

SUPERMICRO®

AOC-USAS2LP-H8iR Add-on Card



User's Manual

Revision 1.0

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Manual Revision 1.0

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Preface

About this Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate SuperMicro's AOC-USAS2LP-H8iR add-on card to their system.

Product Features

The AOC-USAS2LP-H8iR add-on card offers the following features:

- Low profile UIO Connection
- Dual Internal "ipass" cable ports
- Support for RAID 0, 1, 5, 6, 10, 50, and 60.
- Supports MegaRAID Storage Manager Software
- Supports 1.5, 3.0 and 6.0 Gb/s SAS and SATA data transfer rates
- 8 internal ports
- LSI SAS 2108 chip
- 512MB 800MHz DDR2 on-card cache
- Optional Battery Backup Unit

Operating Systems Supported

The AOC-USAS2LP-H8iR add-on card supports the following Operating Systems (OS):

- Windows 2000/Windows XP/Windows 2003
- Linux OS:
 - Redhat-rhel52
 - Redhat-fc9
 - Suse-sles10sp2

Each operating system must include the latest patches, hot fixes, and at least, 256 MB of free hard drive space.

An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

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Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (<http://www.supermicro.com/support/rma/>).

Whenever possible, repack the backplane in the original Supermicro box, using the original packaging materials. If these are no longer available, be sure to pack the backplane in an anti-static bag and inside the box. Make sure that there is enough packaging material surrounding the backplane so that it does not become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products. A copy of Supermicro's warranty is available at <http://www.supermicro.com/support/Warranty/> on Supermicro's website.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 1

Safety Guidelines

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

1-1 ESD Safety Guidelines

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the add-on card by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

1-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer.
- Disconnect the power cable before installing or removing any cables from the system.
- Make sure that the add-on card is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

1-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

Notes

Chapter 2

Connectors, Jumpers and Indicators

2-1 Front Connectors and Pin Definitions

Connectors are used to attach the add-on card to the system's mainboard.

Figure 2-1. AOC-USAS2LP-H8iR Add-on Card Front Connectors and Jumpers

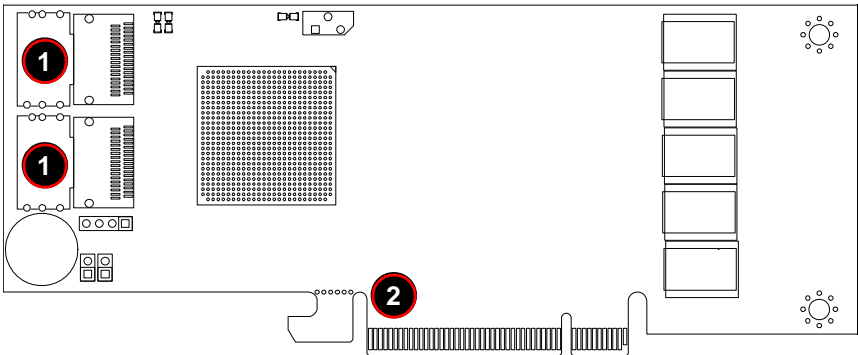


Table 2-1 lists the add-on card's front connectors.

Table 2-1. Front Connectors and Pin Definitions

Number	Description
1	Internal SAS Connectors
2	UIO Board-to-Board Connector

Internal SAS Connectors

The Internal SAS ports (SFF-8087 connector) connect to the backplane allowing the motherboard to access the hard drives and RAID capabilities. Each of these two connectors supports up to four hard drives allowing the add-on card to support a maximum of eight. (SAS 0-3 and SAS 4-7). This card supports SAS, SATA1, and SATA2 drives.

Use a single port SAS "ipass" cable (SuperMicro order number CBL-0108L-02) to connect this port to your system.

Board-to-Board Connector

This 20-Pin connector interfaces with the Battery Backup Unit (BBU). The BBU is an optional accessory and is not included with this card.

2-2 LED Functions

The LED indicated as D11 functions as the add-on card's heartbeat LED. See [Table 2-2](#) below for information on the states indicated by this LED.

