

# **StorageWorks by Compaq Network Storage Router N1200**

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## **Installation Guide**

Part Number 283394-001

April 2002 (First Edition)

Product Version: 1.0

The *StorageWorks*<sup>™</sup> Network Storage Router N1200 by Compaq provides bi-directional connectivity for Narrow/Wide Fast/Ultra-2 SCSI buses in either a Fibre Channel Switched Fabric (FC-SW) or a Fibre Channel Arbitrated Loop (FC-AL) environment.

This installation guide provides instructional information for installing and connecting the router.

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# About This Guide

This guide provides step-by-step instructions for installation and connection for the *StorageWorks™* Network Storage Router N1200 by Compaq.

## Intended Audience

This guide is intended for administrators with a moderate knowledge level about network environments.

## Important Safety Information

Before installing this product, read the *Important Safety Information* document provided.

## Symbols on Equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:



**WARNING:** This symbol, in conjunction with any of the following symbols, indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.

---



This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

**WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

---



This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

**WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure

---



This symbol on an RJ-45 receptacle indicates a network interface connection.

**WARNING:** To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

---



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

**WARNING:** To reduce the risk of injury from a hot component, allow the surface to cool before touching.

---



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

**WARNING:** To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

---



This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

Weight in kg  
Weight in lb

**WARNING:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

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## Rack Stability

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**WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
  - The full weight of the rack rests on the leveling jacks.
  - The stabilizing feet are attached to the rack if it is a single-rack installation.
  - The racks are coupled in multiple-rack installations.
  - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
- 

## Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



**WARNING:** Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

---



**CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

---

**IMPORTANT:** Text set off in this manner presents clarifying information or specific instructions.

**NOTE:** Text set off in this manner presents commentary, sidelights, or interesting points of information.



## Text Conventions

This document uses the following conventions:

- *Italic type* is used for complete titles of published guides or variables. Variables include information that varies in system output, in command lines, and in command parameters in text.
- **Bold type** is used for emphasis, for onscreen interface components (window titles, menu names and selections, button and icon names, and so on), and for keyboard keys.
- `Monospace typeface` is used for command lines, code examples, screen displays, error messages, and user input.
- Sans serif typeface is used for uniform resource locators (URLs).

## Related Documents

For additional information on the topics covered in this guide, refer to the following documentation:

- *Fibre Channel Physical and Signaling Interface (FC-PH)*, ANSI X3T9.3/Project 755D/Rev. 4.3, Contact: Global Engineering, 1-800-854-7179
- Fibre Channel Protocol for SCSI (FCP) Revision 12
- Fibre Channel Private Loop Direct Attach (FC-PLDA)
- *Fibre Channel Arbitrated Loop (FC-AL)*, ANSI X3T11/Project 960D/Revision 4.54, Contact: Globe Engineering, 1-800-854-7179
- *Gigabit Interface Converter (GBIC)*, Small Form Factor. SFF-8053, Revision 5.X
- *Common FC-PH Feature Sets Profiles*, Fibre Channel Systems Initiative, FCSI-101 Revision 3.1
- *SCSI Profile*, Fibre Channel System Initiative, FCSI-201-Revision 2.2
- *FCSI IP Profile*, Fibre Channel System Initiative, FCSI-202-Revision 2.1

## Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

### Compaq Technical Support

In North America, call the Compaq Technical Support Phone Center at 1-800-OK-COMPAQ. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored. Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for worldwide Technical Support Centers are listed on the Compaq website, [www.compaq.com](http://www.compaq.com).

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

## **Compaq Website**

The Compaq website has information on this product as well as the latest drivers and flash ROM images. You can access the Compaq website at [www.compaq.com](http://www.compaq.com).

## **Compaq Authorized Reseller**

For the name of your nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the Compaq website for locations and telephone numbers.

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## Introduction

The StorageWorks Network Storage Router N1200 by Compaq provides bi-directional connectivity for Narrow/Wide Fast/Ultra-2 SCSI buses in either a Fibre Channel Switched Fabric (FC-SW) or a Fibre Channel Arbitrated Loop (FC-AL) environment.

This chapter introduces the following topics:

- External features overview
  - Fibre Channel port
  - SCSI buses
  - Ethernet port
  - Serial port

## External Features Overview

Figure 1-1 illustrates an I/O panel view of the router.

