



bullion S

Customer Release Note - TS006.04

■ Number DEL000906

■ Version F.4



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Contents

1. Abstract and purpose of the release	5
2. Features	6
3. Release content.....	8
3.1. Documentation	8
3.2. Platform Firmware	8
3.3. Adapter Firmware	9
3.4. Customer Tools	9
3.5. Other Software and Firmware.....	9
4. New features and changes	10
5. Detailed Information	11
5.1. BIOS	11
5.2. EMM.....	11
5.3. VMware ESXi	12
5.4. Linux Red Hat.....	12
5.5. Supported Adapters.....	13
5.5.1. HGST PCIe Solid-State Accelerator	13
5.5.2. Intel Ethernet Server Adapters.....	13
5.5.3. LSI MegaRAID® SAS 9261-8i and 9361-4i	13
5.5.4. LSI SAS 9200-8e	14
5.5.5. Emulex Adapters.....	14
6. Dependencies	15
6.1. Firmware	15
6.2. Linux Red Hat.....	15
7. Resolved issues	16
7.1. SR IOV feature (VMware).....	16
7.2. BIOS settings change on multi-module (platform).....	16
7.3. DHCP configuration (platform).....	16
7.4. BIOS settings after BIOS upgrade (platform)	16
7.5. FCoE Boot with Emulex OCe11102 card (platform).....	16
8. Recommendations.....	17
8.1. Mono threading on bullion S16	17
8.2. Boot time-out setting on bullion S16	17
8.3. Power consumption optimization on bullion S2.....	17
8.4. Reset and Default buttons	18
8.5. Support of the Emulex LPe12002 card (VMware).....	19
8.5.1. Caution.....	19

8.5.2.	Upgrading LPe12002	19
8.6.	VMware installation	20
8.6.1.	Installing VMware from Bull Hypervisor 5 Installer-External USB Flash Drive	20
8.6.2.	Creating a bootable custom USB stick from an ISO image of a supported OS	21
8.7.	Identifying failed DIMMs in System Event Logs and Messages	22
9.	Known restrictions, issues and workarounds	25
9.1.	Restrictions on PCI Hot Plug (platform)	25
9.2.	Restrictions on Memory Hot Add (platform)	25
9.3.	LSI MegaRAID 9261 card (platform).....	25
9.4.	PCIe configuration extension on bullion S16	26
9.5.	iSCSI Boot with Emulex OCe11102 card (platform).....	26
9.6.	Memory Blade green light remains ON (platform).....	26
9.7.	Spurious BCS fatal errors (platform).....	26
9.8.	USB and on board 1Gb/s on slave modules (platform).....	26
9.9.	Update of SHC firmware (platform).....	26
9.10.	SAN boot on LPe16002 (platform).....	27
9.11.	Memory holes not supported by VMware 5.5 (VMware)	27
9.12.	vCenter system health (VMware).....	28
9.13.	1Gb Ethernet ports under ESXi (VMware)	28
9.13.1.	VMware constraints	28
9.13.2.	Disabling on-board 1Gb/s if needed	28
9.14.	SR IOV feature (VMware).....	28
9.15.	Red Hat specific (Red Hat)	28
9.16.	"Add Boot Option" BIOS function fails (platform)	29
9.17.	Updating Main FPGA Firmware (platform).....	29
9.18.	Memory blade green light on after power off (platform).....	29
9.19.	Erroneous Memory description using dmidecode (Red Hat).....	29
9.20.	DIMM location for correctable memory errors (Red Hat).....	30
9.21.	Informative messages in the BIOS trace (Platform)	30
9.22.	Emulex LPe15004 does not enable the link to Scan Devices in Device Manager (VMware).....	30
9.23.	ESXi sees LPe15004 as an LPe16000 (VMware).....	30
9.24.	Reboot on bullion S2	30
10.	History of previous releases.....	31

1. Abstract and purpose of the release

This document is the customer release note for **Technical Status 006.04**.

It describes the objects delivered in the Technical Status, and the features of the resources provided on the Resource and Documentation DVDs.

2. Features

The Resources and Documentation DVDs provide the software, firmware and documentation required to install, configure, use and maintain the system:

<u>Documentation:</u>	Complete documentation included in a portfolio.
<u>Firmware</u>	Provided for the following components
BIOSX05	The CIX (system motherboard) BIOS image.
CPLD_MUCM	The flash image file for the CPLD component on the Ultra-Capacitors management board.
CPLD_M_CIX	The flash image file for the CPLD memory component on the CIX board (system motherboard).
CPLD_P_CIX	The flash image file for the CPLD Power component on the CIX board (system motherboard).
CPLD_PM1_CIX	The flash image file for the PM1CPLD component on the CIX board (system motherboard).
CPLD_PM2_CIX	The flash image file for the PM2CPLD component on the CIX board (system motherboard).
DS1600PED_PSU	The flash image file for the DPS1600PED component rated 1600W on the PSU board.
DS750PED_PSU	The flash image file for the DPS750PED component rated 750W on the PSU board.
EMM30_BMC	The software embedded in the server module to implement management functions accessible from the System Hardware Console (SHC) graphical interface.
ESXi_5	The VMware hypervisor.
FPGA_CIX	The firmware to be loaded on the CIX board (system motherboard) FPGA processors.
FPGA_WEO	The flash image file for 1Gb Ethernet switch component included in the connecting box.
LCP	The firmware for the Local Control Panel display.
PM_MUCM	The flash image file for Power Module (PM) component on the Ultra-Capacitor management board.
PM_RMxD3	The flash image file for PM component on the memory blades.
POWERVILLE_CIX	The flash image file for the integrated Ethernet controller on the CIX board (system motherboard).

