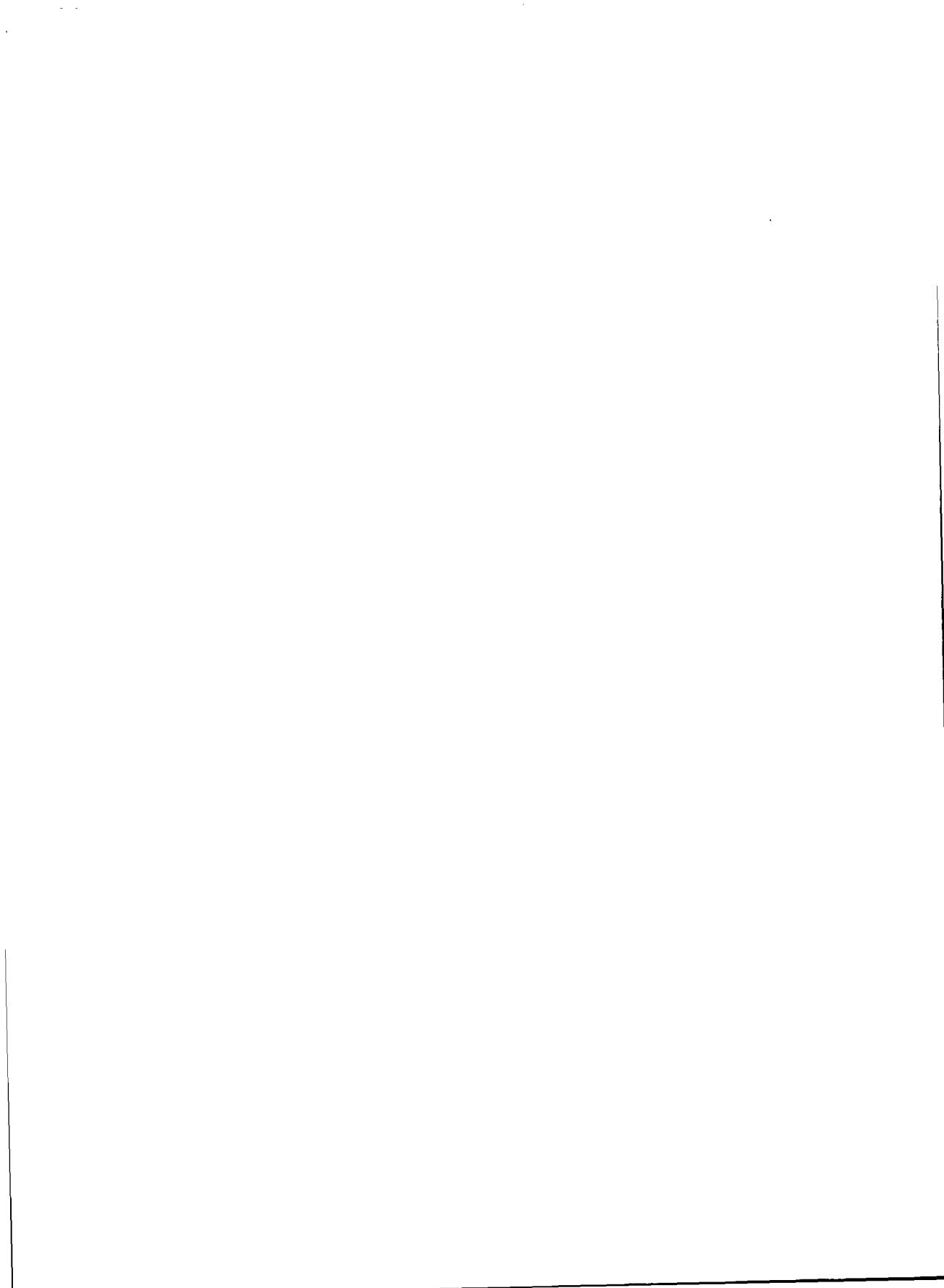


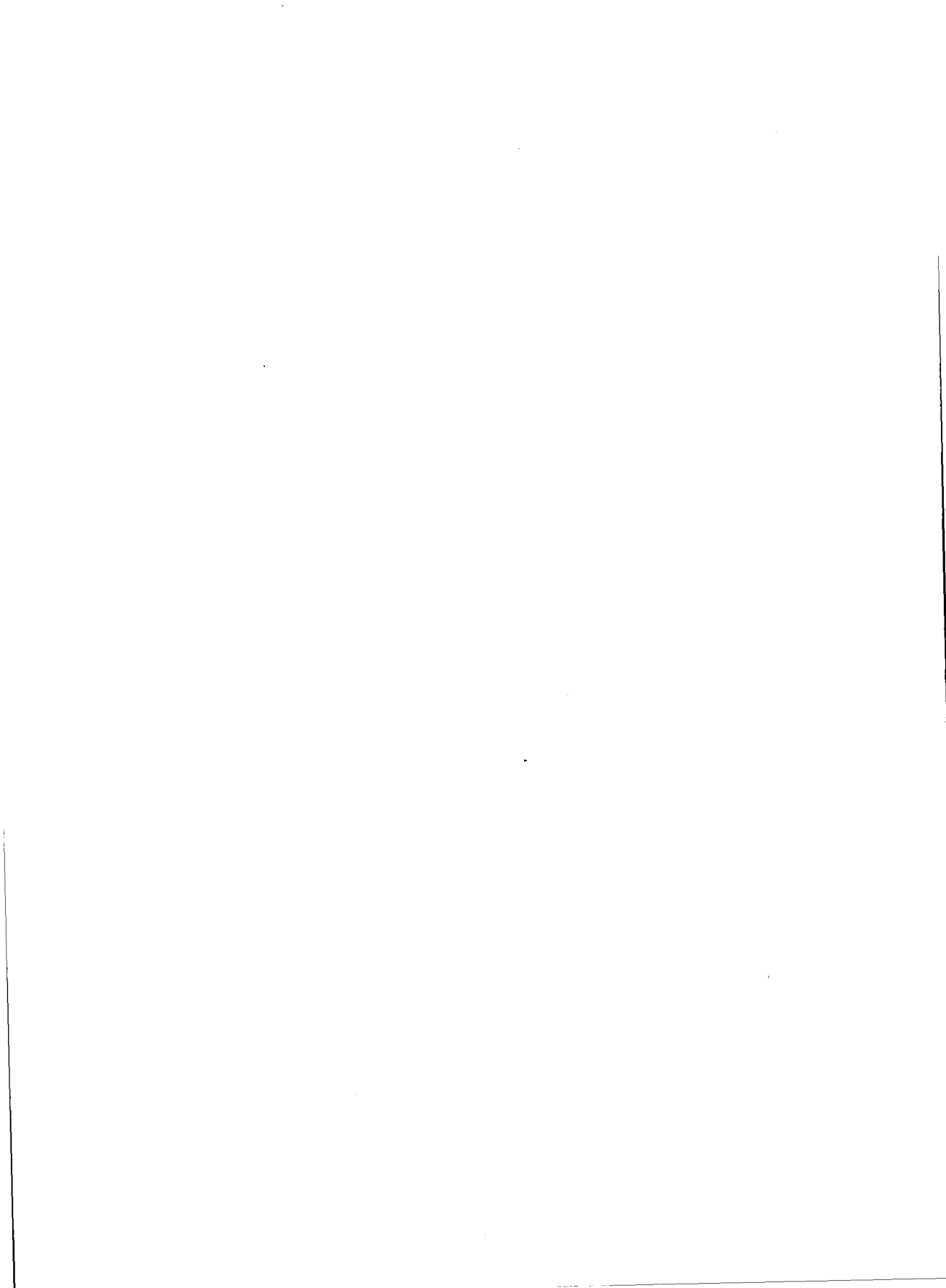
Exemplar
S-Class and
X-Class Servers

Digital Tape Autoloader Installation and Service Guide

First Edition



Hewlett-Packard Company
Convex Division
3000 Waterview Parkway
P.O. Box 833851
Richardson, TX 75083-3851
United States of America



Digital Tape Autoloader Installation and Service Guide

Exemplar S-Class and X-Class Servers

A4716-90013

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January 1997

Hewlett-Packard Company
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Richardson, Texas
United States of America

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Preface

Purpose and audience

The *Digital Tape Autoloader Installation and Service Guide* provides information for installing and maintaining a Digital Tape Autoloader connected to a Hewlett-Packard Exemplar S-Class or X-Class Technical Server. It is intended for anyone installing or servicing the Digital Tape Autoloader, including:

- Hewlett-Packard customers
- Hewlett-Packard customer engineers
- Hewlett-Packard Convex Division Technical Assistance Center (CXD TAC)

For information concerning the operation of the Digital Tape Autoloader, refer to the *Quantum Corporation DLT4000/DLT4500/DLT4700 Cartridge Tape Subsystem Product Manual* provided with the Digital Tape Autoloader.

