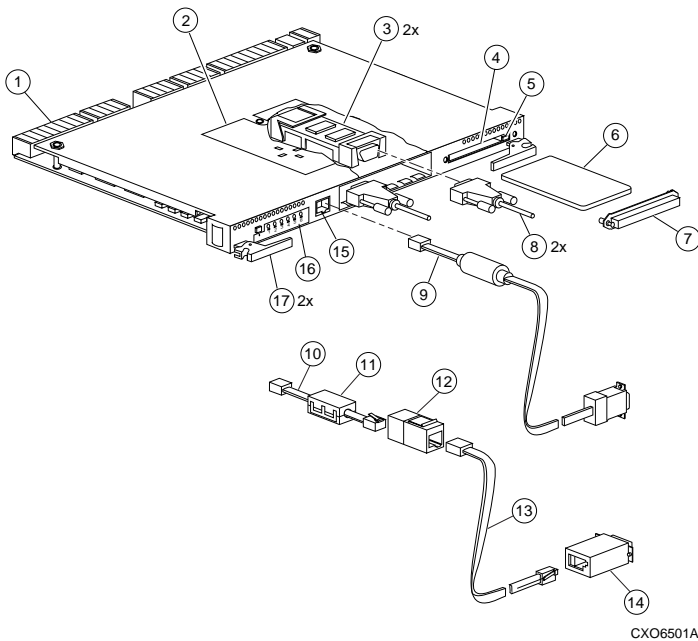
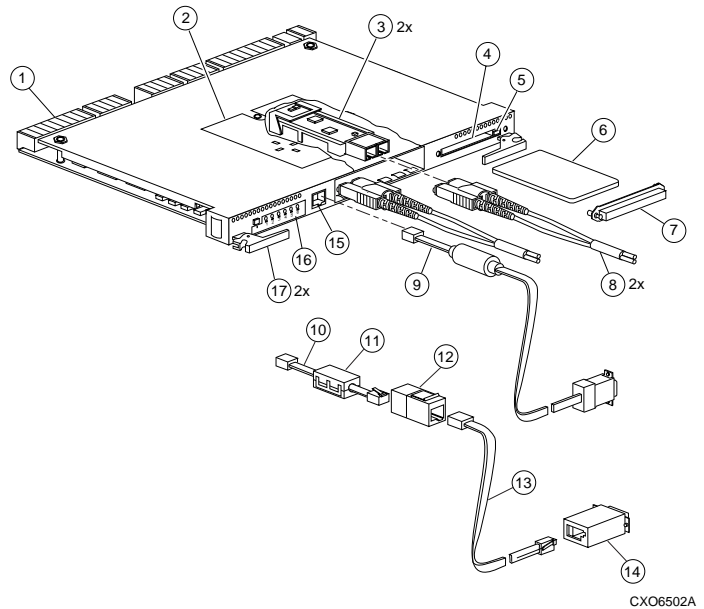


## Installing an HSG80 or HSZ80 Array Controller

Follow these instructions to replace either an HSG80 ACS Version 8.x or an HSZ80 ACS Version 8.x Array Controller. See the appropriate *HSG80 Array Controller ACS Version 8.x User's Guide*, *HSZ80 Array Controller ACS Version 8.x User's Guide*, *HSG80 Array Controller Version 8.x Maintenance and Service Guide*, or *HSZ80 Array Controller ACS Version 8.x Maintenance and Service Guide* for instructions on upgrading a single-controller configuration to a dual-redundant controller configuration.