Adapter Firmware and configuration files:

Provided for the following cards:

Emulex PCIe LPe12002-M8

Emulex PCIe LPe15004-M8

Emulex PCIe LPe16002

Emulex PCIe OCe11102-FM/NM/NT

Intel Ethernet Server I350-T2 and I350-T4

HGST PCIe Solid-State Accelerator

LSI MegaRAID SAS 9261-8i

LSI MegaRAID SAS 9361-4i

LSI SAS 9200-8e

Tools:

BAT_VM_Appliance	An appliance that delivers Bull Administration tools on a Virtual Machine running CentOS system.
bmclanpet	The Platform Event Trap definition file. This MIB (Management Information Base) file is used by SNMP (Simple Network Management Protocol) managers to receive server hardware events.
BPM	A WEB application used to display server hardware status and information. It can also be used to get and set hardware configuration parameters. Both Linux and Windows versions are provided.
BSMHW_NG	<i>(Recommended)*</i> A set of prompt commands, based on free IPMI open source, used to manage server or device hardware. These commands can be used to return information and status and/ or to remotely control and configure server hardware.
BSMHW	<i>(Obsolete)*</i> A set of prompt commands used to manage server or device hardware. These commands can be used to return information and status and/ or to remotely control and configure server hardware. <i>* BSMHW_NG should be used rather than BSMHW. BSMHW should only be used in case of issue caused by BSMHW_NG.</i>
iCare	A WEB application used for hardware maintenance. Both Linux and Windows versions are provided.
mc-setup	A Linux Utility used to discover the embedded management board's MAC address and to change the embedded management board's IP address.
psetup	A Windows Utility used to discover the embedded management board's MAC address and to change the embedded management board's IP-address.

3. Release content

This release provides the following items.

3.1. Documentation

Name	Version
bullion S Customer Documentation Portfolio	05

3.2. Platform Firmware

Name	Product Version	Build Number
BIOSX05	5.19.2	010 / 110
CPLD_MUCM	1.4	
CPLD_M_CIX	0.0.9	HS9
CPLD_PM1_CIX	0.0.6	HS10
CPLD_PM2_CIX	0.0.6	HS10
CPLD_P_CIX	0.2.6	
DS1600PED_PSU	01.03/01.06	
DS750PED_PSU	01.15.00	
EMM30_BMC	30.14.00	1319
ESXi_5	5.5 update 2	2302651
FPGA_CIX	0.3.1	
FPGA_WEO	0.2.3	HS11
LCP	20	
PM_MUCM	0.4	
PM_RMxD3	0.3	HS11
POWERVILLE_CIX	1.63	

3.3. Adapter Firmware

Name	Product Version	Build Number
Emulex PCIe LPe12002-M8	fw201a12 Universal boot version 513a3	
Emulex PCIe LPe15004-M8	A10.2.470.14	
Emulex PCIe LPe16002	A10.2.370.15	
Emulex PCIe OCe11102	10.2.370.15	
Intel Ethernet Server I350-T2 and I350-T4	1.876.0 preboot 19.3	
HGST PCIe Solid-State Accelerator	FW H0BV - Boot 2.6.28	
LSI MegaRAID SAS 9261-8i	12.14.0-0167	
LSI MegaRAID SAS 9361-4i	24.7.0-0026	
LSI SAS 9200-8e	P19	

3.4. Customer Tools

Name	Product Version	Build Number
mc-setup	1.2.1	2
psetup	1.2.4	

3.5. Other Software and Firmware

Name	Product Version	Build Number
BAT_VM_Appliance	1.0.2	
bmclanpet_23	2.3-4	
BPM	2.4.7	
BSMHW_CLI_24	2.4.7	
BSMHW_NG	1.2.4	
iCare	1.6.8	

4. New features and changes

TS006.04 (January 2015)

- PCIe hot plug (Red Hat 6.5 only as of today)
- Memory hot add (Red Hat 6.5 only as of today)
- Emulex PCIe LPe15004-M8 adapter support
- LSI MegaRAID SAS 9361-4i adapter support
- New disks support:
 - 300GB 2,5" 15Krpm SAS HDD Blade
 - 1.2TB 2,5" 10Krpm SAS HDD Blade
 - 1TB 2,5" 7.2Krpm SATA HDD Blade
 - 256GB 2,5" SATA SSD Blade
 - 512GB 2,5" SATA SSD Blade
 - 600GB 2,5" 15Krpm SAS HDD Blade
- UCM (Ultra Capacitor Module) support and associated BSM CLI commands.
- Memory sparing, scrubbing, device tagging, DDDC (Double Device Data Correction)
- BPM / BSM CLI for enabling/disabling the BCS2 (Bull Coherent Switch)
- BIOS setting update from EMM (Embedded Management Module)
- Inventory: PCIe board information (VID, DID, SSVID) included
- bullion S8 can be partitioned as 6 socket system + 2 socket system
- bullion S8 with 6 sockets (3 modules) can be upgraded with a 2 socket module, so becoming a full 8 socket system.
- Improved stress diag suite
- UCM firmware upgrade
- PSU firmware upgrade

See also section 7 *Resolved issues*.

5. Detailed Information

5.1. BIOS

Release identification

5.19.2 (build 010 and 110)

- **BIOSX05.019.02.010**

Build 010: this BIOS must be used for VMware Operating System

- **BIOSX05.019.02.110**

Build 110: this BIOS must be used for all Operating Systems other than VMware

Component versions

- UEFI revision specification 2.3
- Intel® Brickland-EX reference code 1.40
- Microcodes:
 - MED306E7_0000070D (Intel® Xeon® Processor E7 v2 Family D1 stepping)

5.2. EMM

Release Identification

- **EMM bullion S 30.14.00 Build 1319**

Note: EMM release identification is displayed in the following EMM Web page:

Maintenance → Hardware Information → Management Controller

Dependencies

- BIOSX05.19.00

Hardware supported

- bullion S2, S4, S8, S16

5.3. VMware ESXi

Supported versions

- ESXi 5.5U1 and 5.5U2

Delivery

VMware ESXi is delivered on a bootable USB flash drive.

