Intel® Server System SR1520ML User's Guide

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

Intel Order Number E17409-004

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Intel server boards contain a number of high-density VLSI and power delivery components that need adequate airflow for cooling. Intel's own chassis are designed and tested to meet the intended thermal requirements of these components when the fully integrated system is used together. It is the responsibility of the system integrator that chooses not to use Intel developed server building blocks to consult vendor datasheets and operating parameters to determine the amount of airflow required for their specific application and environmental conditions. Intel Corporation can not be held responsible if components fail or the server board does not operate correctly when used outside any of their published operating or non-operating limits.

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Safety Information

Important Safety Instructions

Read all caution and safety statements in this document before performing any of the instructions. See also Intel Server Boards and Server Chassis Safety Information on the *Intel® Server Deployment Toolkit 2.0 CD* and/or at http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.

Wichtige Sicherheitshinweise

Lesen Sie zunächst sämtliche Warnund Sicherheitshinweise in diesem Dokument, bevor Sie eine der Anweisungen ausführen. Beachten Sie hierzu auch die Sicherheitshinweise zu Intel-Serverplatinen und Servergehäusen auf der *Intel® Server Deployment Toolkit 2.0 CD* oder unter http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.

Consignes de sécurité

Lisez attention toutes les consignes de sécurité et les mises en garde indiquées dans ce document avant de suivre toute instruction. Consultez Intel Server Boards and Server Chassis Safety Information sur le *Intel® Server Deployment Toolkit 2.0 CD* ou bien rendez-vous sur le site http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.

Instrucciones de seguridad importantes

Lea todas las declaraciones de seguridad y precaución de este documento antes de realizar cualquiera de las instrucciones. Vea Intel Server Boards and Server Chassis Safety Information en el *Intel® Server Deployment Toolkit 2.0 CD* y/o en http://support.intel.com/support/motherboards/server/sb/cs-010770.htm.

在执行任何指令之前，请阅读本文档中的所有注意事项及安全声明。 和/或
http://support.intel.com/support/motherboards/server/sb/CS-010770.htm *上的* `Intel`
`Server Boards and Server Chassis Safety Information`（*《Intel*
服务器主板与服务器机箱安全信息》）。

Warnings

Heed safety instructions: Before working with your server product, whether you are using this guide or any other resource as a reference, pay close attention to the safety instructions. You must adhere to the assembly instructions in this guide to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products/components will void the UL listing and other regulatory approvals of the product and will most likely result in noncompliance with product regulations in the region(s) in which the product is sold.

System power on/off: The power button DOES NOT turn off the system AC power. To remove power from system, you must unplug the AC power cord from the wall outlet. Make sure the AC power cord is unplugged before you open the chassis, add, or remove any components.

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

Electrostatic discharge (ESD) and ESD protection: ESD can damage disk drives, boards, and other parts. We recommend that you 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.

ESD and handling boards: Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. After removing a board from its protective wrapper or from the server, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

Installing or removing jumpers: A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that you can grip with your fingertips or with a pair of fine needle nosed pliers. If your jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can damage the contacts inside the jumper, causing intermittent problems with the function controlled by that jumper. Take care to grip with, but not squeeze, the pliers or other tool you use to remove a jumper, or you may bend or break the pins on the board.

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Preface

About this Manual

Thank you for purchasing and using the Intel® Server System SR1520ML.

This manual is written for system technicians who are responsible for troubleshooting, upgrading, and repairing this server system. This document provides reference information, feature information, and step by step instructions on how to add and replace components on the server system. For the latest version of this manual, see http://support.intel.com/support/motherboards/server/X38ML/.

Manual Organization

Chapter 1 provides an overview of the server system. In this chapter, you will find a list of the server system features, illustrations of the product, and product diagrams to help you identify components and their locations.

Chapter 2 provides instructions on adding and replacing components. Use this chapter for step-by-step instructions and diagrams for installing or replacing components such as the fans, power supply, drives, and other components.

Chapter 3 provides instructions on using the utilities that are shipped with the board or that may be required to update the system. This includes how to navigate through the BIOS Setup screens, how to perform a BIOS update, and how to reset the password or CMOS. Information about the specific BIOS settings and screens is available in the Technical Product Specifications for the server board and chassis. See Table 1 on page xix for a link to the Technical Product Specifications.

At the back of this manual, you will find technical specifications, troubleshooting tips, regulatory information, complete safety information, "getting help" information, and the warranty.

Product Contents

Your Intel® Server System SR1520ML ships with the following items.

- Two Intel® Server Boards X38ML installed in the server chassis
- One 600-watt power supply module, installed in the server chassis
- One power cable to connect to AC power (North America only)
- Four cooling fans, with attached cables, installed in the server system:
  - Two memory cooling fans
  - Two system blower fans
- Two passive heat sinks, in the server system product box
- Two hard drive brackets, in the server system product box
- Two PCI Express* x16 risers, installed in the server system
- Two processor/memory air ducts
- Rack handles, in the server system product box
- One front control panel board with front panel controls for two server boards, installed in the server system
- One basic slide rail kit, in a separate box
- Cables:
  - Two SATA cables, installed in the server system
  - Two front panel/Z-U130 USB Y-cables, installed in the server system
  - One front panel Y-cable, installed in the server system
- *Intel® Server Deployment Toolkit 2.0 CD* that contains documentation, drivers, and utilities
- *Intel® System Management Software 2.0* CD set (two CDs)

Server System References

If you need more information about this product or information about the accessories that can be used with this server chassis, use the following resources.

Table 1. Server System References

For this Information or Software	Use this Document or Software
Technical information about the server chassis, including sub-system overviews and mechanical drawings	*Intel® Server System SR1520MLTechnical Product Specification* At http://support.intel.com/support/motherboards/server/X38ML/
Technical information about the server board, including board layout, connector pin-outs, timing information, mechanical drawings and LED information	*Intel® Server Board X38ML Technical Product Specification* At http://support.intel.com/support/motherboards/server/X38ML
Technical information about the server system, including connector pin-outs, timing information, mechanical drawings and LED information	*Intel® Server System SR1520ML Technical Product Specification* At http://support.intel.com/support/motherboards/server/X38ML/
If you just received this product and need to install it	Intel® Server System SR1520ML *Quick Start User's Guide* In the product box
Accessories or other Intel server products	Spares and Configuration Guide Available from your Intel field representative or on the Server Configurator Tool at http://indigo.intel.com/serverconfiguratortool/default.aspx
Hardware (peripheral boards, adapter cards) and operating systems that have been tested with this product	Tested Hardware and Operating Systems List At http://support.intel.com/support/motherboards/server/X38ML/
Processor and DIMMs that have been tested with this produc	See http://support.intel.com/support/motherboards/server/X38ML/
For drivers	Search for the word "driver" (for an extensive list of available drivers) Search for "operating system driver" (for operating system drivers)
For firmware and BIOS updates, or for BIOS recovery	Firmware Updates

Table 1. Server System References

For this Information or Software	Use this Document or Software
For software to manage your Intel® server	Intel® System Management Software Software 2.0 At http://support.intel.com/support/motherboards/server/X38ML/
To make sure your system falls within the allowed power budget	Search for the phrase "Power Budget Tool" At http://support.intel.com/support/motherboards/server/X38ML/
For diagnostics test software	Search for the word "Diagnostics"

1   Server System Features

This chapter briefly describes the main features of the server system. It provides product illustrations, a list of the server system features, and diagrams that show the location of important components and connections.

Figure 1. Intel® Server System SR1520ML

The Intel® Server System SR1520ML ships with two Intel® Server Boards X38ML installed in it. Each server board operates as a fully functioning server system with it's own control panel, BIOS setup configuration, processor, memory, drives, add-in card, keyboard/mouse, and video monitor. These items are not shared by the two server boards. The two server boards share the chassis and power supply.

Since the server boards function independently, the processor and DIMM rules apply to each board independently. The two server boards do not need to use identical processors or DIMMs.

Table 2 summarizes the features of the server system.

Table 2. Feature Summary

Feature	Description
Dimensions	• 1.67 inches high (42.42 mm) • 16.93 inches wide (430.02 mm) • 20 inches deep (508.00 mm)
Server board	Intel® Server Board X38ML. Two per system.
Processors	Processor and Front Side Bus (FSB) support • The system supports one processor on each server board. For supported Intel processors, see http://support.intel.com/support/motherboards/server/X38ML • Supports 800/1066/1333 MHz FSB
Memory	• Four DIMM sockets per server board supporting stacked DDR2 667/800 MHz unbuffered ECC memory or non-ECC memory • Each server board has two memory channels with two DIMM sockets per channel • Support for up to 8 GB of total system memory on each server board
Chipset	Intel® X38 chipset on each server board, consisting of: • Intel® X38 Memory Controller Hub (MCH) • Intel® I/O Controller Hub (ICH9R)
Peripheral Interfaces	**External connections on each server board:** • DB9 Serial A port • Two RJ45 NIC connectors for 10/100/1000 Mb connections • Two USB 2.0 ports • VGA header for video output **Internal connections on each server board:** • One USB port header, which supports two USB 2.0 ports • One DH10 Serial B header • Four Serial ATA connectors with embedded RAID 0/1/10 support
Video	Each server board has an on-board video controller with 32 MB DDR2 667 video memory
LAN	Two Intel® 10/100/1000 82573E Gigabit Ethernet controllers on each server board
Expansion capabilities	One low-profile PCI Express* riser card for each server board. Each supports one low-profile x1, x4, x8, or x16 adapter.
Hard drives	• Support for up to two 2.5-inch drives. SATA (3.0 Gb/s) support • Support for two Intel® Z-U130 Value Solid State Drives

Table 2. Feature Summary

Feature	Description
Control panel	Each server board has a control panel. Each control panel includes: • One USB port • Power / sleep button • Reset button • Power Supply LED • Status LED • Hard drive activity LED • NIC1 activity LED • NIC2 activity LED
Power supply	One 600-watt power supply module
Fans	• Two memory cooling fans. Each server board controls one fan. • Two system blower fans. Each server board controls one fan.
USB	• Each server board has two USB ports on the back panel • Each server board has one internal USB header, which supports two USB ports
System management	Intel® System Management 2.0 Software

External Component Identification

This section helps you identify the components of your server system. If you are near the system, you can also use the quick reference label on the inside of the chassis cover to assist in identifying components.

System Front Panel

Each server board has its own control panel at the front of the server system. Each control panel includes the following buttons and LEDs.
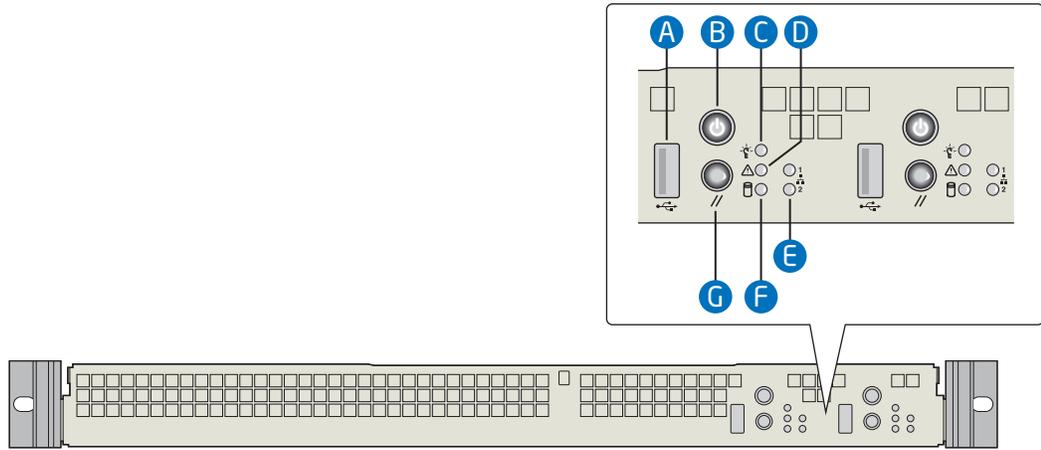
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Item	Feature	Description	
Front Panel Connector			
A	USB connector	2.0 port, 4-pin connectors	
Front Panel Buttons and LED Indicators			
B	Server board power / sleep button	Press to turn the system power on or off	
C	Power Supply LED	Green LED for system power supply status	
		LED State	**Power State**
		Green On	DC Power is ready to be applied to the board
		Green Blink	Board is in sleep state S1
		Off	DC Power supply is in the 'Off' state

Item	Feature	Description	
D	System status / fault LED	Green / amber LED for system status.	
		LED State	**System State**
		Green On	Board is 'ON' with no alarm
		Green Blink	Board is 'ON' but degraded: some CPU fault, DIMM killed
		Amber On	Critical alarm: Critical power module failure, critical fan failure, voltage (power supply), Voltage and thermal fault
		Amber Blink	Non-Critical failure: Non-critical power and voltage
		Off	Board is off with no alarm
E	LAN1, LAN 2 Status LEDs	Green LEDs that show the status of each LAN port	
		LED State	**LAN State**
		Green Off	Idle
		Green On	LAN link / no access
		Green Blink	Active
F	Hard drive activity LED	Green LED that indicates hard drive activity	
		LED State	**Drive State**
		Green blink	Drive is active
		Off	Drive is not active
G	System reset button	Press to reset the system	

Figure 2. Front Controls and LEDs

System Rear

Except for the shared AC power supply, each server board has its own back panel connectors.

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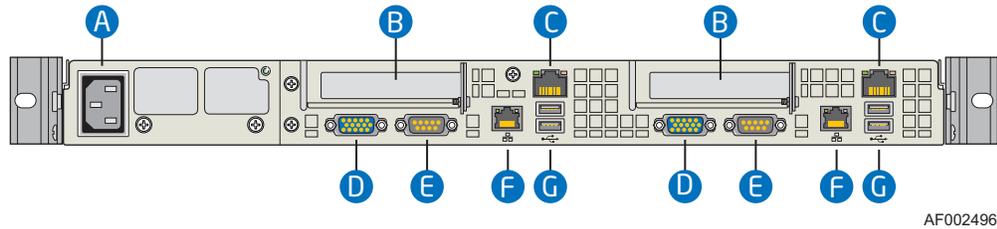
A.	AC power connector (one per system)	E.	Serial port (one for each server board)
B.	PCI Express* add-in card slot location (one for each server board)	F.	NIC 2 (10 / 100 / 1000 Mb) (one for each server board)
C.	NIC 1 (10 / 100 / 1000 Mb) (one for each server board)	G.	USB ports 0-1 (one sets of two ports for each server board)
D.	Video connector (one for each server board)		

Figure 3. Back Panel Connectors

The LEDs at the right and left of each NIC provide the following information.

Table 3. NIC LED Descriptions

LED	LED State	Description
Left	Off	No network connection
	Solid amber	Network connection in place
	Blinking amber	Transmit/receive activity
Right	Off	10 Mbps connection (if **left** LED is on or blinking)
	Solid amber	100 Mbps connection
	Solid green	1000 Mbps connection

Peripheral Devices

The server system provides locations for installing up to two fixed 2.5-inch SATA hard drives and up to two Intel® Z-U130 Value Solid State Drive (Intel® VSSD). Each server board controls one of each of these drives. No optical or floppy drive bays are available, but these devices are supported through an external USB connection. The drives must be purchased separately. The following figure shows the available options.
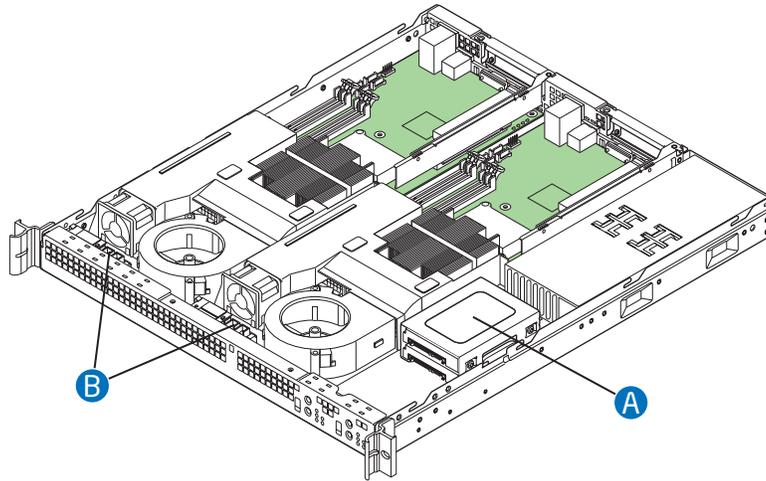
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A.	Two 2.5-inch hard drive bays, stacked on top of each other
B.	Two Intel® Z-U130 Value Solid State Drive bays

Figure 4. Optional Peripherals

For instructions on installing a hard drive, see "Installing and Removing a Hard Drive" on page 15.

For instructions on installing the Intel® Z-U130 Value Solid State Drive, see the document titled *Intel® Z-U130 Value Solid State Drive Mounting Kit Installation Guide for Intel® Server Systems*.

Note: *Drives can consume up to 17 watts of power each. Drives must be specified to run at a maximum ambient temperature of 45ºC.*

Note: *The Intel® Server System SR1520ML does not support all Serial ATA (SATA) hard drives. See "Server System References" on page xix for an Internet link to a list of supported hardware.*

Internal Components
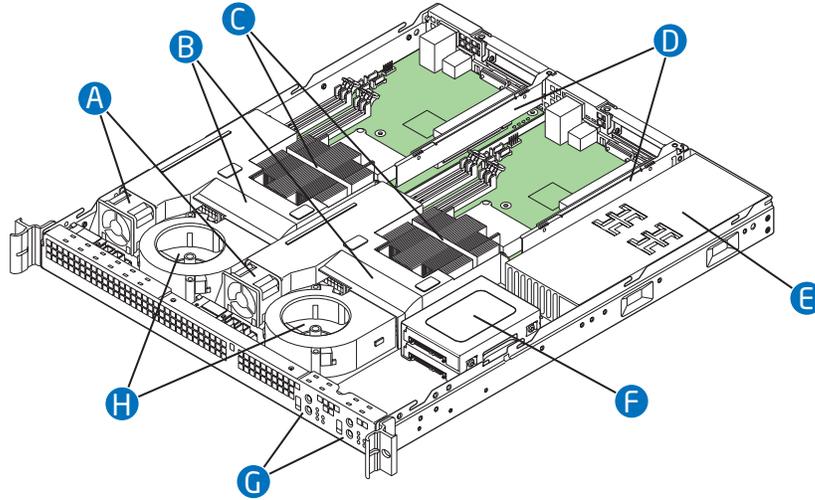
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A.	Memory cooling fans (two)	E.	Power supply
B.	Processor and memory air duct (two)	F.	Hard drive bracket (one bracket for two 2.5-inch drives)
C.	Processor and heat sink (two)	G.	Front control panel (two)
D.	PCI add-in card bracket (two)	H.	System blower fans (two)

Figure 5. System Components

Server Board Connectors

The two Intel® Server Boards X38ML have the same connectors / components.
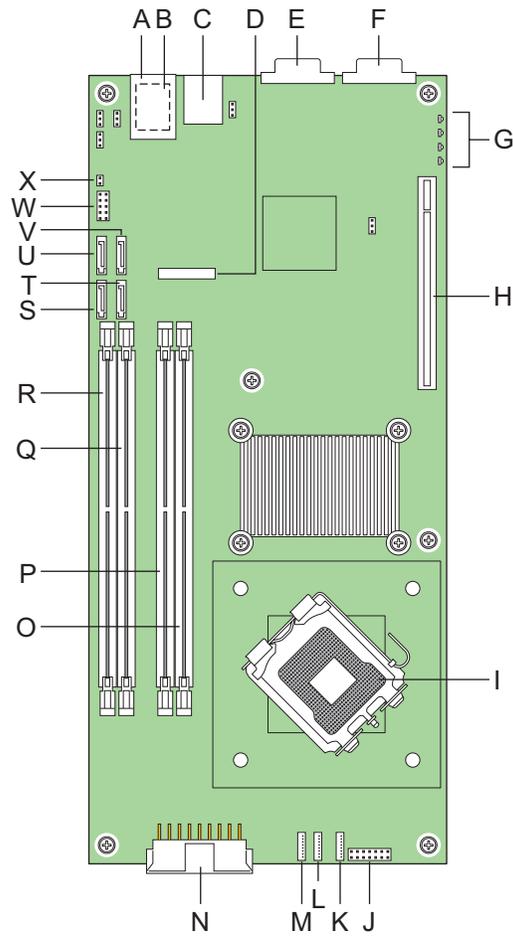
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A.	NIC1 RJ45 connector (top)	I.	Processor socket	Q.	DIMM socket B1
B.	USB port 0 (bottom) USB port 1 (center)	J.	Front panel connector	R.	DIMM socket B2
C.	NIC2 RJ45 connector	K.	System fan 3	S.	SATA port 0
D.	CMOS battery	L.	System fan 2	T.	SATA port 1
E.	Serial A DB9 connector	M.	System fan 1	U.	SATA port 2
F.	VGA connector	N.	Main power connector	V.	SATA port 3
G.	POST LEDs	O.	DIMM socket A1	W.	USB header for USB 2 and 3
H.	PCI Express* x16 riser slot	P.	DIMM socket A2	X.	Chassis intrusion header

Figure 6. Server Board Connector Locations

Configuration Jumpers

The two Intel® Server Boards X38ML have the same jumpers.
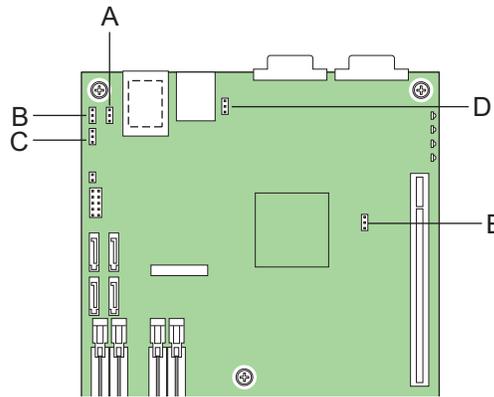
Callout	Location	Jumper Name	Jumper Purpose
A	J1A4	iBMC Boot Block Write Protect	When pins 2-3 are jumpered, the iBMC boot block is write enabled. When pins 1-2 are jumpered, the iBMC boot block is write protected. Pins 1-2 should be jumpered for normal operation.
B	J1A2	BIOS Recovery Mode	When pins 2-3 are jumpered, the BIOS will be recovered on the next boot. Pins 1-2 should be jumpered for normal operation.
C	J1A3	CMOS Clear	When pins 2-3 are jumpered, the CMOS settings will be cleared on the next boot. Pins 1-2 should be jumpered for normal operation.
D	J3A1	iBMC Force Update Mode	When pins 2-3 are jumpered, the iBMC firmware will be updated on the next boot. Pins 1-2 should be jumpered for normal operation.
E	J6B1	Password Clear	When pins 2-3 are jumpered, the administrator and user passwords will be reset on the next boot. Pins 1-2 should be jumpered for normal operation.

Figure 7. Configuration Jumpers

SATA RAID Support

The Intel® Server System SR1520ML provides SATA (3.0 Gb/s) support.The embedded SATA controller embedded supports both 1.5 and 3.0 Gbps data transfer rates. The Intel® RAID Technology solution, available with the ICH9R, offers data striping for higher performance (RAID Level 0) and mirroring for higher reliability (RAID Level 1).

The BIOS Setup utility provides multiple drive configuration options on the Advanced | ATA Controller setup page, some of which affect the ability to configure RAID. The "Onboard SATA Controller" option is enabled by default. When this option is enabled, the "Configure SATA as" option can be set to either IDE, AHCI, or RAID.

For assistance in navigating through the F2 BIOS Setup utility, see the *Intel® Server Board X38ML Technical Product Specification*.

For information about setting up RAID, see the RAID Software Guide that is included on the *Intel® Server Deployment Toolkit 2.0 CD*.

Rack and Cabinet Mounting

The server system can be mounted into a 19-inch wide by up to a 30-inch deep server cabinet. The system ships with a basic slide rail kit and supports optional fixed-mount and tool-less slide rail kits:

- The basic slide rail kit mounts the system into a standard 19-inch wide by up to 30-inch deep EIA-310D-compatible server cabinet. The product order code is AXXBASICRAIL. This kit is included with your server system.

- A fixed mount relay rack / cabinet mount kit can be configured to mount the system into either a 2-post or 4-post rack cabinet. The product order code is AXXBRACKETS. This kit is included with your server system.

- A tool-less full-extracting slide rail kit supports an optional cable management arm. The product order code is AXXRACKCARM. This is an optional accessory that must be ordered separately.

Hardware Requirements

To avoid integration difficulties and possible board damage, your system must meet the requirements outlined below. For a list of qualified components, see the links under "Server System References."

Processor

Each server board must have one processor installed. Each board can use a different processor. For a list of supported processors, see http://support.intel/com/support/motherboards/server/X38ML.

Memory

Each server supports four DDR2 667 / 800 MHz unbuffered ECC DIMMs. The maximum memory capacity is 2 GB unbuffered, 1 Gbit DDR2 memory. The minimum is one 256-MB DIMM. The four slots are partitioned into Channel A and Channel B. Channel A consists of DIMM A1 and DIMM A2. Channel B consists of DIMM B1 and DIMM B2. DIMM A1 is the closest to the MCH.

DIMMs must meet the following requirements:

- If dual-channel operation is desired, Channel A and Channel B must be populated identically (i.e., same capacity).
- Use DDR2 667 / 800 only.
- The speed used on all the channels is the slowest DIMM in the system.
- Use ECC or non-ECC DIMMs.
- You can mix different memory technologies (size and density).
- For single-channel mode, either channel may be used and DIMM sockets within the same channel can be populated in any order.
- For dual-channel interleaved mode, DIMM sockets may be populated in any order as long as the total memory in each channel is the same.
- For dual-channel asymmetric mode, DIMM sockets may be populated in any order.

For a complete list of supported memory DIMMs, see http://support.intel/com/support/motherboards/server/X38ML.

2 Hardware Installations and Upgrades

Caution: *No components in the Intel® Server System SR1520ML are hot swappable. Before removing or installing any component in this server system, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button(s), and unplug the AC power cord from the system or wall outlet.*

Before You Begin

Before working with your server product, pay close attention to the "Safety Information" on page iii.

Tools and Supplies Needed

- Phillips* (cross head) screwdriver, #1 bit and #2 bit
- Antistatic wrist strap and conductive foam pad (recommended)

System References

All references to left, right, front, top, and bottom assume the reader is facing the front of the server system as it would be positioned for normal operation.

Removing and Installing the Server Cover

Removing the Server System Cover

The server system must be operated with the cover in place to ensure proper cooling. You will need to remove the cover to add or replace components inside of the server.

None of the internal components are hot-swappable. Before removing the server system cover, power down the server and unplug all peripheral devices and the AC power cable.

Note: *A nonskid surface or a stop behind the server system may be needed to prevent the server system from sliding on your work surface.*

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Turn off all peripheral devices connected to the server. Turn off the server.

