

# *SCSI-Fibre Channel Router*

Installation  
and  
User Guide

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## Related Publications

- SCSI-Fibre Channel Router Support Handbook (310-605855) Revision 1.0.1

## SCSI-Fibre Channel Router Revision History

| Host Microcode Version | Device Microcode Version | Date    | Document |
|------------------------|--------------------------|---------|----------|
| 7.60                   | 2.04                     | 9/20/99 | Release  |
|                        |                          |         |          |
|                        |                          |         |          |

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## 1. Introduction

The SCSI-Fibre Channel Router (SCSI-FC Router) is a simple to maintain stand-alone SCSI extender. By converting SCSI to Fibre Channel, it can provide lengths of 30m (98 ft) to 10 km (6.2 miles) depending on the fiber optic cable used.

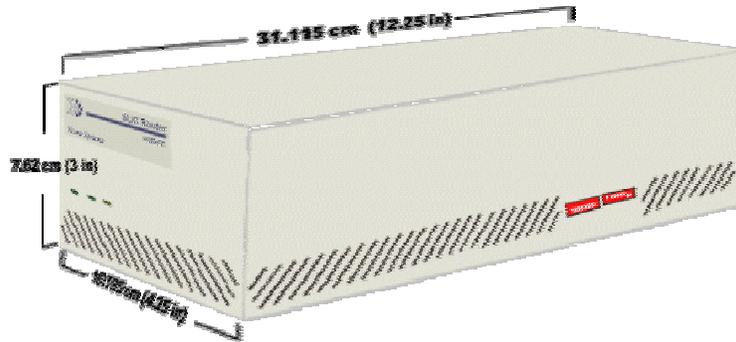


Figure 1-1. SCSI-FC Router

To the host, the SCSI-FC Router is transparent and the device on the Fibre Channel loop appears as a SCSI device. Since the SCSI-FC Router appears to the host as a parallel SCSI device, its usage and installation are very simple. The SCSI-FC Router attaches directly to the SCSI host adapter. The SCSI-FC Router is supplied in a self-contained 3"(H) x 4.25"(W) x 11"(D) enclosure that can either be installed on a desktop or four-abreast in the 19" rackmountable Hub Enclosure. For more information concerning the SCSI-FC Router Hub Enclosure, refer to the *Hub Enclosure Installation Guide*.

### 1.1. System Requirements

- Fibre optic cable: 62 or 50 micron fibre optic cable with dual SC connector, or  
Copper cable: Twinax cable with DB-9 or HSSDC Gigabit Interface Converters (GBIC)
- SCSI-FC Router (host) microcode revision 7.60 or later
- SCSI-FC Router (device) microcode revision 2.50 or later
- SCSI-2 HVD compliant host adapter
- SCSI-2 compliant host
- SCSI-2 compliant cabling
- Proper AC (alternating current) electrical power source.

### 1.2. SCSI-FC Router Defined

There are two SCSI-FC Routers in a single Fibre Channel loop. To prevent confusion, the following diagram defines the various SCSI-FC Routers by their positions within the loop. The SCSI-FC Router directly attached to the host or the server is the 'host router' and the SCSI-FC Router directly connected to the SCSI devices (disk or tape drives) is the 'device router'.

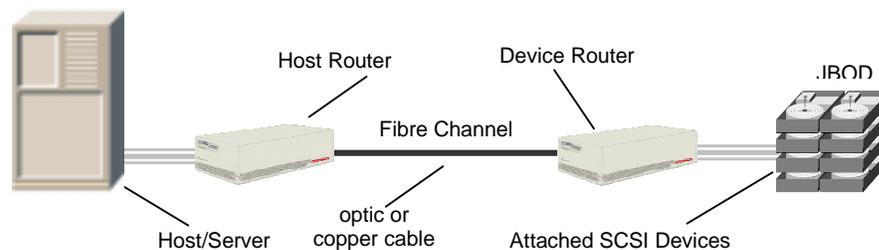


Figure 1-2. SCSI-FC Routers Defined

## 2. Installation

### 2.1. Step One: Ensure Attached Device(s) Function(s) Properly

1. Power on the SCSI device(s) (disk or tape drive) that will connect to the device router as seen in Figure 1-2.
2. Ensure that the SCSI device(s) is (are) functioning properly (refer to the SCSI device's operating manual to determine proper operation).
3. Power on the host/server that will connect to the host router.
4. Ensure that the host is functioning properly (refer to the host's operating manual to determine proper operation).
5. Power off the host/server.
6. Power off the SCSI device(s).