Current version: **ESXi 5.5U2 build 2302651**

Components

1) Base Image Profile from VMware

- **VMware ESXi 5.5, Patch ESXi-5.5.0-20141204001-standard(2096283)**
- **Release Date: December 2, 2014**

http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2096283

2) Additional and updated components

Name	Version	Vendor	Acceptance Level
elxnet	10.2.445.0-1OEM.550.0.0.1331820	Emulex	VMwareCertified
emulex-cim-provider	10.2.348.18-01OEM.550.0.0.1331820	Emulex	VMwareAccepted
lpfc	10.2.455.0-1OEM.550.0.0.1331820	Emulex	VMwareCertified
net-igb	5.2.7-1OEM.550.0.0.1331820	Intel	VMwareCertified
net-ixgbe	3.21.4-1OEM.550.0.0.1331820	Intel	VMwareCertified
lsiprovider	500.04.V0.53-0003	LSI	VMwareAccepted
scsi-stec-s1120	2.2.1.0202-1OEM.550.0.0.1331820	Stec (HGST)	VMwareCertified
scsi-megaraid-sas	06.803.52.00-1vmw.550.0.0.1331820	VMware	VMwareCertified

- **Emulex CIM Provider** is required by the Emulex One Command Manager vCenter plugin, which allows you to update most Emulex firmware on the fly.
- **LSI CIM provider** is needed to remotely manage LSI boards via MegaRAID Storage Manager software.

5.4. Linux Red Hat

Supported version

- **Red Hat Enterprise Linux Server 6.5.**
- **Bull Installation Package (BIP):** third maintenance release for RHEL 6.5, designed and validated for bullion S. It is not delivered on the Resource DVDs and can be acquired separately along with the Support subscription.

5.5. Supported Adapters

bullion S supports the following adapters.

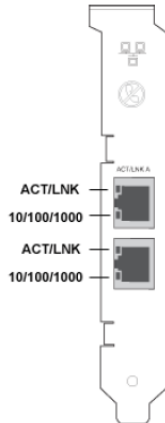
5.5.1. HGST PCIe Solid-State Accelerator

- 1TB PCIe HH-HL Solution

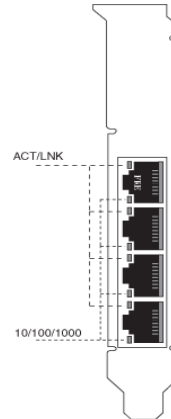
For more information, see <http://www.hgst.com>

5.5.2. Intel Ethernet Server Adapters

Intel® Ethernet Server Adapter I350-T2
Dual ports - PCIe v2.1 (5.0GT/s) Interface



Intel® Ethernet Server Adapter I350-T4
Quad ports - PCIe v2.1 (5.0GT/s) Interface

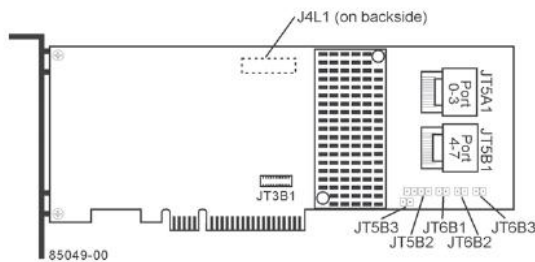


The port numbers depend on OS and drivers. To know the port numbers, you can either unplug cable and check the port status on the console, or set a port to disable and check the LED colors.

For more information, see <http://ark.intel.com>

5.5.3. LSI MegaRAID® SAS 9261-8i and 9361-4i

- Eight-Port 6Gb/s PCI Express SATA+SAS RAID Controller



- Four Port MegaRAID SAS 9361-4i 12Gb/s SAS and SATA RAID Controller

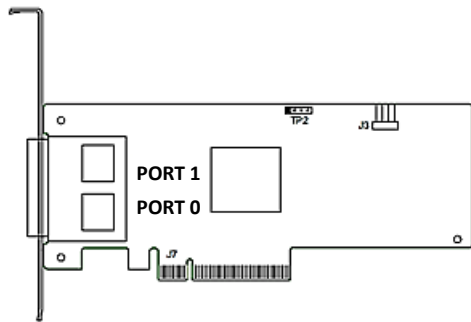


No external connector.

For more information, see <http://www.lsi.com>

5.5.4. LSI SAS 9200-8e

LSI SAS 9200-8e
8-Port, 6Gb/s SAS+SATA to PCI Exp HBA



For more information, see <http://www.lsi.com>

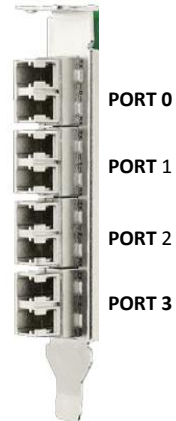
5.5.5. Emulex Adapters

Emulex OneConnect®
OCe11102-FM, OCe11102-NM, OCe11102-NT
dual-port 10Gb Ethernet (10GbE) Adapter

Emulex LightPulse LPe16002B
Gen 5 Fibre Channel PCIe 3.0 Dual-Port HBA

Emulex LightPulse LPe12002
dual-channel Fibre Channel HBA

Emulex LightPulse LPe15004
Advanced-8 8Gb FC (8GFC), quad-port, low-profile H



For more information, see www.emulex.com

6. Dependencies

6.1. Firmware

Technical State firmware is designed to run together. You should not install a firmware image independently of the rest of the technical set without consulting your Customer Service Representative.

6.2. Linux Red Hat

The following prerequisites must be met in order to install RHEL 6.5 on a bullion S:

- a PC with a web browser and Java installed
- the BIP 6.5 for bullion S USB flash drive media (Reference: 76743656-201) that contains:
 - BIP65rm3.iso
 - rhel-server-6.5-x86_64.iso from Red Hat
 - BIP Licence Utilisateur Final 2013_V1.3.pdf
 - BIP Terms of Use End User 2013_V1.3.pdf
 - bullionS_install_Guide_BIP6.5_en.pdf

- 25 GBs minimum disk storage space available from the server

Note: If the server is equipped with a hardware RAID and/or a Fiber Channel controller, storage has to be visible from the controller's BIOS

- 4 GBs minimum RAM available on the server.