- 1 Backplane connectors
- 2 Access door
- 3 Copper gigabit link module (GLM)
- 4 Program-card slot
- 5 Program-card ejection button
- 6 Program card
- 7 ESD/PCMCIA card cover
- 8 Fibre Channel copper cables
- 9 Maintenance port cable for a PC
- Optional maintenance port cable for a terminal:
  - 10 BC16E-xx cable assembly
  - 11 Ferrite bead
  - 12 RJ-11 adapter
  - 13 RJ-11 extension cable
  - 14 PC serial port adapter
- 15 Maintenance port
- 16 Operator control panel (OCP)
- 17 Release Lever



- 1 Backplane connectors
- 2 Access door
- 3 Optical gigabit link module (GLM)
- 4 Program-card slot
- 5 Program-card ejection button
- 6 Program card
- 7 ESD/PCMCIA card cover
- 8 Fibre Channel optical cables
- 9 Maintenance port cable for a PC
- Optional maintenance port cable for a terminal:
  - 10 BC16E-xx cable assembly
  - 11 Ferrite bead
  - 12 RJ-11 adapter
  - 13 RJ-11 extension cable
  - 14 PC serial port adapter
- 15 Maintenance port
- 16 Operator control panel (OCP)
- 17 Release Lever

Figure 1. HSG80 Array Controller with Copper GLM

Figure 2. HSG80 Array Controller with Optical GLM

## Replacing a Controller

Use this procedure for the following configurations:

**HSG80 ACS Version 8.x Single Controller**  
**HSG80 ACS Version 8.0 Dual-Redundant Controller**  
**HSZ80 ACS Version 8.x Single Controller**

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

### Removing a Controller

Use the following steps to remove a controller:

1. From the host console, dismount the logical units in the subsystem. If you are using a Windows NT<sup>®</sup> platform, shut down the server.
2. If the controller is operating, connect a PC or terminal to the controller’s maintenance port.  
If the controller is not operating, go to step 5.
3. Run FMU to obtain the last failure codes, if desired.

---

**CAUTION:** The cache module may contain data if the controller crashed and you weren’t able to shut it down with the `SHUTDOWN controller` command.

---

4. Shut down the controllers. In single controller configurations, shut down “this controller.” In dual-redundant controller configurations, shut down the “other controller” first, then shut down “this controller” with the following commands:

```
SHUTDOWN OTHER_CONTROLLER
```

```
SHUTDOWN THIS_CONTROLLER
```

When the controllers shut down, their reset button and the first three LEDs are lit continuously. This may take several minutes, depending on the amount of data that needs to be flushed from the cache modules.

---

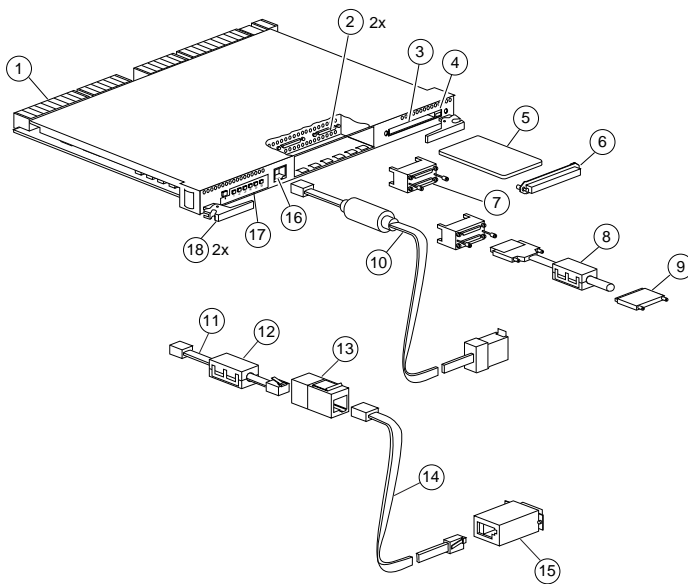
**CAUTION:** Electrostatic discharge (ESD) can easily damage a controller. Wear a snug-fitting, grounded ESD wrist strap.

---

5. Remove the program card’s ESD cover and program card. Save them for the new controller.

**NOTE:** One or two host bus cables [HSG80] or one or two tralink connectors with host bus cables (or terminators) [HSZ80] may be attached, depending on the configuration.

6. Disconnect the host bus cables from the controller [HSG80] using needle nose pliers (see Figure 4), or disconnect the tralink connectors from the controller, but don’t disconnect the host bus cables (or terminators) from the tralink connectors [HSZ80].

