Upgrading Memory
in the ST2500 M2 Array Module

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Revision History

Version and Date	Description of Changes
51353-00, Rev. A May 2011	Initial release of the document.

Upgrading Memory in the ST2500 M2 Array Module

Each controller CRU in the ST2500 M2 array module has one cache memory DIMM and one cache backup memory device. Use this procedure to add a larger capacity cache memory DIMM and add a larger capacity cache backup memory device to the controller CRUs in the ST2500 M2 array module.

> ⚠️ **ATTENTION Data loss or corruption might result if the steps in this upgrade procedure are not followed correctly** – You must upgrade the cache memory DIMMs and the cache backup memory devices in both controller CRUs in the ST2500 M2 array module. Otherwise, you will receive event messages indicating that the controllers have mismatched and incompatible configurations.

Before you start this procedure, gather antistatic protection, cache memory DIMMs, and cache backup memory devices.

This procedure describes how to perform the following tasks.

1. Removing the Controller CRUs from the ST2500 M2 Array Module on page 1.
2. Upgrading the Cache Memory DIMM on page 5.
3. Upgrading the Cache Backup Memory Device on page 6.
4. Reinstalling the Controller CRU in the ST2500 M2 Array Module on page 7.
5. Turning On Power to the Controller CRUs in the ST2500 M2 Array Module on page 7.

> 📎 **NOTE** Do not perform this upgrade procedure with the power turned on. This procedure requires that you first set controller A offline to make sure that of all the data, which is currently in cache on both controller CRUs, is successfully written to disk before the upgrade. Second, you will turn the off the power to both controller CRUs as described in the steps for Removing the Controller CRUs from the ST2500 M2 Array Module on page 1.

Removing the Controller CRUs from the ST2500 M2 Array Module

> 📎 **NOTE** Before you remove the controller CRUs, make sure you set controller A offline, as described in the following steps, to make sure that all the data currently in the cache in controller A is successfully written to disk before the upgrade. This step also makes sure that the data currently in the cache in controller B is successfully written to disk before you turn off the power to both of the controller CRUs.

> ⚠️ **ATTENTION Possible hardware damage** – To prevent electrostatic discharge damage to the module, use proper antistatic protection when handling module components.

1. If possible, use the storage management software to create, save, and print a current storage array profile.
2. Use the Locate function in the storage management software to identify the controller CRUs to upgrade (Figure 1).

Figure 1 Controller A Position in the ST2500 M2 Array Module
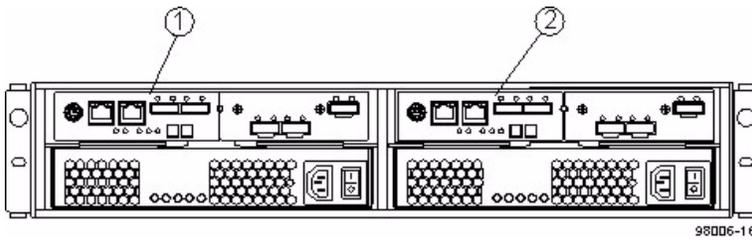
1.   Controller A
2.   Controller B

3.   Put on antistatic protection.
4.   Label each cable that is attached to each controller CRU so that you can reconnect each cable correctly after the controller CRUs are reinstalled.

> ⚠️ **ATTENTION Possible degraded performance** – To prevent degraded performance, do not twist, fold, pinch, or step on the fiber-optic cables. Do not bend the fiber-optic cables tighter than a 5-cm (2-in.) radius.

5.   Stop all host I/O operations.
6.   Take controller A offline, and wait for the Controller Service Action Allowed LED to come on.

Use either the GUI (first bullet) or the command line interface (CLI, second bullet) to take controller A offline.

—   In the Physical Pane, select controller A and select **Advanced >> Recovery >> Place Controller >> Offline.**
—   `set controller [a] availability=offline;`

Taking controller A offline makes sure that all of the data currently in cache on both controller CRUs is successfully written to disk prior to the upgrade. This command also makes sure that no data is stored on the cache backup memory devices.

