Compaq StorageWorks™

REPLACING A GLM IN AN HSG60 OR HSG80 ARRAY CONTROLLER

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

© 2000 Compaq Computer Corporation.

COMPAQ, Compaq logo, and StorageWorks Reg. U.S. Pat. & Tm. Off. Microsoft, Windows, and Windows NT are trademarks of Microsoft Corporation. All other product names mentioned herein may be trademarks of their respective companies.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. THE ENTIRE RISK ARISING OUT OF THE USE OF THIS INFORMATION REMAINS WITH RECIPIENT. IN NO EVENT SHALL COMPAQ BE LIABLE FOR ANY DIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER DAMAGES WHATSOEVER (INCLUDING WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION OR LOSS OF BUSINESS INFORMATION), EVEN IF COMPAQ HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND WHETHER IN AN ACTION OF CONTRACT OR TORT, INCLUDING NEGLIGENCE.

The limited warranties for Compaq products are exclusively set forth in the documentation accompanying such products. Nothing herein should be construed as constituting a further or additional warranty.

REPLACING A GLM IN AN HSG60 OR HSG80 ARRAY CONTROLLER

Second Edition (December 2000)
Part Number: 196746-022
EK–80GLM–IM. B01
Compaq Computer Corporation

* 1 9 6 7 4 6 - 0 2 2 *

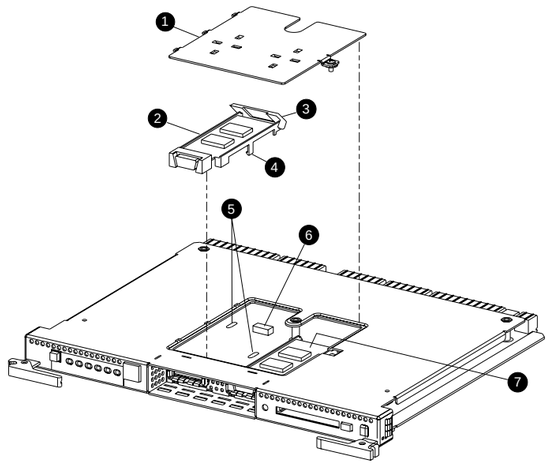
About This Card

This document contains instructions to install a gigabit link module (GLM) in an HSG60 or HSG80 subsystem.

NOTE: For instructions on upgrading a single-controller configuration to a dual-redundant controller configuration, see the appropriate array controller user guide or maintenance and service guide.

General Information

Figure 1 shows the location of GLMs in an HSG60 or HSG80 controller.



❶ Access door
❷ Port 1 GLM
❸ Release lever
❹ Locking tab
❺ Guide holes
❻ GLM connector
❼ Port 2 GLM

Figure 1. Location of GLMs in an HSG60 or HSG80 controller

Single-Controller Configurations

Use the steps in "Removing a GLM" and "Installing a GLM" to replace a GLM.

CAUTION: Static electricity can easily damage a controller or GLM. Wear a snug-fitting, grounded electrostatic discharge (ESD) wrist strap.

Removing a GLM

Use the following steps to remove a GLM:

1. From the host console, stop all host activity to the controllers and dismount the logical units in the subsystem.
2. If using a Microsoft Windows NT or Windows 2000 platform, shut down the server.
3. If the controller is operating, connect a PC or terminal to the controller maintenance port for the failed GLM.

   If the controller is not operating, go to step 6.
4. Run the fault management utility (FMU) to obtain the last failure codes, if desired.
5. Shut down "this controller" with the following command:

   SHUTDOWN THIS_CONTROLLER

   NOTE: After the controller shuts down, the reset button ❶ and the first three light emitting diodes (LEDs) ❷ turn ON (see Figure 2). This might take several minutes to happen, depending on the amount of data that needs to be flushed from the cache module.

   Proceed only after the reset button stops FLASHING and remains ON.

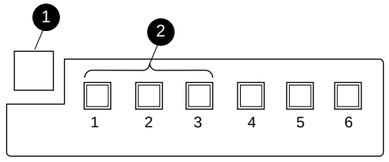


Figure 2. Controller reset button and first three LEDs

6. Disconnect all host bus cables from the controller.

   NOTE: If extender clips are not installed on the optical cables, use thin needle nose pliers to disconnect the cables (see inset on Figure 3).

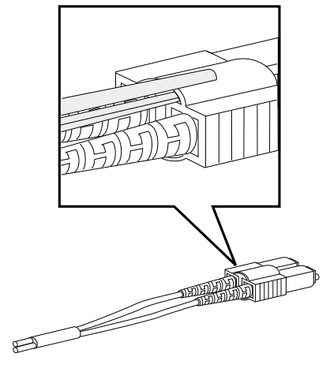


Figure 3. Using thin needle nose pliers to disconnect a fiber optic cable

7. If connected to the operational controller, disconnect the PC or terminal from the controller maintenance port.
8. Disengage both retaining levers and remove the controller containing the failed GLM, then place the controller on an antistatic bag or a grounded antistatic mat.
9. Remove the screw that secures the access door (see Figure 1, ❶) on top of the controller.
10. Remove the access door and set the door aside.
11. Disengage the GLM locking tabs ❹ that protrude through the guide holes ❺ on the bottom side of the controller.
12. Operate the release lever ❸ on the exposed end of the GLM by pressing the lower end of the release lever with your index finger while pulling the raised end up with your thumb.
13. Remove the GLM.

Installing a GLM

Use the following steps to install a GLM:

NOTE: Before inserting the new GLM, locate the holes on the controller board where the GLM will reside.