### 2.2. Step Two: Setup Device Router

1. Choose one of SCSI-FC Routers to be the device router, as defined in section 1.2 of this manual and as shown in Figure 1-2. (Either router may be used as the device router.)
2. Ensure that the device router and the SCSI device(s) to be attached are powered off.
3. On the device router set all DIP switches on switch one (SW1) to the down position. 
  - To locate switch one (SW1), see Figure 3-2.
4. Set the disk or tape mode on the device router as described below. For further information on mode settings, see section 3.2.
  - If the device(s) being attached is (are) SCSI drives then on one of the SCSI-FC Routers, set DIP switch 7 in the down position on switch 2 (SW2) to activate the disk mode. 
  - If the device(s) being attached is (are) SCSI tape drives then on one of the SCSI-FC Routers, set DIP switches 1 and 7 in the down position on switch 2 (SW2) to activate the tape mode. 
5. Attach the device router to the desired SCSI device(s) as shown in Figure 1-1 below. Ensure that cable and connectors are securely fastened.
  - To locate the SCSI-FC Router SCSI connector, see Figure 3-2.
  - To ensure proper cable specifications, see section 4.1.1.

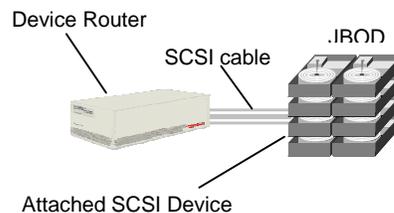


Figure 2-1. Example of Step Two Completed

### 2.3. Step Three: Clear the Node Mapping Table of the Host Router

For further information on clearing the Node Mapping Table, see section 3.2.5.

1. Ensure power is off to the host router and it is not connected to the device router.
2. On the host router, set DIP switches 4 and 5 in the down position on switch 2 (SW2) to clear the Node Mapping Table. 
3. Power on the host router.
  - The power LED (green) is solid on. If the power LED is off then see section 4.3 Power LED Not Lit.
4. When the Fault LED (yellow) is solid on and the Status LED (green) is blinking, it indicates that the Node Mapping Table is cleared.
  - To locate the Fault LED, see Figure 3-1 and Figure 3-2.

**Note:** When the Node Mapping Table has been cleared the Status LED (green) blinks a status code of 060 as described in Table B-1. Diagnostic Status Codes for Fault LED. To decipher the LED read-out, see section 3.1.4 Presentation of Digital Numbers.

5. The process will take approximately 10 seconds.
6. Power off the host router.

### 2.4. Step Four: Setup Host Router

1. Ensure that the host router is powered off.
2. On the host router set all DIP switches on switch one (SW1) to the down position. 
  - To locate switch one (SW1), see Figure 3-2.
3. Attach the host router to the device router with the appropriate copper or fiber optic cable. Ensure that cable and connectors are securely fastened.
  - To ensure proper cable specifications, see section 4.1.3.
4. At this point the host/server should not be attached as shown below in Figure 2-2.

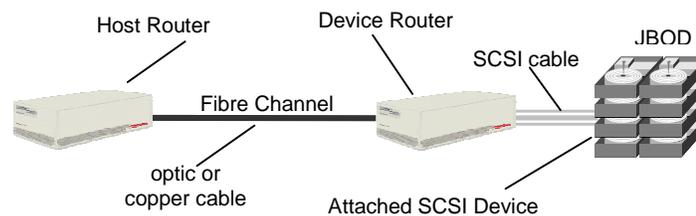


Figure 2-2. Example of Step Four Completed

### 2.5. Step Five: Run Connection Check

1. Power on the SCSI device(s). If disk drives then allow spin up time to complete (maximum 2 minutes).
2. Power on the device router.
  - The power LED (green) is solid on. If the power LED is off then see section 4.3 Power LED Not Lit.
3. On the host router, set DIP switch 4 in the down position on switch 2 (SW2) to activate the Connection Check mode. 
  - This will check the Fibre Channel connection between the two routers.
4. Power on the host router.
  - The power LED (green) is solid on. If the power LED is off then see section 4.3 Power LED Not Lit.
5. The testing process will take approximately 1 minute. When the test has completed the status LED and the fault LED will display one of two possible formats.

- If the Status LED (green) is solid on and the Fault LED (yellow) is off then the Fibre Channel connection is good.
- If the Fault LED (yellow) is solid on and the Status LED (green) is blinking then this indicates a problem with the Fibre Channel connection. Check this connection following the process in section 4.2.

## 2.6. Step Six: Run Subsystem Device Check

1. Power off the host router.
2. Set DIP switch 5 on switch two (SW2) in the down position to activate the Device Check mode. 
  - This will check the communication between the SCSI-FC Routers and the attached SCSI device(s).
3. Power on the host router.
  - The power LED (green) is solid on. If the power LED is off then see section 4.3 Power LED Not Lit.
4. The testing process will take approximately 1 minute. When the test has completed the status LED and the fault LED will display one of two possible formats.
  - If the Status LED (green) is solid on and the Fault LED (yellow) is off then the connection from the host router to the SCSI device(s) is good.
  - If the Fault LED (yellow) is solid on and the Status LED (green) is blinking then this indicates a communication problem between the device router and the SCSI device(s). Check this connection following the process in section 4.2.

**Note:** If the device check test fails after passing the connection check test in section 2.5 then the communication problem is between the device router and the attached SCSI device(s).

