TITLE: **Product Support Plan for BullSequana Edge**

ABSTRACT: This document represents the Product Support Plan for BullSequana Edge. Product updates which represent changes to this support plan will be handled as revisions to this plan with the updated product nomenclature.

STATUS OF THIS DOCUMENT: BASELINED

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Draft2	June 28th, 2019	Support	"	Draft version 2
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V0	July 17th, 2019	Support	"	V0 (prior Gate B)
V0u5	July 26th, 2019	Support	"	V0 update 5
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V1	November4th, 2019	Support	"	V1 - Reviewers comments & Documentation section update
V2	December 4th, 2019	Support	"	V2 – L1 Support definition
V3	May 2020	Support	"	V3 Documentation section spare parts update & maintenance process
V4	July 2020	Support & GBL	"	Update prior the Gate C (July 6th, 2020).
V5	January 2021	Support & GBL	"	Spare parts update including LTE Sierra & MI Module update CPU

ADDITIONAL COPIES AND ON-LINE ACCESS:

The baselined document is available online via *Atos source.* Prior to baseline, copies can be obtained from the author.

KEYWORDS: BullSequana, Edge, Skylake, Support, Logistics, Plan.

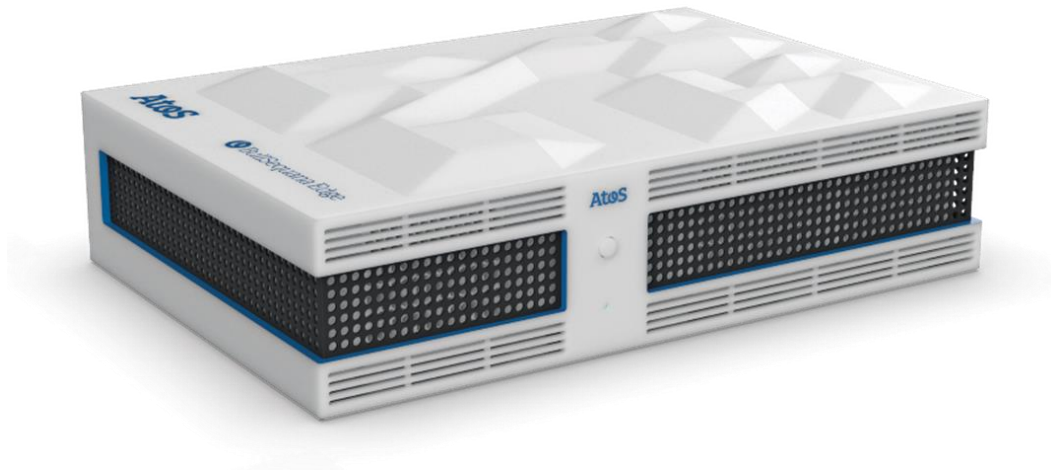|			
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Product Support Plan

BullSequana Edge

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NOTE TO THE READER

PREFACE

This document describes the Support features of BullSequana product.

1 EXECUTIVE SUMMARY

1.1 MARKETING STRATEGY

BullSequana Edge is one of the most powerful Edge servers.

The system is Installable anywhere and with the following features:
- Does not need a Datacenter
- Can operate in airports, shop/factory floors, …
- ETSI EN 300 019 class 3.2 specs slightly relaxed up to +45°

- **Server class CPU optimized for the Edge**
  - o 16 very powerful Intel Xeon CPU cores / 32 threads
  - o Great for streaming data ingestion / analytics

- **Outstanding AI acceleration capabilities**
  - o Up to 2 Nvidia T4 GPUs coprocessors
  - o Up to 2 FPGAs
  - o Powerful AI model inference for video analytics

- **Flexible Radio and NIC networking options**
  - o Cabling independent
  - o Up to 2 wireless communications modules (Wifi, LoRa, mobile network). These are particularly useful when BullSequana Edge needs to communicate with IoT devices or with the analysis center. Furthermore, Wifi modules can be configured to be Wifi access points for other devices.
  - o 2 x 10GbE Ethernet ports connected to 2 SFP+ connectors

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- **Edge optimized security**
  - Intrusion detection
  - Secure firmware update
  - Secure boot
  - TPM 2.0 FIPS 140-2

BullSequana Edge is Microsoft Azure certified for IoT.

1.2 BULLSEQUANA EDGE ARCHITECTURE

BullSequana Edge is based on a main mother board with Skylake D processors plus accessories including networks components and GPU. Please see below.
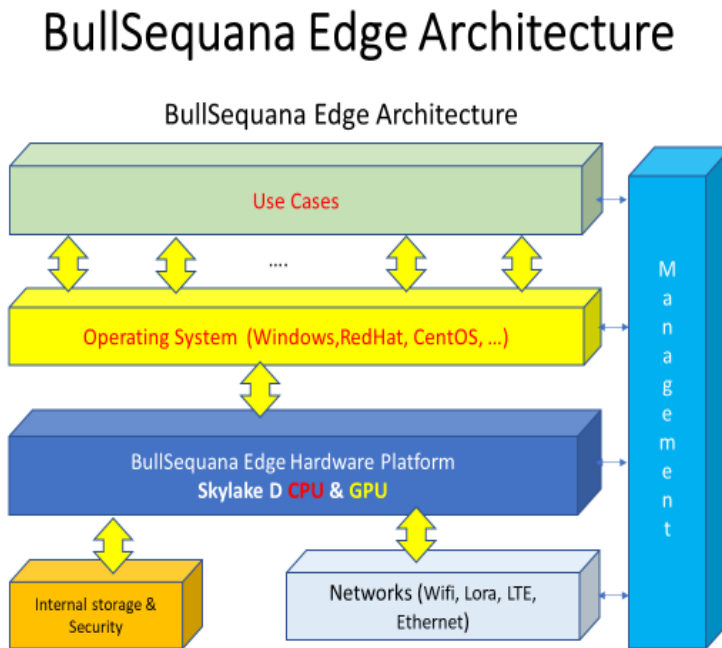
Figure 1. BullSequana Edge architecture

1.3   SUMMARY OF MAINTENANCE STRATEGY

The maintenance strategy for BullSequana Edge is summarized below. Please refer to section 11.

Topic	Strategy
Warranty	3 years parts. Please see section 11.
Hardware maintenance	Transportable machine
	Remote maintenance under specific customer network access conditions.
	Maintenance contracts with 4H delay for incident call back by Support.
Installation	Customer installable System. Installation billable if requested by the customer.
Software maintenance	First level of support to be provided by Customer Support Organization (CSO) or agreed Atos partner.
	Second level of support to be provided by Atos Global Support
	BullSequana Edge software: under support contract definition, according to the software solution packages used by the customer.
Logistics	Critical parts stocked and managed by GLS (Global Logistic System)
	May be invested locally if needed (at least 2 units of parts in each local base or on partner site).
	Other parts created on request.

2 REFERENCE DOCUMENTS

Ref	Document Title	Identification Nb.	Repository
	BullSequana Edge product catalog	tbd	
	BullSequana Edge MPP	tbd	

*Repository applies after document is baselined.

