

# Intel® Server System R1000RP Family Service Guide

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

Order Number: G87275-003

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# Safety Information

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## 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 DVD and/or at <http://www.intel.com/support/motherboards/server/sb/cs-010770.htm>.

## Wichtige Sicherheitshinweise

Lesen Sie zunächst sämtliche Warnung und 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 DVD oder unter <http://www.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 DVD ou bien rendez-vous sur le site <http://www.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 DVD y/o en <http://www.intel.com/support/motherboards/server/sb/cs-010770.htm>.

## 重要安全指导

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://www.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 the 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.

# Preface

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## About this Manual

This manual is written for system technicians who are responsible for troubleshooting, upgrading, and repairing this server system. This document provides a brief overview of the features of the server board/chassis, a list of accessories or other components you may need, troubleshooting information, and instructions on how to add and replace components on the Intel® Server System R1000RP family products. For the latest revision of this manual, go to <http://www.intel.com/support>.

## Manual Organization

Chapter 1 provides a brief overview of the Intel® Server System R1000RP family. In this chapter, you will find a list of the server system features, and figures of the system and components to help you identify your system 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 fan, power supply, and front panel board, among 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 information for navigating through the BIOS Setup screens, performing a BIOS update, and resetting the password or BIOS defaults.

The back of this manual provides technical specifications, regulatory information, LED Decoder, "getting help" information, and Intel® Server Issue Report Form.

## Additional Information and Software

For additional information about this family of products or any of their supported accessories, refer to the following resources available at <http://www.intel.com/support>.

**Table 1. Server System References**

For this Information or Software	Use this Document or Software
For in-depth technical information about this product	<i>Intel® Server System R1000RP Product Family Technical Product Specification</i> <i>Intel® Server Board S1200V3RP Technical Product Specification</i>
For a quick guide of how to assemble the server system and install components	<i>Intel® Server System R1000RP Product Family Quick Installation Guide</i>
For product list and supported Intel® spares and accessories	<i>Spares and Accessories List and Configuration Guide</i>
For server configuration guidance and compatibility	Intel® Server Configurator tool <a href="http://serverconfigurator.intel.com/sct_app.aspx#/SctMain">http://serverconfigurator.intel.com/sct_app.aspx#/SctMain</a>
For system power budget guidance	Power Budget Tool
For system firmware updates and onboard device drivers and software to manage your Intel® Server System.	Intel® Server Deployment & Management DVD
Product Safety and Regulatory document	<i>Intel Server Products - Product Safety and Regulatory Compliance Document</i>

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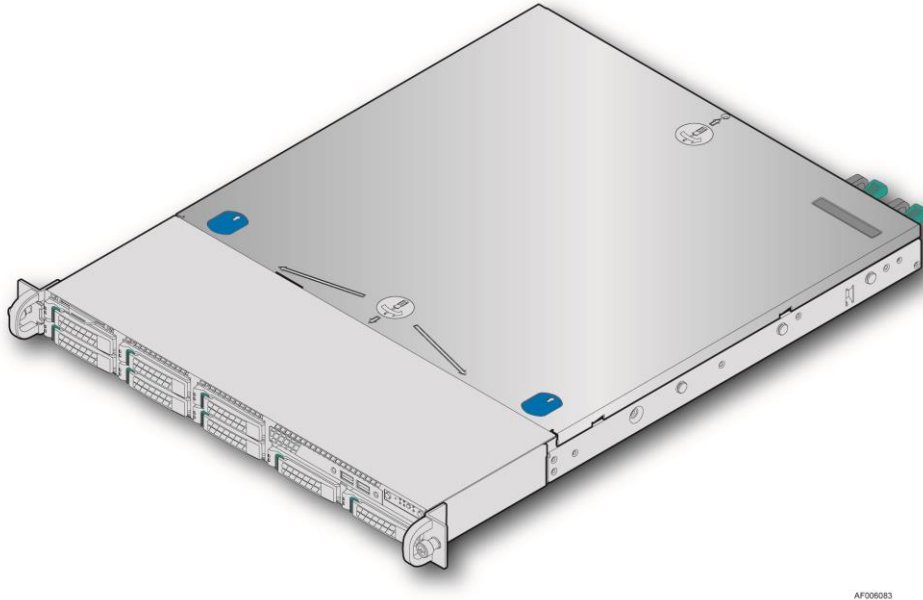
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# 1 Server System Features

This chapter briefly describes the main features of the Intel® Server System R1000RP family. This includes illustrations of the products, a list of the server system features, and diagrams showing the location of important components and connections on the server systems.



**Figure 1. Intel® Server System R1000RP (Eight HDDs SKU in this Drawing)**

The table below shows the configurations in Intel® Server System R1000RP family.

**Table 2. Intel® Server System R1000RP Family Basic Configuration**

Server Product Code	Board	Hard driver	Power supply
R1304RPSSFBN	S1200V3RPS	4x3.5", Fixed	350W, Single, Fixed
R1304RPOSHBN	S1200V3RPO	4x3.5", Hotswap	350W, Single, Fixed
R1208RPOSHOR	S1200V3RPO	8x2.5", Hotswap	450W, Redundant, Fixed
R1208RPMSHOR	S1200V3RPM	8x2.5", Hotswap	450W, Redundant, Fixed
R1304RPMSHOR	S1200V3RPM	4x3.5", Hotswap	450W, Redundant, Fixed

# Server System Feature Overview

The following table summarizes the features of the server systems.

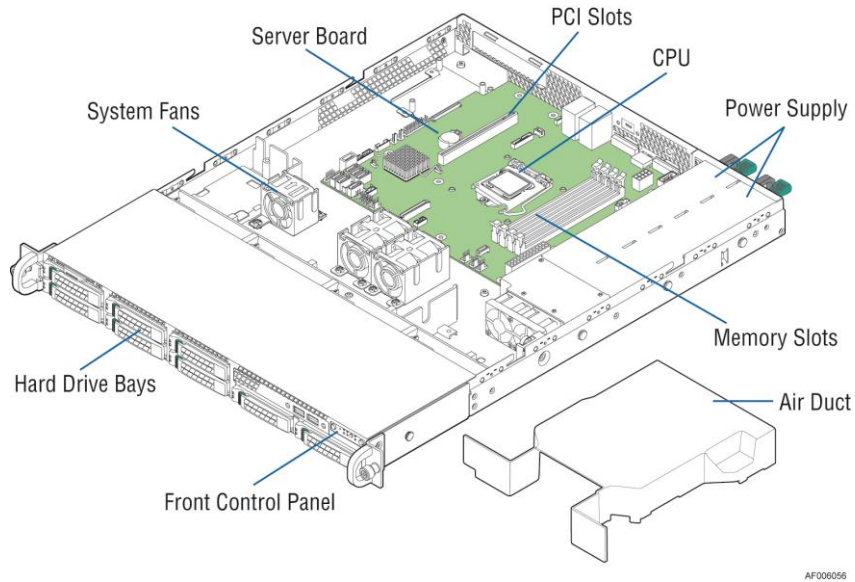
**Table 3. Intel® Server Board S1200V3RP Feature Summary**

Feature	Description																									
Processor	<ul style="list-style-type: none"> <li>Support for one Intel® Xeon® processor E3-1200 V3 processor and Intel® Xeon® processor E3-1200 V4 product family (only support Intel® C226 Platform Controller Hub (PCH) in an LGA 1150 Socket H3 package with Thermal Design Power up to 95W).</li> <li>5 GT/s point-to-point DMI 2.0 interface to PCH.</li> </ul>																									
Memory	<ul style="list-style-type: none"> <li>Two memory channels, four memory DIMMs (Two memory DIMMs per channel).</li> <li>Support for 1333/1600 MT/s Unbuffered (UDIMM DDR3L ECC memory).</li> <li>No support for RDIMMs.</li> <li>No support for SODIMMs.</li> <li>No support for mixing ECC and non-ECC UDIMMs.</li> </ul>																									
Chipset	<ul style="list-style-type: none"> <li><b>S1200V3RPO</b> supports for Intel® C224 Platform Controller Hub (PCH) chipset.</li> <li><b>S1200V3RPS</b> supports for Intel® C222 Platform Controller Hub (PCH) chipset.</li> <li><b>S1200V3RPL</b> and <b>S1200V3RPM</b> support for Intel® C226 Platform Controller Hub (PCH) chipset.</li> </ul>																									
Cooling Fan Support	<p>Support for:</p> <ul style="list-style-type: none"> <li>One processor fan (4-pin headers)</li> <li>Three front system fans (4-pin headers).</li> <li>One rear system fan (4-pin header).</li> </ul>																									
Add-in PCI Express* Slots	<p>Four expansion slots at most:</p> <ul style="list-style-type: none"> <li>Slot 7: PCI Express* Gen2 x1 electrical with x8 physical connector, from PCH.</li> <li>Slot 6: PCI Express* Gen2 x16 or Gen3 x8 electrical with x16 physical connector, from processor.</li> <li>Slot 5: PCI Express* Gen2 x8 or x4 electrical with x8 physical connector, from processor.</li> <li>Slot 4: PCI Express* Gen2 x4 electrical with x8 physical connector, from PCH.</li> </ul> <p>The table below shows the Slot Population Per SKU:</p> <table border="1"> <thead> <tr> <th>Slot/SKU</th> <th>S1200V3RPL</th> <th>S1200V3RPS</th> <th>S1200V3RPM</th> <th>S1200V3RPO</th> </tr> </thead> <tbody> <tr> <td>Slot 7</td> <td>Yes</td> <td>Yes</td> <td>NA</td> <td>NA</td> </tr> <tr> <td>Slot 6</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Slot 5</td> <td>Yes</td> <td>Yes</td> <td>NA</td> <td>NA</td> </tr> <tr> <td>Slot 4</td> <td>Yes</td> <td>Yes</td> <td>NA</td> <td>NA</td> </tr> </tbody> </table>	Slot/SKU	S1200V3RPL	S1200V3RPS	S1200V3RPM	S1200V3RPO	Slot 7	Yes	Yes	NA	NA	Slot 6	Yes	Yes	Yes	Yes	Slot 5	Yes	Yes	NA	NA	Slot 4	Yes	Yes	NA	NA
Slot/SKU	S1200V3RPL	S1200V3RPS	S1200V3RPM	S1200V3RPO																						
Slot 7	Yes	Yes	NA	NA																						
Slot 6	Yes	Yes	Yes	Yes																						
Slot 5	Yes	Yes	NA	NA																						
Slot 4	Yes	Yes	NA	NA																						
Hard Drive and Optical Drive Support	<ul style="list-style-type: none"> <li>Optical devices are supported.</li> <li>S1200V3RPO supports four SATA connectors at 6Gbps and two SATA connectors at 3Gbps through six onboard SATA connectors.</li> <li>S1200V3RPL and S1200V3RPM support six SATA connectors at 6Gbps through six onboard SATA connectors.</li> <li>S1200V3RPS supports two SATA connectors at 6Gbps and four SATA connectors at 3Gbps through six onboard SATA connectors.</li> </ul>																									
RAID Support	<ul style="list-style-type: none"> <li>Intel® RSTe SW RAID through onboard SATA connectors provides SATA RAID 0/1/10/5.</li> <li>Intel® Embedded Server RAID Technology II through onboard SATA connectors provides SATA RAID 0/1/10 and optional RAID 5 support provided by the Intel® RAID Activation Key RKSATA4R5.</li> <li>S1200V3RPL, S1200V3RPO, and S1200V3RPM support one optional internal SAS module connector which supports Intel® SAS or ROC modules with the product code of RMS25CB080, RMS25JB080, RMS25CB040, and RMS25JB040.</li> </ul>																									

Feature	Description
External (Back Panel) I/O connections	External connections: <ul style="list-style-type: none"> <li>▪ DB9 serial port A connection.</li> <li>▪ One DB-15 video connector.</li> <li>▪ Two RJ-45 NIC connectors for 10/100/1000 Mb connections through the two Intel® Ethernet Controller I210.</li> <li>▪ Two USB 3.0 ports at the back of the board.</li> <li>▪ Two USB 2.0 ports at the back of the board.</li> </ul>
Internal I/O connectors/ headers	<ul style="list-style-type: none"> <li>▪ One 2x10 pin USB 3.0 header, providing front panel support for two USB ports respectively on S1200V3RPL, S1200V3RPO, and S1200V3RPM.</li> <li>▪ One 2x5 pin USB 2.0 headers, providing front panel support for two USB ports respectively.</li> <li>▪ One internal 2x5 pin serial port B header.</li> <li>▪ One internal Type-A USB 2.0 port.</li> <li>▪ One 9 pin USB header for eUSB SSD.</li> <li>▪ One 1x7 pin header for optional Intel® Local Control Panel support.</li> <li>▪ One combined header consists of a 24-pin SSI-EEB compliant front panel header.</li> </ul>
Optional I/O Module support	S1200V3RPO and S1200V3RPM provide support for one of several available IO Module options. The I/O module attaches to a high density 80-pin connector on the server board (J1C1) labeled “I/O_MOD” and is supported by up to x8 PCIe Gen3 signals from the IO module of the processor.
LAN	Two Gigabit Ethernet Ports through the two Intel® Ethernet Controller I210
Security	Intel® Trusted Platform Module (TPM) – AXXT PME3 (Accessory Option).
Server Management	<ul style="list-style-type: none"> <li>▪ Integrated Baseboard Management Controller, IPMI 2.0 compliant.</li> <li>▪ Support for Intel® Remote Management Module 4 solutions (Optional except on S1200V3RPS).</li> <li>▪ Support for Intel® Remote Management Module 4 Lite solutions (Optional except on S1200V3RPS).</li> <li>▪ Support for Intel® System Management Software.</li> <li>▪ Support for Intel® Intelligent Power Node Manager (Need PMBus*-compliant power supply).</li> </ul>
Form Factor	microATX 9.6”x9.6” compliant form factor.

## Server System Components

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* provided on the inside of the chassis cover to assist in identifying components.

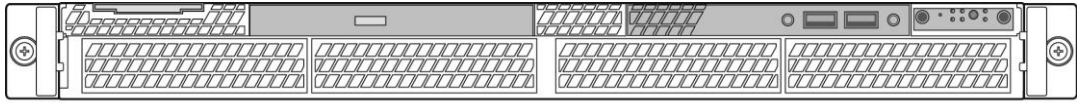


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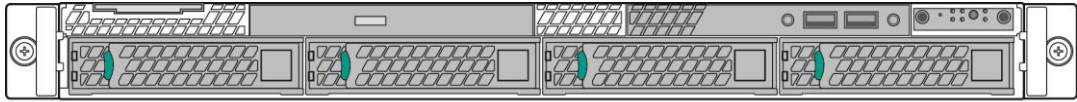
**Figure 2. Intel® Server System R1000RP Components**



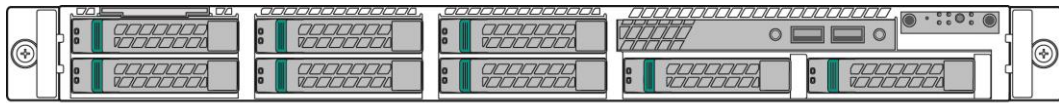
## Hot Swap Hard Drive Bay and Front Panel Options



**Figure 3. 3.5" Fixed Hard Drive Bay – 4 Drives Configuration**

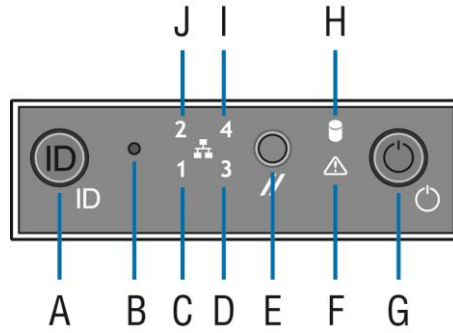


**Figure 4. 3.5" Hot Swap Hard Drive Bay – 4 Drives Configuration**



**Figure 5. 2.5" Hard Drive Bay – 8 Drives Configuration**

## Front Panel

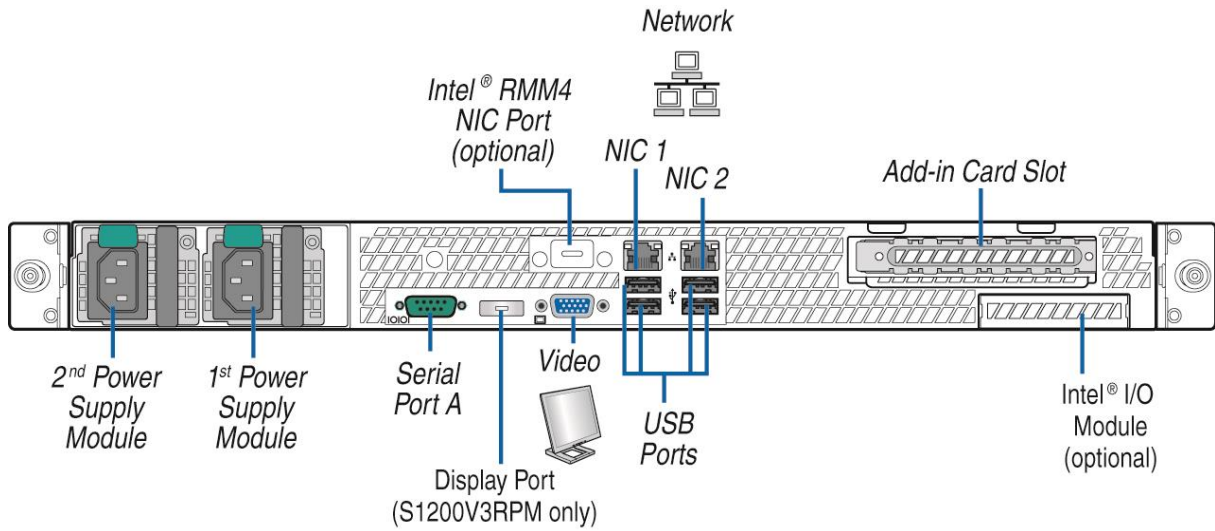


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Label	Description	Label	Description
A	System ID Button w/Integrated LED	F	System Status LED
B	NMI Button (recessed, tool required for use)	G	Power Button w/Integrated LED
C	NIC-1 Activity LED	H	Hard Drive Activity LED
D	NIC-3 Activity LED	I	NIC-4 Activity LED
E	System Cold Reset Button	J	NIC-2 Activity LED

**Figure 6. Front Panel Options**

## Back Panel

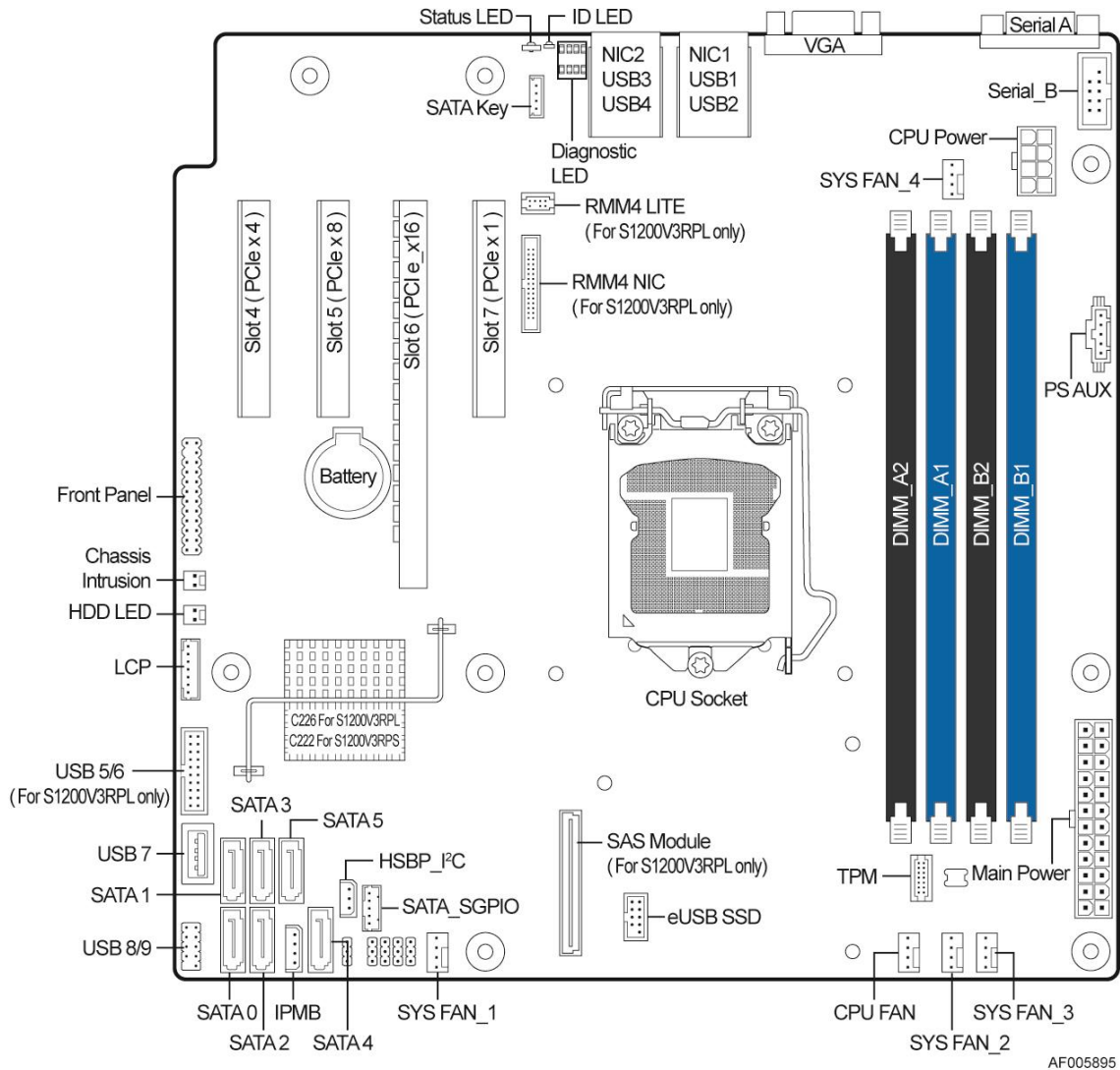


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**Figure 7. Back Panel Feature Identification**

## Server Board Components

This section helps you identify the components and connectors on the server board.



**Figure 8. Server Board Connector and Component Locations (S1200V3RPL and S1200V3RPS)**

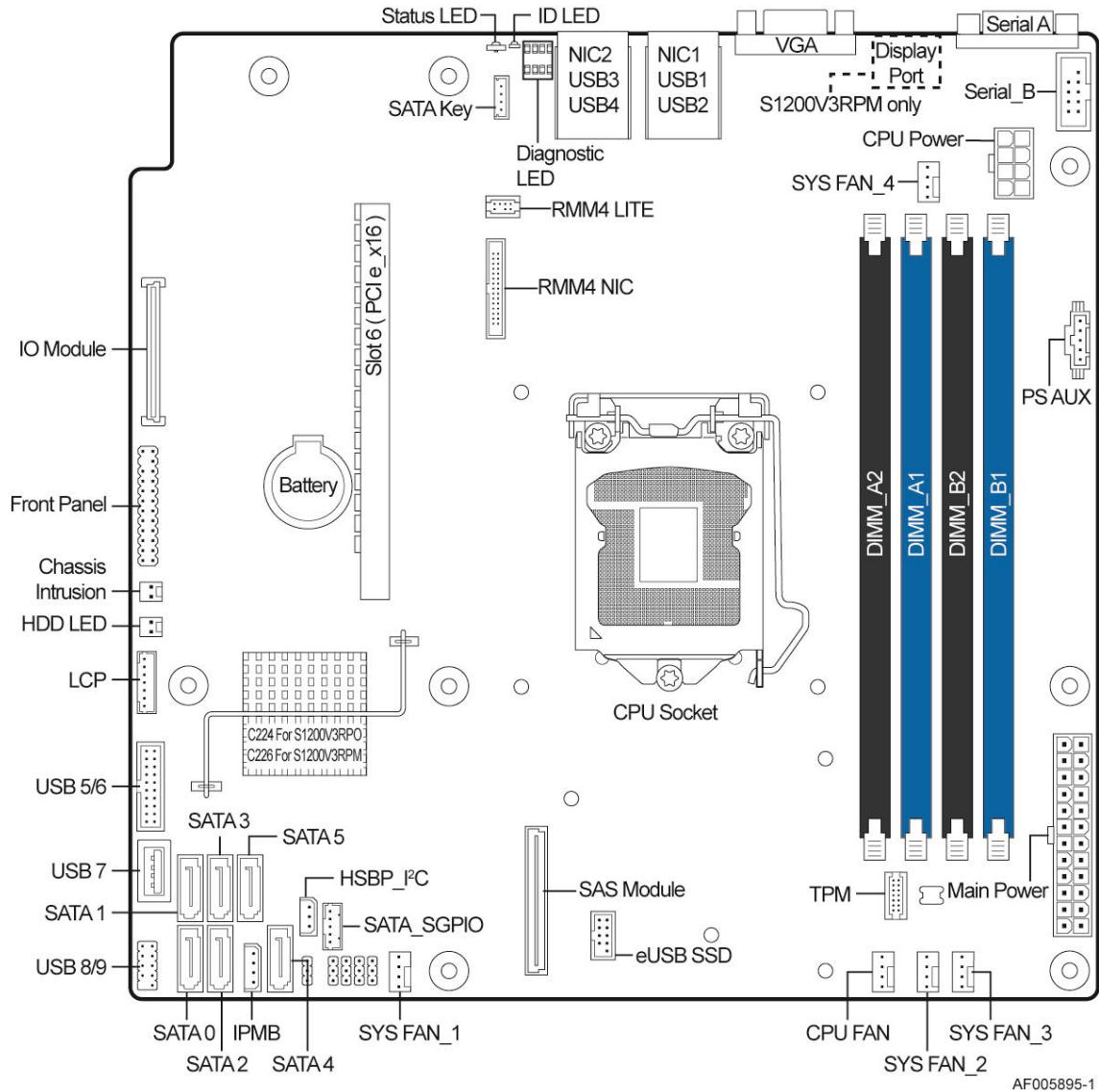
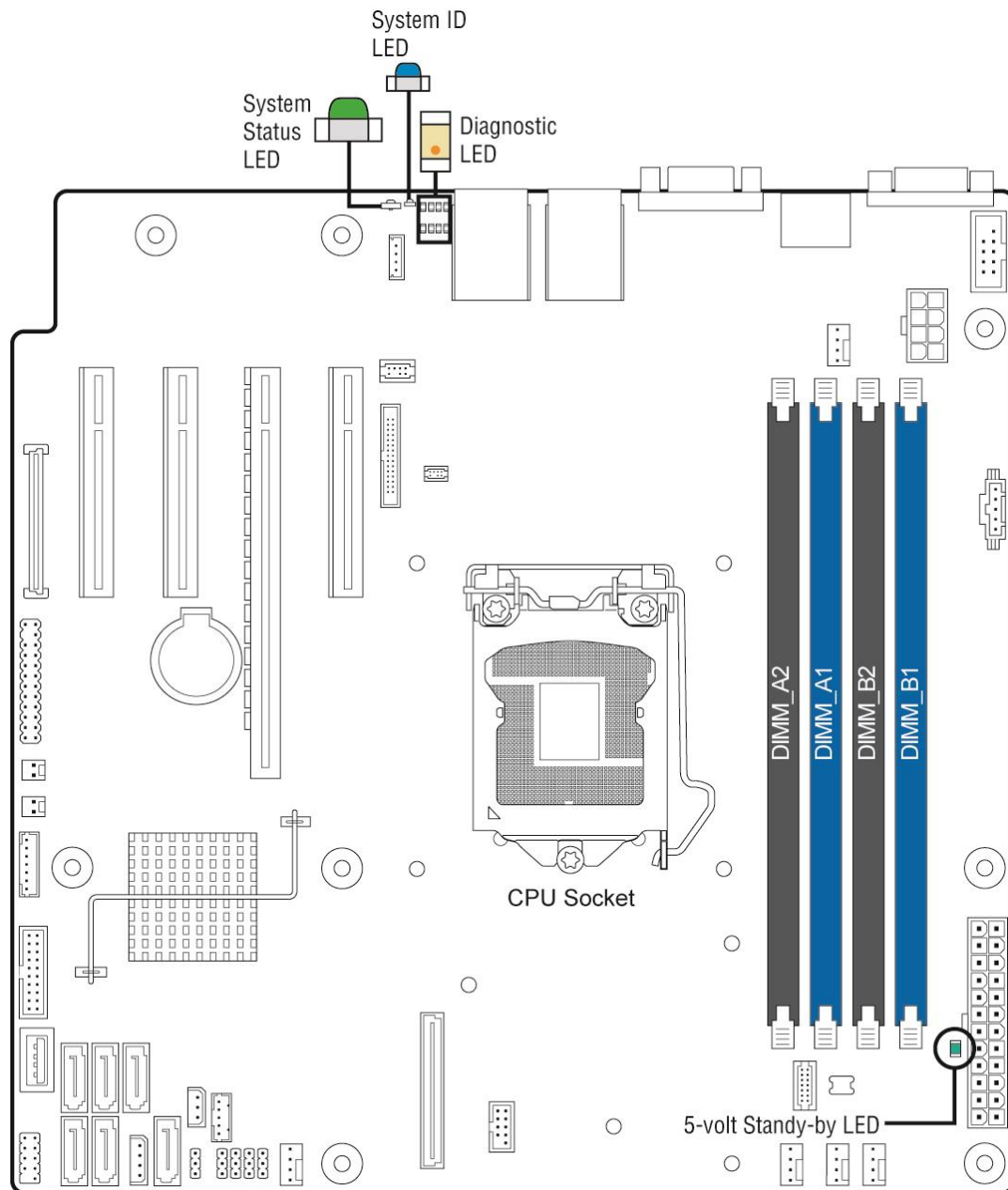


Figure 9. Server Board Connector and Component Locations (S1200V3RPO and S1200V3RPM)

## Intel® Light-Guided Diagnostics



AF006051

**Figure 10. Intel® Light-Guided Diagnostic LEDs – Server Board**

The server system contains the following diagnostic LEDs, each providing the following functions:

1. System ID LED – The server board includes a blue system ID LED which is used to visually identify a specific server installed among many other similar servers. There are two options available for illuminating the System ID LED:

- a. The front panel ID LED button is pushed, which causes the LED to illuminate a solid on state until the button is pushed again.
- b. An *IPMI Chassis Identify* command is remotely entered, which causes the LED to blink.

The System ID LED on the server board is tied directly to the System ID LED on the system front panel, if present.

- 2. System Status LED – The server board includes a dual-color System Status LED. The System Status LED on the server board is tied directly to the System Status LED on the front panel (if present). This LED indicates the current health of the server. Possible LED states include solid green, blinking green, blinking amber, and solid amber.

When the server is powered down (transitions to the DC-off state or S5), the BMC is still on standby power and retains the sensor and front panel status LED state established before the power-down event.

When AC power is first applied to the system, the status LED turns solid amber and then immediately changes to blinking green to indicate that the BMC is booting. If the BMC boot process completes with no errors, the status LED will change to solid green.

**Table 4. System Status LED State Definitions**

Color	State	Criticality	Description
Off	System is not operating	Not ready	<ol style="list-style-type: none"> <li>1. System is powered off (AC and/or DC).</li> <li>2. System is in EuP Lot6 Off Mode.</li> <li>3. System is in S5 Soft-Off State.</li> <li>4. System is in S4 Hibernate Sleep State.</li> </ol>
Green	Solid on	Ok	Indicates that the System is running (in S0 State) and its status is 'Healthy'. The system is not exhibiting any errors. AC power is present and BMC has booted and manageability functionality is up and running.
Green	~1 Hz blink	Degraded - system is operating in a degraded state although still functional, <i>or</i> system is operating in a redundant state but with an impending failure warning	<p>System degraded:</p> <p>Redundancy loss, such as power-supply or fan. Applies only if the associated platform sub-system has redundancy capabilities.</p> <p>Fan warning or failure when the number of fully operational fans is more than minimum number needed to cool the system.</p> <p>Non-critical threshold crossed – Temperature (including HSBP temp), voltage, input power to power supply, output current for main power rail from power supply and Processor Thermal Control (Therm Ctrl) sensors.</p> <p>Power supply predictive failure occurred while redundant power supply configuration was present.</p> <p>Unable to use all of the installed memory (one or more DIMMs failed/disabled but functional memory remains available).</p> <p>Correctable Errors over a threshold and migrating to a spare DIMM (memory sparing). This indicates that the user no longer has spared DIMMs indicating a redundancy lost condition. Corresponding DIMM LED lit.</p> <p>Uncorrectable memory error has occurred in memory Mirroring Mode, causing Loss of Redundancy.</p> <p>Correctable memory error threshold has been reached for a failing DDR3 DIMM when the system is operating in fully redundant RAS Mirroring Mode.</p> <p>Battery failure.</p> <p>BMC executing in uBoot. (Indicated by Chassis ID blinking at Blinking at 3Hz). System in degraded state (no manageability). BMC uBoot is running but has not transferred control to BMC Linux*. Server will be in this state</p>

## Server System Features

Color	State	Criticality	Description
			<p>6-8 seconds after BMC reset while it pulls the Linux* image into flash. BMC booting Linux*. (Indicated by Chassis ID solid ON). System in degraded state (no manageability). Control has been passed from BMC uBoot to BMC Linux* itself. It will be in this state for ~10--20 seconds. BMC Watchdog has reset the BMC.</p> <p>Power Unit sensor offset for configuration error is asserted.</p> <p>HDD HSC is off-line or degraded.</p>
Amber	~1 Hz blink	Non-critical - System is operating in a degraded state with an impending failure warning, although still functioning	<p>Non-fatal alarm – system is likely to fail:</p> <p>Critical threshold crossed – Voltage, temperature (including HSBP temp), input power to power supply, output current for main power rail from power supply and PROCHOT (Therm Ctrl) sensors.</p> <p>VRD Hot asserted.</p> <p>Minimum number of fans to cool the system not present or failed.</p> <p>Hard drive fault.</p> <p>Power Unit Redundancy sensor – Insufficient resources offset (indicates not enough power supplies present)</p> <p>In non-sparing and non-mirroring mode if the threshold of correctable errors is crossed within the window.</p> <p>Correctable memory error threshold has been reached for a failing DDR3 DIMM when the system is operating in a non-redundant mode.</p>
Amber	Solid on	Critical, non-recoverable – System is halted	<p>Fatal alarm – system has failed or shutdown:</p> <p>CPU CATERR signal asserted</p> <p>MSID mismatch detected (CATERR also asserts for this case).</p> <p>CPU 1 is missing</p> <p>CPU Thermal Trip</p> <p>No power good – power fault</p> <p>DIMM failure when there is only 1 DIMM present and hence no good memory present.</p> <p>Runtime memory uncorrectable error in non-redundant mode.</p> <p>DIMM Thermal Trip or equivalent</p> <p>SSB Thermal Trip or equivalent</p> <p>CPU ERR2 signal asserted</p> <p>BMC\Video memory test failed. (Chassis ID shows blue/solid-on for this condition)</p> <p>Both uBoot BMC FW images are bad. (Chassis ID shows blue/solid-on for this condition)</p> <p>240VA fault</p> <p>Fatal Error in processor initialization:</p> <p>Processor family not identical</p> <p>Processor model not identical</p> <p>Processor core/thread counts not identical</p> <p>Processor cache size not identical</p> <p>Unable to synchronize processor frequency</p> <p>Unable to synchronize QPI link frequency</p>

3. **BMC Boot/Reset Status LED Indicators** – During the BMC boot or BMC reset process, the System Status LED and System ID LED are used to indicate BMC boot process transitions and states. A BMC boot will occur when AC power is first applied to the system. A BMC reset will occur after: a BMC FW update, upon receiving a BMC cold reset command, and upon a BMC watchdog initiated reset.

The following table defines the LED states during the BMC Boot/Reset process.

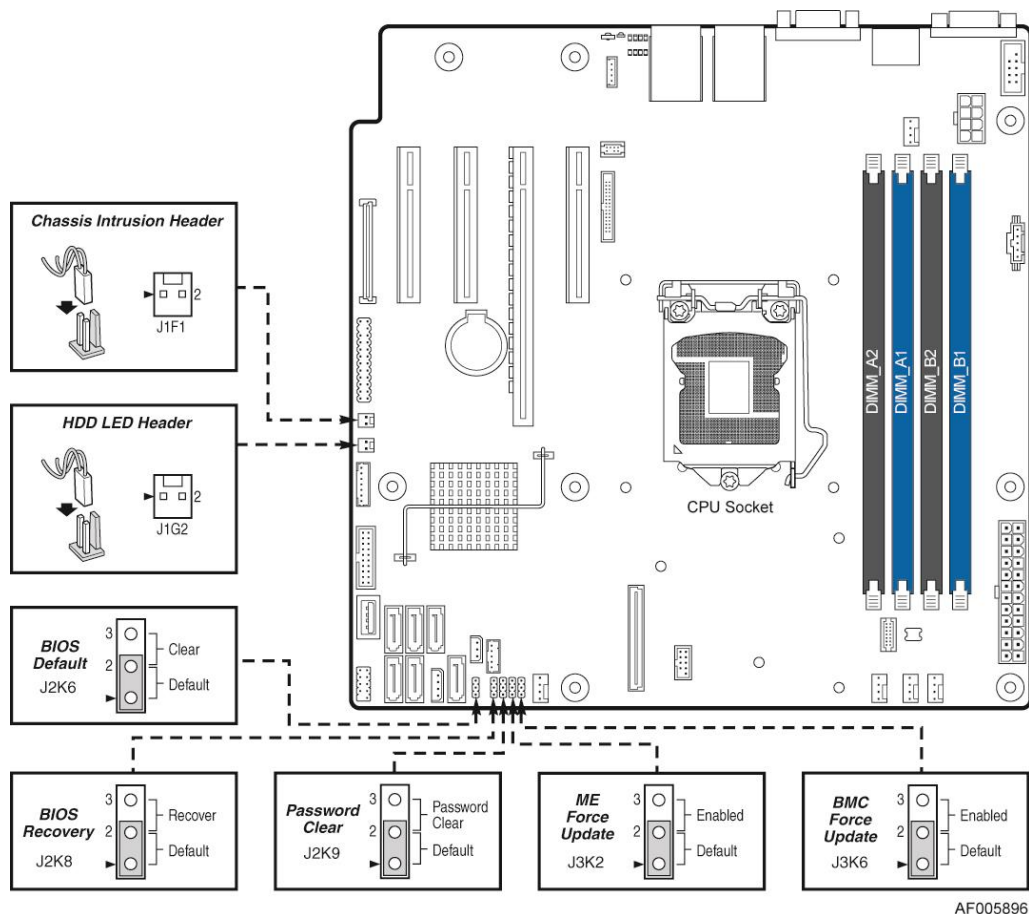


Table 5. BMC Boot/Reset Status LED Indicators

BMC Boot/Reset State	ID LED	Status LED	Comment
BMC/Video memory test failed	Solid Blue	Solid Amber	Nonrecoverable condition. Contact your Intel® representative for information on replacing this motherboard.
Both Universal Bootloader (u-Boot) images bad	Solid Blue	Solid Amber	Nonrecoverable condition. Contact your Intel® representative for information on replacing this motherboard.
BMC in u-Boot	Blink Blue 3Hz	Blink Green 1Hz	Blinking green indicates degraded state (no manageability), blinking blue indicates u-Boot is running but has not transferred control to BMC Linux*. Server will be in this state 6-8 seconds after BMC reset while it pulls the Linux* image into flash.
BMC Booting Linux*	Solid Blue	Solid Green	Solid green with solid blue after an AC cycle/BMC reset, indicates that the control has been passed from u-Boot to BMC Linux* itself. It will be in this state for ~10~20 seconds.
End of BMC boot/reset process. Normal system operation	Off	Solid Green	Indicates BMC Linux* has booted and manageability functionality is up and running. Fault/Status LEDs operate as per usual.

