

# BullSequana SA20G

## Release Note SA20G\_TS0003

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## **1 Preface**

This document gives information about all changes from the previous version.

It also gives information about restrictions, known problems and the associated workarounds.

Finally, it lists the objects delivered in the Technical State and the features of the resources provided on the Resource and Documentation media.

## 2 Overview

### 2.1 Operating Systems Versions

#### 2.1.1 VMware ESXi

TS	BIOS	ESXi Support
SA20G_TS0002	R16_F01	ESXi 7.0u1 ESXi 7.0 ESXi 6.7u3
SA20G_TS0001	R10	no support

Link to VMware Compatibility Guide: [BullSequana SA20G](#)

#### 2.1.2 Linux

RedHat 8.0 certification is in progress.

#### 2.1.3 Microsoft Windows

WS2019 certification is in progress.

## 2.2 New Features and Changes

<b>TS</b>	<b>item</b>	<b>new feature / change</b>
SA20G_TS0003	BMC	Upgrade to FW 12.51.03
	FRU	SA20G_TS0003 tag
SA20G_TS0002	BIOS	Upgrade to BIOS R16_F01 Dedicated release note in the BIOS package.
	BMC	Upgrade to BMC 12.50.03 Dedicated release note in the FW package.
	BIOS configuration	"ErP Lot 9" enabled
	BIOS configuration	Serial over LAN enabled on COM1
	BIOS configuration	Serial over LAN COM1 configured for VT-UTF8
	Components	MegaRAID 9361-8i firmware upgraded to 4.680.00-8454. Dedicated release note in the FW package.
	Components	Added FW for: Broadcom Network M210TP Broadcom Network N225P Broadcom Network P210TP Broadcom FC LPe31002 Broadcom FC LPe32002 Broadcom MegaRAID 9460-16i Broadcom MegaRAID 9480-8i8e Broadcom SAS 9300-8i Mellanox MCX516A-CDAT Mellanox MCX4121-ACA Mellanox MCX4121-XCA Seagate Exos 10E2400 Micron 5300

## 3 Known Restrictions and Issues

### 3.1 MegaRAID Adapter

#### 3.1.1 Drives are not available

When using a RAID adapter, this adapter may be preconfigured during the delivery process for RAID and/or "JBOD" (drive passthrough).

If the preconfiguration is not requested :

- RAID volume is not configured
- the JBOD mode is not enabled.

In such cas, this is to the end-user to configure the RAID adapter for RAID volume(s) and/or JBOD mode.

### 3.2 SAS 9300-8i

#### 3.2.1 sas3flash P11 for ESXi

For ESXi 7.0U1, sas3flash P11 must be used for FW upgrade.

Latest release (sas3flash P16) cannot be used for FW upgrade from ESXi 7.0U1.

#### 3.2.2 FW 15.00.00.00

For VMware vSAN 7.0U1 compatibility, LSI 9300-8i firmware is currently restricted to release 15.00.00.00 provided by package P15. This package is currently applied to the HBA for the current Technical Set.

9300-8i installed firmware may be higher than 15.00.00.00, and NVdata may have to be erased before the downgrade operation. In such case, trying to install the 15.00.00.00 FW fails, and you can see following error message in sas3flash output:

**ERROR: Cannot downgrade NVDATA version**

For being able to install FW 15.00.00.00, NVdata region must be previously erased. See next section.

### 3.2.3 Erasing 9300-8i flash regions

For erasing the NVdata region, sas3flash has to be used with the following command :

```
sas3flash -c 0 -o -e 6
```

"-c 0" flag is used to send the erase command to the first adapter. You have to set it according to the adapter ("-c" 1 for the second adapter, "-c" 2 for the third adapter ...)

"-o -e 6" flag is used to erase most of the adapter flash memory, except the manufacturing data (WWN, S/N, ...). This operation will also erase the BIOS/UEFI option ROM ("boot service") so the system won't be able to boot on drives managed by the HBA. However, at boot, the HBA initialization will be faster. As boot on drives managed by the 9300-8i HBA is not an expected feature for this system, installation of an option ROM (UEFI or BIOS) is not required.

Erasing the NVdata (and other flash regions) with sas3flash is not supported by all the operating systems :

- OK for msdos and UEFI
- KO for Windows and ESXi

When the NVdata has been erased, FW 15.00.00.00 can be applied.

Note : if boot on HBA device is required, please use the BIOS option ROM available from Avago web site. BIOS option ROM is not supported by this Technical Set.

