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Intel® Server Board SE7501HG2

Troubleshooting Guide

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

Intel order number C40869-001

Revision 1.0

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Revision History

Date	Revision Number	Modifications
4/14/2003	1.0	Initial release.

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Contact your local Intel sales office or your distributor to obtain the latest specifications before placing your product order.

Copies of documents which have an ordering number and are referenced in this document, or other Intel literature, may be obtained from:

> Intel Corporation
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> Denver, CO 80217-9808

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Table of Contents

1. Introduction

This guide is provided to help the user of the Intel® Server Board SE7501HG2 troubleshoot and identify possible problem areas encountered in configuring or maintaining their server system. This guide is to be used in conjunction with other information that is available on public Intel websites.

2. Server Board Tools and References

As part of Intel's commitment to provide outstanding technical support several documents, drivers, and diagnostic tools are included with your purchase of the server board SE7501HG2. These references and tools, along with information updates published to Intel's public support site, help to minimize downtime if an issue occurs. Below is a summary of references and tools provided and where they are located.

Tested Hardware and OS List

The Tested Hardware and OS list is located on the web at: http://support.intel.com/support/motherboards/server/SE7501HG2/testedhw_os.htm. This list contains a comprehensive list of operating systems and hardware components tested by Intel with the Intel Server Board SE7501HG2. This list does not contain information about memory, processors, or non-Intel chassis. It does contain the following:

- PCI cards (Example: RAID controllers, Network Interface Cards, SCSI controllers)
- USB devices
- CD, DVD, floppy drives
- Removable devices
- Hard drives
- Keyboard / video / mouse switch boxes

This list is updated periodically.

Supported Processors

Intel tests and publishes all processors that can be installed on the server board SE7501HG2. This list is located on the web at: http://support.intel.com/support/motherboards/server/se7501hg2/procsupp.htm. This list is updated when processor speeds are increased, a new generation of processors becomes available, or the stepping of the processor changes. If a processor is not on this list, it is not supported on the server board SE7501HG2.

Supported Memory

Intel tests and publishes all memory that has been tested on the SE7501HG2. This list is located on the web at:
http://support.intel.com/support/motherboards/server/se7501hg2/tested_memory.htm.

This list is updated periodically.

Product Documentation

The Intel Server Board SE7501HG2 features are described in several documents. The two key documents are as follows:

- The *Intel® Server Board SE7501HG2 Product Guide* is shipped with the product on the Resource CD. It is also posted on the web at http://support.intel.com/support/motherboards/server/se7501br2/prod_guide.htm. Translated versions of this document may be also be available on the web. The Product Guide is a reference document that describes the key feature of the server board and its components and instructions on how to integrate the server board into a chassis.

- The *Intel® Server Board SE7501HG2 Technical Product Specification* is posted on the web at http://support.intel.com/support/motherboards/server/SE7501HG2/spec.htm. This document contains detailed technical information about the features of the server board SE7501HG2. Updates to this document are posted on a regular basis.

Spares, Parts and Configuration Guide

The *Spares, Parts, and Configuration Guide* assists customers in ordering the necessary components to configure the server board SE7501HG2 with Intel® Server Chassis SC5200 Knock-down Kit products. The document includes part numbers, order codes, and spares available for integration.

The document is available at
http://support.intel.com/support/motherboards/server/se7501hg2/sp_config.htm

Platform Confidence Test

The SE7501HG2 Resource CD contains the Platform Confidence Test utility. This test utility runs diagnostics on your configuration and provides valuable information and troubleshooting information. The Resource CD contains a document describing the details of the test utility and how to use them.

Intel® SMaRT Tool

The SE7501HG2 Resource CD contains the Intel® Server Maintenance and Reference Training (SMaRT) Tool. The Intel SMaRT Tool contains:

- Virtual system tours
- Step-by-Step parts replacement instructions
- Searchable parts database
- Product spares lists
- Technical information
- Technical support references

LED Information

The Intel® Server Board SE7501HG2 includes LEDs that can aid in troubleshooting your system. A table of these LEDs with a description of their use is listed below.

LED Name	Function	Location	Color	Status
System fault	Visible fault warning	Front panel and board rear left corner	Green or Amber	On = no fault Green blink = degraded Amber = critical error or non-recoverable Amber blink = non-critical
IDE activity	Front panel	Front panel and board left side	Green	Blinking = activity

Beep Codes

Sometimes when a system is powered on a sequence of 'beeps' may be heard during the boot sequence. These beeps have a code that identifies system or PCI card events. For example, some Intel® RAID cards have beep codes. Before checking for a system beep code error make sure the PCI card is not causing the beeping.