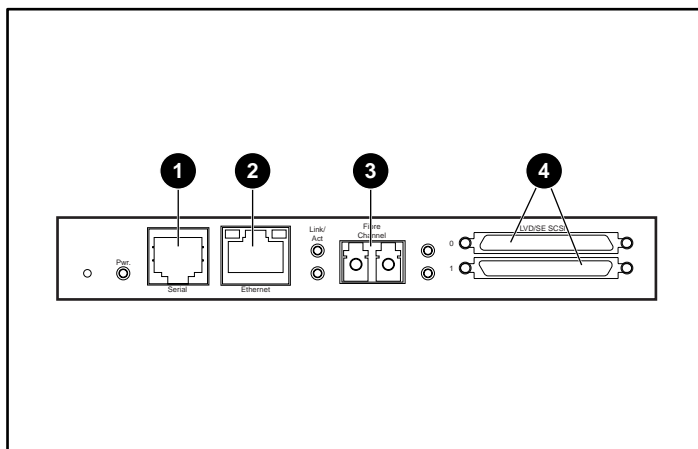


Figure 1-1: Router illustration

Table 1-1: External Features

Item	I/O Port
1	Serial
2	Ethernet
3	Fibre Channel
4	SCSI

## Power Indicator

The router has one power LED located on the back-side of the router.

Power indicator LED definition:

**Green** - Power has been applied to this module

**Yellow** - Power-On-Self-Test (POST) in process or processor problems

## Fibre Channel Port

One Fibre Channel port with LED indicators is included in the router. See Figure 1-1 for the location of the Fibre Channel port.

Fibre Channel LED definition:

**Green (ACT)** - Fibre Channel port activity

**Green (LINK)** - Valid Fibre Channel link

## SCSI Buses

Two SCSI buses with LED indicators are included in the router. See Figure 1-1 for the location of the SCSI buses.

SCSI bus LED definition:

**Green** - SCSI bus activity on corresponding port

## Ethernet Port

One Ethernet port with an LED indicator is included in the router. See Figure 1-1 for the location of the Ethernet port.

Ethernet port LED definition:

**Activity** - Port activity

**Link** - Valid Ethernet link

## Serial Port

The router is equipped with one serial port. See Figure 1-1 for the location of the serial port. The serial port can be used to access the Serial/Telnet user interface, which is used to locally manage and configure the router.

---

## Installation

This chapter describes how to unpack and install the StorageWorks Network Storage Router N1200 by Compaq. The router can be set up in either a desktop or a rack configuration.

**NOTE:** Read this chapter and Chapter 3, “Connection,” carefully and completely before configuring the router.

The following considerations and procedures are included in this chapter:

- Selecting a location
- Unpacking the box
- Mounting the router on a desktop
- Installing the router in a rack





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**CAUTION:** To prevent static shock, which can damage electrical equipment, use industry accepted handling practices when unpacking and moving the router and its components. See Appendix A, "Electrostatic Discharge" for more information.

---

## Selecting a Location

The router can be placed on a desktop or mounted in a standard 19-inch rack. When considering a location for the router, make sure the airflow area surrounding the front and the back of the router is unobstructed.

## Unpacking the Box

To unpack the router box:

1. Remove all items from the shipping container. Check each one for damage. Keep the router in the protective bag until ready to install.
2. Refer to the packing slip or contents list to make sure all the equipment was received. If an item is missing, contact your sales representative immediately.

## Mounting the Router on a Desktop

To mount the router on a desktop:

1. Remove the router from the protective bag.



---

**CAUTION:** Place the router onto a smooth surface away from any potential exposure to direct sunlight, liquids or vapors, excessive heat, or risk of accidental dropping or other damage.

---

2. Attach the stick-on feet to the bottom four corners of the unit.
3. Place the router on the table or desktop, making sure the intake and exhaust vents are clear of obstructions.