> ⚠️ **ATTENTION Possible data loss or corruption** – Wait for the blue Service Action Allowed LED on controller A to come on before you turn off the power to either controller; otherwise, possible data loss or corruption might occur.

7.   Turn off the Power switch on each of the power-fan CRUs, and wait until all LED and seven-segment display activity on the rear of the array module has stopped.

Figure 2 Power Supplies in the ST2500 M2 Array Module
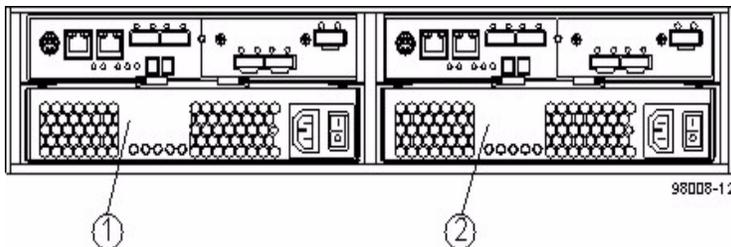
1.   Power-Fan CRU for Controller A
2.   Power-Fan CRU for Controller B

8.   Disconnect the following cables from both controller CRUs.

   —   Host interface cables
   —   Drive interface cables
   —   Ethernet cables

   If fiber-optic cables are present, you can lift the two release levers and partially remove the controller CRU. Opening these release levers makes it easier to press down on the fiber-optic cable release tab.

9.   Remove both controller CRUs from the array module (Figure 3).

   a.   Unlock and pull out the release levers to release the controller CRUs.

   b.   Using the release levers and your hands, pull both controller CRUs out of the array module.

   c.   Set each controller CRU on a flat, static-free surface near the array module. Position the controller CRU so that you can access the top cover.

   NOTE Figure 3 shows controller A being removed. You remove controller B in the same way.

