BullSequana SA
Product Support Plan

Prepared by	: P. ARBENZ	Date: November 30, 2020
Issued by	: P. ARBENZ	Date: November 30, 2020
Validated & approved by	: See list	
Status	: Version 01	
Date of printing	: February 17, 2021	

Product Support Plan

Big Data & Security / Bull Sequana S Support

BullSequana SA

SA10 – SA20 - SA20G

PSP

REVISION MODE

This manual is revised in mode "Cancel and Replace" in its whole.

Additional copies and on-line access

From	Philippe ARBENZ
Address	Bull / ATOS. - RUE JEAN JAURES - B.P.68 – 78340 LES CLAYES SOUS BOIS
Phone	+33 1 30 80 70 77
e-mail	Philippe.arbenz@atos.net

Keywords

Bull Sequana SA	BullSequana SA
SA10 SA20 SA20G	GIGABYPE

Authority, author and revision history

Rev. N°.	Rev. Date	OWNER	Prepared By	Reason
Draft	November 7, 2020	P. ARBENZ	P. ARBENZ	Creation
Rev 01	February 17, 2021	P. ARBENZ	P. ARBENZ	Update with spare parts List.

SIGNATURE PAGE

Required Reviewers:

P. ARBENZ, Global Support Manager

M. PELCOQ, HEP Program Manager

N. DESLOGES, HEP Program Manager

S. DESWAERTE, HEP Product Manager

Approvers:

F. LOZANO, Global Service Operation Manager

L. NADIFI, Global Logistic Service.

Y. EVENO, HEP Product Manager

Product Support Plan

BullSequana SA SA10 – SA20 -SA20G PSP

Preparation Date: 20/11/30

SIGNATURE FORM

Required from Reviewer / Approver: please insert your Name and Title, followed by the date of approval following “Agreement for distribution from” in the dedicated cells.

Approval	Name, Title	Date
Agreement for distribution from		
Agreement for distribution from		
Agreement for distribution from		
Agreement for distribution from		
Agreement for distribution from		
Agreement for distribution from		
Agreement for distribution from		

TABLE OF CONTENTS

TABLE OF ILLUSTRATIONS

NOTE TO THE READER

This PSP describes the support plan for:

- The new **Bull Sequana SA** platform offer and associated Tools

Fig.1 - BullSequana SA10

EXECUTIVE SUMMARY

BullSequana Agility provides a balanced hyperconverged infrastructure (HCI) optimized for VMware hyperconverged software (VMware vSphere® and vSAN™) giving enterprises the agility to deploy their infrastructure in a variety of ways and avoid “vendor lock-in”. It combines new entry-level BullSequana SA servers based on the 2nd generation AMD EPYC™ processors, Hybrid or all-flash storage and optional graphics processing units (GPUs) – and virtualizes all, consolidating them into a single manageable portal. BullSequana SA completes the BullSequana S series portfolio.

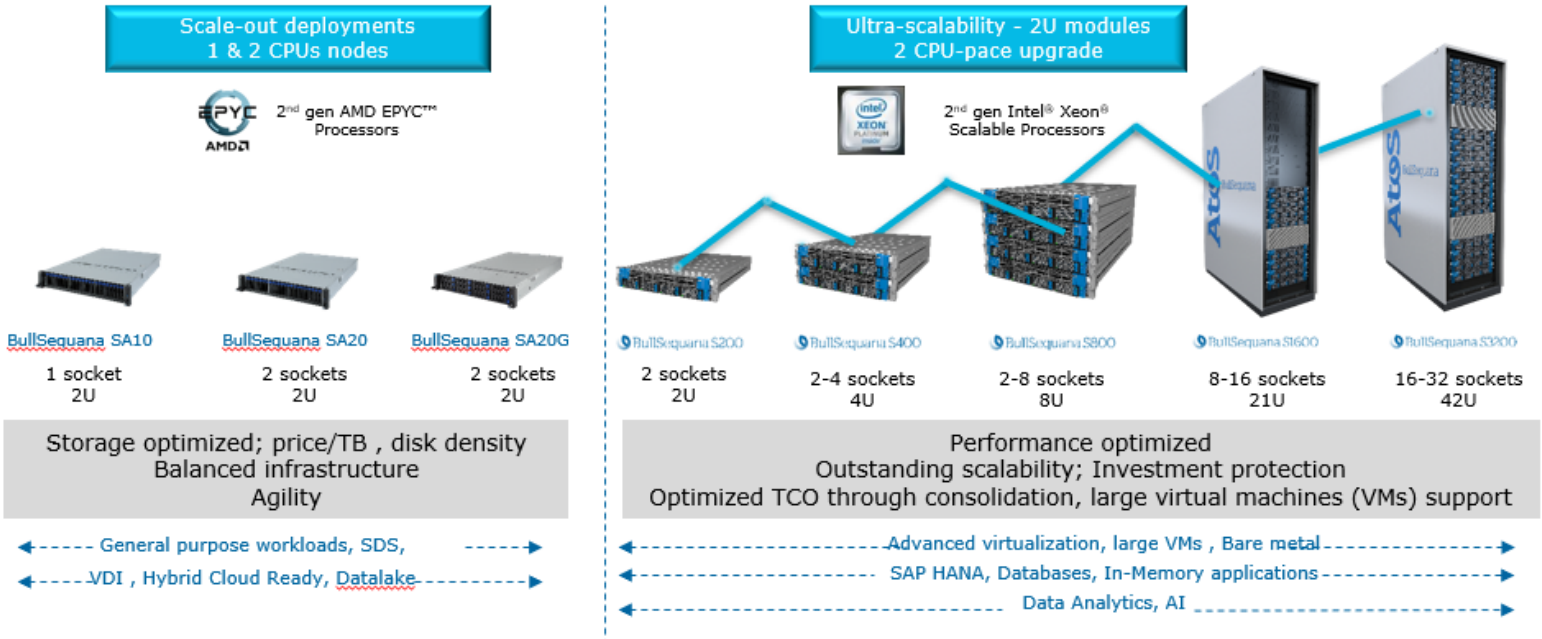


Fig.2 - BullSequana S series portfolio

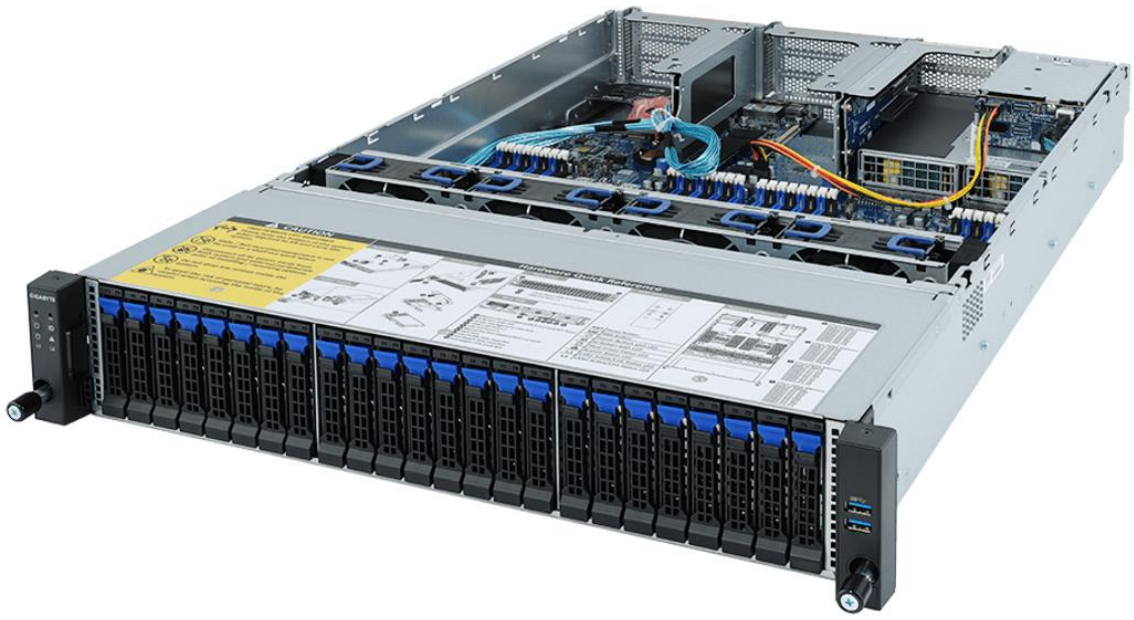


Fig.3 - BullSequana SA20

1 REFERENCE DOCUMENTS

Bull Sequana SA10 User Manual (86 A1 37FS 01)	dated	July, 2020
Bull Sequana SA20 User Manual (86 A1 38FS 01)	dated	July, 2020
Bull Sequana SA20G User Manual (86 A1 39FS 01)	dated	July, 2020
GSM Server Installation and Configuration Guide	dated	2019 Rev. 1.1
Server Management Console	dated	2019 Rev. 1.0

