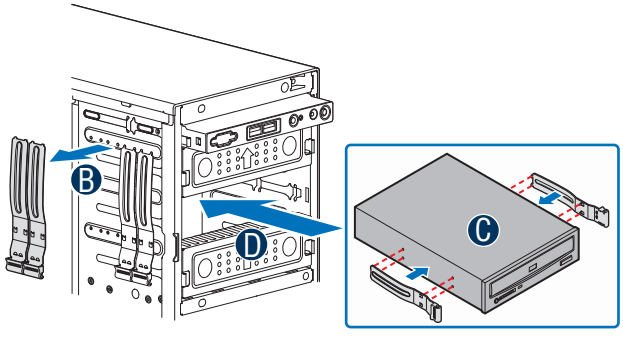
CAUTION: Avoid touching contacts when handling or installing DIMMs.

- **A** Open both DIMM socket levers.
- **B** Note location of alignment notch.
- **C** Insert DIMM making sure the connector edge of the DIMM aligns correctly with the slot.
- **D** Push down firmly on the DIMM until it snaps into place and both levers close.
- **E** IMPORTANT! Visually check that each latch is fully closed and correctly engaged with each DIMM edge slot.



8 Install Tool-less CD-ROM or DVD-ROM Drive





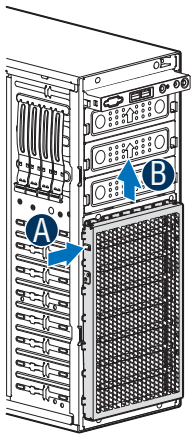
- **A** Press the release latch and use the finger holes to Pull out the EMI shield.
- **B** Get the slides from the chassis side.
- **C** Attach slides to the DVD or CD-ROM drive by pressing the slides firmly into the side dimples on the DVD or CD-ROM drive.
- **D** Insert the drive/slide assembly into the device bay until the slides lock into place.

General Installation Process

9 Install Hard Drive

Fixed Hard Drive Carrier (For chassis with fixed hard drive bay only)

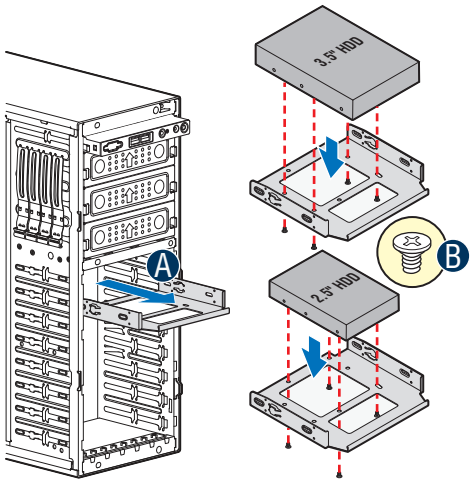
A. Remove the EMI shield



A Press the clip.

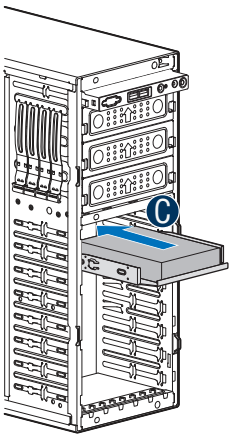
B Lift the EMI shield and move EMI shield outward from the chassis.

B. Install the Hard Disk Drive



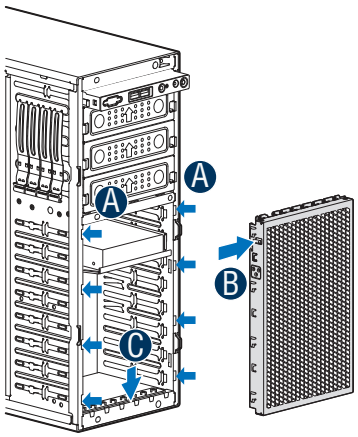
A Pull out the HDD carrier tray.

B Secure the 3.5" or 2.5" HDD on the HDD carrier tray with screws.



C Insert the HDD carrier tray into chassis.

C. Install the EMI shield



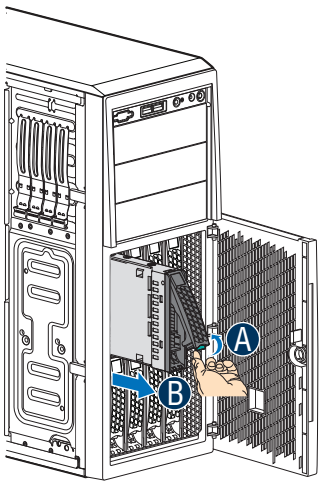
A Fit the edges of the EMI Shield against the sides of the chassis.

B Press the clip.

C Slide the EMI Shield downwards until the latches on the EMI Shield are engaged with the chassis.

