ServeRAID M1015 SAS/SATA Controller



Quick Install Guide



Thank you for purchasing the ServeRAID M1015 SAS/SATA controller. Please take a few minutes to read this Quick Install Guide before you install your controller. For more information about any topic covered in this guide, refer to the other documents on your *ServeRAID M Support* CD.

The ServeRAID M1015 SAS/SATA (Serial Attached SCSI/ Serial ATA II) controller is PCI-Express 2.0, half-size, halfheight RAID controller based on the LSISAS2008 PCI Express-SAS/SATA I/O Processor chip. The controller controls eight internal 6 Gb/s SAS/SATA ports through two SFF-8087 SAS x4 internal connectors.

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

You can use the ServeRAID M1000 Series Advanced Feature Key to enable support for RAID 5 configurations and self-encrypting disks (SED).

For more information about this controller and the Advanced Feature Key, refer to the *ServeRAID M1015 SAS/SATA Controller User's Guide* on the *ServeRAID M Support* CD.

<u>Note</u>: SATA II is the only type of SATA supported by this RAID controller.

SERVERAID CONTROLLER INSTALLATION

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

Perform the following steps to install your ServeRAID M1015 SAS/SATA controller.

Step 1 Unpack the Controller

Important: When you handle static-sensitive devices, take precautions to avoid damage from static.

Unpack the controller in a static-free environment. Remove the controller from the antistatic bag and inspect it for damage. If the controller appears to be damaged, or if the *ServeRAID M Support* CD is missing, contact your place of purchase.

The CD contains the following documents:

- ServeRAID M1015 SAS/SATA Controllers User's Guide
- ServeRAID-M Software User's Guide
- ServeRAID-M Device Driver Installation User's Guide

Step 2 Prepare the Computer

Review all safety information provided with the computer. Unplug the power cords from the power supplies, disconnect the computer from the network, and remove the computer cover. See the documentation provided with the computer for instructions.

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

Step 3 Review the Connectors

Figure 1 shows the location of the connectors.

Figure 1 ServeRAID M1015 Card Layout



Table 1 describes the connectors on theServeRAID M1015 controller.

Table 1	Jumpers and	Connectors
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Jumper/ Connector	Туре	Description
J1	RISCwatch header	16-pin header
		Reserved for IBM use.
J2	CPLD header	10-pin header
		Reserved for IBM use.
J3	External LED drive	4-pin connector
		Connects to external, bi-color LEDs that indicates drive activity or faults.
J4	x4 Mini-SAS (SFF- 8087) Ports 0–3 internal connector	Connects the cables from the con- troller 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 con- troller to SAS drives or SATA II drives, or a SAS expander.
J6	PCI Express x8 board edge connector	x8 interface that provides connec- tions on both the top and the bottom of the board.
TP1	Universal Asyn-	4-pin connector
	Transmitter (UART) debugging	Reserved for IBM use.
U1	ServeRAID M1000 Series Advanced Feature Key header	2-pin connector
		Enables support for RAID 5 config- urations and self-encrypting disks (SED) when you insert the ServeRAID M1000 Series Advanced Feature Key.

Step 4 Install the Controller on the Motherboard

Insert the 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 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 PCIe graphics cards; if a RAID controller is installed, it will not function.
- Note: Refer to your motherboard guide for information about the PCI Express slot.

Figure 2 Installing the ServeRAID M1015 SAS/ SATA Controller



Step 5 Configure and Install the SAS Devices, SATA II Devices or Both

Configure the SAS devices, SATA II devices, or both, and install them in the external enclosure.

- **Note:** Refer to the documentation for the external devices for pre-installation configuration requirements.
- Note: The controllers support SATA II protocols but not SATA I protocols. All references to SATA in this guide are to SATA II.

Step 6 Connect the Controller to the SAS Devices, SATA II Devices, or Both

Connect the cables between the controller and the SAS devices, SATA II devices, or both. Refer to the external device documentation to view connector locations for the external devices.

Note: Refer to the ServeRAID M1015 SAS/SATA Controller User's Guide for information about the cables and the connectors.

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, making sure that the power is turned on to the SAS devices and the SATA II devices before or at the same time as the host computer. If the power is turned on to the computer before it is turned on to the devices, the computer might not recognize the devices.

For the United Extensible Firmware Interface (uEFI), no BIOS message displays. Press F1 to enter System Setup. Refer to your system user's guide for specific configuration information.

Under other interfaces or operating systems, a BIOS message similar to the following displays during boot:

LSI MEGARAID BIOS VERSION XXXX [date] Copyright(c) 2009, LSI Corporation HA-1 (Bus x Dev y) ServeRAID M1015 PCI-Express RAID Controller Standard FW xxxx DRAM=xxx MB(SDRAM)

During this time the adapter scans the bus(es).

Step 8

Run the WebBIOS Configuration Utility to configure the physical arrays and the logical drives. When the message Press <Ctrl><H> for WebBIOS displays on the screen during boot, press CTRL+H immediately to run the utility.

For systems using uEFI, refer to the system publications for instructions on how to access WebBIOS.

Note: Refer to the ServeRAID-M Software User's Guide on the ServeRAID M Support CD for detailed steps on configuring the physical arrays and the logical drives.

Step 9 Install the Operating System Driver

The controller can operate under various operating systems. To operate under these operating systems, you must install software drivers.

View the supported operating systems and download the latest drivers for the controller at http://www.ibm.com/support/. For updates, click Downloads and drivers. Access the download center and follow the steps to download the driver.

Refer to the ServeRAID-M Device Driver Installation User's Guide on the CD for details on installing the driver. Be sure to use the latest Service Packs provided by the operating system manufacturer and review the readme file that accompanies the driver.



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The firmware takes several seconds to initialize.

Run the WebBIOS Configuration Utility

Refer to the Important Notices and Warranty Information document for information about the technical support available for this product.

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SUPPORTED RAID LEVELS

The ServeRAID M1015 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): Data is mirrored on pairs of drives to provide complete data redundancy and high data throughput rates.
 - Refer to the ServeRAID-M Software User's Guide Note: on the ServeRAID M Support CD for more information about RAID levels.

TECHNICAL SUPPORT