



# Monthly Specification Update

## ***Intel® Server Boards S5520HC, S5520HCT and S5500HCV***

*Intel Order Number E68105-006*



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Enterprise Platforms and Services Division

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## ***Revision History***

<b>Date</b>	<b>Modifications</b>
04/06/2009	Initial release.
05/12/2009	Fixed erratum 2, and erratum 5.
06/30/2009	Fixed erratum 11, erratum 12, and erratum 13; Added erratum 20.
07/14/2009	Correct production version S5520HC PBA revision; Updated product scope table; Added erratum 21.
09/21/2009	Fixed erratum 9, erratum 16; Added erratum 22, and erratum 23.
12/11/2009	Added erratum 24, erratum 25.
04/06/2009	Initial release.
05/12/2009	Fixed erratum 3, and erratum 6.
06/30/2009	Fixed erratum 12, erratum 13, and erratum 15. Added erratum 20.
07/14/2009	Updated product scope table; added erratum 21.
09/21/2009	Fixed erratum 10, erratum 17; Added erratum 22, and erratum 23.
12/11/2009	Added erratum 24 and erratum 25.
01/18/2010	Added erratum 26; updated product scope

## ***Disclaimers***

The S5520/S5500 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

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This document is an update to the specifications contained in the *Monthly Specification Update Technical Product Specification* (Order Number E39528). It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools. It will contain specification changes, specification clarifications, errata, and document changes.

Refer to the *Intel® Xeon® Processor 5500 Series Specification Update* (Order Number 321324) for specification updates concerning the Intel® Xeon® Processor 5500 Series. Items contained in the *Intel® Xeon® Processor 5500 Series Specification Update* that either do not apply to the Monthly Specification Update or have been worked around are noted in this document.

Otherwise, it should be assumed that any processor errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

Refer to the *Intel® 5520 and Intel® 5500 Chipsets I/O Hub (IOH) Specification Update* (Order Number 313069) for specification updates concerning the *Intel® 5520 and Intel® 5500 Chipsets I/O Hub (IOH)*. Items contained in the *Intel® 5520 and Intel® 5500 Chipsets I/O Hub (IOH) Specification Update* that either do not apply to the Monthly Specification Update or have been worked around are noted in this document. Otherwise, it should be assumed that any chipset errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

Refer to the *Intel® I/O Controller Hub 10 (ICH10) Family Specification Update* (Order Number 319974) for specification updates concerning the *Intel® I/O Controller Hub 10 (ICH10) Family*. Items contained in the *Intel® I/O Controller Hub 10 (ICH10) Family Specification Update* that either do not apply to the Monthly Specification Update or have been worked around are noted in this document. Otherwise, it should be assumed that any chipset errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

## Nomenclature

- **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.
- **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.

- **Documentation Changes** include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.
- **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	EEPROM Revision	Change Description (PCN#)
S5520HC	E26045-406	R0025.1	00.28	11	1.05	1.3	Product Launch
S5500HCV	E40912-402	R0025.1	00.28	11	1.05	1.3	Product Launch
S5520HC	E26045-407	R0038	00.40	19	1.11	1.3	PCN109471-00
S5500HCV	E40912-403	R0038	00.40	19	1.11	1.3	PCN109471-00
S5520HCR	E26045-452	R0045	00.45	21	1.11	1.4	Product Launch
S5500HCVR	E40912-453	R0045	00.45	21	1.11	1.4	Product Launch
S5520HCT	E80888-552	R0045	00.45	21	1.11	1.2	Product Launch



## Summary Tables of Changes

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The following tables indicate the errata and the document changes that apply to the Monthly Specification Update. Intel intends to fix some of the errata in a future stepping of components, and to account for the other outstanding issues through documentation or specification changes as noted. 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 a future release of the component.