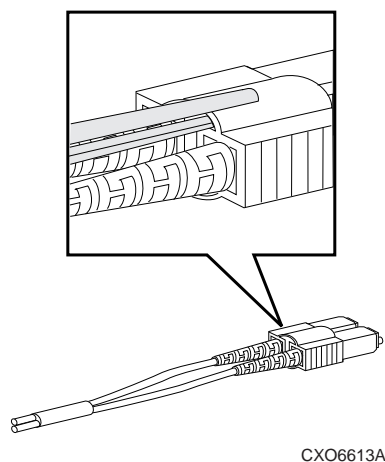


CX06500A

- 1 Backplane connectors
- 2 Host ports
- 3 Program-card slot
- 4 Program-card ejection button
- 5 Program card
- 6 ESD/PCMCIA card cover
- 7 Trilink connector
- 8 Host bus cable with ferrite bead
- 9 SCSI terminator
- 10 Maintenance port cable for a PC  
Optional maintenance port cable for a terminal:
  - 11 BC16E-xx cable assembly
  - 12 Ferrite bead
  - 13 RJ-11 adapter
  - 14 RJ-11 extension cable
  - 15 PC serial port adapter
- 16 Maintenance port
- 17 Operator control panel (OCP)
- 18 Release lever

Figure 3. HSZ80 Array Controller

**NOTE:** The maintenance port cable shipped with the HSG80 and HSZ80 array controller has a 9-pin connector for a PC connection only. If you are using a terminal instead of a PC, you can order the optional maintenance port cable from the local field service office.



**Figure 4. Using Pliers to Remove a Fibre Optic Cable**

7. If connected, disconnect the PC or terminal from the controller's maintenance port.
8. Disengage both retaining levers and remove the controller, then place the controller into an approved antistatic bag or onto a grounded antistatic mat.

### Installing a Controller

Use the following steps to install a new controller:

---

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

Make sure you align the controller in the appropriate guide rails. If you do not align the controller correctly, damage to the backplane can occur.

---

1. Ensure that the program card is not in the new controller and insert the new controller into its slot. Engage its retaining levers.

**NOTE:** One or two host bus cables [HSG80] or one or two tralink connectors with host bus cables (or terminators) [HSZ80] may be attached, depending on the configuration.

2. Connect the host bus cables to the new controller [HSG80], or connect the tralink connectors to the new controller [HSZ80].
3. Connect a PC or terminal to the controller's maintenance port.
4. Hold the reset button while inserting the program card into the new controller. Release and replace the ESD cover.
5. When the CLI prompt reappears, display details about the controller you configured. Use the following command:

**SHOW THIS\_CONTROLLER FULL**

6. Configure the controller as described in the appropriate *HSG80 Array Controller ACS Version 8.x User's Guide* or the *HSZ80 Array Controller ACS Version 8.x User's Guide*.

**NOTE:** If the controller you're installing was previously used in another subsystem, purge its old configuration. See "CONFIGURATION RESET" in the appropriate *HSG80 Array Controller ACS Version 8.x User's Guide* or the *HSZ80 Array Controller ACS Version 8.x User's Guide*.

7. To restore a configuration saved with the SAVE\_CONFIGURATION switch, hold button 6 while releasing the reset button.
8. Using CLCP, install any patches that you had installed on the previous controller as described in the appropriate *HSG80 Array Controller ACS Version 8.x User's Guide* or the *HSZ80 Array Controller ACS Version 8.x User's Guide*.
9. Mount the logical units on the host. If you are using a Windows NT platform, restart the server.
10. Set the subsystem date and time with the following command:  
**SET THIS\_CONTROLLER TIME=dd-mmm-yyyy:hh:mm:ss**
11. Disconnect the PC or terminal from the controller's maintenance port.
12. In a dual-redundant controller configuration, repeat the procedure for the "other controller."

