Intel® Server Board SHG2 Quick Start User Guide

Start Here

Thank you for buying an Intel® Server Board. The following information will help you prepare your server board for integration with your selected server chassis.

This Guide is for technically qualified persons. Expanded installation instructions and complete product information are available in the *Intel® Server Board SHG2 Product Guide* located on the Resource CD.

Translations of the *Intel Server Board Product Guide* are available at:
您可在下列网址上查阅到 Intel
服务器母板产品指南的译文：
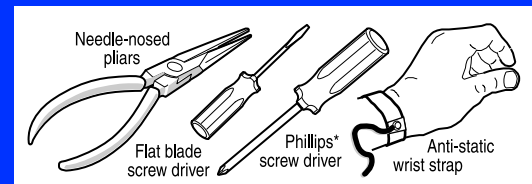La traducción de la Guía del Producto Intel Server Board se encuentra disponible en:
http://support.intel.com/support/motherboards/server/SHG2

Minimum Hardware Requirements
To avoid integration difficulties and possible board damage, your system must meet the following minimum requirements:
• **Processor:** Minimum of one 1.8 GHz Intel® Xeon™ processor with 512K cache support in a 603-pin micro Pin-Grid Array (PGA).
• **Memory:** Minimum of two identical 128 MB ECC, DDR 200 or 266-compliant registered SDRAM 168-pin gold DIMMs.
• **Power:** Minimum of 450W with 1.2A standby current which meets the SSI EPS 12V specification.

Additional resources and support for your server board, including tested chassis, qualified memory and chassis components, specifications, and software updates, can be found at:
http://support.intel.com/support/motherboards/server/SHG2

Before you begin
You will need the following tools and equipment:

Needle-nosed pliers
Flat blade screw driver
Phillips* screw driver
Anti-static wrist strap

Build Value With Intel

Server Products, Programs and Support

Get the high-value server solutions you need by taking advantage of the outstanding value Intel provides to system integrators:

• High-quality server building blocks
• Extensive breadth of server building blocks
• Solutions and tools to enable e-Business
• Comprehensive training services †
• Worldwide 24x7 technical support [AT&T Country Code + 866-655-6565]†
• World-class service, including a three-year warranty and Advanced Warranty Replacement†

For more information on Intel's added-value server offerings, visit the **Intel® ServerBuilder** website at: **www.intel.com/go/serverbuilder**
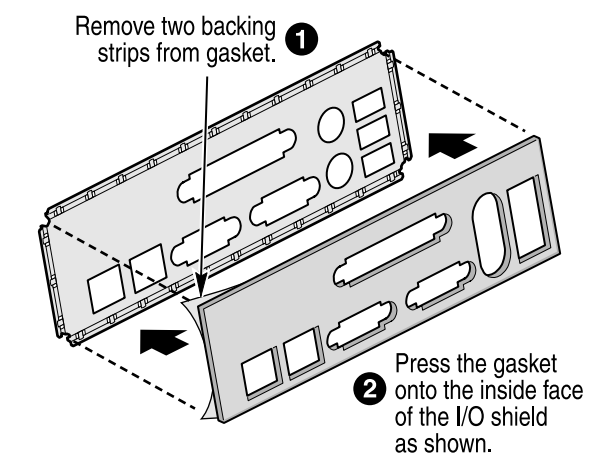
Intel ServerBuilder is your one-stop shop for information about all of Intel's Server Building Blocks such as:
• Product information including product briefs and technical product specifications
• Sales tools such as videos and presentations
• Configuration tools to help you build complete solutions
• Training information such as the Intel® Online Learning Center
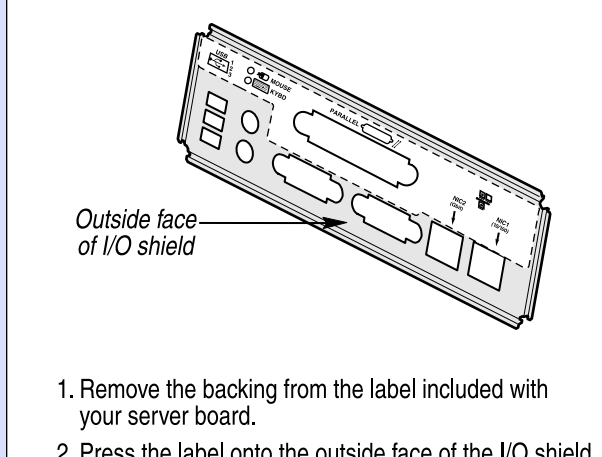• Support information and much more