**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.	Fixed	Enabling AHCI mode in BIOS setup will cause Microsoft* Windows 2008 to hang during installation
2.	Fixed	System will hang entering the ACPI S1 sleep state
3.	Fixed	USB devices limited to a total of twelve
4.	Fixed	Excessive Temperature does not trigger a Thermal Trip event
5.	Fixed	Hyper Threading cannot be disabled in BIOS setup
6.	No Fix	A critical interrupt is logged in the System Event Log (SEL) when installing SuSE* SLES 10 SP2 32 bit
7.	Fix	Errors are reported during the installation of SuSE* SLES 10 SP2 EM64T
8.	Fixed	In SATA compatibility mode the operating system may take more than four hours to install
9.	Fixed	Serial Console mode may display extra text or intermingled text
10.	Fix	The PXE boot option is missing in BIOS Setup
11.	Fixed	Fans may boost temporarily when BMC is under load
12.	Fixed	Extra events may be seen in the SEL during system reset
13.	Fix	BIOS setup may report incorrect firmware versions
14.	Fixed	Onboard SATA controller SW RAID mode is not available when Intel® SAS Entry RAID Module AXX4SASMOD is set to Intel® ESRTII Mode
15.	No Fix	When battery is missing, firmware will think it is there
16.	Fixed	SES connection is not enabled in Intel® SAS Entry RAID Module AXX4SASMOD firmware v2009.03.24
17.	Fix	Closed Loop Thermal Throttling (CLTT) is not automatically detected and set when using unbuffered memory (UDIMM)
18.	No Fix	SASflash for EFI may not run when EFI Optimized Boot BIOS option is enabled
19.	Fix	Stopped Intel® Server Chassis SC5600LX power supply fans may cause continuous reboots

No.	Plans	Description of Errata
20.	Fixed	Excessive Time to Enter or Exit EFI Shell When AHCI is Enabled in BIOS Revision R0037
21.	Fix	Serial Over LAN (SOL) Will not Automatically Enable Console Redirection When Console Redirection Is Disabled In BIOS Setup
22.	Fix	Windows* Server 2003 may hang when log in to Intel® Raid Web Console2 version 3.04-05 with Intel® Embedded Server RAID Technology II (ESRTII) Raid enabled
23.	No Fix	Cannot boot from SATA CD/DVD ROM using a "bootable" Microsoft* DOS CD/DVD when RAID (or AHCI) is Enabled in the BIOS setup
24.	Fix	High CPU utilization may occur when installing or running Windows* Server 2008 R2 or windows* 7 with default NIC driver
25.	Fix	Clearing BIOS CMOS in BIOS Revision R0042 May Return an Invalid Date
26.	No Fix	SLES11 kernel may halt for 60 seconds during installation with default BIOS setting

**Table 2. Documentation Changes**

No.	Plans	Description of Documentation Change
1.	None	None

Following are in-depth descriptions of each erratum / documentation change indicated in the tables above. The errata and documentation change numbers below correspond to the numbers in the tables.

## Errata

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### 1. Enabling AHCI mode in BIOS setup will cause Microsoft\* Windows 2008 to hang during installation

Problem	AHCI mode enabled causes Microsoft* Windows* 2008 to hang during operating system installation.
Implication	Users that desire to utilize the AHCI feature in BIOS setup will encounter a system hang during the installation of the Microsoft* Windows* 2008 operating system.
Status	This issue was resolved in BIOS release R0027.
Workaround	Disable AHCI in BIOS setup.

### 2. System will hang entering the ACPI S1 sleep state

Problem	Entering an S1 sleep state with Microsoft* Windows* 2003 R2 will result in a system hang condition.
Implication	Users of Microsoft* Windows* 2003 R2 will encounter a system hang entering an S1 sleep state.
Status	This issue was resolved with BIOS R0035 and NIC driver package v14.0.
Workaround	None.

### 3. USB devices limited to a total of twelve

Problem	Populating more than twelve USB devices may cause the system to hang during POST.
Implication	Users needing more than twelve USB devices on the system may experience system hangs during POST.
Status	This issue was resolved in BIOS revision R0030.

Workaround None.

#### 4. Excessive Temperature does not trigger a Thermal Trip event

**Problem** If the I/O Hub (IOH) of the Tylersburg chipset is heated beyond thermal limits, a thermal trip event is not generated.

**Implication** Excessive heat on the IOH for extensive lengths of time may damage or lower the expected life of the integrated Circuit (IC).

**Status** This issue was resolved in BIOS revision R0029 and BMC revision 31.

Workaround None.

