



Upgrading or Host Interface Card in the ST2500 M2 Array Module

Version 10.77

May 2011

51346-00, Rev. A



Revision History

Version and Date	Description of Changes
51346-00, Rev. A May 2011	Initial release of the document.

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Document Number: 51346-00, Rev. A
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Upgrading or Replacing a Host Interface Card in the ST2500 M2 Array Module

ATTENTION Possible equipment damage – Only a qualified service technician should perform this procedure, or equipment damage might result.

Use this procedure to add a host interface card (HIC) or replace one that has failed. The replacement HIC can have iSCSI, SAS, or Fibre Channel connections.

The ST2500 M2 array module can mix host interfaces of different types, with some restrictions. In all cases, when host interface types are mixed, both controllers in a duplex array module must have the same arrangement of HICs. Each controller must have the same type of HIC in the same relative position as the other controller.

ATTENTION Potential loss of connectivity – If both controllers in a duplex array module do not have the same type of HIC in the same relative position, a mismatch results that causes both controllers to lock down (shut down and stop operating).

Before you upgrade or replace a HIC, gather antistatic protection and a new HIC. If you are changing your current configuration, you might need to replace these items in addition to the HIC:

- Small Form-factor Pluggable (SFP) transceivers.
- Host bus adapters.
- Cables – Both SAS and iSCSI use copper cable, and Fibre Channel uses copper cable and fiber-optic cable.
- The correct host interface card subplate for the front of the controller (which is included in this kit).

ATTENTION Possible hardware damage – If you perform this procedure with the power turned on, the equipment might overheat if the controller slot is left open for more than three minutes. To prevent the possibility of overheating, you must insert the controller air blocker into the controller slot when servicing the controller.

Removing the Host Interface Card from the ST2500 M2 array module

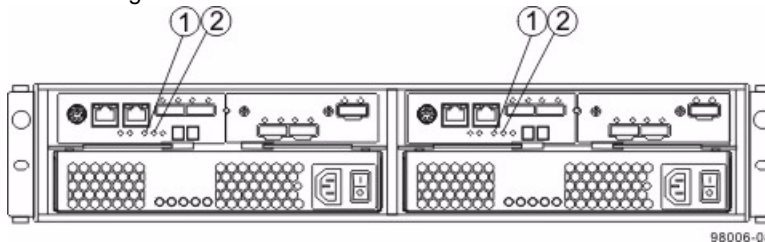
To install a host interface card (HIC) or replace a failed HIC, you must first remove the controller CRU.

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 new storage array profile.
- 2 Did the Recovery Guru direct you to replace a failed I/O host card?
 - **Yes** – Go to step 3.
 - **No** – Run the Recovery Guru to identify the failed component, and go to step 3.
- 3 Put on antistatic protection.
- 4 Locate the controller CRU with the failed HIC by checking the Controller Service Action Required LEDs.

If a fault is detected, the amber Controller Service Action Required LED is on. If you can safely remove the controller CRU, the blue Controller Service Action Allowed LED is on.

Figure 1 ST2500 M2 Controller Service Action LEDs



- 1 Controller Service Action Allowed LED (Blue)
- 2 Controller Service Action Required LED (Amber)

ATTENTION Potential 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 Label each copper cable or fiber-optic cable that is attached to the controller CRU so that you can reconnect each cable correctly after the controller CRU is reinstalled.
- 6 Record the information from the seven-segment display on the rear of the array module.