Notational conventions

This section discusses notational conventions used in this book.

Bold monospace

In command examples, text shown in **bold monospace** identifies user input that must be typed exactly as shown.

Monospace

In paragraph text, `monospace` identifies command names.

In command examples, `monospace` identifies command output, including error messages.

In command syntax diagrams, text shown in `monospace` must be typed exactly as shown.

Italic

In paragraph text, *italic* identifies new and important terms and titles of documents.

In command syntax diagrams, *italic* identifies variables that must be supplied by the user.

Notes and cautions

This document presents notes and cautions in the following formats.

Note

A Note highlights supplemental information.

Caution

A Caution highlights information necessary to avoid damage to the system.

Associated documents

For more information about the Digital Tape Autoloader, refer to the accompanying OEM product manual:

Quantum Corporation DLT4000/DLT4500/DLT4700 Cartridge Tape Subsystem Product Manual (Quantum order number 81-108336-01). This is the original equipment manufacturer product manual for the DLT4700™ Cartridge Tape Subsystem. This manual is furnished with the Digital Tape Autoloader.

DLT4700™ is the OEM product name for the Digital Tape Autoloader.

For more information on SCSI controllers or Exemplar S-Class and X-Class Technical Servers, you can order these books from Hewlett-Packard:

- *PCI Ultra SCSI Installation and Service Guide: Exemplar S-Class and X-Class Servers* (A4716-90011). This book provides information on installing a PCI Ultra SCSI controller in an Exemplar S-Class or X-Class Server.
- *Exemplar Site Preparation Guide: S-Class Servers* (A4716-90005). This book provides technical information needed to prepare a site for the installation of an Exemplar S-Class Server.
- *Exemplar Installation Guide: S-Class Servers* (A4716-90003). This book provides technical information and detailed procedures needed to install an Exemplar S-Class Server.
- *Exemplar Diagnostics Guide: S-Class and X-Class Servers* (A4716-90002). This book provides a roadmap to all diagnostic programs. It also provides the user with definitive descriptions of the purpose of each test and defines minimum hardware configurations required for testing.
- *Exemplar Maintenance Guide: S-Class and X-Class Servers* (A4716-90004). This book is intended as a reference for system support engineers and manufacturing test personnel, as well as those customers that perform their own system maintenance.

Ordering documents

To order additional copies of this document or other documents listed in "Associated documents," send requests to:

Hewlett-Packard Company
Convex Division
Customer Service
P.O. Box 833851
Richardson, TX 75083-3851 USA

Please include the order number (xxxxx-9xxxx number) or the exact title of the document.

Technical assistance

If you have questions that are not answered in this book, contact the Hewlett-Packard Convex Technical Assistance Center (TAC) at the following locations:

Within the continental U.S., call 1 (800) 952-0379.

From Canada, call 1 (800) 345-2384.

All other locations, contact your local Hewlett-Packard office.

You can also use the `contact` utility, if you would like to report any problems you may have with the Digital Tape Autoloader or its associated documentation.

FCC notice

This equipment generates, uses, and can radiate radio frequency energy. If the equipment is not installed and used in strict accordance with the instruction manual, it may cause interference to radio communications.

This equipment has been tested and found to comply with 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 equipment is operated in a commercial environment.

When this equipment is operated in a residential area, it is likely to cause interference. In this case, the interference must be corrected at the operator's expense.

Do not connect external equipment to the utility outlets in the Hewlett-Packard Exemplar S-Class and X-Class Technical Server. Unauthorized connection voids all agencies' emissions certification.

Description and specifications

1

This chapter introduces the Digital Tape Autoloader and describes the components and characteristics of the drive. Physical, electrical, environmental, and cable specifications are also included.

Description

The Digital Tape Autoloader is a high-performance, high-capacity streaming cartridge tape subsystem designed for high-end computing systems. It features a native formatted capacity of 20 GB and a native sustained data transfer rate of 1.5 MBytes/s.

