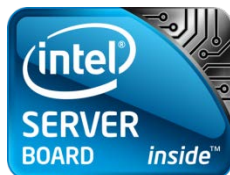


Monthly Specification Update

Intel® Server Board S4600LH2/LT2

Intel® Server System R2000LH2/LT2 Product
Family



April 2014

Platform Collaboration and Systems Division

Revision History

Date	Modifications
August 2013	Initial release. Added errata.
March 2014	Added Errata
April 2014	Added errata 23

Disclaimers

The Monthly Specification Update Server System may contain design defects or errors known as errata that may cause the product to deviate from the published specifications. Current characterized errata are documented in this Specification Update.

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Preface

This document is an update to the specifications contained in the following documents:

1. *Intel® Server Board S4600GLH2/LT2 Technical Product Specification*
2. *Intel® Server System R2000LH2/R2000LT2 Product Family Technical Product Specification*

It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools. It contains specification changes, specification clarifications, errata, and document changes.

Nomenclature

1. **Specification Changes** are modifications to the current published specifications for Intel® Server Boards. These changes will be incorporated in the next release of the specifications.
2. **Specification Clarifications** describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in the next release of the specifications.
3. **Documentation Changes** include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.
4. **Errata** are design defects or errors. Errata may cause the server board behavior to deviate from published specifications. Hardware and software designed to be used with any given processor stepping must assume that all errata documented for that processor stepping are present on all devices.

Product Scope

The following specific boards, BIOS, and components are covered by this update.

Product Code	Baseboard PBA Revision	BIOS Revision	BMC Revision	FRU/SDR Revision	ME Revision
S4600LT2	G30981-503	01.08.003	1.19.5018	21	02.01.07.112
S4600LH2	G49987-503	01.08.003	1.19.5018	21	02.01.07.112

Summary Tables of Changes

The following tables provide an overview of known errata and known document changes that apply to the specified Intel server products. The tables use the following notations:

Doc: Intel intends to update the appropriate documentation in a future revision.

Fix: Intel intends to fix this erratum in the future.

Fixed: This erratum has been previously fixed.

No Fix: There are no plans to fix this erratum.

Shaded: This erratum is either new or has been modified from the previous specification update.

Table 1. Errata Summary

No.	Plans	Description of Errata
1.	Fix	Linux* operating systems are not supported in RSTe mode.
2.	Fix	UEFI operating system installation is not supported in ESRT2 mode.
3.	Fixed	The HDD status LEDs do not function with specific configuration.
4.	Fixed	The BMC continuously sends a RAID volume rebuild event in RSTe mode of the SCU controllers.
5.	Fixed	System may halt under specific BIOS configurations
6.	Fix	Microsoft Windows Server 2003* x86 installation fails in pass-through mode of the SCU controllers.
7.	Fixed	The BIOS and ME Firmware can't be updated successfully via Intel® One Boot Flash Update (OFU) under SuSE* Linux Enterprise Server 11* (64-bit) with SP2
8.	Fixed	BMC continuously sends HDD assert/de-assert event during HDD RAID rebuild under ESRT2 mode of the SCU controller
9.	Fixed	Intel® RAID C600 Upgrade Key replacement Issue
10.	Fixed	Intel® LAN driver installation failure on Windows* 7
11.	Fixed	The Memory Throttling sensor status will stay "Critical" once triggered on the Sensor Readings page of the Integrated BMC Web Console.
12.	Fixed	WOL (Wake on LAN) may not function under Red Hat* Linux 6.2 64bit OS
13.	Fixed	POST Code Diagnostic LEDs may not be all off after POST has completed
14.	Fixed	The Intel® FDR InfiniBand* ConnectX*-3 I/O Module may not comply with FCC and Industry Canada regulations.
15.	Fixed	The Intel® Xeon Phi™ Coprocessor PCI Express* Card Status Sensor may show "Unknown"
16.	Fixed	The Activity/Link LED of the Intel® I/O Expansion Modules may not be solid green.
17.	Fixed	Intel® FDR InfiniBand* ConnectX* -3 I/O Module AX2FDRIBIOM port 2 may have interconnect problem with Mellanox* 1m FDR or 7m SFP+ passive copper cables
18.	No Fix	BMC becomes temporarily unresponsive across the LAN or the Integrated BMC Web Console may disconnect, when performing DC power cycling
19.	No Fix	VMware ESXi* installation failure when detecting Network Adapters
20.	Fix	Reported processor frequency is lower than expected when the BIOS setup option EIST is disabled and the system is also in idle mode
21.	Fix	PCIe Completion Timeout (CTO) results in Windows* blue screen.
22.	Fix	The DIMM voltage warnings are generated with some 1.35v LR DIMMs installed.
23.	Fix	Intel® Xeon® processors E5-4600 v2 Boot Issue

Table 2. Documentation Changes

No.	Plans	Document Name	Description of Documentation Change
1	Publish	Intel® Server Board S4600GLH2/LT2 Technical Product Specification	Updated to Rev 2.0
2	Publish	Intel® Server System R2000LH2/R2000LT2 Product Family Technical Product Specification	Updated to Rev 1.0

The following sections provide in-depth descriptions of each erratum/documentation change indicated in the tables above. The errata and documentation change numbers referenced in the following sections correspond to the numbers in the tables above.

