EVIDEN

BullSequana SA0
Technical Set SA0-TSC005
Release Note

86 A1 55FS 08 – November 2024

Trademarks and Acknowledgements

We acknowledge the right of proprietors of trademarks mentioned in this manual.

All brand names and software and hardware product names are subject to trademark and/or patent protection. Quoting of brand and product names is for information purposes only and does not represent trademark and/or patent misuse.

Hardware

November 2024

Eviden
30 bis rue du Nid de Pie
49000 Angers
FRANCE

Table of Contents

1 Preface

This document provides information about the Technical Set TSC005 for the BullSequana SA0 servers:

- BullSequana SA10,
- BullSequana SA10 NVMe,
- BullSequana SA10EL,
- BullSequana SA20,
- BullSequana SA20 NVMe (16 and 24 NVMe drives),
- BullSequana SA20G,
- BullSequana SA20G NVMe.

Previously, a full dedicated Technical Set was provided for each server model and processor generation (Rome processor or Milan processor), providing BIOS, settings, and FW for all the components (adapters, drives, …)

Since Technical Set TSC001, as most of the FW for these components were the same for all the servers models, only one Technical Set has been provided, with

- common FW for the components,
- dedicated BIOS and settings for each server model and processor.

Now, with Technical Set TSC005:

- the FW for the components are still common to all the server models,
- BIOS and SKU packages are provided for each SA0 model whatever the processor generation. 2 BIOS settings files are provided, one for each processor generation (currently these files are empty, they are place holders for future usage).

Note:
For SA10 and SA10EL servers with Vmware VSAN environment using Broadcom 9300-8i adapters, a dedicated SKU package is provided. Please refer to sections “10.6 - SA10 VSAN – BMC FW and SKU package” and “11.1 - SA10 with 9300-8i HBA – BMC FW and SKU upgrade”.

2 Glossary

ITEM	Description
AGESA	**AMD Generic Encapsulated Software Architecture** AMD low level software library used in UEFI/BIOS (servers using AMD processors)
BIOS	**Basic Input/Output System** Integrated FW in charge of server startup and some low-level operations. Now legacy, BIOS is replaced by UEFI.
BMC	**Baseboard Management Controller** Dedicated controller (embedded system) installed on the server motherboard (it can also be on a daughter card). BMC is used for controlling and monitoring a server (power on, immediate shutdown, fan control, temperatures ...). The BMC is powered by standby power, and it is running even when the server is powered-off, while main power is provided to the PSU.
CVE	**Common Vulnerability Exposure**
Downgrade (Firmware)	Operation to replace the current firmware by a previous one.
FHHL	**Full Height / Half Length** Form factor for PCIe adapter.
FRU	**Field-Replaceable Unit** Component that can be replaced by a field engineer. “FRU” is also used for logical records (stored within a flash memory managed by the BMC) where server information is stored (server vendor, server model, motherboard serial number, server serial number, …).
FW / Firmware	This is the main piece of software embedded in a component (adapter, drive, BMC). The firmware is processing the component internals, and it is providing the logical interfaces.
HBA	Host Board Adapter - Adapter in charge of storage (SATA, SAS, Fibre Channel)
HHHL	**Half Height / Half Length** Form factor for PCIe adapter ("MD2" is also used).
HII	**Human Interface Infrastructure** Configuration utility provided by an adapter option ROM and available from the UEFI (BIOS) menu. Using HII, adapters can be configured from the UEFI (“BIOS”) menu without having to start the server with an operating system.
I/O	**Input/Output** Generic name of server interfaces with peripherals (drives, networks, co-processors, …)
Milan	3rd generation of AMD EPYC processors (7003 series).
NC-SI	**Network Controller Sideband Interface** The BMC has its own dedicated interfaces. However, by using the NC-SI interface, the BMC can be used through another network interface, like the main interface of the motherboard onboard network controller, or an interface from an OCP adapter.
NIC	**Network Interface Controller**
NVMe drive	**“Non Volatile Memory express**” drive Storage drive based on flash NAND technology with PCIe interface and using the “NVMe” standard.
OCP	Form factor for PCIe adapter (**Open Compute Project**). SA0 series can accept OCP 2.0 (SA10, SA10EL, SA10 NVMe) and OCP 3.0 adapters.
Option ROM	This is an additional and optional piece of software embedded in an adapter (stored in a dedicated storage area like NAND memory), and providing extra features (HII, OS boot from this device, …). Example: NIC adapter may have Option ROM that can be used for booting the system from this adapter using PXE or iSCSI protocols.

ITEM	Description
PCIe	**Peripheral Component Interconnect Express** System bus, mostly used for I/O, using parallelized serial links (= PCIe lanes)
Power Distributor	Component (within the server) in charge of balancing electrical power from 2 (or more) PSUs. For some servers, the Power Distributor can be located on the motherboard.
PDU	**Power Distributor Unit** Electrical box (usually located in the rack) where electrical power is distributed to the servers and other components (switches, storage, …) in this rack.
PSoC	**Programmable System-on-Chip** For Broadcom adapters: System-on-Chip in charge of the management of the adapter (unexpected power outage, power up, …)
PSU	**Power Supply Unit**.
RAID	**Redundant Array of Inexpensive Drives** Set of drives where data are stored across the drives in the way to provide a reliable and/or increased storage volume.
Rome	2nd generation of AMD EPYC processors (7002 series).
SA0 servers	SA0 servers are the 1st generation of BullSequana SA servers. The models are SA10, SA10EL, SA10 NVMe, SA20, SA20 NVMe, SA20G and SA20G NVMe. All the SA0 servers are supporting AMD Rome and AMD Milan processors.
SKU	**Stock Keepable Unit**. Usually, SKU is the reference (part number) for a product. However, “SKU package“ is a set of files used for setting the motherboard and the BMC behaviors (sensors, fans, …) according to the server model.
TS	**Technical Set** Set of known FW and configuration files used by a server and its components.
U.2 and U.3	Form factor for NVMe drive (2.5" drives with PCIe connections): - U.3 drive can be used in U.2 slots. - U.2 drives are not compatibles with U.3 slots.
Upgrade (Firmware)	Operation to replace the current firmware by a newer one.

3 Technical Set

This document refers to the Technical Set SA0-TSC005.

.

4 External links

Bull on-line support: https://support.bull.com/

5 Content of Technical Set SA0-TSC005

5.1 Documents

Note: The documents are provided in dedicated directories in the TS structure.

5.1.1 Servers and main documents

Document Reference	Revision	Document Title
86 A1 37FS	04	BullSequana SA10 – User Manual
86 A1 38FS	03	BullSequana SA20 – User Manual
86 A1 39FS	02	BullSequana SA20G – User Manual
86 A1 49FS	02	BullSequana SA10 NVMe – User Manual
86 A1 50FS	02	BullSequana SA20 NVMe – User Manual
86 A1 51FS	02	BullSequana SA20G NVMe – User Manual
86 A1 55FS	08	BullSequana SA0 – TSC005 Release Note
86 A1 63FS	02	BMC_Web_User_Interface.pdf
86 A1 64FS	04	BullSequana SA10 EL – User Manual
86 A1 77FS	02	Rack_Mounting_kit_SA_Series .pdf

5.1.2 BIOS Release Notes

5.1.2.1 BIOS Release Notes – Rome and Milan

These release notes are common to BIOS for Rome and Milan processors.

Document Content Server models – motherboard BIOS version	Document Title
SA10 and SA10EL Motherboard MZ32-AR0 BIOS M22 and R39	Relnotes_MZ32-AR0_M22_R39.pdf
SA20 Motherboard MZ92-FS0 BIOS M20 and R36	Relnotes_MZ92-FS0_M20_R36.pdf
SA20G Motherboard MZ92-FS0 (GPU) BIOS M20 and R35	Relnotes_MZ92-FS0(GPU)_M20_R35.pdf
SA10 NVMe Motherboard MZ32-AR0-OB1 BIOS M12 and R30	Relnotes_MZ32-AR0-OB1_M13_R31.pdf
SA20 NVMe Motherboard MZ92-FS0-OB1 BIOS M13 and R29	Relnotes_MZ92-FS0-OB1_M14_R30.pdf
SA20G NVMe Motherboard MZ92-FS0-OB1 (GPU) BIOS M12 and R29	Relnotes_MZ92-FS0-OB1(GPU)_M13_R30.pdf

5.1.2.2 BIOS Release Notes – Rome

These release notes are specific to BIOS for Rome processors.

Document Content Server models – motherboard BIOS version	Document Title
SA10 and SA10EL Motherboard MZ32-AR0 BIOS R39	Relnotes_MZ32-AR0_R39_Rome.pdf
SA20 Motherboard MZ92-FS0 BIOS R36	Relnotes_MZ92-FS0_R36_Rome.pdf
SA20G Motherboard MZ92-FS0 (GPU) BIOS R35	Relnotes_MZ92-FS0(GPU)_R35_Rome.pdf
SA10 NVMe Motherboard MZ32-AR0-OB1 BIOS R30	Relnotes_MZ32-AR0-OB1_R31_Rome.pdf
SA20 NVMe Motherboard MZ92-FS0-OB1 BIOS R29	Relnotes_MZ92-FS0-OB1_R30_Rome.pdf
SA20G NVMe Motherboard MZ92-FS0-OB1 (GPU) BIOS R29	Relnotes_MZ92-FS0-OB1(GPU)_R30_Rome.pdf

5.1.2.3 BIOS Release Notes – Milan

These release notes are specific to BIOS for Milan processors.

Document Content Server models – motherboard BIOS version	Document Title
SA10 and SA10EL motherboard MZ32-AR0 BIOS M22	Relnotes_MZ32-AR0_M22_Milan.pdf
SA20 motherboard MZ92-FS0 BIOS M20	Relnotes_MZ92-FS0_M20_Milan.pdf
SA20G motherboard MZ92-FS0 (GPU) BIOS M20	Relnotes_MZ92-FS0(GPU)_M20_Milan.pdf
SA10 NVMe motherboard MZ32-AR0-OB1 BIOS M12	Relnotes_MZ32-AR0-OB1_M13_Milan.pdf
SA20 NVMe motherboard MZ92-FS0-OB1 BIOS M13	Relnotes_MZ92-FS0-OB1_M14_Milan.pdf
SA20G NVMe motherboard MZ92-FS0-OB1 (GPU) BIOS M12	Relnotes_MZ92-FS0-OB1(GPU)_M13_Milan.pdf

5.1.3 BMC Release Note

The BMC release note “BMC_Release_Note_126123.docx” is provided in this TS.
All the SA0 models are using the same BMC FW, and this BMC release note is applicable to all the SA0 models.

5.1.4 NVidia Network Adapters

5.1.4.1 Nvidia ConnectX-4 Lx Ethernet adapters

The following documents are related to the Nvidia ConnectX-4 Lx Ethernet adapters from the BullSequana SA0 offer:

- NVIDIA_ConnectX-4_Lx_Ethernet_Adapter_Cards_User_Manual – 2024-10-21.pdf
- NVIDIA_ConnectX-4_Lx_Ethernet_Adapter_Cards_for_OCP_Spec_2.0_User_Manual – 2024-10-21.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.27.1016_.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.28.1002.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.28.1300.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.28.2006.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.29.1016.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.29.2002.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.30.1004.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.31.1014.pdf
- NVIDIA_ConnectX-4_Lx_Adapter_Cards_Firmware_Release_Notes_v14.32.1010.pdf
- nvidia-connectx-4-lx-adapter-cards-firmware-release-notes-v14-32-1900.1900.pdf

5.1.4.2 Nvidia ConnectX-5 Ethernet adapters

The following documents are related to the Nvidia ConnectX-5 Ethernet adapters from the BullSequana SA0 offer:

- nvidia-connectx-5-ethernet-adapter-cards-user-manual - 2024-10-21.pdf
- nvidia-connectx-5-ethernet-adapter-cards-for-ocp-spec-3-0-user-manual - 2024-10-21.pdf
- NVIDIA_ConnectX-5_Adapter_Cards_Firmware_Release_Notes_v16.35.2000_LTS.pdf
- NVIDIA_ConnectX-5_Adapter_Cards_Firmware_Release_Notes_v16.35.3006_LTS.pdf
- nvidia-connectx-5-adapter-cards-firmware-release-notes-v16-35-3502-lts.pdf
- nvidia-connectx-5-adapter-cards-firmware-release-notes-v16-35-4030-lts.pdf

5.1.4.3 Nvidia ConnectX-6 Dx Ethernet adapters

The following documents are related to the Nvidia ConnectX-6 Dx Ethernet adapters from the BullSequana SA0 offer:

- nvidia-connectx-6-dx-ethernet-adapter-cards-user-manual - 2024-10-21.pdf
- nvidia-connectx-6-dx-ethernet-adapter-cards-for-ocp-spec-3-0-user-manual - 2024-10-21.pdf
- NVIDIA_ConnectX-6_Dx_Adapter_Cards_Firmware_Release_Notes_v22.33.1048.pdf
- NVIDIA_ConnectX-6_Dx_Adapter_Cards_Firmware_Release_Notes_v22.34.1002.pdf
- NVIDIA_ConnectX-6_Dx_Adapter_Cards_Firmware_Release_Notes_v22.34.4000.pdf
- NVIDIA_ConnectX-6_Dx_Adapter_Cards_Firmware_Release_Notes_v22.35.1012.pdf
- NVIDIA_ConnectX-6_Dx_Adapter_Cards_Firmware_Release_Notes_v22.37.1014.pdf
- NVIDIA_ConnectX-6_Dx_Adapter_Cards_Firmware_Release_Notes_v22.39.2048_LTS.pdf
- nvidia-connectx-6-dx-adapter-cards-firmware-release-notes-v22-41-1000.pdf

5.1.5 Broadcom NetXtreme NIC

The following FW Release Note related to Broadcom NetXtreme adapters are provided in the TS:

- NetXtreme-Release_Notes-223.1.96.0.pdf
- NetXtreme-Release_Notes-224.1.102.0.pdf
- NetXtreme-Release_Notes-225.1.95.0.pdf
- NetXtreme-Release_Notes-226.1.107.1.pdf
- NetXtreme-Release_Notes-227.1.111.0.pdf
- NetXtreme-Release_Notes-228.1.111.0.pdf
- NetXtreme-Release_Notes-229.1.123.0.pdf
- NetXtreme-Release_Notes-231.1.162.1.pdf

5.1.6 Broadcom HBA 9500 series

The following documents related to Broadcom HBA 9500 series are provided in this TS:

