



# **Intel<sup>®</sup> Server Board SE7221BK1-E and Intel<sup>®</sup> Server Platform SR1425BK1-E**

## ***Specification Update***

*Intel Order Number D14552-001*

**January, 2006**

**Enterprise Platforms and Services Marketing**

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## *Revision History*

<b>Date</b>	<b>Modifications</b>
February 2005	Monthly update: POST information
March 2005	Updated errata section
May 2005	Updated board info, errata section
August 2005	Updated errata section
October 2005	Updated errata section
November 2005	Updated errata section
January 2006	Updated errata section

## ***Disclaimers***

The Intel® Server Board SE7221BK1-E and Intel® Server Platform SR1425BK1-E 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 *Intel® Server Board SE7221BK1-E and Intel® Server Platform SR1425BK1-E Technical Product Specification* (Order Number [TPS order number]). 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® Pentium® III Xeon™ Processor Specification Update* (Order Number 244460-021) for specification updates concerning the Pentium® Xeon™ III processor. Items contained in the *Pentium® III Xeon™ Processor Specification Update* that either do not apply to the [product] 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.

## 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

Below are the specific boards, BIOS and components covered by this update.

<b>Baseboard Fab #</b>	<b>Baseboard PBA #</b>	<b>BIOS Revision</b>	<b>mBMC Revision</b>	<b>FRU/SDR</b>
FAB 4	C67508-406	P05	2.40	1.80
FAB 4	C78048-406	P05	2.40	1.80
FAB 4	C78048-407	P05	2.40	1.80
FAB 4	C67508-407	P05	2.40	1.80
FAB 4	C78048-408	P05	2.40	1.80
FAB 4	C67508-408	P05	2.40	1.80
FAB 4	C78048-408	P06	2.40	2.00
FAB 4	C67508-408	P06	2.40	2.00

## Summary Tables of Changes

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The following tables indicate the errata and the document changes that apply to the Intel® Server Board SE7221BK1-E and Intel® Server Platform SR1425BK1-E. 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.

**NoFix:** 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	BMC Timestamp causes BIOS date to be off by one day
2.	Fixed	Unable to program backplane firmware controller
3.	Fixed	Unable to program DMI string info into BIOS product area
4.	NoFix	Reading Field Replaceable Unit/Sensor Data Record (FRUSDR) information in Basic Input/Output System (BIOS) setup menu takes about 7 seconds
5.	Fixed	FRUSDR fan population settings not functioning properly
6.	NoFix	The Activity/Fault LED's on the Drive Carriers do not operate using the Onboard Serial ATA (SATA) Controller and the SATA backplane
7.	NoFix	BIOS will display a warning message when the mBMC System Event Log (SEL) is full
8.	Fixed	P03 BIOS causes system to fail POST with > 1GB RAM installed
9.	Fixed	Status LED incorrectly displays the wrong color, opposite from the front panel LED
10.	Fixed	FRUSDR defines system fan hardware addresses inconsistently in SDR files
11.	Fixed	SATA RAID performance in DOS mode is severely degraded
12.	Fixed	FRUSDR threshold incorrect for specific fans
13.	Fixed	RAID 1 Consistency Check Results in Blue Screen
14.	Fixed	FRUSDR updated for blue ID light
15.	Fixed	SR1425BK1 front panel NIC1 & NIC2 LEDs reversed
16.	Fixed	BIOS P05 and earlier display warning with G1 stepping of the Intel Pentium 4 Processor
17.	Validation	Memory slot DIMM_1A reports dual rank memory size incorrectly



**Table 2. Documentation Changes**

<b>No.</b>	<b>Plans</b>	<b>Description of Documentation Change</b>
1.	Fixed	Wrong description for the Onboard SATA controller
2.	Fixed	Pentium® 4 Processor Extreme Edition incorrectly listed as supported
3.	Fixed	Diagnostic codes omitted from Error Handling section of TPS 1.0

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. Baseboard Management Controller (BMC) Timestamp

Problem	The Intel® Server Board SE7221BK1 has been found to have a BIOS erratum which causes the BMC timestamp information to be incorrect. Beginning on January 1, 2005, the BMC date will lag the system date by 1 day. The system date January 1, 2005 will appear as December 31, 2004 in the BMC, and the BMC will be one day behind thereafter. Another day will be lost on January 1 of each succeeding year that follows a leap year, i.e. 2009, 2013, etc.
Implication	The effect of this erratum is that the BMC will use this incorrect date for all entries in the System Event Log (SEL) maintained by the BMC. This includes informational events as well as error events, e.g. memory error events. Other BMC functions are unaffected.
Workaround	None
Status	Fixed. This issue was addressed in the latest revision of the Intel® Server Board SE7221BK1 BIOS release, version P05.

### 2. Inability to Program Hot Swap Backplane Controller (HSC)

Problem	Users can not program the HSC via a normal backplane firmware update
Implication	The PXH device address conflicts with the HSC address
Workaround	None.
Status	Fixed. Intel has addressed this issue through implementation of an ECO (Engineering Change Order). All corrected SE7221BK1 order codes have been revised from -401 to -402. Latest PBA is -406.