7. Resolved issues

7.1. SR IOV feature (VMware)

SR IOV feature is supported with Emulex OneConnect OCe adapters.

7.2. BIOS settings change on multi-module (platform)

BIOS settings change is now operational on all bullion S server range.

7.3. DHCP configuration (platform)

After breaker off, the BMC DHCP connection remains available.

7.4. BIOS settings after BIOS upgrade (platform)

The BIOS settings are no more reverted to their default value after a BIOS upgrade. Changed values are preserved.



WARNING

Since correction comes with the new BIOS delivery (TS006), BIOS settings that have been modified on customer site will be lost when this new BIOS is applied. Make sure to save your BIOS settings before upgrading.

7.5. FCoE Boot with Emulex OCe11102 card (platform)

FCoE boot through the OCe11102 card is now supported.

8. Recommendations

8.1. Mono threading on bullion S16

Due to temporary platform limitations, for bullion S16 you need to force **mono threading** mode (using EMM functional profiles).

8.2. Boot time-out setting on bullion S16

For bullion S16, change the key providing the **BIOS boot time-out** (using EMM configuration). This time-out must be set to **30 min** to prevent issues.

1. To display the current value:

```
ipmitool -I lan -H [IP] -U super -P pass raw 0x3A 0x19 0x00 0x05
```

Output:

```
00 00 xx yy
```

Current value (24 min): xx=C0 yy=0x12

2. To change the current value to 30 min:

```
ipmitool -I lan -H [IP] -U super -P pass raw 0x3A 0x18 0x00 0x05 0x00 0x00 0x70 0x17
```

New value (30 min): xx=0x70 yy=0x17

8.3. Power consumption optimization on bullion S2

To gain power consumption on bullion S2, it is recommended to disable **BCS2** access using the following BSM CLI commands:

1. To get the current value:

```
bsmGetConfParam.sh -H <host> -u <user> -p <password> -a getDisableBCS
```

BCS disabling value is 'no'.

2. To change the current value:

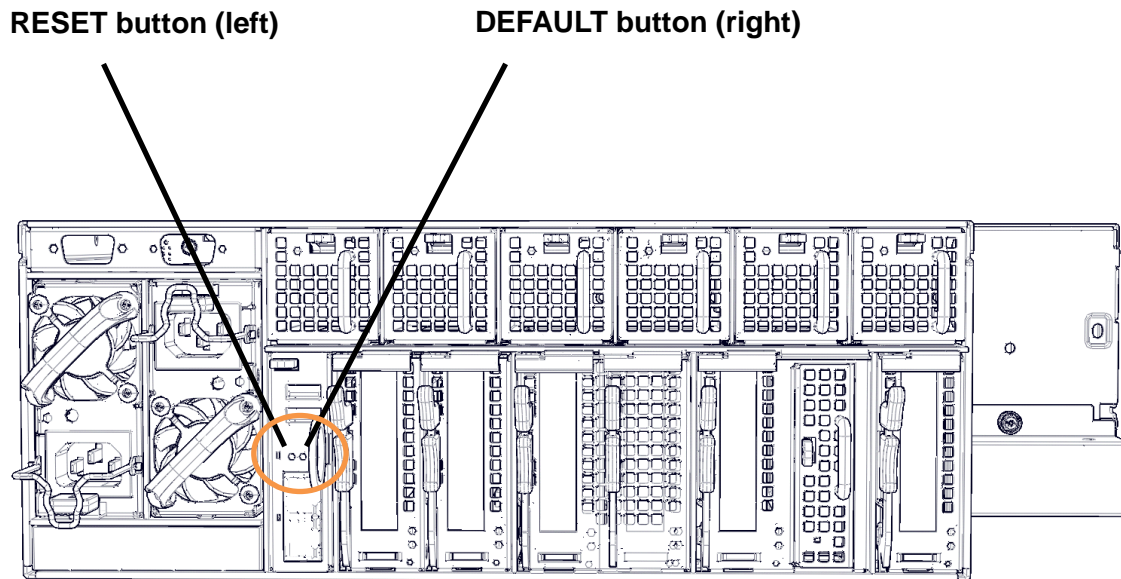
```
bsmSetConfParam.sh -H <host> -u <user> -p <password> -a setDisableBCS -x <yes|no>
```



WARNING

If the module is included later in a partition, do not forget to re-enable BCS2 access.

8.4. Reset and Default buttons

**WARNING**

The Reset and Default buttons are close together. Be careful to press the appropriate button indicated on the figure to reset the BMC / EMM.

**WARNING**

Pressing the Default button restores the EMM manufacturing configuration.

8.5. Support of the Emulex LPe12002 card (VMware)

8.5.1. Caution

The Emulex LPe12002 card under VMware requires the firmware version **fw2.01a12 - Universal boot version 5.13a3**, as described in Section 3.3.

8.5.2. Upgrading LPe12002

bullion S arrives configured from manufacturing with this firmware version.

The Emulex LPe12002 update procedure is described below.

