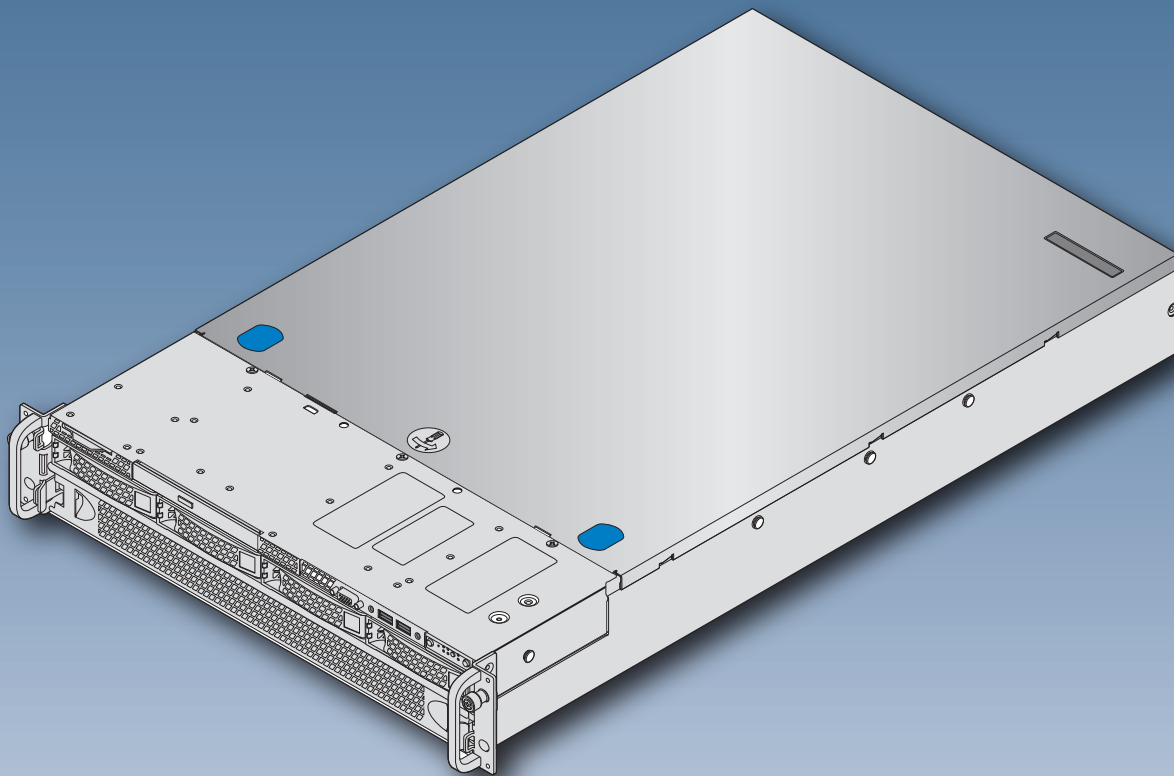


Intel® Server System R2000LH2/LT2 Product Family Quick Installation User's Guide

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>.



* 3.5" hard drive bay system as shown



G54804-003

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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



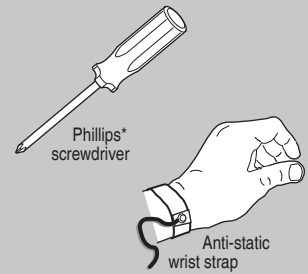
Installation and service of this product to be performed only by qualified service personnel to avoid risk of injury from electrical shock or energy hazard.

Caution



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

Tools Required



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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 inlet 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 first. The CPU-2, CPU-3, and CPU-4 heatsink must be installed at all times, with or without a processor installed.

• Memory Slot population requirements:

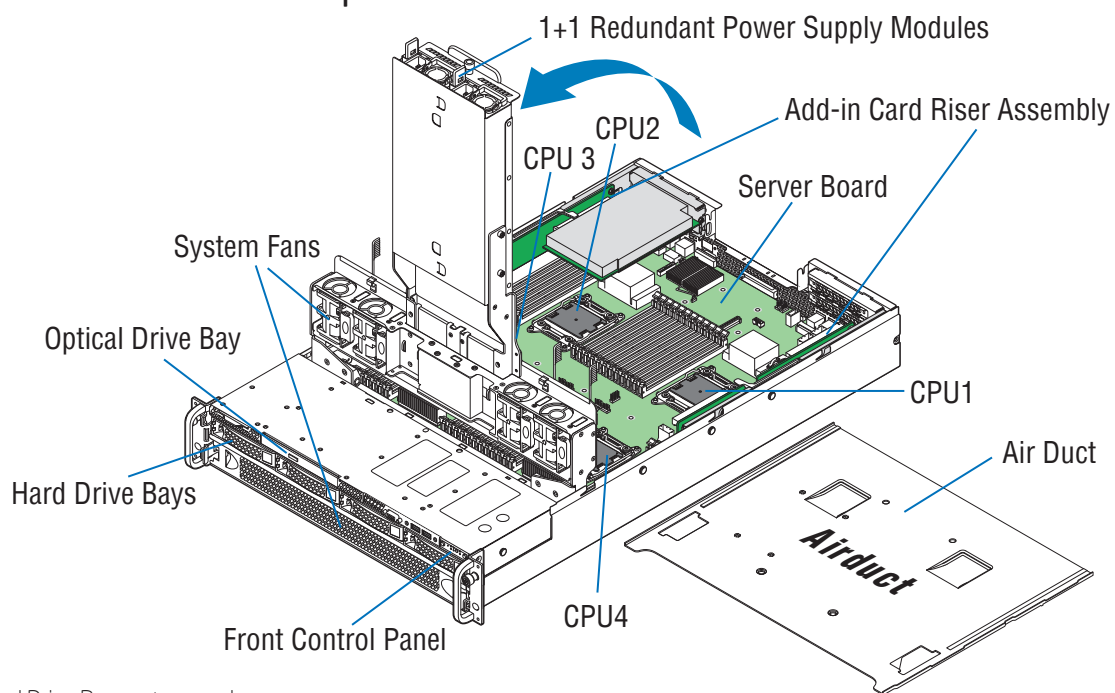
NOTE: Specified memory slots either can be populated with a DIMM or supplied DIMM Blank. Memory population rules apply when installing DIMMs.

- **DIMM Population Rules on CPU-1**
Install DIMMs in order; Channels A, B, C, and D. Start with first DIMM slot (blue) on each channel, then slot 2, then slot 3. Remove only DIMM blanks when populating the slot with a DIMM.
 - **DIMM Population Rules on CPU-2**
Install DIMMs in order; Channels E, F, G, and H. Start with first DIMM slot (blue) on each channel, then slot 2, then slot 3. Remove only DIMM blanks when populating the slot with a DIMM.
 - **DIMM Population Rules on CPU-3**
Install DIMMs in order; Channels J, K, L, and M. Start with first DIMM slot (blue) on each channel, then slot 2, then slot 3. Remove only DIMM blanks when populating the slot with a DIMM.
 - **DIMM Population Rules on CPU-4**
Install DIMMs in order; Channels N, P, R, and T. Start with first DIMM slot (blue) on each channel, then slot 2, then slot 3. Remove only DIMM blanks when populating the slot with a DIMM.
- 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. The only exception to this requirement is to hot replace a failed system fan, in which case the top cover can be removed for no more than three minutes at a time.

System Overview

Intel® Server System R2000LH2/LT2 Product Family

System Features and Components



* 3.5" Hard Drive Bay system as shown

Useful Information:

- The SCU1 (4-7) port requires an Intel® RAID C600 Upgrade Key installed to be functional.

General Installation Process

The installation instructions in this section are for common components of Intel® Server System R2000LH2/LT2 Product Family.

Minimum Hardware Requirements

To avoid integration difficulties and possible board damage, your system must meet the following minimum requirements:

- **Processor:**
Intel® Xeon® processor E5-4600 product family.
- **Memory Type:**
Minimum of one 512MB DDR3 1066/1333 MHz UDIMM or one 1GB DDR3 1066/1333 MHz RDIMM.
- **Hard Disk Drives:** SATA

For a complete list of compatible processors, heatsinks, and memory, see <http://www.intel.com/support>.

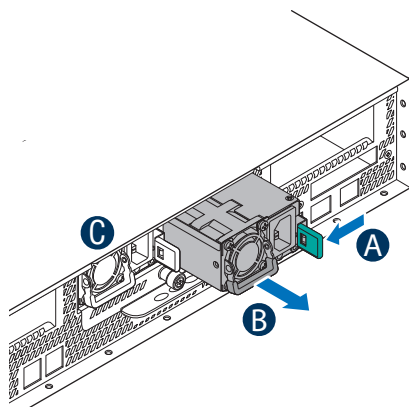
1 Preparing System

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.