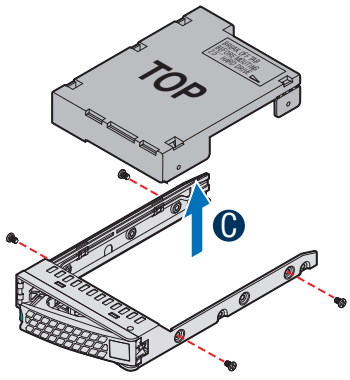
Install Hard Drive ... *Continued*

3.5" Hot-Swap Hard Drive Carrier (For system with 3.5" hot-swap hard drive bay only)

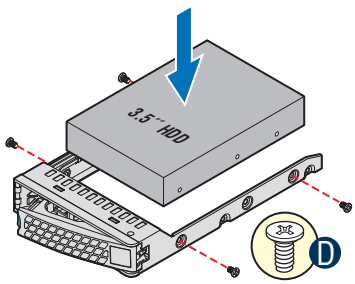


A Open the Hot-swap door and remove the drive carrier by pressing the **green** button and opening the lever.

B Slide the carrier out.

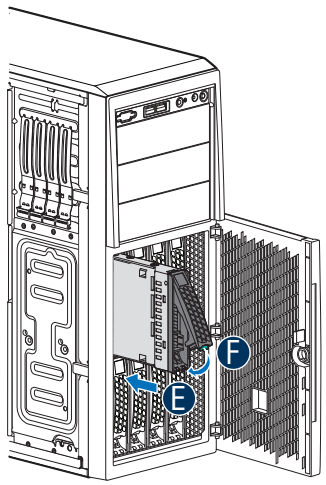


C Remove the four screws securing the HDD interface bracket and remove the HDD interface bracket.



D Install the hard disk drive using the same four screws as shown. Make sure the connector end of the drive matches the backplane connector.

⚠ CAUTION: If you don't install all drives, empty drive bays must be occupied by carriers with plastic drive blank provided to maintain proper system cooling.



E With the lever open, insert the hard disk drive assembly into the cage opening and push until the locking lever engaged.

F Push in the lever to lock it into place, then close the door.

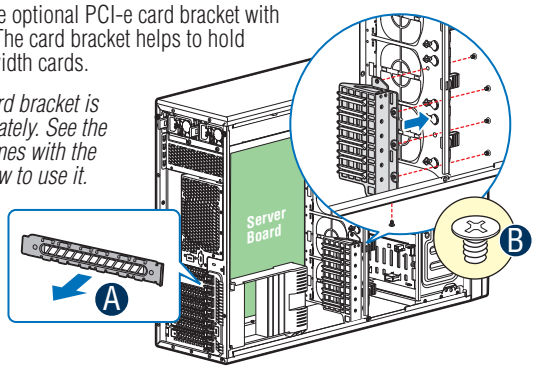
General Installation Process

10a Install PCI-e Card Assembly (For P4308SC2MHGC)

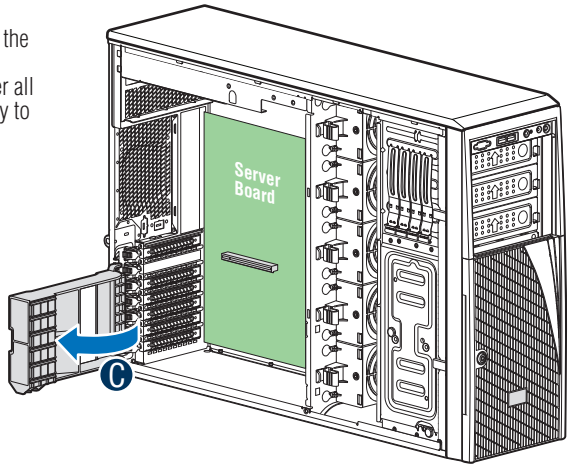
A Remove the PCI-e slot shield by pushing the shield out from inside the chassis.

B Install the optional PCI-e card bracket with screws. The card bracket helps to hold double width cards.

NOTE: The card bracket is ordered separately. See the document comes with the bracket for how to use it.

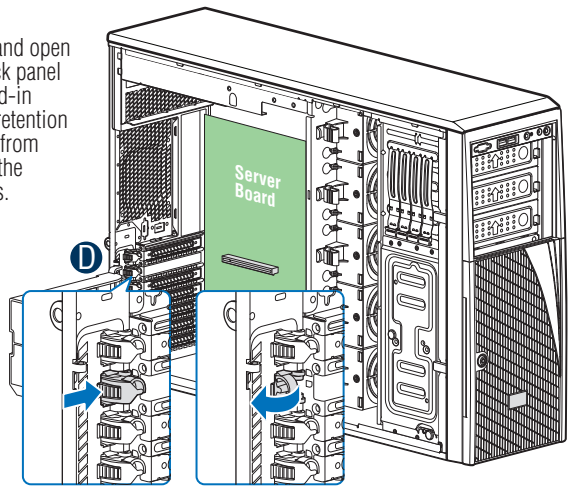


C Rotate the PCI-e retainer all the way to open.