## 2.7. Step Seven: Set Normal Operating Modes

1. Power off the host router.
2. On the host router, set DIP switches 0 and 2 on switch two (SW2) to the down position to activate the host operating mode. 
3. Attach the host router to the host/server with the appropriate SCSI cable. Ensure that cable and connectors are securely fastened.
  - To ensure proper cable specifications, see section 4.1.1.
4. The configuration should match the diagram in Figure 1-2.

## 2.8. Step Eight: Power Down Sequence

1. Power off the host/server if on.
2. Power off the host router if on.
3. Power off the device router if on.
4. Power off the SCSI device(s) if on.
5. Proceed to step nine if all devices are powered down.

## 2.9. Step Nine: Power Up Sequence

1. Power on the attached SCSI device(s). If disk drives allow spin up time to complete (maximum 2 minutes).
2. Power on the device router.
3. When the LEDs stop blinking on the device router, power on the host router.
4. When the LEDs stop blinking on the host router, power on the host/server.
5. When this procedure has been successfully completed, the host router Status LED (see section 3.1.2) should be Solid On to indicate a complete loop.
6. Ensure the host sees all the device(s) on the device router's SCSI bus by forcing a SCSI I/O scan. Refer to the host's manual for further information if necessary.

**Example:**

```
ISL>help
ISL>ode                (offline diagnostic environment)
ODE>mapper
Mapper>run
      10  I/O adapter
      10/16      Upper Bus Converter
      10/16/12  HP-PB Fast Wide SCSI
      10/16/12.0.0 Seagate ST34571WC
      10/16/12.1.0 IBM DGH509y
      10/16/12.2.0 Quantum DLT-7000 Tape Drive
      10/16/12.3.0
      10/16/12.4.0
      10/16/12.5.0
      ...
      10/16/12.15.0
      .....
mapper>exit
ode>exit
ISL>start norecovery group=config
```

**NOTE:** The Host router will respond to all SCSI target INQUIRES without a SCSI device being configured as demonstrated in the above ODE listing. Make sure you see the product ID's from the SCSI device(s) being displayed.

7. If the host has seen all the device(s) on the device router, then the installation is successful and normal operation may begin.

### 3. Operation of the SCSI-FC Router

#### 3.1. LED Status Codes

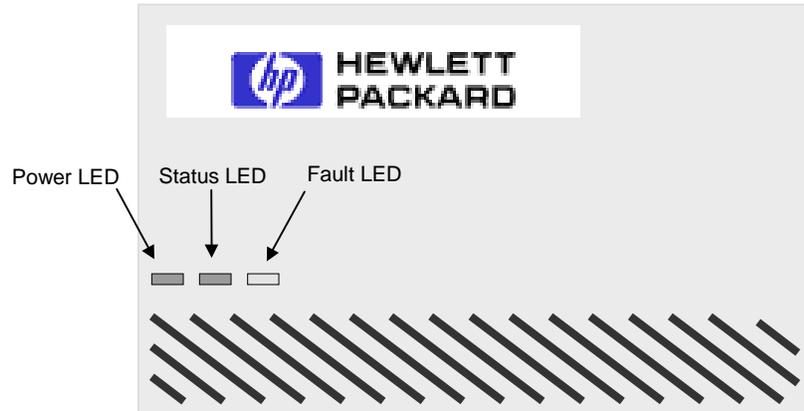


Figure 3-1. LED Location for Front Panel

##### 3.1.1. Power LED (green)

When the Power LED is solid on, it indicates that the SCSI-FC Router is powered on.

**Note:** The SCSI-FC Router supports connection to a 100-240 VAC power source.

##### 3.1.2. Status LED (green)

- **Solid On**  
Normal operating mode indicating that the Fibre Channel ports are connected through a loop with at least one device detected.
- **Slow Blink (90% On, 10% Off)**  
This occurs if the Fibre Channel loop is broken in any way.
- **Fast Blink (8 Hz blinking)**  
The SCSI-FC Router is performing a loop initialization (scanning the Fibre Channel loop for devices) or is in the download microcode mode.
- **Status Code**  
The Status LED will perform a number of blinks to indicate a particular digital number (see section 3.1.4 to decipher the LED readout).

##### 3.1.3. Fault LED (yellow)

If the fault LED is activated, it indicates that an error has occurred within the SCSI-FC Router. Replace the SCSI-FC Router with a functioning one (see section 4.2). If the fault LED activates again, call customer service.

**Note:** If the fault LED is solid-on, the status LED (green) will blink a diagnostic code. See Table B-1 to determine the problem.