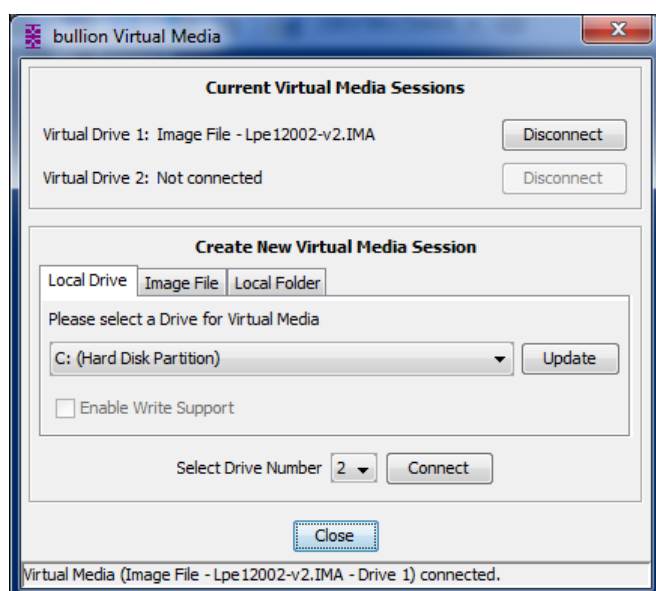
The procedure requires BIOS in Legacy Mode

Required File: **Lpe12002-v2.ima**

(Contact your Support Representative to get this file).

From bullion S Remote console, connect a virtual drive:

1. For virtual drive 1, select image file, browse to **Lpe12002-v2.ima**, and then click **Connect**.



2. Power on the server, then press “ESC” to enter the BIOS menu.
3. In the BIOS Boot Manager, select **Raritan** as Boot Device.
4. On the **FreeDOS** starting list, select 5.
5. From the FreeDOS prompt enter this command to list Emulex HBA:
doslpcfg listhba

```
A:\>doslpcfg listhba
Command: LISTHBA
adapter 1: 10000090 FA0B9936 Functional FW: US2.01A11 LPe12002-M8
adapter 2: 10000090 FA0B9937 Functional FW: US2.01A11 LPe12002-M8
adapter 3: 10000000 C987BED8 Functional FW: US2.01A11 LPe12002-M8
adapter 4: 10000000 C987BED9 Functional FW: US2.01A12 LPe12002-M8
adapter 5: 10000000 C9B7981A Functional FW: US2.01A11 LPe12002-M8
adapter 6: 10000000 C9B7981B Functional FW: US2.01A11 LPe12002-M8
adapter 7: 10000000 C9873154 Functional FW: US2.01A12 LPe12002-M8
adapter 8: 10000000 C9873155 Functional FW: US2.01A12 LPe12002-M8
Command completed, NO Error!
```

Upgrading the Bootcode

1. To update the HBA Bootcode, enter:

```
doslpcfg download i=uu513a3.prg n="HBA number"
```

```
A:\>doslpcfg download i=uu513a3.prg n=1_  
Opening File  
...  
File Extension .prg  
Reading Header  
...  
Validating Checksum  
...  
Restarting board via Warmstart => SLI1  
...  
Erasing Sector(s) In Flash ROM  
...  
...  
Loading Image  
...  
4% complete
```

2. Repeat this operation for each LPe12002 HBA

Upgrading the firmware

1. To update the HBA firmware, enter:

```
doslpcfg download i=ud201a12.all n="HBA number"
```

```
A:\>doslpcfg download i=ud201a12.all n=1  
File Extension .all  
Opening File...  
Validte file type  
UPD Style OK T2:78,T3:79,7A,7B,7D,7E,7F,T7:73,TB:73,TF:78 ff 78  
Validte file type  
DWC imageID 73  
UPD Style OK T2:78,T3:79,7A,7B,7D,7E,7F,T7:73,TB:73,TF:78 7 73  
End Of File  
Checksum OK!!!  
Reading AIF Header #1...  
ImageBase 0 Len 1d888  
Download AWC image for adapter f100  
Validating Checksum...
```

2. Repeat this operation for each LPe12002 HBA.

Restart the server and set the BIOS mode to UEFI.

8.6. VMware installation

8.6.1. Installing VMware from Bull Hypervisor 5 Installer-External USB Flash Drive

Procedure

1. Plug the USB flash drive in the bullion S Front Panel USB port or connect a device as a virtual media.
2. Boot the bullion S and Press ESC key to enter the Boot Manager menu. Select the USB device.
3. Install ESXi 5.5 U1 or U2 on your target media (SAN disks for example).
4. Boot your ESXi disk when requested.

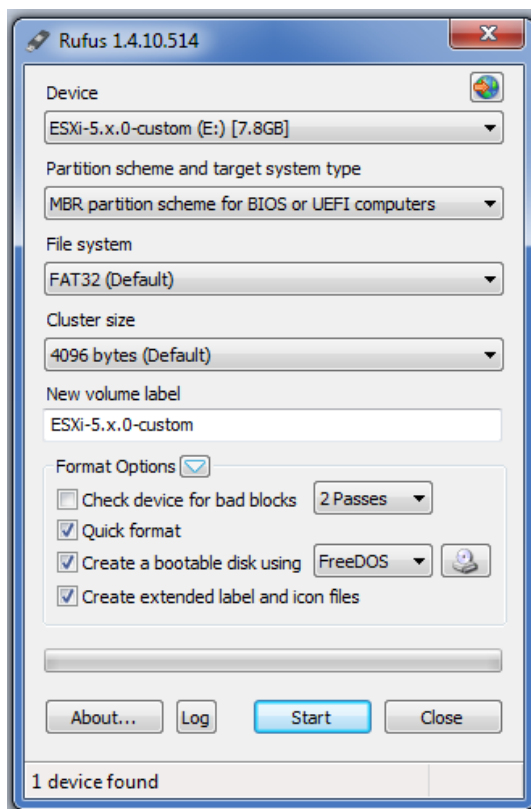
8.6.2. Creating a bootable custom USB stick from an ISO image of a supported OS

Pre-Requisites

- ISO image of a supported OS
- “Rufus” software to create a live USB stick
<http://rufus.akeo.ie/>
- 1GB or higher USB stick.

