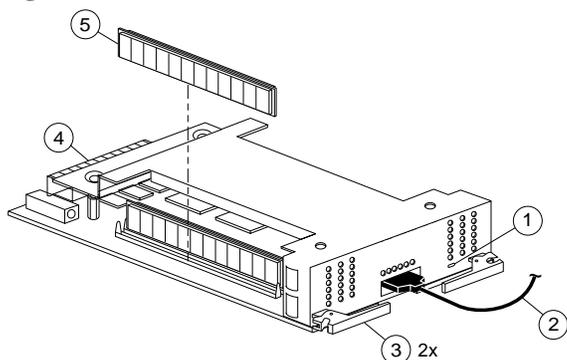


Installing HSZ80 DIMMs

The HSZ80 cache module can contain 64MB (2 x 32MB), 128MB (4 x 32MB), 256MB (2 x 128MB), or 512MB (4 x 128MB) of memory (see Figure 4).

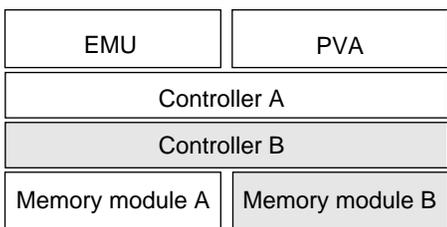
Follow these instructions to replace DIMMs in a single controller or dual-redundant controller configuration.

Figure 1. HSZ80 Cache Module



- 1 Cache-memory power LED
- 2 External cache battery (ECB) cable
- 3 Retaining lever
- 4 Backplane connector
- 5 DIMM

Figure 2. Location of Cache Modules



CXO6283A

Adding and Replacing DIMMs in a Dual-Redundant Controller Configuration

Follow these steps to add or replace DIMMs.

Removing DIMMs in a Dual-Redundant Controller Configuration

Follow these steps to remove DIMMs.

1. Connect a terminal to the operational controller's maintenance port. The controller to which you're connected is "this controller;" the controller whose cache module you're replacing is the "other controller."

2. Disable failover and take the controllers out of their dual-redundant configuration with the following command:

SET NOFAILOVER

3. Start FRUTIL with the following command:

RUN FRUTIL

4. Choose option 1, *Replace or remove a controller or cache module*, from the FRUTIL Main Menu:

FRUTIL Main Menu:

1. Replace or remove a controller or cache module
2. Install a controller or cache module
3. Replace other cache module battery
4. Replace a PVA module
5. Replace an I/O module
6. Set battery life to new
7. Exit

Enter choice: 1, 2, 3, 4, 5, 6, or 7 -> 1

5. Choose option 3, *Other cache module*, from the Replace or Remove Options menu to remove the other cache module:

Replace or remove Options:

1. Other controller and cache module
2. Other controller module
3. Other cache module
4. Exit

Enter choice: 1, 2, 3, or 4 -> 3

6. Confirm that you want to remove the other cache module.

FRUTIL displays the following:

Remove the slot A (or B) cache module? Y/N

7. Type Y(es) and press return.
8. Wait for FRUTIL to quiesce the device ports. After the ports have been quiesced (this may take several minutes), FRUTIL displays the following:
All device ports quiesced.
Remove the slot B cache module within x minutes, xx seconds. Then disconnect the external battery, if in use, from the cache module.

NOTE: A countdown timer allows a total of two minutes to remove the cache module. If you exceed the two minutes, "this controller" will exit FRUTIL and resume operations.

CAUTION: An electrostatic discharge (ESD) can easily damage a cache module. Wear an ESD wrist strap on your wrist, make sure the strap fits snugly, and attach the ESD strap's grounding lead to a verified earth ground.

9. Disengage the two retaining levers and remove the other cache module, then place the cache module onto a grounded antistatic mat.
10. Disable the ECB by pressing the battery disable switch until the status light stops blinking—about five seconds.

CAUTION: The ECB must be disabled—status light not lit or blinking—before disconnecting the ECB cable from the cache module. Failure to do so could result in the cache module being shorted out.

