

INSTALLING AN EXTERNAL CACHE BATTERY (ECB)

About This Card

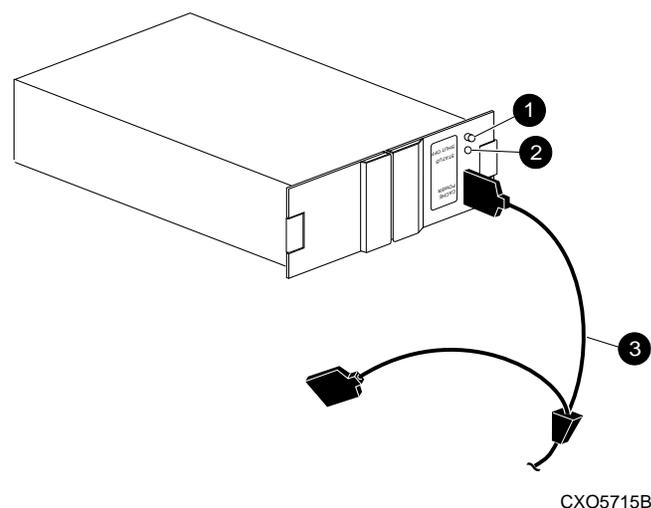
The HSZ70, the HSG80, the HSJ80, and the HSZ80 use the same ECB. This document contains instructions to replace an ECB in an HSZ70 HSOF Version 7.x Array Controller, an HSG80 ACS Version 8.x Array Controller, an HSJ80 ACS Version 8.5J Array Controller, and an HSZ80 ACS Version 8.3 Array Controller.

NOTE: For instructions on upgrading a single-controller configuration to a dual-redundant controller configuration, see the appropriate *DIGITAL StorageWorks™ HSZ70 Array Controller HSOF Version 7.x Service Manual*, *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 ACS Version 8.3 Maintenance and Service Guide*.

General Information

The type of ECB used depends upon the controller enclosure type.

Figure 1 and Figure 2 provide general information about the cache modules used with many *Compaq StorageWorks* controller enclosures.



- ❶ Battery disable switch
- ❷ Status LED
- ❸ ECB Y-cable

Figure 1. Single ECB for single-controller configurations

Open Card Completely Before Beginning Installation Procedures

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23 EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- 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

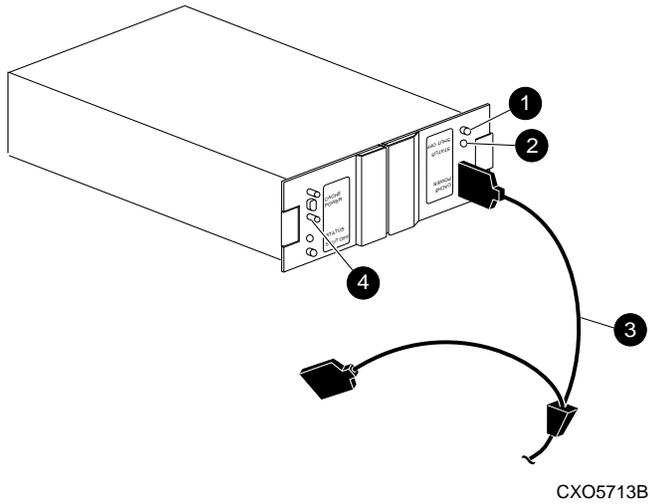
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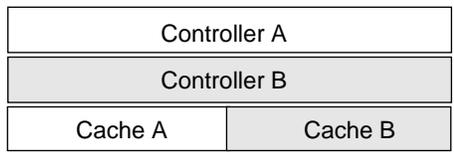
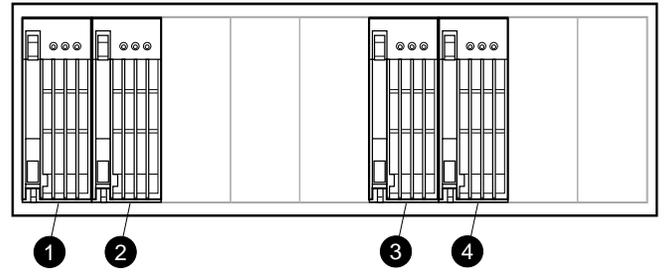
INSTALLING AN EXTERNAL CACHE BATTERY (ECB)



- ❶ Battery disable switch
- ❷ Status LED
- ❸ ECB Y-cable
- ❹ Faceplate and controls for second battery