† Available only to Intel® Channel Program Members, part of Intel® e-Business Network.
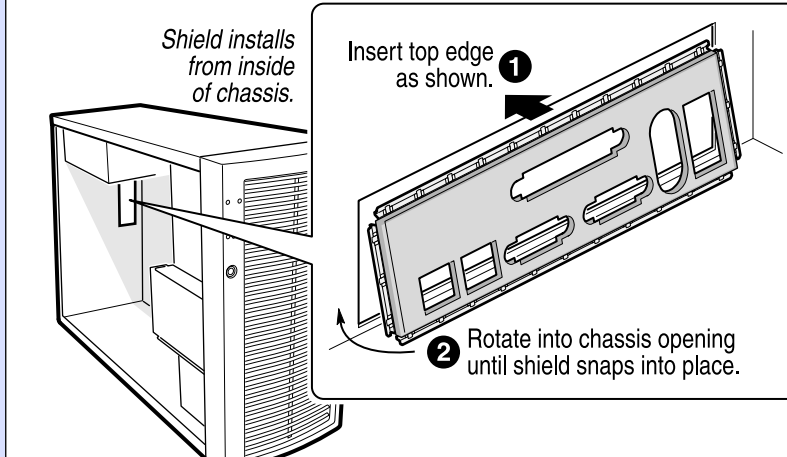

⚠ See the *Intel Server Board SHG2 Product Guide* for product safety and EMC regulatory compliance information.

⚠ If you are not familiar with ESD (Electro-Static Discharge) procedures to be used during system assembly, complete ESD Procedures are described in your *Intel Server Board SHG2 Product Guide*.

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1 Installing the I/O Shield and Gasket
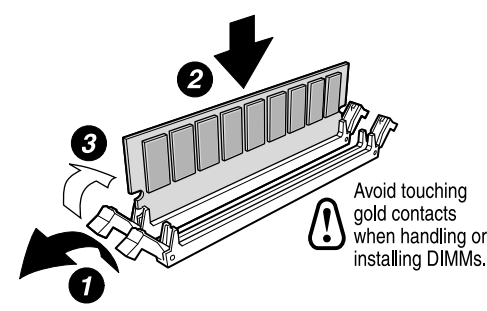
A Attaching the Gasket to the I/O Shield

① Remove two backing strips from gasket.

② Press the gasket onto the inside face of the I/O shield as shown.

B Attaching the Label to the I/O Shield

Outside face of I/O shield

1. Remove the backing from the label included with your server board.
2. Press the label onto the outside face of the I/O shield.

C Installing the I/O Shield

Shield installs from inside of chassis.

① Insert top edge as shown.

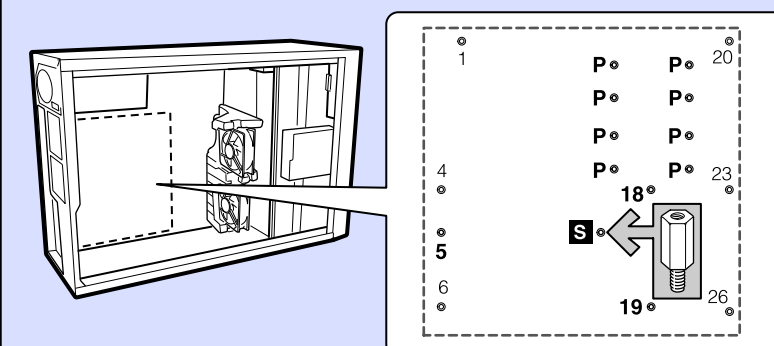② Rotate into chassis opening until shield snaps into place.

2 Installing Memory

DIMM Memory Modules
Memory banks must be populated in pairs. Support for 2-way memory interleaving requires the use of identical memory modules.

1. Open both DIMM Socket Levers.
2. Insert DIMM making sure the connector edge of the DIMM aligns correctly with the slot.
3. Check that socket levers are securely latched.

⚠ Avoid touching gold contacts when handling or installing DIMMs.