11. Disconnect the external cache battery (ECB) cable from the other cache module.
12. Once the cache module is removed, FRUTIL displays the following:

```
Restarting all device ports. Please wait...
.
.
.
Do you have a replacement cache module? Y/N
```
13. Press down on the DIMM retaining levers at either end of the DIMM you want to remove.
14. Grasp the DIMM and gently remove it from the DIMM slot.

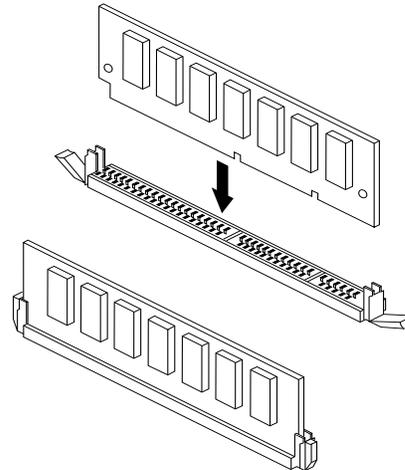
Installing DIMMs in a Dual-Redundant Controller Configuration

Follow these steps to install DIMMs.

1. Insert the DIMM straight into the socket and ensure that the notches in the DIMM align with the tabs in the socket as shown in Figure 3.
2. Press the DIMM gently until it's seated in the socket.
3. Double-check to ensure both ends of the DIMM are firmly seated in the slot and both retaining clips engage the DIMM.

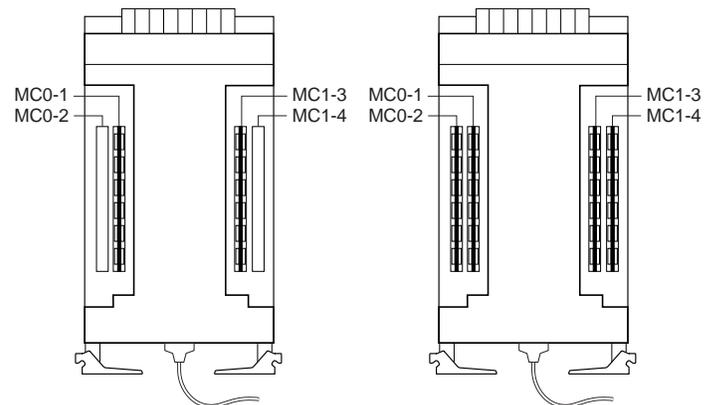
Figure 4 shows the cache-module memory configurations for an HSZ80 array controller.

Figure 3. Inserting a DIMM into Its Slot



CXO6163A

Figure 4. Cache-Module Memory Configurations



64MB configuration (2 x 32 MB)
256 MB configuration (2 x 128 MB)

128 MB configuration (4 x 32 MB)
512 MB configuration (4 x 128 MB)

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Memory	DIMMs	Quantity	Location
64 MB	32 MB	2	MC0-1 and MC1-3
128 MB	32 MB	4	MC0-1, MC0-2, MC1-3, and MC1-4
256 MB	128 MB	2	MC0-1 and MC1-3
512 MB	128 MB	4	MC0-1, MC0-2, MC1-3, and MC1-4

NOTE: If you selected Y(es) in step 12 in the removal procedure—for a continuous removal and installation—go to step 8.

4. Connect a local terminal to the operational controller. The controller to which you're connected is "this controller;" the controller whose cache module you're installing is the "other controller."

5. Start FRUTIL with the following command:
RUN FRUTIL
6. Choose option 2, *Install a controller or cache module*, from the FRUTIL Main Menu:
FRUTIL Main Menu:
 1. Replace or remove a controller or cache module
 2. Install a controller or cache module
 3. Replace other cache module battery
 4. Replace a PVA module
 5. Replace an I/O module
 6. Set battery life to new
 7. Exit
 Enter choice: 1, 2, 3, 4, 5, 6, or 7 -> 2
7. Choose option 3, *Other cache module*, from the Install Options menu to install the other cache module:
Install Options:
 1. Other controller and cache module
 2. Other controller module
 3. Other cache module
 4. Exit
 Enter choice: 1, 2, 3, or 4 -> 3
8. Confirm that you want to install the other cache module. FRUTIL displays the following:
Insert the slot B cache module? Y/N
9. Type Y(es) and press return.
10. Wait for FRUTIL to quiesce the ports. After the ports have been quiesced (this may take several minutes), FRUTIL displays the following:
All device ports quiesced.

