Intel® Server Board S5000XVN

Specification Update

Intel Order Number D72472-001

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Enterprise Platforms and Services Marketing

Revision History

Date	Modifications
08/04/06	Initial Release. Added errata 1 through 31.
02/14/07	Updated erratum 25.
04/18/07	Updated erratum 26; added erratum 32.
09/14/07	Updated erratum 13, 20, 30, and 31; added erratum 33 through 49.
01/11/08	Updated erratum 22, 45 through 47, and 49; added erratum 50.
08/12/08	Updated erratum 14, 19, 21, and 23; added erratum 51 through 53.
10/24/08	Updated erratum 52 and added erratum 54.
12/07/08	Updated product scope.
01/08/2009	Added erratum 55.
02/11/2009	Updated product scope and erratum 51, 54.
03/18/2009	No update.
04/10/2009	No update.
05/12/2009	No update.
07/14/2009	Added erratum 56.
09/15/2009	Added erratum 57.

Disclaimers

The Intel® Server Board S5000XVN 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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Contents

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Preface

This document is an update to the specifications contained in the *Intel® Server Board S5000XVN Technical Product Specification* (Order Number D41763). 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.

For specification updates concerning the Intel® Xeon® Processor 5000 Series processors, refer to the *Intel® Xeon® Processor 5000 Series Specification Update* (Order Number 313065). Items contained in the *Intel® Xeon® Processor 5000 Series Specification Update* that either do not apply to the Intel® Server Board S5000XVN or were worked around are noted in this document. Otherwise, you can assume any processor errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

For specification updates concerning the Intel® Xeon® processor 5100 Series, refer to the *Intel® Xeon® Processor 5100 Series Specification Update* (Order Number 313356). Items contained in the *Intel® Xeon® Processor 5100 Series Specification Update* that either do not apply to the Intel® Server Board S5000XVN or were worked around are noted in this document. Otherwise, you can assume any processor errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

For specification updates concerning the *Intel® 5000 Series Chipset Memory Controller Hub (MCH)*, refer to the *Intel® 5000 Series Chipset Memory Controller Hub (MCH) Specification Update* (Order Number 313069). Items contained in the *Intel® 5000 Series Chipset Memory Controller Hub (MCH) Specification Update* that either do not apply to the Intel® Server Board S5000XVN or were worked around are noted in this document. Otherwise, you can assume any chipset errata for a given stepping are applicable to the Printed Board Assembly (PBA) revisions(s) associated with that stepping.

For specification updates concerning the Intel® 631xESB/632xESB I/O Controller Hub, refer to the *Intel® 631xESB/632xESB I/O Controller Hub – Specification Update* (Order Number 313075). Items contained in the *Intel® 631xESB/632xESB I/O Controller Hub – Specification Update* that either do not apply to the Intel® Server Board S5000XVN or were worked around are noted in this document. Otherwise, you can assume 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. The next release of these specifications will incorporate these changes.
- **Specification Clarifications** describe a specification in greater detail or further highlight a specification's impact to a complex design situation. The next release of the specifications will incorporate these clarifications.
- **Documentation Changes** include typos, errors, or omissions from the current published specifications. The next release of the specifications will incorporate these changes.

- **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 all errata documented for that processor stepping are present on all devices.

Product Scope

This update covers the following specific boards, BIOS, and other components.

Product Code	Baseboard PBA Revision	BIOS Revision	BMC Revision	FRU / SDR Revision
S5000XVNSATA	D37261-801	S5000.86B.03.00.0056	48a	33
S5000XVNSATA	D37261-803	S5000.86B.03.00.0059	48a	33
S5000XVNSATA	D37261-901	S5000.86B.05.00.0070	56	41
S5000XVNSATA	D37261-902	S5000.86B.07.00.0079	59	42
S5000XVNSATA	D37261-902	S5000.86B.10.00.0081	59	43
S5000XVNSATAR	E11030-101	S5000.86B.10.00.0081	59	43
S5000XVNSATAR	E11030-102	S5000.86B.10.00.0084	62	45
S5000XVNSAS	D25028-801	S5000.86B.03.00.0056	48a	33
S5000XVNSAS	D25028-803	S5000.86B.03.00.0059	48a	33
S5000XVNSAS	D25028-804	S5000.86B.05.00.0070	56	41
S5000XVNSAS	D25028-805	S5000.86B.07.00.0079	59	42
S5000XVNSAS	D25028-805	S5000.86B.10.00.0081	59	43
S5000XVNSASR	E11034-101	S5000.86B.10.00.0081	59	43
S5000XVNSASR	E11034-102	S5000.86B.10.00.0084	62	45
BB5000XVNSATAR	E11030-103	S5000.86B.10.00.0085	64	46
BB5000XVNSASR	E11034-103	S5000.86B.10.00.0085	64	46
S5000XVNSATAR	E11030-103	S5000.86B.10.00.0085	64	46
S5000XVNSASR	E11034-103	S5000.86B.10.00.0085	64	46
BB5000XVNSATAR	E11030-201	S5000.86B.10.00.0085	64	46
BB5000XVNSASR	E11034-201	S5000.86B.10.00.0085	64	46
S5000XVNSATAR	E11030-201	S5000.86B.10.00.0085	64	46
S5000XVNSASR	E11034-201	S5000.86B.10.00.0085	64	46

Summary Tables of Changes

The following tables indicate the errata and the document changes that apply to the Intel® Server Board S5000XVN. Intel intends to fix some of the errata in a future stepping of components and 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 was previously fixed.

