

Intel® Server Board S5000PSL User Guide

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

Intel Order Number D36217-001

Preliminary

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Safety Information

Important Safety Instructions

Read all caution and safety statements in this document before performing any of the instructions. See also Intel Server Boards and Server Chassis Safety Information on the *Intel® Server Deployment Toolkit 2 CD* and/or at <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm>.

Wichtige Sicherheitshinweise

Lesen Sie zunächst sämtliche Warn- 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 2 CD* oder unter <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm>.

Consignes de sécurité

Lisez attentivement toutes les consignes de sécurité et les mises en garde indiquées dans ce document avant de suivre toute instruction. Consultez Intel Server Boards and Server Chassis Safety Information sur le *Intel® Server Deployment Toolkit 2 CD* ou bien rendez-vous sur le site <http://support.intel.com/support/motherboards/server/sb/cs-010770.htm>.

Instrucciones de seguridad importantes

Lea todas las declaraciones de seguridad y precaución de este documento antes de realizar cualquiera de las instrucciones. Vea Intel Server Boards and Server Chassis Safety Information en el *Intel® Server Deployment Toolkit 2 CD* y/o en <http://support.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://support.intel.com/support/motherboards/server/sb/CS-010770.htm> 上的 *Intel Server Boards and Server Chassis Safety Information* (《Intel 服务器主板与服务器机箱安全信息》)。

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Warnings

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

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

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

Electrostatic discharge (ESD) and ESD protection: ESD can damage disk drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground any unpainted metal surface on your server when handling parts.

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

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

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Preface

About this Manual

Thank you for purchasing and using the Intel® Server Board S5000PSL.

Several versions of the Intel® Server Board S5000PSL are available. This manual applies to server boards with the following order codes:

- S5000PSLSAS
- S5000PSLSATA
- S5000PSLROMB

Where a feature varies from one product to the next, the difference will be noted in this document. Unless specified, features apply to all versions of the server board.

This manual is written for system technicians who are responsible for troubleshooting, upgrading, and repairing this server board. This document provides a brief overview of the features of the 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 Board S5000PSL. For the latest version of this manual, see <http://support.intel.com/support/motherboards/server/S5000PSL/>.

Manual Organization

Chapter 1 provides a brief overview of the Server Board S5000PSL. In this chapter, you will find a list of the server board features, photos of the product, and product diagrams to help you identify components and their locations.

Chapter 2 provides instructions on using the utilities that are shipped with the board or that may be required to update the system. This includes how to navigate through the BIOS Setup screens, how to perform a BIOS update, and how to reset the password or CMOS. Information about the specific BIOS settings and screens is available in the Technical Product Specification. See [“Additional Information and Software” on page viii](#) for a link to the Technical Product Specification.

Chapter 3 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 memory, processor, control panel board, and the CMOS battery.

Chapter 4 provides troubleshooting information. In this chapter, you will find BIOS error messages and POST code messages. You will also find suggestions for performing troubleshooting activities to identify the source of a problem.

Product Accessories

This server board is compatible with the following Intel® Server Chassis:

- Intel® Server Chassis Intel® Server Chassis SC5400, all versions
- Intel® Entry Server Chassis SC5299-E, DP and BRP versions only

You may need or want to purchase one or more of the following accessory items for your server:

Processor, memory FBDIMMs, hard drive, floppy drive, CD-ROM or DVD-ROM drive, RAID controller, operating system.

For information about which accessories, memory, processors, and third-party hardware have been tested and can be used with your board, and for ordering information for Intel products, see <http://support.intel.com/support/motherboards/server/S5000PSL/compat.htm>.

Additional Information and Software

If you need more information about this product or information about the accessories that can be used with this server board, use the following resources. These files are available at <http://support.intel.com/support/motherboards/server/S5000PSL/>

Unless otherwise indicated in the table below, once on this Web page, type the document or software name in the search field at the left side of the screen and select the option to search "This Product."

Table 1. Additional Information and Software

For this Information or Software	Use this Document or Software
For in-depth technical information about this product, including BIOS settings and chipset information	<i>Intel® Server Board S5000PSL Technical Product Specification</i>
For in-depth technical information about this product, including BIOS settings and chipset information	<i>Intel® S5000 Server Board Family Datasheet</i>
If you just received this product and need to install it	Intel® Server Board S5000PSL <i>Quick Start User's Guide</i> in the product box

Table 1. Additional Information and Software

For this Information or Software	Use this Document or Software
For virtual system tours and interactive repair information	A link to the SMaRT Tool is available under "Other Resources" at the right side of the screen at http://support.intel.com/support/motherboards/server/S5000PSL
Accessories or other Intel server products	Spares and Configuration Guide
Hardware (peripheral boards, adapter cards) and operating systems that have been tested with this product	Tested Hardware Operating Systems List
Chassis that have been tested with this product	Reference Chassis List
Processors that have been tested with this product	Supported Processors
FBDIMMs that have been tested with this product	Tested Memory List
To make sure your system falls within the allowed power budget	Power Budget Tool
For software to manage your Intel® server	Intel Server Management Software
For drivers	Driver (for an extensive list of available drivers) Operating System Driver (for operating system drivers)
For firmware and BIOS updates, or for BIOS recovery	Firmware Updates
For diagnostics test software	Diagnostics

See also the *Intel® Server Deployment Toolkit 2 CD* that came with your server board.

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1 Server Board Features

This chapter briefly describes the main features of the Intel® Server Board S5000PSL. This chapter provides a photograph of the product, a list of the server board features, and diagrams showing the location of important components and connections on the server board.

Photograph TBD

Figure 1. Intel® Server Board S5000PSL

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Table 2 summarizes the features of the server board.

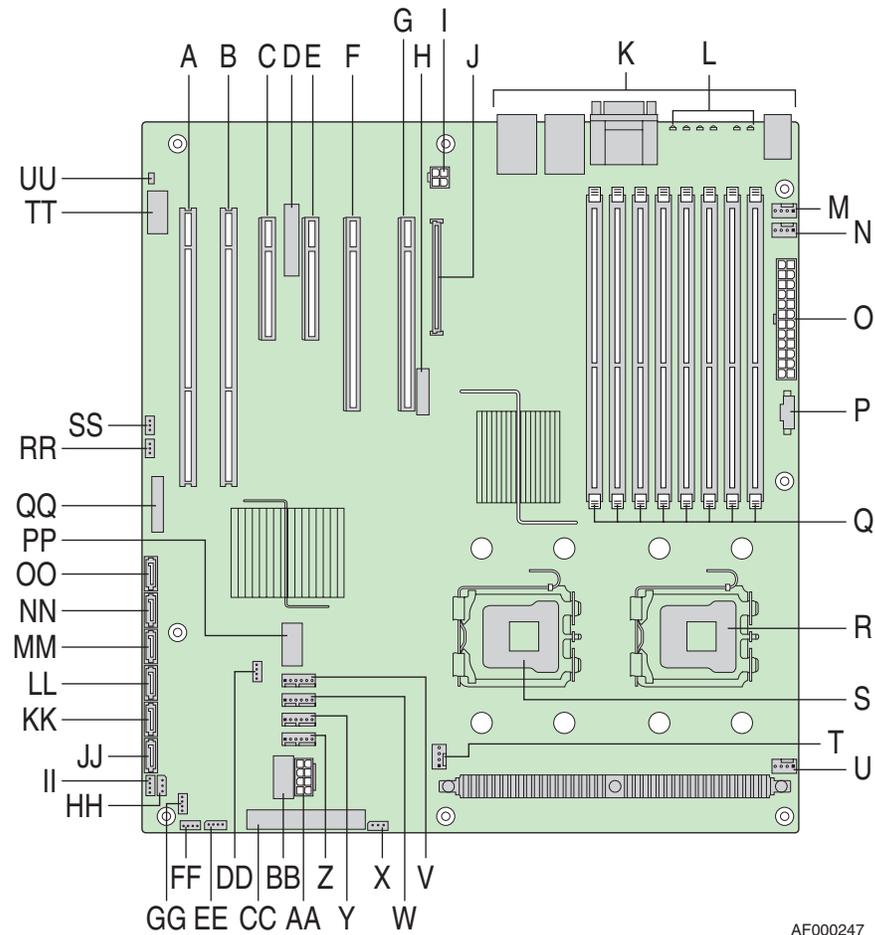
Table 2. Server Board Features

Feature	Description
Processor support	Support for up to two Dual-Core Intel® Xeon® processor 5000 Sequence with a 1066-MHz or 1333-MHz front side bus
System memory support	<ul style="list-style-type: none"> • Eight FBDIMM slots (DDR2-533 and DDR2-667) supporting 32 MB maximum memory • Quad-channel memory architecture
Intel® S5000P Chipset	<ul style="list-style-type: none"> • Intel® S5000P Memory Controller Hub (MCH) • Intel® Enterprise South Bridge 2 (ESB2-E)
Cooling	Support for <ul style="list-style-type: none"> • Two processor fans (4-pin headers) • Four front hot-swap fans (6-pin headers) • Two rear fans (4-pin header)
Add-in card slots	Six expansion slots: <ul style="list-style-type: none"> • One PCI-X* 64-bit / 100-MHz full-height slot • One PCI-X 64-bit / 100- / 133-MHz full-height slot • One PCI Express* x4 full-height slot (order code S5000PSLSAS) or one PIC Express x8 full-height slot (order code S5000PSLSATA) • One PCI Express full-height slot • Two PCI Express x8 full-height slots
I/O control support	<p>External connections:</p> <ul style="list-style-type: none"> • PS/2* ports for keyboard and mouse • DB9 serial port A connection • Two RJ45 NIC connectors for 10/100/1000 Mb connections: Dual GbE with Intel® I/OAT • Four USB 2.0 ports at the back of the board <p>Internal connections:</p> <ul style="list-style-type: none"> • One USB port header that supports two external USB 2.0 ports • One internal USB port that supports a peripheral such as a floppy drive • One DH10 serial port B header • One of the following: <ul style="list-style-type: none"> – Order code S5000PSLSATA: six SATA ports at 3 Gbs – Order code S5000PSLSAS: four SAS ports and two SATA ports at 3 Gbs – Order code S5000PSLROMB: Eight-port SAS with hardware RAID 5 through a ROMB card and six SATA ports (uses a PCI Express* slot) • One ATA-100 40-pin connector • One SSI-compliant 24-pin front control panel header