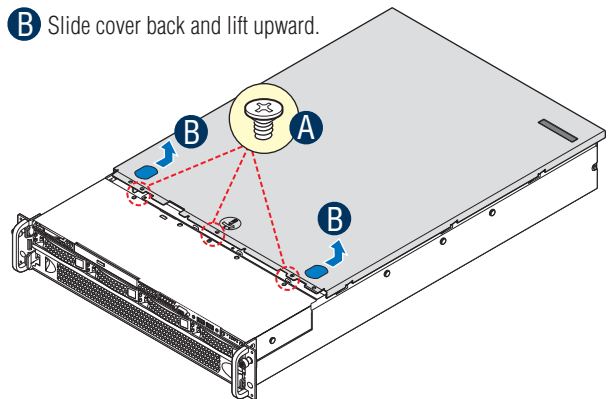
2 Remove Power Supply Module



- Push the green latch to unlock the power supply.
- While pushing the green latch, pull the power supply out of the system by the handle.
- Repeat step A and B to remove the second power supply.

3 Remove Top Cover

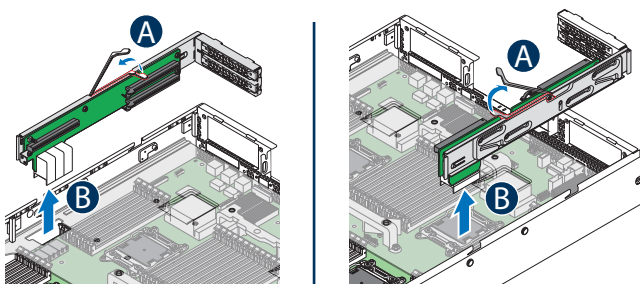
- Remove three screws.
- Slide cover back and lift upward.



4 Remove Add-in Card Riser Assembly

- Pull up the release lever of the riser assembly.
- Grasp the riser assembly with both hands and pull up to remove from system.

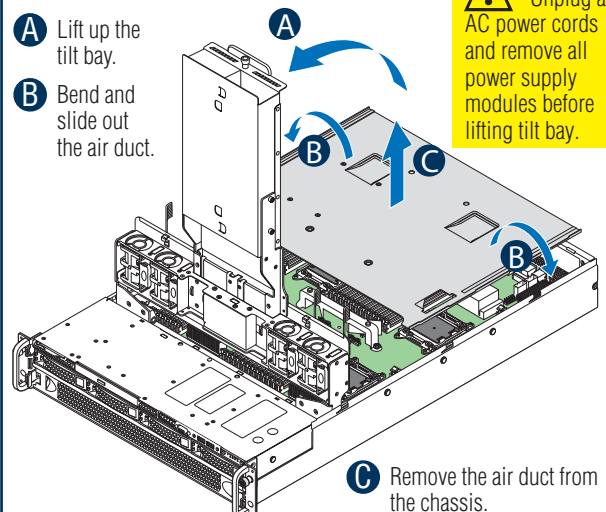
CAUTION: Place the riser assembly upside down or sideways to avoid damage to the riser card connector.



5 Remove Air Duct

- Lift up the tilt bay.
- Bend and slide out the air duct.

CAUTION: Unplug all AC power cords and remove all power supply modules before lifting tilt bay.



General Installation Process



IMPORTANT!

Before proceeding further, check your Intel® Server System for disconnected or loose cables and components that may have occurred during shipping.

6

Remove Processor Heatsink(s)

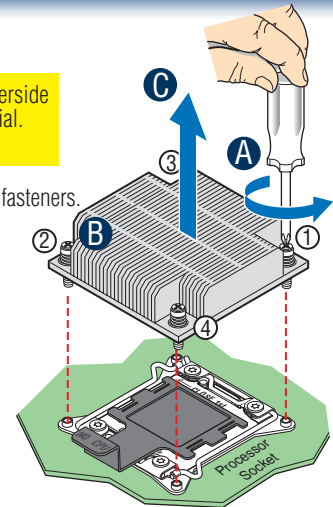


CAUTION: The heatsink has thermal interface material (TIM) on the underside of it. Use caution so that you do not damage the thermal interface material. Use gloves to avoid sharp edges.

The heatsink is attached to the server board and/or 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:

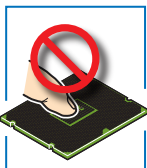
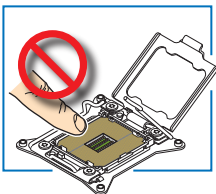
- A** Using a #2 Phillips* screwdriver, start with screw 1 and loosen it by giving it two rotations and stop. (IMPORTANT: Do not fully loosen.)
- B** Proceed to screw 2 and loosen it by giving it two rotations and stop. Similarly, loosen screws 3 and 4.
Repeat steps A and B by giving each screw two rotations each time until all screws are loosened.
- C** Lift the heatsink straight up.



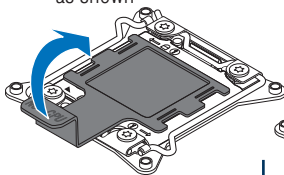
7

Install Processor(s)

A. Remove the Cover

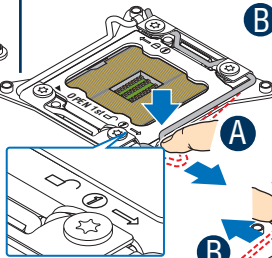


- A** Remove the cover as shown

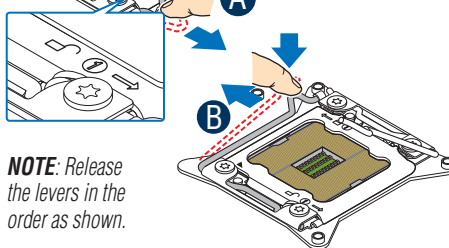


B. Open the Socket Lever

- A** Push down the lever handle on the **OPEN 1st** side and away from the socket to release it.



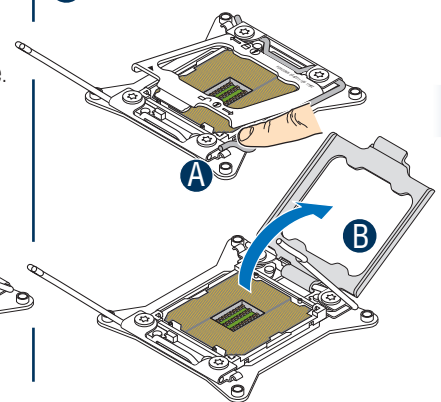
- B** Repeat step A to release the lever on the other side.



NOTE: Release the levers in the order as shown.

C. Open the Load Plate

- A** Press the locking lever slightly to raise the load plate.
- B** Open the load plate all the way.



Install Processor(s) ...continued

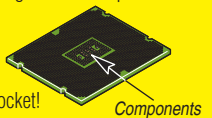
D. Install the Processor



CAUTION: The bottom side of the processor has components that may damage the socket pins if installed wrongly.

Processor must align correctly with the socket opening before installation.

DO NOT DROP processor into socket!



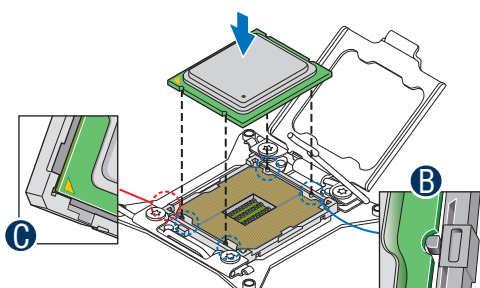
- A** Take the processor out of the box and remove the protective shipping cover.
- B** Orient the processor with the socket so that the processor cutouts match the four orientation posts on the socket.
- C** Note the location of the golden key at the corner of the processor.



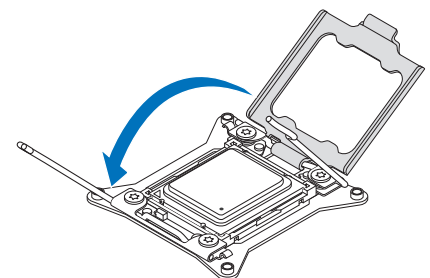
A Save the protective cover.



CAUTION: When unpacking a processor, hold at the edges only to avoid touching the golden contact pins.



E. Close the Load Plate



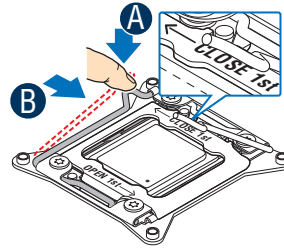
Carefully lower the load plate over the processor.

General Installation Process

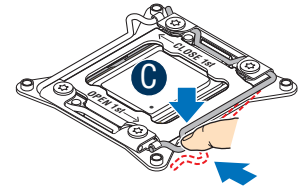
Install Processor(s) ...continued

F. Latch the Locking Lever

- A** Push down on the locking lever on the **CLOSE 1st** side.
- B** Slide the tip of the lever under the notch in the load plate. *Make sure the load plate tab engages under the socket lever when fully closed.*
- C** Repeat the steps to latch the locking lever on the other side.



NOTE: Latch the levers in the order as shown.



