ServeRAID M5000 Series Battery Kit

Quick Install Guide

Attention: Go to http://www-947.ibm.com/support/entry/portal/docdisplay?Indocid=MIGR-5073015 and download the latest firmware for correct operation.

Thank you for purchasing the ServeRAID M5000 Series Battery Kit. The ServeRAID M5000 Series Battery Kit protects the integrity of the cached data on your SAS/SATA controller by providing backup power if there is a complete AC power failure or a brief power outage.

You can mount the ServeRAID M5000 Series Battery Kit directly or remotely (using a daughtercard and a 12-inch cable) to the following ServeRAID SAS/SATA controllers:

- – ServeRAID-M5014 SAS/SATA controller
- – ServeRAID-M5015 SAS/SATA controller
- – ServeRAID-M5025 SAS/SATA controller

To install the battery kit directly, follow the steps in Section, "INSTALLING THE ServeRAID M5000 SERIES BATTERY KIT DIRECTLY".

To mount the battery kit remotely, follow the steps in Section, "CONNECTING THE ServeRAID M5000 SERIES BATTERY KIT REMOTELY".

Note: Refer to the ServeRAID controller remote-battery installation instructions document on the CD that comes with this battery kit for information on when and how to mount the battery kit remotely.

Take a few minutes to read this Quick Install Guide. If you need more information about any topic covered in this guide, refer to the documents on your *ServeRAID M Support* CD.
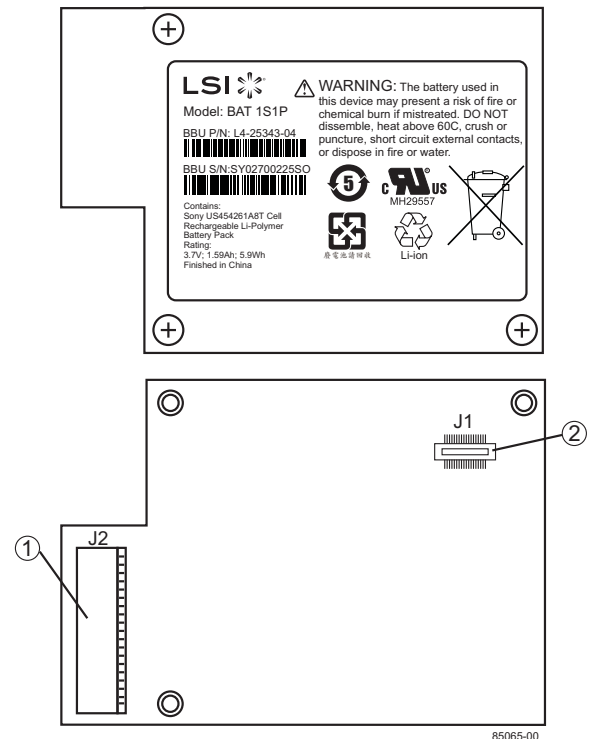
OVERVIEW OF THE ServeRAID M5000 BATTERY KIT

The ServeRAID M5000 Series Battery Kit, an *intelligent* BBU (iBBU), has built-in functionality to charge the battery pack automatically and to communicate battery status information such as voltage, temperature, and current, to the host computer system.

For more information about this battery kit, refer to the *ServeRAID M5014/M5015 SAS/SATA Controllers User's Guide* on the *ServeRAID M Support* CD.

The following figure displays the top view and the rear view of the battery kit (the "top" side is the side you can see after you install the battery kit on the controller). Note that this unit combines a battery pack with a daughtercard.

Figure 1   ServeRAID M5000 Series Battery Kit

1 - J2 remote connector

2 - J1 board-to-board connector

INSTALLING THE ServeRAID M5000 SERIES BATTERY KIT DIRECTLY

Attention: It is important to back up any data before a change in system configuration is made. Failure to do this could result in data loss.

Perform the following procedures to install the ServeRAID M5000 Series Battery Kit directly to the controller and to install the controller.