4. Post Code Diagnostic LEDs – A bank of eight POST code diagnostic LEDs are located on the back edge of the server next to the stacked USB connectors. During the system boot process, the BIOS executes a number of platform configuration processes, each of which is assigned a specific hex POST code number. As each configuration routine is started, the BIOS displays the given POST code to the POST code diagnostic LEDs. The purpose of these LEDs is to assist in troubleshooting a system hang condition during the POST process. The diagnostic LEDs can be used to identify the last POST process to be executed. See Appendix C for a complete description of how these LEDs are read, and for a list of all supported POST codes.
5. 5 Volt Stand-By Present LED – This LED is illuminated when a power cord (AC or DC) is connected to the server and the power supply is supplying 5 Volt Stand-by power to the server board. This LED is intended as a service caution indicator to anyone accessing the inside of the server system.

## System Recovery Jumpers



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Figure 11. Configuration Jumpers

**Note:**

1. For safety purposes, the power cord should be disconnected from a system before removing any system components or moving any of the on-board jumper blocks.
2. System Update and Recovery files are included in the System Update Packages (SUP) posted on <http://www.intel.com/support/>.

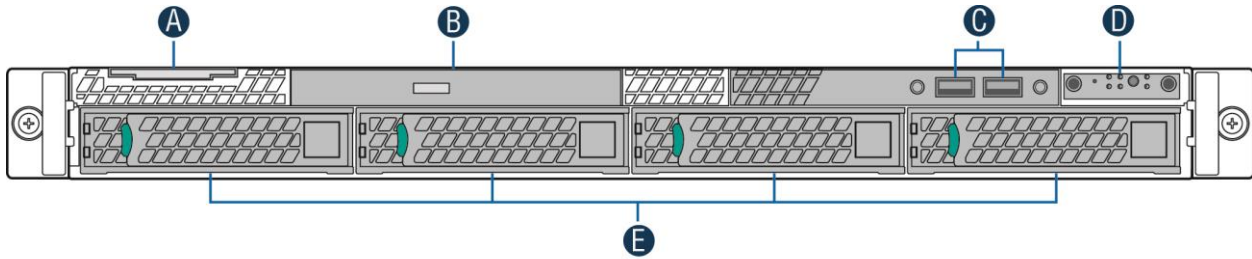
Table 6. Server Board Jumpers

Jumper Name	Pins	System Results
J3K6: BMC Force Update	1-2	BMC Firmware Force Update Mode – Disabled ( <b>Default</b> )
	2-3	BMC Firmware Force Update Mode – Enabled
J2K8: BIOS Recovery	1-2	Pins 1-2 should be jumpered for normal system operation. ( <b>Default</b> )
	2-3	The main system BIOS does not boot with pins 2-3 jumpered. The system only boots from EFI-bootable recovery media with a recovery BIOS image present.
J2K6: BIOS Default	1-2	These pins should have a jumper in place for normal system operation. ( <b>Default</b> )
	2-3	If pins 2-3 are jumpered with AC power plugged in, the CMOS settings clear in 5 seconds. Pins 2-3 should not be jumpered for normal system operation.
J3K2: ME Force Update	1-2	ME Firmware Force Update Mode – Disabled ( <b>Default</b> )
	2-3	ME Firmware Force Update Mode – Enabled

Jumper Name	Pins	System Results
J2K9: Password Clear	1-2	These pins should have a jumper in place for normal system operation.
	2-3	To clear administrator and user passwords, power on the system with pins 2-3 connected. The administrator and user passwords clear in 5-10 seconds after power on. Pins 2-3 should not be connected for normal system operation.

## Peripheral Devices

The Intel® Server System R1000RP provides locations and hardware for installing hard drives, CD-ROM drive, or DVD-ROM drive. The following figure shows the available options.



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A	System Label Pull-out
B	Slimline Optical Drive Bay
C	USB Ports
D	Front Control Panel
E	Hard Disk Drive Bays

**Figure 12. Optional Peripherals (4x3.5-inch hard drive bays as shown)**

## Hard Disk Drive Carriers

The Intel® Server System R1000RP ships with either 3.5-inch or 2.5-inch hard disk drive carrier, and with different maximum number of hard disk drives.

*Note: SAS drives are only supported when proper Intel® RAID C600 Upgrade Key or Intel® Integrated RAID Module is installed.*

For instructions on installing hard drives, see [“Installing a Hot-swap Hard Disk Drive”](#).

**Note:**

1. *Drives can consume up to 17 watts of power each. Drives must be specified to run at a maximum ambient temperature of 45 °C.*
2. *The Intel® Server System R1000RP does not support all SAS or Serial ATA (SATA) hard drives. For a web link to a list of supported hard drives, see [“Additional Information and Software”](#).*

## Slimline Optical Drive Support

The system supports a single optical drive. The optical drive is NOT hot-swappable. The system power must be turned off to insert or remove the slimline optical drive. For instructions on installing an optical drive, see “[Installing or Removing a Slimline Optical Drive](#)”.

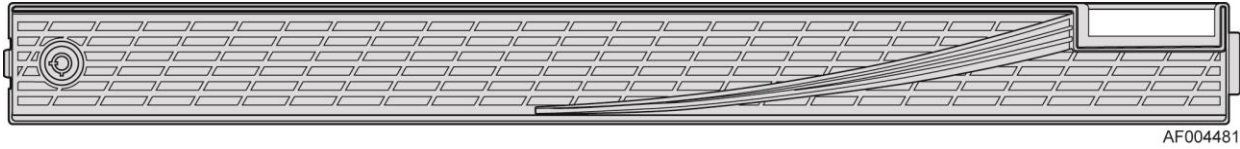
Intel® makes the following optical drive accessory kits available for this server system:

- Slimline DVD-ROM Drive: AXXSATADVROM
- Slimline DVD-RW Drive: AXXSATADVDRWROM

*Note:* For a complete list of supported peripherals, go to [http://serverconfigurator.intel.com/sct\\_app.aspx#/SctMain](http://serverconfigurator.intel.com/sct_app.aspx#/SctMain).

## Front Bezel

The front bezel is available as optional accessory for the server system.



**Figure 13. Front view of Front Bezel**

## Hot-Swap SAS/SATA Backplane

The Hot-Swap SAS/SATA backplane serves as an interface between the motherboard and the system drives. The following diagrams show the location for each connector found on the backplane.

### 4 x 3.5-inch Hard Drive Backplane

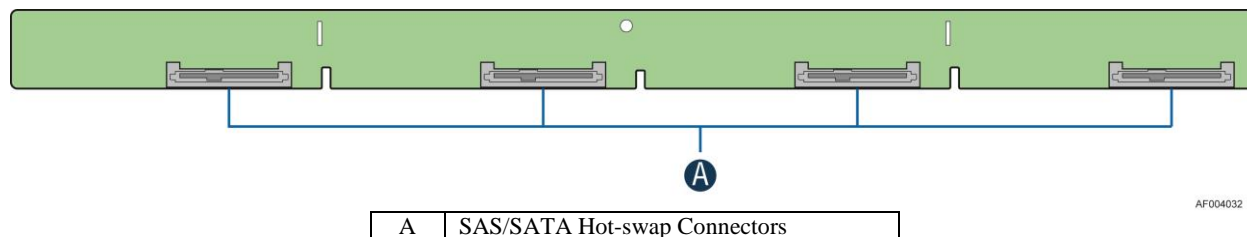


Figure 14. 4 x 3.5-inch Hard Drive Backplane Components (Front View)

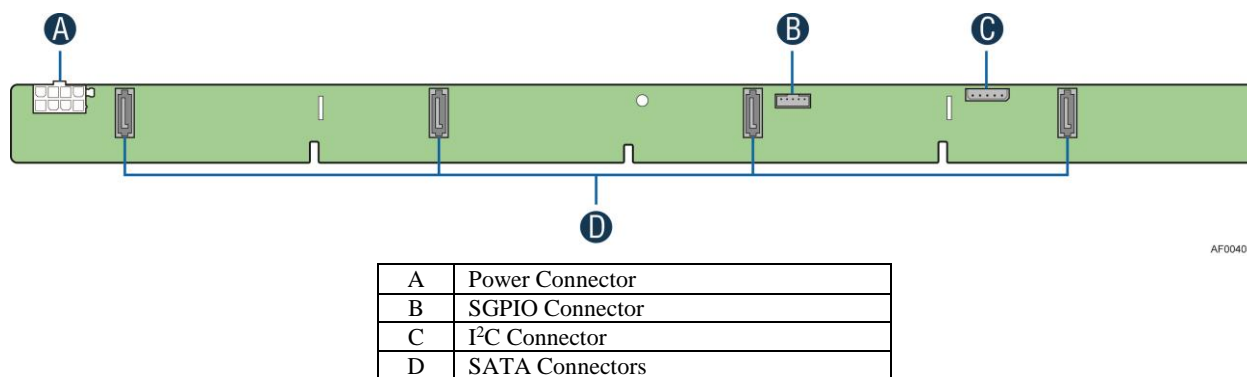


Figure 15. 4 x 3.5-inch Hard Drive Backplane Components (Rear View)

### 8 x 2.5-inch Hard Drive Backplane

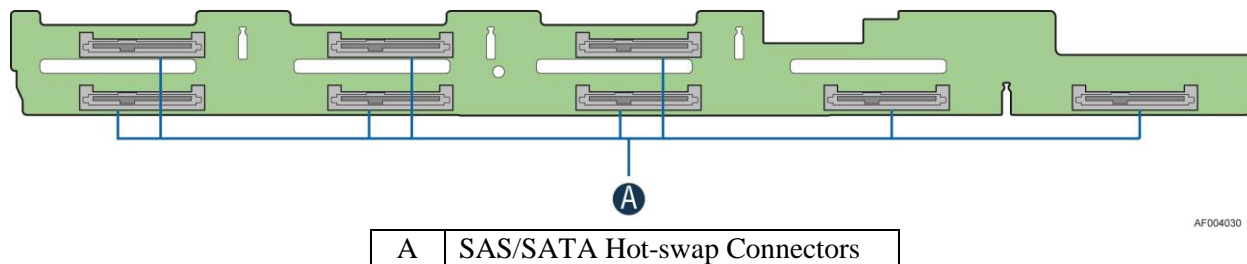
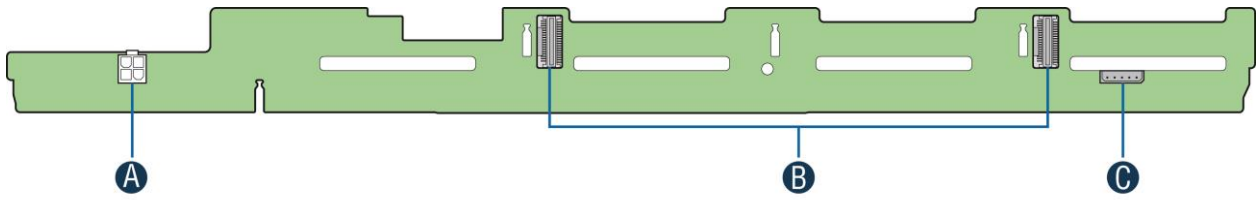


Figure 16. 8 x 2.5-inch Hard Drive Backplane Components (Front View)





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A	Power Connectors
B	Mini-SAS Connectors
C	I <sup>2</sup> C Connector

**Figure 17. 8 x 2.5-inch Hard Drive Backplane Components (Rear View)**

## Advanced Management Options

### Intel® Remote Management Module 4

The Intel® Remote Management Module 4 plugs into a dedicated connector on the server board and provides additional server management functionality to the server board. This module provides a dedicated web server for viewing server information and remote control of the system. It also provides Remote KVM Redirection and USB Media Redirection allowing USB devices attached to the remote system to be used on the managed server. For instructions on installing the Intel® Remote Management Module 4, see [“Installing and Removing the Intel® Remote Management Module 4”](#).

## 2 Hardware Installations and Upgrades

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### Before You Begin

Before working with your server product, pay close attention to the “[Safety Information](#)” at the beginning of this manual.

*Note:* Whenever you service the system, you must first power down the server and unplug all peripheral devices and the power cord.

### Tools and Supplies Needed

- Phillips\* (cross head) screwdriver (#2 bit)
- Needle nosed pliers
- Anti-static wrist strap and conductive foam pad (recommended)

### System Reference

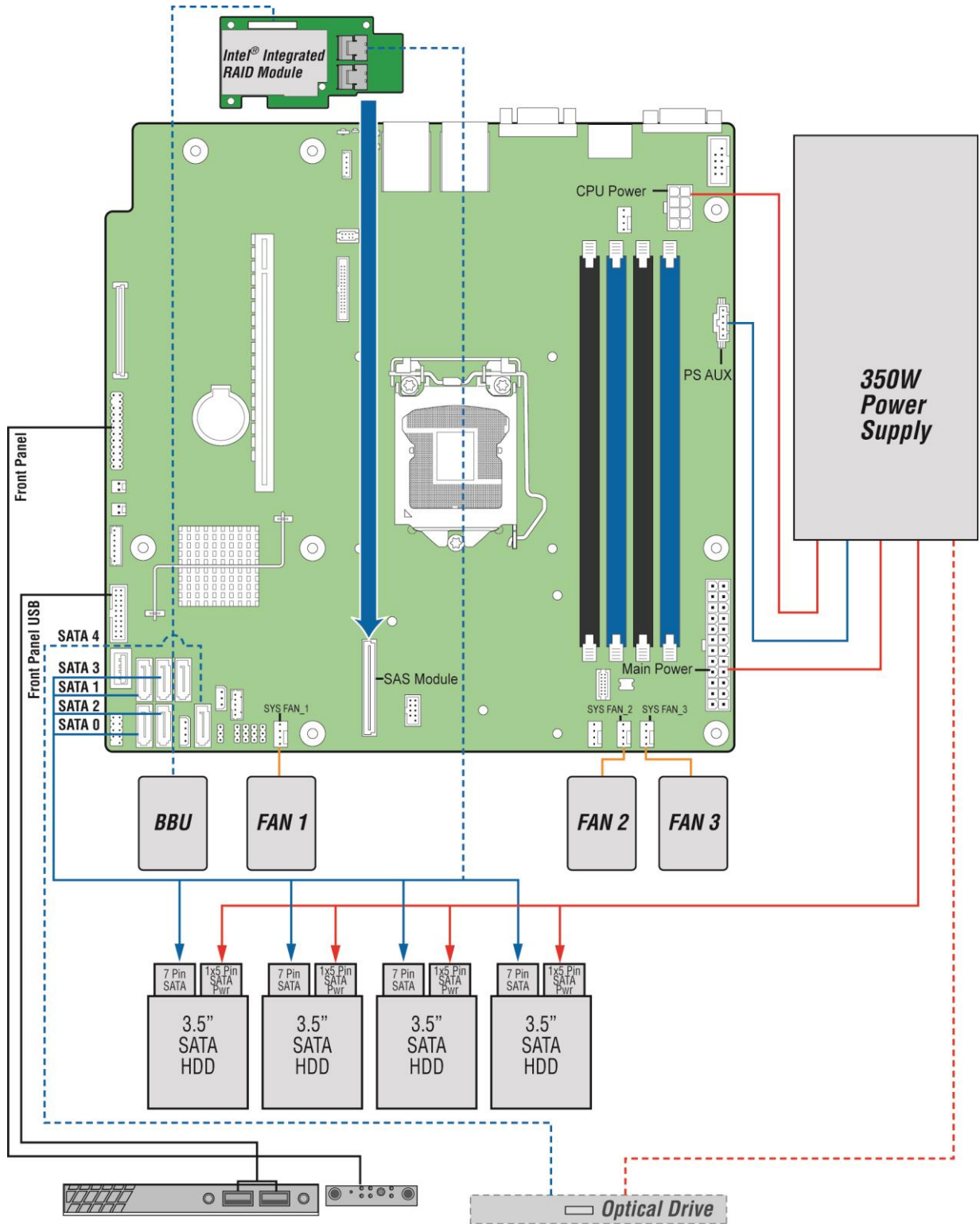
All references to left, right, front, top, and bottom assume the reader is facing the front of the chassis as it would be positioned for normal operation.

## 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 following figures to determine the correct cable routing.

*Note: Red lines are for power connection and the dotted lines are for optional device connection.*

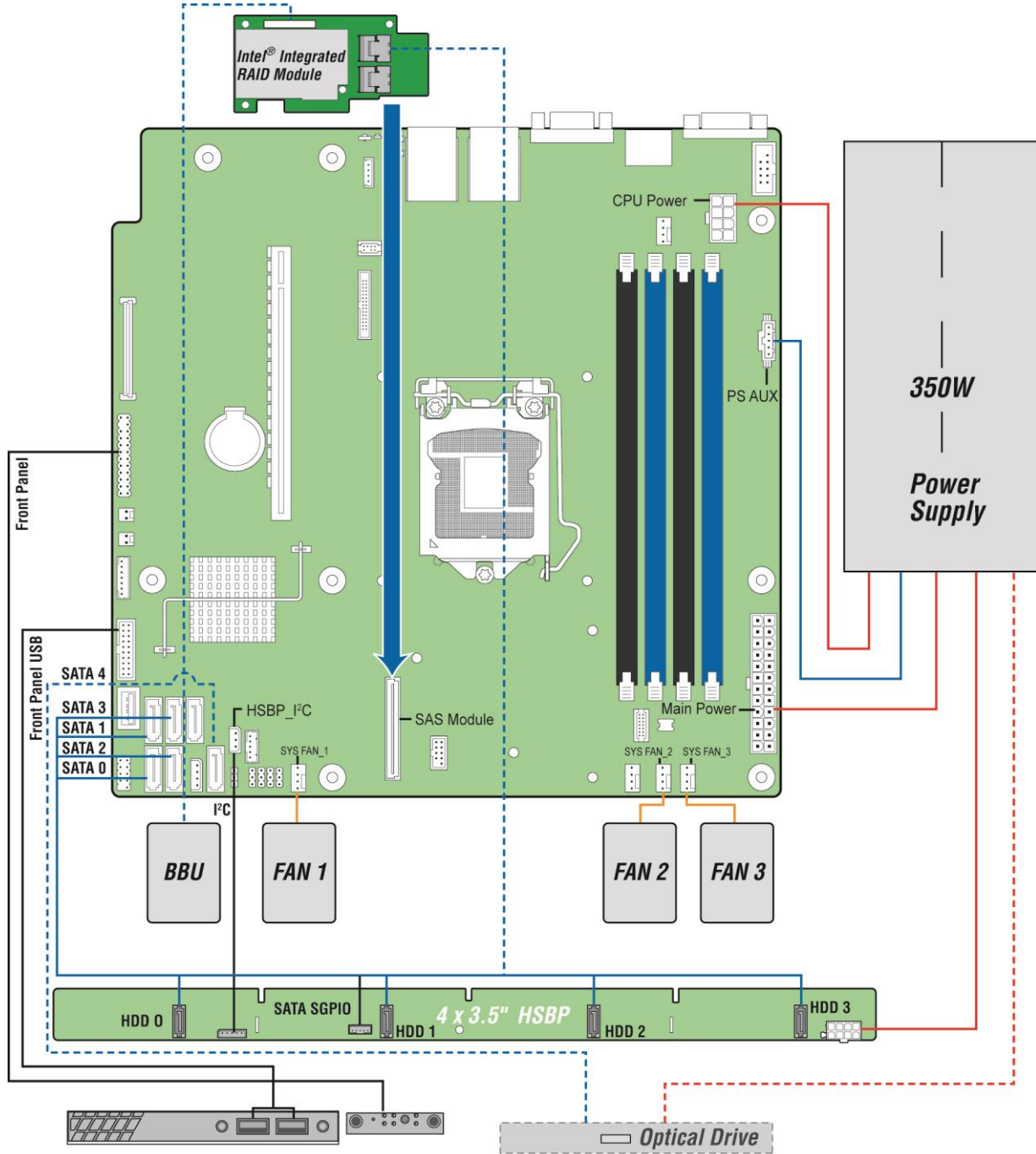
For System with 4 x 3.5" Fixed Hard Drive Bay



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Figure 18. Cable Routing – 4 x 3.5" Fixed HDD

## For System with 4 x 3.5" Hot Swap Hard Drive Bay

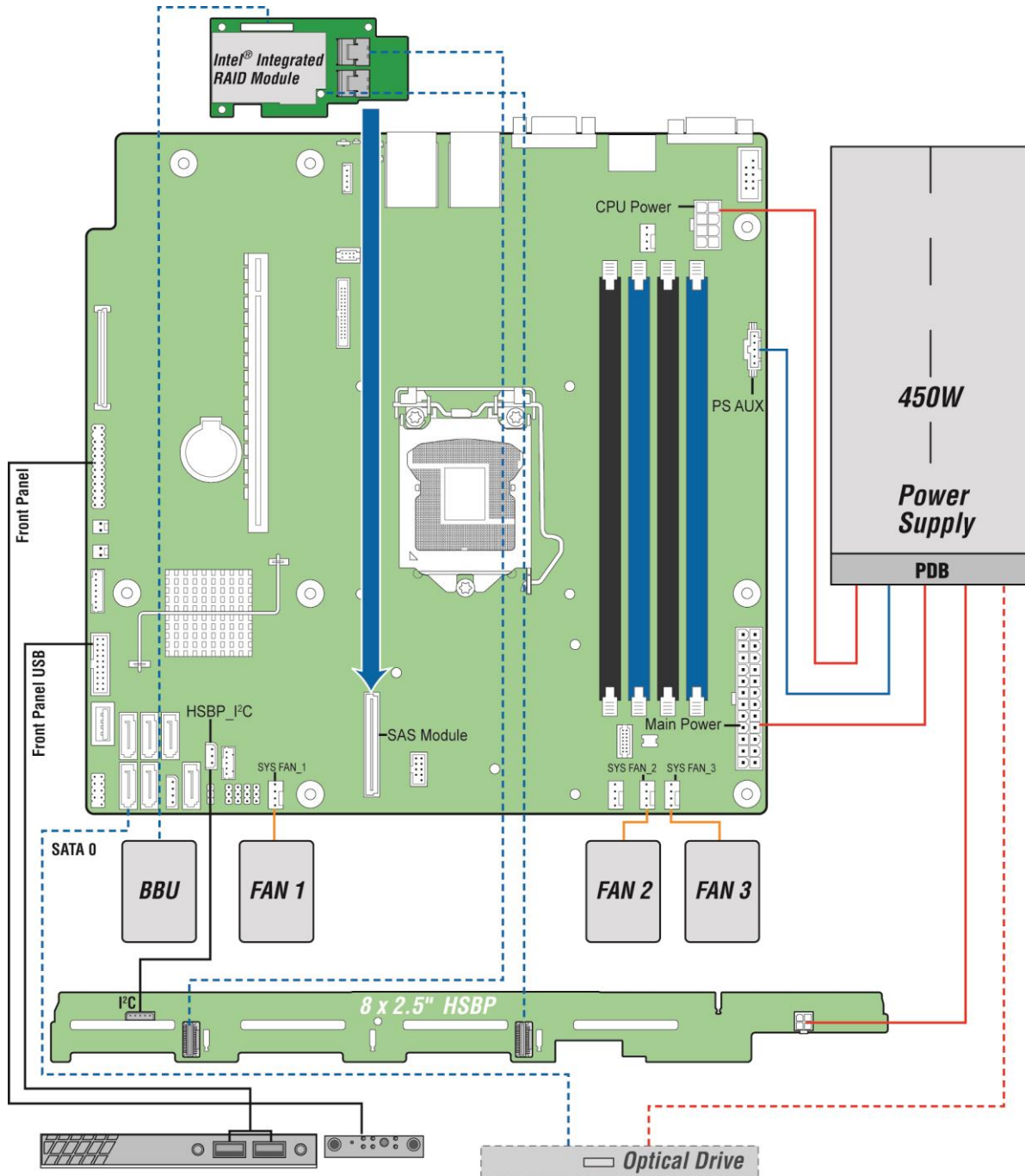


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Figure 19. Cable Routing – 4 x 3.5" Hot Swap HDD

## For System with 8 x 2.5" Hard Drive Bay

*Note: An optical drive can be installed to replace the Front Panel I/O.*

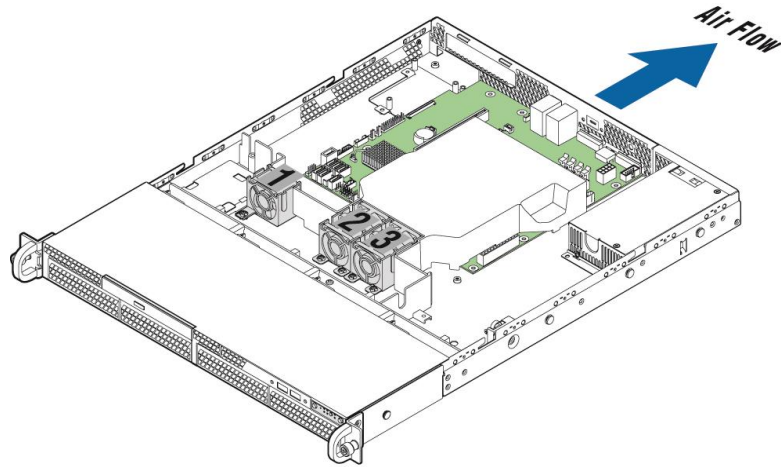


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**Figure 20. Cable Routing – 8 x 2.5" HDD**

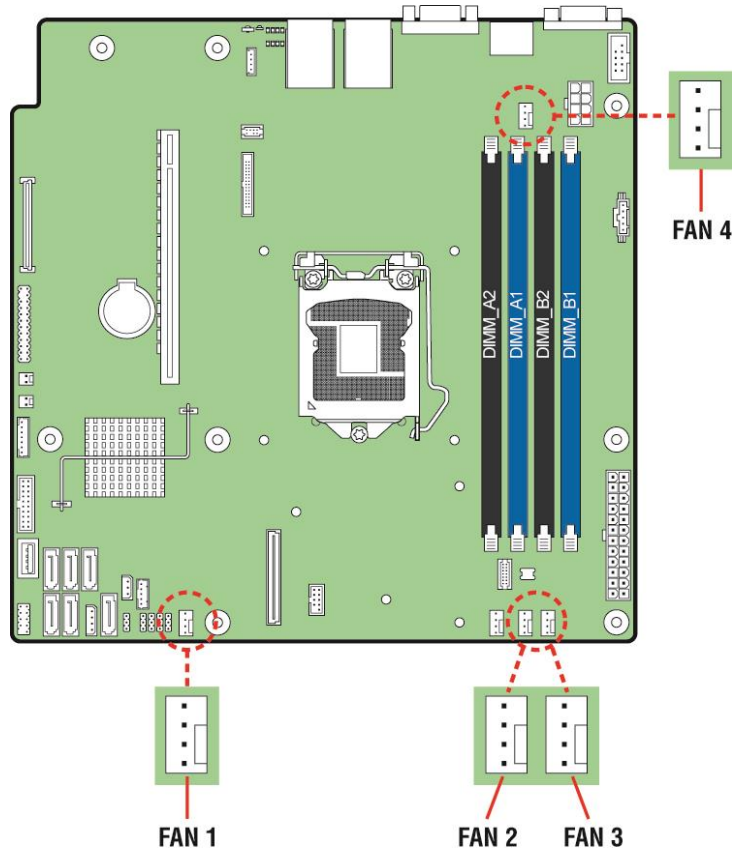
## Fan Connections

Use the following figures to determine the proper fan connections.



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Figure 21. System Fan Order



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Figure 22. Connecting the Fan Power Cables to the Motherboard



## Removing and Installing the Front Bezel

### Removing the Front Bezel

If your system includes a front bezel, follow these steps to remove the front bezel:

1. Unlock the bezel if it is locked.
2. Remove the left end of front bezel from rack handle (see letter **A**).
3. Rotate the front bezel anticlockwise to release the latches on the right end from the rack handle (see letter **B**).

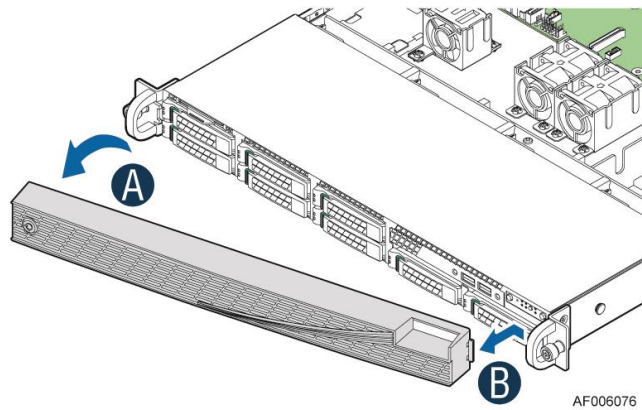


Figure 23. Removing the Front Bezel

### Installing the Front Bezel

*Note: Before installing the bezel, you must install the rack handles.*

1. Lock the right end of the front bezel to the rack handle (see letter **A**).
2. Push in the left side of the bezel until it clicks into place (see letter **B**).
3. Lock the bezel if needed.

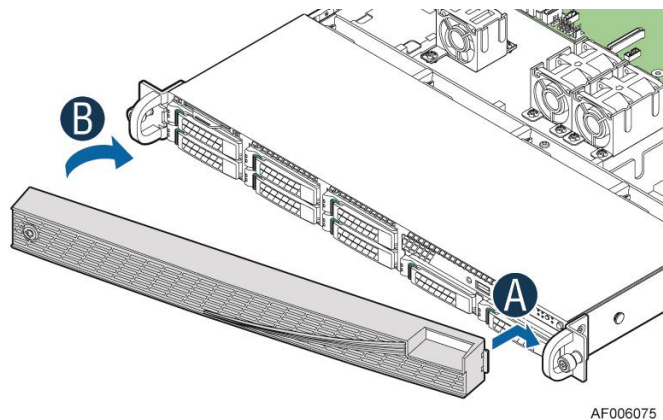


Figure 24. Installing the Front Bezel

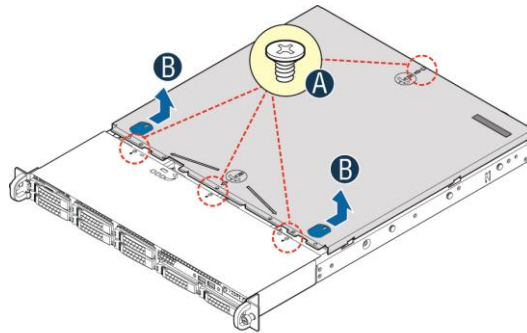
## Removing and Installing the System Cover

### Removing the System Cover

The server system must be operated with the system cover in place to ensure proper cooling. You will need to remove the top cover to add or replace components inside of the server. Before removing the top cover, power down the server and unplug all peripheral devices and the power cables.

**Note:** A non-skid 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.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the power cord.
4. Remove the four screws (see letter **A**).
5. Slide cover back and lift upward (see letter **B**).

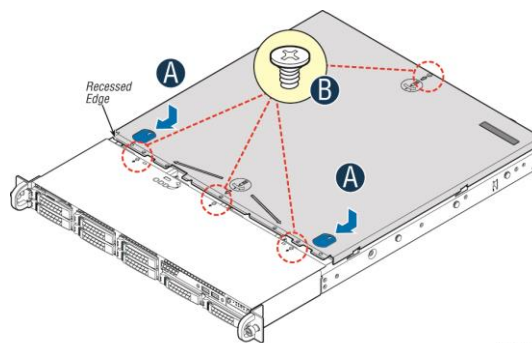


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**Figure 25. Removing the System Cover**

### Installing the System Cover

1. Place the top cover on system and slide towards the front of chassis until the recessed front edge is fully engaged (see letter **A**).
2. Install the three screws at the front and torque to 7-9in-lbs, then install the screw at the back and torque to 7-9in-lbs (see letter **B**).



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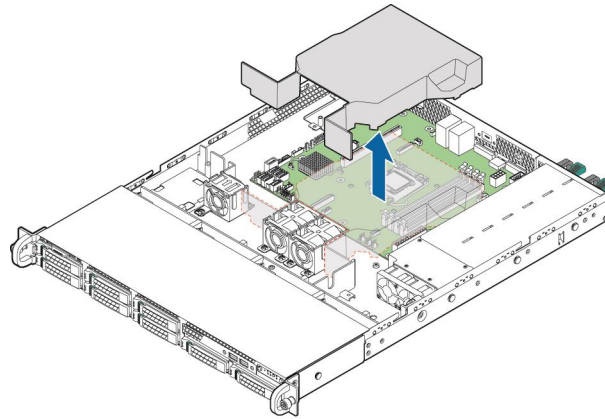
**Figure 26. Installing the System Cover**

## Removing and Installing the Air Duct

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

### Removing the Air Duct

Remove the air duct by lifting straight up.

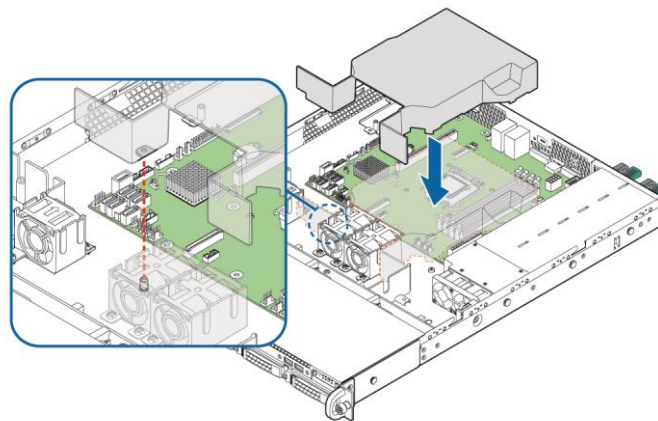


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Figure 27. Removing the Air Duct

### Installing the Air Duct

Align the hole on the air duct with the alignment pin on the chassis and install the air duct into place.



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Figure 28. Installing the Air Duct

## Removing and Installing Processor

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

### Removing Processor Heatsink

The heatsink is attached to the server board/processor socket with captive fasteners. Using a #2 Phillips\* screwdriver, loosen the four screws located on the heatsink corners in a diagonal manner using the following procedure:

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

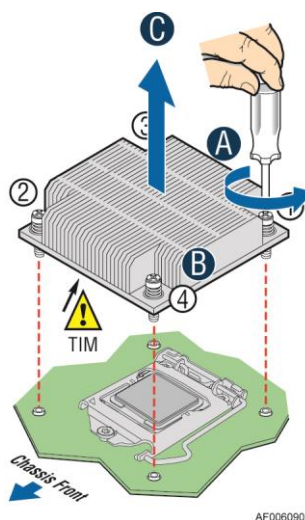


Figure 29. Removing Processor Heatsink

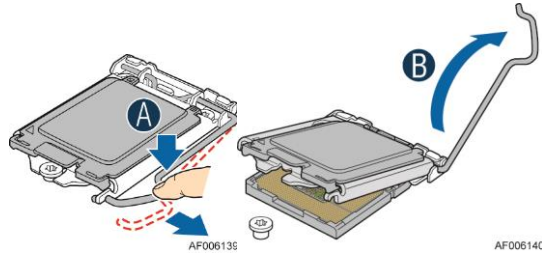
### Installing the Processor

#### Caution:

1. *Processor must be appropriate:* You may damage the server board if you install a processor that is inappropriate for your server. For a web link to the list of compatible processors, see [“Additional Information and Software”](#).
2. *ESD and handling processors:* Reduce the risk of electrostatic discharge (ESD) damage to the processor by doing the following:
  - a. *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.*
  - b. *Avoid moving around unnecessarily.*

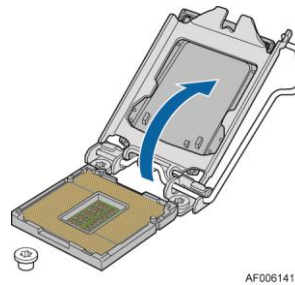
3. *Protective socket cover needs to be removed for proper cooling of the processor; failure to remove the cover could result in damage to the system.*

1. Push the level handle down and away from the socket to release it (see letter **A**). Rotate the lever to open all the way (see letter **B**).



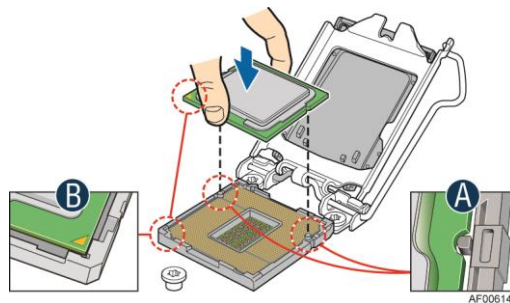
**Figure 30. Installing Processor – Open the Socket Lever**

2. Open the Load Plate as shown.



**Figure 31. Installing Processor – Open the Load Plate**

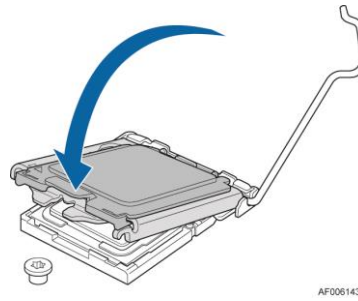
3. Install the Processor. Take the processor out of the box and remove the protective shipping cover. Align the processor with the socket so that the orientation notches on the processor align with the two orientation posts on the socket (see letter **A**). Note the location of the gold key at the corner of the processor (see letter **B**).



**Figure 32. Installing Processor – Install the Processor**

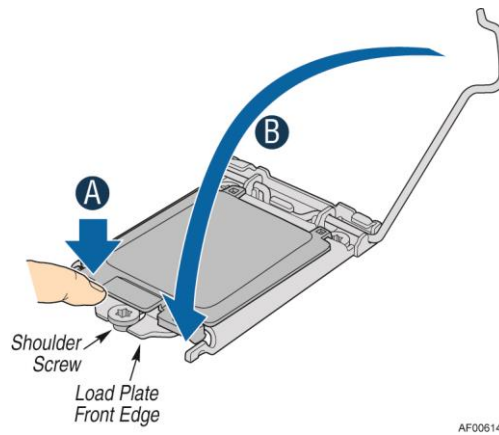
**Note:** *The underside of the processor has components that may damage the socket pins if installed improperly. Processor must align correctly with the socket opening before installation. DO NOT DROP processor into socket!*

- Carefully lower the load plate over the processor.



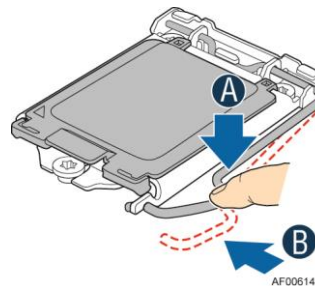
**Figure 33. Installing Processor – Close the Load Plate**

- Make sure the front edge of the load plate slides under the shoulder screw as the lever is lowered (see letter **A**). Close the load plate locking lever (see letter **B**).