System beep codes are generated by the BMC. The BMC generates beep codes upon detection of the failure conditions listed in the following table. Each digit in the code is represented by a sequence of beeps whose count is equal to the digit. The most common beep codes are listed in the table below

Code	Reason for Beep
1	Front panel CMOS clear initiated
1-5-1-1	FRB failure (processor failure)
1-5-2-1	No processors installed or processor socket 1 is empty.
1-5-2-3	Processor configuration error (e.g., mismatched VIDs, Processor slot 1 is empty)
1-5-2-4	Front-side bus select configuration error (e.g., mismatched BSELs)
1-5-4-2	Power fault: DC power unexpectedly lost (e.g. power good from the power supply was deasserted)
1-5-4-3	Chipset control failure
1-5-4-4	Power control failure (e.g., power good from the power supply did not respond to power request)

In the case of a Bootblock update, where video is not available for text messages to be displayed, speaker beeps are necessary to inform the user of errors. For beep codes associated with a Bootblock update refer to the *Intel® Server Board SE7501HG2 Technical Product Specification* located at http://support.intel.com/support/motherboards/server/SE7501HG2/spec.htm

3. Questions and Answers

Processor Questions and Answers

Does it matter which processor is populated first?

Yes. The socket for Processor 1 must be populated first. The Processor 1 socket is the closest to the outside edge of the board and is labeled "CPU1". The Processor 2 socket is closer to the center of the board and is labeled "CPU2". If a single processor is used and is installed in the Processor 2 socket instead of the Processor 1 socket, this product will not.

The system bus is automatically terminated, which means if a single processor is used, the empty Processor 2 socket does not require a terminator.

Will the system always boot from Processor 1, even if two processors are installed?

Not necessarily. When two processors are installed, the Intel® Server Board SE7501HG2 will boot from either processor using a technique called Fault Resilient Booting (FRB). If the primary processor fails to respond in a designated amount of time during POST, the secondary processor is used to complete the boot-up sequence.

If a processor error occurs in a single processor configuration, the board will halt during the boot process and display a message for the user indicating that it is forcing itself to boot from a potentially bad processor. The system will attempt to continue the boot process after the user acknowledges the message.

For more information on FRB, refer to the *Intel® Server Board SE7501HG2 Technical Product Specification* located on the Intel Support Website

How do I disable hyper-threading?

Hyper-threading can be disabled in BIOS setup, under the "Advanced" menu. Disabling hyper-threading will cause performance degradation on some applications.

If I only install one processor, what do I do with the standoffs around the Processor 2 socket?

All eight CPU standoffs on the chassis base plate must be installed when the board is being integrated in a chassis. These standoffs are required even if the system is will be operated with only a single processor in order to withstand shock and vibration.

Which way should the processor wind tunnels be installed?

When configuring the board in a dual-processor configuration, both processor wind tunnels and their fans must be installed with the same orientation. Proper installation requires that both fans push air through the processor wind tunnel. Refer to the *Intel® Server Board SE7501HG2 Quick Start User's Guide* for installation instructions.

Memory Questions and Answers

What are the memory / DIMM requirements?

The SE7501HG2 supports only registered DDR266 SDRAM memory. DIMMs must be installed in pairs and must be populated by bank, starting with Bank1 (DIMM1A and DIMM1B contiguous sockets). Although the board allows the user to mix various sizes of DIMMs between banks, DIMMs must be identical within the banks. Memory Bank1 is the pair of DIMMs located closest to the edge of board; refer to the board drawing on the *Intel® Server Board SE7501HG2 Quick Start User's Guide*.

On Board Component Questions and Answers

Which 10/100/1000 NIC connector is for server management?

The server board SE7501HG2 board provides two RJ45 connectors for the on-board Network Interface Controllers. The two NICs are stacked with NIC1 on the bottom. NIC1 is the designated Server Management NIC.

How do I disable the integrated components?

Onboard controllers can be disabled through the server board BIOS setup. To enter BIOS setup, press F2 when prompted during the boot up process.

How should the system fans be connected?

The SE7501HG2 board ships with five system fan headers. Sys Fan 1, Sys Fan 2, Sys Fan 3, and Sys Fan 4 are used when integrating the server board SE7501HG2 in the Intel® Server Chassis SC5200 Base. Sys Fan 5 is used in addition to Sys Fans 1 through 4 when the server board is integrated in the Intel® Server Chassis SC5200 650W Hot-Swap Redundant Power (HSRP).

The following table describes how the fans should be connected on the board when integrated into the SC5200 450W Base Chassis.

Rear Chassis Fans		Front Epac Fans	
Reference Designator	Silkscreen	Reference Designator	Silkscreen
J5A1	Sys Fan1	J2K2	Sys Fan3
J4A1	Sys Fan2	J4K3	Sys Fan4

Some of my devices are not recognized under the Windows* 2000 Device Manager. What might be wrong?