Procedure

1. Execute “Rufus”.
2. Select your USB device and the ESXi .iso image.
3. As a partition scheme, select “**MBR partition scheme for BIOS or UEFI computers**”.
CAUTION: make sure you selected this partition scheme since it is not the default one.
4. Start the live USB stick creation. Rufus will ask you to update “**menu.c32**” file version. You have to accept, otherwise the USB live stick won’t work.
5. Once finished, plug the USB stick in the bullion S Front Panel USB port.



6. Install OS on your target media (SAN disks for example).
7. Boot your OS disk.

8.7. Identifying failed DIMMs in System Event Logs and Messages

This section helps you to identify failed DIMMs using the BMC *System Event Log* and *Messages*.

BIOS can log different DRAM runtime errors or events in the BMC *System Event Log* and *Messages* sections:

- Patrol scrubbing, memory rank sparing, memory device tagging, double device data correction (DDDC) errors.
- Memory corrected errors threshold overflow errors.
- Memory uncorrected non-fatal or fatal errors.

Example 1: Device Tagging

A rank is tagged when the number of correctable errors from that rank exceeds the threshold and either DDDC is not activated or a DDDC event has already occurred for that rank. When a rank is tagged, the parity device of the rank is used in place of the failing device. The *System Event Log* shows that the correctable memory leaky bucket overflowed and that a device was tagged in a specific module:

2015-01-27	12:14:16	BIOS	BIOS	Correctable memory leaky bucket overflow	Assertion Event
2015-01-27	12:14:16	Memory RAS	BIOS	Error in module 0: device tagged	Assertion Event

The *Messages* log shows the same information but also displays the CPU socket number, memory riser number and DIMM number (example: **MMR_6; D2**).

2015-01-27	12:14:16	BMC Message	Correctable memory leaky bucket overflow: module: 0, MMR_6; D2 (CPU socket nb: 1, iMC nb: 1, DDR channel nb: 0, DIMM nb: 0)
2015-01-27	12:14:16	BMC Message	Error on module 0, MMR_6; D2 (Device tagged: CPU socket nb: 1, iMC nb: 1, DDR channel nb: 0, DIMM nb: 0)

“**MMR**” means memory blade number (numbered from 0 to 7 in ascending order from right to left).

“**D**” is the DIMM number within the blade (numbered from 0 to 5 in ascending order from the bottom of the blade).

Example 2: DDDC (Double Device Data Correction)

DDDC is only activated for x4 devices in lockstep (RAS) mode. When the number of correctable errors from a particular rank exceeds the threshold, the device sparing engine from the memory controller writes the corrected data from the failed device to the spare device. After this occurs, a second device failure in the same rank results in device tagging. The *System Event Log* shows that the correctable memory leaky bucket overflowed and that the data from the failed device was copied to the spare device in a specific module:

2015-01-26	16:28:03	Memory RAS	BIOS	Copy to spare device complete	Assertion Event
2015-01-26	16:25:47	BIOS	BIOS	Correctable memory leaky bucket overflow	Assertion Event
2015-01-26	16:25:47	Memory RAS	BIOS	Copy to spare device started	Assertion Event

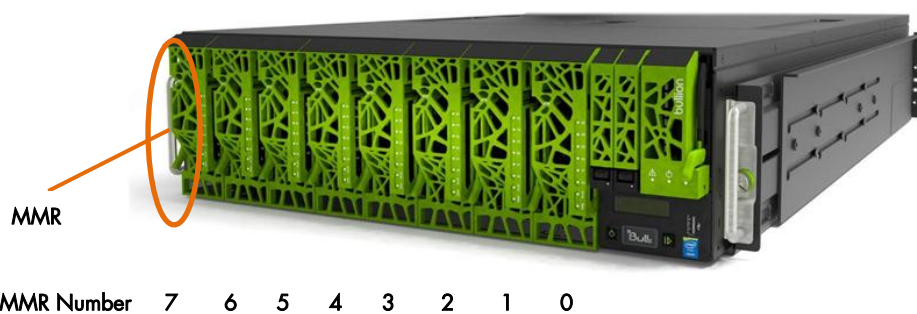
The *Messages* log shows the same information but also displays the socket number, memory controller number, DDR channel number, and DIMM number:

2015-01-26	16:28:03	BMC Message	Module 0: Copy to spare device complete: CPU socket nb: 0, iMC nb: 1, DDR channel nb: 0, DIMM nb: 0
2015-01-26	16:25:47	BMC Message	Correctable memory leaky bucket overflow: module: 0, MMR_2; D2 (CPU socket nb: 0, iMC nb: 1, DDR channel nb: 0, DIMM nb: 0)
2015-01-26	16:25:47	BMC Message	Module 0: Copy to spare device started: CPU socket nb: 0, iMC nb: 1, DDR channel nb: 0, DIMM nb: 0

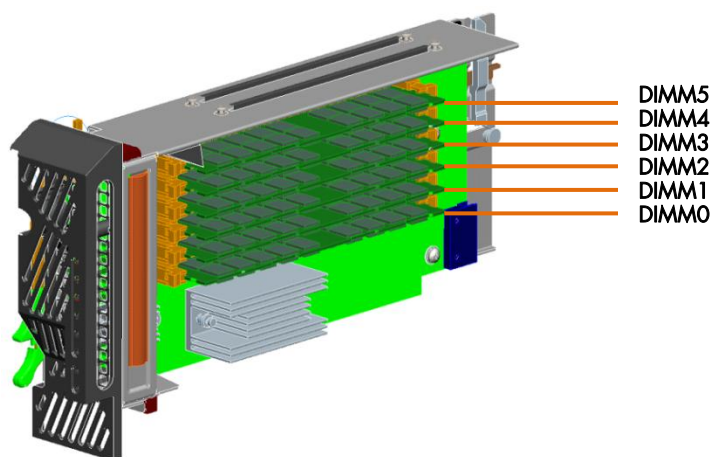
Note: In lockstep (RAS) mode, the leaky bucket overflow is always reported by the hardware on the primary channel 0 or 2 of the lockstepped pair. (DDR channels 0 and 1 operate in lockstep, and DDR channels 2 and 3 operate in lockstep.) The “leaky bucket overflow” message in the *Messages* log therefore always reports the primary channel.

