

# Compaq StorageWorks

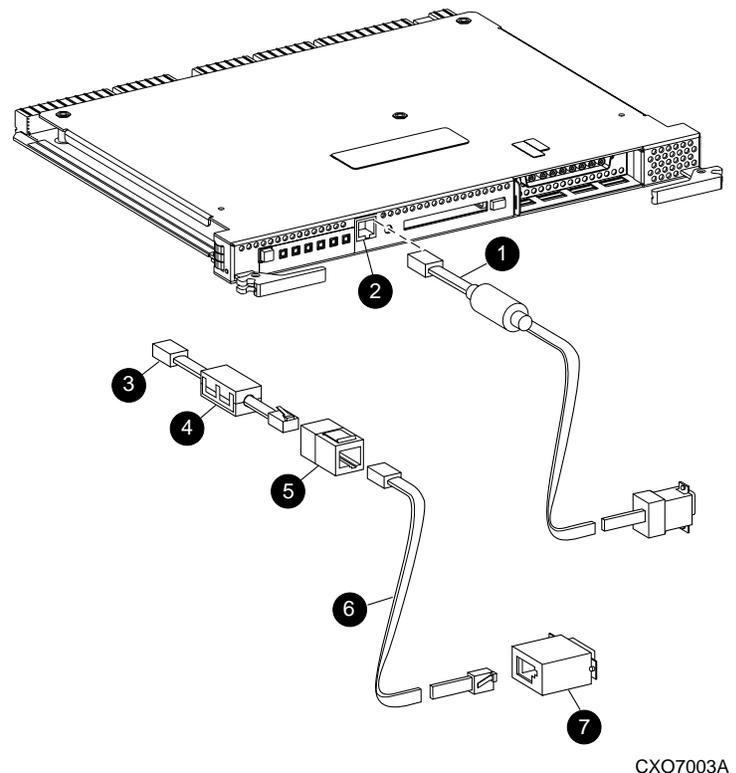
## REMOVING AND INSTALLING AN HSJ80 ARRAY CONTROLLER

### About This Card

Follow these instructions to replace an HSJ80 ACS Version 8.5J Array Controller. See the *Compaq StorageWorks HSJ80 Array Controller ACS V8.5J Maintenance and Service Guide* for instructions on upgrading a single-controller configuration to a dual-redundant controller configuration.

### General Information

Figure 1, Figure 2, and Figure 3 provide general information about the serial maintenance connections and host cable connections for the HSJ80 Array Controller.



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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*

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### INSTALLING AN HSJ80 ARRAY CONTROLLER

First Edition (December 1999)  
Part Number 163139-001  
EK-HSJAM-IA. A01

Compaq Computer Corporation



\* 1 6 3 1 3 9 - 0 0 1 \*

- 1 PC to serial maintenance port cable
- 2 Serial maintenance port
- 3 Serial terminal to serial maintenance port cable (BC16E-xx)
- 4 Ferrite bead
- 5 RJ-11 adapter
- 6 RJ-11 extension cable
- 7 PC serial port adapter, 9 pin D-sub to 25 pin D-sub

Figure 1. HSJ80 array controller

## Single HSJ80 Controller Configurations

Use the steps in “Removing a Controller” and “Installing a Controller” to replace an HSJ80 Array Controller. See the applicable array controller figure (1, 2, or 3) for clarification during the procedure.



**CAUTION:** ESD can easily damage an array controller. Wear a snug-fitting, grounded ESD wrist strap.

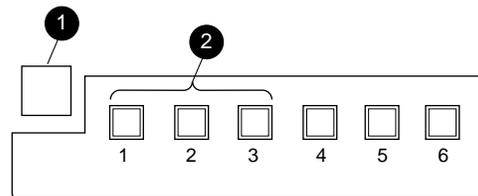
## Removing a Controller

Use the following steps to remove a controller:

1. If the controller is operating, connect a PC or terminal to the operational controller maintenance port.  
If the controller is not operating, go to step 5.
2. From the host console, dismount the logical units in the subsystem.
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 ❶ and the first three LEDs ❷ are lit continuously (see Figure 4). Receiving this indication can take several minutes, 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



**CAUTION:** The cache module might contain unwritten data if the controller crashes and the controller cannot be shut down with the SHUTDOWN THIS\_CONTROLLER command.

