



Intel® Server Board S2600WF Product Family
Intel® Server Board S2600BP Product Family
Intel® Server Board S2600ST Product Family

Specification Update

Q3 2022

Intel® Server Products and Solutions

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Revision History

Date	Modifications
November 2019	MSU unified per generation
April 2020	Q1'20 update
August 2020	Q2'20 update
March 2021	Q1'21 update
April 2022	Q2'22 update
August 2022	Q3'22 update

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1 Preface

This document is intended to communicate product errata, published specification changes, published specification clarifications, and published document changes for the following Intel server products:

- Intel® Server Board S2600WF product family
- Intel® Server Board S2600BP product family
- Intel® Server Board S2600ST product family

It is intended for system integrators and software developers of applications, operating systems, or tools.

Nomenclature

1. **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.
2. **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.
3. **Documentation Changes** include typos, errors, or omissions from the current published specifications. These changes will be incorporated in the next release of the specifications.
4. **Errata** are design defects or errors. Errata may cause the server board or system 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:

Table 1. Product Scope

Product Code	Baseboard PBA Revision	BIOS Revision	Intel® ME Revision	BMC Revision	FRU/SDR Revision	PMEM Revision
S2600WFTR	H48104-951 H48104-961 M71494-951 M71494-961	R02010009	04.01.04.323	2.22.59c3b83a	1.96	01.02.00.5395
S2600WFOR	H87179-961 H87179-951 M71671-951	R02010009	04.01.04.323	2.22.59c3b83a	1.96	01.02.00.5395
S2600WFQR	H87178-951 H87178-961 M71674-951 M71674-961	R02010009	04.01.04.323	2.22.59c3b83a	1.96	01.02.00.5395
S2600BPBR	H87926-564	R02010009	04.01.04.323	2.22.59c3b83a	1.41	01.02.00.5395
S2600BPSR	J36547-363	R02010009	04.01.04.323	2.22.59c3b83a	1.41	01.02.00.5395
S2600BPQR	H87927-563	R02010009	04.01.04.323	2.22.59c3b83a	1.41	01.02.00.5395
S2600STBR	J17012-601	R02010009	04.01.04.323	2.22.59c3b83a	1.76	-
S2600STQR	J17014-602	R02010009	04.01.04.323	2.22.59c3b83a	1.76	-

3 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:

Will 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 2. Errata Summary

No.	Impacted Platform	Plans	Description of Errata
1.	S2600WF	Fixed	Time may drift 8 seconds per day on the Intel® Server Board S2600WF.
2.	S2600WF	No Fix	Windows Update* may fail to install some patches on Windows Server* 2016.
3.	S2600WF	Fixed	FRB-2 triggered on early phase.
4.	S2600BP	No Fix	Intel® Server Board S2600BP hangs at POST and logs a "Voltage VR watchdog Event Asserted" in the System Event Log (SEL) after a DC power cycle.
5.	S2600ST	No Fix	System detects 4 network adapters without LAN riser installed.
6.	S2600ST	No Fix	RHEL* 7.3 might hang at boot with Intel® Volume Management Device (Intel® VMD) enabled.
7.	S2600ST	No Fix	" Problem loading in-kernel X.509 certificate (-65) " message on SLES 12SP2.
8.	S2600WF S2600BP S2600ST	Fixed	Some <code>syscfg</code> commands cannot be used in BIOS version R02.01.0009.
9.	S2600WF	Fixed	Intel® RAID Web Console might not install properly on RHEL* 8.0.
10.	S2600BP	Fixed	Power Supply Sensors are shown as not readable on SDR.
11.	S2600WF S2600BP S2600ST	Will Fix	RHEL* 8.4 unable to boot when loading BIOS default settings.
12.	S2600WF S2600BP S2600ST	Will Fix	When installing the Windows* or Linux* operating systems via HTML5, the system will reboot automatically.
13.	S2600WF S2600BP S2600ST	Will Fix	Transferring files using the Intel® Server Debug and Provisioning Tool (Intel® SDP Tool) to a remote platform at different geographic location, the system will reboot automatically.
14.	S2600WF S2600BP S2600ST	No Fix	If Secure Boot is enabled, a blue security warning banner will appear on the next boot after an Intel® ME firmware update or a hardware configuration change.
15.	S2600WF S2600BP S2600ST	No Fix	Intel® ME asserts SMLink1 fail health event in SEL sporadically.