1. Insert the new GLM by placing the cable connection end of the GLM through the opening on the front of the controller.
2. Line up the locking tab ❹ on the bottom of the replacement GLM with the guide holes ❺ in the board, and press firmly to seat the GLM.
3. Press the release lever ❸ firmly into place to secure the GLM.
4. Install the access door ❶ on top of the controller and secure it with the screw.

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

5. Insert the controller into Controller A bay and engage the retaining levers.

   NOTE: When fully seated, the controller starts automatically—the reset LED turns ON.

   A controller restart can take as long as 60 sec, indicated by the temporary cycling of the port LEDs and a FLASHING reset button.

IMPORTANT: If the controller did not restart, use the following steps:
1. Press and hold the controller reset button.
2. Reseat the controller program card.
3. Release the reset button.

6. Connect a PC or terminal to the controller maintenance port.
7. From the CLI prompt, display details about the configured controller using the following command:

   SHOW THIS_CONTROLLER FULL

8. Set the date and time using the following command:

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

9. Connect all host bus cables to the controller.
10. Mount the logical units on the host.
11. If using a Windows NT or Windows 2000 platform, restart the server.
12. Disconnect the PC or terminal from the controller maintenance port.

See other side

Dual-Redundant Controller Configurations

Use the steps in “Removing a GLM” and “Installing a GLM” to replace a GLM.

CAUTION: Static electricity can easily damage a controller or GLM. Wear a snug-fitting, grounded ESD wrist strap.

Removing a GLM

Use the following steps to remove a GLM:

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

   The controller connected to the PC or terminal becomes “this controller”; the controller being removed becomes the “other controller.”

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

   ```
   SET NOFAILOVER
   or
   SET NOMULTIBUS_FAILOVER
   ```

3. Start the field replacement utility (FRUTIL) with the following command:

   ```
   RUN FRUTIL
   ```

4. Enter **N**(o) to the question about replacing the cache battery.
5. Enter **1**, *Replace or remove a controller or cache module*, from the FRUTIL Main menu.
6. Enter **2**, *Other controller module*, from the Replace or Remove Options menu.
7. Enter **Y**(es) to confirm intent to remove the “other controller.”

CAUTION: Wait for FRUTIL to quiesce the device ports—indicated by an “All device ports quiesced” message. Failure to allow the ports to quiesce might result in data loss. Quiescing might take several minutes.

IMPORTANT: 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 3 and proceed.

8. Remove the controller.
   a. Disconnect all host bus cables or terminators from the “other controller.”
   b. Disconnect the optical or copper host bus cables.

   NOTE: If extender clips are not installed on the optical cables, use thin needle nose pliers to disconnect the cables (see Figure 3).

   c. Disengage both retaining levers and remove the controller from the enclosure.
   d. Place the controller on an antistatic bag or a grounded antistatic mat.
9. Enter **N**(o) to the question for a replacement controller.

   FRUTIL will exit.
10. Remove the screw that secures the access door (see Figure 1, ❶) on top of the controller.
11. Remove the access door and set the door aside.
12. Disengage the GLM locking tabs ❹ that protrude through the guide holes ❺ on the bottom side of the controller.
13. Operate the release lever ❸ on the exposed end of the GLM by pressing the lower end of the release lever with your index finger while pulling the raised end up with your thumb.
14. Remove the GLM.

Installing a GLM

Use the following steps to install a GLM:

NOTE: Before inserting the new GLM, locate the holes on the controller board where the GLM will reside.

1. Insert the new GLM by placing the cable connection end of the GLM through the opening on the front of the controller.
2. Line up the locking tab ❹ on the bottom of the replacement GLM with the guide holes ❺ in the board, and press firmly to seat the GLM.
3. Press the release lever ❸ firmly into place to secure the GLM.
4. Install the access door ❶ on top of the controller and secure the door with a screw.
5. Connect a PC or terminal to the maintenance port of the operational controller.

   The controller connected to the PC or terminal becomes “this controller”; the controller being installed becomes the “other controller.”
6. Start FRUTIL with the following command:

   ```
   RUN FRUTIL
   ```
7. Enter **N**(o) to the question about replacing the cache battery.
8. Enter **2**, *Install a controller or cache module*, from the FRUTIL Main menu.
9. Enter **2**, *Other controller module*, from the Replace or Remove Options menu.
10. Enter **Y**(es) to confirm intent to install the “other controller.”

CAUTION: Wait for FRUTIL to quiesce the device ports—indicated by an “All device ports quiesced” message. Failure to allow the ports to quiesce might result in data loss. Quiescing might take several minutes.

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

IMPORTANT: 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 6 and proceed.

11. Install the controller:
    a. Make sure that the program card is seated in the controller.
    b. Insert the controller into the appropriate bay, and engage the retaining levers.

    NOTE: When fully seated, the controller starts automatically—the reset LED turns ON.

    A controller restart can take as long as 60 sec, indicated by the temporary cycling of the port LEDs and a FLASHING reset button.

IMPORTANT: If the “other controller” did not restart, use the following steps:
1. Press and hold the “other controller” reset button.
2. Reseat the “other controller” program card.
3. Release the reset button.

12. Press **Enter**/**Return** to continue.

    FRUTIL exits.
13. Configure the controller as described in the appropriate array controller user guide or CLI reference guide.
14. Enable failover, and reestablish the dual-redundant configuration with one of the following commands:

    ```
    SET FAILOVER COPY=THIS_CONTROLLER
    or
    SET MULTIBUS_FAILOVER COPY=THIS_CONTROLLER
    ```

    This command copies the subsystem configuration from “this controller” to the “other controller.”
15. If desired, verify the failover configuration with the following command:

    ```
    SHOW THIS_CONTROLLER FULL
    ```
16. Wait for FRUTIL to terminate and then reconnect the host bus cables to the “other controller.”
17. Disconnect the PC or terminal from the controller maintenance port.

This completes the hardware installation.