8

Install Processor Heatsink(s)

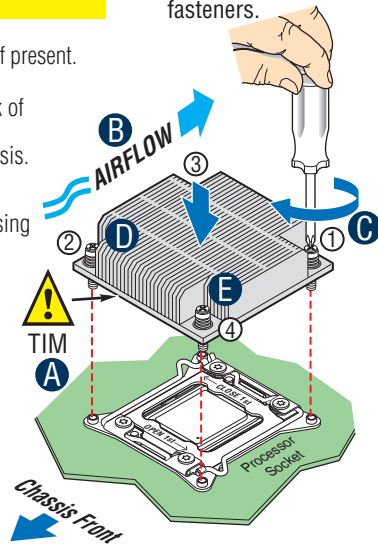
CAUTION: The heatsink has thermal interface material (TIM) on the underside of it. Use caution so that you do not damage the thermal interface material. *Use gloves to avoid sharp edges.*

CAUTION: Do not over-tighten fasteners.

- A** Remove the protective film on the TIM if present.
- B** Align heatsink fins to the front and back of the chassis for correct airflow. *Airflow goes from front-to-back of chassis.*

Each heatsink has four captive fasteners and should be tightened in a diagonal manner using the following procedure:

- C** Using a #2 Phillips* screwdriver, start with screw 1 and engage screw threads by giving it two rotations and stop. (Do not fully tighten.)
- D** Proceed to screw 2 and engage screw threads by giving it two rotations and stop. Similarly, engage screws 3 and 4.
- E** Repeat steps C and D by giving each screw two rotations each time until each screw is lightly tightened up to a maximum of 8 inch-lbs torque.



NOTE: Heatsink styles may vary.

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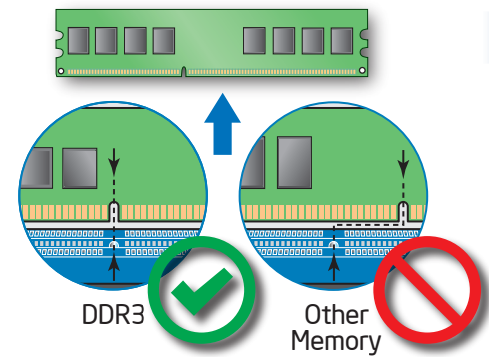
Install Memory Modules

DDR3 DIMM Memory Identification:



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

DIMM notch and socket bump must align as shown below.



Install Memory Modules ...continued

Memory Configurations and Population Order:

For best performance, a minimum of four DIMMs per CPU is recommended, populated in the blue slot of each memory channel.

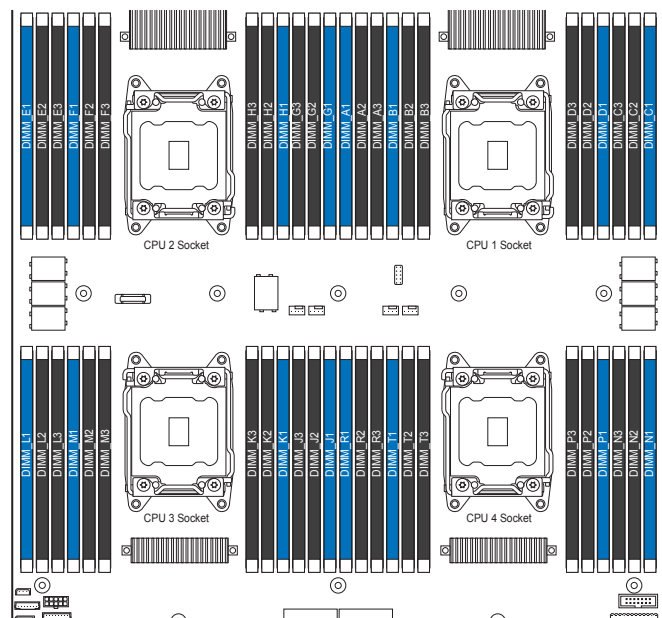
In a single-processor configuration, always populate A1 DIMM first.

In a four-processor configuration, always populate A1 DIMM for CPU1, E1 DIMM first for CPU2, J1 for CPU3, and N1 for CPU4.

NOTE: For additional memory configurations, see the Service Guide available at http://www.intel.com/p/en_US/support.

Memory sizing and configuration is supported only for qualified DIMMs approved by Intel®. For a list of supported memory, go to: <http://serverconfigurator.intel.com>.

Intel® Server Board S4600LH2/LT2



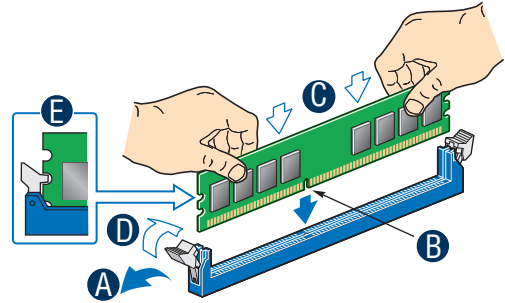
General Installation Process

Install Memory Modules ...continued

To Install 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.

CAUTION: Avoid touching contacts when handling or installing DIMMs.

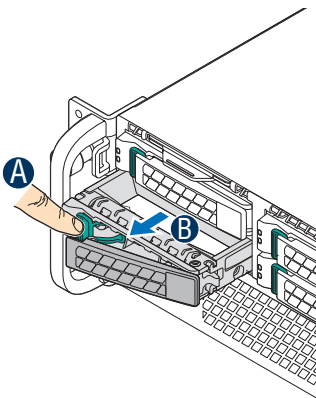


10

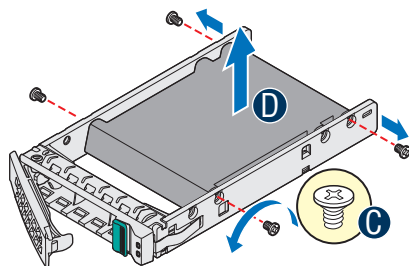
Install Hard Drives

2.5" Hard Drive Carrier (For system with 2.5" hard drive bay only)

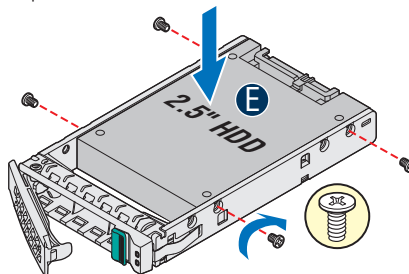
- A** Press the **green** latch to unlock.
- B** Pull out the black lever and slide the carrier out.



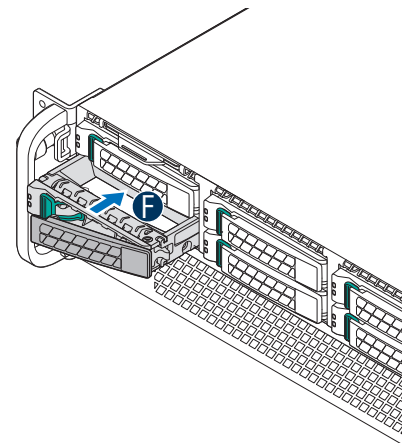
- C** Remove the four screws securing the plastic drive blank from the 2.5" HDD carrier.
- D** Disengage the plastic drive blank from the HDD carrier. Remove the plastic drive blank from the 2.5" HDD carrier.



- E** Install the hard disk drive using the four screws as shown. Make sure the connector end of the drive matches the backplane connector.

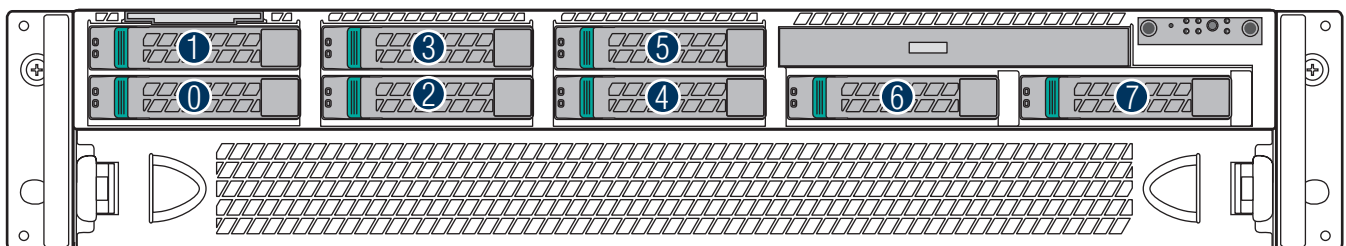


- F** With the lever open, insert the hard disk drive assembly into the chassis, then push in the lever to lock it into place.



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.

Hard Drive Numbering Diagram



Drive 0 Primary

8 x 2.5" hard drive bay as shown

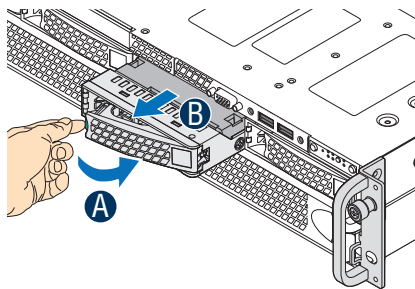
General Installation Process

Install Hard Drives ...continued

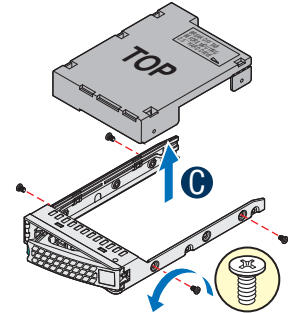
3.5" Hard Drive Carrier (For system with 3.5" hard drive bay only)

A Remove the drive carrier by pressing the **green** button and opening the lever.