Note: See "Minimum Hardware Requirements" in the Start Here box above left for correct DIMM specifications.
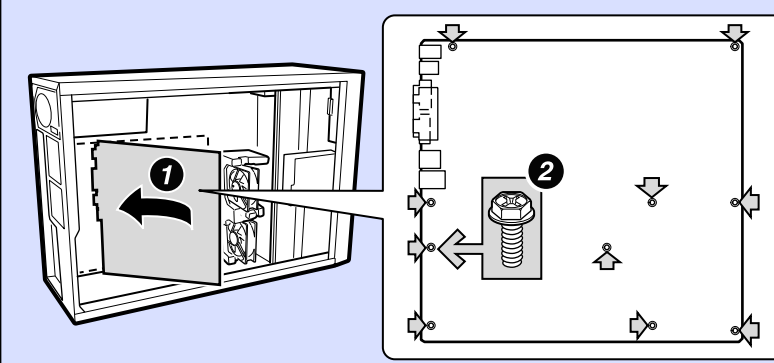
3 Installing the Chassis Standoffs

For the Intel® SC5200 chassis: Install standoffs in positions, 5, 18, S, 19 and in the eight positions marked P.
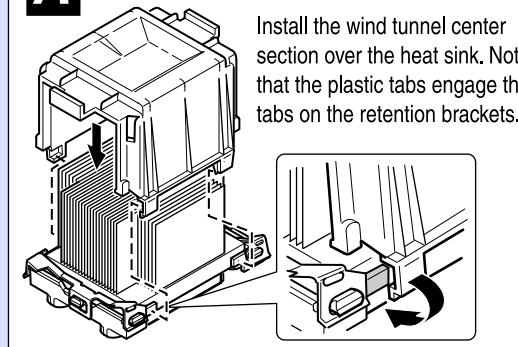
Standoffs are included with your chassis. Standoff numbering in other chassis may be different.

4 Installing the Server Board

1. Place the board into the chassis, making sure that the back panel I/O shield openings and the chassis standoffs align correctly.
2. Attach the board with the screws included with your chassis at all ten locations marked in the figure at left.

DIMM Sockets
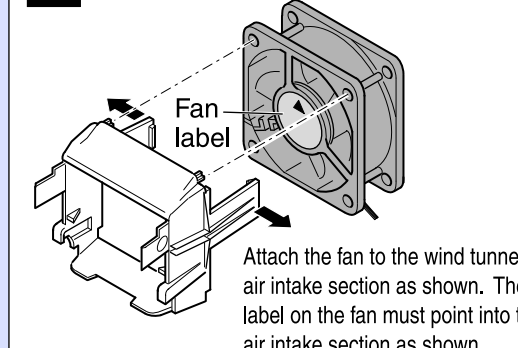**CPU1 Socket**
3B 3A
2B 2A
1B 1A
CPU2 Socket

6 Installing the Wind Tunnel

Note: If installing the server board in the Intel® SC5200 Hot-Swap, Redundant Power Chassis, do not install the Processor Wind Tunnel.
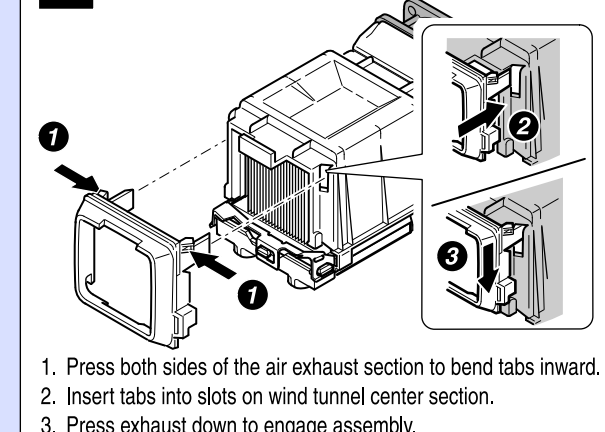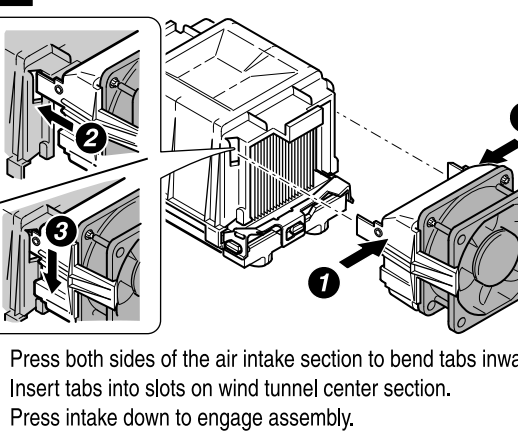
Air Flow

A Attaching the Wind Tunnel Assembly
Install the wind tunnel center section over the heat sink. Note that the plastic tabs engage the tabs on the retention brackets.