#### 5. Hyper Threading cannot be disabled in BIOS setup

**Problem** In the BIOS Setup Menu: \Advanced\Processor, setting the Hyper Threading option to disabled will initially indicate the option is disabled. However, when the user re-enters BIOS Setup, the option will be enabled.

**Implication** Users that desire to disable Hyper Threading will not be able to do so.

**Status** This issue was fixed in BIOS release R0034.

Workaround None.

#### 6. A critical interrupt is logged in the System Event Log (SEL) when installing SuSE\* SLES 10 SP2 32 bit

**Problem** A critical interrupt, PCIe Fat Sensor –[severity] event: Critical Interrupt, is logged during the installation of SuSE\* SLES 10 SP2 32 bit.

**Implication** The user will see a PCIe critical event logged. There is no functional impact.

**Status** No Fix.

**Workaround** Add “noisapnp” to the command line option to prevent scanning of a ISA plug and play devices.

## 7. Errors are reported during the installation of SuSE\* SLES 10 SP2 EM64T

Problem	When installing SuSE* SLES 10 SP2 EM64T with Advanced Error Reporting (AER) capabilities enabled, an AER error is logged in the operating system event log.
Implication	AER uses an optional ACPI requirement, -OCS, that is not available in the S5500 BIOS revisions. There is no functional impact.
Status	This issue may be fixed in a future BIOS revision.
Workaround	None.

## 8. In SATA compatibility mode the operating system may take more than four hours to install

Problem	When the BIOS setup option: \Advanced\Mass Storage Controller Configuration\Configure SATA Mode is set to <i>Compatibility</i> mode, Red Hat* RHEL 5 UP2 may take in excess of four hours to install.
Implication	Users may experience an extended installation time when SATA Mode is configured as <i>Compatibility</i> mode and installing Red Hat* RHEL 5 UP2.
Status	This issue was fixed in BIOS 33 and BMC 34.
Workaround	None.

## 9. Serial Console mode may display extra text or intermingled text

Problem	When operating in serial console mode, during POST the user may notice 1 of 2 conditions.  1. The user may see the numeral 10 displayed at the top right corner of the screen or  2. The RAID controller information may be intermingled with the platform information displayed by BIOS.
Implication	There is no functional impact associated with this erratum.

Status This issue was fixed in BIOS R0038.

Workaround None.

## 10. The PXE boot option is missing in BIOS Setup

Problem If a user disables the primary (onboard) video in BIOS Setup and enable console redirection, the PXE boot option will disappear from the BIOS Boot Manager.

Implication Users that desire to utilize the PXE boot option must leave the primary (onboard) video enabled.

Status This issue may be fixed in a future BIOS revision.

Workaround None.

## 11. Fans may boost temporarily when BMC is under load

Problem The system fans may boost when the BMC is operating under a heavy load. This can include large sequential BMC tasks such as viewing the system event log, configuring the BMC or resetting the system. The fans return to normal automatically after the BMC operations complete

Implication The systems fans will run at a higher state temporarily, increasing acoustics.

Status This issue was fixed with BMC 00.36.

Workaround None.

## 12. Extra events may be seen in the SEL during system reset

Problem The BMC may log periodic, spurious SEL events during a system reset. These events may appear as fan errors or double appearances of normal events. The spurious fan readings will only happen during reset and are not an indication of an actual fan failure. Fan failure events that occur during a reboot should be ignored.

To identify when a reboot happened, locate the following events, which are normally logged after system rest or AC power cycle:

*System Event/BIOS Evt Sensor (# 0x83) Timestamp Clock Sync. 1<sup>st</sup> of pair. Asserted Event.*

*System Event/BIOS Evt Sensor (# 0x83) Timestamp Clock Sync. 2<sup>nd</sup> of pair. Asserted Event.*

Implication The SEL log may indicate fan errors or double instances of normal events intermittently.

Status This issue was fixed with BMC 00.36.

Workaround None

### 13. BIOS setup may report incorrect firmware versions

Problem The BIOS setup screens to display the versions of SDR and ME firmware version may report an incorrect version. The version displayed may be of the previously installed versions.

Implication After firmware update, the BIOS screens may not show the correct version until the system is AC cycled.

Status This issue may be fixed in a future BMC release.

Workaround None.