## 3.3 Fans speed - GPU cooling

The fans speed is managed on the BMC side.  
The BMC is adapting the cooling to the installed GPUs

According to the environment, fans speed may have to be increased for GPU cooling. Please refer to the BMC settings for specific GPU cooling

## 3.4 Settings and Tuning

Tuning tips are given by AMD and VMware. Please refer to the links and details in the following subsections.

### 3.4.1 AMD

Please refer to AMD guides :



- Memory Population Guidelines for AMD EPYC 7002 Series Processors: [56502](#)
- Linux Network Tuning Guide for AMD EPYC 7002 Series Processors: [56739](#)
- Workload Tuning Guide for AMD EPYC 7002 Series Processors: [56745](#)
- VMware Network Tuning Guide for AMD EPYC 7002 Series Processors: [56763](#)
- VMware vSphere Tuning Guide for AMD EPYC 7002 Series Processors: [56779](#)

From this document :

- Numa.LocalityWeightActionAffinity has to be changed from 130 (default) to 0
- Numa.PreferHT has to be changed from 0 (default) to 1

### 3.4.2 VMware

please refer to VMware Knowledge Base :

- LINT1/NMI when using VPMC or vmkstats features on an AMD EPYC 7002 processor: [KB71314](#)

### 3.4.3 RedHat

from <https://access.redhat.com/support/policy/amd> :

- RHEL7 : required release for AMD EPYC 7002 processors is RHEL 7.6.6
- RHEL8 : required release for AMD EPYC 7002 processors is RHEL 8.0.2

Note : BullSequana SA are not certified for RHEL7

## 4 BIOS settings

Based on default BIOS configuration, following parameters have to be configured in the following states:

<b>param</b>	<b>new value</b>	<b>default value</b>	<b>comment</b>
FBO001	UEFI	UEFI	Boot mode Select (LEGACY/UEFI)
PCIS003	Enabled	Enabled	PCIe above 4G Decoding
PCIS007	Enabled	Enabled	SR-IOV Support
Rome0039	x2APIC	Auto	Local APIC mode
Rome0059	Auto	Auto	SMT control (core multithreading)
Rome0075	NPS1	NPS1	NUMA nodes per socket
Rome0077	Auto	Auto	Memory interleaving Size
Rome0080	Disabled	Auto	ACPI SRAT L3 Cache As NUMA Domain
Rome0162	Enabled	Disabled	IOMMU
Rome0212	Power Off	Last State	AC Loss Control
Rome0552	Lot 9	Disabled	ErP Lot 9 support
SETUP005	false	true	Quiet Boot
TER000	true	false	Enable COM1 console redirection
TER001	VT-UTF8	ANSI	Terminal compatibility for SOL

Some parameters given in the BIOS configuration file have same values as the default values => applying the BIOS configuration file will put these settings to the default value without having to reset all the parameters to the default value.

## **5 Related Links – External tools**

PCIe Adapters :  
please refer to section 7.1.

Drives :  
Please refer to section 7.2.

## 6 Delivery Content

<b>Firmware and Configuration files</b>		
<b>Component</b>	<b>File</b>	<b>Release</b>
Server	BIOS	R16_F01
Server (BMC)	FW	12.51.03
Server	BIOS settings	R16-003
Server	FRU	SA20G_TS0003

<b>Documents</b>		
<b>Ref</b>	<b>Title</b>	<b>Release</b>
86A139FS01	SA20G User Manual	July 2020

FW for PCIe Adapters :  
please refer to section 7.1.

FW for Drives :  
Please refer to section 7.2.