B Attaching the Heat Sink Fan
Fan label

Attach the fan to the wind tunnel air intake section as shown. The label on the fan must point into the air intake section as shown.

D Attaching Exhaust Section
1. Press both sides of the air exhaust section to bend tabs inward.
2. Insert tabs into slots on wind tunnel center section.
3. Press exhaust down to engage assembly.

C Attaching the Air Intake Section
1. Press both sides of the air intake section to bend tabs inward.
2. Insert tabs into slots on wind tunnel center section.
3. Press intake down to engage assembly.
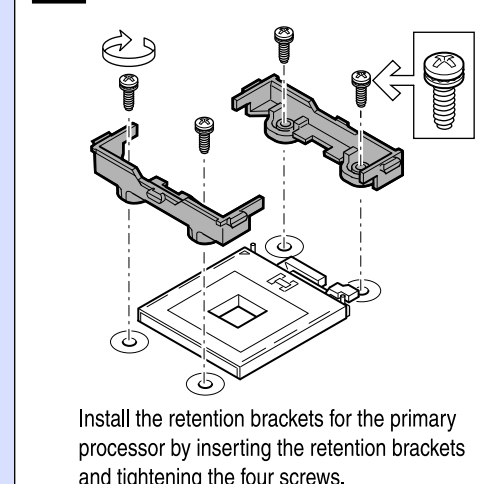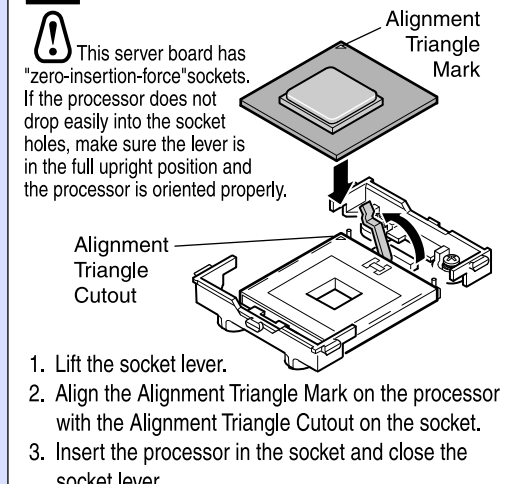
5 Installing the Processor(s)

Note: If installing only one processor, it must be installed in the Processor Socket labeled CPU1, which is closest to the corner of the server board. If installing a second processor, verify that the processors are identical, same voltage and speed.
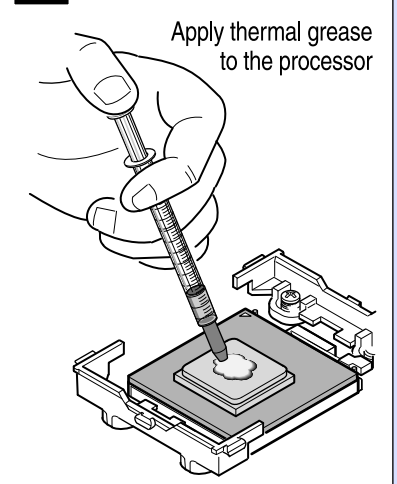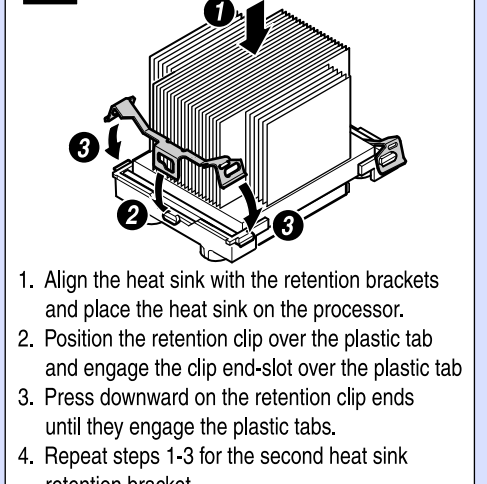
A Installing the Retention Brackets
Install the retention brackets for the primary processor by inserting the retention brackets and tightening the four screws.