- Release_Notes_SASFW_P30.pdf
- README_9500_16i_Pkg_P30_MIXED_FW_BIOS_UEFI.txt
- README_9500_8e_Pkg_P30_MIXED_FW_BIOS_UEFI.txt
- README_9500_8i_Pkg_P30_MIXED_FW_BIOS_UEFI.txt

5.1.7 Broadcom MegaRAID 9500 series

The following documents related to Broadcom MegaRAID 9500 series are provided in this TS:

- 52.29.0-5442_FW_readme.txt
- 52.28.0-5305_MR7.28_FW_readme.txt
- 52.27.0-5171_MR7.27_FW_readme.txt
- 52.26.0-5014_MR7.26_FW-readme.txt
- 52.24.0-4763_SAS_MR_FW_IMAGE.txt
- 52.23.0-4636_SAS_MR_FW_IMAGE.txt
- 52.22.0-4544_SAS_MR_FW_IMAGE.txt
- 52.21.0-4428_SAS_MR_FW_IMAGE.txt
- 52.20.0-4481_SAS_MR_FW_IMAGE.txt

5.1.8 Broadcom PSoC

Broadcom “Programmable System On Chip” (PSoC) is a component embedded on some Broadcom MegaRAID and SAS adapters, in charge of the adapter management (power on/off, backup/cache, …).
Please refer to the following Broadcom document to check if your adapter is using PSoC, and for instructions related to the PSoC firmware upgrade:

- 1.30-psoc-readme.txt

5.1.9 Broadcom FC LPe 31000 and LPe 32000 series

The following FW Release Notes related to Broadcom LPe 31000 and LPe 32000 series are provided in this TS:

- LPe31XXX-LPe32XXX-ReleaseNote-12.2.673.40-FWBT-RN14210-100.pdf
- LPe31XXX-LPe32XXX-ReleaseNote-12.8.614.31-FWBT-RN12813-102.pdf
- LPe31XXX-LPe32XXX-ReleaseNote-14.2.539.16-FWBT-RN1423-100.pdf
- LPe31XXX-LPe32XXX-ReleaseNote-14.2.673.40-FWBT-RN14210-100.pdf

5.1.10 Other documents provided in the FW packages

Other documents are provided within the FW packages:

- SAS9300-8e, SAS9300-8i, SAS9400-16i:
  change log and instructions are provided in the zip files with the firmware packages.

- Intel i350T4V2:
  instructions for using the preboot package are provided in the preboot archive file.

5.2 Network Adapters FW and Option ROM

5.2.1 Network Adapters- Broadcom

Vendor	Model – Comments (Form Factor)	Firmware Package
Broadcom	N225P – 2 x 25GbE SFP28 OCP 3.0 (10GbE Compatible)	BCM957414N4140C 231.1.162.1
Broadcom	P225P – 2 x 25GbE SFP28 HHHL (10GbE Compatible)	BCM957414A4142CC 231.1.162.1
Broadcom	N425G – 4 x 25GbE SFP28 OCP 3.0 (10GbE Compatible)	BCM957504-N425G 231.1.162.1
Broadcom	P425G – 4 x 25GbE SFP28 HHHL (10GbE Compatible)	BCM957504-P425G 231.1.162.1
Broadcom	N210TP – 2 x 10GbE 10GBASE-T OCP 3.0	BCM957416N4160C 231.1.162.1
Broadcom	P210TP – 2 x 10GbE 10GBASE-T HHHL	BCM957416A4160C 231.1.162.1

5.2.2 Network Adapters- Mellanox ConnectX-4 Lx

Vendor	Model – Comments (Form Factor, PSID)	Firmware
Mellanox	MCX4121A-XCA ConnectX-4Lx EN HHHL – 10GbE SFP+ psid MT_2420110004	FW 14.32.1900 UEFI 14.25.17 FlexBoot 3.6.502
Mellanox	MCX4121A-ACA ConnectX-4Lx EN HHHL – 2 x 25GbE SFP28 psid MT_2420110034	FW 14.32.1900 UEFI 14.25.17 FlexBoot 3.6.502
Mellanox	MCX4421A-ACQ ConnectX-4Lx EN OCP 2.0 - 2 x 25GbE SFP28 psid MT_2470112034	FW 14.32.1900 UEFI 14.25.17 FlexBoot 3.6.502

5.2.3 Network Adapters- Mellanox ConnectX-5 Ex

Vendor	Model – Comments (Form Factor, PSID)	Firmware
Mellanox	MCX516A-CDAT ConnectX-5 Ex EN HHHL – 2 x 100GbE QSFP28 psid MT_0000000013	FW 16.35.4030 UEFI 14.29.15 FlexBoot 3.6.902
Mellanox	MCX566A-CDAI ConnectX-5 Ex EN OCP 3.0 – 2 x 100GbE QSFP28 psid MT_0000000242	FW 16.35.4030 UEFI 14.29.15 FlexBoot 3.6.902

5.2.4 Network Adapters- Mellanox ConnectX-6 Dx

Vendor	Model – Comments (Form Factor, PSID)	Firmware
NVidia (Mellanox)	MCX623436AN-CDAB – ConnectX-6 2 x 100GbE QSFP56 OCP 3.0 (psid MT_0000000327)	FW 22.41.1000 (including UEFI 14.34.12 and FlexBoot 3.7.400)
NVidia (Mellanox)	MCX623106AN-CDAT – ConnectX-6 2 x 100GbE QSFP56 HHHL (psid MT_0000000359)	FW 22.41.1000 (including UEFI 14.34.12 and FlexBoot 3.7.400)

5.2.5 Network Adapters- Intel

i350T4 adapters are provided with FW 1.63. According to Intel, no FW upgrade is required. However, Intel is providing a “Pre-Boot” stack for BIOS/UEFI (PXE, HII). Preboot 29.3 is provided in this Technical Set (Windows and Linux packages).

Vendor	Model - Comments	Firmware
Intel	i350T4-V2 – 4 x 1000BASE-T	Preboot 29.3

5.3 Storage Adapters FW and Option ROM

5.3.1 Storage Adapters - Broadcom Fibre Channel

Vendor	Model - Comments	Firmware
Broadcom	LPe31002-M6 – 2 x FC16 LPe32002-M2 – 2 x FC32	lancerg6_A14.4.317.7

5.3.2 Storage Adapters – Broadcom SAS 9300 series

Warning: for SAS 9300-8i and Vmware VSAN usage, please use FW P15.

Vendor	Model(s) - Comments	Firmware
Broadcom	SAS9300-8e	Phase 16 (P16) FW 16.00.10.00 BIOS 8.37.00.00 UEFI 18.00.00.00
Broadcom	SAS 9300-8i VMware vSAN 7.0U3 compatible FW	Phase 15 (P15): FW 15.00.00.00 BIOS 8.35.00.00 UEFI 17.00.00.00
Broadcom	SAS 9300-8i	Phase 16 (P16) FW 16.00.10.00 BIOS 8.37.00.00 UEFI 18.00.00.00

5.3.3 Storage Adapters – Broadcom SAS 9400 series

Warning: for SAS 9400-16i and Vmware VSAN usage, please use FW P22.

Vendor	Model(s) - Comments	Firmware
Broadcom	SAS 9400-16i VMware vSAN 7.0U3 compatible FW	Phase 22 (P22) FW 22.00.00.00 BIOS 09.43.00.00 UEFI 22.00.00.00
Broadcom	SAS 9400-16i	Phase 24 (P24) FW 24.00.00.00 BIOS 09.47.00.00 UEFI 24.00.00.00

5.3.4 Storage Adapters – Broadcom SAS 9500 series

Warnings:
for SAS 9500-8i and Vmware VSAN usage, please use FW P28.
for SAS 9500-16i and Vmware VSAN usage, please use FW P28.

Vendor	Model(s) - Comments	Firmware
Broadcom	SAS 9500-8i VMware vSAN 7.0U3 compatible FW	Pkg 28 FW: 28.00.00.00 UEFI: U28.00.00.00 BIOS: B9.55.00.00
Broadcom	SAS 9500-8i	Pkg 30 FW: 30.00.00.00 UEFI: U30.00.00.00 BIOS: B9.59.00.00
Broadcom	SAS 9500-8e	Pkg 30 FW: 30.00.00.00 UEFI: U30.00.00.00 BIOS: B9.59.00.00
Broadcom	SAS 9500-16i VMware vSAN 7.0U3 compatible FW	Pkg 28 FW: 28.00.00.00 UEFI: U28.00.00.00 BIOS: B9.55.00.00
Broadcom	SAS 9500-16i	Pkg 30 FW: 30.00.00.00 UEFI: U30.00.00.00 BIOS: B9.59.00.00

5.3.5 Storage Adapters – Broadcom MegaRAID 9300 series

Vendor	Model(s) - Comments	Firmware
Broadcom	MegaRAID 9361-8i	Pkg 24.21.0-0159 FW 4.680.00-8577 BIOS 6.36.00.3 UEFI 0x06180206 (SIGNED) Hii 03.25.05.15 (SIGNED)

5.3.6 Storage Adapters – Broadcom MegaRAID 9400 series

Vendor	Model(s) - Comments	Firmware
Broadcom	MegaRAID 9460-16i	Pkg 51.23.0-4723 Firmware 5.230.00-3767 BIOS 7.23.00.0 UEFI 0x07170100 Hii 07.23.03.00

5.3.7 Storage Adapters – Broadcom MegaRAID 9500 series

For PSoC, please refer to the “psoc-readme.txt” document provided in the PSoC package.

Vendor	Model(s) - Comments	Firmware
Broadcom	MegaRAID 9540-8i	Pkg 52.29.0-5442 Firmware 5.290.00-3997 BIOS 7.29.00.0 UEFI 0x071D0000 HII 07.29.00.00
Broadcom	MegaRAID 9560-8i	Pkg 52.29.0-5442 Firmware 5.290.00-3997 BIOS 7.29.00.0 UEFI 0x071D0000 HII 07.29.00.00
Broadcom	MegaRAID 9560-16i	Pkg 52.29.0-5442 Firmware 5.290.00-3997 BIOS 7.29.00.0 UEFI 0x071D0000 HII 07.29.00.00
Broadcom	MegaRAID 9580-8i8ei	Pkg 52.29.0-5442 Firmware 5.290.00-3997 BIOS 7.29.00.0 UEFI 0x071D0000 HII 07.29.00.00

5.4 SAS SATA drives FW

5.4.1 Micron 5300PRO SATA SSD drives

Vendor	Model(s) - Comments	Firmware
Micron	5300PRO 480GB MTFDDAK480TDS-1AW1ZABYY	D3MU001
Micron	5300PRO 960GB MTFDDAK960TDS-1AW1ZABYY	D3MU001
Micron	5300PRO 1920GB MTFDDAK1T9TDS-1AW1ZABYY	D3MU001
Micron	5300PRO 3840GB MTFDDAK3T8TDS-1AW1ZABYY	D3MU401
Micron	5300PRO 7680GB MTFDDAK7T6TDS-1AW1ZABYY	D3MU801

5.4.2 Micron 5300MAX SATA SSD drives

Vendor	Model(s) - Comments	Firmware
Micron	5300MAX 960GB MTFDDAK960TDT-1AW1ZABYY	D3MU001
Micron	5300MAX 1920GB MTFDDAK1T9TDT-1AW1ZABYY	D3MU001

5.4.3 Micron 5400PRO SATA SSD drives

Vendor	Model(s) - Comments	Firmware
Micron	5400PRO 480GB MTFDDAK480TGA-1BC1ZABYY	D4MU04802
Micron	5400PRO 960GB MTFDDAK960TGA-1BC1ZABYY	D4MU04802
Micron	5400PRO 1920GB MTFDDAK1T9TGA-1BC1ZABYY	D4MU04802
Micron	5400PRO 3840GB MTFDDAK3T8TGA-1BC1ZABYY	D4MU04802
Micron	5400PRO 7680GB MTFDDAK7T6TGA-1BC1ZABYY	D4MU04802

5.4.4 Micron 5400MAX SATA SSD drives

Vendor	Model(s) - Comments	Firmware
Micron	5400MAX 960GB MTFDDAK960TGB-1BC1ZABYY	D4MU04802
Micron	5400MAX 1920GB MTFDDAK1T9TGB-1BC1ZABYY	D4MU04802

5.4.5 Seagate Exos 7E8

Vendor	Model(s) - Comments	Firmware
Seagate	Exos 7E8 4TB SAS-NL 512e ST4000NM005A	E004 Cimarron
Seagate	Exos 7E8 8TB SAS-NL 512e ST8000NM001A	E004 Cimarron

5.4.6 Seagate Exos 7E10

Vendor	Model(s) - Comments	Firmware
Seagate	Exos 7E10 4TB SAS-NL 512e ST4000NM025B	E004 CimarronBP
Seagate	Exos 7E10 8TB SAS-NL 512e ST8000NM018B	E004 CimarronBP

5.4.7 Seagate Exos X16

Vendor	Model(s) - Comments	Firmware
Seagate	Exos X16 12TB SAS-NL 512e ST12000NM002G	E004 Evans
Seagate	Exos X16 16TB SAS-NL 512e ST16000NM004G	E004 Evans

5.4.8 Seagate Exos X18

Vendor	Model(s) - Comments	Firmware
Seagate	Exos X18 14TB SAS-NL 512e ST14000NM004J	E006 EvansBP
Seagate	Exos X18 18TB SAS-NL 512e ST18000NM004J	E006 EvansBP

5.4.9 Seagate Exos 10E2400 (10Krpm) SAS drives

Vendor	Model(s) - Comments	Firmware
Seagate	Exos 10E24000 SAS 512e 1200GB ST1200MM0129	SkyboltH Cx08
Seagate	Exos 10E24000 SAS 512e 1800GB ST1800MM0129	SkyboltH Cx08
Seagate	Exos 10E24000 SAS 512e 2400GB ST2400MM0129	SkyboltH Cx08

5.5 NVMe drives FW

5.5.1 Micron 7300PRO

Warning: for VSAN, use only FW 95420100

Vendor	Model - Comments	Firmware
Micron	7300PRO 960GB U.2 MTFDHBE960TDF-1AW1ZABYY vSAN 7.0u3 compatible	95420100
Micron	7300PRO 960GB U.2 MTFDHBE960TDF-1AW1ZABYY	95420280
Micron	7300PRO 1920GB U.2 MTFDHBE1T9TDF-1AW1ZABYY vSAN 7.0u3 compatible	95420100
Micron	7300PRO 1920GB U.2 MTFDHBE1T9TDF-1AW1ZABYY	95420280
Micron	7300PRO 3840GB U.2 MTFDHBE3T8TDF-1AW1ZABYY vSAN 7.0u3 compatible	95420100
Micron	7300PRO 3840GB U.2 MTFDHBE3T8TDF-1AW1ZABYY	95420280
Micron	7300PRO 7680GB U.2 MTFDHBE7T6TDF-1AW1ZABYY	95420280