Table 2. Server Board Features

Feature	Description
Video support	On-board ATI* ES1000 video controller with 16-MB DDR SDRAM Dual-video is supported
Hard drive and optical drive support	<ul style="list-style-type: none"> • Optical devices are supported • Ultra ATA-100 support: One IDE channel that is capable of supporting up to two drives • One of the following: <ul style="list-style-type: none"> – Order code S5000PSLSATA: Six SATA connectors – Order code S5000PSLSAS: Four SAS port connectors and two SATA port connectors – Order Code S5000PSLROMB: Six SATA connectors on the server board. Four internal and four external SAS/SATA ports with expander support from Intel® RAID Adapter SROMBSAS18E
Floppy drive support	One internal USB port
RAID support	<ul style="list-style-type: none"> • One of the following: <ul style="list-style-type: none"> – Order code S5000PSLSATA : Intel® Embedded Server RAID Technology II SATA RAID 0, 1, and 10 with optional software RAID 5 support provided by Intel® RAID Activation Key – Order code and S5000PSLSAS: Intel® Embedded Server RAID Technology II SAS/SATA RAID 0, 1, and 10 with optional software RAID 5 support provided by Intel® RAID Activation Key – Order code S5000PSLROMB: Intel® Embedded Server RAID Technology II SAS/SATA RAID 0, 1, and 10 with optional hardware RAID (XOR) for RAID 0, 1, 5, 10, and 50. Uses specially keyed PCI Express slot.
Cooling fan support	Two 4-pin processor fan connectors Four 6-pin front hot-swap fan connectors Two 4-pin rear fan connectors
Server management support	<ul style="list-style-type: none"> • Support for the Intel® Local Control Panel (optional component sold separately) • Support for Intel® Remote Management Module and management NIC (optional component sold separately) • Support for Intel® System Management software • Intel® Light-Guided Diagnostics on field replaceable units

Connector and Header Locations



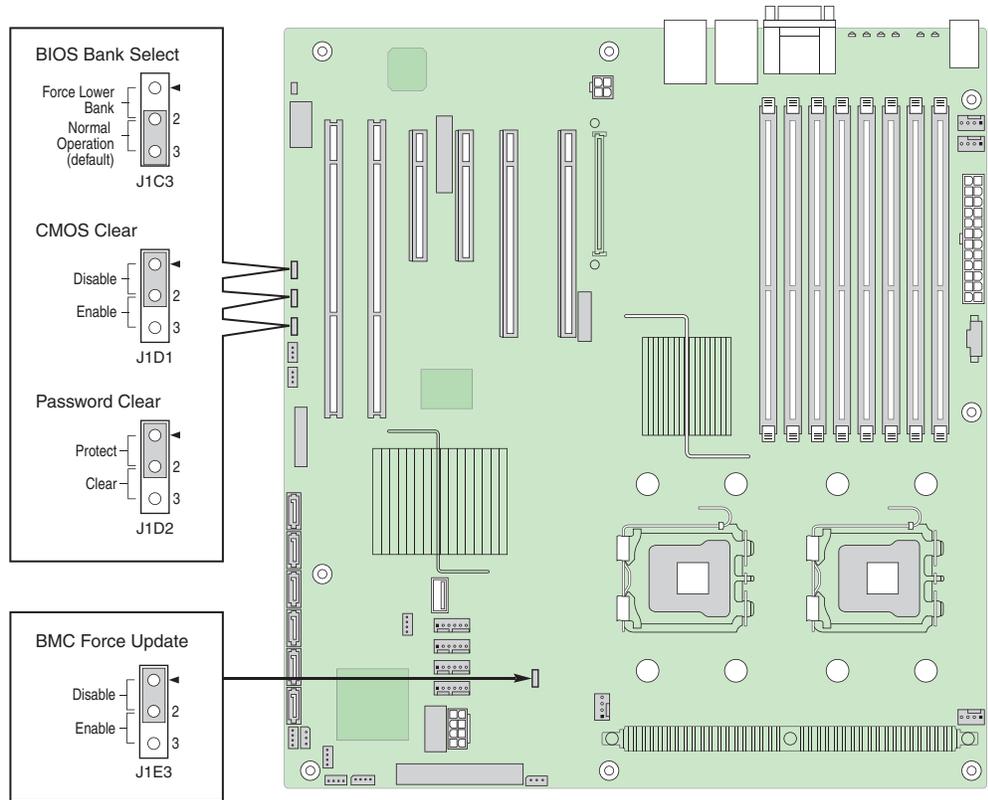
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A. PCI-X* 64-bit, 100-MHz slot 1	Q. DIMM sockets (see Figure 5 on page 13)	GG. Enclosure management SAS GPBIO header (order code S5000PSLSAS only)
B. PCI-X 64-bit, 100-/133-MHz slot 2	R. Processor 1 socket	HH. Enclosure management SAS SES2 (order code S5000PSLSAS only)
C. PCI Express* x4 slot 3	S. Processor 2 socket	II. Hot-swap backplane A header
D. Advanced Server Management Interface NIC connector	T. Processor 2 fan header	JJ. SATA 0
E. PCI Express x4 slot 4 (ROMB slot)	U. Processor 1 fan header	KK. SATA 1

F. PCI Express x8 slot 5	V. System fan 4 header	LL. SATA 2 or SAS 0 (SAS 0 on order code S5000PSLSAS only)
G. PCI Express x8 slot 6	W. System fan 3 header	MM. SATA 3 or SAS 1 (SAS 1 on order code S5000PSLSAS only)
H. CMOS battery	X. IPMB connector	NN. SATA 4 or SAS 2 (SAS 2 on order code S5000PSLSAS only)
I. P12V4 connector	Y. System fan 2 header	OO. SATA 5 or SAS 3 (SAS 3 on order code S5000PSLSAS only)
J. Advanced Server Management Interface connector (connector for Intel® Remote Management Module)	Z. System fan 1 header	PP. USB port
K. Back panel I/O ports (see Figure 4 on page 11)	AA. Processor power connector	QQ. Front control panel header
L. Diagnostic and Identify LEDs (see Figure 4 on page 11)	BB. USB header	RR. SATA software RAID 5 key connector
M. System fan 6 header	CC. IDE connector	SS. SAS software RAID 5 key connector (order code S5000PSLSAS only)
N. System fan 5 header	DD. Enclosure management SATA GPIO header	TT. Serial B / emergency management port header
O. Main power connector	EE. Intel® Local Control Panel header	UU. Chassis intrusion header
P. Auxilliary power signal connector	FF. Hot-swap backplane B header	

Figure 2. Server Board Connector and Component Locations

Configuration Jumpers



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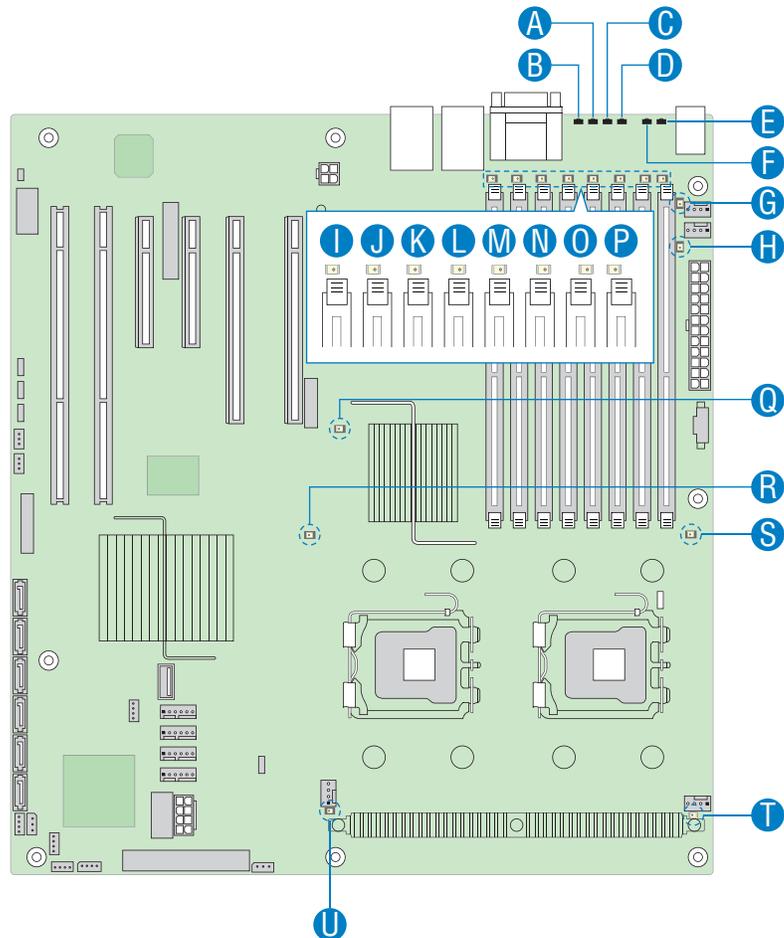
Jumper Name	Pins	What Happens at System Reset
BIOS Bank Select (J1C3)	1 - 2	Boot to an alternate BIOS.
	2 - 3	Boot from the standard BIOS. These pins should be jumpered for normal operation.
CMOS Clear (J1D1)	1 - 2	BMC control: these pins should be jumpered for normal operation.
	2 - 3	Erase CMOS: If these pins are jumpered for 5 to 10 seconds, the CMOS settings will be cleared on the next server reset. These pins should not be jumpered for normal operation. Note: The server does not need to be reset with the jumpers on these pins for the CMOS to be cleared. To clear the CMOS: Power down the server. Place the jumper on pins 2 - 3 for 5 to 10 seconds. Moving the jumper back to pins 1 - 2. Power on the server.

Jumper Name	Pins	What Happens at System Reset
Password Clear (J1D2)	1 - 2	Protect password: These pins should be jumpered for normal operation.
	2 - 3	Erase password: If these pins are jumpered for 5 to 10 seconds, the password will be cleared on the next server reset. These pins should not be jumpered for normal operation. Note: <i>The server does not need to be reset with the jumpers on these pins for the password to be cleared. To use this jumper to reset the password: Power down the server. Place the jumper on pins 2 - 3 for 5 to 10 seconds. Move the jumper back to pins 1 - 2. Power on the server.</i>
BMC Force Update (J1E3)	1 - 2	Disable force update: These pins should be jumpered for normal operation.
	2 - 3	Enable force update: Jumpering these pins forces a BMC update.

Figure 3. Configuration Jumpers

Intel® Light-Guided Diagnostics

The server board contains diagnostic LEDs to help you identify failed and failing components and to help you identify the server from among several servers. Except for the ID LED, the status LED, and the +5-volt standby LED, the LEDs turn on (amber) only if a failure occurs.