---

## Installing the Router in a Rack

The following items in the router kit are used to rack-mount the router:

- Mounting rails
- Extender brackets
- Bag of mounting hardware (8 #10-32x.6 Phillips screws, 8 #6-32x.312 Phillips screws)
- Compaq bezel blank

**NOTE:** The installation process requires a #2 Phillips and a #2 flat-head screwdriver.

To install the router in the rack:

1. Remove the router from its protective bag.

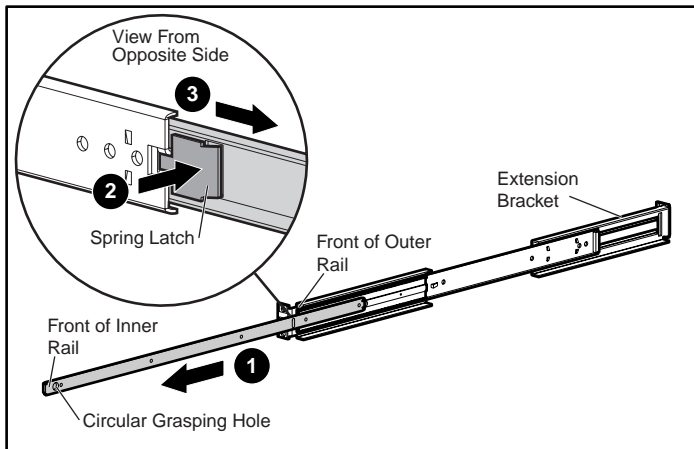
**NOTE:** Before installing the router, make sure that all modules are properly installed. For information about the removal or installation of modules, refer to the *StorageWorks by Compaq Network Storage Router User Guide*.



**CAUTION:** Place the router onto a smooth surface away from any potential exposure to direct sunlight, liquids or vapors, excessive heat, or risk of accidental dropping or other damage.

---

2. Determine where the router will be mounted, making sure that the airflow vents remain clear of obstructions.
3. Separate the inner rail from the outer rail assemblies.  
See Figure 2-1 for an illustration.
  - a. Place a thumb or finger over the circular grasping hole at the front-end of the inner rail.
  - b. Extend the inner rail out from the outer rail assembly until it locks into place.
  - c. Press the spring latch on the back-side of the inner rail to release the lock. While holding down the spring latch, extend the inner rail until the two rails separate.



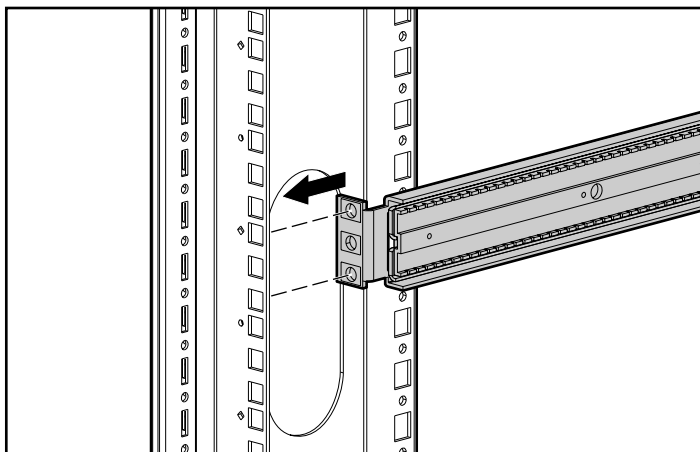
**Figure 2-1: Separating the inner and outer rails**

- d. Repeat Step 3 to separate the other set of rails.
4. Attach the front-end and back-end of each outer rail assembly to the rack.
  - a. Determine the location in the rack for the router.

**NOTE:** The size of the router and its rail assembly is 1U.

- b. Align the three screw holes on the front-end of the outer rail assembly with the equally spaced holes on the front of the rack.

All three holes must be aligned exactly. If the holes do not exactly match up, the outer rail assembly is not positioned correctly on the rack. See Figure 2-2 for an example of rack front styles and hole alignments.



**Figure 2-2: Aligning the bracket face with the rack**

- c. With the outer rail assembly face flush against the inside front of the rack-mounting holes, insert and tighten the top and bottom screws of the bracket face. Use two of the 10-32x.6 Phillips screws.

Do not insert a screw in the center hole of the bracket face. This hole will be used when the front bezel blank is mounted to the rack.

- d. Loosen the flat-head screw on the rear extension bracket of the outer rail assembly.
- e. While holding the outer rail assembly level, extend the rear extension bracket to the inside rear of the rack.