5.5.2 Micron 7300MAX

Vendor	Model - Comments	Firmware
Micron	7300MAX 800GB U.2 MTFDHBE800TDG-1AW1ZABYY vSAN 7.0u3 compatible	95420280
Micron	7300MAX 1600GB U.2 MTFDHBE960TDF-1AW1ZABYY vSAN 7.0u3 compatible	95420280
Micron	7300MAX 3200GB U.2 MTFDHBE960TDF-1AW1ZABYY vSAN 7.0u3 compatible	95420280

5.5.3 Micron 7450PRO

Vendor	Model - Comments	Firmware
Micron	7450PRO 960GB U.3 MTFDKCC960TFR-1BC1ZABYY	E2MU200
Micron	7450PRO 1920GB U.3 MTFDKCC1T9TFR-1BC1ZABYY	E2MU200
Micron	7450PRO 3840GB U.3 MTFDKCC3T8TFR-1BC1ZABYY	E2MU200
Micron	7450PRO 7680GB U.3 MTFDKCC7T6TFR-1BC1ZABYY	E2MU200
Micron	7450PRO 15360GB U.3 MTFDKCC15T3TFR-1BC1ZABYY	E2MU200

5.5.4 Micron 7450MAX

Vendor	Model - Comments	Firmware
Micron	7450MAX 800GB U.3 MTFDKCC800TFS-1BC1ZABYY	E2MU200
Micron	7450MAX 1600GB U.3 MTFDKCC1T6TFS-1BC1ZABYY	E2MU200
Micron	7450MAX 3200GB U.3 MTFDKCC3T2TFS-1BC1ZABYY	E2MU200
Micron	7450MAX 6400GB U.3 MTFDKCC6T4TFS-1BC1ZABYY	E2MU200
Micron	7450MAX 12800GB U.3 MTFDKCC12T8TFS-1BC1ZABYY	E2MU200

5.6 BMC

BMC FW 12.61.23 is provided with this Technical Set.

This BMC FW can be applied to all the SA0 models.

5.7 BIOS

The BIOS packages provided in this TS are listed in the following table:

server	Motherboard	BIOS package
SA10 and SA10EL	MZ32-AR0-00	MZ32-AR0_EVD_M19_R36
SA10NVMe	MZ32-AR0-OB1	MZ32-AR0-OB1_EVD_M12_R30
SA20	MZ92-FS0-00	MZ92-FS0_EVD_M17A_R33A
SA20NVMe	MZ92-FS0-OB1	MZ92-FS0-OB1_EVD_M12_R30
SA20G	MZ92-FS0-00 (GPU)	MZ92-FS0-GPU_EVD_M16_R31
SA20GNVMe	MZ92-FS0-OB1 (GPU)	MZ92-FS0-OB1-OB1_EVD_M12_R29

Note:

2 BIOS are provided into each BIOS package:
- A BIOS which will be used when Rome processor(s) is (are) installed,
- A BIOS which will be used when Milan processor(s) is (are) installed,

The right BIOS is selected at boot, based on the detected processor(s) model.

Example:
For SA10
- the BIOS package is MZ32-AR0_EVD_M19_R36
- After BIOS package installation:
    - If processor Rome is installed, BIOS R36 will be used,
    - If processor Milan is installed, BIOS M19 will be used.

WARNING:
When applying a new BIOS, the BIOS parameters will be reset to default.
If you have dedicated BIOS settings, backup your BIOS parameters before applying a new BIOS, then restore these BIOS parameters.

5.8 BIOS settings

This TS is now based on default BIOS settings. The BIOS configuration files provided in this TS are empty. They are provided as place holders, for future usage, and as reminder.
The BIOS parameters will depend on the processor generation (Rome or Milan), so you must use the right parameter names if you want to use dedicated BIOS settings.

Notes:

- Previous parameters “Rome0212” and “Milan0212”, related to the “AC Power Loss Option”, have been removed from latest BIOS, and should not be used anymore. The “AC Power Loss Option” is now configured through the BMC by using ipmi commands. Please refer to “10.5 Chassis power policy after power loss”.

- After BIOS upgrade (or BIOS downgrade) the BIOS attributes are reset to the default factory values. settings. In such case, the customer will have to apply specific values used before the upgrade.

5.9 SKU packages

Preliminary Note:
A motherboard model can be used in different server models.
Examples:

- motherboard MS32-AR0 is used in SA10, SA10E and SA10 NVMe.
- motherboard MZ92-FS0 is used in SA20, SA20G and SA20NVMe,

For each server model, a "SKU" package is provided. By applying the SKU package, the motherboard will be configured for being used with dedicated server settings (fans, temperatures sensors, …).

The following SKU packages are provided in this TS:

Server	SKU package
SA10	R272-Z31-00-20230508.zip SA10-20240506.zip (for VSAN – refer to "10.6 SA10 VSAN – BMC FW and SKU package")
SA10 EL	R272-Z30-00-20230508.zip
SA10 NVMe	R272-Z31-OB1-20230508.zip
SA20	R282-Z91-00-20230508.zip
SA20 NVMe	R282-Z91-OB1-20230508.zip
SA20G	R282-Z93-00-20240111.zip
SA20G NVMe	R282-Z93-OB1-20230508.zip

Notes:

- The SKU package does not depend on the processor generation (Rome or Milan).

- As SKU is overriding the BMC FRU:
  - the BMC FRU must be backup before applying SKU,
  - the BMC FRU must be restored after SKU has been applied.

Warning:
Before applying a SKU package, backup of the FRU is highly recommended.
From FRU0, get:

- Product (Server) Vendor (BULL)
- Product (Server) Model (will depend on the server model)
- Motherboard Model
- Motherboard Serial Number
- Server "XAN" Serial Number

From FRU1, get:

- Product (Server) Vendor ("Gigabyte" or "Giga Computing", will depend on the server generation)
- Product (Server) Model (will depend on the server model)

5.10 BMC FRU

BMC FRU0 are fields stored into the BMC flash memory, with server information.
When BMC is replaced (new motherboard) the server information (vendor, model) must be written to the new BMC.
For all the SA0 servers, the BMC FRU0 can be written by using Linux commands like **ipmitool** or **freeipmi**.

Vendor:

```
ipmitool -I lanplus -U admin -P password -H <BMC> fru edit 0 field p 0 "BULL"
```

Server Model:

```
ipmitool -I lanplus -U admin -P password -H <BMC> fru edit 0 field p 1 <Server model>
```

TS Version:

```
ipmitool -I lanplus -U admin -P password -H <BMC> fru edit 0 field p 3 <TS version>
```

XAN Serial Number:

```
ipmitool -I lanplus -U admin -P password -H <BMC> fru edit 0 field p 5 <XAN-XYZ-01234>
```

Use of these FRU fields (p0, p1, p3 and p5) is defined as “FRU v4”

Notes:

- p 0 stands for FRU 0 field product #0, “Product Manufacturer”,
  p 1 stands for FRU 0 field product #1, “Product Name”,
  p 3 stands for FRU 0 field product #3, “Product Version”,
  p 5 stands for FRU 0 field product #5, “Product Asset Tag”.

- Do not modify other FRUs (FRU1, …)

5.11 MIB

MIB *BULL_SEQUANA_SA_20220815.MIB* is provided by this Technical Set.

5.12 Fan profile

For BullSequana SA0, the fan profiles are already configured within the BMC FW.

However, due to a known issue with SA20G, fan profile “FanProfile-SA20G-A16-20240201.zip” is provided in this TS.
Please refer to “10.7 SA20G – Full speed fans” and “11.2 SA20G Fan Profile update from the WebUI”

6 Operating Systems

BullSequana SA0 servers are supported with the following Operating Systems:

- VMware ESXi 7. Some models are also certified for ESXi 8 (will also depend on the CPU generation). Please refer to the Vmware Compatibility Guide and to the following table:

Model	CPU Series	Supported ESXi 7 and ESXi 8 Releases							
BullSequana SA10	AMD EPYC 7002	ESXi 7.0	ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3	ESXi 8.0	ESXi 8.0 U1	ESXi 8.0 U2	ESXi 8.0 U3
BullSequana SA10	AMD EPYC 7003		ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				
BullSequana SA10 EL	AMD EPYC 7003		ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				
BullSequana SA10 EL	AMD EPYC 7002	ESXi 7.0	ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				
BullSequana SA10 NVMe	AMD EPYC 7003		ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3	ESXi 8.0	ESXi 8.0 U1	ESXi 8.0 U2	ESXi 8.0 U3
BullSequana SA10 NVMe	AMD EPYC 7002	ESXi 7.0	ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3	ESXi 8.0	ESXi 8.0 U1	ESXi 8.0 U2	ESXi 8.0 U3
BullSequana SA20	AMD EPYC 7002	ESXi 7.0	ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				
BullSequana SA20	AMD EPYC 7003		ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3	ESXi 8.0	ESXi 8.0 U1	ESXi 8.0 U2	ESXi 8.0 U3
BullSequana SA20 NVMe	AMD EPYC 7003		ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3	ESXi 8.0	ESXi 8.0 U1	ESXi 8.0 U2	ESXi 8.0 U3
BullSequana SA20 NVMe	AMD EPYC 7002	ESXi 7.0	ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3	ESXi 8.0	ESXi 8.0 U1	ESXi 8.0 U2	ESXi 8.0 U3
BullSequana SA20G	AMD EPYC 7002	ESXi 7.0	ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				
BullSequana SA20G	AMD EPYC 7003		ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				
BullSequana SA20G NVMe	AMD EPYC 7003		ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				
BullSequana SA20G NVMe	AMD EPYC 7002	ESXi 7.0	ESXi 7.0 U1	ESXi 7.0 U2	ESXi 7.0 U3				

- RHEL 8
  (RHEL 8.3 is required for Milan processors)

- Windows Server 2019

SA10, SA10EL, SA20 and SA20G are also supported with Windows Server 2022
(Please refer to “10.3 Microsoft Windows Server”).

7 Components installations

The BullSequana SA servers are provided with installed components (network, storage, …) according to specific installation rules:

- Each component is installed in a compliant location (PCIe slot, drive slot, memory slot …),
- For a given batch of server production, the components are installed in a replicable way.

Please ask your Eviden representative if you want to use additional components or if you have dedicated requirements.

WARNING: The rules used for installing the components may evolve, and components may be installed in different ways in servers from different production batches. Please be aware, when ordering, to refer to such previous batch for having the components to be installed in the same way.

8 Features

8.1 PSU Cold Redundancy

To take advantage of the fact that a PSU will run at greater power efficiency with a higher load, SA0 servers are providing a power management feature called "Cold Redundancy" for servers with [1+1] power supplies. When the total system load falls lower than 40%, the system will automatically place one PSU into standby mode, and results of 10% improvement in efficiency. When a PSU is placed in standby mode, the status LED of this PSU is blinking at 1Hz (green color). Please refer to the server manual for details about the PSU status LED.

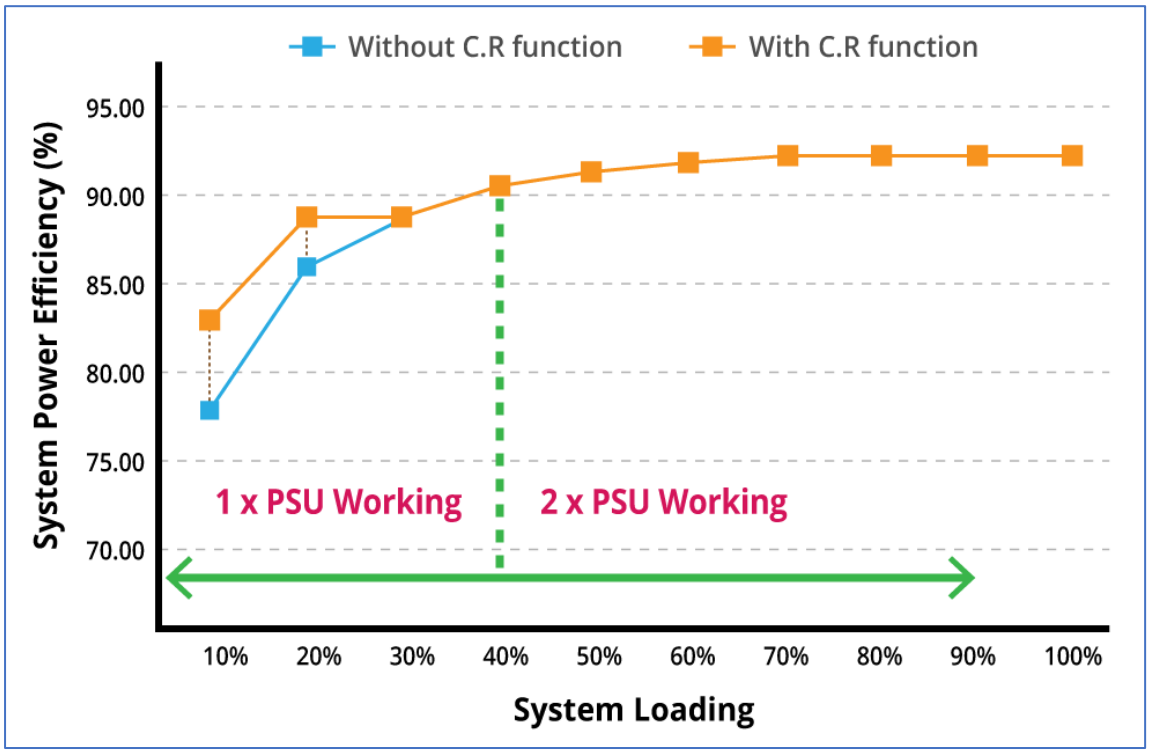


Figure 1- Cold Redundancy - PSU efficiency vs System Load

9 Important Changes

9.1 86 A1 55FS 01

Initial Release (HTML format)
One Technical Set per server model

9.2 86 A1 55FS 02

New BIOS
Certified BIOS for ESXi (with TPM support)
BMC FW upgrade
CTSS0007

9.3 86 A1 55FS 03

Specific changes :
Updated User Manuals
CTSS0007 upgrade

9.4 86 A1 55FS 04

Technical Set SA0-TSC001 (Cancelled due to FW issue)
Converged Technical Set (One Technical Set for all the servers models)
BIOS for ESXi/vSAN (vSAN certified) and BIOS for other OS

9.5 86 A1 55FS 05

Technical Set SA0-TSC002

9.6 86 A1 55FS 06

Technical Set SA0-TSC003

9.7 86 A1 55FS 07

Technical Set SA0-TSC004
Updated BIOS
Last available BIOS can be used for VSAN, ESXi, and other supported OS
Updated FW (BMC, components)
FW for new components.