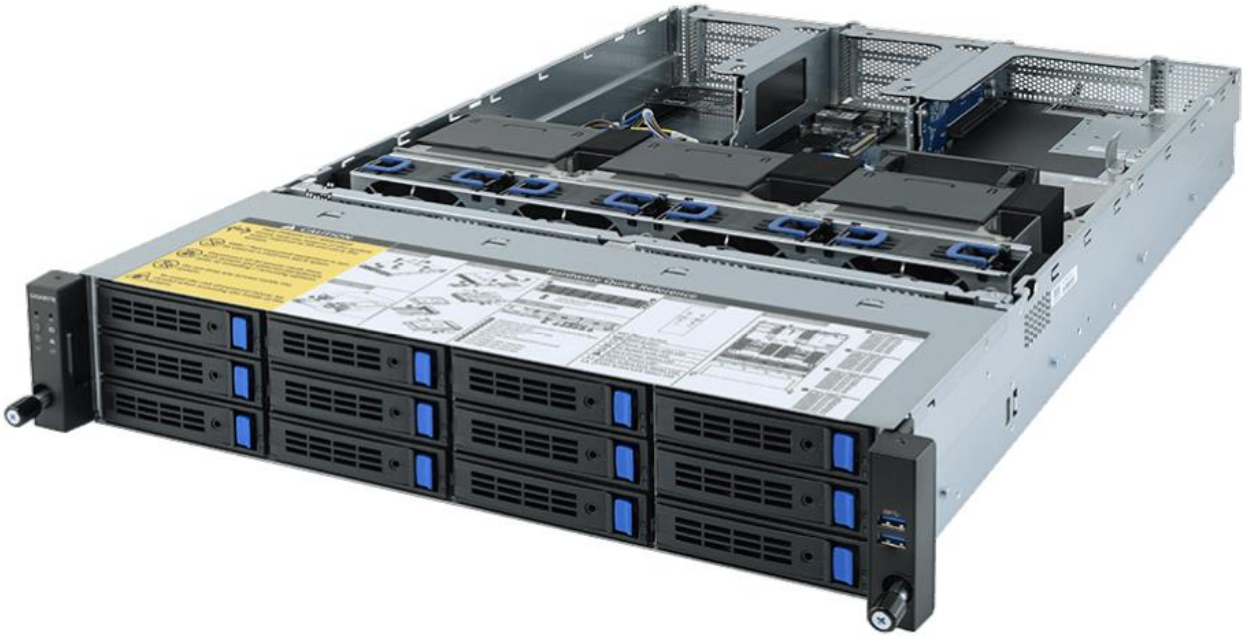


Fig.4 - BullSequana SA20G

2 OFFER DESCRIPTION

2.1 BULL SEQUANA SA OFFER

	BullSequana SA10(1)	BullSequana SA20	BullSequana SA20G
DESIGN			
From Factor	2U	2U	2U
PROCESSORS			
Type	2nd Generation AMD EPYC™ Processor, Socket SP3, 7 nm		
Numbers	1 max 64 cores/128 threads	2 max 128 cores/256 threads	2 max 128 cores/256 threads
MEMORY			
Memory Slots	16	32	32
Min / Max DRAM	64 GB - up to 1 TB	128 GB - up to 2 TB	128 GB - up to 2 TB
DRAM type	8-channel memory architecture RDIMM DDR4 16, 32 or 64 GB		
Memory speed	Up to 2933 MHz or 3200* MHz *3200 MHz with 1DIMM per Channel only		
EMBEDDED I/O PORTS			
Network Interface Controller	2 x 1GbE LAN ports (1 x Intel® I350-AM2)		
Management ports	1 x 10/100/1000 management LAN		
USB ports	5 USB 3.0 (2 front panel + 3 back panel)	4 USB 3.0 (2 front panel + 2 back panel)	4 USB 3.0 (2 front panel + 2 back panel)
I/O			
I/O slots	Up to 6 low profile PCIe Gen4 / Gen3 expansion slots: - 3 x PCIe Gen4 x16 slots, HHHL - 1 x PCIe Gen4 x8 slot, HHHL - 2 x PCIe Gen3 x8 or 1 x PCIe Gen3 x16 slots, HHHL 1 x OCP 2.0 PCIe Gen3 x16 mezzanine slot	8 x PCIe Gen4 expansion slots: - 2 x PCIe Gen4 x8 slots, HHHL - 2 x PCIe Gen4 x16 slots, FHHL - 4 x PCIe Gen4 x8 slots, FHHL 1 x OCP 3.0 PCIe Gen4 x16 mezzanine slot 1 x OCP 2.0 PCIe Gen3 x8 mezzanine slot	5 x PCIe Gen4 x16 slot, FHFL 1 x OCP 3.0 PCIe Gen4 x16 mezzanine slot 1 x OCP 2.0 PCIe Gen3 x8 mezzanine slot
Expansion cards	NICs (dual port): 10GbE, 25GbE, 100GbE Fiber Chanel HBAs (dual port): 16 and 32Gb/s SAS 12Gb/s / SATA 6Gb/s dual port HBAs		
STORAGE			
Hard drives	Up to 26 x 2.5" SATA/SAS hot-swappable HDD/SSD (24 front side & 2 rear side) or Up to 16 x 2.5" U.2 NVMe (front side) + 2 x 2.5" SATA/SAS hot-swappable HDD/SSD	Up to 26 x 2.5" SATA/SAS hot-swappable HDD/SSD (24 front side & 2 rear side) or Up to 24 x 2.5" U.2 NVMe (front side) + 2 x 2.5" SATA/SAS hot-swappable HDD/SSD	Up to 12 x 2.5" SATA/SAS hot-swappable HDD/SSD or Up to 10 x 2.5" U.2 NVMe + 2 x 2.5" SATA/SAS hot-swappable HDD/SSD
Storage bandwidth	SATAIII 6Gb/s or SAS 12Gb/s per port U.2 NVMe 32Gb/s per port		
Hardware RAID (optional)	RAID 0, 1, 5, 6, 10, 50, and 60		
Battery Backup	CacheVault® Flash Cache Protection Module		
VIDEO			
Graphics Controller	Integrated in Aspeed® AST2500 PCIe VGA/2D Controller - 1920x1200@60Hz 32bpp		
GPU	N/A	N/A	Up to 3 GPU Cards

	BullSequana SA10	BullSequana SA20	BullSequana SA20G
PANELS			
Front	2 x USB 3.0 1 Power button with LED 1 ID button with LED 1 Reset button 1 NMI button 1 System status LED 1 HDD activity LED 2 x LAN activity LEDs		
Back	3 x USB 3.0 1 VGA 1 COM 2 Ethernet RJ45 ports 1 RJ45 Management LAN port 1 ID button with LED	2 x USB 3.0 1 x VGA 2 Ethernet RJ45 ports 1 RJ45 Management LAN port 1 ID button with LED	2 x USB 3.0 1 x VGA 2 Ethernet RJ45 ports 1 RJ45 Management LAN port 1 ID button with LED
SECURITY			
Security features	Optional TPM 2.0		
OS & SOFTWARE			
Operating System	Red Hat Enterprise Linux 8.1 or later VMware ESXi 6.7 Update3 or later Red Hat OpenStack 13, 16		
SYSTEM MANAGEMENT			
Management Controller	Aspeed® AST2500		
Management Console	AMI MegaRAC SP-X web interface		
WARRANTY			
Standard Warranty	3 years CRU		
Warranty extension	Global Care		
REGULATOR & SAFETY			
Conformity	Safety (CE, CSA-US certifications) Electromagnetic compatibility (FCC certification) Environment (RoHS II & WEEE directives, REACH regulation)		

(1) Not applicable for Datalake

2.2 MARKETING MESSAGES

Within the BullSequana S series, the new BullSequana SA servers provide maximized storage density and cost effective per TB to meet growing capacity challenges.

Fig.5 - The BullSequana SA range consists of 3 models,

Here below are the key benefits of this range of servers.

Delivering outstanding storage density and cost per TB

The BullSequana SA rack servers powered by 2nd generation AMD EPYC™ processors bring a cost-effective balance of performance and storage capacity. By offering up to 100TB in a 2U form factor, and best-in class SAS/SATA and ultra-fast NVMe drives, they provide optimal performance for hyperconverged solutions such as the BullSequana Agility and Codex Datalake Engine. In addition, this outstanding density makes it possible to minimize the footprint and improve the energy efficiency. Storage on multiple hard disks allows data redundancy and performance improvement. RAID technology provides the right balance between reliability, availability, performance, capacity – and cost! It also brings higher performance in Datalake with data tiering using flexible HDD and SSD combination.

Designed for virtualization and Hybrid Cloud

Certified with the industry-leading HCI software stack from VMware, BullSequana SA servers enable IT to move towards a Cloud operating model to take advantage of the agility of the public Cloud within their datacenter. The VMware HCI Software stack involves VMware vSphere® for compute virtualization, VMware vSAN™ for storage virtualization and VMware vCenter® for virtual infrastructure management. They are also certified with Red Hat® OpenStack® for Codex Datalake Engine. BullSequana SA vSAN ReadyNodes™ provide customers with the ability to scale, without disruption, both capacity and performance simultaneously by adding a new node to the cluster (scale-out architecture). As a result, they are perfectly sized to deliver the level of performance required by dataintensive workloads or graphic-intensive VDI environments.