Figure 2. Dual ECB for dual-redundant controller configurations

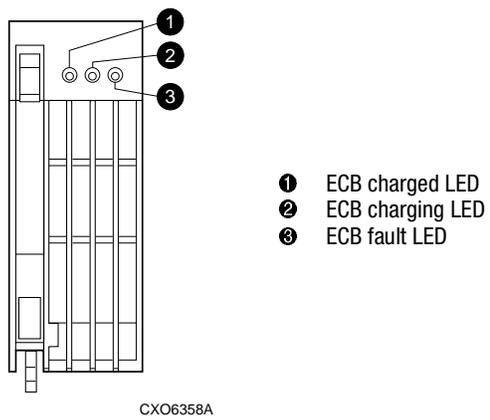
Model 2200 controller enclosures use a different type of ECB that does not require an ECB Y-cable (see Figure 3) and contain four ECB bays. Two ECB bays support cache module A (A1 and A2) and two bays support cache module B (B1 and B2)—see this relationship in Figure 4.



- ❶ B1 supports cache B
- ❷ B2 supports cache B
- ❸ A2 supports cache A
- ❹ A1 supports cache A

Figure 4. ECB and cache module locations in a Model 2200 enclosure

IMPORTANT: When replacing an ECB (see Figure 5), match the vacant ECB bay with the cache module it supports. This bay will always be next to the failed ECB.



- ❶ ECB charged LED
- ❷ ECB charging LED
- ❸ ECB fault LED

Figure 3. ECB status LEDs

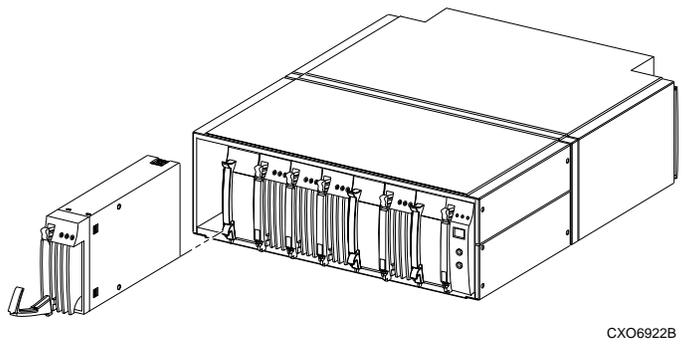


Figure 5. Removing an ECB that supports cache module B in a Model 2200 enclosure

HSZ70 Single Controller Configurations

Only use this procedure for the following configuration:

■ HSZ70 HSOF Version 7.x Single Controller

Use the following steps and Figure 1 or Figure 2 to replace an ECB:

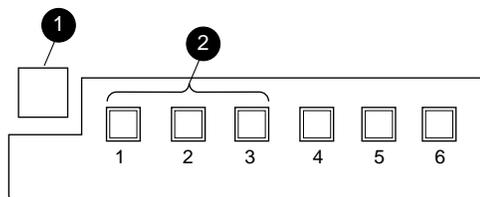
1. If a controller is operating, connect a PC or terminal to the controller maintenance port supporting the old ECB cache module.

If the controller is not operating, go to step 3.

2. Shut down “this controller” with the following command:

```
SHUTDOWN THIS_CONTROLLER
```

When the controller shuts down, the reset button ❶ and the first three LEDs ❷ turn ON (see Figure 6). 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 6. Controller reset button and first three LEDs

3. Turn OFF subsystem power.

NOTE: If an empty bay is not available, place the replacement ECB on top of the enclosure.

4. Insert the replacement ECB into its bay or near the ECB being removed.

CAUTION: The ECB Y-cable has a 12-volt and a 5-volt pin. Improper handling or misalignment when connecting or disconnecting could cause these pins to contact ground, resulting in cache module damage.

5. Connect the open end of the ECB Y-cable to the replacement ECB.

6. Turn ON subsystem power.

The controller automatically restarts.

CAUTION: DO NOT disconnect the old ECB Y-cable until the replacement ECB is fully charged. If the replacement ECB status LED is:

- ON, the ECB is fully charged.
- FLASHING, the ECB is charging.

The subsystem can operate regardless of the old ECB status, but do not disconnect the old ECB until the replacement ECB is fully charged.

7. Once the replacement ECB status LED turns ON, disconnect the ECB Y-cable from the old ECB.
8. Remove the old ECB and place it in an antistatic bag or on a grounded antistatic mat.
9. If the replacement ECB was not placed in an available bay, insert the ECB into the vacant bay of the old ECB.
10. If a PC or terminal cable was connected in step 1, disconnect it from the controller maintenance port.