Table 3. Documentation Summary

No.	Impacted Platform	Document Name	Document Version
1.	S2600WF	<i>Intel® Server Board S2600WF Family Technical Product Specification</i>	2.6
2.	S2600WF	<i>Intel® S2600WF Product Family Configuration Guide</i>	2.7
3.	S2600BP	<i>Intel® Server Board S2600BP Family Technical Product Specification and Intel® Compute Module HNS2600BP Product Family Technical Product Specification</i>	2.9
4.	S2600BP	<i>Intel® Server Board S2600BP Product Family Configuration Guide</i>	2.3
5.	S2600ST	<i>Intel® Server Board S2600ST Family Technical Product Specification</i>	2.5
6.	S2600ST	<i>Intel® Server Board S2600ST Product Family Configuration Guide</i>	2.2

Table 4. Tools and Firmware

No.	Impacted Platform	Software Description	Software Version
1.	S2600WF	BIOS and firmware update package for the Intel® Server Board S2600WF Family.	BIOS - 02.01.0015 ME FW - 04.01.04.601.0 BMC FW - 2.88.6999d21a FRUSDR – 2.03 DCPMM - 01.02.00.5446
2.	S2600BP	BIOS and firmware update package for the Intel® Server Board S2600BP Family.	BIOS - 02.01.0015 ME FW - 04.01.04.601.0 BMC FW - 2.88.6999d21a FRUSDR – 1.48 DCPMM - 01.02.00.5446
3.	S2600ST	BIOS and firmware update package for the Intel® Server Board S2600ST Family.	BIOS - 02.01.0015 ME FW - 04.01.04.601.0 BMC FW - 2.88.6999d21a FRUSDR – 1.82
4.	S2600WF	BIOS and firmware update package for the Intel® One Boot Flash Update (Intel® OFU) for the Intel® Server Board S2600WF Family.	BIOS - 02.01.0015 ME FW - 04.01.04.601.0 BMC FW - 2.88.6999d21a FRUSDR – 2.03 DCPMM - 01.02.00.5446
5.	S2600BP	BIOS and firmware update package for Intel® OFU for the Intel® Server Board S2600BP Family.	BIOS - 02.01.0015 ME FW - 04.01.04.601.0 BMC FW - 2.88.6999d21a FRUSDR – 1.48 DCPMM - 01.02.00.5446
6.	S2600ST	BIOS and firmware update package for Intel® OFU for the Intel® Server Board S2600ST Family.	BIOS - 02.01.0015 ME FW - 04.01.04.601.0 BMC FW - 2.88.6999d21a FRUSDR – 1.82
7.	S2600WF S2600BP S2600ST	Intel® OFU utility for Intel® Server Boards and Intel® Server Systems based on the Intel® 62X Chipset.	14.1 Build 28

4 Product Errata

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.

1. ID Number HSD1507113756

Time may drift 8 seconds per day on the Intel® Server Board S2600WF.

Problem	A time leeway detected on the Intel® Server Board S200WFT.
Implication	Customers may experience a time drift of 6 to 8 seconds every 24 hours on their Windows* or Linux* operating system.
Status	Fixed Root cause was found to be some defective capacitors. A fix is implemented in the latest hardware revisions.
Workaround	Using HPET (High Precision Event Timer) on the operating system reduces the time drift to approximately 3 seconds every 24 hours.

2. ID Number HSD2007614467

Windows Update* may fail to install some updates on Windows* 2016.

Problem	Windows Update* may fail to install some updates on Windows* 2016 with an RAID5 array using 4x or more HDs.
Implication	Some patches could not be installed in the system.
Status	No Fix Windows* will not work on a fix.
Workaround	None.

3. ID Number HSD2103626884

FRB-2 Triggered on early phase

Problem	Fault Resilient Booting (FRB-2) triggered on the early video phase.
Implication	System may experience a delay time trying to boot using an alternate processor.
Status	Fixed
Workaround	None.

4. ID Number HSD1504762639

Intel® Server Board S2600BP hangs at POST and logs a “Voltage VR watchdog Event Asserted” event in the System Event Log (SEL) after a DC power cycle.

- Problem** After initiating a DC power cycle via the front panel power button or via IPMI Power Off / On commands, during the Power-On Self-Test (POST), the system may halt, stop executing any further POST processes, and will log several “Voltage VR Watchdog Asserted/De-asserted” events to the SEL.
- Implication** Pre-OS boot system hang. No data loss, undetermined – Difficulty to reproduce the issue was very high, requiring over 500 DC reboot cycles to replicate a single occurrence on systems that exhibited the issue.
- Status** **No Fix**
- Workaround** At the system hang event, perform an AC or DC power cycle. The system will boot as normal.

5. ID Number HSD1209234998

System detects 4 network adapters without LAN riser installed.