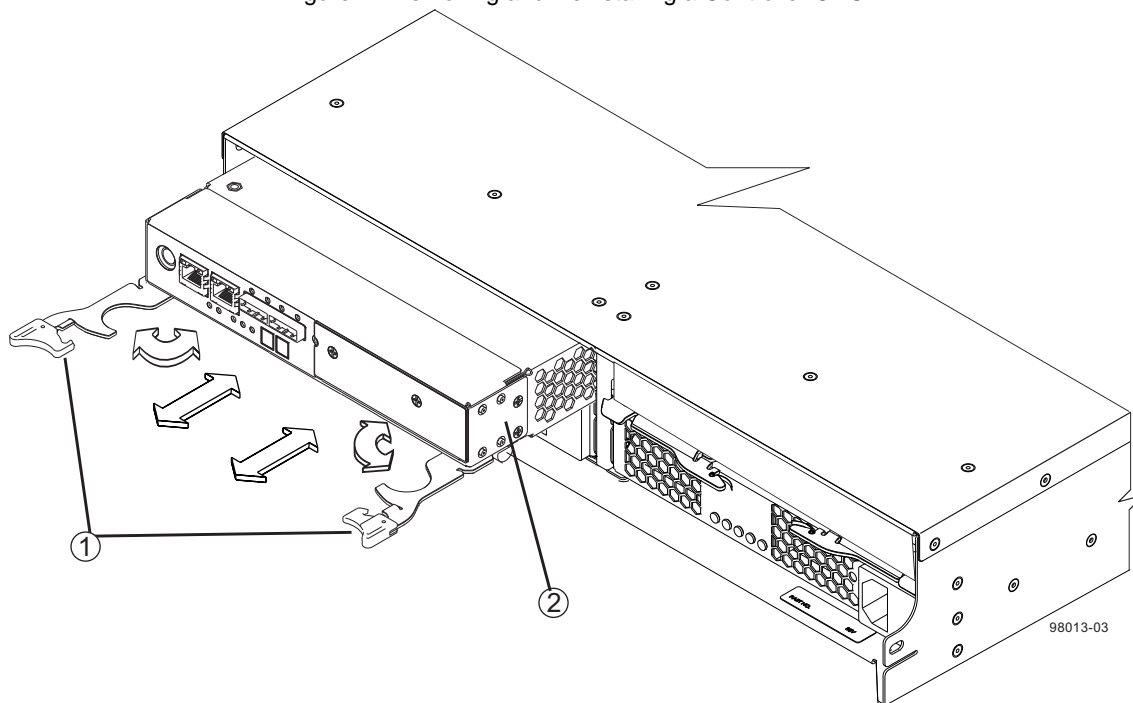
The display flashes a sequence of codes. To find information about the displayed diagnostic codes, refer to the *ST2500 M2 array module Installation* electronic document topics or to the PDF on the SANtricity® ES Storage Manager Installation DVD.

- 7 Take the controller offline, and, if necessary, wait for the Controller Service Action Allowed LED to turn on.
- 8 Disconnect all interface cables and Ethernet cables from the controller CRU that contains the HIC.

If fiber-optic cables are present, you can use the two release levers to partially remove the controller CRU. Opening these release levers makes it easier to press down the fiber-optic cable release tab. If the storage array is running while you perform this replacement, do not disturb the second controller CRU.

- 9 Remove the controller CRU.
 - a Unlock and pull out the release levers to release the controller CRU.
 - b Using the release levers and your hands, pull the controller CRU out of the array module.

Figure 2 Removing and Reinstalling a Controller CRU



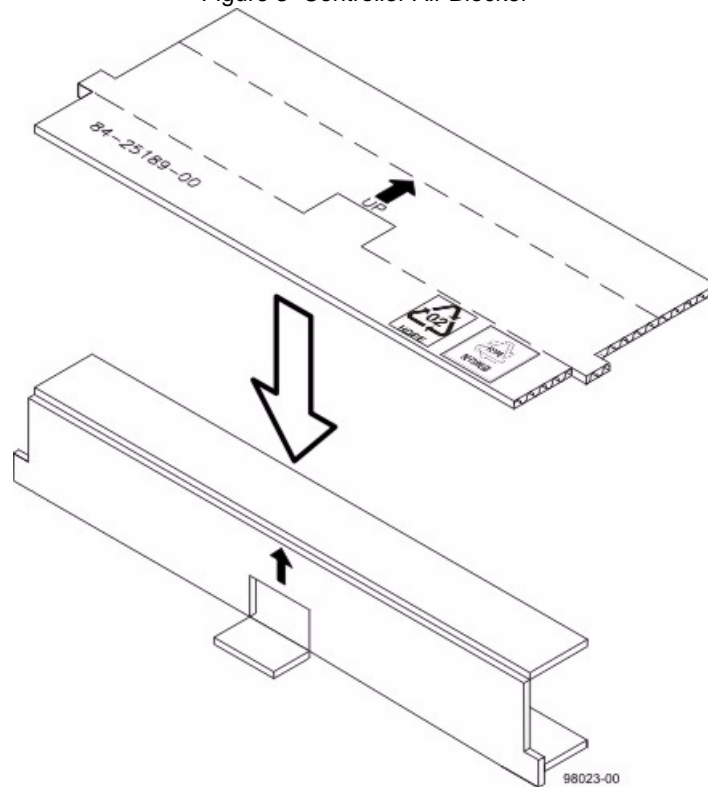
- 1 Release Levers
- 2 Controller CRU

- 10 Set the controller CRU on a flat, static-free surface with the release levers up.

ATTENTION Possible equipment damage – The controller slot cannot remain open for more than three minutes because of the possibility of overheating the equipment. The controller air blocker fills the controller slot so that the equipment will not overheat.

