



ServeRAID M5100 Series 512 MB Cache/RAID 5 Upgrade for IBM System x

Before using this information and the product it supports, read the IBM® *Important Notices* and *IBM Warranty Information* documents that come with the ServeRAID M5100 Series 512 MB Cache/RAID 5 Upgrade for IBM System x®. (The flash upgrade device is referred to in this document as the transportable memory module).

This *Quick Installation Guide* contains information about mounting the transportable memory module on a controller and connecting the transportable memory module to a battery unit.

Statement 1:



DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Connect all power cords to a properly wired and grounded electrical outlet.
- Connect to properly wired outlets any equipment that will be attached to this product.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.

To Connect:

1. Turn everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to connectors.
4. Attach power cords to outlet.
5. Turn device ON.

To Disconnect:

1. Turn everything OFF.
2. First, remove power cords from outlet.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

Note: Record the serial number of your transportable memory module in a safe location in case you need to contact IBM.

The transportable memory module enables better performance in RAID 5 / RAID 50 configurations, can add RAID 6 / RAID 60 capability (with the purchase of an IBM System x Features on Demand upgrade), and enables write-back operations in all configurations. The transportable memory module is mounted on a controller and provides a 1333-megatransfers-per-second (MT/s) double data rate 3 (DDR3) interface between the controller and the memory integrated circuits (ICs).

Handling electronic devices

Attention: Static electricity can damage the server and other electronic devices. To avoid damage, keep an electronic device in its static-protective package until you are ready to install it.

To reduce the possibility of damage from electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- The use of a grounding system is recommended but is not required. For example, wear an electrostatic-discharge wrist strap, if one is available.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal part of the server for at least 2 seconds. This drains static electricity from the package and from your body.
- If it is necessary to set down the device after you remove it from its static-protective package, put it back into the package. Do not place the device on the server cover or on a metal surface.
- Take additional care when you handle the device during cold weather. Heating reduces indoor humidity and increases static electricity.

Mounting the battery unit inside the server

Attention: To avoid the loss of data, back up your data before you change your system configuration.

To mount the battery unit inside the server, complete the following steps:

1. Read the safety information that comes with the server.
2. Turn off the server and peripheral devices and disconnect the power cords. Remove the server cover. For more information, see the installation instructions that come with the server.
3. In a static-free environment, carefully remove the battery unit from the antistatic bag and inspect it for damage. If it appears to be damaged, contact your place of purchase.

4. Mount the battery unit in a suitable location inside the server, observing the following guidelines:
 - There is no standard method for mounting the battery unit inside the server. The correct mounting location and procedure depends on the server configuration.
 - You must connect a remote-mount cable to the battery unit that is installed remotely in the server and to the transportable memory module that is mounted on the controller. Make sure that one of the remote-mount cables that come with the battery unit is long enough to make this connection when the controller is installed in the server.

Notes:

- a. The following illustration shows the controller installed in a PCI Express slot in the server. Your server configuration might be different.
- b. For more information about mounting the battery unit in the server, see the documentation that comes with the server.

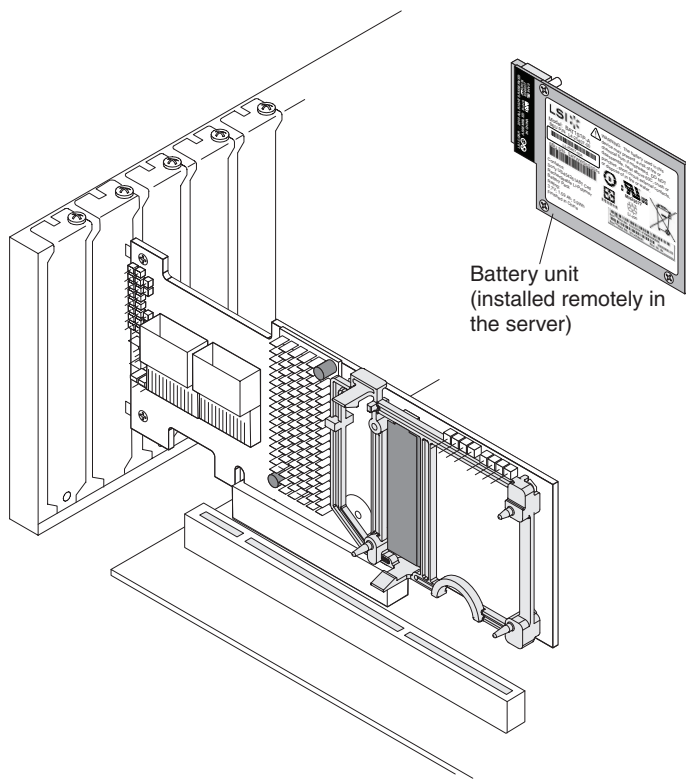


Figure 1. Mounting the battery unit in the server

Mounting the transportable memory module on the controller

If the controller on which you want to mount the transportable memory module is already installed in the server, use the following procedure to first remove the controller from the server. Otherwise, go to “Mounting the transportable memory module” on page 5.