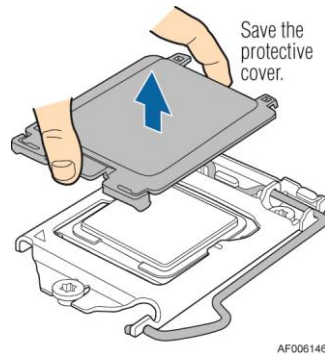
**Figure 34. Installing Processor – Engage the Load Plate**

- Push down on the locking lever (see letter **A**). Slide the tip of the lever under the notch in the load plate. Make sure the lever is securely latched (see letter **B**).



**Figure 35. Installing Processor – Latch the Locking Lever**

- Carefully lift the cover straight up as shown.



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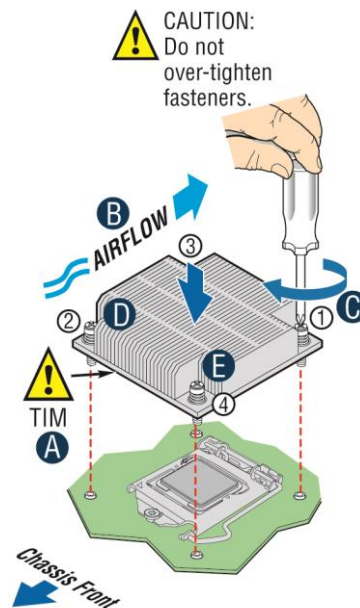
**Figure 36. Installing Processor – Remove the Cover**

## Installing Processor Heatsink

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

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

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



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**Figure 37. Installing Processor Heatsink**

## Removing the Processor

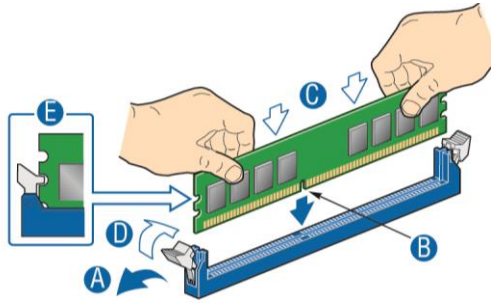
1. Remove the processor heatsink; see *Figure 29*.
2. Open the socket lever; see *Figure 30*.
3. Open the load plate; see *Figure 31*.
4. Remove the processor.



## Installing and Removing Memory

### Installing Memory

1. Locate the DIMM sockets. Make sure the clips at either end of the DIMM sockets are pushed outward to the open position (see letter **A**).
2. Holding the DIMM by the edges, remove it from its anti-static package. 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**).
3. Insert the bottom edge of the DIMM into the socket (see letter **C**). When the DIMM is inserted, push down on the top edge of the DIMM until the retaining clips snap into place (see letter **D**). Make sure the clips are firmly in place (see letter **E**).



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Figure 38. Installing Memory

### Removing Memory

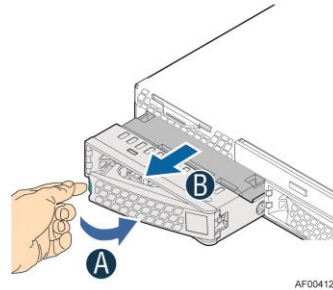
1. Locate the DIMM sockets. Gently spread the retaining clips at each end of the socket. The DIMM lifts from the socket.
2. Holding the DIMM by the edges, lift it from the socket, and store it in an anti-static package.

## Installing and Removing Hot-swap Hard Drive

**Caution:** If you do not install all drives, empty drive bays must be occupied by carriers with plastic drive blank provided to maintain proper system cooling.

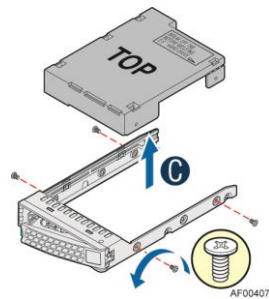
### Installing a Hard Disk Drive into 3.5" Hard Drive Carrier

1. Remove the drive carrier by pressing the green button and opening the lever (see letter **A**). Slide the carrier out (see letter **B**).



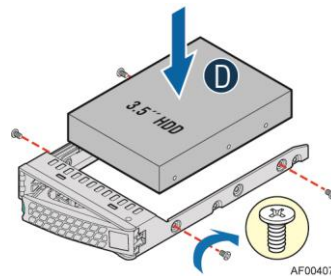
**Figure 39. Installing Hard Disk Drive – Removing 3.5" HDD Carrier**

2. Remove the four screws securing the HDD interface bracket and remove the HDD interface bracket (see letter **C**).



**Figure 40. Installing Hard Disk Drive – Removing 3.5" HDD Interface Bracket**

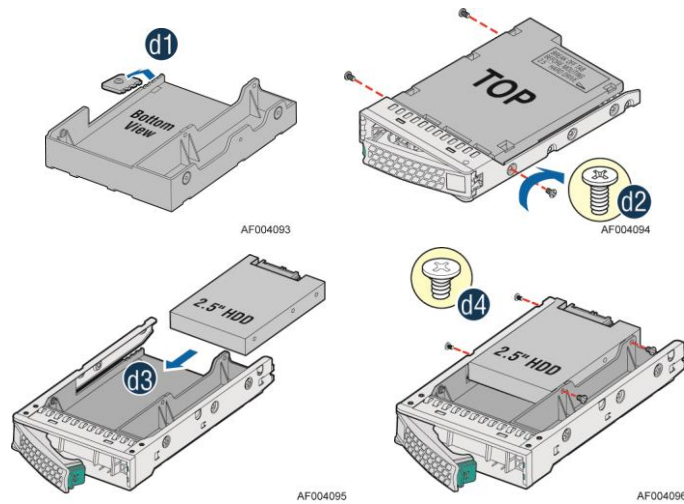
3. Install the hard disk drive using the same four screws as shown. Make sure the connector end of the drive matches the backplane connector (see letter **D**).



**Figure 41. Installing Hard Disk Drive – Installing 3.5" HDD**

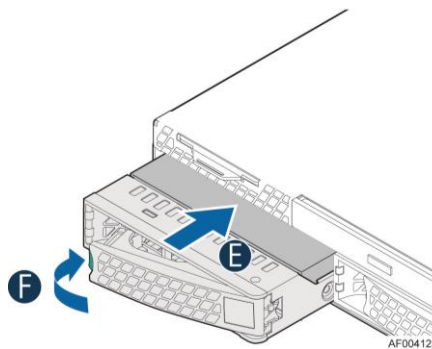
For installing 2.5" Hard Disk Drive as option:

- Break off the tab on the HDD interface bracket (see letter **d1**).
- Install the HDD interface bracket from top.
- Secure the bracket with three screws as shown (see letter **d2**).
- Slide the 2.5" HDD into the bracket to align the screw holes with the right and left rail (see letter **d3**).
- Secure the hard disk drive using the four screws for 2.5" HDD (see letter **d4**).



**Figure 42. Installing Hard Disk Drive – Installing 2.5" HDD**

- With the lever open, insert the hard disk drive assembly into the chassis (see letter **E**). Push in the lever to lock it in place (see letter **F**).



**Figure 43. Installing Hard Disk Drive – Inserting 3.5" HDD Assembly**

## Installing a Hard Disk Drive into 2.5" Hard Drive Carrier

1. Remove the drive carrier by pressing the green latch to unlock (see letter **A**). Pull out the black lever and slide the carrier out (see letter **B**).

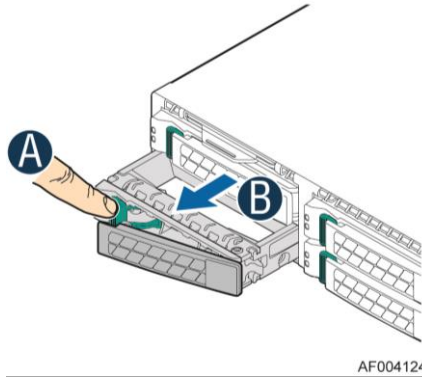


Figure 44. Installing Hard Disk Drive – Removing 2.5" HDD Carrier

2. Remove the four screws securing the plastic drive blank from the 2.5" HDD carrier (see letter **C**). Disengage the plastic drive blank from the HDD carrier. Remove the plastic drive blank from the 2.5" HDD carrier (see letter **D**).

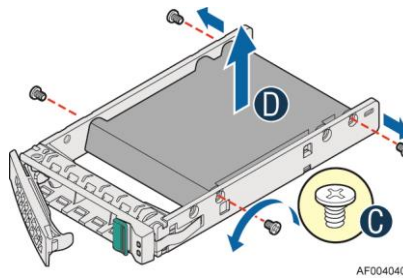


Figure 45. Installing Hard Disk Drive – Removing Plastic Drive Blank

3. Install the hard disk drive using the four screws as shown. Make sure the connector end of the drive matches the backplane connector (see letter **E**).

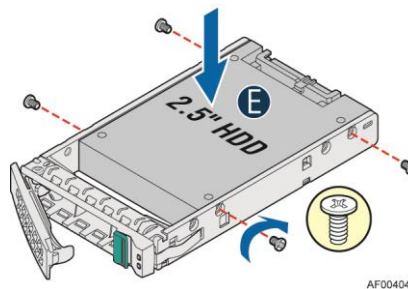
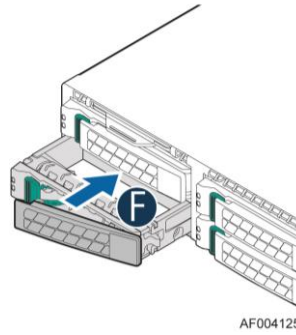


Figure 46. Installing Hard Disk Drive – Installing 2.5" HDD

4. With the lever open, insert the hard disk drive assembly into the chassis, then push in the lever to lock it into place (see letter **F**).

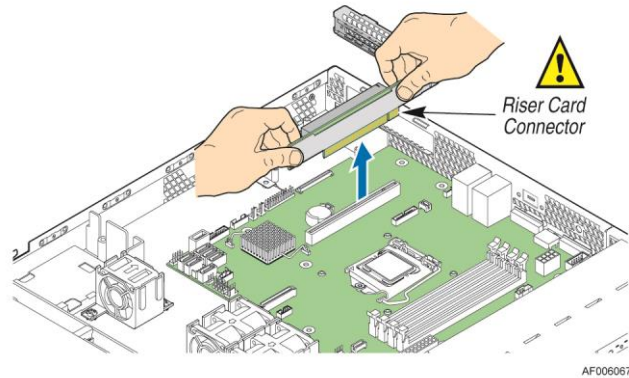


**Figure 47. Installing Hard Disk Drive – Inserting 2.5" HDD Assembly**

## Removing and Installing the PCI Riser Assembly

### Removing the PCI Riser Assembly

Disconnect any cables attached to any add-in cards. Grasp the riser assembly with both hands and pull up to remove from system.



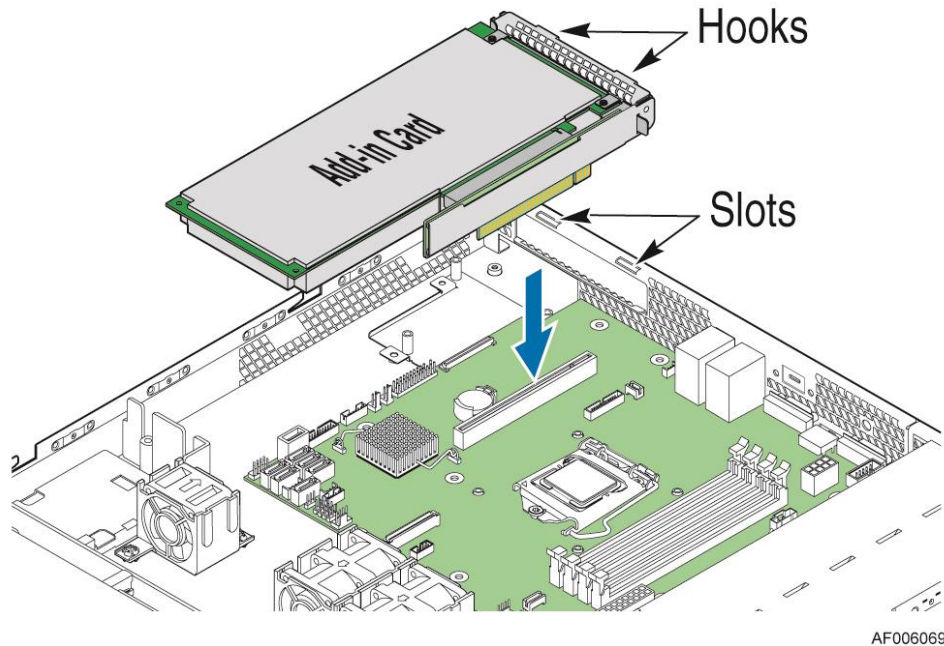
**Figure 48. Removing PCI Riser Assembly**

Do one of the following:

- If you need to add or replace a PCI add-in card, see “[Installing and Removing a PCI Add-in Card](#)”.
- If you need to add or replace a PCI riser card, see “[Replacing a PCI Riser Card](#)”.
- If you removed the PCI riser assembly for another procedure, continue with that procedure.

## Installing the PCI Riser Assembly

1. Position the riser card edge connector over the server board riser socket and align the two hooks on the back edge of the riser assembly with the slots on the back of the chassis, then press straight down into riser socket.



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**Figure 49. Installing PCI Riser Assembly**

2. Connect any cables to add-in cards that require them. See your add-in card documentation for information and add-in card requirements.

## Installing and Removing a PCI Add-in Card

### Installing a PCI Add-in Card

1. Remove the PCI riser assembly. For instructions, see “[Removing the PCI Riser Assembly](#)”.
2. Remove the filler panel from the add-in card slot and remove the screw as shown (see letter **A**).
3. Insert add-in card until it sits in the riser connector (see letter **B**).
4. Secure add-in card with screw as shown (see letter **C**).

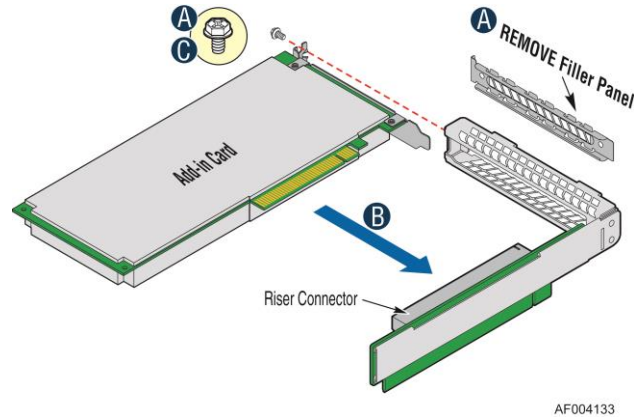


Figure 50. Installing a PCI Add-In Card

### Removing a PCI Add-in Card

1. Remove the PCI riser assembly. For instructions, see “[Removing the PCI Riser Assembly](#)”.
2. Remove the screw as shown (see letter **A**).
3. Remove the PCI add-in card from the riser card connector (see letter **B**).

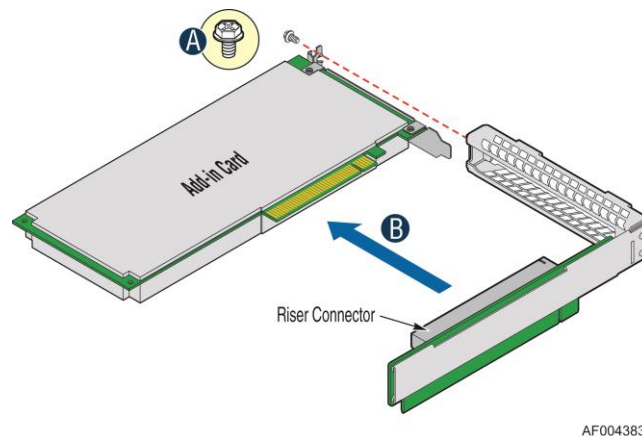


Figure 51. Removing a PCI Add-In Card

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



## Replacing a PCI Riser Card

**Caution:** PCI riser cards are NOT hot-swappable. Before removing or replacing the riser card, you must first:

1. Take the server out of service.
2. Turn off all peripheral devices connected to the system.
3. Turn off the system by pressing the power button.
4. Unplug the power cord from the system or wall outlet.

**Note:** To eliminate the possibility of installing the replacement connector on the wrong side of the PCI riser assembly, replace one connector at a time.

## Removing a PCI Riser Card

1. Disconnect any cables attached to any add-in cards.
2. Remove the PCI riser assembly. For instructions, see “[Removing the PCI Riser Assembly](#)”.
3. Remove any add-in cards from the PCI riser card. For instructions, see “[Removing a PCI Add-in Card](#)”.
4. Remove the two screws securing the PCI Riser Card (see letter **A**).
5. Remove the riser card from riser assembly (see letter **B**).

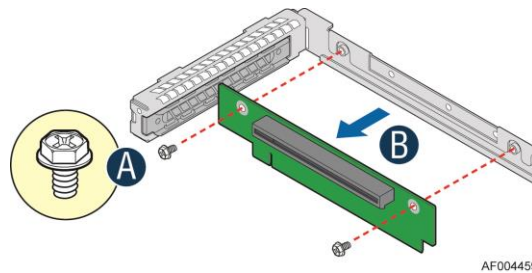


Figure 52. Removing the PCI Riser Card

## Installing a PCI Riser Card

1. Place the riser card onto the riser assembly (see letter **A**).
2. Secure the riser card using the two screws (see letter **B**).

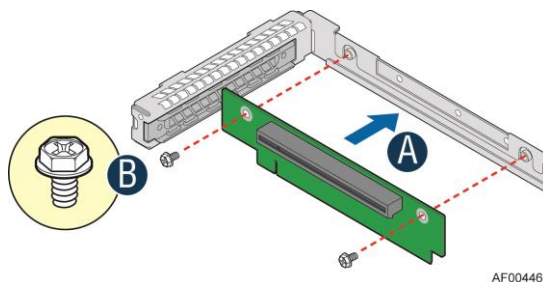


Figure 53. Installing the PCI Riser Card

## Installing and Removing a Slimline Optical Drive

**Caution:** The slimline optical drive is NOT hot-swappable. Before removing or replacing the drive, you must first:

1. Take the server out of service.
2. Turn off all peripheral devices connected to the system.
3. Turn off the system by pressing the power button.
4. Unplug the power cord from the system or wall outlet.

**Note:** To maintain proper system cooling, a filler panel must be installed if you do not install a device at this location.

### Installing a Slimline Optical Drive

1. Install the plastic guide onto the back of the drive and attach with two screws as shown (see letter **A**).

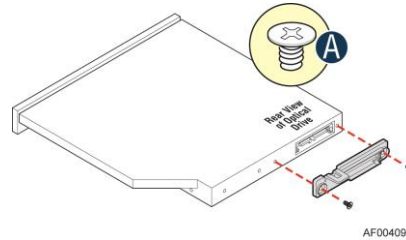


Figure 54. Installing the Plastic Guide to the Optical Drive

2. Insert the optical drive into chassis opening and push all the way until it stops (see letter **B**).
3. Connect the cables as shown (see letter **C**).

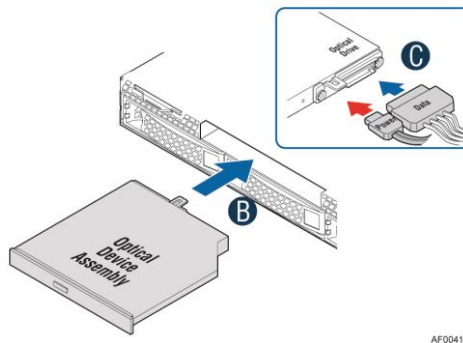
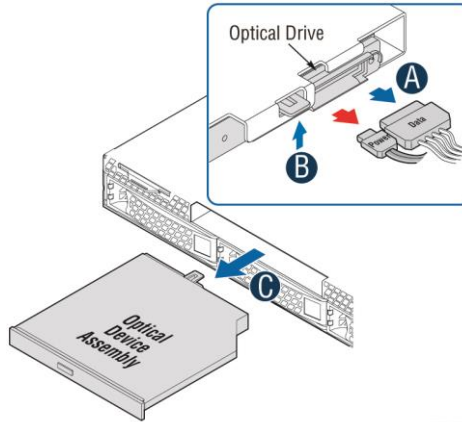


Figure 55. Installing an Optical Drive

## Removing a Slimline Optical Drive

1. Remove the cables (see letter **A**).
2. Lift up the blue tab to release the optical drive (see letter **B**).
3. Slide the optical drive out (see letter **C**).



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**Figure 56. Removing the Slimline Optical Drive**

4. If no device is installed in this location, install a filler panel in this location.

## Installing and Removing Intel® I/O Expansion Module

### Installing Intel® I/O Expansion Module

1. Squeeze the sides of the filler panel to disengage it from the server system back panel and remove it (see letter **A**).
2. Position the module over the server board, fit the front of the module into the back panel slot (see letter **B**).
3. Attach the module to the server board connector (see letter **C**).
4. Secure the module with the three screws as shown (see letter **D**).

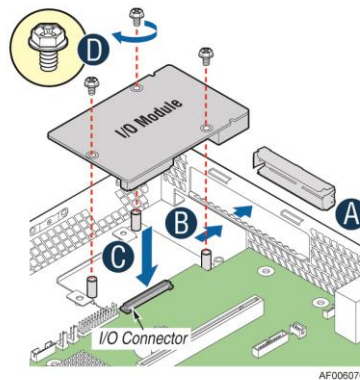


Figure 57. Installing Intel® I/O Expansion Module

### Removing Intel® I/O Expansion Module

1. Remove the three screws as shown (see letter **A**).
2. Remove the module out of the server system (see letter **B**).

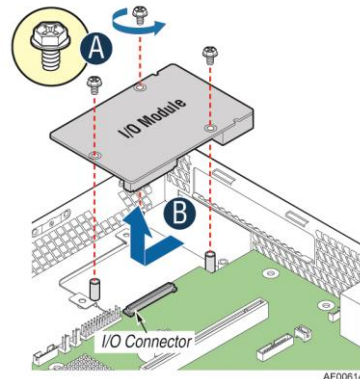


Figure 58. Removing an I/O Expansion Module

3. Install the I/O expansion module filler panel into the system back panel.

## Installing and Removing the Intel® ESRTII SATA Key

### Installing the Intel® ESRTII SATA Key

Locate the white 4-pin key header next to the POST diagnostic LEDs. Carefully pick up the Intel® ESRTII SATA Key. Match the Key and connector and press down to install.

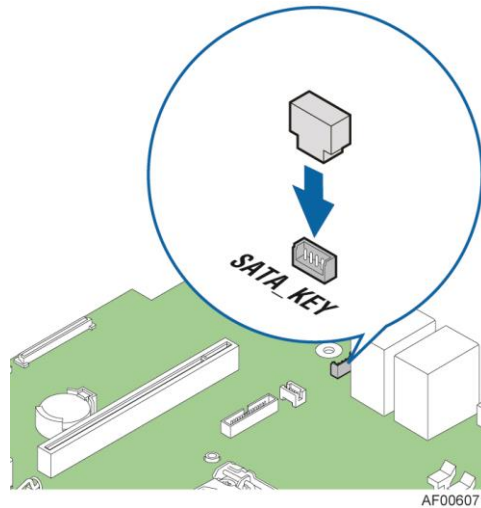


Figure 59. Installing the Intel® ESRTII SATA Key

### Removing the Intel® ESRTII SATA Key

Pull up the key to remove it from the motherboard.

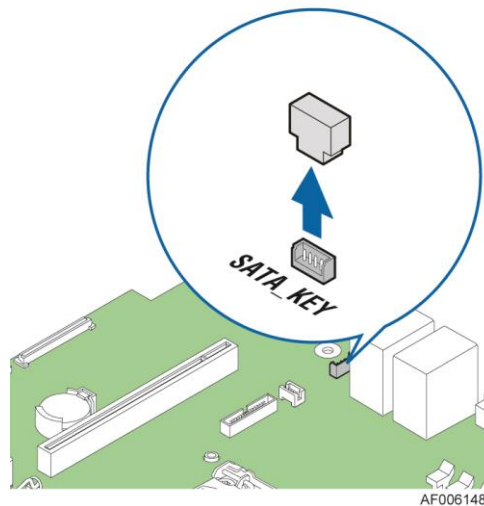


Figure 60. Removing the Intel® ESRTII SATA Key

## Installing and Removing the Intel® Remote Management Module 4

### Installing the Intel® RMM4 Lite

1. Locate the RMM4 Lite connector next to the NIC ports.
2. Carefully pick up the Intel® RMM4 Lite module.
3. Match the alignment pin of the module and the connector on the server board and press to install.

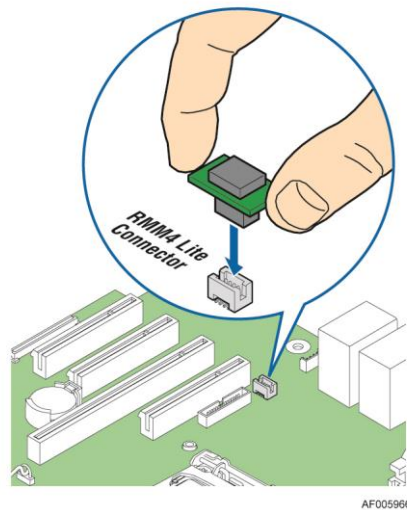


Figure 61. Installing the Intel® RMM4 Lite

## Installing the Intel® RMM4 NIC

**Caution:** Carefully remove the knock out with screwdriver; directly removing it with finger has potential risk.

1. Attach the metal fastening bracket to Intel® RMM4 NIC module and secure the bracket with two screws (see letter **A**).
2. Remove the alternate RMM4 knock out by pressing the knock out from inside of the chassis (see letter **B**).
3. Connect one end of the flex cable to the RMM4 connector on the RMM4 NIC module (see letter **C**).
4. Mount the NIC module to the rear panel of the chassis and secure the bracket with two screws (see letter **D**).
5. Connect the opposite end of the flex cable to the RMM4 connector on the server board (see letter **E**).

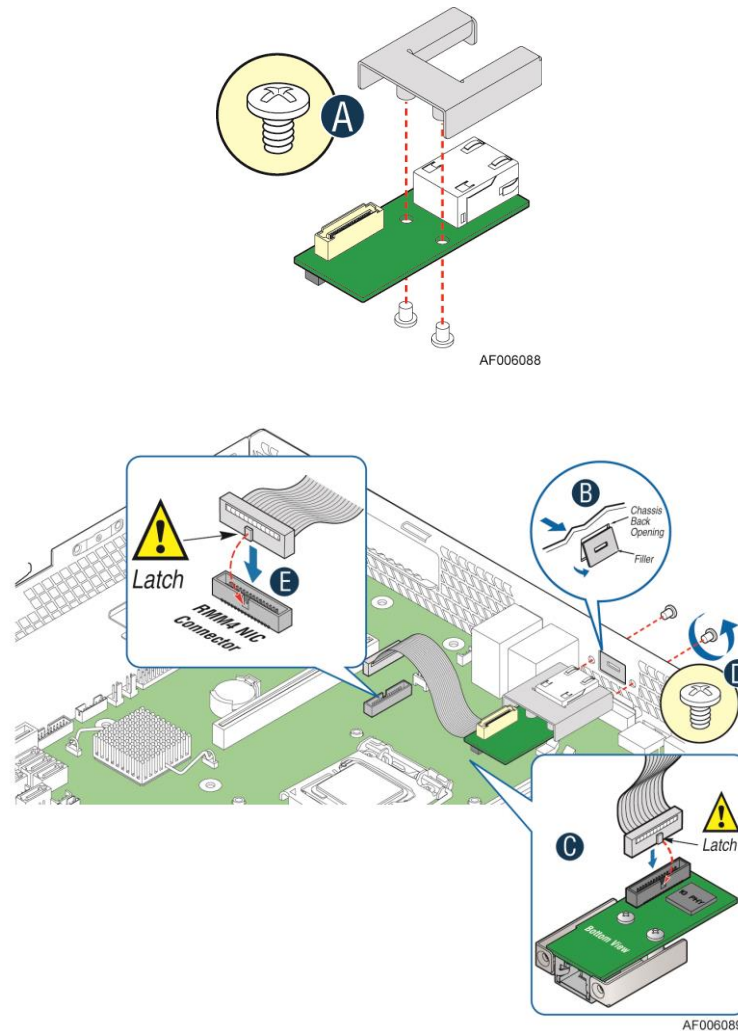


Figure 62. Installing the Intel® RMM4 NIC

## Removing the Intel® RMM4 Lite

Pull up the RMM4 Lite module to remove it from the motherboard.

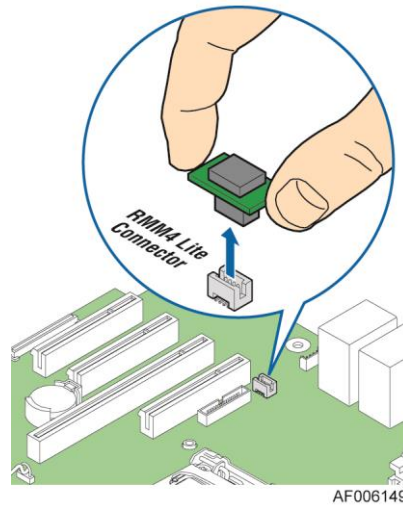


Figure 63. Removing the Intel® RMM4 Lite

## Removing the Intel® RMM4 NIC

1. Disconnect the flex cable from the RMM4 connector on the server board (see letter A).
2. Remove the two screws as shown (see letter B).
3. Disconnect the opposite end of the flex cable from the RMM4 connector on the RMM4 NIC module (see letter C).

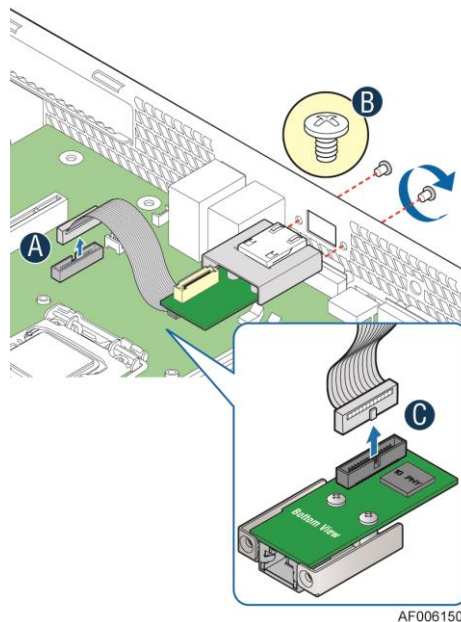


Figure 64. Removing the Intel® RMM4 NIC



## Installing and Removing the Intel® RAID Smart Battery

### Installing the Intel® RAID Smart Battery

1. Connect the cable between the BBU and the RAID card. For details, see *Intel® RAID Smart Battery User's Guide*.
2. Locate the BBU bracket inside the chassis. Align the tabs on the plastic battery holder with mounting holes on the BBU bracket (see letter **A**).
3. Slide the plastic battery holder toward the rear of the system until the tabs engage with the mounting holes in the BBU bracket (see letter **B**).

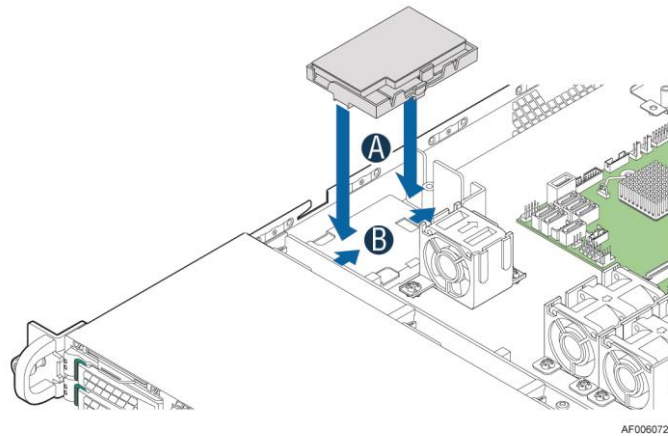


Figure 65. Installing the Intel® RAID Smart Battery

### Removing the Intel® RAID Smart Battery

1. Slide the plastic battery holder toward the front of the system to disengage it from the BBU bracket (see letter **A**).
2. Lift the battery up to remove it from the server chassis (see letter **B**).

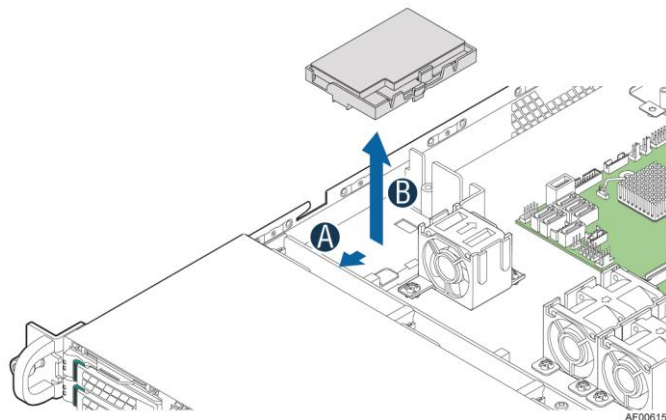


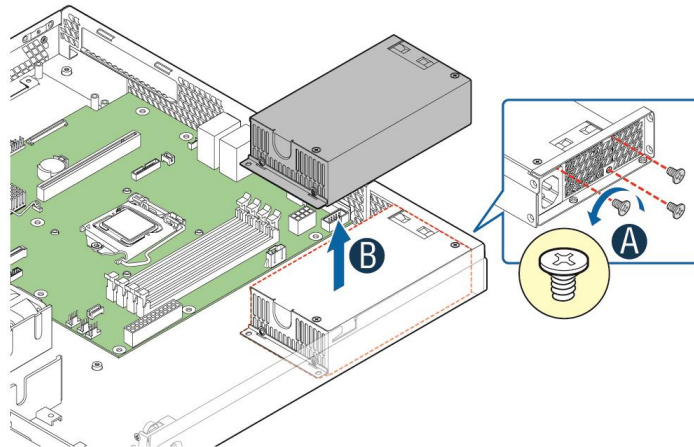
Figure 66. Removing the Intel® RAID Smart Battery

## Replacing the Fixed Power Supply

**Caution:** Before 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. To replace the power supply, follow these steps:

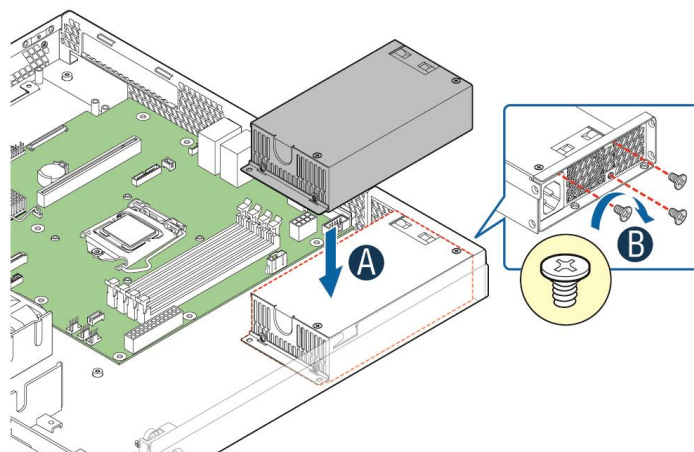
1. Unscrew the three screws from the rear side as shown (See Letter **A**), and remove the power supply (see letter **B**).



AF006073

**Figure 67. Removing the Fixed Power Supply Module**

2. Insert the power supply into the chassis (See Letter **A**) and secure it with the screws (see letter **B**).



AF006074

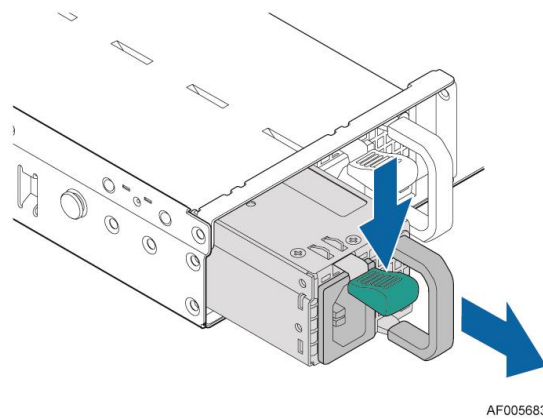
**Figure 68. Installing the Fixed Power Supply Module**

## Replacing the Redundant Power Supply

**Caution:** The power supply is only hot-swappable if you have a redundant system with two power supplies installed. If you only have one power supply installed, 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.

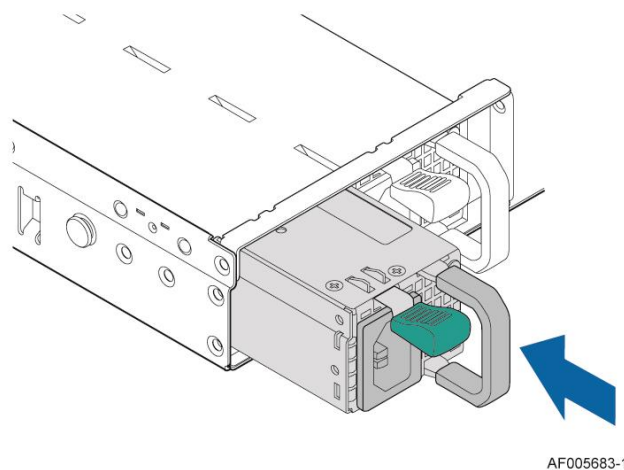
The power supply can be replaced if it fails. To replace the power supply, follow these steps:

1. Push the green latch in the direction shown while pulling out of the system by the handle.



**Figure 69. Removing the Redundant Power Supply Module**

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

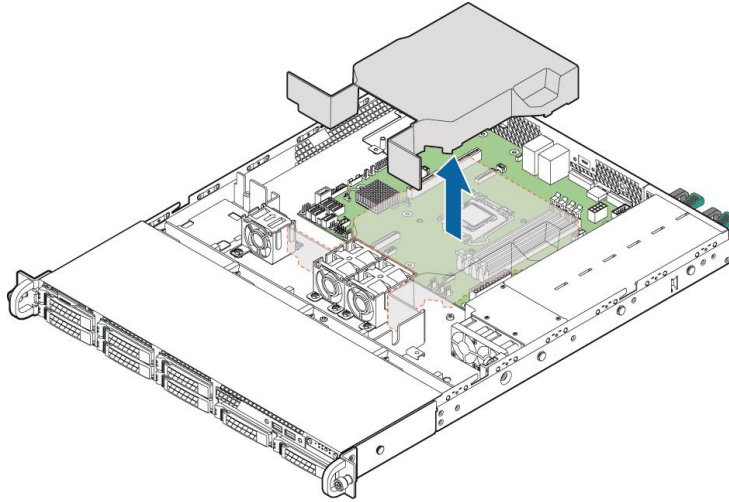


**Figure 70. Installing the Redundant Power Supply Module**

## Installing and Removing the Server Board

### Removing the Server Board

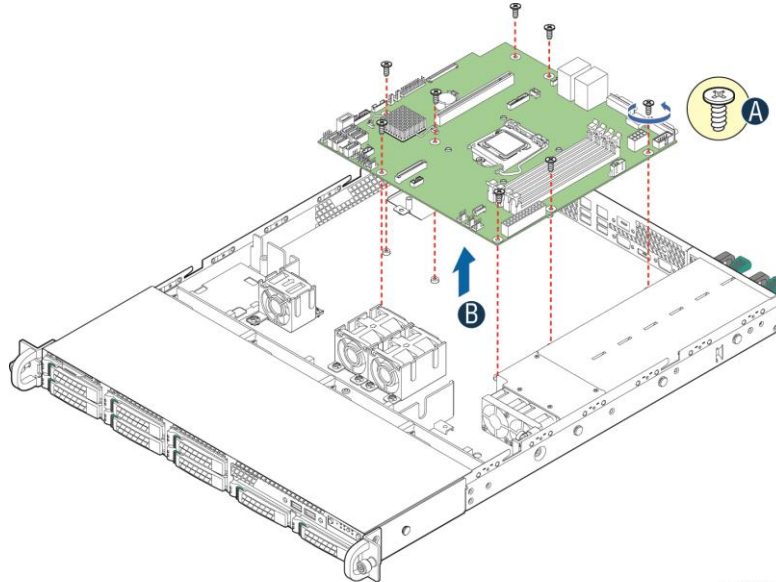
1. Lift the air duct straight up to remove from the server board.
2. Disconnect all cables from the server board.