### 14. Onboard SATA controller SW RAID mode is not available when Intel® SAS Entry RAID Module AXX4SASMOD is set to Intel® ESRTII mode

Problem The *SW RAID* mode for BIOS setup option: *Configure SATA Mode* is not available, when the Intel® SAS Entry RAID Module AXX4SASMOD is installed and set to *Intel® ESRTII* mode.

Implication Users that desire to use both onboard SATA controller and Intel® SAS Entry RAID Module AXX4SASMOD module in Intel® ESRTII mode simultaneously will not be able to do so.

Status This issue was resolved with BIOS R0037.

Workaround None.

### 15. When battery is missing, firmware will think it is there

Problem	If the server board battery is missing, firmware will think it is there and good.
Implication	There is no function impact associated with this erratum. Firmware will however monitor the battery health if it is present
Status	No Fix.
Workaround	None.

## 16. SES connection is not enabled in Intel® SAS Entry RAID Module

### AXX4SASMOD firmware v2009.03.24

Problem	The SES connector is available on the Intel® SAS Entry RAID Module AXX4SASMOD, but the SES connection is not enabled in Intel® SAS Entry RAID Module AXX4SASMOD firmware v2000.03.24.
Implication	Users that desire to use SES connection on AXX4SASMOD for Intel® non-expander backplanes AXX4DRV3GR and AXX6DRV3GR fault LED control will not be able to do it.
Status	This issue was fixed with Intel® SAS Entry RAID Module AXX4SASMOD firmware package v2009.08.06_ph16p3.
Workaround	None.

## 17. Closed Loop Thermal Throttling (CLTT) is not automatically detected and set when using unbuffered memory (UDIMM)

Problem	When using UDIMMs, CLTT will not be automatically selected if using the “Auto” feature on the System Acoustics and Performance page of BIOS setup.
Implication	If users elect to utilize UDIMMs in their system, they must manually enable CLTT in BIOS setup.  <b>Note:</b> Users must ensure that the Serial Presence Detect (SPD) on <i>ALL</i> installed DIMMs support CLTT. If the user is unsure if <i>ALL</i> DIMMs installed support CLTT, the user should maintain the system in Open Loop Thermal Throttling (OLTT) mode.



Status This issue may be fixed in a future BIOS revision.

Workaround None.

## 18. SASflash for EFI may not run when EFI Optimized Boot BIOS option is enabled

Problem SASflash.efi may not run when BIOS option: *EFI Optimized Boot* is enabled and RAID controller is in IT/IR or Intel® ESRTII RAID mode.

Implication Users need to disable *EFI optimized Boot* BIOS option when update firmware by SASflash.efi on RAID controller that in IT/IR or Intel® ESRTII RAID mode.

Status No Fix

Workaround None.

## 19. Stopped Intel® Server Chassis SC5600LX power supply fans may cause continuous reboots

Problem In the Intel® Server Chassis SC5600LX based system, if a power supply fan fails, the system may enter a continuous reboot cycle. If redundant power supply modules are populated, the system will only reboot if fans in both power supply modules fail simultaneously.

Implication If a power supply fan fails, the system may enter a reboot cycle. This problem will only occur in instances where a shutdown is expected. The system will reboot rather than shutting down. The LED on the power supply module with fan fails will turn into amber to indicate this failure state.

Status This issue may be fixed in a future version of the power supply module, which will also has system status LED indicate the power supply fan failure state when it happens.

Workaround None.

## 20. Excessive Time to Enter or Exit EFI Shell When AHCI is Enabled in BIOS

### Revision R0037

Problem	If AHCI is enabled in BIOS setup, it will take the user approximately 3 or more minutes to enter the EFI shell from BIOS Setup and approximately 3 or more minutes to exit the EFI shell.
Implication	Users should expect long delays when entering the EFI shell from BIOS setup if AHCI is also enabled.
Status	This issue was fixed with BIOS R0038.
Workaround	None.

## 21. Serial Over LAN (SOL) Will not Automatically Enable Console Redirection

### When Console Redirection Is Disabled In BIOS Setup

Problem	If console redirection is disabled in BIOS setup SOL will no longer automatically detect this condition and then enable console redirection.
Implication	Console redirection must be enabled in BIOS setup prior to utilizing SOL. Furthermore, the IPMI command <i>SetSystemBootOption</i> to enable console redirection is not supported.
Status	This issue may be fixed in a future BIOS revision or with the optional IPMI command support.
Workaround	None.