Removing the controller from the server

To remove the controller from the server, complete the following steps:

1. Read the safety information that comes with the controller.
2. Turn off the server and peripheral devices and disconnect the power cords. Remove the server cover. For more information, see the installation instructions that come with the server.
3. Ground yourself before you touch the controller.
4. Disconnect all cables from the controller, remove the screw that attaches the bracket to the server, and carefully remove the controller from the slot.

Notes:

- a. The following illustration shows the controller installed in a PCI Express slot in the server. Your server configuration might be different.
- b. For more information about removing the controller from the server, see the documentation that comes with the server.

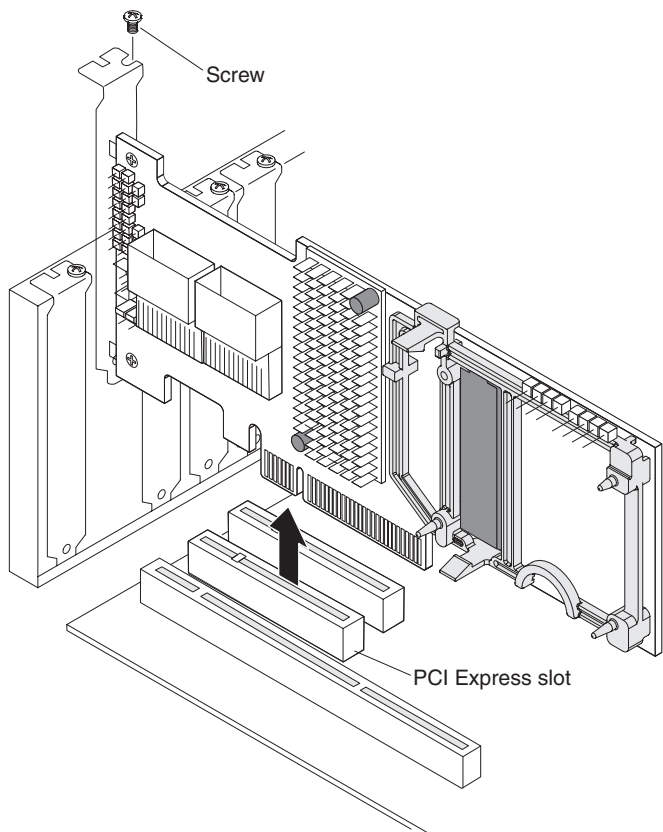


Figure 2. Removing the controller from the server

5. Place the controller on a flat, clean, static-protective surface, and continue with the next section.

Mounting the transportable memory module

To mount the transportable memory module on the controller, complete the following steps:

1. Read the safety information that comes with the controller.
2. Touch the static-protective package that contains the transportable memory module to any unpainted surface on the outside of the server; then, grasp the unit by the top edge or upper corners, remove it from the package, and inspect it for damage. Contact your IBM marketing representative or authorized reseller if the unit appears to be damaged.
3. If you have not already done so, position the controller on a flat, clean, static-protective surface.
4. Hold the transportable memory module so that the small cable connector is on the top and the board-to-board connector is on the bottom.
5. Align the board-to-board connector on the transportable memory module with the J5B1 (DDR3) connector on the controller, as shown in the following illustration. Align the three pins on the retention bracket with the holes in the transportable memory module.