3. Disconnect the AC power cord.

4. Remove the screw from the rear of the system. See letter "A" in the figure below.

5. Remove the two screws from the top of the system, at the front edge. See letter "B" in the figure.

6. Push rearward on the top cover to slide the cover about 3/4 inch, until it stops, then lift up on the cover to remove it. See letter "C".
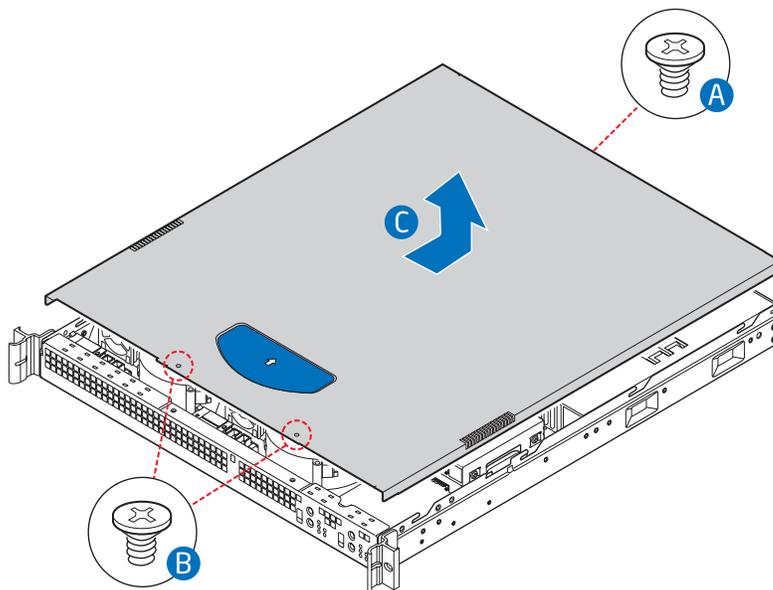
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Figure 8. Removing the Server System Cover

Installing the Server System Cover

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Place the cover over the server system so that the side edges of the cover sit just outside of the server system sidewalls. Slide the cover forward. See letter "A" in the figure below.

3. Insert the larger screw at the rear of the system. See letter "B" in the figure.

4. Insert the two small screws on the top surface of the cover, near the front edge. See letter "C".
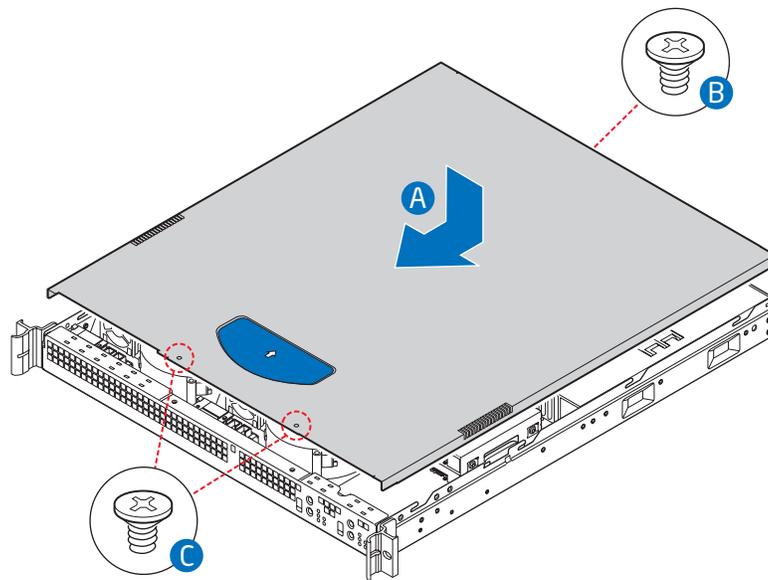
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Figure 9. Installing the Server System Cover

5. Reconnect all peripheral devices and the AC power cord.

Installing and Removing a Hard Drive

Caution: *The hard drives are NOT hot swappable. Before removing or replacing a hard drive, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

One SATA drive can be installed for each server board (two drives total). Both drive bays are at the right side of the chassis.

Note: *The server system does not support all hard drives. See "Server System References" on page xix for an Internet link to a list of supported hardware.*

Installing a Hard Drive

Note: *If you are replacing a hard drive, see "Removing a Hard Drive" on page 18 for instructions first. Return to these steps when directed.*

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server. Unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the screws that hold the hard drive bracket to the system. See letter "A" in the figure below. For easiest access to the screws on the right side of the hard drive bracket, lift the power supply from the system.

5. Lift the drive carrier from the system. See letter "B" in the figure.
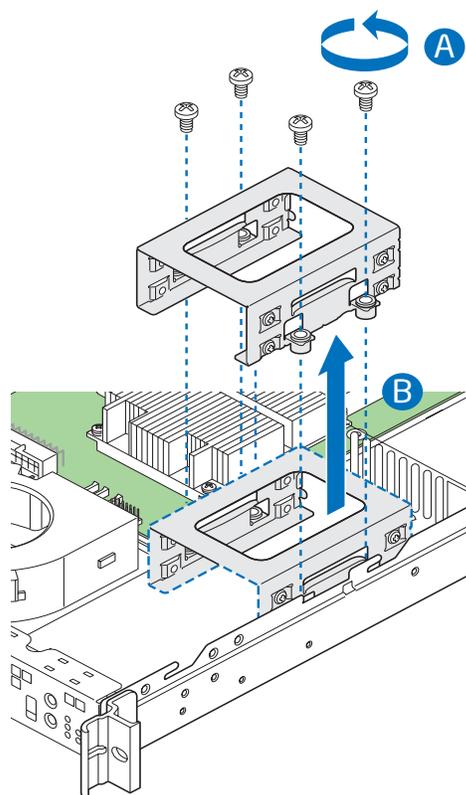
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Figure 10. Removing Drive Carrier from the Server System

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6. Slide the drive into the carrier, connector side last. See letter "A" in the following figure. If you are installing a drive for each server board, note which drive is on bottom and which is on top to ensure you connect the cables correctly later.

7. Use the four screws provided to attach the drive to the carrier, two screws on each side of the carrier. See letter "B" in the figure.

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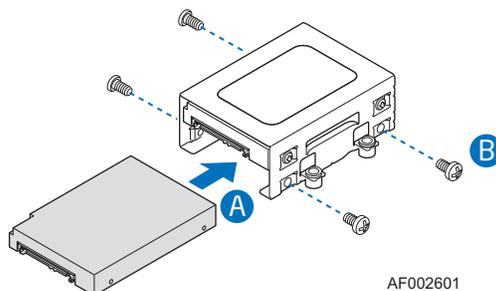
Figure 11. Installing The Hard Drive in the Drive Carrier

Note: *For ease of assembly, connect the power and data cables before installing the drive assembly into the server.*

8. Connect one blue SATA cable between each drive and the SATA_0 port on each server board if you installed two drives. Be sure to note which drive is connected to which server board.

9. Connect the power cables to the drive(s):

— Connect the power cable labeled "P4" to the bottom drive.

— Connect the power cable labeled "P3" to the top drive.

10. Set the drive assembly into place in the chassis. See letter "A" in the figure below.

11. Attach the drive assembly to the chassis with the screws that you removed earlier. See letter "B" in the figure below.

12. If you lifted out the power supply to access the drive bracket screws, set the power supply back into place. See letter "C" in the figure below.

AF002509
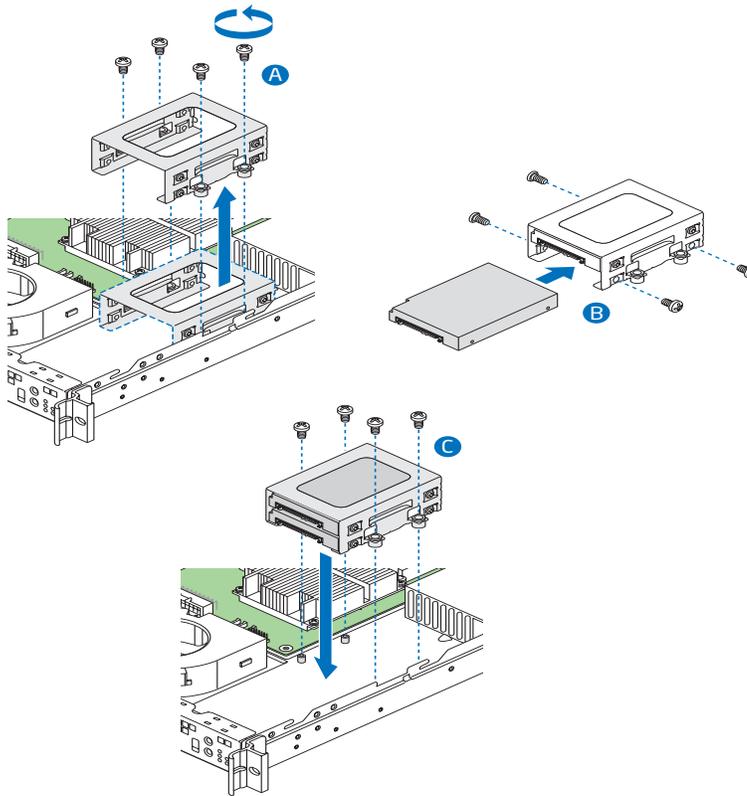
Figure 12. Installing Drive Assembly

13. Install the server system cover. For instructions, see "Installing the Server System Cover".

Removing a Hard Drive

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the screws that hold the hard drive bracket to the chassis. For easiest access to the two screws on the right side, lift the power supply from the system. See letter "A" in the figure below.

5. Lift the drive carrier from the chassis. See letter "B" in the figure below.
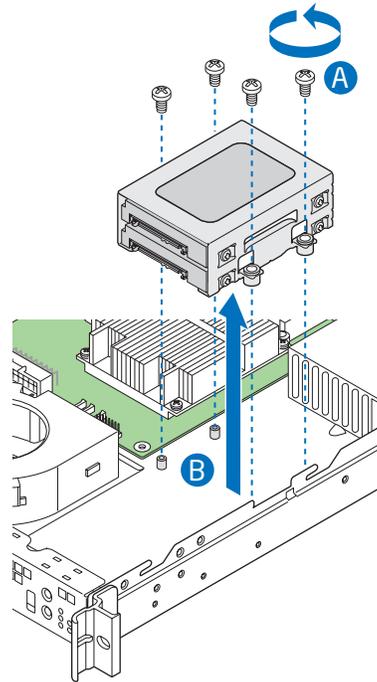
AF002603

Figure 13. Removing Drive Carrier

6. Disconnect the power and data cables from the drive.

7. Remove the four screws that attach the hard drive to the drive carrier. Lift the drive from the carrier. Store the drive in an anti-static bag.

8. If you are installing a new drive, skip the remaining steps and refer to "Installing a Hard Drive" on page 16. Begin with step 6.

9. Insert the screws that held the drive in the carrier into the screw locations on the carrier to store them for future use.

10. Set the drive assembly into place in the chassis. See letter "A" in the figure below.

11. Attach the drive assembly to the chassis with the screws that you removed earlier. See letter "B" in the figure below.
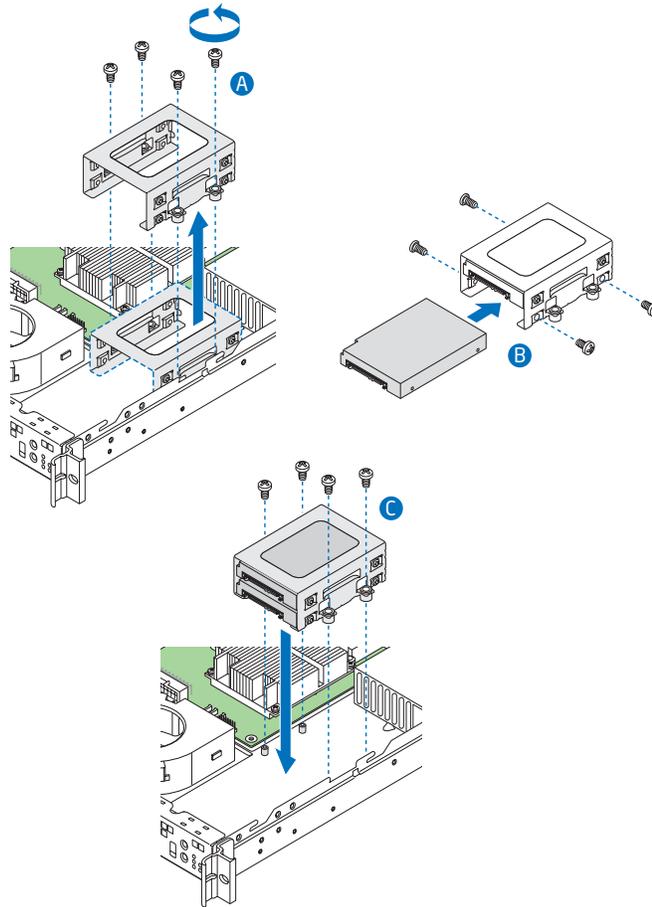
AF002509

Figure 14. Installing the Drive Carrier

12. If you moved the power supply to access the drive bracket screws, set the power supply back into place.

13. Install the server system cover. For instructions, see "Installing the Server System Cover".

Installing an Intel® Z-U130 Value Solid State Drive

Caution: *The Intel® VSSD is NOT hot swappable. Before removing or replacing the Intel® VSSD, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Follow the instructions in the document titled *Intel® Z-U130 Value Solid State Drive Mounting Kit Installation Guide for Intel® Server Systems*.

Note: *Your server system includes a USB Y-cable attached to the server board. One part of this cable is attached to the front panel board. The other cable is loose. This loose cable is for the Intel® VSSD.*

5. Install the server system cover. For instructions, see "Installing the Server System Cover".

6. Plug all peripheral devices and the AC power cable into the server.

Installing and Removing the PCI Riser Assembly

Caution: *The PCI riser assembly is NOT hot swappable. Before removing or replacing the PCI riser assembly, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

Removing the PCI Riser Assembly

To remove the PCI riser assembly, use the following instructions.

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Disconnect any cables attached to any add-in cards.

5. Remove the screw from the riser assembly bracket. See letter "A" in the following figure.

6. Lift up on the riser assembly to remove it. Use caution to gently ease the riser card from the add-in card slot so you do not damage the slot or the riser card. See letter "B" in the figure.
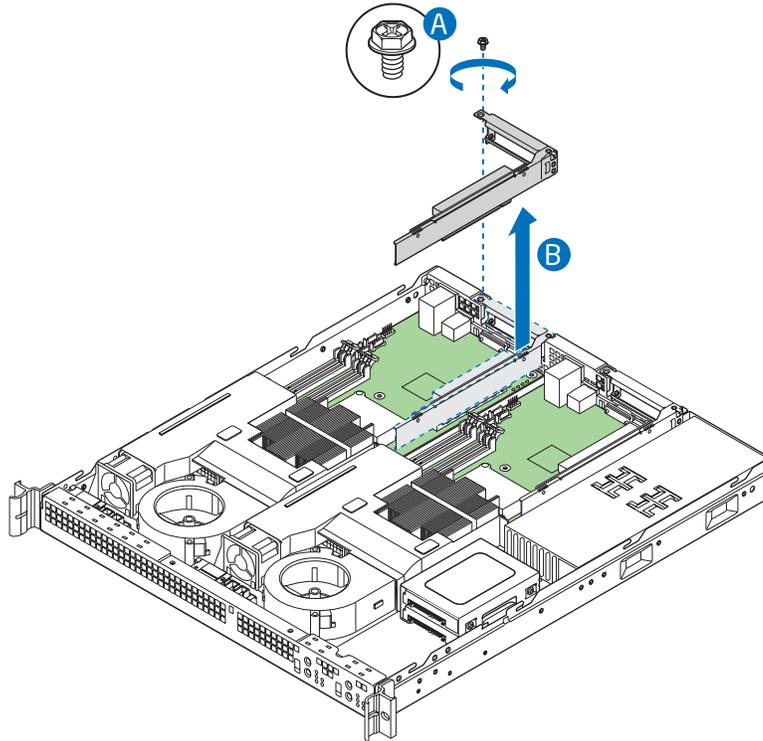
AF002512

Figure 15. Removing PCI Riser Assembly

7. If you need to replace the PCI riser card, see "Removing and Installing the PCI Riser Card" on page 24.

8. If you need to install or remove a PCI add-in card, see "Installing and Removing a PCI Add-in Card" on page 26.

9. If you removed the PCI riser assembly as instructed in another procedure, continue with that procedure.

Installing the PCI Riser Assembly

Note: *For clarity, the figure in this series of instructions does not show an attached add-in card. If you are installing an add-in card, do so before installing the PCI riser assembly into your server system.*

1. Lower the riser assembly into place over the add-in card slot. See letter "A" in the following figure, aligning the tabs on the riser assembly with the matching slot at the back of the server system, and aligning the riser card with the slot in the server board.

2. Press down uniformly until the riser card is seated on the server board.

3. Insert the screw into the riser assembly bracket. See letter "B" in the figure.
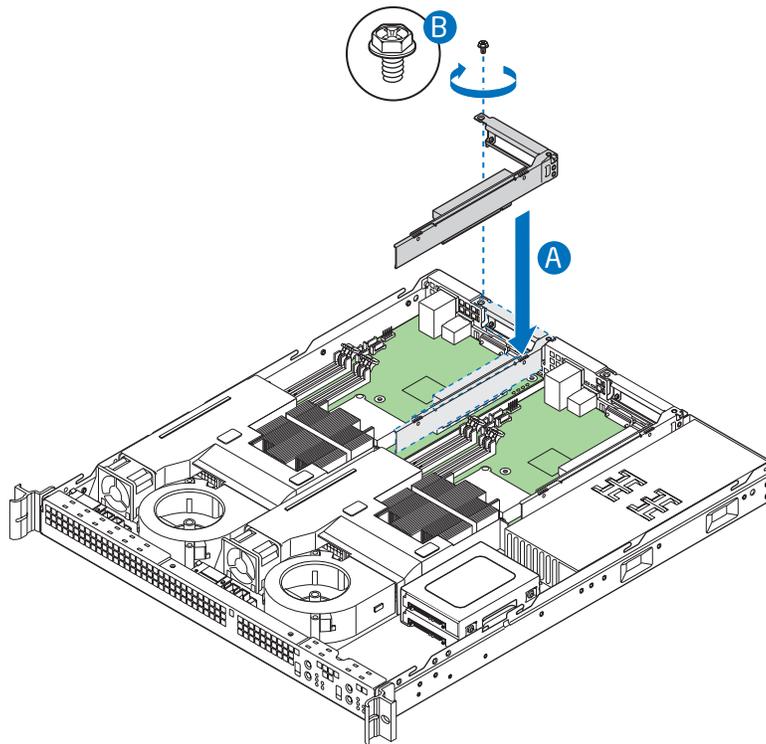
AF002513

Figure 16. Installing PCI Riser Assembly into the Server System

4. Install the server system cover. For instructions, see "Installing the Server System Cover".

Removing and Installing the PCI Riser Card

Caution: *The PCI riser card is NOT hot swappable. Before removing or replacing the PCI riser card, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

Removing the PCI Riser Card

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Disconnect any cables attached to any add-in cards.

5. Remove the PCI riser assembly. For instructions, see "Removing the PCI Riser Assembly" on page 21.

6. Remove the add-in card from the PCI riser connector if an add-in card is installed. For instructions, see "Removing a PCI Add-in Card" on page 27.

7. Remove the two screws that attach the riser card to the riser assembly. See the following figure. Save these screws for later. Remove the riser card from the riser assembly.

AF002533
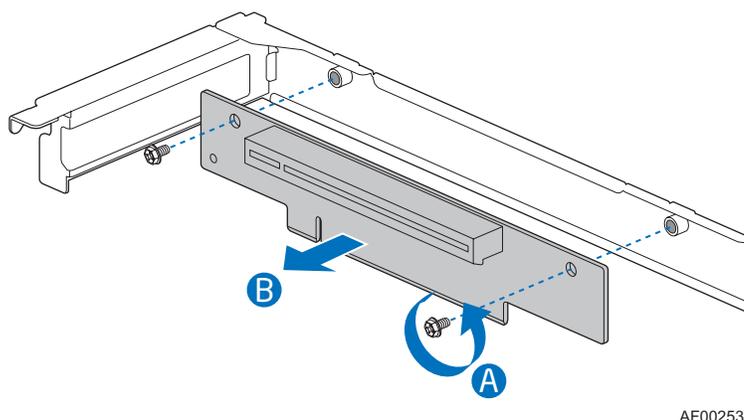
Figure 17. Removing Riser Card from Riser Assembly

8. Install the replacement riser card. For instructions, see "Installing a PCI Riser Card" on page 25.

9. Choose the appropriate action:

— Install an add-in card. For instructions, see "Installing a PCI Add-in Card" on page 26.

— Install the PCI riser assembly into the server system. For instructions, see "Installing the PCI Riser Assembly" on page 22.

Installing a PCI Riser Card

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover".

4. Disconnect any cables attached to any add-in cards.

5. Remove the PCI riser assembly. For instructions, see "Removing the PCI Riser Assembly" on page 21.

6. Remove any add-in cards from the PCI riser connector. For instructions, see "Removing a PCI Add-in Card" on page 27.

7. Use two screws to attach the riser card to the riser assembly. See the figure below.

AF002650
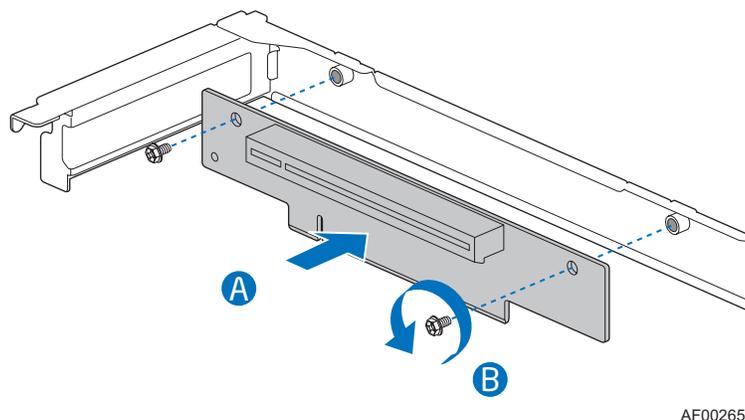
Figure 18. Installing Riser Card onto Riser Assembly

8. Choose the appropriate action:

— Install a PCI add-in card if desired. For instructions, see "Installing a PCI Add-in Card" on page 26.

— Install the PCI riser assembly into the server system. For instructions, see "Installing the PCI Riser Assembly" on page 22.

Installing and Removing a PCI Add-in Card

Caution: *The add-in cards are NOT hot swappable. Before removing or replacing an add-in card, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

Installing a PCI Add-in Card

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the PCI riser assembly. For instructions, see "Removing the PCI Riser Assembly" on page 21.

5. Remove the screw from the add-in card slot opening.

6. If a filler panel is installed over the opening at the rear of the riser assembly, remove it. Save the filler panel in case you need it to remove the add-in card later.

7. Insert the add-in card into the socket in the riser assembly. Push the add-in card into place firmly until it seats in the riser card connector, but use caution so you do not twist or bend the card. See letter "A" in the figure below.

8. Re-install the screw you removed in step 5. See letter "B" in the figure.
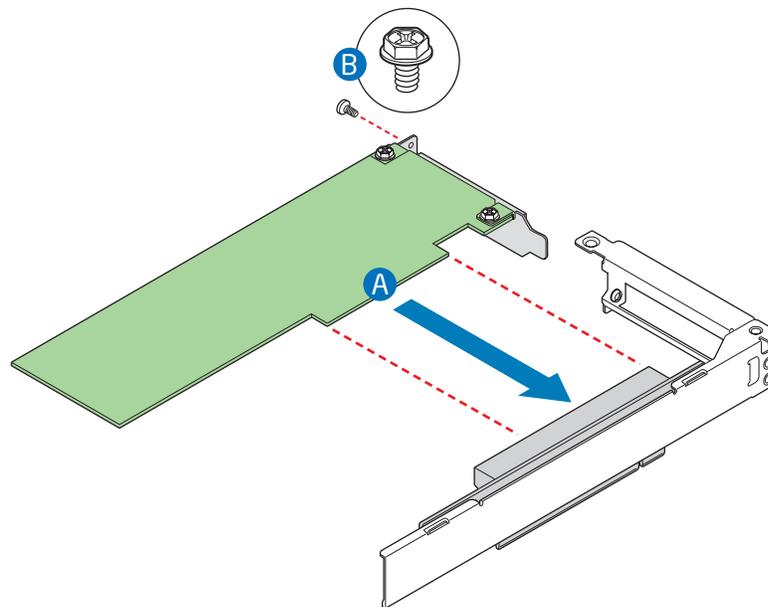
AF002515

Figure 19. Installing an Add-In Card

9. Connect any necessary cables to the add-in card. See your add-in card documentation for information.

10. Install the PCI riser assembly into the server system. For instructions, see "Installing the PCI Riser Assembly" on page 22.

Removing a PCI Add-in Card

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the PCI riser assembly. For instructions, see "Removing the PCI Riser Assembly" on page 21.

5. Remove the screw at the rear of the riser assembly. See letter "A" in Figure 20. Save this screw. You will use it later.

6. Pull the add-in card from the riser assembly socket. Use caution so you do not twist or bend the card. See letter "B" in the figure.

7. If you are not installing a replacement add-in card, install a filler panel over the opening at the rear of the riser assembly.

8. Re-install the screw you removed in step 5.
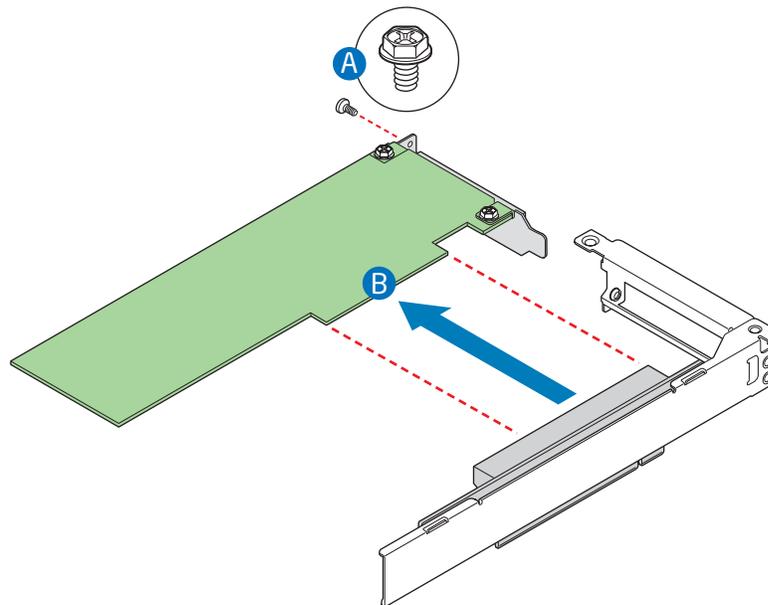
AF002514

Figure 20. Removing an Add-In Card

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

9. Install the PCI riser assembly into the server system. For instructions, see "Installing the PCI Riser Assembly" on page 22.