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

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

Table 1. Errata Summary

No.	Plans	Description of Errata
1.	Fixed	Console Redirection Baud Rate Setting auto changing to 19.2 K with Serial Over LAN (SOL) active.
2.	Fixed	Serial Over LAN (SOL) unable to redirect DOS output.
3.	No Fix	Password on boot not supported.
4.	Fixed	SAS Software RAID option is not enabled in the initial BIOS release.
5.	Fixed	Secondary HSC backplane FW not visible in the BIOS setup.
6.	Fixed	HSC and BMC versions intermittently not seen in the BIOS setup.
7.	Fixed	POST LEDs do not turn off after operating system loads.
8.	Fixed	Checkup7.exe (microcode update utility) is not storing microcode in the BIOS.
9.	Fixed	Intel® Server RAID Card SRCSAS144E causes systems to reset multiple times before completing POST.
10.	Fixed	Change Logo utility does not save modified BIOS capsule files with the correct extension.
11.	Fix	IPMI over Serial direct connect not supported.
12.	Fix	Serial over LAN and IPMI over LAN connections may terminate unexpectedly under certain conditions.
13.	Fixed	Intermittent beep code 1-5-2-1 when booting with dual processors.
14.	Fixed	Power Supply population errors may not appear in SEL.
15.	Fix	Fan 5 may report a reading of 0 RPM after BMC is updated.
16.	Fixed	BMC may not respond to the IPMI command, *Send Message* sent via LAN.
17.	Fix	Fans may take a long time to slow down after fan boosting.
18.	Fixed	System requires approximately 35 seconds after AC power applied before power button responds.

No.	Plans	Description of Errata
19.	Fixed	SEL events for HSC may appear after DC cycle.
20.	Fixed	Fans may run faster than expected after exiting the BIOS setup.
21.	Fixed	System fault LED may report incorrect status for some events.
22.	No Fix	Fan removal does not generate an SEL event.
23.	Fixed	Power supply redundancy state is misleading when only one power supply is installed.
24.	No Fix	PCI-X slots 1 and 2 do not meet the letter of the Server System Infrastructure (SSI) Entry-Level Electronics Bay (EEB) Specification revision 3.61.
25.	Fixed	Serial ATA (SATA) HDDs may be marked offline when populated behind a second Serial Attached SCSI (SAS) expander based drive enclosure.
26.	Fixed	System blue screen may occur when resuming from an ACPI S3 state.
27.	Fix	Operating System installation may not complete setup with certain video cards and 4 GB of memory installed.
28.	Fixed	Failures seen installing to a SATA drive when SATA is set to Legacy in BIOS setup.
29.	Fixed	System Hangs after disabling Onboard Video in BIOS setup.
30.	Fixed	The SMBIOS entry point may not be visible under certain hardware configurations.
31.	Fixed	Fans occasionally running too fast after BIOS reset.
32.	Fix	RAID Web Console 2 Utility displays “Unexpected Sensor” warning message in Microsoft Windows* operating system.
33.	Fixed	PS/2 keyboards and mice may stop functioning after Red Hat* Enterprise Linux is installed.
34.	Fix	HSC and LCP updates may take a long time.
35.	No Fix	SuSe* Linux Enterprise Server may not install successfully with Intel® Embedded Server RAID Technology II enabled.
36.	No Fix	Red Hat* Enterprise Linux 4 and BIOS setup display a different L2 cache size for the Intel® Xeon® Processor 5300 Series.
37.	Fixed	Change Logo Utility causes BIOS corruption.
38.	Fixed	Microsoft Windows* System Event Viewer may record ID 11 error event.
39.	Fixed	POST screen may generate “NMI has been received – System Halted” message after the system reboots.
40.	Fixed	S5000XVNSAS software RAID 5 cannot be configured.
41.	No Fix	SuSE* Linux Enterprise Server unable to boot after basic installation.
42.	No Fix	Red Hat* Enterprise Linux may report the wrong processor speed.
43.	Fixed	A kernel panic is likely to be observed with Red Hat* Enterprise Linux 4 or SuSE* Linux Enterprise Server 9 when SpeedStep is disabled in the BIOS menu.
44.	Fixed	SAS software RAID 5 activation key may NOT be detected.
45.	Fixed	Microsoft Windows* operating systems without service pack will exhibit blue screen with BIOS BIO79 and 81.
46.	Fixed	Fails PXE boot from on-board NIC 2 and neither on-board NIC works under DOS with BIOS R0079.
47.	Fixed	SAS Embedded Server RAID Technology II RAID 5 consistence check fails in ESRTII BIOS console only if hard drives docked in expander HSBP.
48.	Fixed	Reboots instead of resume from ACPI S4 state in Microsoft Windows Vista.
49.	Fixed	Sluggish system performance may be experienced with BMC60.
50.	Fixed	Microsoft Windows Server 2003* R2 SP2 may exhibit blue screen during an operating system boot or shutdown with a specific version of I/OAT driver.
51.	Fixed	Recent Intel® Server RAID Adapters fail to activate RAID BIOS Console by Ctrl+G in S5000PSL and/or S5000XVN PCI slot 4.

No.	Plans	Description of Errata
52.	Fixed	Microsoft Windows Server 2008* and/or Microsoft Windows Vista* may report Performance Power Management error.
53.	Doc	'Fdisk' command under Red Hat* Enterprise Linux Server 5 Update 1 may report Intel® Embedded Server RAID Technology II RAID 1 array as two hard disk drives.
54.	Fixed	Platform confidence test (PCT) may fail with BIOS89 and later version loaded.
55.	No Fix	S5000XVN cannot boot using a "bootable" Microsoft* DOS CD/DVD when RAID (or AHCI) is Enabled via BIOS setup
56.	Fixed	System may not boot after multiple DC power cycles with BIOS revision R0098.
57.	No Fix	System will not skip CD/DVD drive with BIOS revision R0098 when RMM2 installed

Table 2. Documentation Changes

No.	Plans	Description of Documentation Change
1.		None

The following are in-depth descriptions of each erratum / documentation change indicated in Tables 1 and 2. The following errata and documentation change numbers correspond to the numbers in the tables.

Errata

1. Console Redirection baud rate setting auto changing to 19.2 K with Serial Over LAN (SOL) active

Problem If configuring a SOL connection, the only baud rate allowed is 19.2 K. If any other baud rate is selected, the system will always revert back to 19.2 K after the DC cycle.