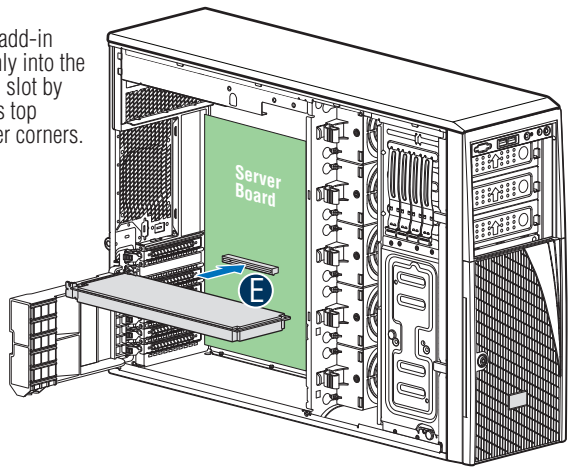


Install PCI-e Card Assembly ... *Continued*

D Press and open the back panel PCI add-in board retention device from inside the chassis.

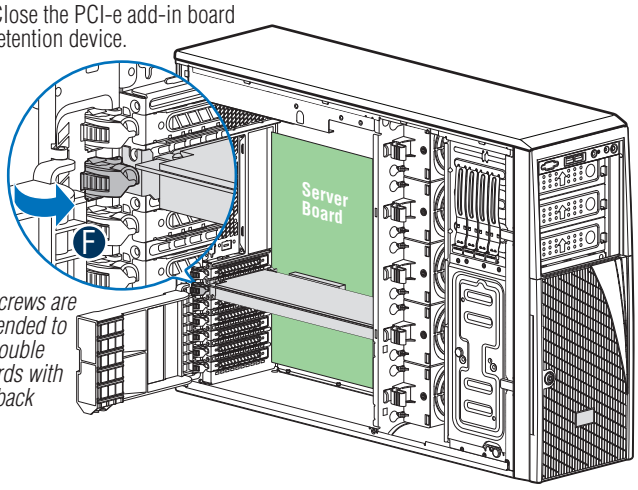


E Press the add-in board firmly into the expansion slot by holding its top edge/upper corners.



Install PCI-e Card Assembly ... *Continued*

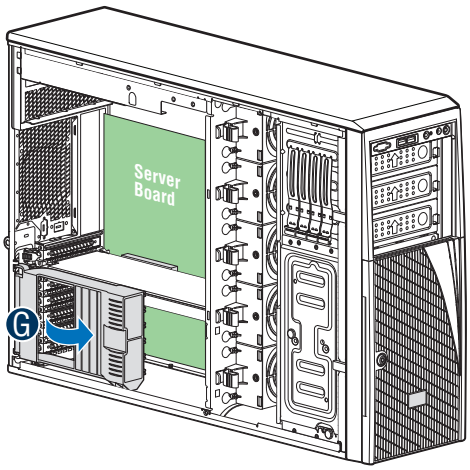
F Close the PCI-e add-in board retention device.



NOTE: Screws are recommended to secure double width cards with chassis back panel.

G Rotate the PCI-e card retainer until the PCI card retainer is secured by the chassis.

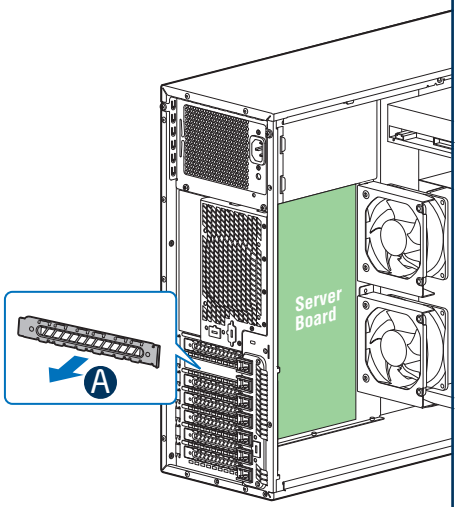
Make sure the PCI-e card is secured into the slot under the PCI-e Card Retainer.



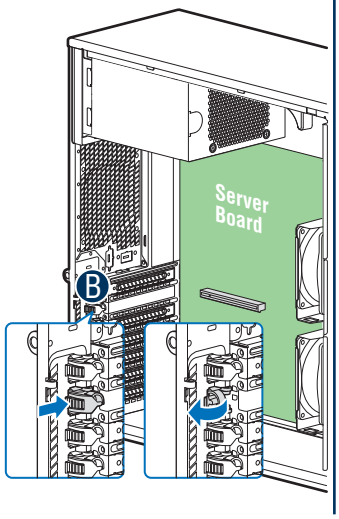
General Installation Process

10b Install PCI-e Card Assembly (For P4304SC2SFEN and P4304SC2SHDR)

A Remove the PCI slot shield by pushing the shield out from inside the chassis.

