

INSTALLING DIMMS IN AN HSG80, HSJ80, OR HSZ80 CACHE MODULE

About This Card

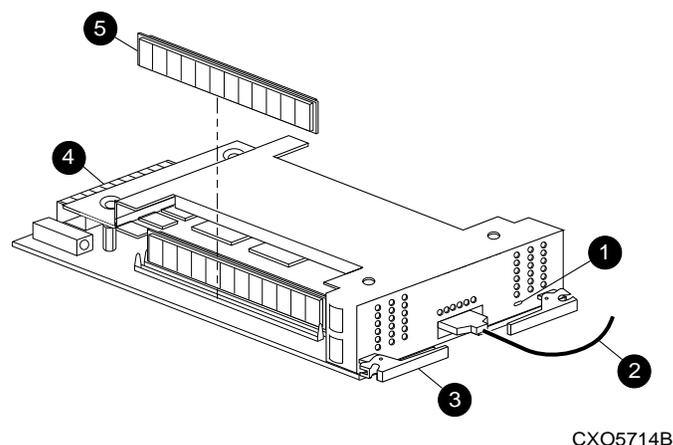
This card contains instructions to replace or upgrade DIMMs in a cache module cache memory in an HSG80 ACS Version 8.x Array Controller, an HSJ80 ACS Version 8.5J Array Controller, or an HSZ80 ACS Version 8.3 Array Controller.

NOTE: For instructions on upgrading a single-controller configuration to a dual-redundant controller configuration, see the appropriate *DIGITAL StorageWorks™ HSG80 Array Controller ACS Version 8.2 User Guide, Compaq™ StorageWorks HSJ80 Array Controller ACS V8.5J Maintenance and Service Guide, Compaq StorageWorks HSG80 Array Controller ACS Version 8.x Maintenance and Service Guide, or Compaq StorageWorks HSZ80 Array Controller ACS Version 8.3 Maintenance and Service Guide.*

General Information

Figure 1, Figure 2, and Figure 3 provide general information about the cache module.

NOTE: In Figure 1, the external cache battery (ECB) Y-cable ② is not used with Model 2200-series enclosures.



- ① Cache memory power LED
- ② ECB Y-cable (not used on the Model 2200 enclosure)
- ③ Retaining lever
- ④ Backplane connector
- ⑤ Dual inline memory module (DIMM)

Figure 1. Cache module

NOTE: In Figure 2, the EMU ① and PVA ② modules only exist in BA370 enclosures. The controller and cache module locations (③ through ⑥) are consistent with other *Compaq StorageWorks* controller enclosures.

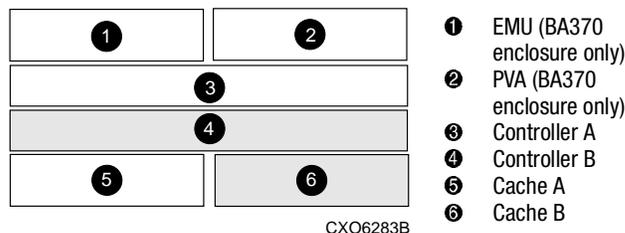


Figure 2. Cache module locations

Open Card Completely Before Beginning Installation Procedures

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- EN 55022 (CISPR 22) *Electromagnetic Interference*
- EN 50082-1 (IEC 801-2, IEC 801-3, IEC 801-4) *Electromagnetic Immunity*
- EN 60950 (IEC 950) *Product Safety*

NOTICE

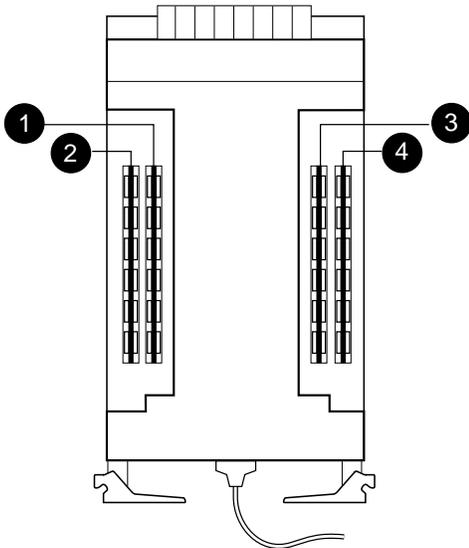
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CXO6576B