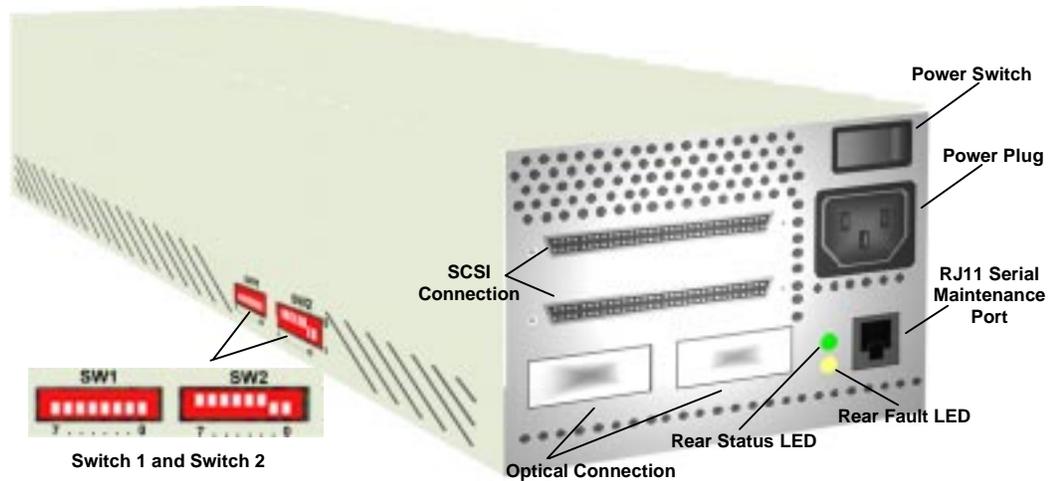


Figure 3-2. Rear of SCSI-FC Router

### 3.1.4. Presentation of Digital Numbers

Digital numbers are presented through the status LED (green) only. The digital numbers are presented as follows:

- **Numerical Digits**  
 0 = short, fast blink  
 1 = LED blinks once  
 2 = LED blinks twice with one short duration between blinks  
 3 = LED blinks 3 times with one short duration between each blink (two total).... and so on
- **Decimal Numbers** are presented through the Status LED.  
 Each digit can be obtained by the number of blinks in series separated by only a short duration of LED Off.
- **Decimal Digits** are separated by a medium duration of LED Off (two seconds).
- **Status Code** is presented on the Status LED, a long duration of LED Off (four seconds) will separate the status code when the code is repeated.

|                  |                           |  |                           |                  |
|------------------|---------------------------|--|---------------------------|------------------|
| Rapid/fast blink | Medium Duration 2-seconds | Blinks 6 times Short duration between each blink | Medium Duration 2-seconds | Rapid/fast blink |
| 0                | OFF                       | 6  | OFF                       | 0                |

|                           |
|---------------------------|
| Long Duration 4 - Seconds |
| OFF                       |

|                  |                 |  |                 |                  |
|------------------|-----------------|--|-----------------|------------------|
| Rapid/fast blink | Medium Duration | Blinks 6 times Short duration between each blink | Medium Duration | Rapid/fast blink |
| 0                | OFF             | 6  | OFF             | 0                |

Figure 3-3. Status Code Diagram

### 3.2. SCSI-FC Router Mode Switches (SW2)

The SCSI-FC Router mode is selected by utilizing the DIP switches in SW2 (for SW2's location, see Figure 3-2). The SCSI-FC Router power must be cycled to effect a change in mode. The first four DIP switches are independent of the other DIP switches on switch 2 (SW2).

- DIP switch 4 and 5 are independent of all other DIP switches on SW2 and activate the Connection Check or the Subsystem Device Check. And when activated simultaneously they clear the node mapping table.
- DIP switch 6 is not used at this point.

| Mode                      | Switch 7 | Switch 6 | Switch 5 | Switch 4 | Switch 3 | Switch 2 | Switch 1 | Switch 0 | DIP Switch Setting |
|---------------------------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| Host Router               | 0        | 0        | 0        | 0        | 0        | 1        | 0        | 1        |                    |
| Host Microcode Revision   | 0        | 0        | 0        | 0        | 1        | 1        | 0        | 1        |                    |
| Device Microcode Revision | 1        | 0        | 0        | 0        | 1        | 1        | 0        | 1        |                    |
| Connection Check          | 0        | 0        | 0        | 1        | 0        | 0        | 0        | 0        |                    |
| Device Check              | 0        | 0        | 1        | 0        | 0        | 0        | 0        | 0        |                    |
| Clear Mapping Table       | 0        | 0        | 1        | 1        | 0        | 0        | 0        | 0        |                    |
| Disk Mode (Device Router) | 1        | 0        | 0        | 0        | 0        | 0        | 0        | 0        |                    |
| Tape Mode (Device Router) | 1        | 0        | 0        | 0        | 0        | 0        | 0        | 1        |                    |

Table 3-1. DIP Switch Settings for Mode Selection

#### 3.2.1. SCSI-FC Router Host Mode

This is the normal operating mode of the host SCSI-FC Router. Two host routers can not exist simultaneously on the same serial loop.

