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	Title: BIOS Update procedure		

Product: Storage Controllers: Sil0680,Sil31x2,Sil3114,Sil3124,Sil313x

Category: Storage

Department Name: World Wide Customer Services and Support

Title: How to Update BIOS for Silicon Image Storage Controllers

Technical Tip Overview

This document describes the methods for updating the BIOS stored in FLASH memory on add-in PCI, PCI/X and PCI-e host bus adapters containing a Silicon Image SATA controller in one of two ways.

- Using the FLASH tab available in the current Sil31xx Windows drivers properties window as described in *Indications of Unsupported FLASH Chips and Updating FLASH from the Driver Flash BIOS Tab*; and
- Using the DOS UpdFlash utility as described in *Updating FLASH with UpdFlash*.

Storage controllers embedded in motherboards have their BIOS integrated within the system BIOS of the motherboard and **CANNOT** be updated with these methods. Motherboard BIOS updates must be obtained from the manufacturer.

Support Limitations

The Silicon Image BIOS update capabilities support updating BIOS only for add-in PCI cards with the following FLASH chips:

AMD's Am29F010B/Am29LV010B (1 Megabit) and Am29F040B (4 Megabit)
 AMD's Am29LV400B (4 Megabit) variable sectors
 Atmel's AT49BV512 (64KB), AT29LV010A (1 Megabit), and AT49LV040 (4 Megabit)
 SST's 39SF010 (1 Megabit), 39VF010 (1 Megabit), and 39SF020 (2 Megabit)
 SANYO's LE28C1001D (1 Megabit)
 WinBound's 29EE011 (1 Megabit) and 29EE512 (64KB)
 STMicroelectronics M29F010B (1 Megabit)
 STMicroelectronics M29W040B (4 Megabit)
 STMicroelectronics M29W400B (4 Megabit) variable sectors

Many add-in card manufacturers design in FLASH memory chips other than those supported by the Silicon Image capabilities requiring the use of BIOS update utilities provided by the card manufacturer.

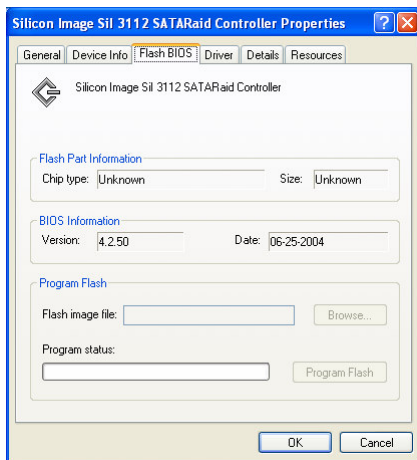
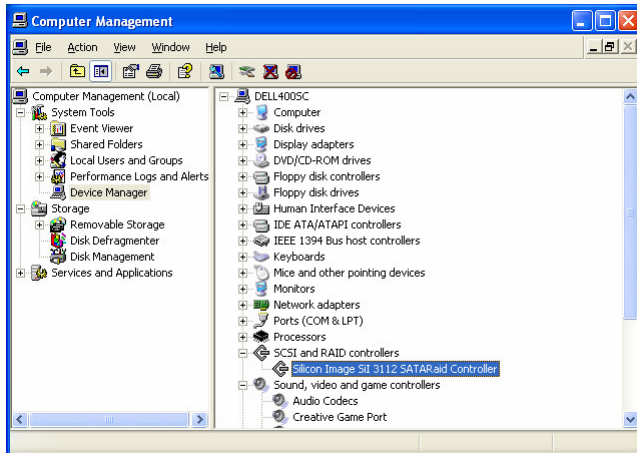
If your driver properties window does not have a FLASH update tab or you are using an operating system other than Windows, please refer to *Updating FLASH with UpdFlash*.

Indications of Unsupported FLASH Chips

The later releases of the controller drivers for Windows provide a **Flash BIOS** tab for inspecting and updating the BIOS as part of the driver properties window. Right click on **My Computer->Manage** to start computer management, then click on **Device Manger** and locate the Silicon

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Image controller under the SCSI and RAID controllers. Double click on the controller to access its properties window and select the **Flash BIOS** tab. The **Flash BIOS** tab will only appear if a drive is attached to the controller. If the **Browse** button in the tab is greyed out then the driver Flash BIOS update function does not know how to program the FLASH chip on your add-in card. The **Browse** button is always greyed out for motherboards because the function cannot update BIOS for embedded controllers.



