

MegaRAID SAS 9240-4i and SAS 9240-8i RAID Controllers



Quick Installation Guide



Thank you for purchasing the MegaRAID® SAS 9240-4i RAID controller or the MegaRAID SAS 9240-8i 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 9240-4i RAID controller and the MegaRAID SAS 9240-8i RAID controller are PCI-Express 2.0, half-size, full-height RAID controllers based on the LSISAS2008 PCI Express-SAS/SATA I/O Processor chip.

The MegaRAID SAS 9240-4i RAID controller controls four internal 6-Gb/s SAS/SATA ports through one SFF-8087 SAS x4 internal connector.

The MegaRAID SAS 9240-8i RAID controller controls eight internal 6-Gb/s SAS/SATA ports through two SFF-8087 SAS x4 internal connectors.

There are two differences between the SAS 9240-4i RAID controller and the SAS 9240-8i RAID controller:

- The SAS 9240-4i supports four ports and the SAS 9240-8i supports eight ports.
- The SAS 9240-4i does not have the connector for ports four through seven.

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 9240-4i RAID controller. The jumpers are set at the factory, and you usually do not need to change them.



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Figure 1 Layout of the MegaRAID SAS 9240-4i RAID Controller

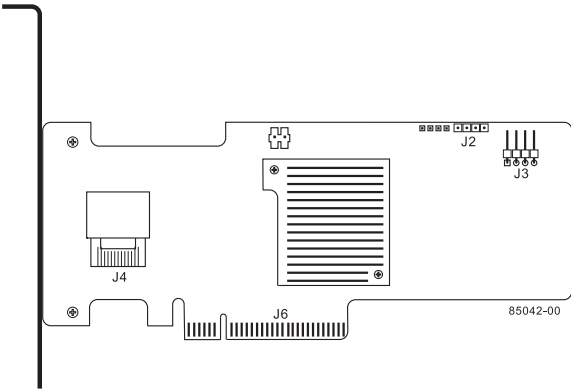


Table 1 describes the jumpers and the connectors on the SAS 9240-4i RAID controller.

Table 1 SAS 9240-4i Jumpers and Connectors

Jumper/Connector	Type	Description
J1	RISCwatch header	16-pin header Reserved for LSI use.
J2	CPLD header	10-pin header Reserved for LSI use.
J3	External LED drive activity/fault header	4-pin connector Connects to external, green or red LEDs that indicate drive activity or faults.
J4	x4 Mini-SAS (SFF-8087) Ports 0–3 internal connector	Connects the cables from the controller to SAS drives or SATA II drives, or a SAS expander.
J6	PCI Express x8 board edge connector	x8 interface that provides connections on both the top and the bottom of the board.
TP1	Universal Asynchronous Receiver/Transmitter (UART) debugging	4-pin connector Reserved for LSI use.

Figure 2 shows the location of the jumpers and the connectors on the SAS 9240-8i RAID controller.

Figure 2 Layout of the MegaRAID SAS 9240-8i RAID Controller

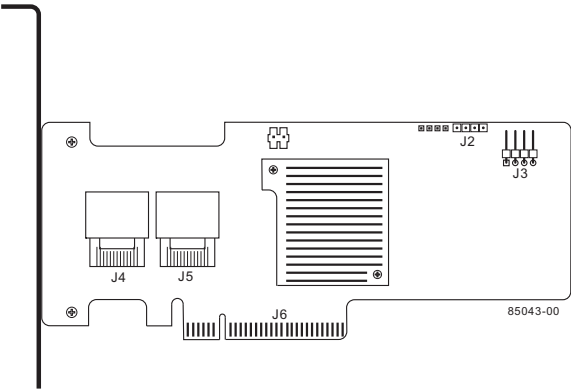


Table 2 describes the jumpers and the connectors on the SAS 9240-8i RAID controller.

Table 2 SAS 9240-8i Jumpers and Connectors

Jumper/Connector	Type	Description
J1	RISCwatch header	16-pin header Reserved for LSI use.
J2	CPLD header	10-pin header Reserved for LSI use.
J3	External LED drive activity/fault header	4-pin connector Connects to external, green or red LEDs that indicate drive activity or faults.
J4	x4 Mini-SAS (SFF-8087) Ports 0–3 internal connector	Connects the cables from the controller to SAS drives or SATA II drives, or a SAS expander.
J5	x4 Mini-SAS (SFF-8087) Ports 4–7 internal connector	Connects the cables from the controller to SAS drives or SATA II drives, or a SAS expander.
J6	PCI Express x8 board edge connector	x8 interface that provides connections on both the top and the bottom of the board.
TP1	Universal Asynchronous Receiver/Transmitter (UART) debugging	4-pin connector Reserved for LSI use.

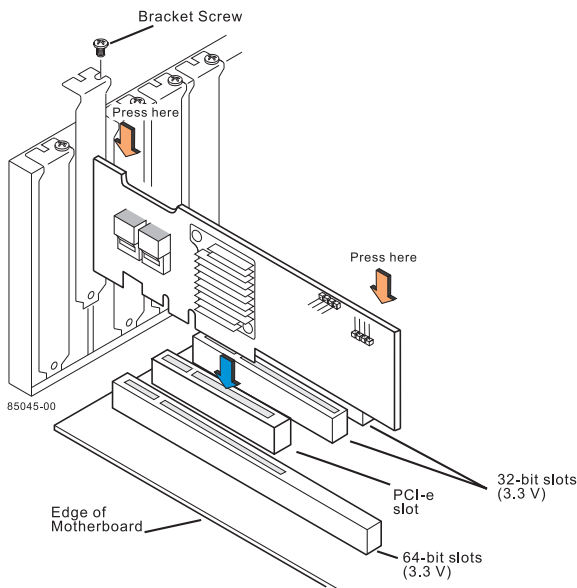
Step 4 Install the RAID Controller

Insert the RAID controller in a PCI Express slot on the motherboard, as shown in Figure 3. 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: These controllers also work 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. Refer to the guide for your motherboard for information about the PCI Express slot.

Figure 3 Installing the MegaRAID SAS 9240-4i or SAS 9240-8i 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](#) or [Figure 2](#) to view the connector locations, depending on which controller you have.

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. 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.

SUPPORTED RAID LEVELS

The SAS 9240-4i RAID controller and the SAS 9240-8i RAID controller support 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 9240-4i RAID controller or the SAS 9240-8i 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.



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