AF006066

Figure 71. Removing the Air Duct

3. Remove the screws from the server board (see letter **A**).
4. Lift the server board from the server system (see letter **B**).

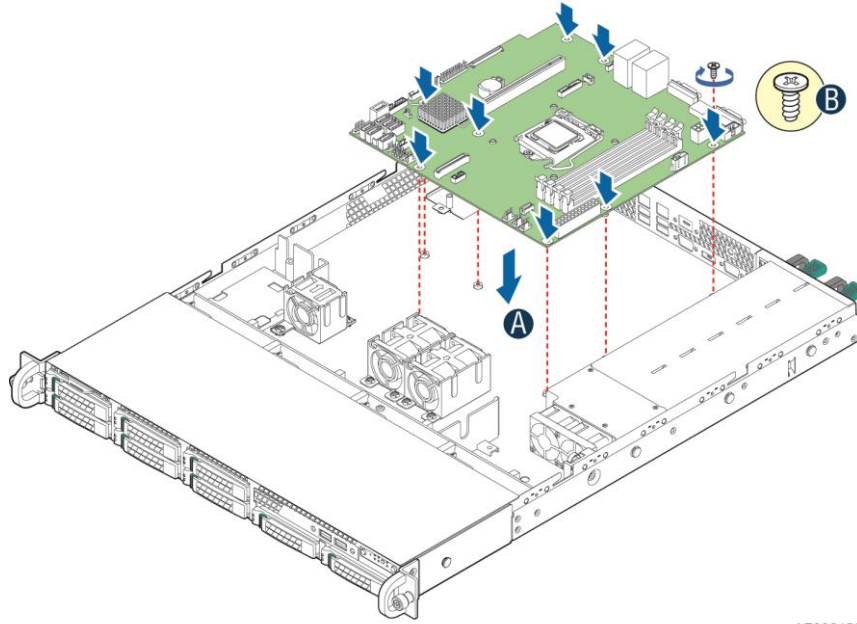


AF006152

Figure 72. Removing the Server Board

## Installing the Server Board

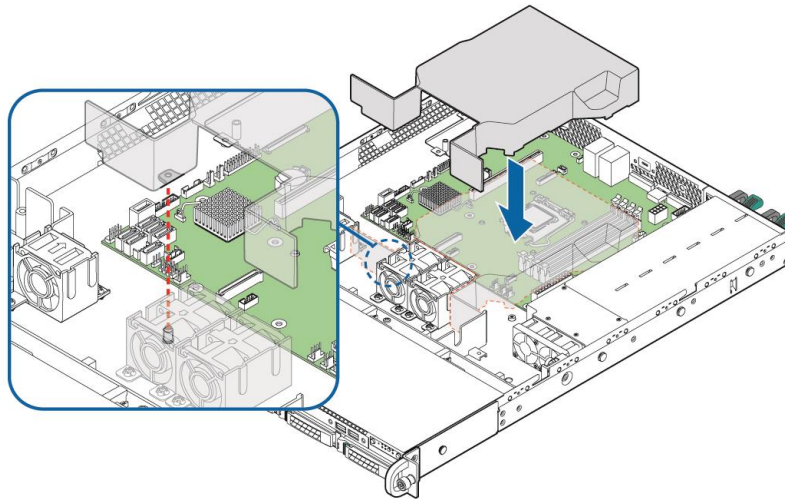
1. Place the server board into the server system (see letter **A**).
2. Secure the server board with the screws (see letter **B**).



AF006153

**Figure 73. Installing the Server Board**

3. Install the air duct onto the server board.



AF006065

**Figure 74. Installing the Air Duct**

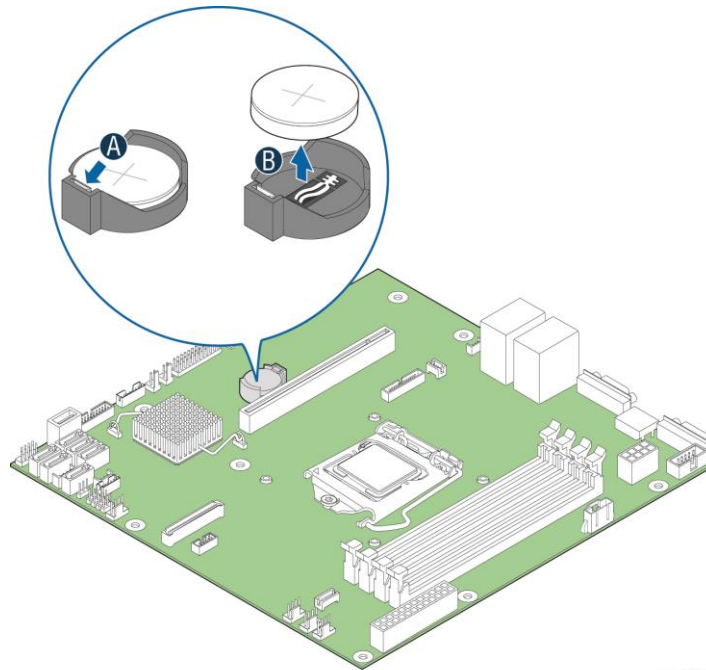
4. Connect all power cables to the server board.

## Replacing the Backup Battery

The lithium battery on the server board powers the RTC for up to 10 years 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.*

1. Locate the battery on the server board.
2. Gently press the metal clip as shown to release the battery (see letter **A**).
3. Remove the battery from the plastic socket (see letter **B**).



AF006154

**Figure 75. Replacing the Backup Battery**

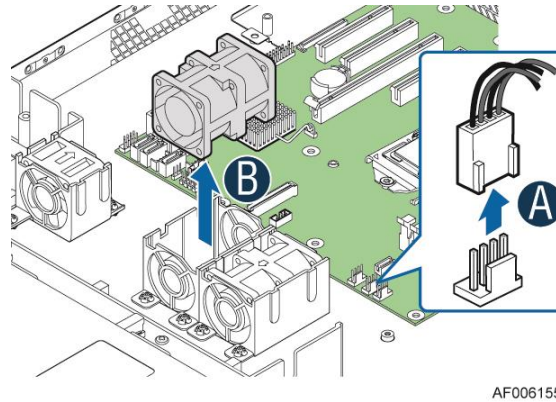
4. Dispose of the battery according to local ordinance.
5. Remove the new lithium battery from its package. Observe the correct polarity and insert it in the battery socket.

**Note:** *You will need to run the BIOS Setup to restore the configuration settings to the RTC.*

## Replacing a System Fan

**Note:** The system fans cannot be hot swapped. System power must be removed when replacing a system fan.

1. Disconnect the fan cable (see letter **A**).
2. Pull system fan straight up to remove it from the fan holder (see letter **B**).



AF006155

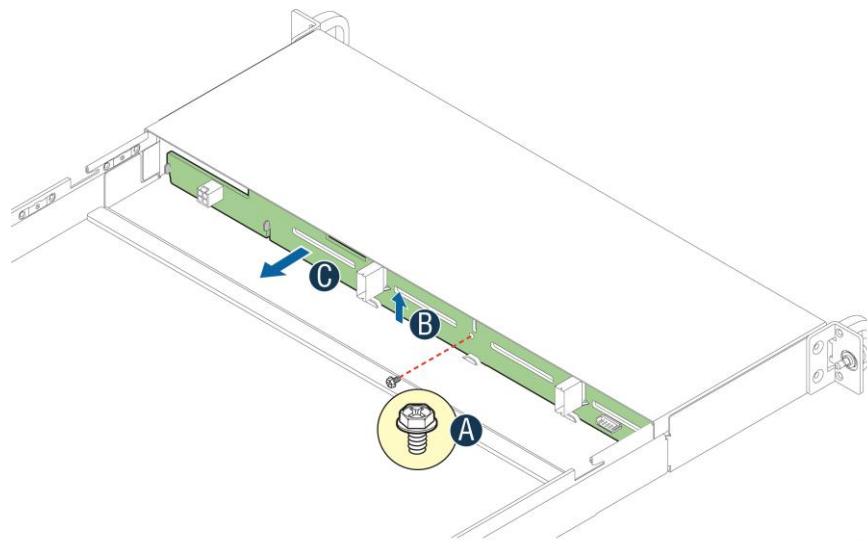
**Figure 76. Replacing a System Fan**

3. Replace the system fan.

## Replacing the Backplane

### Removing the Backplane

1. Remove all hot-swap drive carriers, regardless of whether or not a drive is installed in the carrier.
2. Disconnect all cables from the backplane.
3. Remove the screw (see letter **A**).
4. Pull up the backplane (see letter **B**).
5. Remove the backplane from the server chassis (see letter **C**).



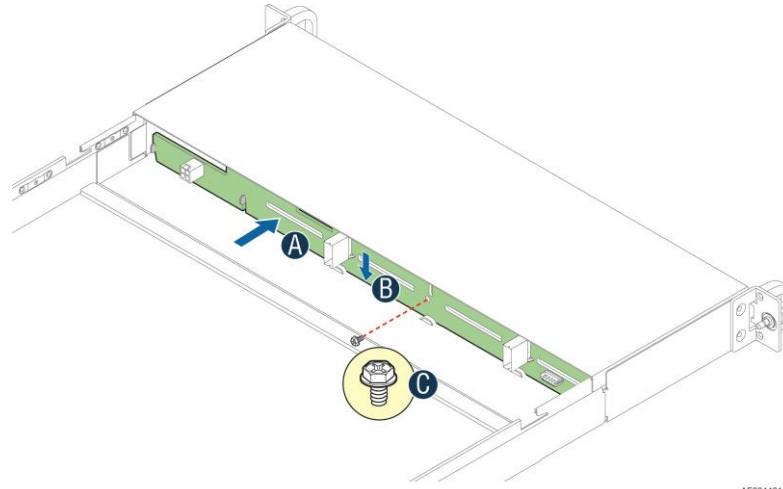
AF004400

**Figure 77. Removing the Backplane**



## Installing the Backplane

1. Remove all hot-swap drive carriers, regardless of whether or not a drive is installed in the carrier.
2. Hold the backplane only by the edges. Do not push or pull on any components on the backplane. Position the backplane in place at the front of the server system (see letter **A**).
3. Slide the backplane into the server system guides (see letter **B**).
4. Secure the backplane with the screw as shown (see letter **C**).



AF004401

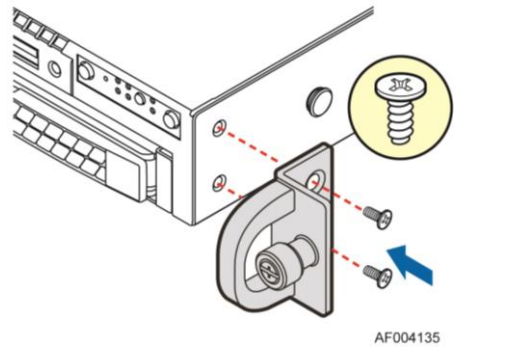
**Figure 78. Installing the Backplane**

5. Connect cables to backplane; refer to “[Cable Routing](#)”.

## Installing and Removing the Rack Handles

### Installing the Rack Handles

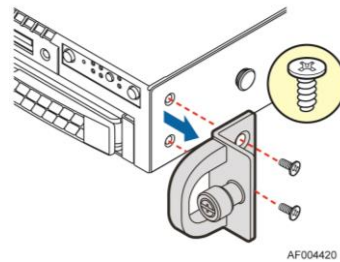
Align the rack handle with the two holes on the side of the server system and attach the rack handle to the server system with two screws as shown.



**Figure 79. Installing the Rack Handle**

### Removing the Rack Handles

Remove the two screws holding the rack handle in place, and remove the rack handle from the server system as shown.



**Figure 80. Removing the Rack Handle**

## 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.

#### Starting Setup

To enter the BIOS Setup using a keyboard (or emulated keyboard), press the <F2> function key during boot time when the OEM or Intel Logo Screen or the POST Diagnostic Screen is displayed.

The following instructional message is displayed on the Diagnostic Screen or under the Quiet Boot Logo Screen:

Press <F2> to enter setup, <F6> Boot Menu, <F12> Network Boot

*Note: With a USB keyboard, it is important to wait until the BIOS “discovers” the keyboard and beeps – until the USB Controller has been initialized and the USB keyboard activated, key presses will not be read by the system.*

When the Setup Utility is entered, the Main screen is displayed initially. However, serious errors cause the system to display the Error Manager screen instead of the Main screen.

It is also possible to cause a boot directly to Setup using an IPMI 2.0 command *Get/Set System Boot Options*. For details on that capability, see the explanation in the IPMI description.

#### Setup Navigation Keyboard Commands

The bottom right portion of the Setup screen provides a list of commands that are used to navigate through the Setup utility. These commands are displayed at all times.

Each Setup menu page contains a number of features. Each feature is associated with a value field, except those used for informative purposes. Each value field contains configurable parameters. Depending on the security option chosen and in effect by the password, a menu feature’s value may or may not be changed. If a value cannot be changed, its field is made inaccessible and appears grayed out.

**Table 7. BIOS Setup: Keyboard Command Bar**

Key	Option	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 option has a value field, or to select a subfield for multi-valued features like time and date. If a pick list is displayed, the <Enter> key selects the currently highlighted item, undoes the pick list, and returns the focus to the parent menu.
<Esc>	Exit	The <Esc> key provides a mechanism for backing out of any field. 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. 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 <Esc> was pressed, without affecting any existing settings. If “Yes” is selected and the <Enter> key is pressed, the setup is exited and the BIOS returns to the main System Options Menu screen.
↑	Select Item	The up arrow is used to select the previous value in a pick list, or the previous option in a

Key	Option	Description
		menu item's option list. The selected item must then be activated by pressing the <Enter> key.
↓	Select Item	The down arrow is used to select the next value in a menu item's option list, or a value field's pick list. The selected item must then be activated by pressing the <Enter> key.
←→	Select Menu	The left and right arrow keys are used to move between the major menu pages. The keys have no effect if a sub-menu or pick list is displayed.
<Tab>	Select Field	The <Tab> key is used to move between fields. For example, <Tab> can be used to move from hours to minutes in the time item in the main menu.
-	Change Value	The minus key on the keypad 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 on the keypad 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 keyboards but will have the same effect.
<F9>	Setup Defaults	Pressing the <F9> key causes the following to display: <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Load Optimized Defaults? Yes No</p> </div> <p>If "Yes" is highlighted and &lt;Enter&gt; is pressed, all Setup fields are set to their default values. If "No" is highlighted and &lt;Enter&gt; is pressed, or if the &lt;Esc&gt; key is pressed, the user is returned to where they were before &lt;F9&gt; was pressed without affecting any existing field values.</p>
<F10>	Save and Exit	Pressing the <F10> key causes the following message to display: <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Save configuration and reset? Yes No</p> </div> <p>If "Yes" is highlighted and &lt;Enter&gt; is pressed, all changes are saved and the Setup is exited. If "No" is highlighted and &lt;Enter&gt; is pressed, or the &lt;Esc&gt; key is pressed, the user is returned to where they were before &lt;F10&gt; was pressed without affecting any existing values.</p>

## Setup Screen Menu Selection Bar

The Setup Screen Menu selection bar is located at the top of the BIOS Setup Utility screen. It displays tabs showing the major screen selections available to the user. By using the left and right arrow keys, the user can select the listed screens. Some screen selections are out of the visible menu space, and become available by scrolling to the left or right of the current selections displayed.

## BIOS Setup Utility Screens

The following sections describe the screens available in the BIOS Setup utility for the configuration of the server platform.

For each of these screens, there is an image of the screen with a list of Field Descriptions which describe the contents of each item on the screen. Each item on the screen is hyperlinked to the relevant Field Description. Each Field Description is hyperlinked back to the screen image.

These lists follow the following guidelines:

- The text heading for each Field Description is the actual text as displayed on the BIOS Setup screen. This screen text is a hyperlink to its corresponding Field Description.
- The text shown in the Option Values and Help Text entries in each Field Description are the actual text and values are displayed on the BIOS Setup screens.
- In the Option Values entries, the text for default values is shown with an underline. These values do not appear underline on the BIOS Setup screen. The underlined text in this document is to serve as a reference to which value is the default value.
- The Help Text entry is the actual text which appears on the screen to accompany the item when the item is the one in focus (active on the screen).
- The Comments entry provides additional information where it may be helpful. This information does not appear on the BIOS Setup screens.
- Information enclosed in angular brackets (<>) in the screen shots identifies text that can vary, depending on the options installed. For example, <Amount of memory installed> is replaced by the actual value for “Total Memory”.
- Information enclosed in square brackets ([ ]) in the tables identifies areas where the user must type in text instead of selecting from a provided option.
- Whenever information is changed (except Date and Time), the systems requires a save and reboot to take place in order for the changes to take effect. Alternatively, pressing <ESC> discards the changes and resumes POST to continue to boot the system according to the boot order set from the last boot.





## Map of Screens and Functionality

There are a number of screens in the entire Setup collection. They are organized into major categories. Each category has a hierarchy beginning with a top-level screen from which lower-level screens may be selected. Each top-level screen appears as a tab, arranged across the top of the Setup screen image of all top-level screens.

There are more categories than will fit across the top of the screen, so at any given time there will be some categories which will not appear until the user has scrolled across the tabs which are present.

The categories and the screens included in each category are listed below, with links to each of the screens named.

**Table 8. Screen Map**

Categories (Top Tabs)	2nd Level Screens	3rd Level Screens
Main Screen (Tab)		
Advanced Screen (Tab)		
	Processor Configuration	
		
	Memory Configuration	
		

## Server Utilities

Categories (Top Tabs)	2nd Level Screens	3rd Level Screens
↳	Mass Storage Controller Configuration	
↳	PCI Configuration	
	↳	NIC Configuration
↳	Serial Port Configuration	
↳	USB Configuration	
↳	System Acoustic and Performance Configuration	
↳	Network Stack	
Security Screen (Tab)		
Server Management Screen (Tab)		
↳	Console Redirection	
↳	System Information	
↳	BMC LAN Configuration	
Boot Options Screen (Tab)		
↳	CDROM Order	
↳	Hard Disk Order	
↳	Floppy Order	
↳	Network Device Order	
↳	BEV Device Order	
↳	Add EFI Boot Option	
↳	Delete EFI Boot Option	
Boot Manager Screen (Tab)		
Error Manager Screen (Tab)		
Save & Exit Screen (Tab)		

## Main Screen (Tab)

The **Main** Screen is the first screen that appears when the BIOS Setup configuration utility is entered, unless an error has occurred. If an error has occurred, the **Error Manager** Screen appears instead.

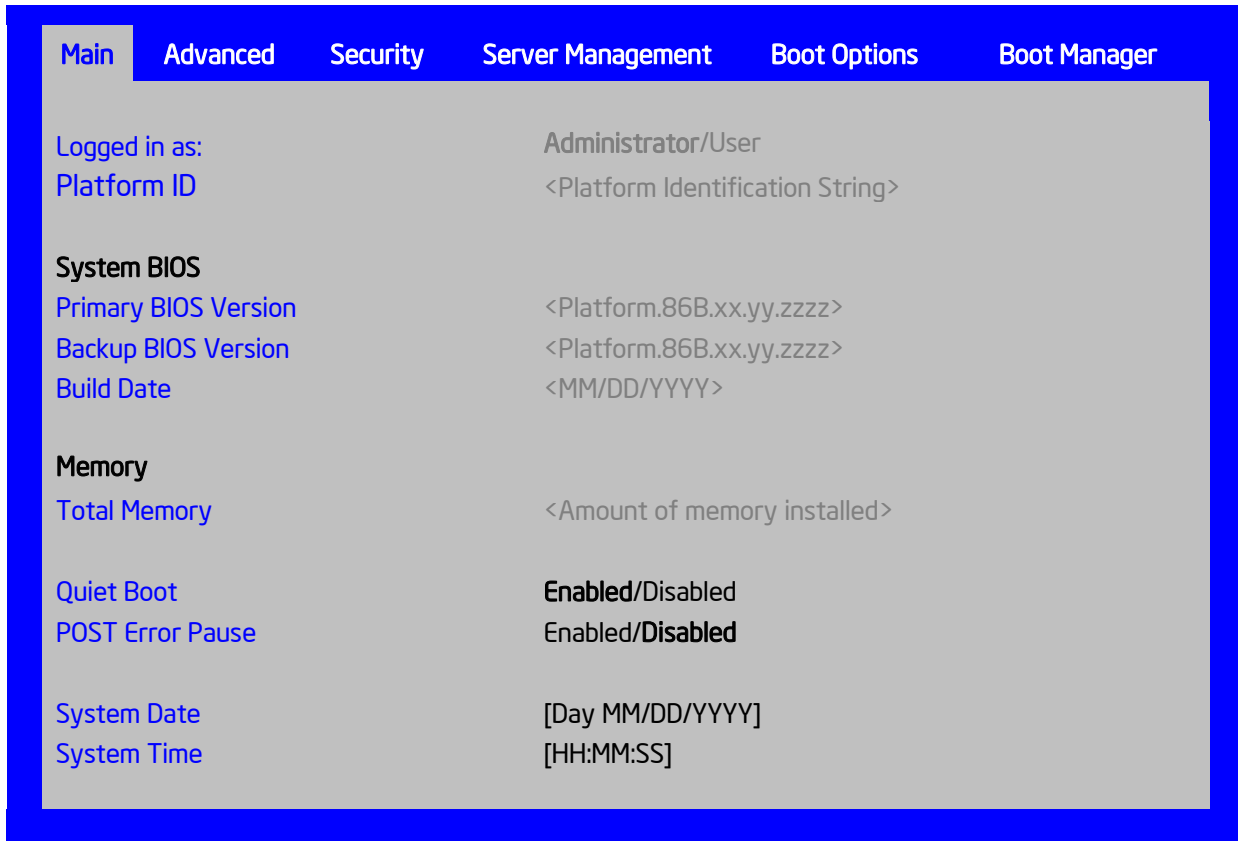


Figure 81. Main Screen

### Screen Field Descriptions:

1. Logged in as:
  - Option Values: <Administrator / User>
  - Help Text: <None>
  - Comments: *Information only.* Displays password level that setup is running in: Administrator or User. With no passwords set, Administrator is the default mode.

***Back to [Main Screen] — [Screen Map]***

---

2. Platform ID
  - Option Values: < Platform ID>
  - Help Text: <None>

Comments: *Information only.* Displays the Platform ID (Board ID) for the board on which the BIOS is executing POST.

The Platform ID is limited to 8 characters, because it is also used in the ACPI Tables which have that limitation. In some cases, this means that the Platform ID is abbreviated from the marketing designation.

***Back to [Main Screen] — [Screen Map]***

---

### 3. Primary BIOS Version

Option Values: <Current Primary BIOS version ID>

Help Text: <None>

Comments: *Information only.* The primary BIOS version displayed uniquely identifies the primary BIOS that is currently installed and operational on the board. The version information displayed is taken from the BIOS ID String, with the timestamp segment dropped off. The segments displayed are:

Platform: Identifies that this is the correct platform BIOS

86B: Identifies this BIOS as being an EPSD Server BIOS

xx: Major Revision level of the BIOS

yy: Release Revision level for this BIOS

zzzz: Release Number for this BIOS

***Back to [Main Screen] — [Screen Map]***

---

### 4. Backup BIOS Version

Option Values: <Current Backup BIOS version ID>

Help Text: <None>

Comments: *Information only.* The Backup BIOS version displayed uniquely identifies the backup BIOS that is currently installed and operational on the board. The version information displayed is taken from the BIOS ID String, with the timestamp segment dropped off. The segments displayed are:

Platform: Identifies that this is the correct platform BIOS

86B: Identifies this BIOS as being an EPSD Server BIOS

xx: Major Revision level of the BIOS

yy: Release Revision level for this BIOS

zzzz: Release Number for this BIOS

***Back to [Main Screen] — [Screen Map]***

---

### 5. Build Date

Option Values: <Date and time when the currently installed BIOS was created (built)>

Help Text: <None>

Comments: *Information only.* The time and date displayed are taken from the timestamp segment of the BIOS ID String.

***Back to [Main Screen] — [Screen Map]***

---

### 6. Total Memory

Option Values: <Amount of memory installed in the system>



Help Text: <None>

Comments: *Information only.* Displays the total physical memory installed in the system, in MB or GB. The term physical memory indicates the total memory discovered in the form of installed DDR3 DIMMs.

[Back to \[Main Screen\]](#) — [\[Screen Map\]](#)

---

## 7. Quiet Boot

Option Values: **Enabled**  
Disabled

Help Text:

*[Enabled] – Display the logo screen during POST.*

*[Disabled] – Display the diagnostic screen during POST.*

Comments: This field controls whether the full diagnostic information is displayed on the screen during POST. When Console Redirection is enabled, the Quiet Boot setting is disregarded and the text mode Diagnostic Screen is displayed unconditionally.

[Back to \[Main Screen\]](#) — [\[Screen Map\]](#)

---

## 8. POST Error Pause

Option Values: Enabled  
**Disabled**

Help Text:

*[Enabled] – Go to the Error Manager for critical POST errors.*

*[Disabled] – Attempt to boot and do not go to the Error Manager for critical POST errors.*

Comments: If enabled, the POST Error Pause option takes the system to the error manager to review the errors when major errors occur. Minor and fatal error displays are not affected by this setting.

[Back to \[Main Screen\]](#) — [\[Screen Map\]](#)

---

## 9. System Date

Option Values: <System Date initially displays the current system calendar date, including the day of the week>

Help Text:

*System Date has configurable fields for the current Month, Day, and Year.*

*The year must be between 2005 and 2099.*

*Use [Enter] or [Tab] key to select the next field.*

*Use [+] or [-] key to modify the selected field.*

Comments: This field will initially display the current system day of week and date. It may be edited to change the system date. When the System Date is reset by the “BIOS Defaults” jumper, BIOS Recovery Flash Update, or other method, the date will be the earliest date in the allowed range – **Saturday 01/01/2005**.

[Back to \[Main Screen\]](#) — [\[Screen Map\]](#)

---

## 10. System Time

Option Values: <System Time initially displays the current system time of day, in 24-hour format>

Help Text:

*System Time has configurable fields for Hours, Minutes, and Seconds.*

*Hours are in 24-hour format.*

*Use the [Enter] or [Tab] key to select the next field.*

*Use the [+] or [-] key to modify the selected field.*

Comments: This field will initially display the current system time (24 hour time). It may be edited to change the system time. When the System Time is reset by the “BIOS Defaults” jumper, BIOS Recovery Flash Update, or other method, the time will be the earliest time of day in the allowed range – **00:00:00** (although the time will be updated beginning from when it is reset early in POST).

***Back to [Main Screen] — [Screen Map]***

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## Advanced Screen (Tab)

The **Advanced** screen provides an access point to configure several groups of options. On this screen, the user can select the option group to be configured. Configuration actions are performed on the selected screen, and not directly on the **Advanced** screen.

This screen is the same for all board series, selecting between the same groups of options, although the options for different boards are not necessarily identical.

To access this screen from the **Main** screen or other top-level “Tab” screen, press the right or left arrow keys to traverse the tabs at the top of the Setup screen until the **Advanced** screen is selected.

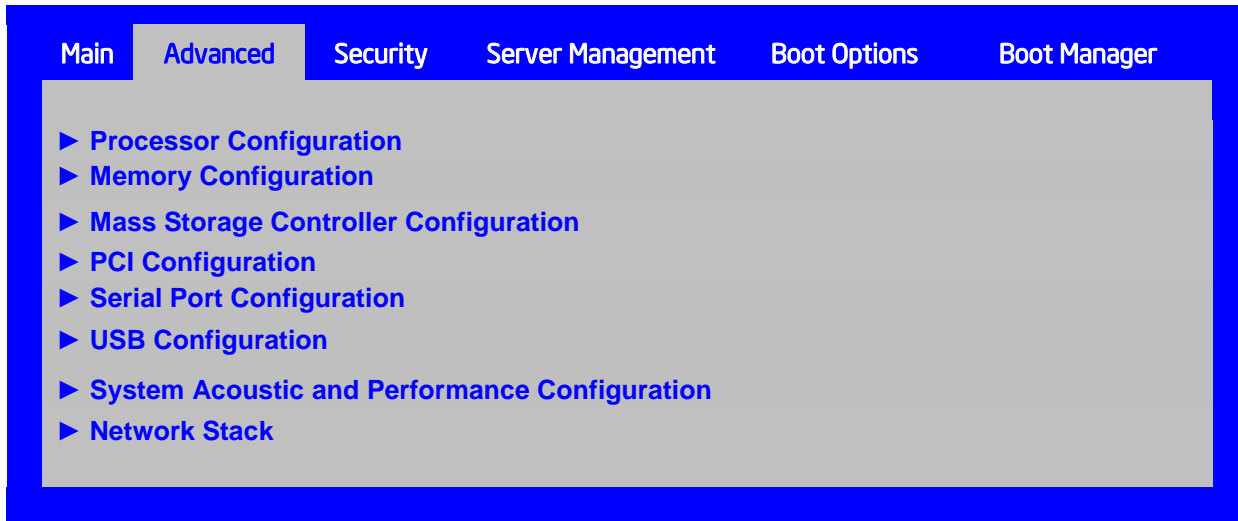


Figure 82. Advanced Screen

**Screen Field Descriptions:**

## 1. Processor Configuration

Option Values: &lt;None&gt;

Help Text: *View/Configure processor information and settings.*Comments: *Selection only.* Select this line and press the <Enter> key to go to the **Processor Configuration** group of configuration settings.***Back to [Advanced Screen] — [Screen Map]***

## 2. Memory Configuration

Option Values: &lt;None&gt;

Help Text: *View/Configure memory information and settings.*Comments: *Selection only.* Select this line and press the <Enter> key to go to the **Memory Configuration** group of configuration settings.***Back to [Advanced Screen] — [Screen Map]***

## 3. Mass Storage Controller Configuration

Option Values: &lt;None&gt;

Help Text: *View/Configure mass storage controller information and settings.*Comments: *Selection only.* Select this line and press the <Enter> key to go to the **Mass Storage Controller Configuration** group of configuration settings.***Back to [Advanced Screen] — [Screen Map]***

## 4. PCI Configuration

Option Values: &lt;None&gt;

Help Text: *View/Configure PCI information and settings.*Comments: *Selection only.* Select this line and press the <Enter> key to go to the **PCI Configuration** group of configuration settings.

***Back to [Advanced Screen] — [Screen Map]***

---

5. Serial Port Configuration

Option Values: <None>

Help Text: *View/Configure serial port information and settings.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **Serial Port Configuration** group of configuration settings.

***Back to [Advanced Screen] — [Screen Map]***

---

6. USB Configuration

Option Values: <None>

Help Text: *View/Configure USB information and settings.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **USB Configuration** group of configuration settings.

***Back to [Advanced Screen] — [Screen Map]***

---

7. System Acoustic and Performance Configuration

Option Values: <None>

Help Text: *View/Configure system acoustic and performance information and settings.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **System Acoustic and Performance Configuration** group of configuration settings.

***Back to [Advanced Screen] — [Screen Map]***

---

8. Network Stack

Option Values: <None>

Help Text: *Network Stack Settings.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **NetWork Stack** group of configuration settings.

***Back to [Advanced Screen] — [Screen Map]***

---

## Processor Configuration

The **Processor Configuration** screen displays the processor identification and microcode level, core frequency, cache sizes information for all processors currently installed. It also allows the user to enable or disable a number of processor options.

To access this screen from the **Main** screen, select **Advanced > Processor Configuration**. To move to another screen, press the <Esc> key to return to the **Advanced** screen, then select the desired screen.

The **Processor Configuration** screen displays different fields for single-socket, 2- socket, and 4-socket boards shown as the figure below.



Figure 83. Processor Configuration Screen

**Screen Field Descriptions:**

- Processor ID  
Option Values: <CPUID>

Help Text: <None>  
 Comments: *Information only.* Displays the Processor Signature value (from the CPUID instruction) identifying the type of processor and the stepping.  
 S1200RP series boards have a single Processor ID display.

***Back to [Advanced Screen] — [Screen Map]***

---

## 2. Processor Frequency

Option Values: <Current Processor Operating Frequency>  
 Help Text: <None>  
 Comments: *Information only.* Displays current operating frequency of the processor.

***Back to [Advanced Screen] — [Screen Map]***

---

## 3. Microcode Revision

Option Values: <Microcode Revision Number>  
 Help Text: <None>  
 Comments: *Information only.* Displays Revision Level of the currently loaded processor microcode.

***Back to [Advanced Screen] — [Screen Map]***

---

## 4. L1 Cache RAM

Option Values: <L1 cache size>  
 Help Text: <None>  
 Comments: *Information only.* Displays size in KB of the processor L1 Cache. Since L1 cache is not shared between cores, this is shown as the amount of L1 cache per core. There are two types of L1 cache, so this amount is the total of L1 Instruction Cache plus L1 Data Cache for each core.

***Back to [Advanced Screen] — [Screen Map]***

---

## 5. L2 Cache RAM

Option Values: <L2 cache size>  
 Help Text: <None>  
 Comments: *Information only.* Displays size in KB of the processor L2 Cache. Since L2 cache is not shared between cores, this is shown as the amount of L2 cache per core.

***Back to [Advanced Screen] — [Screen Map]***

---

## 6. L3 Cache RAM

Option Values: <L3 cache size>  
 Help Text: <None>  
 Comments: *Information only.* Displays size in MB of the processor L3 Cache. Since L3 cache is shared between all cores in a processor package, this is shown as the total amount of L3 cache per processor package.

***Back to [Advanced Screen] — [Screen Map]***

---

## 7. Processor Version

Option Values: <ID string from processor>

Help Text: <None>  
 Comments: *Information only.* Displays Brand ID string read from processor with CPUID instruction.

[Back to \[Advanced Screen\]](#) — [\[Screen Map\]](#)

---

#### 8. CPU Core Ratio

Option Values: [0 – 63]

Help Text: *Enter Core Ratio Multiplier. 0 - 63.*

Comments: In order for this option to be available, Show CPU Core Ratio must be **Enabled**.

[Back to \[Advanced Screen\]](#) — [\[Screen Map\]](#)

---

#### 9. Show CPU Core Ratio

Option Values: Enabled

**Disabled**

Help Text: *Allow Edits to Core Ratio Multiplier.*

Comments:

[Back to \[Advanced Screen\]](#) — [\[Screen Map\]](#)

---

#### 10. Intel(R) Turbo Boost Technology

Option Values: **Enabled**

Disabled

Help Text: *Intel® Turbo Boost Technology allows the processor to automatically increase its frequency if it is running below power, temperature, and current specifications.*

Comments: This option is only visible if all processors installed in the system support Intel® Turbo Boost Technology. In order for this option to be available, Enhanced Intel® SpeedStep® Technology must be **Enabled**.

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#### 11. Enhanced Intel SpeedStep(R) Tech

Option Values: **Enabled**

Disabled

Help Text:

*Enhanced Intel SpeedStep (R) Technology allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production.*

*Contact your OS vendor regarding OS support of this feature.*

Comments: When Disabled, the processor setting reverts to running at Max TDP Core Frequency (rated frequency).

This option is only visible if all processors installed in the system support Enhanced Intel® SpeedStep® Technology. In order for the Intel® Turbo Boost option to be available, Enhanced Intel® SpeedStep® Technology must be **Enabled**.

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12. Processor C3

Option Values: Enabled

**Disabled**

Help Text: *Enable/Disable Processor C3 (ACPI C2/C3) report to OS*

Comments: This is normally **Disabled** but can be **Enabled** for improved performance on certain benchmarks and in certain situations.

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13. Processor C6

Option Values: **Enabled**

Disabled

Help Text: *Enable/Disable Processor C6 (ACPI C3) report to OS*

Comments: This is normally **Enabled** but can be **Disabled** for improved performance on certain benchmarks and in certain situations.

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14. Intel(R) Hyper-Threading Tech

Option Values: **Enabled**

Disabled

Help Text:

*Intel® Hyper-Threading Technology allows multithreaded software applications to execute threads in parallel within each processor.*

*Contact your OS vendor regarding OS support of this feature.*

Comments: This option is only visible if all processors installed in the system support Intel® Hyper-Threading Technology.

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15. Active Processor Cores

Option Values: **All**

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Help Text: *Number of cores to enable in each processor package.*

Comments: The numbers of cores that appear as selections depends on the number of cores available in the processors installed. Boards may have as many as 8 cores in each of 1, 2, or 4 processors. The same number of cores must be active in each processor package.

This Setup screen should begin with the number of currently-active cores as the number displayed. See note below – this may be different from the number previously set by the user.



*Note: The ME can control the number of active cores independently of the BIOS Setup setting. If the ME disables or enables processor cores, this will override the BIOS setting, and the number selected by BIOS will be disregarded.*

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#### 16. Execute Disable Bit

Option Values:     **Enabled**  
                           Disabled

Help Text:

*Execute Disable Bit can help prevent certain classes of malicious buffer overflow attacks. Contact your OS vendor regarding OS support of this feature.*

Comments:           This option is only visible if all processors installed in the system support the Execute Disable Bit. The OS and applications installed must support this feature in order for it to be enabled.

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#### 17. Intel (R) Virtualization Technology

Option Values:     Enabled  
                           **Disabled**

Help Text:           *Intel® Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitions.*

*Note: A change to this option requires the system to be powered off and then back on before the setting takes effect.*

Comments:           This option is only visible if all processors installed in the system support Intel® VT. The software configuration installed on the system must support this feature in order for it to be enabled.

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#### 18. Intel(R) VT for Directed I/O

Option Values:     Enabled  
                           **Disabled**

Help Text:

*Enable/Disable Intel® Virtualization Technology for Directed I/O (Intel® VT-d). Report the I/O device assignment to VMM through DMAR ACPI Tables.*

Comments:           This option is only visible if all processors installed in the system support Intel® VT-d. The software configuration installed on the system must support this feature in order for it to be enabled.

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#### 19. Interrupt Remapping

Option Values:     **Enabled**  
                           Disabled

Help Text:           *Enable/Disable Intel® VT-d Interrupt Remapping support. For some processors, this option may be "always enabled".*

Comments: This option only appears when Intel® Virtualization Technology for Directed I/O is **Enabled**. For some processors this will be enabled unconditionally whenever Intel® VT-d is enabled. In that case, this option will be shown as "Enabled", and grayed out and not changeable.

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## 20. Pass-through DMA Support

Option Values: **Enabled**

Disabled

Help Text: *Enable/Disable Intel® VT-d Pass-through DMA support. For some processors, this option may be "always enabled".*

Comments: This option only appears when Intel® Virtualization Technology for Directed I/O is **Enabled**. For some processors this will be enabled unconditionally whenever Intel® VT-d is enabled. In that case, this option will be shown as "Enabled", and grayed out and not changeable.