Removing and Installing the Processor Air Duct

Always operate your server system with the processor air duct in place. The air duct is required for proper airflow within the server system.

Removing the Processor Air Duct

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover".

4. Lift the processor air duct from its location behind the two fans. See the figure below.
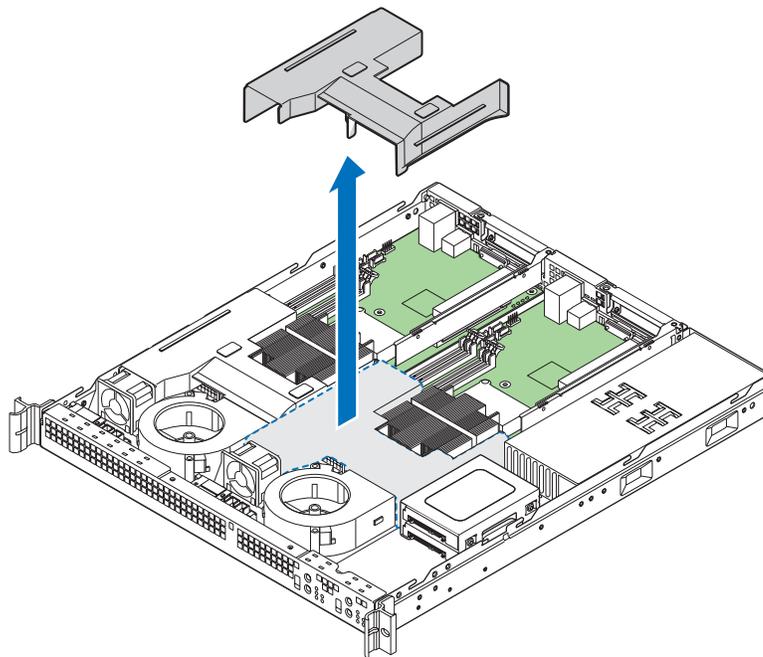
AF002502

Figure 21. Removing the Processor Air Duct

Installing the Processor Air Duct

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Lower the air duct into place. Use caution so you do not pinch or disengage cables that may be near or under the air duct. See the figure below.
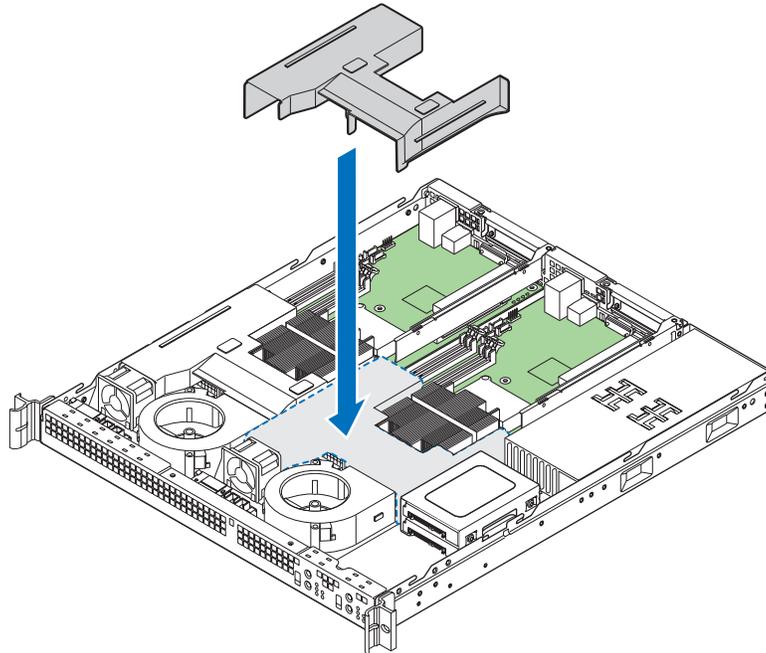
AF002503

Figure 22. Installing the Processor Air Duct

5. Install the server system cover. For instructions, see "Installing the Server System Cover".

Installing and Removing Memory

Caution: *The memory is NOT hot swappable. Before removing or replacing any memory DIMM, you must first take the server out of service, turn off all peripheral devices connected to*

the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.

The silkscreen on the board for the DIMMs displays DIMMB2, DIMMB1, DIMMA2, DIMMA1 starting from the edge of the board. DIMMA1 is the socket closest to the processor socket. See "Memory" on page 12 for a discussion of the memory requirements and options. See "Server System References" on page xix for a link to the list of tested DIMMs.

Memory Population Rules

Each server board in the Intel® Server System SR1520ML provides four DIMM sockets across two banks. For each server board, Bank 1 consists of DIMM sockets A1 and B1. Bank 2 consists of DIMM sockets A2 and B2. For single-channel operation, either channel may be used and DIMM sockets within the same channel can be populated in any order. For dual-channel asymmetric mode, DIMM sockets may be populated in any order.

DIMMs must meet the following requirements:

- The minimum memory is one 256 MB DIMM in socket A1 on each server board. Socket A1 is the blue socket that is the closest to the center of the server board. This provides single-channel mode for each server board,

- Use only DIMMs with DDR2 DRAM technology.

- Use only DDR2-667 and DDR2-800 stacked DIMM modules. The channels will use the speed of the slowest DIMM on the server board.

For dual-channel operation, the following conditions must be met:

- Populate two identical DIMMs in sockets DIMMA1 and DIMM B1. These are the two blue sockets

- Populate four identical DIMMs in each socket location.

For a complete list of supported memory DIMMs, see http://support.intel/com/support/motherboards/server/X38ML.

Installing DIMMs

To install DIMMs, follow these steps:

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the processor air duct. For instructions, see "Removing the Processor Air Duct" on page 28.

5. Locate the DIMM sockets. See Figure 23.
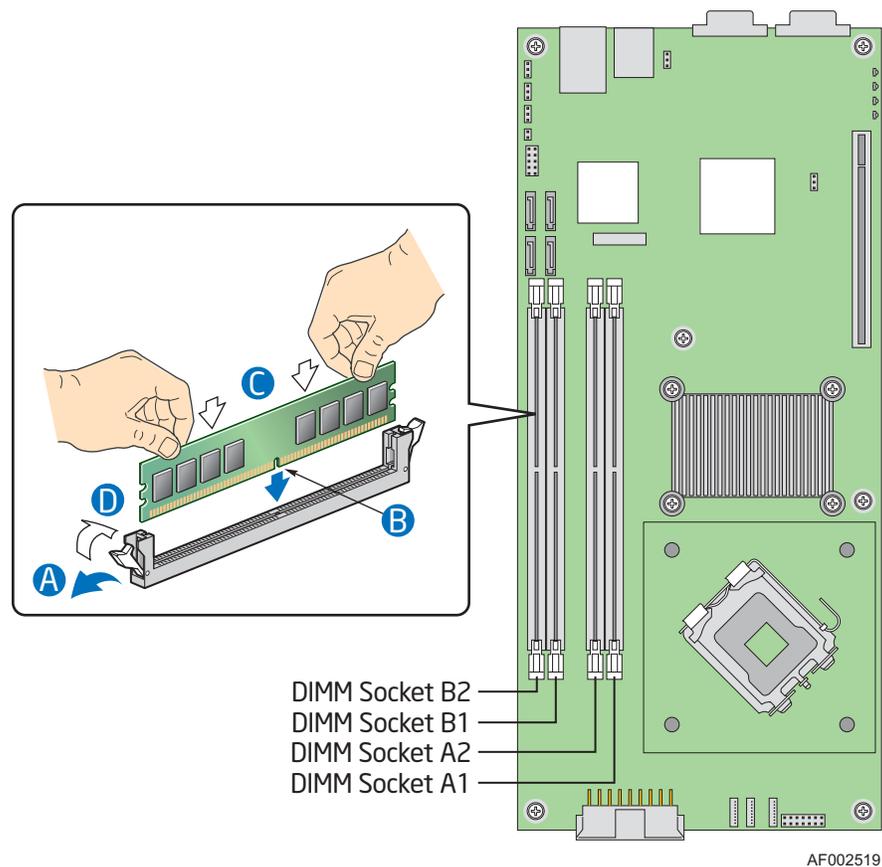
Figure 23. Installing Memory DIMMs

6. Make sure the clips at both ends of the DIMM socket(s) are pushed outward to the open position. See letter "A" in Figure 23.

7. Holding the DIMM by the edges, remove it from its anti-static package.

8. Position the DIMM above the socket. Align the notch on the bottom edge of the DIMM with the key in the DIMM socket. See letter "B" in the figure.

9. Insert the bottom edge of the DIMM into the socket. See letter "C" in the figure.

10. When the DIMM is correctly positioned, push down on the top edge until the retaining clips snap into place.

11. Close the clips and make sure they are firmly in place. See letter "D" in the figure.

12. Install the processor air duct. For instructions, see "Installing the Processor Air Duct" on page 29.

13. Install the server system cover. For instructions, see "Installing the Server System Cover".

Removing DIMMs

To remove a DIMM, follow these steps:

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the processor air duct. For instructions, see "Removing the Processor Air Duct" on page 28.

5. Locate the DIMM sockets. See Figure 23.

6. Gently open the retaining clips at each end of the socket. See letter "A" in the following figure.

7. Holding the DIMM by the edges, lift it from the socket, and store it in an anti-static package. See letter "B" in the figure.

8. Close the DIMM socket clips at each edge of the socket. See letter "C".

DIMM Socket B2
DIMM Socket B1
DIMM Socket A2
DIMM Socket A1

AF002518
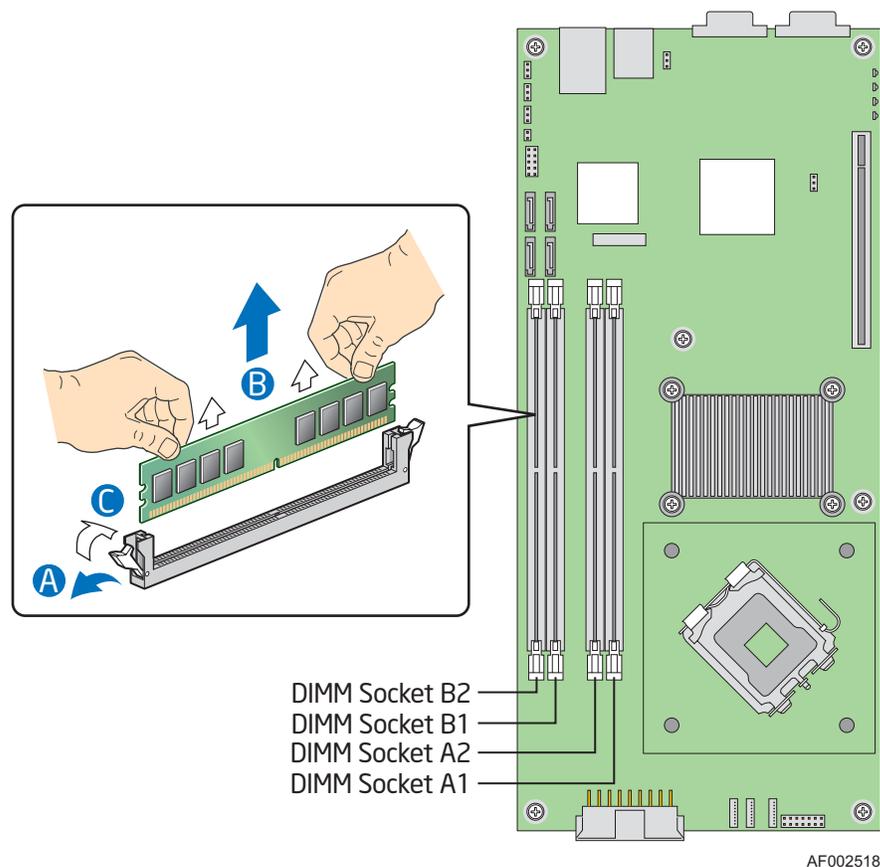
Figure 24. Removing Memory DIMMs

9. Install the processor air duct. For instructions, see "Installing the Processor Air Duct" on page 29.

10. Install the server system cover. For instructions, see "Installing the Server System Cover".

Replacing the Processor

Note: This manual assumes a processor is already installed and you are referring to these steps to replace your processor. If you are setting up this system for the first time, see the Quick Start User's Guide that was included in the product box.

Caution: Use only processors that have been validated to work with this server board. See "Server System References" on page xix for a link to the list of compatible processor(s).

Caution: ESD and handling processors: Reduce the risk of electrostatic discharge (ESD) damage to the processor by doing the following: (1) Touch the metal chassis before touching the processor or server board. Keep part of your body in contact with the metal chassis to dissipate the static charge while handling the processor. (2) Avoid moving around unnecessarily.

Removing the Heat Sink and Processor

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the processor air duct. For instructions, see "Removing the Processor Air Duct" on page 28.

5. Loosen the four captive screws on the corners of the heat sink.

6. Twist the heat sink slightly to break the seal between the heat sink and the processor.

7. Lift the heat sink from the processor. If it does not pull up easily, twist the heat sink again. Do not force the heat sink from the processor, which could damage it.

8. Raise the processor socket handle completely. See the following figure.
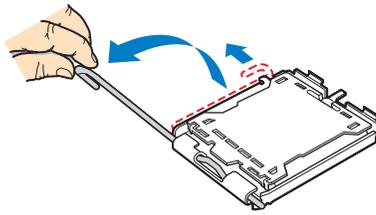
AF000095

Figure 25. Opening the Processor Socket Handle

9. Push the rear tab with your finger to slightly lift the front of the load plate. Raise the load plate completely. Raise the CPU load plate. See the following figure.
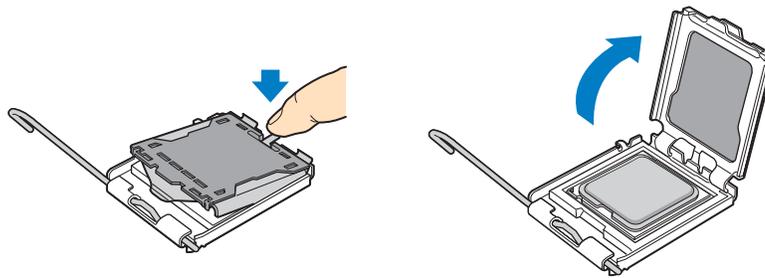
AF000415

Figure 26. Opening the Load Plate

Caution: *Do not touch the socket pins; they are very sensitive and easily damaged.*

10. Lift the processor from the socket. See the following figure.

Intel® Server System SR1520ML User's Guide

AF000416
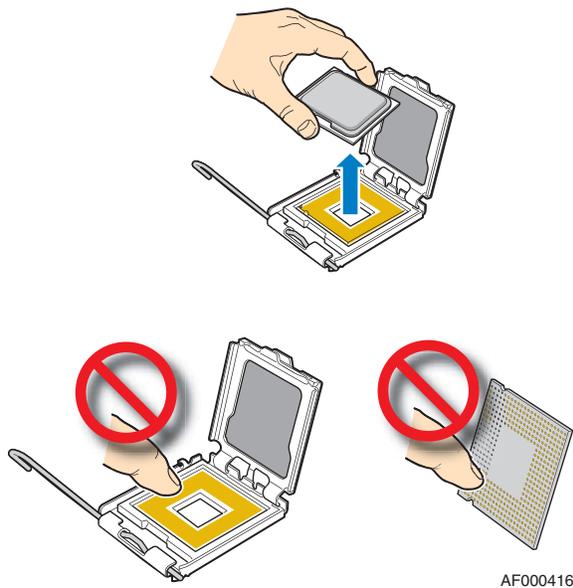
Figure 27. Removing the Processor

11. Continue with the steps under "Installing the Processor".

Installing the Processor

These steps assume you have just removed your heat sink and processor and your server system is powered down and unplugged. If this is not true, see "Removing the Heat Sink and Processor" on page 33 before following these steps.

Caution: *Do not touch the socket pins; they are very sensitive and easily damaged.*

1. Remove the processor from the packaging box and remove the protective shipping cover.

2. Orient the processor with the socket so the processor cutouts match the socket notches, then set the processor into place. See the following figure.

AF000101
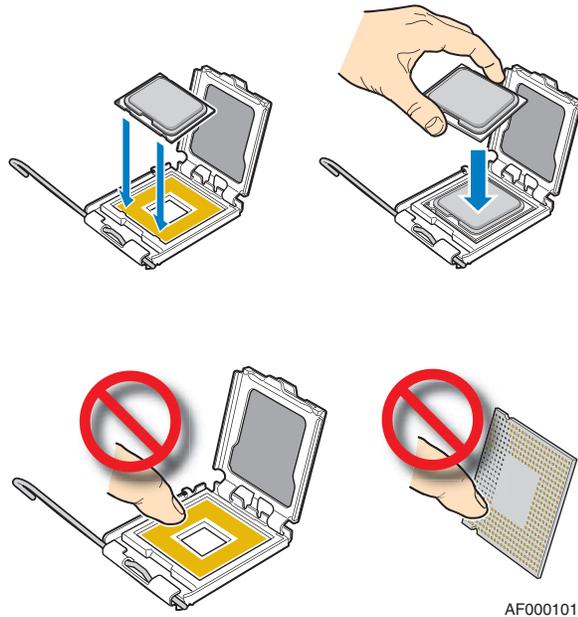
Figure 28. Installing the Processor

Note: *Make sure the alignment triangle mark and the alignment triangle cutout align correctly.*

3. Lower the CPU load plate.

4. Lower the socket lever.

5. Install the heat sink. For instructions, see the following steps.

Installing the Heat Sink

Install the processor before installing the heat sink. For instructions, see "Installing the Processor" on page 35.

Caution: *The heat sink has Thermal Interface Material (TIM) located on the bottom of it. Use caution when you unpack the heat sink so you do not damage the TIM.*

1. Remove the protective cover from the TIM on the underside of the heat sink. Do not touch the TIM.

2. Orient the heat sink over the processor as shown by Figure 29. The fins must be positioned as shown by letter "A" to provide correct airflow through the system.

3. Set the heat sink over the processor, lining up the four captive screws with the four posts surrounding the processor as shown by letter "B".

4. Loosely screw in the captive screws on the heat sink corners in a diagonal manner as shown by the four circled numbers in the figure below. Do no fully tighten one screw before tightening another.

5. Gradually and equally tighten each captive screw in the same order until each is firmly tightened.
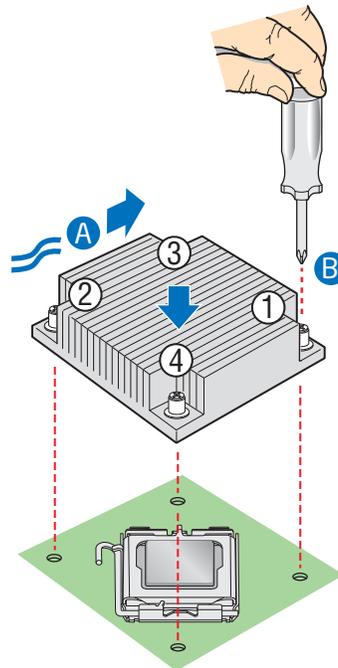
AF002517

Figure 29. Installing the Heat Sink

6. Install the processor air duct. For instructions, see "Installing the Processor Air Duct" on page 29.

7. Install the server system cover. For instructions, see "Installing the Server System Cover".

Replacing the Power Supply

Caution: *The power supply is NOT hot swappable. Before removing or replacing the power supply, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

The power supply can be replaced if it fails or if one of the fans that is integrated into it fails. To replace the power supply, use the following instructions.

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover".

4. Disconnect all power cables connected to the server board and peripherals. See Figure 30:

   — From each server board, disconnect the main power cable. This connector is labeled P1 for the board on the right, and P2 for the board on the left. See letters "A" and "B" in the following figure.

   — From each hard drive, disconnect the power cable. The connector to the top drive is labeled P3 and the connector to the bottom drive is labeled P4. See letters "C" and "D" in the figure.
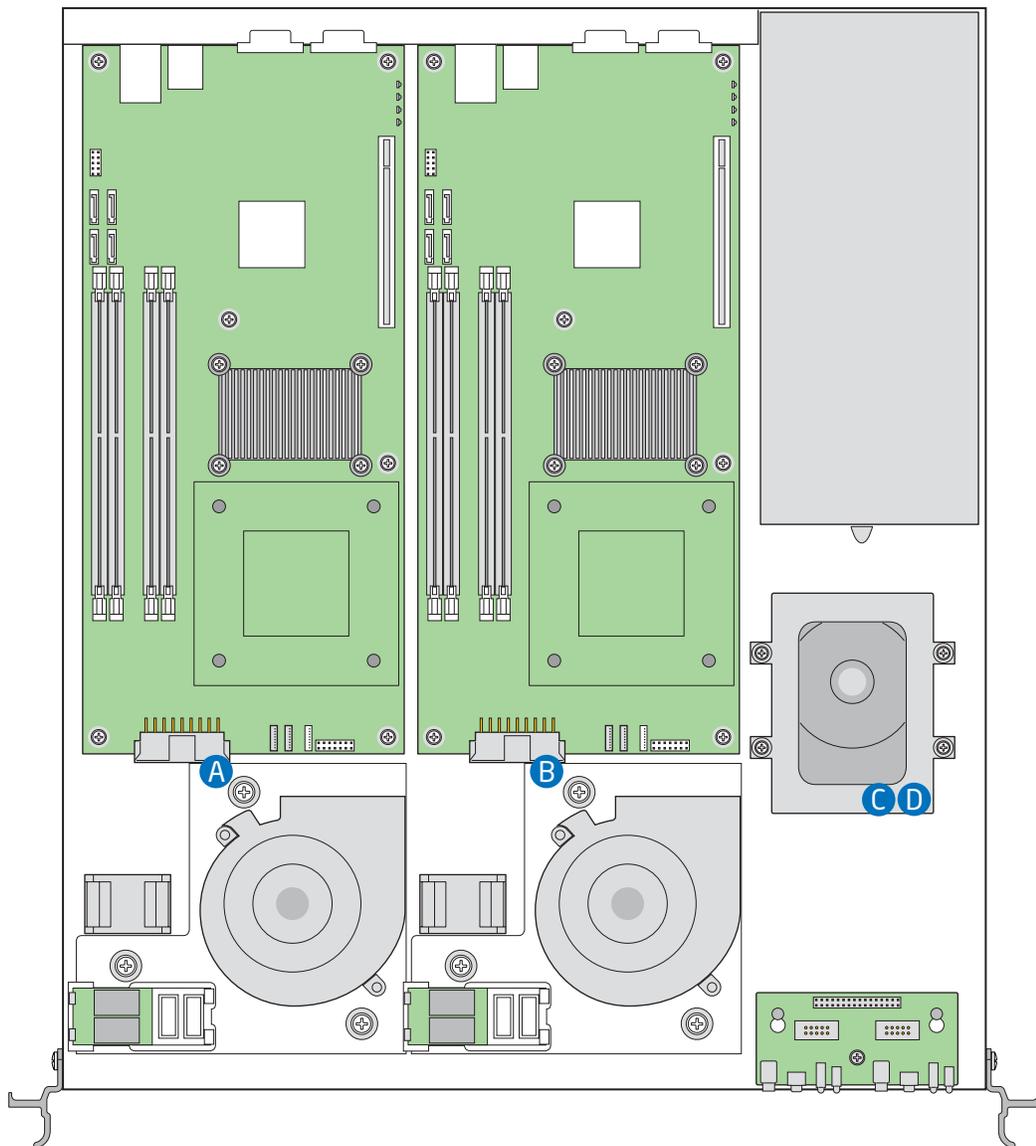
AF002580

Figure 30. Disconnecting Power Cables

5. Push back on the tab for the cable harness to release the bundle of cables.

6. Lift the cable bundle from the harness.

7. Unplug the AC power cable from the rear of the system. See letter "A" in the following figure.

8. Lift up on the power supply to remove it. See letter "B" in the figure.

Note: *While lifting the system to remove it, carefully untangle the power supply cables inside the system if necessary.*
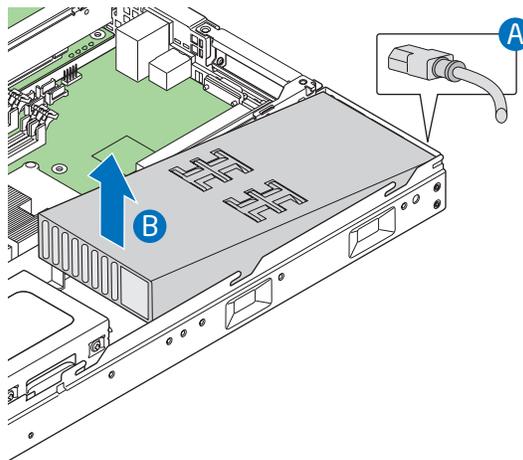
AF002524

Figure 31. Removing Power Supply

9. Slide the rear edge of the replacement power supply into place, lining up with the rear of the server system. See letter "A" in the following figure.

10. Set the front of the power supply down, ensuring it sits behind the metal tab in the bottom of the system. See letter "B" in the figure.

11. Plug in the AC power cable at the rear of the system. See letter "C" in the figure.

12. Push the bundle of cables into place between the drive carriers and the wall of the system.

13. Insert the cable bundle into the cable harness and then close the harness over the cables.
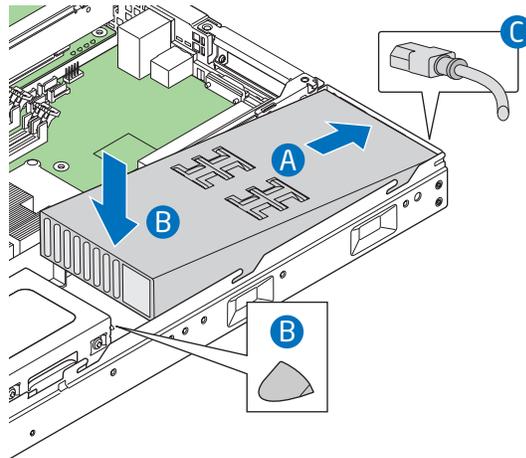
AF002525

Figure 32. Installing Power Supply Module

14. Route the cable with the connector labeled P2 in front of both front blower assemblies.

15. Route the cable with the connector labeled P1 in front of the right front blower assembly.

16. Connect the power cables to the server board and peripherals. See Figure 30:

   — On each board, connect the main power cable. This connector is labeled P1 for the board on the right, and P2 for the board on the left. See letters "A" and "B" in Figure 30 on page 38.

   — On each hard drive, connect the power cable. The connector to the top drive is labeled P3 and the connector to the bottom drive is labeled P4. See letters "C" and "D" in Figure 30 on page 38

17. Install the server system cover. For instructions, see "Installing the Server System Cover".

18. Plug all peripheral devices into the server.

Replacing the Fans

The individual blower fans and memory cooling fans can be replaced if a fan fails. The fans that are integrated into the power supply cannot be replaced. If one of the fans in the power supply fails, the power supply must be replaced.