**WARNING: To reduce injury or equipment damage, the rails must be level. If the rails are not level, the router cannot be installed correctly and might fall.**

- f. Attach the rear extension-bracket face to the rear of the rack, using two of the 10-32x.6 Phillips screws.
- g. With the outer rail assembly in place, tighten the flat-head screw that connects the rear extension bracket to the outer rail.
- h. Repeat Step 4 to attach the other outer rail assembly to the other side of the rack.

5. Attach an inner rail to each side of the router.

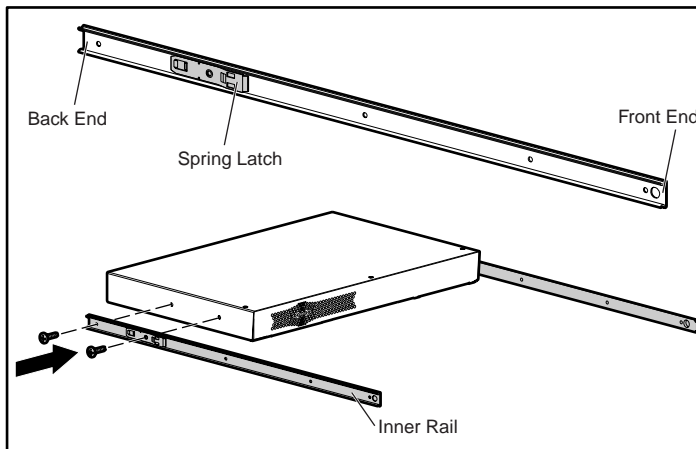
See Figure 2-3 for an illustration.

- a. With the spring latch facing away from the router and the circular grasping hole facing the front-side of the router, align the front-most screw hole on the router with the center screw hole on the rail.

**NOTE:** The front-side of the router has air vents, as illustrated in Figure 2-3. The back-side of the router has all of the interconnects.

Using this alignment, two screw holes will be aligned and the rail will extend out from the front-side of the router approximately 8 inches.

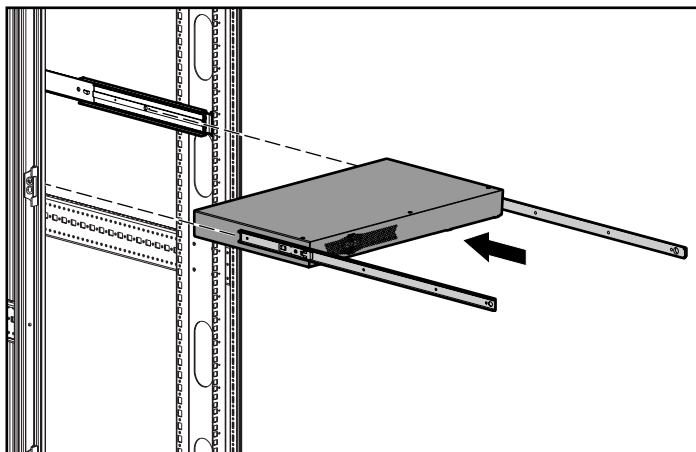
- b. Secure the rail to the router using two #6-32x.312 Phillips screws.



**Figure 2-3: Attaching inner rails to the router**

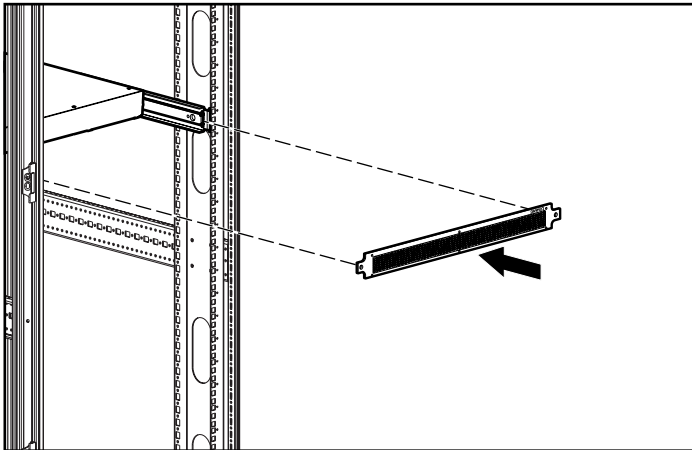
- c. Repeat Step 5 to attach the inner rail to the other side of the router.
6. Install the router in the rack.  
See Figure 2-4 for an illustration.
    - a. Move the ball-bearing slide on each of the outer rails towards the front of the rack.
    - b. From the front-side of the rack with the front-side of the router facing out, align the inner and the outer rails and slide the inner rail into the outer rail.