Table 2-2. Front LEDs

LED	Normal State	Description
Heartbeat LED (D11)	On	Blinks periodically during normal operation
Sytem Error (D12)	Off	Blinks when in error state

2-3 RAID Minimum Drive Requirements

Use [Table 2-3](#) to determine the minimum number of hard drives needed to set up a RAID environment in the AOC-USAS2LP-H8iR add-on card.

Table 2-3. RAID Minimum Drive Requirements

RAID	Minimum Hard Drives
RAID 0	2
RAID 1	2
RAID 5	3
RAID 6	3
RAID 10	4 (2 RAID 1 array)
RAID 50	6 (2 RAID 5 arrays)
RAID 60	6 (2 RAID 6 arrays)

2-4 Getting Firmware Downloads

Firmware for RAID modes can only be obtained through contacting SuperMicro Technical Support for instructions and assistance to obtain firmware downloads. Follow the procedures below to flash firmware to the BIOS.

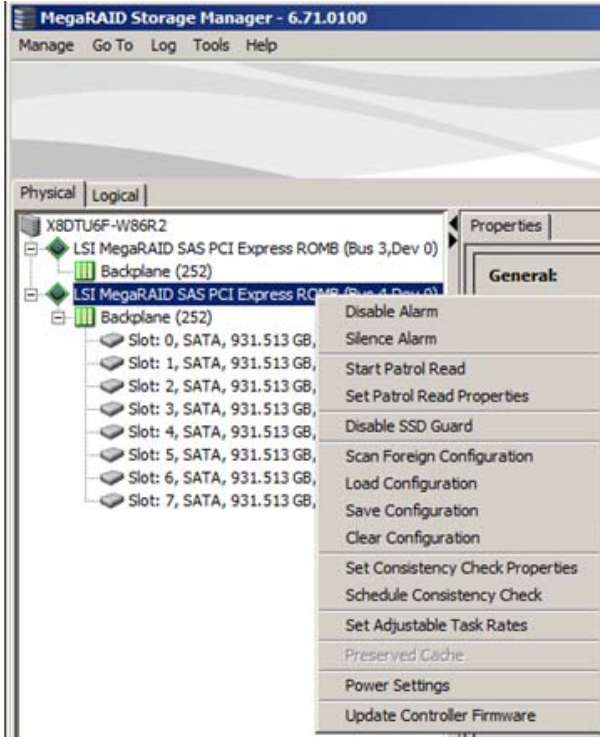
Flashing Firmware Using MegaRAID Storage Manager

Use the procedure below to flash firmware using the MegaRAID Storage Manager Windows application.

Flashing Firmware Using MegaRAID Storage Manager

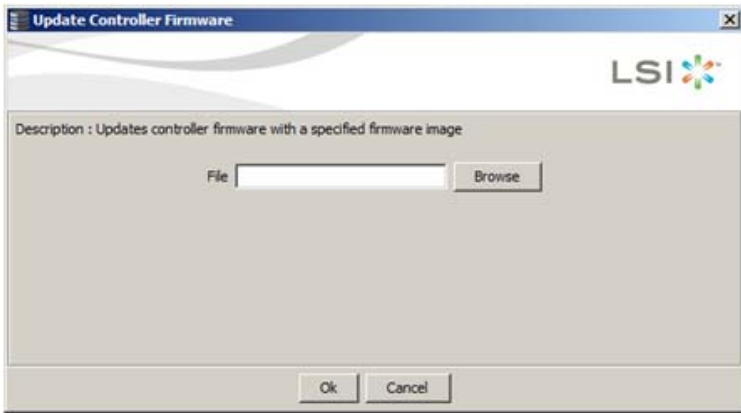
1. Open the MegaRAID Storage Manager application in Windows. Right-click on the LSI 2108 controller to be updated, and select the UPDATE CONTROLLER FIRMWARE menu option (Figure 2-2).