The Digital Tape Autoloader consists of a DLT4000™ tape drive and a 7-cartridge SCSI-2 loader. The tape drive is a 5 1/4-inch form factor and uses 1/2-inch media. It includes a dual-channel read-write head, Digital Lempel-Ziv (DLZ) high efficiency data compression, and tape mark directory to maximize data throughput and minimize data access time. The Digital Tape Autoloader has a typical cycle time of 20 seconds and can provide unattended backup of 100 GB in about 11 hours.

Even though the Digital Tape Autoloader is capable of operating in random mode and sequential mode, only sequential mode is supported in SPP-UX. Sequential mode causes the group of tapes in a magazine to look like one logical tape to utilities that support unattended multivolume backups.

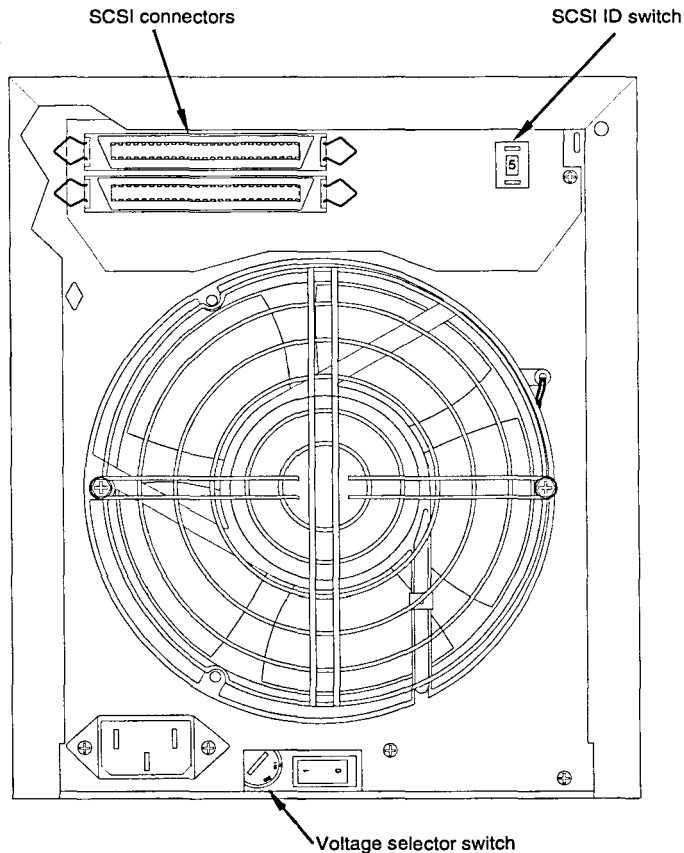
In sequential mode, when a utility that supports unattended multivolume backup detects EOT (End of Tape), the utility issues an OFFL command to the tape drive. The tape drive then unloads the current tape and loads the next tape in the magazine. If the current tape is the last tape, or if the unit encounters an empty slot in the magazine, the utility reports an error to the console, and

operator intervention is required. A tape is typically loaded in less than one minute.

The Digital Tape Autoloader supports narrow, differential SCSI connections only. A 20-ft. differential SCSI cable (part number 604-500029-200) for connection to the host system is provided with the PCI Ultra SCSI controller (part number 550-001019-203). A 3-ft. differential SCSI cable (part number 217-000005-006) for daisy-chaining multiple units is provided with the Digital Tape Autoloader.

Two SCSI connectors on the rear of the unit allow you to daisy-chain multiple units together on one SCSI bus. The rear of the unit also features a push button switch for setting the SCSI ID and a voltage selector switch for selecting the operating voltage. Figure 1 shows the location of the connectors and switches on the Digital Tape Autoloader.

Figure 1 Connector and switch location



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Specifications

This section lists the physical, electrical, environmental, and cable specifications for the Digital Tape Autoloader.

Table 1 provides the physical specifications of the Digital Tape Autoloader.

Table 1 Physical specifications

Characteristic	Value
Height	27.25 cm (10.73 in.)
Width	22.54 cm (8.875 in.)
Length	68.5 cm (27.0 in.)
Weight	29.54 kg (65 lb.)

Table 2 describes the power requirements for the Digital Tape Autoloader.

Table 2 Electrical specifications

Characteristic	Value
Input voltage (selectable)	100 to 120 V ac, 2 A 220 to 240 V ac, 1 A
AC power requirements	82 W, typical 113 W, maximum

Table 3 shows the recommended operating environment for the Digital Tape Autoloader.