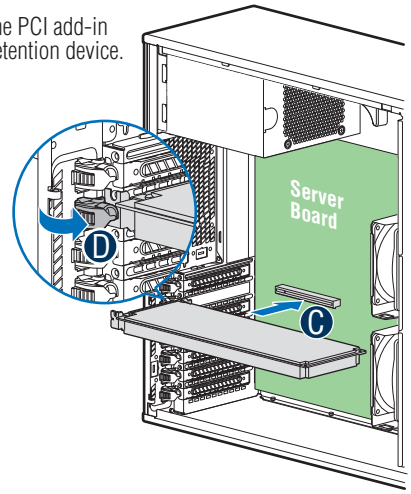


B From inside of chassis, press open the back panel PCI add-in board retention device.

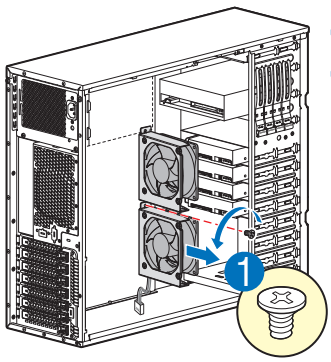


C While holding the PCI add-in board by its top edge or upper corners, firmly press the add-in board into the expansion slot.

D Close the PCI add-in board retention device.



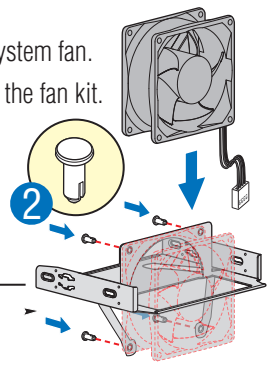
Install Full-length PCI Card

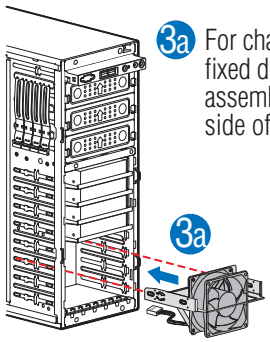


1 Remove the PCI zone system fan.

2 Assemble the fan using the fan kit.

NOTE: The fan kit and PCI Card Guide need to be ordered seperately.



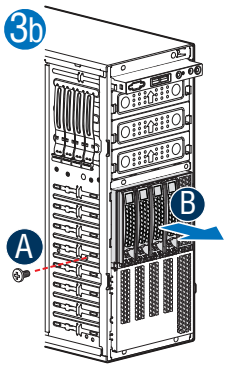


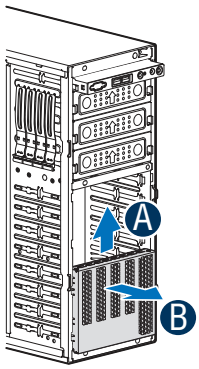
3a For chassis that supports fixed drive, insert the fan assembly from the front side of the chassis.

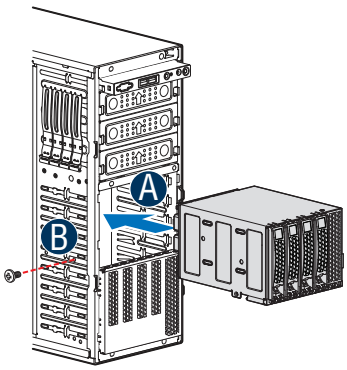
3b For chassis with hotswap drive cage, remove the drive cage and the EMI cover, insert the fan assembly (see letter "3a"), and then install the drive cage and EMI cover back.

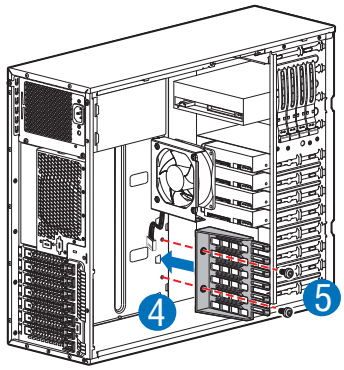
4 Insert tabs on left side of the PCI Card Guide into the slots in the chassis.

5 Fix the PCI Card Guide using two screws.



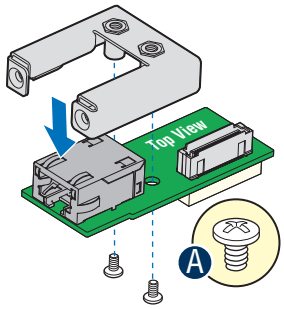


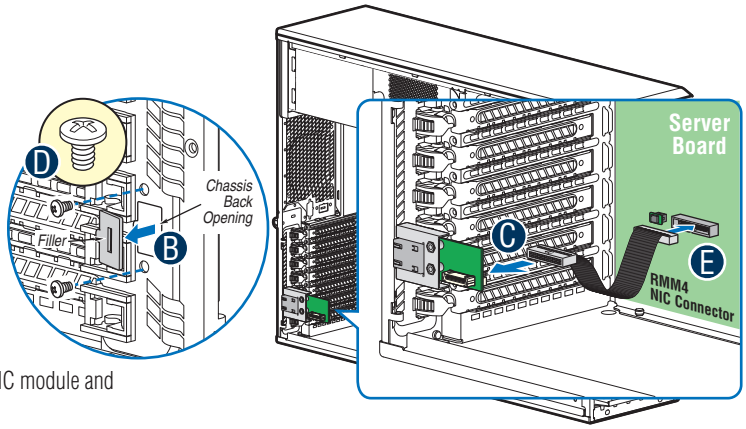




General Installation Process

11 Install Intel® Remote Management Module 4 NIC (optional)





A Attach the metal fastening bracket to Intel® Dedicated Server Management NIC module and secure the bracket with two screws.