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## 21. Intel(R) TXT

Option Values: Enabled

**Disabled**

Help Text: *Enable/Disable Intel® Trusted Execution Technology. Takes effect after reboot.*

Comments: Intel® TXT only appears when both Intel® Virtualization Technology and Intel® VT for Directed IO are enabled.

This option appears only on models equipped with a TPM. The TPM must be active in order to support Intel® TXT.

*Note: Changing the setting for Intel® TXT will require the system to perform a Hard Reset in order for the new setting to become effective.*

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## 22. Enhanced Error Containment Mode

Option Values: Enabled

**Disabled**

Help Text: *Enable Enhanced Error Containment Mode (Data Poisoning) - Erroneous data coming from memory will be poisoned. If disabled (default), will be in Legacy Mode - No data poisoning support available.*

Comments: Enhanced Error Containment (Data Poisoning) is not supported by all models of processors, and this option will not appear unless all installed processors support Enhanced Error Containment. This option globally enables or disables both Core and Uncore Data Poisoning, for processors which support them.

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## 23. MLC Streamer

Option Values: **Enabled**

Disabled

Help Text: *MLC Streamer is a speculative prefetch unit within the processor(s).*

**Note:** *Modifying this setting may affect performance.*

Comments: MLC Streamer is normally **Enabled**, for best efficiency in L2 Cache and Memory Channel use but disabling it may improve performance for some processing loads and on certain benchmarks.

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#### 24. MLC Spatial Prefetcher

Option Values: **Enabled**

Disabled

Help Text:

*[Enabled] – Fetches adjacent cache line (128 bytes) when required data is not currently in cache.*

*[Disabled] – Only fetches cache line with data required by the processor (64 bytes).*

Comments: MLC Spatial Prefetcher is normally **Enabled**, for best efficiency in L2 Cache and Memory Channel use but disabling it may improve performance for some processing loads and on certain benchmarks.

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#### 25. DCU Data Prefetcher

Option Values: **Enabled**

Disabled

Help Text:

*The next cache line will be prefetched into L1 data cache from L2 or system memory during unused cycles if it sees that the processor core has accessed several bytes sequentially in a cache line as data.*

*[Disabled] – Only fetches cache line with data required by the processor (64 bytes).*

Comments: DCU Data Prefetcher is normally **Enabled**, for best efficiency in L1 Data Cache and Memory Channel use but disabling it may improve performance for some processing loads and on certain benchmarks.

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#### 26. DCU Instruction Prefetcher

Option Values: **Enabled**

Disabled

Help Text: *The next cache line will be prefetched into L1 instruction cache from L2 or system memory during unused cycles if it sees that the processor core has accessed several bytes sequentially in a cache line as data.*

Comments: DCU Data Prefetcher is normally **Enabled**, for best efficiency in L1 Instruction Cache and Memory Channel use but disabling it may improve performance for some processing loads and on certain benchmarks.

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#### 27. Intel (SMX) Safter Mode Extensions

Option Values: Enabled

**Disabled**

Help Text: *When Enabled, a SMX can utilize the additional hardware Capabilities provided by Safer Mode Extensions.*

Comments:

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## 28. SMM Wait Timeout

Option Values: *[Entry Field 20 – 3000ms, **20** is default]*

Help Text: *Millisecond timeout waiting for BSP and APs to enter SMM. Range is 20ms to 3000ms.*

Comments: Amount of time to allow for the SMI Handler to respond to an SMI. If exceeded, BMC generates an SMI Timeout and resets the system.

*Note: This field is temporary, and will be removed when no longer required.*

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## Memory Configuration

The **Memory Configuration** screen allows the user to view details about the DDR3 DIMMs that are installed as system memory, and alter BIOS Memory Configuration settings where appropriate.

To access this screen from the **Main** screen, select **Advanced > Memory Configuration**. To move to another screen, press the <Esc> key to return to the **Advanced** screen, then select the desired screen.

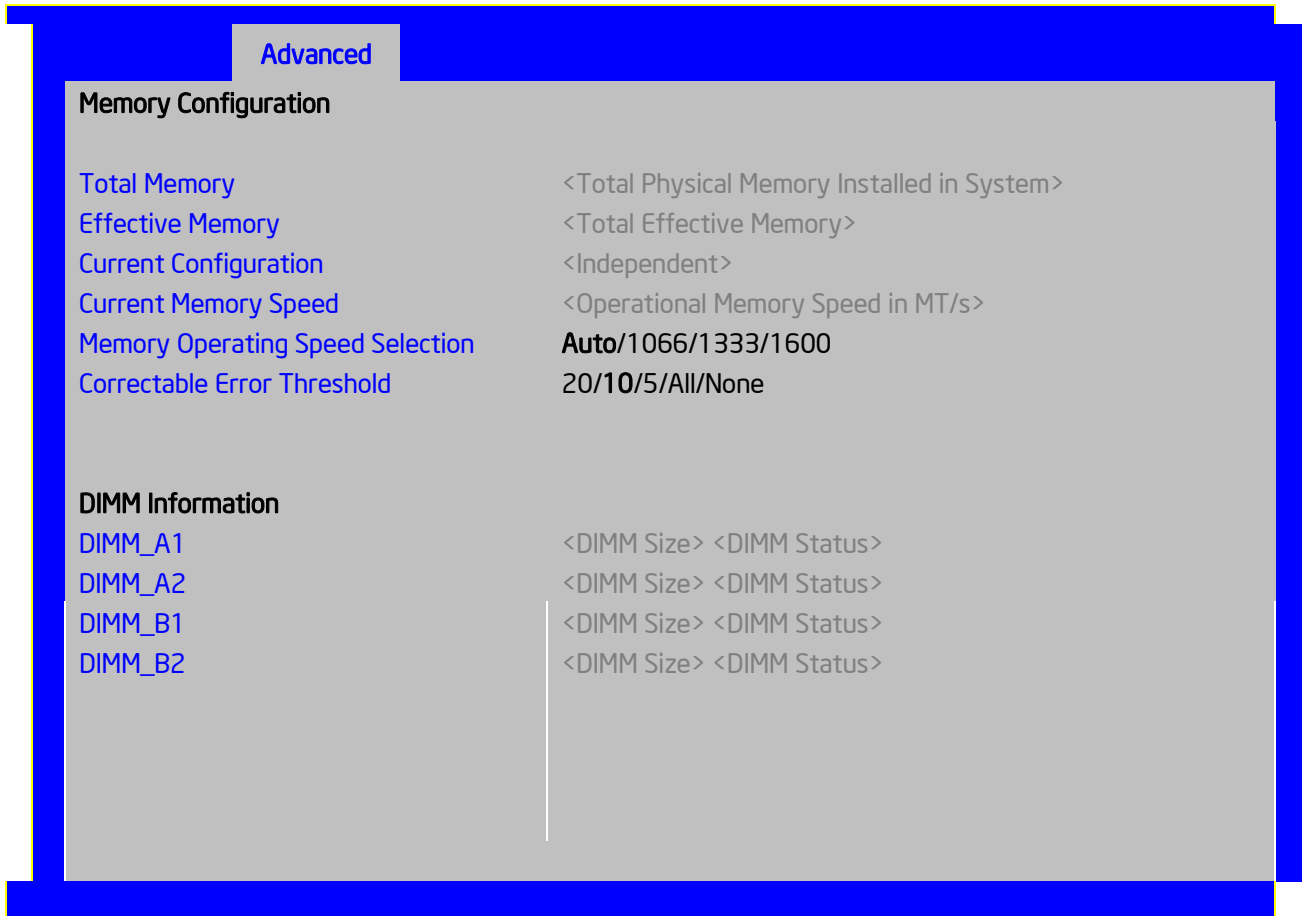


Figure 84. Memory Configuration Screen

**Screen Field Descriptions:****1. Total Memory**

Option Values: &lt;Total Physical Memory Installed in System&gt;

Help Text: &lt;None&gt;

Comments: *Information only.* Displays the amount of memory available in the system in the form of installed DDR3 DIMMs, in units of GB.**[Back to \[Memory Configuration Screen\]](#) — [\[Advanced Screen\]](#) — [\[Screen Map\]](#)****2. Effective Memory**

Option Values: &lt;Total Effective Memory&gt;

Help Text: &lt;None&gt;

Comments: *Information only.* Displays the amount of memory available to the OS in MB or GB.

The Effective Memory is the Total Physical Memory minus the sum of all memory reserved for internal usage, RAS redundancy and SMRAM.

*Note: Some server operating systems do not display the total physical memory installed.*

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### 3. Current Memory Speed

Option Values: <Operational Memory Speed in MT/s>

Help Text: <None>

Comments: *Information only.* Displays the speed in MT/s at which the memory is currently running.

The supported memory speeds are 1066 MT/s, 1333 MT/s, and 1600 MT/s. The actual memory speed capability depends on the memory configuration.

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### 4. Memory Operating Speed Selection

Option Values: ***Auto***  
*1066*  
*1333*  
*1600*

Help Text: *Force specific Memory Operating Speed or use Auto setting.*

Comments: Allows the user to select a specific speed at which memory will operate. Only speeds that are legitimate are available, that is, the user can only specify speeds less than or equal to the auto-selected Memory Operating Speed. The default **Auto** setting will select the highest achievable Memory Operating Speed consistent with the DIMMs and processors installed.

1600 MT/s memory speed is available only on certain models.

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### 5. Correctable Error Threshold

Option Values: *20*  
***10***  
*5*  
*All*  
*None*

Help Text: *Threshold value for logging Correctable Errors (CE) – Threshold of 10 (default) logs 10th CE, "All" logs every CE and "None" means no CE logging. All and None are not valid with Rank Sparing.*

Comments: Specifies how many Correctable Errors must occur before triggering the logging of a SEL Correctable Error Event. Only the first threshold crossing is logged, unless "All" is selected. "All" causes every CE that occurs to be logged. "None" suppresses CE logging completely.

This threshold is applied on a per-rank basis. The Correctable Error occurrences are counted for each memory rank. When any one rank accumulates a CE count equal to the CE Threshold, then a single CE SEL Event is logged, and all further CE logging is suppressed.

Note that the CE counts are subject to a "leaky bucket" mechanism that reduces the count as a function of time, to keep from accumulating counts unnecessarily over the term of a long operational run.

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6. DIMM\_A1
7. DIMM\_A2
8. DIMM\_B1
9. DIMM\_B2

Help Text: <None>

Comments: *Information only.* Displays the status of each DIMM socket present on the board. There is one line for each DIMM socket present on the board.

For each DIMM socket, the DIMM Status reflects one of the following three possible states:

- **Installed&Operational** – There is a DDR3 DIMM installed and operational in this slot.
- **Not Installed** – There is no DDR3 DIMM installed in this slot.
- **Failed/Disabled** – The DIMM installed in this slot has failed during initialization and/or was disabled during initialization.

For each DIMM that is in the **Installed & Operational** state, the DIMM Size in GB of that DIMM is displayed. This is the physical size of the DIMM, regardless of how it is counted in the Effective Memory size.

**Note:** In “**DIMM\_XY**”, **X** denotes the Channel Identifier **A - P**, and **Y** denotes the DIMM Slot identifier **1 - 3** within the Channel. **DIMM\_A2** is the DIMM socket on Channel **A**, Slot **2**. Not all boards have the same number of channels and slots – this is dependent on the board features.

**S1200RP boards** can have DIMMs A1, A2 to B1, B2

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## Mass Storage Controller Configuration

The **Mass Storage Configuration** screen allows the user to configure the Mass Storage controllers that are integrated into the server board on which the BIOS is executing. This includes only onboard Mass Storage controllers. Mass Storage controllers on add-in cards are not included in this screen, nor are other storage mechanisms such as USB-attached storage devices or Network Attached Storage.

There is one types of onboard controller configured in this screen, the AHCI SATA controller with SATA drive support and RAID support. There are also informational displays of AHCI controller configuration, and SATA Drive Information when applicable. If the presence of an Intel® Storage Module is detected, the type of Storage Module is displayed as information-only.

To access this screen from the **Main** screen, select **Advanced > Mass Storage Controller Configuration**. To move to another screen, press the <Esc> key to return to the **Advanced** screen, then select the desired screen.

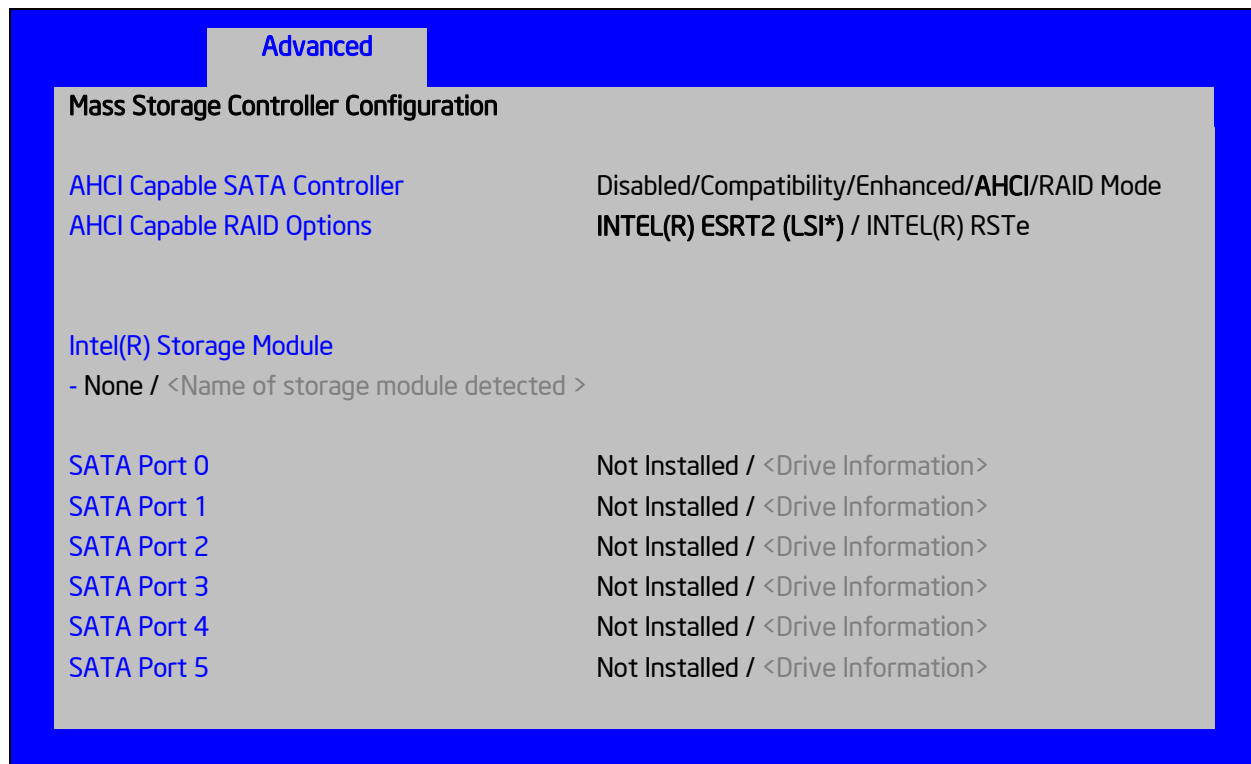


Figure 85. Mass Storage Controller Configuration Screen

### Screen Field Descriptions:

#### 1. AHCI Capable SATA Controller

Option Values:      Disabled  
                          Compatibility  
                          Enhanced  
                          **AHCI**  
                          RAID Mode

Help Text:

- *Compatibility provides PATA emulation on the SATA device*
- *Enhanced provides Native SATA support*
- *AHCI enables the Advanced Host Controller Interface, which provides Enhanced SATA functionality*
- *RAID Mode provides host based RAID support on the onboard SATA ports*

Comments:            This option configures the onboard AHCI-capable SATA controller. The number and type of ports it controls differs between board series.

If the SATA Controller is *Disabled*, the SATA Ports will not operate, and any installed SATA devices will be unavailable.

*Compatibility* provides PATA emulation on the SATA device, allowing the use of legacy IDE/PATA drivers.



Enhanced provides Native SATA support using native SATA drivers included with the vast majority of current OSes.

AHCI enables the Advanced Host Controller Interface, which provides Enhanced SATA functionality plus possible additional functionality (Native Command Queuing, Hot Plug, Staggered Spin Up). It uses AHCI drivers available for the majority of current OSes.

RAID Mode provides host based RAID support on the onboard SATA ports. RAID levels supported and required drivers depend on the RAID stack selected

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## 2. AHCI Capable RAID Options

Option Values: **Intel(R) ESRT2 (LSI\*)**

Intel(R) RSTe

Help Text:

- *Intel® ESRT2 (Powered By LSI\*): Supports RAID 0/1/10 and optional RAID 5 with Intel® RAID C600 Upgrade Keys. Uses Intel® ESRT2 drivers (based on LSI\* MegaSR).*

- *Intel® RSTe: Provides pass-through drive support. Also provides host based RAID 0/1/10/5 support. Uses Intel® RSTe iastor drivers.*

Comments: This option only appears when the SATA Controller is enabled, and RAID Mode has been selected as the operational SATA Mode. This setting selects the RAID stack to be used for SATA RAID with the onboard AHCI SATA controller.

If a RAID Volume has not previously been created that is compatible with the RAID stack selected, it will be necessary to Save and Exit and reboot in order to create a RAID Volume.

*Note: This option does not appear on all boards.*

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## 3. Intel(R) Storage Module

Option Values: **None**

<Name of Storage Module detected>

Names of Storage Modules supported at this time are:

*Intel® Integrated RAID Module*

*Intel® Integrated RAID Module RMS25PB040*

*Intel® Integrated RAID Module RMT3PB080*

*Intel® Integrated RAID Module RMS25CB080*

*Intel® Integrated RAID Module RMS25CB040*

*Intel® Integrated RAID Module RMT3CB080*

*Intel® Integrated RAID Module RMS25JB080*

*Intel® Integrated RAID Module RMS25JB040*

*Intel® Integrated RAID Module RMS25KB080*

*Intel® Integrated RAID Module RMS25KB040*

Help Text: <None>

Comments: *Information only.* If no Intel® Storage Module is detected, then **None** is displayed. This shows the customer the product name of the module installed, which helps in identifying drivers, support, documentation, etc.

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#### 4. SATA Port

(For Port numbers 0-6)

Option Values:        **Not Installed**  
                              <Drive Information>

Help Text:                <None>

Comments:                *Information only*. The Drive Information, when present, will typically consist of the drive model identification and size for the disk drive installed on a particular port.

This Drive Information line is repeated for all 6 SATA Port for the onboard AHCI capable SATA Controller. However, for any given board, only the ports which are physically populated on the board are shown. That is, a board which only implements the two 6 GB/s ports 0 and 1 will only show those two ports in this Drive Information list.

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## PCI Configuration

The **PCI Configuration** screen allows the user to configure the PCI memory space used for onboard and add-in adapters, configure video options, and configure onboard adapter options.

It also includes a selection option to go to the **NIC Configuration** screen.

To access this screen from the **Main** screen, select **Advanced** > **PCI Configuration**. To move to another screen, press the <Esc> key to return to the **Advanced** screen, then select the desired screen.

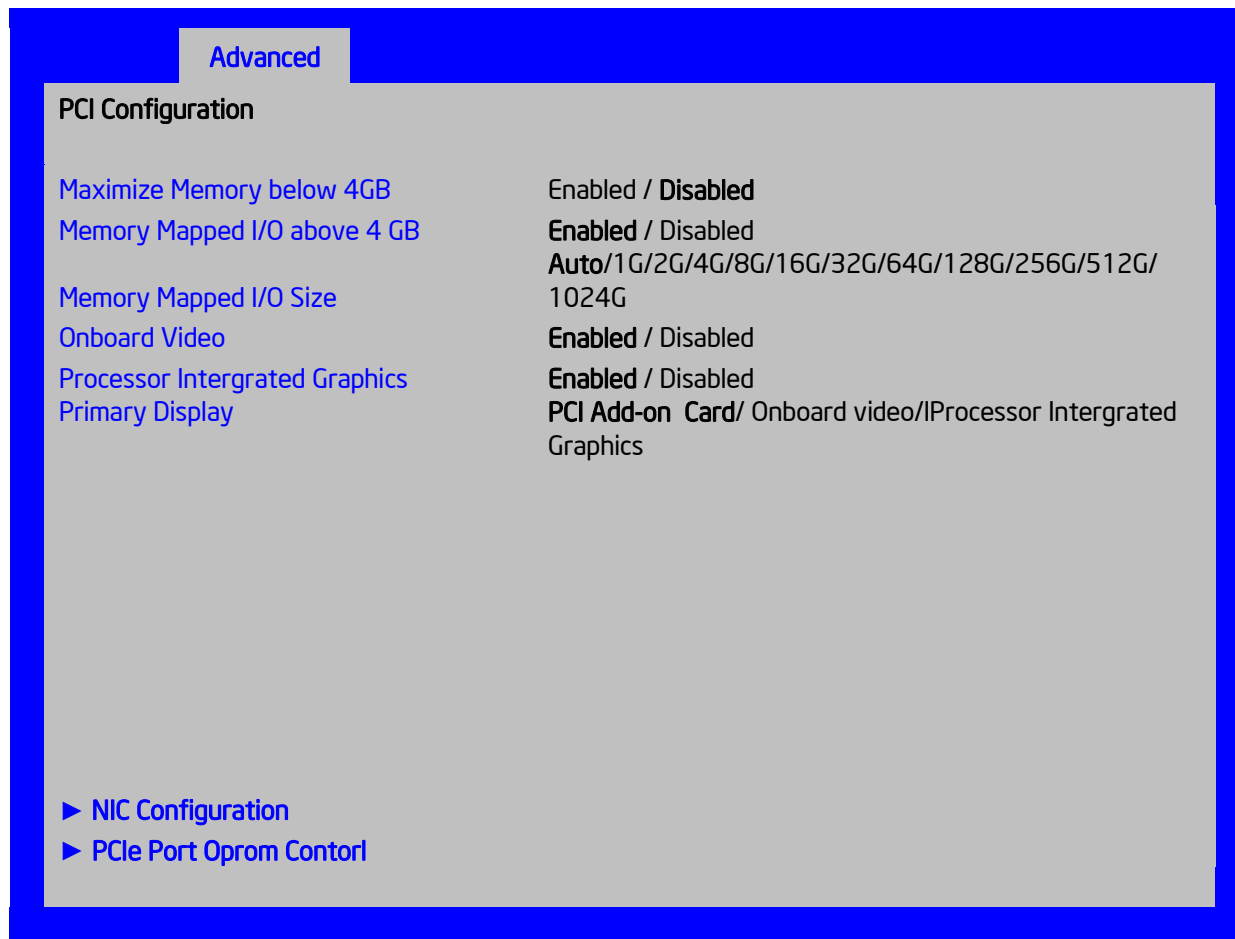


Figure 86. PCI Configuration Screen

**Screen Field Descriptions:****1. Maximize Memory below 4GB**

Option Values: Enabled

**Disabled**

Help Text: *BIOS maximizes memory usage below 4GB for an OS without PAE support, depending on the system configuration. Only enable for an OS without PAE support.*

Comments: When this option is enabled, BIOS makes as much memory available as possible in the 32-bit (4GB) address space, by limiting the amount of PCI/PCIe Memory Address Space and PCIe Extended Configuration Space. This option should only be enabled for a 32-bit OS without PAE capability or without PAE enabled.

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**2. Memory Mapped I/O above 4 GB**Option Values: **Enabled**

Disabled

Help Text: *Enable or disable memory mapped I/O of 64-bit PCI devices to 4 GB or greater address space.*

Comments: When enabled, PCI/PCIe Memory Mapped I/O for devices capable of 64-bit addressing is allocated to address space above 4GB, in order to allow larger allocations and avoid impacting address space below 4G.

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### 3. Memory Mapped I/O Size

Option Values: **Auto**  
1G/2G/4G/8G/16G/32G/64G/128G/256G/512G/1024G

Help Text: *Sets MMIO Size: Auto -> 2G(default).*

Comments: When Memory Mapped I/O above 4GB option enabled, this option sets the preserved MMIO size as PCI/PCIe Memory Mapped I/O for devices capable of 64-bit addressing. This option is grayed out when Memory Mapped I/O above 4GB option is disabled.

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### 4. Onboard Video

Option Values: **Enabled**  
Disabled

Help Text: *On-board video controller.*  
*Warning: System video is completely disabled if this option is disabled and an add-in video adapter is not installed and Processor Intergrated graphics.*

Comments: When disabled, the system requires an add-in video card or Processor Intergrate graphics for the video to be seen. When there is no add-in video card or Processor Intergrated Graphics installed, Onboard Video is set to Enabled and grayed out so it cannot be changed.

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### 5. Processor Intergrated Graphics

Processor Intergrated Graphics: **Enabled**  
Disabled

Help Text: *Keep Porcessor Intergrated Graphics enabled based on setup option.*

Comments: Processor Intergrated graphics is completely disabled if this option is disabled.

*Note: This configuration page is only visable on RM SKU.*

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### 6. Primary Display

Option Values: **PCI Add-on Card**  
Onboard Video  
Processor Intergrated Graphics

Help Text: *Select which of Processor Intergrated Graphics/Onboard Video/PCI Add-on Card Graphics device should be Primary Display or select SG for Switchable GFX*

Comments:

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## 7. NIC Configuration

Option Values: <None>

Help Text: *View/Configure NIC information and settings.*

Comments: *Selection only*. Select this line and press the <Enter> key to go to the **NIC Configuration** group of configuration settings.

*Note: This configuration page is not visible on some SKU.*

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## NIC Configuration

The **NIC Configuration** screen allows the user to configure the NIC controller options for BIOS POST. It also displays the NIC MAC Addresses currently in use. This **NIC Configuration** screen handles network controllers built in on the baseboard (“onboard”) or installed as an IO Module (IOM). It does not configure or report anything having to do with add-in network adapter cards.

To access this screen from the **Main** screen, select **Advanced > PCI Configuration > NIC Configuration**. To move to another screen, press the <Esc> key to return to the **PCI Configuration** screen, if necessary press the <Esc> key again to return to the **Advanced** screen, then select the desired screen.

There is usually one Onboard NIC built into the baseboard, although in some cases there are two Onboard NICs. There are several possible types of NICs which are incorporated into different boards. When an InfiniBand controller is on the baseboard, it appears as an Onboard NIC.

Most boards in this family also can have an IO Module that installs on the board in a specialized connector. There are boards which can have two IO Modules installed.

To determine what type of NIC is installed on a specific board, or what kinds of IO Modules can be supported on which boards, refer to the Technical Product Specification for the board in question.

The descriptive names of the Onboard NIC types are: (*Note: Codenames FYI only and not part of description to go into Setup.*)

Intel® I210 Dual-Port Gigabit Ethernet Controller (*Springville*)

For boards with only one Onboard NIC, the “Onboard NIC2” entries are not present on the screen. The number of “Port” options which are displayed for each NIC will match the number of ports the Onboard NIC presents.

The IO Modules currently available are:

Intel® I350 Quad-Port Gigabit Ethernet Module (*Powerville 4-port*)

Intel® I540 Dual-Port X540 10 Gigabit RJ-45 Module (*Twinville*)

Intel® 82599 Dual-Port 10 Gigabit SFP+ Module (*Niantic*)

Intel® 82575EB Dual-Port Gigabit Module (*Zoar*)

Mellanox\* ConnectX-3\* Single-Port InfiniBand FD14 Module

For the IO Module entries on the **NIC Configuration** screen, only entries for modules which are currently installed will appear, and only ports which exist on those IO Modules will appear.

If an IO Module which had been installed is no longer installed when the system is booted, all NIC Configuration entries which are specific to that IO Module will be reset to their default values and

hidden. If a different IO Module is installed than had been previously installed, the module-specific settings will still be returned to defaults but not hidden. This will not necessarily affect the Option ROM settings, which depend on the aggregate capabilities of all installed Onboard and IO Module NICs.

For each NIC port which is present on an Onboard NIC or IO Module other than InfiniBand controllers, there will be a port-specific PXE Boot enabling option and a MAC Address display. Onboard NICs and NIC ports also have enable/disable options. IO Modules and the ports on them cannot be disabled by BIOS.

InfiniBand controllers which appear as Onboard NICs or as IO Modules have a slightly different format. They do not have enable/disable options but they do have a choice of whether to enable loading and executing the embedded Option ROM for the controller, which will cause it to become bootable. For InfiniBand, both a GUID and a MAC Address are displayed. The GUID is used for InfiniBand Fabric operations, and the MAC Address is used when the controller is attached as an Ethernet device.

For non-InfiniBand NICs, there are different OPRoMs for different protocols, which are also differentiated by speed, 1 Gb or 10 Gb. For a given protocol/speed, all Ethernet controllers of the same speed use the same Option ROM.

- **PXE** – There are two separate PXE Option ROMs, one for 1 Gb NICs and the other for 10 Gb NICs. The two are independent of each other but each must be the only Option ROM enabled in its speed class. If 1 GbE PXE is enabled, then the iSCSI OPRoM cannot be enabled. If 10 GbE PXE is enabled, then neither iSCSI nor 10 GbE FCoE may be enabled.
- **iSCSI** – There is only one iSCSI Option ROM for both 1 GbE and 10 GbE NICs. If iSCSI is enabled, then neither PXE nor FCoE OPRoMs may be enabled for the 1 GbE or 10 GbE NICs.
- **FCoE** – There is a 10 GbE FCoE Option ROM that supports the Intel® 82599 NIC. When it is enabled, the iSCSI OPRoM and the 10 GbE PXE OPRoM must be disabled

***Note:** These Option ROMs are only in support of onboard NICs and installed IO Modules. They do not support NICs on add-in network cards, even if the NIC on an add-in card is the same type of device as an onboard NIC or IO Module controller.*

Only the Option ROMs for which controller capabilities are present are shown in the screen for selection. For example, if there are no 10 GbE NICs installed, then the 10 GbE OPRoMs will not appear for selection. If controller capabilities are present but all controllers with those capabilities are disabled, then the relevant OPRoM options will appear but will be disabled and grayed out and not changeable.

Similarly, when the PXE OPRoM of a given speed is disabled, all PXE port enable/disable options using that OPRoM will be disabled and grayed out. Conversely, if all ports are disabled for PXE, the PXE OPRoM will be disabled and grayed out.

When a NIC Port is disabled, the PXE enable/disable option for it will be disabled and grayed out, and the MAC Address will be blank. When a NIC controller is disabled, all Ports and PXE options for that controller will become disabled and grayed out and all MAC Addresses for those ports will be blank. Conversely, if all ports for a given controller are disabled, the controller itself will appear as disabled.

## NIC Configuration

Wake on LAN (PME)	<b>Enabled</b> / Disabled
PXE 1GbE Option ROM	<b>Enabled</b> / Disabled
PXE 10GbE Option ROM	<b>Enabled</b> / Disabled
FCoE 10GbE Option ROM	Enabled / <b>Disabled</b>
iSCSI 1GbE/10GbE Option ROM	Enabled / <b>Disabled</b>
Onboard NIC1 Type	<Onboard NIC Description – Non-InfiniBand>
NIC1 Controller	<b>Enabled</b> / Disabled
NIC1 Port1 PXE	<b>Enabled</b> / Disabled
NIC1 Port1 MAC Address	<MAC Address display>
Onboard NIC2 Type	<Onboard NIC Description – Non-InfiniBand>
NIC2 Controller	<b>Enabled</b> / Disabled
NIC2 Port1 PXE	<b>Enabled</b> / Disabled
NIC2 Port1 MAC Address	<MAC Address display >
IO Module 1 Type	<IO Module Description – Non-InfiniBand>
IOM1 Port1 PXE	<b>Enabled</b> / Disabled
IOM1 Port2 PXE	<b>Enabled</b> / Disabled
IOM1 Port3 PXE	<b>Enabled</b> / Disabled
IOM1 Port4 PXE	<b>Enabled</b> / Disabled
IOM1 Port1 MAC Address	<MAC Address display >
IOM1 Port2 MAC Address	<MAC Address display >
IOM1 Port3 MAC Address	<MAC Address display >
IOM1 Port4 MAC Address	<MAC Address display >
IO Module 1 Type	<IO Module Description – InfiniBand Only>
IOM1 InfiniBand Option ROM	Enabled / <b>Disabled</b>
IOM1 Port1 GUID	<GUID Display>
IOM1 Port1 MAC Address	<MAC Address display >
IO Module 2 Type	<IO Module Description – Non-InfiniBand>
IOM2 Port1 PXE	<b>Enabled</b> / Disabled
IOM2 Port2 PXE	<b>Enabled</b> / Disabled
IOM2 Port3 PXE	<b>Enabled</b> / Disabled
IOM2 Port4 PXE	<b>Enabled</b> / Disabled
IOM2 Port1 MAC Address	<MAC Address display >
IOM2 Port2 MAC Address	<MAC Address display >
IOM2 Port3 MAC Address	<MAC Address display >

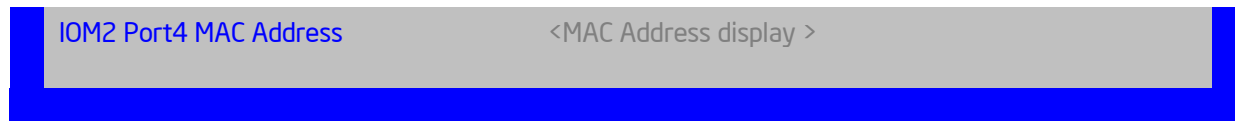


Figure 87. NIC Configuration Screen

**Screen Field Descriptions:****1. Wake on LAN (PME)**

Option Values:     **Enabled**  
                           Disabled

Help Text:            *Enables or disables PCI PME function for Wake on LAN capability from LAN adapters.*

Comments:            Enables/disables PCI/PCIe PME# signal to generate Power Management Events (PME) and ACPI Table entries required for Wake on LAN (WOL). However, note that this will enable WOL only with an ACPI-capable Operating System which has the WOL function enabled.

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---

**2. PXE 1GbE Option ROM**

Option Values:     **Enabled**  
                           Disabled

Help Text:            *Enable/Disable Onboard/IOM NIC PXE Option ROM Load.*

Comments:            This selection is to enable/disable the 1GbE PXE Option ROM that is used by all Onboard and IO Module 1 GbE controllers.

This option is grayed out and not accessible if the iSCSI Option ROM is enabled. It can co-exist with the 10 GbE PXE Option ROM, the 10 GbE FCoE Option ROM, or with an InfiniBand controller Option ROM.

If the 1GbE PXE Option ROM is disabled, and no other Option ROM is enabled, the system cannot perform a Network Boot and cannot respond for Wake-on-LAN.

This 1GbE PXE option does not appear unless there is a 1 GbE NIC installed in the system as an Onboard or IO Module NIC.

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---

**3. PXE 10GbE Option ROM**

Option Values:     **Enabled**  
                           Disabled

Help Text:            *Enable/Disable Onboard/IOM NIC PXE Option ROM Load.*

Comments:            This selection is to enable/disable the 10GbE PXE Option ROM that is used by all Onboard and IO Module 10 GbE controllers.



This option is grayed out and not accessible if the iSCSI Option ROM is enabled or the 10 GbE FCoE Option ROM is enabled. It can co-exist with the 1 GbE PXE Option ROM or with an InfiniBand controller Option ROM.

If the 10GbE PXE Option ROM is disabled, and no other Option ROM is enabled, the system cannot perform a Network Boot and cannot respond for Wake-on-LAN.

This 10GbE PXE option does not appear unless there is a 10 GbE NIC installed in the system as an Onboard or IO Module NIC.

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---

#### 4. FCoE 10GbE Option ROM

Option Values: Enabled

##### **Disabled**

Help Text: *Enable/Disable Onboard/IOM NIC FCoE Option ROM Load.*

Comments: This selection is to enable/disable the 10GbE FCoE Option ROM that is used by all Onboard and IO Module 10 GbE controllers capable of FCoE support. At the present time, only the Intel® 82599 10 Gigabit SFP+ NIC supports FCoE for this family of server boards.

This option is grayed out and not accessible if the 10GbE PXE Option ROM is enabled or if the iSCSI Option ROM is enabled. It can co-exist with the 1GbE PXE Option ROM or with an InfiniBand controller Option ROM.

If the FCoE Option ROM is disabled, and no other Option ROM is enabled, the system cannot perform a Network Boot and cannot respond for Wake-on-LAN.

This FCoE option does not appear unless there is an FCoE-capable 10GbE NIC installed in the system as an Onboard or IO Module NIC.

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---

#### 5. iSCSI 1GbE/10GbE Option ROM

Option Values: Enabled

##### **Disabled**

Help Text: *Enable/Disable Onboard/IOM NIC iSCSI Option ROM Load.*

Comments: This selection is to enable/disable the iSCSI Option ROM that is used by all Onboard and IO Module 1 GbE and 10 GbE controllers.

This option is grayed out and not accessible if the 1 GbE or 10GbE PXE Option ROM is enabled or if the 10 GbE FCoE Option ROM is enabled. It can co-exist with an InfiniBand controller Option ROM.

If the iSCSI Option ROM is disabled, and no other Option ROM is enabled, the system cannot perform a Network Boot and cannot respond for Wake-on-LAN.

This iSCSI option does not appear unless there is an iSCSI-capable NIC installed in the system as an Onboard or IO Module NIC.

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---

#### 6. Onboard NIC1 Type

## 7. Onboard NIC2 Type

Option Values: <Onboard NIC Description>

One of these strings:

*Intel® I210 Dual-Port Gigabit Ethernet Controller*

Help Text: <None>

Comments: Information only. This is a display showing which NICs are available as Network Controllers integrated into the baseboard. Each of these Onboard NICs will be followed by a section including a group of options that are specific to the type of NIC, either as an Ethernet controller or an InfiniBand controller.

If a board only has one onboard NIC, the second NIC Type and following options section will not appear.

For details about the NIC hardware configuration for a specific board, refer to the Technical Product Specification for that board.

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---

## 8. IO Module 1 Type

## 9. IO Module 2 Type

Option Values: <IO Module Description>

One of these strings:

*Intel® I350 Quad-Port Gigabit Ethernet Module*

*Intel® I540 Dual-Port X540 10 Gigabit RJ-45 Module*

*Intel® 82599 Dual-Port 10 Gigabit SFP+ Module*

*Mellanox\* ConnectX-3\* Single-Port InfiniBand FD14 Module*

Help Text: <None>

Comments: Information only. This is a display showing which Network Controllers on IO Modules are installed on the baseboard. Each of these IO Module NICs will be followed by a section including a group of options that are specific to the type of NIC, either as an Ethernet controller or an InfiniBand controller.

This descriptive screen image shows an example of an InfiniBand controller as IOM1. In a system with two IO Module connectors, an InfiniBand IO Module might be installed as either IOM1 or IOM2.

Most boards have only one IO Module connector. In any case, an IO Module Type and following options section will only appear when an IO Module is installed, and a second IO Module Type and options section will only appear if there are two IO Modules installed.

For details about the NIC hardware configuration for a specific board, refer to the Technical Product Specification for that board.

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---

## 10. NIC1 Controller

## 11. NIC2 Controller

Option Values: **Enabled**  
Disabled

Help Text: *Enable/Disable Onboard Network Controller.*

Comments: This will completely disable Onboard Network Controller NIC1 or NIC2, along with all included NIC Ports and their associated options. That controller's NIC Ports, Port PXE options, and Port MAC Address displays will not appear.