## Replacing a Controller

Use this procedure for the following configuration:

### HSZ80 ACS Version 8.1 Dual-Redundant Controller

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

#### Removing a Controller

Use the following steps to remove a controller:

1. Connect a PC or terminal to the operational controller’s maintenance port. The controller to which you’re connected is “this controller”; the controller that you’re removing is the “other controller.”
2. Disable failover and take the controllers out of their dual-redundant controller configuration with the following command:

**SET NOFAILOVER**

3. Start FRUTIL with the following command:

**RUN FRUTIL**

4. Enter 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. Enter option 2, *Other controller module*, from the Replace or Remove Options menu:

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 -> 2

6. Confirm that you want to remove the “other controller.” FRUTIL displays the following:

Remove the slot A [or B] controller? Y/N

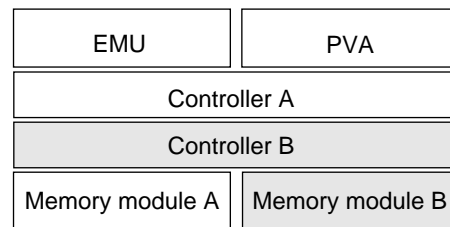
7. Enter Y(es) and press return.

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 A [or B] controller (the one without a blinking green LED)

See Figure 5 for location of the controller.



CXO6283A

**Figure 5. Location of Controllers and Cache Modules**

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

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

9. Remove the ESD cover and program card. Save them for the new controller.
10. Disconnect the trilink connectors from the “other controller” but don’t disconnect the host bus cables (or terminators) from the trilink connectors.

**NOTE:** One or two trilink connectors with host bus cables (or terminators) may be attached, depending on the configuration.

11. Disengage both retaining levers, and remove the “other controller,” and place the controller into an antistatic bag or onto a grounded antistatic mat.
12. Once the controller is removed, FRUTIL displays the following:

Restarting all device ports. Please wait...

.  
. .  
.

Do you have a replacement controller? Y/N

#### Installing a Controller

Use the following steps to install a controller:

**NOTE:** If you entered Y(es) in step 11 in the removal procedure go to step 5.

1. Connect a PC or terminal to the operational controller’s maintenance port. The controller to which you’re connected is “this controller”; the controller that you’re installing is the “other controller.”
2. Start FRUTIL with the following command:

**RUN FRUTIL**

- 
3. Enter 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

4. Enter option 2, *Other controller module*, from the Install Options menu to install the “other controller.”

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 -> 2

5. Confirm that you want to install the “other controller.”

FRUTIL displays the following:

Insert the slot A [or B] controller? Y/N

6. Enter Y(es) and press return.
7. 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.  
Insert the controller module, without its program card, in slot A [or B] within x minutes, xx seconds.

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

---

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

Make sure you align the controller in the appropriate guide rails. If you do not align the controller correctly, damage to the backplane may occur

---

8. Ensure that the program card is not in the new controller and insert the new controller into its slot. Engage its retaining levers.
9. Wait for FRUTIL to terminate.
10. Connect the tralink connectors with host bus cables (or terminators) to the new controller.

**NOTE:** One or two tralink connectors with host bus cables (or terminators) may be attached, depending on the configuration.

11. Hold the reset button while inserting the program card into the new controller. Release the reset button and replace the ESD cover.

**NOTE:** If the controller you’re installing was previously used in another subsystem, purge its old configuration. See “CONFIGURATION RESET” in the appropriate *HSG80 Array Controller ACS Version 8.x User’s Guide* or the *HSZ80 Array Controller ACS Version 8.x User’s Guide*.

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

**SET FAILOVER COPY=THIS\_CONTROLLER**

This command copies the subsystem’s configuration from “this controller” to the new controller.

13. Disconnect the PC or terminal from the controller’s maintenance port.

## Replacing a Controller

Use this procedure for the following configurations:

### HSG80 ACS Version 8.2 Dual-Redundant Controller HSZ80 ACS Version 8.2 Dual-Redundant Controller

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

#### Removing a Controller

Use the following steps to remove a controller:

1. Connect a PC or terminal to the operational controller’s maintenance port. The controller to which you’re connected is “this controller”; the controller that you’re removing is the “other controller.”
2. Disable failover and take the controllers out of their dual-redundant controller configuration with the following command:

```
SET NOFAILOVER
```

3. Start FRUTIL with the following command:

```
RUN FRUTIL
```

FRUTIL displays the following:

```
Do you intend to replace this controller’s cache battery? Y/N
```

