



Intel® Server System SR9000MK4U

Specification Update

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Enterprise Platforms and Services Marketing

Revision History

Date	Modifications
November 2006	Initial release.
February 2007	Revised errata 2, Added errata 6, 7, 8, 9
March 2007	Added errata 10, documentation clarification 2
April 2007	Fixed errata 5, documentation 3 and 4 added.
May 2007	Added product scope.
June 2007	Updated product scope, fixed errata 1,6,7, no fix for errata 4.
September 2007	Update product scope, added errata 11
October 2007	Added errata 12, 13, Added new section of Documentation Added, Updated errata 11
January 2008	Added errata 14
February 2008	Fixed errata 14, updated Documentation Added 1

Disclaimers

The Intel® Server System SR9000MK4U Server System may contain design defects or errors known as errata that may cause the product to deviate from the published specifications. Current characterized errata are documented in this Specification Update.

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Preface

This document communicates product Errata and Documentation Changes & Corrections for the Intel® Server System SR9000MK4U.

See the *Intel® Itanium® 2 Processor Specification Update* (Document Number 251141-xxx) for specification updates concerning the Dual-Core Intel® Itanium® 2 Processor 9000 Series processors. Items contained in the *Intel® Itanium® 2 Processor Specification Update* that either do not apply to the Intel® Server System SR9000MK4U 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.

This documentation communicates the following types of changes:

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 changes include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the documents.

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 documents.

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, platforms, BIOS and components covered by this update.

1. Product Code: SR9000MK4U – Intel® Server System SR9000MK4U

MM#	Server TA #	Main Board Identifier	Memory Box Identifier	BIOS Revision	Change Description (PCN #)
885580	D68846-001	ES-CF3E-B002	ES-CF3E-B100	03-12_03-14	Product launch
885580	D68846-002	ES-CF3E-B002	ES-CF3E-B100	03-12_03-14	107115-02
885580	D68846-003	ES-CF3E-B002	ES-CF3E-B100	03-12_03-14	107263-00
890670	D68846-004	ES-CF3E-B008	ES-CF3E-B106	04-09_03-28	107378-01
890670	D68846-005	ES-CF3E-B008	ES-CF3E-B106	04-09_03-28	107534-01
890670	D68846-006	ES-CF3E-B008	ES-CF3E-B106	04-14_03-32	107766-00

2. Product Code: F9000MKBRD – Intel® Server SR9000MK4U Main Board Spare

MM#	Main Board TA #	Main Board Identifier	BIOS Revision	Change Description (PCN #)
886623	D73874-001	ES-CF3E-B032	03-12_03-14	Product launch
886623	D73874-002	ES-CF3E-B032	03-12_03-14	107115-02
890513	D73874-003	ES-CF3E-B036	04-09_03-28	107378-01

3. Product Code: A9000MKMEM – Intel® Server SR9000MK4U Memory Box

MM#	Memory Box TA#	Memory Box Identifier	Change Description (PCN#)
886455	D73861-001	ES-CF3E-B100	Product launch
890677	D73861-002	ES-CF3E-B106	107378-01
890677	D73861-003	ES-CF3E-B106	107766-00

Summary Tables of Changes

The following tables indicate the errata and the document changes that apply to the Intel® Server System SR9000MK4U. 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 the future.

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	No support for memory box hot-swap feature
2.	Fixed	No support for on-board IR RAID feature
3.	Fix	Hard drive LEDs not showing drive faults in RAID configurations
4.	No Fix	Hard drive LEDs not showing drive activity with some hard drives
5.	Fixed	Type 17 SMBIOS entry incorrectly labels speed as 400 MHz
6.	Fixed	Poor PCI Express performance with bi-directional (duplex) environment
7.	Fixed	PCI-X / PCI Express* hot-plug cannot be used in Linux* RHEL4
8.	Fix	Unexpected machine check occurs by a signal glitch in NDC3 LSI
9.	Fix	PCI card setup cannot be controlled from USB keyboard
10.	No Fix	ATI* driver incompatible with Remote KVM Card
11.	No Fix	32MB video memory detected in Windows 2003
12.	Fixed	X-Window fails in RedHat Linux 5
13.	Fix	Link Errors are reported in onboard LSI 1068 SAS controller
14.	Fixed	Dual-Core Itanium® 2 Processors with 667MHz FSB May Not Boot

Table 2. Documentation Changes

No.	Plans	Description of Documentation Change
1.	No Fix	The Quick Reference Label located on the top cover of the system, incorrectly makes reference to a Users Guide and a Maintenance Guide.
2.	No Fix	Maximum memory using 4GB DIMMs is 128GB
3.	Fixed	MSM utility for LSI* 1068 onboard RAID, Install instructions are in the release notes
4.	Fix	Server Conductor management software feature web console not supported

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

1. No support for memory box hot swap feature

Problem	Current stepping revision of the Hitachi Cold Fusion* chipset does not provide support for memory hot swap.
Implication	Customers need to power down the system to replace a faulty DIMM.
Workaround	None.
Status	FIXED: This limitation was resolved with NDC3 pass-3 released in Q2/'07, please see PCN 107378-01.