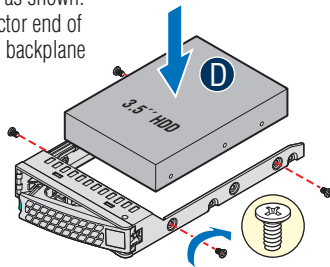
B Slide the carrier out.



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

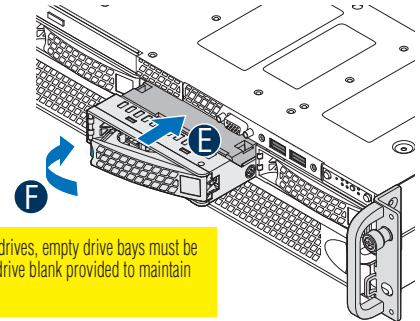


D Install the hard disk drive using the same four screws as shown. Make sure the connector end of the drive matches the backplane connector.



E With the lever open, insert the hard disk drive assembly into the chassis.

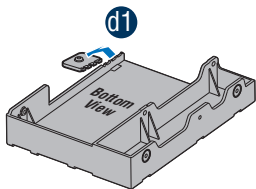
F Push in the lever to lock it into place.



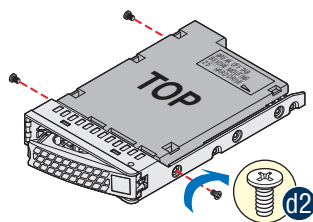
CAUTION: If you don't install all drives, empty drive bays must be occupied by carriers with plastic drive blank provided to maintain proper system cooling.

Install 2.5" Hard Drive as option:

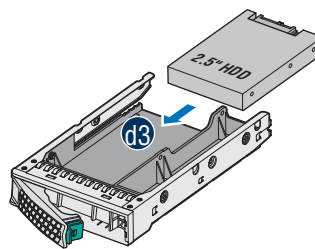
d1 Break off the tab on the HDD interface bracket.



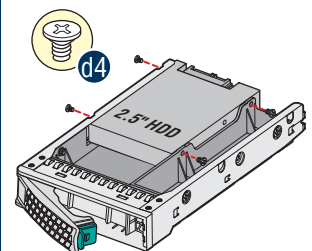
d2 Install the HDD interface bracket from top. Secure the bracket with three screws as shown.



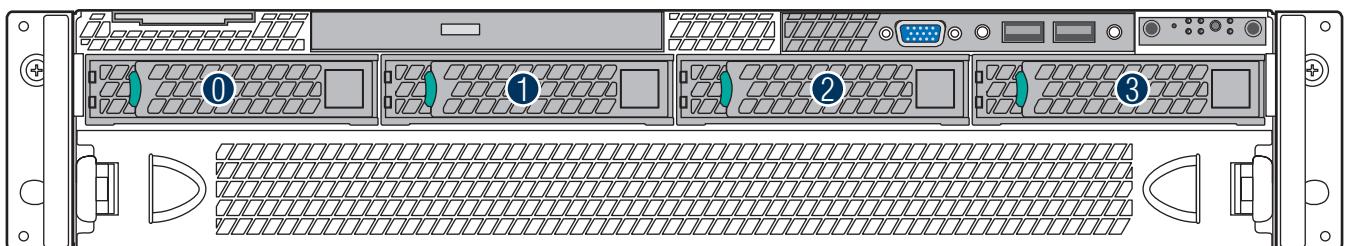
d3 Slide the 2.5" HDD into the bracket to align the screw holes with the right and left rail.



d4 Secure the hard disk drive using the four screws for 2.5" HDD.