9.8 86 A1 55FS 08

Technical Set SA0-TSC005
Updated BIOS with fixes for the “Pkfail” security issue
Updated FW (BMC, components)
Updated documents (release notes for adapters)

10 Know Restrictions and Issues

10.1 BMC

10.1.1 « admin » default password

Each server is provided with a unique BMC password. This unique password is based on the last 11 digits of the motherboard serial number.
Example: for the following serial number sticker, the password will be "JG6P5400156":

Note: first shipped SA0 were configured with “password” as the default password. If the unique password based on the motherboard S/N (as described above) is not working, please try “password” as default password.

10.1.2 Lost BMC password

The only way to recover the BMC password is to modify the BMC password from an operating system running on the server.

Example 1 – using ipmitool
You can run a Linux live distribution, with ipmitool utility, connected as root.
First, you look for the ID of the "admin" user:

```
[root@linux ~]# ipmitool user list 1
ID  Name             Callin  Link Auth  IPMI Msg   Channel Priv Limit
1                    false   false      false      NO ACCESS
2   admin            false   false      true       ADMINISTRATOR
3                    true    false      false      NO ACCESS
4                    true    false      false      NO ACCESS
5                    true    false      false      NO ACCESS
6                    true    false      false      NO ACCESS
7                    true    false      false      NO ACCESS
8                    true    false      false      NO ACCESS
9                    true    false      false      NO ACCESS
10                   true    false      false      NO ACCESS
11                   true    false      false      NO ACCESS
12                   true    false      false      NO ACCESS
13                   true    false      false      NO ACCESS
14                   true    false      false      NO ACCESS
15                   true    false      false      NO ACCESS
16                   true    false      false      NO ACCESS
```

Here we can see admin has user ID 2.

Now the password can be changed without having to use the previous (lost) password:

```
[root@linux ~]# ipmitool user set password 2 newpassword
Set User Password command successful (user 2)
```

Example 2 – using freeipmi

This is the same method using *freeipmi commands*. First, look for admin user ID:

```
[root@linux ~]# for ID in $(seq 1 15);do USERNAME=$(ipmi-config -o -S "User${ID}"| awk
'/^\s*Username/{print $2}');echo "${ID} ${USERNAME}";done
1
2 admin
3
4
5
6
7
8
9
10
11
12
13
14
15
```

Now, the password can be changed for user #2 (admin):

```
[root@linux ~]# ipmi-config -c -e "User2:password=newpassord"
```

10.2 Drivers

The drivers for BullSequana SA0 can be downloaded from the Support Online web site. These drivers are listed in the following table, with assignments:

Drivers & Utilities						SA0 Servers						
item	OS	date	version	Size	File	SA10	SA10EL	SA10 NVMe	SA20	SA20 NVMe	SA20G	SA20G NVMe
AMD Chipset for AMD EPYC 7002/7003	WS2019	2021-03-05	2.10.09.156	17.22MB	server_driver_chipset_amd_v2.10.09.156.zip	X	X	X	X	X	X	X
AMD Chipset for AMD EPYC 7002/7003	WS2022	2022-04-21	2.18.30.202	17.66MB	server_driver_chipset_amd_v2.18.30.202.zip	X	X	X	X	X	X	X
Intel LAN Driver and Utility	WS2019	2019-08-06	24.0	542.58MB	server_driver_intel_lan_24.0.zip	X	X	X	X	X	X	X
Intel LAN Driver and Utility	WS2022	2022-04-21	27.0	714.97MB	server_driver_intel_lan_27.0.zip	X	X	X	X	X	X	X
Aspeed Graphic Driver	WS2019	2019-08-06	1.06	1.78MB	server_driver_vga_aspeed_v106.zip	X	X	X	X	X	X	X
Aspeed Graphic Driver	WS2022	2022-04-21	1.12	3.12MB	server_driver_vga_aspeed_v1.12.zip	X	X	X	X	X	X	X

10.3 Microsoft Windows Server

10.3.1 256 logical cores limit

Windows Server 2019 has known issues when using more than 255 logical cores.

When using a dual socket BullSequana SA server and CPU with 64 (or more) cores CPU, Microsoft KB4512534 must be applied to Windows Server 2019.

10.4 Drives connected to a RAID adapter.

When the server is provided with a RAID adapter:

- If a RAID configuration has been requested for the boot drives, the boot drives are configured as RAID1 with default adapter parameters.

- Except for special cases, all the remaining drives are configured in pass-through mode.

10.5 Chassis power policy after power loss

The “chassis power policy after power loss” parameter is set to “stay off”. When the power is restored after a power outage, the server won’t restart, to avoid any power surge that may be due to a group of servers starting simultaneously.

In such case, the server must be explicitly restarted by the user (power button, remote command using IPMI, Web-UI or RedFish).

With previous Technical Sets, the “chassis power policy after power loss” was configured through a BIOS parameter. Now, it is configured by using IPMI. The next sections will explain how to configure the chassis power policy using ipmitool and freeipmi.

10.5.1 Managing “chassis power policy after power loss” with ipmitool

The “chassis power policy after power loss” can be managed by using ipmitool command.
The list of the supported actions is reported by using the “chassis policy” subcommand:

```
ipmitool -I lanplus -U admin -P <password> -H <bmc> chassis policy
chassis policy <state>
   list        : return supported policies
   always-on   : turn on when power is restored
   previous    : return to previous state when power is restored
   always-off  : stay off after power is restored
```

Use “chassis policy always-off” subcommand for configuring the server to stay off when power is restored:

```
ipmitool -I lanplus -U admin -P <password> -H 10.197.177.90 chassis policy always-off
Set chassis power restore policy to always-off
```

The active configuration is reported by using ipmitool “chassis status” subcommand:

```
ipmitool -I lanplus -U admin -P <password> -H <bmc> chassis status
System Power         : on
Power Overload       : false
Power Interlock      : inactive
Main Power Fault     : false
Power Control Fault  : false
Power Restore Policy : always-off
Last Power Event     : ac-failed
Chassis Intrusion    : inactive
Front-Panel Lockout  : inactive
Drive Fault          : false
Cooling/Fan Fault    : false
Sleep Button Disable : allowed
Diag Button Disable  : allowed
Reset Button Disable : allowed
Power Button Disable : allowed
Sleep Button Disabled: false
Diag Button Disabled : false
Reset Button Disabled: false
Power Button Disabled: false
```

10.5.2 Managing “chassis power policy after power loss” with freeipmi

The chassis power policy can be managed by using ipmi-chassis-config command (provided with freeipmi), and keypair "Chassis_Power_Conf:Power_Restore_Policy".

The active configuration is returned when the keypair is checked-out:

```
ipmi-chassis-config -u admin -p <password> -h <bmc> --checkout -e
"Chassis_Power_Conf:Power_Restore_Policy"
Section Chassis_Power_Conf
        ## Possible values: Off_State_AC_Apply/Restore_State_AC_Apply/On_State_AC_Apply
        Power_Restore_Policy                          Restore_State_AC_Apply
EndSection
```

The policy can be configured by commiting the keypair:

```
ipmi-chassis-config -u admin -p <password> -h <bmc> --commit -e
"Chassis_Power_Conf:Power_Restore_Policy=Off_State_AC_Apply"
```

After applying a policy, checkout-again the keypair for control:

```
ipmi-chassis-config -u admin -p <password> -h <bmc> --checkout -e
"Chassis_Power_Conf:Power_Restore_Policy"          Section Chassis_Power_Conf
        ## Possible values: Off_State_AC_Apply/Restore_State_AC_Apply/On_State_AC_Apply
        Power_Restore_Policy                          Off_State_AC_Apply
EndSection
```

10.6 SA10 VSAN – BMC FW and SKU package

For SA10 where at least one 9300-8i HBA is used (usual VSAN configuration), the specific SKU package “SA10-20240506.zip” must be applied. This SKU package will disable the MegaRAID monitoring feature on the BMC side.

If this SKU package is not applied, the MegaRAID monitoring process embedded in the BMC will send wrong queries and the SAS 9300-8i HBA will hang-up, generating I/O errors.

Apply the following procedure:

- Shutdown the server (the server cannot be upgraded while running)
- Upgrade BMC with FW 12.61.23
- Upgrade SKU SA10-20240506 using the Web UI
  (FRU0 should not be modified)
- Power on the server

Please refer to ”11.1 SA10 with 9300-8i HBA – BMC FW and SKU upgrade” for details

10.7 SA20G – Full speed fans

Some SA20G have been reported with fans running at full speed even when a low GPU load is applied.
In such case, the SA20G fan profile fix (apply a fan profile similar to the default one) must be applied.

11 Appendices

11.1 SA10 with 9300-8i HBA – BMC FW and SKU upgrade

The topic of this section is to upgrade both BMC FW and SKU package from the WebUI when at least one SAS 9300-8i HBA is used in SA10 servers.

- If HBA is not used, this SKU upgrade is not required.
- If at least one HBA is used, there are known HBA issues (hang-up) when recent BMC FW is applied, due to MegaRAID monitoring from the BMC. Applying the SKU package will disable the MegaRAID monitoring and solve the HBA issues.

Here, we are focusing on BMC FW 12.61.21 (capture done with FW 12.61.19) and SKU package "SA10-20240505" (SKU version is 1888888).

11.1.1 Pre-requisite

- Access to the BMC WebUI from a remote PC / Workstation / VM, using a Web Browser (Chrome, Firefox, Edge, …)
- Stored on the remote PC / Workstation / VM:
    - BMC FW for remote update ("rom.ima_enc")
    - SKU 1888888888 package file

11.1.2 Goals

- Upgrade the BMC FW
- Upgrade "SKU package" to 1888888888:
    - MegaRAID monitoring is removed from this package
    - Solve 9300-8i HBA issues (due to MegaRAID monitoring)

There are 4 steps:

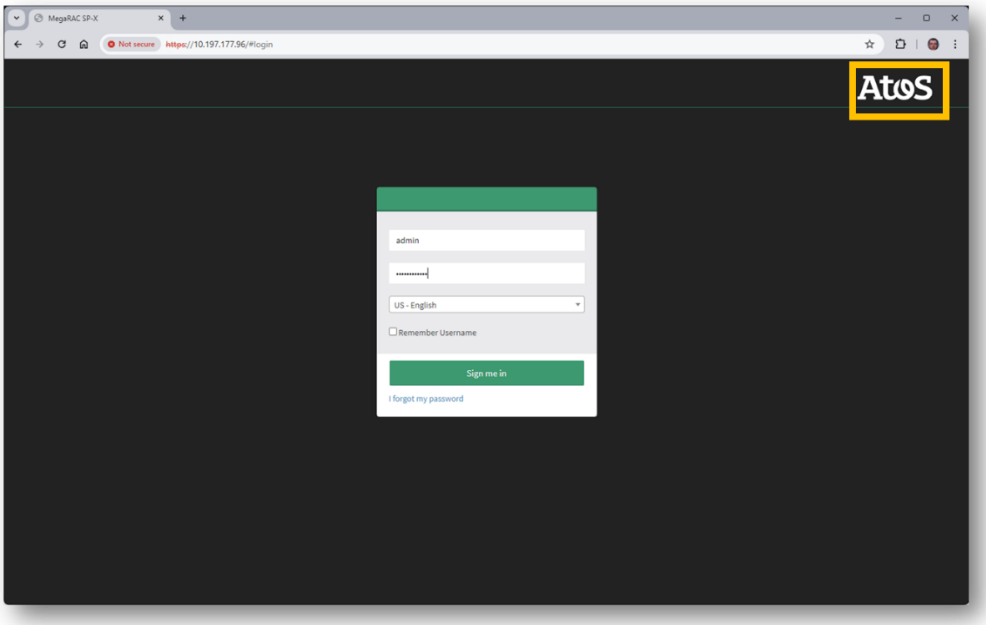
- Shutdown the server
- Upgrade the BMC FW to 12.61.19
- Upgrade the BMC "SKU package" to 1888888888
- Power on the server

Note:
The current SA10 SKU version provided by BMC FW 12.61.19 is 1702477334
New SA10 SKU version 1888888888 has been chosen for being higher than 1702477334 (the BMC FW will choose the SKU with the highest version).

11.1.3 Graceful server shutdown

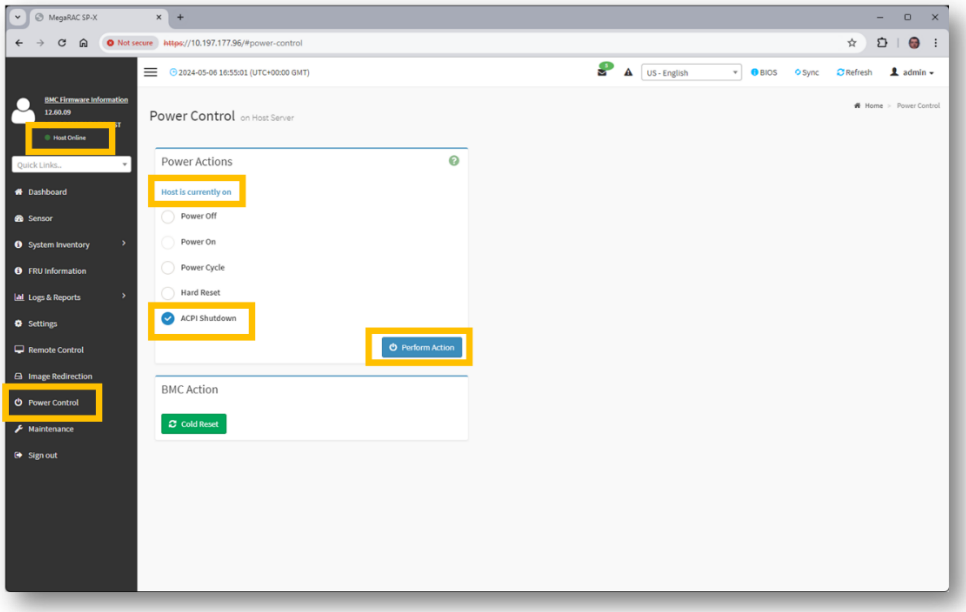
Login into the BMC Web UI using the “admin” account (or BMC account with administrator privilege).

