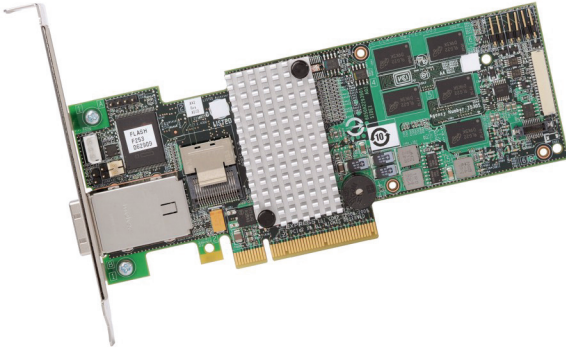


MegaRAID SAS 9280-4i4e RAID Controller



Quick Installation Guide



Thank you for purchasing the LSI MegaRAID® SAS 9280-4i4e RAID controller. 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.

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

The MegaRAID SAS 9280-4i4e RAID controller is a PCI-Express 2.0, low-profile RAID controller based on the LSI SAS2108 PCI Express-SAS/SATA I/O Processor chip.

The MegaRAID SAS 9280-4i4e RAID controller controls:

- four internal 6-Gb/s SAS/SATA ports through one SFF-8087 mini-SAS 4i internal connector
- four external 6-Gb/s SAS/SATA ports through one SFF-8088 mini-SAS 4x external connector

You can connect the LSI intelligent Battery Backup Unit 07 (LSI iBBU07) directly or remotely to this RAID controller. For more information about this battery, refer to the iBBU07 section in the *MegaRAID iBBU07 Intelligent Battery Backup Unit Quick Installation Guide* on the *MegaRAID Universal Software Suite* CD.

Note: SATA II is the only type of SATA supported by these RAID controllers.

RAID CONTROLLER INSTALLATION



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

Step 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:

- *MegaRAID 6Gb/s SAS RAID Controllers User's Guide*
- *MegaRAID SAS Software User's Guide*
- *MegaRAID SAS Device Driver Installation User's Guide*
- Software license agreement

Step 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.

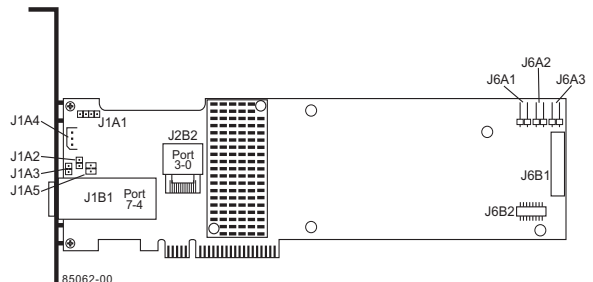


Before you install the RAID controller, make sure that the computer is disconnected from the power and from any networks.

Step 3 Review the Jumpers and the Connectors

Figure 1 shows the location of the jumpers and the connectors on the SAS 9280-4i4e RAID controller. The jumpers are set at the factory, and you usually do not need to change them.

Figure 1 Layout of the MegaRAID SAS 9280-4i4e RAID Controller



45042-00A

Table 1 describes the jumpers and the connectors on the SAS 9280-4i4e RAID controller.

Table 1 SAS 9280-4i4e Jumpers and Connectors

Jumper/Connector	Type	Description
J1A1	Serial Universal Asynchronous Receiver/Transmitter (UART) debugging	4-pin header Reserved for LSI use.
J1A2	LSI Test header	2-pin header Reserved for LSI use.
J1A3	Board Defaults header	2-pin header Reserved for LSI use.
J1A4	IPMI-style I2C connector	3-pin connector. Supports SES (SCSI Enclosure Services) over I ² C over internal I ² C backplane cable.
J1A5	Modular RAID Key header	2-pin shielded header Enables support for RAID 5 configurations and self-encrypting disks (SED).
J1B1	SFF-8087 mini-SAS 4i Ports 3-0 external connector	Connects the controller by cable to SAS drives or SATA II drives, or a SAS expander.
J1L1	RISCVatch header	16-pin header Reserved for LSI use.
J2B1	Standard edge card connector	The RAID controller interfaces with the host system through a standard edge card x8 PCI-Express 2.0 bus connection as defined in the PCI-Express specification. This interface provides power to the board and to an I ² C interface connected to I ² C bus one for IPMI.
J2B2	SFF-8087 SAS x4 Ports 0-3 internal connector	Connects the controller by cable to SAS drives or SATA II drives, or a SAS expander.
J6A1	Global Drive Fault LED header	2-pin connector Connects to an LED that indicates whether a drive is in a fault condition.
J6A2	SAS Activity LED header	2-pin connector Connects to an LED that indicates drive activity.
J6A3	Write-pending Indicator (dirty cache) LED connector	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.

