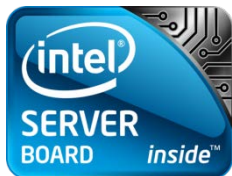# Monthly Specification Update

Intel® Server Board S2400EP Family, Intel® Server System R1000EP Family

December, 2012

Enterprise Platforms and Services Marketing

Revision History

Date	Modifications
May, 2012	Initial release.
June, 2012	No Update.
July, 2012	Update item #17 and added items #18 - #23.
August, 2012	Added item #24.
September, 2012	Updated items #4, #7, #8, #9, #12, #13, #14, #15, #16, and #17.
October, 2012	Added items #2, #24, #26, and #27 in Errata.
	Added items #1 and #2 in Documentation Changes.
November, 2012	No update.
December, 2012	Updated items #5, #8, #22, #25.
	Added items #28, #29.

Disclaimers

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

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Preface

This document is an update to the specifications contained in the *Intel® Server Board S2400EP Family and Intel ® Server System P4000GP Family Technical Product Specification*. 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.

1. 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.

2. 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
S2400EP2	G31097-203	01.02.0010	1.09.3404	1.00	02.01.05.091
S2400EP4	G18565-204	01.02.0010	1.09.3404	1.00	02.01.05.091

Summary Tables of Changes

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

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

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

Fixed: This erratum has been previously fixed.

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

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

Table 1. Errata Summary

No.	Plans	Description of Errata
1.	Fix	Linux Operating Systems are not supported on RSTe mode
2.	Fixed	UEFI Microsoft Windows Server 2008* R2 SP1 installation on SCU ports may fail under RSTe RAID mode
3.	Fix	UEFI Operating System installation is not supported on ESRT2 mode
4.	Fixed	HDD status LEDs do not function under specific configuration
5.	Fixed	RSTe GUI installation may fail if there are no devices attached to any onboard AHCI ports
6.	Fixed	BMC continuously sends RAID volume rebuild event in RSTe mode of the SCU controller
7.	Fixed	System may halt under specific BIOS configurations
8.	Fix	Microsoft Windows 2003* x86 installation failure under Pass-through mode of SCU controller
9.	Fixed	System may halt under unsupported configuration in ESRT2 mode
10.	Fixed	Extra events may be seen in the System Event Log (SEL) during system global reset
11.	Fixed	System may continuously report a faulty or assert/deassert log when having blank HDD carriers or un-configured HDDs
12.	Fixed	Integrated BMC Web Console – Power Statistics page – Minimum wattage reads as zero
13.	Fixed	Integrated BMC Web Console – Power Control page – Perform Action button not functional.
14.	Fixed	IPMI Get Chassis Status command returns incorrect Chassis Identify State
15.	Fixed	The BIOS and ME Firmware can't be updated successfully via Intel® One Boot Flash Update Utility(OFU) under SuSE* Linux Enterprise Server 11* (64-bit) with SP2
16.	Fixed	BMC continuously sends HDD assert/de-assert event during HDD RAID rebuild under ESRT2 mode of the SCU controller
17.	Fixed	High CPU utilization may occur when installing or running Microsoft* Windows* Server 2008 R2 or Microsoft Windows 7* with default NIC driver
18.	Fixed	Intel® RAID C600 Upgrade Key replacement Issue
19.	Fixed	Intel® LAN driver installation failure on Microsoft Windows 7*
20.	Fix	Hard drives connected through SAS expander can't be detected in legacy mode
21.	Fixed	System will boot from on-board video although install add-in video card
22.	Fixed	On-board VGA cannot be set to the highest resolution (1920x1080 and higher)
23.	Fix	Hard drive locate LED may not instantly respond to the locate command if backplane is connected through SAS expander to a RAID controller

No.	Plans	Description of Errata
24.	Fix	Integrated BMC Web Console – Sensor Readings Page – Memory Throttling sensor status will stay "Critical" once triggered
25.	Fixed	WOL (Wake on LAN) may not function under Red Hat* Linux 6.2 64bit OS
26.	Fix	Intel® server system R1000EP fan might take longer time to slow down the spin speed.
27.	Fix	Intel® server system R1000EP COO label includes inaccurate information.
28.	Fix	The MAC address of Dual Port Intel® X540 10GbE I/O Module(AXX10GBTWLIOM and AXX10GBTWLHW) in BIOS displays as all zero.
29.	Fix	BMC will generate event log until it full and send PEF continuely.