4. Enter N(o). FRUTIL displays 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 a PVA module
  4. Replace an I/O module
  5. ExitEnter choice: 1, 2, 3, 4, or 5 ->
5. Enter option 1, *Replace or remove a controller or cache module*, from the FRUTIL Main menu. FRUTIL displays the Replace or Remove Options menu:  
Replace or remove Options:
  1. Other controller and cache module
  2. Other controller module
  3. Other cache module
  4. ExitEnter choice: 1, 2, 3, or 4 ->
6. Enter option 2, *Other controller module*, from the Replace or Remove Options menu. FRUTIL displays the following:

```
Slot Designations
(front view)
[ --- EMU --- ][ --- PVA --- ]
[ ----- Controller A ----- ]
[ ----- Controller B ----- ]
[ Cache Module A ][ Cache Module B ]
```

```
Remove the slot A [or B] controller? Y/N
```

7. Type Y(es) and press return. FRUTIL displays the following:  
Quiescing all device ports. Please wait...  
Device Port 1 quiesced.  
Device Port 2 quiesced.  
Device Port 3 quiesced.  
Device Port 4 quiesced.  
Device Port 5 quiesced.  
Device Port 6 quiesced.  
All device ports quiesced.  
Remove the slot A [or B] controller (the one without a blinking green LED)

See Figure 5 for location of the controller.

---

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

ESD can easily damage a cache module. Wear a snug-fitting, grounded ESD wrist strap on your wrist.

---

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

8. Remove the ESD cover and program card. Save them for the new controller.  
**NOTE:** One or two host bus cables [HSG80] or one or two trilink connectors with host bus cables (or terminators) [HSZ80] may be attached, depending on the configuration.
9. Disconnect the host bus cables from the controller [HSG80] using needle nose pliers (see Figure 4), or disconnect the trilink connectors from the “other controller” but don’t disconnect the host bus cables (or terminators) from the trilink connectors [HSZ80].
10. Disengage both retaining levers, and remove the “other controller,” and place the controller into an antistatic bag or onto a grounded antistatic mat.
11. Once the controller is removed, FRUTIL displays the following:  
Restarting all device ports. Please wait...  
Device Port 1 restarted.  
Device Port 2 restarted.  
Device Port 3 restarted.  
Device Port 4 restarted.  
Device Port 5 restarted.  
Device Port 6 restarted.  
Do you have a replacement controller? Y/N
12. Enter N(o) if you don’t have a replacement controller and disconnect the PC or terminal from the controller’s maintenance port.

Enter Y(es) if you have a replacement controller and want to install it now. FRUTIL displays the following:  
Insert the slot A [or B] controller? Y/N

**NOTE:** If you entered Y(es) go to step 6 in “Installing a Controller.”

---

## Installing a Controller

Follow these steps to install a controller:

1. Connect a PC or terminal to the operational controller's maintenance port. The controller to which you're connected is "this controller"; the controller that you're installing is the "other controller."

2. Start FRUTIL with the following command:

### RUN FRUTIL

FRUTIL displays the following:

```
Do you intend to replace this controller's cache
battery? Y/N
```

3. Enter N(o). FRUTIL displays 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 a PVA module
4. Replace an I/O module
5. Exit

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

4. Enter option 2, *Install a controller or cache module*, from the FRUTIL Main menu. FRUTIL displays the Install Options menu:

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 ->
```

5. Enter option 2, *Other controller module*, from the Install Options menu. FRUTIL displays the following:

```
Insert the slot A [or B] controller? Y/N
```

6. Enter Y(es) and press return. FRUTIL displays the following:

```
Quiescing all device ports. Please wait...
```

```
Device Port 1 quiesced.
```

```
Device Port 2 quiesced.
```

```
Device Port 3 quiesced.
```

```
Device Port 4 quiesced.
```

```
Device Port 5 quiesced.
```

```
Device Port 6 quiesced.
```

```
All device ports quiesced.
```

```
.
```

```
.
```

```
.
```

```
Insert the controller module, without its program
card, in slot A [or B] within x minutes, xx seconds.
```

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

---

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

Make sure you align the controller in the appropriate guide rails. If you do not align the controller correctly, damage to the backplane may occur.

---

7. Ensure that the program card is not in the new controller and insert the new controller into its slot. Engage its retaining levers.

FRUTIL displays the following:

The configuration has two controllers.

To restart the other controller:

1. Type 'restart other\_controller'.
2. Press and hold the reset button while inserting the program card on the slot A [or B] controller, then release the reset button.  
The controller will restart.

Field Replacement Utility terminated.

**NOTE:** If the controller you're installing was previously used in another subsystem, purge its old configuration. See "CONFIGURATION RESET" in the appropriate *HSG80 Array Controller ACS Version 8.x User's Guide* or the *HSZ80 Array Controller ACS Version 8.x User's Guide*.

**NOTE:** One or two host bus cables [HSG80] or one or two tralink connectors with host bus cables (or terminators) [HSZ80] may be attached, depending on the configuration.

8. Wait for FRUTIL to terminate and connect the host bus cables to the new controller [HSG80], or connect the tralink connectors with host bus cables (or terminators) to the new controller [HSZ80].
9. To allow the "other controller" to restart, enter the following command:

### RESTART OTHER \_CONTROLLER

10. Hold the reset button while inserting the program card into the new controller. Release the reset button and replace the ESD cover. The controller will restart.
11. Configure the controller as described in either the *HSG80 Array Controller ACS Version 8.2 User's Guide* or the *HSZ80 Array Controller ACS Version 8.2 User's Guide*.

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

### SET FAILOVER COPY=THIS\_CONTROLLER

This command copies the subsystem's configuration from "this controller" to the new controller.

13. Disconnect the PC or terminal from the controller's maintenance port.

---

## Replacing a Controller

Use this procedure for the following configurations:

### HSG80 ACS Version 8.3 Dual-Redundant Controller HSZ80 ACS Version 8.3 Dual-Redundant Controller

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

#### Removing a Controller

Use the following steps to remove a controller:

1. Connect a PC or terminal to the operational controller’s maintenance port. The controller to which you’re connected is “this controller”; the controller that you’re removing is the “other controller.”

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

```
SET NOFAILOVER
```

3. Remove the program card’s ESD cover and program card. Save them for the replacement controller.

4. Start FRUTIL with the following command:

```
RUN FRUTIL
```

FRUTIL displays the following:

```
Do you intend to replace this controller’s cache battery? Y/N
```

5. Enter N(o). FRUTIL displays 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 a PVA module
4. Replace an I/O module
5. Exit
```

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

6. Enter option 1, *Replace or remove a controller or cache module*, from the FRUTIL Main menu. FRUTIL displays the Replace or Remove Options menu:

```
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 ->
```

7. Enter option 2, *Other controller module*, from the Replace or Remove Options menu. FRUTIL displays the following:

```
Slot Designations
(front view)
```

```
[ --- EMU --- ][ --- PVA --- ]
[ ----- Controller A ----- ]
[ ----- Controller B ----- ]
[ Cache Module A ][ Cache Module B ]
```

```
Remove the slot A [or B] controller? Y/N
```

8. Type Y(es) and press return. FRUTIL displays the following:  
Quiescing all device ports. Please wait...  
Device Port 1 quiesced.  
Device Port 2 quiesced.  
Device Port 3 quiesced.  
Device Port 4 quiesced.  
Device Port 5 quiesced.  
Device Port 6 quiesced.

All device ports quiesced.

Remove the slot A [or B] controller (the one without a blinking green LED) within 2 minutes.

See Figure 5 for location of the controller.

---

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

ESD can easily damage a cache module. Wear a snug-fitting, grounded ESD wrist strap on your wrist.

---

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

**NOTE:** One or two host bus cables [HSG80] or one or two trilink connectors with host bus cables (or terminators) [HSZ80] may be attached, depending on the configuration.