HSZ70 Dual Controller Configurations

Only use this procedure for the following configuration:

■ HSZ70 HSOF Version 7.x Dual-Redundant Controller

Use the following steps and Figure 1 or Figure 2 to replace an ECB:

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

The controller connected to becomes “this controller;” the controller for the ECB 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. Choose option 3, *Replace other cache module battery*.
5. Follow on-screen instructions to confirm ECB replacement.

NOTE: If an empty bay is not available, place the replacement ECB on top of the cabinet or enclosure until the defective ECB is removed.

6. Insert the replacement ECB into its bay or near the ECB being removed.

CAUTION: DO NOT disconnect the old ECB until the replacement ECB is fully charged. If the replacement ECB status LED is:

- ON, the ECB is fully charged.
- FLASHING, the ECB is charging.

The subsystem can operate regardless of the old ECB status, but do not disconnect the old ECB until the replacement ECB is fully charged.

The ECB Y-cable has a 12-volt and a 5-volt pin. Improper handling or misalignment when connecting or disconnecting could cause these pins to contact ground, resulting in cache module damage.

7. Follow on-screen instructions to connect the replacement ECB.
8. Follow on-screen instructions to restart the “other controller.”
9. 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.”

10. If desired, verify the failover configuration with the following command:

```
SHOW THIS_CONTROLLER FULL
```

11. Once the replacement ECB status LED turns ON, disconnect the ECB Y-cable from the old ECB.

12. For dual ECB replacement:

- If the other cache module is also to be connected to the new dual ECB, connect the PC or terminal to the “other controller” maintenance port.

The connected controller now becomes “this controller.”

- Repeat step 2 through step 11.

13. Place the old ECB in an antistatic bag or on a grounded antistatic mat.
14. Disconnect the PC or terminal from the controller maintenance port.

HSG80, HSJ80 and HSZ80 Controller Configurations

Use this procedure for the following configurations:

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

Use the following steps and Figure 1 through Figure 5, as appropriate, to replace an ECB:

1. Connect a PC or terminal to the maintenance port of the controller with the defective ECB.

The controller connected to becomes “this controller.”

2. For Model 2200 enclosures, enter the following command to verify that system time is set:

```
SHOW THIS_CONTROLLER FULL
```

If system time is not set or current, enter the current time using the following command:

```
SET THIS_CONTROLLER TIME=dd-mmm-yyyy:hh:mm:ss
```

IMPORTANT: An internal clock monitors the life of the ECB battery. This clock must be reset after replacing an ECB.

3. Start FRUTIL with the following command:

```
RUN FRUTIL
```

4. For Model 2200 enclosures:

- a) Follow on-screen instructions to replace the ECB.

 **CAUTION:** Make sure to install the replacement ECB in a bay that supports the same cache module as the current ECB being removed (see Figure 4).

Remove the blank bezel from this replacement bay and reinstall the blank bezel in the bay vacated by the current ECB. Failure to reinstall the blank bezel might cause an overtemperature condition and damage the enclosure.

NOTE: Install a Battery Service Label on the replacement ECB prior to installing it in the enclosure. This label indicates the installation date (MM/YY) for the replacement ECB.

- b) Install a Battery Service Label on the replacement ECB as described by the *Compaq StorageWorks ECB Battery Service Label Placement* installation card.
- c) Remove the blank bezel from the appropriate bay and install the replacement ECB.

IMPORTANT: Do not remove the old ECB until the ECB charged LED on the replacement ECB turns On (see Figure 3, .

- d) Remove the old ECB and install the blank bezel in this bay.

5. For other enclosures:

- a) Follow on-screen instructions concerning availability and replacement questions for the ECB.

NOTE: If an empty bay is not available, place the replacement ECB on top of the enclosure or at the bottom of the rack.

- b) Insert the replacement ECB into its bay or near the ECB being removed.
- c) Follow on-screen instructions to connect the ECB.
- d) Disconnect the ECB Y-cable from the old ECB and press **Enter/Return**.

IMPORTANT: Wait for FRUTIL to terminate.

- e) For single ECB replacement:

- 1) Remove the old ECB and place it in an antistatic bag or on a grounded antistatic mat.
- 2) If the replacement ECB was not placed within an available bay, install the ECB into the vacant bay of the old ECB.

6. For dual ECB replacement:

- 1) If the other cache module is also to be connected to the new dual ECB, connect the PC or terminal to the “other controller” maintenance port.
- 2) The connected controller now becomes “this controller.”
- 3) Repeat step 3 through step 5.

7. Disconnect the PC or terminal from the controller maintenance port.

This completes the hardware installation.