3 OFFER OVERVIEW

3.1 GENERAL INFORMATION

BullSequana Edge offer is an offer under Atos brand system. The offer is managed by BullSequana product line business.

3.2 LIST OF THE MIs COMPOSING BULLSEQUANA EDGE OFFER

3.2.1 MI LIST

Please refer to BullSequana Edge catalog (BULLSEQUANA EDGE CONFIGURATION RULES document).

3.2.2 BULLSEQUANA INITIAL SYSTEM INSTALLATION

This service is on request, per quotation.

3.3 DESIGN AND BUILD LOCATIONS

The design and development efforts are a collaboration in Atos teams between Bangalore (India) and Les Clayes-sous-Bois (France) engineering organizations. The development responsibilities are assigned based on the experience and expertise in the two locations.

The Manufacturing is assigned to Atos Angers factory.

3.4 PRODUCT DESCRIPTION

3.4.1 SYSTEM ARCHITECTURE

BullSequana Edge is based on a hardware with Skylake D CPUs.

3.4.2 CENTRAL SYSTEM HARDWARE CHARACTERISTICS

Mother Board:	Skylake D processor – 16 cores
POWER SUPPLY:	1 POWER SUPPLY 650W 12V
VENTILATION:	3 cooling fans

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3.4.3   HARDWARE SPECIFICATIONS

3.4.3.1 BullSequana Edge dimensions and weight

BullSequana Edge has the following physical specifications:

Size (H x W x D): 86 x 290 x 430 mm

Weight: 10 kg.

Height 2U - 86 mm

BullSequana Edge has the following technical specifications:

Operating Limits	
Ambient air temperature	+5°C to + 45°C Gradient 20°C / hour
Relative humidity (non condensing)	5% to 90% Gradient 5%/hour
Pressure	70 to 106 kPa
Elevation	Sea level < 3000 m
Non-Operating Limits	
Ambient air temperature	<-20°C and >60°C
Relative humidity (non condensing)	<5% and >95% (Gradient 30%/h)
Moisture content	1 to 29 g/m3
Shipping Limits	
Operating air temperature	-20°C to + 60°C Gradient 25°C/hour
Relative humidity (non condensing)	5% to 95% Gradient 30%/hour

Module Technical Specifications:

Electrical Specifications	
Each BullSequana Edge server module is equipped with 1 PSU	
Rated Current	6 - 3 A
Power consumption	Typical: < 500 W
Thermal dissipation	Maximum: 600 W
Rated Voltage Range	100 - 240 V
Rated Frequency Range	50/60 Hz
Environmental Specifications	
Noise	25°C inlet, 75% of worst TDP power and without fan filter: 40dB

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3.4.4 HARDWARE ARCHITECTURE AND COMPONENTS

The BullSequana Edge architecture overview is based on a main mother board plus accessories described below.
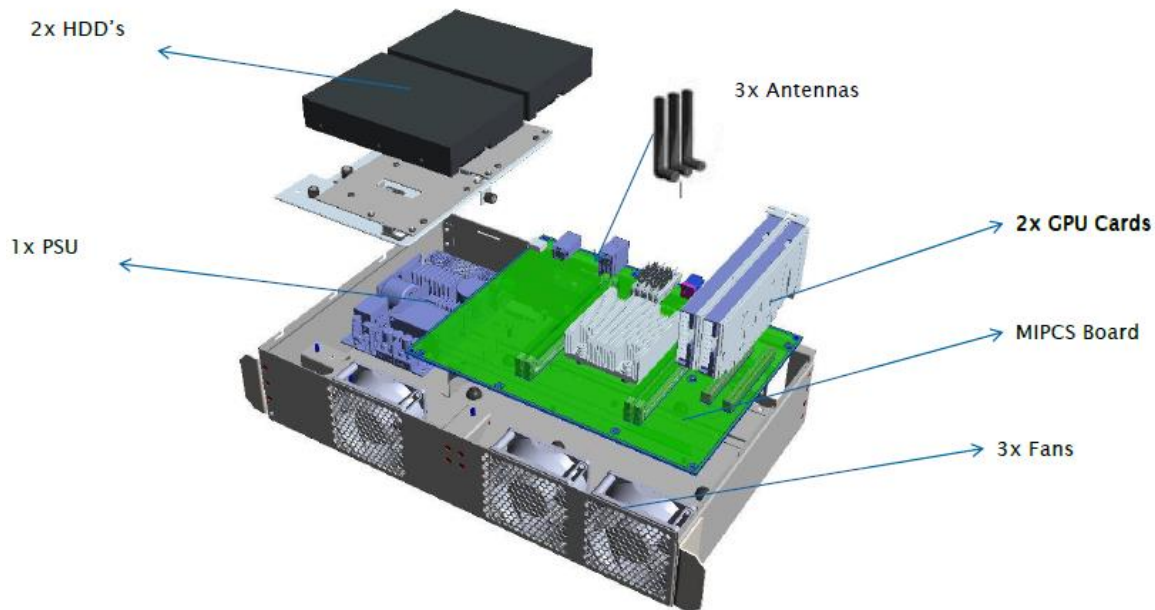
Figure 2. BullSequana Edge Internal view

The back panel is shown below in the figure:
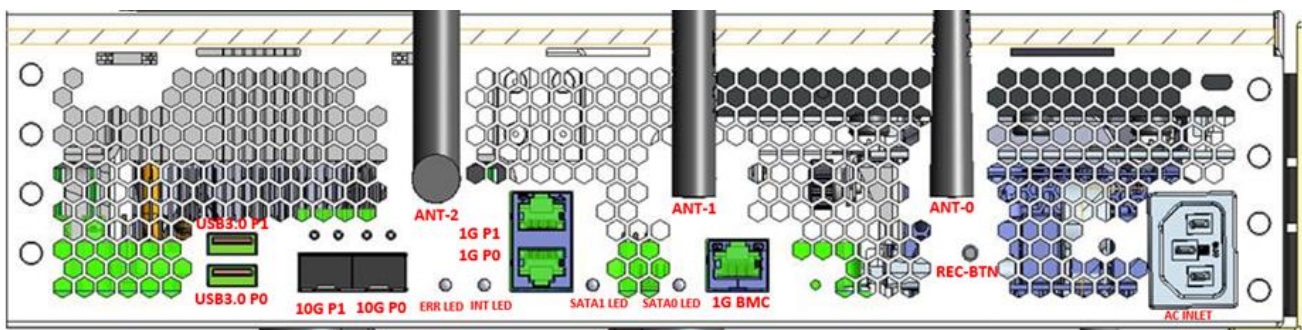
Figure 3 BullSequana Edge rear view

The mother board and slotting is shown here:

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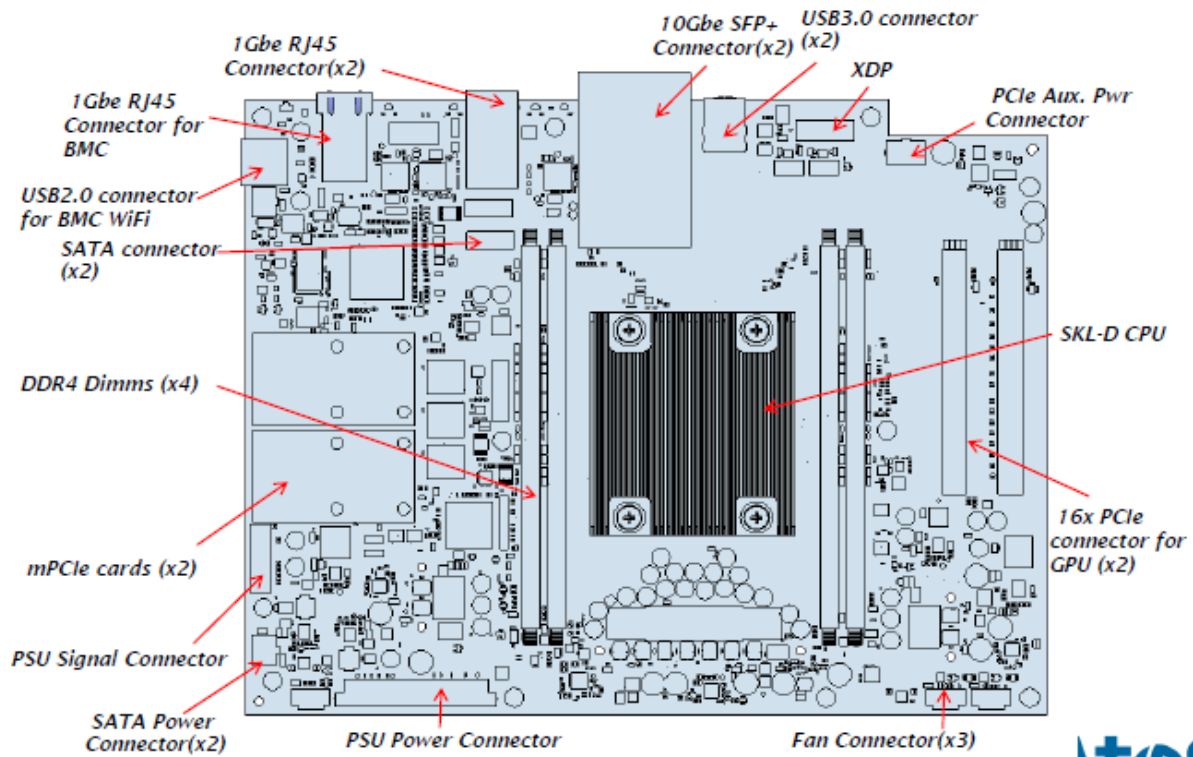
Figure 4 Motherboard view and slotting

3.4.5   HARDWARE COMPONENTS

3.4.5.1 BullSequana Egde Box

Box Front
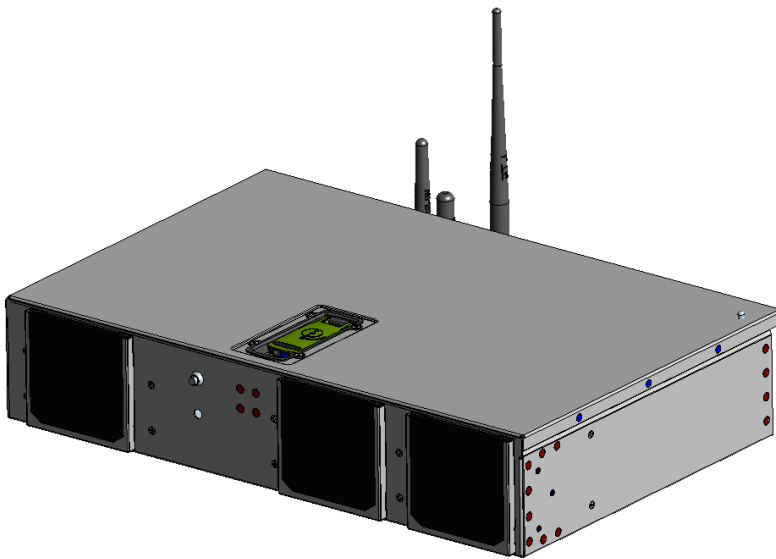
Figure 5. BullSequana Edge front view

Box rear

Figure 6. BullSequana Edge rear view

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3.4.5.2 BullSequana Egde machine with boards and parts
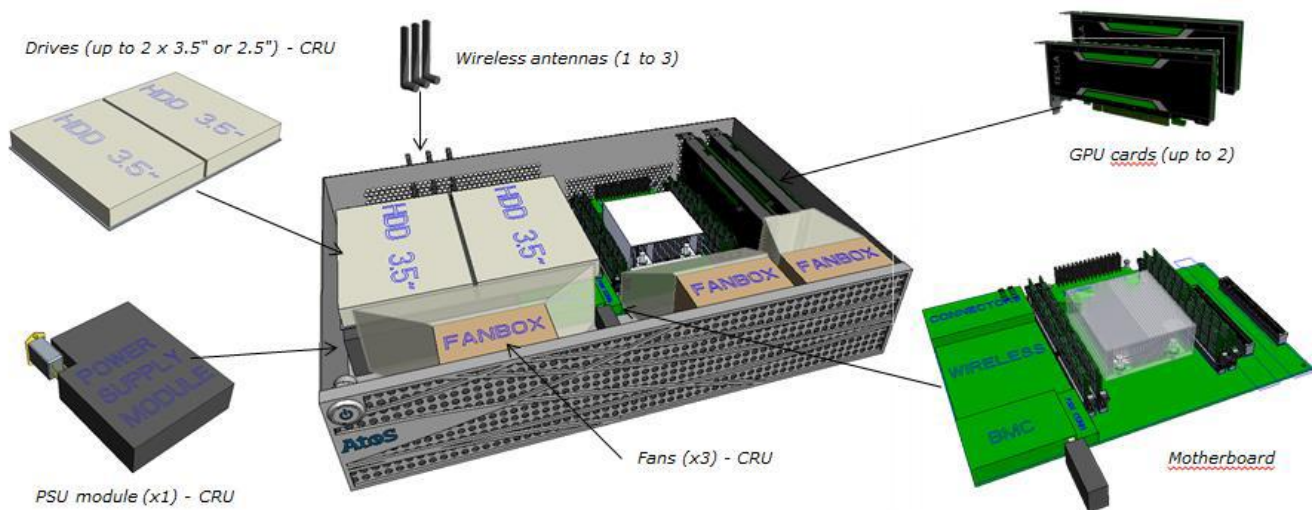
Figure 7. BullSequana Edge boards

Reference	Description	Quantity
A	Motherboard	1
B	Cooling Fan unit	3
C	PCIe card	Up to 2
D	Power Supply PSU	1
E	Disks	2
F	GPU	up to 2
G	Wireless Antenna	up to 3

CRU: stands to Customer Replacement Unit.
FRU: stands to Field Replacement Unit.

