BullSequana SA10

Release Note
SA10_TS0002

Atos

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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

Please refer to TS001 for ESXi 6.5 (BIOS R10)
TS0002: ESXi 6.7, 7.0 or higher are in progress (BIOS R21_F02).

2.1.2   Linux

RedHat 8.1 certification is in progress.

2.2 New Features and Changes

item	new feature / change
server BIOS	BIOS is upgraded to R21_F02 Please refer to the Release Note provided with the BIOS, in the zip file.
server BIOS configuration	Added Serial Over LAN configuration (COM1)
server BMC FW	FW is upgraded to 12.50.03 Please refer to the Release Note provided with the firmware, in the zip file.
Avago/Broadcom SAS 9300-8i	FW is downgraded to 15.00.00.00 for VMware vSAN compatibility
Micron 5300 MAX / PRO	new FW - version D3MU_001 provided for drive homogeneity
Seagate Savvio 10k	new FW - version C004 provided for drive homogeneity

3 Known Restrictions and Issues

3.1 BIOS

3.1.1   Serial Over LAN - BIOS configuration file

Parameter "TER000" cannot be used in BIOS configuration file.
This parameter is in charge of enabling/disabling the Serial Over LAN feature.
Serial Over LAN cans still be enabled or disabled through the BIOS menu
interface (using the BMC remote console).

3.2 MegaRAID Adapter

3.2.1   Passthrough mode

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

Without any configuration, no RAID volume is configured, and the JBOD mode is
not enable.

Please refer to storcli64 manual for setting MegaRAID adapter in passthrough
mode.

3.3 SAS 9300-8i

3.3.1   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.

3.3.2   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.

3.3.3   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/UEFI option ROM available from Avago web site. BIOS/UEFI option ROM can be installed but won't be supported by this Technical Set.
Boot w/o BIOS/UEFI option ROM should be faster (BIOS is not looking for boot device from the HBA).

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

previous RHEL releases are not supported

3.5 BMC account - password reset

On some servers, the password of the BMC "admin" account has been reset to default (factory). Please keep the factory password (if any) before applying FW 12.50.03.

Note : factory password is the motherboard serial number.

3.6 Drives FW upgrade

3.6.1   Seagate 10.5kRPM SAS HDD

for Seagate 10.5Krpm HDD , use SeaChest utilities from Seagate for drive upgrade.

3.6.2   Micron 5300 Max/Pro SATA SSD

for Micron 5300 Max and Pro SSD, use msecli utiliy from Micron.

3.7 ESXi and vSAN - Adapters FW

Links to VMware ESXi compatibilities for Adapters

MegaRAID 9361-8i (SSID 0x9361)- ESXi 7.0u1

MegaRAID 9361-8i (SSID 0x936c)- ESXi 7.0u1

MegaRAID 9361-8i w/ JBOD Mode (SSID 0x9a61)- ESXi 7.0u1

=> Required FW is NA in all cases when using the WMV driver

MegaRAID 9361-8i (SSID 0x9361) - vSAN 7.0u1

=> Required FW is 4.680.00-8454 (package 24.21.0-0095) for vSAN All Flash

SAS9300-8i - vSAN 7.0u1

Mellanox MCX4121A-ACA - ESXi 7.0u1

Mellanox MCX4121A-XCA - ESXi 7.0u1

Mellanox MCX566A-CDA - ESXi 7.0u1

4 BIOS settings

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

param	new value	default value	comment
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
SETUP005	false	true	Quiet Boot
TER001	VT-UTF8	ANSI	Terminal compatibility for SOL

Some parameters given in the BIOS configuration file have same value as the default value => 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

Network Adapters				
Atos Reference	**Adapter Type**	**Form Factor**	**Vendor**	**Model (manual/support link)**
CKTA601G-D3P	2 x 10GbE (SFP+)	OCP 3.0 PCIe gen3 x8	Avago / Broadcom	N210P
	2 x 10/25GbE (SFP+/SFP28)	OCP 3.0 PCIe gen3 x8	Avago / Broadcom	N225P
	2 x 10GBASE-T	LPHL PCIe gen3 x8	Avago / Broadcom	P210TP
	2 x 100GbE (QSFP28)	OCP 3.0 PCIe gen4 x16	Mellanox	MCX566A-CDAI
	2 x 10GbE (SFP+/SFP28)	LPLH PCIe gen3 x8	Mellanox	MCX4121A-XCAT
	2 x 10/25GbE (SFP+/SFP28)	LPLH PCIe gen3 x8	Mellanox	MCX4121A-ACAT

Storage Adapters				
Atos Reference	**Adapter Type**	**Form Factor**	**Vendor**	**Model (manual/support link)**
	RAID Adapter - 8 internal SAS lanes	LPLH PCIe gen3 x8	Avago / Broadcom	MegaRAID 9361-8i
	HBA - 8 internal SAS lanes	LPLH PCIe gen3 x8	Avago / Broadcom	SAS 9300-8i

Drives				
Atos Reference	**Drive Type**	**Form Factor**	**Vendor**	**Model (manual/support link)**
	SAS 10K HDD	2.5" SAS HDD	Seagate	Exos 10E / Savvio 10k (10.5K v9 HDD SAS)
	SATA SSD	2.5" SATA SSD	Micron	5300 MAX 5300 PRO

6 Delivery Content

Firmware and Configuration files		
Component	**File**	**Release**
SA10 Server	BIOS	R21_F02
SA10 Server (BMC)	FW	12.50.03
SA10 Server	BIOS settings	settings 002
SA10 Server	FRU	fru data
Broadcom BCM957412N4210C	Firmware	BCM957412N4120C
Broadcom MegaRAID 9361-8i	Firmware	package 24.21.0-0095 (FW 4.680.00-8454)
Broadcom P210tp	Firmware	BCM957416A4160
Broadcom SAS 9300-8i	Firmware	FW 15.00.00.00 (P15)
Mellanox_MCX566A-CDAI	Firmware	FW 16.28.2006
Mellanox_MCX4121A-ACA	Firmware	FW 14.28.2006
Mellanox_MCX4121A-ACQN	Firmware	FW 14.28.2006
Mellanox_MCX4121A-XCA	Firmware	FW 14.27.1017
Seagate ST1200MM0129	Firmware	FW C004
Micron 5300PRO/MAX (*)	Firmware	FW D3MU_001

Documents		
Ref	**Title**	**Release**
86A137FS01	SA10 User Manual	July 2020