B Remove the alternate RMM4 knock out by pressing the knock out from inside the chassis.

⚠ CAUTION: Carefully remove the knock out with screwdriver, directly removing it with finger has potential risk.

C Connect the cable to the cable connector on the Intel® Dedicated Server Management NIC module.

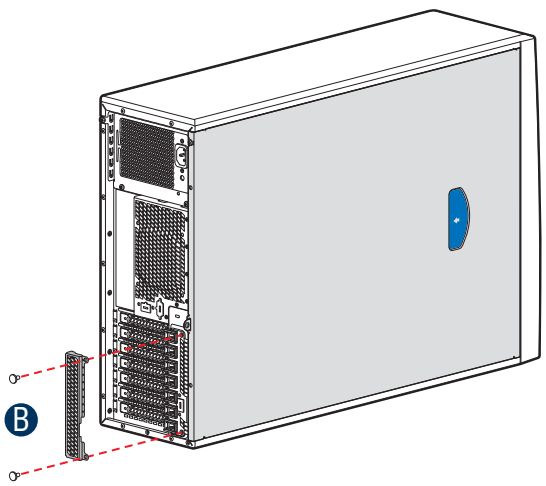
D Mount the NIC module to the rear panel of the chassis and secure the bracket with two screws.

E Connect the cable to the RMM4 NIC connector to the RMM4 NIC connector on your server board.

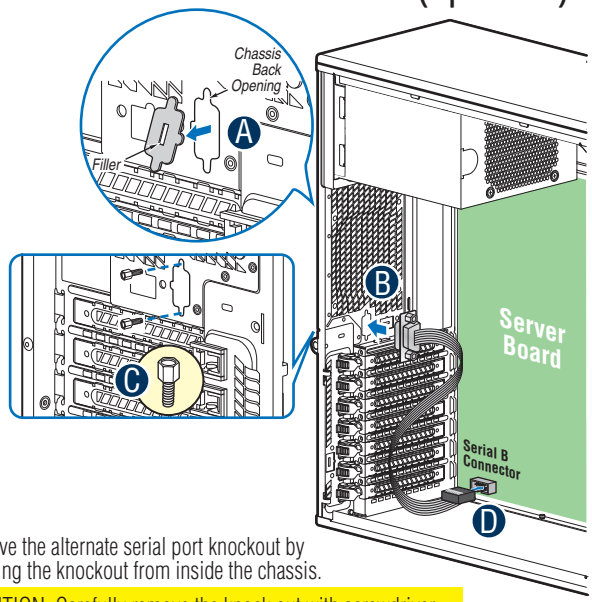
⚠ CAUTION: Care should be used when attaching or removing this cable. Mishandling the cable could cause damage.

12 Install RMM4 EMI Cover (optional)

A Install the RMM4 EMI cover with thumb screws.



13 Install Alternate Serial Port (optional)



A Remove the alternate serial port knockout by pressing the knockout from inside the chassis.

⚠ CAUTION: Carefully remove the knock out with screwdriver, directly removing it with finger has potential risk.

B Mount the serial serial port on the rear panel of the chassis.

C secure the port with two screws.

D Connect the cable to the Serial B Connector on your server board.

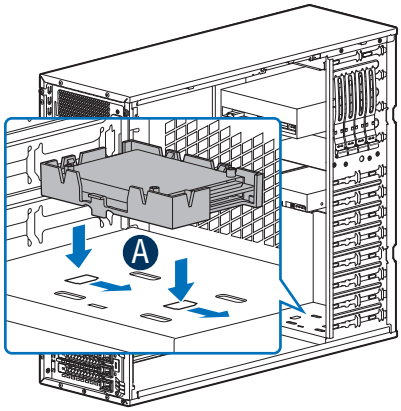
⚠ CAUTION: Care should be used when attaching or removing this cable. Mishandling the cable could cause damage.

General Installation Process

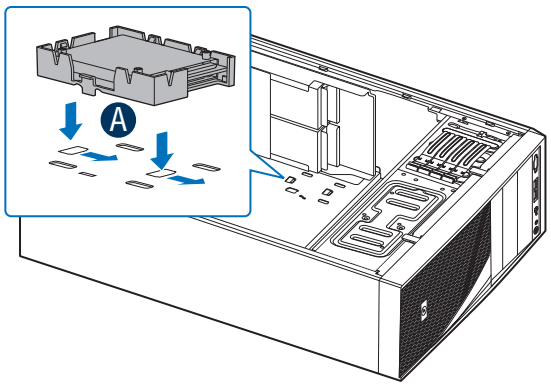
14 Install Intel® RAID Smart Battery (optional)

A Align the tabs on the plastic battery holder with the mounting holes in the chassis and slide the plastic battery holder toward the front of the chassis until the tabs engage with the mounting holes.