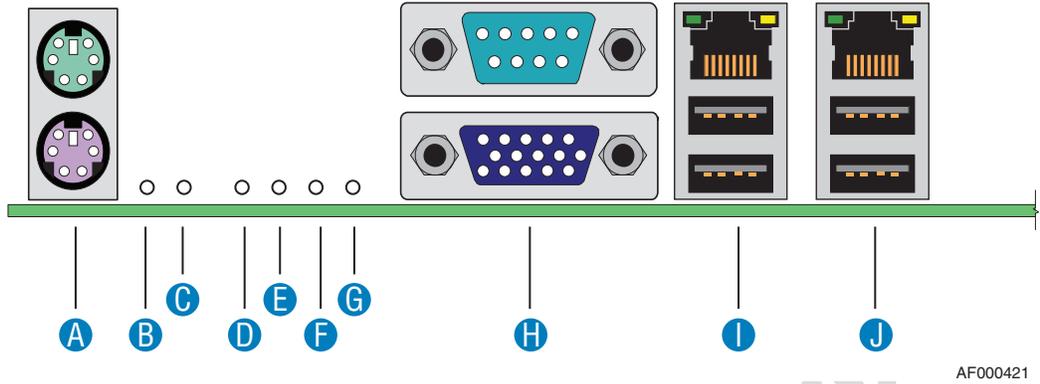
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Callout	LED	Function
A.	Bit 3 LED	POST LED. The sequence of lit POST LEDs is used to identify specific errors that might occur during the boot process. See the appendix of the Technical Product Specification for a description of how to read these LEDs. For a link to the Technical Product Specification, see “Additional Information and Software” on page viii.
B.	LSB LED	POST LED. The sequence of lit POST LEDs is used to identify specific errors that might occur during the boot process. See the appendix of the Technical Product Specification for a description of how to read these LEDs. For a link to the Technical Product Specification, see “Additional Information and Software” on page viii.
C.	Bit 2 LED	POST LED. The sequence of lit POST LEDs is used to identify specific errors that might occur during the boot process. See the appendix of the Technical Product Specification for a description of how to read these LEDs. For a link to the Technical Product Specification, see “Additional Information and Software” on page viii.
D.	MSB LED	POST LED. The sequence of lit POST LEDs is used to identify specific errors that might occur during the boot process. See the appendix of the Technical Product Specification for a description of how to read these LEDs. For a link to the Technical Product Specification, see “Additional Information and Software” on page viii.
E.	Status LED	The status LED indicates whether a server is operating correctly, has experienced a minor fault, or a major system error. For details about this LED, see the Technical Product Specification. For a link to the Technical Product Specification, see “Additional Information and Software” on page viii.
F.	ID LED	This LED can be turned on and off either by pressing a chassis button or by using server management software. This LED is useful when the server is grouped with several servers, such as in a rack, and you need to easily find the system to perform maintenance on it.
G.	System fan 6 fault LED	This LED indicates a fault has occurred with system fan 6. See your server chassis documentation for instructions to replace the fan.
H.	System fan 5 fault LED	This LED indicates a fault has occurred with system fan 5. See your server chassis documentation for instructions to replace the fan.
I.	DIMM A1 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_A1. Replace the faulty FBDIMM.

Callout	LED	Function
J.	DIMM A2 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_A2. Replace the faulty FBDIMM.
K.	DIMM B1 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_B1. Replace the faulty FBDIMM.
L.	DIMM B2 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_B2. Replace the faulty FBDIMM.
M.	DIMM C1 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_C1. Replace the faulty FBDIMM.
N.	DIMM C2 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_C2. Replace the faulty FBDIMM.
O.	DIMM D1 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_D1. Replace the faulty FBDIMM.
P.	DIMM D2 fault LED	This LED indicates a fault has occurred with the FBDIMM installed in socket DIMM_D2. Replace the faulty FBDIMM.
Q.	+5-volt standby LED	This LED is green whenever AC power is applied to the server. The server does not need to be powered on in order for this LED to be on.
R.	Processor 2 fault LED	This LED indicates a fault has occurred with the processor installed in socket CPU_2 socket. Replace the faulty processor.
S.	Processor 1 fault LED	This LED indicates a fault has occurred with the processor installed in socket CPU_1 socket. Replace the faulty processor.
T.	Processor 2 fan fault LED	This LED applies only to server platforms that use an active heatsink. This LED indicates a fault has occurred with fan that is installed on the heatsink for processor 2. Replace the faulty unit.
U.	Processor 1 fan fault LED	This LED applies only to server platforms that use an active heatsink. This LED indicates a fault has occurred with fan that is installed on the heatsink for processor 1. Replace the faulty unit.

Back Panel Features

The diagram and table on the following page show the back panel connectors and LEDs. For information about the LEDs, see “Intel® Light-Guided Diagnostics” on page 8.



A. Mouse (top), Keyboard (bottom)	F. Bit 3 LED (POST LED)
B. Status LED	G. LSB LED (POST LED)
C. ID LED	H. Serial B (top), Video (bottom)
D. MSB LED (POST LED)	I. NIC1 (top), two USB (bottom)
E. Bit 2 LED (POST LED)	J. NIC 2 (top), two USB (bottom)

Figure 4. Back Panel Connectors and LEDs

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

Table 3. NIC LEDs

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

Hardware Requirements

To avoid integration difficulties and possible board damage, your system must meet the requirements outlined below. For a list of qualified components, see the links under [“Additional Information and Software”](#) on page viii

Processor

One or two Intel® Xeon® processors. For a complete list of supported processors, see the links under [“Additional Information and Software”](#)

Memory

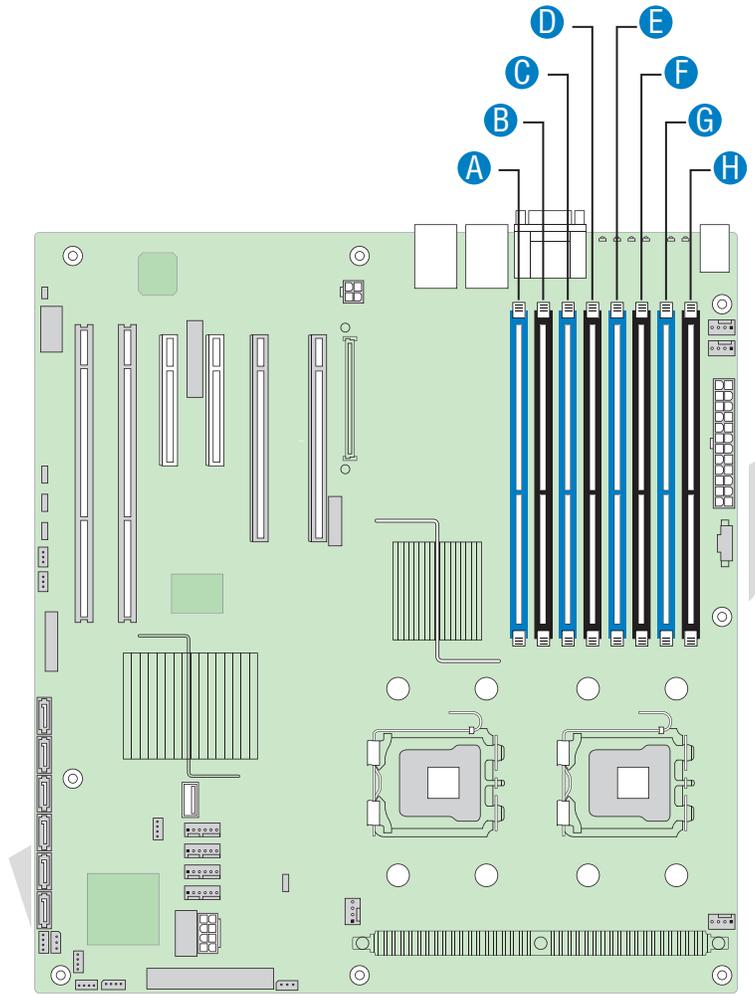
The Intel® Server Board S5000PSL provides 8 DIMM sockets in two branches. Each branch contains two channels:

- Branch 1 contains Channel A and Channel B
- Branch 2 contains Channel C and Channel D

Each channel contains two DIMM sockets:

- Channel A, nearest to the center of the server board, consists of DIMM sockets A1 and A2
- Channel B consists of DIMM sockets B1 and B2
- Channel C consists of DIMM sockets C1 and C2
- Channel D consists of DIMM sockets D1 and D2

See the following diagram to identify the DIMM sockets.



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Callout	DIMM Socket	Callout	DIMM Socket
A.	Branch 1, Channel A, DIMM_A1	E.	Branch 2, Channel C, DIMM_C1
B.	Branch 1, Channel A, DIMM_A2	F.	Branch 2, Channel C, DIMM_C2
C.	Branch 1, Channel B, DIMM_B1	G.	Branch 2, Channel D, DIMM_D1
D.	Branch 1, Channel B, DIMM_B2	H.	Branch 2, Channel D, DIMM_D2

Figure 5. DIMM Sockets

A minimum of one 512 MB FBDIMM is required in DIMM socket DIMM_A1. FBDIMMs must meet the following requirements:

- Use only FBDIMMs (DDR2-533 or DDR2-667).
- Use only 240-pin FBDIMMs.
- Use FBDIMMs with capacities of 512 MB, 1 GB, 2 GB, or 4 G.
- Use only FBDIMMs that comply with the JEDEC Rev 2.0 specifications.
- FBDIMMs in a given channel must be identical with respect to manufacturing, speed, timing, and organization. For example, this means the FBDIMMs in sockets A1 and B1 must be identical, and the FBDIMMs in sockets C1 and D1 must be identical. FBDIMMs in adjacent sockets on the same channel do not need to be identical.

The server will run in single-channel mode under the following conditions:

- Only a single FBDIMM is installed. This FBDIMM must be in socket DIMM_A1.
- The population of socket DIMM_A1 determines the mode that is selected. If DIMM_A1 and DIMM_B1 are not identical, then the system reverts to single-channel mode and DIMM_B1 is disabled.
- If the FBDIMMs in socket positions on adjacent channels of the branch are different in terms of timing, technology, or size. If the FBDIMMs on adjacent channels of a branch are not identical, the FBDIMM on the higher channel is disabled.
- If Branch 0 cannot support the dual-channel mode of operation for any reason, the server will run in single-channel mode.

For dual-channel interleave, providing optimum performance, a minimum of two FBDIMMs must be installed. Install these FBDIMMs in DIMM sockets DIMM_A1 and DIMM_B1. For dual-channel interleave, FBDIMMs must be installed in pairs and populated as follows:

- DIMM_A1 and DIMM_B1: Populate these two sockets together first.
- Populate FBDIMMs in channel order, populating all FBDIMMs in each channel. For example, if four FBDIMMs are to be installed, they need to be in sockets A1, B1, C1, and D1.
- The minimum memory population for enabling Branch 1 is four FBDIMMs: DIMM_A1, DIMM_B1, DIMM_C1 and DIMM_D1.

During the boot process, FBDIMMs that do not meet the population requirements are disabled.

For a complete list of supported memory FBDIMMs, see the links under [“Additional Information and Software”](#) on page viii

Power Supply

A minimum of 620 watts is required. Your power supply must provide a minimum of 3 amps of 5-volt standby current or the server will not boot.

Optional Hardware

Hard Disk Drives

The Intel® Server Board S5000PSL supports different hard disk drive options, depending on the version of the server board purchased.