1. Removing the Controller from the Computer
2. Installing the M5000 Series Battery Kit on the Controller
3. Reinstalling the Controller on the Motherboard

Removing the Controller from the Computer

If the controller is already installed in a system, follow these steps to remove it before you install the battery kit:

Step 1 Turn off the computer, and unplug the power cords.

Step 2 Ground yourself and make sure the system is grounded.

Step 3 Remove the cover from the computer according to the instructions in the system user's manual so you can access the controller.

Attention: When handling static sensitive devices, take precautions to avoid damage from static electricity.

Step 4 Unplug all cables from the controller, remove the screw attaching the bracket to the computer chassis, and carefully remove the controller from the slot.

Step 5 Place the controller on a flat, clean, static-free surface, and continue with the next procedure.

Installing the M5000 Series Battery Kit on the Controller

Follow these steps to mount the battery kit directly to the controller using the daughtercard. (All components are installed on the bottom of the card. The battery is installed on the top. The maximum height of components installed on the iBBU is 0.125".)

This procedure shows how to install the battery kit on the ServeRAID-M5025 SAS/SATA controller. You can install the battery kit on the ServeRAID-M5014 SAS/SATA controller or the ServeRAID-M5015 SAS/SATA controller in the same way.
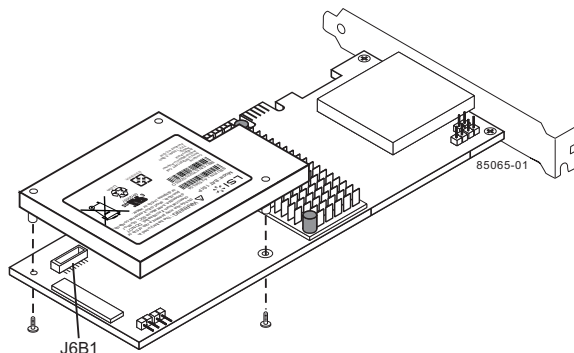
> **Note:** For information about the BBU connectors on these controllers, see the user's guide for each controller.

Step 1 Ground yourself, and remove the battery kit from the package.

Step 2 With the front side of the controller facing upward, place the controller on a flat, clean, static-free surface.

Step 3 Hold the battery kit so that the battery side is facing upward and the J1 connector lines up with the J6B1 BBU connector on the controller, as shown in the following figure.

Figure 2 Installing the ServeRAID M5000 Series Battery Kit on a ServeRAID SAS/SATA Controller

Step 4 Carefully press the battery kit onto the controller so that the two connectors are firmly joined.

Step 5 Secure the battery kit to the controller with the screws and the standoffs in the three screwholes.

The standoffs are threaded at both ends, and a screw goes into each end. The screw threads from the back of the controller board into the board-to-board standoffs on the bottom of the battery kit.

Important: Center the screwdriver carefully to avoid stripping the screwhead. Do not over-tighten the screws.

Reinstalling the Controller on the Motherboard

Follow these steps to install the controller in the computer.

Step 1 With the power to the chassis still turned off, and the power cords unplugged, make sure the chassis is grounded and has no AC power.

Step 2 Install the controller in the PCI Express slot, as shown in the following figure.
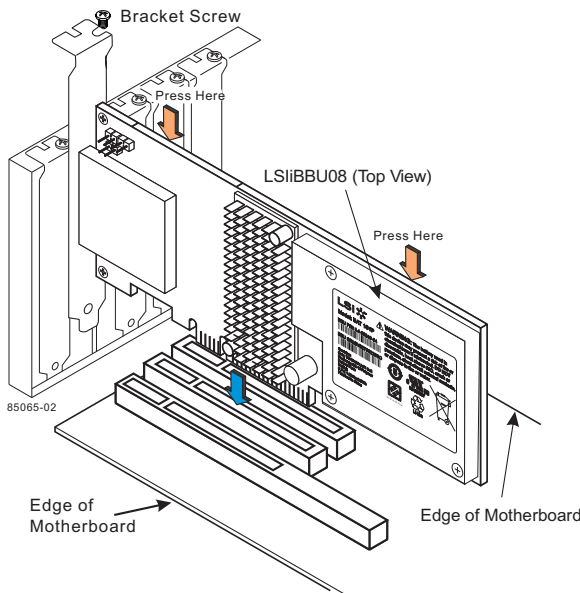
Important: Some PCI Express slots support only PCI Express graphics cards; if a controller is installed in one of these slots, it will not function. Refer to your computer documentation for information about the PCI Express slot.