This option only appears for onboard Ethernet controllers. It does not appear for onboard InfiniBand controllers.

Ethernet controllers on IO Modules do not have a disabling function that can be controlled by BIOS, so there is no corresponding controller enable/disable option for an IOM Ethernet controller.

For details about the NIC hardware configuration for a specific board, refer to the Technical Product Specification for that board.

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---

**12. NIC2 InfiniBand Option ROM**

**13. IOM1 InfiniBand Option ROM**

**14. IOM2 InfiniBand Option ROM**

Option Values: Enabled

**Disabled**

Help Text: *Enable/Disable InfiniBand Controller Option ROM and FlexBoot.*

Comments: This option will control whether the associated InfiniBand Controller Option ROM is executed by BIOS during POST. This will also control whether the InfiniBand controller FlexBoot program appears in the list of bootable devices.

This option only appears for Onboard or IO Module InfiniBand controllers. It does not appear for Ethernet controllers.

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---

**15. NIC2 Port1 GUID**

**16. IOM1 Port1 GUID**

**17. IOM2 Port1 GUID**

Option Values: *<GUID Display>*

Help Text: *<None>*

Comments: *Information only.* 16 hex digits of the Port1 GUID of the InfiniBand controller for NIC2, IOM1, or IOM2.

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---

**18. NIC1 Port1 PXE**

**19. NIC2 Port1 PXE**

**20. IOM1 Port1 PXE**

**21. IOM1 Port2 PXE**

**22. IOM1 Port3 PXE**

- 23. IOM1 Port4 PXE
- 24. IOM2 Port1 PXE
- 25. IOM2 Port2 PXE
- 26. IOM2 Port3 PXE
- 27. IOM2 Port4 PXE

Option Values:       **Enabled**

Disabled

Help Text:            *Enable/Disable Onboard/IOM NIC Port PXE Boot*

Comments:            This will enable or disable PXE Boot capability for Port<x, x = 1-4> of Onboard NIC<n, n = 1-2> or IO Module<n, n = 1-2>.

This option will not appear for ports on a NIC which is disabled, or for individual ports when the corresponding NIC Port is disabled.

Only ports which actually exist for a particular NIC or IOM will appear in this section. That is, Port1-Port4 will appear for a quad-port NIC, Port1-Port2 will appear for a dual-port NIC, and only Port1 will appear for a single-port NIC.

The default state of each Port PXE Boot option is *Enabled*, if the corresponding PXE Boot OPROM of the same speed is *Enabled*. If a PXE Boot OPROM for 1 GbE or 10 GbE changes from *Disabled* to *Enabled*, then the Port PXE Boot option becomes *Enabled* for all ports of that speed.

If the PXE Boot OPROM for 1 GbE NICs or 10 GbE NICs is disabled, PXE Boot will be disabled and grayed out as unchangeable for all ports on NICs or IO Modules of that same speed.

Conversely, if PXE Boot is disabled for all ports of a given speed, the corresponding PXE Option ROM will be disabled but not grayed out since it could be selected.

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---

- 28. NIC1 Port1 MAC Address
- 29. NIC2 Port1 MAC Address
- 30. IOM1 Port1 MAC Address
- 31. IOM1 Port2 MAC Address
- 32. IOM1 Port3 MAC Address
- 33. IOM1 Port4 MAC Address
- 34. IOM2 Port1 MAC Address
- 35. IOM2 Port2 MAC Address
- 36. IOM2 Port3 MAC Address
- 37. IOM2 Port4 MAC Address

Option Values:        <Mac Address Display>

Help Text:            <None>

Comments:            *Information only.* 12 hex digits of the MAC address of Port1- Port4 of the Network Controller corresponding to NIC1, NIC2, IOM1, or IOM2.

This display will appear only for ports which actually exist on the corresponding Network Controller. If the Network Controller or port is disabled, the port MAC Address will not appear.

***Back to [NIC Configuration Screen] — [NIC Configuration Screen] — [Advanced Screen] — [Screen Map]***

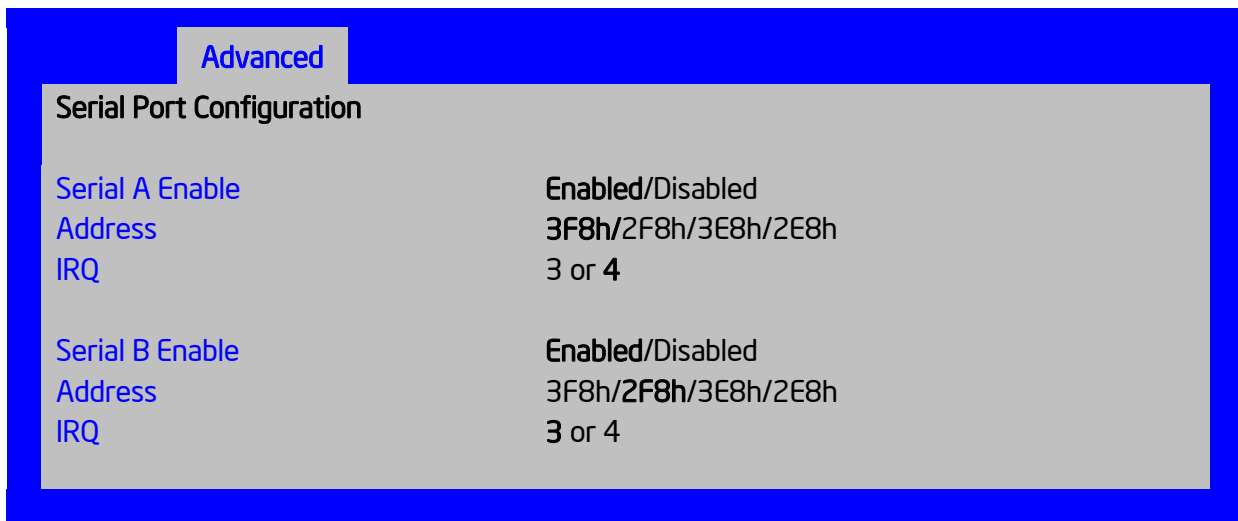
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## Serial Port Configuration

The **Serial Port Configuration** screen allows the user to configure the Serial A and Serial B ports. In Legacy ISA nomenclature, these are ports COM1 and COM2 respectively.

To access this screen from the **Main** screen, select **Advanced > Serial Port Configuration**. To move to another screen, press the <Esc> key to return to the **Advanced** screen, then select the desired screen.

The primary usage for these serial ports is to enable Serial Console Redirection and Serial Over LAN (SOL) capabilities. Either port can be used for Serial Console Redirection but SOL is only supported on Serial A.



**Figure 88. Serial Port Configuration Screen**

### **Screen Field Descriptions:**

**1. Serial A Enable**

Option Values: **Enabled**

Disabled

Help Text: *Enable or Disable Serial port A.*

Comments: Serial Port A can be used for either Serial Over LAN or Serial Console Redirection.

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---

**2. Address**

Option Values:     **3F8h**  
                          2F8h  
                          3E8h  
                          2E8h

Help Text:            *Select Serial port A base I/O address.*

Comments:            Legacy I/O port address. This field should not appear when Serial A port enable/disable does not appear.

***[Back to \[Serial Port Configuration Screen\]](#) — [Back to \[Screen Map\]](#)***

---

3. IRQ

Option Values:     3  
                          **4**

Help Text:            *Select Serial port A interrupt request (IRQ) line.*

Comments:            Legacy IRQ. This field should not appear when Serial A port enable/disable does not appear.

***[Back to \[Serial Port Configuration Screen\]](#) — [Back to \[Screen Map\]](#)***

---

4. Serial B Enable

Option Values:     **Enabled**  
                          Disabled

Help Text:            *Enable or Disable Serial port B.*

Comments:            Serial Port B can be used for Serial Console Redirection.

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---

5. Address

Option Values:     3F8h  
                          **2F8h**  
                          3E8h  
                          2E8h

Help Text:            *Select Serial port B base I/O address.*

Comments:            Legacy I/O port address.

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---

6. IRQ

Option Values:     **3**  
                          4

Help Text:            *Select Serial port B interrupt request (IRQ) line.*

Comments:            Legacy IRQ

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## USB Configuration

The **USB Configuration** screen allows the user to configure the available USB controller options.

To access this screen from the **Main** screen, select **Advanced > USB Configuration**. To move to another screen, press the <Esc> key to return to the **Advanced** screen, then select the desired screen.

This screen displays all USB Mass Storage devices which have been detected in the system. These include USB-attached Hard Disk Drives (HDDs), Floppy Disk Drives (FDDs), CDROM and DVDROM drives, and USB Flash Memory devices (USB Key, Keyfob, and so on).

Each USB Mass Storage device may be set to allow the media emulation for which it is formatted, or an emulation may be specified. For USB Flash Memory devices in particular, there are some restrictions:

- A USB Key formatted as a CDROM drive will be recognized as an HDD.
- A USB Key formatted without a Partition Table will be forced to FDD emulation.
- A USB Key formatted with one Partition Table, and less than 528 MB in size, will be forced to FDD emulation – otherwise if it is 528 MB or greater in size, it will be forced to HDD emulation.

***Note:** USB devices can be “hotplugged” during POST, and will be detected and “beeped”. They will be enumerated and displayed on this screen, though they may not be enumerated as bootable devices.*

Advanced

### USB Configuration

Detected USB Devices  
<Number of USB devices detected in system>

USB Controller	Enabled/Disabled
Legacy USB Support	Enabled/Disabled/Auto
XHCI Pre-Boot Driver	Enabled/Disabled
XHCI Hand-off	Enabled/Disabled
EHCI Hand-Off	Enabled/Disabled
Port 60/64 Emulation	Enabled/Disabled
Make USB Devices Non-Bootable	Enabled/Disabled

### USB Mass Storage Device Configuration

Device Reset Timeout 10 seconds/**20 seconds**/30 seconds/40 seconds

Mass Storage Devices:  
<Mass storage devices one line per device> **Auto**/Floppy/Forced FDD/Hard Disk/CD-ROM

Figure 89. USB Configuration Screen

**Screen Field Descriptions:**

## 1. Detected USB Devices

Option Values: &lt;Number of USB devices detected in system&gt;

Help Text: &lt;None&gt;

Comments: *Information only.* Displays the total number of USB devices of all types which have been detected in POST.*Note: There is one USB keyboard and one USB mouse detected from the BMC KVM function under this item even no USB devices connected to the system.****Back to [USB Configuration Screen] — Back to [Screen Map]***

---

## 2. USB Controller

Option Values: **Enabled**

Disabled

Help Text:

*[Enabled] - All on-board USB controllers are turned on and accessible by the OS.**[Disabled] - All on-board USB controllers are turned off and inaccessible by the OS.*Comments: When the USB controllers are *Disabled*, there is no USB IO available for either POST or the OS. In that case, all following fields on this screen are grayed out and inactive.***Back to [USB Configuration Screen] — Back to [Screen Map]***

---

## 3. Legacy USB Support

Option Values: **Enabled**

Disabled

Auto

Help Text: *Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. Disable option will only keep USB Keyboard devices available for EFI applications.*Comments: When *Legacy USB Support* is *Disabled*, USB devices are available only through OS drivers.If the *USB controller* setting is *Disabled*, this field is grayed out and inactive.***Back to [USB Configuration Screen] — Back to [Screen Map]***

---

## 4. XHCI Pre-Boot Driver

Option Values: **Enabled**

Disabled

Help Text: *Enable/Disable XHCI Pre-Boot Driver support*Comments: If the *USB controller* setting is *Disabled*, this field is grayed out and inactive.***Back to [USB Configuration Screen] — Back to [Screen Map]***

---



## 5. XHCI Hand-off

Option Values:     **Enabled**  
                           Disabled

Help Text:            *This is a workaround for OSeS without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.*

Comments:            If the USB controller setting is Disabled, this field is grayed out and inactive.

**[Back to \[USB Configuration Screen\]](#) — [Back to \[Screen Map\]](#)**

---

## 6. EHCI Hand-off

Option Values:     **Enabled**  
                           Disabled

Help Text:            *This is a workaround for OSeS without EHCI hand-off support. The XHCI ownership change should be claimed by EHCI driver.*

Comments:            If the USB controller setting is Disabled, this field is grayed out and inactive.

**[Back to \[USB Configuration Screen\]](#) — [Back to \[Screen Map\]](#)**

---

## 7. Port 60/64 Emulation

Option Values:     **Enabled**  
                           Disabled

Help Text:

*Enables I/O port 60h/64h emulation support.*

*This may be needed for legacy USB keyboard support when using an OS that is USB unaware.*

Comments:            If the USB controller setting is Disabled, this field is grayed out and inactive.

**[Back to \[USB Configuration Screen\]](#) — [Back to \[Screen Map\]](#)**

---

## 8. Make USB Devices Non-Bootable

Option Values:     **Enabled**  
                           Disabled

Help Text:

*Exclude USB in Boot Table.*

*[Enabled] - This will remove all USB Mass Storage devices as Boot options.*

*[Disabled] - This will allow all USB Mass Storage devices as Boot options.*

Comments:            This is a security option. When Disabled, the system cannot be booted directly to a USB device of any kind. USB Mass Storage devices may still be used for data storage.

If the USB controller setting is Disabled, this field is grayed out and inactive.

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---

## 9. Device Reset Timeout

Option Values:     10 seconds  
                           **20 seconds**

30 seconds  
40 seconds

Help Text:

*USB Mass Storage device Start Unit command timeout.  
Setting to a larger value provides more time for a mass storage device to be ready, if needed.*

Comments: If the USB controller setting is *Disabled*, this field is grayed out and inactive.

***[Back to \[USB Configuration Screen\]](#) — [Back to \[Screen Map\]](#)***

---

**10. Mass Storage Devices:**

Option Values: **Auto**  
Floppy  
Forced FDD  
Hard Disk  
CD-ROM

Help Text:

*[Auto] - USB devices less than 530 MB are emulated as floppies.  
[Forced FDD] - HDD formatted drive is emulated as an FDD (for example, ZIP drive).*

Comments: This field is hidden if no USB Mass Storage devices are detected.

This setup screen can show a maximum of eight USB Mass Storage devices on the screen. If more than eight devices are installed in the system, the *USB Devices Enabled* displays the correct count but only the first eight devices discovered are displayed in this list.

If the USB controller setting is *Disabled*, this field is grayed out and inactive.

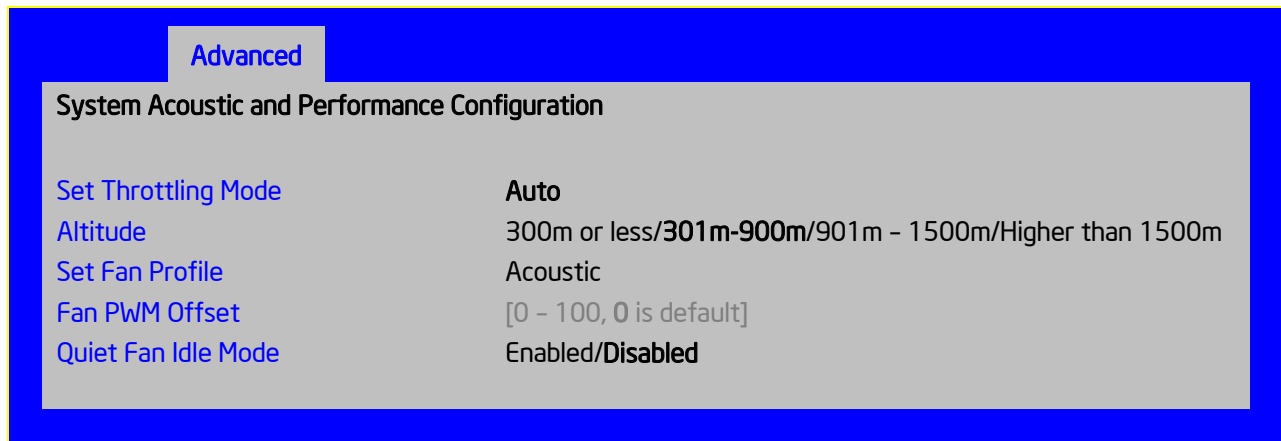
***[Back to \[USB Configuration Screen\]](#) — [Back to \[Screen Map\]](#)***

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## System Acoustic and Performance Configuration

The **System Acoustic and Performance Configuration** screen allows the user to configure the thermal control behavior of the system with respect to what parameters are used in the system's Fan Speed Control algorithms.

To access this screen from the **Main** screen, select **Advanced > System Acoustic and Performance Configuration**. To move to another screen, press the <Esc> key to return to the **Advanced** screen, then select the desired screen.



**Figure 90. System Acoustic and Performance Configuration**

### **Screen Field Descriptions:**

#### **1. Set Throttling Mode**

Option Values: **Auto**

Help Text:

*Sets Thermal Throttling mode for memory, to control fans and DRAM power as needed to control DIMM temperatures.*

*[Auto] – Auto Throttling Mode*

*[CLTM] - Closed Loop Thermal Management.*

*[OLTM] - Open Loop Thermal Management.*

*Closed Loop Thermal Management is supported only when ECC DIMM plugged. Open Loop Thermal Management is not supported.*

Comments: The Thermal Throttling Mode chosen reflects whether the DIMMs have Temperature Sensors (TSOD), and whether the chassis is an Intel chassis for which thermal data are available. Note that this is for thermal throttling only, independent of any controls imposed for the purpose of power limiting.

- CLTM would be used with an OEM chassis and DIMMs with TSOD. The firmware does not change the offset registers for closed loop during runtime, although the Management Engine can do so.
- OLTM is intended for a system with UDIMMs which do not have TSOD. The thermal control registers are configured during POST, and the firmware does not change them.

**[Back to \[System Acoustic and Performance Configuration\]](#) — [Back to \[Screen Map\]](#)**

#### **2. Altitude**

Option Values: 300m or less  
**301m-900m**  
 901m-1500m  
 Higher than 1500m

Help Text:

*[300m or less](980ft or less) Optimal near sea level.*

*[301m-900m](980ft-2950ft) Optimal performance setting at moderate elevation.*

*[901m-1500m](2950ft-4920ft) Optimal performance setting at high elevation.*

*[Above 1500m](above 4920ft) Optimal performance setting at the highest elevations.*

Comments: This option sets an altitude value in order to choose a Fan Profile that is optimized for the air density at the current altitude at which the system is installed.

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---

### 3. Set Fan Profile

Option Values: **Acoustic**

Help Text: *[Acoustic] - The system will favor using throttling of memory over boosting fans to cool the system if thermal thresholds are met.*

Comments: This option allows the user to choose a Fan Profile that is optimized for minimizing acoustic noise.

When *Acoustic* is selected, then rather than increasing fan speed for additional cooling, the system will attempt first to control thermal conditions by throttling memory to reduce heat production. This regulates the system's thermal condition without changing the acoustic performance but throttling memory may impact system performance.

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---

### 4. Fan PWM Offset

Option Values: *[Entry Field 0 – 100, 0 is default]*

Help Text: *Valid Offset 0 - 100. This number is added to the calculated PWM value to increase Fan Speed.*

Comments: This is a percentage by which the calculated fan speed will be increased. The user can apply positive offsets that result in increasing the minimum fan speeds.

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---

### 5. Quiet Fan Idle Mode

Option Values: Enabled

**Disabled**

Help Text: *Enabling this option allows the system fans to operate in Quiet 'Fan off' mode while still maintaining sufficient system cooling. In this mode, fan sensors become unavailable and cannot be monitored. There will be limited fan related event generation.*

Comments: When enabled, this option allows fans to idle or turn off when sufficient thermal margin is available, decreasing the acoustic noise produced by the system and decreasing system power consumption. Fans will run as needed to maintain thermal control. The actual decrease in fan speed depends on the system thermal loading, which in turn depends on system configuration and workload.

While Quiet Fan Idle Mode is engaged, fan sensors become unavailable and are not monitored by the BMC.

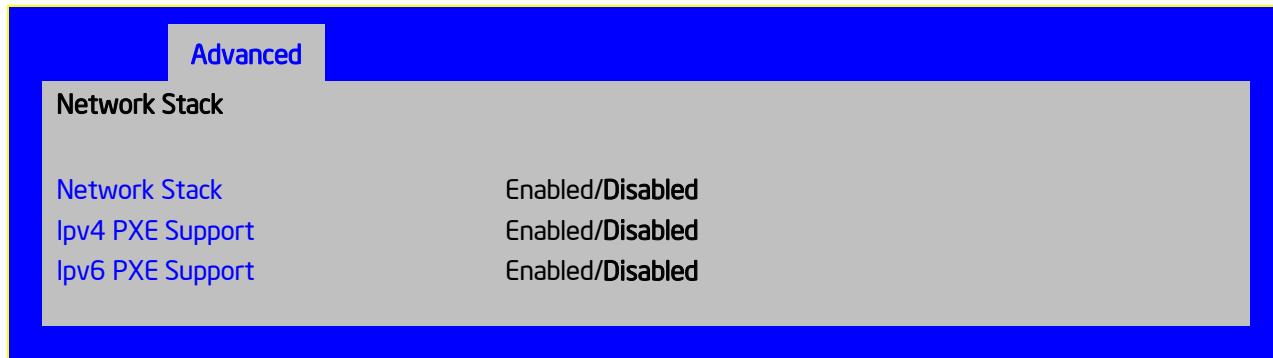
Quiet Fan Idle Mode does not conflict with Fan PWM Offset (above) – they work in concert, with Fan PWM Offset applied to fans in Quiet Fan Idle Mode just as when the fans are

operating in “normal mode”. A Fan PWM Offset of zero is necessary for fans to actually stop turning.

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---

## Network Stack (Tab)



**Figure 91. Network Stack**

### **Screen Field Descriptions:**

**1. Network Stack**

Option Values: Enabled

**Disabled**

Help Text: *Enable/Disable UEFI network stack*

Comments:

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---

**2. Ipv4 PXE Support**

Option Values: Enabled

**Disabled**

Help Text: *Enable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot option will not be created.*

Comments:

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**3. Ipv6 PXE Support**

Option Values: Enabled

**Disabled**

Help Text: *Enable Ipv6 PXE Boot Support. If disabled IPV6 PXE boot option will not be created.*

Comments:

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## Security Screen (Tab)

The **Security** screen allows the user to enable and set the Administrator and User passwords and to lock out the front panel buttons so they cannot be used. This screen also allows the user to enable and activate the Trusted Platform Module (TPM) security settings on those boards that support TPM.

Note that it is necessary to activate the TPM in order to enable Intel® Trusted Execution Technology (TXT) on boards that support it. Changing the TPM state in Setup will require a Hard Reset for the new state to become effective.

This BIOS supports (but does not require) Strong Passwords for security. The Strong Password criteria for both Administrator and User passwords require that passwords be between 8 and 14 characters in length, and a password must contain at least one case-sensitive alphabetic character, one numeric character, and one special character. A warning is given when a password is set which does not meet the Strong Password criteria but the password is accepted.

For further security, the BIOS optionally may require a Power On Password to be entered in early POST in order to boot the system. When Power On Password is enabled, POST is halted soon after power on while the BIOS queries for a Power On Password. Either the Administrator or the User password may be entered for a Power On Password.

To access this screen from the **Main** screen or other top-level Tab screen, press the right or left arrow keys to traverse the tabs at the top of the Setup screen until the **Security** screen is selected.

Main	Advanced	Security	Server Management	Boot Options	Boot Manager
Administrator Password Status		<Installed/Not Installed>			
User Password Status		<Installed/Not Installed>			
Set Administrator Password		[123aBcDeFgH\$#@]			
Set User Password		[123aBcDeFgH\$#@]			
Power On Password		Enabled/Disabled			
Front Panel Lockout		Enabled/Disabled			
TPM State		<Displays current TPM Device State>			
TPM Administrative Control		No Operation/Turn On/Turn Off/Clear Ownership			

Figure 92. Security Screen

**Screen Field Descriptions:****1. Administrator Password Status**

Option Values:     *Installed*  
                       *Not Installed*

Help Text:            <None>

Comments:            *Information only.* Indicates the status of the Administrator Password.

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---

**2. User Password Status**

Option Values:     *Installed*  
                       *Not Installed*

Help Text:            <None>

Comments:            *Information only.* Indicates the status of the User Password.

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---

**3. Set Administrator Password**

Option Values:     *[Entry Field – 0-14 characters]*

Help Text:            *Administrator password is used if Power On Password is enabled and to control change access in BIOS Setup. Length is 1-14 characters. Case sensitive alphabetic, numeric and special characters !@#\$\$%^&\*()-\_+=? are allowed.*

***Note:*** *Administrator password must be set in order to use the User account.*

Comments:            This password controls “change” access to Setup. The Administrator has full access to change settings for any Setup options, including setting the Administrator and User passwords.

When Power On Password protection is enabled, the Administrator password may be used to allow the BIOS to complete POST and boot the system.

Deleting all characters in the password entry field removes a password previously set. Clearing the Administrator Password also clears the User Password.

If invalid characters are present in the password entered, it will not be accepted, and there will be popup error message:

*Password entered is not valid. Only case sensitive alphabetic, numeric and special characters !@#\$\$%^&\*()-\_+=? are allowed.*

The Administrator and User passwords must be different. If the password entered is the same as the User password, it will not be accepted, and there will be popup error message:

*Password entered is not valid. Administrator and User passwords must be different.*

Strong passwords are encouraged, although not mandatory. If a password is entered which does not meet the Strong Password criteria, there will be a popup warning message:

*Warning – a Strong Password should include at least one each case sensitive alphabetic, numeric, and special character. Length should be 8 to 14 characters.*

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---

## 4. Set User Password

Option Values: *[Entry Field – 0-14 characters]*

Help Text: *User password is used if Power On Password is enabled and to allow restricted access to BIOS Setup. Length is 1-14 characters. Case sensitive alphabetic, numeric and special characters !@#%&^&\*()-\_+=? are allowed.*

**Note:** *Removing the administrator password also removes the user password.*

Comments: The User password is available only if the Administrator Password has been installed. This option protects Setup settings as well as boot choices. The User Password only allows limited access to the Setup options, and no choice of boot devices.

When Power On Password protection is enabled, the User password may be used to allow the BIOS to complete POST and boot the system.

The password format and entry rules and popup error and warning message are the same for the User password as for the Administrator password (see above).

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---

## 5. Power On Password

Option Values: Enabled  
**Disabled**

Help Text: *Enable Power On Password support. If enabled, password entry is required in order to boot the system.*

Comments: When Power On Password security is enabled, the system will halt soon after power on and the BIOS will ask for a password before continuing POST and booting. Either the Administrator or User password may be used.

If an Administrator password has not been set, this option will be grayed out and unavailable. If this option is enabled and the Administrator password is removed, that will also disable this option.

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---

## 6. Front Panel Lockout

Option Values: Enabled  
**Disabled**

Help Text: *If enabled, locks the power button OFF function and the reset and NMI Diagnostic Interrupt buttons on the system's front panel. If [Enabled] is selected, power off and reset must be controlled through a system management interface, and the NMI Diagnostic Interrupt is not available.*

**Note:** *This option is not visible on S1200 V3 Server Board.*

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---

## 7. TPM State

Option Values: *<Displays current TPM Device State>*  
May be:  
*Enabled & Activated*  
*Enabled & Deactivated*  
*Disabled & Activated*  
*Disabled & Deactivated*

Help Text: *<None>*



Comments: *Information only.* Shows the current TPM device state.

A *Disabled* TPM device does not execute commands that use the TPM functions and TPM security operations are not available.

An *Enabled & Deactivated* TPM is in the same state as a disabled TPM, except that setting of the TPM ownership is allowed if it is not present already.

An *Enabled & Activated* TPM executes all commands that use the TPM functions and TPM security operations are also available.

**Note:** *This option appears only on boards equipped with a TPM.*

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---

## 8. TPM Administrative Control

Option Values: **No Operation**  
 Turn On  
 Turn Off  
 Clear Ownership

Help Text:

*[No Operation] - No changes to current state.*

*[Turn On] - Enables and activates TPM.*

*[Turn Off] - Disables and deactivates TPM.*

*[Clear Ownership] - Removes TPM ownership & returns TPM to factory default state.*

**Note:** *Setting returns to [No Operation] on every boot.*

Comments: Any Administrative Control operation selected will require the system to perform a Hard Reset in order to become effective.

**Note:** *This option appears only on boards equipped with a TPM.*

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## Server Management Screen (Tab)

The **Server Management** screen allows the user to configure several server management features. This screen also provides an access point to the screens for configuring Console Redirection, displaying system information, and controlling the BMC LAN configuration.

To access this screen from the **Main** screen or other top-level Tab screen, press the right or left arrow keys to traverse the tabs at the top of the Setup screen until the **Server Management** screen is selected.



Figure 93. Server Management Screen

**Screen Field Descriptions:**

**1. Assert NMI on SERR**

Option Values:     **Enabled**  
                           Disabled

Help Text:            *On SERR, generate an NMI and log an error.*

**Note:** *[Enabled] must be selected for the Assert NMI on PERR setup option to be visible.*

Comments:            This option allows the system to generate an NMI when an SERR occurs, which is a method Legacy Operating System error handlers may use instead of processing a Machine Check.

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---

**2. Assert NMI on PERR**

Option Values:     **Enabled**  
                           Disabled

Help Text:            *On PERR, generate an NMI and log an error.*

**Note:** *This option is only active if the Assert NMI on SERR option has [Enabled] selected.*

Comments:            This option allows the system to generate an NMI when a PERR occurs, which is a method Legacy Operating System error handlers may use instead of processing a Machine Check.

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---

**3. Reset on CATERR**

Option Values:     **Enabled**  
                           Disabled

Help Text:            *When enabled system gets reset upon encountering Catastrophic Error (CATERR); when disabled system does not get reset on CATERR.*

Comments:            This option controls whether the system will be reset when the Catastrophic Error CATERR# signal is held asserted, rather than just pulsed to generate an SMI. This indicates that the processor has encountered a fatal hardware error.

**Note:** *If “Reset on CATERR” is Disabled, this can result in a system hang for certain error conditions, possibly with the system unable to update the System Status LED or log an error to the SEL before hanging.*

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---

**4. Resume on AC Power Loss**

Option Values:     **Stay Off**  
                           Last State  
                           Power On

Help Text:

*System action to take on AC power loss recovery.*

*[Stay Off] - System stays off.*

*[Last State] - System returns to the same state before the AC power loss.*

*[Power On] - System powers on.*

Comments:            This option controls the policy that the BMC will follow when AC power is restored after an unexpected power outage. The BMC will either hold DC power off or always turn it on to boot the system, depending on this setting – and in the case of *Last State*, depending on whether the power was on and the system was running before the AC power went off.

When this setting is changed in Setup, the new setting will be sent to the BMC. However, the BMC maintains (“owns”) this Power Restore Policy setting, and it can be changed independently with an IPMI command to the BMC. BIOS gets this setting from the BMC early in POST, and also for the Setup Server Management screen.

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---

**5. Power Restore Delay**

Option Values:     **Disabled**  
                           Auto  
                           Fixed

Help Text:            *Allows a delay in powering up after a power failure, to reduce peak power requirements. The delay can be fixed or automatic between 25-300 seconds.*

Comments:            When the AC power resume policy (above) is either *Power On* or *Last State*, this option allows a delay to be taken after AC power is restored before the system actually begins to power up. This delay can be either a fixed time or an “automatic” time, where “automatic” means that the BIOS will select a randomized delay time of 25-300 seconds when it sends the Power Restore Delay setting to the BMC.

This option will be grayed out and unavailable when the AC power resume policy is *Stay Off*.

The Power Restore Delay setting is maintained by BIOS. This setting does not take effect until a reboot is done. Early in POST, the Power Restore Policy is read from the BMC, and if the policy is *Power On* or *Last State*, the delay settings are sent to the BMC.

Bear in mind that even if the Power Restore Delay is *Disabled*, there will still be a delay of about 20 seconds while the BMC itself boots up after AC power is restored.

**Note:** *This Power Restore Delay option applies only to powering on when AC is applied. It has no effect on powering the system up using the Power Button on the Front Panel. A DC power on using the Power Button is not delayed.*

The purpose of this delay is to avoid having all systems draw “startup surge” power at the same time. Different systems or racks of systems can be set to different delay times to spread out the startup power draws. Alternatively, all systems can be set to Automatic, and then each system will wait for a random period before powering up.

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## 6. Power Restore Delay Value

Option Values:        *[Entry Field 25 – 300, **25** is default]*

Help Text:            *Fixed time period 25-300 seconds for Power Restore Delay.*

Comments:            When the power restore policy is *Power On* or *Last State*, and the Power Restore Delay selection is *Fixed*, this field allows for specifying how long in seconds that fixed delay will be.

When the Power Restore Delay is *Disabled* or *Auto*, this field will be grayed out and unavailable.

The Power Restore Delay Value setting is maintained by BIOS. This setting does not take effect until a reboot is done. Early in POST, the Power Restore Policy is read from the BMC, and if the policy is *Power On* or *Last State*, the delay settings are sent to the BMC. When the Power Restore Delay setting is *Fixed*, this delay value is used to provide the length of the delay.

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## 7. Clear System Event Log

Option Values:        Enabled  
                           **Disabled**

Help Text:            *If enabled, clears the System Event Log. All current entries will be lost.*

**Note:** *This option is reset to [Disabled] after a reboot.*

Comments: This option sends a message to the BMC to request it to clear the System Event Log. The log will be cleared, and then the “Clear” action itself will be logged as an event. This gives the user a time/date for when the log was cleared.

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## 8. FRB-2 Enable

Option Values:      **Enabled**  
                              Disabled

Help Text:

*Fault Resilient Boot (FRB).*

*BIOS programs the BMC watchdog timer for approximately 6 minutes. If BIOS does not complete POST before the timer expires, the BMC will reset the system.*

Comments: This option controls whether the system will be reset if the BMC Watchdog Timer detects what appears to be a hang during POST. When the BMC Watchdog Timer is purposed as an FRB-2 timer, it is initially set to allow 6 minutes for POST to complete.

However, the FRB-2 Timer is suspended during times when some lengthy operations are in progress, like executing Option ROMS, during Setup, and when BIOS is waiting for a password or for input to the F6 BBS Boot Menu. The FRB-2 Timer is also suspended while POST is paused with the <Pause> key.

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---

## 9. OS Boot Watchdog Timer

Option Values:      Enabled  
                              **Disabled**

Help Text:

*BIOS programs the watchdog timer with the timeout value selected. If the OS does not complete booting before the timer expires, the BMC will reset the system and an error will be logged. Requires OS support or Intel Management Software Support.*

Comments: This option controls whether the system will set the BMC Watchdog to detect an apparent hang during OS boot. BIOS sets the timer before starting the OS bootstrap load procedure. If the OS Load Watchdog Timer times out, then presumably the OS failed to boot properly.

If the OS does boot up successfully, it must be aware of the OS Load Watchdog Timer and immediately turn it off before it expires. The OS may turn off the timer, or more often the timer may be repurposed as an OS Watchdog Timer to protect against runtime OS hangs.

Unless the OS does have timer-aware software to support the OS Load Watchdog Timer, the system will be unable to boot successfully with the OS Load Watchdog Timer enabled. When the timer expires without having been reset or turned off, the system will either reset or power off repeatedly.

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## 10. OS Boot Watchdog Timer Policy

Option Values:      **Power off**  
                              Reset

Help Text:

*If the OS watchdog timer is enabled, this is the system action taken if the watchdog timer expires.*

*[Reset] - System performs a reset.*

*[Power Off] - System powers off.*

Comments: This option is grayed out and unavailable when the O/S Boot Watchdog Timer is disabled.

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#### 11. OS Boot Watchdog Timer Timeout

Option Values: 5 minutes  
**10 minutes**  
 15 minutes  
 20 minutes

Help Text: *If the OS watchdog timer is enabled, this is the timeout value BIOS will use to configure the watchdog timer.*

Comments: This option is grayed out and unavailable when the O/S Boot Watchdog Timer is disabled.

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#### 12. Plug & Play BMC Detection

Option Values: Enabled  
**Disabled**

Help Text: *If enabled, the BMC will be detectable by OSes which support plug and play loading of an IPMI driver. Do not enable this option if your OS does not support this driver.*

Comments: This option controls whether the OS Server Management Software will be able to find the BMC and automatically load the correct IPMI support software for it. If your OS does not support Plug & Play for the BMC, you will not have the correct IPMI driver software loaded.

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#### 13. EuP LOT6 Off-Mode

Option Values: Enabled  
**Disabled**

Help Text: *Enable/disable Ecodesign EuP LOT6 “Deep Sleep” Off-Mode for near-zero energy use when powered off.*

Comments: This option controls whether the system goes into Deep Sleep or more conventional S5 Soft-Off when powered off. Deep Sleep state uses less energy than S5 but S5 can start up faster and can allow a Wake on LAN action (which cannot be done from a Deep Sleep state).

This option will not appear on platforms which do not support EuP LOT6 Off-Mode.

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#### 14. Console Redirection

Option Values: <None>

Help Text: *View/Configure Console Redirection information and settings.*

Comments: *Selection only*. Select this line and press the <Enter> key to go to the **Console Redirection** group of configuration settings.

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---

#### 15. System Information

Option Values: <None>

Help Text: *View System Information.*

Comments: *Selection only*. Select this line and press the <Enter> key to go to the **System Information** group of configuration settings.

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#### 16. BMC LAN Configuration

Option Values: <None>

Help Text: *View/Configure BMC LAN and user settings.*

Comments: *Selection only*. Select this line and press the <Enter> key to go to the **BMC LAN Configuration** group of configuration settings.

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---

## Console Redirection

The **Console Redirection** screen allows the user to enable or disable Console Redirection for Remote System Management, and to configure the connection options for this feature.

To access this screen from the **Main** screen, select **Server Management > Console Redirection**. To move to another screen, press the <Esc> key to return to the **Server Management** screen, then select the desired screen.

When Console Redirection is active, all POST and Setup displays are in Text Mode. The Quiet Boot setting is disregarded, and the Text Mode POST Diagnostic Screen will be displayed regardless of the Quiet Boot setting. This is due to the limitations of Console Redirection, which is based on data terminal emulation using a serial data interface to transfer character data.

Console Redirection can use either of the two Serial Ports provided by the SuperIO in the BMC. However, if Console Redirection is to be coordinated with Serial Over LAN, the user should be aware that SOL is only supported through Serial Port A (except for W2600CR, which only has Serial B and supports SOL on Serial B).