Hard Drive Numbering Diagram



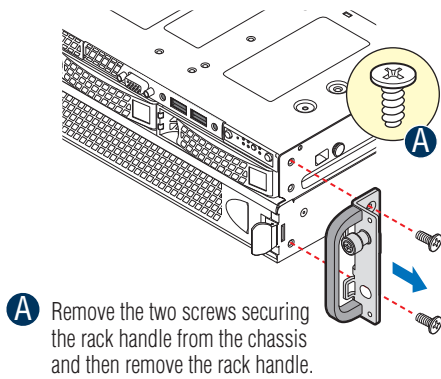
Drive 0 Primary

4 x 3.5" hard drive bay as shown

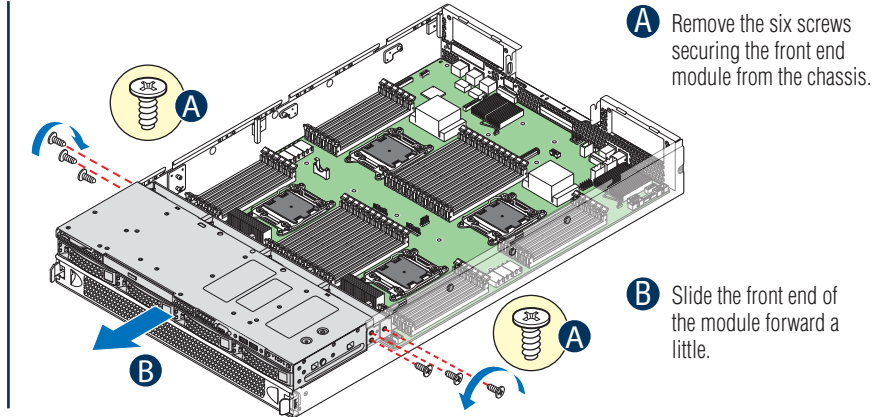
General Installation Process

Internal Fixed 2.5" SSD Drive Carrier

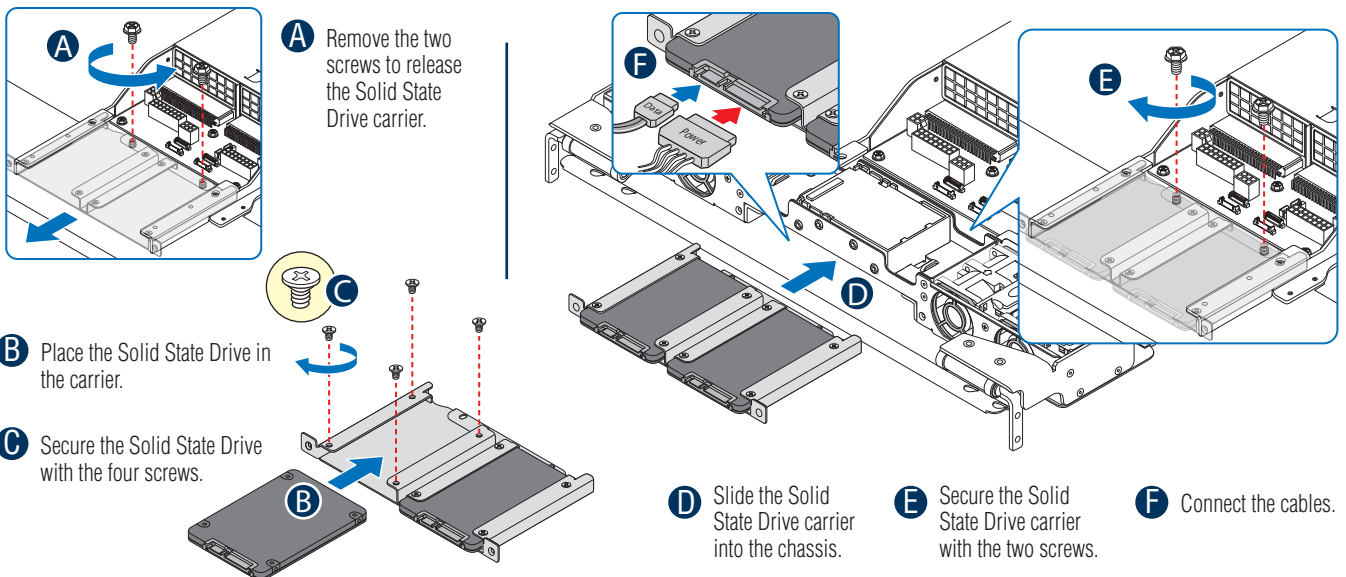
A. Remove the Rack Handles



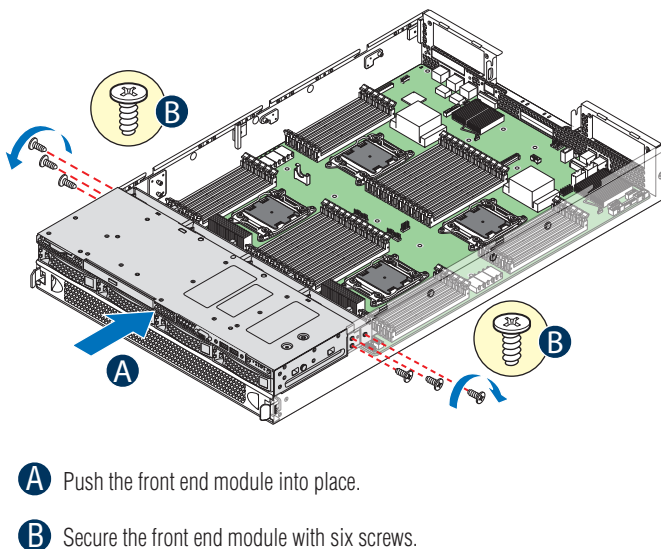
B. Slide the Front End Module



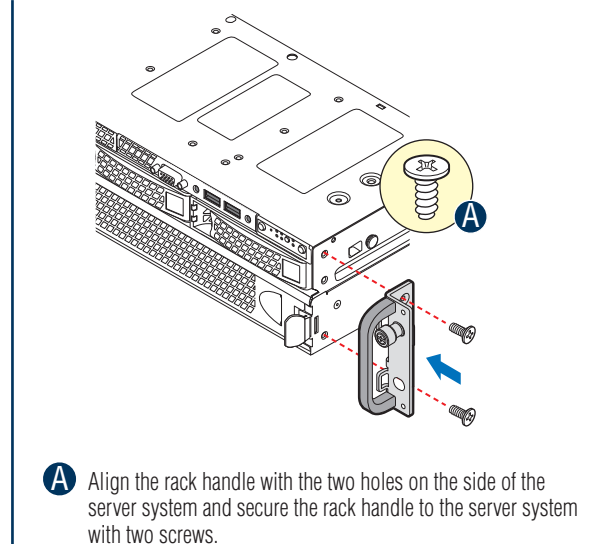
C. Install Internal SSD(s)



D. Install the Front End Module



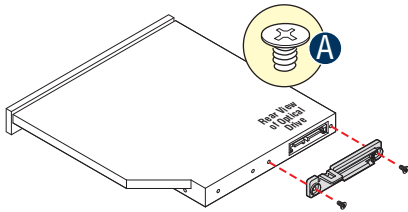
E. Install the Rack Handles



General Installation Process

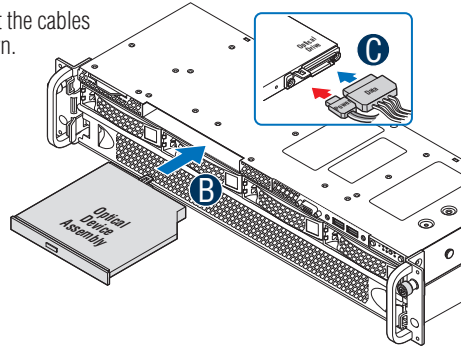
11 Install Optical Drive

- A** Install the plastic guide onto the back of the drive and attach with two screws as shown.

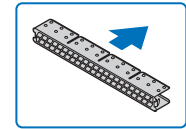


- B** Insert the optical drive into chassis opening and push all the way until it stops.

- C** Connect the cables as shown.



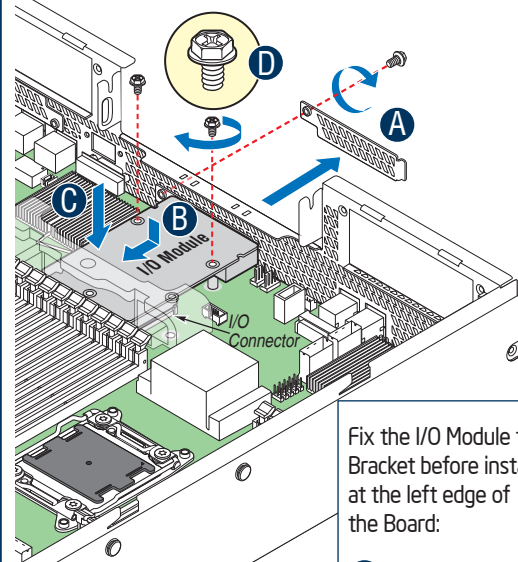
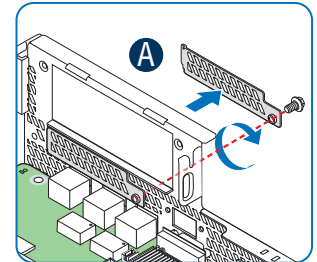
IMPORTANT NOTE: If you do not install a device at this location, install the optical device bay filler panel shown below. This is required to maintain proper system cooling.



12 Install Intel® I/O Expansion Module (optional)

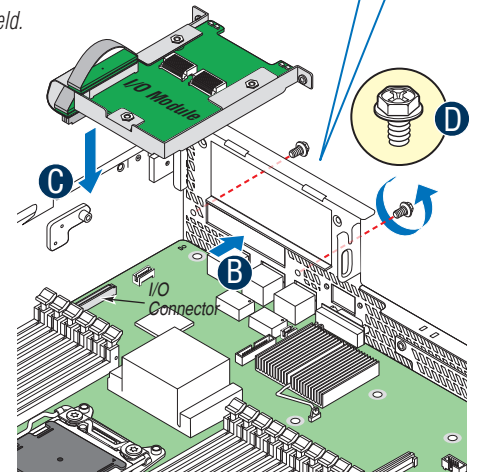
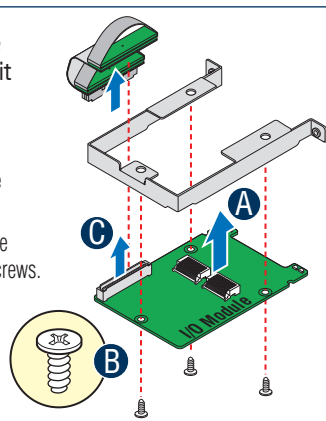
- A** Remove the screw securing the filler panel from chassis and remove it.
- B** Position the module over the server board, fit the back of the module into the back panel slot.
- C** Attach the module to the server board connector.
- D** Secure the module with the screws as shown.

NOTE: If included, remember to install the EMI shield.



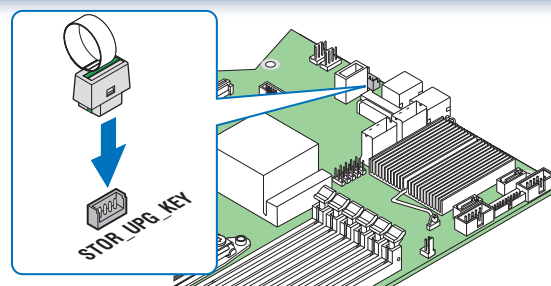
Fix the I/O Module to the Bracket before installing it at the left edge of the Board:

- A** Install the module to the provided bracket.
- B** Secure the module to the bracket with the three screws.
- C** Install the provided connector converter.



13 Install Intel® RAID C600 Upgrade Key (optional)

Locate the white 4-pin key header next to Riser Slot 1. Carefully pickup the Intel® RAID C600 Upgrade Key. Match the key and connector orientation and press down to install.

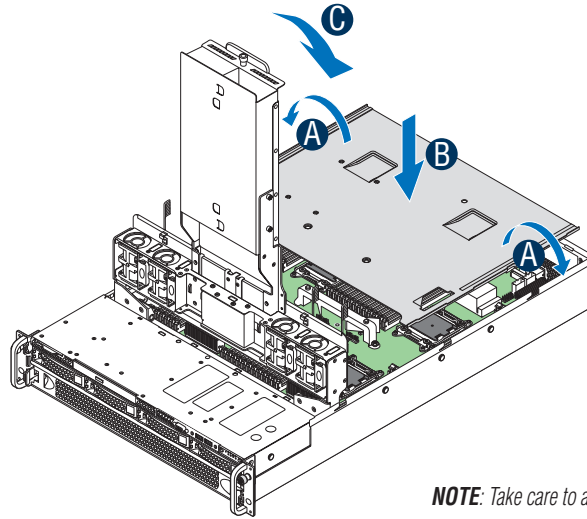


General Installation Process

14

Install Air Duct

- A** Bend and slide in the air duct.
- B** Install the air duct into the chassis.
- C** Flip-down the tilt bay.



NOTE: Take care to avoid pinching system cables.

15

Install Add-in Card(s)

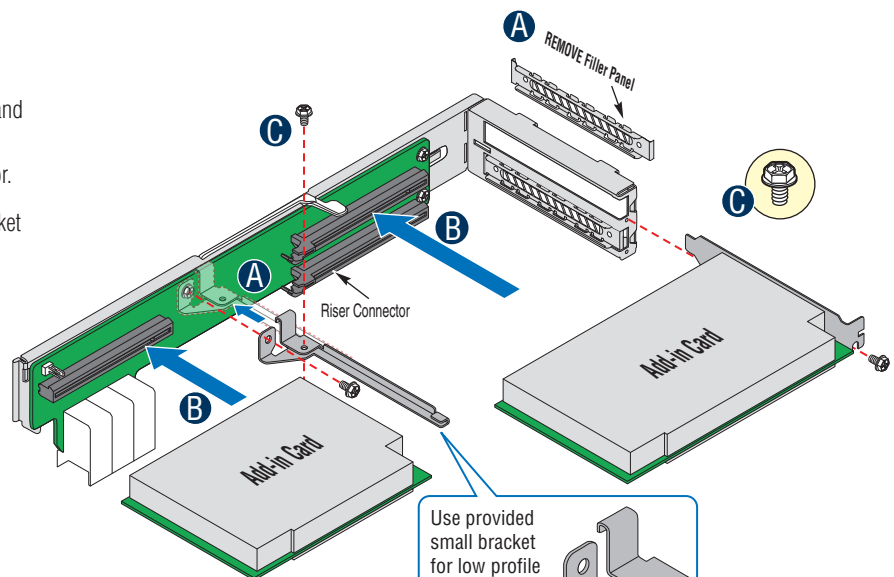
For Half-length PCI Add-in Card(s)

- A** Remove the filler panel from the add-in card slot and install the provided proper bracket as shown.
- B** Insert add-in card until it sits in the riser connector.
- C** Secure add-in card with screw provided with bracket as shown.