Implication Users who require a different baud rate for their application cannot configure this.

Status This erratum was fixed in BIOS revision R0045.

Workaround None.

2. Serial Over LAN (SOL) unable to redirect DOS output

Problem No SOL output is seen when booted to DOS. SOL will only redirect F2 Setup and POST output.

Implication Users who require SOL to redirect DOS output cannot use this feature.

Status This erratum was fixed in BIOS revision R0054.

Workaround None.

3. Password on boot not supported

Problem If an “admin” or “user” password is set in the BIOS setup, the user must enter the password so they can access the BIOS Setup. There is no option to configure a password during POST before the server boots.

Implication Users cannot create and require a password on boot.

Status Intel does not intend to fix this erratum.

Workaround None.

4. SAS Software RAID option is not enabled in initial BIOS release.

Problem The SAS Software RAID feature that was available in pre-production BIOS releases is not available in the initial production BIOS release. The option ROM that allows configuration of SAS Software RAID still has several defects logged against its functionality and was deemed not ready for production by Intel at this time.

Implication Users who require or were planning to use this feature in their production environments must wait for a post-launch BIOS release which will have this feature enabled.

Status This erratum was fixed in BIOS revision R0057.

Workaround Several hardware RAID options are readily available and supported by Intel server boards. Consult the product Tested Hardware and Operating System list for a variety of hardware options. No workarounds for SAS Software RAID are available.

5. Secondary HSC backplane FW not visible in BIOS setup

Problem If two backplanes are installed in the server system, the HSC revision on the secondary backplane is not currently displaying in the BIOS Setup. This affects the Intel® Server Boards S5000PSL, S5000XSL, and S5000VSA in the Intel® Server Chassis SC5400.

Implication Users cannot easily identify the HSC revision programmed in the backplane attached to the secondary backplane header.

Status This erratum was fixed in BIOS revision R0045.

Workaround Users must use the DOS utility, “fwpiaupd”, to probe and get the backplane HSC information. Boot to DOS and using the fwpiaupd.exe utility, which is used to flash the BMC and HSC code onto the server system, enter the following command: “*fwpiaupd –i –address={c0, c2}*” where c0= primary backplane address and c2= secondary backplane address. This provides you with the operational code revision for the HSC on each backplane.

6. HSC and BMC versions intermittently not seen in BIOS setup

Problem BMC and HSC revision informaiton is intermittently missing from the BIOS Setup.

Implicaiton HSC and BMC information is not easily found.

Status This erratum was fixed in BIOS revision R0057.

Workaround Users must use the DOS utility, “fwpiaupd.exe”, to probe and get the backplane HSC information. Boot to DOS and using the fwpiaupd.exe utility, which is used to flash the BMC and HSC code onto the server system, enter the following command: “*fwpiaupd –i –address={c0, c2}*” where c0= primary backplane address and c2= secondary backplane address. This provides you with the operational code revision for the HSC on each backplane.

To retrieve the BMC version informaiton, use the same “fwpiaupdt.exe” utility with the following command: “*fwpiaupdt –i –address=20*”

7. POST LEDs do not turn off after Operating System loads

Problem The POST Code LEDs at the rear of the system do not turn off once POST completes and the operating system loads. The POST code LEDs will show [Green Red Green Red] at the rear of the system.

Implication User may believe an error has occurred since there are LEDs lit on the baseboard.

Status This erratum was fixed in BIOS revision R0057.

Workaround None.

8. Checkup7.exe (microcode update utility) is not storing microcode in BIOS

Problem The Checkup7.exe utility, which is used to update the processor microcode in a BIOS, is not working properly. The utility says it completes the flash update successfully; however, upon the next reboot, the microcode is not actually present in the BIOS.

Implication Users cannot update their BIOS with a new processor microcode.

Status This erratum was fixed in BIOS revision R0057.

Workaround Users must update to the latest BIOS revision which includes the latest processor microcode releases. They cannot use this utilty to add a microcode patch to the existing BIOS.

9. Intel® Server RAID Card SRCSAS144E causes systems to reset multiple times before completing POST

Problem With the Intel SRCSAS144E adapter installed into the system, the system may become caught in a reset loop during POST. The system resets itself 4 to 5

times before completeing POST. This is seen early in POST within the first seconds of power on and before video initalization. POST code LEDs show 0x21 "Chipset" Initializing a chipset component.

Implication POST takes approximately 15 to 20 seconds longer to complete.

Status This erratum was fixed in BIOS revision R0057.

Workaround Moving the card into a different slot will sometimes resolve this issue. Populating the card in a slower bus (x4 or x8) seems to make this issue appear less frequently.

10. Change Logo utility does not save modified BIOS capsule files with correct extension

Problem When using the Change Logo utility to modify a BIOS capsule file and replace the Intel Splash Screen logo with a new one, it fails to save the new capsule file with a .cap extension. The file produced has a .fd extension. The file is a capsule file, but it has the wrong extension.

Implicaion Users may be confused and believe the utility is not saving the file in the correct format.

Status This erratum was fixed in revision 4.16 of the utilty.

Workaround When saving the file, on the Save As dialog box, select Capsule File (*.cap) in the Save as Type drop-down. Then in the File Name box, type the name of the ile with the .cap extension. It is important you include the “.cap” extension in the file name or else the Change Logo utility saves the file with the incorrect extension.

If you forget to include the “.cap” in the file name, but you selected “Capsule File (*.cap)” in the Save as Type drop-down, you can simply rename the file from a .fd extension to a .cap extension and this also works.

11. IPMI over Serial direct connect not supported

Problem Intel® Xeon® processor-based server boards list support for IPMI access via serial direct connect. Serial access to the BMC is not supported at this time.

Implication Users should use the IPMI over LAN interface to connect to the BMC. This only affects serial and terminal mode access to the BMC. This does not affect BIOS console redirection via serial and operating system redirection via serial.