Table 3 Operating environment

Condition	Operating	Nonoperating
Temperature	10° to 40° C (50° to 104° F)	-40° to 66° C (-40° to 150.8° F)
Relative Humidity	20% to 80% noncondensing	10% to 95% noncondensing

Table 4 describes the SCSI interface on the Digital Tape Autoloader and lists the required cables.

Table 4 Cable specifications

Item	Specification
Communication interface	SCSI-2 bus, narrow (8 bits), differential
Host connection	20 ft. M68HD - M50CENT SCSI-2 differential cable, part number 604-500029-200. (Provided with PCI Ultra SCSI controller.)
Daisy-chain connection	3 ft. SCSI-2 differential cable, part number 217-000005-006. (Provided with Digital Tape Autoloader.)

Unpacking and inspection

2

This chapter describes how to inspect and unpack the Digital Tape Autoloader from its shipping container.

Inspection

All shipping containers are designed to protect their components under normal shipping conditions. Carefully inspect each carton for signs of shipping damage *before* it is unpacked. If damage is found after visual inspection, document the damage with photographs and contact the transport carrier immediately.

Unpacking

Use the following procedure to unpack the shipping container:

Step 1 Remove each item from its shipping container.

Caution

Do not attempt to lift the Digital Tape Autoloader unit by yourself. The unit weighs approximately 65 pounds.

Step 2 Inspect each item as it is unpacked for any signs of shipping damage.

Step 3 If you find equipment damage, document the damage, and proceed to the "Damage claims" section in this chapter.

Save all packing material until after operational checkout of the equipment. This enables equipment to be returned safely to Hewlett-Packard, if required.

Contents

The bill of materials lists all equipment shipped from Hewlett-Packard. Use it as a checklist to ensure that all equipment has arrived.

The shipping container should contain the items listed in Table 5.

Table 5 Product contents

Qty	Description
1	Digital Tape Autoloader
1	Tape cartridge magazine
1	Power cord
1	3ft. SCSI Cable - Male 50-pin CENTRONICS to Male 50-pin CENTRONICS (Cinch) for daisy chaining
1	SCSI terminator
2	Keys
7	Tape cartridges
1	Cleaning cartridge
1	OEM product manual

Damage claims

If the equipment is damaged, a damage claim form must be completed. Complete the claim form and return it to the shipping representative. Claim forms are normally obtained from the shipping representative.

This chapter describes how to install the Digital Tape Autoloader, connect it to the host system, and integrate it into the operating system.

Preinstallation requirements

Before beginning the installation, there are certain prerequisites that must be met, such as preparing a site for the autoloader and making sure you have a proper controller installed in the host system. In addition, it is important that you understand the configuration rules governing the Digital Tape Autoloader.

Each of these prerequisites is discussed below.

Site preparation

The Digital Tape Autoloader must be located on a sturdy, flat surface, such as a table. The table should be located adjacent to the host system due to cable constraints. The SCSI cable for the host connection is 20 feet in length.

Make sure there is an adequate source of power for the unit(s). Electrical specifications are provided in Chapter 1.

Controller prerequisites

The first Digital Tape Autoloader to be installed requires a dedicated PCI Ultra SCSI controller (part number 550-001019-203) in the host system, with a 68-pin to 50-pin, 20-foot differential SCSI cable (part number 604-500029-200) for connection between the autoloader and the controller. Subsequent autoloaders can be daisy-chained from the same host controller, if desired.

If you have not already installed a dedicated PCI Ultra SCSI controller in an EIOB (Exemplar Input/Output Board), you need to install one before proceeding any further. For information on installing a PCI Ultra SCSI controller, refer to the *PCI Ultra SCSI Installation and Service Guide: Exemplar S-Class and X-Class Servers*.

The Digital Tape Autoloader must be connected to a dedicated SCSI bus that connects to external devices (devices not in the host cabinet). It cannot share the bus with internal disk devices. In addition, do not attach external disk drives to the Digital Tape Autoloader.

Configuration rules

Only narrow SCSI devices can be on the same bus with the Digital Tape Autoloader. The following devices are permitted:

- Digital Tape Autoloader
- DLT4000™ tape drive
- DLT2000™ tape drive
- DDS-2 DAT drive
- DDS-3 DAT drive
- Fujitsu 3480-compatible tape drive
- Fujitsu 3490-compatible tape drive

The SCSI specification allows a maximum of seven devices on one SCSI bus. For the best performance, configure a maximum of four devices on one SCSI bus. The last device must provide termination.