NOTE: Make sure that all empty add-in card slots have filler panels installed.

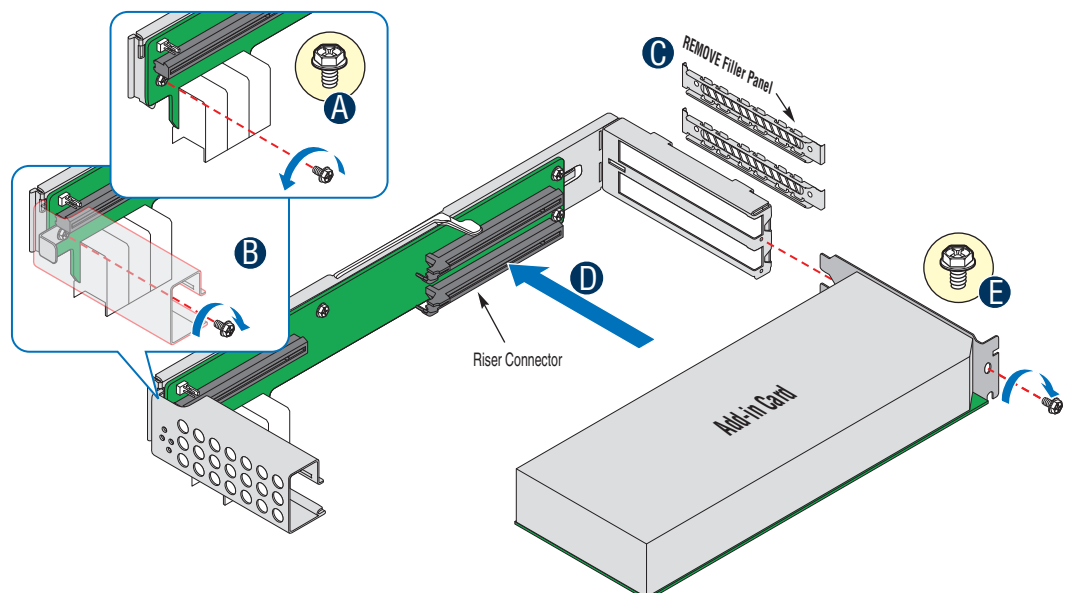


CAUTION: Observe normal ESD precautions when installing add-in cards.



For Full-length PCI Add-in Card(s)

- A** Remove the screw as shown.
- B** Install the provided proper bracket as shown.
- C** Remove the filler panel from the add-in card slot and remove the screw as shown.
- D** Install add-in card until it sits in the riser connector.
- E** Secure add-in card with screw provided with bracket as shown.

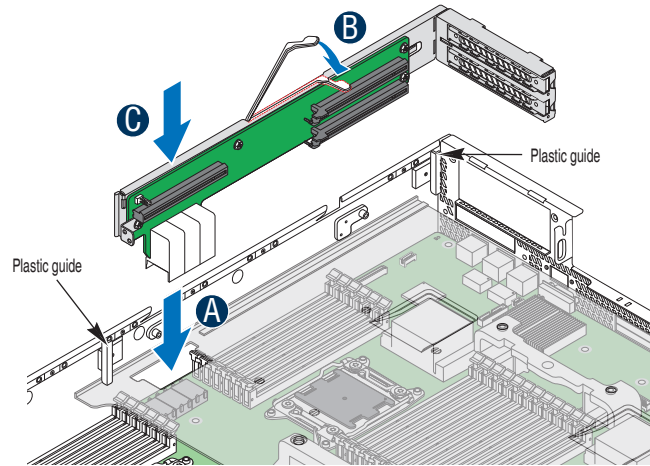


General Installation Process

16 Install Add-in Card Riser Assembly

NOTE: Please make sure the release lever is in UP position before installing the add-in card riser assembly.

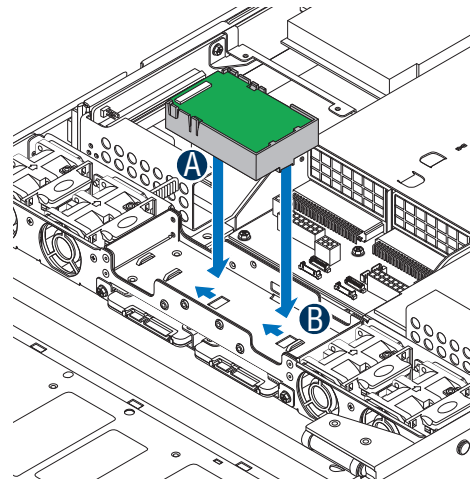
- A** Position the riser card connector edge over the server board riser socket and align the riser bracket to the plastic guides on the chassis.
- B** Press down the release lever to install the riser assembly into the riser socket.
- C** Push on the board edge above the connector to ensure the connector is seated.



17 Install Intel® RAID Smart Battery (optional)

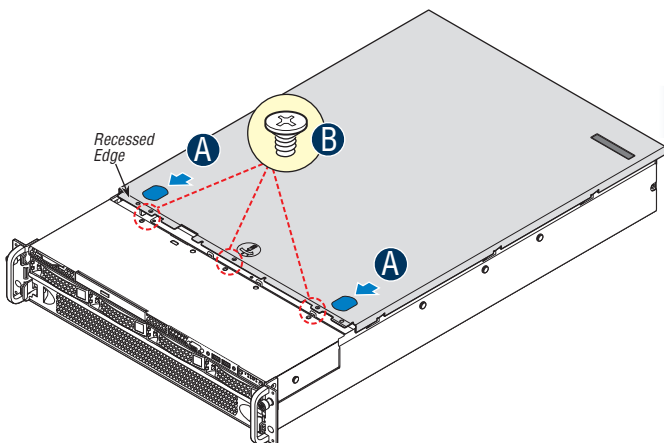
NOTE: Please refer to the installation instructions shipped with battery for the cable installation.

- A** Locate the mounting holes inside the chassis and reposition all cables routed over the fan bulkhead. Position the battery against the side wall and through the opening in the fan bulkhead.
- B** 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 system until the tabs engage with the mounting holes.



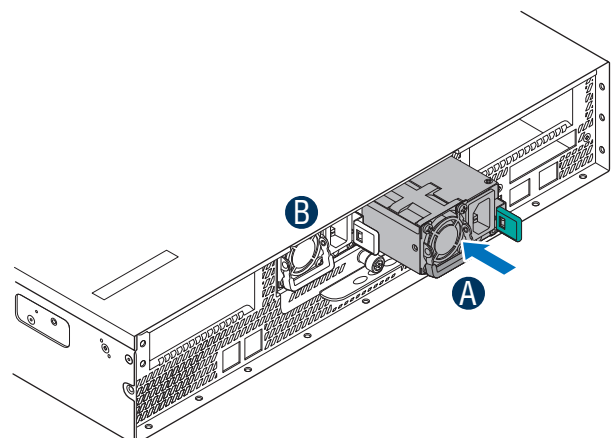
18 Install Top Cover

- A** Place system cover onto the chassis and slide forward to engage recessed edge at front of cover.
- B** Tighten three screws.



19 Install Power Supply Module

- A** Insert the power supply module into the power supply cage and push all the way until it clicks into place.
- B** Repeat step A to install the second power supply.



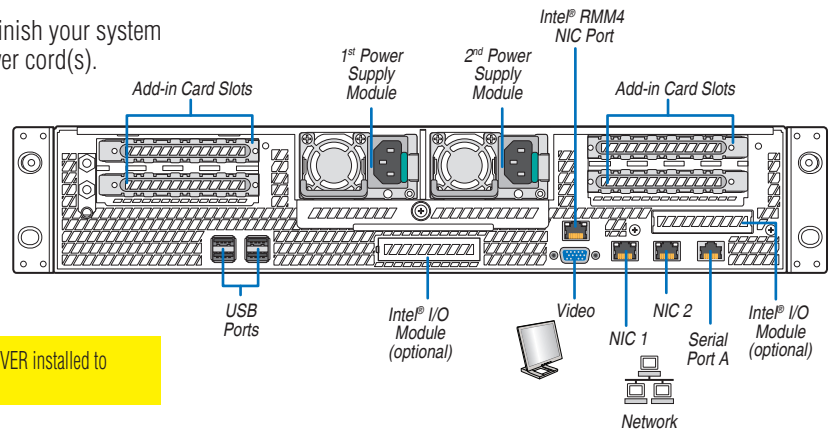
General Installation Process

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Finishing Up

Before installing your operating system, you must finish your system installation, make I/O connections, and plug in power cord(s).