Figure 2-2. MegaRAID Storage Manager Window and Controller Menu



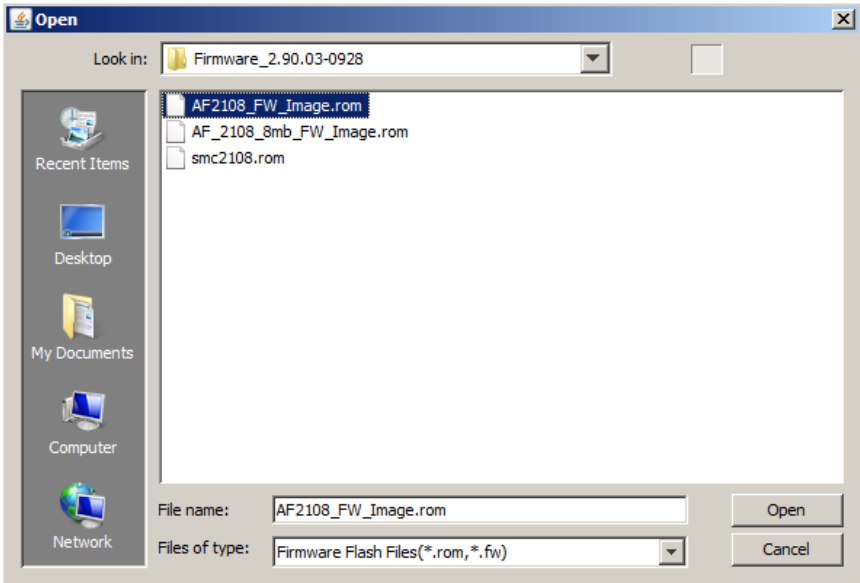
2. In the UPDATE CONTROLLER FIRMWARE window press the BROWSE button to search for new firmware (Figure 2-3).

Figure 2-3. Update Controller Firmware Window



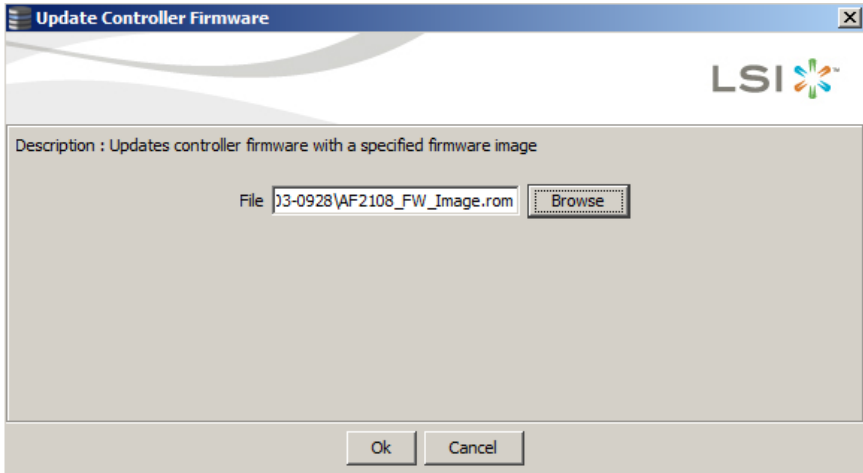
3. Select the new controller firmware **AF2108_FW_Image.rom** from the OPEN window that appears (Figure 2-4).

Figure 2-4. Selecting the Firmware File



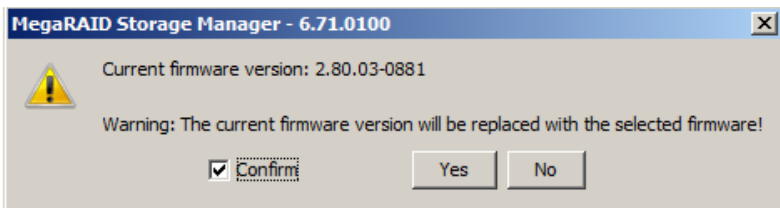
4. In the UPDATE CONTROLLER FIRMWARE window click OK to continue (Figure 2-5).