- Problem** BIOS detects 4 network adapters even when only 2 are physically installed.
- Implication** Operating system detects 4 network adapters when only 2 might be usable.
- Status** **No Fix**
- Workaround** Upload the NVM image using the 2 NIC image.

6. ID Number HSD220432193

RHEL* 7.3 might hang at boot with Intel® Volume Management Device (Intel® VMD) enabled.

- Problem** A system with RHEL* 7.3 and no Intel® Virtual RAID on CPU (Intel® VROC) driver installed might hang at boot if Intel® VMD option is enabled in the BIOS.
- Implication** System with RHEL* 7.3 might not be able to boot at all when Intel® VMD option is enabled and Intel® VROC driver is not installed.
- Status** **No Fix**
- Customer should follow the appropriate way of installing Intel® VROC driver, found in the driver’s documentation. Recommended way of enabling Intel® VMD post operating system installation is to install Intel® VROC driver first.
- Workaround** Disable the Intel® VMD option in the BIOS so it is possible to boot to the operating system and install the Intel® VROC driver.

7. ID Number HSD2103614393

" Problem loading in-kernel X.509 certificate (-65) " message on SLES 12SP2

- Problem** SLES* 12 SP2 might show "Problem loading in-kernel X.509 certificate (-65)" message during boot.
- Implication** No effect in the system functionality.
- Status** **No Fix**
- Workaround** None.

8. ID Number HSD1507469348

Some `syscfg` commands cannot be used in BIOS version R02.01.0009.

- Problem** Commands `/bbosys` and `/bcs` will fail when used on BIOS version R02.01.0009.
- Implication** BIOS parameters and boot order cannot be modified by using the Intel® Server Configuration Utility (`syscfg`) tool.
- Status** **Fixed**
- Workaround** Go to the BIOS screen to manually modify parameters and boot order.

9. ID Number HSD14011578259

Intel® RAID Web Console 3 (RWC3) might not install properly on RHEL* 8.0.

- Problem** When trying to install the Intel® RAID Web Console 3 on RHEL* 8.0, the install script might crash showing an error.
- Implication** Customer might not be able to install and use the Intel® RAID Web Console 3 on RHEL* 8.0.
- Status** **Fixed**
There was an issue on the installation script for RHEL*, and it was fixed on the 007.015.000 release.
- Workaround** Issue is present from version 007.012.012.000 and fixed on version 007.015.000.
The workaround is to use the latest version.

10. ID Number HSD1507838088

Power supply sensors are shown as not readable on SDR 9.

- Problem** Power supply sensors are shown as "not readable" on the BMC and when sending `get sensor list` command by IPMI.
- Implication** Power supply status cannot be tracked accurately.
- Status** **Fixed**
Issue fixed on BMC 2.48.
- Workaround** No workaround.

11. ID Number HSD2103648077

RHEL* 8.4 unable to boot when loading BIOS default settings.

- Problem** After installing RHEL* 8.4 in UEFI mode, if BIOS default settings are loaded by pressing F9, save and reboot, the operating system will not boot when selecting the RHEL 8.4 OS installation on the Boot Manager screen, it will display a black screen.
- Implication** System will be unable to boot to the operating system if after installing RHEL* 8.4 in UEFI mode the BIOS default settings are loaded.
- Status** **Will Fix**
- Workaround** Change the operating system installation in the boot order to the first boot option manually in the BIOS setup utility.
Or power off the system and remove the CMOS battery to clear the CMOS setting.

12. ID Number HSD2103641613

When installing the Windows* or Linux* operating systems via HTML5, the system will reboot automatically.

- Problem** When installing the Windows* or Linux* operating systems via HTML5, the system will reboot automatically.
For Windows*, a "SMI timeout" event log entry will be asserted in the SEL. For Linux*, the event log "Base OS/Hypervisor installation failed" will be asserted in the SEL.
The root cause is that the BMC is not able to capture SMI timeout deassert status; also, a limitation on current BMC GPIO design.
- Implication** The user will not be capable of installing an operating system via HTML5 if the following workaround is not executed before the installation.
Otherwise, the user can use a different method for installation, such as Web ISO or enable PXE during system boot.
- Status** **Will Be Fixed**
- Workaround** Disable SMI Timeout Reset Action during the operating system installation via HTML5 and enable it after the operating system installation.
- Disable SMI Timeout Reset Action**
`ipmitool raw 0x30 0x42 0x01`
- Enable SMI Timeout Reset Action**
`ipmitool raw 0x30 0x42 0x00`

13. ID Number HSD16015466596

Using the Intel® Server Debug and Provisioning Tool (Intel® SDP Tool) for transferring files to a remote platform at a different geographic location system will reboot automatically.