Errata

1. Linux* operating systems are not supported in RSTe mode

Problem	Intel® RSTe mode is not supported on Red Hat* Linux and SUSE* Linux.
Implication	Users may not be able to install Red Hat* Linux and SUSE* Linux on Intel® C600 Series Chipset based Server Boards in Intel® RSTe mode.
Status	This issue may be fixed in future driver or BIOS releases.
Workaround	None.

2. UEFI operating system installation is not supported in ESRT2 mode

Problem	UEFI OS installation of Microsoft Windows*, Red Hat* Linux, or SUSE* Linux may fail on AHCI or SCU controllers when “EFI Optimized Boot” and “Use Legacy Video for EFI OS” are both enabled.
Implication	Users may not be able to install UEFI OS on Intel® C600 Series Chipset based Server Boards in ESRT2 mode.
Status	This issue may be fixed in a future BIOS revision.
Workaround	None.

3. The HDD status LEDs do not function with specific configuration

Problem	If drives are connected through an expander to SCU ports and configured in RSTe mode, the HDD status LEDs may not function properly.
Implication	The HDD status LED may not show the HDD locate, HDD fault, or RAID rebuild messages.
Status	This issue is fixed in RSTe driver 3.2.0.1134 and later versions.
Workaround	None.

4. The BMC continuously sends a RAID volume rebuild event in RSTe mode of the SCU controllers

Problem	When RSTe RAID is in degraded mode and a drive is inserted to start the RAID rebuild, the System Event Log (SEL) records the drive plug and rebuild events and then continuously sends a rebuild event message.
Implication	Users may see the SEL flooded with RAID volume rebuild event entries.

Status This issue is fixed in the latest RSTe driver ver 3.0.0.3020 upd 2012.03.03.

Workaround None.

5. System may halt under specific BIOS configurations

Problem Once BIOS options “EFI Optimized Boot” and “Memory Mapped I/O Above 4GB” are both enabled, and RSTe mode is selected, system may halt during the system POST.

Implication User may see system hang with mentioned configuration.

Status This issue was fixed in BIOS 01.03.0002 and later version.

Workaround None.

6. Microsoft Windows Server 2003* x86 installation fails in pass-through mode of the SCU controllers

Problem Microsoft Windows Server 2003* x86 installations on SCU RSTe pass-through mode fails.

Implication Users may not be able to install Microsoft Windows Server 2003* x86 on mentioned BIOS configuration.

Status This issue may be fixed in a future RSTe driver release.

Workaround None.

7. The BIOS and ME Firmware can't be updated successfully via Intel® One Boot Flash Update Utility(OFU) under SuSE* Linux Enterprise Server 11* (64-bit) with SP2

Problem OFU will fail to update BIOS & ME under SuSE* Linux Enterprise Server 11* (64-bit) with SP2 Operating System.

Implication If the system is running SuSE* Linux Enterprise Server 11* (64-bit) with SP2 Operating System, using OFU to update System Firmware Update Package(SFUP) will fail.

Status This issue was fixed in OFU version 11.0 Build 8 and later version.

Workaround None.

8. BMC continuously sends HDD assert/de-assert event during HDD RAID rebuild under ESRT2 mode of the SCU controller

Problem	HDD fault will keep asserting and de-asserting frequent during RAID rebuild under ESRT2.
Implication	During HDD ESRT2 RAID rebuild, there's flood HDD fault assert/deassert(SAS RAID) or Rebuild/remap (SATA RAID) logs into SEL.
Status	This issue was fixed in ESRT2 driver 15.00.0528.2012 and later version.
Workaround	None.

9. Intel® RAID C600 Upgrade Key replacement Issue

Problem	With Manageability Engine (ME) Firmware 02.01.05.069, the server may detect the incorrect Storage Control Unit (SCU) Redundant Array of Inexpensive/Independent Disks (RAID) information after installing or replacing the RAID upgrade key. The board or system may still show the previous RAID information even if you replace the key with a new one.
Implication	With the ME firmware 02.01.05.069, the system may not detect the new RAID activation key during the first time AC power on.
Status	The issue was fixed in ME firmware 02.01.05.091 and later version.
Workaround	None.