Caution: *The fans are NOT hot swappable. Before removing or replacing the fan assembly, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

Intel® Server System SR1520ML User's Guide

Replacing a Blower Fan

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover".

4. Remove the processor air duct. For instructions, see "Removing the Processor Air Duct" on page 28.

5. The fan cables are tucked underneath the main power supply cable. For ease of access, disconnect the main power supply cable on both server boards. See letter "A" in the following figure.

6. Disconnect the fan cable from each server board. See letter "B" in the figure.
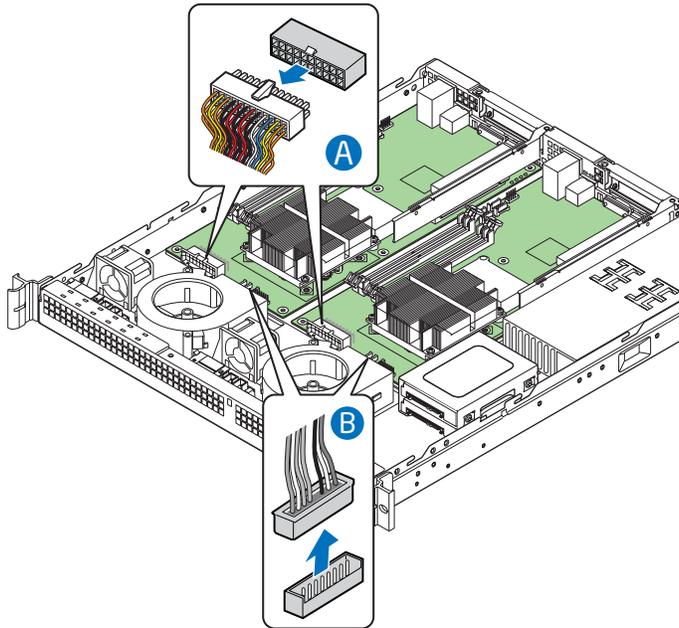
Figure 33. Disconnecting Cables

7. Remove the five screws that hold the fan bracket in place. Save these screws. You will re-install them later. See letter "A" in the figure below.

8. Lift the fan bracket with the attached fans from the server, working it out from underneath the front panel, USB, and SATA cables. See letter "B" in the figure.

AF002507
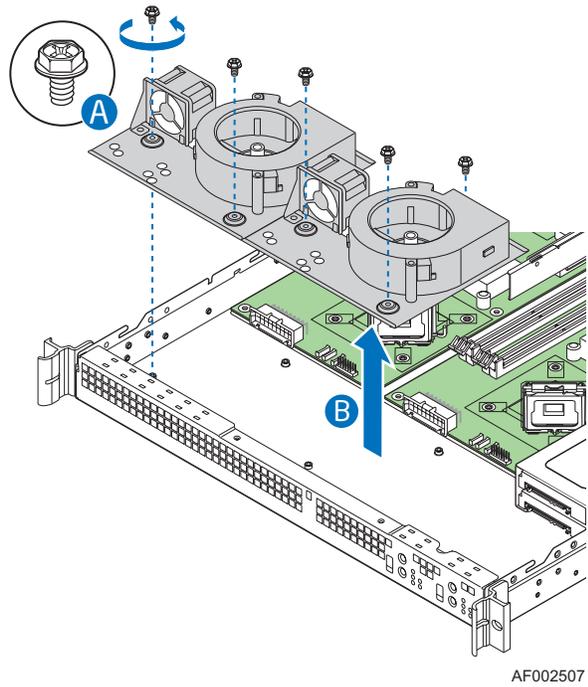
Figure 34. Removing Bracket and Fans

9. Turn the bracket over and remove the two screws that attach the failed fan to the bracket. Save these screws. You will reinstall them later. See letter "A" in the figure below.

10. Lift the fan from the bracket. See letter "B".
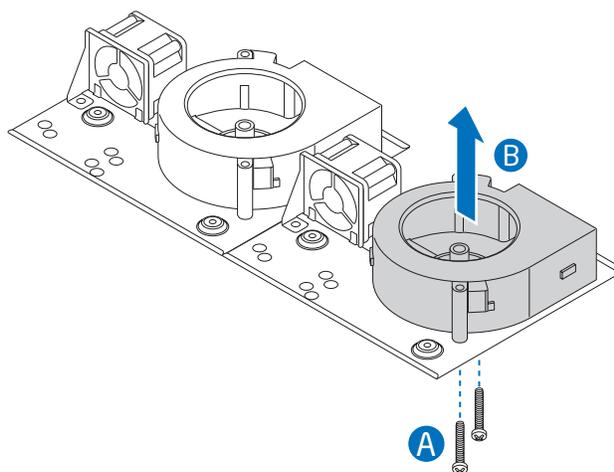
AF002535

Figure 35. Removing Fan from Fan Bracket

11. Install the replacement fan onto the bracket, using the two screws you removed in step 9.

12. Set the fan assembly into the system. Use caution to make sure you do not pinch any cables.

13. Connect the fan cables to the Fan_3 connectors on each server board.

14. Route the front panel cables and the main power cables between the blower fan and the memory cooling fans.

15. Route the left USB and SATA cables between the left blower fan and left memory cooling fan.

16. Route the right USB and SATA cables between the left side of the right memory cooling fan and the right side of the left blower fan.

17. Route the left main power cable between the left blower fan and left memory cooling fan.

18. Route the right main power cable between the right blower fan and the right memory cooling fan.

19. Bundle the fan cables for each board together. Hold them in place under the cable for the main power cable while you connect the main power cables. Use caution to make sure you do not pinch any cables when you connect the main power supply connectors. Make sure the fan cables will not block airflow from the memory cooling fans.

20. Install the processor air duct. For instructions. see .

Replacing a Memory Cooling Fan

1. Observe the safety and ESD precautions at the beginning of this book. See .

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover".

4. Remove the processor air duct. For instructions, see .

5. (optional) The fan cables are tucked underneath the main power supply cable. For ease of access, disconnect the main power supply. See letter "A" in the following figure.

6. Follow the fan cable from the failed fan to the Y-connector. Detach the fan cable at they Y-connector. See letter "B" in the figure.

7. Remove the two screws that attach the fan to the fan bracket. Save these screws. You will re-install them later. See letter "C".

8. Remove the fan. See letter "D".

AF002504
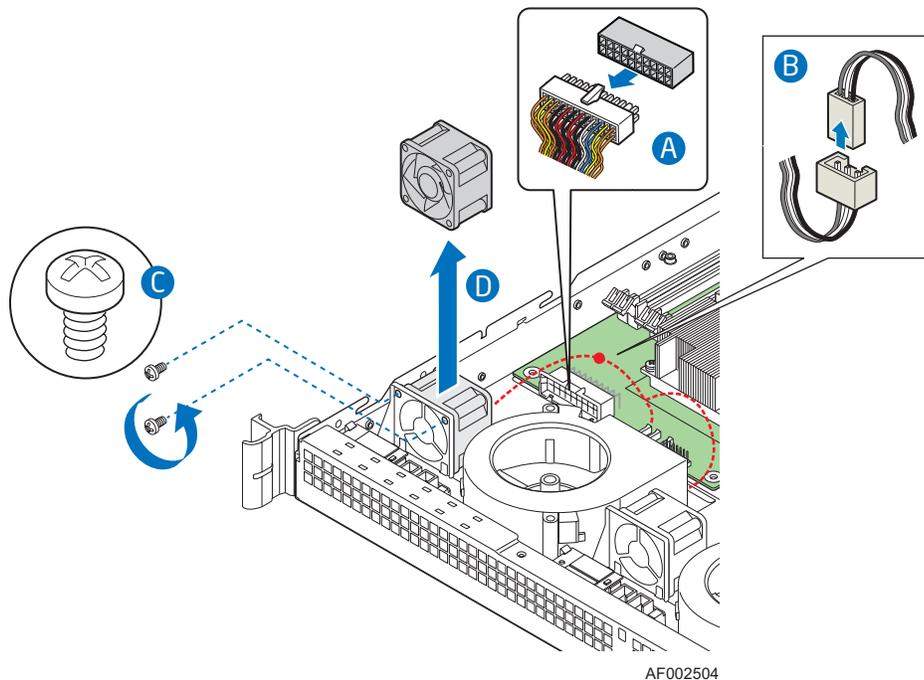
Figure 36. Disconnecting Memory Cooling Fan Cable

9. Set the replacement fan into place. See letter "A" in the following figure. When correctly positioned, the fan cable extends from the top right side of the fan, at the rear.

10. Install the screws you removed in step 7 to secure the fan to the bracket. See letter "B" in the figure.

11. Connect the fan cable at the Y-connector. See letter "C" in the figure.

12. If you removed the main power cable, bundle the fan cables together and hold them in place under the cable for the main power cable while you connect the main power cables. Use caution to make sure you do not pinch any cables when you connect the main power supply connectors. Make sure the fan cables will not block airflow from the memory cooling fans. See letter "D" in the figure.

AF002504
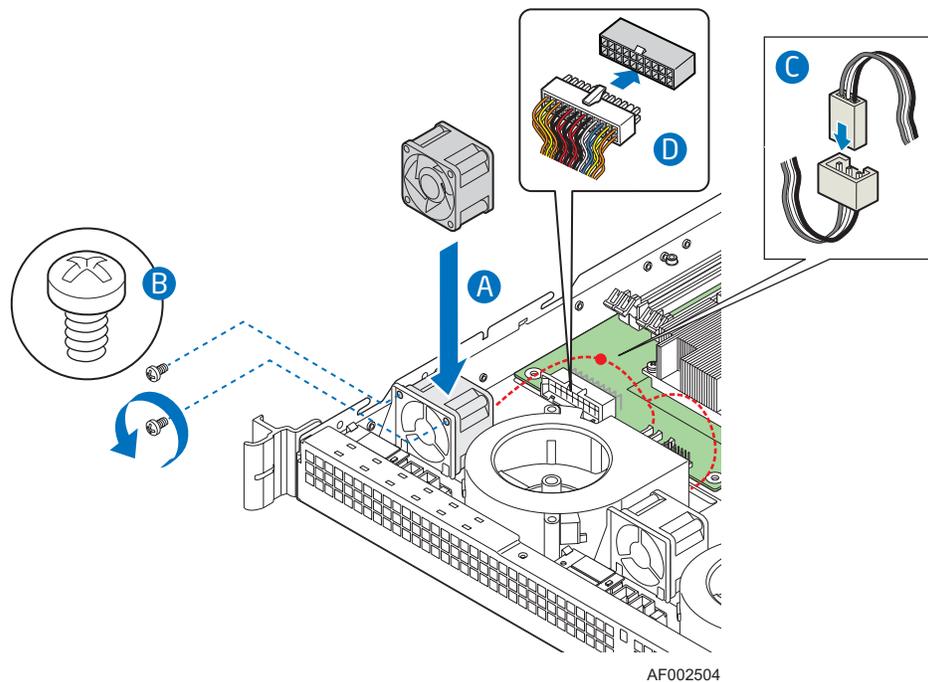
Figure 37. Connecting Memory Cooling Fan Cable

13. Install the processor air duct. For instructions. see "Installing the Processor Air Duct" on page 29.

Replacing a Server Board

Removing the Server Board

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the processor air duct. For instructions, see "Removing the Processor Air Duct" on page 28.

5. Remove the PCI riser assembly. For instructions, see "Removing the PCI Riser Assembly" on page 21.

6. Detach all cables connected at the front of the server board:

Note: *Use caution when disconnecting cables. Pull only on the cable connector, not on the cable.*

— Main power. The cable end is labeled P1 for the server board at the right and P2 for the server board at the left. Press and hold down on the tab at the center of the connector while you pull on the connector.

— Front panel

— Sys_fan_3

7. Detach the cables connected at the rear of the server board:

— USB_2_3

— SATA_0

8. Remove the heat sink and the processor. For instructions, see "Removing the Heat Sink and Processor" on page 33.

9. Remove the DIMMs. For instructions, see "Removing DIMMs" on page 32.

10. Remove the six screws from the server board. See letter "A" and the arrows indicating the screw locations in the figure below. Lift the server board from the server system. See letter "B" in the figure.
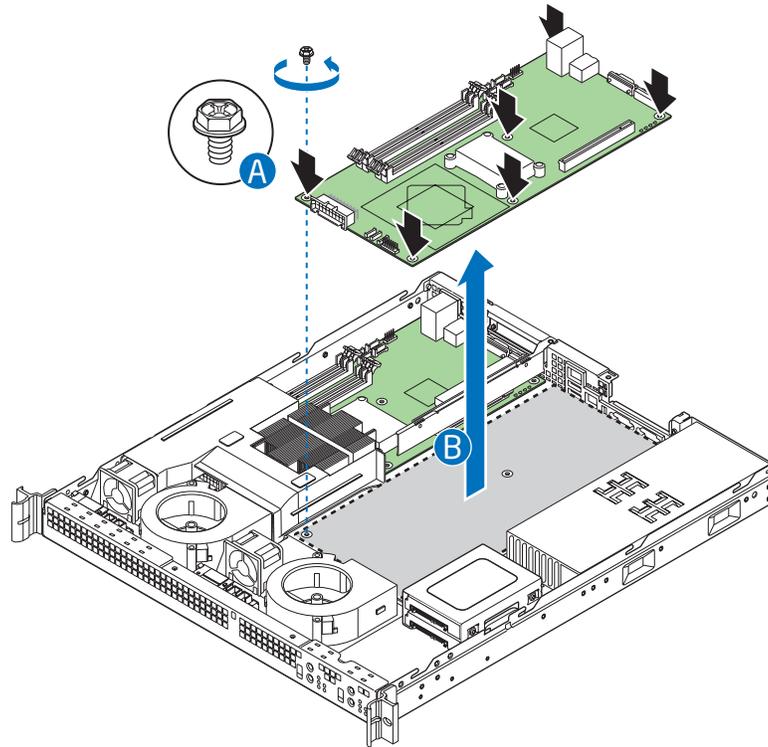
AF002520

Figure 38. Removing the Server Board

11. Choose the appropriate action:

    — Install a replacement the server board. For instructions, see "Installing the Server Board" on page 48.

    — Continue with the following steps to reassemble and close the server system without replacing the server board.

12. Install the processor air duct. For instructions, see "Installing the Processor Air Duct" on page 29.

13. Install the server system cover. For instructions, see "Installing the Server System Cover".

14. Plug all peripheral devices and the AC power cable into the server.

15. Store the components you removed (processor, DIMMs, PCI riser assembly, server board) in anti-static bags for future use.

Installing the Server Board

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the processor air duct. For instructions, see "Removing the Processor Air Duct" on page 28.

5. Remove the PCI riser assembly. For instructions, see "Removing the PCI Riser Assembly" on page 21.

6. Place the server board into the server system as shown by letter "A" in the figure below.

7. Attach the server board with six screws. See letter "B" and the arrows indicating the screw locations in the figure.
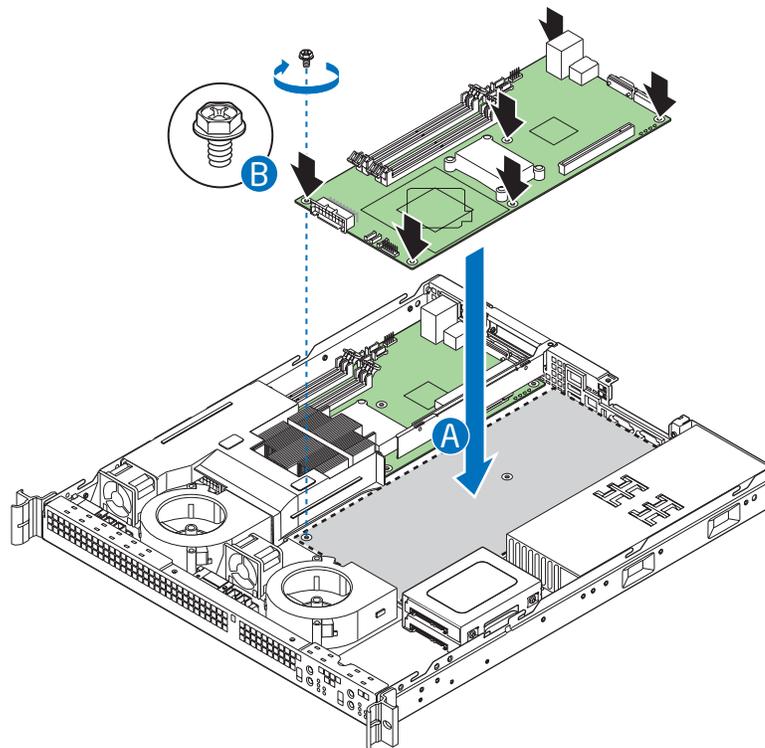
AF002521

Figure 39. Installing the Server Board

8. Install the processor and the heat sink. For instructions, see "Installing the Processor" on page 35.

9. Install the system memory. For instructions, see "Installing DIMMs" on page 30.

Notes:

- Use caution when connecting cables to make sure you do not pinch any cables.

- For data cable routing information, see "Cable Routing" on page 71.

- For power cable routing information, see "Cable Routing" on page 71.

10. Connect the cables at the front of the server board.

— Main power. The cable end is labeled P1 for the server board at the right and P2 for the server board at the left. Several cables lay underneath this connector. Be sure the cables do not get pinched in the connector. See letter "A" in the following figure.

— Front panel (letter "E")

— Sys_fan_3 (letter "D")

11. Connect the cables at the rear of the server board.

— USB_2_3 (letter "C")

— SATA_0 (letter "B")
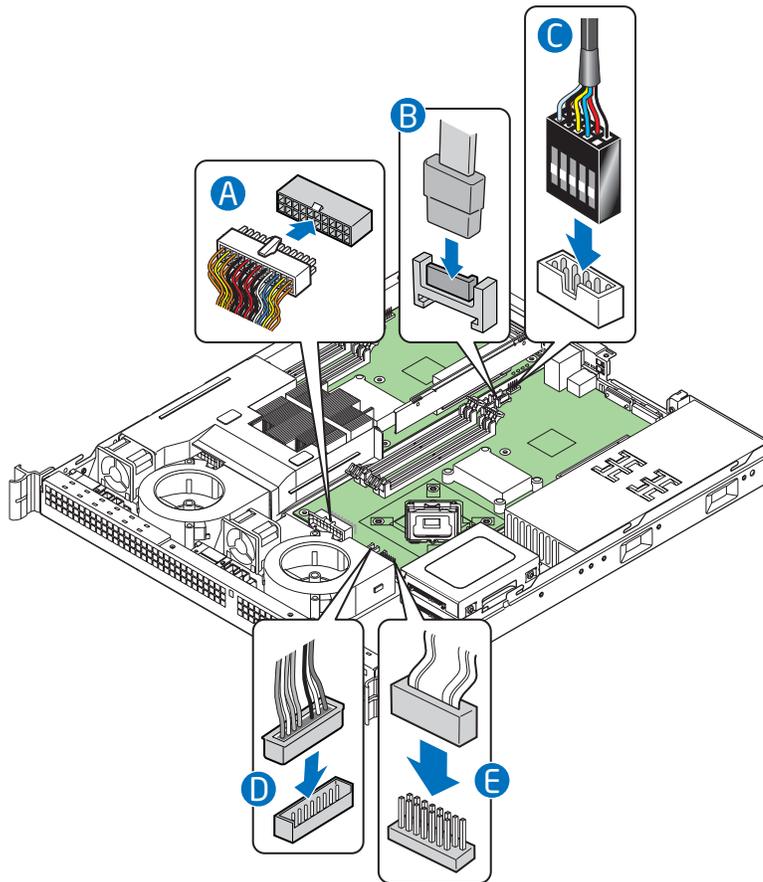
AF002531

Figure 40. Connecting Cables to Server Board

12. Install the PCI riser assembly. For instructions, see "Installing the PCI Riser Assembly" on page 22.

13. Install the processor air duct. For instructions, see "Installing the Processor Air Duct" on page 29.

14. Install the server system cover. For instructions, see "Installing the Server System Cover".

15. Plug all peripheral devices and the AC power cable into the server.

Replacing the Front Panel Board

Caution: *The control panel is NOT hot swappable. Before removing or replacing the control panel, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

Your server must be operated with a control panel installed.

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the power supply cables from the cable harness.

5. (optional) For easier access, lift the power supply from place.

Note: *For ease of access, lift the front panel board from the server before disconnecting the cables.*

6. Remove the screw that attaches the front panel board to the server system. See letter "A" in the figure below. Save these screws. You will re-install them later.

7. Slide the front panel board rearward and then lift it from the server. See letter "B" in the figure.

Caution: *When disconnecting the cables to the front panel board, be careful not to bend or twist the board.*

8. Disconnect the front panel cable and the USB cables from the front panel board. For ease of identification, the USB cables are two different colors. Note which color is attached to which server board. See letter "C" in the figure.
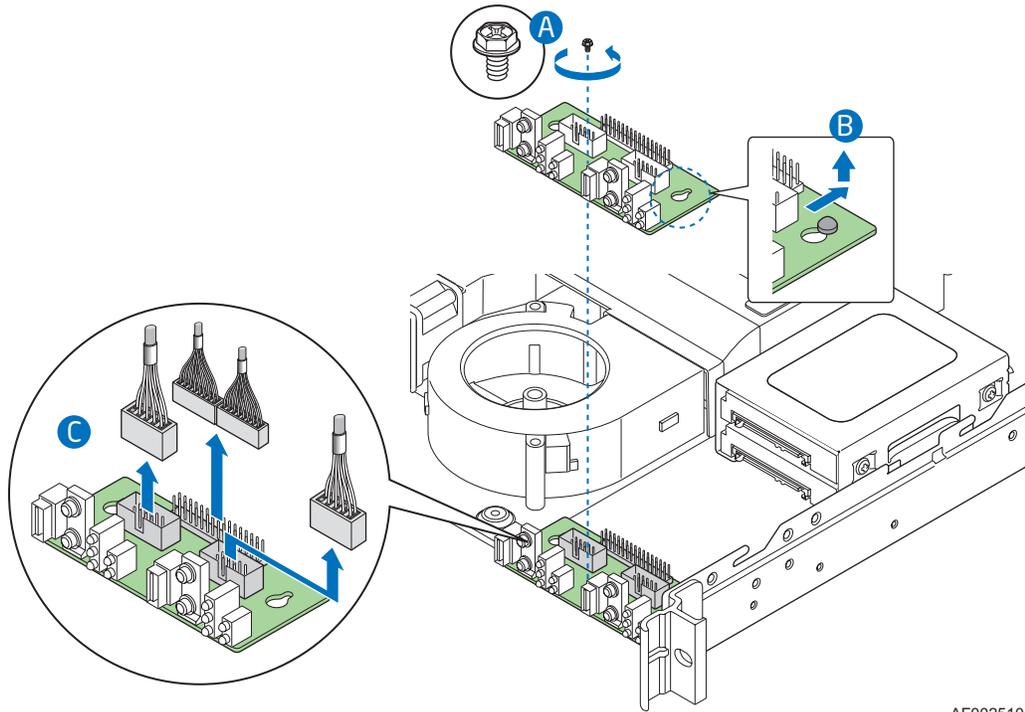
AF002510

Figure 41. Removing Front Panel Board

Note: *For ease of access, connect the cables before installing the front panel board.*

9. Connect the USB and front panel cables to the replacement front panel board. See letter "A" in the following figure.

10. Set the front panel board into place, inserting the two knobs on the floor of the system through the two holes in the front panel board. See letter "B" in the figure.

11. Slide the front panel board forward to match the screw holes in the board and system. Screw the front panel board into place. See letters "C" and "D" in the figure.
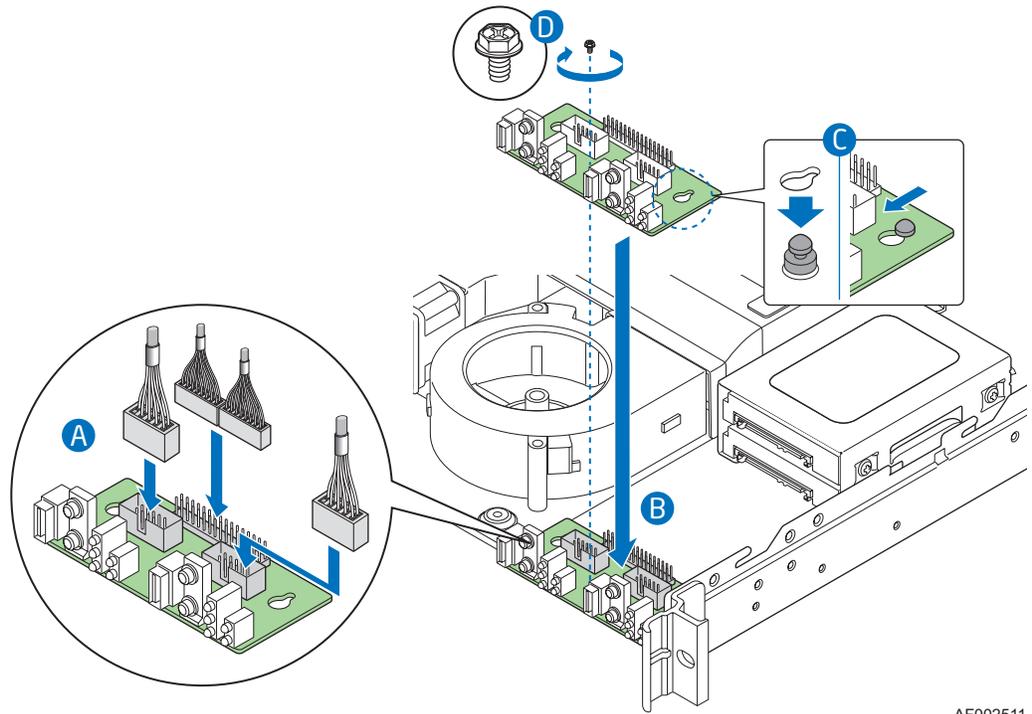
AF002511

Figure 42. Installing Front Panel Board

12. Tuck the USB and SATA cables into place under the lip at the front of the system.

13. If you removed the power supply, set it back into place.

14. Route the power cables into the cable harness.

15. Install the server system cover. For instructions, see "Installing the Server System Cover".

16. Plug all peripheral devices and the AC power cable into the server.

Replacing the CMOS Battery

Caution: *The CMOS battery is NOT hot swappable. Before removing or replacing the CMOS battery, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet.*

The lithium battery on the server board powers the RTC in the absence of power. When the battery starts to weaken, it loses voltage, and the server settings stored in CMOS RAM in the RTC (for example, the date and time) may be wrong. Contact your customer service representative or dealer for a list of approved devices.

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

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.

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the server system cover. For instructions, see "Removing the Server System Cover" on page 14.