- c. When the rails lock in place, press in the spring latches on each of the inner rails and push in the rest of the way.



**Figure 2-4: Installing the router into the rack**

7. Attach the Compaq bezel blank to the front-side of the rack.  
See Figure 2-5 for an illustration.
  - a. Align the bezel blank over the unused center hole of the bracket faces on the rack.
  - b. Attach the bezel blank to the rack, using the thumbscrews.



**Figure 2-5: Attaching the bezel to the rack**

---

## Connection

This chapter describes how to connect the StorageWorks Network Storage Router N1200 by Compaq. The router can be set up in either a desktop or a rack configuration.

**NOTE:** Read this chapter and Chapter 2, "Installation," carefully and completely before configuring the router.

The following considerations and procedures are included in this chapter:

- Connecting the power cord
- Connecting the interfaces
  - Fibre Channel connections
  - SCSI connections
  - Ethernet connections
  - Serial port connections
- Setting up autobaud
- Setting up serial port communications

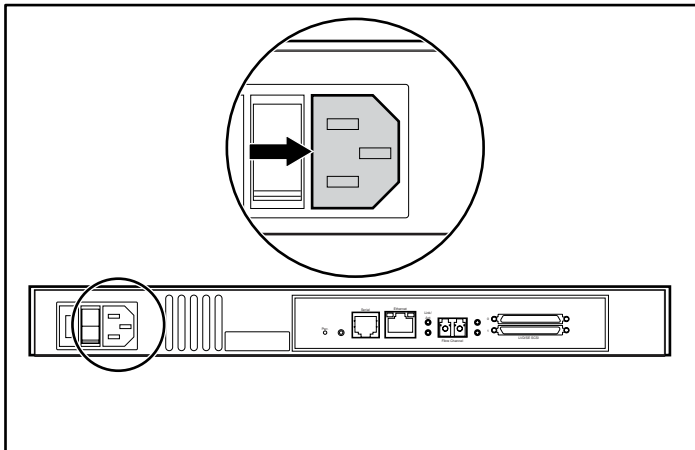


## Connecting the Power Cord

The internal power supply will support 100 - 240 VAC (Auto Sensing). The power cord shipped with the router is a 120 VAC three-conductor power cord for use in the United States and Canada. If the router is being installed outside the United States or Canada, the appropriate power cord should be purchased.

To connect the power cord to the router:

1. Connect the power cord to the power connector on the back-side of the router.
2. Connect the power cord to a grounded voltage source.



**Figure 3-1: Power connector**



**WARNING:** To reduce the risk of electric shock or damage to the equipment:

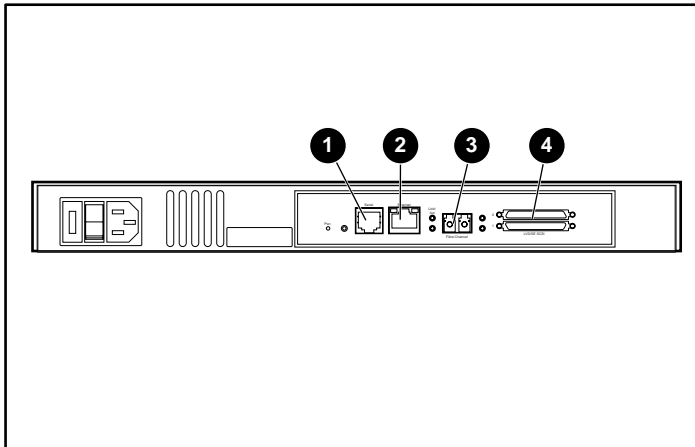
- Do not disable the power-cord grounding plug. The grounding plug is an important safety feature.
  - Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
  - Disconnect power from the router by unplugging the power cord from either the electrical outlet or the router.
-

## Connecting the Interfaces

There are four types of interfaces to connect on the router:

- Fibre Channel connections
- SCSI connections (HVD or LVD/SE)
- Ethernet connections
- Serial port connections

Figure 3-2 is an illustration of the port locations on the router.



