

BIOS and BMC Firmware Update Instructions

Overview

The following instructions outlines the steps required to update the BIOS and BMC on DRAGEN V3 servers.

Requirements

Download `dragen_bios_v1.08.zip` which contains the following files:

- `afulnx_64`
- `87897A.108`
- `Axiomtek_EM500_20201214.rom.ima`

Changelog

BIOS V1.08:

- Enable EIST (Intel turbo mode)
- Gray out "BMC support"
- Enable LAN PXE function and display BIOS control item to enable/disable it
- Update SPS firmware to 4.1.4.381.0

BMC 2.06:

- Gray out BMC bonding
- Change the behavior of ipmi chassis power cycle to force a system shutdown after 10 seconds, now we don't wait for the OS to finish a graceful shutdown but will remove the power and put it back again.

Procedure

1. Turn on the instrument and log in as the root account.
2. Check the current BIOS and BMC version by entering the following command in the terminal:

```
$ echo ""; echo ""; echo "BIOS Version"; dmidecode | grep Ver; echo ""; echo "BMC Firmware Revision"; ipmitool mc info | grep "Firmware Revision"
```

Example output:

BIOS Version

Version: V1.08

Version: Default string

Version: Default string

Version: Default string

Specification Version: 2.0

Version: Intel(R) Xeon(R) Gold 6226 CPU @ 2.70GHz

Version: Intel(R) Xeon(R) Gold 6226 CPU @ 2.70GHz

BMC Firmware Revision

Firmware Revision: 2.06

The latest version of BIOS is v1.08 and BMC v2.06.x. Please proceed with the instruction below to update your BIOS and BMC.

Note: BIOS v5.04 is an older version than v1.08

3. To update the BIOS to version V1.08

- a.** Run the following command from the terminal:
`$ afulnx_64 87897V.108 /p /b /n /x`
- b.** Wait for the command to finish, successfully: if an error occurs repeat the command.
- c.** Reboot the system.
- d.** Run the following command from the terminal:
`$ afulnx_64 87897V.108 /p /b /n /x /ME`
- e.** Wait for the command to finish, successfully: if an error occurs repeat the command.
- f.** Reboot the system.
- g.** Rerun Step 2 to confirm BIOS is now V1.08

4. To update the BMC

- a.** Use `ipmitool lan print` to identify BMC IP address

```
user@em500:~$ sudo su
[sudo] password for user:
root@em500:/home/user# ipmitool lan print
Set in Progress       : Set Complete
Auth Type Support     : MD5
Auth Type Enable      : Callback : MD5
                       : User      : MD5
                       : Operator  : MD5
                       : Admin     : MD5
                       : OEM       : MD5
IP Address Source     : DHCP Address
IP Address             : 192.168.100.153
Subnet Mask           : 255.255.255.0
```

b. Use web browser to access BMC via IP address. Select [Firmware Update]

Dashboard

Dashboard gives the overall information about the status of the device and remote server.

Device Information

Firmware Revision: 2.03.1
Firmware Build Time: Jun 11 2020 17:38:11 CST

Network Information

MAC Address: 00:60:E9:05:48:20
V4 Network Mode: DHCP
IPv4 Address: 192.168.100.153
V6 Network Mode: DHCP
IPv6 Address:

Remote Control [Launch]

Sensor Monitoring

Status	Sensor	Reading	
●	+12V	12.2 Volts	
●	+5V	5.104 Volts	
●	+3.3V	3.314 Volts	
●	+5VSB	5.104 Volts	
●	+3VSB	3.328 Volts	
●	FAN1	8000 RPM	
●	FAN2	7800 RPM	
●	FAN3	8000 RPM	
●	FAN4	8400 RPM	
●	FAN5	7600 RPM	
●	FAN6	0 RPM	
●	FAN7	4400 RPM	
●	SYS1_TEMP	Not Available	
●	CPU1_TEMP	Not Available	
●	SYS2/CPU2_TEMP	Not Available	

Event Logs

FAN6 (8.96%)
FAN4 (15.05%)
FAN3 (17.55%)
FAN2 (17.55%)
FAN1 (17.55%)
Unknown (23.31%)
Free Space (0%)

c. Select [AMI], click [Continue]

Firmware Update

Upgrade firmware of the device **HPM Firmware Update**

The protocol information to be used for firmware image transfer during this update is as follows. To configure, choose 'Protocol Configuration' under Firmware Update menu.