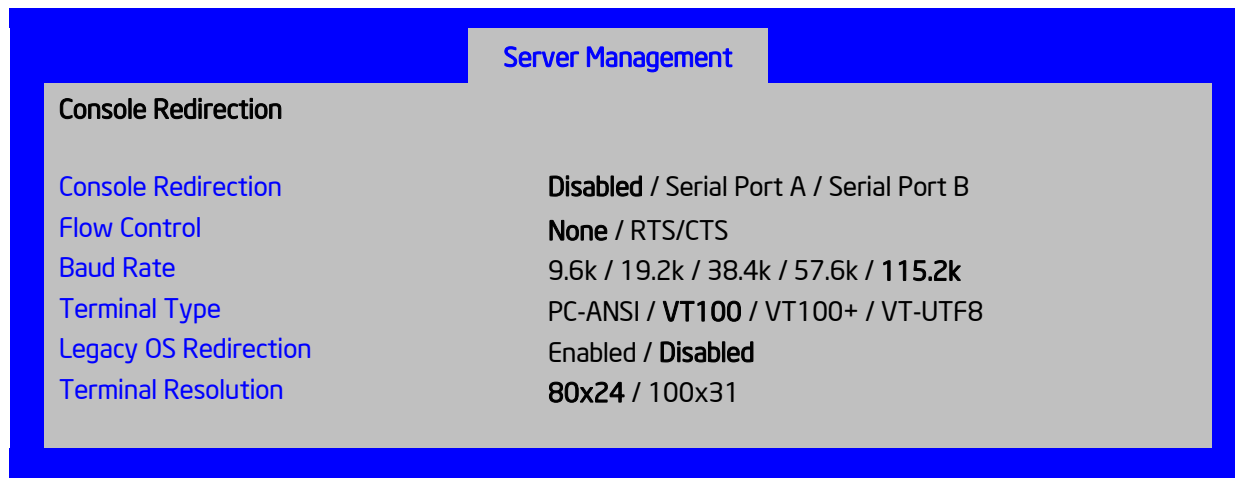


Figure 94. Console Redirection Screen

**Screen Field Descriptions:****1. Console Redirection**

Option Values:     **Disabled**  
                           Serial Port A  
                           Serial Port B

Help Text:

*Console redirection allows a serial port to be used for server management tasks.*

*[Disabled] - No console redirection.*

*[Serial Port A] - Configure serial port A for console redirection.*

*Enabling this option will disable display of the Quiet Boot logo screen during POST.*

Comments:           Serial Console Redirection can use either Serial Port A or Serial Port B. If SOL is also going to be configured, note that SOL is only supported through Serial Port A (with the exception of W2600CR, which only has Serial B so supports SOL on Serial B).

When Console Redirection is set to Disabled, all other options on this screen will be grayed out and unavailable.

Only Serial Ports which are Enabled should be available to choose for Console Redirection. If neither Serial A nor Serial B is set to Enabled, then Console Redirection will be forced to Disabled, and grayed out as inactive. In that case, all other options on this screen will also be grayed.

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**2. Flow Control**

Option Values:     **None**  
                           RTS/CTS

Help Text:

*Flow control is the handshake protocol.*

*This setting must match the remote terminal application.*



*[None]* - Configure for no flow control.

*[RTS/CTS]* - Configure for hardware flow control.

Comments: Flow control is necessary only when there is a possibility of data overrun. In that case the Request To Send/Clear to Send (RTS/CTS) hardware handshake is a relatively conservative protocol which can usually be configured at both ends.

When Console Redirection is set to *Disabled*, this option will be grayed out and unavailable.

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### 3. Baud Rate

Option Values: 9.6k  
19.2k  
38.4k  
57.6k  
**115.2k**

Help Text: *Serial port transmission speed. This setting must match the remote terminal application.*

Comments: In most modern Server Management applications, serial data transfer is consolidated over an alternative faster medium like LAN, and 115.2k is the speed of choice.

When Console Redirection is set to *Disabled*, this option will be grayed out and unavailable.

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### 4. Terminal Type

Option Values: PC-ANSI  
**VT100**  
VT100+  
VT-UTF8

Help Text: *Character formatting used for console redirection. This setting must match the remote terminal application.*

Comments: The VT100 and VT100+ terminal emulations are essentially the same. VT-UTF8 is a UTF8 encoding of VT100+. PC-ANSI is the native character encoding used by PC-compatible applications and emulators.

When Console Redirection is set to *Disabled*, this option will be grayed out and unavailable.

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### 5. Legacy OS Redirection

Option Values: Enabled  
**Disabled**

Help Text: *This option enables legacy OS redirection (that is, DOS) on serial port. If it is enabled, the associated serial port is hidden from the legacy OS.*

Comments: Operating Systems which are “redirection-aware” implement their own Console Redirection mechanisms. For a Legacy OS which is not “aware”, this option allows the BIOS to handle redirection.

When Console Redirection is set to *Disabled*, this option will be grayed out and unavailable.

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### 6. Terminal Resolution

Option Values: **80x24**  
100x31

Help Text: *Remote Terminal Resolution*

Comments: This option allows the use of a larger terminal screen area, although it does not change Setup displays to match.

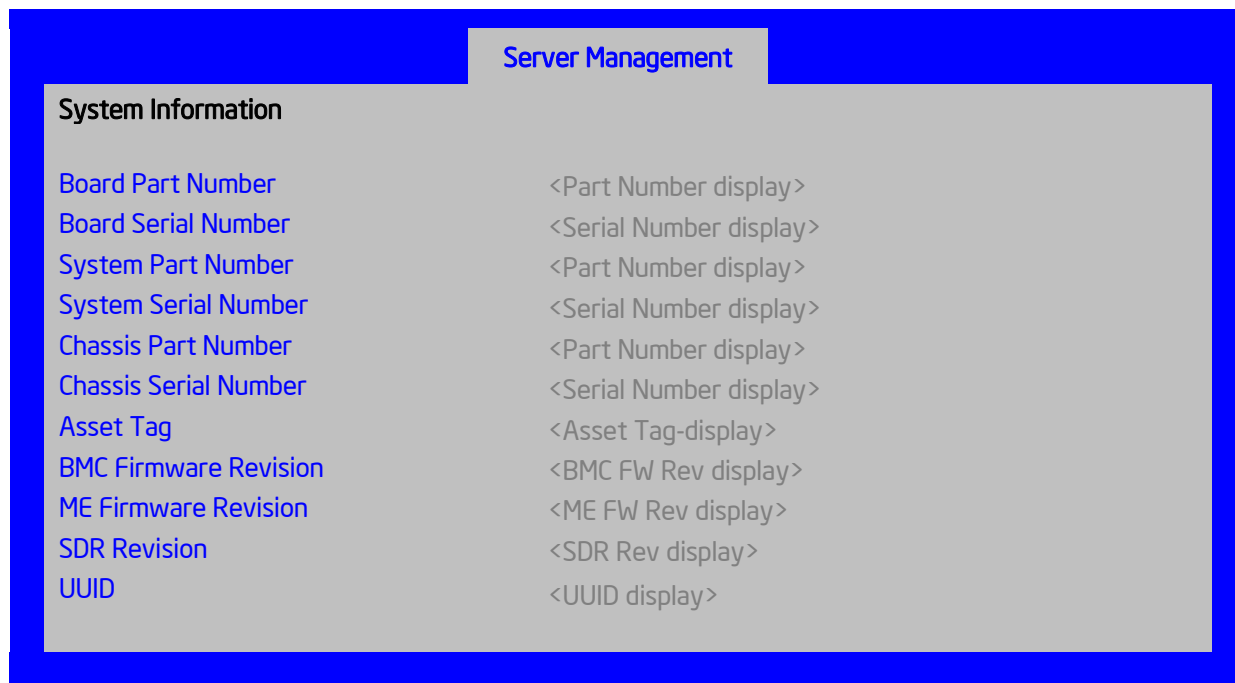
When Console Redirection is set to *Disabled*, this option will be grayed out and unavailable.

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## System Information

The **System Information** screen allows the user to view part numbers, serial numbers, and firmware revisions. This is an *Information Only* screen.

To access this screen from the **Main** screen, select **Server Management > System Information**. To move to another screen, press the <Esc> key to return to the **Server Management** screen, then select the desired screen.



**Figure 95. System Information Screen**

### Screen Field Descriptions:

**1. Board Part Number**

Option Values: *<Part Number display>*

Help Text: *<None>*

- Comments: [Information only.](#)  
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2. Board Serial Number  
 Option Values: <Serial Number display>  
 Help Text: <None>  
 Comments: [Information only.](#)  
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---
3. System Part Number  
 Option Values: <Part Number display>  
 Help Text: <None>  
 Comments: [Information only.](#)  
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---
4. System Serial Number  
 Option Values: <Serial Number display>  
 Help Text: <None>  
 Comments: [Information only.](#)  
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---
5. Chassis Part Number  
 Option Values: <Part Number display>  
 Help Text: <None>  
 Comments: [Information only.](#)  
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---
6. Chassis Serial Number  
 Option Values: <Serial Number display>  
 Help Text: <None>  
 Comments: [Information only.](#)  
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---
7. Asset Tag  
 Option Values: <Asset Tag-display>  
 Help Text: <None>  
 Comments: [Information only.](#)  
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---
8. BMC Firmware Revision  
 Option Values: <BMC FW Rev display>  
 Help Text: <None>  
 Comments: [Information only.](#)  
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## 9. ME Firmware Revision

Option Values: &lt;ME FW Rev display&gt;

Help Text: &lt;None&gt;

Comments: *Information only.****[Back to \[System Information Screen\]](#) — [\[Server Management Screen\]](#) — [\[Screen Map\]](#)***

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## 10. SDR Revision

Option Values: &lt;SDR Rev display&gt;

Help Text: &lt;None&gt;

Comments: *Information only.****[Back to \[System Information Screen\]](#) — [\[Server Management Screen\]](#) — [\[Screen Map\]](#)***

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## 11. UUID

Option Values: &lt;UUID display&gt;

Help Text: &lt;None&gt;

Comments: *Information only.****[Back to \[System Information Screen\]](#) — [\[Server Management Screen\]](#) — [\[Screen Map\]](#)***

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## BMC LAN Configuration

To access this screen from the **Main** screen, select **Server Management > BMC LAN Configuration**. To move to another screen, press the <Esc> key to return to the **Server Management** screen, then select the desired screen. The **BMC LAN Configuration** screen allows the user to configure the BMC Baseboard LAN channel and an Intel® RMM4 LAN channel, and to manage BMC User settings for up to five BMC Users. An Intel® RMM4 Management Module may be installed in the server system.

If the Management Module is installed, it may also have a Dedicated Server Management NIC Module (DMN) installed with it. In that case, the LAN settings for the Intel® RMM4 with Dedicated Server Management NIC may be configured.

When there is no Management Module installed in the system, or there is an Intel® RMM4-Lite without a DMN installed, the LAN settings specific to the Intel® RMM4 are grayed out and not available. This screen has a choice of IPv4 or IPv6 addressing. When IPv6 is disabled, only the IPv4 addressing options appear. When IPv6 is enabled, the IPv4 options are grayed out and unavailable, and there is an additional section active for IPv6-addressing. This is true for both the Baseboard LAN configuration and the Intel® RMM4 with Dedicated Server Management NIC Module.

IP addresses for either IPv4 or IPv6 addressing can be assigned by static IP addresses manually typed in, or by dynamic IP addresses supplied by a Dynamic Host Configuration Protocol (DHCP) server. IPv6 addressing can also be provided by “stateless autoconfiguration” which does not require a DHCP server. The **BMC LAN Configuration** screen is unusual in that the LAN Configuration parameters are maintained by the BMC itself, so this screen is just a User Interface to the BMC configuration. As such, the initial values of the LAN options shown on the screen are acquired from the BMC when this screen is initially accessed by a user. Any values changed by the user are communicated back to the BMC when a “Save Changes” or “Save Changes and Exit”

action is performed. If a “Discard Changes” or “Discard Changes and Exit” action is performed instead, any accumulated changes from this screen will be disregarded and lost.

Server Management	
<b>BMC LAN Configuration</b>	
<b>Baseboard LAN configuration</b>	
IP Source	Static/Dynamic
IP Address	[0.0.0.0]
Subnet Mask	[0.0.0.0]
Gateway IP	[0.0.0.0]
<b>Baseboard LAN IPv6 configuration</b>	
IPv6	Enabled/Disabled
IPv6 Source	Static/Dynamic/Auto
IPv6 Address	[0000.0000.0000.0000.0000.0000.0000.0000]
Gateway IPv6	[0000.0000.0000.0000.0000.0000.0000.0000]
IPv6 Prefix Length	[0 - 128, 64 is default]
<b>Intel(R) RMM4 LAN configuration</b>	
Intel(R) RMM4	<Not Present/Intel(R) RMM4-Lite/Intel(R) RMM4 + DMN>
IP Source	Static/Dynamic
IP Address	[0.0.0.0]
Subnet Mask	[0.0.0.0]
Gateway IP	[0.0.0.0]
<b>Intel(R) RMM4 LAN IPv6 configuration</b>	
IPv6 Source	Static/Dynamic/Auto
IPv6 Address	[0000.0000.0000.0000.0000.0000.0000.0000]
Gateway IPv6	[0000.0000.0000.0000.0000.0000.0000.0000]
IPv6 Prefix Length	[0 - 128, 64 is default]
BMC DHCP Host Name	[DHCP Host Name display/edit]
<b>User Configuration</b>	
User ID	anonymous/root/User3/User4/User5
Privilege	Callback/ User/Operator/Administrator
User Status	Disable/Enable
User Name	[User Name display/edit]
User Password	

**Figure 96. BMC LAN Configuration Screen**

**Screen Field Descriptions:****1. IP Source**

Option Values:       Static  
                          **Dynamic**

Help Text:            *Select BMC IP Source. If [Static], IP parameters may be edited. If [Dynamic], these fields are display-only and IP address is acquired automatically (DHCP).*

Comments:            This specifies the IP Source for IPv4 addressing for the Baseboard LAN. There is a separate IP Source field for the Intel® RMM4 LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC, and its setting determines whether the other Baseboard LAN IPv4 addressing fields are display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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**2. IP Address**

Option Values:        *[Entry Field 0.0.0.0, **0.0.0.0** is default]*

Help Text:            *View/Edit IP Address. Press <Enter> to edit.*

Comments:            This specifies the IPv4 Address for the Baseboard LAN. There is a separate IPv4 Address field for the Intel® RMM4 LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IP Source** determines whether this field is display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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**3. Subnet Mask**

Option Values:        *[Entry Field 0.0.0.0, **0.0.0.0** is default]*

Help Text:            *View/Edit Subnet Mask. Press <Enter> to edit.*

Comments:            This specifies the IPv4 addressing Subnet Mask for the Baseboard LAN. There is a separate IPv4 Subnet Mask field for the Intel® RMM4 LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IP Source** determines whether this field is display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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**4. Gateway IP**

Option Values:        *[Entry Field 0.0.0.0, **0.0.0.0** is default]*

Help Text:            *View/Edit Gateway IP. Press <Enter> to edit.*

Comments:            This specifies the IPv4 addressing Gateway IP for the Baseboard LAN. There is a separate IPv4 Gateway IP field for the Intel® RMM4 LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IP Source** determines whether this field is display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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## 5. IPv6

Option Values:      Enabled  
                           **Disabled**

Help Text:            *Option to Enable/Disable IPv6 addressing and any IPv6 network traffic on these channels.*

Comments:            The initial value for this field is acquired from the BMC. It may be changed in order to switch between IPv4 and IPv6 addressing technologies.

When this option is set to **Disabled**, all other IPv6 fields will not be visible for the Baseboard LAN and Intel® RMM4 DMN (if installed). When IPv6 addressing is **Enabled**, all IPv6 fields for the Baseboard LAN and Intel® RMM4 DMN will become visible, and all IPv4 fields will be grayed out and inactive.

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## 6. IPv6 Source

Option Values:      Static  
                           **Dynamic**  
                           Auto

Help Text:            *Select BMC IPv6 source. If [Static], IPv6 parameters may be edited. If [Dynamic], these fields are display-only and IPv6 address is acquired automatically (DHCP). If [Auto], these fields are display-only and IPv6 address is acquired using ICMPv6 router / neighbor discovery.*

Comments:            This specifies the IP Source for IPv6 addressing for the Baseboard LAN configuration. There is a separate IPv6 Source field for the Intel® RMM4 LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is **Enabled**, the initial value for this field is acquired from the BMC, and its setting determines whether the other Baseboard LAN IPv6 addressing fields are display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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## 7. IPv6 Address

Option Values:      *[Entry Field 0000:0000:0000:0000:0000:0000:0000:0000,  
                           **0000:0000:0000:0000:0000:0000:0000:0000** is default]*

Help Text:            *View/Edit IPv6 address. Press <Enter> to edit. IPv6 addresses consist of 8 hexadecimal 4 digit numbers separated by colons.*

Comments:            This specifies the IPv6 Address for the Baseboard LAN. There is a separate IPv6 Address field for the Intel® RMM4 LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IPv6 Source** determines whether this field is display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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## 8. Gateway IPv6

Option Values: *[Entry Field 0000:0000:0000:0000:0000:0000:0000:0000, **0000:0000:0000:0000:0000:0000:0000:0000** is default]*

Help Text: *View/Edit Gateway IPv6 address. Press <Enter> to edit. Gateway IPv6 addresses consist of 8 hexadecimal 4 digit numbers separated by colons.*

Comments: This specifies the Gateway IPv6 Address for the Baseboard LAN. There is a separate Gateway IPv6 Address field for the Intel® RMM4 LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IPv6 Source** determines whether this field is display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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## 9. IPv6 Prefix Length

Option Values: *[Entry Field 0 – 128, **64** is default]*

Help Text: *View/Edit IPv6 Prefix Length from zero to 128 (default 64). Press <Enter> to edit.*

Comments: This specifies the IPv6 Prefix Length for the Baseboard LAN. There is a separate IPv6 Prefix Length field for the Intel® RMM4 LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IPv6 Source** determines whether this field is display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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## 10. Intel(R) RMM4

Option Values: *Not Present  
Intel(R) RMM4-Lite  
Intel(R) RMM4 + DMN*

Help Text: *<None>*

Comments: *Information only.* Displays whether an Intel® RMM4 component is currently installed. This information may come from querying the BMC.

**Intel® RMM4-Lite** is the Management Module without the Dedicated Server Management NIC Module. When this is present, or if the Management Module is **Not Present** at all, the fields for Intel® RMM4 LAN Configuration will not be visible.

When an **Intel® RMM4 + DMN** is installed, the options for **Intel® RMM4 LAN Configuration** will be visible. When **IPv6** is **Disabled**, the IPv4 configuration fields will be visible and the IPv6 configuration fields will not be visible. When **IPv6** is **Enabled**, the IPv4 fields will be grayed out and inactive, while the IPv6 Configuration fields will be visible.

In either case, the Intel® RMM4 section **IP Source** or **IPv6 Source** will determine whether the IPv4 or IPv6 address fields are display-only or can be edited.

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## 11. IP Source

Option Values: *Static  
**Dynamic***



Help Text: *Select RMM4 IP source. If [Static], IP parameters may be edited. If [Dynamic], these fields are display-only and IP address is acquired automatically (DHCP).*

Comments: This specifies the IP Source for IPv4 addressing for the Intel® RMM4 DMN LAN connection. There is a separate IP Source field for the Baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC, and its setting determines whether the other Intel® RMM4 DMN LAN IPv4 addressing fields are display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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## 12. IP Address

Option Values: *[Entry Field 0.0.0.0, **0.0.0.0** is default]*

Help Text: *View/Edit IP Address. Press <Enter> to edit.*

Comments: This specifies the IPv4 Address for the Intel® RMM4 DMN LAN. There is a separate IPv4 Address field for the Baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IP Source** determines whether this field is display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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## 13. Subnet Mask

Option Values: *[Entry Field 0.0.0.0, **0.0.0.0** is default]*

Help Text: *View/Edit Subnet Mask. Press <Enter> to edit.*

Comments: This specifies the IPv4 addressing Subnet Mask for the Intel® RMM4 DMN LAN. There is a separate IPv4 Subnet Mask field for the Baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IP Source** determines whether this field is display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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## 14. Gateway IP

Option Values: *[Entry Field 0.0.0.0, **0.0.0.0** is default]*

Help Text: *View/Edit Gateway IP. Press <Enter> to edit.*

Comments: This specifies the IPv4 addressing Gateway IP for the Intel® RMM4 DMN LAN. There is a separate IPv4 Gateway IP field for the Baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IP Source** determines whether this field is display-only (when **Dynamic**) or can be edited (when **Static**).

When IPv6 addressing is enabled, this field is grayed out and inactive.

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## 15. IPv6 Source

Option Values:       Static  
                           **Dynamic**  
                           Auto

Help Text:            Select Intel® RMM4 IPv6 source. If [Static], IPv6 parameters may be edited. If [Dynamic], these fields are display-only and IPv6 address is acquired automatically (DHCP). If [Auto], these fields are display-only and IPv6 address is acquired using ICMPv6 router / neighbor discovery.

Comments:            This specifies the IP Source for IPv6 addressing for the Intel® RMM4 DMN LAN configuration. There is a separate IPv6 Source field for the Baseboard LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is **Enabled**, the initial value for this field is acquired from the BMC, and its setting determines whether the other Intel® RMM4 DMN LAN IPv6 addressing fields are display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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#### 16. IPv6 Address

Option Values:        [Entry Field 0000:0000:0000:0000:0000:0000:0000:0000,  
                           **0000:0000:0000:0000:0000:0000:0000:0000** is default]

Help Text:            View/Edit IPv6 address. Press <Enter> to edit. IPv6 addresses consist of 8 hexadecimal 4 digit numbers separated by colons.

Comments:            This specifies the IPv6 Address for the Intel® RMM4 DMN LAN. There is a separate IPv6 Address field for the Baseboard LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IPv6 Source** determines whether this field is display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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#### 17. Gateway IPv6

Option Values:        [Entry Field 0000:0000:0000:0000:0000:0000:0000:0000,  
                           **0000:0000:0000:0000:0000:0000:0000:0000** is default]

Help Text:            View/Edit Gateway IPv6 address. Press <Enter> to edit. Gateway IPv6 addresses consist of 8 hexadecimal 4 digit numbers separated by colons.

Comments:            This specifies the Gateway IPv6 Address for the Intel® RMM4 DMN LAN. There is a separate Gateway IPv6 Address field for the Baseboard LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IPv6 Source** determines whether this field is display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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#### 18. IPv6 Prefix Length

Option Values:        [Entry Field 0 – 128, **64** is default]

Help Text: *View/Edit IPv6 Prefix Length from zero to 128 (default 64). Press <Enter> to edit.*

Comments: This specifies the IPv6 Prefix Length for the Intel® RMM4 DMN LAN. There is a separate IPv6 Prefix Length field for the Baseboard LAN configuration.

This option is only visible when the **IPv6** option is set to **Enabled**.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The setting of **IPv6 Source** determines whether this field is display-only (when **Dynamic** or **Auto**) or can be edited (when **Static**).

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## 19. BMC DHCP Host Name

Option Values: *[Entry Field, 2-63 characters]*

Help Text: *View/Edit BMC DHCP host name. Press <Enter> to edit. Host name should start with an alphabetic, remaining can be alphanumeric characters. Host name length may be from 2 to 63 characters.*

Comments: This field is active and may be edited whenever at least one of the **IP Source** or **IPv6 Source** options is set to **Dynamic**. This is the name of the DHCP Host from which dynamically assigned IPv4 or IPv6 addressing parameters are acquired.

The initial value for this field is supplied from the BMC, if there is a DHCP Host available. The user can edit the existing Host or enter a different DHCP Host Name.

If none of the **IP/IPv6 Source** fields is set to **Dynamic**, then this **BMC DHCP Host Name** field will be grayed out and inactive.

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## 20. User ID

Option Values: **anonymous**

root

User3

User4

User5

Help Text: *Select the User ID to configure: User1 (anonymous), User2 (root), and User3/4/5 are supported.*

Comments: These 5 User IDs are fixed choices and cannot be changed. The BMC supports 15 User IDs natively but only the first 5 are supported through this interface.

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## 21. Privilege

Option Values: Callback  
User  
Operator  
**Administrator**

Help Text: *View/Select user privilege. User2 (root) privilege is "Administrator" and cannot be changed.*

Comments: The level of privilege that is assigned for a User ID affects which functions that user may perform.

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## 22. User Status

Option Values: Enabled

**Disabled**

Help Text: Enable / Disable LAN access for selected user. Also enables/disables SOL, KVM, and media redirection.

Comments: Note that status setting is **Disabled** by default until set to **Enabled**.

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## 23. User Name

Option Values: [Entry Field, 4 - 15 characters]

Help Text: Press <Enter> to edit User Name. User Name is a string of 4 to 15 alphanumeric characters, and must begin with an alphabetic character. User Name cannot be changed for User1 (anonymous) and User2 (root).

Comments: User Name can only be edited for users other than “anonymous” and “root”. Those two User Names may not be changed.

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## 24. User Password

Option Values: [Popup Entry Field, 0 - 15 characters]

Help Text: Press <Enter> key to enter password. Maximum length is 15 characters. Any ASCII printable characters can be used: case-sensitive alphabetic, numeric, and special characters.

**Note:** Password entered will override any previously set password.

Comments: This field will not indicate whether there is a password set already. There is no display - just press <Enter> for a popup with an entry field to enter a new password. Any new password entered will override the previous password, if there was one.

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## Boot Options Screen (Tab)

The **Boot Options** screen displays all bootable media encountered during POST, and allows the user to configure the desired order in which boot devices are to be tried.

To access this screen from the **Main** screen or other top-level Tab screen, press the right or left arrow keys to traverse the tabs at the top of the Setup screen until the **Boot Options** screen is selected.

The first boot device in the specified Boot Order which is present and is bootable during POST will be used to boot the system, and will continue to be used to reboot the system until the boot device configuration has changed (that is, which boot devices are present), or until the system has been powered down and booted in a “cold” power-on boot.

**Note:** USB devices can be “hotplugged” during POST, and will be detected and “beeped”. They will be enumerated and displayed on the USB Configuration Setup screen. However, they may not be enumerated as bootable devices, depending on when in POST they were hotplugged. If they were recognized before the enumeration of bootable devices, they will appear as Boot Devices if

*appropriate. If they were recognized after Boot Device enumeration, they will not appear as a bootable device for the Boot Options screen, the Boot Manager screen, or the F6 Boot Menu.*

There are two main types of boot order control, Legacy Boot and EFI Optimized boot. These are mutually exclusive – when EFI Optimized Boot is enabled, Legacy Boot (the default) is disabled. Within Legacy Boot operation, there are two further methods of ordering boot devices, Dynamic Boot Order and Static Boot Order.

The default for Boot Order control is Legacy Boot, with Dynamic Boot Order. If all types of bootable devices are installed in the system, then the default Boot Order is as follows:

- CD/DVD-ROM
- Floppy Disk Drive
- Hard Disk Drive
- PXE Network Device
- BEV (Boot Entry Vector) Device
- EFI Shell and EFI Boot paths

In this default Boot Order, a USB device may appear in any of several Device Classes, due to the flexibility of USB connections and USB emulation of various types of devices.

***Note:** A USB Key (USB Flash Drive) can be formatted to emulate either a Floppy Drive or a Hard Drive and will appear in that Boot Device Class. However, although it can be formatted as a CDROM Drive, it will not be detected as such. It will be treated as a Hard Disk and will appear in the list of available Hard Drives.*



Figure 97. Boot Options Screen

**Screen Field Descriptions:****1. System Boot Timeout**

Option Values:        *[Entry Field 0 – 65535, 0 is default]*

Help Text:            *The number of seconds BIOS will pause at the end of POST to allow the user to press the [F2] key for entering the BIOS Setup utility.*

*Valid values are 0-65535. Zero is the default. A value of 65535 causes the system to go to the Boot Manager menu and wait for user input for every system boot.*

Comments:            After entering the desired timeout, press the <Enter> key to register that timeout value to the system. These settings are in seconds. The timeout value entered will take effect on the next boot.

This timeout value is independent of the FRB2 setting for BIOS boot failure protection. The FRB2 countdown will be suspended during the time that the Boot Timeout countdown is active.

Also, if the <Pause> key is pressed during the time that the Boot Timeout is active, the Boot Timeout countdown will be suspended until the Pause state has been dismissed and normal POST processing has resumed.

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2. Boot Option #1
3. Boot Option #2
4. Boot Option <#n>

Option Values: <Available Boot Device #n>

Help Text: *Set system boot order by selecting the boot option for this position.*

Comments: When the Boot order has been chosen, it will take effect on the next boot. The system will go down the list and boot from the first device on the list which is available and bootable.

This establishes the Boot Order only with respect to the normal boot path. This order has no effect on the Boot Manager selection list or the <F6> BIOS Boot Menu popup, both of which simply list all bootable devices available in the order in which they were detected. Whether or not a potential Boot Device is in this list has no bearing on the presence or order of Boot Devices shown for Boot Manager or the BIOS Boot Menu.

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---

5. CDROM Order

Option Values: <None>

Help Text: *Set the order of the legacy devices in this group.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **CDROM Order Screen**.

This option appears when one or more bootable CDROM drives are available in the system. This includes USB CDROM devices but not USB Keys formatted for CRDOM emulation, which are seen as Hard Disk drives.

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6. Hard Disk Order

Option Values: <None>

Help Text: *Set the order of the legacy devices in this group.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **Hard Disk Order Screen**.

This option appears when one or more bootable Hard Disk drives are available in the system. This includes USB Hard Disk devices and USB Keys formatted for Hard Disk or CRDOM emulation.

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7. Floppy Order

Option Values: <None>

Help Text: *Set the order of the legacy devices in this group.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **Floppy Order Screen**.

This option appears when one or more bootable Floppy Disk drives are available in the system. This includes USB Floppy Disk devices and USB Keys formatted for Floppy Disk emulation.

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#### 8. Network Device Order

Option Values: <None>

Help Text: *Set the order of the legacy devices in this group.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **Network Device Order Screen**.

This option appears when one or more bootable Network Devices are available in the system.

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#### 9. BEV Device Order

Option Values: <None>

Help Text: *Set the order of the legacy devices in this group.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **BEV Device Order Screen**.

This option appears when one or more bootable BEV Devices are available in the system.

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---

#### 10. Add EFI Boot Option

Option Values: <None>

Help Text: *Add a new EFI boot option to the boot order.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **Add EFI Boot Option Screen**.

This option is only displayed if an EFI bootable device is available to the system.

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---

#### 11. Delete EFI Boot Option

Option Values: <None>

Help Text: *Remove an EFI boot option from the boot order.*

Comments: Selection only. Select this line and press the <Enter> key to go to the **Delete EFI Boot Option Screen**.

This option is only displayed if an EFI boot path is included in the Boot Order.

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#### 12. EFI Optimized Boot

Option Values: Enabled

**Disabled**

Help Text: *If enabled, the BIOS only loads modules required for booting EFI-aware Operating Systems.*

Comments: If this option is enabled, the system will not boot successfully to a non-EFI-aware OS.

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**13. Use Legacy Video for EFI OS**

Option Values: Enabled  
**Disabled**

Help Text: *If enabled, the BIOS uses the legacy video ROM instead of the EFI video ROM.*

Comments: This option appears only when EFI Optimized Boot is enabled.

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**14. Boot Option Retry**

Option Values: Enabled  
**Disabled**

Help Text: *If enabled, this continually retries non-EFI-based boot options without waiting for user input.*

Comments: This option is intended to keep retrying for cases where the boot devices could possibly be slow to initially respond, for example, if the device were “asleep” and did not wake quickly enough. However, if none of the devices in the Boot Order ever responds, the BIOS will continue to reboot indefinitely.

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**15. USB Boot Priority**

Option Values: Enabled  
**Disabled**

Help Text:

*If enabled, newly discovered USB devices are moved to the top of their boot device category. If disabled, newly discovered USB devices are moved to the bottom of their boot device category.*

Comments: This option enables or disables the “USB Reorder” functionality. USB Boot Priority, if enabled, is intended for the case where a user wants to be able to plug in a USB device and immediately boot to it, for example in case of a maintenance or System Administration operation. If a User Password is installed, USB Boot Priority action is suspended when a User Password is installed.

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**16. Static Boot Order**

Option Values: Enabled  
**Disabled**

Help Text:

*[Disabled] - Devices removed from the system are deleted from Boot Order Tables.  
[Enabled] - Devices removed have positions in Boot Order Tables retained for later reinsertion.*

Comments: When the option changes from “Disabled” to “Enabled”, it will enable Static Boot Order (SBO) from the next boot onward, and also the current Boot Order will be stored as the SBO template.

When the option changes from “Enabled” to “Disabled”, this will disable SBO and the SBO template will be cleared.

Otherwise it will retain the current Enabled/Disabled state.

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### 17. Reset Static Boot Order

Option Values: Yes

**No Action**

Help Text: *[Yes] Take snapshot of current boot order to save as Static Boot Order Template.*

Comments: This option will allow you to save the Boot Order list as the Static Boot Order template without disabling and re-enabling the Static Boot Order option.

Select Yes to snapshot the current Boot Options list into the Static Boot Options list on the next boot. After saving Static Boot Options list, this option will change back to NoAction automatically.

This option is available only when the Static Boot Order option is Enabled. Otherwise it will be grayed out and unavailable.

***Back to [Boot Options Screen] — Back to [Screen Map]***

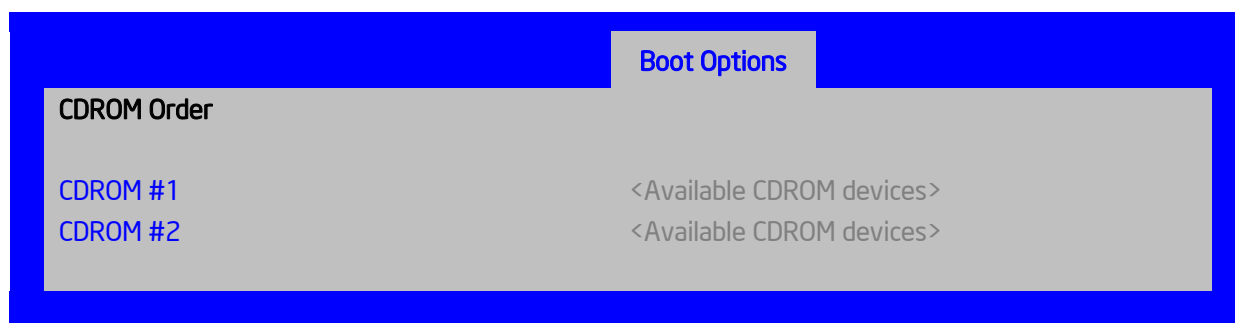
---

## CDROM Order

The **CDROM Order** screen allows the user to control the order in which BIOS attempts to boot from the CDROM drives installed in the system. This screen is only available when there is at least one CDROM device available in the system configuration.

*Note: A USB attached CDROM device will appear in this section. However, a USB Key formatted as a CDROM device will not – it will be detected as a Hard Disk device and will be included in the Hard Disk Order Screen.*

To access this screen from the **Main** screen, select **Boot Options > CDROM Order**. To move to another screen, press the <Esc> key to return to the **Boot Options** screen, then select the desired screen.



**Figure 98. CDROM Order Screen**

### **Screen Field Descriptions:**

1. CDROM #1
2. CDROM #2

Option Values: <Available CDROM devices>  
 Help Text: Set system boot order by selecting the boot option for this position.  
 Comments: Choose the order of booting among CDROM devices by choosing which available CDROM device should be in each position in the order.

[Back to \[CDROM Order Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)

---

## Hard Disk Order

The **Hard Disk Order** screen allows the user to control the order in which BIOS attempts to boot from the hard disk drives installed in the system. This screen is only available when there is at least one hard disk device available in the system configuration. Note that a USB attached Hard Disk drive or a USB Key device formatted as a hard disk will appear in this section.

To access this screen from the **Main** screen, select **Boot Options > Hard Disk Order**. To move to another screen, press the <Esc> key to return to the **Boot Options** screen, then select the desired screen.

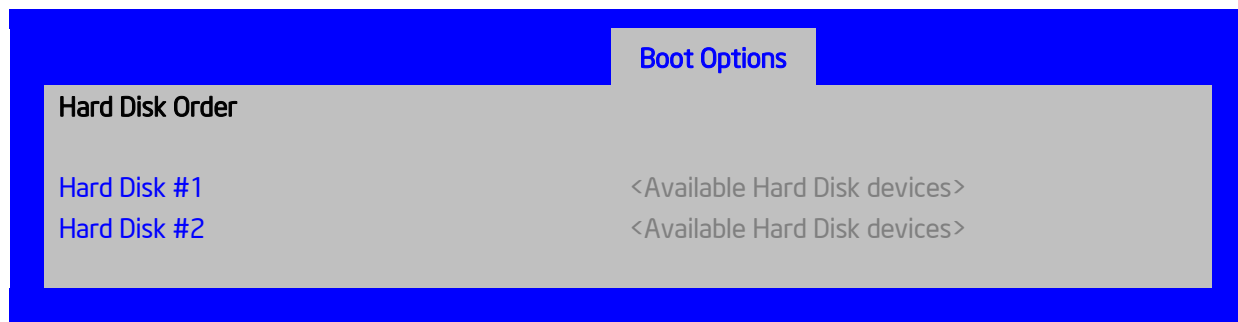


Figure 99. Hard Disk Order Screen

### Screen Field Descriptions:

1. Hard Disk #1
2. Hard Disk #2

Option Values: <Available Hard Disk devices>  
 Help Text: Set system boot order by selecting the boot option for this position.  
 Comments: Choose the order of booting among Hard Disk devices by choosing which available Hard Disk device should be in each position in the order.

[Back to \[Hard Disk Order Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)

---

## Floppy Order

The **Floppy Order** screen allows the user to control the order in which BIOS attempts to boot from the Floppy Disk drives installed in the system. This screen is only available when there is at least

one Floppy Disk (diskette) device available in the system configuration. Note that a USB attached diskette drive or a USB Key device formatted as a diskette drive will appear in this section.

To access this screen from the **Main** screen, select **Boot Options > Floppy Order**. To move to another screen, press the <Esc> key to return to the **Boot Options** screen, then select the desired screen.

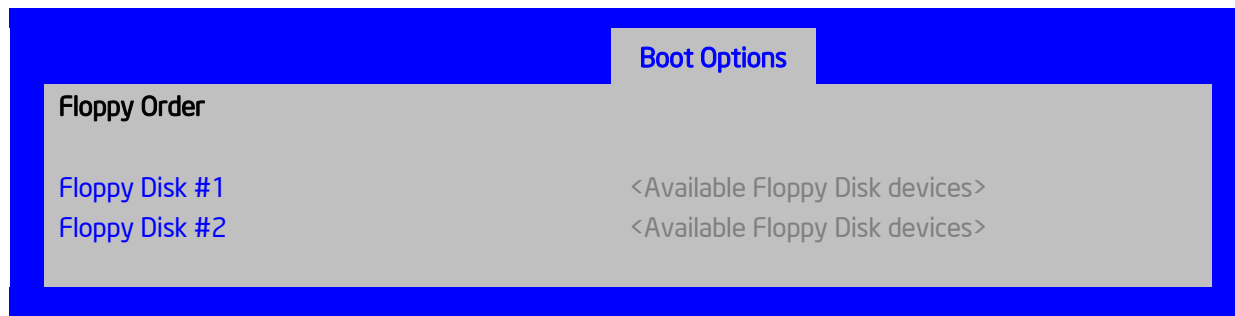


Figure 100. Floppy Order Screen

**Screen Field Descriptions:**

1. Floppy Disk #1

2. Floppy Disk #2

Option Values: <Available Floppy Disk devices>

Help Text: Set system boot order by selecting the boot option for this position.