Status This erratum may be fixed in a future firmware revision and hardware revision

Workaround None.

12. Serial over LAN and IPMI over LAN connections may terminate unexpectedly under certain conditions

Problem During an active Serial over LAN connection or during an active IPMI over LAN connection to the BMC, the connection may be intermittently lost during a DC cycle or reset.

Implication The user's connection may be lost and the user must reconnect to the session.

Status This erratum may be fixed in a future firmware revision.

Workaround None.

13. Intermittent beep code 1-5-2-1 when booting with dual processors

Problem During POST, if dual processors are installed, the system may pause at POST code 0x13 (SMM Intialization). This may result in a 1-5-2-1 beep code and a processor event in the System Event Log (SEL).

Implication The system may log erroneous errors in the SEL or via beep code and, under some conditions, the system may halt at 0x13 and require an AC cycle.

Status This erratum is fixed in BMC release 47 and later releases.

Workaround If an error is encountered, AC cycle the system and the system should run normally.

14. Power Supply population errors may not appear in SEL

Problem The BMC does not give any indication if a single power supply is improperly installed in a redundant chassis.

Implication Some chassis require power supplies to be installed in specific slots if a single power supply is installed.

Status This erratum was fixed with BMC36 and FRUSDR20.

Workaround None.

15. Fan 5 may report a reading of 0 RPM after BMC is updated

Problem After a BMC update, Fan 5 may not return an accurate reading until AC power is cycled.

Implication Intel® Server Management Software and other software may display a reading of 0 RPM for this sensor. The BMC may respond as though this fan failed and fan redundancy was lost. This causes the system fault LED and fan status LED to indicate a failure for this sensor, and the fans will run in a high speed "boost" state.

Status This erratum may be fixed in a future firmware revision.

Workaround AC cycle the system again and the system should run normally.

16. BMC may not respond to the IPMI command, *Send Message* sent via LAN

Problem The BMC may not respond correctly to a *Send Message* command from the LAN channel to the IPMB channel. This issue only affects an IPMI 2.0 based RMCP+ session not an IPMI 1.5 based RMCP session.

Implication Remote IPMI over LAN software cannot forward commands to the IPMB bus.

Status This erratum was fixed in BMC firmware revision 50.

Workaround Software developers should use IPMI 1.5 based sessions to bridge commands to the IPMB channel.

17. Fans may take a long time to slow down after fan boosting

Problem System fans that "boost" due to an increased processor temperature may not return to normal speed immadiately after the processor temperature returns to normal.

Implication If the system fans "boost" due to a high processor temperature, the BMC will not restore the fans to a normal speed for a similar amount of time as they spent in a "boosted" state. For example, if a high processor temperature caused the fans to boost for 5 minutes, the fans would not return to normal for 5 minutes after the processor temperature returned to normal.

Status This erratum may be fixed in a future firmware revision.

Workaround The fans will return to normal on their own over time.

18. System requires approximately 35 seconds after AC power applied before power button responds

Problem The BMC requires over 35 seconds to fully initialize the system after an AC cycle before the system can be powered on.

Implication After an AC cycle, a user must wait ~35 seconds before the power button responds. The BMC causes the front panel LEDs to blink in an alternating amber/green pattern while the BMC intitialization is in progress. Users should wait until the LED stops blinking in this pattern before pressing the power button.

Status This erratum was fixed in BMC firmware revision 50.

Workaround None.

19. SEL events for HSC may appear after DC cycle

Problem The HSC may log critical and non-critical temperature events in the SEL after DC cycle.

Implication The SEL events are “deassertion” events, which are not an indication of a problem with the system. Users can ignore these events as they are not errors or an indication of a problem in the system.

Status This erratum was fixed by HSC v. 2.02 and later version.

Workaround None.

20. Fans may run faster than expected after exiting BIOS setup

Problem Some system fans may run faster after exiting BIOS setup using the Save and Exit option.

Implication The system may generate more fan noise than normal.

Status This erratum was fixed in BMC firmware revision 49.

Workaround The system must be AC cycled or allowed to boot to the operating and then reset to restore fans to their normal speeds.

21. System fault LED may report incorrect status for some events

Problem The system fault LED may report incorrect status for some events. The proper LED state is described in the server board TPS, but some events may not reflect the states described in the TPS.

Implication The user may receive incorrect indication via the system fault LED. The user should verify the system state by looking at the SEL. No event is reported as a less severe status than expected, but may appear with a higher severity status.

Status This erratum was fixed with BIOS R0065, BMC 55, and FRUSDR 40.

Workaround None

22. Fan removal does not generate an SEL event

Problem Fan removal does not trigger a fan failure event.

Implication Fan removal generates a “fan presence deassertion” event instead of a fan failure event. When the fan is reinstalled, a “fan presence assertion” event is generated.

Status No Fix.

Workaround None.

23. Power supply redundancy state is misleading when only one power supply is installed

Problem If a single power supply is installed in a chassis that supports redundant power supplies, the BMC indicates the power supply redundancy state as “redundant”.

Implication In a single power supply configuration, ignore the redundancy sensor. Redundant chassis with fully redundant power supplies will accurately reflect the redundancy status.

Status This erratum was fixed by BMC 36 and FRUSDR 20.

Workaround None.

24. PCI-X slots 1 and 2 do not meet the letter of the Server System Infrastructure (SSI) Entry-level Electronics Bay (EEB) Specification revision 3.61

Problem PCI-X slots 1 and 2 were placed physically on the board 0.25 mm away from the specified dimension called out in the SSI EEB Specification revision 3.61 due to trace routing considerations.

Implication The SSI EEB Specification revision 3.61, Figure 2 denotes the reference pin 1 location at 31.12 mm aft of the reference datum. Current location of the PCI-X slots 1 and 2 are 31.37 mm aft of the reference datum. Due to the many variables in board and chassis design, this small deviation is expected to have little or no customer impact.