- Optical hard disk drives
- Serial ATA (SATA) and (SAS):
 - Order code S5000PSLSATA: Six SATA ports, no SAS ports
 - Order code S5000PSLSAS: Four SAS/SATA ports, two SAS ports
 - Order code S5000PSLROMB: Six SATA ports on the server board and four internal and four external SAS/SATA ports with expander support from the Intel® RAID Adapter SROMBSAS18E.
- Parallel ATA (IDE): The server board includes one IDE connector.

See the documentation included with your server chassis for additional drive information and drive installation instructions.

Intel® Remote Management Module and ASMI NIC

The Intel® Remote Management Module and the advanced server management interface (ASMI) NIC plug into connectors on the server board and act as components of the server board, not as separate products. These two components cannot be installed separately.

These components provide a way to view and operate the server remotely, in real-time. Mouse movements, clicks, and keyboard entries are transmitted to the server from the remote workstation. Virtual media capabilities allow you to run media that is installed at the workstation as if it was installed on the server. For example, you can insert a CD-ROM disk in the workstation CD-ROM drive and have it run as if it was inserted in the CD-ROM disk at the server.

Intel® Local Control Panel

The Intel® Local Control Panel provides enhanced system control by utilizing a LCD display, which provides additional controls and indicators beyond the standard control panel.

Note: *This feature requires the installation of the Intel® Remote Management Module.*

Preliminary

2 Server Utilities

Using the BIOS Setup Utility

This section describes the BIOS Setup Utility options, which is used to change server configuration defaults. You can run BIOS Setup with or without an operating system being present. See [“Additional Information and Software”](#) for a link to the Technical Product Specification where you will find details about specific BIOS setup screens.

Starting Setup

You can enter and start BIOS Setup under several conditions:

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

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

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

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

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

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

If You Cannot Access Setup

If you are not able to access BIOS Setup, you might need to clear the CMOS memory. For instructions on clearing the CMOS, see [“Clearing the CMOS” on page 23](#).

Setup Menus

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

The following table describes the keyboard commands you can use in the BIOS Setup menus.

Table 4. Setup Menu Key Use

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

Table 4. Setup Menu Key Use

Key to Press	Description
<F9>	<p>Setup Defaults - Pressing <F9> causes the following to appear:</p> <p style="text-align: center;">Setup Confirmation Load default configuration now? [Yes] [No]</p> <p>If "Yes" is selected and the <Enter> key is pressed, all Setup fields are set to their default values. If "No" is selected and the <Enter> key is pressed, or if the <Esc> key is pressed, the user is returned to where they were before <F9> was pressed without affecting any existing field values.</p>
<F10>	<p>Save and Exit - Pressing <F10> causes the following message to appear:</p> <p style="text-align: center;">Setup Confirmation Save Configuration changes and exit now? [Yes] [No]</p> <p>If "Yes" is selected and the <Enter> key is pressed, all changes are saved and Setup is exited. If "No" is selected and the <Enter> key is pressed, or the <Esc> key is pressed, the user is returned to where they were before <F10> was pressed without affecting any existing values.</p>

Upgrading the BIOS

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

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

When you perform an upgrade to your BIOS, the upgrade is performed into a secondary BIOS partition on specialized server board hardware. When you boot your server, the server checks for an upgraded BIOS in this secondary partition. If it finds a BIOS upgrade has been installed, it attempts to boot with the new BIOS. If it encounters a problem with the upgraded BIOS, the system reverts to the BIOS that was in place before the upgrade was performed. This provides a safeguard against problems that might happen during the upgrade, such as a power outage during the upgrade process. This is called the rolling BIOS feature.

Preparing for the Upgrade

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

Note: *In the unlikely event that a BIOS error occurs during the BIOS update process, a recovery process may need to be followed to return the system to service. See “[Additional Information and Software](#)” on page viii for a link to necessary software and instructions.*

Recording the Current BIOS Settings

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

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

Obtaining the Upgrade

Download the BIOS image file to a temporary folder on your hard drive. See “[Additional Information and Software](#)” for a link to the update software.

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

Upgrading the BIOS

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

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

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

Reverting to the Previous BIOS

If you encounter a problem with your BIOS, you may want to revert to the previously installed BIOS. Because of the rolling BIOS feature, your server contains two versions of the BIOS: the current BIOS, and the BIOS that was previously installed.

Note: *If you upgrade the BIOS more than once with the same BIOS version, the two versions of the BIOS stored in your server will be identical.*

To revert to the previous BIOS:

1. Power down the server and disconnect the AC power.
2. Open the server chassis. See your server chassis documentation for instructions on removing the chassis cover.
3. Locate the BIOS Bank Select jumper at board position J1C9. See [Figure 6](#).
4. Move the jumper from the normal operation position, covering pins 2 and 3, to the Force Lower Bank position, covering pins 1 and 2, as shown by the diagram.

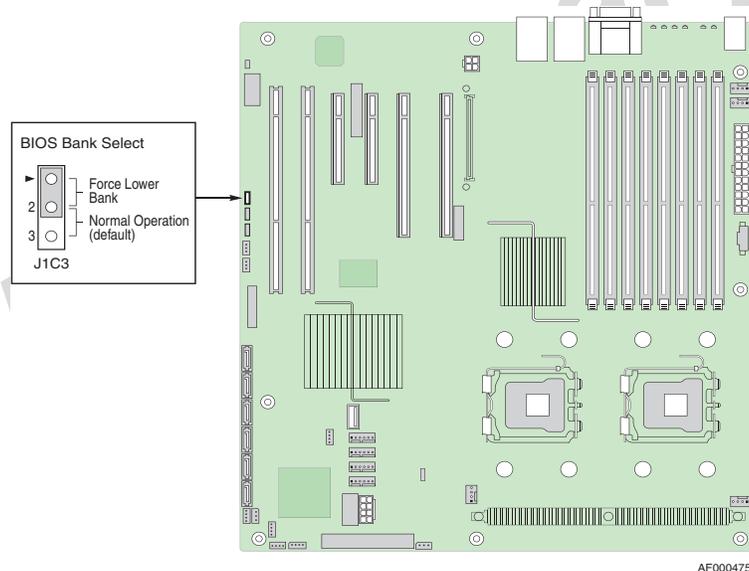


Figure 6. BIOS Bank Select Jumper in Force Lower Bank Position

5. Wait 10 seconds.
6. Move the BIOS Bank Select jumper back to the original position, covering pins 2 and 3.
7. Close the server chassis.
8. Reconnect the AC power and power up the server.

The BIOS will boot to the previous BIOS until you either move the jumper again or until you perform another BIOS update.

Clearing the Password

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

1. Power down the system and disconnect the AC power.
2. Open the server chassis. See your server chassis documentation for instructions on removing the chassis cover.
3. Locate the Passwrd Clr jumper block at board position J1D2. See [Figure 7](#).
4. Move the jumper from the normal operation position, covering pins 1 and 2, to the Password Clear position, covering pins 2 and 3, as shown by the diagram.

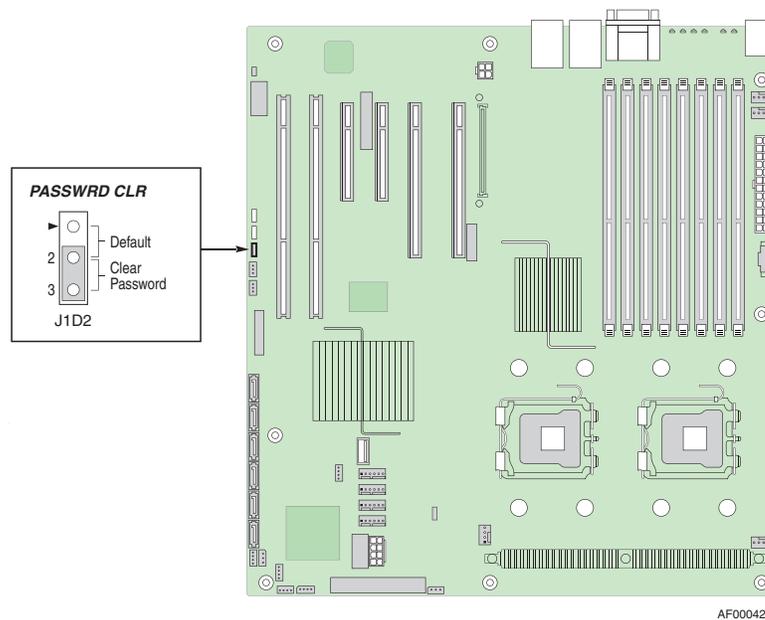


Figure 7. Passwrd Clr Jumper in Clear Password Position

5. Wait 10 seconds.
6. Move the Passwrd Clear jumper back to the original position, covering pins 1 and 2.
7. Close the server chassis.
8. Reconnect the AC power and power up the server.

Clearing the CMOS

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

1. Power down the system and disconnect the AC power.
2. Open the server chassis. See your server chassis documentation for instructions on removing the chassis cover.
3. Locate the CMOS Clr jumper block at board position J1D1. See [Figure 8](#).
4. Move the jumper from the normal operation position, covering pins 1 and 2, to the CMOS Clear position, covering pins 2 and 3, as shown by the diagram.

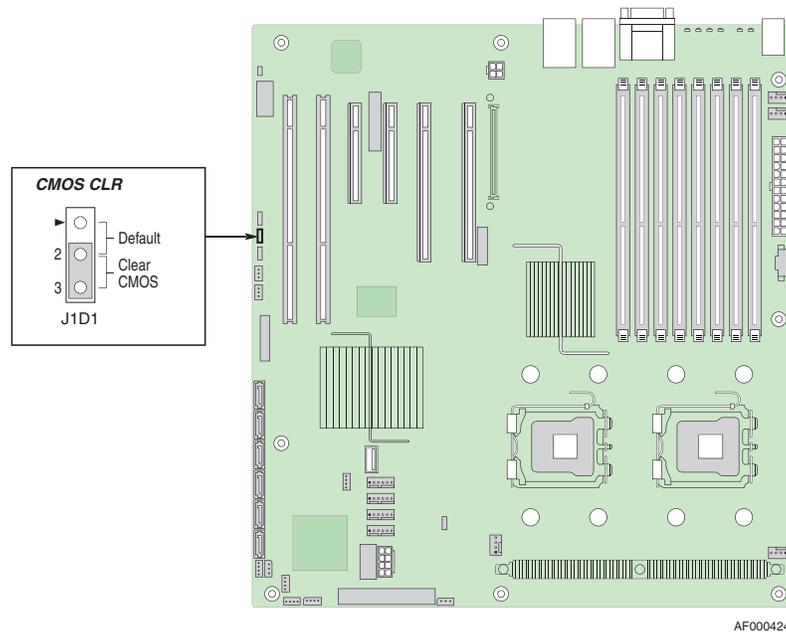


Figure 8. CMOS Clr Jumper in the Clear CMOS Position

5. Wait 10 seconds.
6. Move the CMOS Clear jumper back to the original position, covering pins 1 and 2.
7. Close the server chassis.
8. Reconnect the AC power and power up the server.