2. No support for on-board IR RAID feature

Problem	Issues exist with the on-board LSI* 1068 SAS Chip firmware which prevent reliable use of the IR RAID functionality.
Implication	On-board IR RAID features will not be supported until firmware is made available to correct the known issues.
Workaround	None.
Status	FIXED: Firmware version 1.18 for onboard LSI* 1068 SAS controller has been released. The onboard IR RAID is supported with FW1.18 or later.

3. Hard Drive LEDs not showing drive faults in RAID configurations

Problem	If a hard drive fails during part of a RAID configuration, the failed hard drive LED does not illuminate to indicate the failure.
Implication	There is no way to visually determine which hard drive had a failure.
Workaround	None.
Status	INVESTIGATE: This issue is under investigation and will be corrected as soon as possible.

4. Hard Drive LEDs not showing drive activity with some hard drives

Problem	Some hard drives have shown an issue where no drive activity is indicated via their Drive Activity LED.
Implication	No visual indicator showing a given drive is being accessed.
Workaround	None.
Status	NO FIX: This erratum will not be fixed.

5. Type 17 SMBIOS entry incorrectly labels speed as 400 MHz

Problem	When the SMBIOS is examined, the Type 17 entry is incorrectly labeled at 400 MHz. It should be 533 MHz.
Implication	Cosmetic issue. Customers viewing the Type 17 SMBIOS entry will see incorrect information
Workaround	None.
Status	FIXED: This issue was corrected in firmware update 03-23_03-26 and later.

6. Poor PCI-e performance at bi-directional (duplex) environment

Problem	Throughput is lower than expected for mixture of Read and Write transactions from PCI-Express* when 256 B payload size is used.
Implication	Two factors contribute to less throughput in bi-directional environment: Read transaction waits for completion of all precedent Write transaction because of a false conflict of Write/Read in NDC3. Flow control transactions in PCI-Express* interface are sometimes delayed and Write transaction cannot be issued from the adapter.
Workaround	None.
Status	FIXED: This limitation was resolved with NDC3 pass-3 released in Q2/'07, please see PCN 107378-01.

7. Unexpected machine check occurs by a signal glitch in NDC3 LSI

Problem	Unexpected machine check and system reboot are occurred by an unexpected signal glitch in NDC3. This glitch is value transition of '0' -> '1' -> '0' instead of expected stable '0', and leads to inconsistent logic status and system hang.
Implication	Signal glitch may be caused at the PCI-e interface logic in NDC3 when the following two conditions are met: (a) A message transaction, which is transferred from PCI-Express* as an interrupt transaction, is issued to ESB2 interface; (b) A 32 B Memory write transaction from a processor is issued to ESB2 interface.
Workaround	There are two workaround options: (a) MSI interrupt instead of INT, not to issue a message transaction to ESB2 (Change of I/O driver setting); (b): Disable WC (write coalescing) attribute for this memory-mapped I/O space to disable 32 B Memory write transactions to devices under ESB2. (Change of OS property).
Status	FIXED: This limitation was resolved with NDC3 pass-3 released in Q2/'07, please see PCN 107378-01.

8. PCI-X* / PCI-Express* hot-plug cannot be used in Linux* RHEL4

Problem	System may hang if hot-plug attention button is pressed in RHEL4.
Implication	PCI-X* / PCI-Express* hot-plug is not available in RHEL4.
Workaround	Do not press the attention button in RHEL4.
Status	FIX: This limitation will be fixed by a future update of RHEL4. Target fix in Q2/07.

9. PCI card setup cannot be controlled from USB keyboard

Problem	Key inputs from USB keyboard are ignored at PCI cards setup, if Hyper Threading is enabled.
Implication	Cannot enter to PCI card setup, so as card configuration is not available
Workaround	Set Hyper- Threading mode disable with USB keyboard operation, or use console redirection function (serial port terminal) at PCI cards setup
Status	FIX: This erratum will be fixed in the future release of BIOS.

10. ATI* driver incompatible with Remote KVM Card

Problem	ATI* driver version 8.13 is not compatible with the Remote KVM Card.
Implication	With the ATI driver version 8.13 installed on Windows*, the Remote KVM Card does not display remote video.
Workaround	If the Remote KVM Card is to be used for remote control, then do not install the ATI* driver version 8.13.
Status	NO FIX: This erratum will not be fixed.

11. 32MB video memory detected in Windows 2003

Problem	Only 32 MB video memory being detected in Windows 2003 SP1.
Implication	Windows cannot detect out all 64MB video memory.
Workaround	Use Windows integrated driver can reach 1280x1024 (32bpp) resolution.
Status	No Fix: This erratum will be not fixed.