Step 3 Press down gently, but firmly, to ensure the card is properly seated in the slot.

The bottom edge of the controller must be flush with the slot.

Attention: Never apply pressure to the battery kit when you insert the controller. Instead, press down only on the top edge of the controller, as shown in the following figure.

Figure 3 Installing the ServeRAID SAS/SATA Controller

Step 4 Secure the controller to the computer chassis with the bracket screw.

Step 5 Reinstall the computer cover and reattach the power cords.

Step 6 Turn on the power to the computer.

Attention: Never apply pressure to the battery kit when you insert the controller. Instead, press down only on the top edge of the controller, as shown in Figure 3.

CONNECTING THE ServeRAID M5000 SERIES BATTERY KIT REMOTELY

This section describes the two methods you can use to connect the controller to a remote ServeRAID M5000 Series Battery Kit using a cable or, where applicable, a cable and a remote interposer board that are sold separately in a Remote Battery Kit:

– Use the cable to connect the remote battery kit to the BBU connector on the controller (CONNECTING THE REMOTE M5000 SERIES BATTERY KIT TO THE BBU CONNECTOR ON A ServeRAID SAS/SATA CONTROLLER

– Use the cable to connect the remote battery kit to a daughtercard that is connected to the BBU connector on the controller (CONNECTING THE REMOTE M5000 SERIES BATTERY KIT TO AN INTERPOSER CARD ON A ServeRAID SAS/SATA CONTROLLER)

CONNECTING THE REMOTE M5000 SERIES BATTERY KIT TO THE BBU CONNECTOR ON A ServeRAID SAS/SATA CONTROLLER

This section describes how to connect the remote M5000 Series Battery Kit to the BBU connector on the ServeRAID M5025 SAS/SATA controller. You can connect the battery kit in the same way to the other SAS/SATA controllers that use this battery kit.

To connect the remote battery kit to the BBU connector on the controller, perform the following tasks in order:

1. Removing the Controller from the Computer
2. Connecting the Cable Between the Controller and the Remote M5000 Series Battery Kit
3. Reinstalling the Controller on the Motherboard

Removing the Controller from the Computer

Follow these steps to remove the controller from the computer.

Step 1 Turn off the power, and unplug the power cords.

Step 2 Ground yourself and make sure the system is grounded.

Step 3 Remove the cover from the computer according to the instructions in the system user's manual to allow access to the controller.

Step 4 Unplug all cables from the controller, remove the screw attaching the bracket to the computer chassis, and carefully remove the controller from the slot.

Step 5 Place the controller on a flat, clean, static-free surface, and continue with the next procedure.

Connecting the Cable Between the Controller and the Remote M5000 Series Battery Kit
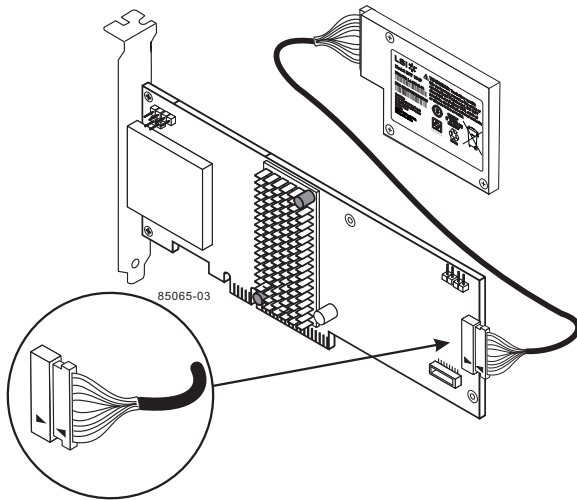
Follow these steps to connect the remote battery kit to the BBU connector on the SAS/SATA controller.