9. Disconnect the host bus cables from the controller [HSG80] using needle nose pliers (see Figure 4), or disconnect the trilink connectors from the “other controller” but don’t disconnect the host bus cables (or terminators) from the trilink connectors [HSZ80].

10. Disengage both retaining levers, and remove the “other controller,” and place the controller into an antistatic bag or onto a grounded antistatic mat.

11. Once the controller is removed, FRUTIL displays the following:

```
Restarting all device ports. Please wait...
```

```
Device Port 1 restarted.
Device Port 2 restarted.
Device Port 3 restarted.
Device Port 4 restarted.
Device Port 5 restarted.
Device Port 6 restarted.
```

```
Do you have a replacement controller? Y/N
```

12. Enter N(o) if you don’t have a replacement controller; FRUTIL will exit. Disconnect the PC or terminal from the controller’s maintenance port.

Enter Y(es) if you have a replacement controller and want to install it now. FRUTIL displays the following:

```
Insert the slot A [or B] controller? Y/N
```

**NOTE:** If you entered Y(es) go to step 6 in the next section, “Installing a Controller.”



---

## Installing a Controller

Follow these steps to install a controller:

1. Connect a PC or terminal to the operational controller's maintenance port. The controller to which you're connected is "this controller"; the controller that you're installing is the "other controller."

2. Start FRUTIL with the following command:

### RUN FRUTIL

FRUTIL displays the following:

```
Do you intend to replace this controller's cache
battery? Y/N
```

3. Enter N(o). FRUTIL displays 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 a PVA module
4. Replace an I/O module
5. Exit

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

4. Enter option 2, *Install a controller or cache module*, from the FRUTIL Main menu. FRUTIL displays the Install Options menu:

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 ->
```

5. Enter option 2, *Other controller module*, from the Install Options menu. FRUTIL displays the following:

```
Insert the slot A [or B] controller? Y/N
```

6. Enter Y(es) and press return. FRUTIL displays the following:

```
Quiescing all device ports. Please wait...
```

```
Device Port 1 quiesced.
```

```
Device Port 2 quiesced.
```

```
Device Port 3 quiesced.
```

```
Device Port 4 quiesced.
```

```
Device Port 5 quiesced.
```

```
Device Port 6 quiesced.
```

```
All device ports quiesced.
```

```
.
```

```
.
```

```
.
```

```
Insert the controller module, without its program
card, in slot A [or B] within x minutes, xx seconds.
```

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

---

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

Make sure you align the controller in the appropriate guide rails. If you do not align the controller correctly, damage to the backplane may occur.

---

7. Ensure that the program card is in the replacement controller and insert the new controller into its slot. Engage its retaining levers. When fully seated, the newly installed controller will boot.

FRUTIL displays the following:

If the other controller did not restart, follow these steps:

1. Press and hold the other controller's reset button.
2. Insert the other controller's program card.
3. Release the reset button.

Press return to continue.

8. Connect the host bus cables to the new controller [HSG80], or connect the triling connectors with host bus cables (or terminators) to the new controller [HSZ80].

**NOTE:** One or two host bus cables [HSG80] or one or two triling connectors with host bus cables (or terminators) [HSZ80] may be attached, depending on the configuration.

9. Press return to continue. FRUTIL will exit. If the other controller did not restart, follow these steps:

- a. Press and hold the other controller's reset button.
- b. Insert the other controller's program card.
- c. Release the reset button.

10. See either the *HSG80 Array Controller ACS Version 8.3 Configuration and CLI Reference Guide* or the *HSZ80 Array Controller ACS Version 8.2 Configuration and CLI Reference Guide* to configure the controller.

**NOTE:** If the controller you're installing was previously used in another subsystem, purge its old configuration. See "CONFIGURATION RESET" in the appropriate *HSG80 Array Controller ACS Version 8.3 Configuration and CLI Reference Guide* or the *HSZ80 Array Controller ACS Version 8.3 Configuration and CLI Reference Guide*.

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

```
SET FAILOVER COPY=THIS_CONTROLLER
```

This command copies the subsystem's configuration from "this controller" to the new controller.

12. Disconnect the PC or terminal from the controller's maintenance port.