NOTE: A countdown timer that allows a total of two minutes to install the cache module. If you exceed the two minutes, “this controller” will exit FRUTIL and resume operations.

CAUTION: An electrostatic discharge (ESD) can easily damage a cache module. Wear an ESD wrist strap on your wrist, make sure the strap fits snugly, and attach the ESD strap's grounding lead to a verified earth ground.

11. If not already done, disable the ECB to which you're connecting the new cache module by pressing the battery disable switch until the status light stops blinking—about five seconds.

CAUTION: The ECB must be disabled—the status light is not lit or is not blinking—before connecting the ECB cable to the cache module. Failure to do so could result in the ECB being shorted out.

12. Connect the ECB cable to the new cache module. Follow the VHDCI Cable Precautions.
13. Insert the cache module into its slot and engage its retaining levers.

14. Enable failover, and re-establish the dual-redundant configuration with the following command:

SET FAILOVER COPY=THIS_CONTROLLER

This command copies the subsystem's configuration from “this controller” to the “other controller.”

Adding and Replacing DIMMs in a Single Controller Configuration

Follow these steps to replace DIMMs.

Removing DIMMs in a Single Controller Configuration

Follow these steps to remove DIMMs.

1. From the host console, dismount the logical units in the subsystem. If you are using a Windows NT platform, shut down the PC.
2. If the controller is operating, connect a terminal to the controller's maintenance port.
3. Run FMU to obtain the last failure codes, if desired.
If the controller is not operating, go to step 5.
4. Shut down the controller with the following command:
SHUTDOWN THIS_CONTROLLER
When the controller shuts down, its reset button and the first three LEDs are lit continuously.
5. Turn off the power to the subsystem.

CAUTION: An electrostatic discharge (ESD) can easily damage a cache module. Wear an ESD wrist strap on your wrist, make sure the strap fits snugly, and attach the ESD strap's grounding lead to a verified earth ground.

6. Disable the ECB by pressing the battery disable switch until the status light stops blinking—about five seconds.

CAUTION: The ECB must be disabled—status light not lit or blinking—before disconnecting the ECB cable from the cache module. Failure to do so could result in the cache module being shorted out.

7. Disconnect the external cache battery (ECB) cable from the cache module.
8. Disengage the two retaining levers, and remove the cache module, and place the cache module onto a grounded antistatic mat.
9. Press down on the DIMM retaining levers at either end of the DIMM you want to remove.
10. Grasp the DIMM and gently remove it from the DIMM slot.

Installing DIMMs in a Single Controller Configuration

Follow these steps to install DIMMs.

1. Insert the DIMM straight into the socket and ensure that the notches in the DIMM align with the tabs in the socket as shown in Figure 3.
2. Press the DIMM gently until it's seated in the socket.
3. Double-check to ensure both ends of the DIMM are firmly seated in the slot and both retaining clips engage the DIMM.

Figure 4 shows the cache-module memory configurations for an HSZ80 array controller.

CAUTION: An electrostatic discharge (ESD) can easily damage a cache module. Wear an ESD wrist strap on your wrist, make sure the strap fits snugly, and attach the ESD strap's grounding lead to a verified earth ground.

Make sure you align the cache module in the appropriate card cage guide rails. If you do not align the modules appropriately, damage to the backplane can occur.

4. Insert the cache module into its slot, and engage its retaining levers.

CAUTION: The ECB must be disabled—the status light is not lit or is not blinking—before connecting the ECB cable to the cache module. Failure to do so could result in the ECB being shorted out.

5. Connect the ECB cable to the cache module. Follow the VHDCI Cable Precautions.
6. If not already connected, connect a terminal to the controller's maintenance port.
7. Restore power to the subsystem. The ECB automatically re-enables itself to provide backup power to the cache module.

The controller will restart with the configuration that resides in its nonvolatile memory.

8. Mount the logical units on the host. (If you are using a Windows NT platform, restart the PC.)
9. Set the subsystem date and time.