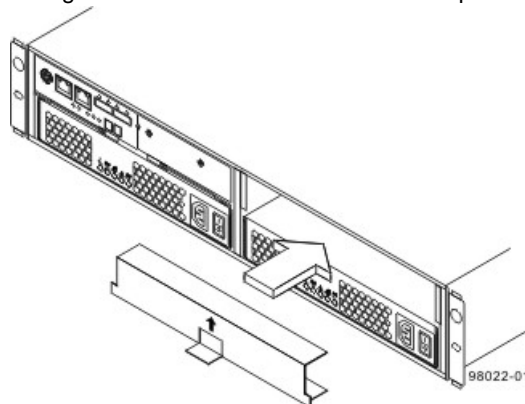
- 11** Prepare the controller air blocker by removing it from its packaging and folding it inward at right angles so it is ready to insert into the open controller slot.

Figure 3 Controller Air Blocker



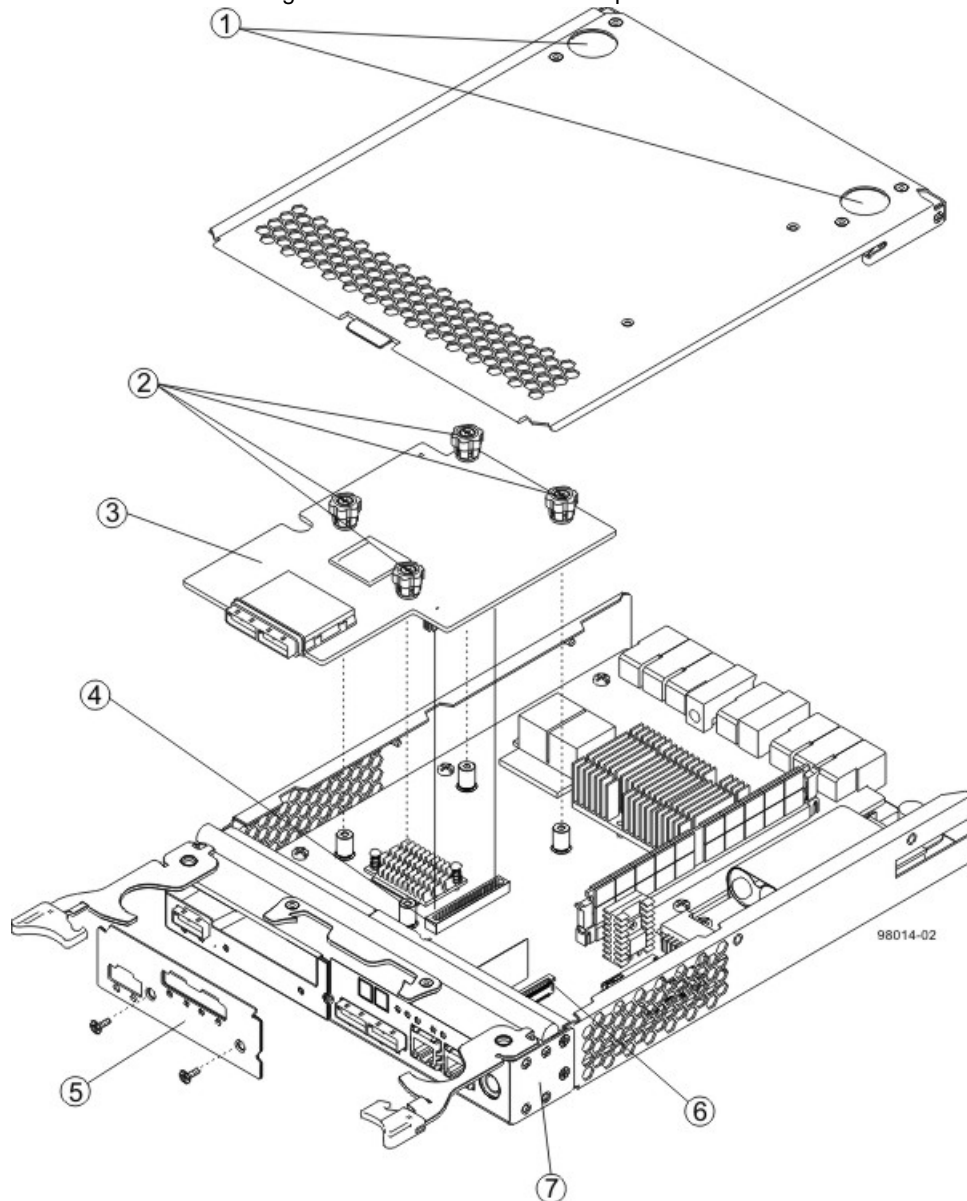
- 12** Insert the controller air blocker into the open controller slot to make sure that correct airflow is maintained.

Figure 4 Inserting the Controller Air Blocker into the Open Controller Slot



- 13** If Small Form-factor Pluggable (SFP) transceivers are present, record the ports to which they are attached, and remove them.
- 14** On the new array module CRU, press down on both of the top cover latch buttons, and slide the top cover to the rear. Remove the top cover.