Preliminary

3 Hardware Installations and Upgrades

Before You Begin

Before working with your server product, pay close attention to the [“Safety Information” on page iii](#).

Tools and Supplies Needed

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

Installing and Removing Memory

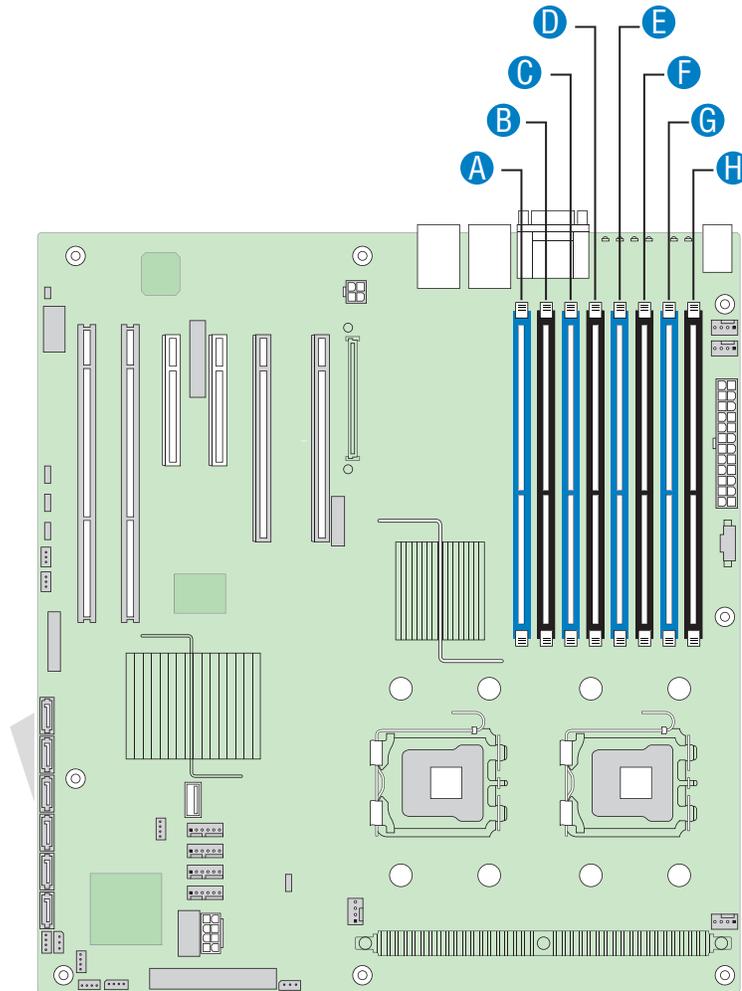
The silkscreen on the board for the FBDIMMs displays DIMM_A1, DIMM_A2, DIMM_B1, DIMM_B2, DIMM_C1, DIMM_C2, DIMM_D1, and DIMM_D2, starting from the inside of the board. DIMM_A1 is the socket closest to the MCH. See [“Memory” on page 12](#) for a discussion of the memory requirements and options. See [“Additional Information and Software” on page viii](#) for a link to the list of tested FBDIMMs.

Installing FBDIMMs

To install FBDIMMs, follow these steps:

1. Observe the safety and ESD precautions in [“Safety Information” on page iii](#).
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the server's cover. See the documentation that came with your server chassis for instructions on removing the server's cover.

5. Locate the DIMM sockets (see [Figure 9](#)).
6. Disconnect and remove any components necessary to access the DIMM sockets. See the documentation that came with your server chassis for instructions on removing server chassis components.



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Callout	DIMM Socket	Callout	DIMM Socket
A.	DIMM_A1	E.	DIMM_C1
B.	DIMM_A2	F.	DIMM_C2
C.	DIMM_B1	G.	DIMM_D1
D.	DIMM_B2	H.	DIMM_D2

Figure 9. Locating DIMM Sockets

7. Make sure the clips at each end of the DIMM socket(s) are pushed outward to the open position. See letter “A” in [Figure 10](#).
8. Holding the FBDIMM by the edges, remove it from its anti-static package.
9. Position the FBDIMM above the socket. Align the notch on the bottom edge of the FBDIMM with the key in the DIMM socket. The arrow for letter “B” in [Figure 10](#) is pointing to the key in the socket.
10. Insert the bottom edge of the FBDIMM into the socket.
11. When the FBDIMM is inserted, push down on the top edge of the FBDIMM until the retaining clips snap into place. See letter “C” in [Figure 10](#).
12. Make sure the clips latch firmly in place. See letter “D” in [Figure 10](#).

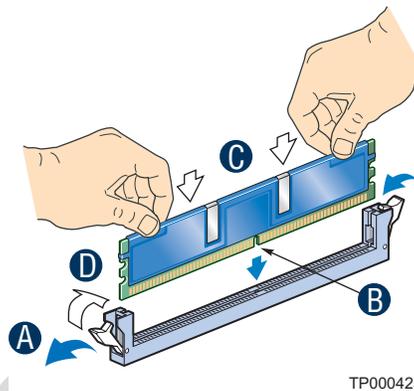


Figure 10. Installing FBDIMMs

13. Reinstall and reconnect any parts you removed or disconnected to reach the DIMM sockets. See the documentation that came with your server chassis for instructions on removing server chassis components.
14. Replace the server's cover and reconnect the AC power cord. See the documentation that came with your server chassis for instructions on installing the server's cover.

Removing FBDIMMs

To remove a FBDIMM, follow these steps:

1. Observe the safety and ESD precautions in [“Safety Information” on page iii](#).
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Remove the AC power cord from the server.
4. Remove the server's cover. See the documentation that came with your server chassis for instructions on removing the server's cover.
5. Disconnect and remove any components necessary to access the DIMM sockets. See the documentation that came with your server chassis for instructions on removing server chassis components.
6. Push the clips at each end of the DIMM socket(s) outward to the open position. The FBDIMM lifts from the socket.
7. Holding the FBDIMM by the edges, lift it from the socket. Store the FBDIMM in an anti-static package.
8. Reinstall and reconnect any parts you removed or disconnected to reach the DIMM sockets. See the documentation that came with your server chassis for instructions on installing server chassis components.
9. Replace the server's cover and reconnect the AC power cord. See the documentation that came with your server chassis for instructions on installing the server's cover.

Installing or Replacing the Processor

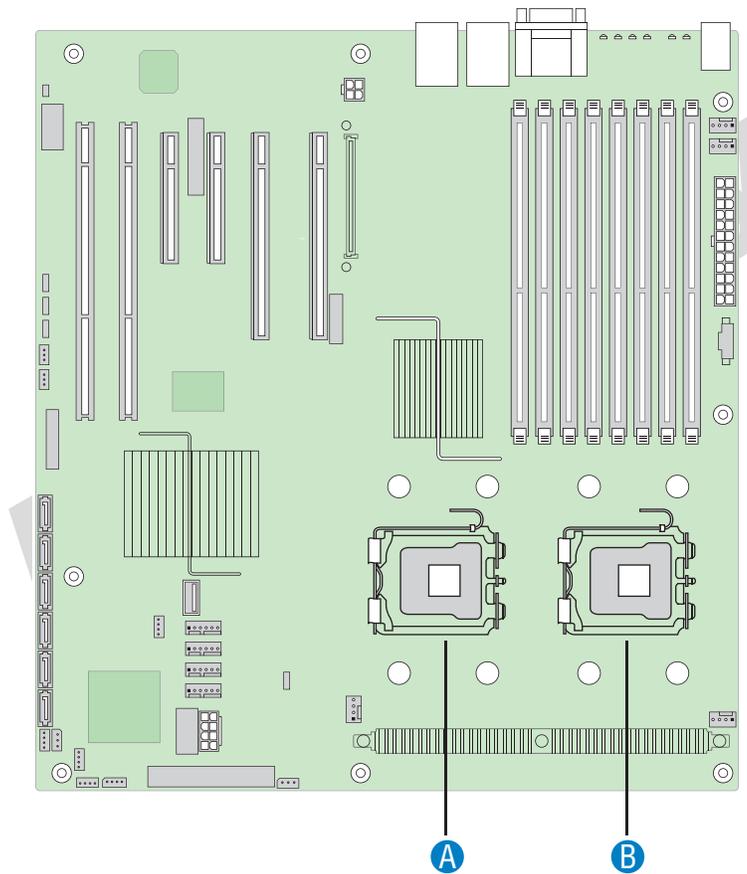
Caution: *Processor must be appropriate: You may damage the server board if you install a processor that is inappropriate for your server. See [“Additional Information and Software” on page viii](#) for a link to the list of compatible processor(s).*

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

Installing the Processor

To install a processor, follow these instructions:

1. Observe the safety and ESD precautions in “[Safety Information](#)” on page iii.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the server's cover. See the documentation that came with your server chassis for instructions on removing the server's cover.
5. Locate the processor sockets (see [Figure 9](#)).

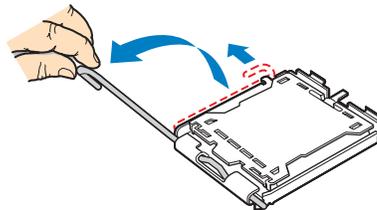


AF000419

Callout	Processor Socket	Callout	Processor Socket
A.	CPU_2	B.	CPU_1

Figure 11. Locating Processor Sockets

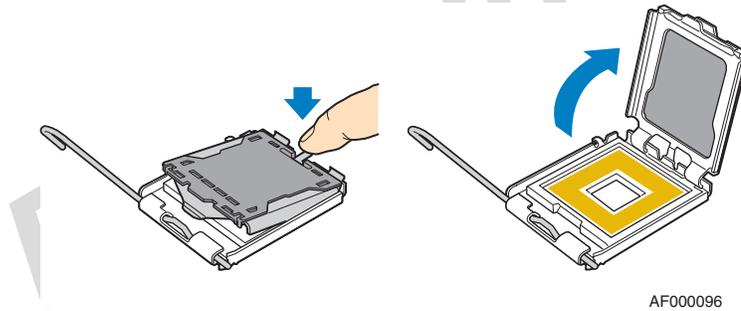
6. Disconnect and remove any components necessary to access the processor sockets. See the documentation that came with your server chassis for instructions on removing server chassis components.
7. Push down on the lever attached to the processor socket. While holding the lever down, pull it towards the center of the board to disengage the lever from the hook. Fully open the lever. See [Figure 12](#).



AF000095

Figure 12. Opening Processor Socket Lever

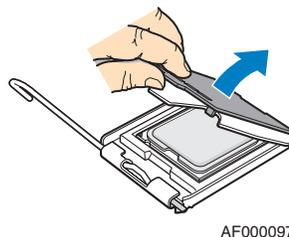
8. Push down on the rear tab of the load plate to swing the front of the load plate up slightly. Fully open the load plate. See [Figure 13](#).



