GAS GAUGE FIRMWARE UPDATE PROCEDURE

RevC

Revision History

Version and Date	Description of Changes
Rev A, September 2014	Initial Release – Thunderbolt only
Rev B, November 2014	Updates for Web posting
Rev C, November 2014	Updates for web posting

TABLE OF CONTENTS

LIST OF TABLES

1 Identification of Gas Gauge number on the module under use.

Each CacheVault product has a Gas Gauge Integrated Circuit (IC) that maintains an accurate record of the available charge on the SuperCap. Through ongoing long term testing, Avago has determined that an update to the Gas Gauge firmware is needed to prevent a situation where the SuperCap is prematurely declared Fault status. This update is recommended to be performed on the next available maintenance release for the CacheVault product.

The GAS GAUGE (GG) part number will also be referred to as Module Version in this document and utilities.

The Gas Gauge (Module Version) part number format is 70-ABCDE-YY, where 'ABCDE' represents the unique Gas Gauge FW part number for the module and YY is the revision of the part number.

In some cases, the Gas Gauge (Module Version) part number will be shown as 70-ABCDE-YYZ, where 'Z' is the minor revision.

Only the last 8 characters of the Gas Gauge part number will be displayed by the STORCLI utility.

Please use the following module STORCLI command to find out the Gas Gauge FW part number on the module under use.

"StorCLI /c0/cv show all"

```
Controller = 0
Status = Success
Description = None


Cachevault_Info :
===============

--------------------
Property    Value
--------------------
Type        CVPM02
Temperature 25 C
State       Optimal
--------------------
```

```
Date of Manufacture     21/08/2013
Serial Number           2653
Manufacture Name        LSI
Device Name             CVPM02
tmmFru                  N/A
tmmBatversionNo         0x0000
tmmSerialNo             0x1014
tmm Date of Manufacture 18/01/2012
tmmPcbAssmNo            L225436XXX
tmmPCBversionNo         0x3033
tmmBatPackAssmNo        49571-02A
scapBatversionNo        0x0000
scapSerialNo            0x0a5d
scap Date of Manufacture 21/08/2013
scapPcbAssmNo           1700134483
scapPCBversionNo        0x2041
scapBatPackAssmNo       49571-13A
Module Version          25842-06
```

After obtaining the Gas Gauge FW part number on the module under use, please refer to the table in section 2 to determine if a Gas Gauge FW update is required or not. If an update is required identify the new Gas Gauge FW to be used and download from the AVAGO website or obtain from an AVAGO FAE.

2   New Gas Gauge FW Part Numbers

ROC	MODULE	Possible GG FW Reported by STORCLI	GG FW Update Required	Latest GG FW to use for Update
THUNDERBOLT (2208-based)	TFM (**-25419-**) Internal connector cards, 9266/9271-based	25849-01	YES	70-25849-04
		25849-02F	YES	70-25849-04
		25849-03	NO	NA
		25849-04	NO	NA
Note: Both 25849-03 and 25849-04 Gas Gauge files have exactly same settings. 25849-03 is used for manufacturing and 25849-04 will be used for field upgrade release. To avoid impact to manufacturing and BOMs, two part numbers have to be maintained.				

Table 1: 9266/9271-Based TFM Gas Gauge Selection Table

ROC	MODULE	Possible GG FW Reported by STORCLI	GG FW Update Required	Latest GG FW to use for Update
THUNDERBOLT (2208-based)	TMM-B (**-25436-**) External connector cards, 9286-based	25842-06	YES	70-25842-12
		25842-08	YES	70-25842-12
		25842-10	YES	70-25842-12
		25842-11	NO	NA
		25842-12	NO	NA
Note: Both 25842-11 and 25842-12 Gas Gauge files have exactly same settings. 25842-11 is used for manufacturing and 25842-12 will be used for field upgrade release. To avoid impact to manufacturing and BOMs, two part numbers have to be maintained.				

Table 2: 9286-Based TMM-B Gas Gauge Selection Table

3   Gas Gauge FW Update Options

Two Gas Gauge Firmware update options are available:

Option 1: Use StorCLI v1.09.11 or later with MR 5.12 or later (Recommended).

Benefits:

- MegaRAID FW enhancements include safeguards to ensure that the correct GG is being flashed based on targeted hardware.
- MegaRAID FW enhancements simplify the update process by automatically taking the necessary safety steps without user intervention.

Option 2: Immediate Update using StorCLI v1.09.11 or later.

This option provides an immediate solution with less safeguards against user error.

Benefits:

- This option can be used for customers needing an interim GG FW update method prior to the availability of MR 5.12.
- Provides limited validation if correct GG file is being used for update on the module under use.
- Available now through your FAEs or AVAGO support for any tactical update requirements.

Limitations:

- Multiple step process including manually changing the controller to write through mode prior to performing update and forcing LEARN cycle after update is completed.
- Limited error checking by the utility.
- Risk of "bricking" controller if incorrect GG is flashed to the targeted hardware.

3.1   Procedure to update Gas Gauge FW using StorCLI v1.09.11 or later with MR 5.12 or later.

Step 1: Make sure controller FW is updated to MR 5.12 or later.

Step 2: Update GG FW with the GG FW identified from section 2 using STORCLI with the following syntax command.

```
storcli64.exe /c<x> download file= <file name> fwtype=2 resetnow

<file name> is the GG FW you saved. For example, TFM_70-25849-04.rom
```

Step 3: Restart the system.

Step 4: Verify that the Gas Gauge update happened correctly.

Note:
With MR 5.12 or later version, FW will AUTOMATICALLY
Change the cache policy of "Write Back with BBU" VDs to "Write Through" before update begins,
Verifies the new image against current image and updates GG FW if all checks pass,
Initiates a LEARN cycle after GG update is completed and
Changes the VDs back to "Write Back with BBU" after LEARN CYCLE is completed successfully.

3.2   Procedure to update Gas Gauge FW using StorCLI v1.09.11 or later.

Step 1: Identify the VDs in "**Write Back with BBU**" mode and change them to "**Write Through**" mode manually.
(Make a note or take a snapshot of the VD numbers.)

Step 2: Update GG FW with the GG FW identified from section 2 using STORCLI with the following syntax command.

```
storcli64.exe /c<x> download file= <file name> fwtype=2

<file name> is the GG FW you saved. For example, TFM_ 70-25849-04.rom
```

Step 3: Restart the system.

Step 4: Verify that the Gas Gauge update happened correctly.

Step 5: Manually initiate a SUPERCAP LEARN CYCLE.

Step 6: After Supercap LEARN CYCLE is completed successfully, move all the VDs identified from **Step 1** back to "**Write Back with BBU**" mode.