Table 2. Documentation Changes

No.	Plans	Document Name	Description of Documentation Change
1.	Fix	*Intel® server system R1000EP Quick Reference Label (QRL)*	The *Intel® server system R1000EP Quick Reference Label (QRL)* updates with new motherboard illustration.
2.	Fix	*Intel® server system R1000EP Quick Installation Guide (QIG)*	The *Intel® server system R1000EP Quick Installation Guide (QIG)* updates with new motherboard illustration.

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

Errata

1.   Linux* Operating Systems are not supported on RSTe mode

Problem   Intel® RSTe mode is not supported on Red Hat* Linux and SUSE* Linux.

Implication   User may not able to install Red Hat* Linux and SUSE* Linux on Intel® C600
                   Series Chipset based Server Boards under Intel® RSTe mode

Status   This issue may be fixed in future driver or BIOS releases.

Workaround   None.

2.   UEFI Microsoft Windows Server 2008* R2 SP1 installation on SCU ports may fail under RSTe RAID mode

Problem   System may encounter blue screen when installing Microsoft Windows Sever
                   2008* R2 SP1 under UEFI with below configurations:

                   1. Intel® C600 RAID Upgrade Key is installed and SAS HDDs are used on
                       SCU ports.

                   2. BIOS options "EFI Optimized Boot" and "Use Legacy Video for EFI OS" are
                       enabled.

                   3. Under RSTe RAID mode.

Implication   User may not able to install UEFI Microsoft Windows Server 2008* R2 SP1 on
                   Intel® C600 Series Chipset based Server Boards with mentioned configuration.

Status   This issue is fixed in BIOS R01.04.1001.

Workaround   None.

3.   UEFI Operating System installation is not supported on ESRT2 mode

Problem   UEFI OS installation of Microsoft Windows*, Red Hat* Linux or SUSE* Linux
                   may fail on AHCI or SCU controller when "EFI Optimized Boot" and "Use
                   Legacy Video for EFI OS" are both enabled.

Implication   User may not be able to install UEFI OS under ESRT2 mode on Intel® C600
                   Series Chipset based Server Boards

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

Workaround   None.

4.   HDD status LEDs do not function under specific configuration

Problem   If drives are connected through expander to SCU ports and configured under
                   RSTe mode, the HDD status LEDs may not function properly.

Implication   HDD status LED may not show the HDD locate, HDD fault or RAID rebuild
                   message.

Status   This issue is fixed in RSTe driver 3.2.01134 and later version.

Workaround   None.

5.   RSTe GUI installation may fail if there are no devices attached to any onboard AHCI ports

Problem   When Microsoft Windows 2008* R2 is installed on SCU ports, the installation of
                   RSTe drivers and the Graphic User Interface (GUI) in Microsoft Windows 2008*
                   R2 will fail, if the AHCI controller is enabled while no device is attached to the
                   AHCI SATA ports.

Implication   User may not be able to install RSTe GUI under mentioned configuration when
                   the AHCI controller is enabled and no devices are attached to the AHCI SATA
                   ports.

Status   This issue is fixed in BIOS R01.03.0002.

Workaround   The workaround is to either plug a SATA device into one of the AHCI SATA
                   ports, or disable the onboard AHCI controller in BIOS.

6.   BMC continuously sends RAID volume rebuild event in RSTe mode of the SCU controller

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

Implication   User may see the SEL flooded with RAID volume rebuild event entries.

Status   This issue was fixed in BMC 1.04.

Workaround   None.

7.   System may halt under specific BIOS configurations

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

Implication   User may see system hang with mentioned configuration.

Status   This issue is fixed in BIOS release R01.03.0002.

Workaround   None.

8.   Microsoft Windows 2003* x86 installation failure under Pass-through mode of SCU controller

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

Implication   User may not able to install Microsoft Windows Server 2003* x86 on mentined
                 BIOS configuration.

