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MegaRAID SAS 9286-8e RAID Controller

Quick Installation Guide

June 2012

53823-00, Rev. A

Revision History

Version and Date	Description of Changes
53823-00, Rev. A, June 2012	Initial release of the document.

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Website
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Document Number: 53823-00, Rev. A

MegaRAID SAS 9286-8e RAID Controller Quick Installation Guide

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Thank you for purchasing the LSI™ MegaRAID® 6Gb/s SAS 9286-8e RAID controller. Your MegaRAID controller provides reliability, high performance, and fault-tolerant drive subsystem management. Before you install your RAID controller, please take a few minutes to read this quick installation guide. If you need more information about any topic covered in this guide, refer to the related documents on your *MegaRAID Universal Software Suite* CD.

1 Product Overview

The MegaRAID SAS 9286-8e RAID controller is a low-profile PCI-Express 3.0 RAID controller that offers a 6-Gb/s transfer rate. It controls eight external SAS/SATA ports through two SFF-8088 x4 external mini SAS connectors.

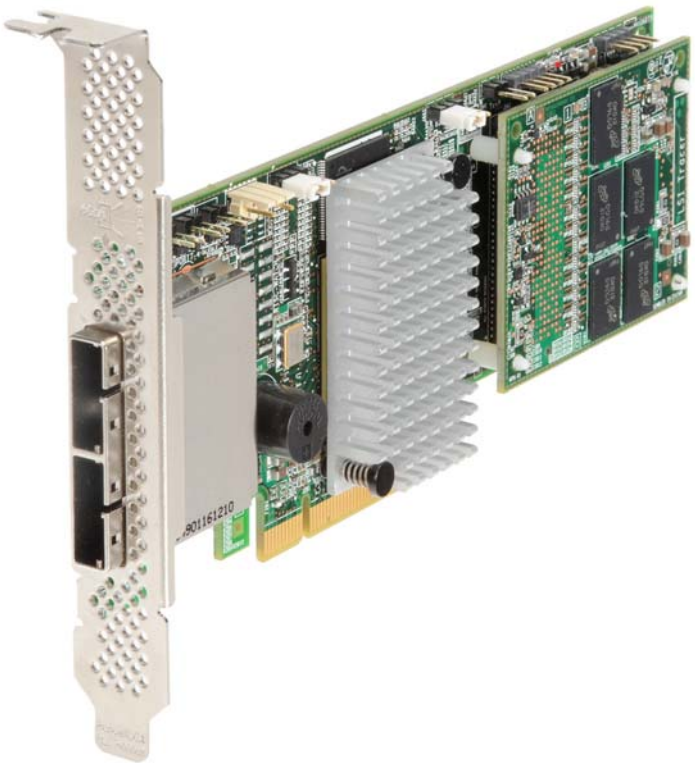
The MegaRAID SAS 9286-8e RAID controller has a 1GB non-volatile DDR3 1333MT/s memory module The memory module connects to a remote LSI intelligent Battery Backup Unit 09 (LSIiBBU09).

For more information about the LSIiBBU09 unit, refer to the *MegaRAID LSIiBBU09 Intelligent Battery Backup Unit Quick Installation Guide* on the *MegaRAID Universal Software Suite* CD.

For more information about the TMM02 module, refer to the *Cache Backup Products for MegaRAID SAS+SATA RAID Controllers User Guide* on the *MegaRAID Universal Software Suite* CD.

The following figure shows the MegaRAID SAS 9286-8e RAID controller.

Figure 1 MegaRAID SAS 9286-8e RAID Controller



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NOTE Record your controller serial number in a safe location in case you need to contact LSI.

NOTE This RAID controller supports SATA I, SATA II, and SATA III technologies.

2 Controller Installation

CAUTION Back up your data before changing your system configuration. Otherwise, you might lose data.

1. Unpack the RAID Controller

Unpack the RAID controller in a static-free environment. Remove it from the antistatic bag, and inspect it for damage. If the RAID controller appears to be damaged, or if the *MegaRAID Universal Software Suite* CD is missing, contact LSI or your MegaRAID OEM support representative.

The CD contains utility programs, device drivers for various operating systems, and the following documentation:

- *6Gb/s MegaRAID SAS RAID Controllers User Guide*
- *MegaRAID SAS Software User Guide*
- *MegaRAID SAS Device Driver Installation User Guide*
- *Cache Backup Products for MegaRAID SAS+SATA RAID Controllers User Guide*
- *MegaRAID LSIiBBU09 Intelligent Battery Backup Unit Quick Installation Guide*
- Software license agreement

2. **Prepare the Computer**

Turn off the computer, and unplug the power cords from the rear of the power supply. Remove the cover from the computer.

CAUTION Before you install the RAID controller, make sure that the computer is disconnected from the power and from any networks.

3. **Review the Jumpers and the Connectors**

The following figure shows the location of the jumpers and the connectors on the RAID controller. The jumpers are set at the factory, and you usually do not need to change them.