Jumper/Connector	Type	Description
J6B1	Remote Battery Backup Unit connector	20-pin connector Connects the LSiBBU07 intelligent Battery Backup Unit remotely to the RAID controller.
J6B2	Battery Backup Unit connector	20-pin connector Connects the LSiBBU07 intelligent Battery Backup Unit directly to the RAID controller.

Note: J6A1 is behind the iBBU when it is installed directly, but it is still accessible.

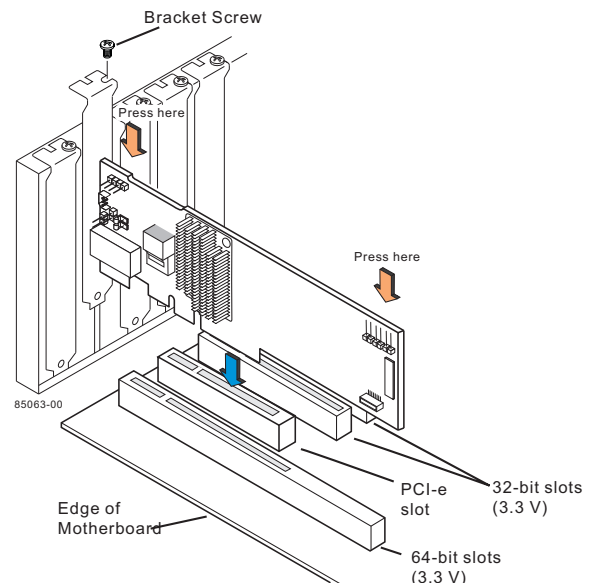
Step 4 Install the RAID Controller

Insert the RAID controller in a PCI Express slot on the motherboard, as shown in Figure 2. 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: Some PCI Express slots support only PCI Express graphics cards; if a RAID controller is installed, it will not function.

Note: This controller also works in PCI Express first generation slots. The PCI Express software is backward compatible with previous revisions of the PCI bus and the PCI-X bus. For information about the PCI Express slot, refer to the guide for your motherboard.

Figure 2 Installing the MegaRAID SAS 9280-4i4e RAID Controller



Step 5 Configure and Install the SAS Devices, SATA II Devices, or Both in the Host Computer Case

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

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

Use SAS cables to connect the RAID controller to SAS devices, SATA II devices, or both. See [Figure 1](#) to view the connector locations.

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

Step 7 Turn on the Power to the Computer

Reinstall the computer cover and reconnect the power cords.

Turn on power to the computer, making sure that the power is turned on to the SAS devices and the SATA II 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.

Step 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's Guide* on the *MegaRAID Universal Software Suite* CD for detailed steps on configuring groups and virtual drives.

Step 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 web site at: <http://www.lsi.com/cm/DownloadSearch.do>. Access the download center, and follow the steps to download the driver.

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

SUPPORTED RAID LEVELS

The SAS 9280-4i4e 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 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.

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

TECHNICAL SUPPORT

For assistance in installing, configuring, or running the SAS 9280-4i4e 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, you can send an email or call Technical Support, or submit a new service request and view its status.

E-mail:

http://www.lsi.com/support/support_form.html

Phone Support:

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

1-800-633-4545 (North America)

00-800-5745-6442 (International)

Note: The international toll-free number does not require country-specific access codes.



45042-00 Rev. A, October 2009

Find a list of LSI Corporation's U.S. distributors, international distributors, sales offices, and design resource centers on the LSI web site at:

<http://www.lsi.com>

LSI, the LSI logo design, and MyStorage are trademarks or registered trademarks of LSI Corporation. All other brand and product names may be trademarks of their respective companies.

Copyright © 2009 by LSI Corporation. All rights reserved.

LSI Corporation reserves the right to make changes to any products and services herein at any time without notice. LSI does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by LSI; nor does the purchase, lease, or use of a product or service from LSI convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual property rights of LSI or of third parties.