Figure 2-5. Update Controller Firmware Window with Loaded Firmware File



5. Check **Confirm** in the dialog box that appears and click YES to continue (Figure 2-6).

Figure 2-6. Confirmation Dialog Box

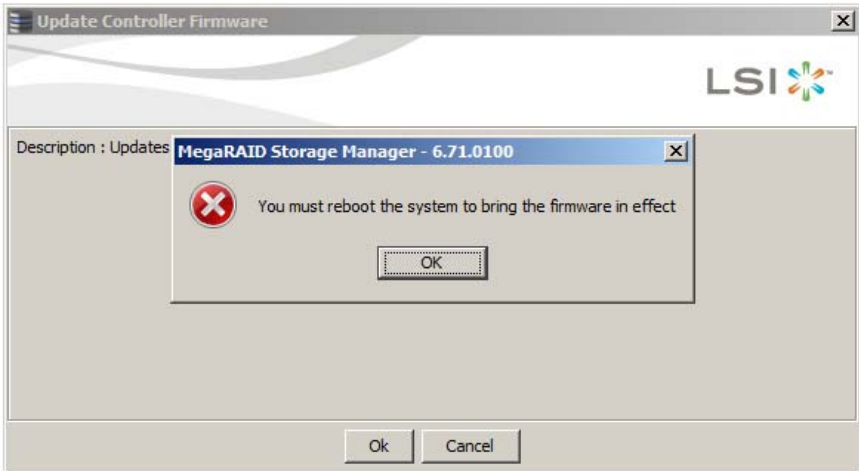


6. Click OK in the next dialog box that appears once the firmware update is completed (Figure 2-7).



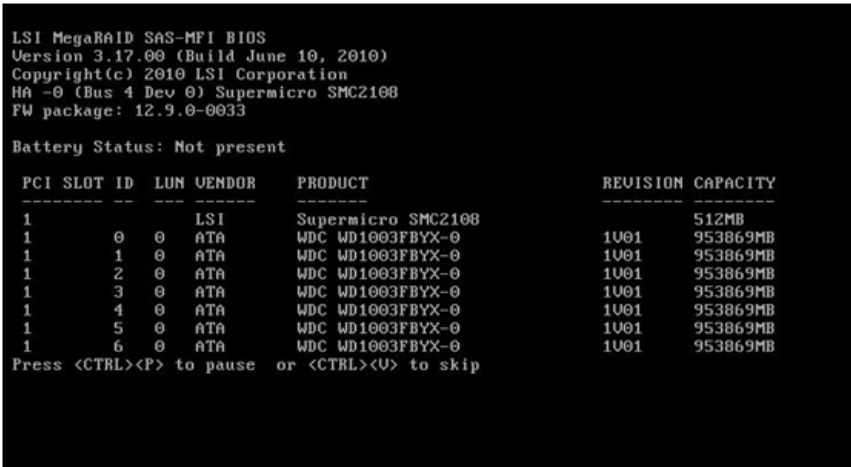
WARNING: Do not reboot the system yet until you complete the next step.

Figure 2-7. Completed Dialog Box



7. Repeat [step 3](#) and select the file **smc2108.rom** to update the controller NVData.
8. Reboot the system and check the firmware version in the controller banner during boot-up ([Figure 2-8](#)).

Figure 2-8. Boot-up Controller Banner



9. Check the firmware version using the MegaRAID Storage Manager application in Windows ([Figure 2-9](#)).

Figure 2-9. MegaRAID Storage Manager Window Firmware Properties

The screenshot displays the MegaRAID Storage Manager (MSM) interface. The main window shows the 'Firmware Properties' for the Supermicro SMC2108 controller. The interface is divided into several sections: Physical, Logical, and Properties. The Properties section is further divided into General and Firmware Properties.

General Properties:

- Product Name: Supermicro SMC2108
- Serial No: [Blank]
- Vendor ID: 0x1000
- SubVendor ID: 0x1569
- Device ID: 0x79
- Device Port Count: 8
- Host Interface: PCIe
- Host Port Count: 0
- FRU: [Blank]
- Alarm Present: Yes
- Alarm Enabled: Yes
- Cache Flush Interval: 4 sec
- Coercion Mode: 1 GB
- BBU Present: No
- MRAM Present: Yes
- MRAM Size: 32,000 KB

Firmware Properties:

- Firmware Package Version: 12.0-0-0033
- Firmware Version: 2.90.03-0928
- Firmware Build Time: Jun 25 2010 03:45:31
- Backend SAS Address 0: 0x4032211000000000
- Backend SAS Address 1: 0x4032211020000000
- Backend SAS Address 2: 0x4032211020000000
- Backend SAS Address 3: 0x4032211010000000
- Backend SAS Address 4: 0x4032211040000000
- Backend SAS Address 5: 0x4032211050000000
- Backend SAS Address 6: 0x4032211060000000
- Backend SAS Address 7: 0x4032211070000000
- Correctable ErrorCount: 0
- Memory uncorrectable count: 0
- Cluster Enable: No
- Cluster Active: No
- SSD Guard: Enabled