Problem The issue is observed when running Intel® SDP Tool `custom_deploy/Update` command from host to target platform at a different geolocation. System host will be rebooted and the event log “SMI Timeout” will be asserted in the SEL.

The root cause is that the BMC is not able to capture SMI timeout deassert status; also, a limitation on current BMC GPIO design.

Implication User will not be able to transfer or copy files to a target system if it is at a different geolocation when using Intel® SDP Tool, unless the following workaround is executed. If systems host and target are in the same geolocation, the issue is not reproduced.

Status **Will Be Fixed**

Workaround This issue is not reproduced when the host and target system are in the same geographic location. When systems are at a different geolocation, disable SMI Timeout Reset Action by using the following IPMI command before running the Intel® SDP Tool `custom_deploy/Update` command; once finished, enable back the SMI Timeout Reset Action.

Disable SMI Timeout Reset Action

```
ipmitool raw 0x30 0x42 0x01
```

Enable SMI Timeout Reset Action

```
ipmitool raw 0x30 0x42 0x00
```

14. ID Number HSD2209650698

If Secure Boot option is enabled, a blue security warning banner will appear on the next boot after an Intel® ME firmware update or a hardware configuration change.

- Problem** The issue is observed if the Secure Boot option is enabled in the BIOS setup utility and the server is booting after an Intel® ME firmware upgrade or a hardware configuration change (CPU/memory).
In such situations, the server will pause boot process with a blue security warning banner and will wait for operator confirmation to continue the boot process. This sequence will happen only once after the Intel® ME firmware update or after a hardware configuration change.
The root cause is that a part of the Intel® ME firmware, called Intel® Node Manager Power Thermal Utility (Intel® NM PTU) driver does not have a proper signature and its execution is blocked by the Secure Boot policy.
The Intel® ME firmware upgrade will be done correctly even if the PTU driver execution is blocked.
- Implication** User will need to press any key to continue boot process.
The PTU driver, used for measuring power consumption and provide minimum and maximum power values to the BMC, will not be executed.
If there was no hardware configuration change, power consumption would not change, and there is no impact if the PTU driver is not executed.
If there was a hardware configuration change, then the BMC power statistics provided by the Intel® NM may show an inaccurate value because the PTU driver was not executed.
- Status** **No Fix**
- Workaround** Disable the Secure Boot option before updating the Intel® ME firmware or changing the hardware configuration. Let the system boot one time and then re-enable Secure Boot.

15. ID Number HSD1504748040

Intel® ME asserts SMLink1 fail health event in SEL sporadically.

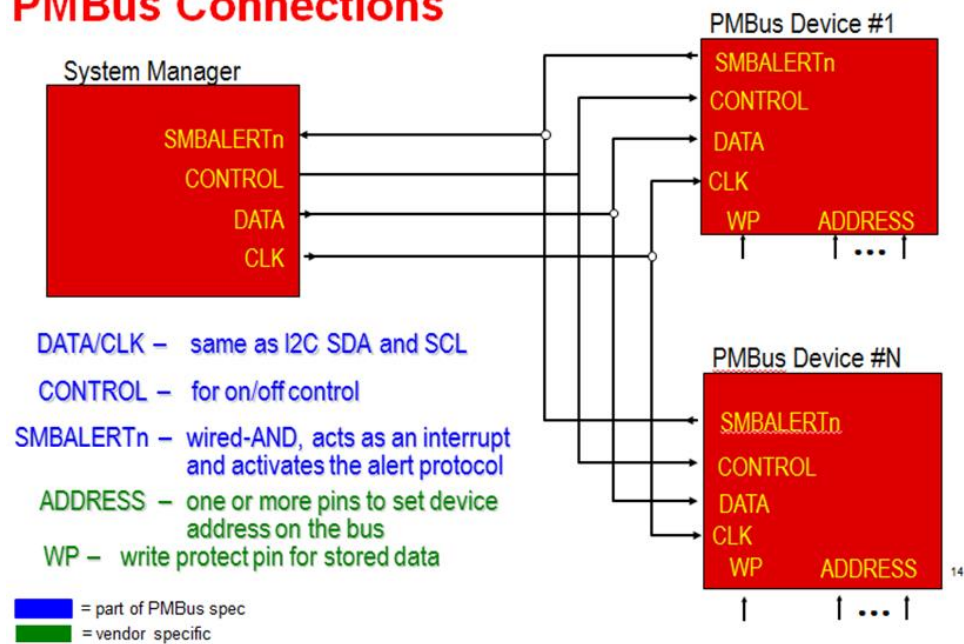
Problem Customer may see the following event in the SEL:

```
GID:602C ER:04 ST:DC S#:17 ET:75 ED:A1 02 FF EX: 00 FF FF FF FF FF FF FF FF
SN:SPS FW Health ST:OEM ED:SMbus Link Failure, SMLINK1 bus link error was detected.
ET:Asserted EC:OK
```

This event means that SMLink1 is temporarily unavailable. If there are not SMART/CLST events recorded in the SEL, this is considered a warning, no function is impacted by it and no action needs to be taken.