#### 3.2.2. Microcode Revision Mode

In this mode, the SCSI-FC Router microcode revision level will be presented as a status code on the Status LED. The microcode revision is a three digit number. A decimal separates the first digit from the second. **Example:** Revision number 7.60

To run the Microcode Revision mode follow the steps below:

1. Power off the SCSI-FC Router.
2. If user is checking the host router microcode, SW2 must be placed in the host mode and if user is checking the device router microcode, SW2 must be placed in the device mode.
3. Power on the SCSI-FC Router.
4. Watch the blinking pattern of the Status LED (see section 3.1.4 to decipher the LED readout).
5. After revision level is determined, power off the router, return it to its proper operating mode and power it on.

#### 3.2.3. Connection Check Mode

In this mode, the host router will perform a test to ensure that communication to the device router is operating correctly. If communication can not be established or if a high number of errors are reported then the test will fail.

#### 3.2.4. Subsystem Device Check Mode

In this mode, the SCSI-FC Router will talk to the SCSI device(s) (disk or tape drives) attached to the device router ensuring that proper communication is established.

**3.2.5. Clear Node Mapping Table Mode**

The host SCSI-FC Router contains a table of all the nodes on the Fibre Channel and their corresponding IDs. In this mode the SCSI-FC Router will clear this table enabling a new map to be established.

**3.2.6. SCSI-FC Router Disk Mode**

This is the normal operating mode of the device SCSI-FC Router when SCSI disk drive(s) are attached. Two device routers can not exist simultaneously on the same serial loop.

**3.2.7. SCSI-FC Router Tape Mode**

This is the normal operating mode of the device SCSI-FC Router when SCSI tape drive(s) are attached. Two device routers can not exist simultaneously on the same serial loop.

## 4. System Maintenance

### 4.1. System Standards

#### 4.1.1. SCSI Cabling

- Only the SCSI-FC Router attaches to a differential interface and a differential terminator.
- SCSI cable length for the SCSI-FC Router should not exceed 25 meters (82 feet).
- SCSI-FC Router supports attachment to an external 68 pin SCSI-II shielded cable.

#### 4.1.2. SCSI Termination

SCSI termination must exist at both ends of the SCSI bus (see Figure 4-1). To terminate the SCSI-FC Router's SCSI bus add the External SCSI-FC Router SCSI terminator. To terminate the attached SCSI device(s), refer to the SCSI device's (tape or disk drive) operating manual for information concerning proper termination.

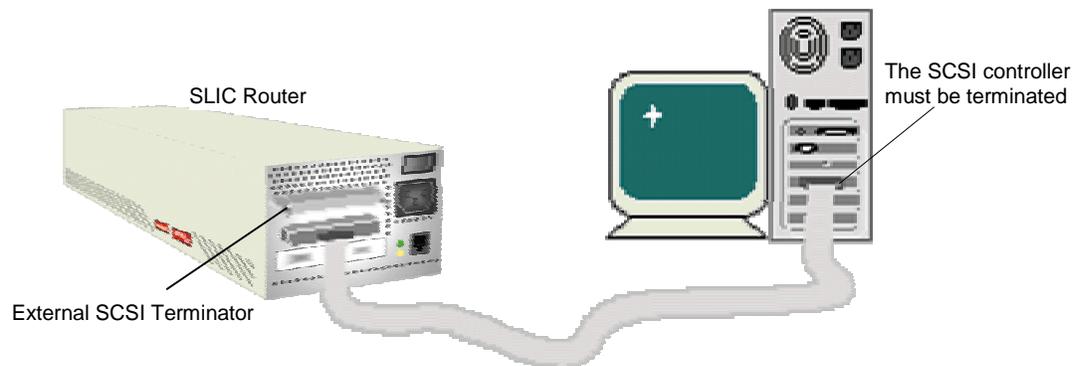


Figure 4-1. Example of a SCSI-FC Router Termination

#### 4.1.3. Copper and Fiber Optic Cabling

Termination is automatically provided with the Fibre Channel architecture, therefore termination is not needed.

##### 4.1.3.1. Short Wavelength

- Cable: 50 or 62.5 micron fibre optic
- Distance: 500 m (1640 ft) or 172m (564 ft)
- Connector: Dual SC

##### 4.1.3.2. Long Wavelength

- Cable: 9 micron fibre optic
- Distance: 10 km (6.2 miles)
- Connector: Dual SC

##### 4.1.3.3. Copper

- Cable: Twinax
- Connector: Two DB-9 or HSSDC
- Distance: 30m (98 ft) equalized: 20 m (65.6 ft) non-equalized

## 4.2. Checking Cables and Connections

1. Be sure to power off the device(s) to which the connector is connected before removing it.
2. Visually study the end of both connectors on the cable. Ensure that pins are not broken, bent or pushed in.
3. If a connector is damaged, replace connector and power on the device(s).
4. Ensure that the connector is securely fastened to the device(s). A loose connection can cause termination problems.
5. Ensure the cable length does not exceed HP's recommended length (see section 4.1.1 or 4.1.3)
6. If problem still exist, power off the device(s) and replace the cable.