For P4304SC2SFEN & P4304SC2SHDR

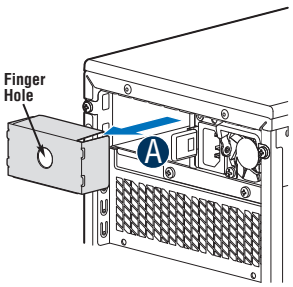


For P4308SC2MHGC

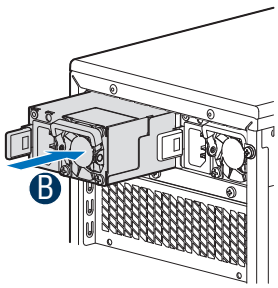


15 Install Second Power Supply Module (optional)

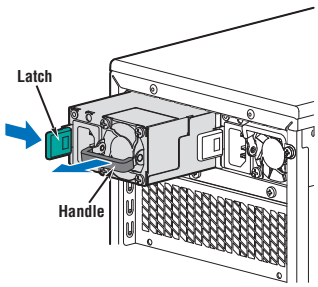
NOTE: Applies only to the chassis with hot-swap power supply configuration.



A Use the 'finger hole' to remove the filler panel.



B Insert the power supply module into the power supply cage and push all the way until it clicks into place.



To remove a power supply module, push the green latch in the direction shown and pull out of the system by the handle.

16 Rack Mount Configuration (optional)

- If you intend to configure your server as a pedestal system, disregard this step.
- If you intend to configure your server as a rack mount system, follow the instructions that come with your Rack Mount Kit to complete your server assembly.

NOTE: Only Intel® Server System P4308SC2MHGC supports rack mount configuration.

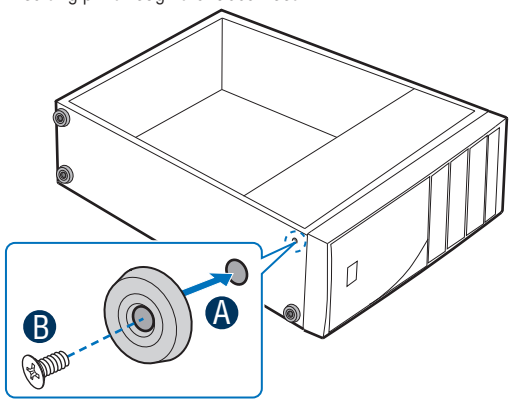
17 Install Feet (pedestal only)

NOTE: This step applies to your chassis if configured as a pedestal system. If you plan to configure your chassis as a rack-mount system, disregard this step.

A Insert rubber foot into chassis hole.

B Secure foot by inserting pin through the rubber foot.

NOTE: Repeat above steps until all four feet are installed.

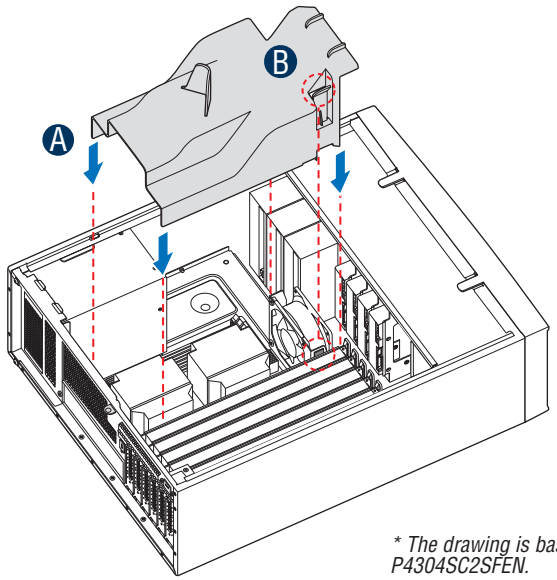


General Installation Process

18 Install Air Duct

A. Align the air duct and CPU fans.

B. Install the air duct. Ensure the tab on air duct is engaged in its snap-in bracket.



** The drawing is based on P4304SC2SFEN.*

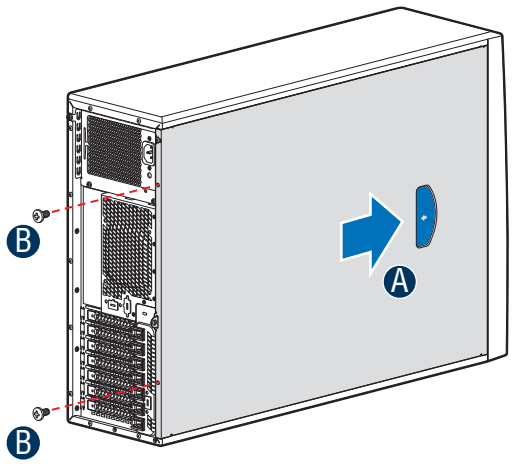
Note: The air duct has to be ordered separately.