1. Verify the system top cover is installed.
2. Install the server into the rack using the instructions provided with the rack mounting kit.
3. Connect your USB keyboard/mouse, video, and other I/O cables/devices as shown.
Then connect the power cord(s).



CAUTION: This system must be operated with the TOP COVER installed to ensure proper cooling.

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Software • BIOS, Drivers, and Operating System Installation

A. Update the System Software:

1. Boot from the Intel® Server Deployment and Management DVD.
2. Use the Wizard to access the latest versions on the Internet and update the BIOS, firmware, FRUSDRs, and Intel® RMM4. **NOTE:** You may also download files on a USB **NOTE:** The FRUSDR utility must be run for full platform management functionality.

B. Configure your RAID Controller:

If using a RAID card, use the instructions provided with the RAID controller. If using on-board RAID, you must activate RAID in the BIOS setup. See the *Intel® Server System R2000LH2/LT2 Service Guide* for more information.

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 CD folders to locate and install the driver files.

E. Install Intel® System Management Software (optional):

Download the latest version of the Intel® System Management Software from <http://www.intel.com/content/www/us/en/server-management/intel-server-management.html> and use the instructions provided at that link to install the software.

* Other brands and names may be claimed as the property of others.

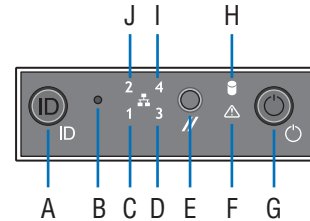
Reference

Front Panel Controls and Indicators

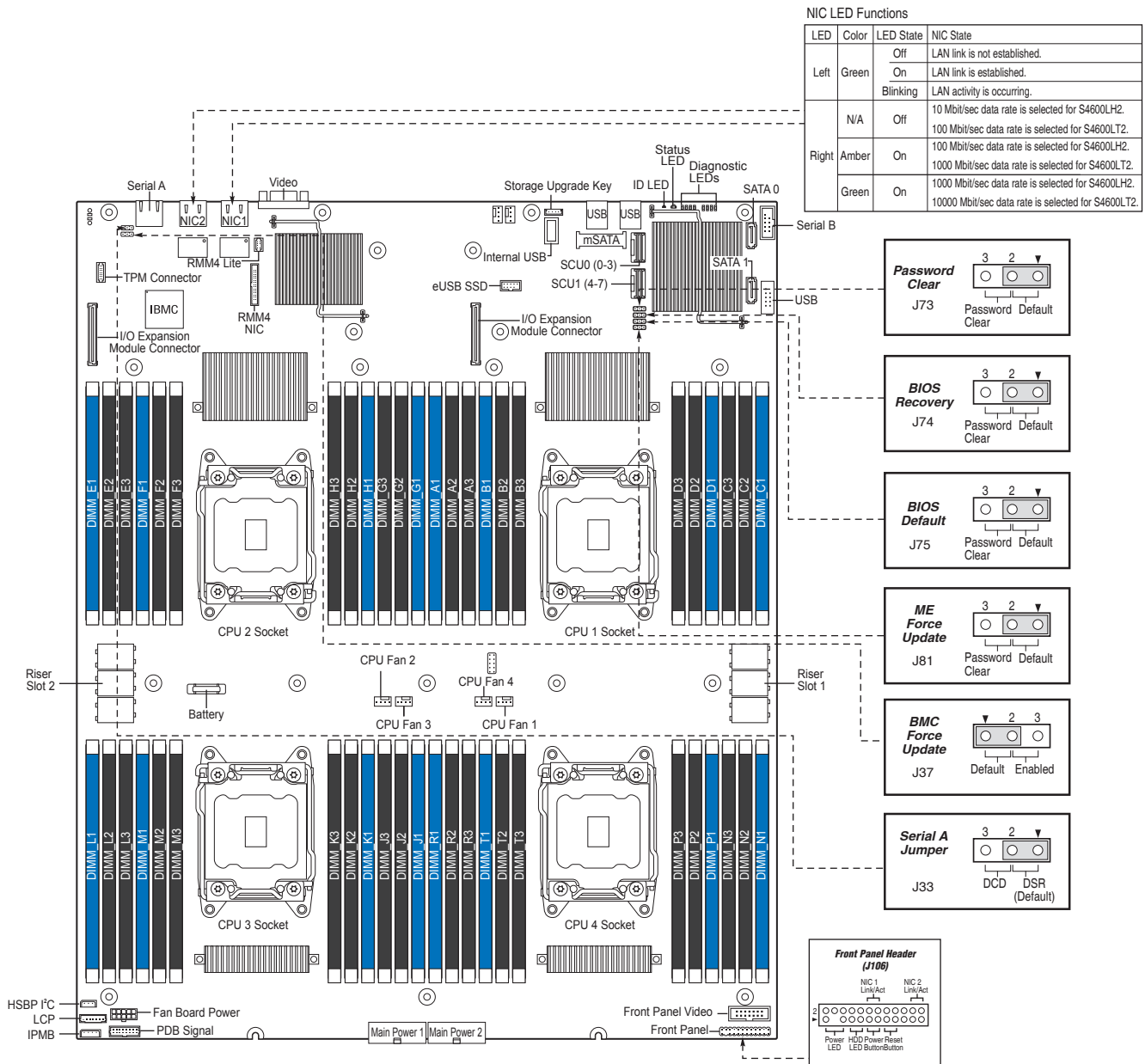
Your system may include one of two front control panel types. The features of each are as follows:

- A. ID Button with integrated LED
- B. NMI Button
- C. LAN-1 Activity LED
- D. LAN-3 Activity LED
- E. System Cold Reset Button
- F. System Status LED
- G. Power Button with integrated LED
- H. HDD Activity LED
- I. LAN-4 Activity LED
- J. LAN-2 Activity LED

Standard Control Panel



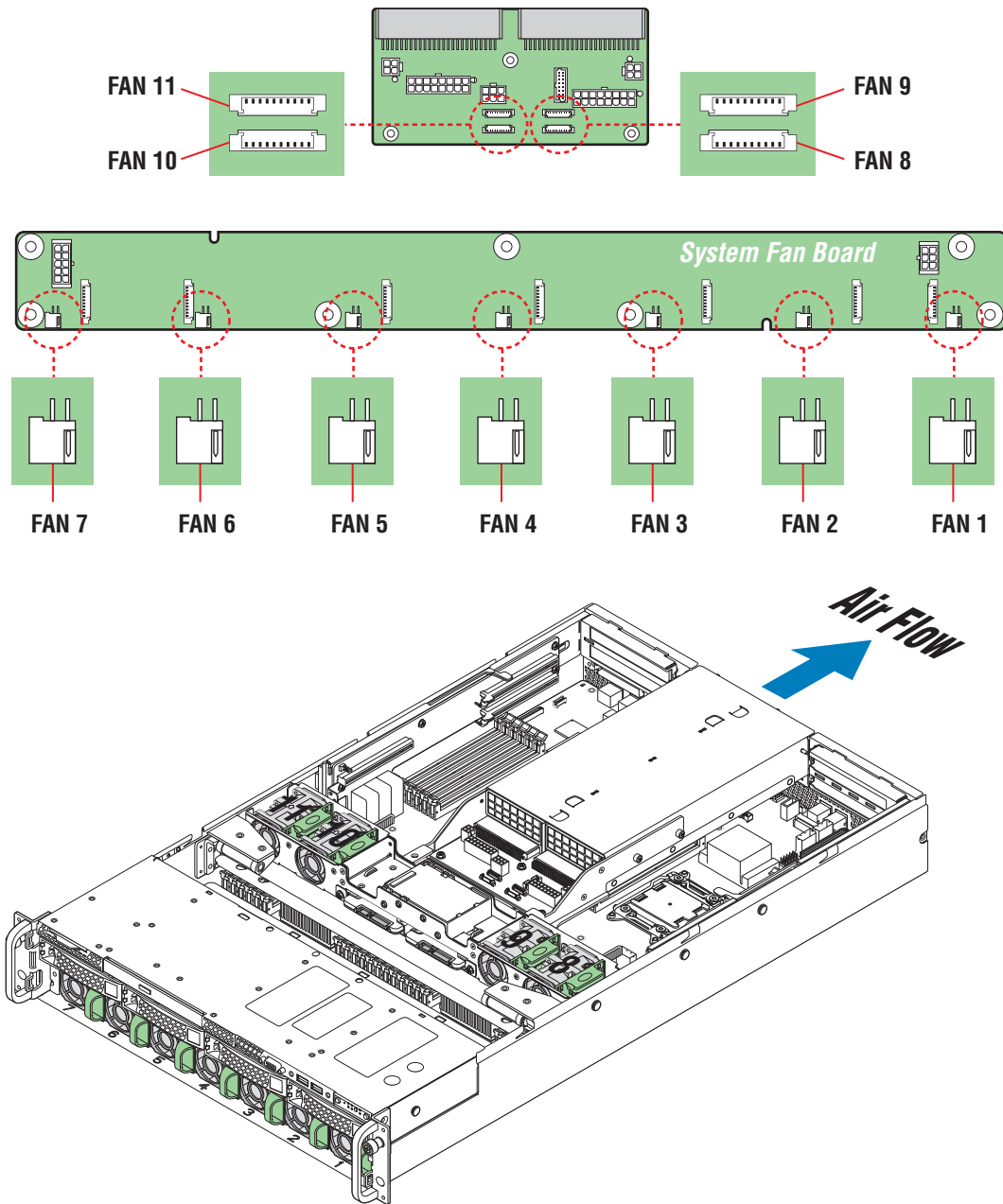
Intel® Server Board S4600LH2/LT2 Component Layout



See your Intel® Server System R2000LH2/LT2 Service Guide for expanded component and connection information.