4. Remove the server's cover and locate the battery. See Figure 43.

5. Pull back gently on the metal tab at the top of the battery.

6. Remove the battery from its socket.

AF002522
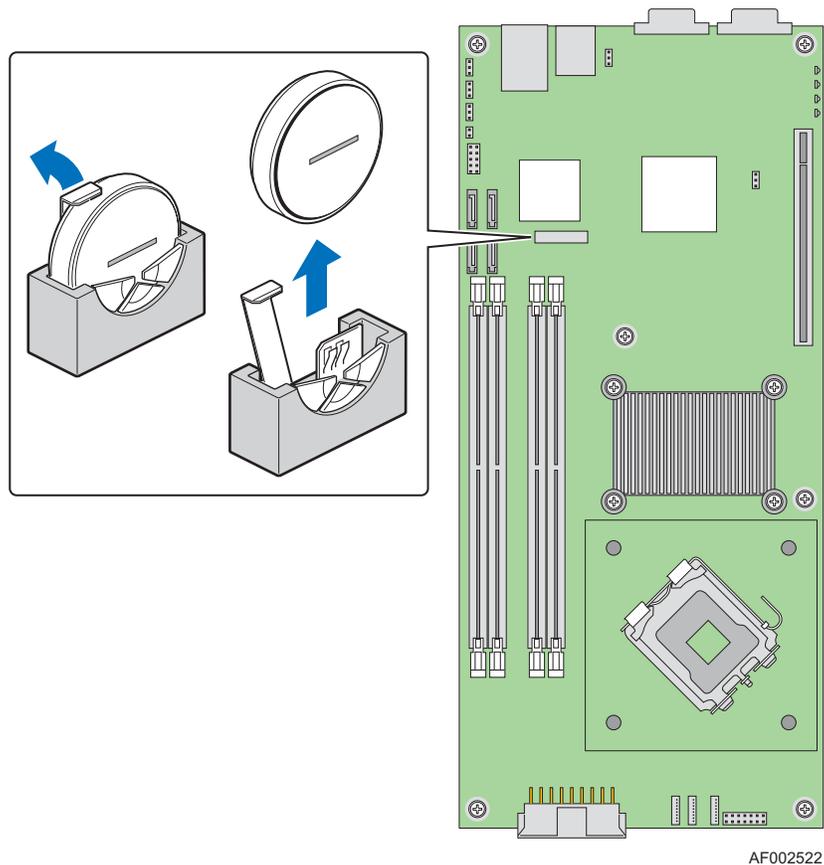
Figure 43. Removing the CMOS Battery

7. Dispose of the battery according to local ordinance.

8. Remove the new lithium battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket. The "+" sign needs to face the rear of the system.

9. Install the system cover. For instructions, see .

10. Run the BIOS Setup utility to restore the configuration settings.

Installing and Removing the Rack Handles

Installing the Rack Handles

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Attach the rack handle to the server system with two screws as shown by letters "A" and "B" in the figure below.

AF002527
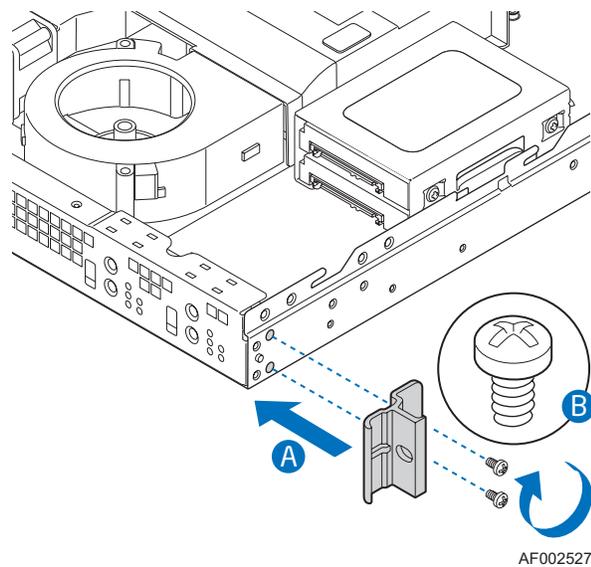
Figure 44. Installing the Rack Handle

4. Repeat step 3 on the opposite side of the server.

5. Plug all peripheral devices and the AC power cable into the server.

Removing the Rack Handles

1. Observe the safety and ESD precautions at the beginning of this book. See "Safety Information" on page iii.

2. Power down the server and unplug all peripheral devices and the AC power cable.

3. Remove the two screws holding the rack handle in place, and remove the rack handle from the server system as shown by letters "A" and "B" in the figure below.

AF002526
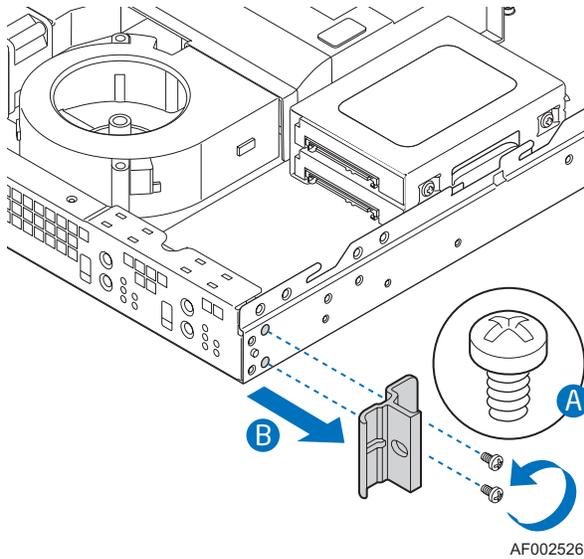
Figure 45. Removing the Rack Handle

4. Repeat step 3 on the opposite side of the system.

5. Plug all peripheral devices and the AC power cable into the server.

3   Server Utilities

Using the BIOS Setup Utility

This section describes the BIOS Setup Utility options, which is used to change server configuration defaults. You can run BIOS Setup with or without an operating system being present. See Table 1 on page xix for a link to the Technical Product Specification where you will find details about specific BIOS setup screens.

Starting Setup

You can enter and start BIOS Setup under several conditions:

- When you turn on the server, after POST completes the memory test.
- When you have moved the CMOS jumper on the server board to the "Clear CMOS" position (enabled).

In the two conditions listed above, during the Power On Self Test (POST), you will see this prompt:

```
Press <F2> to enter SETUP
```

In a third condition, when CMOS/NVRAM has been corrupted, you will see other prompts but not the <F2> prompt:

```
Warning: CMOS checksum invalid
Warning: CMOS time and date not set
```

In this condition, the BIOS will load default values for CMOS and attempt to boot.

If You Cannot Access Setup

If you are not able to access BIOS Setup, you might need to clear the CMOS memory. For instructions on clearing the CMOS, see "Clearing the CMOS".

Setup Menus

Each BIOS Setup menu page contains a number of features. Except for those features that are provided only to display automatically configured information, each feature is associated with a value field that contains user-selectable parameters. These parameters can be changed if the user has adequate security rights. If a value cannot be changed for any reason, the feature's value field is inaccessible.

"Setup Menu Key Use" describes the keyboard commands you can use in the BIOS Setup menus.

Table 4. Setup Menu Key Use

Key to Press	Description
<Enter>	Execute Command - The <Enter> key is used to activate submenus when the selected feature is a submenu, or to display a pick list if a selected feature has a value field, or to select a sub-field for multi-valued features like time and date. If a pick list is displayed, the <Enter> key will undo the pick list, and allow another selection in the parent menu.
<Esc>	Exit - The <Esc> key provides a mechanism for backing out of any field. This key will undo the pressing of the <Enter> key. When the <Esc> key is pressed while editing any field or selecting features of a menu, the parent menu is re-entered. When the <Esc> key is pressed in any submenu, the parent menu is re-entered. When the <Esc> key is pressed in any major menu, the exit confirmation window is displayed and the user is asked whether changes can be discarded.
Left and right arrows	The left and right arrow keys are used to move between the major menu pages. The keys have no affect if a submenu or pick list is displayed.
Up arrow	Select Item up - The up arrow is used to select the previous value in a menu item's option list, or a value field pick list. Pressing the <Enter> key activates the selected item.
Down arrow	Select Item down - The down arrow is used to select the next value in a menu item's option list, or a value field pick list. Pressing the <Enter> key activates the selected item.
<->	Change Value - The minus key or the <F5> function key is used to change the value of the current item to the previous value. This key scrolls through the values in the associated pick list without displaying the full list.
<+>	Change Value - The plus key or the <F6> function key is used to change the value of the current menu item to the next value. This key scrolls through the values in the associated pick list without displaying the full list. On 106-key Japanese keyboards, the plus key has a different scan code than the plus key on the other keyboard, but it has the same effect.
<F1>	Pressing <F1> on any menu invokes the general help window.
<F9>	Setup Defaults - Pressing <F9> causes the following to appear: ```Load Optimized Defaults?\n [Yes] [No]``` If "Yes" is selected and the <Enter> key is pressed, all Setup fields are set to their default values. If "No" is selected and the <Enter> key is pressed, or if the <Esc> key is pressed, the user is returned to where they were before <F9> was pressed without affecting any existing field values.

Table 4. Setup Menu Key Use

Key to Press	Description

<F10>	Save and Exit - Pressing <F10> causes the following message to appear:
	
	       `Save Configuration and reset?`
	             `[Yes] [No]`
	
	If "Yes" is selected and the <Enter> key is pressed, all changes are saved and Setup is exited. If "No" is selected and the <Enter> key is pressed, or the <Esc> key is pressed, the user is returned to where they were before <F10> was pressed without affecting any existing values.

Upgrading the BIOS

The upgrade utility allows you to upgrade the BIOS in flash memory. The code and data in the upgrade file include the following:

- On-board system BIOS, including the recovery code, BIOS Setup Utility, and strings.
- On-board video BIOS, SATA BIOS, and other option ROMs for devices embedded on the server board.
- OEM binary area
- Microcode

Preparing for the Upgrade

The steps below explain how to prepare to upgrade the BIOS, including how to record the current BIOS settings and how to obtain the upgrade utility.

Note: *In the unlikely event that a BIOS error occurs during the BIOS update process, a recovery process may need to be followed to return the system to service. See Table 1 on page xix for a link to necessary software and instructions.*

Recording the Current BIOS Settings

1. Boot the computer and press <F2> when you see the message:
`Press <F2> Key if you want to run SETUP`
2. Write down the current settings in the BIOS Setup program.

Note: *Do not skip step 2. You will need these settings to configure your computer at the end of the procedure.*

Obtaining the Upgrade

Download the BIOS image file to a temporary folder on your hard drive. See Table 1 on page xix for a link to the update software.

Note: *Review the instructions and release notes that are provided in the readme file distributed with the BIOS image file before attempting a BIOS upgrade. The release notes contain critical information regarding jumper settings, specific fixes, or other information to complete the upgrade.*

Upgrading the BIOS

Follow the instructions in the readme file that came with the BIOS upgrade. When the update completes, remove the bootable media from which you performed the upgrade.

Caution: *Do not power down the system during the BIOS update process! The system will reset automatically when the BIOS update process is completed.*

Note: *You may encounter a CMOS Checksum error or other problem after reboot. If this happens, shut down the system and boot it again. CMOS checksum errors require that you enter Setup, check your settings, save your settings, and exit Setup.*

Recovering the BIOS

1. Power down the system and disconnect the AC power.
2. Open the server.
3. Move the J1A2 BIOS Recovery Mode jumper from the default operation position, covering pins 1 and 2 to the BIOS Recovery position, covering pins 2 and 3 as indicated in the following diagram.
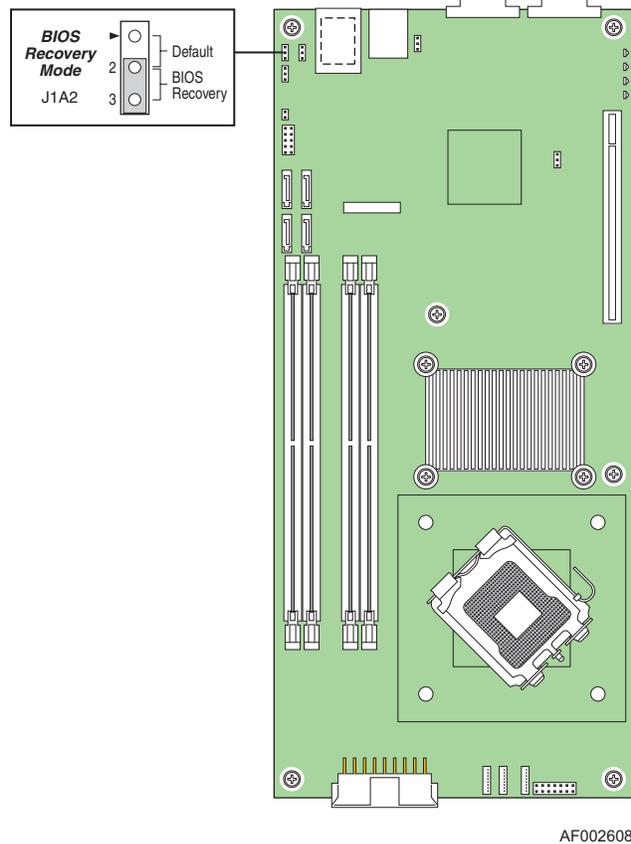
Figure 46. BIOS Recovery Mode Jumper in Recovery Position

4. Insert the BIOS recovery media.

5. Plug in the AC power and power on the system.

    The BIOS starts the recovery process by loading and booting to the recovery image file. Then the BIOS POST screen appears and displays the progress.

6. Select to boot to the EFI SHELL.

7. Run Update.NSH. The system loads and executes the flash update application. A message displays success or failure upon completion.

8. Power down the system and unplug the AC power cord.

9. Return the J1A2 BIOS Recovery Mode jumper to the default position, covering pins 1 and 2.

10. Close the server chassis.

11. Reconnect the AC power and power up the server.

Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the "clear" position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set.

1. Power down the system and disconnect the AC power.

2. Open the server chassis.

3. Move the J6B1 Password Clear jumper from the normal operation position, Password Clear Protect, at pins 1 and 2 to the Password Clear Erase position, covering pins 2 and 3 as indicated in the following diagram.
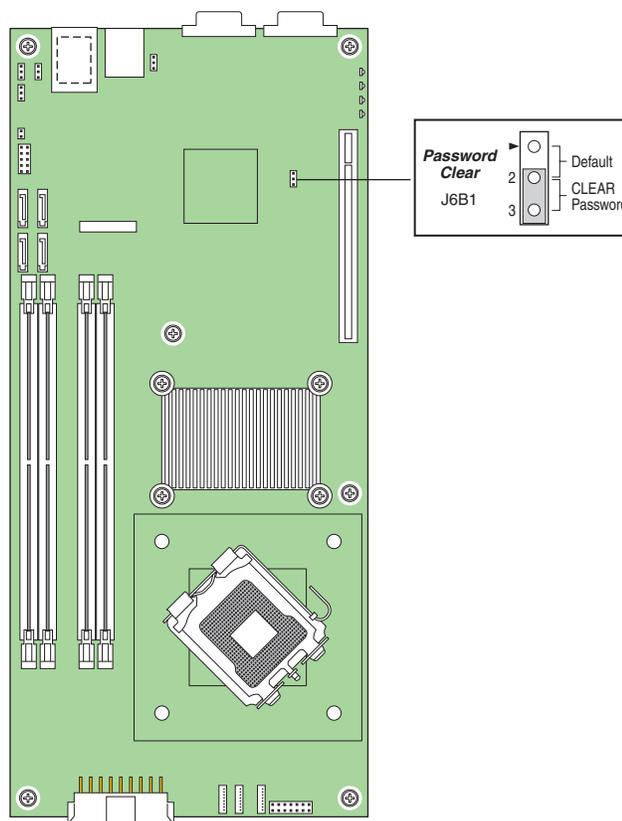
AF002605

Figure 47. Password Clear Jumper in Clear Password Position

4. Reconnect the AC power and power up the system.

5. Power down the system and disconnect the AC power.

6. Return the J6B1 Password Clear jumper to the Password Clear Protect position, covering pins 1 and 2.

7. Close the server chassis.

8. Reconnect the AC power and power up the server.

Clearing the CMOS

If you are not able to access the BIOS setup screens, the CMOS Clear jumper can be used to reset the configuration RAM.

1. Power down the system and disconnect the AC power.

2. Open the server.

3. Move the J1A3 CMOS Clear jumper from the normal operation position, CMOS Clear by BMC, at pins 1 and 2 to the CMOS Clear Force Erase position, covering pins 2 and 3 as indicated in the following diagram.

AF002606
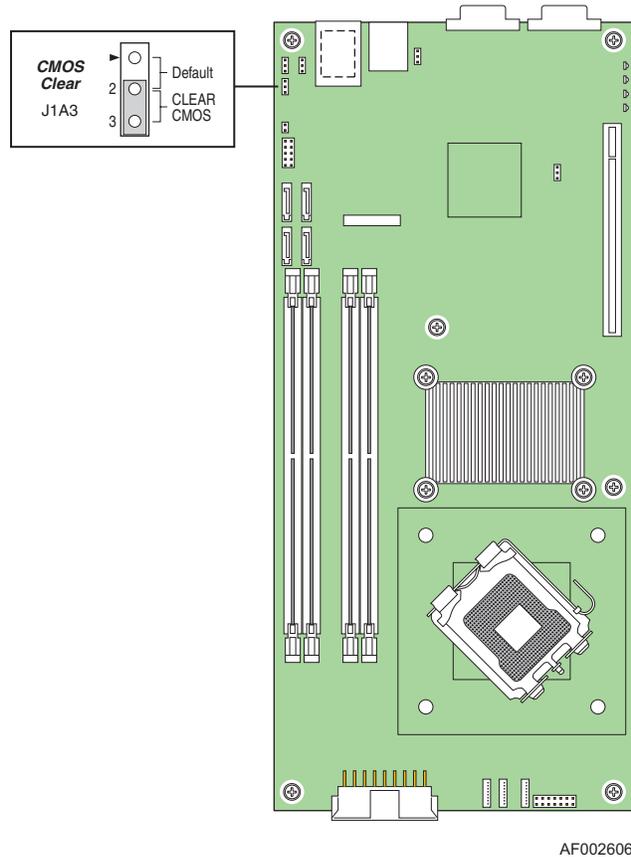
Figure 48. CMOS Clear Jumper in Clear CMOS Position

4. Reconnect the AC power, power up the system.

5. When the system begins beeping, power it down and disconnect the AC power.

6. Return the J1A3 CMOS Clear jumper to the CMOS Clear by BMC location, covering pins 1 and 2.

7. Close the server chassis.

8. Reconnect the AC power and power up the system.

Performing an iBMC Force Update

When performing a standard iBMC firmware update procedure, the update utility places the iBMC into an update mode, allowing the firmware to load safely onto the flash device. In the unlikely event that the iBMC firmware update process fails because the iBMC not in the proper update state, the server board provides a BMC Force Update jumper (J3A1) that will force the iBMC into the proper update state. The following procedure should be following if the standard iBMC firmware update process fails.

1. Power down the system and disconnect the AC power.

2. Open the server.

3. Move the J3A1 iBMC Force Update jumper from the default position, covering pins 1 and 2 to the Write Enable position, covering pins 2 and 3 as indicated in the following diagram.
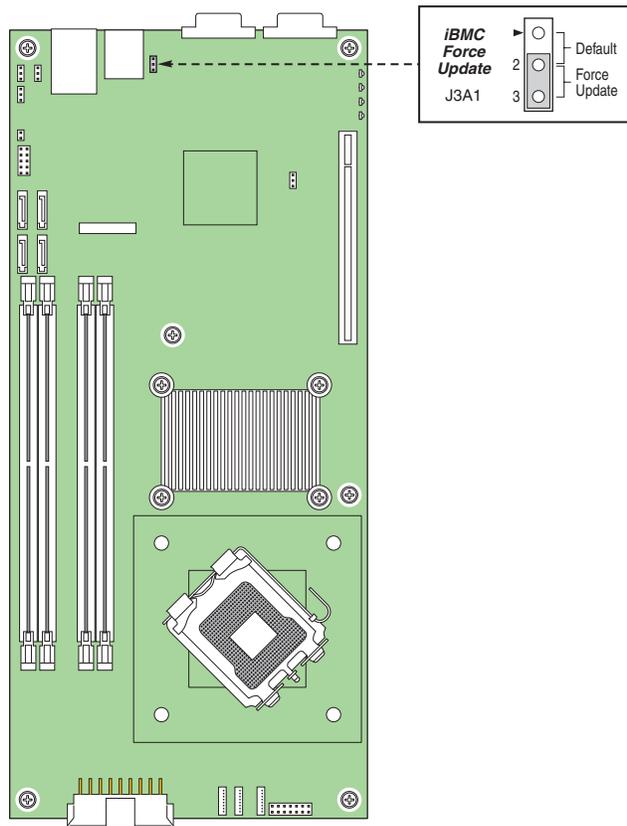
AF002536

Figure 49. MiBMC Force Update Jumper in the Write Enable Position

4. Close the server system and reconnect AC power and power up the server.

5. Perform the standard iBMC firmware update procedure as documented in README.TXT file that is included in the given BMC Firmware Update package.

6. After successful completion of the firmware update process, the firmware update utility may generate an error stating that the iBMC is still in update mode.

7. Power down and remove AC power.

8. Open the server and move the jumper from the "enabled" position (pins 2-3) to the "disabled" position (pins 1-2).

9. Close the server system and reconnect AC power and power up the server.

10. *Normal iBMC functionality is disabled when the force BMC update jumper is set to the "enabled" position. The server should never be run with the BMC force update jumper set in this position and should only be used when the standard firmware update process fails. This jumper should remain in the default, disabled position when the server is running normally.*

Using the iBMC Boot Block Write Protect Jumper (J1A4)

The iBMC boot block write protect jumper (J1A4) is protection for the boot block portion of the iBMC firmware. The default position of the jumper is covering pins 1-2. This protects the boot block from being written to during an iBMC firmware update. In most cases there is no need to update the boot block. Most update utilities are not built with the authority to access this section of code.

In the unlikely event that the boot block must be written to, complete the following steps.

1. Power down the system and disconnect the AC power.

2. Open the server.

3. Move the J1A4 iBMC Boot Block Write Protect jumper from the default position, covering pins 1 and 2 to the update position, covering pins 2 and 3 as indicated in the following diagram.
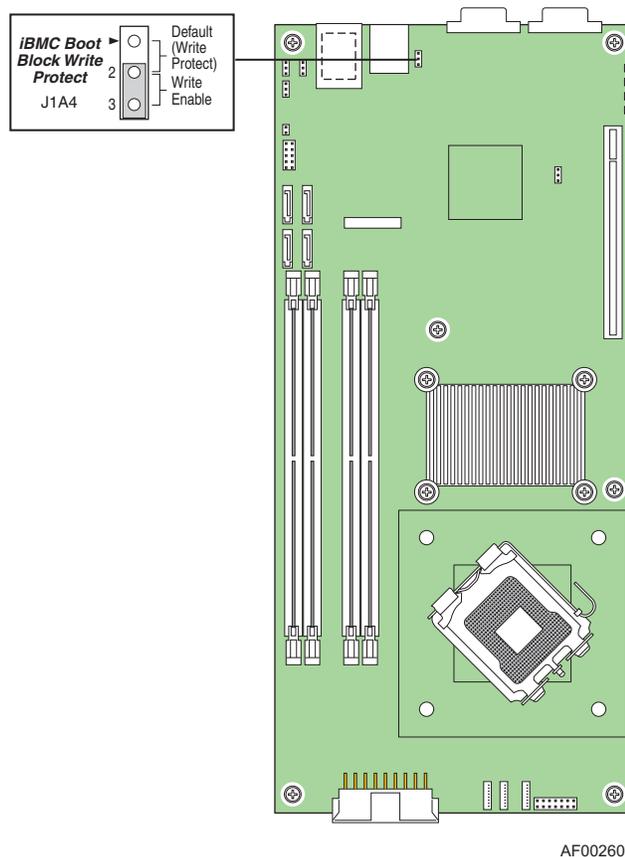
Figure 50. iBMC Boot Block Write Protect Jumper (J1A4)

4. Close the server system and reconnect AC power and power up the server and complete the update.

5. Once the update is complete follow steps 1-4 above and reposition the jumper back to 'write-protect' mode, covering pins 1 and 2.

The boot block is a critical section of the IBMC firmware that contains code to initialize the iBMC hardware. If this flash area becomes corrupted, then the iBMC may be rendered useless and inoperable. For this reason jumper protection is applied to this area of the flash so a user does not mistakenly write to this boot block.

Appendix A: Technical Reference

Cable Routing

When you add or remove components from your server system, make sure your cables are routed correctly before reinstalling the server system cover. Use caution to make sure no cables or wires are pinched and that the airflow from the fans is not blocked. Use the figures below to determine the correct cable routing.