5. Remove the program card ESD cover and the program card.  
Save them in a static-free place for the replacement controller.
6. Disconnect the internal CI cables from the controller host port.
7. If connected to the operational controller, disconnect the PC or terminal from the controller maintenance port.
8. Disengage both retaining levers, remove the controller, and place it into an antistatic bag or on a grounded antistatic mat.

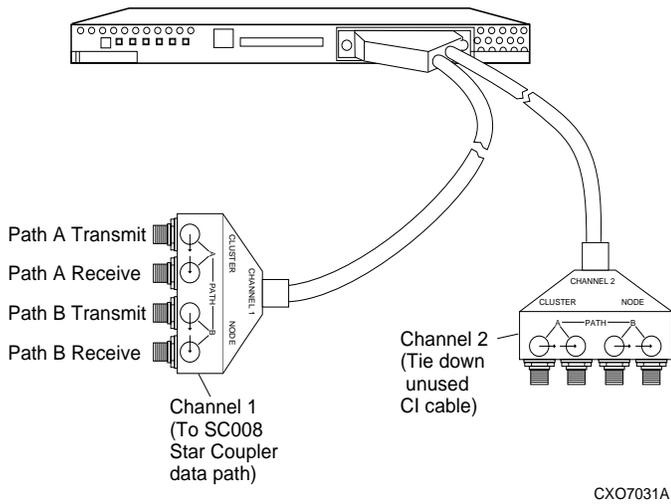


Figure 2. Single HSJ80 with dual host port internal CI cable

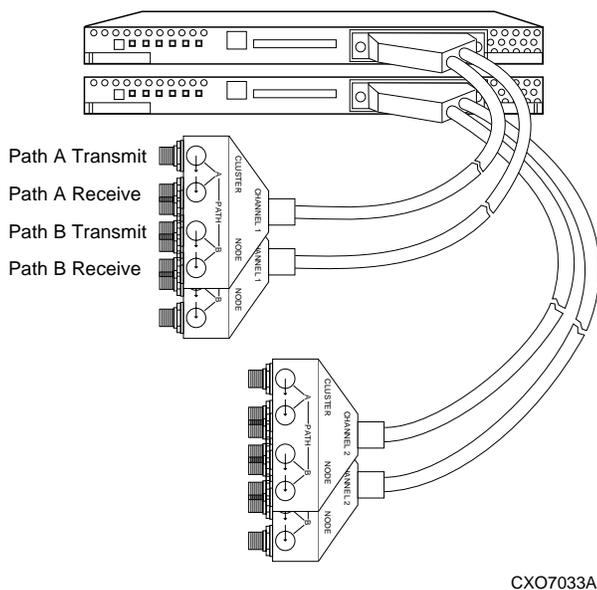


Figure 3. Dual HSJ80 with dual host port internal CI cables

## Installing a Controller

Use the following steps to install a controller:

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**CAUTION:** Carefully align the controller in the appropriate guide rails. Misalignment might damage the backplane.

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**IMPORTANT:** Ensure the program card is not installed in the replacement controller.

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1. Insert the controller into its bay and engage its retaining levers.
2. Connect a PC or terminal to the replacement controller maintenance port.
3. Press and hold the reset button while inserting the program card into the replacement controller.
4. Release the reset button and replace the program card ESD cover.
5. When the CLI prompt reappears, display details about the configured controller using the following command:  

```
SHOW THIS_CONTROLLER FULL
```
6. Configure the controller as described in the *Compaq StorageWorks HSJ80 Array Controller ACS Version 8.5J Configuration Procedures Guide*.

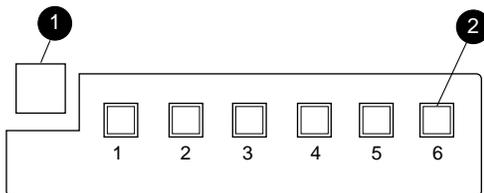
**NOTE:** If the controller being installed was previously used in another subsystem, it will need to be purged of the old configuration (see CONFIG RESET in the *StorageWorks HSJ80 Array Controller ACS Version 8.5J CLI Reference Guide*).

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**IMPORTANT:** In the following step, hold these buttons until the Port Buttons start FLASHING, before releasing the two buttons. This sequence causes a SAVE\_CONFIGURATION or CONFIGURATION RESTORE to occur.