### 3. Inability to Program BIOS Product Area with DMI String Contents

Problem	Users are unable to program the BIOS product area with custom character strings
Implication	DMI strings and other custom character strings are necessary for recovery purposes, etc... Users generally use the product areas in the BIOS for such purposes. The FRUSDR utility shipped with the board prevented this.
Workaround	Users can update their FRUSDR software to version 1.50, which can be found on the Intel support site.

Status Fixed. Intel addressed this errata in version 1.50 of the FRUSDR. Intel has implemented the updated FRUSDR package in the factory via a recent ECO.

#### **4. Reading FRUSDR Information in BIOS Setup Menu Takes About 7 Seconds**

Problem It will take approximately 7 seconds to read the FRUSDR Data from the mBMC in the BIOS Setup Utility. This option is available in the “Server→ System Management” section in BIOS Setup.

Implication The system may appear to be hung during the period of time when the mBMC is providing FRUSDR information.

Workaround None.

Status NoFix. The SE7221BK1 uses the SMBus to communicate with the mBMC to obtain FRUSDR information. Because the mBMC provides a low-speed interface, the user will need to wait for approximately 7 seconds to obtain FRUSDR information from the mBMC.

#### **5. FRUSDR Fan Population Settings not Functioning Properly**

Problem The fan population settings programmed by users through the FRUSDR utility do not function properly when fans are connected according to user settings.

Implication The FRUSDR utility requires modification to address this issue.

Workaround Users can work around the problem by programming the FRUSDR for 1-2 more fans than are actually connected. For example: If a user programs the FRUSDR for chassis = other, and then selects SysFAN 1 and SysFAN 3 and only connects one of the two system fans, the fault LED will extinguish or illuminate GREEN. If both fans are connected according to the program, the fault LED will illuminate RED, indicating a fault condition exists.

Status Investigating. This issue is under Investigation.

#### **6. The Activity/Fault LED's on the Drive Carriers do not Operate Using the Onboard SATA Controller and the SATA Backplane**

Problem The Activity/Fault LED's on the Chassis Hard Drive Carriers will not function using the Intel® Server Board SE7221BK1 Onboard SATA Controller with the SC1400UP SATA Backplane. The Front Panel Hard Drive Activity LED will function as expected.

Implication The Hard Drive activity/fault status LED's do not function and provide status indication.

Workaround	None.
Status	No Fix. To light the LED's on the Hard Drive Carriers, the SATA controller must support the SAF-TE protocol over an I <sup>2</sup> C bus. The 6300ESB ICH SATA RAID controller on the Intel <sup>®</sup> Server Board SE7221BK1 does not support this function.

## 7. BIOS will Display a Warning Message when the System Event Log (SEL) is Full

Problem	During boot, the BIOS may briefly display a red warning message indicating that the SEL is full. This message appears after multiple reboots, due to the limited SEL storage space of the On-Board Platform Instrumentation. The SEL storage space of the mBMC allows for the storage of 92 SEL entries. A typical reboot adds several informational event messages to the SEL as part of the normal boot process.
Implication	The red warning message displayed by the BIOS is not an error. It is a warning message that the SEL is full and that no more system event messages can be logged until the SEL is cleared.
Workaround	The SEL of the On-Board Platform Instrumentation should be cleared regularly. There are several methods of clearing the SEL, including: BIOS Setup (F2), SEL Viewer (included on the Intel Server Deployment Toolkit + the Software Update Package), and Intel <sup>®</sup> Server Management 8.x (ISM), which includes the capability to manually manage the SEL, as well as the capability to configure ISM to automatically clear the SEL when it reaches a user defined threshold.
Status	No Fix. Intel has no plans to increase the SEL capacity of the On-Board Platform Instrumentation beyond the current capacity of 92 entries.

## 8. P03 BIOS causes system to fail POST with > 1GB RAM installed

Problem	The server board fails to successfully POST after upgrading to BIOS P03 when the amount of memory is 1GB or greater
Implication	BIOS P03 has a known defect which causes the system to fail POST with 1GB or greater memory installed.
Workaround	This issue can be worked around by removing enough memory so the total capacity is less than 1GB. At this point the user can flash an older BIOS revision such as P02 and reinstall the memory or, leave the P03 BIOS installed

with less than 1GB total memory. Users are encouraged to simply upgrade their system BIOS to fully resolve this issue.

Status Fixed. Intel has addressed this problem with the release of BIOS P04.

## 9. Status LED incorrectly displays the wrong color, opposite from the Front Panel

Problem The LED part used for the server board status LED was determined to be the wrong type

Implication The server board status LED (a.k.a. Fault LED) displays the wrong color, which is opposite of the front panel LED on SR1425BK1-E and SC5250E systems

Workaround None

Status Fixed. Intel has fixed this problem in the manufacturing facility and taken steps to ensure it does not reoccur.