Power Cable Routing

AF002529
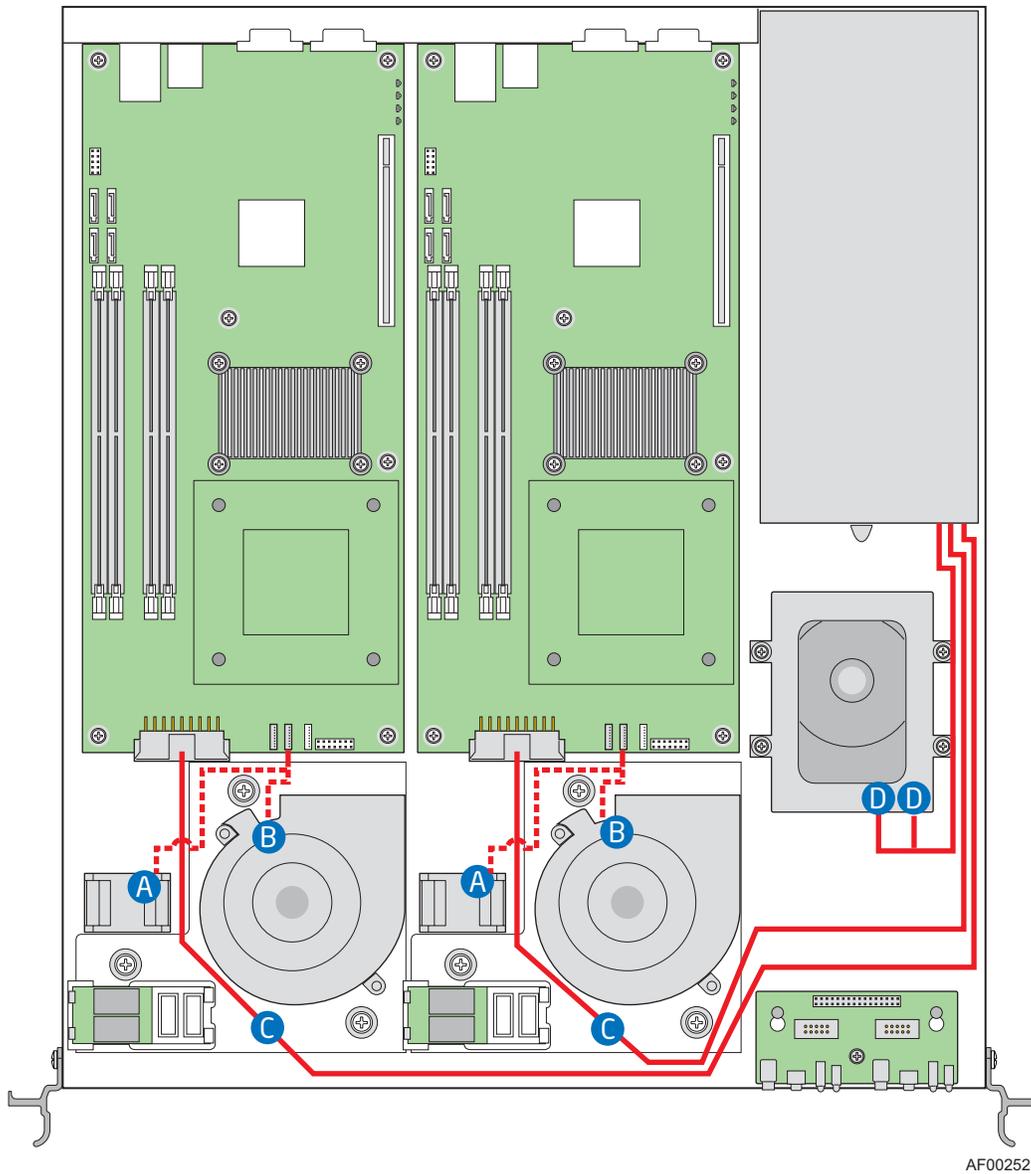
A.	Memory fan (one for each server board)	C.	Main power (one for each server board)
B.	Blower fan (one for each server board)	D.	Drive power. Daisy cable (one connection to power a drive for each server board)

Figure 51. Power Cable Routing

Data Cable Routing
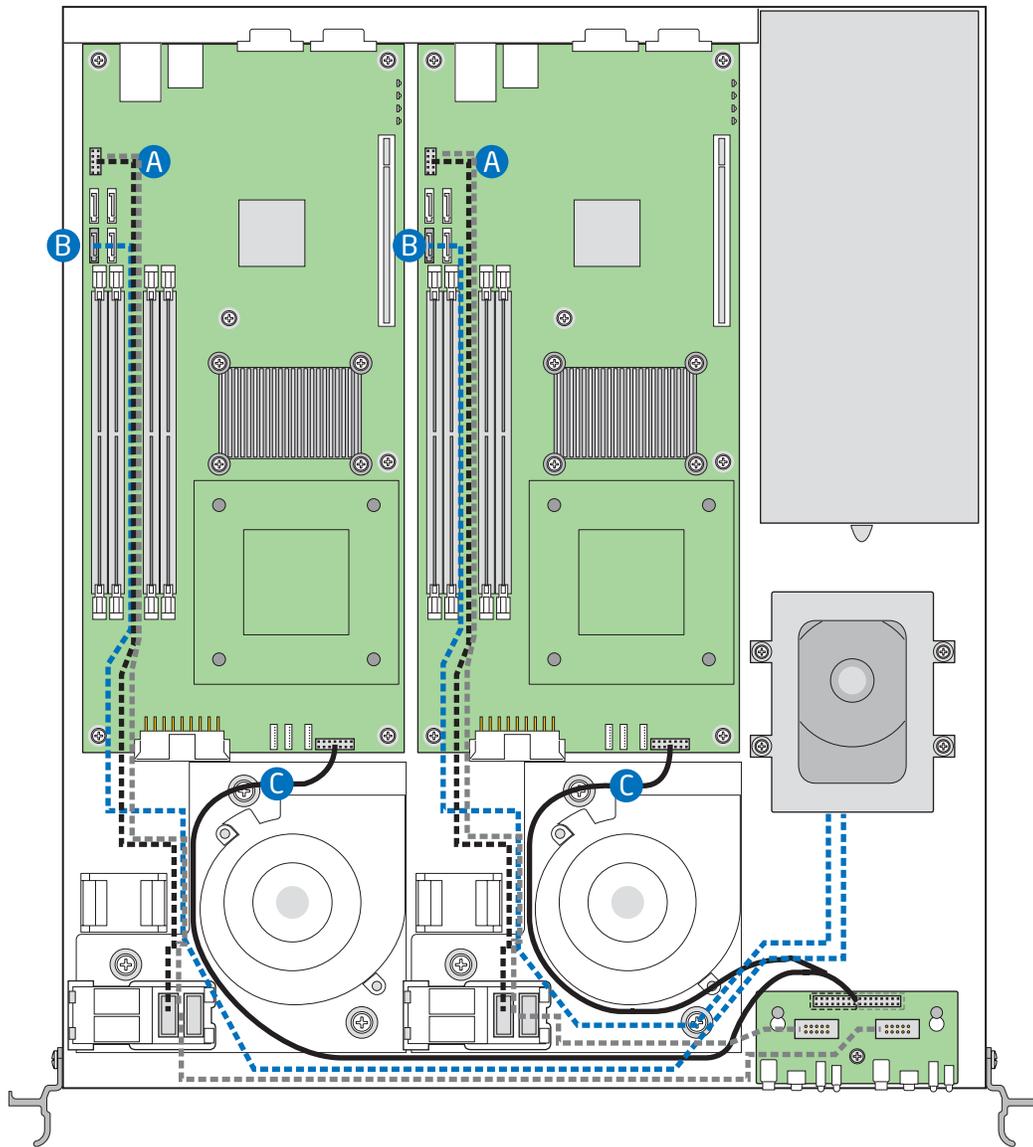
AF002528

A.	Y-USB cable. One end to Intel® Z-U130 Value Solid State Drive (optoinal) and the other end to the front panel (one for each server board).	C.	Y-Front panel cable. One end attaches to each server board.
B.	SATA to hard drive (one for each server board).		

Figure 52. Data Cable Routing

600 W Power Supply Input Voltages

- 100 - 127 V at 50 / 60 Hz 6.0 A
- 200 - 240 V at 50 / 60 Hz 3.0 A

600 W Power Supply Output Voltages

The table below lists the total wattage available from the power subsystem for each voltage. For information about calculating the power usage for your configuration, see "Calculating Power Usage."

Table 5. Power Supply Output Capability

Voltage	Maximum Current
+3.3 V	20 Amp
+5.0 V	24 Amp
+5.0 V Standby	3 Amp
+12.0 V1	16 Amp
+12.0 V2	16 Amp
+12.0 V3	16 Amp
+12.0 V4	16 Amp
-12.0 V	0.5 Amp

Warning: *Do not exceed a combined power output of 150 Watts for the +5 V and +3.3 V outputs. Exceeding a combined 90 Watts will overload the power subsystem and may cause the power supply to overheat and malfunction.*

System Environmental Specifications

Table 6. System Environmental Specifications

Temperature	
Non-operating	-40 ° to 70 °C.
Operating	10 ° to 30 °C, with the maximum rate of change not to exceed 10 ° C per hour.
Humidity	
Non-operating	90% relative humidity, non-condensing at 35 °C.
Shock	
Operating	2.0 g, 11 msec, 1/2 sine.
Packaged	Operational after an 24-inch free fall.
Acoustic noise	7 Bels in sound power for a typical office ambient temperature (65-75 °F). Your selection of peripherals may change the noise level.
Electrostatic discharge (ESD)	Tested to 15 kilovolts (kV); no component damage.

Appendix B: Installation/Assembly Safety Instructions

English

<table>
<tr>
<td></td>
<td>The power supply in this product contains no user-serviceable parts. Refer servicing only to qualified personnel.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>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 main (AC) power. The socket outlet that the system plugs into shall be installed near the equipment and shall be easily accessible.</td>
</tr>
<tr>
<td></td>
<td>**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.</td>
</tr>
</table>
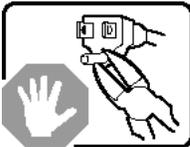
	After you have completed the six SAFETY steps above, you can remove the system covers. To do this: 1. Unlock and remove the padlock from the back of the system if a padlock has been installed. 2. Remove and save all screws from the covers. 3. Remove the cover(s).
	For proper cooling and airflow, always 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 suppressor 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 cord(s), because they serve as the product's main power disconnect.
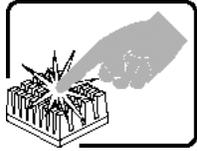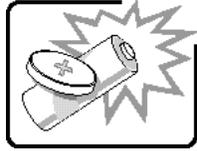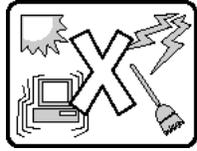
Deutsch

	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.
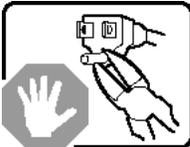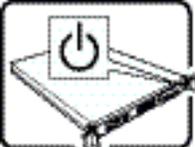
	SICHERHEISMASSNAHMEN: Immer wenn Sie die Gehäuseabdeckung abnehmen um an das Systeminnere zu gelangen, sollten Sie folgende Schritte beachten: 1. Schalten Sie alle an Ihr System angeschlossenen Peripheriegeräte aus. 2. Schalten Sie das System mit dem Hauptschalter aus. 3. Ziehen Sie den Stromanschlußstecker 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.
	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.
	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.
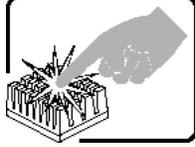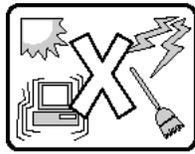
	Das System wurde für den Betrieb in einer normalen Büroumgebung entwickelt. Der Standort sollte: • "sauber und staubfrei sein (Hausstaub ausgenommen); • "gut gelüftet und keinen Heizquellen ausgesetzt sein (einschließlich direkter Sonneneinstrahlung); • "keinen Erschütterungen ausgesetzt sein; • "keine 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

Français
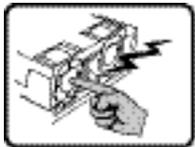
	Le bloc d'alimentation de ce produit ne contient aucune pièce pouvant être réparée par l'utilisateur. Ce produit peut contenir plus d'un bloc d'alimentation. Veuillez contacter un technicien qualifié en cas de problème.
	Ne pas essayer d'utiliser ni modifier le câble d'alimentation CA fourni, s'il ne 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.
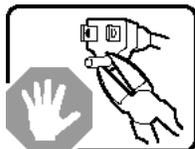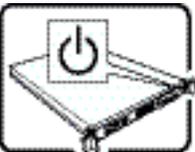
	CONSIGNES DE SÉCURITÉ -Lorsque vous ouvrez le boîtier pour accéder à l'intérieur du système, suivez les consignes suivantes: 1. Mettez hors tension tous les périphériques connectés au système. 2. Mettez le système hors tension en mettant l'interrupteur général en position OFF (bouton-poussoir). 3. Débranchez 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.
	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.
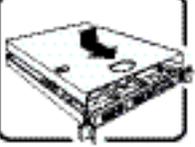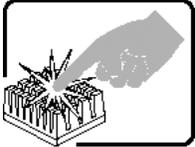
	Danger d'explosion si la batterie n'est pas remontée correctement. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabricant. Disposez des piles usées selon les instructions du fabricant.
	Le système a été conçu pour fonctionner dans un cadre de travail normal. 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).

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
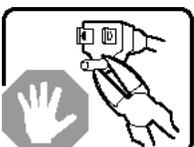
	Nótese que el interruptor activado/desactivado en el panel frontal no desconecta la corriente alterna del sistema. Para desconectarla, deberá desenchufar todos los cables de corriente alterna de la pared o desconectar la fuente de alimentación.
	INSTRUCCIONES DE SEGURIDAD: Cuando extraiga la tapa del 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.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.
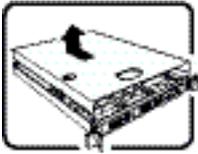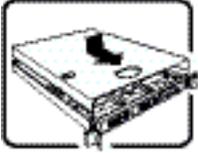
	Si el sistema ha estado en funcionamiento, el microprocesador y el disipador de calor pueden estar aún calientes. También conviene tener en cuenta que en el chasis o en el tablero puede haber piezas cortantes o punzantes. Por ello, se recomienda precaución y el uso de guantes protectores.
	Existe peligro 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 sobrevoltaje 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.
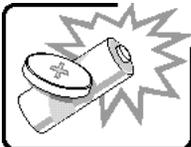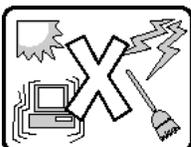
Italiano

	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.
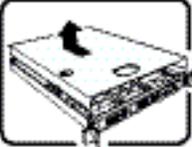
	Per il giusto flusso dell'aria e raffreddamento del sistema, rimettere sempre le coperture del telaio prima di riaccendere il sistema. Operare il sistema senza le coperture al loro proprio posto potrebbe danneggiare i componenti del sistema. Per rimettere le coperture del telaio:
	1. Controllare prima 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.
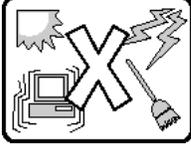
Appendix C: Troubleshooting

This chapter helps you identify and solve problems that might occur while you are using the system.

For any issue, first ensure you are using the latest firmware and files. Firmware upgrades include updates for BIOS, and the Baseboard Management Controller (BMC). See "Server System References" on page xix for a link to the software updates. In addition to the server firmware and files, also update any drivers used for components you have installed in your system, such as video drivers, network drivers, and SATA drivers.

Intel provides a package called the "Platform Confidence Test" that may help with your diagnostics. See "Server System References" on page xix for a link to this software.

If you are unable to resolve your server problems on your own, see "Getting Help" on page 99 for assistance.

Resetting the System

Before going through in-depth troubleshooting, attempt first to reset your system using one of the methods below.

Table 7. Resetting the System

To do this	Press
Soft boot reset to clear the system memory and reload the operating system	<Ctrl+Alt+Del>
Clear system memory, restart POST, and reload the operating system	Reset button
Cold boot reset. Turn the system power off and then on. This clears system memory, restarts POST, reloads the operating system, and halts power to all peripherals	Power off/on button
Reset the BMC and get it back to a stable state	Remove AC power from the server for one minute

Problems following Initial System Installation

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less frequent cause. If the problem you are experiencing is with a specific software application, see "Problems with Newly Installed Application Software" on page 96.

First Steps Checklist

- Is AC power available at the wall outlet?
- Are the power supplies plugged in? Check the AC cable(s) on the back of the chassis and at the AC source.
- Are all cables correctly connected and secured?
- Is the processors fully seated in its socket on the server board?
- Are all add-in PCI boards fully seated in their slots on the server board?
- Are all jumper settings on the server board correct?
- Are all jumper and switch settings on add-in boards and peripheral devices correct? To check these settings, refer to the manufacturer's documentation that comes with them. If applicable, ensure that there are no conflicts-for example, two add-in boards sharing the same interrupt.
- Are all peripheral devices installed correctly?
- If the system has a hard disk drive, is it properly formatted or configured?
- Are all device drivers properly installed?
- Are the configuration settings made in Setup correct?
- Is the operating system properly loaded? See the operating system documentation.
- Did you press the system power on/off switch on the front panel to turn the server on (power on light should be lit)?
- Is the system power cord properly connected to the system and plugged into a NEMA 5 15R outlet for 100-120V or a NEMA 6-15R outlet for 200-240V?
- Are all integrated components from the tested components lists? Check the tested memory, and chassis lists, as well as the supported hardware and operating system list. See "Server System References" on page xix for links to the tested component lists.

Hardware Diagnostic Testing

This section provides a more detailed approach to identifying a hardware problem and locating its source.

Caution: *Turn off devices before disconnecting cables: Before disconnecting any peripheral cables from the system, turn off the system and any external peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral devices.*

1. Turn off the system and all external peripheral devices. Disconnect each device from the system, except for the keyboard and the video monitor.

2. Make sure the system power cord is plugged into a properly grounded AC outlet.

3. Make sure your video display monitor and keyboard are correctly connected to the system. Turn on the video monitor. Set its brightness and contrast controls to at least two thirds of their maximum ranges (see the documentation supplied with your video display monitor).

4. Turn on the system. If the power LED does not light, see "Power Light Does Not Light" on page 92.

Verifying Proper Operation of Key System Lights

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity light should turn on briefly. Check for the following:

- Does the drive activity light turn on briefly? If not, see "Drive Activity Light Does Not Light" on page 94.

Confirming Loading of the Operating System

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see "No Characters Appear on Screen" on page 92.

Specific Problems and Corrective Actions

This section provides possible solutions for these specific problems:

- Power light does not light.
- No characters appear on screen.
- Characters on the screen appear distorted or incorrect.
- Cooling fans do not rotate.
- USB diskette drive activity light does not light.
- Hard disk drive activity light does not light.
- USB CD-ROM drive activity light does not light.
- There are problems with application software.
- The bootable USB CD-ROM is not detected.

Try the solutions below in the order given. If you cannot correct the problem, contact your service representative or authorized dealer for help.

Power Light Does Not Light

Check the following:

- Did you press the power-on button?
- This server system has two server boards. Did you press the power button for the correct server board?
- Is the system operating normally? If so, the power LED might be defective or the connection from the control panel to the server board might be loose.
- Have you securely plugged the server AC power cord into the power supply?
- Remove all add-in cards and see if the system boots. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system requirements.
- Make sure the memory DIMMs have been populated according to the system requirements.
- Remove the memory DIMMs and re-seat them.
- Make sure the processor complies with the system requirements.
- Remove the processor and re-seat it.

No Characters Appear on Screen

Check the following:

- This server system has two server boards. Is the video monitor connected to the correct server board?
- Is the keyboard functioning? Test it by turning the "Num Lock" function on and off to make sure the Num Lock light is functioning.
- Is the video monitor plugged in and turned on? If you are using a switch box, is it switched to the correct system?
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the video monitor signal cable properly installed?
- Does this video monitor work correctly if plugged into a different system?
- Is the onboard video controller enabled in the BIOS?
- Remove all add-in cards and see if the video returns. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system requirements.
- Make sure the memory DIMMs have been populated according to the system requirements.

- Remove the memory DIMMs and re-seat them.

- Make sure the processor(s) comply with the system requirements.

- Make sure the processor(s) have been populated according to the system requirements.

- Remove the processor(s) and re-seat them.

If you are using an add-in video controller board, do the following:

1. Verify that the video works using the onboard video controller.

2. Verify that the video controller board is fully seated in the server board connector.

3. Reboot the system for changes to take effect.

4. If there are still no characters on the screen after you reboot the system and POST emits a beep code, write down the beep code you hear. This information is useful for your service representative.

5. If you do not receive a beep code and characters do not appear, the video display monitor or video controller may have failed. Contact your service representative or authorized dealer for help.

Characters Are Distorted or Incorrect

Check the following:

- Are the brightness and contrast controls properly adjusted on the video monitor? See the manufacturer's documentation.

- Are the video monitor's signal and power cables properly installed?

- Does this video monitor work correctly if plugged into a different system?

System Cooling Fans Do Not Rotate Properly

If the system cooling fans are not operating properly, it is an indication of possible system component failure.

Check the following:

- Is the power-on light lit? If not, see .

- Are any other control panel LEDs lit?

- Have any of the fan motors stopped? Use the server management subsystem to check the fan status.

- Have your fans speeded up in response to an overheating situation?

- Have your fans speeded up in response to a fan that has failed?

- Are the fan power connectors properly connected to the server board?

- Is the cable from the control panel board connected to the both the control panel board and to the server board?

- Are the power supply cables properly connected to the server board?
- Are there any shorted wires caused by pinched-cables or have power connector plugs been forced into power connector sockets the wrong way?

Drive Activity Light Does Not Light

Check the following:
- Are the drive's power and signal cables properly installed?
- Are all relevant switches and jumpers on the drive set correctly?
- Is the drive properly configured?
- Is the drive activity light always on? If so, the signal cable may be plugged in incorrectly.

CD-ROM Drive or DVD-ROM Drive Activity Light Does Not Light

Check the following:
- Are the CD-ROM/DVD-ROM drive's power and signal cables properly installed?
- Are all relevant switches and jumpers on the drive set correctly?
- Is the drive properly configured?

Cannot Connect to a Server

- Make sure the network cable is securely attached to the correct connector at the system back panel.
- Try a different network cable.
- Make sure you are using the correct and the current drivers. See "Server System References" on page xix for a link to the current drivers.
- Make sure the driver is loaded and the protocols are bound.
- Make sure the hub port is configured for the same duplex mode as the network controller.
- Make sure the correct networking software is installed.
- If you are directly connecting two servers (without a hub), you will need a crossover cable.
- Check the network controller LEDs next to the NIC connectors.

Problems with Network

The server hangs when the drivers are loaded

- Certain drivers may require interrupts that are not shared with other PCI drivers. For these drivers, it may be necessary to alter settings so that interrupts are not shared. See the documentation that came with your PCI card(s) for information on changing interrupts.

Diagnostics pass but the connection fails

- Make sure the network cable is securely attached.
- Make sure you specify the correct frame type in your NET.CFG file.
- The controller stopped working when an add-in adapter was installed.
- Make sure the cable is connected to the port from the onboard network controller.
- Make sure your BIOS is current. See "Server System References" on page xix for a link to the current version.
- Make sure the other adapter supports shared interrupts. Make sure your operating system supports shared interrupts.
- Try reseating the add-in adapter.

The add-in adapter stopped working without apparent cause

- Reseat the adater.
- The network driver files may be corrupt or deleted. Delete and then reinstall the drivers.
- Run diagnostics.

System Boots when Installing PCI Card

System Management features require full-time "standby" power. This means some parts of the system have power going to them whenever the power cord is plugged in, even if you have turned the system power off with the power button on the front panel. If you install a PCI card with the AC power cord plugged in, a signal may be sent to command the system to boot. Before installing a PCI card, you should always:

- Turn off the server power by using the power button on the front of the system.
- Unplug the AC power cord(s) from the server.

Problems with Newly Installed Application Software

Problems that occur when you run new application software are usually related to the software, not the server hardware. Faulty equipment is unlikely, especially if other software runs correctly.

Check the following:

- Make sure the system meets the minimum hardware requirements for the software. See the software documentation.
- Make sure the software is properly installed and configured for the system. See the software documentation.
- Use only an authorized copy. Unauthorized copies often do not work.
- If you are running the software from a USB CD-ROM or DVD-ROM, try a different disk.
- Make sure the correct device drivers installed.

If the problems persist, contact the software vendor's customer service representative.

Problems with Application Software that Ran Correctly Earlier

Problems that occur after the system hardware and software have been running correctly sometimes indicate equipment failure. However, they can also be caused by file corruption or changes to the software configuration.

Check the following:

- If you are running the software from a USB CD-ROM or DVD-ROM, try a different disk.
- Check your system for a virus infection.
- Uninstall and reinstall the software. Make sure all necessary files are installed.
- If the problems are intermittent, there may be a loose cable, dirt in the keyboard (if keyboard input is incorrect), a marginal power supply, or other random component failures.
- If you suspect that a transient voltage spike, power outage, or brownout might have occurred, reload the software and try running it again. Symptoms of voltage spikes include a flickering video display, unexpected system reboots, and the system not responding to user commands.

Note: *Random errors in data files: If you are getting random errors in your data files, they may be getting corrupted by voltage spikes on your power line. If you are experiencing any of the above symptoms that might indicate voltage spikes on the power line, you may want to install a surge suppressor between the power outlet and the system power cord.*

Devices are not Recognized under Device Manager (Microsoft* Windows* Operating System)

The Microsoft* Windows* operating systems do not include all of the drivers for the Intel® chipsets, onboard NICs, and other components. See "Server System References" on page xix for a link to the current drivers and chipset files.

Hard Drive(s) are not Recognized

Check the following:

- Make sure the drive is not disabled in BIOS Setup.
- Make sure the drive is connected correctly and that is plugged into the power supply.
- Make sure the drive is compatible. See "Server System References" on page xix for a link to the tested drives.
- Make sure you have not exceeded the power budget for the server. See "Server System References" on page xix for a link to software to check your power budget.
- If using SCSI drives, verify that each SCSI ID number is unique on the SCSI bus. See your drive documentation for details on setting the SCSI ID for your drives.
- If using ATA drives, verify that the master/slave settings are set correctly. See your drive documentation for details on setting the master/slave settings.
- If using a RAID configuration with SCSI or SATA drives, make sure the RAID card is installed correctly.

Bootable CD-ROM Disk Is Not Detected

Check the following:

- Make sure the BIOS is configured to allow the USB CD-ROM to be the first bootable device.

Appendix D: Getting Help

World Wide Web

http://support.intel.com/support/motherboards/server/X38ML.

Telephone

All calls are billed per incident, levied in local currency at the applicable credit card exchange rate plus applicable taxes. (Intel reserves the right to change the pricing for telephone support at any time without notice).

Before calling, fill out an Issue Report Form, available at http://support.intel.com/support/motherboards/server/X38ML.

For an updated support contact list, see http://www.intel.com/support/9089.htm/

U.S. and Canada

See http://support.intel.com/support/motherboards/server/X38ML.

Europe

Belgium 02 714 3182

Denmark ... 38 487077

Finland 9 693 79297

France........ 01 41 918529

Germany ... 069 9509 6099

Holland...... 020 487 4562

Italy............ 02 696 33276

Norway 23 1620 50

Spain.......... 91 377 8166

Sweden....... 08 445 1251

UK.............. 870 6072439

In Asia-Pacific region

Australia.... 1800 649931

Cambodia.. 63 2 636 9797 (via Philippines)

China .... 800 820 1100 (toll-free)

.... 8 621 33104691 (not toll-free)

Hong Kong 852 2 844 4456

India........... 0006517 2 68303634 (manual toll-free. You need an IDD-equipped
telephone)

Indonesia... 803 65 7249

Korea 822 767 2595

Malaysia 1 800 80 1390

Myanmar... 63 2 636 9796 (via Philippines)

New Zealand 0800 444 365

Pakistan..... 632 63684 15 (IDD via Philippines)

Philippines 1 800 1 651 0117

Singapore .. 65 6213-1311

Taiwan 2 2545-1640

Thailand 1 800 631 0003

Vietnam ..... 632 6368416 (IDD via Philippines)

Japan

Domestic.... 0120 868686

Outside country   81 298 47 0800

Latin America

Argentina .. Contact AT&T USA at 0-800 222 1288. Once connected, dial 800 843 4481

Brazil 001-916 377 0180

Chile

> **Easter Island**. .... Contact AT&T USA at 800 800 311. Once
> connected, dial 800 843 4481
> **Mainland and Juan** .. Contact AT&T USA at 800 225 288. Once
> connected, dial 800 843 4481

Colombia ... Contact AT&T USA at 01 800 911 0010. Once connected, dial 800 843 4481

Costa Rica . Contact AT&T USA at 0 800 0 114 114. Once connected, dial 800 843 4481

Ecuador

        (Andimate) .... Contact AT&T USA at 1 999 119. Once connected, dial 800 843 4481
        (Pacifictel) ..... Contact AT&T USA at 1 800 225 528. Once connected, dial 800 843 4481

Guatemala . Contact AT&T USA at 99 99 190. Once connected, dial 800 843 4481

Mexico .... Contact AT&T USA at 001 800 462 628 4240. Once connected, dial 800 843 4481

Miami 1 800 621 8423

Panama ...... Contact AT&T USA at 00 800 001 0109. Once connected, dial 800 843 4481

Paraguay ... 001 916 377 0114

Peru 001 916 377 0114

Uruguay 001 916 377 0114

Venezuela ... Contact AT&T USA at 0 800 2255 288. Once connected, dial 800 843 4481

Appendix E: Warranty

Limited Warranty for Intel® 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 and in particular, any costs relating to the removal or replacement of any product soldered or otherwise permanently affixed to any printed circuit board.