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7. Restore the configuration by pressing and holding Port Button #6 **2** and then press and hold the RESET button **1** until the port buttons start FLASHING (see Figure 5).



CXO6216C

Figure 5. Reset and Port 6 Buttons

8. Release the two buttons to initiate configuration activity.
9. Use the code-load/code-patch utility (CLCP) described in the *Compaq StorageWorks HSJ80 ACS V8.5J Maintenance and Service Guide* to install any patches that were installed on the previous controller.
10. Mount the logical units on the host.
11. Set the subsystem date and time. Use the following command in its entirety:  

```
SET THIS_CONTROLLER TIME=dd-mmm-yyyy:hh:mm:ss
```
12. Disconnect the PC or terminal from the controller maintenance port.
13. Connect the host bus cable to the controller.

## Dual HSJ80 Array Controller Configurations

Use the steps in “Removing a Controller” and “Installing a Controller” to replace an HSJ80 controller.

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**CAUTION:** ESD can easily damage an array controller. Wear a snug-fitting, grounded ESD wrist strap.

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## Removing a Controller

Use the following steps to remove a controller:

1. Connect a PC or terminal to the maintenance port of the operational controller.  
The controller connected to becomes “this controller;” the controller being removed becomes the “other controller.”
2. From the host console, halt all I/O to both controllers by dismounting the logical volumes.
3. Disable failover and take the controllers out of their dual-redundant configuration with the following command:  

```
SET NOFAILOVER
```
4. Start FRUTIL with the following command:  

```
RUN FRUTIL
```
5. If a replace the cache battery question appears, enter **N(o)**.
6. Enter option 1, *Replace or remove a controller or cache module*, from the FRUTIL Main menu.
7. Enter option 2, *Other controller module*, from the Replace or Remove Options menu to remove the “other controller.”
8. Enter **Y(es)** to confirm removing of the “other controller.”  
Wait for FRUTIL to quiesce the device ports. This might take several minutes.

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**CAUTION:** The device ports must quiesce before removing the controller. Failure to allow the ports to quiesce might result in data loss. Quiescing might take several minutes.

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**NOTE:** A countdown timer allows a total of two minutes to remove the controller. After two minutes, “this controller” will exit FRUTIL and resume operations. If this happens, return to step 4 and proceed.

9. Follow on-screen instructions to remove the controller.
10. Disconnect the internal CI cables from the “other controller.”
11. Place the controller into an antistatic bag or on a grounded antistatic mat.
12. Enter **N(o)** if a replacement controller is not available.
  - FRUTIL will exit.
  - Disconnect the PC or terminal from the controller maintenance port.Enter **Y(es)** if a replacement controller is available and is to be installed now and proceed to Step 5 of the next section.

## Installing a Controller

Use the following steps to install a controller.

1. Connect a PC or terminal to the operational controller.  
The controller connected to becomes “this controller”; the controller being installed becomes the “other controller.”
2. Start FRUTIL with the following command:  
RUN FRUTIL
3. If a replace the cache battery question appears, enter N(o).
4. Enter option 2, *Install a controller or cache module*, from the FRUTIL Main menu.
5. Enter Y(es) to confirm installing of the other controller module.  
Wait for FRUTIL to quiesce the ports. This might take several minutes.

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 **CAUTION:** Carefully align the controller in the appropriate guide rails. Misalignment might damage the backplane.

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**NOTE:** A countdown timer allows a total of two minutes to install the controller. After two minutes, “this controller” will exit FRUTIL and resume operations. If this happens, return to step 2 and proceed.

6. Follow on-screen instructions to install and start the controller. FRUTIL informs you in a three step procedure how to restart both controllers. Follow that procedure.
7. Wait for FRUTIL to terminate.
8. Configure the controller as described in the appropriate *StorageWorks HSI80 Array Controller ACS V8.5J Configuration Procedures Guide*.  
**NOTE:** If the controller being installed was previously used in another subsystem, it will need to be purged of the old configuration (see CONFIG RESET in the *Compaq StorageWorks HSGJO Array Controller ACS V8.5J CLI Reference Guide*).
9. 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.”
10. Disconnect the PC or terminal from the controller maintenance port.
11. Reconnect the internal CI cables to the controller host port connector.

***This completes the hardware installation.***