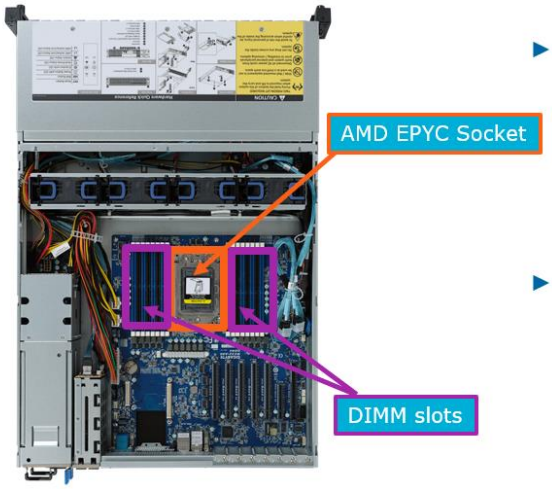
Featuring best-in-class technologies

Atos close collaboration with Gigabyte™ enables BullSequana SA servers to feature best-in-class latest technologies: • Latest AMD processors with up to 64 cores/128 threads per CPU • High memory speed, up to 3200MHz • Wide storage technologies (Ultra-fast NVMe, SSD/HDD SATA/SAS) • NVDIA GPUs for Datalake analytics applications, enterprise graphic-intensive applications and virtual desktop deployments • Full support of PCIe 4.0 technology, with a bandwidth of up to 64GB/s • Certification with OpenStack and VMware's leading-edge technology • Compliance to the latest RoHS environmental regulations

2.3 PRODUCT DESCRIPTION

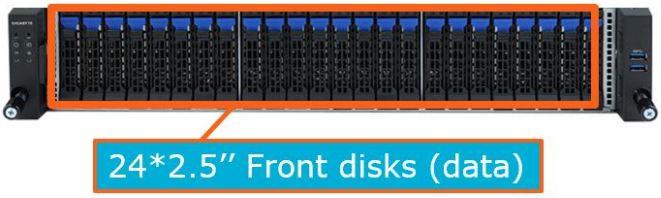
2.3.1 BULLSEQUANA S10 (R272-Z31)

BullSequana SA10 – CPU & memory



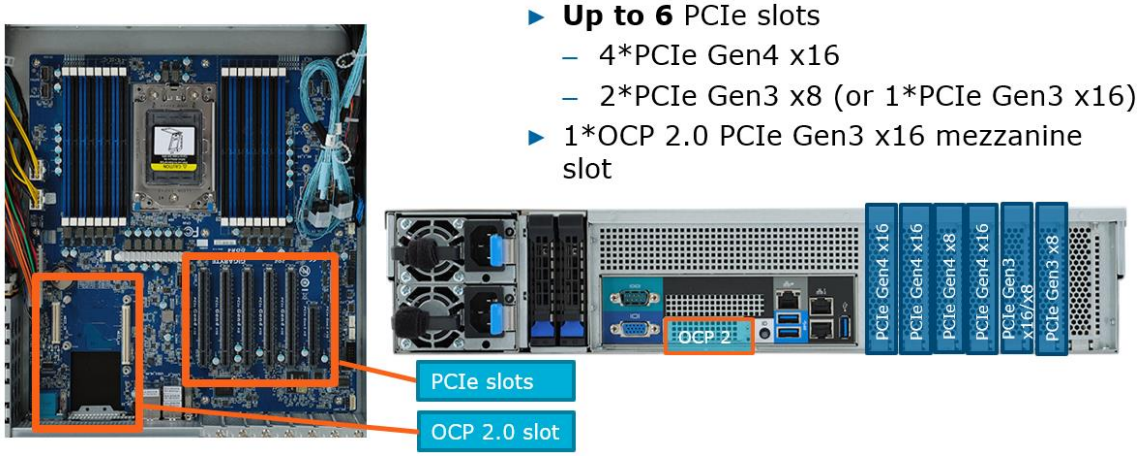
- **Single Socket** in 2U form factor
  - 2nd Generation AMD EPYC™ Processor (Rome)
  - 64 cores / 128 threads max
  - Supports single-socket **"P"** CPUs
- Up to 1TB RAM
  - 16, 32 or 64GB RDIMM
  - 8-channel memory architecture
  - 3200 MHz (1DPC) / 2933 MHz (2DPC)

BullSequana SA10 – Storage



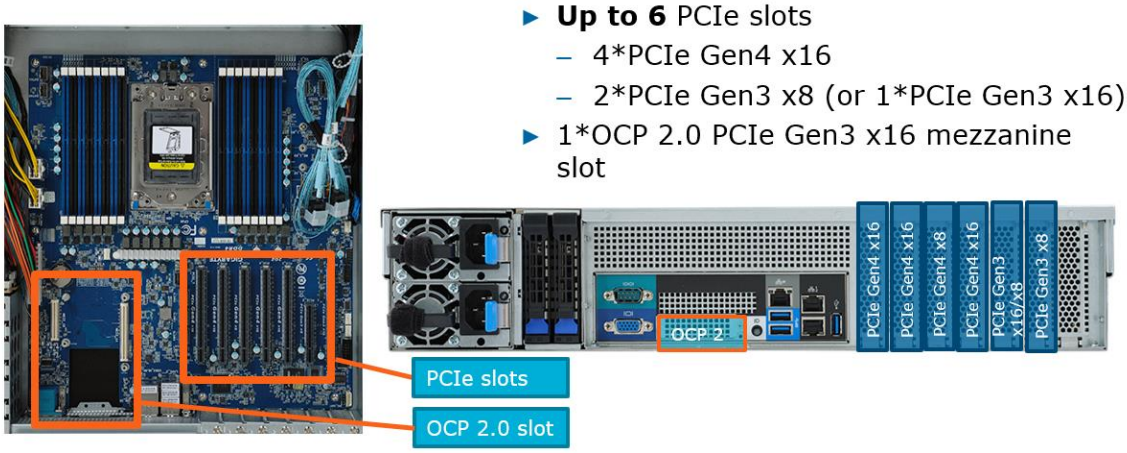
- **Up to 26*2.5"** SAS/SATA HDD/SSD
  - 24 on front (for data)
  - 2 on back (for RAID1 OS boot)
- SAS expander: up to 26 drives connected to single storage adapter
- 2 adapters needed for vSAN:
  - OS disks on RAID adapter, Data on RAID or non-RAID adapter

BullSequana SA10 – PCIe & OCP slots



- **Up to 6** PCIe slots
  - 4*PCIe Gen4 x16
  - 2*PCIe Gen3 x8 (or 1*PCIe Gen3 x16)
- 1*OCP 2.0 PCIe Gen3 x16 mezzanine slot

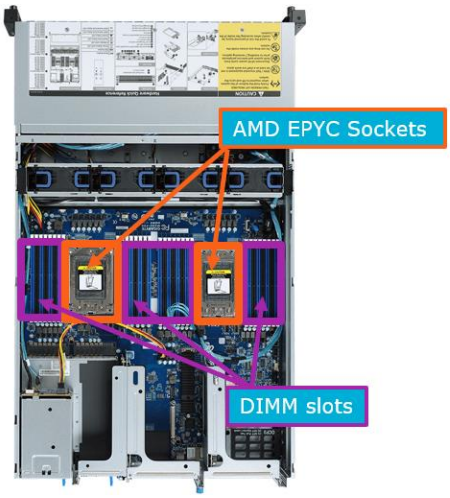
BullSequana SA10 – Panels



- **Up to 6** PCIe slots
  - 4*PCIe Gen4 x16
  - 2*PCIe Gen3 x8 (or 1*PCIe Gen3 x16)
- 1*OCP 2.0 PCIe Gen3 x16 mezzanine slot

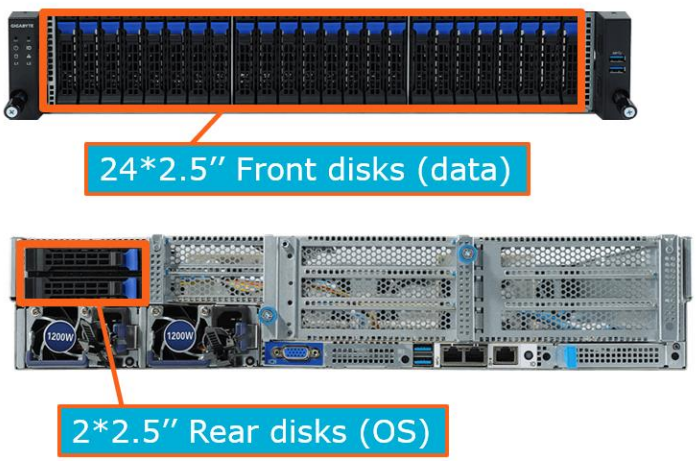
2.3.2 BULLSEQUANA S20 (R282-Z91)

BullSequana SA20 – CPU & memory



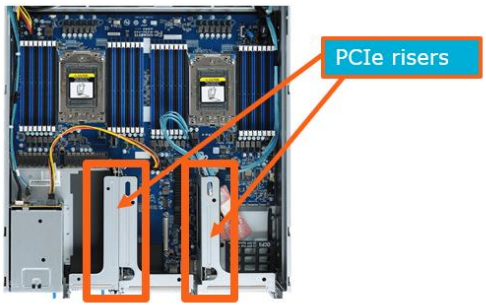
- **2 Sockets** in 2U form factor
  - 2nd Generation AMD EPYC™ Processor (Rome)
  - 64 cores / 128 threads max per CPU
- **Up to 2TB RAM**
  - 16, 32 or 64GB RDIMM
  - 8-channel memory architecture
  - 3200 MHz (1DPC) / 2933 MHz (2DPC)