In the figure 7, the components not marked CRU are part of FRU. The PCIe cards are not shown, they are in the rear.

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3.4.5.3 BullSequana Description

Platform	IntelYuba City
CPU	1 * Skylake-D Up to 18 cores
DDR	4 channels DDR4 upto2666MT/s per SocketRDIMM& LRDIMMsupport (256 GB max.)
PCH	Lewisburg integrated to Skylake-D SoC
Ethernet	2x1Gbe RJ45; 2x10Gbe SFP+
Management	AspeedAST2500 +CPLD
CPUPackage	FC-BGA-2518
CPU power	VR13 up to 110W
PCIe	2x16 Gen3 (8GT/s)-GPU;2x mPCIe Slot-Wireless Module
USB	2xUSB 3.0
Disk	Upto 2xSATA HDD/SSD

3.4.5.4 BullSequana Edge – Block Diagram
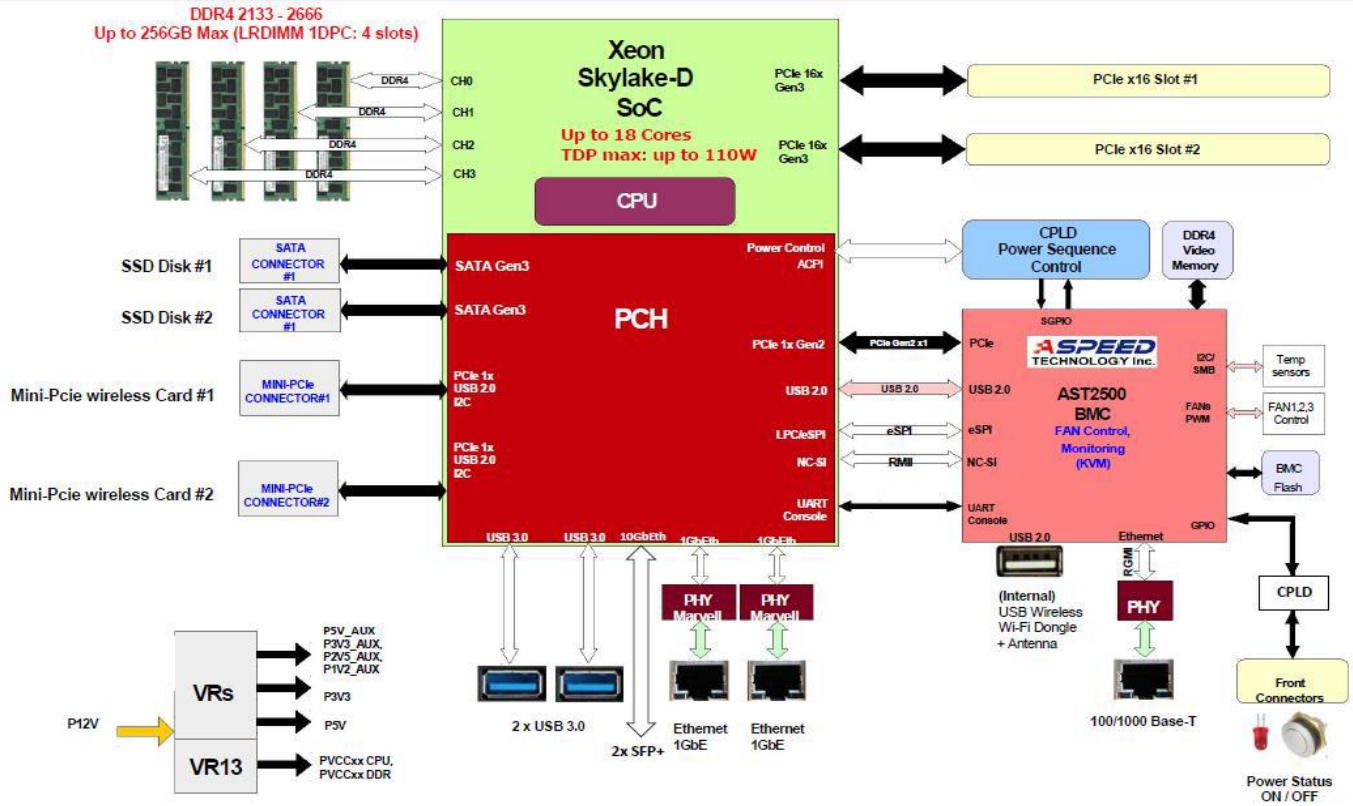
Figure 8. BullSequana Edge Block Diagram

3.4.5.5 Fan box

Fan is main component affecting the MTBF of BullSequana Edge:

Cooling Fan MTBF

Temperature(°C) L10	Fan life expectancy(years)
40.00	7.53
45.00	6.96
50.00	6.34
60.00	4.57

Fan de-rating factor	Fan noise level dB(A)	Power(W)
0.30	30.85	0.27
0.40	37.1	0.64
0.50	41.95	1.25
0.60	45.95	2.16
0.70	49.25	3.43
0.75	50.75	4.22
0.85	53.5	6.14
0.90	54.71	7.29
0.95	55.89	8.57
1	57	10

Fan Part number: **9GA0812P2S001**12V DC fans are used to cool the MI pocket. Low power consumption and low noise were criterion to select this 80x80 square axial flow fan which also gives required static pressure and adequate airflow.

4 MAINTENANCE STRATEGY

BullSequana Edge box components as well as the embedded management tools, are considered part of BullSequana Hardware system.

BullSequana Edge maintenance strategy provides a quality service at low cost to the customer. Based on a highly reliable hardware platform and RAS (Reliability, Availability, Serviceability) features of the hardware/firmware and supporting software, reaction and repair can be accomplished with minimum impact to the customer in a timely and efficient manner.

BullSequana Edge maintenance strategy is based upon centralized support centers ticketing plus alerts management. The remote maintenance system facilities are possible accordingly with the customer network access conditions.

4.1 INSTALLATION

The systems installations not required supervision from Support except for specific customer requested services.

4.1.1 SITE PREPARATION

Pre-requisite is described in the appropriate document tied to the system shipment. See for example 'Site preparation Guide'.

4.1.2 ON SITE INSTALLATION

The system is installable by customer.
The site installation by Atos personal, can be done as a service billable to customer.

The management software is imbedded and delivered with the machine.

The user software packaging is related to the use cases for:
1. IOT (Internet Of Things)
2. ML (Machine Learning)
3. ...

4.2 PRODUCT WARRANTY

The warranty period for BullSequana Edge hardware is 3 years.
It is possible for a customer to contract Maintenance Standard service level or per quotation accordingly to the project solution. Refer to the section 11.

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The warranty period starts when the system is delivered and accepted by the customer.

4.2.1 CORRECTIVE MAINTENANCE

A Field Change Order (FCO) of Firmware software updating medium workload of 30 minutes two times per Year and per system should be planned.