B Attaching the Processor
⚠ This server board has "zero-insertion-force" sockets. If the processor does not drop easily into the socket holes, make sure the lever is in the full upright position and the processor is oriented properly.

Alignment Triangle Mark
Alignment Triangle Cutout

1. Lift the socket lever.
2. Align the Alignment Triangle Mark on the processor with the Alignment Triangle Cutout on the socket.
3. Insert the processor in the socket and close the socket lever.

C Applying Thermal Grease
Apply thermal grease to the processor

D Attaching the Heat Sink
1. Align the heat sink with the retention brackets and place the heat sink on the processor.
2. Position the retention clip over the plastic tab and engage the clip end-slot over the plastic tab
3. Press downward on the retention clip ends until they engage the plastic tabs.
4. Repeat steps 1-3 for the second heat sink retention bracket.

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intel®

Side 2

7 Making Connections to the Server Board

Server Board Connection Quick Reference:

A. Main Power
B. Aux Sig.
C. +12 V CPU Power
D. CPU1 Fan
E. CPU2 Fan
F. Front Panel USB
G. Serial B
H. Jumper Block CN27
I. System Fan 5

J. Floppy Disk Drive connector
K. Secondary IDE
L. System Fan 6
M. Primary IDE
N. IPMB
O. System Fan 3
P. System Fan 4
Q. HSBP-B

R. HSBP-A
S. HDD LED
T. LVD SCSI B
U. Front Panel connector
V. LVD SCSI A
W. Chassis Intrusion
X. System Fan 1
Y. System Fan 2
Z. ICMB

Intel SC5200 Base Server Chassis Note
Connect front system fans to connectors 3 and 4 on the server board.

Intel SC5200 Hot-Swap, Redundant Power Server Chassis Note
Be sure to attach system fans to their correspondingly numbered connector on the server board. System fan numbers have been printed on the front and rear system fan holders.
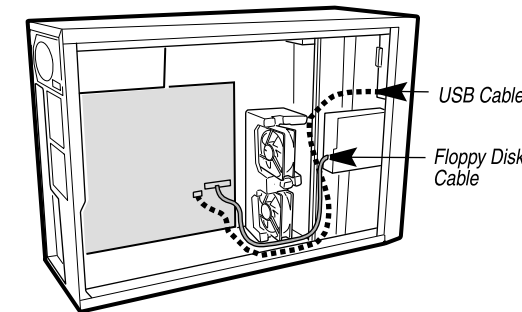
8 Cable Routing