## 4.3. Power LED Not Lit

This indicates that there is no power to the SCSI-FC Router.

1. Ensure an AC plug is connected to a working wall outlet and the other end is connected to the SCSI-FC Router unit.
2. Ensure the power switch is in the on position (1 represents on and 0 represents off).
  - See Figure 3-2. Rear of SCSI-FC Router for power switch location.
3. If LED is still not lit then turn off unit and replace the power cable.
4. If LED is still not lit then recycle the SCSI-FC Router's power.
5. If LED is still not lit then replace the SCSI-FC Router unit.
  - Go to section 4.4 Replace a SCSI-FC Router.
6. After replacing the unit and the problems persist, contact your SCSI-FC Router vendor.

## 4.4. Replace a SCSI-FC Router

1. Power off the SCSI-FC Router being replaced and the SCSI-FC Router that will replace it.
2. Set switch one and two (SW1 and SW2) on the new SCSI-FC Router to match the switch settings on the (old) SCSI-FC Router that is being replaced.
3. Swap each of the old connections from the replacement (old) SCSI-FC Router to the new SCSI-FC Router. Ensure that all cables and connector are securely fastened.
4. Power on the new SCSI-FC Router.
5. After the LEDs have finished blinking, the power LED (green) and status LED (green) should be solid on and the fault LED (yellow) should be off.
  - To locate the LED's location, see Figure 3-1. LED Location for Front Panel.
6. Replacement of the SCSI-FC Router is complete.
7. After replacing the unit and the problems persist, contact your SCSI-FC Router vendor.

## 4.5. Serial Port Diagnostics

The SCSI-FC Router provides a serial port for router diagnostic and maintenance (see Figure 3-2 for serial port location).

### 4.5.1. System Requirements

- Windows 95 or later
- Windows NT
- Serial Port Connection
- RJ11 Cable – reverse (straight-through)
- PROCOMM PLUS® 3.0 or later

### 4.5.2. PROCOMM PLUS

PROCOMM is communication software that enables a computer to link with the SCSI-FC Router to diagnose and maintain it.

**4.5.2.1. Step One: Install PROCOMM PLUS**

Install the PROCOMM PLUS software in a proper computer. Hewlett-Packard recommends installing PROCOMM on a laptop to provide mobility. Follow directions in the PROCOMM PLUS installation guide for PROCOMM installation.

**4.5.2.2. Step Two: Setup PROCOMM PLUS**

1. Set Xmodem protocol.
2. Set modem baud rate to 57600.
3. Select 'Incoming CR to CR/LF' (see Figure 4-2).
4. Set 'Tab stops every 4 positions' (see Figure 4-2).
5. Connect the computer serial port to the SCSI-FC Router RJ-11 serial port.

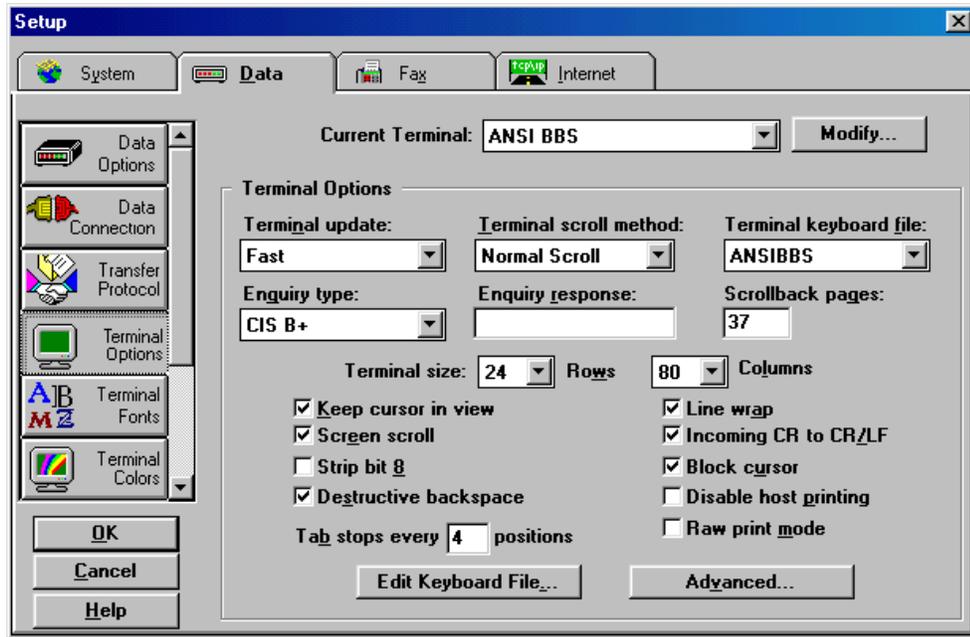


Figure 4-2. Setup Information

**4.5.2.3. Step Three: Start PROCOMM PLUS**

Refer to the PROCOMM PLUS manual to activate the PROCOMM software.