This workload figure is estimated based on the system integration & validation experience and an average of 2 firmware (FW) updates per year.

It is mandatory that all FCOs addressed to FRUs, to be done by Atos specialists (or by certified partners & users). Scenarios and procedures for patching and upgrading software & firmware is supplied by the producer.

4.2.2 BULLSEQUANA EDGE HARDWARE RELIABILITY OBJECTIVES

Objective for failure detection: 99% of failures detected.
Objective of localization: 98% precision is 2 components, 95% is 1 component. (Component = board or main chip (CPU).
MTTR objectives:

Set of 2 DIMMs	10'
MI Module	35'
Antenna	3'
HDD or SSD	5'
PSU	30'
Communication card	10'

4.2.3 UPDATES AND FIXES

All the Fixes and Updates requests shall be shipped to the Support Organization. An "FCO like" procedure will have to be defined by the producer, to allow shipment to the installed Systems for Retrofit application. Angers manufacturing only manages the shipment of components.

The estimated number of updates and fixes of the major products is 2 in medium per year.

4.3   SERVICES STRATEGY

If required, the services must be defined well in advance to assess cost and time in the customer project. This can be achieved by doing an audit of the current customer environment. The services can be issued per quotation according customer requirements.

The audit objectives are:

> Help to define:
>> -   the sites requirements (Network & System monitoring).
>> -   the services operations.

As pre-requisite, the customer interface must be precisely determined for Edge solution project startup.
. Here are service examples headings:

Services	Objectives	Mandatory	Charged to customer	Load
Sites Audit	Existing environment audit for defining the services requirements.	No	YES	quotation
Installation & Management	Systems installation & management	No	YES	quotation
BullSequana On Job Training	Hands on BullSequana Edge operations	No	YES	1 day

5 LOGISTICS

Atos GLS (Global Logistics Services) is the organization responsible for spare parts introduction, distribution and management located near Paris (FR).

For the standard contracts the strategy is to provide these parts stored in GLS warehouse in France in less than two days (from 12h to D+2).

5.1 DOA PROCESS

The standard Atos product "Dead On Arrival" process applies to BullSequana Edge.

5.2 LOGISTIC STRATEGY

For sites with special maintenance contracts requiring short parts delivery times, the concerned affiliates need to invest these specific parts and to stock them locally. This is defined in link to Atos global support and Atos customer' project management, based on " PARTS LIST" (see section 5.4).

5.3 STANDARD REPAIR STRATEGY

Except for the base module, there are no repairable spare parts for BullSequana Edge.

Each failing spare part is replaced and must be returned to GLS for record and failure statistics. Each failure is associated with its data collected by Support for analysis and lesson learning inside of Support & R&D.

Each failure will be monitored by Support. The associated failure data will be stored at the support centers for at least 2 years.

5.4 SPARE PARTS LIST

5.4.1 BULLSEQUANA EDGE SPECIFIC ORU LIST*

Location	Spare Part description	Spare part #	Type
Compute	MI MODULE XAN-SE2 (base CPU 2183-IT): including MECA & TOP cover ASSY + Mother Board + PSU with cables + CPU	11541117-000	FRU
Compute	MI MODULE XAN-SE1 (base CPU 2187NT): including MECA & TOP cover ASSY + Mother Board + PSU with cables + CPU	11541118-000	
Compute	2U Heatsink 82x74 TIM PCM45F	23016919-000	FRU
Compute	POWER SUPPLY 650W 12V	21007271-000	FRU
communication	1xBMC MEROSS USB Wireless / Wifi Dongle with Antenna	21007352-000	FRU
communication	Wifi 2.4Ghz Dual Band mPCIe card	21007339-000	FRU
communication	LoRaWAN Concentrator mPCIe card	21007355-000	FRU
communication	LTE Cat 4 3/4G mPCIe card	21007341-000	FRU
communication	LTE Cat 4 US mPCIe card	21007514-000	FRU
communication	SIERRA Wireless Mini_PCIe_LTE_EM7565	21007624-000	FRU
communication	TECHSHIP_LTE_Swivel_Antenna_SMA_Male	21007630-000	FRU
communication	TECHSHIP_M2_TO_mPCIe_Adapter_USB2.0_Single_SIM	21007644-000	FRU
communication	Intel SFP+ 10GB SR transceivers	21007295-000	FRU
communication	WiFi Antenna1 - WiFi rubber swivel antenna 2.4-5.0 GHz RPSMA	21007343-000	CRU
communication	Lora 868MHz swivel antenna, SMA-M	21007347-000	CRU
communication	LTE rubber antenna with swivel functionality	21007345-000	CRU
Compute	RDIMM DR 1.2V @2667 / 1x16GB	21007506-000	CRU
Compute	RDIMM DR 1.2V @2667 / 1x32GB	21007508-000	CRU
Compute	LRDIMM QR 1.2V @2667 / 1x64GB	21007510-000	CRU
Compute	RDIMM 3DS QR 1.2 @2667 /1x128GB	21007512-000	CRU
Compute	MI FAN MODULE	11541806-000	CRU
Compute	MI CPU DUCT / Air reflector	11588923-000	CRU
GPU	GPU Nvidia T4 - 900-2G183-0000-000	21007373-000	CRU
Storage	SSD 2.5" 480GB SATA 6Gb/s	21007500-000	CRU
Storage	SSD 2.5" 960GB SATA 6Gb/s	21007502-000	CRU
Storage	SSD 2.5" 1.92TB SATA 6Gb/s	21007504-000	CRU
Storage	HDD 3.5" 14TB SATA 6Gb/s 7.2Krpm	21007541-000	CRU

*__ORU__: Optimum Replaceable Unit   **CRU**: Customer Replacement Unit   **FRU**: Field Replacement Unit

5.4.2 BULLSEQUANA RECOMMENDED PART LIST

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The following is the list of the recommended parts (depending to customers park) to have locally in the country, at least 1 unit.

Location	Spare Part description	Spare part #	Type
Compute	MI MODULE XAN-SE2 (base CPU 2183-IT): including MECA & TOP cover ASSY + Mother Board + PSU with cables + CPU	11541117-000	FRU
Compute	MI MODULE XAN-SE1 (base CPU 2187NT): including MECA & TOP cover ASSY + Mother Board + PSU with cables + CPU	11541118-000	
Compute	MI FAN MODULE	11541806-000	CRU
communication	Wifi 2.4Ghz Dual Band mPCIe card	21007339-000	FRU
communication	LoRaWAN Concentrator mPCIe card	21007355-000	FRU
communication	LTE Cat 4 3/4G mPCIe card	21007341-000	FRU
communication	LTE Cat 4 US mPCIe card	21007514-000	FRU
communication	Intel SFP+ 10GB SR transceivers	21007295-000	FRU

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6 TRAINING PLANS & SCHEDULES

Engineering shall provide the training necessary to (a) prepare specialist personnel to maintain the equipment and (b) provide maintenance training personnel with a basis for preparing training courses. This training will include classroom sessions and "on-the-job" training during product unit and system test.

