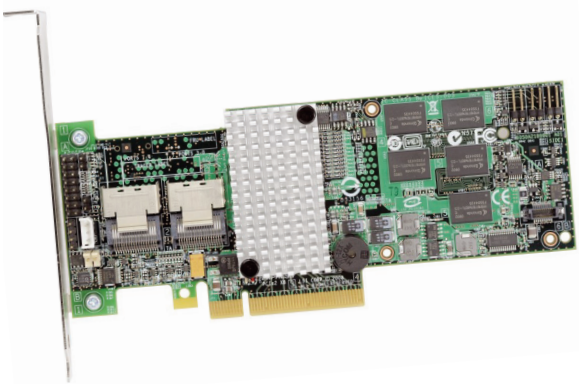
MegaRAID SAS 9260-4i, SAS 9260-8i, and SAS 9260DE-8i RAID Controllers

Quick Installation Guide



Thank you for purchasing the MegaRAID® SAS (Serial Attached SCSI/Serial ATA II) 9260-4i RAID controller, the SAS 9260-8i RAID controller, or the SAS 9260DE-8i RAID controller (PCI-Express).

Please take a few minutes to read this quick installation guide before you install your RAID controller. 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 9260-4i is a 6Gb/s, PCI-Express, low-profile RAID controller. It controls four internal SAS/SATA ports through one SFF-8087 Mini SAS 4i internal connector.

The MegaRAID SAS 9260-8i is a 6Gb/s, PCI-Express, low-profile RAID controller. It controls eight internal SAS/SATA ports through two SFF-8087 Mini SAS 4i internal connectors.

There are two differences between the SAS 9260-4i RAID controller and the SAS 9260-8i RAID controller:

- The SAS 9260-4i supports four ports and the SAS 9260-8i supports eight ports
- The 9260-4i does not contain the JT7 connector, which is for ports 7–4

Note: The SAS 9260DE-8i RAID controller is the same as the SAS 9260-8i RAID controller except that the 9260DE-8i RAID controller offers data security through disk encryption.

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

You can connect the LSI intelligent Battery Backup Unit 07 (LSIiBBU07) directly to these RAID controllers. For more information about this battery, refer to the *Intelligent Battery Backup Units for 1078-based MegaRAID Products User's Guide* on the *MegaRAID Universal Software Suite* CD.

RAID CONTROLLER INSTALLATION

CAUTION 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 SAS 6Gb/s 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.

CAUTION 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 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 9260-8i/ 9260DE-8i RAID Controller

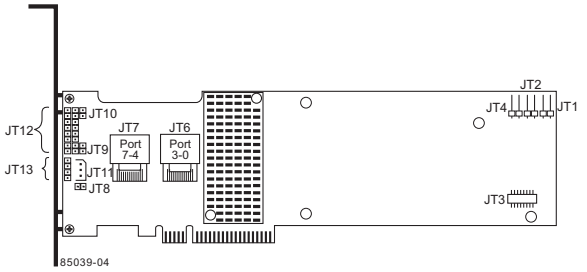


Table 1 describes the jumpers and the connectors on the SAS 9260 RAID controllers.

Table 1 Jumpers and Connectors

Jumper/ Connector	Type	Description
JT1	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.
JT2	SAS Activity LED header	2-pin connector Connects to an LED that indicates drive activity.
JT3	Battery Backup connector	20-pin connector Connects the LSIiBBU07 intelligent Battery Backup Unit directly to the RAID controller.
JT4	Global Drive Fault LED header	2-pin connector Connects to an LED that indicates whether a drive is in a fault condition.
JT6	x4 SAS Ports 3–0 Mini SAS 4i connector	Connects the cables from the controller to SAS drives or SATA II drives, or a SAS expander.
JT7	x4 SAS Ports 7–4 Mini SAS 4i connector	Connects the cables from the controller to SAS drives or SATA II drives, or a SAS expander. 1. The SAS 9260-4i RAID controller does not have this connector.
JT8	Modular RAID Key header	2-pin connector Reserved for LSI use.
JT9	Set Factory Defaults connector	2-pin connector Returns the board settings to the defaults set in the factory.
JT10	LSI Test header	2-pin connector Reserved for LSI use.
JT11	IPMI-style SMBus (System Management)/I^2C header	3-pin shielded header Provides enclosure management support.
JT12	Individual Drive Fault LED header for Eight Phys (0-7)	16-pin connector Indicates drive faults. There is one LED per port. When lit, each LED indicates the corresponding drive has failed or is in the Unconfigured-Bad state. Refer to the *MegaRAID SAS Software User's Guide* for more information. The LEDs function in a direct-attach configuration (there are no SAS expanders). Direct attach is defined as a maximum of one drive connected directly to each port.This header is used for RAID controllers with internal SAS ports.
JT13	Universal Asynchronous Receiver/ Transmitter (UART) debugging	4-pin connector Reserved for LSI use.

Note: JT1, JT2, and JT4 are behind the LSIiBBU07 when it is installed, but they are still accessible.

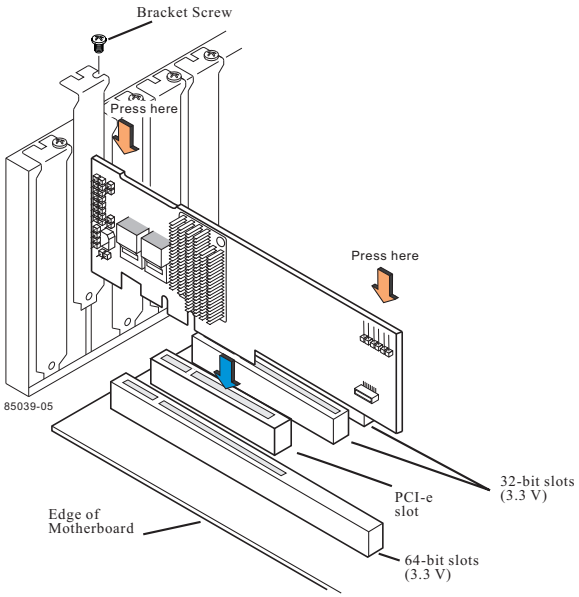
Step 4 Install the RAID Controller

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

Note: Refer to the guide for your motherboard for information about the PCI Express slot.

Figure 2 Installing the MegaRAID SAS 9260-8i/ 9260DE-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 to view the connector locations.

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 the power to the computer. Make 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 RAID 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 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 RAID controllers 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 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 00:** RAID 00 is a spanned drive group that creates a striped set from a series of RAID 0 drive groups.

- **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's Guide* on the *MegaRAID Universal Software Suite* CD for more information about RAID levels.

TECHNICAL SUPPORT

For assistance in installing, configuring, or running your SAS 9260-4i, 9260-8i, or 9260DE-8i RAID controller, contact your 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, 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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http://www.lsi.com

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