For example, if the “leaky bucket overflow” message reports the error on DIMM 0 of DDR channel 0, as shown above, the failed DIMM in lockstep (RAS) mode is DIMM 0 on either DDR channel 0 or 1 (either DIMM in the DIMM pair). If there are “device tagged” or DDDC (“copy to spare device”) messages in the *Messages* log, they will report the DDR channel number where the error actually occurred (DDR channel 0 in this example).

Memory Blade (MMR) Identification



DIMM Identification



Converting Socket/controller/channel into blade and DIMM number

DIMM	Memory Module ID
DIMM5	Channel 1 Slot 0
DIMM4	Channel 1 Slot 1
DIMM3	Channel 1 Slot 2
DIMM2	Channel 0 Slot 0
DIMM1	Channel 0 Slot 1
DIMM0	Channel 0 Slot 2

In the following table, the memory blades are looked down from the top.

DDR channels 0 and 1 are in the even-numbered blades, and DDR channels 2 and 3 are in the odd-numbered blades.

socket nb	iMC nb	DDR channel nb	DIMM nb	blade (MMR) nb	DIMM nb
0	0	0	0	0	2
0	0	0	1	0	1
0	0	0	2	0	0
0	0	1	0	0	5
0	0	1	1	0	4
0	0	1	2	0	3
0	0	2	0	1	2
0	0	2	1	1	1
0	0	2	2	1	0
0	0	3	0	1	5
0	0	3	1	1	4
0	0	3	2	1	3
0	1	0	0	2	2
0	1	0	1	2	1
0	1	0	2	2	0
0	1	1	0	2	5
0	1	1	1	2	4
0	1	1	2	2	3
0	1	2	0	3	2
0	1	2	1	3	1
0	1	2	2	3	0
0	1	3	0	3	5
0	1	3	1	3	4
0	1	3	2	3	3
1	0	0	0	4	2
1	0	0	1	4	1
1	0	0	2	4	0
1	0	1	0	4	5
1	0	1	1	4	4
1	0	1	2	4	3
1	0	2	0	5	2
1	0	2	1	5	1
1	0	2	2	5	0
1	0	3	0	5	5
1	0	3	1	5	4
1	0	3	2	5	3
1	1	0	0	6	2
1	1	0	1	6	1
1	1	0	2	6	0
1	1	1	0	6	5
1	1	1	1	6	4
1	1	1	2	6	3
1	1	2	0	7	2
1	1	2	1	7	1
1	1	2	2	7	0
1	1	3	0	7	5
1	1	3	1	7	4
1	1	3	2	7	3

9. Known restrictions, issues and workarounds

9.1. Restrictions on PCI Hot Plug (platform)

- PCI Hot Plug is possible only on Red Hat OS.
- Hot Plug of Intel Ethernet Server I350-T2 and I350-T4 adapters is not supported

Refer to *Customer Service Guide*, Ref. 86 A1 34FL, for details on hot plugging PCI adapters. This guide is available in the *bullion S Customer Documentation Portfolio*.

9.2. Restrictions on Memory Hot Add (platform)

- Memory Hot Add is possible only on Red Hat OS.
- Due to Red Hat 6.5 limitations:
 - Memory Hot Add is not operational on bullion S2.
 - Memory Hot Add is forbidden on bullion S without memory blade attached to a socket.

Refer to *Customer Service Guide*, Ref. 86 A1 34FL, for details on hot adding memory. This guide is available in the *bullion S Customer Documentation Portfolio*.

9.3. LSI MegaRAID 9261 card (platform)

Issue

The first configuration of the LSI MegaRAID 9261 must be done in legacy mode (not in EFI).



WARNING
Rebuilding RAID must be done in OS environment and not in EFI environment.

Workaround

1. Boot the bullion S to BIOS “**Setup Utility**”, by pressing ESC key or using this bsmcli command:

```
/opt/BSMHW_NG/bin/bsmBootDevice.sh -H <host> -u <user> -p <password> -d bios
```

2. In the “**Boot**” section, select for Boot type “**Legacy Boot Type**”. Save by pressing F10 and reboot the system in Legacy mode.



3. Reconfigure or rebuild the RAID disks under LSI utility
4. When the install is done, let the system reboot and go again to BIOS “**Setup Utility**”, then “**Boot**” section, select for Boot type “**UEFI Boot Type**”. Save by pressing F10 and reboot the system in UEFI mode.

9.4. PCIe configuration extension on bullion S16

If you need to upgrade a bullion S16 with PCI-e cards, please contact your Bull representative.

9.5. iSCSI Boot with Emulex OCe11102 card (platform)

Restriction

iSCSI boot through the OCe11102 card is not supported.

In iSCSI, boot is to be performed on bullion S hard disk. Emulex OCe11102 cards are used for data only.

9.6. Memory Blade green light remains ON (platform)

Issue

The power green LED of the memory blade is turned ON after the execution of a power ON command. But it will remain ON as long as the system remains AC connected even after a power OFF sequence.

Workaround

Do not take into account the memory blade LED state.

9.7. Spurious BCS fatal errors (platform)

Issue

A **shutdown** OS command execution generates spurious BCS fatal errors in every slave modules.

Workaround

Do not take into account the BCS fatal errors that follow a shutdown command within the SEL.

9.8. USB and on board 1Gb/s on slave modules (platform)

Issue

The USB port and on board 1Gb/s Ethernet controller (powerville) are disabled on all the slave modules of a partition.

Workaround

Use USB port and on board 1GB/s Ethernet ports in master module only.

9.9. Update of SHC firmware (platform)

Issue

Update of the SHC firmware is not supported yet at power on state.

Workaround

Do the update when the module is at power off state.