Note:
When using BMC FW 12.60.09, you can see “Atos” logo on the top right corner



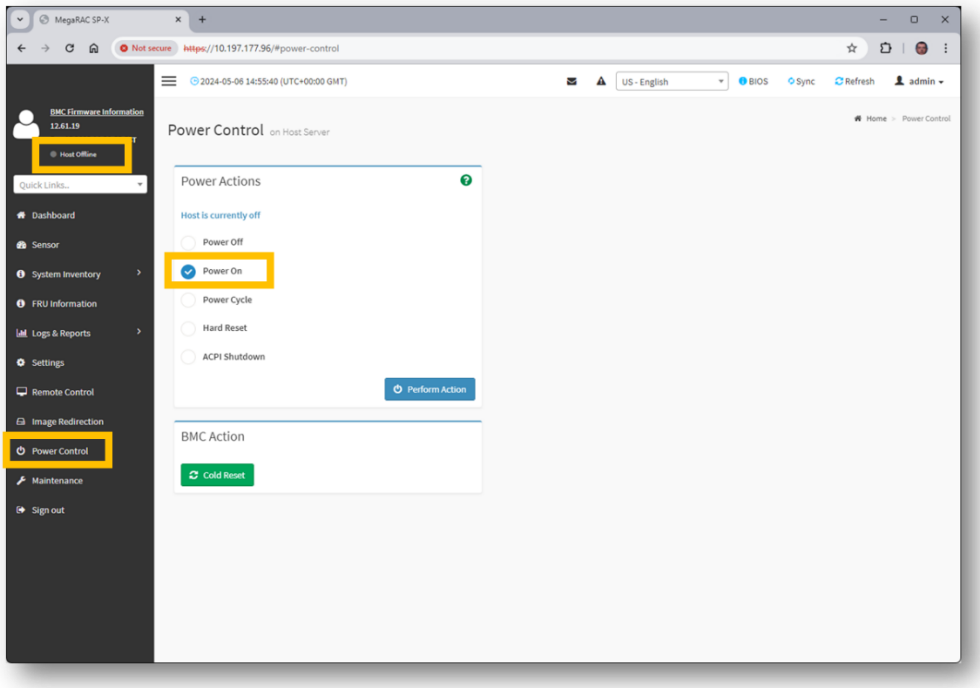
Once connected to the BMC WebUI:

- Go to the “Power Control” section,
- Check if the server is on (or already off),
- select “ACPI Shutdown”,
- Press the “Perform Action”.



Wait for the server to be off:

- “Host Offline” will be displayed on the top left corner,
- the only available command will be “Power On”



Note

Server can be shut down by using other methods:

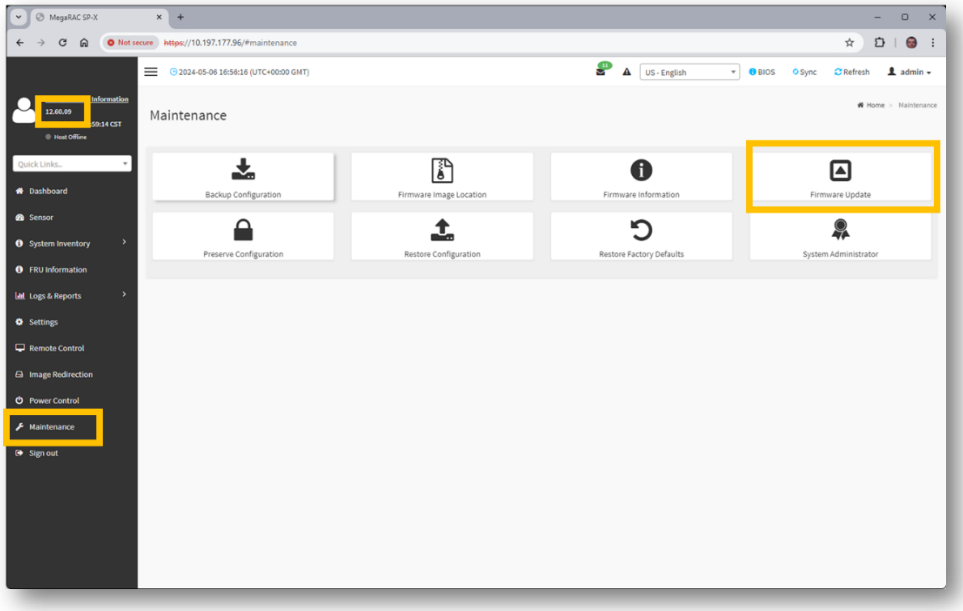
- vCenter
- ESXi Web Interface
- IPMI
  Warning: execute a “graceful” shutdown (OS shutdown through ACPI):

```
ipmitool <options> chassis power soft
```

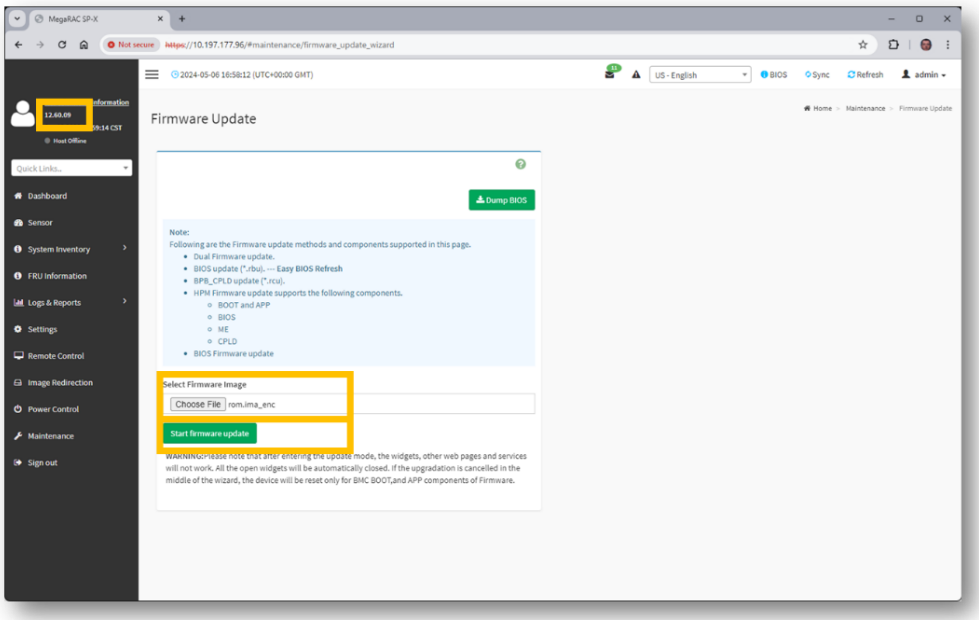
11.1.4 BMC FW update

Check the BMC FW version on the top left side.
If the FW version is already 12.61.21, the BMC FW update is not required, skip to SKU package update
Else:

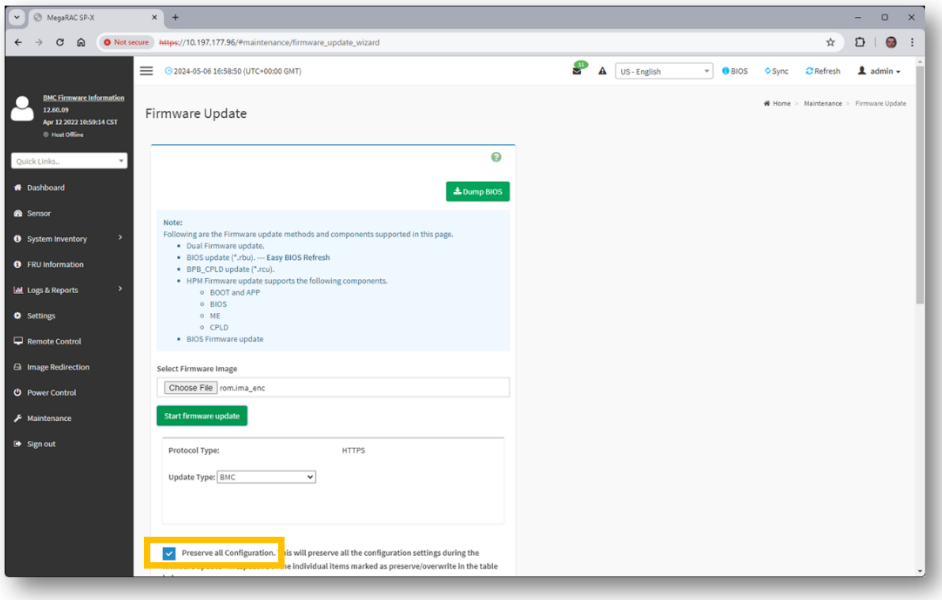
- Go to the “Maintenance” section.
- Select the “Firmware Update” button.



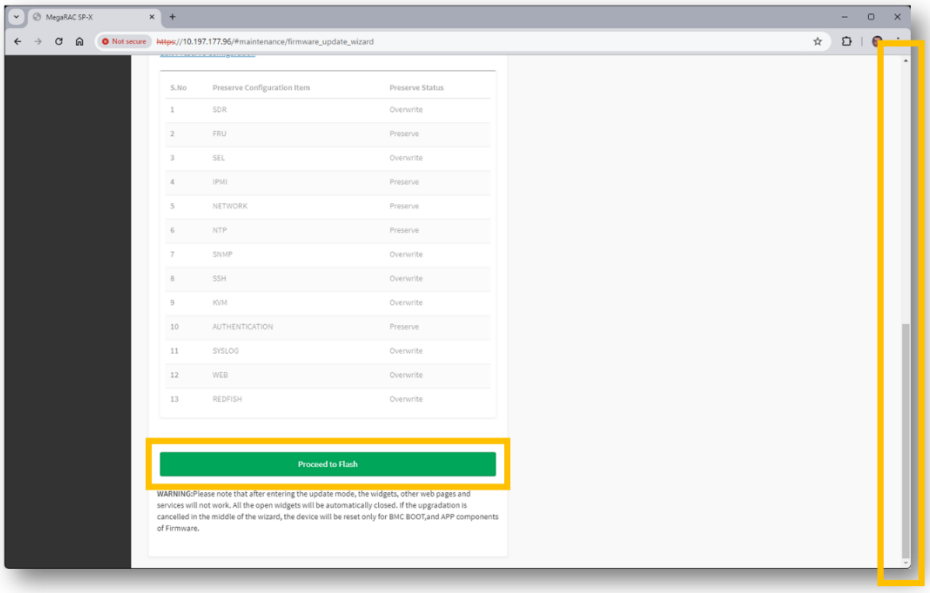
Select the Firmware Image file (rom.ima_enc) for BMC FW 12.61.21 by using the “Choose File” button
Then, press the “Start firmware update” button



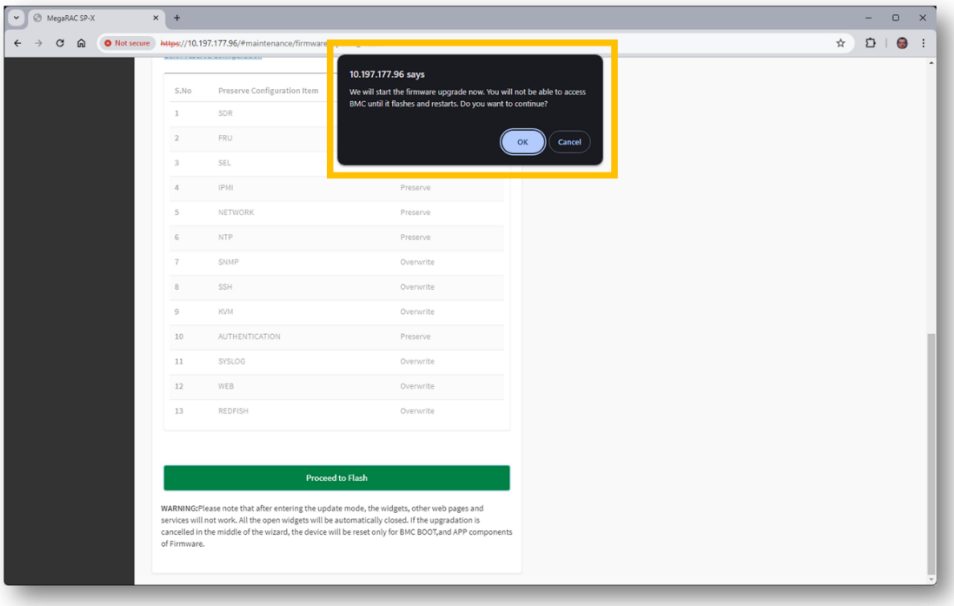
Check “preserve all Configuration”:



Scroll down, and press “Proceed to Flash”

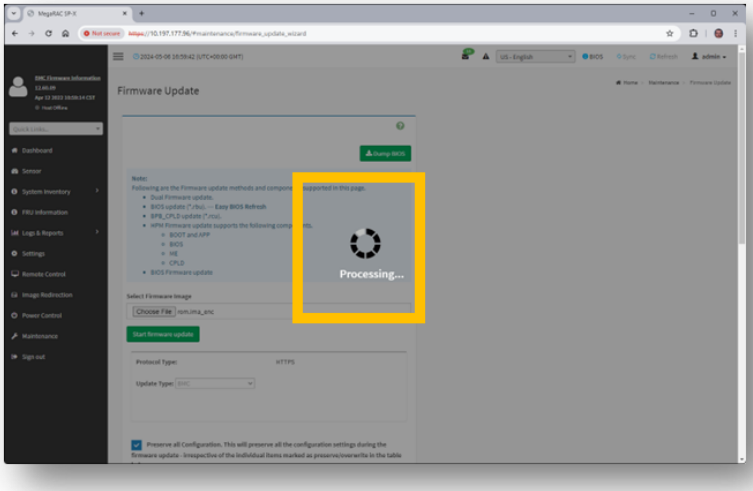


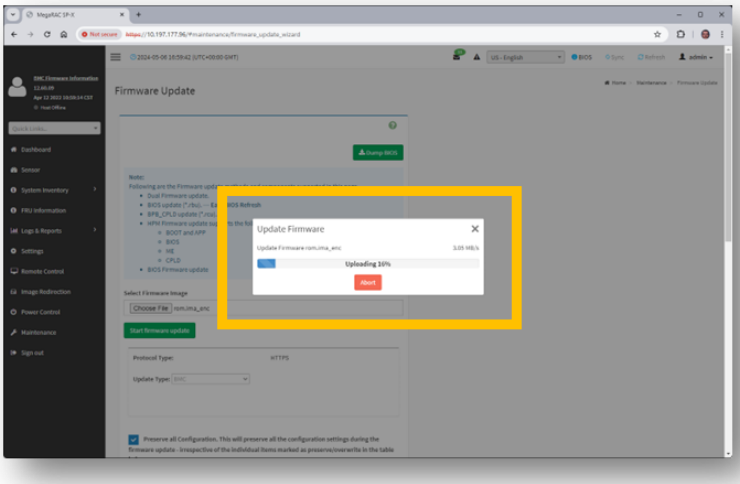
In the “start the fw upgrade” popup, press the OK button:

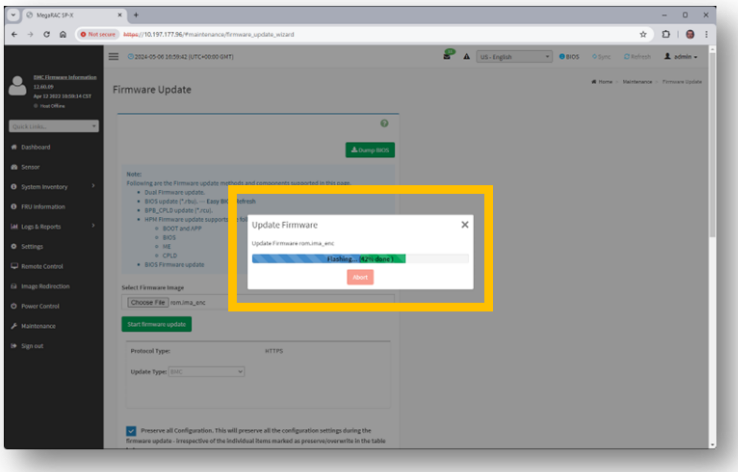


Wait for the “Update FW” animated process:

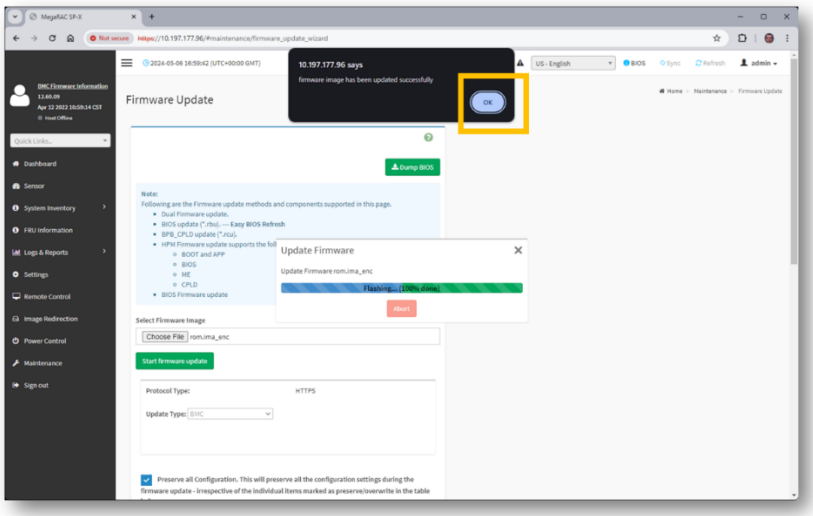
- “Processing”
- “Update Firmware – Uploading” progress bar
- “Update Firmware – Flashing” progress bar



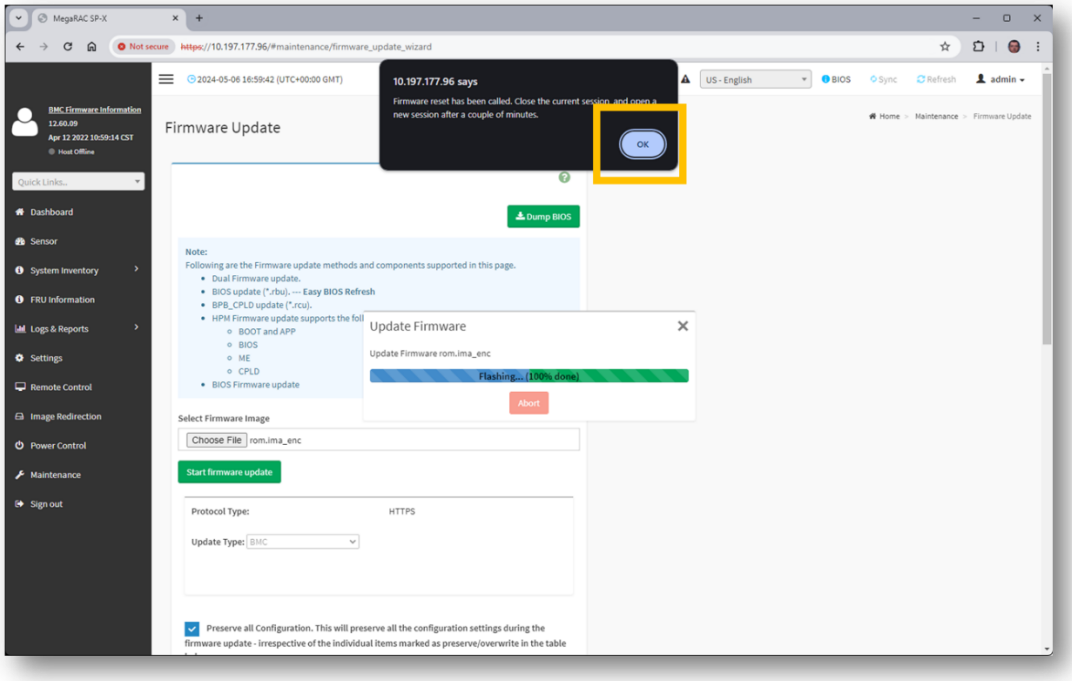




When the “Flashing” progress bar is 100%, an information popup window is displayed.
Validate this popup by pressing the “OK” button:



A new popup is displayed. Validate this popup by pressing the “OK” button:

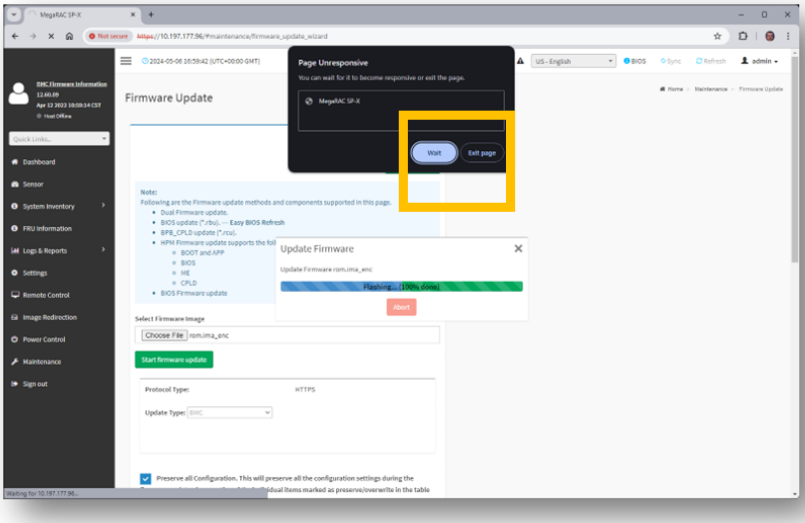


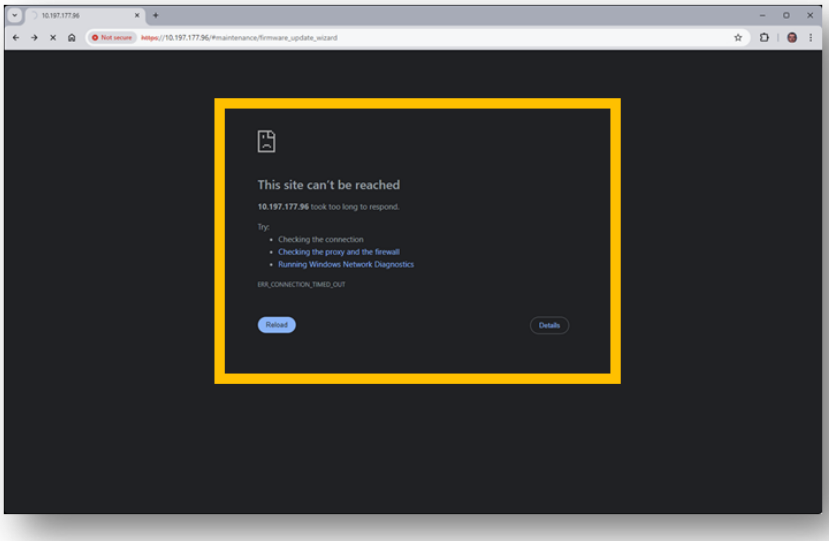
Now, wait for the BMC to be restarted:

- A “page unresponsive” popup is displayed. There is no need to validate this popup,
- You may also have a blank screen / “Site can’t be reached”.

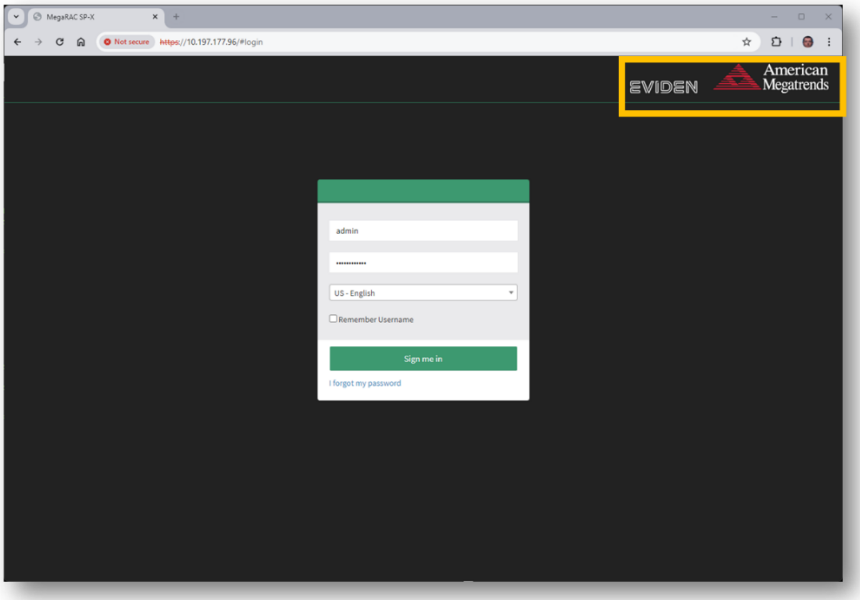
When the BMC is restarted, the BMC WebUI login page is shown again.

Note: BMC reset can take several minutes (should be less than 5 minutes)
You can also try to refresh the page if the BMC reset seems too long.

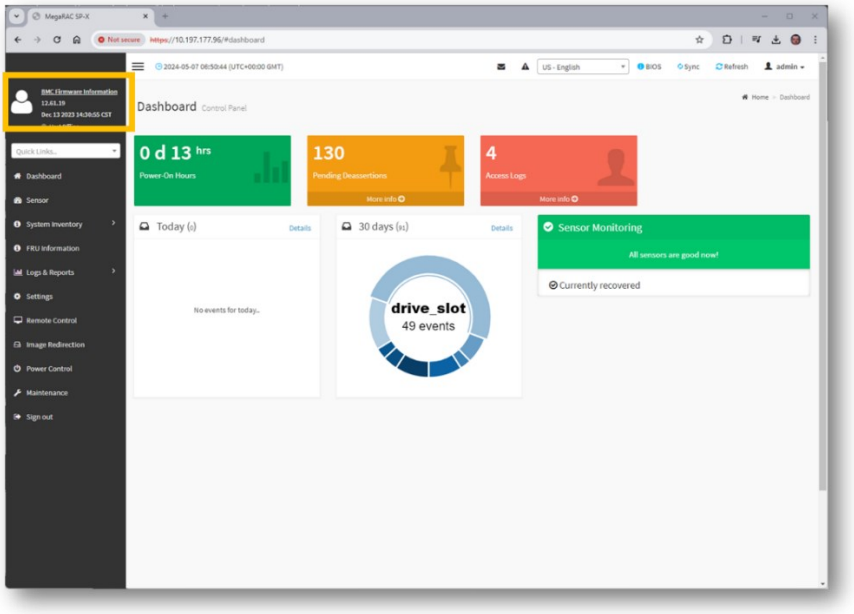




Login into the BMC using “admin” account (or account with administrator privilege).
Note: BMC FW 12.61.19 (and newer) has the Eviden and AMI logos on the top right corner.



When connected to the WebUI, check the BMC FW version on the top left corner.
Expected version: BMC FW 12.61.19 (or higher, will depend on the BMC FW provided with the TS)

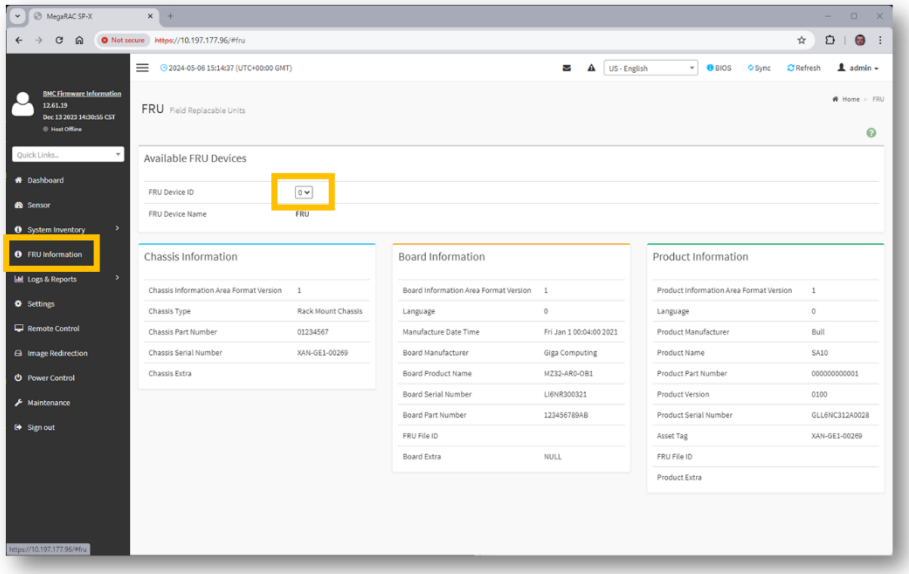


11.1.5 Update of the SKU package

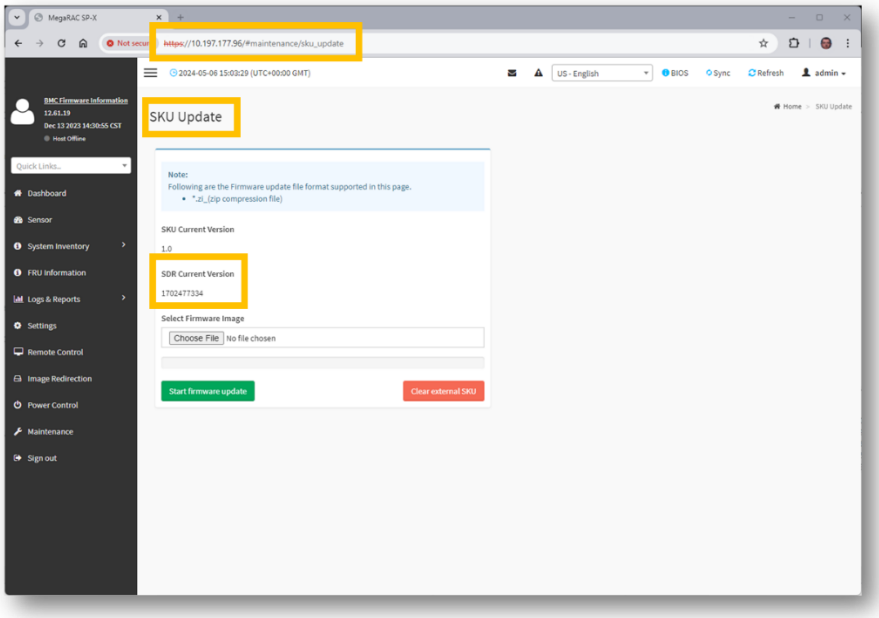
Go to the “FRU information” section. If “FRU Device ID” is not 0, select FRU Device ID 0.
Take a snapshot of the WebUI, where all the relevant data can be seen:

- Board Serial Number
- Product Manufacturer
- Product Name
- Product Serial Number
- Asset Tag
- …

This information will help to restore the configuration in case of trouble.