IDE and SCSI Cables - SC5200 Base Chassis

Cabling to Lower Device Bay

SCSI Backplane

Lower Device Bay

Ribbon Cable(s)
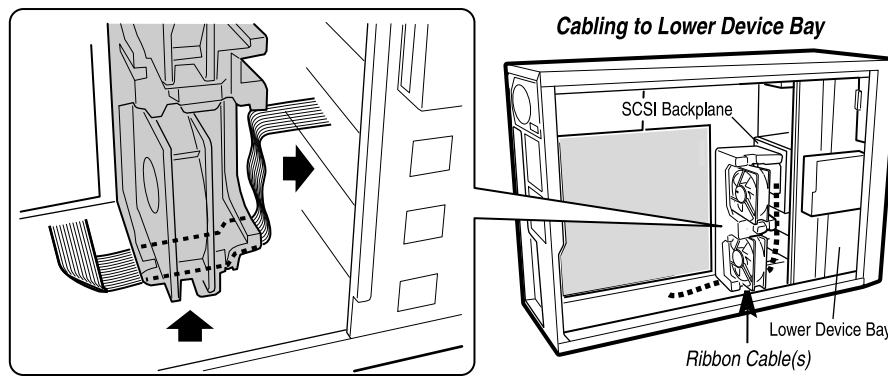
IDE and SCSI cables that connect to devices in the lower device bays should be routed around the epac as shown.
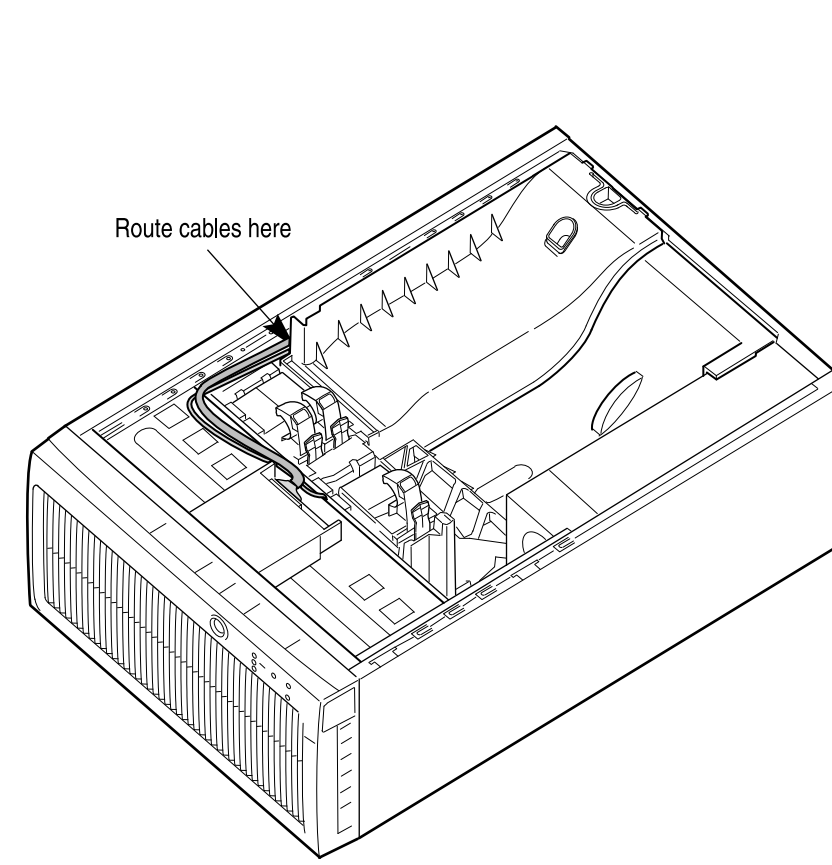
1. Remove the top half of the epac.
2. Route cable(s) as shown.
3. Replace the top half of the epac.

### Floppy Drive and Front Panel USB Cables - SC5200 Base Chassis

USB Cable

Floppy Disk Cable

Route the floppy drive cable and the front panel USB cable as shown.

Cable Routing - SC5200 Hot-Swap Chassis

Route cables here

9 Installing the Serial B Cable

For the Intel SC5200 chassis, you can connect the Serial Port B cable to either the back of the chassis or, on a rack mount system, to the front of the chassis.

Chassis Back Panel
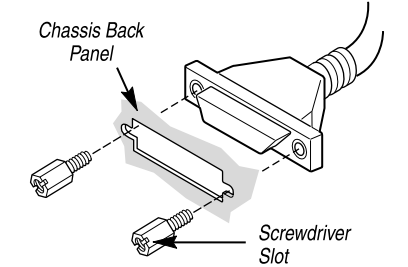
Screwdriver Slot

1. Use a screw driver to remove the connector knock out.

2. Install the Serial B cable by inserting it into the chassis back panel cutout and attaching the two hex screws as shown.

3. Attach the other end to the Serial B connector on the server board. *See step 7 for connector location on the server board.*

11 Getting Started with Intel® Server Management and Intel® SMaRT Tool (Optional)

Intel® Server Management Software and the hard drive Service Partition provide real-time monitoring and alerting for your SHG2 server hardware, emergency remote management, and remote server setup. Intel Server Control is implemented by installing it within client-server architecture.The Service Partition provides you with the ability to remotely access a local partition on the server and to identify and diagnose server health issues. Remote access is provided through either a modem or network connection.

The Intel® Server Maintenance and Reference Training (SMaRT) Tool is an interactive software tool providing support information to assist with the maintenance and repair of Intel-based server systems and accessories. SMaRT Tool features visual, step-by-step instructions for replacing parts; a complete Field Replacement Unit (FRU) database containing part numbers and images; product spares lists, and worldwide Intel support information.

Intel Server Management provides an interface to the Intel® SMaRT Tool, combining remote error detection and alerting with interactive maintenance and repair assistance. When Intel Server Management detects a hardware error and a part needs replacing, SMaRT Tool can be launched directly from Intel Server Management to locate the correct part information and corresponding "How to Replace" steps required to quickly get the server back up and running.