BullSequana SA20 – Storage



- **Up to 26*2.5'' SAS/SATA HDD/SSD**
  - 24 on front (for data)
  - 2 on back (for RAID1 OS boot)
- SAS expander: up to 26 drives connected to single storage adapter
- 2 adapters needed for vSAN:
  - OS disks on RAID adapter
  - Data on RAID or non-RAID adapter

BullSequana SA20 – PCIe & OCP slots



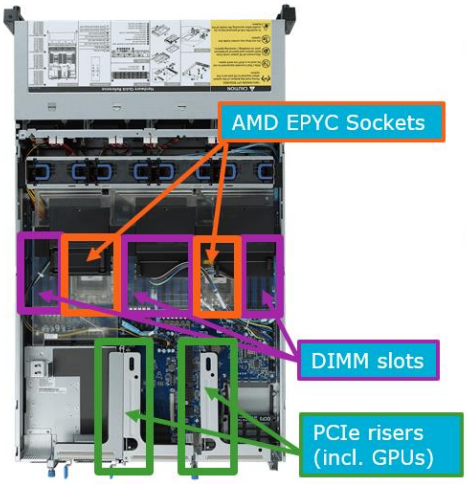
- 8*PCIe Gen4 slots
  - 2*PCIe Gen4 x16
  - 6*PCIe Gen4 x8
- OCP
  - 1*OCP 3.0 Gen4 x16 mezzanine slot
  - 1*OCP 2.0 Gen3 x8 mezzanine slot

BullSequana SA20 – Panels

- Front
  - 2 x USB 3.0
  - 1 Power button with LED
  - 1 ID button with LED
  - 1 Reset button
  - 1 NMI button
- Rear
  - 2 x USB 3.0
  - 1 VGA
  - 2 Ethernet RJ45 1Gb/s ports
  - 1 RJ45 Management LAN port (BMC)
  - 1 ID button with LED

2.3.3 BULLSEQUANA S20G (R282-Z93)

BullSequana SA20G – CPU & memory

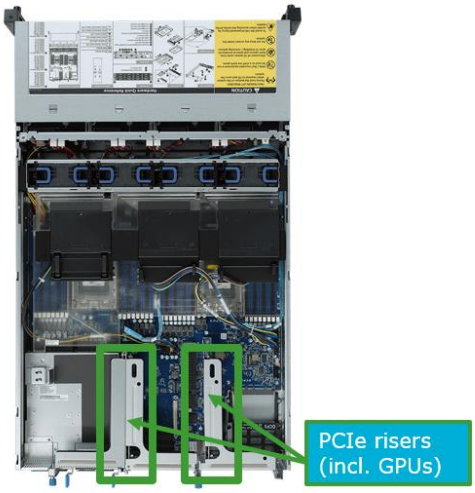


- **2 Sockets & up to 3 GPUs** in 2U form factor
  - 2nd Generation AMD EPYC™ Processor (Rome)
  - 64 cores / 128 threads max per CPU
- Up to 2TB or RAM
  - 16, 32 or 64GB RDIMM
  - 8-channel memory architecture
  - 3200 MHz (1DPC) / 2933 MHz (2DPC)

BullSequana SA20G – Storage

- **Up to 12*2.5 or 3.5''** SAS/SATA HDD/SSD
  - 3.5'' HDDs will come in **Set2**
    - It will be possible to mix 2.5'' and 3.5'' devices
  - vSAN
    - 2 disks for OS on RAID adapter
    - 8 disks for Data on RAID or non-RAID adapter

BullSequana SA20G – PCIe & OCP slots



- 5 PCIe Gen4 x16 slots
- OCP
  - 1*OCP 3.0 Gen4 x16 mezzanine slot
  - 1*OCP 2.0 Gen3 x8 mezzanine slot

BullSequana SA20G – Panels

- Front
  - 2 x USB 3.0
  - 1 Power button with LED
  - 1 ID button with LED
  - 1 Reset button
  - 1 NMI button
- Rear
  - 2 x USB 3.0
  - 1 VGA
  - 2 Ethernet RJ45 1Gb/s ports
  - 1 RJ45 Management LAN port (BMC)
  - 1 ID button with LED

2.3.4 BULLSEQUANA SA SPECIFICATIONS

2.4 DIMENSIONS AND WEIGHTS

	BullSequana SA10	BullSequana SA20	BullSequana SA20G
Dimensions (WxHxD)	438 x 87.5 x 660 mm	438 x 87 x 730 mm	438 x 87 x 730 mm
Weight	Net Weight: 16.68 kg Gross Weight: 23.66 kg	Net Weight: 18.5 kg Gross Weight: 25.5 kg	Net Weight: 18.5 kg Gross Weight: 25.5 kg
Operating Properties	Operating / Non-operating temperature: 10°C to 35°C /-40°C to 60°C* Operating / Non-operating humidity: 8%-80% (non-condensing) / 20%-95% (non-condensing) *For BullSequana SA20G, ambient temperature limited to 30°C if using 280W CPU		

2.5 TECHNICAL SPECIFICATIONS

	BullSequana SA10	BullSequana SA20	BullSequana SA20G
POWER SUPPLY			
Hot-swap Power Supply Unit (PSU)	2 x 800W or 2 x 1200W* redundant PSUs *1200W if using 280W CPU with full load configuration or when using NVMe	2 x 1600W redundant PSUs	2 x 2000W redundant PSUs
PSU type	Label 80+ Platinum		
AC Input	100-240V~/ 10-4A, 50-60Hz	100-120V~/ 12A, 50-60Hz 200-240V~/ 10.0A, 50-60Hz	100-120V~/ 12A, 50-60Hz 180-240V~/ 10A, 50-60Hz
DC Input	240Vdc/ 4.5A	240Vdc/ 10A	240Vdc/ 10A
COOLING			
Fan specifications	4 x 80x80x38mm (16,300rpm), hot-swappable		

3 PRODUCT CALENDAR

3.1 LIFE CYCLE PROCESS

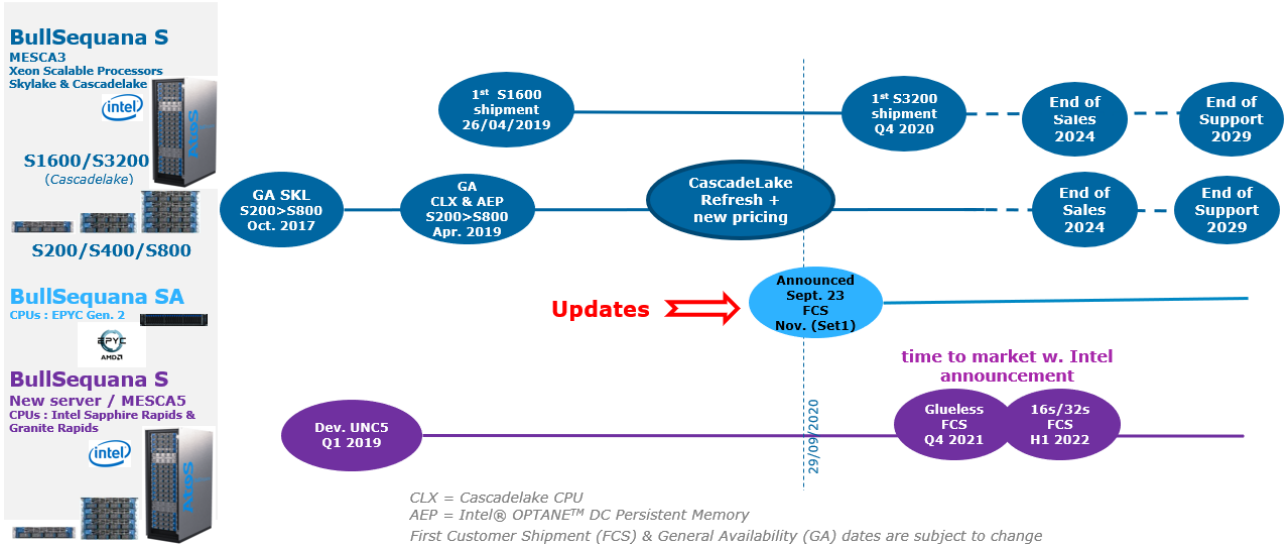


Fig.6 - Life Cycle Process

Gate B	September 2020
Announcement (external customer event)	September 2020
First Pilot “Beta” delivery (customer site)	November 2020
Cate C - General Delivery –	

3.2 PILOT SITES PHASE

The pilot phase will be managed by a specific survey from Support Team.

3.3 GENERAL DELIVERY PHASE

Started after Gate C, BullSequana SA will be delivered as a standard offer.

4 MAINTENANCE STRATEGY

Atos GBU delivers maintenance and support services for Atos BDS products and solutions in selected GBUs. The solutions include appliances composed of Atos BDS or 3rd party servers and disk arrays, network equipment, firmware, operating systems and application software.

Any Atos IDM sub-contractor delivering these services must be qualified, certified when applicable and trained by Atos BDS or an Atos BDS approved trainer from GBU.