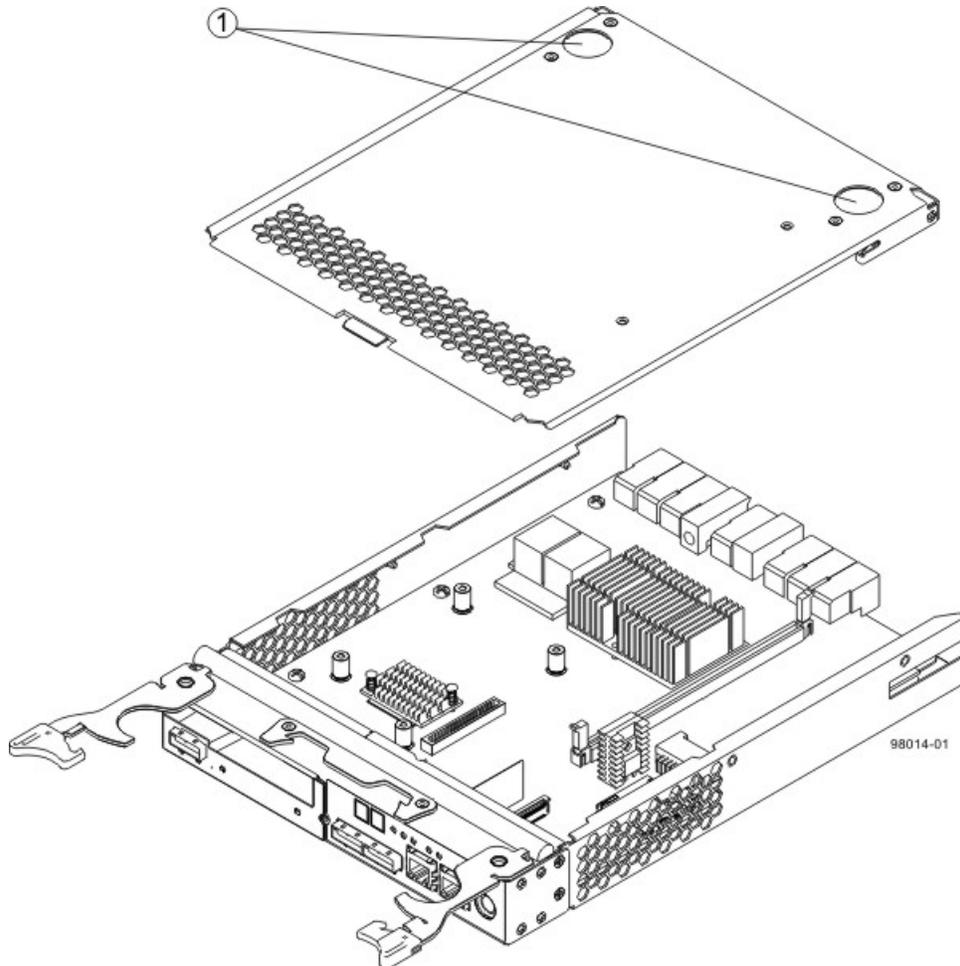**Figure 3 Removing a Controller CRU**
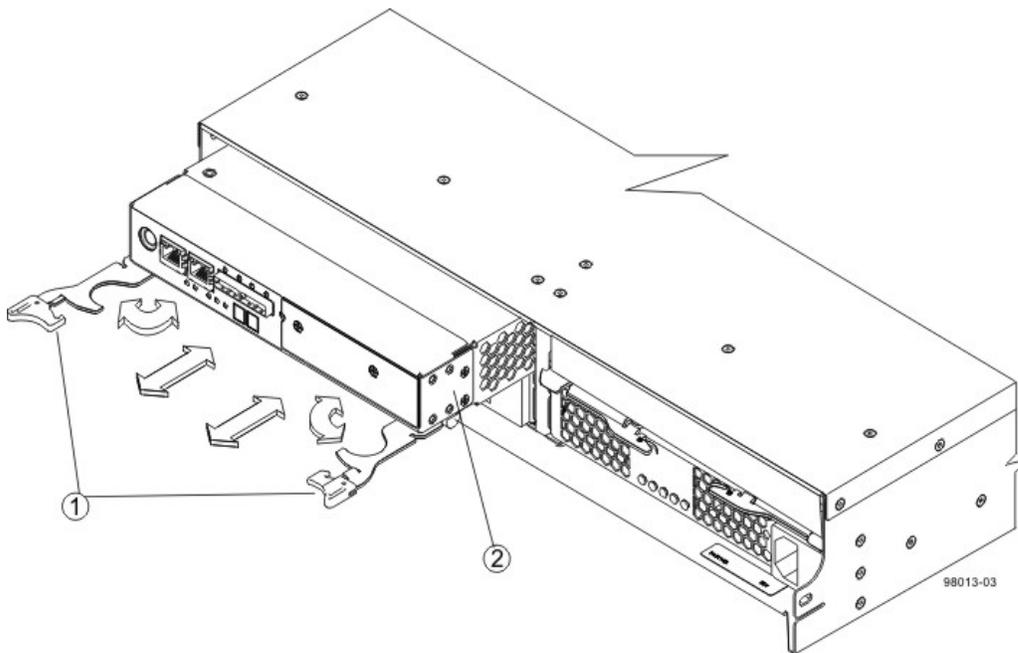
   1.   Release Levers
   2.   Controller CRU

10. On each controller CRU, press down on both of the top cover latch buttons, and slide the top covers to the rear ([Figure 4](#)).

**Figure 4 Controller Cover and Internal Parts**

1. Top Cover Latch Buttons

11. Remove the top cover from both controller CRUs.

12. Go to Upgrading the Cache Memory DIMM on page 5.

Upgrading the Cache Memory DIMM

If you are upgrading the cache memory DIMM in one controller CRU, you must increase the capacity of the cache memory DIMM in the other controller CRU in the ST2500 M2 array module. You also must increase the capacity of the cache backup memory devices in both controller CRUs.