To activate Intel Server Management's interface with the Intel SMaRT Tool, both software programs need to be installed. You can install the software on a server or on a workstation used to manage the server. The information here describes installation on a system running a Microsoft Windows* operating system. For other operating systems, see the Installation Guide & User Guide located in the "ISM/Docs" folder on the Intel Server Management CD-ROM. SMaRT Tool may only be installed on a system running a Microsoft Windows* operating system.

Note: Prior to installation, uninstall any previous version of Intel Server Control.

Installing Service Partition on the Server (Optional)

The Service Partition provides advanced remote management and configuration functionality. Installation is optional.

1. Power-on the server, insert the *Intel® Server Management CD* into the CD-ROM drive and boot to the CD.
2. Select **Utilities > Run Service Partition Administrator > Create Service Partition-first time.**
3. Select an available hard drive. The server will reboot the CD.
4. After the server reboots, select **Format Service Partition and Install Software.**
5. Exit the menu, Remove the CD and reboot to install the server operating system.

Installing your Operating System

Install your operating system now.

Installing Intel Server Management

You can install Intel Server Management on a local server or on a remote workstation that is used to manage a LAN/WAN.

1. Insert the *Intel Server Management CD* into the system's CD-ROM drive.
2. Click **Install Server Management.**
3. Complete the Registration form and click **Submit.**
4. Select the applicable system option.
5. Review the Intel Software License Agreement and click **Submit.**
6. If installing to a local server, click **Install Now. If** this is a multiple system installation, click **Add** to compile a list of systems and then click **Install Now.**

7. Select **Reboot Now** or **Reboot Later.**
8. Remove the Intel Server Management CD.

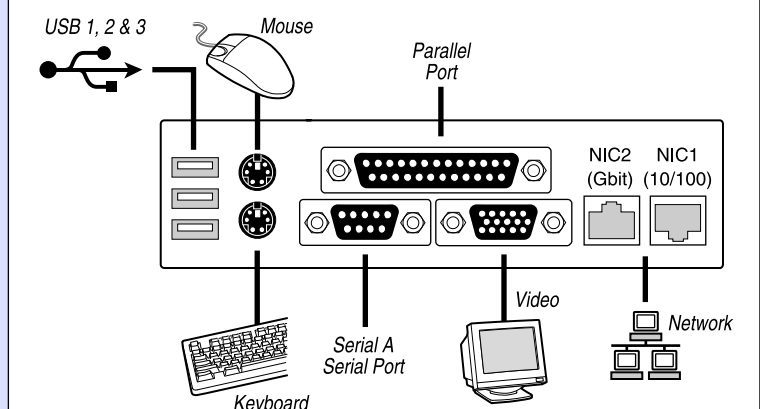### Installing Intel SMaRT Tool

SMaRT Tool may only be installed on a system running a Microsoft Windows* operating system. To download the SHG2 SC5200 server system module for SMaRT Tool, you must have internet access.

1. Insert the *Intel Server Board SHG2 Resource CD* into the system's CD-ROM drive.
2. Click on **Intel®SMaRT Tool** in the menu on the left side of the screen.
3. In the green **Make a Selection** drop-down menu, select **SMaRT Tool Install Guide.** Print the Guide, and keep it on hand for reference. Review the SMaRT Tool Install Guide prior to proceeding.
4. In the **Make a Selection** drop-down menu, select **Install SMaRT Tool.**
5. Click on the **Run Installer** icon to launch the SMaRT Tool Setup program.
6. Follow the on-screen installation instructions. Review the Intel Software License Agreement and click **Accept.** When installation is complete, launch SMaRT Tool.
7. In SMaRT Tool's Welcome page, click on **Systems.**
8. Select **Select System > Servers > Xeon**™ **> SHG2 SC5200** and then follow the on-screen instructions to download the SHG2 SC5200 server system module. When download is complete, SMaRT Tool will restart.
9. Select **Systems > Select System > Servers > Xeon**™ **> SHG2 SC5200** to access information on your new server system.
10. You can invoke SMaRT Tool directly from Intel Server Management's Platform Instrumentation Control application by clicking on the SMaRT Tool icon, or by selecting **Launch SMaRT Tool** from the **SMaRT Tool** menu. The interface between the two programs is context-sensitive. To find out more about the integration between Intel SMaRT Tool and Intel Server Management, please select **SMaRT Tool and Server Management** in the green **Make a Selection** drop-down menu.
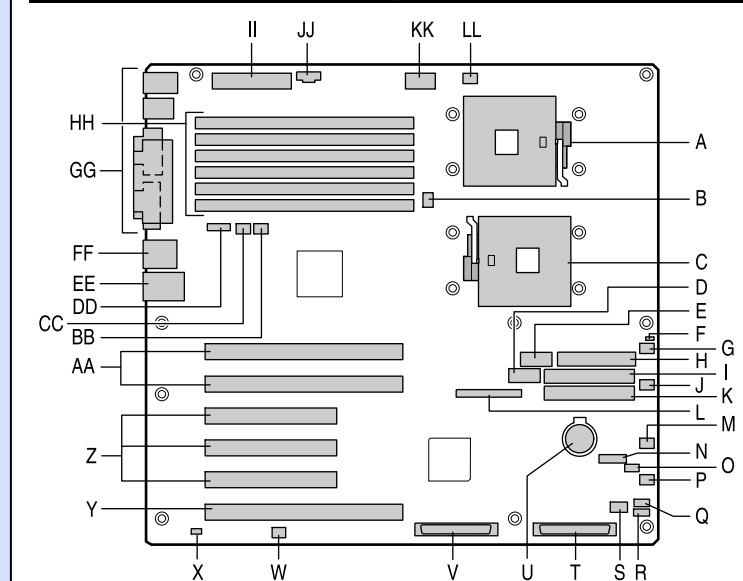
10 Finishing Up