Logistics, including warehouse management and spare part delivery for incident resolution is managed by GBUs. Bull Sequana S solution spare parts will be supplied exclusively by Atos BDS to Atos GBU.

Changes in equipment address, serial numbers and hostnames and the documentation of these changes in ASMILE CMDB is under the responsibility of Atos GBU in selected GBUs.

4.1 RECEIVING AND MANAGING SERVICE REQUESTS:

Atos GBU will record service requests received by phone calls, mails or tickets registered in ASMILE ticketing system from end users and will provide Level 1 support including problem determination, action plan for resolution and parts shipment to end user. On-site service is delivered by Atos GBU or Atos BDS. Level 1 support will be delivered by Atos BDS in selected GBU (see Appendix A). Level 2 and Level 3 will be provided by Atos BDS.

Global Bull Sequana S Support Level Definitions:

- Level 0 (L0)Receiving Service Requests (and Recording Incidents)
- Level 1 (L1)Incident Management (and Ownership)
- Level 2 (L2) Problem Management (and Major Incident resolution)
- Level 3 (L3) Change Management (and Release Management)
- Field Service, Dispatching and Spare Part Logistics (FS)

Global Bull Sequana S Support Severity Definitions:

The list below describes the severity levels that Bull Sequana S end customers use to define the impact and severity of their case when registering a service request:

- **Severity 1** System stopped: severe impact to business operation, system is unavailable
- **Severity 2** System degraded: degraded performance or interruption in system availability
- **Severity 3** Minor impact or question: No or minor impact on business operation, system available

Atos GBU will create tickets for end users and following the responsibility assignment matrix described below:

Receiving Service Requests and Recording Incidents	Atos BDS	Atos GBU CO MNT
Receive Service Requests from end user (by phone, mail, web or autocall) and collect information for record in Atos ASMILE ticketing system: 1. Record and verify equipment serial number, service, end user name, address, area code, telephone number, technical contact name and other relevant information. 2. Verify end user service entitlement and escalate to local GBU BDS service manager any issues in service verification. 3. Record incident subject and description or add updates on existing tickets.		Delivers
Record impact/severity and create an incident ticket in the appropriate queue of ASMILE ticketing system.		Delivers
Incident Management and Ownership	**Atos BDS**	**Atos GBU**
Deliver Level 1 Remote Technical Support Service (See description here under).		Delivers
Analyze incident logs and evidence and provide a resolution to end user using standard problem determination procedures		Delivers
When applicable, access to Atos BDS Atos known issues documentation and problem determination procedures on web site SOL (support.bull.com) to check if a solution is already available.		Delivers
If repair part(s) are required, list those parts (part posting) and contact Atos GBU local logistic team to request a delivery from local or central warehouses.		Delivers
If no solution found, transfer incident to the Atos BDS support level 2 with required information from level 1 (Problem Description, Problem Source Identification, trace, log, etc...)		Delivers
Manage communication with customers and report customer escalations to local Atos BDS Service Manager		Delivers
Receiving escalated Level 1 Incidents in appropriate L2 queue and record problems in Atos BDS Problem Management Systems (A-Smile L3 queue & PLM).	Delivers	
Provide Level 2 Remote Technical Support Service	Delivers	
If no solution found, transfer incident to Atos BDS support level 3 with required information from Atos BDS level 2 Remote Technical Support	Delivers	
Provide level 3 Remote Technical Support Service.	Delivers	
Verify and adjust the list of required parts for corrective actions, when applicable	Delivers	
Manage on-site interventions with Field Service		Delivers
Manage the on-site activity and raise an alert to local GBU BDS Service Manager if there is a risk on SLA fulfillment.		Delivers
Provide Level 2 on-site assistance to field service if required in an action plan validated by Level 2 support expert.	Delivers	
Close call in Atos GBU's Incident Management Systems.		Delivers
Close call in Atos BDS's Problem Management Systems.	Delivers	

Atos BDS Level 2 and Level 3 deliver remote technical support service for equipment listed in ASMILE CMDB with a valid contract/warranty.

4.2 REMOTE TECHNICAL SUPPORT:

3.1 Level 1 Remote Technical Support (Analysis and Diagnose/"Qualification"):
Level 1 Technical Support may be the first owner for new web and autocall tickets and a service manager is responsible for any unassigned tickets and to manage service requests according to contracts SLA. Before any further actions are taken, the following information on the Incident has to be completed if it has not been already provided:

- Incident category
- Urgency (What is the impact to IT service?)
- Priority (How soon does it need to be resolved?)
- Name of the person and/or group that reported the incident
- Description of the symptoms
- Any troubleshooting activities already performed

Technical L1 support will analyze incident logs and evidence and provide a resolution or workaround to end user using standard problem determination procedures and know error documentation and databases. The objective is to ensure prompt recovery of the system or to restore as much of a service as possible in the shortest amount of time.

3.2 Level 1 Remote Incident Management (Dispatching):
In communication with end-user, Dispatching plans required interventions for successful resolution of an incident. It ensures that the Incident Management process is followed and resolves the issue in a timely fashion by:

- Organizing on site intervention with field engineer & spare parts delivery considering customer constraints and SLA.
- Managing on site action plan delivered by technical support L1 and/or L2
- Initiating specific assignments for staff and business partners
- Escalating the incident as required when SLA resolution targets are at risk
- Ensuring external and internal communication on the incident occurs according to defined service targets and SLA

3.3 Level 2 Remote Technical Support :
The main objective is to solve technical problems that could not be solved by Level 1 support, to report problems for problem management and to finalize resolution of workarounds. It consists of:

- Collecting additional information (e.g. kernel logs, application logs, benchmark results);
- Identifying the root cause for failures in Atos BDS products and solutions when not identified previously by L1;
- Understanding and correlating incidents and when required recreating the incident at Atos BDS Support labs.
- escalating to Level 3 Remote Technical Support when Level 2 Remote Technical Support is unable to provide a solution

3.4 Level 3 Remote Technical Support:
Consists of L3 Support Team and the relevant Atos BDS or 3rd party engineering team working together to provide a final solution to a reported problem, when required by developing and releasing product updates and fixes. Atos BDS R&D teams work best effort to provide an acceptable solution in the next release. L3 support and engineering teams work together to provide a workaround to fix incidents that have not been resolved by L1 and L2 teams within SLA.

4.3 REMOTE TECHNICAL SUPPORT DUTIES:

Remote L1 Support Duties (Incident Management)	Atos BDS	Atos GBU
Atos GBU Call Entry will be provided in local language (s)		Delivers
Initial call receipt and entry into Atos GBU & BDS Incident Management System (A-Smile), 24 hours per day, 365 days per year.		Delivers
Verification of Atos GBU's entitlement for service, including service levels contracted by Atos GBU direct to Atos BDS and/or End User under the Atos GBU's maintenance agreement.		Delivers
Atos GBU Level 1 qualification, Dispatching, On-site interventions can be performed 24/7 according to end user commitments.		Delivers
Atos GBU has to implement with customer the capability to access to remote systems on customer site.		Delivers
If the issue is on a BDS Appliance solution, Atos GBU will escalate the ticket to Atos BDS Level 2 team for qualification if the root cause cannot be identified by Atos GBU L1 teams.		Delivers
Atos GBU Level 1 Remote Technical Support will check if Field Engineer skills match the requirements for on site operations.		Delivers

Remote L2+L3 Support Duties (Problem Management)	Atos BDS	Atos GBU
Level 2 and Level 3 support is available 24 hours per day, 365 days per year for a Severity 1 call (situation where an Atos GBU end user is unable to continue with normal business operations, or their system is unusable in a mission critical environment) , Atos BDS will respond (meaning first contact established between Atos BDS and Atos GBU) to Atos GBU within one (1) hour	Delivers	
Provide Firmware for the Bull Sequana S covered by the Support Contract (via SOL web site or with download tools)	Delivers	
Except for severity 1, Atos BDS's response will be based on maintenance service contract with end user.	Delivers	
When applicable considering the impact of the issue the Level 2 Support will provide an RCA document (Root Cause Analysis).	Delivers	

4.4 TRANSFER OF SERVICE REQUESTS

To transfer a Service Request to Atos BDS Global Bull Sequana S Support (e.g. escalation of an incident from support Level 1 to support Level 2), Atos GBU will only make use of E-Tickets (=Escalation Tickets) in A-SMILE ticketing system and move it in the appropriate queue (default is L2::Bull Sequana S for Bull Sequana S solutions if no other queue has been defined).

Other tickets will be transferred as defined in Atos GBU ASMILE standard procedures.
In order to improve time to response and ensure timely resolution, Atos GBU will contact Atos BDS on duty service specialists during CET out-of-business hours (8:00-17:00) by phone via Atos GBU BICC to confirm the transfer of the ticket.

4.4.1 INFORMATION REQUIRED FOR TRANSFER:

For escalations performed by Atos GBU support Level 1 to Level 2, the reasonably necessary data collection, Atos GBU deliverable data, problem description and problem source identifier have to be provided by Atos GBU teams.

4.4.2 PROBLEM MANAGEMENT FOR BULL SEQUANA S SERVERS:

Problem management will be handled through A-Smile Level 2+3 Bull Sequana S queue and PLM Engineering Tool. The Level 2 and Level 3 Bull Sequana S queue will be accessible to Atos GBU.