The root cause is that, in a multi-main PMBus* environment, if a client device holds a Serial Clock Line (SCL) low for too long (exceed `TTIMEOUT`, defined in PMBus* 1.2 specifications), the Intel® ME will detect the symptom and assert the health event.

PMBus Connections



Implication If only SMLink1 fail (ER:04 ST:DC S#:17 ET:75 ED:A1 02) is observed in the SEL, it means that SMLink1 is temporarily unavailable. The event is considered a warning, no function is impacted by it and no action needs to be taken.

If both SMLink1 fail (ER:04 ST:DC S#:17 ET:75 ED:A1 02) and SMART/CLST (ER:04 ST:DC S#:B2 ET:03 ED:61 2F 66) are observed in the SEL, the SMLink1 timeouts for exceptional amount of time.

Further system level debug must be performed to figure out the root cause.

Status No Fix

Workaround None.

5 Documentation Changes

1. Intel® Server Board S2600WF Family Technical Product Specification (TPS)

Latest Version	2.6
Latest Changes	<ul style="list-style-type: none"> • Added DDR4 Memory disclaimer in Section 4. • Updated note at Table 30. Supported Intel Ethernet Network Adapters for OCP. • Added Table 12. Updated cross-references accordingly. • Minor changes throughout for clarity.
Download Link	https://www.intel.com/content/dam/support/us/en/documents/server-products/server-boards/S2600WF_TPS.pdf

2. Intel® Server Board S2600WF Product Family Configuration Guide

Latest Version	2.7
Latest Changes	<ul style="list-style-type: none"> • EOL items: 955873, 955859, 958250, 958252, 958251, 958253, 958275
Download Link	https://www.intel.com/content/dam/support/us/en/documents/server-products/server-boards/S2600WF_Config_Guide_Production.pdf

3. Intel® Server Board S2600BP and Intel® Compute Module HNS2600BP Product Families Technical Product Specification (TPS)

Latest Version	2.9
Latest Changes	<ul style="list-style-type: none"> • Updated Table 5. • Updated Table 11.
Download Link	https://www.intel.com/content/dam/support/us/en/documents/server-products/s2600bp-hns2600bp-product-family-tps.pdf

4. Intel® Server Board S2600BP Product Family Configuration Guide

Latest Version	2.3
Latest Changes	<ul style="list-style-type: none"> • Updated Table 7. Bridge board product features and compatibility.
Download Link	https://www.intel.com/content/dam/support/us/en/documents/server-products/server-boards/S2600BP_HNS2600BP_H2000G_Configuration_Guide.pdf

5. Intel® Server Board S2600ST Family Technical Product Specification (TPS)

Latest Version 2.5

Latest Changes

- Updated Section 5.3 to add the “Intel DDR4 DIMM Support Disclaimer”
- Updated Appendix F, “Glossary” to add BUF_N
- Minor edits throughout for clarity

Download Link https://www.intel.com/content/dam/support/us/en/documents/server-products/Intel_S2600ST_TPS.pdf

6. Intel® Server Board S2600ST Product Family Configuration Guide

Latest Version 2.2

Latest Changes

- Added A2U4PRTCXCXK cable kit
- Fixed some typos

Download Link https://www.intel.com/content/dam/support/us/en/documents/server-products/server-boards/S2600ST_P4000ConfigGuide.pdf

Appendix A. Glossary

Term	Definition
FRB-2	Fault Resilient Booting
HPET	High Precision Event Timer
Intel® NM PTU	Intel® Node Manager Power Thermal Utility
Intel® OFU	Intel® One Boot Flash Update
POST	Power-On Self-Test
RWC3	Used to refer to the Intel® RAID Web Console 3.
Intel® SDP Tool	Intel® Server Debug and Provisioning Tool
syscfg	Used to refer to the Intel® Server Configuration Utility
SCL	Serial Clock Line
SEL	System Event Log
TPS	Technical Product Specification
Intel® VMD	Intel® Volume Management Device
Intel® VROC	Intel® Virtual RAID on CPU