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TO: Distribution

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SUBJECT: Conduant Amazon Controller Card SDK 9.3a Upgrade (Mark5B+)

The document describes how to upgrade your Mark5B+ Amazon Controller card and FPDP2 daughter board to support >2TB disk modules on Mark5's with an OS distribution having either Debian Lenny or Squeeze. If your system has a Debian Etch distribution installed, please refer to Mark5 memo 098.

Pre-install Steps

For Mark5B+'s with Debian Lenny or Squeeze, download the following files from the Haystack website Mark5 Downloads page http://www.haystack.edu/tech/vlbi/mark5/downloads.html.

1. Under Streamstor SDK, Version 9.3 download the *Streamstor SDK9.3 Package*
   a. streamstor_9.3.2-i386.deb
2. Download the *Mark5 Application Package* and the *Release Notes*
   a. mark5_3.0.1-i386.deb

Before upgrading please remove the following modules from the kernel, as root (su -)

rmmod windrvr6

Installation

Installation will be a three step process:

1. Install the new streamstor software development kit (SDK) 9.3.a

2. Install the new Mark5 application

3. Upgrade the firmware of the Amazon Controller Card and the FPDP2 daughter board.

Step 1: Installing the new Streamstor SDK

To install the new Streamstor Debian 9.3a package execute:

dpkg -i streamstor_9.3.2-i386.deb

Step 2: Install the Mark5 Application

To install the Mark5 application execute:
dpkg -i mar5k-3.0.1-i386.deb

The new Mark5 application has been installed. Please refer to the new command set (v1.13) for updates to support both > 1024 scans and new features.

To enable greater than 1024 scans on your system the reset=erase command can be used, or the standalone utility SSErase with the "-u l", option to enable 64k scan support. For the new usage options for SSErase, please use SSErase -h.

NOTE: While the correlators are going thru the upgrade process to support larger than 16TB disk modules it is initially recommended that the disk modules are erased with the old 1024 maximum number of scans. To erase the disk module that you are shipping to a correlator, until notified to revert to the standard reset=erase command, issue:

<div align="center">

reset=erase : s

</div>

Step 3: Streamstor SDK Firmware Upgrade

Set the streamstor environment values to the location of your streamstor source code:

export SS='/usr/local/src/streamstor/linux'
export STREAMSTOR_BIB_PATH='/usr/local/src/streamstor/linux/bib'

change to the directory where the utilities are located:

<div align="center">

cd /usr/local/src/streamstor/linux/util/bib

</div>

Make sure you have a disk module installed in bank A and keyed before executing the following ssflash command.

There are two firmware files you will have to update, one for the Amazon controller and the second for your daughterboard. The two firmware files are

<div align="center">

ssamazon_16037.xfb
G4FP_PAR32_01008.xfb

</div>

From the directory /usr/local/src/streamstor/linux/bib excute:

../util/./ssflash

The queries have been highlighted in blue and with the proper response in red and the output in black.


```
      SSFlash Version# 2.63
------------------
Operation:
1. Flash a single file.
2. Flash using PCI the files in the .ssf file.
3. Verify a .ssf file, don't flash anything.
4. Quit
Enter choice: 1

Enter flash update filename (*.xfb) or q to quit:  ssamazon_16037.xfb
```

Flash over which data path:
1. PCI
2. Ethernet
3. Quit
Enter choice (1,2 or 3): **1**

Enter card index (1,2,...) or q to quit: **1**
***** Initial Versions *****
SDK Version   : 9.03
BoardType   : AMAZON-VP
Serial Number   : 2519
API Version   : 11.33
API Datecode   : Jan 11 2013
Firmware Version   : 15.45
Firmware Datecode : May 28 2009
Monitor Version   : 12.17
XBAR Version   : 2.028

Daughter Board Information:
Serial Number   : 2603
PCB Version   : 3.00
PCB Type   : FPDP2
PCBSubType   : M1 Term
FPGAConfig   : FPDP2
FPGAConfigVersion : 1.06
DB_PCB_Type   : 1
DB_FPGA_Type   : 1

WARNING: Updating StreamStor firmware may require rebuilding
user applications with updated StreamStor libraries.