1. After PROCOMM PLUS is activated, the PROCOMM PLUS for Windows Terminal will appear (see Figure 4-3).
2. At the cursor, type **hello** and press enter.

**Note:** When typing hello, it will not be visible on the screen.



Figure 4-3. Startup Screen for Serial Port

3. If the screen reads **'serial port is enabled'** then startup was successful.
4. At the cursor, enter a question mark '?' to view the menu.

### 4.5.3. Serial Port Operation

#### 4.5.3.1. '?': Show Serial Port Service Utility Key Assignments Menu

This command will display a list of functions as shown in Figure 4-4. All functions that appear on the screen in Figure 4-4 are utilized with the host router (SCSI-FC Router H). However, the same menu does not apply to the device router (SCSI-FC Router D). All function preceded by a question mark can not be used by the SCSI-FC Router D.



Figure 4-4. Serial Port Menu for Host Router



Figure 4-5. Serial Port Menu for Device Router

**Note:** The question mark '?' before each menu command in Figure 4-5. Serial Port Menu for Device Router notifies the user that those commands are not available for the device router.

### 4.5.3.2. '1': Display VPD

This function is used to display important information (***Vital Product Data***) for attached SCSI-FC Router. An attached SCSI-FC Router is referred to as the local SCSI-FC Router.



Figure 4-6. VPD Screen

1. To display the VPD screen of the local SCSI-FC Router, enter the number one '1'.
2. **Product Type** – The first line describes the use of the local SCSI-FC Router.
  - SCSI-FC Router H - An 'H' represents host router as depicted in Figure 1-2.
  - SCSI-FC Router D - A 'D' represents a device router as depicted in Figure 1-2.
3. **SCSI-FC Router H/D Firmware Revision** - The second line and the third line provide the firmware/microcode revision level and the date and time that it was developed.
4. **Loader Revision** – displays the local SCSI-FC Router's loader revision level (for internal use only).
5. **Unique ID** – displays the local SCSI-FC Router's unique ID assigned by the manufacturer.
6. **Unit Serial Number** – displays the local SCSI-FC Router's Unit Serial Number.
7. **PCB Number** - displays the local SCSI-FC Router's Printed Circuit Board number (for internal use only).
8. **DIP SW1 = 0000101 DIP SW2 = 1111111** – displays the dip switch setting of DIP switch 1 and switch 2.

### 4.5.3.3. '2': Show SCSI Map

This command will display a map of local SCSI device(s) (tape or disk drives). This will be the same as the host view (the SCSI-FC Routers will be transparent to the host).

1. To display the SCSI Map of the attached SCSI-FC Router, enter the number '2' to display the SCSI Map as shown in Figure 4-7. SCSI Map.
2. The following information will appear:
  - SCSI ID and LUN – assigned to each disk on the storage loop.
  - Device Status – shows the status of the corresponding device(s).
  - Device Type – describes what the corresponding device(s) is (are).
  - BLKSIZ – shows the block size (for tape extender use only).

Figure 4-7. SCSI Map

**4.5.3.4. 'R': Force Hardware Reset**

This command will reset only the local SCSI-FC Router. This is recommended when lockup occurs.

1. To reset the local SCSI-FC Router, enter the capital letter 'R'. Do this only one time. If entered successfully the screen will read the following below:

**Hardware Reset Now, Please Wait Until Boot Up Again .....**

2. Check the local SCSI-FC Router's fault LED. During reset, it will light.
3. After the reset has concluded and the screen reads '**Ready .. ...**' then the user must access the serial port by typing '**hello**' again.

**4.5.3.5. 'C': Clean Up Configuration Table**

This function removes the old, unused configurations from the database.

1. To clean up the configuration table of the local router, enter the capital letter 'C'. Do this only one time. If entered successfully the screen will read the following below:

**Please Wait Until Boot Up Again .....**

2. After the reset has concluded and the screen reads '**Ready .. ...**' then the user must access the serial port by typing '**hello**' again.

**4.5.3.6. 'H': Download SCSI-FC Router Microcode**

This function is used to update the microcode for the local router.

1. Ensure the SCSI-FC Router is in the host  mode.
2. Enter a capital letter H for host router.
3. Click on the open file icon  in the tool menu.
4. Browse the local computer to find and then select the microcode file that will be downloaded to the local router.
5. Wait for download to complete to begin normal operations.

**Warning:** Do not download new microcode to the SCSI-FC if the SCSI-FC is being utilized by the operating system. The SCSI-FC will reset itself after the download is complete, which can cause lost I/Os and system panic.

**4.5.3.7. 'D': Download SCSI-FC Router Microcode**

This function is used to update the microcode for the local router.

1. Disconnect the Fibre Channel from the device router.
2. Power off the device router.
3. Change the device router from the tape or disk mode to the host mode. 
4. Power on the router.
5. Activate the PROCOMM Plus software (See section 4.5.2.3 Step Three: Start PROCOMM PLUS).
6. Enter a capital letter D for device router.
7. Click on the open file icon  in the tool menu.
8. Browse the local computer to find and then select the microcode file that will be downloaded to the local router.
9. After download is complete power off the router.