Before installing your operating system, you must finish your chassis installation and connect I/O connectors and AC power.
1. Replace the chassis cover.
2. See your chassis documentation to complete rack or pedestal installation.
3. Connect your keyboard, mouse, video and other I/O cables as shown.
4. Connect the AC Power cable.

USB 1, 2 & 3

Mouse

Parallel Port

NIC2 (Gbit)   NIC1 (10/100)

Video

Network

Keyboard

Serial A Serial Port

Reference

Server Board Component Layout

II JJ   KK LL

HH
GG
FF
EE
DD
CC
BB
AA
Z
Y

X   W   V   U   T   S   R

Component Descriptions:

A. Primary Processor Socket (CPU1)
B. CPU2 Fan
C. Secondary Processor Socket (CPU2)
D. Front Panel USB
E. Serial B
F. Jumper Block CN27
G. System Fan 5
H. Floppy Disk Drive connector
I. Secondary IDE
J. System Fan 6
K. Primary IDE
L. Front Panel connector
M. IPMB
N. Jumper Block CN43

O. System Fan 3
P. System Fan 4
Q. HSBP-B
R. HSBP-A
S. HDD Led
T. LVD SCSI B
U. Battery
V. LVD SCSI A
W. Jumper Block CN53
X. Chassis Intrusion
Y. PCI-X 64/133
Z. PCI 32/33
AA. PCI 64/100
BB. System Fan 1
CC. System Fan 2
DD. ICMB
EE. NIC1 (10/100)

FF. NIC2 (Gbit)
GG. System I/O connectors
HH. DIMMs
II. Main Power
JJ. Aux. Sig.
KK. +12 V CPU Power
LL. CPU1 Fan

Common Problems and Solutions

The system does not boot or show video at power on.
• If configuring with only one processor verify that the processor is in the Primary Processor socket (CPU 1).

• Beep code 1-3-3-1 means you have unrecognized or bad memory. Remove and replace DIMMs one at a time to isolate which one is causing problems.

• Verify that +12V CPU Power is connected.

• Remember, all DIMMs must be:
  • Registered DDR 200 or 266-compliant 2.5V SDRAM
  • Paired with an identical DIMM in a bank

The system sometimes works, but is exhibiting erratic behavior.

• This is typically the result of using an under-rated power supply. Make sure you are using at least a 450 W power supply which meets the SSI EPS 12V specification. For more information, see *http://www.ssiforum.org*

Accessories and Order Codes

Item	Product Code
Intel® SC5200 Server Chassis Base Chassis	KHD3BASE450
Intel® SC5200 Server Chassis Redundant Power Chassis	KHD3HSRP650
Intel® SC5200 Server Chassis Rack Optimized Redundant Power Chassis	KHD3HSRP650R
Intel® SC5200 Server Chassis spares kit	FHD3SPRS
Intel® RAID Controllers	SRCU42L SRCU32U SRCMRR