Status This erratum will not be fixed.

Workaround None.

25. Serial ATA (SATA) HDDs may be marked offline when populated behind a second Serial Attached SCSI (SAS) expander based drive enclosure

Problem When using dual-expander SAS based drive enclosures, SATA drives may become marked offline in the second expander drive enclosure.

Implication Users who implement more than one fully populated SAS expander drive enclosure while using SATA disk drives may experience intermittent drive failures during operation.

Status This issue was fixed in HSC firmware revision 2.02.

Workaround None.

26. System blue screen may occur when resuming from an ACPI S3 state

Problem Returning from an S3 standby state may result in either a blue screen, system hang, or the SATA controller no longer being recognized by the operating system.

Implication Users attempting to use ACPI S3 standby may encounter undesirable system behavior upon resuming from a standby state. In addition, Microsoft* WHQL certification may be adversely impacted by this erratum.

Status This erratum was fixed in BIOS revision R0075.

Workaround None.

27. Operating System installation may not complete setup with certain video cards and 4 GB of memory installed.

Problem Following the reboot and after Microsoft Windows* XP Professional x64 Edition copies all necessary files to the hard disk drive, the operating system cannot be accessed and the system hangs with a flashing cursor in the upper-left corner of the screen.

Implication If the system is configured with 4 GB of memory, Microsoft Windows* XP Professional x64 Edition operating system may not successfully complete installation when some PCI Express* video cards are installed.

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

Workaround Before installing the operating system, enter the BIOS setup using the <F2> key. Scroll to the Advanced | PCI | PCI Memory Mapped IO Space menu setup option and change this value from the default 2.5 GB to 2.75 GB or greater.

28. Failures seen installing to a SATA drive when SATA is set to Legacy in the BIOS setup.

Problem If a user sets SATA to “Legacy” in the BIOS Setup and tries to install an operating system, the installation may fail.

Implication Users who require SATA to be configured in Legacy mode may be uanble to get their operating systems to install properly.

Status This erratum was fixed in BIOS revision R0057.

Workaround Leave SATA in Enhanced mode if possible. No workaround for the Legacy mode issue.

29. System Hangs after disabling onboard video in BIOS setup

Problem After disabling Onboard Video in BIOS setup, the system hangs during POST.

Implication Users cannot disable onboard video through the BIOS Setup.

Status This erratum was fixed in BIOS revision R0057.

Workaround Adding in a video controller will automatically disable the onboard video. It is not necessary to manually disable the video controller via BIOS setup. There is no workaround for configurations that do not include video controller support.

30. The SMBIOS entry point may not be visible under certain hardware configurations

Problem The server BIOS maintains an area in memory to act as an entry point to locate the SMBIOS area. This entry point includes the anchor string “_SM_”, memory pointers and information about the SMBIOS area as required by the SMBIOS specification. This information is dynamically created by the BIOS during POST and is placed in a required memory range between 000F0000h-000FFFFFh. Hardware configurations which require large amounts of memory at POST (option ROM space or I/O configuration space), could fill up this memory range and the SMBIOS entry point cannot be created correctly.

Implication This problem manifests as an inability for software to locate the SMBIOS records. This can affect management software and also some Intel-provided update utilities including: BIOS update utilities and FRUSDR update utilities.

An error may also display in the BIOS error manager. Intel update utilities will generate an error and abort before performing an update.

Status This erratum is fixed in BIOS release R0060 and later release.

Workaround If a specific hardware configuration experiences this issue, remove add-in PCI and PCIe cards to reduce the amount of add-in card resource space used. Perform the system update (BIOS, FRUSDR) and replace the add-in cards.

31. Fans occasionally running too fast after BIOS reset

Problem From BIOS setup screen, when you hit F10 to save and reset, the PWM will often come up at 30 hz instead of 23 kHz. Fans are running too fast in this mode. Hitting the Reset button will cause the fan speed to return to normal.

Implication If users do not perform a hard reset from the front panel, the fans in the system may run too fast and cause unnecessary noise.

Status This erratum is fixed in BMC Revision 49 and later releases.

Workaround In order to work around this issue, you must execute a hard reset from the front panel. This resets the PWM circuitry back to the correct frequency.

32. RAID Web Console 2 Utility Displays “Unexpected Sensor” Warning Message in Microsoft Windows* Operating System

Problem The warning message of “unexpected sensor” might display in the RAID Web Console 2 Utility when there seems to be no functional issues for the system.

Implication This warning message is only seen in the Microsoft Windows* operating system. Old version RAID firmwares (before v.89) used not to support any communication to the SEP (Storage Enclosure Processor) on backplanes. When the firmware was modified to increase its capabilities and support of all the SEP devices out in the world, the Intel® Server Board S5000PAL board related chassis backplane is one of the few that do not respond as expected to the inquiry command, so the error is rolled up and captured in the log. This is a harmless message against the backplane SEP device and will not cause any problems with the array or the drives.

Status This erratum may be fixed in a future firmware revision.

Workaround None.

33. PS/2 keyboards and mice may stop functioning after Red Hat* Enterprise Linux is installed

Problem After installing Red Hat* Enterprise Linux on a system with BIOS release R0045, PS/2 keyboards and mice stop working; however, USB keyboards and mice work fine.

Implication If a PS/2 keyboard and mouse are installed, users cannot use the Linux operating system.

Status This erratum is fixed in BIOS release R0054 and later release.

Workaround If the user goes into the BIOS setup and disables port 60/64 emulation, PS/2 keyboards and mice will continue to work. If USB keyboards and mice are used, the user must enable port 60/64 emulation.

34. HSC and LCP updates may take a long time

Problem The Hot Swap Controller (HSC) and Intel® Local Control Panel (LCP) updates may take a long time. The time to complete each update may exceed 30 minutes.

Implication Updating HSC and LCP may teak a long time.

Status This erratum may be fixed in a future firmware revision.

Workaround None.