Reference

System Fan Connection



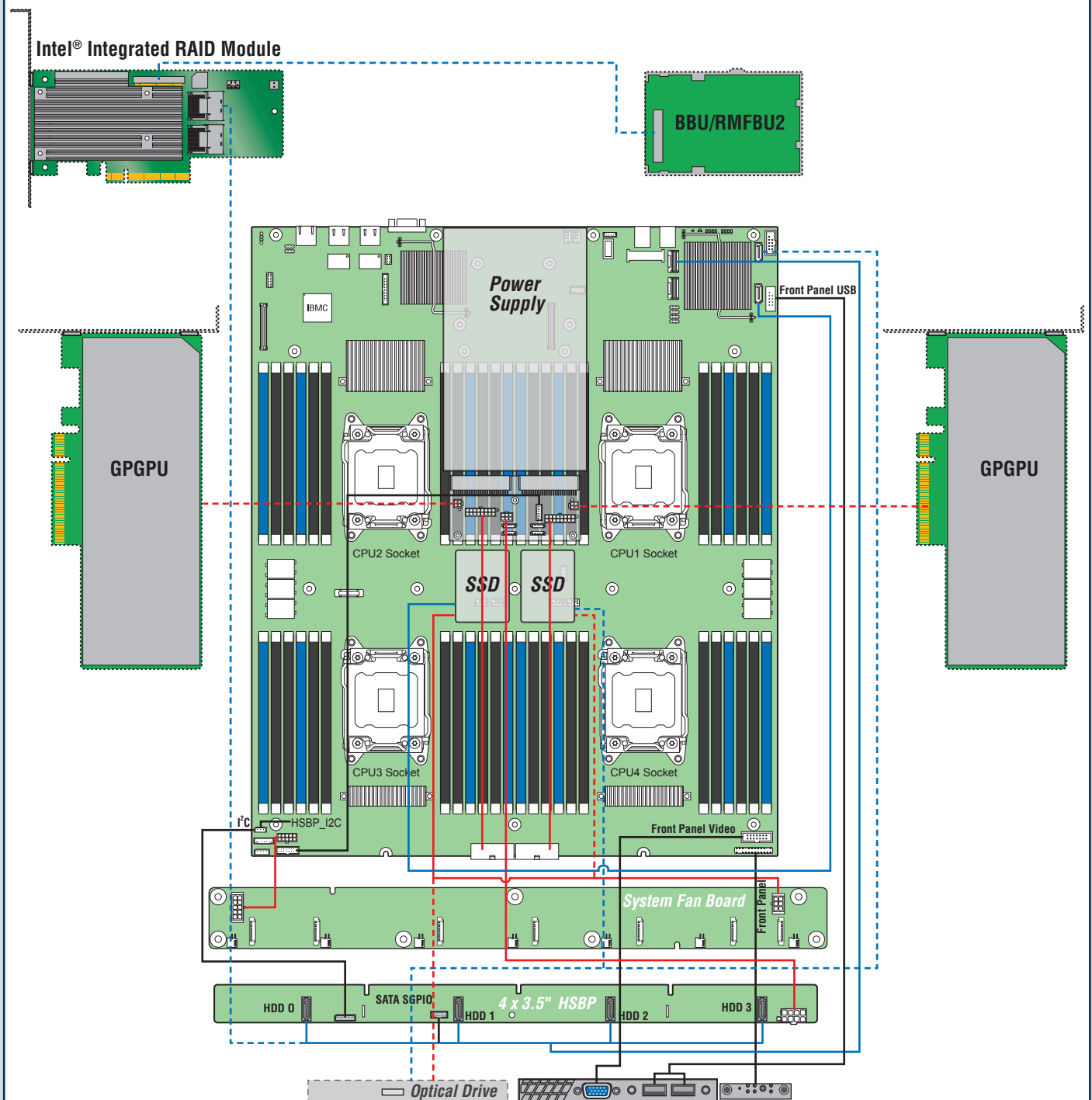
A complete list of accessories and spares can be found at http://www.intel.com/p/en_US/support/.

Reference

System Cabling Diagram For System with 4 x 3.5" Hard Drive Bay

NOTES:

- To activate the port SCU1 (4-7) on the server board, a proper Intel® RAID C600 Upgrade Key must be installed. For instructions, see Intel® RAID C600 Upgrade Key Installation Guide.
- A second SSD is supported when the optical drive is NOT in use.

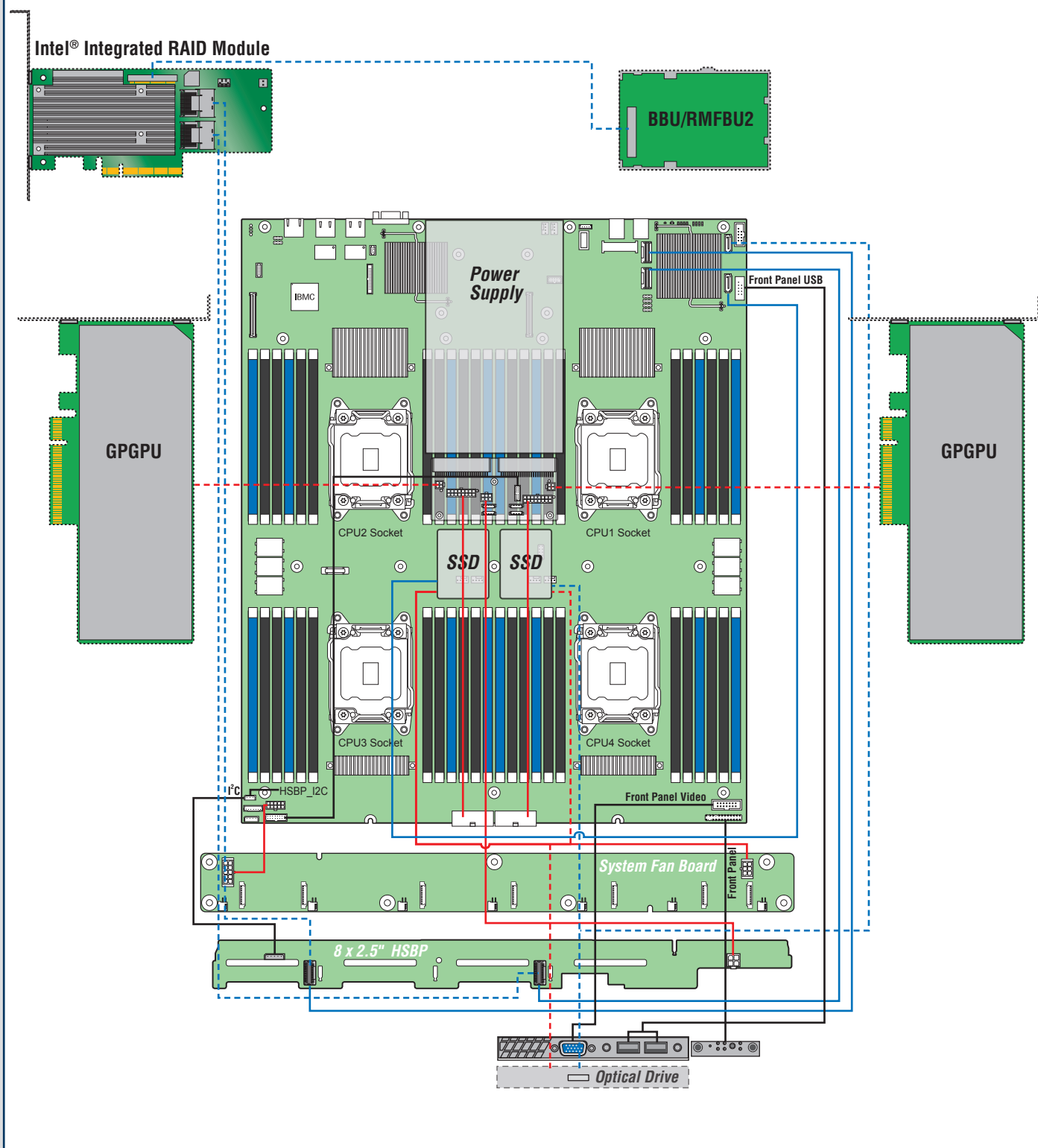


Reference

System Cabling Diagram For System with 8 x 2.5" Hard Drive Bay:

NOTES:

- To activate the port SCU1 (4-7) on the server board, a proper Intel® RAID C600 Upgrade Key must be installed. For instructions, see Intel® RAID C600 Upgrade Key Installation Guide.
- A second SSD is supported when the optical drive is NOT in use.



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