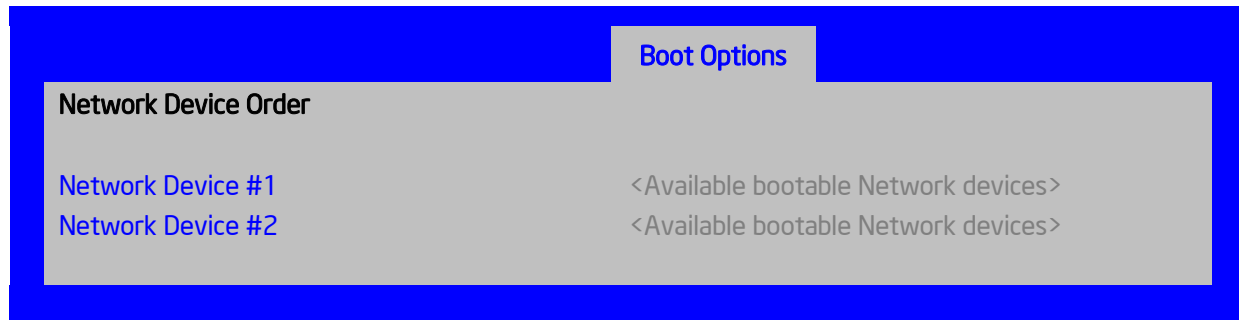
Comments: Choose the order of booting among Floppy Disk devices by choosing which available Floppy Disk device should be in each position in the order.

[Back to \[Floppy Order Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)

## Network Device Order

The **Network Device Order** screen allows the user to control the order in which BIOS attempts to boot from the network bootable devices installed in the system. This screen is only available when there is at least one network bootable device available in the system configuration.

To access this screen from the **Main** screen, select **Boot Options > Network Device Order**. To move to another screen, press the <Esc> key to return to the **Boot Options** screen, then select the desired screen.



**Figure 101. Network Device Order Screen**

**Screen Field Descriptions:**

1. Network Device #1
2. Network Device #2

Option Values:       <Available Network Devices>

Help Text:            *Set system boot order by selecting the boot option for this position.*

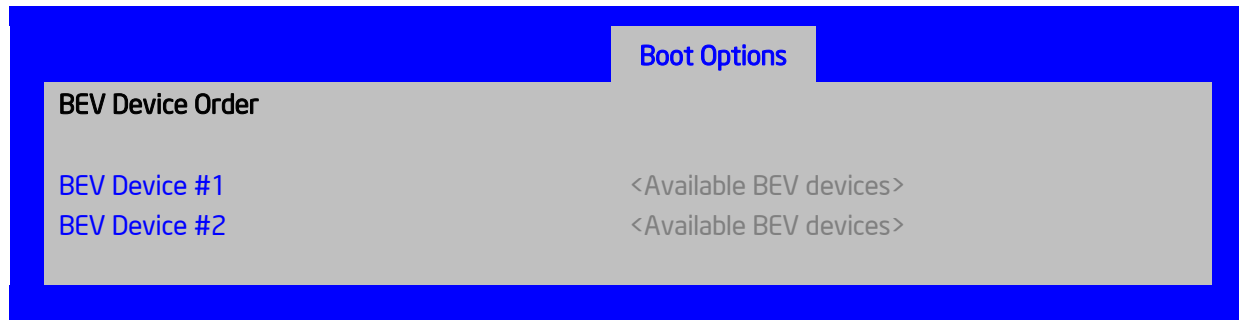
Comments:            Choose the order of booting among Network Devices by choosing which available Network Device should be in each position in the order.

***Back to [Network Device Order Screen] — [Boot Options Screen] — [Screen Map]***

## **BEV Device Order**

The **BEV Device Order** screen allows the user to control the order in which BIOS attempts to boot from the BEV Devices installed in the system. This screen is only available when there is at least one BEV device available in the system configuration.

To access this screen from the **Main** screen, select **Boot Options > BEV Device Order**. To move to another screen, press the <Esc> key to return to the **Boot Options** screen, then select the desired screen.



**Figure 102. BEV Device Order Screen**

**Screen Field Descriptions:**

1. BEV Device #1
2. BEV Device #2

Option Values:        <Available BEV Devices>

Help Text:            *Set system boot order by selecting the boot option for this position.*

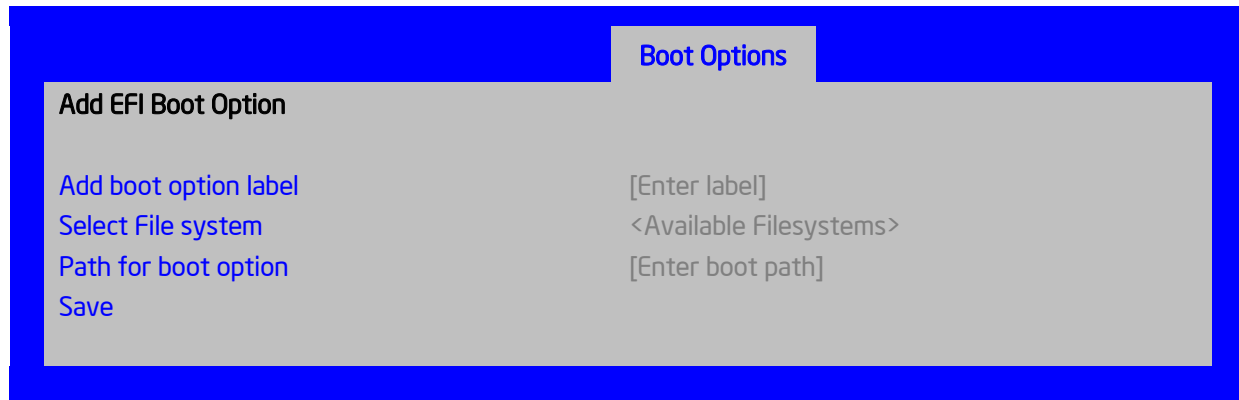
Comments:            Choose the order of booting among BEV Devices by choosing which available BEV Device should be in each position in the order.

***[Back to \[BEV Device Order Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)***

## Add EFI Boot Option

The **Add EFI Boot Option** screen allows the user to add an EFI boot option to the boot order. This screen is only available when there is at least one EFI bootable device present in the system configuration. The “Internal EFI Shell” Boot Option is permanent and cannot be added or deleted.

To access this screen from the **Main** screen, select **Boot Options > Add EFI Boot Option**. To move to another screen, press the <Esc> key to return to the **Boot Options** screen, then select the desired screen.



**Figure 103. Add EFI Boot Option Screen**

**Screen Field Descriptions:**

**1. Add boot option label**

Option Values: *[Enter label]*

Help Text: *Create the label for the new boot option.*

Comments: This label becomes an abbreviation for this Boot Path.

***[Back to \[Add EFI Boot Option Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)***

---

**2. Select File system**

Option Values: *<Available Filesystems>*

Help Text: *Select one filesystem from this list.*

Comments: Choose the filesystem on which this boot path resides.

***[Back to \[Add EFI Boot Option Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)***

---

**3. Path for boot option**

Option Values: *[Enter Boot Path]*

Help Text: *Enter the path to the boot option in the format \path\filename.efi.*

Comments: This will be the Boot Path, residing on the filesystem chosen, which will enter into the Boot Order with the Label entered above.

***[Back to \[Add EFI Boot Option Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)***

---

**4. Save**

Option Values: *<None>*

Help Text: *Save the boot option.*

Comments: *Selection only.* This will save the new Boot Option into the Boot Order.

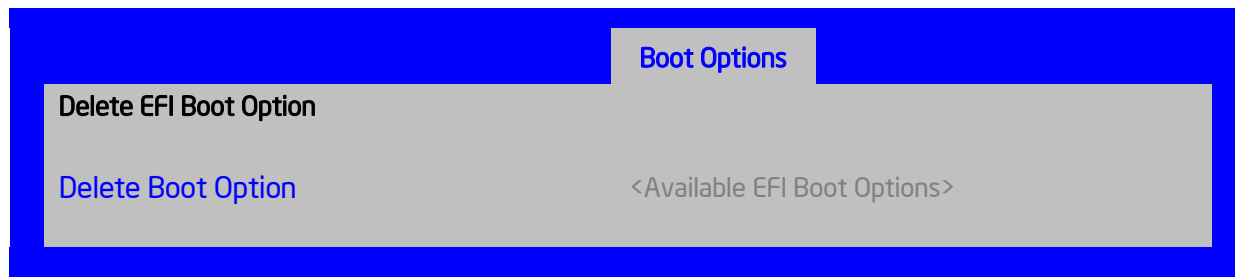
***[Back to \[Add EFI Boot Option Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)***

---

## Delete EFI Boot Option

The **Delete EFI Boot Option** screen allows the user to remove an EFI boot option from the boot order. The “Internal EFI Shell” Boot Option will not be listed, since it is permanent and cannot be added or deleted.

To access this screen from the **Main** screen, select **Boot Options > Delete EFI Boot Option**. To move to another screen, press the <Esc> key to return to the **Boot Options** screen, then select the desired screen.



**Figure 104. Delete EFI Boot Option Screen**

### Screen Field Descriptions:

1. Delete Boot Option

Option Values: <Available EFI Boot Options>

Help Text: *Select one to delete.*

Comments: This will not allow a user to delete the EFI Shell.

[Back to \[Delete EFI Boot Option Screen\]](#) — [\[Boot Options Screen\]](#) — [\[Screen Map\]](#)

## Boot Manager Screen (Tab)

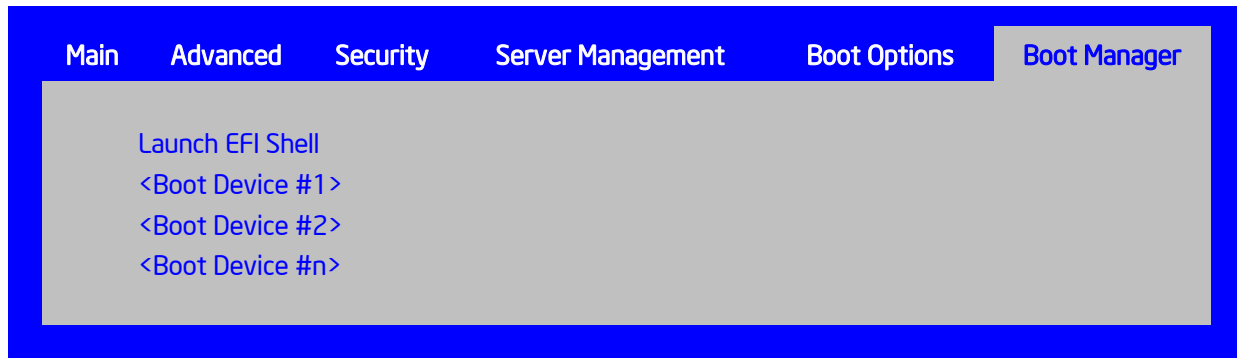
The **Boot Manager** screen allows the user to view a list of devices available for booting, and to select a boot device for immediately booting the system. There is no predetermined order for listing bootable devices. They are simply listed in order of discovery.

Regardless of whether any other bootable devices are available, the “Internal EFI Shell” will always be available.

***Note:** This list is **not** in order according to the system Boot Option order. Reordering Boot Devices or even removing them from the Boot Order completely has no effect on the Boot Manager.*

To access this screen from the **Main** screen or other top-level Tab screen, press the right or left arrow keys to traverse the tabs at the top of the Setup screen until the **Boot Manager** screen is selected.





**Figure 105. Boot Manager Screen**

### **Screen Field Descriptions:**

**1. Launch EFI Shell**

Option Values: <None>

Help Text: *Select this option to boot now.*

**Note:** *This list is not the system boot option order. Use the Boot Options menu to view and configure the system boot option order.*

Comments: The EFI Shell will always be present in the list of bootable devices.

***[Back to \[Boot Manager Screen\]](#) — [\[Screen Map\]](#)***

---

**2. <Boot Device #1>**

**3. <Boot Device #2>**

**4. <Boot Device #n>**

Option Values: <None>

Help Text: *Select this option to boot now.*

**Note:** *This list is not the system boot option order. Use the Boot Options menu to view and configure the system boot option order.*

Comments: These are names of bootable devices discovered in the system. The system user can choose any of them from which to initiate a one-time boot – that is, booting from any device in this list will not permanently affect the defined system Boot Order.

These bootable devices are not displayed in any specified order, particularly not in the system Boot Order established by the Boot Options screen. This is just a list of bootable devices in the order in which they were enumerated.

***[Back to \[Boot Manager Screen\]](#) — [\[Screen Map\]](#)***

---

## **Error Manager Screen (Tab)**

The **Error Manager** screen displays any POST Error Codes encountered during BIOS POST, along with an explanation of the meaning of the Error Code in the form of a Help Text. This is an *Information Only* screen.

To access this screen from the **Main** screen or other top-level Tab screen, press the right or left arrow keys to traverse the tabs at the top of the Setup screen until the **Error Manager** screen is selected.

ERROR CODE	SEVERITY	INSTANCE	DESCRIPTION
<Post Code>	<Major/Minor>	<Instance #>	<Description>
5224	Major	N/A	This is an example.

Figure 106. Error Manager Screen

**Screen Field Descriptions:**

**1. ERROR CODE**

Option Values: <POST Error Code>

Help Text: <N/A>

Comments: This is a POST Error Code – a BIOS-originated error that occurred during POST initialization.

***Back to [Error Manager Screen] — [Screen Map]***

---

**2. SEVERITY**

Option Values: Minor  
Major  
Fatal

Help Text: <N/A>

Comments: Each POST Error Code has a Severity associated with it.

***Back to [Error Manager Screen] — [Screen Map]***

---

**3. INSTANCE**

Option Values: <Depends on error code>

Help Text: <N/A>

Comments: Where applicable, this field shows a value indicating which one of a group of components was responsible for generating the POST Error Code that is being reported.

***Back to [Error Manager Screen] — [Screen Map]***

---

**4. DESCRIPTION**

Option Values: <N/A>

Help Text: <Description of POST Error Code>

Comments: This is a description of the meaning of the POST Error Code that is being reported. This text actually appears in the screen space that is usually reserved for “Help” messages.

***Back to [Error Manager Screen] — [Screen Map]***

---

## Save & Exit Screen (Tab)

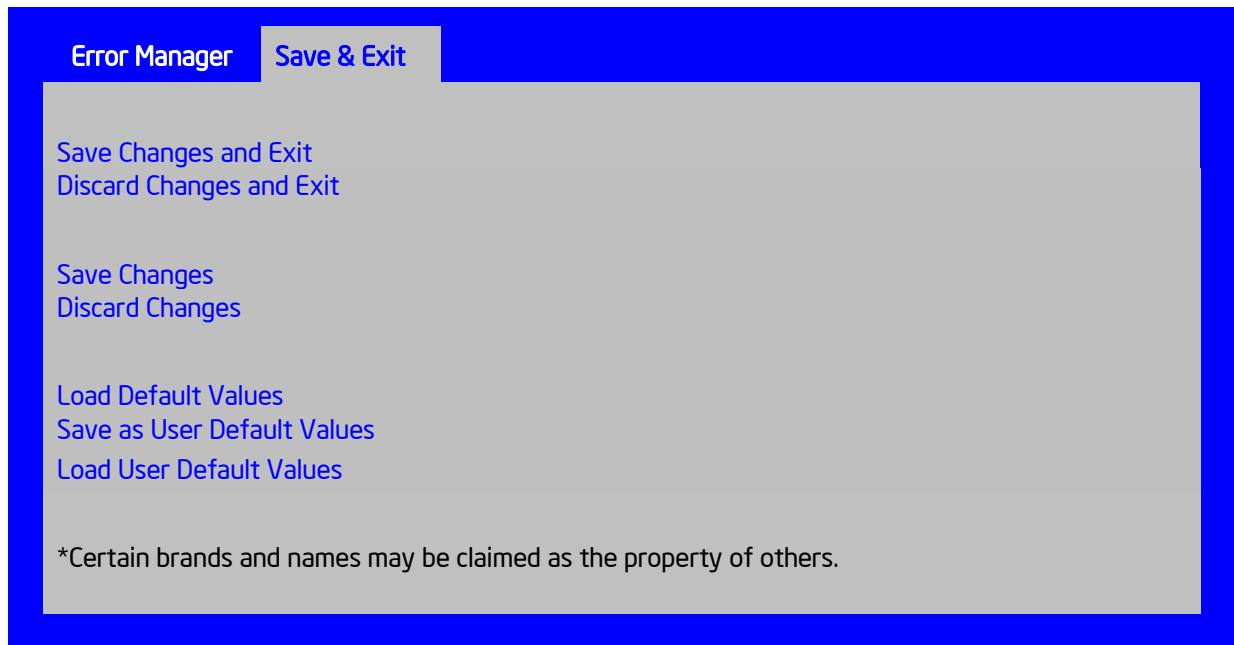
The **Save & Exit** screen allows the user to choose whether to save or discard the configuration changes made on other Setup screens. It also allows the user to restore the BIOS settings to the factory defaults or to save or restore them to a set of user-defined default values. If Load Default Values is selected, the factory default settings (noted in bold in the Setup screen images) are applied. If Load User Default Values is selected, the system is restored to previously saved User Default Values.

To access this screen from the **Main** screen or other top-level Tab screen, press the right or left arrow keys to traverse the tabs at the top of the Setup screen until the **Save & Exit** screen is selected.

*Note: There is a Legal Disclaimer footnote at the bottom of the Save & Exit screen:*

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

*This is reference to any instance in the Setup screens where names belonging to other companies may appear. For example “LSI\*” appears in Setup in the context of Mass Storage RAID options.*



**Figure 107. Save & Exit Screen**

### **Screen Field Descriptions:**

1. Save Changes and Exit

Option Values: <None>

Help Text:

*Exit BIOS Setup Utility after saving changes. The system will reboot if required.  
The [F10] key can also be used.*

Comments: Selection only. Select this line and press the <Enter> key to exit Setup with any changes in BIOS settings saved. If there have been no changes made in the settings, the BIOS will resume executing POST.

If changes have been made in BIOS settings, a confirmation pop-up will appear. If the “Save Changes & Exit” action is positively confirmed, any persistent changes will be applied and saved to the BIOS settings in NVRAM storage, then the system will reboot if necessary (which is normally the case). If the “Save Changes & Exit” action is not confirmed, BIOS will resume executing Setup.

The <F10> function key may also be used from anyplace in Setup to initiate a “Save Changes & Exit” action.

***Back to [Save & Exit Screen] — [Screen Map]***

---

## 2. Discard Changes and Exit

Option Values: <None>

Help Text:

*Exit BIOS Setup Utility without saving changes.  
The [Esc] key can also be used.*

Comments: Selection only. Select this line and press the <Enter> key to exit Setup without saving any changes in BIOS settings. If there have been no changes made in the settings, the BIOS will resume executing POST.

If changes have been made in BIOS settings, a confirmation pop-up will appear. If the “Discard Changes & Exit” action is positively confirmed, all pending changes will be discarded and BIOS will resume executing POST. If the “Discard Changes & Exit” action is not confirmed, BIOS will resume executing Setup without discarding any changes.

The <Esc> key may also be used in Setup to initiate a “Discard Changes & Exit” action.

***Back to [Save & Exit Screen] — [Screen Map]***

---

## 3. Save Changes

Option Values: <None>

Help Text: *Save Changes made so far to any of the setup options.*

Comments: Selection only. Select this line and press the <Enter> key to save any pending changes in BIOS settings. If there have been no changes made in the settings, the BIOS will resume executing POST.

Also, the user should be aware that most changes require a reboot to become active. If changes have been made and saved, without exiting Setup, the system should be rebooted later even if no additional changes are made.

***Back to [Save & Exit Screen] — [Screen Map]***

---

## 4. Discard Changes

Option Values: <None>

Help Text: *Discard Changes made so far to any of the setup options.*

Comments: *Selection only.* Select this line and press the <Enter> key to discard any pending unsaved changes in BIOS settings. If there have been no changes made in the settings, the BIOS will resume executing POST.

If changes have been made in BIOS settings and not yet saved, a confirmation pop-up will appear. If the “Discard Changes” action is positively confirmed, all pending changes will be discarded and BIOS will resume executing POST. If the “Discard Changes” action is not confirmed, BIOS will resume executing Setup without discarding pending changes.

***Back to [Save & Exit Screen] — [Screen Map]***

---

## 5. Load Default Values

Option Values: <None>

Help Text: *Load Defaults Values for all the setup options.*

Comments: *Selection only.* Select this line and press the <Enter> key to load default values for all BIOS settings. These are the initial factory settings (“failsafe” settings) for all BIOS parameters.

There will be a confirmation popup to verify that the user really meant to take this action.

After initializing all BIOS settings to default values, the BIOS will resume executing Setup, so the user may make additional changes in the BIOS settings if necessary (for example, Boot Order) before doing a “Save Changes and Exit” with a reboot to make the default settings take effect, including any changes made after loading the defaults.

The <F9> function key may also be used from anyplace in Setup to initiate a “Load Default Values” action.

***Back to [Save & Exit Screen] — [Screen Map]***

---

## 6. Save as User Default Values

Option Values: <None>

Help Text: *Save the changes made so far as User Default Values.*

Comments: *Selection only.* Select this line and press the <Enter> key to save the current state of the settings for all BIOS parameters as a customized set of “User Default Values”.

These are a user-determined set of BIOS default settings that can be used as an alternative instead of the initial factory settings (“failsafe” settings) for all BIOS parameters.

By changing the BIOS settings to values that the user prefers to have for defaults, and then using this operation to save them as “User Default Values”, that version of BIOS settings can be restored at any time by using the following “Load User Default Values” operation.

There will be a confirmation popup to verify that the user really intended to take this action.

Loading the “factory default” values with F9 or the “Load Default Values” – or by any other means – does not affect the User Default Values. They remain set to whatever values they were saved as.

***Back to [Save & Exit Screen] — [Screen Map]***

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## 7. Load User Default Values

Option Values: <None>

Help Text: *Load the User Default Values to all the setup options.*

Comments: *Selection only.* Select this line and press the <Enter> key to load User Default Values for all BIOS settings. These are user-customized BIOS default settings for all BIOS parameters, previously established by doing a “Save User Defaults” action (see above). There will be a confirmation popup to verify that the user really intended to take this action.

***Back to [Save & Exit Screen] — [Screen Map]***

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## Appendix A: Technical Reference

### System Environmental Specifications

The following table defines the system level operating and non-operating environmental limits.

**Table 9. System Environmental Limits Summary**

Parameter		Limits
Temperature		
	Operating	ASHRAE Class A2 – Continuous Operation. 10 °C to 35 °C (50 °F to 95 °F) with the maximum rate of change not to exceed 10 °C per hour
		ASHRAE Class A3 – Includes operation up to 40 °C for up to 900 hrs per year.
		ASHRAE Class A4 – Includes operation up to 45 °C for up to 90 hrs per year.
	Shipping	-40 °C to 70 °C (-40 °F to 158 °F)
Altitude		
	Operating	Support operation up to 3050m with ASHRAE class deratings.
Humidity		
	Shipping	50% to 90%, non-condensing with a maximum wet bulb of 28 °C (at temperatures from 25 °C to 35 °C)
Shock		
	Operating	Half sine, <a href="#">2g</a> , 11 mSec
	Unpackaged	Trapezoidal, <a href="#">25g</a> , velocity change is based on packaged weight
	Packaged	Product Weight: ≥ 40 to < 80 Non-palletized Free Fall Height = 18 inches Palletized (single product) Free Fall Height = NA
Vibration		
	Unpackaged	5 Hz to 500 Hz    2.20 g RMS random
	Packaged	5 Hz to 500 Hz    1.09 g RMS random
AC-DC		
	Voltage	90 Hz to 132 V and 180 V to 264 V
	Frequency	47 Hz to 63 Hz
	Source Interrupt	No loss of data for power line drop-out of 12 mSec
	Surge Non-operating and operating	Unidirectional
	Line to earth Only	AC Leads        2.0 kV I/O Leads        1.0 kV DC Leads        0.5 kV
ESD		
	Air Discharged	12.0 kV
	Contact Discharge	8.0 kV
Acoustics Sound Power Measured		

## Appendix A: Technical Reference

Parameter		Limits			
	Power in Watts	<300 W	≥300 W	≥600 W	≥1000 W
	Servers/Rack Mount BA	7.0	7.0	7.0	7.0

See the *Intel® S1200V3RP Product Family Power Budget and Thermal Configuration Tool* for system configuration requirements and limitations.

**Disclaimer Note:** Intel® ensures the unpackaged server board and system meet the shock requirement mentioned above through its own chassis development and system configuration. It is the responsibility of the system integrator to determine the proper shock level of the board and system if the system integrator chooses different system configuration or different chassis. Intel Corporation cannot be held responsible, if components fail or the server board does not operate correctly when used outside any of its published operating or non-operating limits.



## Appendix B: Regulatory and Compliance Information

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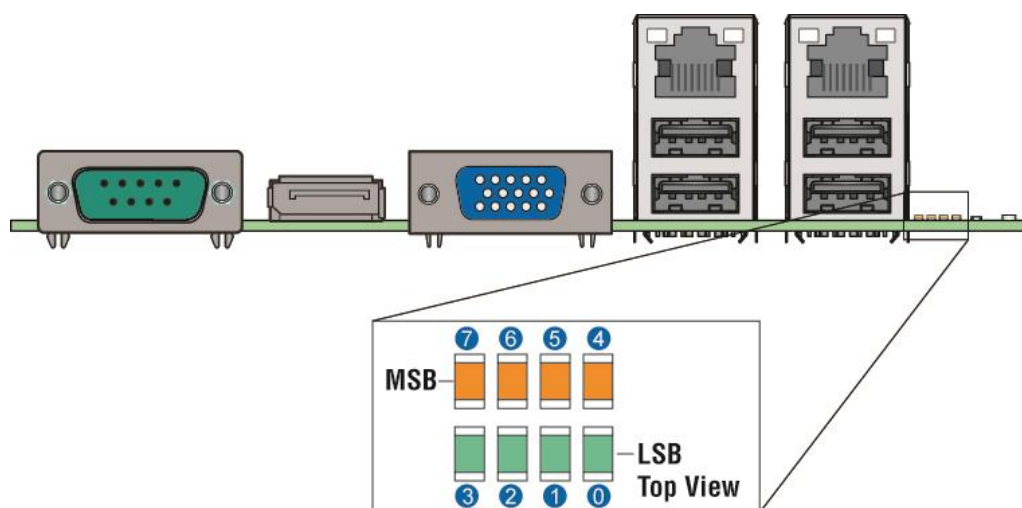
Refer to the *Server Products Regulatory and Safety* document for the product regulatory compliance reference. The document can be downloaded from <http://www.intel.com/support>.

## Appendix C: LED Decoder

During the system boot process, the BIOS executes a number of platform configuration processes, each of which is assigned a specific hex POST code number. As each configuration routine is started, the BIOS displays the POST code to the POST Code Diagnostic LEDs on the back edge of the server board. To assist in troubleshooting a system hang during the POST process, the Diagnostic LEDs can be used to identify the last POST process that was executed.

Each POST code is represented by a sequence of eight amber diagnostic LEDs. The POST codes are divided into two nibbles, an upper nibble and a lower nibble. The upper nibble bits are represented by diagnostic LEDs #4, #5, #6, and #7. The lower nibble bits are represented by diagnostics LEDs #0, #1, #2, and #3. If the bit is set in the upper and lower nibbles, then the corresponding LED is lit. If the bit is clear, then the corresponding LED is off.

The diagnostic LED #7 is labeled as “MSB”, and the diagnostic LED #0 is labeled as “LSB”.



AF006053

Figure 108. Diagnostic LED Placement Diagram

The LEDs are decoded as follows.

Table 10. POST Progress Code LED Example

LEDs	Upper Nibble AMBER LEDs				Lower Nibble GREEN LEDs			
	MSB	7	6	5	4	3	2	LSB
	LED #7	LED #6	LED #5	LED #4	LED #3	LED #2	LED #1	LED #0
	8h	4h	2h	1h	8h	4h	2h	1h
Status	ON	OFF	ON	OFF	ON	ON	OFF	OFF
Decode Result	1	0	1	0	1	1	0	0
	Ah				Ch			

The following table provides a list of all POST progress codes.

**Table 11. POST Progress Code Decoder**

Checkpoint	Diagnostic LED Decoder								Description
	1 = LED On, 0 = LED Off								
	Upper Nibble				Lower Nibble				
	MSB							LSB	
	8h	4h	2h	1h	8h	4h	2h	1h	
LED #	#7	#6	#5	#4	#3	#2	#1	#0	
SEC Phase									
01h	0	0	0	0	0	0	0	1	First POST code after CPU reset
02h	0	0	0	0	0	0	1	0	Microcode load begin
03h	0	0	0	0	0	0	1	1	CRAM initialization begin
04h	0	0	0	0	0	1	0	0	Pei Cache When Disabled
05h	0	0	0	0	0	1	0	1	SEC Core At Power On Begin.
06h	0	0	0	0	0	1	1	0	Early CPU initialization during Sec Phase.
07h	0	0	0	0	0	1	1	1	Early SB initialization during Sec Phase.
08h	0	0	0	0	1	0	0	0	Early NB initialization during Sec Phase.
09h	0	0	0	0	1	0	0	1	End Of Sec Phase.
0Eh	0	0	0	0	1	1	1	0	Microcode Not Found.
0Fh	0	0	0	0	1	1	1	1	Microcode Not Loaded.
PEI Phase									
10h	0	0	0	1	0	0	0	0	PEI Core
11h	0	0	0	1	0	0	0	1	CPU PEIM
15h	0	0	0	1	0	1	0	1	NB PEIM
19h	0	0	0	1	1	0	0	1	SB PEIM
MRC Process Codes – MRC Progress Code Sequence is executed									
PEI Phase continued...									
31h	0	0	1	1	0	0	0	1	Memory Installed
32h	0	0	1	1	0	0	1	0	CPU PEIM (CPU Init)
33h	0	0	1	1	0	0	1	1	CPU PEIM (Cache Init)
34h	0	0	1	1	0	1	0	0	CPU PEIM (BSP Select)
35h	0	0	1	1	0	1	0	1	CPU PEIM (AP Init)
36h	0	0	1	1	0	1	1	0	CPU PEIM (CPU SMM Init)
4Fh	0	1	0	0	1	1	1	1	Dxe IPL started
DXE Phase									
60h	0	1	1	0	0	0	0	0	DXE Core started

Appendix C: LED Decoder

Checkpoint	Diagnostic LED Decoder								Description
	1 = LED On, 0 = LED Off								
	Upper Nibble				Lower Nibble				
	MSB						LSB		
	8h	4h	2h	1h	8h	4h	2h	1h	
LED #	#7	#6	#5	#4	#3	#2	#1	#0	
61h	0	1	1	0	0	0	0	1	DXE NVRAM Init
62h	0	1	1	0	0	0	1	0	SB RUN Init
63h	0	1	1	0	0	0	1	1	Dxe CPU Init
68h	0	1	1	0	1	0	0	0	DXE PCI Host Bridge Init
69h	0	1	1	0	1	0	0	1	DXE NB Init
6Ah	0	1	1	0	1	0	1	0	DXE NB SMM Init
70h	0	1	1	1	0	0	0	0	DXE SB Init
71h	0	1	1	1	0	0	0	1	DXE SB SMM Init
72h	0	1	1	1	0	0	1	0	DXE SB devices Init
78h	0	1	1	1	1	0	0	0	DXE ACPI Init
79h	0	1	1	1	1	0	0	1	DXE CSM Init
90h	1	0	0	1	0	0	0	0	DXE BDS Started
91h	1	0	0	1	0	0	0	1	DXE BDS connect drivers
92h	1	0	0	1	0	0	1	0	DXE PCI Bus begin
93h	1	0	0	1	0	0	1	1	DXE PCI Bus HPC Init
94h	1	0	0	1	0	1	0	0	DXE PCI Bus enumeration
95h	1	0	0	1	0	1	0	1	DXE PCI Bus resource requested
96h	1	0	0	1	0	1	1	0	DXE PCI Bus assign resource
97h	1	0	0	1	0	1	1	1	DXE CON_OUT connect
98h	1	0	0	1	1	0	0	0	DXE CON_IN connect
99h	1	0	0	1	1	0	0	1	DXE SIO Init
9Ah	1	0	0	1	1	0	1	0	DXE USB start
9Bh	1	0	0	1	1	0	1	1	DXE USB reset
9Ch	1	0	0	1	1	1	0	0	DXE USB detect
9Dh	1	0	0	1	1	1	0	1	DXE USB enable
A1h	1	0	1	0	0	0	0	1	DXE IDE begin
A2h	1	0	1	0	0	0	1	0	DXE IDE reset
A3h	1	0	1	0	0	0	1	1	DXE IDE detect
A4h	1	0	1	0	0	1	0	0	DXE IDE enable
A5h	1	0	1	0	0	1	0	1	DXE SCSI begin
A6h	1	0	1	0	0	1	1	0	DXE SCSI reset

Checkpoint	Diagnostic LED Decoder								Description
	1 = LED On, 0 = LED Off								
	Upper Nibble				Lower Nibble				
	MSB							LSB	
	8h	4h	2h	1h	8h	4h	2h	1h	
LED #	#7	#6	#5	#4	#3	#2	#1	#0	
A7h	1	0	1	0	0	1	1	1	DXE SCSI detect
A8h	1	0	1	0	1	0	0	0	DXE SCSI enable
A9h	1	0	1	0	1	0	0	1	DXE verifying SETUP password
ABh	1	0	1	0	1	0	1	1	DXE SETUP start
ACH	1	0	1	0	1	1	0	0	DXE SETUP input wait
ADh	1	0	1	0	1	1	0	1	DXE Ready to Boot
Aeh	1	0	1	0	1	1	1	0	DXE Legacy Boot
Afh	1	0	1	0	1	1	1	1	DXE Exit Boot Services
B0h	1	0	1	1	0	0	0	0	RT Set Virtual Address Map Begin
B1h	1	0	1	1	0	0	0	1	RT Set Virtual Address Map End
B2h	1	0	1	1	0	0	1	0	DXE Legacy Option ROM init
B3h	1	0	1	1	0	0	1	1	DXE Reset system
B4h	1	0	1	1	0	1	0	0	DXE USB Hot plug
B5h	1	0	1	1	0	1	0	1	DXE PCI BUS Hot plug
B6h	1	0	1	1	0	1	1	0	DXE NVRAM cleanup
B7h	1	0	1	1	0	1	1	1	DXE Configuration Reset
00h	0	0	0	0	0	0	0	0	INT19
S3 Resume									
E0h	1	1	0	1	0	0	0	0	S3 Resume PEIM (S3 started)
E1h	1	1	0	1	0	0	0	1	S3 Resume PEIM (S3 boot script)
E2h	1	1	0	1	0	0	1	0	S3 Resume PEIM (S3 Video Repost)
E3h	1	1	0	1	0	0	1	1	S3 Resume PEIM (S3 OS wake)
BIOS Recovery									
F0h	1	1	1	1	0	0	0	0	PEIM which detected forced Recovery condition
F1h	1	1	1	1	0	0	0	1	PEIM which detected User Recovery condition
F2h	1	1	1	1	0	0	1	0	Recovery PEIM (Recovery started)
F3h	1	1	1	1	0	0	1	1	Recovery PEIM (Capsule found)
F4h	1	1	1	1	0	1	0	0	Recovery PEIM (Capsule loaded)

## Appendix D: Getting Help

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If you encounter an issue with your server system, follow these steps to obtain support:

1. Visit the following Intel support web page: <http://www.intel.com/support>. This web page provides 24x7 support when you need it to get the latest and most complete technical support information on all Intel® Enterprise Server and Storage Platforms. Information available at the support site includes:
  - Latest BIOS, firmware, drivers, and utilities
  - Product documentation, installation, and quick start guides
  - Full product specifications, technical advisories, and errata
  - Compatibility documentation for memory, hardware add-in cards, chassis support matrix, and operating systems
  - Server and chassis accessory parts list for ordering upgrades or spare parts
  - A searchable knowledgebase to search for product information throughout the support site
2. If you are still unable to obtain a solution to your issue, send an email to Intel's technical support center using the online form available at <http://www.intel.com/support/feedback.htm?group=server>.
3. Lastly, you can contact an Intel support representative using one of the support phone numbers available at <http://www.intel.com/support/feedback.htm?group=server> (charges may apply). Intel customer support suggests filling out the issue report form available at “[Intel® Server Issue Report Form](#)” to better service the issue.

Intel also offers Channel Program members around-the-clock 24x7 technical phone support on Intel server boards, server chassis, server RAID controller cards, and Intel® Server Management at <http://www.intel.com/reseller/>.

*Note:* You will need to log in to the Reseller site to obtain the 24x7 number.

### Warranty Information

To obtain warranty information, visit the following Intel web site:  
[http://www.intel.com/p/en\\_US/support/warranty](http://www.intel.com/p/en_US/support/warranty).

## Appendix E: Intel® Server Issue Report Form

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### Issue Report Form (Rev 3.6)

*Note: Filling out this form completely is required for any escalation.*

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**Customer Contact Information:**

Customer Support Case#:

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**Intel® Server Board or System:**

(Example: S1200V3RP, R1000RP)

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**Server Chassis:**

(Example P4000M. If third-party chassis used, indicate make and model.)

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**Base Board Information: (Some information maybe found by accessing BIOS and going through the Server Management menu > System Information)**

Baseboard PBA/TA/AA # (Example: 123456-789):

- can be found on the white sticker label on the baseboard.

System BIOS Version:

Intel® Remote Management Module Firmware Version (if applicable):

Intel® Management Module BMC Revision (if applicable):

BMC Version:

FRU/SDR Version:

Has the latest BIOS been tried? (Yes/No):

Has the latest BMC been tried? (Yes/No):

Has the latest RMM Firmware been tried? (Yes/No):

Has the latest FRU/SDR been tried? (Yes/No):

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**Processor information:**

	Type	Speed	sSpec	Thermal Solution
Processor 1				
Processor 2				

**Appendix E: Intel® Server Issue Report Form**

Thermal solution (Heat sink) examples:  
(1U, Passive w/air ducting, Active w/fan, and so on)

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**Memory:**

Manufacturer	Part Number	DRAM Part Number	On Intel® tested list?

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**Add-in adapters (Example: NICs, Management Adapters, Serial Expansion Cards, PCI-Express\* Adapters, RAID Controllers, SCSI Controllers, and so on):**

Type	Slot	Manufacturer	Model	Firmware

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**Other third party hardware (Example: Example: KVM, Chassis, and so on):**

Description/Use	Manufacturer	Model	Firmware

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**Storage Devices (Example: SCSI, SATA, SAS, USB, Tape, and so on):**

Manufacturer	Model	Type	Size	Firmware	In Hot Swap Bay?



Manufacturer	Model	Type	Size	Firmware	In Hot Swap Bay?

**Operating System Information (Example: RedHat\* Enterprise Linux, Microsoft Windows Server 2003\*, Service pack 1, OEM CD):**

Manufacturer:

Version:

Language version (English, Arabic, and Chinese (Simplified)):

Service Pack Level or Kernel Revision:

Distribution (OEM/Retail):

**Intel® RAID Controller: (Example SRCU42E)**

RAID controller part number (PBA number):

RAID controller firmware version:

Has the latest RAID firmware been tried? (Yes/No):

RAID driver version:

Has the latest RAID driver been tried? (Yes/No):

RAID volumes configuration (disks & RAID level):

RAID volume use (Boot device/Data Volume):

Is BBU (Battery Backup Unit) installed? (Yes/No):

BBU part number:

**Detailed description of issue:**

**Troubleshooting tried:**

## Appendix E: Intel® Server Issue Report Form

**Steps to replicate the issue:**

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**Issue impact statements:**

**Do you have any potential Intel® system or component purchases that this issue is holding up? If yes, please provide a brief description below.**

**Do you have systems already purchased that are not being delivered to your customers because of this issue? If yes, please provide a brief description below.**

**Have you returned systems or components to your place of purchase because of this issue? If yes, please provide a brief description below.**

\*All other brands and names are property of their respective owners.