35. SuSE* Linux Enterprise Server may not install successfully with Intel® Embedded Server RAID Technology II enabled

Problem If SuSE* Linux Enterprise Server is being installed with Intel® Embedded Server RAID Technology II enabled, the RAID array may not be detected after the driver is loaded, which results in an installation failure.

Implication The AHCI module inside the operating system is loaded prior to the third-party driver, and therefore may take control of the RAID controller. This results in an installation failure.

Status Users cannot load a third party RAID driver and the AHCI driver simultaneously in SuSE* Linux Enterprise Server; doing so may cause installation failures.

Workaround The “brokenmodule-ahci” command can prevent AHCI from loading during installation. At the very first install screen, press F6 to load a driver. In the text

tab, type `brokenmodules=ahci`; this allows the installation to complete successfully.

36. Red Hat* Enterprise Linux 4 and BIOS setup display a different L2 cache size for the Intel® Xeon® Processor 5300 Series

Problem In Red Hat* Enterprise Linux 4, the Intel® Xeon® Processor 5300 Series L2 cache size displays as 4 MB; while in the BIOS setup, the cache size displays as 8 MB.

Implication In the BIOS setup, the system reports the total L2 cache size as 8MB due to the 4MB + 4MB structure of the processor. The Intel® Xeon® processor 5300 Series is similar to a package of two sets, each with a 4MB L2 cache size. In each set, the two cores share the 4 MB cache. Red Hat* Enterprise Linux 4 views the processor per logical CPU thread. Each logical thread (each set) has access to only 4 MB cache, and Red Hat* Enterprise Linux 4 reports it as such.

Status The different L2 chache size display is due to the different cache size reporting mechanisms of Red Hat* Enterprise Linux 4 and BIOS setup, and is not an incorrect display by the operating system.

Workaround None.

37. Change Logo Utility causes BIOS corruption

Problem Any board flashed with a version of BIOS release R0064 edited with the Change Logo Utility will no longer boot. The board hangs with “Off-Off-Red-Green” shown on the Post Code LEDs at the rear of the board.

Implication You cannot use the Change Logo Utility with BIOS release R0064.

Status This erratum is fixed in BIOS release R0066 and later releases.

Workaround None.

38. Microsoft Windows* System Event Viewer may record ID 11 Error Event

Problem In the Microsoft Windows* operating system, the Event Viewer’s System Log may record an error event; the source is LSI_SAS and the event ID is 11.

Implication The problem may occur because the controller is sending an unsupported command to the enclosure management device. This error does not affect functionality, so you can ignore the error.

Status This erratum was fixed in Intel® Embedded Server RAID Technology II firmware

revision: SAS firmware revision -- v.01.16.00.00; MPT OpROM revision -- v.6.10.00; SAS ESRT2 OpROM v. A.01.10241435I.

Workaround None.

39. POST screen may generate “NMI has been received – System Halted” message after the system reboots

Problem After the system reboots, the POST screen may generate "NMI has been received - System Halted" message.

Implication Along with this error, sometimes “Bus Uncorrectable Error” might also be recorded to System Event Log (SEL).

Status This erratum is fixed in BIOS release R0066 and later releases.

Workaround Reboot the system again.

40. S5000XVNSAS software RAID 5 cannot be configured

Problem When users install the SAS software RAID 5 key on the board, there is no SAS software RAID 5 option appear in the SAS RAID configuration menu.

Implication This problem may occur due to older versions of SAS RAID firmware on the server board.

Status This erratum was fixed in Intel® Embedded Server RAID Technology II firmware revision: SAS firmware revision -- v.01.16.00.00; MPT OpROM revision -- v.6.10.00; SAS ESRT2 OpROM v. A.01.10241435I.

Workaround None.

41. SuSE* Linux Enterprise Server unable to boot after basic installation

Problem During SuSE* Linux Enterprise Server installation, if a USB floppy drive is used to load the mass storage driver, the SuSE* Linux Enterprise Server may not boot after basic installation. The following message may display:

```
resume device /dev/sdb1 not found (ignoring)

waiting for device /dev/sdb2 to
appear.............................not found -- exiting
to /bin/sh

$
```

Implication During installation, the USB floppy device is recognized as sda and the mass storage is recognized as sdb. After reboot, the mass storage is now recognized as sda, but SuSE* Linux Enterprise Server still tries to load system files from sdb. To resolve this problem, you must modify the grub menu list file and the fstab file.

Status No Fix.

Workaround http://support.intel.com/support/motherboards/server/sb/CS-025446.htm describes this problem and its workaround.

42. Red Hat* Enterprise Linux may report the wrong processor speed

Problem In Red Hat* Enterprise Linux, the operating system may report the wrong processor speed. Example: Processor speed is 3.0 GHz, but the operating system shows it as 3300 MHz.

Implication This symptom is operating system-related. Although it does not reflect the processor speed correctly, this is only a report; it is harmless to the system and you can ignore it.

Status Ignore the processor speed in Red Hat* Enterprise Linux.

Workaround None.

43. A kernel panic is likely to be observed with Red Hat* Enterprise Linux 4 or SuSE* Linux Enterprise Server 9 when SpeedStep is disabled in BIOS menu

Problem A kernel panic along with Blue Screen is likely to be observed with Red Hat* Enterprise Linux 4 or SuSE* Linux Enterprise Server 9 when SpeedStep is disabled in the BIOS menu.

Implication This makes operating system installation or system boot halt with a kernel panic warning message.

Status This erratum is fixed in BIOS Release R0079 and later releases.

Workaround None.

44. SAS software RAID 5 activation key may NOT be detected

Problem SAS software RAID 5 activation key may NOT be detected in S5000PSLSAS server board. On the system POST screen, there is no message to report that

SAS software RAID 5 activation key is presented and software RAID 5 function is not available to configure.

Implication This is SAS software RAID firmware related.