Tools required

To install the Digital Tape Autoloader, you need a #2 Phillips screwdriver.

Overview of installation

Installing the Digital Tape Autoloader involves some minor disassembly of the host system. The procedure below provides a summary of the steps involved in the installation process.

Note

These steps are provided for summary purposes only. Detailed installation instructions are presented in the sections that follow.

- Step 1** Place the Digital Tape Autoloader on a table adjacent to the host system.
- Step 2** Check the voltage selector switch to make sure the proper operating voltage is selected.

Caution

Do not turn on power to the Digital Tape Autoloader without first checking the voltage selector switch. Operating the unit with the wrong input voltage setting may damage the unit.

- Step 3** Attach the power cord.
- Step 4** Set the SCSI ID on the unit.
- Step 5** Shut down the host system.
- Step 6** Remove the side skin and Electromagnetic Interference (EMI) panel.
- Step 7** Attach the host system's SCSI cable (68-pin male connector) to a dedicated PCI Ultra SCSI controller. Route the cable through the cable channel.
- Step 8** Reinstall the EMI panel and side skin.
- Step 9** Attach the other end of the host system's SCSI cable (50-pin male connector) to the Digital Tape Autoloader.
- Step 10** Attach the SCSI terminator (or a daisy-chain cable if connecting multiple units).
- Step 11** Turn on the autoloader and insert the key.
- Step 12** Insert tape cartridges into the tape magazine.
- Step 13** Load the magazine into the magazine bay.
- Step 14** Turn the key to the "AUTOMATIC MODE" position and close the magazine door.
- Step 15** Press the Load/Unload button on the front panel to load the first tape.
- Step 16** Boot the host system to OBP.
- Step 17** Integrate the Digital Tape Autoloader into the system using the `mkmap` command.

- Step 18** Reboot the system.
- Step 19** Create device files for the Digital Tape Autoloader.
- Step 20** Test the Digital Tape Autoloader tape drive.

Detailed installation instructions

The following sections provide detailed instructions on installing and configuring the Digital Tape Autoloader.

Installing the Digital Tape Autoloader

- Step 1** Place the unit on a flat, sturdy surface, such as a table. If you are connecting this unit to the host system, locate the table adjacent to the host system, so that the cable reaches both the host and the autoloader comfortably. The SCSI cable for the host connection is 20 feet long.

If you are installing more than one Digital Tape Autoloader, locate each unit as close as possible for easy interconnection. The daisy-chain cable provided with the unit is 3 feet long.

Caution

Do not attempt to lift the The Digital Tape Autoloader unit by yourself. The unit weighs approximately 65 pounds.

- Step 2** Check the voltage selector switch on the rear of the autoloader to make sure it is set for the proper voltage. If it is not, set it at this time by inserting a small flat-blade screwdriver into the notch on the switch and turn the switch to set the proper voltage. Electrical specifications for the autoloader are provided in Chapter 1.

Caution

Do not turn on power to the Digital Tape Autoloader without first checking the voltage selector switch. Operating the unit with the wrong input voltage setting may damage the unit.

- Step 3** Connect the power cord to the autoloader and plug it into a suitable power source.
- Step 4** Check the SCSI ID and change it, if necessary. Each device on the SCSI bus must have a unique SCSI ID. The Digital Tape Autoloader's SCSI ID is preset at the factory to ID 5. If you need to change the SCSI ID, you can do so by pressing the pushbutton switch in the upper right-hand corner on the rear of the autoloader. SCSI ID 7 is reserved for the host system SCSI controller.

Note

Do not connect the host system's SCSI cable to the Digital Tape Autoloader at this time. You must first connect the cable to the host and route it through the host system's cable channel before connecting it to the autoloader. Procedures for making the host connection are described in the next section, "Connecting to the host."

Connecting to the host

The Digital Tape Autoloader must be connected to a dedicated SCSI controller in the host system. To make this connection, you need to perform some minor disassembly of the host system. Follow these steps to make the connection:

- Step 1** Shut down the system with the `/etc/shutdown` command. Enter:

```
# /etc/shutdown -h time
```

where the *time* argument can be used to schedule a timed shutdown or the keyword "now" can be used to shut down the system immediately. Refer to the *SPP-UX System Administrator's Guide* or the `shutdown(1m)` man page for more information.