1. Locate the cache memory DIMM (Figure 5).

Figure 5 Cache Memory DIMM Slot – Top View
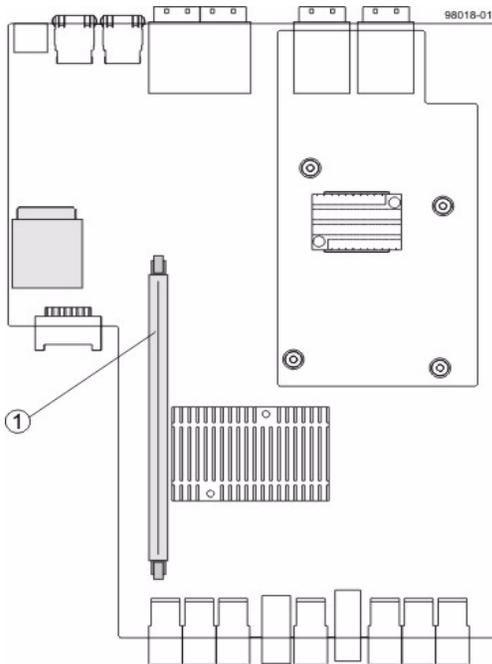
1. Cache Memory DIMM Slot

2. Remove the cache memory DIMM from the slot on the controller card (Figure 6).

    a. Pull back on each ejector handle to disengage the cache memory DIMM pins from the slot on the controller card.

    b. Lift the cache memory DIMM out of the slot.

    c. Place the cache memory DIMM that you removed on a flat, static-free surface.

Figure 6 Removing a Cache Memory DIMM

1. Cache Memory DIMM
2. Ejector Handles

3. Install the new cache memory DIMM.

    a. Align the new cache memory DIMM in the slot.

    b. Gently push down on the cache memory DIMM to seat the pins into the slot.

       The ejector handles rise up as the cache memory DIMM is inserted into the slot. When these ejector handles are in the vertical position, the cache memory DIMM is fully engaged and is locked in place.

4. Repeat this procedure for the other controller CRU.

5. Go to Upgrading the Cache Backup Memory Device.

Upgrading the Cache Backup Memory Device

The cache backup memory device provides a backup for the cache memory DIMM. The size of the cache backup memory device must equal the capacity of the cache memory DIMM.

You must increase the size of the cache backup memory device in both controller CRUs.
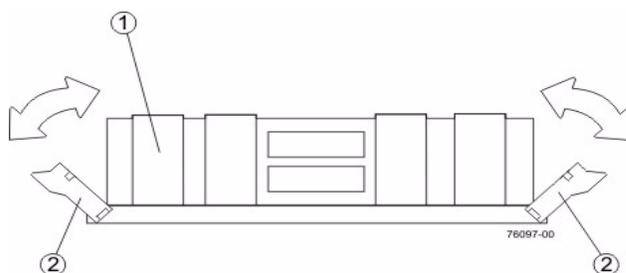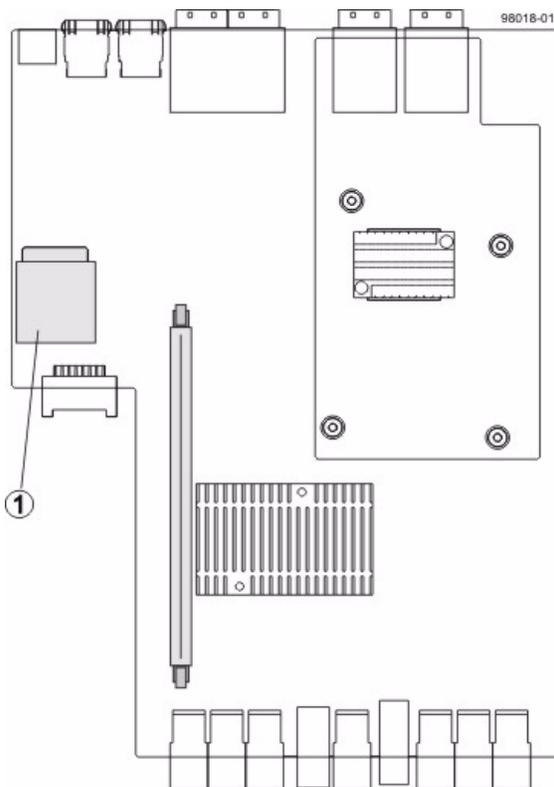
1. Locate the cache backup memory device (Figure 7).