Status This erratum was fixed in Intel® Embedded Server RAID Technology II firmware later than the following revisions: SAS firmware revision -- v.01.22.00.00; MPT OpROM revision -- v.6.16.00; SAS ESRT2 OpROM v.A.01.07101204I.

Workaround None.

45. Microsoft Windows* Operating Systems without Service Pack will exhibit blue screen with BIOS 79 and 81

Problem If a user attempts to install Microsoft Windows* without an integrated service pack, it will blue screen during the installation process if BIOS R0079 or BIOS R0081 is on the Intel Server Board. Conversely, if a user upgrades the system BIOS to BIOS R0079 or R0081 *prior* to installing the appropriate service pack, the system will blue screen.

Starting in BIOS R0079, support for enhanced sleep states was added. This addition to the BIOS requires that the Microsoft Service Pack is integrated into the operating system installation process to understand the extended sleep state support.

The following is a list of Microsoft* operating systems and required service packs:

i. Microsoft Windows Server 2003* 32- and 64-bit requires Service Pack 1
ii. Microsoft Windows SBS 2003* requires Service Pack 1

Implication Users cannot install Microsoft Windows* or upgrade the system BIOS to BIOS R0079 or R0081 without the required service pack integrated into the operating system installation process or install the required service pack before the BIOS update.

Status This erratum was fixed in BIOS R0084. Before installing or booting a Microsoft Windows* operating system without the required service pack, users must upgrade BIOS to R0084 or a later version and then disable Deep C-state Support in the BIOS setup (Advanced BIOS menu -> Processor submenu).

Workaround Users must remain on BIOS R0076, use a Microsoft Windows* installation process that includes the service pack integrated into the installation, or install Microsoft Windows* and service pack prior to updating to BIOS R0079 or R0081. Additionally, the Release 2 versions of Microsoft Windows Server 2003* do not exhibit this issue. Use of this version of Microsoft Windows*, if possible, is also another valid workaround.

46. Fails PXE boot from on-board NIC 2 and neither on-board NIC works under DOS with BIOS R0079 and R0081

Problem With BIOS R0079 or R0081 installed on the Intel® Server Boards S5000PSL/S5000XSL, it fails PXE boot from on-board NIC 2 and neither on-board NIC works under DOS.

Implication The server fails to connect the PXE server via on-board NIC 2, and on-board NICs do not work under DOS.

Status This erratum was fixed with BIOS R0084.

Workaround None.

47. Intel® Embedded Server RAID Technology II SAS RAID 5 consistence check fails in BIOS console only if hard drives are docked in expander HSBP

Problem If the Intel® Embedded Server RAID Technology II SAS RAID 5 volume includes hard drives docked in expander HSBP, the RAID 5 volume consistence check fails in the Intel® Embedded Server RAID Technology II BIOS console.

Implication Consistency check works with other RAID volume types like RAID 0, 1, 10. Consistency check only fails if the Intel® Embedded Server RAID Technology II SAS RAID 5 volume includes hard drives docked in the expander HSBP, and only fails in the Intel® Embedded Server RAID Technology II BIOS console.

Status This erratum was fixed with Intel® Embedded Server RAID Technology II BIOS Version A.01.09121449I, which is included in Intel® Embedded Server RAID Technology II firmware package ESRT2_LSI1064e_1068_MPT_MegaSR_FW_OpROM_v_2007_12_05.

Workaround Users may run Intel® Embedded Server RAID Technology II RAID 5 consistency check under the operating system using the Intel® RAID Web Console 2.

48. Reboot instead of resume from ACPI S4 state in Microsoft Windows Vista*

Problem System reboots instead of returning from an S4 ACPI state.

Implication Users attempting to use ACPI S4 state may encounter undesirable system behavior.

Status This erratum was fixed in BIOS revision R0081.

Workaround None.

49. Sluggish system performance may be experienced with BMC60

Problem An issue with BMC 60 is causing incorrect interpretation of the user-selected BIOS Setup Open Loop Thermal Throttling (OLTT) options. Advanced BIOS Setup contains OLTT selections for Performance Mode and Acoustic Mode. BMC 60 is recognizing a Performance Mode selection in the BIOS setup as an Acoustic mode request. Acoustic Mode selection in BIOS setup is being disregarded and fail safe defaults for Fan Profiles are enforced. This misinterpretation can manifest the BIOS/BMC interaction causing a throttling condition slowing down the system performance significantly.

Implication Systems set to Performance Mode are incorrectly being configured in Acoustics Mode, which could make the system more susceptible to overheating, especially in 1U chassis, or performance degradation may be seen due to memory throttling rather than fan boosts being used to cool the memory. Systems being configured to Acoustics Mode in the BIOS are actually being set up in fail safe state.

Status This erratum was fixed in BMC 62.

Workaround None.

50. Microsoft Windows Server 2003* R2 SP2 may exhibit a blue screen during an operating system boot or shutdown with a specific version of I/OAT driver

Problem Microsoft Windows Server 2003* R2 SP2 may exhibit a blue screen during an operating system boot or shutdown. The issue happens only with Ver.1.2.78.6 of the I/OAT driver, and only if I/OAT is enabled in the BIOS Setup. This symptom was seen with the I/OAT driver in Intel NIC driver package Version 12.3.

Implication In the recent I/OAT driver, Microsoft changed a structure in their NetDMA API; it is not backward-compatible with the previous version of the API.

Status This erratum was fixed with IOAT Driver 1.2.79.9 since NIC driver package v.12.4.

Workaround I/OAT driver version 1.2.66.0, included in NIC driver package Ver 12.0, has the previous structure definition for NetDMA 1.0 usage and does not show this symptom.