Step 1 Ground yourself and make sure the system is grounded.

Step 2 Remove the battery kit from the package.

Step 3 Connect one end of the 12-inch, 20-pin cable (included in the remote battery kit) to the J2 connector on the battery kit, and the other end to the J6B1 BBU connector on the controller, as shown in the following figure.

Align the recessed triangle indicators on the connectors to make sure they are connected correctly.

Figure 4 Connecting the Remote Battery Kit to the SAS/SATA Controller

85065-03

Reinstalling the Controller on the Motherboard

Follow these steps to install the controller in the computer.

Step 1 With the power to the chassis still turned off, and the power cords unplugged, make sure the chassis is grounded and has no AC power.

Step 2 Install the controller in the PCI Express slot, as shown in the following figure.
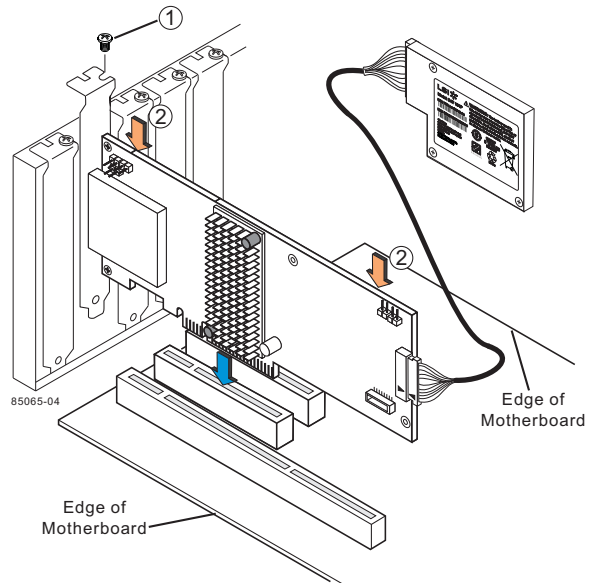
Important: Some PCI Express slots support only PCI Express graphics cards; if a controller is installed in one of these slots, it will not function. Refer to your computer documentation for information about the PCI Express slot.

Step 3 Press down gently, but firmly, to ensure the card is properly seated in the slot.

The bottom edge of the controller must be flush with the slot.

Important: *Never* apply pressure to the battery kit when you insert the controller. Instead, press down only on the top edge of the controller, as shown in the following figure.

Figure 5 Installing the ServeRAID SAS/SATA Controller

85065-04

Edge of Motherboard

Edge of Motherboard

Step 4 Secure the controller to the computer chassis with the bracket screw.

Step 5 Reinstall the computer cover and reattach the power cords.

Step 6 Turn on the power to the computer.

Important: See the *ServeRAID-M Software User's Guide* for information about running the configuration utility and installing software drivers.

CONNECTING THE REMOTE M5000 SERIES BATTERY KIT TO AN INTERPOSER CARD ON A ServeRAID SAS/SATA CONTROLLER

This section describes how to install the M5000 Series Battery Kit remotely on your ServeRAID-M5014 SAS/SATA controller, ServeRAID-M5015 SAS/SATA controller, or ServeRAID-M5025 SAS/SATA controller.

To connect a remote battery kit to an interposer card on your controller, perform the following tasks in order:

1. Removing the Controller from the Computer
2. Installing the Interposer Card on the Controller
3. Connecting the Cable Between the Interposer Card and the Controller
4. Reinstalling the Controller in the Computer

Removing the Controller from the Computer

Follow these steps to remove the controller from the computer.