9.10. SAN boot on LPe16002 (platform)

Issue 1

It is not possible to configure a boot LUN from SAN on the LPe16002 adapter if a bootable USB key, previously used to boot, is still present. The "Add Boot Device" of the Emulex adapter configuration cannot discover the boot LUN or the discovered LUN may not be configured as a boot device.

Workaround 1

The USB key must be removed before restarting the bullion S and entering the Device Management menu.

Issue 2

Unable to configure Boot from SAN in Boot Option Device Manager on the LPe16002 adapter.

Workaround 2

1. Boot the system and press <ESC> to stop at Boot Options.
2. Open "Device Manager" and select desired port for boot.
3. First select "Set Emulex Adapter to Default Settings" then "Add Boot Device"
4. Select discovered target
5. Select desired LUN
6. "Commit Changes"
7. "Go to Configuration Menu"
8. "Set Boot from SAN" <Enable>;
9. "Back to UEFI Device Manager and RECONNECT DEVICES"
10. Once back to "devices list" do a "Force Power Off" from the BMC Power Management then reboot the system.

9.11. Memory holes not supported by VMware 5.5 (VMware)

Issue

VMware 5.5 may generate illegal memory access when memory gaps exist between modules in a multi module server, leading the server to crash.

Workaround

Till a fix is delivered by VMware in a future vSphere release, a workaround is made available by Bull and implemented in each multi module bullion S server delivered from manufacturing.

Each multi module server operating under VMware 5.5 is delivered with the following SHC key set to:

```
bmc.BIOS_no_memory_hole    yes
```

9.12. vCenter system health (VMware)

Issue

The system health sensors are not available under vCenter (temperatures, fan sensors, server consumption, etc).

Workaround

This information is still available through SHC interface.

9.13. 1Gb Ethernet ports under ESXi (VMware)

9.13.1. VMware constraints

VMware ESXi 5.5 U1 and U2 support up to 16x 1Gb/s ports or up to 4x1Gb/s and up to 8x 10Gb/s ports.

According to the number of authorized 1Gb/s Ethernet cards (Intel I350-T2 or I350-T4) in the configuration, the on-board 1Gb/s (powerville) ports may have to be disabled to comply with VMware limits.

9.13.2. Disabling on-board 1Gb/s if needed

bullion S arrives configured from manufacturing with on-board 1Gb/s ports enabled or disabled, depending on the configuration and VMWare constraints.

If a new 1Gb/s PCI-e is installed as add-on, you may need to disable the on-board 1Gb/s ports. Please follow the procedure described below:

1. Boot the bullion S to the BIOS "Setup Utility", by pressing ESC key or using bsmcli command:

```
/opt/BSMHW_NG/bin/bsmBootDevice.sh -H <host> -u <user> -p <password> -d bios
```
2. In the "Advanced" section, go to "Chipset Configuration", then "PCI Express Configuration", then "PCI Express root port 1" and select "Disable".
3. Save by pressing F10 and reboot the system. The 1GbE controller two ports will not be visible in BIOS (PXE boot ports) or OS.

9.14. SR IOV feature (VMware)

SR IOV feature is not supported with Intel Ethernet Server I350-T2 and I350-T4 adapters.

9.15. Red Hat specific (Red Hat)

Issue

There may be some known issues on Red Hat 6.5.

Workaround

In case of problem with the Red Hat Operating System, please see the Red Hat customer portal using your Red Hat account.

9.16. "Add Boot Option" BIOS function fails (platform)

Issue

The "**Boot From File > Add Boot Option**" BIOS function does not work (final save fails):

As a consequence it is not possible to change the name of a boot instance in the BIOS menu. For example, if several instances of the same boot device are installed, the BIOS will show them with the same name.

Workaround

None. This is not a blocking problem.

9.17. Updating Main FPGA Firmware (platform)

Issue

Updating Main FPGA firmware is a long operation (about 7 min). After a while, the Server Hardware Console may display a time-out message. Despite this message, the firmware is successfully updated.

Workaround

None, operation is successful.

9.18. Memory blade green light on after power off (platform)

Issue

After a power ON then power OFF, the green light on memory blade may stay switched on.

Workaround

Ignore the information.

9.19. Erroneous Memory description using dmidecode (Red Hat)

Issue

The memory description in **smbios** table (using **dmidecode** tool) may be erroneous for empty slots:

- Memory slots may be described twice.
- Slot identifier may be erroneous.

Workaround

Use information provided by the SHC.

9.20. DIMM location for correctable memory errors (Red Hat)

Issue

In case of a correctable error, the information in the MCE log leads to the channel only, not to the DIMM.

Note: if a RAS feature is triggered (e.g. DDDC, rank sparing, etc), or if the number of corrected errors exceeds the threshold (leaky bucket), then a SEL event is issued. This event points to the DIMM (see section 0 for details).

9.21. Informative messages in the BIOS trace (Platform)

The following message may be present in the BIOS trace at boot time:

```
2015-01-22 09:33:25 BMC Message BIOS Setup parameters are successfully deleted
```

Please just ignore this message.

9.22. Emulex LPe15004 does not enable the link to Scan Devices in Device Manager (VMware)

Issue

When trying to configure LPe15004 to boot from SAN thru the Device Manager, the LPe15004 ports may not enable the link to Scan Devices.

Workaround

In Device Manager, go to the LPe15004 port and select "Configure HBA and Boot Parameters". Then toggle "Topology Selection" to "AUTO Loop First - default".

Select "Commit Changes".

The Scan Devices now enables the link and finds the device.

9.23. ESXi sees LPe15004 as an LPe16000 (VMware)

Note

ESXi5.5U2 build 2302651 sees LPe15004 as LPe16000.

9.24. Reboot on bullion S2

Issue

Reboot on bullion S2 is not allowed.

Workaround

Reboot using a Power cycle from SHC.

10. History of previous releases

This is the first production release.

End of document