Memory	DIMMs	Quantity	Location
64 MB	32 MB	2	① ③
128 MB	32 MB	4	① ② ③ ④
256 MB	128 MB	2	① ③
512 MB	128 MB	4	① ② ③ ④

Figure 3. Cache module memory configurations

NOTE: Regardless of the ACS version, in dual-redundant configurations, both cache modules *must* contain the same memory configuration.

For ACS V8.5J (HSJ80 controller) and ACS V8.5P (HSG80 controller) installations, the *required* cache memory configuration is 512 MB.

IMPORTANT: If subsystem downtime is not crucial, *Compaq* recommends using the following section to replace DIMMs for all ACS versions. Otherwise, follow the ACS-specific procedure for the current controller configuration.

Replacing DIMMs in a Single Controller Configuration or Upgrading Cache Memory

Use this procedure for the following configurations:

- HSG80 ACS Version 8.2 Single Controller
- HSG80 ACS Version 8.3 Single Controller
- HSG80 ACS Version 8.4 Single Controller
- HSG80 ACS Version 8.5 Single Controller
- HSJ80 ACS Version 8.5J Single Controller
- HSZ80 ACS Version 8.3 Single Controller

Use the steps in “Removing DIMMs” and “Installing DIMMs” to replace DIMMs in a cache module. To upgrade cache memory, use step 1 through step 7 in the “Removing DIMMs” section and all of the “Installing DIMMs” section.

CAUTION: Electrostatic discharge (ESD) can easily damage a cache module or a DIMM. Wear a snug-fitting, grounded ESD wrist strap.

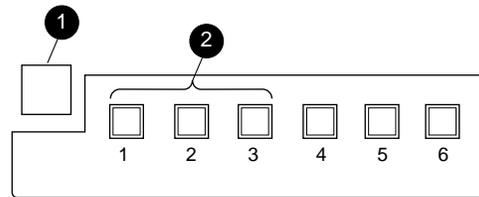
Removing DIMMs

Use the following steps to remove DIMMs from a cache module:

1. From the host console, dismount the logical units in the subsystem. If using a Microsoft Windows NT platform, shut down the server.
2. If the controller is operating, connect a PC or terminal to the controller maintenance port for the failed DIMM cache module. If the controller is not operating, go to step 5.
3. Run the fault management utility (FMU) to obtain the last failure codes, if desired.
4. Shut down “this controller” with the following command:

```
SHUTDOWN THIS_CONTROLLER
```

When the controller shuts down, the reset button ① and the first three light emitting diodes (LEDs) ② turn ON (see Figure 4). It might take several minutes for this indication to appear, depending on the amount of data that needs to be flushed from the cache module.



CXO6991A

Figure 4. Controller reset button and first three LEDs

IMPORTANT: For Model 2200 enclosures, omit step 5 and step 6. The ECB does not contain switches or use ECB Y-cables.

CAUTION: The ECB must be disabled—the status LED is Off—before disconnecting the ECB cable from the cache module. Failure to disable the ECB might damage the cache module.

5. Disable the ECB by pressing the battery disable switch until the status LED stops FLASHING—approximately five seconds.
6. Disconnect the ECB Y-cable from the cache module.
7. Disengage both retaining levers, remove the cache module, and place the cache module on an antistatic bag or a grounded antistatic mat.
8. Press down on the DIMM retaining clips (see Figure 5, ③) at both ends of the DIMM ① being removed.