10. Intel® LAN driver installation failure on Windows* 7

Problem	The Intel® LAN driver version 16.8 and below may not be installed successfully on Windows* 7 with the .bat installation scripts in the driver package.
Implication	The LAN driver can not be installed by the .bat installation scripts in the driver package.
Status	The issue was fixed in Intel® LAN driver 17.1 and later version.
Workaround	None

11. Integrated BMC Web Console – Sensor Readings Page – Memory Throttling sensor status will stay “Critical” once triggered

Problem	When Memory Throttling is triggered, the Memory “P1 MTT and/or P2 MTT” sensor status will stay at “Critical” status in the Integrated BMC Web Console even after throttling has stopped.
Implication	User may observe Memory “P1 MTT and/or P2 MTT” status as “Critical” even when there is no throttling. No functional impact to the system.
Status	This issue fixed from ME 02.01.07.328 release.
Workaround	Need a AC cycle or reset ME through IPMI to reset the MTT sensor status.

12. WOL (Wake on LAN) may not function under Red Hat* Linux 6.2 64bit OS

Problem	With Intel® LAN driver version 17.1, WOL (Wake on LAN) may not function under Red Hat* Linux 6.2 64bit OS.
Implication	You may not be able to wake system through onboard NIC port.
Status	This issue was fixed in LAN driver 17.4 and later release.
Workaround	None.

13. POST Code Diagnostic LEDs may not be all off after POST has completed

Problem	The POST Code Diagnostic LEDs should be all off after POST has completed. But the LEDs may show other values after booting to an Operating System. The codes seen could change at any time after POST or have any value. A POST code of “0xD4” has been observed after Microsoft* Windows* Server 2008 R2 completes loading. There is no functional impact associated with the POST code pattern “0xD4”.
Implication	The POST Code Diagnostic LEDs may not be all off after POST has completed.
Status	This issue was fixed in BMC 01.17.4151 and later release.
Workaround	None.

14. Intel® FDR InfiniBand* ConnectX* -3 I/O Module may not comply with FCC and Industry Canada regulations

Problem	Intel® FDR InfiniBand* ConnectX* -3 I/O Module AXX1FDRIBIOM and AXX2FDRIBIOM may not comply with Part 15 of the Federal Communications Commission (FCC) and Industry Canada regulations when used with copper InfiniBand* cables.
Implication	Except for not complying with FCC and Industry Canada regulations when used with copper InfiniBand* cables, no other functionality impact. And except for the United States of America and Canada where the regulations apply, no other countries are impacted.
Status	This issue was fixed by Mellanox* InfiniBand* ConnectX* -3 firmware 2.11.1308 and later release. Please refer to the following website for downloading: http://www.mellanox.com/page/firmware_table_Intel .

15. The Intel® Xeon Phi™ Coprocessor PCI Express* Card Status Sensor may show “Unknown”

Problem	When only one Intel® Xeon Phi™ Coprocessor PCI Express* Card (MIC card) is installed in the server system, the card status sensor “MIC 1 Status” or “MIC 2 Status” may show “Unknown” in Intel® Integrated BMC Web Console.
Implication	Users may not get the correct MIC status in Intel® Integrated BMC Web Console. There is no function impact to the server system. This issue doesn't happen when two Intel® Xeon Phi™ Coprocessor PCI Express* Cards are installed.
Status	This issue was fixed in BMC 01.19.5018 and later release.
Workaround	None.

16. The Activity/Link LED of the Intel® I/O Expansion Modules may not be solid green

Problem	The Activity/Link LED (on the left side) of the following Intel® I/O Expansion Modules may not be solid green when there is an active connection: <ul style="list-style-type: none">• Dual-port Intel® X540 10GbE I/O Module AXX10GBTWLIOM and AXX10GBTWLHW• Dual-port Intel® 82599 10GbE I/O Module AXX10GBNIAIOM
Implication	The LED may keep off instead of solid green. Users cannot figure out whether an active connection is established through LED behavior.
Status	This issue is fixed with new EEPROM cut in at the factory. See PCN112163 for more details.
Workaround	None.