## 22. Windows\* Server 2003 may hang when log in to Intel® Raid Web

### Console2 version 3.04-05 with Intel® Embedded Server RAID Technology

### II (ESRTII) Raid enabled

Problem	When using windows* server 2003 with onboard ESRTII raid enabled, user may experience system hang when trying to log in to Intel® Raid Web Console2, BSOD(Blue Screen of Death) with either of the following messages may occur:
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- BAD\_POOL\_HEADER Error code: STOP 0x00000019
- IRQL\_NOT\_LESS\_OR\_EQUAL Error code: STOP 0x000000D1

Implication	This issue is caused by a minor bug in Intel® Raid Web Console2 software code.
Status	This erratum may be fixed in a future Intel® Embedded Server RAID Technology II (ESRTII) driver.
Workaround	Use Intel® Raid Web Console2 version v2.92-01.

### 23. Cannot boot from SATA CD/DVD ROM using a "bootable Microsoft\* DOS CD/DVD when RAID (or AHCI) is Enabled in the BIOS setup

Problem	Users cannot boot Intel® Server Board S5520HC or S5500HCV from SATA CD/DVD ROM using a "bootable" MSDOS based CD/DVD when the RAID (or AHCI) is enabled in the BIOS setup.
Implication	Users needing to boot to any MS-DOS based diagnostic, pre-install, or application CDs (for example, Bart's PE), are limited to using only the "IDE" mode setting in BIOS. Please note: Operating system installation CDs are not affected by this issue since they typically use "iso-linux".
Status	This is a known limitation. Whenever the RAID (or AHCI) setting is selected, the Advanced Host Controller Interface Option ROM is loaded. Unfortunately, AHCI is not supported by the Microsoft* Disk Operating System (MS-DOS).
Workaround	None.

### 24. High CPU utilization may occur when installing or running Windows\* Sever 2008 R2 or windows\* 7 with default NIC driver

Problem	There has been high CPU load observed when installing or running Windows* Server 2008 R2 or windows* 7 with default NIC (Network Interface Card) driver.
Implication	When the ports are not electrically "linked" and the embedded driver is loaded the DPC rate steadily increases until the system slows to the point where it is essentially unusable.

Status	This issue may be fixed in a future Windows* Server 2008 R2 or windows* 7 update.
Workaround	Make sure the ports are connected to a network, switch or simply back-to-back. This need to be done at least prior to the driver loading because once the port is malfunctioning, it cannot be recovered by connecting the ports. Updating to the latest posted driver resolves the problem. The latest NIC driver 14.6 can be obtained at below webpage. <a href="http://downloadcenter.intel.com/Detail_Desc.aspx?agr=Y&amp;DwnldID=18235&amp;Pr odId=3069&amp;lang=eng">http://downloadcenter.intel.com/Detail_Desc.aspx?agr=Y&amp;DwnldID=18235&amp;Pr odId=3069&amp;lang=eng</a>

## 25. Clearing BIOS CMOS in BIOS Revision R0042 may return an invalid Date

Problem	If the user clears the BIOS CMOS settings via jumper or using the Sysconfig /bldfs switch, the date in BIOS setup may be corrupted and read 09XX.
Implication	An invalid date stamp, 09XX, may be displayed in BIOS setup after clearing BIOS CMOS settings using the jumper or the Syscfg utility resulting in the user having to perform an extra reboot of the system to recover the date in the proper format.
Status	This issue may be fixed in a future BIOS revision.
Workaround	An additional reboot will reset the date format in BIOS setup. However, the user will have to set the date and time to the current local settings.

## 26. SuSE\* SLES11 kernel may halt for 60 seconds during installation with default BIOS setting

Problem	Customer may find SuSE* SLES11 kernel halts for 60 seconds during installation with default BIOS setting.
Implication	When boots to SLES installation media, after clicking "installation" at the prompt, screen will go black and freeze for 60 seconds until USB keyboard "enter" key is pressed.
Status	This issue is caused by a kernel bug.
Workaround	Customer can wait 60 seconds or press "enter" key after screen freezes to continue with the installation.

## Documentation Changes

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None.