Protocol Type : HTTP/HTTPS

☐ HPM ☒ AMI [Continue]

WARNING: Please note that after entering the update mode, the widgets, other web pages and services will not work. All the open widgets will be automatically closed. If the upgradation is cancelled in the middle of the wizard, the device will be reset.

d. Select [Preserve all Configuration], Select [Enter Update Mode]

Firmware Update

Upgrade firmware of the device Press 'Enter Update Mode' to put the device in update mode.

The protocol information to be used for firmware image transfer during this update is as follows. To configure, choose 'Protocol Configuration' under Firmware Update menu.

Protocol Type : HTTP/HTTPS

☒ Preserve all Configuration. This will preserve all the configuration settings during the firmware update - irrespective of the individual items marked as preserve/overwrite in the table below. All configuration items below will be preserved as default during the restore configuration operation. Click "Enter Preserve Configuration" to modify the Preserve status settings.

#	Configuration Item	Preserve Status
1	SDR	Override
2	FRU	Override
3	SEL	Override
4	IPMI	Override
5	Network	Override
6	NTP	Override
7	SSH	Override
8	KVM	Override
9	Authentication	Override
10	Syslog	Override

[Enter Preserve Configuration] [Enter Update Mode]

- e. Choose File, File name: Axiomtek_EM500_20201214.rom.ima. Select [Upload].

Firmware Update

Upgrade firmware of the device. Press 'Enter Update Mode' to put the device in update mode.

The protocol information to be used for firmware image transfer during this update is as follows. To configure, choose 'Protocol Configuration' under Firmware Update menu.
Protocol Type : HTTP/HTTPS

WARNING: Please note that after entering the update mode, the widgets, other web pages and services will not work. All the open widgets will be automatically closed. If the upgradation is cancelled in the middle of the wizard, the device will be reset.

- ☒ Closing all active client requests.
- ☒ Preparing device for firmware upgrade.
- ☐ Uploading firmware image.
- ☐ Verifying firmware image.
- ☐ Flashing firmware image.
- ☐ Resetting Device.

Upload Firmware

Please select the firmware image to flash

Choose File | Axiomtek_E_200710.ima

Upload Cancel

Axiomtek_EM500_...ima Show all X

- f. Select [Full Flash], select [Proceed].

Firmware Update

Upgrade firmware of the device. Press 'Enter Update Mode' to put the device in update mode.

The protocol information to be used for firmware image transfer during this update is as follows. To configure, choose 'Protocol Configuration' under Firmware Update menu.
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Section Based Firmware Update

The following section is used to allow the user to configure the firmware image for section based flashing

☐ Version Compare Flash ☒ Full Flash

#	Section Name	Existing Version	Updated Version	Upgradable/Non Upgradable
1	boot	2.1.000000	2.1.000000	<input type="checkbox"/>
2	root	2.1.000000	2.1.000000	<input type="checkbox"/>
3	osimage	2.1.000000	2.1.000000	<input type="checkbox"/>
4	www	2.1.000000	2.1.000000	<input type="checkbox"/>
5	ast2500e	2.3.00001	2.4.00000	<input type="checkbox"/>

Proceed Cancel

Note: configuration was not preserved, admin password will be reset back to default "admin".

- g. After 5 minutes, log back into BMC web UI.
- h. Confirm Dashboard shows **Firmware Revision: 2.06.1**