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

Workaround   Microsoft Windows Server 2003* x64 can be installed under the same
                 configuration as alternative solution.

9.   System may halt under unsupported configuration in ESRT2 mode

Problem   If no Intel® C600 RAID upgrade key (any of RKSAS4, RKSAS4R5, RKSAS8,
                 RKSAS8R5) is installed to enable SAS support capablity under ESRT2 mode
                 while SAS drivers are used, the system may halt at the boot stage.

Implication   User may see a system halt with no RAID keys installed with SAS drivers used
                 and ESRT2 enabled.

Status   This issue is fixed in BIOS R01.03.0002 or later.

Workaround   None.

10.   Extra events may be seen in the System Event Log (SEL) during system global reset

Problem   The BMC may sporadically log extra reset event during a system DC reset (global reset). These events may appear as there is an extra reset during BIOS POST.

The following SEL entries indicate two resets in a POST process:

Informational event: Pwr Unit Status reports the power unit is powered off or being powered down.

Informational event: Pwr Unit Status reports the power unit is powered off or being powered down.

Implication   The SEL log may indicate that system has an occasional reset in a normal POST during DC cycle test (global reset).

Status   This issue was fixed in BMC 1.04.

Workaround   None.

11.   System may continuously report a faulty or assert/deassert log when having blank HDD carriers or un-configured HDDs

Problem   With ESRT2 SATA RAID 5 config with 3 HDDs, put the 4th HDD in drive carrier and set it to either unconfigured or global hot spare. System event log may be flooded with HDD faulty entries.

With ESRT2 SAS RAID 1 with 2 HDDs, put 3rd HDD and set to unconfigured or global hot spare. System event log may be flooded flood with HDD faulty entries.

Implication   User may see the SEL flooded with HDD faulty entries when either of the two scenarios above are used.

Status   This issue was fixed in BMC 1.04.

Workaround   None.

12. Integrated BMC Web Console – Power Statistics page – Minimum wattage reads as zero.

Problem　　　　　　On some systems the Integrated BMC Web Console Power Statistic page may display the Minimun wattage as zero (0W) after the system has been powered. This reading will stay at zero until the next power cycle of the system.

Implication　　　　This is an incorrect reading only and does not affect operation.

Status　　　　　　This issue is fixed in BMC release 1.10.r3560 and later version.

Workaround　　　None.

13. Integrated BMC Web Console – Power Control page – Perform Action button not functional.

Problem　　　　　　After performing a Graceful shutdown from the Integrated BMC Web Console Power Control page the Perform Action button gets grayed out and cannot be pressed to request another action.

Implication　　　　You cannot perform a power on of the system.

Status　　　　　　This issue fixed in BMC release 1.10.r3560 and later version.

Workaround　　　Select another page in the Integrated BMC Web Console and then return to the Power Control Page. The Perform Action button will then be available.

14. IPMI Get Chassis Status command returns incorrect Chassis Identify State.

Problem　　　　　　When a Get Chassis Status command is issued, after the Chassis Identify LED has been forced on, the status of off (00b) is returned for Chassis Identify State (response data byte 4 – bits [5:4]).

Implication　　　　Unable to correctly read when the Chassis Identify LED is on.

Status　　　　　　This issue is fixed in BMC release 1.10.r3560 and later version.

Workaround　　　None.

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

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

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

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

Workaround   Update System Firmware Update Package(SFUP) from EFI environment using iFlash32, FWPIAUpdate and FRUSDR Utility

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

Problem   HDD fault will keep asserting and de-asserting frequent during RAID rebuild under ESRT2

Implication   During HDD ESRT2 RAID rebuild, there's flood HDD fault assert/deassert(SAS RAID) or Rebuild/remap (SATA RAID) logs into SEL.

Status   This issue is fixed in ESRT2 driver release 15.00.0528.2012.

Workaround   None.

17. High CPU utilization may occur when installing or running Microsoft Windows Server 2008* R2 or Microsoft Windows* 7 with default NIC driver for Intel® Gigabit ET Dual Port Server Adapter E1G42ET and Intel® Gigabit ET Quad Port Server Adapter E1G44ET

Problem   There has been high CPU load observed when installing or running Microsoft Windows Server 2008* R2 or Microsoft Windows 7* with default NIC (Network Interface Card) driver for Intel® Gigabit ET Dual Port Server Adapter E1G42ET and Intel® Gigabit ET Quad Port Server Adapter E1G44ET.