## 7 Components references tables

### 7.1 PCIe adapters

Adapter								Technical Set				Comments
Atos Reference	Type	Adapter Description	Form Factor	Vendor	PCIe bus	Vendor Model	Vendor Reference	ESXi 7.0u1	vSAN 7.0u1	Firmware	vendor support	
CKTA601G-D3P	Network	2 x 10GbE (SFP+) N210P	OCP 3.0	Avago / Broadcom / Emulex	PCIe gen3 x8	N210P	BCM957412N4120C	<a href="#">yes</a>	NA	216.0.416.10	<a href="#">N210P</a>	ASIC BCM57412
NA	Network	2 x 10/25GbE (SFP+/SFP28) N225P	OCP 3.0	Avago / Broadcom / Emulex	PCIe gen3 x8	N225P	BCM957414N4140C	<a href="#">yes</a>	NA	216.0.416.10	<a href="#">N225P</a>	ASIC BCM57414
CKTA602G-D0TP	Network	2 x 10GbE BASE-T M210TP	OCP 2.0	Avago / Broadcom / Emulex	PCIe gen3 x8	M210TP	BCM957416M4163C	<a href="#">yes</a>	NA	216.0.416.10	<a href="#">M210TP</a>	ASIC BCM57416
CKTA601G-D0TP	Network	2 x 10GbE BASE-T P210TP	HHHL	Avago / Broadcom / Emulex	PCIe gen3 x8	P210TP	BCM957416A4160C	<a href="#">yes</a>	NA	216.0.416.10	<a href="#">P210TP</a>	ASIC BCM57416
CKTA601G-CTX4	Network	2 x 10GbE (SFP+/SFP28) - CX4	HHHL	Mellanox	PCIe gen3 x8	MCX4121A-XCAT	MCX4121A-XCAT	<a href="#">yes</a>	NA	14.27.1016	<a href="#">MCX4121A-XCAT</a>	
CKTA602G-CTX4	Network	2 x 10/25GbE (SFP+/SFP28) - CX4	HHHL	Mellanox	PCIe gen3 x8	MCX4121A-ACAT	MCX4121A-ACAT	<a href="#">yes</a>	NA	14.27.1016	<a href="#">MCX4121A-ACAT</a>	
CKTA601G-D2X4	Network	2 x 10/25GbE (SFP+/SFP28) - CX4 - OCP	OCP 2.0	Mellanox	PCIe gen3 x8	MCX4421A-ACQN	MCX4421A-ACQN	<a href="#">yes</a>	NA	14.27.1016	<a href="#">MCX4421A-ACQN</a>	
CKTA605G-CTX5	Network	2 x 100GbE (QSFP28) - CX5	HHHL	Mellanox	PCIe gen4 x16	MCX516A-CDAT	MCX516A-CDAT	<a href="#">yes</a>	NA	16.27.1016	<a href="#">MCX516A-CDAT</a>	
CKTA605G-D1X5	Network	2 x 100GbE (QSFP28) - CX5 - OCP3	OCP 3.0	Mellanox	PCIe gen4 x16	MCX566A-CDAI	MCX566A-CDAI	<a href="#">yes</a>	NA	16.27.2008	<a href="#">MCX566A-CDAI</a>	
CKTIN208G-9361	Storage	MegaRAID 9361-8i 2GB	HHHL	Avago / Broadcom / LSI	PCIe gen3 x8	MegaRAID 9361-8i 2GB	05-25420-17	<a href="#">yes</a>	<a href="#">yes</a>	4.680.00-8554	<a href="#">9361-8i</a>	
CKTIN108G-9480	Storage	MegaRAID 9480-8i8e 4GB	HHHL	Avago / Broadcom / LSI	PCIe gen3 x8	MegaRAID 9480-8i8e 4GB	05-50031-00	<a href="#">yes</a>	no	51.16.0-3804	<a href="#">9480-8i8e</a>	ESXi : OEM driver required