AF000096

Figure 13. Opening Load Plate

9. If the protective cover is attached from the load plate, remove it and store it for future use.



AF000097

Figure 14. Removing Protective Cover from Load Plate

10. Remove the processor from the box and remove the protective shipping cover.
11. Set the processor in the socket with the processor cutouts matching the processor socket notches. See [Figure 15](#).

Note:

- Do not touch the contacts on either the processor or the processor socket.
- Do not force the processor socket into place. When correctly aligned, the socket will easily drop into place.

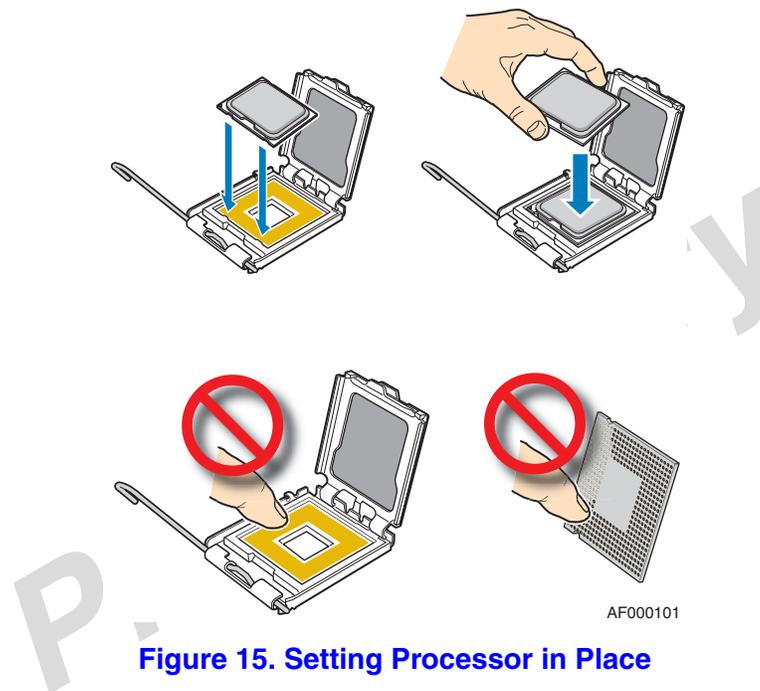


Figure 15. Setting Processor in Place

12. Close the load plate.
13. Close the socket lever. Push downward on the socket lever while pulling it toward the center of the server board to engage it under the hook on the processor socket.
14. Install the heatsink. See [“Installing the Heatsink\(s\)”](#) on page 32 for instructions.

Installing the Heatsink(s)

Depending on your server chassis, you may need to use either a passive or an active heatsink. An active heatsink has a fan attached to the top of it and a cable that needs to be connected to the server board. The following table shows the Intel® server chassis compatible with this server board and whether each server chassis requires an active or a passive heatsink:

Table 5. Heatsink Requirements for Compatible Intel® Server Chassis

Server Chassis	Heatsink Requirement
Intel® Entry Server Chassis SC5299-E BRP	Active heatsink
Intel® Entry Server Chassis SC5299-E DP	Active heatsink
Intel® Server Chassis SC5400 BRP	Passive heatsink
Intel® Server Chassis SC5400 LX	Passive heatsink
Intel® Server Chassis SC5400 Base	Passive heatsink

Note: *The heatsink has thermal interface material (TIM) located on the bottom of it. Use caution when handling the heatsink so you do not damage the TIM.*

Use the following steps to install a heatsink.

1. Install the processor. See “[Installing the Processor](#)” on page 29 for instructions.
2. Set the heatsink over the processor, lining up the four captive screws with the four posts surrounding the processor.
3. Loosely screw in the captive screws on the heat sink corners in the order shown by [Figure 16](#). Do not fully tighten one screw before loosely attaching the others.
4. In the same order, gradually and equally tighten each captive screw until each is firmly tightened. Do not fully tighten one screw at a time.

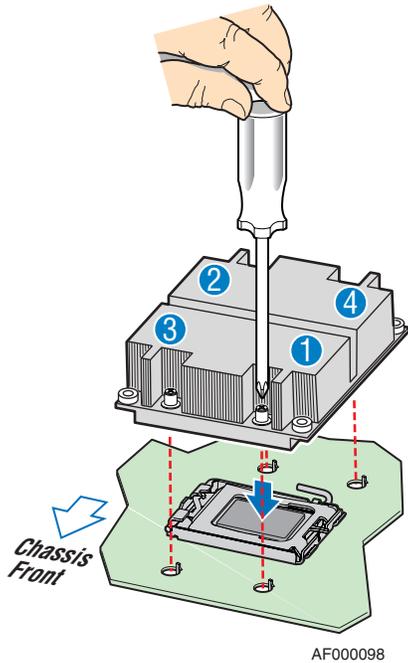
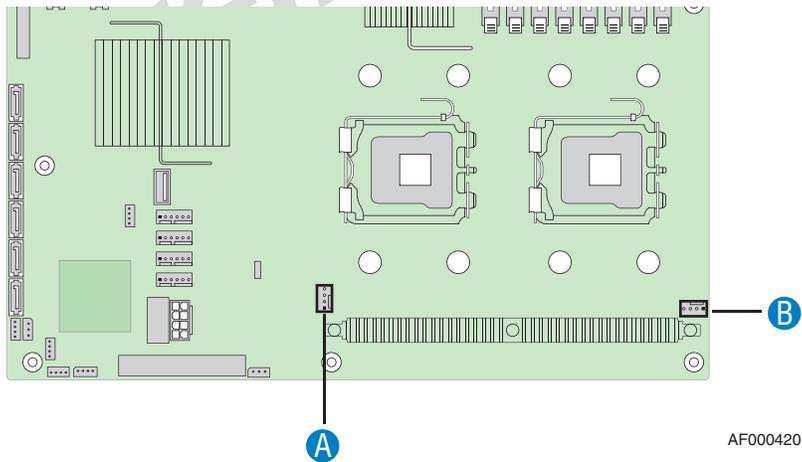


Figure 16. Installing Heatsink

- Active heatsink only: Connect the heatsink cable to the server board.



Callout	Processor Heatsink Connector	Callout	Processor Heatsink Connector
A.	CPU_2	B.	CPU_1

Figure 17. Locating Active Heatsink Cable Connections

6. Reinstall and reconnect any parts you removed or disconnected to reach the processor sockets. See the documentation that came with your server chassis for instructions on installing server chassis components.
7. Replace the server's cover and reconnect the AC power cord. See the documentation that came with your server chassis for instructions on installing the server's cover.

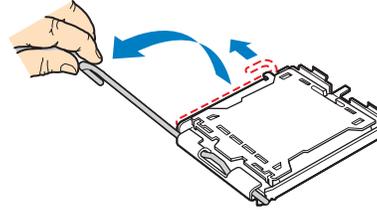
Removing a Processor

1. Observe the safety and ESD precautions in “[Safety Information](#)” on page iii.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Remove the AC power cord from the server.
4. Remove the server's cover. See the documentation that came with your server chassis for instructions on removing the server's cover.
5. Disconnect and remove any components necessary to access the processor sockets. See the documentation that came with your server chassis for instructions on removing server chassis components.
6. Active heatsink only: Unplug the processor fan cable from the server board.
7. Loosen the four captive screws on the corners of the heat sink.
8. Twist the heat sink slightly to break the seal between the heat sink and the processor.
9. Lift the heat sink from the processor. If it does not pull up easily, twist the heat sink again. Do not force the heat sink from the processor. Doing so could damage the processor.

Caution:

- Do not attempt to operate your server system without a heatsink installed over each installed processor. Doing so will cause your server to overheat and may cause permanent damage.
- The heatsink has Thermal Interface Material (TIM) located on the bottom of it. Use caution when handling the heatsink so you do not damage the TIM.

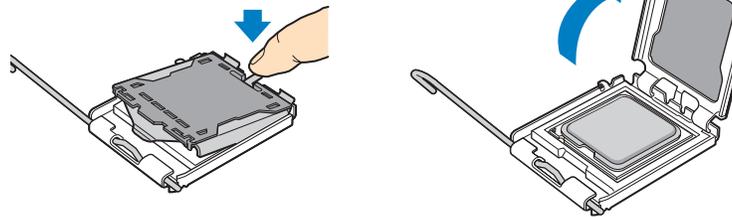
10. Push down on the lever attached to the processor socket. While holding the lever down, pull it towards the center of the board to disengage the lever from the hook. Fully open the lever. See [Figure 12](#).



AF000095

Figure 18. Opening Processor Socket Lever

11. Push down on the rear tab of the load plate to swing the front of the load plate up slightly. Fully open the load plate. See [Figure 13](#).



AF000415

Figure 19. Opening Load Plate

12. Lift the processor from the socket. See [Figure 15](#).

Caution: Do not touch the contacts on either the processor or the processor socket.

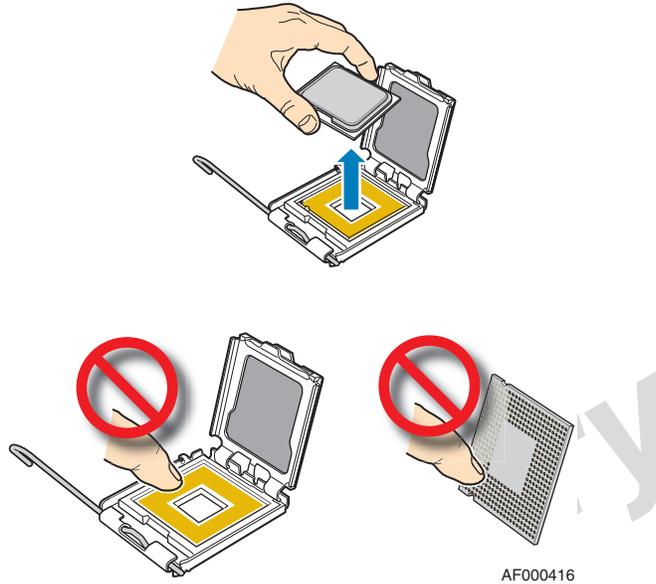


Figure 20. Removing Processor from Socket

13. Store the processor in the packaging materials in which it came.
14. Install the protective cover over the load plate if a replacement processor will not be installed.

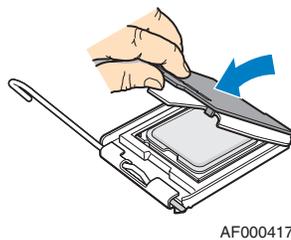


Figure 21. Installing Protective Cover onto Load Plate

15. Close the load plate.
16. Close the socket lever. Push downward on the socket lever while pulling it toward the center of the server board to engage it under the hook on the processor socket.
17. Lift the processor lever.
18. Remove the processor.
19. If installing a replacement processor, see [“Installing the Processor”](#) on page 29.