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 is fixed in NIC driver 16.8 release and later version.

Workaround   None.

18.   Intel® RAID C600 Upgrade Key replacement Issue

Problem   With Manageability Engine (ME) Firmware 02.01.05.069, the Intel® Server
                   Board S2400EP and Intel® Server System R1000EP may detect the incorrect
                   Storage Control Unit (SCU) Redundant Array of Inexpensive/Independent
                   Disks (RAID) information after installing or replacing the RAID upgrade key.
                   The board or system may still show the previous RAID information even if you
                   replace the key with a new one.

Implication   With the ME firmware 02.01.05.069, the system may not detect the new RAID
                   activation key during the first time AC power on.

Status   The issue is fixed with ME firmware 02.01.05.091.

Workaround   Do a second AC power cycle to the system after the RAID upgrade key has
                   been installed or replaced to ensure the correct type of key is identified.

19.   Intel® LAN driver installation failure on Microsoft Windows* 7

Problem   The Intel® LAN driver version 16.8 and below may not be installed sucessfully
                   on Microsoft Windows* 7 with the .bat installation scripts in the driver package.

Implication   The LAN driver can not be installed by the .bat installation scripts in the driver
                   package.

Status   The issue is fixed in Intel® LAN driver version 17.1

Workaround   Two workarounds are availalbe:

                   1. The LAN driver can be manually installed.

                   2. User can lower the "User Account Control" to "Never Notify", then the driver
                       can be installed with the .bat installation scripts.

20.   Hard drives connected through SAS expander can't be detected in legacy mode

Problem   If hard drives are connected through expander to SCU ports and configured
                    under RSTe mode, the hard drives can't be detected by system in legacy mode
                    (default BIOS setting).

Implication   Users can't use the hard drives connected through expander as boot device to
                    install OS. But users can install OS to other hard drives which are not
                    connected through expander and load RSTe driver to make the hard drives
                    connected through expander visible to OS. Or users can change **Boot
                    Options** > **EFI Optimized Boot** to **Enabled** in BIOS Setup so that hard drives
                    connected through expander can be detected by the system.

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

Workaround   None.

21.   System will boot from on-board video although install add-in video card

Problem   When try to boot from add-in video card, system can not boot up.

Implication   Bios video output policy by default was booting from onboard video although install the add-in video card.

Status   This issue was fixed in BIOS01.02.0009 and changed video output to installed add-in video card by default.

Workaround   Need to install internal video cable to boot up system first then disable on-board video option in BIOS.

22.   On-board VGA cannot be set to the highest resolution (1920x1080 and higher).

Problem   The Graphics ID register in the on-board video controller is getting set incorrectly.

Implication   The video cannot be set to the highest resolutions listed here:

               [1920x1080,High 256 Color, 60 Hertz]
               [1920x1200,High 256 Color, 60 Hertz]
               [1920x1080,High Color(16bit), 60 Hertz]
               [1920x1200,High Color(16bit), 60 Hertz]

Status   This issue is fixed in BMC release 1.16.4010.

Workaround   None

23.   Hard drive locate LED may not instantly respond to the locate command if backplane is connected through SAS expander to a RAID controller

Problem   If backplane is connected through SAS expander to a RAID controller, the hard drive locate LED may not instantly respond to the locate command from the RAID controller. The LED may blink after up to 2 minutes.

Implication   The symptom doesn't happen if backplane is directly connected to the RAID controller. Root cause has been identified in the motherboard BMC.

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

Workaround   None.

24.   Integrated BMC Web Console – Sensor Readings Page – Memory Throttling sensor status will stay "Critical" once triggered

Problem   When Memory Throttling is triggered, the Memory "P1 MTT and/or P2 MTT" sensor status will stay at "Critical" status in the Integrated BMC Web Console even after throttling has stopped.

Implication   You may observe Memory "P1 MTT and/or P2 MTT" status as "Critical" even when there is no throttling. No functional impact to the system.