**Figure 3-2: Back-side port locations**

**Table 3-1: Port Locations**

Item	Port Type
	Serial
	Ethernet
	Fibre Channel
	SCSI

For convenience in configuring ports, key information is indicated on a label located on the underside of the router.

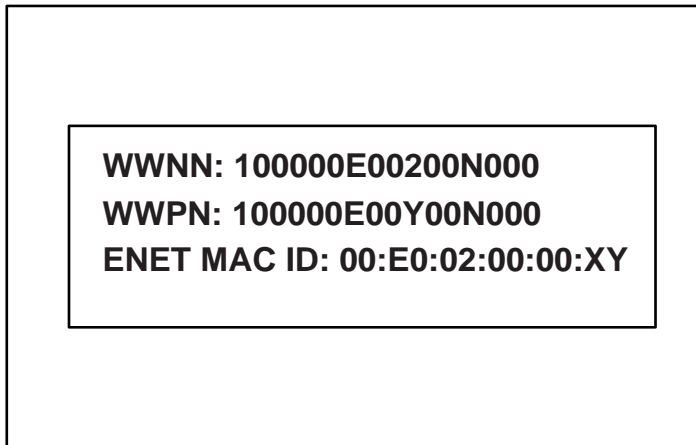


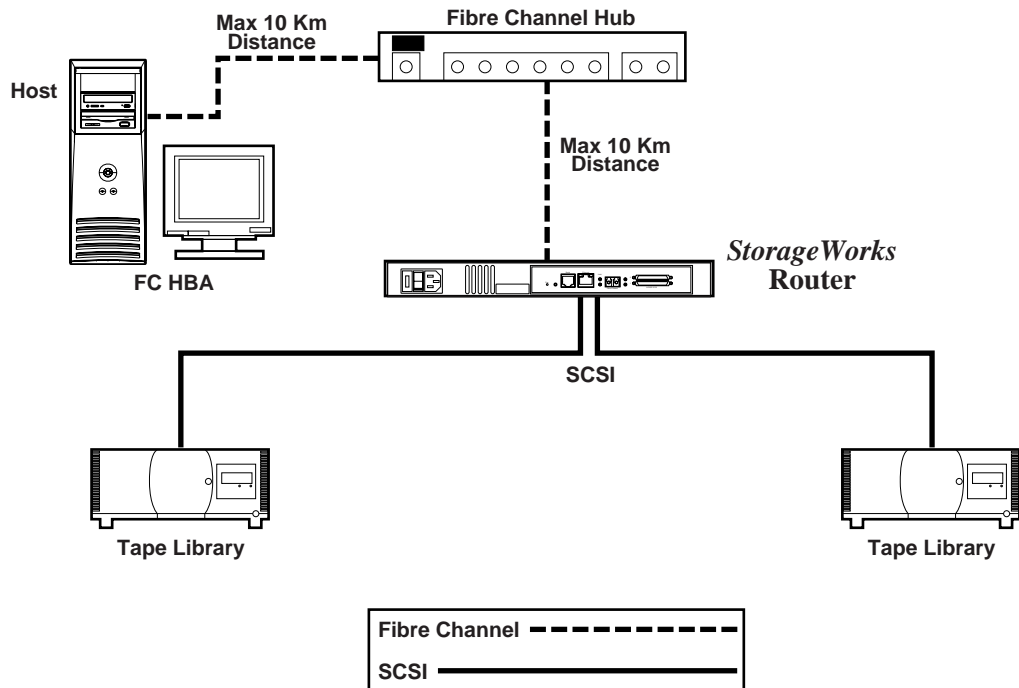
Figure 3-3: WWN/MAC ID label

## Fibre Channel Connections

In typical installations, the router may be connected to:

- Arbitrated Loop (AL) – the router can be directly attached to the Fibre Channel host adapter in a point-to-point configuration.
- Private loop (hub)
- Public loop (hub that is also connected to a switch)
- Fabric environment (switch)

**NOTE:** Before connecting the router to other Fibre Channel devices, it is important to understand the configuration requirements of the environment to which it will be connected. Failure to correctly configure a Fibre Channel device may impair the operation of the Storage Network to which it is attached.



**Figure 3-4: Configuration with tape library using arbitrated (or private) loop**

Both Fibre Channel switches and hubs may allow individual ports to be configured for different media types. The router must be connected to the hub or switch port with the appropriate Fibre Channel cabling for the media type in use.