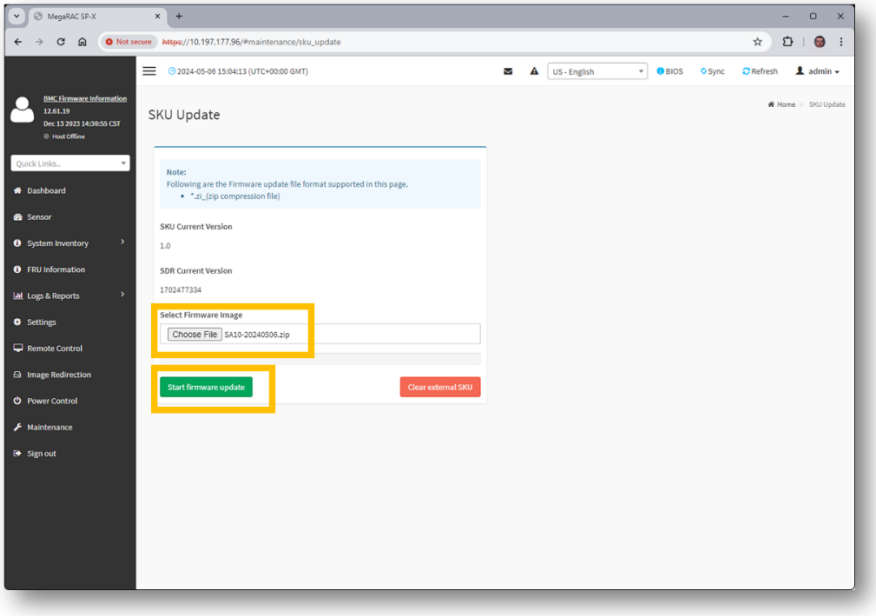
Manually edit the URL and replace the URL directory by **/#maintenance/sku_update**
=> go to this URL
This modified URL will bring you to the “SKU Update” interface.
Check the SDR Current Version.



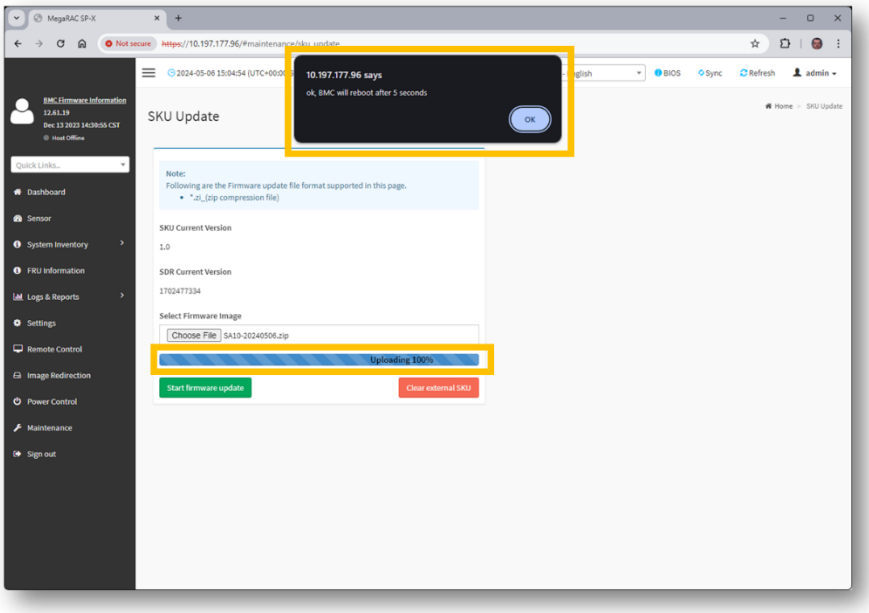
Expected SDR version for BMC FW 12.61.19 is 1702477334.
Expected SDR version for BMC FW 12.61.21 is 1710252637

If the reported SDR version is 1888888888, the SKU package has already been applied and you shouldn’t not have to upgrade again the SKU.

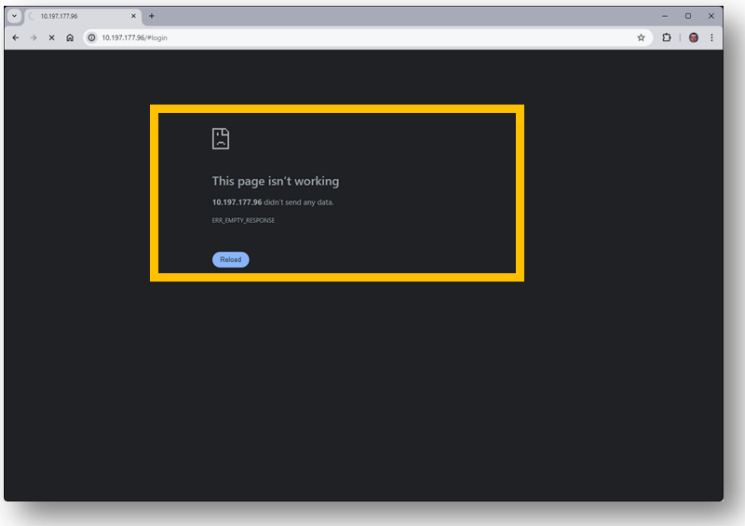
By using the “Choose File” button, Select the “SA10-20240506.zip” file.
Then, press the “Start firmware update” (this will only update the SKU package)

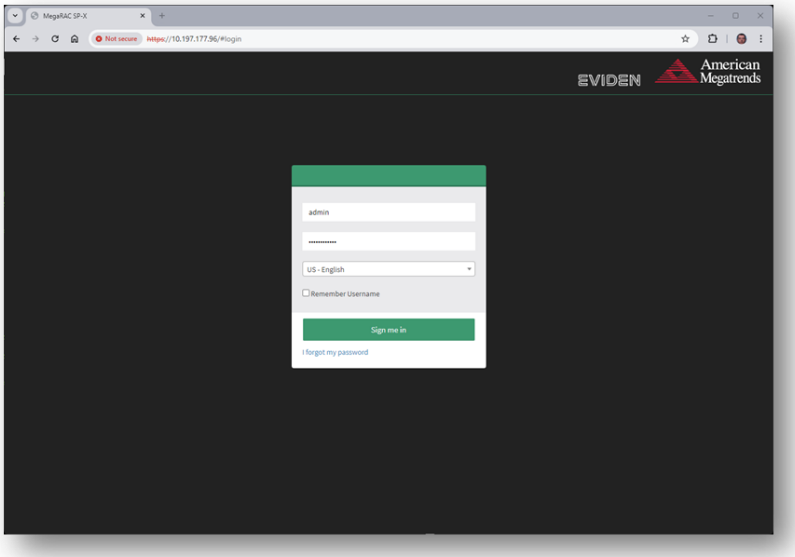


The “Uploading” progress bar should quickly reach 100% (some seconds). Then, an informative popup window related to BMC reboot will be displayed. Press the OK button.

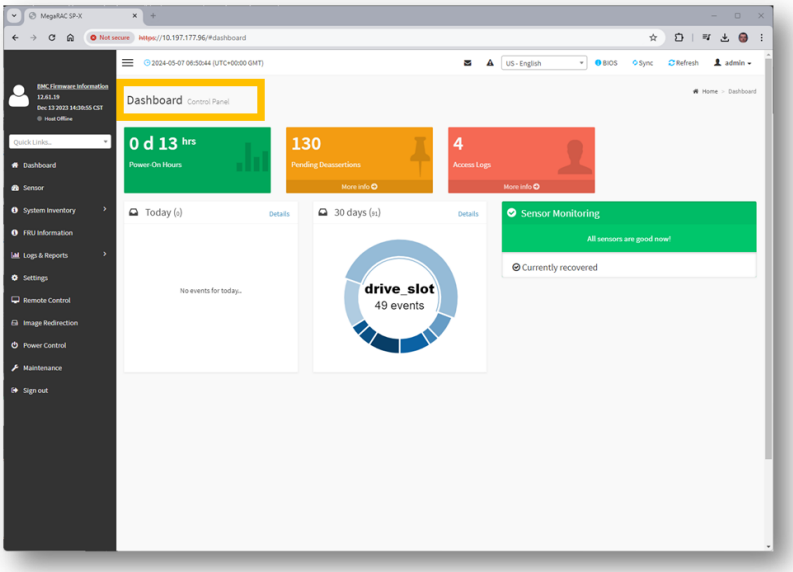


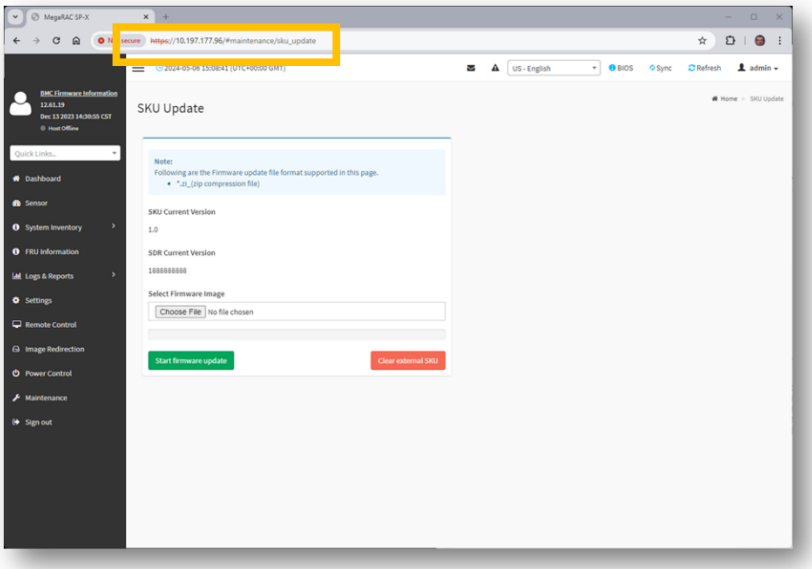
When the BMC is restarting, the WebUI will be unavailable.
Wait for the WebUI login page to be back (should be less than 5 minutes)



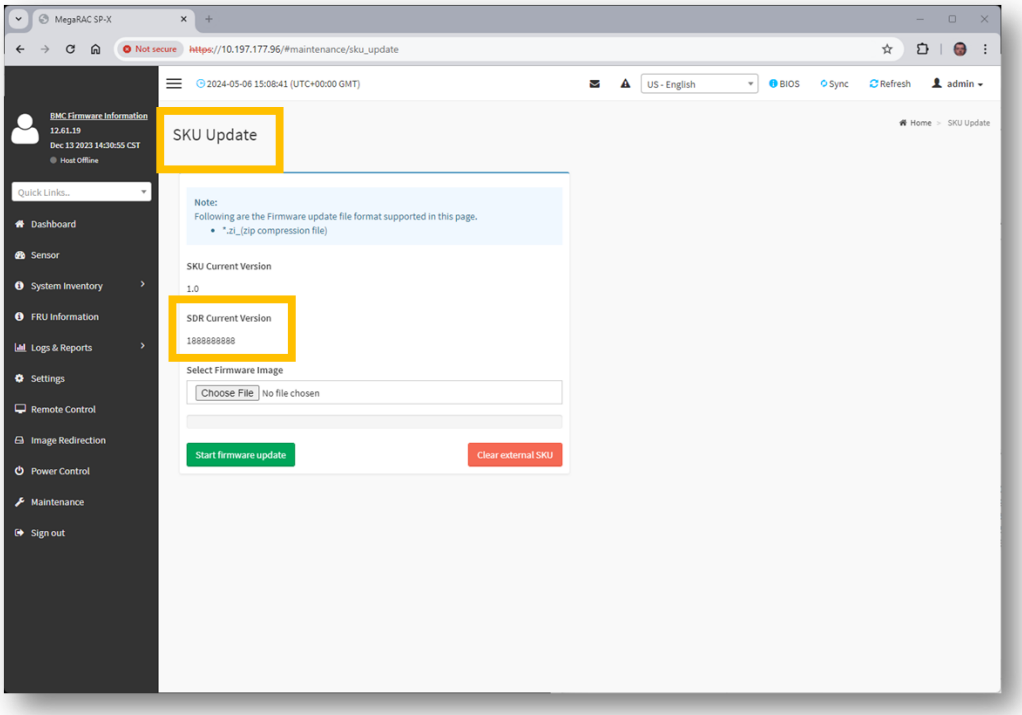


Login into the BMC using “admin” account (or account with administrator privilege).
From the dashboard, manually edit the URL and replace the URL directory by **/#maintenance/sku_update** => go to this URL
This modified URL will bring you to the “SKU Update” interface.