10. Change the device router from the host mode  back to the disk or tape mode. 
11. Power off the device router.
12. Reconnect the Fibre Channel to the device router.
13. Power on the device router.

**Warning:** Do not download new microcode to the SCSI-FC if the SCSI-FC is being utilized by the operating system. The SCSI-FC will reset itself after the download is complete, which can cause lost I/Os and system panic.

## 4.6. SCSI-FC Router Replacement

### 4.6.1. Replacing a SCSI-FC Router

1. Power off the SCSI-FC Router being replaced and the SCSI-FC Router that will replace it.
2. Set switch one and two (SW1 and SW2) on the replacement (new) SCSI-FC Router to match the switch settings on the (old) SCSI-FC Router that is being replaced.
3. Swap each of the old connection from the old SCSI-FC Router to the new SCSI-FC Router. Ensure that all cables and connector are securely fastened.
4. Power on the new SCSI-FC Router.
5. After the LEDs have finished blinking, the power LED (green) should be solid on and the Fault LED (yellow) and Status LED (green) should be off.
  - To locate the LED's location, see Figure 3-1.
6. Replacement of the SCSI-FC Router is complete.

## Appendix A: SCSI-FC Router Specifications

### Applications

Provides connectivity between SCSI High Voltage Differential (HVD) and Fibre Channel equipment and vice versa.

### Hardware Features

#### SCSI Connectivity

- Protocol: SCSI-2 Ultra-Wide Differential (40MB/sec); supports either initiator (host) or target (device) protocol.
- Data Transfer Rate: 40MByte/sec (per SCSI-FC Router per SCSI Channel) burst
- SCSI-2: 68-pin High Density
- Device Support: One HP3000 and One HP XLR1200®
- Supports: Command Processing, Tagged Queuing, Scatter/Gather, Disconnect/Reconnect, Synchronous and Asynchronous data transfer

#### Fibre Connectivity

- Protocol: ANSI Fibre Channel (FC-PH) and ANSI Fibre Channel Arbitrated Loop (FC-AL)
- Classes of Service: Class 3
- Topology: FC-AL (private or public), Point to Point
- Data Transfer Rate: 100MBytes/sec (per SCSI-FC Router per Fibre channel)
- Port Speed: 100Mbytes/sec
- Short Wavelength Optical Cable
  - Data Rate: 100Mbytes/sec burst
  - Cable: 50 or 62.5 micron fibre optic
  - Distance: 500 m (1640 ft) or 172m (564 ft)
  - Connector: Dual SC
- Long Wavelength Optical Cable
  - Data Rate: 100Mbytes/sec burst
  - Cable: 9 micron fibre optic
  - Distance: 10 km (6.2 miles)
  - Connector: Dual SC
- Copper Cable
  - Data Rate: 100Mbytes/sec burst
  - Cable: Twinax
  - Connector: Two DB-9 or HSSDC
  - Distance: 30m (98 ft) equalized: 20 m (65.6 ft) non-equalized

### Attachment

- Compatible with HP3000® (Operating Systems MPE/iX 5.5 and MPE/iX 6.0)
- HP XLR1200 system

### Technical Specifications

#### Maintenance

External Serial Port RJ-11 connector (57K baud rate)

#### Environment

- Operating Temperature 0°C (32°F) to 40°C (104°F)
- Storage Temperature -40°C (-40°F) to 75°C (167°F)
- Relative Humidity 10% to 95% non-condensing

#### Tabletop

- Dimensions Height: 7.62 cm (3 in), Width 10.795 cm (4.25 in), Depth 31.115 cm (12.25 in)
- Weight 1.8 kg (3.97 lb)

Note: The SCSI-FC Router can also be installed into a rackmountable hub enclosure.

#### Power

- 100 - 240 VAC
- 50 - 60 Hz
- 0.75 - 0.50 A

#### User Interface

LED indicators

## Appendix B: Diagnostic Status Code

| <b><i>User Serviceable Diagnostic Status Codes</i></b> |  |   |
|--|--|---|
| <b>Status Code</b>                                     | <b>Description</b>   | <b>Action</b>   |
| 006  | Too many SCSI errors recorded.   | Check all connections and/or replace the SCSI cables with "known-good" shielded SCSI cables. User must cycle the power to clear any lockup cases that the defective cables may have caused. |
| 058  | The SCSI-FC Router detected an SSA Unique ID duplication in the same loop. | Contact Hewlett Packard for replacement SCSI-FC Router.   |
| 060  | The SCSI-FC Router has completed clearing the Node Mapping Table.          |   |
| 068  | An illegal host mode has been used.  | Return to the proper host mode and recycle power on the SCSI-FC Router.   |

**Table B-1. Diagnostic Status Codes for Fault LED**

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