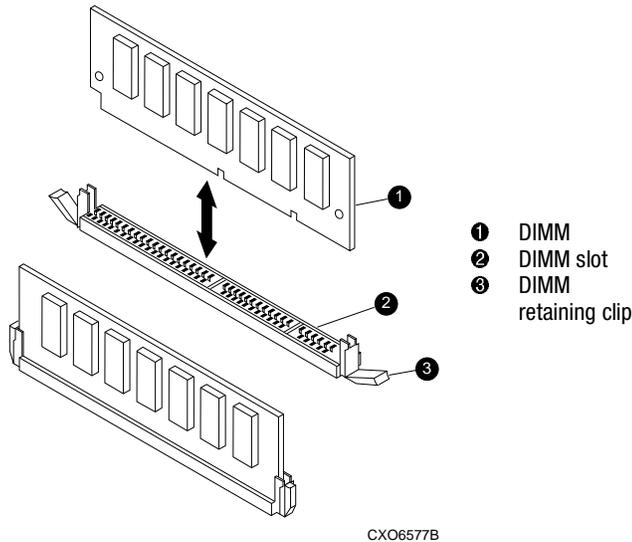


Figure 5. Inserting a DIMM into its slot

9. Gently remove the DIMM from the DIMM slot ② and place it on an antistatic bag or a grounded antistatic mat.
10. Repeat step 8 and step 9 for each DIMM.

Installing DIMMs

Use the following steps to install DIMMs in a cache module:

NOTE: New cache modules arrive without DIMMs installed—the DIMMs are packaged separately. Unpack the DIMMs and install them into the cache module as required.

Both cache modules must contain the same memory configuration. Use Figure 3 for valid cache module memory configurations.

For ACS V8.5J (HSJ80 controller) and ACS V8.5P (HSG80 controller) installations, the *required* cache memory configuration is 512 MB.

1. Insert each DIMM (see Figure 5, ①) straight into the appropriate slot ② of the cache module (see Figure 3), ensuring that the notches in the DIMM align with the tabs in the slot.
2. Press the DIMM gently into the slot until seated at both ends.
3. Engage two retaining clips ③ for the DIMM.
4. Double-check to make sure both ends of the DIMM are firmly seated in the slot and both retaining levers engage the DIMM.
5. Repeat step 1 through step 4 for each DIMM.
6. Insert the cache module into its bay and engage its retaining levers.

IMPORTANT: For Model 2200 enclosures, omit step 7 and step 8. The ECB does not contain switches or use ECB Y-cables.

CAUTION: The ECB must be disabled—the status LED is OFF—before disconnecting the ECB cable from the cache module. Failure to disable the ECB might damage the cache module.

7. Disable the ECB by pressing the battery disable switch until the status LED stops FLASHING—approximately five seconds.
8. Connect the ECB Y-cable to the cache module.
9. If not already connected, connect a PC or terminal to the controller maintenance port.

10. Restart the controller by pressing its reset button.
11. When the CLI prompt reappears, display details about the configured controller using the following command:


```
SHOW THIS_CONTROLLER FULL
```
12. Mount the logical units on the host. If using a Windows NT platform, restart the server.
13. Set the subsystem date and time using the following command in its entirety:


```
SET THIS_CONTROLLER TIME=dd-mmm-yyyy:hh:mm:ss
```
14. Disconnect the PC or terminal from the controller maintenance port.

Replacing DIMMs in Dual Controller Configurations

Use this procedure for the following configurations:

- HSG80 ACS Version 8.2 Dual-Redundant Controller
- HSG80 ACS Version 8.3 Dual-Redundant Controller
- HSG80 ACS Version 8.4 Dual-Redundant Controller
- HSG80 ACS Version 8.5 Dual-Redundant Controller
- HSJ80 ACS Version 8.5 Dual-Redundant Controller
- HSZ80 ACS Version 8.3 Dual-Redundant Controller

Use the steps in “Removing DIMMs” and “Installing DIMMs” to replace DIMMs in a cache module.

CAUTION: ESD can easily damage a cache module or a DIMM. Wear a snug-fitting, grounded ESD wrist strap.

NOTE: Both cache modules *must* contain the same memory configuration.