## 10. FRUSDR defines system fan hardware addresses inconsistently in SDR files

Problem The FRUSDR software package version 1.50 was found to contain fan address inconsistency issues.

Implication Fan operation is not optimal and errors are logged to the SEL as a result

Workaround None

Status Fixed. Intel has fixed this issue with the release of FRUSDR version 6.6.I (1.80).

## 11. SATA RAID performance in DOS mode is severely degraded

Problem The software RAID implementation (Option ROM) built into the SE7221BK1 BIOS suffers from a performance bug

Implication SATA RAID performance is severely degraded when run in DOS mode. This is especially evident when performing disk imaging operations.

Workaround None

Status Fix. Intel is in the process of root causing this issue. This will be addressed in a new BIOS revision (version P06).

## 12. FRUSDR threshold incorrect for specific fans

Problem	For specific fans (91968-002) the Intel® Server Management reports that the fan speed is below the “Lower Critical Threshold”.
Implication	The FRUSDR utility requires modification to address this issue.
Workaround	None
Status	Fixed. Intel has fixed this issue with the release of FRUSDR version 6.6.K (2.00).

## 13. RAID 1 Consistency Check Results in Blue Screen

Problem	While rebooting a Intel® Server Board SE7221BK1 a failure of the consistency check results in a blue screen.
Implication	During the reboot of the system a consistency check is failed. The message “Repair Done” is displayed. Upon rebooting the OS, the system will perform a physical memory dump and reboot. This continues on each consecutive reboot.
Workaround	Do not check consistency
Status	Fixed. This solution will be included in a SATA RAID OPRM version 5.4.07 in a BIOS release (version P06).

## 14. FRUSDR updated for blue ID light

Problem	The Intel® Server SR1425BK1 blue ID light only allows one on-off cycle to occur. Subsequent use of the ID light failed until the system was rebooted.
Implication	System reboot was required to use the blue ID light.
Workaround	None
Status	Fixed. The solution to this issue is currently being validated in a FRUSDR update (6.6.K).

## 15. SR1425BK1 front panel NIC1 & NIC2 LEDs reversed

Problem	The front panel LEDs used for NIC1 and NIC2 are reversed on the SR1425BK1 chassis.
Implication	When an active network cable is connected to NIC 1 on the back of the chassis, the LED titled NIC 2 will show activity on the front. NIC2 exhibits similar behavior.

Workaround None

Status Fixed. An updated front panel PCB will result in the correct NIC LED behavior.

## **16. G1 stepping processors show warning message with BIOS version P05 or earlier**

Problem When a G1 stepping processor is placed in a Intel® Server Board SE7221BK1, an “incorrect or missing microcode” warning message will be displayed.

Implication The system, as noted in the warning message, requires a user to press F1 to by pass this message.

Workaround By pass the warning message by pressing F1.

Status Fixed. Updated microcode with support for the G1 stepping processors is available in BIOS version P06.

## **17. Memory slot DIMM\_1A reports dual rank memory size incorrectly**

Problem When dual rank memory is placed in memory slot DIMM\_1A, SMBIOS will incorrectly compute the size of the memory to be half of what is actually present.

Implication The system will report a smaller memory size (by half) than is actually present through SMBIOS, ISM, and the OS.

Workaround None

Status Validation. The calculation of the dual ranked memory has been modified and will be released in a later BIOS update.

## Documentation Changes

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### 1. Wrong Description for the Onboard SATA Controller Capability

Problem	Page 25 of the Intel® Server Board SE7221BK1 TPS v1.0 describes the integrated SATA controller as “The ICH6R contains four SATA ports. The data transfer rates up to 150Mbyte/s. Alternate Device ID and Redudant Array of Independent Disks (RAID) Class Code option are for support of Soft RAID”. This statement should have omitted “Alternate Device ID and RAID Class Code option are for support of Soft RAID.” The statement was made prior to the actual implementation of the RAID software option ROM, which does not support these features.
Implication	Alternate Device ID and RAID Class Code options are not supported.
Status	Fixed. This issue was addressed in the latest release of the Intel® Server Board SE7221BK1 TPS Rev 1.3.

### 2. Pentium® 4 Processor Extreme Edition Incorrectly Listed as Supported

Problem	Page 18 of the Server Board TPS incorrectly references the Pentium® 4 Processor Extreme Edition as a supported processor, when in fact it is not supported.
Implication	The Pentium® 4 Processor Extreme Edition is not supported on the Intel® Server Board SE7221BK1.
Status	Fixed. This issue was addressed in the latest release of the Intel® Server Board SE7221BK1 TPS Rev 1.3.

### 3. Diagnostic Codes Omitted from Error Handling Section of TPS 1.0

Problem	Section 9 of the Server Board TPS 1.0 incorrectly omitted diagnostic codes for decoding issues via diagnostic LED’ etc...
Implication	Users could not decypher error codes when attempting to understand POST and other error messages via Beep codes and diagnostic LED’s.
Status	Fixed. This issue was addressed in the latest release of the Server Board SE7221BK1 TPS Rev 1.3 Section 9.7.