Log Window:

ID	Error Level	Date / Time	Description
2124	Information	2010-07-15, 10:12:37	Successful log on to the server User: administrator, Client: 172.31.95.111, Access Mode: Full, Client Time: 2010-07-15, 10:12:37
2123	Information	2010-07-15, 10:00:26	Controller ID: 1 Time established since power on: Time: 2010-07-15, 10:00:27 34798 Seconds
2122	Information	2010-07-15, 10:00:26	Controller ID: 0 Time established since power on: Time: 2010-07-15, 10:00:26 34798 Seconds
2121	Information	2010-07-15, 09:49:25	Controller ID: 1 Flash of new firmware image(s) complete
2120	Information	2010-07-15, 09:49:21	Controller ID: 1 Flashing image: NGCT v2.06.03-0010
2119	Information	2010-07-15, 09:48:52	Controller ID: 0 Flash of new firmware image(s) complete
2118	Information	2010-07-15, 09:48:46	Controller ID: 0 Flashing image: NGCT v2.06.03-0010
2117	Information	2010-07-15, 09:46:09	Controller ID: 0 Flash of new firmware image(s) complete
2116	Information	2010-07-15, 09:46:09	Controller ID: 0 Flashing image: B00P v0.1.200.04.219
2115	Information	2010-07-15, 09:46:08	Controller ID: 0 Flashing image: B7BL v2.02.00.00-0000
2114	Information	2010-07-15, 09:46:03	Controller ID: 0 Flashing image: NGCT v2.06.03-0009
2113	Information	2010-07-15, 09:45:52	Controller ID: 0 Flashing image: B00P v0.0.0-04-219-04
2112	Information	2010-07-15, 09:45:42	Controller ID: 0 Flashing image: PCL1 v0.04-030-#4000008
2111	Information	2010-07-15, 09:45:37	Controller ID: 0 Flashing image: B00S v3.17.00_4.08.04.05_0x0416A000
2110	Information	2010-07-15, 09:45:37	Controller ID: 0 Flashing image: B00S v3.17.00_4.08.04.05_0x0416A000

Flashing Firmware Using the MegaCLI under DOS

Use the procedure below to flash firmware using the MegaCLI application under DOS.

Flashing Firmware Using the MegaCLI under DOS

1. Boot from USB key and use command `Megacli -adpFwFlash -f AF2108_FW_Image.rom -a0` (Figure 2-10).

Figure 2-10. Flashing Firmware Using the Megacli Command

```
C:\Temp\LSI2108\071410\Firmware_2.90.03-0928>MegaCli64.exe -adpfwflash -f AF2108_FW_Image.rom -a0
Adapter 0: LSI MegaRAID SAS PCI Express ROMB
Vendor ID: 0x1000, Device ID: 0x0079
FW version on the controller: 2.60.03-0829
FW version of the image file: 2.90.03-0928
Download Completed.
Flashing image to adapter...
Adapter 0: Flash Completed.
Exit Code: 0x00
```

2. Next update the controller NVData with `Megacli -adpFwFlash -f smc2108.rom -a0` (Figure 2-11).

Figure 2-11. Updating the Controller NVData

```
C:\Temp\LSI2108\071410\Firmware_2.90.03-0928>MegaCli64.exe -adpfwflash -f smc2108.rom -a0
Adapter 0: LSI MegaRAID SAS PCI Express ROMB
Vendor ID: 0x1000, Device ID: 0x0079
Download Completed.
Flashing image to adapter...
Adapter 0: Flash Completed.
Exit Code: 0x00
```

3. Reboot the system and check the firmware version in the controller banner during boot-up and using the MegaRAID Storage Manager application in Windows (see [step 8](#) and [step 9](#) in the [Flashing Firmware Using MegaRAID Storage Manager](#) procedure).

2-5 MegaRAID Storage Manager

For information, installation and use of the LSI MegaRAID Storage Manager Windows application and MegaCLI Command Line Interface application download the **MegaRAID SAS Software_Rev_I_UG.pdf** file from: <http://www.supermicro.com/support/manuals/> on the SuperMicro website.

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Notes