Figure 5 Host Interface Card Replacement



- 1 Top Cover Latch Buttons
- 2 HIC Thumbscrews
- 3 Host Interface Card
- 4 HIC Interface Connector
- 5 HIC Subplate
- 6 Zero Insertion Force (ZIF) Socket
- 7 Front Bezel

15 Are you replacing the existing HIC with a different type of HIC? For example, are you switching from a SAS HIC to a Fibre Channel HIC?

- **Yes** – Go to step 16.
- **No** – Go to [“Installing the Host Interface Card in the ST2500 M2 array module”](#) on page 6.

- 16 Disconnect the front bezel flex harness by gently opening the zero insertion force (ZIF) socket.

IMPORTANT The ZIF socket is very fragile and is easily broken. Either use your fingers or a screwdriver to gently pry the ZIF socket open.

- 17 Remove the four screws holding the front bezel to the controller CRU.

IMPORTANT The front bezel can suddenly pop loose and cause damage to either the front bezel flex harness or the zero insertion force (ZIF) socket that is attached to the controller card. Make sure that you gently angle the front bezel away from the controller CRU to allow access to the HIC.

- 18 Remove the front bezel from the controller CRU, carefully working it from side-to-side until you can slide it off and gain access to the HIC.

- 19 Loosen the HIC thumbscrews that secure the HIC to the controller card.

- 20 Gently disengage the HIC from the controller card, and remove the HIC.

NOTE The connector is located on the edge of the HIC next to the thumbscrews.

IMPORTANT You must place the HIC in the same location in the new controller CRU, being careful not to scratch or bump any of the components on the bottom of the HIC or the top of the controller card.

- 21 If you are changing the HIC type, remove the HIC subplate.

- 22 Place the HIC that you removed on a static-free surface.

Installing the Host Interface Card in the ST2500 M2 array module

IMPORTANT Make sure you have the correct host interface cards, Small Form-factor Pluggable (SFP) transceivers, and host bus adapters. If you are replacing one host interface card (HIC) with a different type of HIC, you might not be able to reuse the SFP transceivers. For more information, refer to the *Hardware Cabling* electronic document topics or to the PDF on the SANtricity ES Storage Manager Installation DVD.

- 1 Install the new HIC by gently connecting the HIC to the HIC interface connector.
- 2 Install and tighten the four HIC thumbscrews that secure the HIC to the controller card.

IMPORTANT Make sure that the seven-segment display ribbon cable is still connected to the motherboard connector. If the ribbon cable is not connected, you must lift the center piece of the motherboard connector, and insert the ribbon cable into the motherboard connector.

- 3 If you are changing the HIC type, attach the replacement HIC subplate.
- 4 Reattach the front bezel to the controller CRU by reinserting the four screws.
- 5 Reattach the bezel flex harness by gently lifting the latch on the ZIF socket, and inserting the ribbon cable into the ZIF socket. Then push the ZIF socket closed.
- 6 Reinstall the top cover on the controller CRU.
- 7 If the SFP transceivers were present, reinstall them.
- 8 Remove the controller air blocker.
- 9 Slide the controller CRU all the way into the array module. Rotate the release levers towards the center of the controller CRU to lock that component into place.
- 10 Reconnect all of the cables that were disconnected when you removed the controller CRU.

NOTE If a HIC was added where none existed previously or if a different type of HIC was installed, additional system cabling and configuration might be necessary. Refer to the *Hardware Cabling* electronic document topics or to the PDF on the SANtricity ES Storage Manager Installation DVD.

- 11 Look at the LEDs on the controller CRU to make sure that the controller is rebooting correctly.

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

Depending on your version of HIC, you might receive an error message about a failed host I/O card. If this problem occurs, follow the instructions in the Recovery Guru.

- 12 Look at the Controller Service Action Required LED, and look at all of the array module's Service Action Required LEDs. 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 14.
 - **Any of the array module's Service Action Required LEDs is on** – Check that the controller CRU has been installed correctly. Reinstall the controller CRU if necessary. Go to step 13.

NOTE If your storage array does not have an Optimal status, click the **Recovery Guru** toolbar button in the Array Management Window to determine if any other actions are required.

13 Did this action correct the problem?

- **Yes** – Go to step [14](#).
- **No** – If the problem is not resolved, contact your Customer and Technical Support representative.

14 Complete any remaining Recovery Guru procedures, if necessary.

15 Using the LEDs and the storage management software, check the status of all of the modules in the storage array.

16 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 Customer and Technical Support representative.
- **No** – Go to step [17](#).

17 Remove the antistatic protection.

18 Create, save, and print a new storage array profile.

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