12. X-Window fails on RedHat Linux 5.0

Problem	X-Window fail to start on RedHat Linux 5.0.
Implication	Only text mode available during instalaltion and operation.
Workaround	Use text mode.
Status	Fixed: This erratum has been fixed in system FW release 04-19_03-33.

13. Link Errors are reported in onboard LSI 1068 SAS controller

Problem Link Errors are counted and reported in the SAS EFI utility. The error may be detected when do the following actions:

- Select Adaptors
- Save RAID configuration
- Exit PHY Properties by ESC key
- Close the utility
- OS Boot(Detection of the devices)

Under above cases, hard Reset is executed on SAS interface. SAS controller may takes the meaningless data by mistake and misdetects the coding err and disparity err. These errors produce the error message on EFI utility.

Implication There is no harm on the machine because these are over-detected error

indications by the SAS1068 before SAS Link initialization.

Workaround No.

Status Fix: This erratum will be fixed in future LSI FW release.

14. Dual-Core Itanium® 2 Processors with 667MHz FSB May Not Boot

Problem Some Dual-Core Itanium® 2 processors with 667MHz Front Side Bus may not boot correctly on the Intel® Server System SR9000MK4U.

Implication The system may halt with a warning beep and POST error 43 (Illegal Processor) when booting with the following processors:

Table 1: Affected Processors

Processor Number	S-Spec Number	Description
9150M	SLAB4	Dual-Core Itanium® 2 processor 667FSB, 1.66GHz, 24M L3 cache
9140M	SLAB5	Dual-Core Itanium® 2 processor 667FSB, 1.66GHz, 18M L3 cache
9130M	SLAB9	Dual-Core Itanium® 2 processor 667FSB, 1.66GHz, 8M L3 cache

Workaround No

Status Fixed: This erratum has been fixed in system FW 04-21_03-34 or later

Documentation Changes

1. The Quick Reference Label on top cover incorrectly refers to a Users Guide and a Maintenance Guide

Problem: The Quick Reference Label, refers to Users Guide and Maintenance documents that do not exist.

Implication: Customers calling Intel for specified documents

Workaround: Intel makes available a single *Intel® Server System SR9000MK4U Product Guide* that provides the information originally targeted for the two referenced documents. The *Intel® Server System SR9000MK4U Product Guide* is provided with the system and is located on the Resource CD. The document

can also be downloaded from the Intel Support Website:
<http://www.intel.com/support/motherboards/server/sr9000mk4u/index.htm>

Status: Intel will not correct this issue.

2. Maximum memory with 4 GB DIMMs is 128 GB

Problem: 8 GB DIMMs are not readily available, but product documentation specifies 256 GB maximum memory with 8 GB DIMMs. With 4 GB DIMMs, the maximum memory is 128 GB.

Implication: Customers can only install a maximum of 128 GB of RAM with 4 GB DIMMs.

Workaround: None

Status: Intel will not correct the documentation. 256 GB will be supported after 8 GB DIMMs are available, this note serves as a clarification.

3. MSM utility for LSI* 1068 onboard RAID, Install instructions are in the release notes

Problem: MSM utility for LSI*1068 onboard RAID can be technically complex especially for installation on SUSE 10.

Implication: Customers may have a difficult time installing the MSM utility for onboard RAID.

Workaround: None

Status: Install instructions are detailed in the release notes for the MSM utility. Customers are advised to refer to the release notes for the MSM utility when performing installation.

4. Server Conductor management software feature web console not supported

Problem: Web console feature of server conductor management software may not install per the server conductor user guide instructions.

Implication: Customers may not be able to configure and use the web console feature.

Workaround: None

Status: FIX: This issue is under investigation.

Documentation Added

1. Processor upgrade to 9100 Series Itanium® 2 Processors

System FW earlier than 04-21_03-34 may not work properly for some Itanium® 2 9100 series Processors (aka. Montvale). To upgrade the system from 9000 Series Itanium® 2 Processor (aka. Montecito) to 9100 Series Itanium® 2 Processor, the procedures shown below are required.

Boot the system with 9000 Series Itanium® 2 Processor

- (1) Update the firmware to 04-21_03-34
- (2) Power off the system and unplug AC power cords
- (3) Replace the CPU to 9100 Series Itanium® 2 Processor

It is recommended to save system configuration data to file before executing operations to switch the CPU. System configuration data will be needed to recover system configuration when operation fails somehow by any chance. "syscfg" utility is provided to save system configuration data to file. "syscfg" is a command line utility operated on the Extended Firmware Interface (EFI) shell. See "EFI Utility User's Guide" for detail.

Note: For Itanium® 2 1.66GHz/667FSB processor, system FW earlier than 04-21_03-34 cannot boot successfully. Illegal Processor message will be displayed. (see errata 14)