CKTIN108G-9460	Storage	MegaRAID 9460-16i 4GB	HHHL	Avago / Broadcom / LSI	PCIe gen3 x8	MegaRAID 9460-16i 4GB	05-50011-00	<a href="#">yes</a>	<a href="#">no (6.7u3)</a>	51.16.0-3804	<a href="#">9460-16i</a>	
CKTIN118G-9300	Storage	SAS 9300-8i	HHHL	Avago / Broadcom / LSI	PCIe gen3 x8	SAS 9300-8i	H5-25573-00	<a href="#">yes</a>	<a href="#">yes</a>	15.00.00.00	<a href="#">9300-8i</a>	
CKTIN108G-9300	Storage	SAS 9300-8e	HHHL	Avago / Broadcom / LSI	PCIe gen3 x8	SAS 9300-8e	H5-25460-00	<a href="#">yes</a>	no	15.00.00.00	<a href="#">9300-8e</a>	
CKTIN108G-9400	Storage	SAS 9400-16i	HHHL	Avago / Broadcom / LSI	PCIe gen3 x8	SAS 9400-16i	05-50008-00	<a href="#">yes</a>	<a href="#">no (6.7u3)</a>	12.00.00.00	<a href="#">9400-16i</a>	
CKTA400G-E16D	Storage	16Gb/s F/C DP w/o LPe31002 card	HHHL	Avago / Broadcom / Emulex	PCIe gen3 x8	LPe31002	LPe31002	<a href="#">yes</a>	no	12.8.340.8	<a href="#">LPe31002</a>	
CKTA400G-E32D	Storage	32Gb/s F/C DP w/o LPe32002 card	HHHL	Avago / Broadcom / Emulex	PCIe gen3 x8	LPe32002	LPe32002	<a href="#">yes</a>	no	12.8.340.8	<a href="#">LPe32002</a>	
GPUN150G-0016	GPU-Graphic	1 GPU Nvidia T4, 16GB card	HHHL	NVIDIA	PCIe gen3 x16	T4 16GB	900-2G183-0000-000	<a href="#">yes</a>	NA		<a href="#">NVIDIA support</a>	Dual Slots
P-GPUN205G-0048	GPU-Graphic	1 GPU Nvidia A40, 48GB card	FHFL	NVIDIA	PCIe gen4 x16	A40	900-2G133-0000-000	no	NA		<a href="#">NVIDIA support</a>	
GPUN202G-0040	GPU-Graphic	1 GPU Nvidia A100, 40GB card	FHFL	NVIDIA	PCIe gen4 x16	A100	900-21001-0000-000	no	NA		<a href="#">NVIDIA support</a>	
GPUN201G-0032	GPU-Graphic	1 GPU Nvidia V100, 32GB card	FHFL	NVIDIA	PCIe gen3 x16	V100 32GB	900-2G500-0010-000	<a href="#">yes</a>	NA		<a href="#">NVIDIA support</a>	Dual Slots
P-GPUN201GS-0032	GPU-Graphic	1 GPU Nvidia V100S, 32GB card	FHFL	NVIDIA	PCIe gen3 x16	V100S	900-2G500-0040-000PCI	<a href="#">yes</a>	NA		<a href="#">NVIDIA support</a>	Dual Slots
GPUN204G-0024	GPU-Graphic	1 GPU Nvidia RTX6000, 24GB card	FHFL	NVIDIA	PCIe gen3 x16	RTX6000	900-2G150-0040-000	<a href="#">yes</a>	NA		<a href="#">NVIDIA support</a>	Dual slots - passive cooling
GPUN203G-0048	GPU-Graphic	1 GPU Nvidia RTX8000, 48GB card	FHFL	NVIDIA	PCIe gen3 x16	RTX8000	900-2G150-0050-000	<a href="#">yes</a>	NA		<a href="#">NVIDIA support</a>	Dual slots - passive cooling