The router supports various Fibre Channel media types, using external Small Form Factor Pluggables (SFP).

Available media types use 2.125-Gb (gigabit) Dual SC connectors and include:

- Multi-mode fiber support
- Single-mode fiber support

To connect the router to a Fibre Channel storage area network (SAN):

1. Locate the Fibre Channel port on the back-side of the router. Refer to Figure 3-2 for an illustration of the fibre channel port located on the back-side of the router.
2. Remove the rubber protector inserts from the SFP.
3. With the router powered off, connect the router to the Fibre Channel environment, using the appropriate cabling. The Fibre Channel optical connectors on the router are keyed for proper orientation.



**CAUTION:** The router has been qualified with a specific set of SFPs. Using an SFP that has not been qualified by Compaq may cause the router to operate improperly. See the Laser Safety section from Appendix B, "Regulatory Compliance Notices" for more information.

---

## SCSI Connections

The router supports Fast/Ultra-2 Narrow/Wide SCSI. The router is factory configured to support LVD/Single-Ended or HVD (Diff), or a mixture of both types of SCSI buses. Up to twelve SCSI buses can be attached, using 3 SCSI modules.

**NOTE:** The router must always be installed at the end of SCSI buses.

The router supplies termination power (TERMPWR) to each SCSI bus.

**NOTE:** During certain faults, the termination power IC will shut down. It may be restarted once the fault is cleared.



**CAUTION:** During the attachment of high density SCSI cables, note the orientation of the high-density SCSI port connectors. Connector orientation failure may result in connector damage.

---



**CAUTION:** LVD/SE and HVD connections must be made on appropriate I/O modules. Failure to heed this caution may result in damage to equipment.

---



**CAUTION:** Failure to comply with the minimum high-density cable specifications can result in damage to the router or an operational failure of the product.

---

**NOTE:** SCSI cables used with the router must meet SCSI 2 standards. Optional SCSI cables are available from your supplier.

To connect the router to a SCSI device:

1. Power off the router and SCSI devices.
2. Locate the SCSI buses. Refer to Figure 3-2 for an illustration of the SCSI buses located on the back-side of the router.
3. Connect a SCSI cable to one of the SCSI buses on the router.

**NOTE:** The router should always be installed at the end of the SCSI bus.

**NOTE:** SE is not supported by SCSI-3 protocols. While it is possible to mix SE and LVD devices on the same bus, doing so will result in substantially decreased performance on the bus.

4. Connect the SCSI cable to the SCSI device.
5. Verify that the bus is terminated correctly. By default, the router is automatically terminated. However, the device at the other end of bus must also be terminated.
6. Power on all attached SCSI devices.
7. After all the SCSI devices have completed their individual POST (Power-On Self Test) processes, power on the router.

## Ethernet Connections

10/100BaseT Ethernet connectivity provides enhanced management and configuration capabilities. The RJ-45 connector on the router can be directly connected to a standard 10/100BaseT Ethernet network.

To allow configuration capabilities via this port, the IP network address must be set. The IP network address can be manually assigned or dynamically assigned using DHCP. Refer to the *StorageWorks by Compaq Network Storage Router User Guide* for details on setting the IP network address.

**NOTE:** The router has a unique Ethernet MAC address that is assigned during the manufacturing process.

Ethernet interfaces include Telnet, SNMP, FTP, and an HTTP interface known as StorageWorks *Visual Manager*<sup>™</sup> (VM). For more information on router management, refer to the *StorageWorks by Compaq Network Storage Router User Guide*.

## Serial Port Connections

The RJ-11 connector provides a serial port that is compliant with the EIA 562 standard and is RS-232 signaling-level compatible. The serial connection can be used to configure the unit, monitor its diagnostic status, or update the router firmware.

Refer to Figure 3-2 for an illustration of the serial port location on the back-side of the router.

The serial port will accept the following settings:

**Table 3-2: Serial Port Settings**

Baud Rate	Autobaud, 9600, 19200, 38400, 57600, or 115200 Compaq recommends setting the baud rate to 115200.
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None or XON/XOF

## Setting up Serial Port Communications

To set up serial port communications:

1. Connect the serial cable between the host computer serial port (COM1 or COM2) and the router serial port.
2. Power on the router.
3. Power on the server.
4. Start the host terminal or terminal interface program (Windows 9x, NT 4.0, or Windows 2000 HyperTerminal).
5. Set the terminal or terminal interface program to use the appropriate COM port.
6. Configure the selected COM port as indicated in Table 3-2.
7. Press **Enter** several times. The router will automatically detect the baud rate being used. The baud rate will be retained through future power cycles.