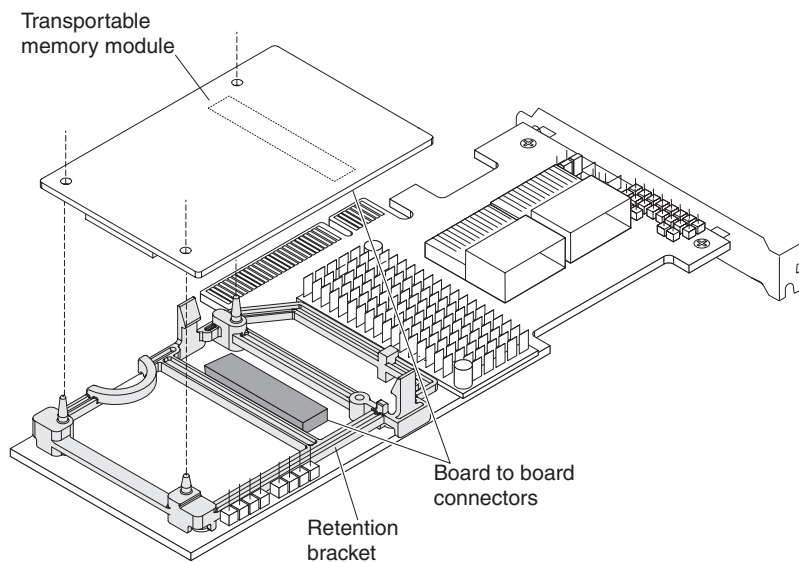


Figure 3. Mounting the transportable memory module on the controller

6. Carefully press the transportable memory module onto the controller so that the two connectors are firmly joined and the two retention bracket tabs snap into place.

Installing the controller with the transportable memory module in the server

To install the controller in the server, complete the following steps:

1. If you have not already done so, turn off the server and peripheral devices and disconnect the power cords. Remove the server cover. For more information, see the installation instructions that come with the server.
2. With the controller on a flat, clean, static-protective surface, ground yourself and make sure that the server is grounded.

3. Connect the transportable memory module to the battery unit:
 - a. Select one of the 20-pin remote-mount cables that come with the battery unit, making sure that it has the correct length for your configuration. The battery unit comes with a 50 cm (19.7 in.) remote-mount cable and a 95 cm (37.4 in.) remote-mount cable.
 - b. Connect one end of the 20-pin cable to the battery unit (remotely mounted in the server) and the other end of the cable to the 20-pin cable connector on the transportable memory module that is mounted on the controller.

Attention: If you have to remove the controller after the battery unit is connected to it, you must disconnect the remote-mount cable from the transportable memory module on the controller and then remove the controller from the server.

Notes:

- 1) The following illustration shows the controller installed in a PCI Express slot in the server. Your server configuration might be different.
- 2) For more information about installing the controller in the server, see the documentation that comes with the server.

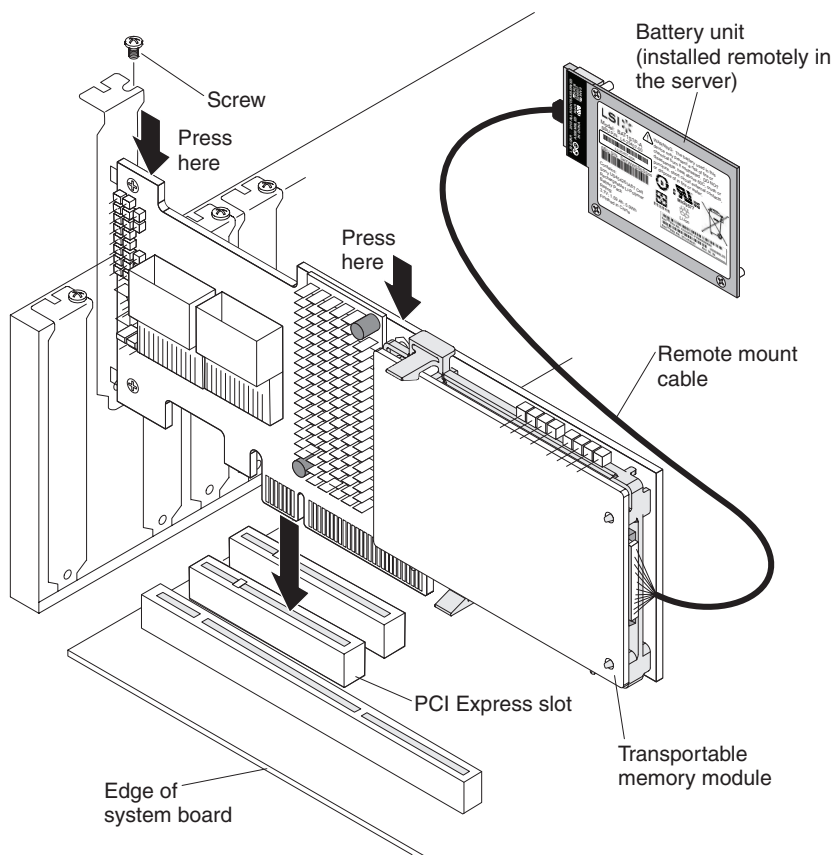


Figure 4. Connecting the transportable memory module to the battery unit and installing the controller in the server

4. Position the controller by aligning the PCIe x8 connector with the PCIe x8 slot on the system board. Insert the controller firmly into the connector and press down on the top edge of the controller so that it is firmly seated in the connector. See the previous illustration for the correct place to press on the controller.

Note: Never apply pressure to the transportable memory module when you insert the controller. Instead, press down only on the top edge of the controller.