19 Install Side Cover

A. Slide the chassis cover on the chassis.

B. Secure the chassis cover with the screws .

CAUTION: This chassis must be operated with the SIDE COVERS installed to ensure proper cooling.

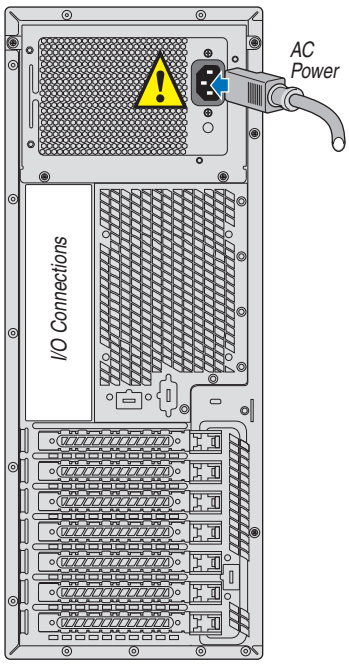


20 Finishing Up

1. See your ***Intel® Server Board Quick Start User's Guide*** to connect your keyboard, mouse, video, and other I/O cables.

2. Connect the AC power cable last.

CAUTION: power supply requires a 16-gauge power cord.



21 Install Software

- BIOS, Drivers, and Operating System Install

A. Confirm BIOS Version: Look on the Server/System Management screen in the BIOS Setup Utility to determine the installed BIOS version. Compare this to the versions at: http://www.intel.com/support
If new versions are available, update the BIOS on your server. See the *User Guide* on the Intel® Server Deployment and Management DVD for update instructions.

B. Configure your RAID Controller: Use the instructions provided with the RAID controller.

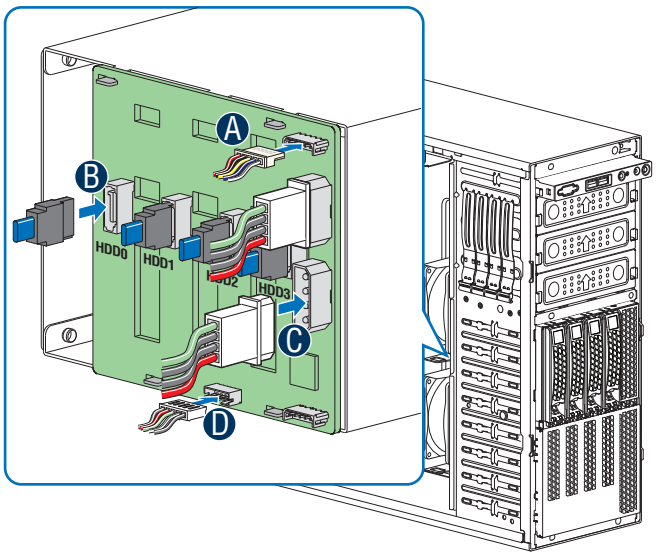
C. Install your Operating System: Use the instructions provided with the RAID controller and with the operating system.

D. Install Operating System Drivers: With the operating system running, insert the Intel® Server Deployment and Management DVD. If using a Microsoft Windows* operating system, the Express Installer will autorun and allow you to select the appropriate drivers to install. On other operating systems, browse the DVD folders to locate and install the driver files.

HDD Cage Cable Connection

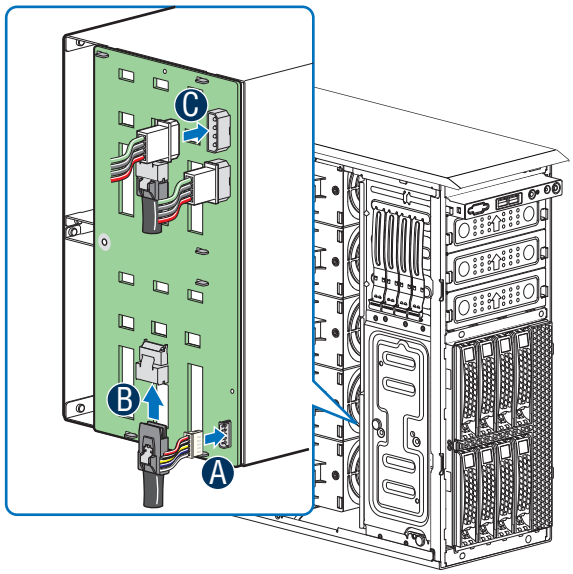
NOTE: Refer to the documents which come with your server board and/or RAID controller card for instructions on connecting backplane cables to your server board or RAID controller card.