20. Reinstall and reconnect any parts you removed or disconnected to reach the processor sockets. See the documentation that came with your server chassis for instructions on installing server chassis components.
21. Replace the server's cover and reconnect the AC power cord. See the documentation that came with your server chassis for instructions on installing the server's cover.

Replacing the CMOS Battery

The lithium CMOS 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.*

Advarsel: *Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.*

Varning: *Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.*

Varoitus: *Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.*

1. Observe the safety and ESD precautions in “[Safety Information](#)” on page iii.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the server's cover and locate the CMOS battery. See the documentation that came with your server chassis for instructions on removing the server's cover.
5. Use a finger to pull the lever away from the top of the battery until it clears the battery. Use caution so you do not bend the lever.
6. Lift the battery from the socket.

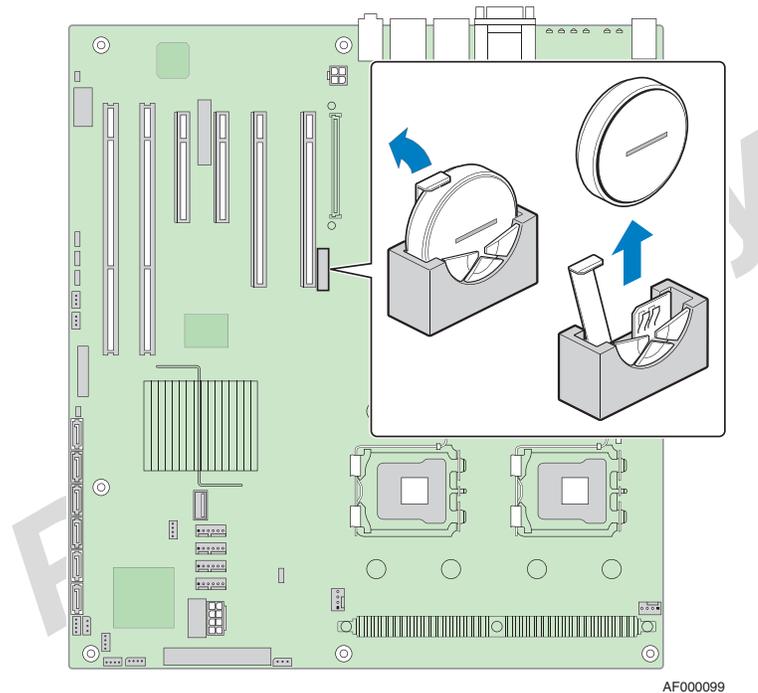


Figure 22. Locating and Removing the CMOS Battery

7. Dispose of the battery according to local ordinance.
8. Remove the new battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket. The “+” side of the battery must face the left side of the server board, toward the add-in card slots.
9. Reinstall and reconnect any parts you removed or disconnected to reach the battery. See the documentation that came with your server chassis for instructions on installing server chassis components.
10. Replace the server's cover and reconnect the AC power cord. See the documentation that came with your server chassis for instructions on installing the server's cover.
11. Run the Setup utility to restore the configuration settings to the real-time clock.

Appendix A: Getting Help

World Wide Web

<http://support.intel.com/support/motherboards/server/S5000PSL>.

Telephone

All calls are billed US \$25.00 per incident, levied in local currency at the applicable credit card exchange rate plus applicable taxes. (Intel reserves the right to change the pricing for telephone support at any time without notice).

Before calling, fill out an “[Intel® Server Issue Report Form](#)”. A sample form is provided on the following pages. However, for the fastest service, please submit your form via the Internet.

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

U.S. and Canada

1-800-404-2284

Europe

Belgium 02 714 3182

Denmark ... 38 487077

Finland 9 693 79297

France..... 01 41 918529

Germany ... 069 9509 6099

Holland 020 487 4562

Italy..... 02 696 33276

Norway 23 1620 50

Spain 91 377 8166

Sweden..... 08 445 1251

UK..... 870 6072439

In Asia-Pacific Region

Australia.... 1800 649931

Cambodia.. 63 2 636 9797 (via Philippines)

China 800 820 1100 (toll-free)
..... 8 621 33104691 (not toll-free)

Hong Kong 852 2 844 4456

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

Indonesia ... 803 65 7249

Korea 822 767 2595

Malaysia 1 800 80 1390

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

New Zealand 0800 444 365

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

Philippines 1 800 1 651 0117

Singapore .. 65 6213-1311

Taiwan 2 2545-1640

Thailand 1 800 631 0003

Vietnam 632 6368416 (IDD via Philippines)

Japan

Domestic.... 0120 868686

Outside country 81 298 47 0800

Latin America

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

Brazil 001-916 377 0180

Chile

Easter Island. Contact AT&T USA at 800 800 311. Once connected, dial 800 843 4481

Mainland and Juan .. Contact AT&T USA at 800 225 288. Once connected, dial 800 843 4481

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

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

Ecuador

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

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

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

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

Miami 1 800 621 8423

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

Paraguay ... 001 916 377 0114

Peru 001 916 377 0114

Uruguay..... 001 916 377 0114

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

Preliminary

Preliminary

Appendix B: Regulatory and Compliance Information

Product Regulatory Compliance

Product Safety Compliance

The Intel® Server Board S5000PSL complies with the following safety requirements:

- UL60950 - CSA 60950 (USA / Canada)
- EN60950 (Europe)
- IEC60950 (International)
- CB Certificate & Report, IEC60950 (report to include all country national deviations)
- GOST R 50377-92 - Listed on one System License (Russia)
- Belarus License - Listed on System License (Belarus)
- CE - Low Voltage Directive 73/23/EEE (Europe)
- IRAM Certification (Argentina)

Product EMC Compliance - Class A Compliance

Note: Legally this product is required to comply with Class A emission requirements because it is intended for a commercial type market place. Intel targets 10db margin to Class A Limits.

The Intel® Server Board S5000PSL has been tested and verified to comply with the following electromagnetic compatibility (EMC) regulations when installed a compatible Intel® host system. For information on compatible host system(s) see Intel's Server Builder Web site or contact your local Intel representative.

- FCC /ICES-003 - Emissions (USA/Canada) Verification
- CISPR 22 - Emissions (International)
- EN55022 - Emissions (Europe)
- EN55024 - Immunity (Europe)
- CE - EMC Directive 89/336/EEC (Europe)
- VCCI Emissions (Japan)
- AS/NZS 3548 Emissions (Australia / New Zealand)

- BSMI CNS13438 Emissions (Taiwan)
- GOST R 29216-91 Emissions - Listed on one System License (Russia)
- GOST R 50628-95 Immunity -Listed on one System License (Russia)
- Belarus License - Listed on one System License (Belarus)
- RRL MIC Notice No. 1997-41 (EMC) & 1997-42 (EMI) (Korea)

Certifications / Registrations / Declarations

- UL Certification (US/Canada)
- CE Declaration of Conformity (CENELEC Europe)
- FCC/ICES-003 Class A Attestation (USA/Canada)
- C-Tick Declaration of Conformity (Australia)
- MED Declaration of Conformity (New Zealand)
- BSMI Certification (Taiwan)
- GOST - Listed on one System License (Russia)
- Belarus - Listed on one System License (Belarus)
- RRL Certification (Korea)
- Ecology Declaration (International)

Product Regulatory Compliance Markings

This product is marked with the following Product Certification Markings:

Table 6. Product Certification Markings

Regulatory Compliance	Region	Marking
UL Mark	USA/Canada	
CE Mark	Europe	
EMC Marking (Class A)	Canada	CANADA ICES-003 CLASS A CANADA NMB-003 CLASSE A

Table 6. Product Certification Markings

Regulatory Compliance	Region	Marking
BSMI Marking (Class A)	Taiwan	 <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>警告使用者： 這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策</p> </div>
Ctick Marking	Australia / New Zealand	
RLL MIC Mark	Korea	
GOST-R Mark	Russia	

Electromagnetic Compatibility Notices

FCC (USA)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions related to the EMC performance of this product, contact:

Intel Corporation
5200 N.E. Elam Young Parkway
Hillsboro, OR 97124-6497
1-800-628-8686

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or

television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit other than the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment. The customer is responsible for ensuring compliance of the modified product.

Only peripherals (computer input/output devices, terminals, printers, etc.) that comply with FCC Class A or B limits may be attached to this computer product. Operation with noncompliant peripherals is likely to result in interference to radio and TV reception.

All cables used to connect to peripherals must be shielded and grounded. Operation with cables, connected to peripherals, that are not shielded and grounded may result in interference to radio and TV reception.

ICES-003 (Canada)

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

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled: "Digital Apparatus," ICES-003 of the Canadian Department of Communications.

Europe (CE Declaration of Conformity)

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

VCCI (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

English translation of the notice above:

This is a Class B product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

BSMI (Taiwan)

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

警告使用者：

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

RRL (Korea)



1. 기기의 명칭(모델명) :
2. 인증번호 :
3. 인증받은 자의 상호 :
4. 제조년월일 :
5. 제조자/제조국가 :

English translation of the notice above:

1. Type of Equipment (Model Name): On License and Product
2. Certification No.: On RRL certificate. Obtain certificate from local Intel representative
3. Name of Certification Recipient: Intel Corporation
4. Date of Manufacturer: Refer to date code on product
5. Manufacturer/Nation: Intel Corporation/Refer to country of origin marked on product

CNCA (CCC-China)

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

声明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取可行的措施。

Restriction of Hazardous Substances (RoHS) Compliance

Intel has a system in place to restrict the use of banned substances in accordance with the European Directive 2002/95/EC. Compliance is based on declaration that materials banned in the RoHS Directive are either (1) below all applicable threshold limits or (2) an approved / pending RoHS exemption applies.

RoHS implementing details are not fully defined and may change.

Threshold limits and banned substances are noted below:

- Quantity limit of 0.1% by mass (1000 PPM) for:
 - Lead
 - Mercury
 - Hexavalent Chromium
 - Polybrominated Biphenyls Diphenyl Ethers (PBDE)
- Quantity limit of 0.01% by mass (100 PPM) for:
 - Cadmium

End-of-Life / Product Recycling

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

Appendix C: Troubleshooting

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

For any issue, first ensure you are using the latest firmware and files. Firmware upgrades include updates for BIOS, the baseboard management controller (BMC), and the hot-swap controller (HSC). See [“Additional Information and Software” on page viii](#) for a link to the software updates. In addition to the server firmware and files, also update any drivers used for components you have installed in your system, such as video drivers and network drivers.

Intel provides a package called the "Platform Confidence Test" that may help with your diagnostics. See [“Additional Information and Software”](#) for a link to this software.

If you are unable to resolve your server problems on your own, see [“Getting Help” on page 39](#) for assistance.