5. Replace the expansion-slot bracket screw if you removed it.

6. Reconnect the controller to the SAS and SATA devices in the server.
7. Replace the server cover, reconnect the power cords, and turn on the server.

Notes:

- a. Make sure that the power is turned on to the SAS and SATA devices before or at the same time that the power is turned on to the server. If the power is turned on to the server before it is turned on to the devices, the server might not recognize the devices.
- b. The firmware takes several seconds to initialize. During this time, the controller scans the ports.

Replaceable components

Field replaceable units (FRUs) must be replaced only by a trained service technician, unless they are classified as customer replaceable units (CRUs).

Tier 1 CRU: Replacement of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request without a service contract, you will be charged for the installation.

Tier 2 CRU: You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service that is designated for your product.

For more information about the terms of the warranty and getting service and assistance, see the *Warranty Information* document that comes with the controller.

Table 1. Field replaceable units for the transportable memory modules and flash power module

Description	CRU part number (Tier 1)	CRU part number (Tier 2)	FRU part number (trained service technician only)
ServeRAID M5100 Series 512 MB Cache / RAID 5 Upgrade for IBM System x	81Y4485		

Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. Use this information to obtain additional information about IBM and IBM products, determine what to do if you experience a problem with your IBM system or optional device, and determine whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated firmware and operating-system device drivers for your IBM product. The IBM Warranty terms and conditions state that you, the owner of the IBM product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your IBM service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.
- If you have installed new hardware or software in your environment, check <http://www.ibm.com/systems/info/x86servers/serverproven/compat/us/> to make sure that the hardware and software is supported by your IBM product.
- Go to <http://www.ibm.com/supportportal/> to check for information to help you solve the problem.
- Gather the following information to provide to IBM Support. This data will help IBM Support quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.
 - Hardware and Software Maintenance agreement contract numbers, if applicable
 - Machine type number (IBM 4-digit machine identifier)
 - Model number
 - Serial number
 - Current system UEFI and firmware levels
 - Other pertinent information such as error messages and logs
- Go to http://www.ibm.com/support/entry/portal/Open_service_request/ to submit an Electronic Service Request. Submitting an Electronic Service Request will start the process of determining a solution to your problem by making the pertinent information available to IBM Support quickly and efficiently. IBM service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to <http://www.ibm.com/supportportal/>. Also, some documents are available through the IBM Publications Center at <http://www.ibm.com/shop/publications/order/>.

Getting help and information from the World Wide Web

On the World Wide Web, up-to-date information about IBM systems, optional devices, services, and support is available at <http://www.ibm.com/supportportal/>. The address for IBM System x information is <http://www.ibm.com/systems/x/>. The address for IBM BladeCenter® information is <http://www.ibm.com/systems/bladecenter/>. The address for IBM IntelliStation® information is <http://www.ibm.com/systems/intellistation/>.

How to send Dynamic System Analysis data to IBM

Use the IBM Enhanced Customer Data Repository to send diagnostic data to IBM. Before you send diagnostic data to IBM, read the terms of use at <http://www.ibm.com/de/support/ecurep/terms.html>.

You can use any of the following methods to send diagnostic data to IBM:

- **Standard upload:** http://www.ibm.com/de/support/ecurep/send_http.html
- **Standard upload with the system serial number:** http://www.ecurep.ibm.com/app/upload_hw
- **Secure upload:** http://www.ibm.com/de/support/ecurep/send_http.html#secure
- **Secure upload with the system serial number:** https://www.ecurep.ibm.com/app/upload_hw

Creating a personalized support web page

At <http://www.ibm.com/support/mynotifications/>, you can create a personalized support web page by identifying IBM products that are of interest to you. From this personalized page, you can subscribe to weekly email notifications about new technical documents, search for information and downloads, and access various administrative services.

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with your IBM products. For information about which products are supported by Support Line in your country or region, see <http://www.ibm.com/services/supline/products/>.

For more information about Support Line and other IBM services, see <http://www.ibm.com/services/>, or see <http://www.ibm.com/planetwide/> for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

Hardware service and support

You can receive hardware service through your IBM reseller or IBM Services. To locate a reseller authorized by IBM to provide warranty service, go to <http://www.ibm.com/partnerworld/> and click **Find Business Partners** on the right side of the page. For IBM support telephone numbers, see <http://www.ibm.com/planetwide/>. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

IBM Taiwan product service

台灣 IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路 7 號 3 樓
電話：0800-016-888

IBM Taiwan product service contact information:

IBM Taiwan Corporation
3F, No 7, Song Ren Rd.
Taipei, Taiwan
Telephone: 0800-016-888

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