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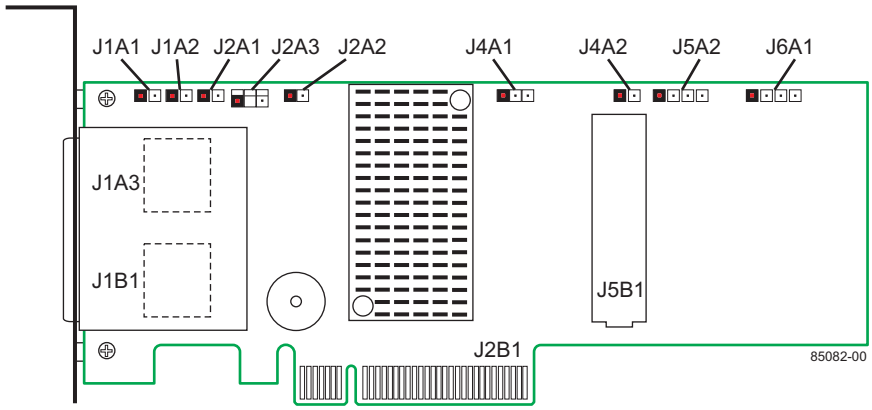
Figure 2 Layout of the MegaRAID SAS 9286-8e RAID Controller



NOTE Pin 1 on the headers and connectors is highlighted in red in the previous figure.

The following table describes the jumpers and the connectors on the MegaRAID SAS 9286-8e RAID controller.

Table 1 Jumpers and Connectors

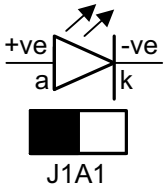
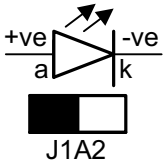
Jumper/ Connector	Type	Description
J1A1	Write pending LED header 	2-pin connector Connects to an LED that indicates when the data in the cache has yet to be written to the storage devices. Used when the write-back feature is enabled.
J1A2	Global drive fault LED header 	2-pin connector Connects to an LED that indicates whether a drive is in a fault condition.
J1A3	x4 SAS Ports 0-3 external connector	SFF-8088 x4 external mini SAS connector Connects the controller by cable to SAS drives or SATA drives.
J1B1	x4 SAS Ports 4-7 external connector	SFF-8088 x4 external mini SAS connector Connects the controller by cable to SAS drives or SATA drives.

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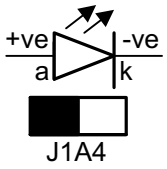
Table 1 Jumpers and Connectors

Jumper/ Connector	Type	Description
J2A1	Activity LED header 	2-pin connector Connects to an LED that indicates activity on the drives connected to the controller.
J2A2	I^2O Mode jumper	2-pin connector Installing this jumper causes the RAID controller to run in I^20 mode. The default mode of operation is without the shunt and running in Fusion Mode.
J2A3	Advanced Software Options Hardware Key header	3-pin header Enables support for the Advanced Software Options features, which include CacheCade™, FastPath, Recovery, and SafeStore™ disk encryption.
J2B1	Standard edge card connector	The RAID controller interfaces with the host system though a standard edge card. This interface provides power to the board and an I^2C interface connected to the I^2C bus for IPMI.
J4A1	Serial EEPROM	2-pin connector Provides controller information, such as the serial number, revision, and manufacturing date. The default is no shunt installed.

4. Install the RAID Controller

Insert the controller into a PCI-Express slot on the motherboard, as shown in the following figure. Press down gently, but firmly, to seat the card correctly in the slot. Secure the RAID controller to the computer chassis with the bracket screw.

NOTE This controller is a PCI-Express x8 card and it can operate in x8 or x16 slots. However, some PCIe slots support only PCIe graphics cards; if a RAID controller is installed, it does not function.

NOTE Refer to the guide for your motherboard for information about the PCI-Express slot.

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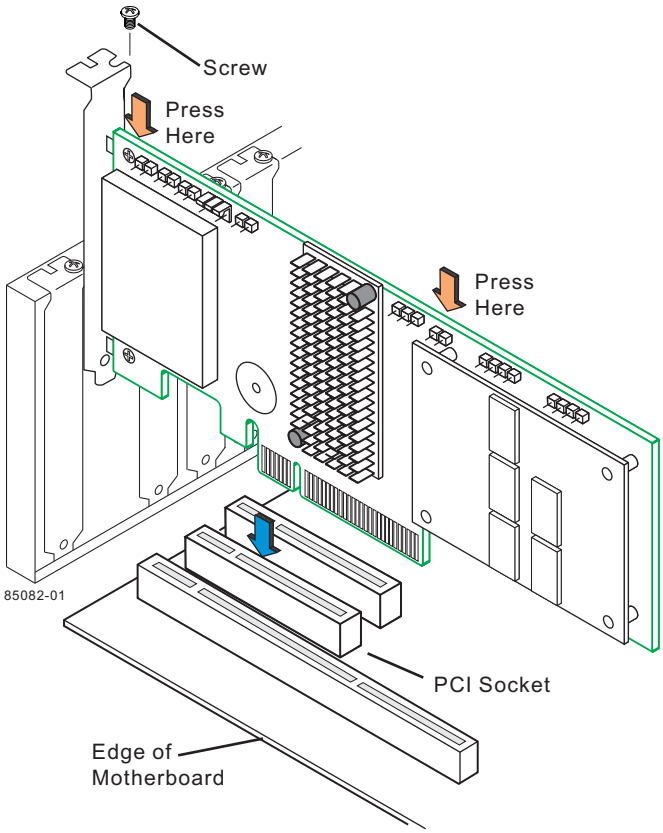
Figure 3 Installing the MegaRAID SAS 9286-8e RAID Controller