1. Turn off the power, and unplug the power cords.
2. Ground yourself and make sure the system is grounded.
3. Remove the cover from the computer, according to the instructions in the system user's manual, to allow access to the controller.
4. Unplug all cables from the controller, remove the screw attaching the bracket to the computer chassis, and carefully remove the controller from the slot.
5. Place the controller on a flat, clean, static-free surface, and continue with the next procedure.

Installing the Interposer Card on the Controller

Follow these steps to install the interposer card on the controller, as shown in the following figure.

1. With the controller on a flat, clean, static-free surface, ground yourself and make sure the system is grounded.
2. Remove the interposer card, standoff, and screws from the package.
3. Place the standoff on the controller so that the bottom side is over the screwhole next to the JT3 BBU connector on the controller.
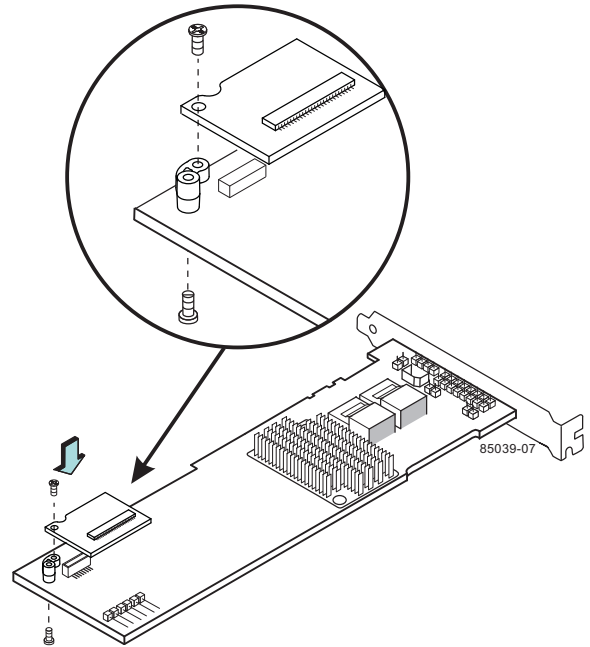4. Use one of the screws to secure the standoff to the controller.

Important: Center the screwdriver carefully to avoid stripping the screwhead. Do not overtighten the screws.

5. Hold the interposer card so that the J1 board-to-board connector on the interposer card lines up with the JT3 board-to-board connector on the controller.
6. Carefully press the J1 connector on the interposer card into the JT3 connector on the controller so that the two connectors are firmly joined.

   The connectors fit only when they are in the correct alignment.

7. Use the other screw to secure the interposer card to the controller and continue with the next procedure.

Figure 6   Connecting the Interposer Card to the Controller

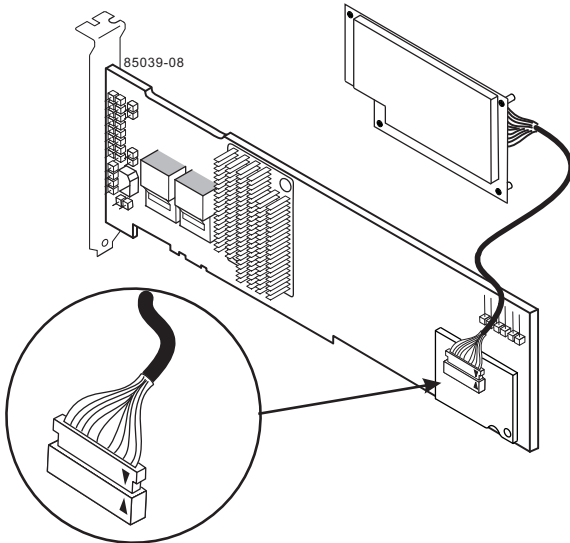**Connecting the Cable Between the Interposer Card and the Controller**

Follow these steps to connect the cable between the interposer card on the controller and the ServeRAID M5000 Series Battery Kit.