Producer training session of approximately 2 days of duration is planned provided by the Engineering teams, for Product support specialists & Manufacturing. This training consists of theoretical and practical training on BullSequana Edge hardware.

There are no specific prerequisites for attending the BullSequana Edge producer training.

6.1 BULLSEQUANA EDGE TRAINING

Target population:
- System Administrators or Operators
- Use cases utilization

6.1.1 PRODUCER COURSES

BullSequana Edge Producer training class held on July 10, 11 & 12 2019 (actual total of 2 days duration in Atos Les Clayes/Bois - FR).

6.1.2 FIELD SUPPORT TRAINING

Some field specialists are trained through On-Job Trainings (theory and practice) by the Product Support.
All Atos field specialists will be trained accordingly to the timeframe the countries (GBU) introduce BullSequana Edge in their territory.

6.1.3 CUSTOMER TRAINING

The customer operator training will be provided on request with extra costs.

6.2 BULLSEQUANA EDGE USE CASES TRAINING

6.2.1 PRODUCER COURSES (TBD)

6.2.2 CUSTOMER TRAINING (TBD)

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7 DOCUMENTATION

Customer user and customer support documents are provided by the engineering, consist with standard Atos procedures. These documents are identified in the BullSequana Edge Master Project Plan.

Documentation necessary to install, operate, upgrade, and repair the systems are provided prior to first customer shipment.

The documentation are provided on CD-ROM or USB key (at the first step) and exclusively on Atos Support Internet for both customers and Field Customer Service. Installation and troubleshooting manuals for Customer Services will be provided in hard copy form. Documentation used by service personnel, including the hardware manuals used for installation and upgrade will be available on the Atos Support Internet site.

7.1 CUSTOMER SERVICE AND SUPPORT DOCUMENTATION

The customer service and support documentation will be available on Support web.

7.2 CUSTOMER / USER DOCUMENTATION

The following customer documentation is available for BullSequana Edge:

Customer Document Title/Description	Reference Number
Product Release Notes	86 A1 02FS xx
Generic Site Preparation	86 A1 85FP xx
Multilingual Safety Notices Guide	86 X1 12FL xx
Description Guide	86 A1 65FR xx
Installation Guide	86 A1 67FR xx
Management Console User's Guide	86 A1 99FR xx
SHC Reference Guide	86 A1 05FS xx
Customer Service Guide	86 A1 93FR xx
Field Service Guide	86 A7 94FR xx
Messages Reference Guide	
Getting Started Guide	86 A107FS xx
BullSequana Edge Field Documentation Portfolio	86AP64PA xx
BullSequana Edge Customer Documentation Portfolio	86AP63PA xx

Customer documentation is made available on the site Atos Support Online.

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8 PRODUCT-SPECIFIC TOOLS, TEST EQUIPMENT, & DIAGNOSTICS

8.1 INSTALLATION TOOLS

No special tools or test equipment are required other than those delivered with the machine.

8.2 CENTRALIZED SUPPORT TOOLS

- ♦ Problems Reporting tool: ASMILE
- ♦ Corrections Server: Atos Support web site
- ♦ Dumps/Log server: through Atos Support web site

9 MAINTENANCE PROCEDURES & FIELD REPORTING

9.1 MAINTENANCE ORGANIZATION

The BullSequana Edge maintenance strategy is based on support strategy. Auto-calls (alerts if service is invoiced and implemented see section 11) from the System automatically routed to the products Atos Support centers. Pre-requisites for remote services (maintenance & support) provided by Central Support.

Software and Firmware updating:
This addresses the Firmware and Management Software update.

Error log collection

Hardware or firmware faults are immediately logged with pertinent information (in Rsyslog). This logging can be done locally by running a script inside the hardware component itself or on request by command remotely.

9.1.1 R.M.S.
The RMS can be applied if the customer allows network access. The RMS is used only if the customer invoiced the adequate Support service per quotation see section 11.

9.2 PROBLEM REPORTING

The problems reporting for BullSequana is like all Atos/BDS products and use SMILE tool.

9.2.1 DOCUMENTATION OF PROBLEMS REPORT

The nature of individual problems reported determines documentation specifics. All REQUESTS descriptions must clearly and in detail explain what the problem and symptoms were that prevented the customer from being able to accomplish its goal of daily work. The description should contain the exact details of how the problem can be reproduced including how the customer tried to accomplish the task at hand. The name or system number (SN) of the system that the customer was using should be referenced.

Required documentation will range from log files and configuration files to line traces and dumps.

All files related to a REQUEST must be linked to the original ASMILE REQUEST (using the attached documents option in ASMILE tool).

9.2.2 REQUEST PRIORITY GUIDELINES & RESPONSE TIMES

A critical problem must have a fix or a work around within 48 hours.

Atos must resolve REQUESTS depending on their class and domain according to the classification.

A REQUEST can be classified as:

- DEFECT
- ENHANCEMENT
- ALERT
- SERVICE

BullSequana Edge Support will screen all REQUESTS and evaluate the problems. If the Support cannot resolve a REQUEST, it forwards it as PR (Product Request) to the Producer Organization using R&D problems reporting tool. The PR must be linked to the REQUEST.

We define blocking problems as " High " severity (customer production is completely stopped or greatly impacted).

We consider serious but not blocking problems as " Medium " severity.

We treat enhancements, updates, and minor fixes to the product or most documentation changes as "Minor" severity.

9.2.3 RAISING A REQUEST

Incidents reporting (REQUEST) follows the usual Atos products support procedure. The request must be recorded in the problem reporting tool ASMILE (or SUBSTITUTE) database and the relevant documentation attached in the request for troubleshooting.

9.2.4 FIX / CORRECTION DELIVERY

The principle is that 2 releases of the same product are maintained (current version and previous version).

9.3 RESPONSIBILITIES

9.3.1 BULLSEQUANA EDGE R&D

The R&D is responsible for processing escalated tickets from L2 Support.

9.3.2 BULLSEQUANA EDGE SUPPORT

The L2 support is responsible for processing escalated tickets from the fields or partner as L1 Support.

9.3.3 BULLSEQUANA EDGE LOGISTIC

The logistics insures the availability of spare parts and processes parts requests from the fields.

10 ESCALATION PROCESS

The same Escalation process as currently applicable for all BullSequana systems is applied for Edge servers.

10.1 TECHNICAL SUPPORT ASSIGNMENTS

10.1.1 PRODUCT RESPONSIBILITY

The Product responsibility is assigned to Field Engineers and Customers Support.

This organization is responsible for:
- ⇨ the product introduction
- ⇨ Informing the field of all evolutions (Hardware as well as Software)
- ⇨ Informing the field of all evaluations (Hardware as well as Software)
- ⇨ Critical situation management to put in place action plans to return to a normal situation at the customer site.

10.1.2 TECHNICAL SUPPORT

The customer all REQUESTs (systems incidents, products improvements, …) must be entered in ASMILE tool.