5. **Configure and Install the SAS Devices, SATA Devices, or Both in the Host Computer Case**

   Refer to the documentation for the devices for any preinstallation configuration requirements.

6. **Connect the RAID Controller to the SAS Devices, SATA Devices, or Both in the Host Computer Case**

   Use SAS cables to connect the RAID controller to SAS devices, SATA devices, or both. See Figure 2 to view the connector locations.

   NOTE Refer to the *6Gb/s MegaRAID SAS RAID Controllers User Guide* on the *MegaRAID Universal Software Suite* CD for detailed information about the SAS cables.

7. **Turn on the Power to the Computer**

   Reinstall the computer cover, and reconnect the power cords. Turn on the power to the computer. Make sure that the power is turned on to the SAS devices and the SATA devices before or at the same time that the power to the host computer is turned on. If the power is turned on to the computer before it is turned on to the devices, the computer might not recognize the devices.

   The firmware takes several seconds to initialize. During this time, the controller scans the ports.

8. **Run the WebBIOS Configuration Utility**

   Run the WebBIOS Configuration Utility to configure the groups and the virtual drives. When the message `Press <Ctrl><H> for WebBIOS` appears on the screen, immediately press CTRL+H to run the utility.

   NOTE Refer to the *MegaRAID SAS Software User Guide* for detailed steps on configuring groups and virtual drives.

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9. **Install the Operating System Driver**

   The controller can operate under various operating systems, but you must install the software drivers first.

   The *MegaRAID Universal Software Suite* CD includes the software drivers for the supported operating systems, along with documentation. You can view the supported operating systems and download the latest drivers for RAID controllers from the LSI website. Click the support button to access the download center, and follow the steps to download the driver.

   Refer to the *MegaRAID SAS Device Driver Installation User Guide* on the *MegaRAID Universal Software Suite* CD for more information about installing the driver. Be sure to use the latest service packs that are provided by the operating system manufacturer and to review the `readme` file that accompanies the driver.

3 Supported RAID Levels

This RAID controller supports drive groups using the following RAID levels:

- **RAID 0 (data striping):** Data is striped across all drives in the group, enabling very fast data throughput. There is no data redundancy. All data is lost if any drive fails.
- **RAID 1 (drive mirroring):** Data is written simultaneously to both drives in the drive group, providing complete data redundancy if one drive fails. RAID 1 supports an even number of drives from 2 to 32 in a single span.
- **RAID 5 (drive striping with distributed parity):** Data is striped across all drives in the group. Part of the capacity of each drive stores parity information that reconstructs data if a drive fails. RAID 5 provides good data throughput for applications with high read request rates.
- **RAID 6 (drive striping with distributed parity across two drives):** Data is striped across all drives in the group and two parity drives are used to provide protection against the failure of up to two drives. In each row of data blocks, two sets of parity data are stored.
- **RAID 10 (RAID 1 and RAID 0 in spanned groups):** RAID 10 uses mirrored pairs of drives to provide complete data redundancy. RAID 10 provides high data throughput rates.
- **RAID 50 (RAID 5 and RAID 0 in spanned groups):** RAID 50 uses both parity and drive striping across multiple drives to provide complete data redundancy. RAID 50 provides high data throughput rates.
- **RAID 60 (RAID 6 and RAID 0 in spanned groups):** RAID 60 uses both distributed parity across two parity drives and drive striping across multiple drives to provide complete data redundancy and high fault tolerance.

NOTE Refer to the *MegaRAID SAS Software User Guide* on the *MegaRAID Universal Software Suite* CD for more information about RAID levels.

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4 Technical Support

For assistance in installing, configuring, or running the MegaRAID SAS 9286-8e RAID controller, contact an LSI Technical Support representative.

Click the following link to access the LSI Technical Support page for storage and board support:

http://www.lsi.com/support/storage/tech_support/index.html

From this page, mouse-over the *Support* heading and select the support option you want.

Email Requests:

http://www.lsi.com/support/email/Pages/megaraid.aspx

Support Requests:

http://www.lsi.com/support/Pages/submitsupportrequest.aspx

Phone Support:

http://www.lsi.com/support/Pages/call-us.aspx

Documents and Downloads:

http://www.lsi.com/support/Pages/downloads.aspx?k=*

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