## 7.2 Drives

Drives									ESXi 7.0u1	vSAN 7.0u1	Firmware	Vendor URL	Comments
MI	Type	Interface	Form Factor	Vendor	Model	Capacity	vendor P/N	Comments					
NVME400G-U2080	SSD	U.2	2.5"	Micron	7300MAX	800GB	MTFDHBE800TDG-1AW4ZABYY	3DFPD	<a href="#">in progress (6.7)</a>	<a href="#">in progress</a>	Not yet Available	<a href="#">Micron Web Site</a>	
NVME400G-U2160	SSD	U.2	2.5"	Micron	7300MAX	1600GB	MTFDHBE1T6TDG-1AW4ZABYY	3DFPD	<a href="#">in progress (6.7)</a>	<a href="#">in progress</a>	Not yet Available	<a href="#">Micron Web Site</a>	
NVME400G-U2096	SSD	U.2	2.5"	Micron	7300PRO	960GB	MTFDHBE960TDF-1AW4ZABYY	1DFPD	<a href="#">in progress (6.7)</a>	<a href="#">in progress</a>	Not yet Available	<a href="#">Micron Web Site</a>	
NVME400G-U2192	SDD	U.2	2.5"	Micron	7300PRO	1920GB	MTFDHBE1T9TDF-1AW4ZABYY	1DFPD	<a href="#">in progress (6.7)</a>	<a href="#">in progress</a>	Not yet Available	<a href="#">Micron Web Site</a>	
NVME400G-U2384	SSD	U.2	2.5"	Micron	7300PRO	3840GB	MTFDHBE3T8TDF-1AW4ZABYY	1DFPD	<a href="#">in progress (6.7)</a>	<a href="#">in progress</a>	Not yet Available	<a href="#">Micron Web Site</a>	
DSK400G-SDM09	SSD	SATA	2.5"	Micron	5300MAX	960GB	MTFDDAK960TDT-1AW1ZABYY	8760TB TBW	<a href="#">vsan</a>	<a href="#">yes</a>	D3MU001	<a href="#">Micron Support</a>	-
DSK400G-SDM19	SSD	SATA	2.5"	Micron	5300MAX	1920GB	MTFDDAK1T9TDT-1AW1ZABYY	17520TB TBW	<a href="#">vsan</a>	<a href="#">yes</a>	D3MU001	<a href="#">Micron Support</a>	-
DSK400G-SD04	SSD	SATA	2.5"	Micron	5300PRO	480GB	MTFDDAK480TDS-1AW1ZABYY	1324TB TBW	<a href="#">vsan</a>	<a href="#">yes</a>	D3MU001	<a href="#">Micron Support</a>	-
DSK400G-SD09	SSD	SATA	2.5"	Micron	5300PRO	960GB	MTFDDAK960TDS-1AW1ZABYY	2628TB TBW	<a href="#">vsan</a>	<a href="#">yes</a>	D3MU001	<a href="#">Micron Support</a>	-
DSK400G-SD19	SSD	SATA	2.5"	Micron	5300PRO	1920GB	MTFDDAK1T9TDS-1AW1ZABYY	5256TB TBW	<a href="#">vsan</a>	<a href="#">yes</a>	D3MU001	<a href="#">Micron Support</a>	-
DSK400G-SD38	SSD	SATA	2.5"	Micron	5300PRO	3840GB	MTFDDAK3T8TDS-1AW1ZABYY	8410TB TBW	<a href="#">vsan</a>	<a href="#">yes</a>	D3MU401	<a href="#">Micron Support</a>	-
P-DSK401G-SD76	SSD	SATA	2.5"	Micron	5300PRO	7680GB	MTFDDAK7T6TDS-1AW1ZABYY	9110TB TBW	<a href="#">vsan</a>	<a href="#">yes</a>	D3MU801	<a href="#">Micron Support</a>	-
P-DSK400G-SD76	SSD	SAS	2.5"	Seagate	Nytro 3332	7680GB	XS7680SE70084	1DWPD	<a href="#">vsan</a>	<a href="#">yes</a>	Not yet Available	<a href="#">Seagate Support</a>	
P-DSK400G-SD150	SSD	SAS	2.5"	Seagate	Nytro 3332	15360GB	XS15360SE70084	1DWPD		no	Not yet Available	<a href="#">Seagate Support</a>	
<del>DSK200G-72S10</del>	<del>HDD</del>	<del>SATA</del>	<del>2.5"</del>	<del>Seagate</del>	<del>Exos 7E2000</del>	<del>4000GB</del>	<del>ST1000NX0303</del>	<del>7.2Krpm</del>	-	<del>no</del>	<del>Not yet Available</del>	<del><a href="#">Seagate Exos 7E</a></del>	no more available
<del>DSK200G-72S20</del>	<del>HDD</del>	<del>SATA</del>	<del>2.5"</del>	<del>Seagate</del>	<del>Exos 7E2000</del>	<del>2000GB</del>	<del>ST2000NX0243</del>	<del>7.2Krpm</del>	-	<del>no</del>	<del>Not yet Available</del>	<del><a href="#">Seagate Exos 7E</a></del>	no more available
DSK200G-10S12	HDD	SAS	2.5"	Seagate	Exos 10E2400	1200GB	ST1200MM0129	10.5Krpm	<a href="#">vsan</a>	<a href="#">yes</a>	C004	<a href="#">seagate Exos 10E2400</a>	-
DSK200G-10S18	HDD	SAS	2.5"	Seagate	Exos 10E2400	1800GB	ST1800MM0129	10.5Krpm	<a href="#">vsan</a>	<a href="#">yes</a>	C004	<a href="#">seagate Exos 10E2400</a>	-
DSK200G-10S24	HDD	SAS	2.5"	Seagate	Exos 10E2400	2400GB	ST2400MM0129	10.5Krpm	<a href="#">vsan</a>	<a href="#">yes</a>	C004	<a href="#">seagate Exos 10E2400</a>	-
DSK200G-72S40	HDD	SAS	3.5"	Seagate	Exos 7E8	4000GB	ST4000NM005A	7.2Krpm	<a href="#">vsan</a>	<a href="#">yes</a>	Not yet Available	<a href="#">Seagate Exos 7E8</a>	-
DSK200G-72S80	HDD	SAS	3.5"	Seagate	Exos 7E8	8000GB	ST8000NM001A	7.2Krpm	<a href="#">vsan</a>	<a href="#">yes</a>	Not yet Available	<a href="#">Seagate Exos 7E8</a>	-
DSK200G-72S120	HDD	SAS	3.5"	Seagate	Exos X16	12000GB	ST12000NM002G	7.2Krpm	<a href="#">vsan</a>	<a href="#">yes</a>	Not yet Available	<a href="#">Seagate Exos X16</a>	-
DSK201G-72S160	HDD	SAS	3.5"	Seagate	Exos X16	16000GB	ST16000NM002G	7.2Krpm	<a href="#">vsan</a>	<a href="#">yes</a>	Not yet Available	<a href="#">Seagate Exos X16</a>	-
DSK200G-72S180	HDD	SATA	3.5"	WD	Ultrastar DS HC550	18000GB	WUH721818ALE6L4	7.2Krpm	no	no	Not yet Available	<a href="#">WD ultrastar DS HC550</a>	-