Enter 'y' to start flashing, any other character to quit: **y**

(NOTE: This takes about 1 min for the card to be flashed)

Flashing file ssamazon_16037.xfb.
Please wait...
File: ssamazon_16037.xfb
successfully flashed!

Getting final version numbers ...

***** Final Versions *****
SDK Version   : 9.03

BoardType   : AMAZON-VP
Serial Number   : 2519
API Version   : 11.33
API Datecode   : Jan 11 2013
Firmware Version : 16.37
Firmware Datecode : May 13 2013
Monitor Version   : 12.17
XBAR Version   : 2.028

Daughter Board Information:
Serial Number   : 2603
PCB Version   : 3.00
PCB Type   : FPDP2
PCBSubType   : M1 Term
FPGAConfig   : FPDP2
FPGAConfigVersion : 1.06
DB_PCB_Type   : 1
DB_FPGA_Type   : 1

After updating the firmware please reboot the system and operations should not see any differences on disk modules up to 16TB in length and containing 2TB or less HDDs.

If you would like to use disk modules > 16TB, e.g. a module created all 3 TB HDDs for a 24 TB modules, remember to reset=erase the module before using it.

Now flash the daughterboard firmware:

../util/./ssflash

     SSFlash Version# 2.63

Operation:
1. Flash a single file.
2. Flash using PCI the files in the .ssf file.
3. Verify a .ssf file, don't flash anything.
4. Quit
Enter choice: **1**

Enter flash update filename (*.xfb) or q to quit: **G4FP_PAR32_01008.xfb**

Flash over which data path:
1. PCI
2. Ethernet
3. Quit
Enter choice (1,2 or 3): **1**

Enter card index (1,2,...) or q to quit: **1**
***** Initial Versions *****
SDK Version   : 9.03
BoardType   : AMAZON-VP
Serial Number   : 2519
API Version   : 11.33
API Datecode   : Jan 11 2013
Firmware Version : 16.37
Firmware Datecode : May 13 2013
Monitor Version   : 12.17
XBAR Version   : 2.028

Daughter Board Information:
Serial Number   : 2603
PCB Version   : 3.00
PCB Type   : FPDP2
PCBSubType   : M1 Term
FPGAConfig   : FPDP2
FPGAConfigVersion : 1.06
DB_PCB_Type   : 1
DB_FPGA_Type   : 1

WARNING: Updating StreamStor firmware may require rebuilding
user applications with updated StreamStor libraries.

Flashing file G4FP_PAR32_01008.xfb.
Please wait...
File: G4FP_PAR32_01008.xfb
successfully flashed!

Getting final version numbers ...

***** Final Versions *****
SDK Version   : 9.03
BoardType   : AMAZON-VP
Serial Number   : 2519
API Version   : 11.33
API Datecode   : Jan 11 2013
Firmware Version : 16.33
Firmware Datecode : May 13 2013
Monitor Version   : 12.17
XBAR Version   : 2.028

Daughter Board Information:
Serial Number   : 2603
PCB Version   : 3.00
PCB Type   : FPDP2
PCBSubType   : M1 Term
FPGAConfig   : FPDP2
FPGAConfigVersion : 1.08
DB_PCB_Type   : 1
DB_FPGA_Type   : 1

Note: After updating the firmware please reboot the system and operations should not see any differences on disk modules up to 16TB in length and containing 2TB or less HDDs.

If you would like to use disk modules > 16TB, e.g. a module created all 3 TB HDDs for a 24 TB modules, remember to reset=erase the module before using it.

If there are any questions or problems please feel free to contact me, chester@haystack.mit.edu