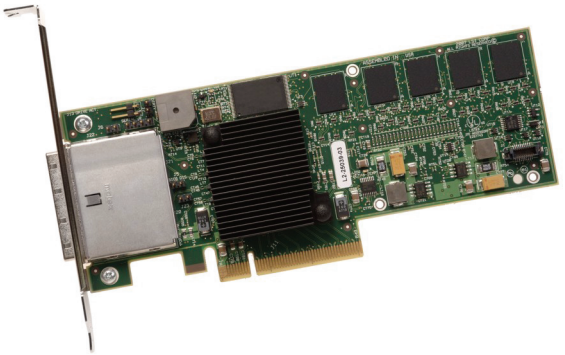
MegaRAID SAS 8880EM2 RAID Controller
Quick Installation Guide



Thank you for purchasing the MegaRAID® 1078-based PCI-Express SAS (Serial Attached SCSI/Serial ATA II) 8880EM2 RAID Controller.

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: SATA II is the only type of SATA supported by this RAID controller.

You can connect the LSI intelligent Battery Backup Unit 07 (LSIiBBU07) directly to the SAS 8880EM2 RAID Controller. For more information about this battery, refer to the *Intelligent Battery Backup Unit 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 MegaRAID SAS 8880EM2 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 1078-based SAS RAID Controllers User's Guide*
- *MegaRAID SAS Software User's Guide*
- *MegaRAID SAS Device Driver Installation User's Guide*
- *Intelligent Battery Backup Unit for 1078-based MegaRAID Products 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 SAS 8880EM2 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 8880EM2 RAID Controller

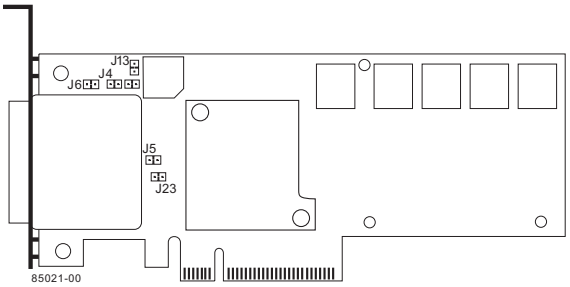


Table 1 describes the jumpers and the connectors on the SAS 8880EM2 RAID Controller.

Table 1 Jumpers and Connectors

Jumper/ Connector	Type	Description
J1	Battery Backup Connector	20-pin connector Provides the interface to the battery backup unit. The LSIiBBU07 connects directly to the SAS 8880EM2 RAID Controller.
J2	Universal Asynchronous Receiver/ Transmitter debugging	4-pin connector Reserved for LSI use. 1. Note: This connector uses 3.3V LVTTL levels and will be damaged if connected to standard transceiver levels.
J5	BIOS Disable	2-pin connector Reserved for LSI use.
J6	Board Default Debug	2-pin connector Reserved for LSI use (default jumper).
J7	Cache Write Pending LED	2-pin connector The connector for the enclosure LED. It provides a signal that indicates when the on-board cache contains data and a write from the cache to the hard drives is pending. Optional.
J13	Global Drive Activity header:	2-pin connector Indicates activity on the physical drives. Operates at approximately 10mA at 3.3V.
J20	x4 SAS PORT B (Lanes 0-3)	The x4 SAS connectors connect the cables from the RAID controller to SAS or SATA II physical drives or to a SAS expander.
J21	x4 SAS PORT A (Lanes 4-7)	The x4 SAS connectors connect the cables from the RAID controller to SAS or SATA II physical drives or to a SAS expander.
J23	Debug connector	Reserved for LSI use.

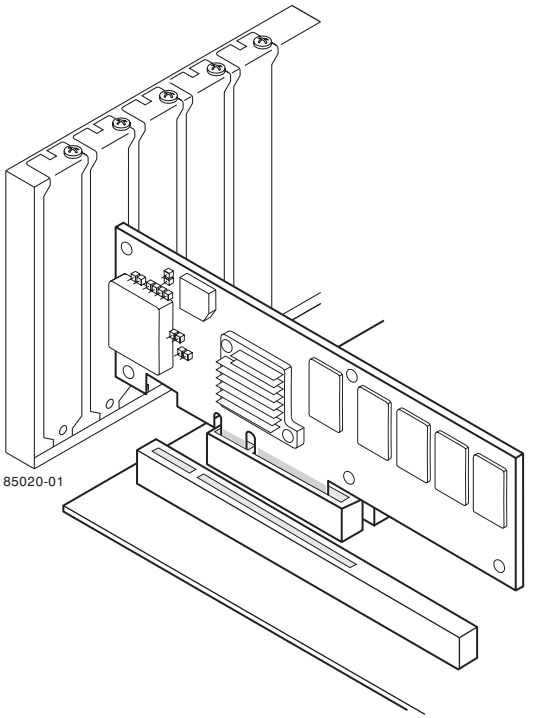
Step 4 Install the RAID Controller

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

Note: This is a PCI Express x8 card. It can operate in x8 or x16 slots.

Figure 2 Installing the MegaRAID SAS 8880EM2 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 MegaRAID SAS 8880EM2 RAID Controller to the Devices

Use SAS cables to connect the SAS RAID controller to SAS devices, SATA II devices, or both. See Figure 1 to view the connector locations on the RAID controller.

Refer to the *MegaRAID 1078 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 RAID controller scans the ports.

Step 8 **Run the WebBIOS Configuration Utility**

Run the WebBIOS Configuration Utility to configure the physical arrays and the logical 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 physical arrays and logical 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 on the LSI Logic 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 details on 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 8880EM2 RAID Controller support disk arrays using the following RAID levels:

- **RAID 0 (data striping):** Data is striped across all disks in the array, enabling very fast data throughput. There is no data redundancy. All data is lost if any disk fails.
- **RAID 1 (disk mirroring):** Data is written simultaneously to two disks, providing complete data redundancy if one disk fails. The maximum array capacity is equal to the available size of the smaller of the two hard drives.
- **RAID 5 (disk striping with distributed parity):** Data is striped across all disks in the array. Part of the capacity of each disk stores parity information that reconstructs data if a disk fails. RAID 5 provides good data throughput for applications with high read request rates.
- **RAID 6 (disk striping with distributed parity across two disks):** Data is striped across all disks in the array and two parity disks are used to provide protection against the failure of up to two physical disks. In each row of data blocks, two sets of parity data are stored.
- **RAID 10 (RAID 1 and RAID 0 in spanned arrays):** RAID 10 uses mirrored pairs of disks to provide complete data redundancy. RAID 10 provides high data throughput rates.
- **RAID 50 (RAID 5 and RAID 0 in spanned arrays):** RAID 50 uses both parity and disk striping across multiple disks to provide complete data redundancy. RAID 50 provides high data throughput rates.
- **RAID 60 (RAID 6 and RAID 0 in spanned arrays):** RAID 60 uses both distributed parity across two parity disks and disk striping across multiple disks to provide complete data redundancy. RAID 60 provides high fault tolerance.

TECHNICAL SUPPORT

For assistance in installing, configuring, or running your SAS RAID controller, contact LSI Technical Support.

Phone Support:

1-800-633-4545 (North America)

Web Site:

http://www.lsi.com/support

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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