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

Workaround   Need a AC cycle or reset ME through IPMI to reset the MTT sensor status.

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

Problem   With Intel® LAN driver version 17.1, WOL (Wake on LAN) may not function under Red Hat* Linux 6.2 64bit OS.

Implication   You may not be able to wake system through onboard NIC port.

Status   This issue is fixed in Intel® LAN driver version 17.4.

Workaround   None.

26.   Intel® server system R1000EP fan might take longer time to slow down the spin speed.

Problem   Intel® server system R1000EP fan might take longer time to slow down the spin speed.

Implication   You may observe the fan might take longer time than 20seconds to slow down the spin speed.

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

Workaround   None.

27.   Intel® server system R1000EP COO label includes inaccurate information

Problem   Intel® server system R1000EP COO label includes redundant information that needs to be removed.

Implication   There is "x2" follwing powerating "6/3A", which is showed in the left snapshot. The correct label should be as the right snapshot indicates.

Status   This issue may be fixed in future shippment.

Workaround   None.

28. The MAC address of Dual Port Intel® X540 10GbE I/O Module(AXX10GBTWLIOM and AXX10GBTWLHW) in BIOS displays as all zero

Problem   With BIOS R01.06.0001, the MAC address of Dual Port Intel® X540 10GbE I/O Module(AXX10GBTWLIOM and AXX10GBTWLHW) in BIOS displays as all zero.

Implication   Users are not able to check the MAC address of Dual Port Intel® X540 10GbE I/O Module(AXX10GBTWLIOM and AXX10GBTWLHW) in BIOS.

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

Workaround   None.

29. BMC will generate flood event log and send PEF continuously

Problem   1. Use IPMI tool to set a PEF (6 commands)
      ipmitool –H xxx.xxx.xxx.xxx –U xxx –P xxxxxx raw 0x04 0x12 0x01 0x01
      ipmitool –H xxx.xxx.xxx.xxx –U xxx –P xxxxxx raw 0x04 0x12 0x02 0x01
      ipmitool –H xxx.xxx.xxx.xxx –U xxx –P xxxxxx raw 0x04 0x12 0x9 0x14 0xa8 0x1f 0x0
      ipmitool –H xxx.xxx.xxx.xxx –U xxx –P xxxxxx raw 0x04 0x12 0x6 0x14 0x80 0x1 0xa 0x10 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0
      ipmitool –H xxx.xxx.xxx.xxx –U xxx –P xxxxxx raw 0x0c 0x01 0x1 0x12 0xf 0x80 0x5 0x7
      ipmitool –H xxx.xxx.xxx.xxx –U xxx –P xxxxxx raw 0x0c 0x01 0x1 0x13 0xf 0x0 0x0 0xa 0x24 0x71 0x7b 0x0 0x0 0x0 0x0 0x0 0x0
2. Go to BMC web console and go to configurations=>alert, check all alert and must set destination IP to remote concole =>Save
3. Try to generate an event (unplug power), you can see there are a lot of event in event log and make event log full.
4. Even when restore the PSU, the SEL is continuing to grow w/o PSU redundancy regain.

Implication   The flood even log will fulfill the SEL in several minutes

Status   The issue may be fix in future BMC release

Workaround   Restore the system and uncheck all alerts in BMC web console.

Documentation Changes

1.   The *Intel® Server System R1000EP Quick Reference Label* (QRL) updates with new motherboard illustration

Problem   The illustration of Intel® server system R1000EP motherboard incorporates information of S2400EP4, which is not supposed to be built in the R1000EP system.

Status   Will be fixed in future QRL update.

Workaround   Refer to *Intel® Server System R1000EP Technical Product Specification* for corret motherboard illustration.

2.   The *Intel® Server System R1000EP Quick Installation Guide* (QIG) updates with new motherboard illustration

Problem   The illustration of Intel® server system R1000EP motherboard incorporates information of S2400EP4, which is not supposed to be built in the R1000EP system.

Status   Will be fixed in future QIG update.

Workaround   Refer to *Intel® Server System R1000EP Technical Product Specification* for corret motherboard illustration.