1. Mount the battery kit to the chassis of your computer based on the location and the type of mounting option.
2. With the controller on a flat, clean, static-free surface, ground yourself and make sure the system is grounded.
3. Remove the cable included in the battery kit.
4. Insert one end of the cable into the 20-pin J2 connector on the battery kit and the other end into the 20-pin J1 connector on the interposer card, as shown in the following figure.

   Align the recessed triangle indicators on the connectors to make sure they are connected properly.

   Note: The cable connectors are polarized and can be inserted into the connectors on the interposer card and the battery kit only if the rails on the cable connectors align with the slots on the other connectors. **Do not** force the cable into the 20-pin connectors. The cable end inserts into the connector with minimal resistance.

Figure 7   Connecting the ServeRAID M5000 Series Battery Kit Remotely to the Interposer Card

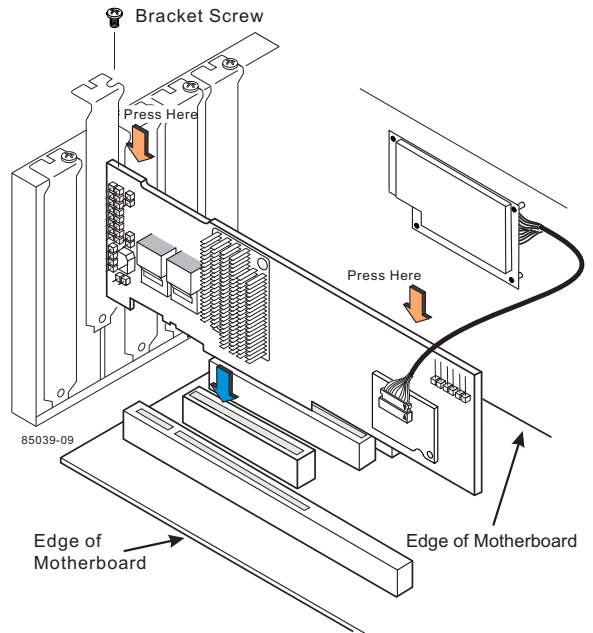**Reinstalling the Controller in the Computer**

Follow these steps to install the controller in the computer.

1. With the power to the chassis still turned off, and the power cords unplugged, make sure the chassis is grounded and has no AC power.

2. Insert the controller in a PCI Express slot on the motherboard, as shown in the following figure.

    Note: Some PCI Express slots support only PCI Express graphics cards; if a SAS/SATA controller is installed in one of these slots, it will not function. Refer to your computer documentation for information about the PCI Express slot.

3. Press down gently but firmly to seat the card correctly in the slot.

Figure 8   Reinstalling the Controller

4. Secure the controller to the computer chassis with the bracket screw.

5. Replace the computer cover and reattach the power cords.

6. Turn on the power to the computer.

See the *ServeRAID-M Software User's Guide* for information about running the configuration utility and installing the software drivers.

Attention: The battery in the M5000 Series Battery Assembly must charge for at least six hours under normal operating conditions. To protect your data, the firmware changes the Write Policy to *write-through* until the battery unit is sufficiently charged. When the battery unit is charged, the firmware changes the Write Policy to *write-back* to take advantage of the performance benefits of data caching.

DISPOSING OF BATTERY BACKUP UNITS

Attention: If the battery kit is damaged in any way, toxic chemicals can be released.

The material in the battery pack contains heavy metals that can contaminate the environment. Federal, state, and local

regulations prohibit the disposal of rechargeable batteries in public landfills. Make sure that you recycle the old battery packs properly. IBM reminds you that you must comply with all applicable battery disposal and hazardous material handling laws and regulations in the country or other jurisdiction where you are using the battery kit.

Refer to the *Environmental Notices and User Guide* that comes with the controller for battery-disposal instructions.

Statement 28:	**The battery is a lithium ion battery. To avoid possible explosion, do not burn the battery. Exchange it only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call.**
⚠️ **Caution:**	

TECHNICAL SUPPORT

Refer to the controller *User's Guide* for information about the technical support available for this product.

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