10.1.3 RESPONSIBILITY ASSIGNMENTS

10.1.3.1 - BullSequana Edge L1 Support from fields

Processing Customers' Requests & systems incidents including **:**
- Incident Description (events, timestamp, frequency, impact, occurrences, …)
- Incidents severity: Critical, Severe, Medium, Minor, Feature enhancement
- Incidents impact
- Incidents Urgency
- Expected date of requiring fix
- …

10.1.3.2 - BullSequana Edge L2 Support Center

Processing of Requests escalated to L2 support.

10.1.3.3 - BullSequana Edge R&D

Processing Requests escalated for L3 support.

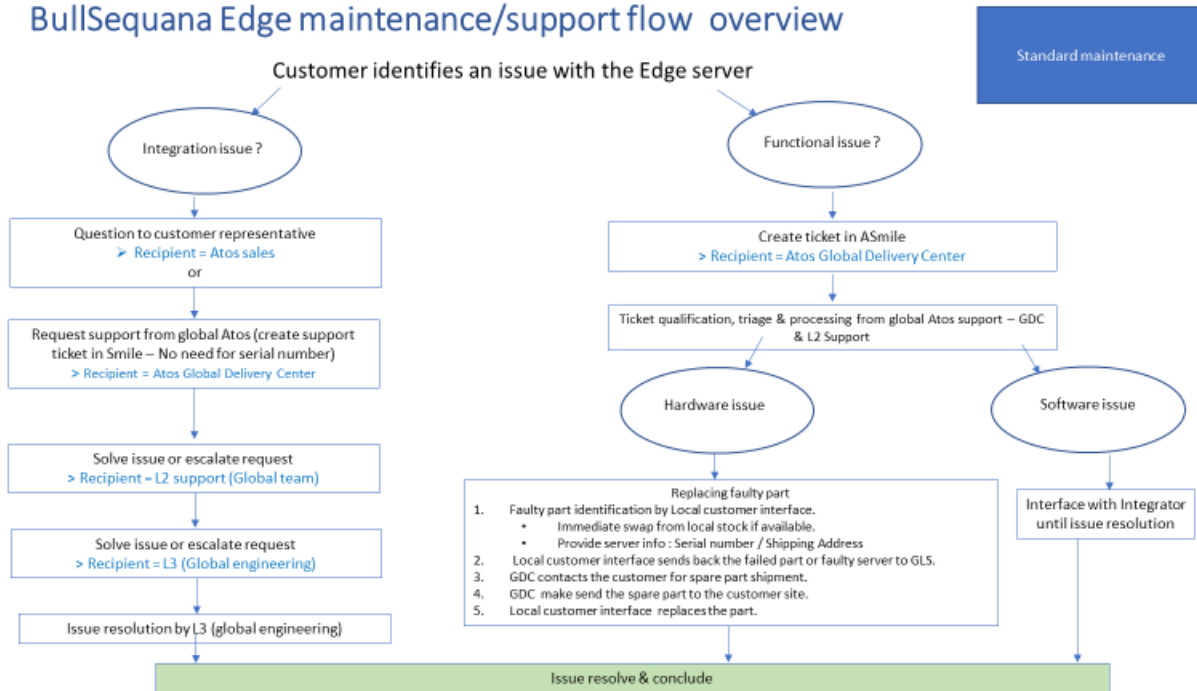*Atos Confidential and Proprietary*

10.1.3.4 - Atos LOGISTIC SUPPORT

Product Spare Parts management by GLS (Global Logistic System).

10.1.4 ALERT PLAN

Alert management follow standard Atos BullSequana series products flow chart.
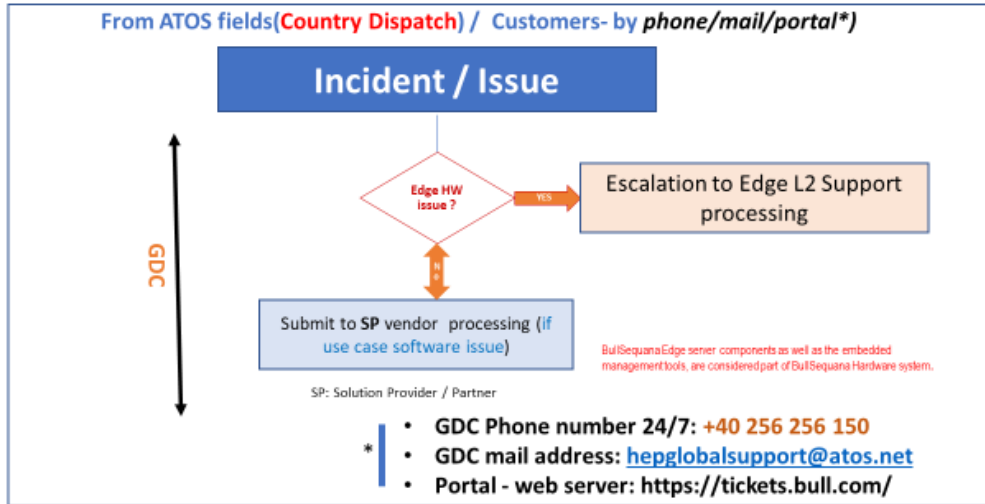
10.1.5 SUPPORT WORK-FLOW

BullSequana Edge maintenance/support flow overview

Customer identifies an issue with the Edge server

Standard maintenance

Integration issue ?

Functional issue ?

Question to customer representative
➤ Recipient = Atos sales
or

Request support from global Atos (create support ticket in Smile – No need for serial number)
> Recipient = Atos Global Delivery Center

Create ticket in ASmile
> Recipient = Atos Global Delivery Center

Ticket qualification, triage & processing from global Atos support – GDC & L2 Support

Solve issue or escalate request
> Recipient = L2 support (Global team)

Hardware issue

Software issue

Solve issue or escalate request
> Recipient = L3 (Global engineering)

Replacing faulty part
1. Faulty part identification by Local customer interface.
   • Immediate swap from local stock if available.
   • Provide server info : Serial number / Shipping Address
2. Local customer interface sends back the failed part or faulty server to GLS.
3. GDC contacts the customer for spare part shipment.
4. GDC make send the spare part to the customer site.
5. Local customer interface replaces the part.

Interface with Integrator until issue resolution

Issue resolution by L3 (global engineering)

Issue resolve & conclude

Notice that during BullSequana Edge life cycle, the standard DOA (**D**ead **O**n **A**rrival) process will be applied if the servers failed to work properly after delivery. Prerequisites and conditions are provided prior application of this process.