17. Intel® FDR InfiniBand* ConnectX* -3 I/O Module AXX2FDRIBIOM port 2 may have interconnect problem with Mellanox* 1m FDR or 7m SFP+ passive copper cables

Problem	Intel® FDR InfiniBand* ConnectX* -3 I/O Module AXX2FDRIBIOM port 2 may have interconnect problem when used with Mellanox* 1 meter FDR or 7 meters SFP+ passive copper cables.
Implication	When used with Mellanox* 1m FDR or 7m SFP+ passive copper cables, port 2 of the module may not be able to establish a successful connection for signal transmission. This issue does not impact other cables. This issue does not impact Intel® FDR InfiniBand* ConnectX* -3 I/O Module AXX1FDRIBIOM.
Status	<p>The issue with 7m SFP+ passive copper cable was fixed by Mellanox* InfiniBand* ConnectX* -3 firmware 2.11.1308 and later release. Please refer to the following website for downloading: http://www.mellanox.com/page/firmware_table_Intel</p> <p>The AXX2FDRIBIOM still has limited issues with Mellanox* 1m FDR passive copper cable that may be fixed in the future.</p>
Workaround	Port 2 of AXX2FDRIBIOM must be used with Mellanox* 2m or 3m FDR or 1m, 2m, 3m, 5m or 7m SFP+ passive copper cables, or active optical cables.

18. BMC becomes temporarily unresponsive across the LAN or the Integrated BMC Web Console may disconnect, when performing DC power cycling.

Problem	When using a complex network infrastructure like switches with advanced features, e.g. spanning tree, and performing a DC power cycle there may be unexpected behavior by the BMC. The BMC may become unresponsive on the LAN connection or the Integrated BMC Web console will disconnect.
Implication	The shared NIC PHY is reset when there is a DC power on. This is expected behavior of NIC PHY. Current BMC has no method to avoid this reset.
Status	This issue will not be fixed
Workaround	None.

19. VMware ESXi* installation failure when detecting Network Adapters

Problem	The system may encounter a failure when installing VMware ESXi* OS, and the error messages could be “No Network Adapters”.
Implication	Users may not be able to successfully install the VMware ESXi* (all versions).
Status	VMware does not support Memory Mapped I/O above 4GB. This issue can be fixed by disabling this BIOS option.
Workaround	“Memory Mapped I/O above 4GB” is enabled by default in the latest BIOS. Customers have to disable this option to make VMware ESXi* (all versions) installation successful.

20. Reported processor frequency is lower than expected when the BIOS setup option EIST is disabled and the system is also in idle mode.

Problem	When the system is in idle mode during OS runtime and EIST is disabled in BIOS setup, the reported processor speed may report a lower than expected frequency.
Implication	This issue may be fixed in a future BIOS update.
Status	This issue may be fixed in a future BIOS update.
Workaround	N/A.

21. PCIe Completion Timeout (CTO) results in Windows* blue screen

Problem	During validation and stress testing in Microsoft Windows*, several blue screens occurred due to completion timeouts. It has been determined that the issue is very sensitive to transaction latency. The Storage Control Unit (SCU) controller that utilizes the x4 Gen 1 uplink for 8-port RAID SW keys is very susceptible to the issue.
Implication	The SKUs using the 8-port RAID keys may experience the CTO issue under certain workloads.
Status	No fix. 8-port RAID keys have been defeatured for this platform. Hardware RAID adapters and 4-port RAID keys are not susceptible to this issue.
Workaround	Intel recommends using validated hardware RAID adapters that are not susceptible to the CTO issue.

22. The DIMM voltage warnings are generated with some 1.35v LR DIMMs installed

Problem	With some 1.35v LR DIMMs installed, users may see BB 1.35 high, non-critical/critical messages in the SEL log.
Implication	These errors are generated because during boot, DIMMS start at 1.5v. The BMC reads the voltage and compares it with the SDR threshold for LV DIMMS (1.35v) and then flags Over Voltage. When the DIMM voltage is shifts down, the deassertion is logged (~ 5 seconds).
Status	This issue may be fixed in a future BIOS/BMC release.
Workaround	Ignore this SEL event as there is no functional impact.

23. Intel® Xeon® processors E5-4600 v2 Boot Issue

Problem	Intel® Xeon® processors E5-4600 v2 configurations of less than 4 CPUs will not boot.
Implication	Intel® Xeon® processors E5-4600 v2 configurations of less than 4 CPUs will not boot due to a main board CPLD power sequencing issue. This issue does not impact Intel® Xeon® processors E5-4600 (non v2) CPUs.
Status	All main boards with PBA numbers of less than G49987-503 (S4600LH2) or G40981-503 (S4600LT2) are impacted by this issue. Main board PBA numbers with -503 or later have factory updated CPLD firmware that resolves this issue. Intel is also working on obtaining a CPLD firmware tool that allows customers to upgrade the CPLD firmware.
Workaround	4-CPU Intel® Xeon® processors E5-4600 v2 configurations are not impacted by this issue. There is currently no field upgradeable utility for the CPLD firmware update.