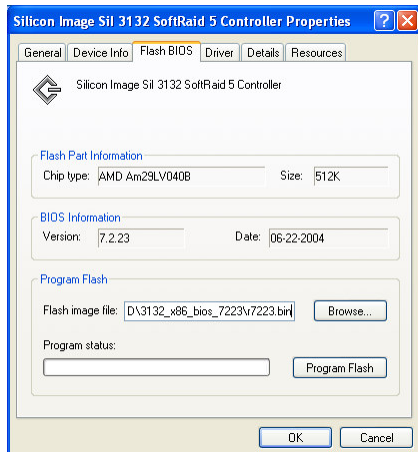
UpdFlash will return code "5" if it detects a FLASH memory chip it does not know how to reprogram.

Resolution

Updating FLASH from the Driver Flash BIOS Tab

To update BIOS on an add-in card with a supported FLASH chip, download the BIOS for your controller, access the driver properties window, select the **Flash BIOS** tab, then browse to locate the BIOS file to be programmed and click the **Program Flash** button. **You must have a drive attached to the controller before you can program the FLASH chip with the new BIOS.** Be sure to use BIOS and device drivers of the same type. Use RAID BIOS with the RAID driver and IDE/base BIOS with the IDE/base driver. The IDE/base driver is normally a file

named “b#####. Bin” and the RAID BIOS is normally a file named “r#####. Bin”. If you change the type of BIOS installed, you also need to change the driver to match the BIOS.



Updating FLASH with UpdFlash

If the driver does not provide a **Flash BIOS** tab or the controller is installed in an x86 system running a non-Windows operating system, download the **BIOS Update Utilities** from <http://www.siliconimage.com/support> and use **UpdFlash** to reprogram the BIOS on your add-in card.

If you don't have a DOS boot disk for your system, you can download and create a FreeDos boot floppy¹ for **UpdFlash**. Go to sourceforge.net and search for FreeDos, then download the latest kernel. Insert a formatted flexible disk in drive A:, extract the zip file, go to the Bin folder, and run the **Install** batch file to make a bootable floppy. Copy the updflash.exe file and the BIOS binary file to the floppy as well.

Boot from the floppy and run **UpdFlash** from the DOS prompt to program the add-in card FLASH chip with the new BIOS.

The **UpdFlash** command line syntax is as follows:

```
UpdFlash input_file_name -a -d -v -IDxxxxx
```

where


input_file_name is the input binary file name

-IDxxxxx is optional parameter to specify SI controller type (ex. -ID680, -ID3112, etc)

If this parameter is not specified, the utility will search for all installed SI controller chips and if more than 1 type of SI controller are installed in the system, the program will prompt the user to select controller type

-a is optional parameter to set auto mode. In auto mode, no user response is required.

¹ Any media device bootable by your PC will work for FreeDos installation and use with updflash.exe including USB FLASH drives and CD-ROMS.

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- d is optional parameter to set debug flag
- v is optional parameter to display current BIOS version number in the flash memory chip

The following lists return codes that **UpdFlash** will return when the program exits.

- 0 – Update BIOS successful
- 1 – Update BIOS failed
- 2 – BIOS is already up to date
- 3 – No Silicon Image controller is found
- 4 – Can not open input file
- 5 – Flash memory chip is not supported
- 6 – Input file is for mother board BIOS

UpdFlash can also be run in menu mode to test the FLASH memory chips. To run the utility in menu mode, no command line parameters are needed.

Reference Products

Sil0680,Sil31x2,Sil3114,Sil3124,Sil313x

Referenced Documents


Instructions for Using DOS Flash Memory Utility, 6/22/04

Internal Documents

None

External Documents

None

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Application Information

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Revision history

REV.	DATE	ECN	TYPE	ORIGINATOR	DESCRIPTION
A00	12/22/05	TT-0003	TT	Mark Reimold	Initial release