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BullSequana Edge operational maintenance/support flow 1/2

BullSequana Edge operationnal maintenance/support flow 2/2

1 local maintenance
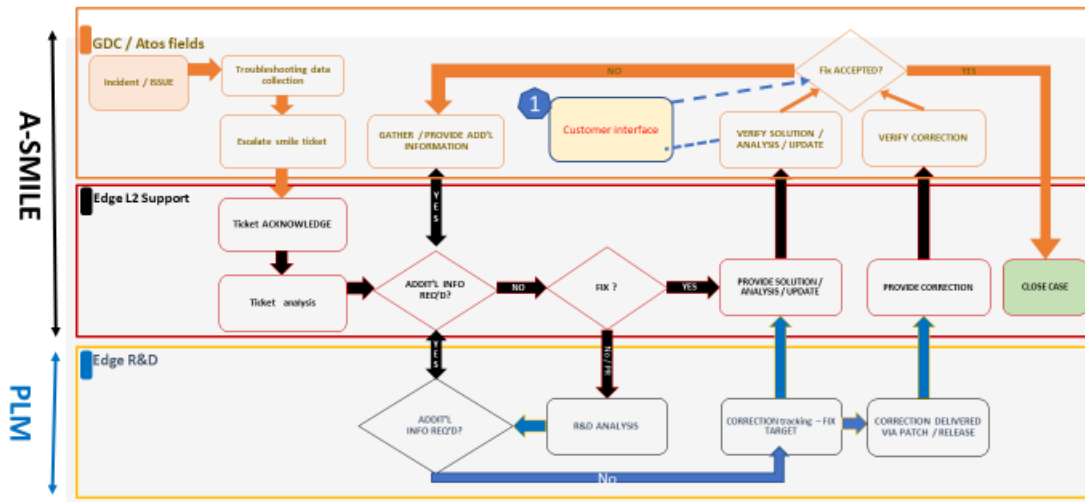
11 BULLSEQUANA EDGE MAINTENANCE & SUPPORT (M&S) SERVICES

Through the hardware maintenance Global Care services, it is provided availability and flexible service level agreement (SLA), in line with Edge processing. For BullSequana Edge, the base warranty applies for 3 years, according to the condition's details in the Warranty table below. Beside this guaranty, it is proposed a <u>standard level</u> of maintenance and support. The associated fee is invoiced accordingly to the customer market contract with Atos, in onetime fee or periodically at the start of each payment. Associated with standard service charges, country service charges (management of M&S operations, spare parts from local stock, etc.) are to be expected and must be included in the Maintenance & Support proposal to the customer.

On site intervention is performed by Bull SAS when deemed necessary by Bull SAS. In such case the intervention should take place during the normal working hours. Intervention prerequisites, in this case, are provided by the operational' Global Support of the products.
Please refer to the following table for the services characteristic's details.
From Standard services level, as customized SLA, a suitable level of services accordingly to the customer solutions project's needs, is provided per quotation for the customer's project planning and execution.
Thus, users' applications as use cases' support services is to be quoted separately in the customized SLA.

The following table shows the different features of warranty & standard service level. Depending on the country, it may be adjusted.

Hardware Maintenance*	Waranty	Standard**
Call handling and qualification		
24/7 unlimited request registration via web portal	24hx7d	24hx7d
Interactive management of requests submitted via the web portal	No	Yes
Diagnostic assistance hotline period	No	9am-6pm Mon-Fri [1]
Specialist call-back time	No	4H (normal priority) 1H (Showstopper priority)
Analysis and technical qualification[2] : *Product hardware and firmware faults only (the OS and users applications excluded).*	Yes (no SLA commitment)	Yes (SLA commitment)
Escalation to Global support team (L2)	No	Yes
Escalation to R&D and Provider (L3)	No	Yes
Coverage extension (nights, weekends, public holidays) up to 24h/7d [6]	No	No
Remote maintenance, remote diagnosis	No	Yes [5]
Support service		
Service period	9am-6pm Mon-Fri [4]	9am-6pm Mon-Fri[1] [4]
Coverage extension (nights, weekends, public holidays) [6]	No	No
Supply of firmware corrections when available	Yes	Yes
On-site or Remote service time for a blocked system	No. Server returned to workshop.	NBD+2 [2]
Spare part delivery target for Severity 1 showstopper Incident [3]	No.	NBD+2 [2]
Spare part delivery target for Severity 2 medium & minor Incident [3]	No.	NBD+5 [2]

[1] from 9am to 6pm local time on working days from Monday to Friday excluding public holidays and non-working days, calls notified after 4pm being considered as opened on the next working day.
[2] On site intervention is performed by Bull SAS when deemed necessary by Bull SAS. In such case the intervention should take place during the normal working hours. Intervention prerequisites, in this case, are provided by the operational' Global Support; NBD means Next Business Day.

[3] Target delivery time within 200km of Atos or Atos authorized logistic center. Several restrictions applied: Both the performance of service and service response times depend upon the time of day your request is received by Atos, parts availability, geographical restrictions and weather conditions.
[4] Pre-requisite: the system must be made available on <u>desk</u> by the customer. In the case of autonomous installation (far away human-less place, sea ship) use a forecasted system spare and the faulty system must be sent to a defined Atos location beforehand for repair.
[5] Pre-requisite: customer acceptance for remote access to its Edge' Network. If VPN network usage, the customer must provide the access.
[6] This option could be issued and quoted according customer requirements.

* BullSequana Edge server components as well as the embedded management tools, are considered part of BullSequana Hardware system.

** Country service charges (management of M&S operations, spare parts from local stock, etc.) are to be expected and must be included in the Maintenance & Support proposal to the customer

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BullSequana Edge Maintenance & Support SLA

Problems Priority	Descriptions	Specialist call-back time (h)	Workaround (working days)	Resolution (working days)
5- Very High	Showstopper.	1	1	7
4- High	Problem with Production high disturb and impact.	2	1	10
3- Normal	Problem with production disrupted moderately with no impact.	4	5	30
2- Low	Problem with production not disturbed and worked around.	8	15	90
1- Very Low*	New features & Improvements, …	n/a	n/a	n/a

* : Requests to be considered if possible, in subsequent versions of the product offer.

n/a : not applicable.

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12 GLOSSARY

BIOS **B**asic **I**nput / **O**utput **S**ystem

BMC **B**aseboard **M**anagement **C**ontroller

CRU **C**ustomer **R**eplacement **U**nit

DOA **D**ead **O**n **A**rrival

FCO **F**ield **C**hange **O**rder

FRU **F**ield **R**eplacement **U**nit

GPU A **G**raphics **P**rocessing **U**nit (**GPU**) is a specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images.

GDC Global Delivery Center

LoRa **LoRa** (**Lo**ng **Ra**nge) is a long-range wireless communication protocol (possible 10km+). Because its data rates are below 50kbps and because LoRa is limited by duty cycle and other restrictions, it is suitable in practice for non-real time applications in which one can tolerate delays.

LTE **L**ong-**T**erm **E**volution (**LTE**) is a standard for wireless broadband communication for mobile devices and data terminals, based on the GSM/EDGE and UMTS/HSPA technologies.

MTTR **M**inimum **T**ime **T**o **R**epair

NBD **N**ext **B**usiness **D**ay

ORU **O**ptimum **R**eplaceable **U**nit

OS **O**perating **S**ystem

RMS **R**emote **M**aintenance **S**ervice

End of document.