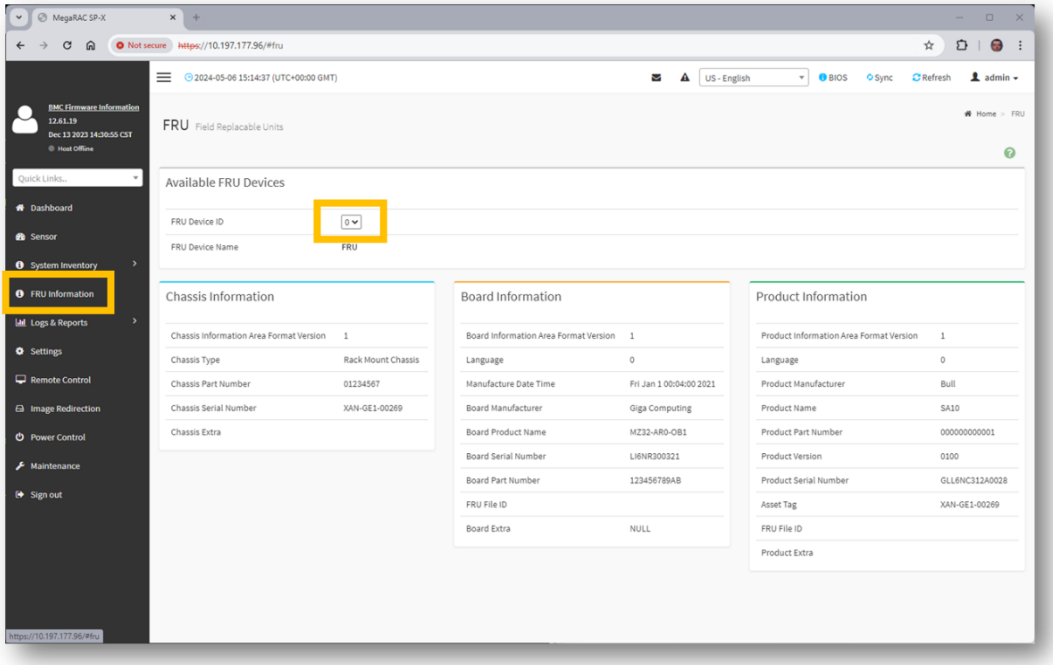


From the “SKU Update” interface, check the “SDR Current Version”.
Now, it must be 1888888888.



Go back to the “FRU information” section.
If “FRU Device ID” is not 0, select FRU Device ID 0.
The data should not have been modified:

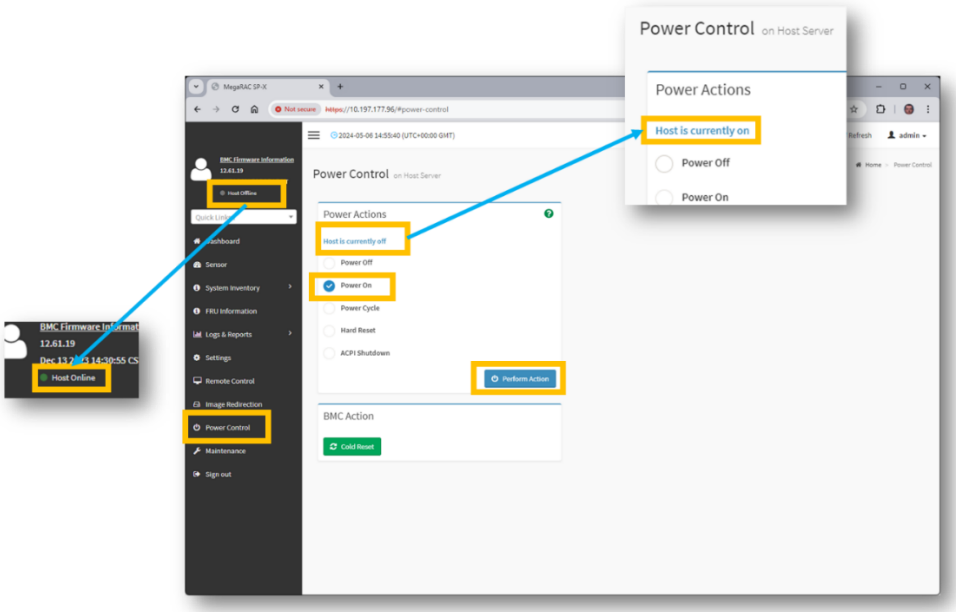
- Board Serial Number,
- Product Manufacturer,
- Product Name,
- Product Serial Number,
- Asset Tag,
- …



11.1.6 Power on the server

Now, the server can be restarted:

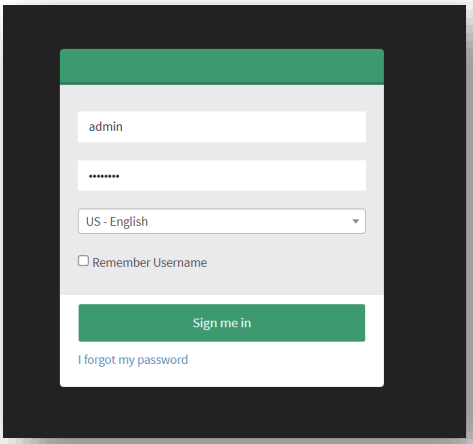
- Go to the “Power Control” section,
- Check if the server is on or off (it should be off),
- select “Power On”,
- Press the “Perform Action”,
- Wait for the server to be up (“Host Online”).



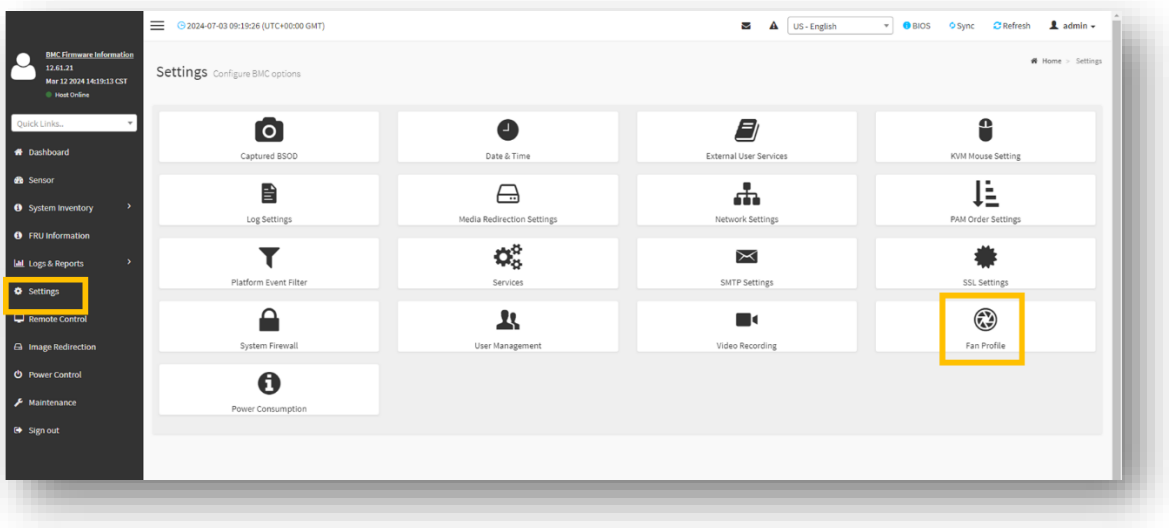
11.2 SA20G Fan Profile update from the WebUI

This section explains how to upgrade SA20G fan profile with a new one by using the BMC WebUI. This procedure must be applied when SA20G fans are running at full speed even when the GPU are unloaded. It will fix the

First, login into the BMC WebUI using the “admin” account (or account with administrator privileges):

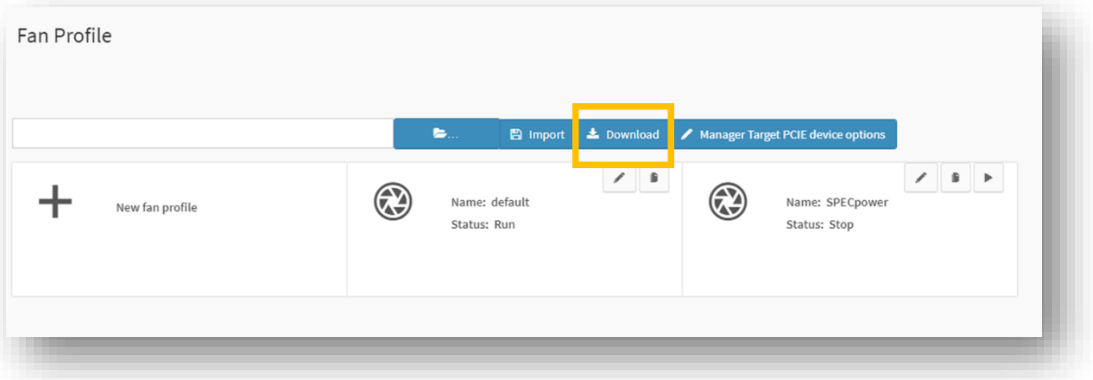


Go to “Settings” on the left menu, then choose the “Fan Profiles” configuration:



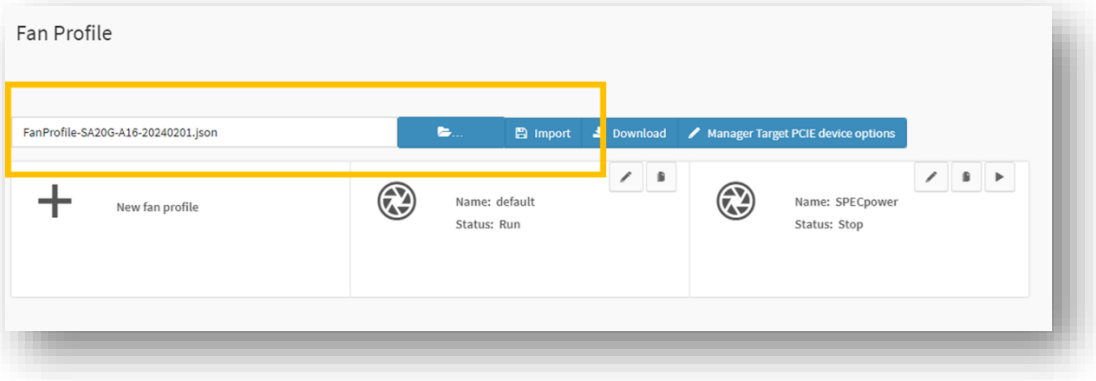
From the fan profile section:
If an existing dedicated fan profile is already applied, you should not have to apply the SA20G fan profile fix.

You can also download a full backup of all the fan profiles (“Default”, “SPECpower” and any other fan profiles) by pressing the “Download” button:

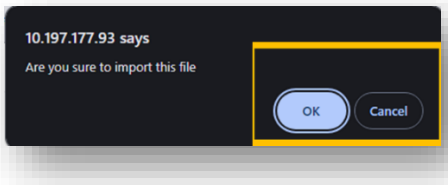


The backup file will be named “fanprofile.json”.
If only the “Default” and “SPECpower” fan profiles are present, such backup is not required (these Fan Profiles are provided by the BMC FW, and they cannot be modified).

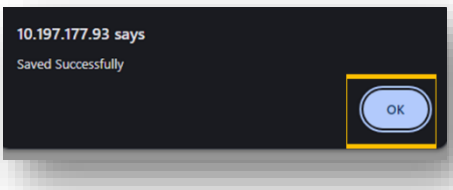
Applying the fan profile fix:
Using the file selector, choose the fan profile file (“FanProfile-SA20G-A16-20240201.json” JSON file), then press the “import” button:



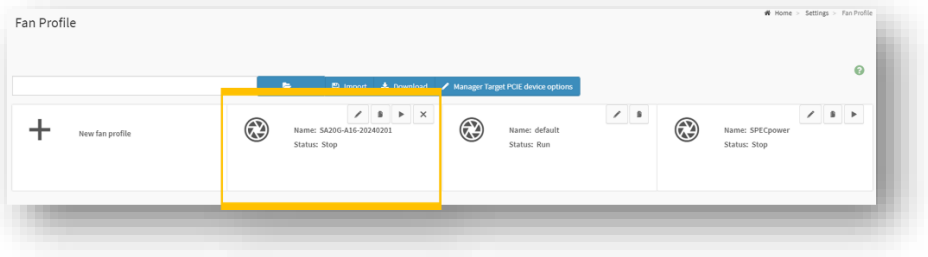
The import operation must be validated in a popup windows, press the “OK” button :



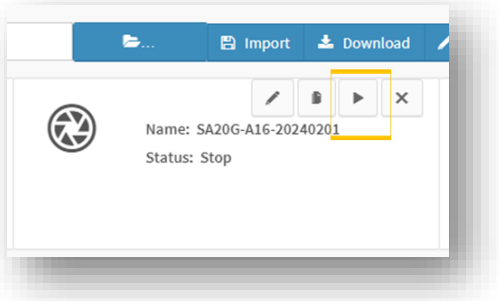
A new popup is displayed when the fan profile has been loaded



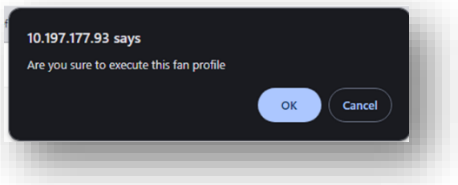
In the “Fan Profile”, the new fan profile (“SA20G-A16-20240201”) can be seen. However, this fan profile is not yet active, and Status is “stopped”:



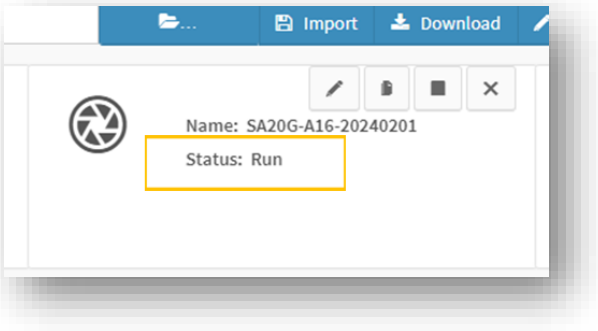
Press on the “run” button to start the new fan profile:



A popup is displayed for confirmation. Press the “OK” Button:



The fan profile status should now be “Run”.



The fan profile is now active, you can logout from the BMC WebUI.

Note: for large deployments, the fan profile can be deployed by using GbtUtility command (CLI).

Eviden
30 bis rue du Nid de Pie
49000 Angers
FRANCE