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 and Latin America To obtain warranty repair for the product, please go to the following Web site to obtain instructions: http://support.intel.com/support/ motherboards/draform.htm

- In Europe and in Asia 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 cannot 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. See "Getting Help" for telephone numbers.

Returning a Defective Product

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

Appendix F: Safety Information

English

Server Safety Information

This document applies to Intel® server boards, Intel® server chassis (pedestal and rack-mount) and installed peripherals. To reduce the risk of bodily injury, electrical shock, fire, and equipment damage, read this document and observe all warnings and precautions in this guide before installing or maintaining your Intel® server product.

In the event of a conflict between the information in this document and information provided with the product or on the Web site for a particular product, the product documentation takes precedence.

Your server should be integrated and serviced only by technically qualified persons.

You must adhere to the guidelines in this guide and the assembly instructions in your server manuals to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products / components will void the UL Listing and other regulatory approvals of the product, and may result in noncompliance with product regulations in the region(s) in which the product is sold.

Safety Warnings and Cautions

To avoid personal injury or property damage, before you begin installing the product, read, observe, and adhere to all of the following safety instructions and information. The following safety symbols may be used throughout the documentation and may be marked on the product and / or the product packaging.

CAUTION	Indicates the presence of a hazard that may cause minor personal injury or property damage if the CAUTION is ignored.
WARNING	Indicates the presence of a hazard that may result in serious personal injury if the WARNING is ignored.
⚠	Indicates potential hazard if indicated information is ignored.
⚡	Indicates shock hazards that result in serious injury or death if safety instructions are not followed.
♨	Indicates hot components or surfaces.

	Indicates do not touch fan blades, may result in injury.
	Indicates to unplug all AC power cord(s) to disconnect AC power
	Please recycle battery

Intended Application Uses

This product was evaluated as Information Technology Equipment (ITE), which may be installed in offices, schools, computer rooms, and similar commercial type locations. The suitability of this product for other product categories and environments (such as medical, industrial, residential, alarm systems, and test equipment), other than an ITE application, may require further evaluation.

Site Selection

The system is designed to operate in a typical office environment. Choose a site that is:

- Clean, dry, and free of airborne particles (other than normal room dust).
- Well-ventilated and away from sources of heat including direct sunlight and radiators.
- 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 cord(s), because they serve as the product's main power disconnect.

Equipment Handling Practices

Reduce the risk of personal injury or equipment damage:

- Conform to local occupational health and safety requirements when moving and lifting equipment.
- Use mechanical assistance or other suitable assistance when moving and lifting equipment.
- To reduce the weight for easier handling, remove any easily detachable components.

Power and Electrical Warnings

Caution: *The power button, indicated by the stand-by power marking, DOES NOT completely turn off the system AC power, 5V standby power is active whenever the system is plugged in. To remove power from system, you must unplug the AC power cord from the wall outlet. Your system may use more than one AC power cord. Make sure all AC power cords are unplugged. Make sure the AC power cord(s) is/are unplugged before you open the chassis, or add or remove any non hot-plug components.*

Do not attempt to modify or use an AC power cord if it is not the exact type required. A separate AC cord is required for each system power supply.

Some power supplies in Intel® servers use Neutral Pole Fusing. To avoid risk of shock use caution when working with power supplies that use Neutral Pole Fusing.

The power supply in this product contains no user-serviceable parts. Do not open the power supply. Hazardous voltage, current and energy levels are present inside the power supply. Return to manufacturer for servicing.

When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing it from the server.

To avoid risk of electric shock, turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it.

Power Cord Warnings

If an AC power cord was not provided with your product, purchase one that is approved for use in your country.

Caution: *To avoid electrical shock or fire, check the power cord(s) that will be used with the product as follows:*

- *Do not attempt to modify or use the AC power cord(s) if they are not the exact type required to fit into the grounded electrical outlets.*

- *The power cord(s) must meet the following criteria:*

- *The power cord must have an electrical rating that is greater than that of the electrical current rating marked on the product.*

- *The power cord must have safety ground pin or contact that is suitable for the electrical outlet.*

- *The power supply cord(s) is/are the main disconnect device to AC power. The socket outlet(s) must be near the equipment and readily accessible for disconnection.*

- *The power supply cord(s) must be plugged into socket-outlet(s) that is /are provided with a suitable earth ground.*

System Access Warnings

Caution: *To avoid personal injury or property damage, the following safety instructions apply whenever accessing the inside of the product:*

- *Turn off all peripheral devices connected to this product.*

- *Turn off the system by pressing the power button to off.*

- *Disconnect the AC power by unplugging all AC power cords from the system or wall outlet.*

- *Disconnect all cables and telecommunication lines that are connected to the system.*

- *Retain all screws or other fasteners when removing access cover(s). Upon completion of accessing inside the product, refasten access cover with original screws or fasteners.*

- *Do not access the inside of the power supply. There are no serviceable parts in the power supply. Return to manufacturer for servicing.*

- *Power down the server and disconnect all power cords before adding or replacing any non hot-plug component.*

- *When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing the power supply from the server.*

Caution: *If the server has been running, any installed processor(s) and heat sink(s) may be hot. Unless you are adding or removing a hot-plug component, allow the system to cool before opening the covers. To avoid the possibility of coming into contact with hot component(s) during a hot-plug installation, be careful when removing or installing the hot-plug component(s).*

Caution: *To avoid injury do not contact moving fan blades. If your system is supplied with a guard over the fan, do not operate the system without the fan guard in place.*

Rack Mount Warnings

The equipment rack must be anchored to an unmovable support to prevent it from tipping when a server or piece of equipment is extended from it. The equipment rack must be installed according to the rack manufacturer's instructions.

Install equipment in the rack from the bottom up, with the heaviest equipment at the bottom of the rack.

Extend only one piece of equipment from the rack at a time.

You are responsible for installing a main 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).

To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed in it.

Electrostatic Discharge (ESD)

Caution: *ESD can damage disk drives, boards, and other parts. We recommend that you perform all procedures 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. After removing a board from its protective wrapper or from the server, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

Other Hazards

Battery Replacement

Caution: *There is the danger of explosion if the battery is incorrectly replaced. When replacing the battery, use only the battery recommended by the equipment manufacturer.*

- *Dispose of batteries according to local ordinances and regulations.*
- *Do not attempt to recharge a battery.*
- *Do not attempt to disassemble, puncture, or otherwise damage a battery.*

Cooling and Airflow

Caution: *Carefully route cables as directed to minimize airflow blockage and cooling problems.*

For proper cooling and airflow, operate the system only with the chassis covers installed. Operating the system without the covers in place can damage system parts. To install the covers:

- *Check first to make sure you have not left loose tools or parts inside the system.*
- *Check that cables, add-in boards, and other components are properly installed.*
- *Attach the covers to the chassis according to the product instructions.*

Laser Peripherals or Devices

Caution: *To avoid risk of radiation exposure and/or personal injury:*

- *Do not open the enclosure of any laser peripheral or device.*
- *Laser peripherals or devices have are not user serviceable.*
- *Return to manufacturer for servicing.*

Deutsch

Sicherheitshinweise für den Server

Das vorliegende Dokument bezieht sich auf Intel® Serverplatinen, Intel® Servergehäuse (Standfuß und Rack) sowie installierte Peripheriegeräte. Es enthält Warnungen und Vorsichtsmaßnahmen zur Vermeidung von Gefahren durch Verletzung, Stromschlag, Feuer und Beschädigungen von Geräten. Lesen Sie diese Dokument daher sorgfältig, bevor Sie Ihr Intel® Serverprodukt installieren oder warten.

Bei Widersprüchen zwischen den hier vorliegenden Angaben und den Informationen im Lieferumfang des Produkts oder auf der Website des betreffenden Produkts hat die Produktdokumentation Vorrang.

Die Integration und Wartung des Servers darf nur durch technisch qualifizierte Personen erfolgen.

Um die Einhaltung der vorhandenen Zulassungen und Genehmigungen für das Produkt zu gewährleisten, sind die Richtlinien in diesem Handbuch sowie die Montageanleitungen in den Serverhandbüchern zu beachten. Verwenden Sie nur die beschriebenen, zugelassenen Komponenten, die im vorliegenden Handbuch angegeben werden. Die Verwendung anderer Produkte oder Komponenten führt zum Erlöschen der UL-Zulassung und anderer Genehmigungen für das Produkt. Dadurch kann das Produkt gegen Produktbestimmungen verstoßen, die im Verkaufsland gelten.

Sicherheitshinweise und Vorsichtsmaßnahmen

Um Verletzungen und Beschädigungen zu vermeiden, sollten Sie vor dem Beginn der Produktinstallation die nachfolgend aufgeführten Sicherheitshinweise und -informationen sorgfältig lesen und befolgen. In dem vorliegenden Handbuch sowie auf dem Produkt und auf der Verpackung werden folgende Sicherheitssymbole verwendet:

VORSICHT	Weist auf eine Gefahrenquelle hin, die bei Nichtbeachtung des VORSICHTSHINWEISES zu leichteren Verletzungen bzw. Sachbeschädigungen führen kann.
WARNUNG	Weist auf eine Gefahrenquelle hin, die bei Nichtbeachtung der WARNUNG zu ernsten Verletzungen führen kann.
⚠	Weist auf potentielle Gefahr bei Nichtbeachtung der angezeigten Informationen hin.
⚡	Weist auf die Gefahr eines Stromschlags hin, der bei Nichtbeachtung der Sicherheitshinweise zu schweren oder tödlichen Verletzungen führen kann.
♨	Weist auf Verbrennungsgefahr an heißen Bauteilen bzw. Oberflächen hin.

	Weist darauf hin, daß das Anfassen des Gebläses zu Verletzungen führen kann.
	Bedeutet, alle Netzkabel abzuziehen und das Gerät von der Netzspannung zu trennen.
	Bereiten Sie bitte Batterie auf

Zielbenutzer der Anwendung

Dieses Produkt wurde in seiner Eigenschaft als IT-Gerät getestet, das in Büros, Schulen, Computerräumen und ähnlichen öffentlichen Räumlichkeiten installiert werden kann. Die Eignung dieses Produkts für andere Einsatzbereiche als IT (z. B. Medizin, Industrie, Alarmsysteme oder Prüfgeräte) kann u. U. weitere Tests erfordern.

Standortauswahl

Das System ist für den Betrieb innerhalb normaler Büroumgebungen geeignet. Wählen Sie einen Standort, der folgenden Kriterien entspricht:

- Sauber, trocken und frei von Partikeln in der Luft (außer dem normalen Raumstaub).
- Gut belüftet, nicht in der Nähe von Wärmequellen und keiner direkten Sonnenbestrahlung ausgesetzt.
- Nicht in der Nähe von Vibrations- oder Erschütterungsquellen.
- Abgeschirmt von starken elektromagnetischen Feldern, die durch elektrische Geräte erzeugt werden.
- In gewittergefährdeten Gebieten sollten Sie das System an einen Überspannungsschutz anschließen und bei einem Gewitter die Telekommunikationskabel zum Modem abziehen.
- Eine ordnungsgemäß geerdete Wandsteckdose muß vorhanden sein.
- Ausreichender Freiraum für den Zugang zu den Netzkabeln, da diese die Hauptvorrichtung zum Trennen des Produkts von der Stromversorgung sind.

Handhabung von Geräten

Beachten Sie zur Vermeidung von Verletzungen oder Beschädigungen an den Geräten die folgenden Hinweise:

- Halten Sie beim Transportieren und Anheben von Geräten die örtlichen Gesundheits- und Sicherheitsvorschriften ein.
- Verwenden Sie mechanische oder andere geeignete Hilfsmittel zum Transportieren oder Anheben von Geräten.
- Entfernen Sie alle Komponenten, die sich leicht abnehmen lassen, um das Gewicht zu reduzieren und die Handhabung zu erleichtern.

Warnungen zu Netzspannung und Elektrizität

Caution: *Durch Betätigen der mit dem Standby-Symbol gekennzeichneten Netztaste wird das System NICHT vollständig vom Netz getrennt. Es sind weiterhin 5 V aktiv, solange das System eingesteckt ist. Um das System vollständig vom Strom zu trennen, muß das Netzkabel aus der Steckdose abgezogen werden. Das System verfügt möglicherweise über mehrere Netzkabel. Vergewissern Sie sich in diesem Fall, daß alle Netzkabel abgezogen sind. Wenn Sie Komponenten ein- oder ausbauen möchten, die nicht hot-plug-fähig sind, stellen Sie sicher, daß zuvor alle Netzkabel abgezogen sind.*

Nehmen Sie keine Änderungen am Netzkabel vor, und verwenden Sie kein Kabel, das nicht genau dem geforderten Typ entspricht. Jedes Netzteil im System muß über ein eigenes Netzkabel angeschlossen werden.

Einige Netzteile von Intel Servern verwenden Nullleitersicherungen. Vorsicht ist geboten im Umgang mit Netzteilen, welche Nullleitersicherungen verwenden, um das Risiko eines elektrischen Schlages zu vermeiden

Das Netzteil in diesem Produkt enthält keine Teile, die vom Benutzer gewartet werden können. Öffnen Sie das Netzteil nicht. Im Netzteil bestehen gefährliche Spannungen, Ströme und Energiequellen. Schicken Sie das Gerät für Wartungsarbeiten an den Hersteller zurück.

Wenn Sie ein hot-plug-fähiges Netzteil austauschen, ziehen Sie dessen Netzkabel ab, bevor Sie es aus dem Server ausbauen.

Zur Vermeidung von Stromschlägen schalten Sie den Server aus, und trennen Sie vor dem Öffnen des Geräts das Netzkabel sowie alle an den Server angeschlossene Telekommunikationssysteme, Netzwerke und Modems.

Hinweis für Netzkabel

Wenn kein Netzkabel mit dem Produkt geliefert wurde, kaufen Sie ein Kabel, das für die

Caution: *Prüfen Sie zur Vermeidung von Stromschlag oder Feuergefahr die mit dem Produkt zu verwendenden Netzkabel wie folgt:*

- *Nehmen Sie keine Änderungen an einem Netzkabel vor, und benutzen sie es nicht, wenn es nicht genau in die geerdeten Netzsteckdosen paßt.*

- *Netzkabel müssen die folgenden Anforderungen erfüllen:*

    — *Die Nennbelastbarkeit des Netzkabels muß mindestens so hoch sein wie die am Produkt angegebenen Nennstromaufnahme.*

    — *Das Netzkabel muß einen zur Netzsteckdose passenden Schutzkontakt besitzen.*

- *Die Netzkabel sind die Hauptvorrichtung zum Trennen des Geräts vom Stromnetz. Die Steckdose muß in der Nähe der Anlage angebracht und gut erreichbar sein.*

- *Netzkabel müssen an eine ordnungsgemäß geerdete Steckdose angeschlossen sein.*

Warnhinweise für den Systemzugang

Caution: *Um Verletzungen und Beschädigungen zu vermeiden, sollten Sie vor Arbeiten im Produktinneren folgende Sicherheitsanweisungen beachten:*

- *Schalten Sie alle am Produkt angeschlossenen Peripheriegeräte aus.*

- *Schalten Sie das System mit dem Netzschalter aus.*

- *Trennen Sie das Gerät von der Stromquelle, indem Sie alle Netzkabel vom System bzw. aus der Steckdose ziehen.*

- *Ziehen Sie alle Kabel und alle an das System angeschlossenen Telekommunikationsleitungen ab.*

- *Bewahren Sie alle Schrauben und anderen Befestigungselemente gut auf, nachdem Sie die Gehäuseabdeckung entfernt haben. Wenn Sie Ihre Arbeiten im Systeminneren beendet haben, befestigen Sie die Gehäuseabdeckung mit den Originalschrauben bzw. -befestigungselementen.*

- *Führen Sie keine Arbeiten im Netzteil aus. Das Netzteil enthält keine für den Benutzer wartungsbedürftigen Teile. Schicken Sie das Gerät für Wartungsarbeiten an den Hersteller zurück.*

- *Schalten Sie den Server aus, und ziehen Sie alle Netzkabel ab, bevor Sie Komponenten ein- oder ausbauen, die nicht hot-plug-fähig sind.*

- *Wenn Sie ein hot-plug-fähiges Netzteil austauschen, ziehen Sie dessen Netzkabel ab, bevor Sie es aus dem Server ausbauen.*

Caution: *War Ihr Server in Betrieb, können die installierten Prozessoren und Kühlkörper heiß sein. Sofern Sie keine Hot-Plug-Komponenten ein- oder ausbauen, warten Sie mit dem Abnehmen der Abdeckungen, bis das System abgekühlt ist. Gehen Sie beim Aus- oder Einbauen von Hot-Plug-Komponenten sorgfältig vor, um nicht mit heißen Komponenten in Berührung zu kommen.*

Caution: *Berühren Sie nicht die rotierenden Lüfterflügel, um Verletzungen zu vermeiden. Falls Ihr System mit eine Lüfterabdeckung besitzt, darf es nicht ohne diese Abdeckung betrieben werden.*

Warnhinweise für Racks

Das Geräte-Rack muß auf einer geeigneten, festen Unterlage verankert werden, um ein Umkippen zu vermeiden, wenn ein Server oder andere Geräte herausgezogen werden. Bei der Installation des Racks müssen die Anweisungen des Rack-Herstellers beachtet werden.

Gehen Sie bei der Installation von Geräten im Rack immer von unten nach oben vor, und bauen Sie das schwerste Gerät an der untersten Position im Rack ein.

Ziehen Sie jeweils immer nur ein Gerät aus dem Rack heraus.

Sie müssen für die gesamte Rack-Einheit einen Netztrennschalter einrichten. Dieser Netztrennschalter muß leicht zugänglich sein und über eine Kennzeichnung verfügen, die besagt, daß er die Stromzufuhr zur gesamten Einheit steuert und nicht nur zu den Servern.

Zur Vermeidung von Stromschlaggefahr müssen das Rack selbst und alle darin eingebauten Geräte ordnungsgemäß geerdet sein.

Elektrostatische Entladungen (ESD)

Caution: *Elektrostatische Entladungen können zur Beschädigung von Festplatten, Platinen und anderen Komponenten führen. Daher sollten Sie alle Arbeiten an einer ESD-Workstation ausführen. Steht ein solcher Arbeitsplatz nicht zur Verfügung, erzielen Sie einen gewissen Schutz vor elektrostatischen Entladungen durch Tragen einer Antistatik-Manschette, die Sie während der Arbeit zur Erdung an einem beliebigen unlackierten Metallteil des Computergehäuses befestigen.*

Gehen Sie bei der Handhabung von Platinen immer mit größter Vorsicht vor. Sie können äußerst empfindlich gegenüber elektrostatischer Entladung sein. Halten Sie Platinen nur an den Kanten fest. Legen Sie die Platinen nach dem Auspacken aus der Schutzhülle oder nach dem Ausbau aus dem Server mit der Bauelementseite nach oben auf eine geerdete, statisch entladene Unterlage. Verwenden Sie dazu, sofern verfügbar, eine leitfähige Schaumstoffunterlage, aber nicht die Schutzhülle der Platine. Ziehen Sie die Platine nicht über eine Fläche.

Andere Gefahren

Batterieaustausch

Caution: *Wird die Batterie unsachgemäß ausgetauscht, besteht Explosionsgefahr. Verwenden Sie als Ersatz nur die vom Gerätehersteller empfohlene Batterie.*

Beachten Sie bei der Entsorgung von Batterien die gültigen Bestimmungen.

Versuchen Sie nicht, eine Batterie aufzuladen.

Versuchen Sie nicht, eine Batterie zu öffnen oder sonstwie zu beschädigen.

Kühlung und Luftstrom

Caution: *Verlegen Sie Kabel sorgfältig entsprechend der Anleitung, um Störungen des Luftstroms und Kühlungsprobleme zu vermeiden.*

Zur Gewährleistung des ordnungsgemäßen Kühlungs- und Luftstromverhaltens darf das System nur mit angebrachten Gehäuseabdeckungen betrieben werden. Die Inbetriebnahme des Systems ohne Abdeckung kann zur Beschädigung von Systemkomponenten führen. So bringen Sie die Abdeckung wieder an:

- Vergewissern Sie sich zunächst, daß Sie keine Werkzeuge oder Teile im Gehäuse vergessen haben.

- Prüfen Sie, ob Kabel, Erweiterungskarten sowie weitere Komponenten ordnungsgemäß angebracht sind.

- Befestigen Sie die Abdeckungen am Gehäuse des Produkts, wie in dessen Anleitung beschrieben.

Laser-Peripheriegeräte oder -Komponenten

Caution: *Beachten Sie zur Vermeidung von Strahlung und Verletzungen die folgenden Hinweise:*

- Öffnen Sie keinesfalls das Gehäuse von Laser-Peripheriegeräten oder Laser-Komponenten.

- Laser-Peripheriegeräte oder -Komponenten besitzen keine für den Benutzer wartungsbedürftigen Teile.

- Schicken Sie das Gerät für Wartungsarbeiten an den Hersteller zurück.

Français

Consignes de securite sur le serveur

Ce document s'applique aux cartes serveur Intel®, au châssis de serveur Intel® (sur pieds et sur rack) et aux périphériques installés. Pour réduire les risques de dommages corporels, d'électrocution, d'incendie et de dommages matériels, lisez ce document et respectez tous les avertissements et précautions mentionnés dans ce guide avant d'installer ou de mettre à jour votre produit serveur Intel®.

En cas de conflit entre les informations fournies dans ce document et celles livrées avec le produit ou publiées sur le site Web pour un produit particulier, la documentation du produit prime.

Votre serveur doit être intégré et entretenu uniquement par des techniciens qualifiés.

Vous devez suivre les informations de ce guide et les instructions d'assemblage des manuels de serveur pour vérifier et maintenir la conformité avec les certifications et approbations de produit existantes. Utilisez uniquement les composants décrits et réglementés spécifiés dans ce guide. L'utilisation d'autres produits/composants annulera la liste UL et les autres approbations réglementaires du produit, et le produit peut ne pas être conforme aux autres lois et réglementations locales applicables au produit.

Séurité: avertissements et mises en garde

Pour éviter de vous blesser ou d'endommager votre équipement, lisez et respectez toutes les informations et consignes de sécurité avant de commencer l'installation du produit. Les symboles de sécurité suivants peuvent être utilisés tout au long de cette documentation et peuvent figurer sur le produit ou sur son emballage.

ATTENTION	Indique la présence d'un risque pouvant entraîner des blessures physiques mineures ou endommager légèrement le matériel si la mise en garde n'est pas prise en compte.
AVERTISSEMENT	Indique la présence d'un risque pouvant entraîner des blessures corporelles graves si l'avertissement n'est pas pris en compte.
⚠	Indique un risque potentiel si les informations signalées ne sont pas prises en compte.
⚡	Indique des risques d'électrocution pouvant entraîner des blessures corporelles graves ou mortelles si les consignes de sécurité ne sont pas respectées.
🔥	Signale des composants ou des surfaces soumis à des températures élevées.
⊛	Indique de ne pas toucher aux pales de ventilateur, car cela peut entraîner des blessures.
🔌🔌	Indique de débrancher tous les cordons d'alimentation secteur pour déconnecter l'alimentation.
♻	Veuillez réutiliser la batterie

Domaines d'utilisation prévus

Ce produit a été testé comme équipement informatique (ITE) et peut être installé dans des bureaux, des écoles, des salles informatiques et des endroits commerciaux similaires. L'utilisation du présent produit dans des catégories et environnements de produits et domaines d'application (par exemple, le domaine médical, industriel, résidentiel, les systèmes d'alarme et les appareils de contrôle) autres qu'ITE doit faire l'objet d'évaluations supplémentaires.

Sélection d'un emplacement

Le système est conçu pour fonctionner dans un environnement standard de bureau. Choisissez un emplacement respectant les conditions suivantes :

- Propre, sec et exempt de particules en suspension (autres que la poussière normale d'une pièce).
- Bien ventilé et à l'écart des sources de chaleur telles que la lumière directe du soleil et les radiateurs.
- À l'écart des sources de vibration ou des chocs physiques.
- Isolé des champs électromagnétiques importants produits par des appareils électriques.

- Dans les régions sujettes aux orages magnétiques, nous vous recommandons de brancher votre système à un suppresseur de surtension et de déconnecter les lignes de télécommunication de votre modem pendant les orages.

- Équipé d'une prise murale reliée à la terre.

- Équipé d'un espace suffisant pour accéder aux cordons d'alimentation secteur, car ils servent de disjoncteur principal d'alimentation du produit.

Pratiques de manipulation de l'équipement

Réduisez le risque de dommages personnels ou matériels :

- Conformez-vous aux exigences de médecine du travail et de sécurité lorsque vous déplacez et soulevez le matériel.

- Utilisez l'assistance mécanique ou toute autre assistance appropriée lorsque vous déplacez et soulevez le matériel.

- Pour réduire le poids en vue de faciliter la manipulation, retirez tout composant amovible.

Alimentation et avertissements en matiére d'électricité

Attention: *Le bouton d'alimentation, indiqué par le symbole de mise en veille, NE COUPE PAS complètement l'alimentation secteur du système car le courant de veille 5 V reste actif lorsque le système est sous tension. Pour couper l'alimentation du système, vous devez débrancher le cordon d'alimentation secteur de la prise murale. Votre système peut utiliser plusieurs cordons d'alimentation secteur. Assurez-vous que tous les cordons d'alimentation sont débranchés. Vous devez les débrancher avant d'ouvrir le châssis, d'ajouter ou de supprimer un composant non connectable à chaud.*

Les alimentations de certains serveurs Intel sont munies de doubles fusibles pôle/neutre: veuillez observer les précautions d'usage afin d'éviter tout risque d'eléctrocution.

N'essayez pas de modifier ou d'utiliser un cordon d'alimentation secteur s'il ne s'agit pas du type exact requis. Un cordon secteur est requis pour chaque alimentation système.