4 x 3.5" HDD Cage



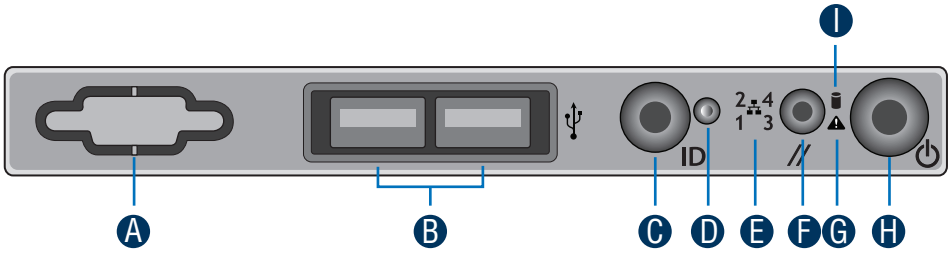
- A Connect the I²C cable to I²C_IN connector on backplane.
- B Connect the SATA data cables.
- C Connect power cable.
- D Connect SGPIO cable.

8 x 3.5" HDD Cage



- A Connect the I²C cable to I²C connector on backplane.
- B Connect Mini SAS data cables.
- C Connect two power cables.

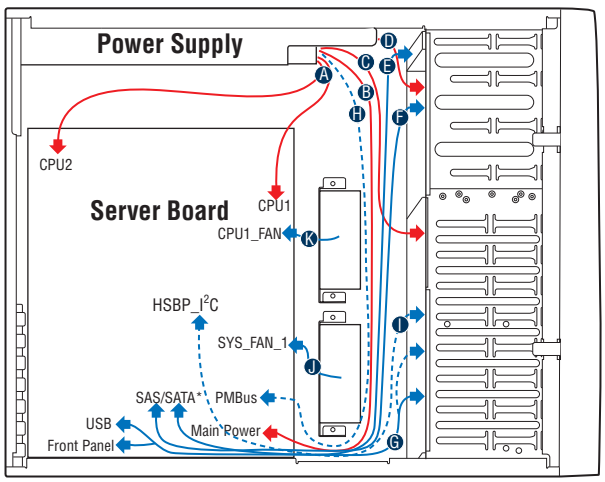
Front Panel Controls and Indicators



- A Reservation(Optional VGA/Serial Port)
- B USB Connectors
- C ID Button with ID LED Integrated
- D NMI Button
- E NIC LED
- F System Reset Button
- G System Status LED
- H System Power Button with Power LED
- I HDD Activity LED

Cable Routing Diagram

Figure 1
(P4304SC2SHDR and P4304SC2SFEN)

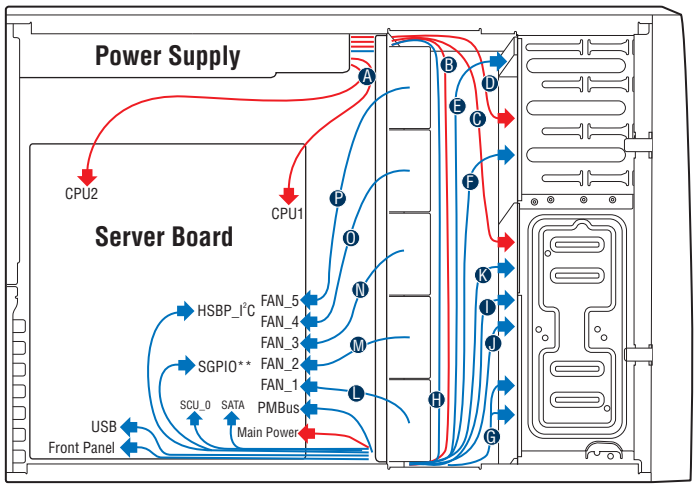


Description	
A.	CPU1/CPU2 Power Cable
B.	Server Board Main Power Cable
C.	Backplane Power Cable/Fixed HDD Power Cable
D.	ODD Power Cable
E.	Front Panel Cable, USB Cable
F.	ODD Data Cable (Connect To White SATA 6G Connectors On Server Board)
G.	MiniSAS and SGPIO (Connect To SCU_0 Connector On Server Board)
H.	PMBus Cable
I.	HSBP_I²C Cable
J.	PCI Zone System FAN
K.	CPU Zone System FAN

RED *indicates power cable routing*

BLUE *indicates data cable routing*

Figure 2
(P4304SC2MHGC)



Description	
A.	CPU1/CPU2 Power Cable
B.	Server Board Main Power Cable
C.	Backplane Power Cable
D.	ODD Power Cable
E.	Front Panel Cable, USB Cable
F.	ODD Data Cable (Connect To White SATA 6G Connectors On Server Board)
G.	MiniSAS and SGPIO (Connect To SCU_0 Connector On Server Board)
H.	PMBus Cable
I.	SGPIO Cable (Connect To SATA SGPIO Header On Server Board)
J.	MiniSAS Cable (Connect To SATA 2-5 Ports On Server Board)
K.	HSBP_I²C Cable
L.	System FAN 1
M.	System FAN 2
N.	System FAN 3
O.	System FAN 4
P.	System FAN 5

G63272-001