4.4.3 INCIDENT MANAGEMENT FOR APPLIANCES:

Atos GBU will transfer all Service Requests on Appliances (defined in Exhibit A) to Atos BDS Level 1 Support for Incident Management and ownership. Atos BDS will own the Incident during the full ticket lifecycle. –E or –F Tickets will be created to Atos GBU to deliver service and support for hardware components serviced by Atos GBU in selected GBUs.

4.5 ON-SITE FIELD SERVICE

The on-site Field Service activity is performed by Atos GBU.

On-site Atos GBU activity covers:

1. Replacement of failing part(s) provided by Atos GBU,
2. Running Atos BDS Bull Sequana S diagnostics to verify problem resolution and to collect logs if necessary and
3. updating firmware as a corrective action or when otherwise provided with instructions to do so by support.
4. Manage the technical resolution on customer site and communicate technical updates on incident resolution to L1 support.
5. Gather relevant technical and administrative information and document in the ticketing system ASMILE.

All required information for the Field Engineer managing the intervention on site will be delivered by the L1 remote support or Dispatching team until ticket resolution.

Atos GBU may request assistance from Atos BDS for on-site maintenance for major incidents when Atos GBU does not have field service capabilities or if advanced expertise of Bull Sequana S products and solutions is required for resolution. Atos BDS will respond to these requests on a best effort basis.

4.6 WARRANTY

3-years on site (Next Business Day, Working Hours and Days).

Extensions: Bronze / Silver / Gold (Cf. GBU Offers).

5 LOGISTICS

5.1 LOGISTICS STRATEGY

Under the local OLA with Atos GLS (Global Logistics Service) , Atos GBU will own, manage and provide spare part logistics and distribution services for parts utilizing Atos BDS's part distribution network and processes. Atos BDS will retain Ownership of named parts.

Spare Part activities	Atos BDS	Atos GBU
Atos BDS Level 2 will update the list of spare parts, and will list, on Atos GBU request, recommended parts for a local stock regarding end-user SLA.	Delivers	
Atos BDS Level 2 will update the list of spare parts, and will list, on Atos GBU request, recommended parts for a local stock regarding end-user SLA.	Delivers	
Atos GBU will provide local warehousing, transportation, inventory control, inventory management, planning (incl. redistribution) and order management, data management, including parts data management of Parts.		Delivers
Atos GLS provides Spare Parts supplied to Atos GBU to create a buffer local stock: • to fulfill specific SLA with end customer • or to match lead time with SLA. Atos GBU needs to replenish this stock or replace defective spare parts. This part of activity is under OLA between Atos GBU & Atos GLS.		Delivers

5.2 BULLSEQUANA SA / FRU LIST

FRU/CRU	Configuration	Part Number GLS	Description
CRU	BullSequana SA10	GBT-25EK3-R18102-000	HDD tray blue / SA10
CRU	BullSequana SA10	GBT-25EP0-208004-000	PSU 800W - R272-Z31/33 (L0S)
CRU	BullSequana SA10	GBT-25ST2-883829-000	FAN - R272-Z33_R282-Z91/93
CRU	BullSequana SA10	GBT-5CFP2001NR-000	Front panel SA10
FRU	BullSequana SA10	GBT-25HB2-3A0202-000	Rail kit / SA10
FRU	BullSequana SA10	GBT-25ST1-15320E-000	CPU HEATSINK_G242-Z10_R272-Z33_R282-Z91
FRU	BullSequana SA10	GBT-5CBP2021NR-000	Backplane Rear R272-Z30/31/32
FRU	BullSequana SA10	GBT-5CBP20O5NR-000	BBACKPLANE 24BAIES 2.5p-R282-Z91/R272-Z3
FRU	BullSequana SA10	GBT-5CEP26O0NR-000	SAS Expander module - X430-A5
FRU	BullSequana SA10	GBT-5CPDGDS0NR-000	Riser card 1 / SA10
FRU	BullSequana SA10	GBT-5CPDGDS1NR-000	Riser card 2 / SA10
FRU	BullSequana SA10	GBT-5MZ32AR0NR-000	Motherboard - R272-Z33
CRU	BullSequana SA20	GBT-25EK3-R18102-000	HDD tray blue / 2.5" SA20
CRU	BullSequana SA20	GBT-25EK3-R18104-000	HDD tray orange / 2.5" SA20

FRU/CRU	Configuration	Part Number GLS	Description
CRU	BullSequana SA20	GBT-25EP0-216008-000	PSU 1600W - R282-Z91 (L0S)
CRU	BullSequana SA20	GBT-25ST2-883829-000	FAN - R272-Z33_R282-Z91/93
CRU	BullSequana SA20	GBT-5CNV3024NR-000	NVME HBA / CNV3024
CRU	BullSequana SA20	GBT-5CNVO022NR-000	NVME HBA CNVO022 - X430-A5
CRU	BullSequana SA20	GBT-5CNVO022NR-000	NVME HBA CNVO022 - X430-A5
CRU	BullSequana SA20	GBT-5CNVO134NR-000	NVME HBA CNVO134 - X430-A5
FRU	BullSequana SA20	GBT-25HB2-3A0202-000	Rail kit / SA20
FRU	BullSequana SA20	GBT-25ST1-15320E-000	CPU HEATSINK_G242-Z10_R272-Z33_R282-Z91
FRU	BullSequana SA20	GBT-5CBP2020NR-000	Backplane rear / 2x 2,5"
FRU	BullSequana SA20	GBT-5CBP20O5NR-000	BBACKPLANE 24BAIES 2.5p-R282-Z91/R272-Z3
FRU	BullSequana SA20	GBT-5CEP26O0NR-000	SAS Expander module - X430-A5
FRU	BullSequana SA20	GBT-5CFP2001NR-000	Front panel / SA20
FRU	BullSequana SA20	GBT-5CRS2027NR-000	RISER CARD 1 - CRS2027 - R282-Z91
FRU	BullSequana SA20	GBT-5CRS2033NR-000	RISER CARD 2 - CRS2033 - R282-Z91
FRU	BullSequana SA20	GBT-5MZ92FS0NR-000	Motherboard Dual EPYC 7002 - R282-Z91/93
CRU	BullSequana SA20G	GBT-25EK3-R18101-000	HDD tray blue /3.5" SA20G
CRU	BullSequana SA20G	GBT-25EP0-22000A-000	PSU 2000W - R282-Z93 (L0S)
CRU	BullSequana SA20G	GBT-25ST2-883829-000	FAN - R272-Z33_R282-Z91/93
CRU	BullSequana SA20G	GBT-5CFP2001NR-000	Front panel / SA20G
FRU	BullSequana SA20G	GBT-25HB2-3A0202-000	Rail kit / SA20G
FRU	BullSequana SA20G	GBT-25ST1-44320G-000	CPU HEATSINK - R282-Z93 (A0R)
FRU	BullSequana SA20G	GBT-5CBP20C4NR-000	BACKPLANE 12 BAIES 3.5p - X450-A5
FRU	BullSequana SA20G	GBT-5CRS2014NR-000	RISER CARD 1 - CRS2014 - R282-Z91/93
FRU	BullSequana SA20G	GBT-5CRS2026NR-000	RISER CARD 2 - CRS2026 - R282-Z93
FRU	BullSequana SA20G	GBT-5MZ92FS0NR-000	Motherboard Dual EPYC 7002 - R282-Z91/93
CRU	BullSequana SAXX	21006971-000	LSI Megaraid SAS 9480-8i8e 4Gb card
CRU	BullSequana SAXX	21006360-000	LSI SAS9300-8e card
CRU	BullSequana SAXX	21006909-000	1.2TB 2.5" SAS HDD 10K 12Gb/s disk
CRU	BullSequana SAXX	21006960-000	16Gb/s F/C DP w/o LPe31002 card
CRU	BullSequana SAXX	21006969-000	LSI Megaraid SAS 9361-8i 12Gb card
CRU	BullSequana SAXX	21007056-000	LSI SAS9400-16i card
CRU	BullSequana SAXX	21007175-000	LSI SAS9300-8i card
CRU	BullSequana SAXX	21007279-000	32Gb/s F/C DP w/o LPe32002 card
CRU	BullSequana SAXX	21007317S11-000	2.4TB 2.5" SAS HDD 10K 12Gb/s disk
CRU	BullSequana SAXX	21007432-000	LSI Megaraid SAS 9460-16i 4Gb card
CRU	BullSequana SAXX	BCM957414N4140C-000	10Gb/s DP Eth DAC-N210p OCP3 card
CRU	BullSequana SAXX	BCM957416A4160C-000	10Gb/s DP Eth Base-T-P210tp card
CRU	BullSequana SAXX	BCM957416M4163C-000	10Gb/s DP Eth Base-T-M210tp OCP card
CRU	BullSequana SAXX	M393A2K43DB2-000	16GB DDR4-3200 ECC RDIMM DR Samsung(CWE)
CRU	BullSequana SAXX	M393A4G43AB3-000	32GB DDR4-3200 ECC RDIMM DR Samsung(CWE)
CRU	BullSequana SAXX	M393A8G40AB2-000	64GB DDR4-3200 ECC RDIMM DR Samsung(CWE)
CRU	BullSequana SAXX	MCX4121AACAT-000	25Gb/s DP Eth DAC-CTX4 card
CRU	BullSequana SAXX	MCX4121AXCAT-000	10Gb/s DP Eth DAC-CTX4 card
CRU	BullSequana SAXX	MCX4421AACQN-000	10-25Gb/s DP Eth DAC-CTX4 OCP card