51. Recent Intel® Server RAID Adapters fail to activate the RAID BIOS Console by Ctrl+G in S5000PSL and/or S5000XVN PCI slot 4

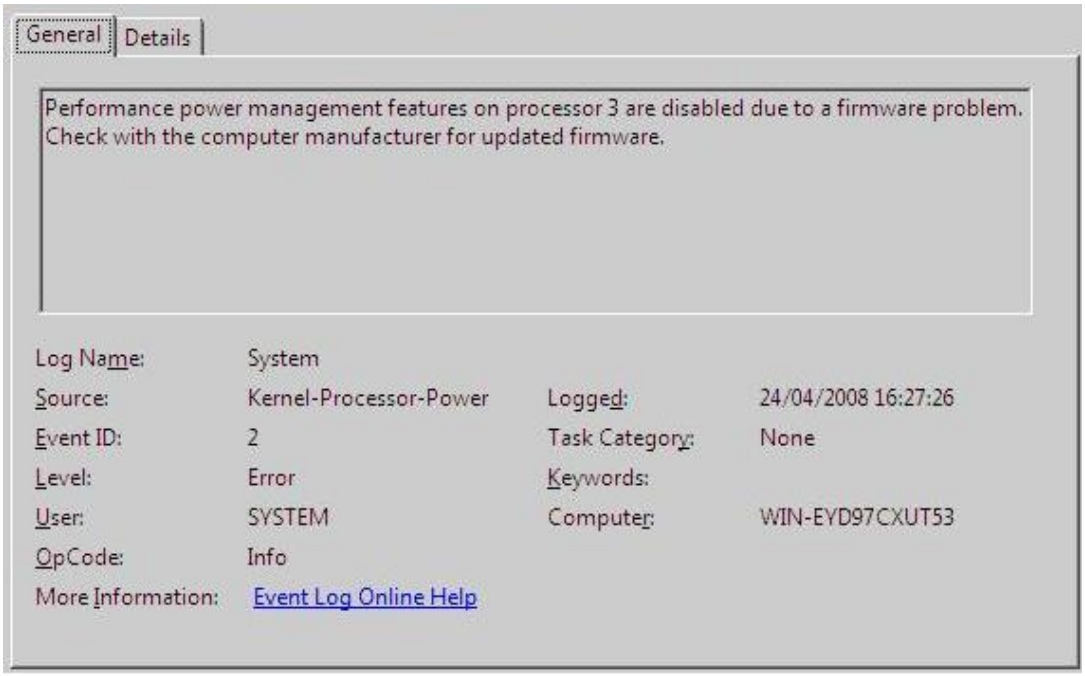
Problem Intel® RAID Controllers SRCSASJV, SRCSASRB, SRCSATAWB, SRCSASBB8I and SRCSASLS4I may fail to activate RAID BIOS Console by Ctrl+G after it is installed into the PCI Slot 4 on the Intel® Server Board S5000PSL or Intel® Workstation Board S5000XVNImplication Fail to configure RAID in PCI slot 4.

Status This erratum was fixed by BIOS R0096.

Workaround Install RAID cards into a different PCI Express slot other than slot 4.

52. Microsoft Windows* Server 2008 and/or Microsoft Windows Vista* may report Performance Power Management error

Problem Microsoft Windows* Server 2008 and/or Microsoft Windows* Vista in Intel® Server Board S5000PSL and/or Intel® Workstation Board may have a Performance Power Management error in Windows* System Event Log like the following illustration:



Implication Current version of BIOS displays a default dummy PSS object (P-State info) in ACPI space for processors that do not support Enhanced Intel® SpeedStep® Technology to indicate no P-State supported; however, this is interpreted as a

Performance Power Management error in the Operating System log. This is a harmless message and does not impact system performance or functionality.

Status This erratum is fixed by BIOS 91.60.

Workaround None.

53. 'Fdisk' command under Red Hat* Enterprise Linux Server 5 Update 1 may report an Intel® Embedded Server RAID Technology II RAID 1 array as two hard disk drives

Problem Sometimes, the "fdisk" command under Red Hat* Enterprise Linux Server 5 Update 1 may report an Intel® Embedded Server RAID Technology II (ESRTII) RAID 1 array as two hard disk drives. If reported correctly, the Intel® ESRTII RAID 1 array is detected as one hard disk drive.

Implication Following the driver installation guide on the Intel® ESRTII Linux driver README file will have the RAID 1 array being detected by "fdisk" correctly.

Status A more detailed driver installation guide is provided with Intel® ESRTII Linux driver v.10.21.0507.2008.

Workaround None.

54. Platform Confidence Test (PCT) may fail with BIOS 89 and later version loaded.

Problem Customer may experience problems when they run PCT on Intel® Workstation Board S5000XVN with BIOS89 and later (version) loaded. There are two types of test options when a customer runs a PCT test: Quick Test and Comprehensive Test. The customer may see the following behavior during a PCT test:

Quick Test	***ERROR T.EXE Unknown error:MSDRAM64.EXE Standard Error Code = 01300005
Comprehensive Test	System hangs at Probing ICH

Status This erratum was fixed in BIOS R0096 and later version.

Workaround This issue is caused by the imcompatibility between the BIOS and PCT; it does not impact system stablity or performance. Customer can ignore this issue or roll back to BIOS 85 to run the PCT.

55. S5000XVN 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 S5000XVN from SATA CD/DVD ROM using a "bootable" MSDOS based CD/DVD when 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.

56. System may not boot after multiple DC power cycles with BIOS revision R0098

Problem If console redirection and legacy OS redirection are both enabled in BIOS setup, the system may hang early in POST after multiple DC power cycles.

Implication Users may occasionally experience system hangs during POST after multiple power cycles if console redirection and legacy OS redirection have been configured as enabled in BIOS setup.

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

Workaround A soft system reboot (<CTL> <ALT> <DEL>) will result in a subsequent successful completion of POST.

57. System will not skip CD/DVD drive with BIOS revision R0098 when RMM2 installed

Problem If RMM2 is installed and CD/DVD drive is the first BIOS boot option, the system will not skip CD/DVD drive as expected when there is no bootable media in the drive.

Implication Users would experience system boot failure when RMM2 is installed and no bootable media in CD/DVD drive

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

Workaround None.