Le bloc d'alimentation de ce produit ne contient aucun composant réparable par l'utilisateur. N'ouvrez pas le bloc d'alimentation. L'intérieur de celui-ci est soumis à des

niveaux dangereux de tension, de courant et d'énergie. Renvoyez-le au fabricant en cas de problème.

Lorsque vous remplacez un bloc d'alimentation à chaud, débranchez le cordon du bloc d'alimentation en cours de remplacement avant de le retirer du serveur.

Pour éviter tout risque d'électrocution, mettez le système hors tension et débranchez les cordons d'alimentation ainsi que les systèmes de télécommunication, réseaux et modems reliés au système avant d'ouvrir ce dernier.

Avertissements sur le cordon d'alimentation

Si aucun cordon d'alimentation secteur n'a été fourni avec votre produit, vous devez vous en procurer un qui soit approuvé pour une utilisation dans votre pays.

Attention: *Pour éviter tout risque d'électrocution ou d'incendie, vérifiez les cordons d'alimentation qui seront utilisés avec le produit comme suit :*

- *N'essayez pas d'utiliser ou de modifier les cordons d'alimentation en CA s'ils ne correspondent pas exactement au type requis pour les prises électriques reliées à la terre.*

- *Les cordons d'alimentation doivent répondre aux critères suivants :*

    — *Le cordon d'alimentation doit supporter une intensité supérieure à celle indiquée sur le produit.*

    — *Le cordon d'alimentation doit posséder une broche ou un contact de mise à la terre approprié à la prise électrique.*

- *Les cordons d'alimentation électrique représentent le principal dispositif de déconnexion raccordé à l'alimentation secteur. Les prises de courant doivent se trouver à proximité de l'équipement et être facilement accessibles pour une déconnexion.*

- *Les cordons d'alimentation doivent être branchés sur des prises électriques correctement reliées à la terre.*

Avertissements sur l'accés au systéme

Attention: *Pour éviter de vous blesser ou d'endommager votre équipement, les consignes de sécurité suivantes s'appliquent chaque fois que vous accédez à l'intérieur du produit :*

- *Mettez hors tension tous les périphériques connectés à ce produit.*

- *Éteignez le système en appuyant sur le bouton d'alimentation.*

- *Déconnectez l'alimentation secteur en débranchant tous les cordons d'alimentation secteur du système ou de la prise murale.*

- *Déconnectez l'ensemble des câbles et lignes de télécommunication qui sont connectés au système.*

- *Mettez toutes les vis ou autres attaches de côté lorsque vous retirez les panneaux d'accès. Une fois que vous avez terminé d'accéder à l'intérieur du produit, refixez le panneau d'accès avec les vis ou attaches d'origine.*

- *N'essayez pas d'accéder à l'intérieur du bloc d'alimentation. Il ne contient aucune pièce réparable. Renvoyez-le au fabricant en cas de problème.*

- *Mettez le serveur hors tension et débranchez tous les cordons d'alimentation avant d'ajouter ou de remplacer tout composant non connectable à chaud.*

- *Lorsque vous remplacez le bloc d'alimentation à chaud, débranchez le cordon du bloc d'alimentation en cours de remplacement avant de retirer le bloc du serveur.*

⚠️ ♨️

Attention : *Si le serveur a été utilisé, les processeurs et dissipateurs de chaleur installés peuvent être chauds. À moins que vous n'ajoutiez ou ne retiriez un composant connectable à chaud, laissez le système refroidir avant d'ouvrir les panneaux. Pour éviter tout risque d'entrer en contact avec un composant chaud lors d'une installation à chaud, prenez toutes les précautions nécessaires lorsque vous retirez ou installez des composants connectables à chaud.*

⚠️ 🌀

Attention : *Pour éviter de vous blesser, ne touchez pas les pales de ventilateur en mouvement. Si votre système est fourni avec une protection sur le ventilateur, ne mettez pas le système en route sans la protection en place.*

Avertissements sur le montage en rack

Le rack doit être fixé à un support inamovible pour éviter qu'il ne bascule lors de l'extension d'un serveur ou d'un élément de l'équipement. Le rack doit être installé conformément aux instructions du fabricant.

Installez les équipements dans le rack en partant du bas, en plaçant le plus lourd en bas du rack.

N'étendez qu'un seul élément de l'équipement à partir du rack à la fois.

Vous êtes responsable de l'installation d'un disjoncteur principal d'alimentation pour la totalité du rack. Ce disjoncteur principal doit être rapidement accessible et doit être étiqueté comme contrôlant toute l'unité, et pas uniquement le ou les serveurs.

Pour éviter tout risque d'électrocution, le rack et chaque élément de l'équipement installé dans le rack doivent être correctement reliés à la terre.

Décharges électrostatiques (ESD)

!▲

Attention: *Les décharges électrostatiques (ESD) peuvent endommager les lecteurs de disque dur, les cartes et d'autres pièces. Il est fortement conseillé d'effectuer l'ensemble des procédures décrites à un poste de travail protégé contre les ESD. Au cas où aucun poste de ce type ne serait disponible, protégez-vous contre les ESD en portant un bracelet antistatique relié à la masse du châssis (n'importe quelle surface métallique non peinte) de votre serveur lorsque que vous manipulez les pièces.*

Manipulez toujours les cartes avec précaution. Elles peuvent être extrêmement sensibles aux ESD. Ne tenez les cartes que par leurs bords. Après avoir retiré une carte de son emballage de protection ou du serveur, placez-la sur une surface reliée à la terre, exempte de charge statique, composants orientés vers le haut. Utilisez si possible un tapis de mousse conducteur, mais pas l'emballage de la carte. Veillez à ce que la carte ne glisse sur aucune surface.

Autres risques

Remplacement de la pile

!

Attention: *Il existe un risque d'explosion si la pile n'est pas correctement remplacée. Lors du remplacement de la pile, utilisez uniquement celle recommandée par le fabricant du matériel.*

Mettez la pile au rebut en vous conformant aux réglementations locales.

N'essayez pas de recharger une pile.

N'essayez pas de démonter, de percer ou d'endommager la pile d'une quelconque façon.

Refroidissement et ventilation

!

Attention: *Routez les câbles avec précaution comme indiqué pour minimiser les blocages de circulation d'air et les problèmes de refroidissement.*

Afin de permettre une ventilation et un refroidissement corrects, ne mettez le système en marche que lorsque les panneaux du châssis sont en place. L'utilisation du système sans les panneaux peut endommager les composants système. Pour installer les panneaux :

- Vérifiez tout d'abord que vous n'avez pas oublié d'outils ou de composants détachés à l'intérieur du système.

- Vérifiez que les câbles, les cartes d'extension et les autres composants sont correctement installés.

- Fixez les panneaux au châssis en suivant les instructions du produit.

Périphériques laser

⚠️

*Attention:**Pour éviter tout risque d'exposition aux rayonnements et/ou de dommage personnel:*

- *N'ouvrez pas l'enceinte d'un périphérique laser.*
- *Les périphériques laser ne sont pas réparables par l'utilisateur.*
- *Retournez-les au fabricant en cas de problème.*

Español

Información de seguridad del servidor

Este documento se aplica a las tarjetas de servidor de Intel®, las carcasas de servidor de Intel® (montaje en bastidor y en pedestal) y los dispositivos periféricos. Para reducir el riesgo de daños corporales, descargas eléctricas, fuego y en el equipo, lea este documento y preste atención a todos las advertencias y precauciones de esta guía antes de instalar o mantener el producto de servidor de Intel®.

En el caso de que haya diferencias entre la información para un producto en particular contenida en este documento y la información proporcionada con dicho producto o en el sitio Web, la documentación del producto es la que prevalece.

Sólo personal técnico cualificado debe montar y prestar los servicios para el servidor.

Debe ceñirse a las directrices de esta guía y a las instrucciones de montaje de los manuales del servidor para asegurar y mantener el cumplimiento con las certificaciones y homologaciones existentes de los productos. Utilice sólo los componentes descritos y homologados que se especifican en esta guía. El uso de otros productos o componentes anulará la homologación UL y otras certificaciones oficiales del producto, pudiendo dejar de ser compatible con las normativas locales de los países en los que se comercializa.

Advertencias y precauciones sobre seguridad

Para reducir la posibilidad de que se produzcan lesiones personales o daños en la propiedad, antes de empezar a instalar el producto, lea, observe y cumpla toda la información e instrucciones de seguridad siguientes. Puede que se utilicen los siguientes símbolos de seguridad en la documentación y es posible que aparezcan en el producto o en su embalaje.

PRECAUCIÓN	Indica la existencia de un riesgo que podría causar lesiones personales o daños en la propiedad leves si no se tiene en cuenta la PRECAUCIÓN.
ADVERTENCIA	Indica la existencia de un riesgo que podría causar lesiones personales graves si no se tiene en cuenta la ADVERTENCIA.

⚠	Indica un riesgo potencial si no se tiene en cuenta la información indicada.
⚡	Indica riesgo de descargas eléctricas que podrían causar lesiones graves o la muerte si no se siguen las instrucciones de seguridad.
♨	Indica componentes o superficies calientes.
⊗	Indica que no se deben tocar las aspas de los ventiladores, ya que de lo contrario se podrían producir lesiones.
⌁⌁	Indica que es necesario desenchufar los cables de alimentación de CA para desconectar la alimentación de CA
♻	Recicle por favor la batería

Aplicaciones y usos previstos

Este producto ha sido evaluado como equipo de tecnología informática (ITE) que puede instalarse en oficinas, escuelas, salas de equipos informáticos o lugares de ámbito comercial similares. Es posible que sea necesario llevar a cabo una evaluación adicional para comprobar si este producto es apropiado para otras categorías de productos y entornos además de las aplicaciones informáticas (por ejemplo, soluciones médicas, industriales, residenciales, sistemas de alarma y equipos de pruebas).

Selección de la ubicación

El sistema se ha diseñado para funcionar en un entorno normal de oficinas. Seleccione una ubicación que esté:

- Limpia, seca y libre de macropartículas en suspensión en el aire (que no sean el polvo habitual de la habitación).
- Bien ventilada y alejada de fuentes de calor, incluida la luz solar directa y los radiadores.
- Alejada de fuentes de vibración o de golpes físicos.
- Aislada de campos electromagnéticos producidos por dispositivos eléctricos.
- En zonas propensas a tormentas eléctricas, se recomienda que conecte el servidor a un supresor de sobretensiones y desconecte las líneas de telecomunicaciones al módem durante una tormenta eléctrica.
- Provista de una toma de corriente alterna correctamente conectada a tierra.
- Provista de espacio suficiente para acceder a los cables de la fuente de alimentación ya que constituyen la desconexión principal de la alimentación.

Manipulación del equipo

Reduzca el riesgo de daños personales o en el equipo:

- Respete los requisitos de sanidad y seguridad laborales de su país cuando traslade y levante el equipo.

- Utilice medios mecánicos u otros que sean adecuados al trasladar o levantar el equipo.

- Para que el peso sea menor para manipularlo con más facilidad, extraiga los componentes que sean de fácil extracción.

Advertencias de alimentación y eléctricas

Precaución: *El botón de encendido, indicado con la marca del modo de reposo o stand-by, NO DESCONECTA completamente la alimentación de CA del sistema, ya que el modo de reposo de 5 V sigue activo mientras el sistema está enchufado. Para desconectar el sistema debe desenchufar el cable de alimentación de CA de la toma de la pared. Puede usar más de un cable de alimentación de CA con el sistema. Asegúrese de que todos los cables de alimentación de CA están desenchufados. Asegúrese de que los cables de alimentación de CA estén desenchufado antes de abrir la carcasa, agregar o extraer cualquier componente que no es de conexión en funcionamiento.*

Algunas fuentes de alimentación de electricidad de los servidores de Intel utilizan el polo neutral del fuselaje. Para evitar riesgos de choques electricos use precauciónes al trabajar con las fuentes de alimentación que utilizan el polo neutral de fuselaje.

No intente modificar ni utilizar un cable de alimentación de CA si no es del tipo exacto requerido. Se necesita un cable de CA para cada fuente de alimentación del sistema.

La fuente de alimentación de este producto no contiene piezas que puedan ser reparadas por el usuario. No abra la fuente de alimentación. Dentro de la fuente de alimentación puede haber niveles de tensión, corriente y energía peligrosos. Devuélvala al fabricante para repararla.

Al reemplazar una fuente de alimentación de conexión en funcionamiento, desenchufe el cable de alimentación de la fuente de alimentación que va a reemplazar antes de extraerla del servidor.

Para evitar el riesgo de descargas eléctricas, antes de abrir el servidor, apáguelo, desconecte el cable de alimentación, los sistemas de telecomunicaciones, las redes y los módems conectados al mismo.

Advertencias sobre el cable de alimentación

Si no se ha proporcionado con el producto ningún cable de alimentación de CA, adquiera alguno cuyo uso esté aprobado en su país.

Precaución: Para evitar descargas eléctricas o fuego, revise los cables de alimentación que usará con el producto tal y como se describe a continuación:

- No intente modificar ni utilizar los cables de alimentación de CA si no son exactamente del modelo especificado para ajustarse a las tomas de corriente conectadas a tierra.

- Los cables de alimentación deben reunir los siguientes requisitos:

  — El cable de alimentación debe disponer de una capacidad nominal de corriente eléctrica mayor que la capacidad especificada en el producto.

  — El cable de alimentación debe disponer de una patilla o contacto de conexión a tierra que sea apto para la toma de corriente.

- Los cables de la fuente de alimentación son los dispositivos de desconexión principales a la corriente alterna. El enchufe o enchufes de zócalo deben encontrarse cerca del equipo y el acceso a ellos debe poderse efectuar de forma inmediata con el fin de desconectarlos.

- Los cables de la fuente de alimentación deben estar conectados a los enchufes con una toma de tierra adecuada.

Advertencias el acceso al sistema

Precaución: Para evitar lesiones personales o daños en la propiedad, se aplican las siguientes instrucciones de seguridad siempre que se acceda al interior del producto:

- Apague todos los dispositivos periféricos conectados a este producto.

- Pulse el botón de alimentación para apagar el sistema.

- Desconecte la alimentación de CA desenchufando los cables de alimentación de CA del sistema o de la toma de corriente alterna.

- Desconecte todos los cables y líneas de telecomunicación que estén conectados al sistema.

- Guarde todos los tornillos o elementos de fijación cuando retire las cubiertas de acceso. Cuando termine de operar en el interior del producto, vuelva a colocar los tornillos o los elementos de fijación originales de la cubierta de acceso.

- No acceda al interior de la fuente de alimentación. No hay elementos en la fuente de alimentación que usted pueda reparar y utilizar. Devuélvala al fabricante para repararla.

- Apague el servidor y desconecte todos los cables de alimentación antes de agregar o reemplazar cualquier componente que no es de conexión en funcionamiento.

- *Al reemplazar una fuente de alimentación de conexión en funcionamiento, desenchufe el cable de alimentación de la fuente de alimentación que va a reemplazar antes de extraerla del servidor.*

Precaución: *Si el servidor se ha estado ejecutando, los procesadores y disipadores de calor estarán recalentados. A no ser que esté instalando o extrayendo un componente de conexión en funcionamiento, deje que el sistema se enfríe antes de abrir las cubiertas. Para que no llegue a tocar los componentes que estén calientes cuando esté realizando una instalación de conexión en funcionamiento, tenga cuidado al extraer o instalar los componentes de conexión en funcionamiento.*

Precaución: Para evitar posibles daños, no toque las aspas en movimiento de los ventiladores. Si el sistema se le ha suministrado con una protección para el ventilador, asegúrese de que cuando esté funcionando el sistema la protección esté en su sitio.

Advertencias sobre el montaje en bastidor

El bastidor del equipo se debe sujetar con un soporte fijo para evitar que se caiga cuando se extraiga un servidor o una pieza del mismo. El bastidor del equipo debe instalarse siguiendo las instrucciones del fabricante del bastidor.

Instale el equipo en el bastidor comenzando desde la parte de abajo, con el equipo más pesado en la parte inferior del bastidor.

Extraiga las piezas del equipo del bastidor de una a una.

El usuario es el responsable de la instalación de un dispositivo de desconexión de la alimentación principal para toda la unidad del bastidor. El acceso a este dispositivo de desconexión deberá ser de fácil acceso y deberán incluirse indicaciones que lo identifiquen como el control de alimentación eléctrica de toda la unidad, no sólo de los servidores.

Para evitar el riesgo de descargas eléctricas, deberá instalar una conexión a tierra apropiada para el bastidor y para cada pieza del equipo instalada en el mismo.

Descarga electrostática (ESD)

Precaución: Las descargas electrostáticas pueden dañar las unidades de disco, las tarjetas y otros componentes. Recomendamos que realice todos los procedimientos en una estación de trabajo protegida contra descargas electrostáticas. En caso de que no haya una disponible, protéjase de alguna forma contras las descargas llevando un brazalete antiestático conectado a la toma de tierra de la carcasa (cualquier superficie de metal que no esté pintada) del servidor cuando manipule las piezas.

Manipule siempre las tarjetas con el máximo cuidado. Pueden ser sumamente sensibles a las descargas electrostáticas. Sujételas sólo por los bordes. Una vez extraída la tarjeta de su envoltorio de protección o del servidor, colóquela con el lado de los componentes hacia arriba sobre una superficie con toma de tierra y sin carga estática. Utilice una

almohadilla de espuma conductora si dispone de ella, pero nunca el envoltorio de la
tarjeta. No deslice la tarjeta sobre ninguna superficie.

Otros riesgos

Sustitución de la batería

⚠️

Precaución: *Existe el peligro de explosión si la batería no se reemplaza correctamente. Al reemplazar*
la batería, utilice sólo la batería recomendada por el fabricante del equipo.

Deseche las baterías respetando la normativa local.

No intente recargar la batería.

No intente desmontar, pinchar o causar cualquier otro desperfecto a una batería.

Enfriamiento y circulación de aire

Precaución: *El tendido de los cables debe realizarse cuidadosamente tal y como se le indica para*
reducir al mínimo los problemas de obstrucción de la ventilación y de refrigeración.

Para conseguir una refrigeración y corriente de aire adecuadas, compruebe que cuando
sistema esté funcionando, las cubiertas de la carcasa están instaladas. Si utiliza el sistema
sin las cubiertas, podría dañar sus componentes. Para instalar las cubiertas:

- *Compruebe primero que no ha dejado herramientas o piezas sueltas dentro del*
  sistema.
- *Compruebe que los cables, tarjetas adicionales y otros componentes están*
  instalados correctamente.
- *Sujete las cubiertas a la carcasa siguiendo las instrucciones del producto.*

Periféricos o dispositivos láser

Precaución Para evitar el riesgo de la exposición a radiaciones o de daños personales:

- *No abra la caja de ningún periférico o dispositivo láser*
- *Los periféricos o dispositivos láser no pueden ser reparados por el usuario*
- *Haga que el fabricante los repare*

Appendix G: Regulatory and Compliance Information

Product Regulatory Compliance

Warning: To ensure regulatory compliance, you must adhere to the assembly instructions in this guide to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products/components will void the UL listing and other regulatory approvals of the product and will most likely result in noncompliance with product regulations in the region(s) in which the product is sold.

To help ensure EMC compliance with your local regional rules and regulations, before computer integration, make sure that the server system, power supply, and other modules have passed EMC testing using a server board with a microprocessor from the same family (or higher) and operating at the same (or higher) speed as the microprocessor used on this server board. The final configuration of your end system product may require additional EMC compliance testing. For more information, please contact your local Intel representative.

This is an FCC Class A device. Integration of it into a Class B system does not result in a Class B device.

Product Safety Compliance

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

Intended Application

This product was evaluated as Information Technology Equipment (ITE), which may be installed in offices, schools, computer rooms, and similar commercial type locations. The suitability of this product for other product categories and environments (such as: medical, industrial, telecommunications, NEBS, residential, alarm systems, test equipment, etc.), other than an ITE application, may require further evaluation.

Product Safety Compliance

The server system complies with the following product safety requirements:

- UL60950 - CSA 60950 (USA / Canada)
- EN60950 (Europe)
- IEC60950 (International)

- CB Certificate & Report, IEC60950 (report to include all country national deviations)

- GS License (Germany)

- GOST R 50377-92 - License (Russia)

- Belarus License (Belarus)

- Ukraine License (Ukraine)

- CE - Low Voltage Directive 73/23/EEE (Europe)

- IRAM Certification (Argentina)

Product EMC Compliance - Class A Compliance

This server system has been tested and verified to comply with the following electromagnetic compatibility (EMC) regulations when installed in a compatible Intel® host system. For information on compatible host system(s) refer to Intel's Server Builder Web site or contact your local Intel representative.

- FCC /ICES-003 - Emissions (USA/Canada) Verification

- ICES-003 - (Canada)

- CISPR 22 - Emissions (International)

- EN55022 - Emissions (Europe)

- EN55024 - Immunity (Europe)

- EN61000-3-2 - Harmonics (Europe)

- EN61000-3-3 - Voltage Flicker (Europe)

- CE - EMC Directive 89/336/EEC (Europe)

- VCCI Emissions (Japan)

- AS/NZS 3548 Emissions (Australia / New Zealand)

- BSMI CNS13438 Emissions (Taiwan)

- GOST R 29216-91 Emissions (Russia)

- GOST R 50628-95 Immunity (Russia)

- Belarus License (Belarus)

- Ukraine License (Ukraine)

- RRL MIC Notice No. 1997-41 (EMC) & 1997-42 (EMI) (Korea)

Certifications / Registrations / Declarations

- UL Certification (US/Canada)
- CB Certification (International)
- CE Declaration of Conformity (CENELEC Europe)
- GS Certification (Germany)
- FCC/ICES-003 Class A Attestation (USA/Canada)
- VCCI Certification (Japan)
- C-Tick Declaration of Conformity (Australia)
- MED Declaration of Conformity (New Zealand)
- BSMI Certification (Taiwan)
- GOST R Certification / License (Russia)
- Belarus Certification / License (Belarus)
- RRL Certification (Korea)
- IRAM Certification (Argentina)
- Ecology Declaration (International)

Product Regulatory Compliance Markings

This Intel® server system product is provided with the following regulatory marks.

Table 8. Product Regulatory Compliance Markings

Regulatory Compliance	Region	Marking
IRAM Mark	Argentina	
cULus Listing Marks	USA/Canada	
GS Mark	Germany	

Table 8. Product Regulatory Compliance Markings

Regulatory Compliance	Region	Marking
CE Mark	Europe	
FCC Marking (Class A)	USA	This device complies with Part 15 of the FCC Rules. Operation of this device 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. Manufactured by Intel Corporation
EMC Marking (Class A)	Canada	CANADA ICES-003 CLASS A CANADA NMB-003 CLASSE A
C-Tick Mark	Australia / New Zealand	
VCCI Marking (Class A)	Japan	この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。VCCI-A
BSMI Certification Number & Class A Warning	Taiwan	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
GOST R Marking	Russia	
RRL MIC Mark	Korea	

Table 8. Product Regulatory Compliance Markings

Regulatory Compliance	Region	Marking
Ground Mark	Nordic	Line1 : "WARNING:" Swedish on line2: "Apparaten skall anslutas till jordat uttag, när den ansluts till ett nätverk." Finnish on line 3: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan." English on line 4: "Connect only to a properly earth grounded outlet."
WEEE Mark		
RoHS	China	
Recycling Mark	China	
Recycling	Other than China	
CA. Lithium Perchlorate insert		Perchlorate Material - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/ perchlorate This notice is required by California Code of Regulations, Title 22, Division 4.5, Chapter 33: Best Management Practices for Perchlorate Materials. This product / part includes a battery which contains Perchlorate material.
Country of Origin		Made in XXXX

Electromagnetic Compatibility Notices

FCC Verification Statement (USA)

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 97124-6497
1-800-628-8686
```

This equipment has been tested and found to comply with the limits for a Class A 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.

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 A or 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.

Industry Canada (ICES-003)

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

English translation of the notice above:

This digital apparatus does not exceed the Class A 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.

Europe (CE Declaration of Conformity)

This product has been tested in accordance to, and complies with the Low Voltage Directive (73/23/EEC) and EMC Directive (89/336/EEC). The product has been marked with the CE Mark to illustrate its compliance.

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Ａ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

English translation of the preceding notice:

This is a Class A 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.

BSMI (Taiwan)

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

The BSMI Certification Marking and EMC warning is located on the outside rear area of the product.

Korean Compliance (RRL)

Following is the RRL certification information for Korea.

English translation of the notice above:

1. Type of Equipment (Model Name): On License and Product

2. Certification No.: On RRL certificate. Obtain certificate from local Intel representative

3. Name of Certification Recipient: Intel Corporation

4. Date of Manufacturer: Refer to date code on product

5. Manufacturer/Nation: Intel Corporation/Refer to country of origin marked on product

Regulated Specified Components

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. Interchanging or use of other components will void the UL listing and other product certifications and approvals.

Updated product information for configurations can be found on the Intel Server Builder Web site at the following URL: http://channel.intel.com/go/serverbuilder

If you do not have access to Intel's Web address, please contact your local Intel representative.

- **Server Chassis:** (base chassis is provided with power supply and fans) - UL listed.
- **Server board:** you must use an Intel server board - UL recognized.

- **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. Any add-in board containing modem telecommunication circuitry must be UL listed. In addition, the modem must have the appropriate telecommunications, safety, and EMC approvals for the region in which it is sold.

- **Peripheral Storage Devices:** must be a UL recognized or UL listed accessory and TUV or VDE licensed. Maximum power rating of any one device is 19 watts. Total server configuration is not to exceed the maximum loading conditions of the power supply.

Product Ecology Requirements

Intel has a system in place to restrict the use of banned substances in accordance with world wide product ecology regulatory requirements. Suppliers Declarations of Conformity to the banned substances must be obtained from all suppliers; and a Material Declaration Data Sheet (MDDS) must be produced to illustrate compliance. Due verification of random materials is required as a screening / audit to verify suppliers declarations. The server board complies with the following ecology regulatory requirements:

- All materials, parts and subassemblies must not contain restricted materials as defined in Intel's Environmental Product Content Specification of Suppliers and Outsourced Manufacturers – http://supplier.intel.com/ehs/environmental.htm.

- Europe - European Directive 2002/95/EC - Restriction of Hazardous Substances (RoHS)

- Threshold limits and banned substances are noted below.

    — Quantity limit of 0.1% by mass (1000 PPM) for Lead, Mercury, Hexavalent hromium, Polybrominated Biphenyls Diphenyl Ethers (PBB/PBDE)

    — Quantity limit of 0.01% by mass (100 PPM) for Cadmium

- China RoHS

- All plastic parts that weigh >25gm shall be marked with the ISO11469 requirements for recycling. Example >PC/ABS<

- EU Packaging Directive

- German Green Dot

- Japan Recycling

End-of-Life / Product Recycling

Product recycling and end-of-life take-back systems and requirements vary by country. Contact the retailer or distributor of this product for information about product recycling and / or take-back.