Figure 7 Cache Backup Memory Device – Top View

1. Cache Backup Memory Device

2. Remove the cache backup memory device from the slot.

    a. Release the cache backup memory device by gently pushing the memory farther into the slot. The slot releases the cache backup memory device and pushes the memory out of the slot.

    b. Carefully pull the cache backup memory device free from the slot.

3. Install the new cache backup memory device.

   a. Unwrap the new cache backup memory device.

   b. Install the new cache backup memory device into the empty slot location by pressing the cache backup memory device into the slot until it is fully seated.

4. Repeat this procedure for the other controller CRU.

5. Go to Reinstalling the Controller CRU in the ST2500 M2 Array Module.

Reinstalling the Controller CRU in the ST2500 M2 Array Module

1. Reinstall the top covers on both controller CRUs by sliding them forward until the top cover latch buttons click.

2. Slide each controller CRU all of the way into the array module. Rotate the release levers towards the center of the controller CRU to lock that component into place.

3. Reconnect the following cables to the appropriate ports on both controller CRUs.

   — Ethernet cables

   — Host interface cables

   — Drive interface cables

4. Go to Turning On Power to the Controller CRUs in the ST2500 M2 Array Module.

Turning On Power to the Controller CRUs in the ST2500 M2 Array Module

1. Turn on the Power switches on both of the power-fan CRUs.

   Controller B comes up in Write-Through mode. Controller A comes up in an Offline state.

2. Bring controller A online.

   Use either the GUI (first bullet) or the CLI (second bullet) to bring controller A online.

   — In the Physical Pane, select controller A, and select **Advanced >> Recovery >> Place Controller >> Online.**

   — `set controller [a] availability=online;`

3. Look at the LEDs on both controller CRUs to make sure that the controllers are booting correctly.

   The LEDs come on and go off intermittently for approximately 60 seconds. After this time, you are able to discover the controllers by using the storage management software.

4. Based on the LED status, perform one of these actions:

   — **All of the Service Action Required LEDs are off,** *and* **the Array Management Window indicates an Optimal status** – Go to step 7.

   — **Any of the Service Action Required LEDs are on,** *or* **the Array Management Window indicates a Needs Attention status** – Go to step 5.

5. Perform one of the following actions (based on the Recovery Guru display).

   — **The Recovery Guru displays the following message:**
   `REC_CACHE_BACKUP_DEVICE_INSUFFICIENT_CAPACITY` – The controllers might require an additional power cycle to initialize the new cache backup memory devices. Turn off the Power switches on both controller CRUs. Wait until all LED and seven-segment display activity has stopped, and then turn on the Power switches on both power-fan CRUs. Go to step 6.

   — **The Recovery Guru does not display an insufficient capacity message** – Check that the controller CRU has been installed correctly. Reinstall the controller CRU if necessary. Go to step 6.

6. Did this action correct the problem?
   — **Yes** – Go to step 7.
   — **No** – If the problem is not resolved, contact your Sun Customer Care Center representative.
7. Using the LEDs and the storage management software, check the status of the modules in the storage array.
8. Does any component have a Needs Attention status?
   — **Yes** – Click the **Recovery Guru** toolbar button in the Array Management Window, and complete the recovery procedure. If the problem is not resolved, contact your Sun Customer Care Center representative.
   — **No** – Go to step 9.
9. Remove the antistatic protection.
10. Create, save, and print a new storage array profile.

Please
Recycle

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