FRU/CRU	Configuration	Part Number GLS	Description
CRU	BullSequana SAXX	MCX516ACDAT-000	100Gb/s DP Eth DAC-CTX5 card
CRU	BullSequana SAXX	MCX516ACDAT-000	100Gb/s DP Eth SR-CTX5 card
CRU	BullSequana SAXX	MFM1T02ASR-000	10Gb Optical transceiver for CTX4
CRU	BullSequana SAXX	MMA1B00C100D-000	100Gb Optical transceiver QSFP for CTX5
CRU	BullSequana SAXX	MMA2P00AS-000	25Gb Optical transceiver SFP28 for CTX4
CRU	BullSequana SAXX	MTA18ASF2G72PDZ-000	16GB DDR4-3200 ECC RDIMM DR Micron 3G2E1
CRU	BullSequana SAXX	MTA36ASF4G72PZ-000	32GB DDR4-3200 ECC RDIMM DR Micron 3G2E2
CRU	BullSequana SAXX	MTA36ASF8G72PZ-000	64GB DDR4-3200 ECC RDIMM DR Micron 3G2B1
CRU	BullSequana SAXX	MTFDDAK1T9TDS-000	1.92TB 2.5" SATA SSD 6Gb/s (1AW1ZABYY)
CRU	BullSequana SAXX	MTFDDAK1T9TDT-000	1.92TB Max 2.5" SATA SSD 6Gb/s(1AW1ZABYY
CRU	BullSequana SAXX	MTFDDAK3T8TDS-000	3.84TB 2.5" SATA SSD 6Gb/s (1AW1ZABYY)
CRU	BullSequana SAXX	MTFDDAK480TDS-000	480GB 2.5" SATA SSD 6Gb/s (1AW1ZABYY)
CRU	BullSequana SAXX	MTFDDAK960TDS-000	960GB 2.5" SATA SSD 6Gb/s (1AW1ZABYY)
CRU	BullSequana SAXX	MTFDDAK960TDT-000	960GB Max 2.5" SATA SSD 6Gb/s(1AW1ZABYY)
CRU	BullSequana SAXX	MTFDHBE1T6TDG-000	1x1.6TB Max NVMe U.2 SSD (1AW4ZABYY)
CRU	BullSequana SAXX	MTFDHBE1T9TDF-000	1x1.92TB NVMe U.2 SSD disk (1AW4ZABYY)
CRU	BullSequana SAXX	MTFDHBE3T8TDF-000	1x3.84TB NVMe U.2 SSD disk (1AW4ZABYY)
CRU	BullSequana SAXX	MTFDHBE800TDG-000	1x800GB Max NVMe U.2 SSD (1AW4ZABYY)
CRU	BullSequana SAXX	MTFDHBE960TDF-000	1x960GB NVMe U.2 SSD disk (1AW4ZABYY)
CRU	BullSequana SAXX	ST1000NX0303-000	1TB 2.5" SATA HDD 7.2K 6Gb/s disk
CRU	BullSequana SAXX	ST1800MM0129-000	1.8TB 2.5" SAS HDD 10K 12Gb/s disk
CRU	BullSequana SAXX	ST2000NX0243-000	2TB 2.5" SATA HDD 7.2K 6Gb/s disk
FRU	BullSequana SAXX	1000043-000	CPU AMD 16C 7302 (3GHz/204.8GBs/155W)
FRU	BullSequana SAXX	1000045-000	CPU AMD 32C 7502P (2.5GHz/204.8GBs/180W)
FRU	BullSequana SAXX	1000047-000	CPU AMD 64C 7702P (2.0GHz/204.8GBs/200W)
FRU	BullSequana SAXX	1000048-000	CPU AMD 24C 7402P (2.8GHz/204.8GBs/180W)
FRU	BullSequana SAXX	1000049-000	CPU AMD 16C 7302P (3GHz/204.8GBs/155W)
FRU	BullSequana SAXX	1000055-000	CPU AMD 64C 7H12 (2.6GHz/204.8GBs/280W)
FRU	BullSequana SAXX	1000057-000	CPU AMD 32C 7452 (2.35GHz/204.8GBs/155W)
FRU	BullSequana SAXX	1000075-000	CPU AMD 32C 7542 (2.9GHz/204.8GBs/225W)
FRU	BullSequana SAXX	1000076-000	CPU AMD 48C 7552 (2.2GHz/204.8GBs/200W)
FRU	BullSequana SAXX	1000077-000	CPU AMD 24C 7352 (2.3GHz/204.8GBs/155W)
FRU	BullSequana SAXX	1000078-000	CPU AMD 16C 7282 (2.8GHZ/85.3GBs/120W)
FRU	BullSequana SAXX	1000079-000	CPU AMD 12C 7272 (2.9GHz/85.3GBs/120W)
FRU	BullSequana SAXX	1000080-000	CPU AMD 8C 7252 (3.1GHz/85.3GBs/120W)
FRU	BullSequana SAXX	1000081-000	CPU AMD 8C 7232P (3.1GHz/85.3GBs/120W)
FRU	BullSequana SAXX	1000137-000	CPU AMD 64C 7662 (2.0GHz/204.8GBs/225W)
FRU	BullSequana SAXX	1000139-000	CPU AMD 8C 7F32 (3.7GHz/204.8GBs/180W)
FRU	BullSequana SAXX	1000141-000	CPU AMD 24C 7F72 (3.2GHz/204.8GBs/240W)
FRU	BullSequana SAXX	21007369-000	1 GPU Nvidia V100, 32GB card
FRU	BullSequana SAXX	21007373-000	1 GPU Nvidia T4, 16GB card
FRU	BullSequana SAXX	9002G1500050-000	1 GPU Nvidia RTX8000, 48GB card

6 TRAINING PLANS & SCHEDULES

6.1 CENTRALIZED SUPPORT PEOPLE TRAINING

Producer course dedicated to support people will be organized and held by HPC validation Team. Training materials will be requested to Gigabyte for Atos session development.

6.2 EARLY SHIPMENT DELIVERIES / FIELD TRAINING

The training of Field Engineers for early shipment will be organized and scheduled by support regarding delivery timeframe. The training material will be available on SOL Web site.

6.3 FIELD ENGINEER TRAINING

The sessions for Field Engineers will be done remotely and evaluated at four hours, mainly focusing on hardware architecture and Server Management Console.

6.4 CUSTOMER TRAINING

TBC

6.5 LANGUAGES USED

For the customer:

- Source document written in English language.

  The translation in other languages is not provided but if necessary, is under the responsibility of each affiliate.

For the CSR and support people:

- Controlled technical English language only (for an international audience).

6.6 CUSTOMER DOCUMENTATION

Paper manuals are no more available and have been replaced by **USB-Key**.
List of Documentation Set can be also consulted on internal Bull SOL site:
https://support.bull.com/ols/product/platforms/Bull Sequana SA

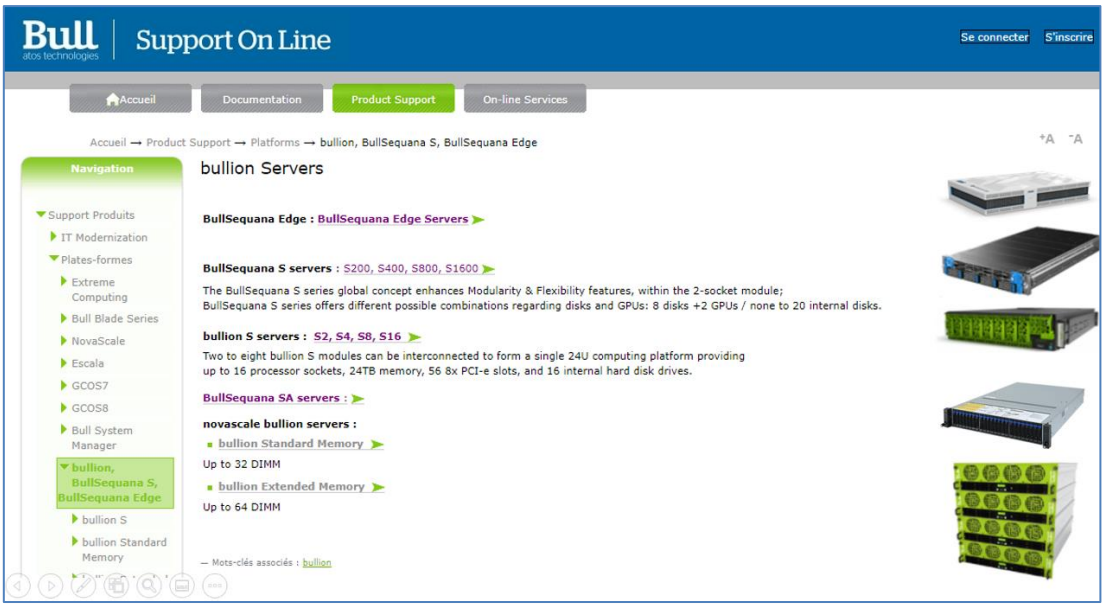


Fig.7 – SOL Support on Line

6.7 CSR AND SUPPORT DOCUMENTATION

In order to assist in the use of this product, the following types of documentation are provided:

- User Manual: detailed information & steps about the installation, configuration and use this product (motherboard), covering hardware, BIOS and BMC firmware.
- Service Guide: detailed information & steps about the installation, configuration and use of this product, covering hardware & BIOS

7 TOOLS, TEST EQUIPMENT, & DIAGNOSTICS

7.1 PRODUCT TOOLS

The Dashboard page of the Management Console gives the overall information about the status of a device. It displays the following:

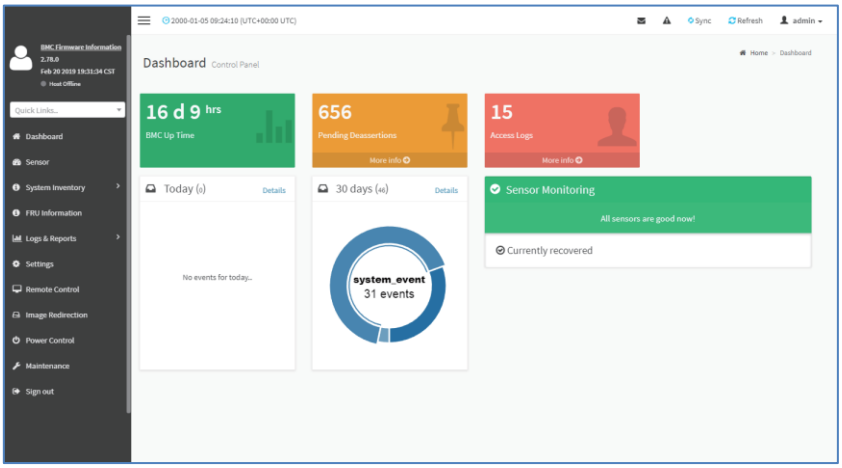


Fig.8 – Management Console

7.2 LOGS & REPORTS / IPMI EVENT LOG

This page displays the list of event logs occurred by the different sensors on this device. Double click on a record to see the details of that entry. You can use the sensor type or sensor name filter options to view those specific events or you can also sort the list of entries by clicking on any of the column headers.
To open the Event Log page, click Logs & Reports > IPMI Event Log from the menu bar.

A sample screenshot of Event Log page is shown below.

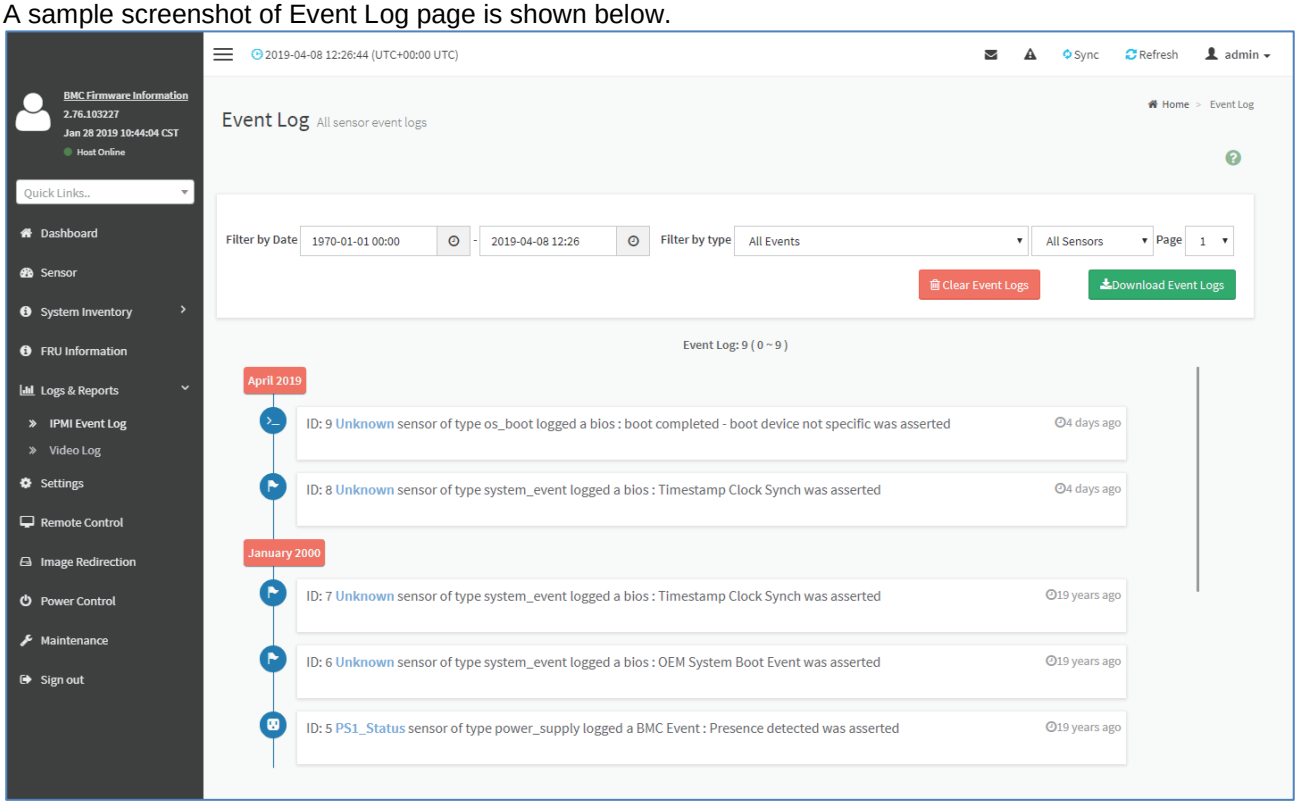


Fig.9 – Event Log

The Event Log page consists of the following fields:

- Filter By Date: Filtering can be done by selecting Start Date and End Date.
- Filter By Type: The category could be either All Events, System Event Records, OEM Event Records, BIOS Generated Events, SMI Handler Events, System Management Software Events, System Software - OEM Events, Remote Console software Events, Terminal Mode Remote Console software Events.

8 TECHNICAL SUPPORT ASSIGNMENTS

- Bullion & Bull Sequana S Hardware Support
  P. ARBENZ
  Rue Jean-Jaurès
  BP 68
  78340 Les CLAYES sous BOIS

- Global Logistic support
  L. NADIFI
  357 Avenue du Général Patton
  49008 ANGERS

- Global BDS Manufacturing Supply Chain
  Y. EVENO
  357 Avenue du Général Patton
  49008 ANGERS

GLOSSARY

ACPI	Advanced Configuration and Power Interface
ADDDC	Adaptive Double Device Data Correction
ASIC	Application Specific Integrated Circuit
BIOS	Basic Input / Output System
BMC	Baseboard Management Controller
CLI	Command Line Interface
CPLD	Complex Programmable Logic Device
CPU	Central Processing Unit
CRU	Customer Replaceable Unit
CSR	Certificate Signing Request
DDR4	Double Date Rate fourth generation
DES	Data Encryption Standard
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual In-line Memory Module
DNS	Domain Name Server
EFI	Extensible Firmware Interface
EMM	Embedded Management Module
ESD	Electrostatic Discharge
ESM	Ethernet Switch Module
FDB	Front Disk Blade
FPGA	Field Programmable Gate Array
FQDN	Fully Qualified Domain Name
FRU	Field Replaceable Unit
GPU	Graphical Processing Unit
HDD	Hard Disk Drive
I2C	Intra Integrated Circuit
IPMB	Intelligent Platform Management Bus
IPMI	Intelligent Platform Management Interface
JRE	Java Runtime Environnent
KVA	Kilovolt-Ampere
KVM	Keyboard Video Mouse
LAN	Local Area Network
LCD	Liquid Crystal Display
LCP	Local Control Panel
LDAP	Lightweight Directory Access Protocol
LED	Light Emitting Diode
MAC	Media Access Control
MIB	Management Interface Base
MSM	Management Switch Module
MTBF	Mean Time Between Failure
NEMA	National Electrical Manufacturers Association
NFC	Near Field Communication
NTP	Network Time Protocol
NVMe	Non-Volatile Memory Express
NVRAM	Non-volatile random-access memory
PCI	Peripheral Component Interconnect
PCIe	PCI Express
PDB	Power Distribution Board
PCH	Platform Controller Hub
PDU	Power Distribution Unit
PEF	Platform Event Filtering
PET	Platform Event Trap
PHP	PHP: Hypertext Preprocessor
PIROM	Processor Information ROM
PSU	Power Supply Unit
RADIUS	Remote Authentication Dial-In User Service.
RAID	Random Array of Independent Disks
RAS	Reliability, Availability, Serviceability

RDIMM	Registered Dual In-line Memory Module
RFB	Remote Frame Buffer
RMC	Rack Management Controller
SAS	Serial Attached SCSI
SATA	Serial ATA
SSD	Solid State Drive
SDDC	Single Device Data Correction
SDR	Sensor Data Repository
SEL	System Event Log
SHC	Server Hardware Console
SMI	System Management Interrupt
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SOL	Serial Over LAN
SSH	Secured Shell
SSL	Secure Socket Layer
TELNET	Telecommunication Network

End of Document