**NOTE:** This process can take up to 90 seconds. The Power On Self Test (POST) and initialization information may not be visible on screen.

**NOTE:** The baud rate in the terminal emulation program must be set at 9600, 19200, 38400, 57600, or 115200 to use the autobaud feature.



---

## Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

## **Grounding Methods**

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm  $\pm$  10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have a Compaq authorized reseller install the part.

**NOTE:** For more information on static electricity, or assistance with product installation, contact your Compaq authorized reseller.

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## Regulatory Compliance Notices

### Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, your product has been assigned a unique Compaq Series Number. The series number can be found on the product label, along with the required approval markings and information. When requesting compliance information for this product, always refer to this series number. The series number should not be confused with the marketing name or model number of the product.

### Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows the classification (A or B) of the equipment. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or FCC ID on the label. After the Class of the device is determined, refer to the corresponding statement in the following sections.

## Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

## Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit that is different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

## Declaration of Conformity for Products Marked with the FCC Logo, United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding your product, contact us by mail or telephone:

- Compaq Computer Corporation  
P. O. Box 692000, Mail Stop 530113  
Houston, Texas 77269-2000
- 1-800-652-6672 (1-800-OK COMPAQ) (For continuous quality improvement, calls may be recorded or monitored.)

For questions regarding this FCC declaration, contact us by mail or telephone:

- Compaq Computer Corporation  
P. O. Box 692000, Mail Stop 510101  
Houston, Texas 77269-2000
- 1-281-514-3333

To identify this product, refer to the part, series, or model number found on the product.

## Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

## Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

## Power Cords

The power cord set included in your server meets the requirements for use in the country where you purchased your server. If you need to use this server in another country, you should purchase a power cord that is approved for use in that country.

The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product. In addition, the cross sectional area of the wire must be a minimum of 1.00 mm<sup>2</sup> or 18AWG, and the length of the cord must be between 6 feet (1.8 m) and 12 feet (3.6 m). If you have questions about the type of power cord to use, contact your Compaq authorized service provider.

A power cord should be routed so that it is not likely to be walked on or pinched by items placed upon it or against it. Particular attention should be paid to the plug, electrical outlet, and the point where the cord exits from the product.

## Canadian Notice (Avis Canadien)

### Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## Mouse Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## 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 (the equivalent international standards are in parenthesis):

- EN55022 (CISPR 22) – Electromagnetic Interference
- EN55024 (IEC61000-4-2, 3, 4, 5, 6, 8, 11) – Electromagnetic Immunity
- EN61000-3-2 (IEC61000-3-2) – Power Line Harmonics
- EN61000-3-3 (IEC61000-3-3) – Power Line Flicker
- EN60950 (IEC950) – Product Safety

## Japanese Notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

## Taiwanese Notice

### 警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。



## Laser Device

All Compaq systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light; the beam is totally enclosed during all modes of customer operation and maintenance.

## Laser Safety Warnings

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**WARNING:** To reduce the risk of exposure to hazardous radiation:

- Do not try to open the laser device enclosure. There are no user-serviceable components inside.
  - Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
  - Allow only Compaq authorized service technicians to repair the laser device.
- 

## Compliance with CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

## Compliance with International Regulations

All Compaq systems equipped with laser devices comply with appropriate safety standards including IEC 825.

## Laser Product Label

The following label or equivalent is located on the surface of the Compaq supplied laser device.



This label indicates that the product is classified as a CLASS 1 LASER PRODUCT. This label appears on a laser device installed in your product.

## Laser Information

**Table B-1: Laser Information**

<b>Feature</b>	<b>Description</b>
Laser type	Semiconductor GaAlAs
Wave length	780 nm +/- 35 nm
Divergence angle	53.5 degrees +/- 0.5 degrees
Output power	Less than 0.2 mW or 10,869 W m <sup>-2</sup> sr <sup>-1</sup>
Polarization	Circular 0.25
Numerical aperture	0.45 inches +/- 0.04 inches

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