Removing DIMMs

Use the following steps to remove DIMMs from a cache module:

1. Connect a PC or terminal to the maintenance port of the operational controller.

The controller connected to becomes “this controller”; the controller for the cache module being removed becomes 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. If a replace the cache battery question appears, enter N(o).
5. Enter option 1, *Replace or remove a controller or cache module*, from the FRUTIL Main menu.
6. Enter option 3, *Other cache module*, from the Replace or Remove Options menu to remove the other cache module.
7. Enter Y(es) to confirm the intent to remove the other cache module.

 **CAUTION:** Wait for FRUTIL to quiesce the device ports before removing the cache module. Failure to allow the ports to quiesce might result in data loss. Quiescing might take several minutes.

The ECB must be disabled—the status LED is Off—before disconnecting the ECB cable from the cache module. Failure to disable the ECB might result in cache module damage.

NOTE: A countdown timer allows a total of two minutes to remove the cache module. After two minutes, “this controller” will exit FRUTIL and resume operations. If this happens, return to step 3 and proceed.

8. Follow on-screen instructions to remove the cache module.
9. Place the cache module on an antistatic bag or a grounded antistatic mat.
10. Enter **N(o)** to the question for a replacement cache module.
FRUTIL will exit.
11. Press down on the DIMM retaining clips (see Figure 5, ) at both ends of the DIMM  being removed.
12. Gently remove the DIMM from the DIMM slot  and place it on an antistatic bag or a grounded antistatic mat.
13. Repeat step 11 and step 12 for each DIMM.

Installing DIMMs

Use the following steps to install DIMMs in a cache module.

NOTE: New cache modules arrive without DIMMs installed—the DIMMs are packaged separately. Unpack the DIMMs and install them into the cache module as required.

Both cache modules must contain the same memory configuration. Use Figure 3 for valid cache module memory configurations.

For ACS V8.5J (HSJ80 controller) and ACS V8.5P (HSG80 controller) installations, the *required* cache memory configuration is 512 MB.

1. Insert each DIMM (see Figure 5, ) straight into the appropriate slot  of the cache module (see Figure 3), ensuring that the notches in the DIMM align with the tabs in the slot.
2. Press the DIMM gently into the slot until seated at both ends.
3. Engage two retaining clips  for the DIMM.
4. Double-check to make sure both ends of the DIMM are firmly seated in the slot and both retaining levers engage the DIMM.
5. Repeat step 1 through step 4 for each DIMM.
6. If not already connected, connect a PC or terminal to the operational controller.
The controller connected to becomes “this controller;” the controller for the cache module being installed becomes the “other controller.”
7. Start FRUTIL with the following command:
RUN FRUTIL
8. If a replace the cache battery question appears, enter **N(o)**.
9. Enter option **2**, *Install a controller or cache module*, from the FRUTIL Main menu.
10. Enter option **3**, *Other cache module*, from the Install Options menu to install the other cache module.
11. Enter **Y(es)** to confirm the intent to install the other cache module.

IMPORTANT: Wait for FRUTIL to quiesce the ports. This might take several minutes.

 **CAUTION:** The ECB must be disabled—the status LED is Off—before disconnecting the ECB cable from the cache module. Failure to disable the ECB might damage the cache module.

Carefully align the cache module in the appropriate guide rails. Misalignment might damage the backplane.

NOTE: A countdown timer allows a total of two minutes to install the cache module. After two minutes, “this controller” will exit FRUTIL and resume operations. If this happens, return to step 7 and proceed.

12. Follow on-screen instructions to install the cache module and to restart the “other controller.”
13. Enable failover and re-establish the dual-redundant configuration with the following command:
SET FAILOVER COPY=THIS_CONTROLLER
This command copies the subsystem configuration from “this controller” to the “other controller.”
14. If desired, verify the failover configuration with the following command:
SHOW THIS_CONTROLLER FULL
15. Disconnect the PC or terminal from the controller maintenance port.

This completes the hardware installation.