After installing Microsoft* Windows 2000 Advanced Server, the Device Manager might display unrecognized devices. This is because the operating system does not include all of the drivers for the Intel® E7501 chipset, on-board NICs, and the SCSI Hot Swap Backplane. Installing the Intel Chipset Utility (INF files), NIC drivers, and HSBP drivers that are available on the Resource CD will allow the operating system to properly recognize these devices.

Troubleshooting Checklists

General tips

For any issue, ensure you are using the latest firmware and files:

- Update the firmware files to the latest version. The files to download and install depend on the type of chassis being used, but should include BIOS, BMC, FRUSDR, HSC. Clear the CMOS upon completion of any updates. The update files can be downloaded from the SE7501HG2 support web site.

- Download and apply the latest drives used in your installation. These drivers may include video, network adapter, SCSI, and chipset.

My system appears to power on, but there is no video. What might be wrong?

Check the following:

- Make sure the monitor is turned on and the video cable is plugged in completely. If you are using a switch box to share a monitor between multiple servers, ensure you have it switched to the proper server. See if your results vary by removing the switchbox.

- Video on the Intel Server Board SE7501HG2 can be disabled through BIOS setup or by an add-in video card. If you are using an add-in video card, make sure your monitor is plugged into the add-in card. If you suspect that your video controller may be disabled in BIOS setup, attach to the system via server management, either through the serial port or the LAN connector and redirect the BIOS setup screen to your remote console to check and change the setting. For instructions on how to do this, refer to the *Intel® Server Management User's Guide* included on the Resource CD that came with your board or visit the Intel Support website to obtain a copy of the document.

- This product allows for use of two processors. If only one processor is used, it must be located in the "CPU1" socket. Processor termination is automatic so a terminator is not required in the empty socket. The system will not boot if only one processor is used and it is installed in the "CPU2" socket.

- Remove and reseat memory modules and processors. See if your results vary if you use memory and processors from a known working system.

- Remove all add-in cards and try booting the server without only the on-board components installed. If the system boots successfully, add the cards in one at a time, rebooting each time you add a card, to narrow down the problem to a specific card.

- If you are using a non-Intel chassis, ensure that stand-offs are only located below the grounded mounting holes. Stand-offs in other locations may contact the back of the board and short out some features, causing it to operate improperly or unreliably. Refer to the *Intel Server Board SE7501HG2 Product Guide* and / or your reference chassis documentation for correct standoff placements.

If you are unable to obtain a video image, fill out the customer support issue report form included at the end of this document and then call your customer support representative.

Intel® Server Issue Report Form

Date Submitted: _____

Company Name: _____

Contact Name: _____

Email Address: _____

Intel Server Product: SE7501HG2

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.

Hardware Information

Baseboard Revision - PBA# _____

Baseboard Serial Number# _____

CPU 1 Speed/Stepping/Spec _____

CPU 2 Speed/Stepping/Spec _____

System BIOS Version _____

FRUSDR Version _____

BMC Version _____

HSC Firmware Version _____

Chassis
- ☐ SC5200 Base
- ☐ SC5200 BRP
- ☐ SC5200-HSRP
- ☐ Other (Vendor / Model):

_____

DIMM Configuration

DIMM1A size in MB _____

   Vendor / PN _____

DIMM1B size in MB _____

   Vendor / PN _____

DIMM2A size in MB _____

   Vendor / PN _____

DIMM2B size in MB _____

   Vendor / PN _____

DIMM3A size in MB _____

   Vendor / PN _____

DIMM3B size in MB _____

   Vendor / PN _____

Operating System Information

Operating System _____

Version _____

Service Pack # _____

Peripheral Information

Check each box below that is used in the failing configuration, and provide the requested information

PCI Card	Card Description	Driver Revision	IRQ #	I/O Base Address	FW Rev#
P64 Segment C (PCI-X 64/133)					
☐ PCI Slot 1					
P64 Segment B (PCI-X 64/100)					
☐ PCI Slot 2					
☐ PCI Slot 3					
P32 Segment A (PCI 32/33)					
☐ PCI Slot 4					
☐ PCI Slot 5					
☐ PCI Slot 6					

☐ On-Board Video
☐ On-Board NIC1 (1.0 Gb bottom)
☐ On-Board NIC2 (1.0 Gb top)

Hard Drive Information:
☐ IDE # of drives installed: _____

Make/Model/Firmware Revision _____

☐ SCSI # of drives installed: _____

Make/Model/Firmware Revision _____

Problem Report

Complete Problem Description

In the space below, provide a **complete** description of the steps used to reproduce the problem or a complete description of where the problem can be found. Please also include any details on troubleshooting already done.

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