Resetting the System

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

Table 7. Resetting the System

To do this	Press
Soft boot reset to clear the system memory and reload the operating system	<Ctrl+Alt+Del>
Clear system memory, restart POST, and reload the operating system	Reset button
Cold boot reset. Turn the system power off and then on. This clears system memory, restarts POST, reloads the operating system, and halts power to all peripherals	Power off/on button

Problems following Initial System Installation

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less frequent cause. If the problem you are experiencing is with a specific software application, see [“Problems with Newly Installed Application Software”](#) on page 56.

First Steps Checklist

- Is AC power available at the wall outlet?
- Are the power supplies plugged in? Check the AC cable(s) on the back of the chassis and at the AC source.
- Are all cables correctly connected and secured?
- Are the processors fully seated in their sockets on the server board?
- Are all standoffs in the proper location and not touching any components, causing a potential short?
- Are all add-in PCI boards fully seated in their slots on the server board?
- Are all jumper settings on the server board correct?
- Are all jumper and switch settings on add-in boards and peripheral devices correct? To check these settings, refer to the manufacturer's documentation that comes with them. If applicable, ensure that there are no conflicts—for example, two add-in boards sharing the same interrupt.
- Are all peripheral devices installed correctly?
- If the system has a hard disk drive, is it properly formatted or configured?
- Are all device drivers properly installed?
- Are the configuration settings made in Setup correct?
- Is the operating system properly loaded? See the operating system documentation.
- Did you press the system power on/off switch on the front panel to turn the server on (power on light should be lit)?
- Is the system power cord properly connected to the system and plugged into a NEMA 5 15R outlet for 100-120V or a NEMA 6-15R outlet for 200-240V ?
- Are all integrated components from the tested components lists? Check the tested memory, and chassis lists, as well as the supported hardware and operating system list. See [“Additional Information and Software”](#) on page viii for links to the tested component lists.

Hardware Diagnostic Testing

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

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

1. Turn off the system and all external peripheral devices. Disconnect each device from the system, except for the keyboard and the video monitor.
2. Make sure the system power cord is plugged into a properly grounded AC outlet.
3. Make sure your video display monitor and keyboard are correctly connected to the system. Turn on the video monitor. Set its brightness and contrast controls to at least two thirds of their maximum ranges (see the documentation supplied with your video display monitor).
4. If the operating system normally loads from the hard disk drive, make sure there is no diskette in drive A and no CD-ROM disk in the CD-ROM drive.
5. If the power LED does light, attempt to boot from a floppy diskette or from a CD-ROM disk.
6. Turn on the system. If the power LED does not light, see [“Power Light Does Not Light” on page 52](#).

Verifying Proper Operation of Key System Lights

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

- Does the diskette drive activity light turn on briefly? If not, see [“Diskette Drive Activity Light Does Not Light” on page 54](#).
- If system LEDs are illuminated, see [“Intel® Light-Guided Diagnostics” on page 8](#) for a description of the lights.

Confirming Loading of the Operating System

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see [“No Characters Appear on Screen”](#).

Specific Problems and Corrective Actions

This section provides possible solutions for these specific problems:

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

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

Power Light Does Not Light

Check the following:

- Did you press the power-on button?
- Is the system operating normally? If so, the power LED might be defective or the cable from the control panel to the server board might be loose.
- Have you securely plugged the server AC power cord into the power supply?
- Some ATX power supplies have a power switch on the back of the power supply, next to the fan. If your system has one, is it turned on?
- Remove all add-in cards and see if the system boots. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory FBDIMMs comply with the system requirements.
- Make sure the memory FBDIMMs have been populated according to the system requirements.
- Remove the memory FBDIMMs and re-seat them.
- Make sure the processor(s) comply with the system requirements.
- Make sure the processor(s) have been populated according to the system requirements.
- Remove the processor(s) and re-seat them.
- Make sure the chassis standoffs are installed only below mounting holes. Misplaced standoffs can contact the pins on the bottom of the server board and cause a short.

No Characters Appear on Screen

Check the following:

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

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

1. Verify that the video works using the onboard video controller.
2. Verify that the video controller board is fully seated in the server board connector.
3. Reboot the system for changes to take effect.
4. If there are still no characters on the screen after you reboot the system and POST emits a beep code, write down the beep code you hear. This information is useful for your service representative.
5. If you do not receive a beep code and characters do not appear, the video display monitor or video controller may have failed. Contact your service representative or authorized dealer for help.

Characters Are Distorted or Incorrect

Check the following:

- Are the brightness and contrast controls properly adjusted on the video monitor? See the manufacturer's documentation.
- Are the video monitor's signal and power cables properly installed?
- Does this video monitor work correctly if plugged into a different system?

System Cooling Fans Do Not Rotate Properly

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

Check the following:

- Is the power-on light lit? If not, see [“Power Light Does Not Light” on page 52](#).
- If your system has LED lights for the fans, is one or more of these LEDs lit?
- Are any other control panel LEDs lit?
- Have any of the fan motors stopped? Use the server management subsystem to check the fan status.
- Have your fans speeded up in response to an overheating situation?
- Have your fans speeded up in response to a fan that has failed?
- Are the fan power connectors properly connected to the server board?
- Is the cable from the control panel board connected to the both the control panel board and to the server board?
- Are the power supply cables properly connected to the server board?
- Are there any shorted wires caused by pinched-cables or have power connector plugs been forced into power connector sockets the wrong way?

Diskette Drive Activity Light Does Not Light

Check the following:

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

If you are using the onboard diskette controller, use the BIOS setup to make sure that "Onboard Floppy" is set to "Enabled." If you are using an add-in diskette controller, make sure that "Onboard Floppy" is set to "Disabled."

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

Check the following:

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

Cannot Connect to a Server

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

Problems with Network

The server hangs when the drivers are loaded

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

Diagnostics pass but the connection fails

- Make sure the network cable is securely attached.
- Make sure you specify the correct frame type in your NET.CFG file.
- The controller stopped working when an add-in adapter was installed.
- Make sure the cable is connected to the port from the onboard network controller.
- Make sure your BIOS is current. See [“Additional Information and Software”](#) for a link to the current version.

- Make sure the other adapter supports shared interrupts. Make sure your operating system supports shared interrupts.
- Try reseating the add-in adapter.

The add-in adapter stopped working without apparent cause

- Reseat the adapter.
- Put the adapter in a different slot.
- The network driver files may be corrupt or deleted. Delete and then reinstall the drivers.
- Run diagnostics.

System Boots when Installing PCI Card

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

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

Problems with Newly Installed Application Software

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

Check the following:

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

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

Problems with Application Software that Ran Correctly Earlier

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

Check the following:

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

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

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

The Windows* operating systems do not include all of the drivers for the Intel® chipsets, onboard NICs, and other components. See [“Additional Information and Software”](#) on page viii for a link to the current drivers and chipset files.

Hard Drive(s) are not Recognized

Check the following:

- Make sure the drive is not disabled in BIOS Setup.
- Make sure the drive is connected correctly and that is plugged into the power supply.
- Make sure the drive is compatible. See [“Additional Information and Software”](#) for a link to the tested drives.
- Make sure you have not exceeded the power budget for the server. See [“Additional Information and Software”](#) for a link to software to check your power budget.

- Verify your SAS or SATA drives are connected to the correct ports on the server board and the chassis backplane. See your chassis documentation for details about backplane connections.
- If using ATA drives, verify that the master/slave settings are set correctly. See your drive documentation for details on setting the master/slave settings.
- If using a RAID configuration with an add-in RAID adapter, make sure the RAID adapter is installed correctly.

Bootable CD-ROM Disk Is Not Detected

Check the following:

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

LED Information

The Intel® Server Board S5000PSL includes LEDs that can aid in troubleshooting your system. For the location of the LEDs, see “[Intel® Light-Guided Diagnostics](#)” on page 8.

BIOS POST Beep Codes

The table below lists the POST error beep codes. Prior to system video initialization, the BIOS uses these beep codes to inform users of error conditions. Please note that not all error conditions are supported by BIOS beep codes.

Table 8. POST Error Beep Codes

Number of Beeps	Reason for Beeps and Action to Take
1, 2, or 3	Memory error. Reseat the memory or replace the FBDIMMs with known good modules.
4 - 7 or 9 - 11	Fatal error indicating a possible serious system problem. Remove all add-in cards and re-start the system. If the error still occurs, contact your system manufacturer. If the beep codes are not generated after the add-in cards are removed, insert the cards one at a time, booting the system between each card addition, until the beeps again occur to reveal the malfunctioning card.
8	Replace or reseat the system video add-in card. If on-board video is being used, the server board may be faulty.

In addition to the beep codes above, additional beep codes are provided if an Intel® Remote Management Module is installed. The Intel® Remote Management Module provides the following additional beep codes.

Table 9. Error Beep Codes Generated by Intel® Remote Management Module

Number of Beeps	Reason for Beeps and Action to Take
1	Control panel CMOS clear has been initiated.
1-5-1-1	Processor failure. Reseat or replace the failed processor.
1-5-2-1	No processor is installed or the CPU 1 socket is empty. Reseat or replace the failed processor.
1-5-2-3	Processor configuration error or CPU 1 socket is empty. Reseat or replace the failed processor. In a two-processor system, make sure the processors are identical.
1-5-2-4	Front-side bus select configuration error.
1-5-4-2	DC power unexpectedly lost.
1-5-4-3	Chipset control failure.
1-5-4-4	Power control failure.

Preliminary

Appendix D: Intel[®] Server Issue Report Form

Note: An on-line / automatic submission version of this form is available at <http://support.intel.com/support/motherboards/server/S5000PSL/>. For the fastest service, please submit your form via the Internet.

Date Submitted: _____

Company Name: _____

Contact Name: _____

Email Address: _____

Intel Server Product: _____

Priority (Critical, Hot, High, Low): _____

Brief Problem Description. Provide a brief description below. See the last page for space to include a detailed problem description.

Board / Chassis Information

Baseboard Revision - PBA#: _____

Baseboard Serial Number: _____

Chassis Model: _____

CPU1 Speed/Stepping/Spec: _____

CPU2 Speed/Stepping/Spec: _____

System BIOS Version: _____

HSC Firmware Version: _____

FBDIMM Configuration

DIMM A1 MB and vendor / part number: _____

DIMM A2 MB and vendor / part number: _____

DIMM B1 MB and vendor / part number: _____

DIMM B2 MB and vendor / part number: _____

DIMM C1 MB and vendor / part number: _____

DIMM C2 MB and vendor / part number: _____

DIMM D1 MB and vendor / part number: _____

DIMM D2 MB and vendor / part number: _____

Operating System Information

Operating System: _____

Version: _____

Service Pack: _____

Add-in Card, Peripheral, Video, NIC

Check each box below as applicable, and provide the requested information.

Peripheral Card or Peripheral Description Driver Revision IRQ # I/O Base Address NIC

Peripheral	Description	Driver Revision	IRQ	I/O Base Address	FW Revision
Add-in Card					
Slot 1					
Slot 2					
Slot 3					
Slot 4					
Slot 5					
Slot 6					
Video					
On-board video					
Add-in video					