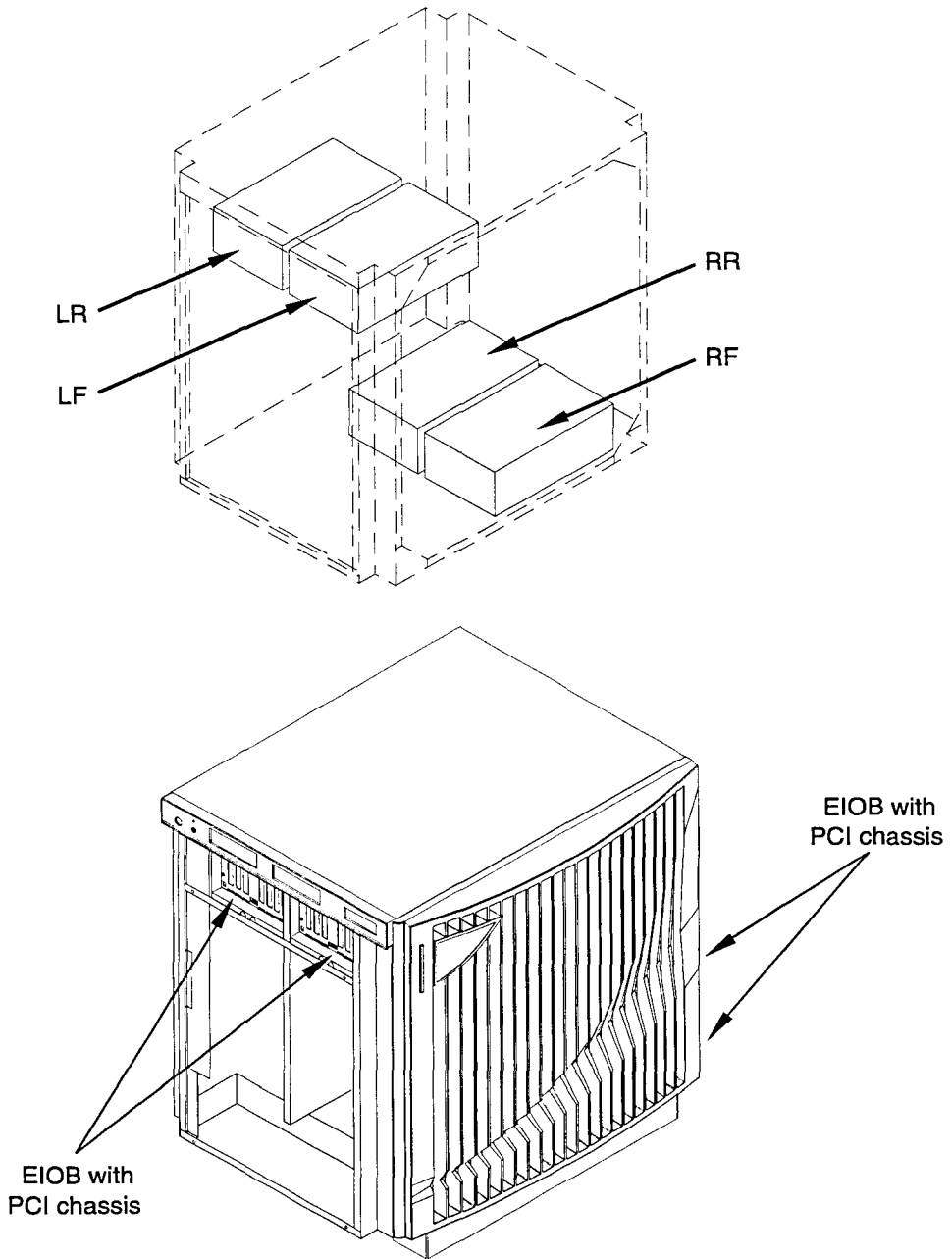
- Step 2** Terminate power to the system by turning the operator panel keyswitch to the OFF position.

- Step 3** Determine which EIOB contains the SCSI controller that you intend to use to connect to the autoloader. The system can contain from one to four EIOBs, depending on your system configuration. The EIOB you are targeting for installation determines which side skin you need to remove in Step 4. Figure 2 shows the four possible locations of an EIOB in the chassis.

Note

If you have not already installed a dedicated PCI Ultra SCSI controller in an EIOB, you need to install one before proceeding. For information on installing a PCI Ultra SCSI controller, refer to the *PCI Ultra SCSI Installation and Service Guide: Exemplar S-Class and X-Class Servers*.

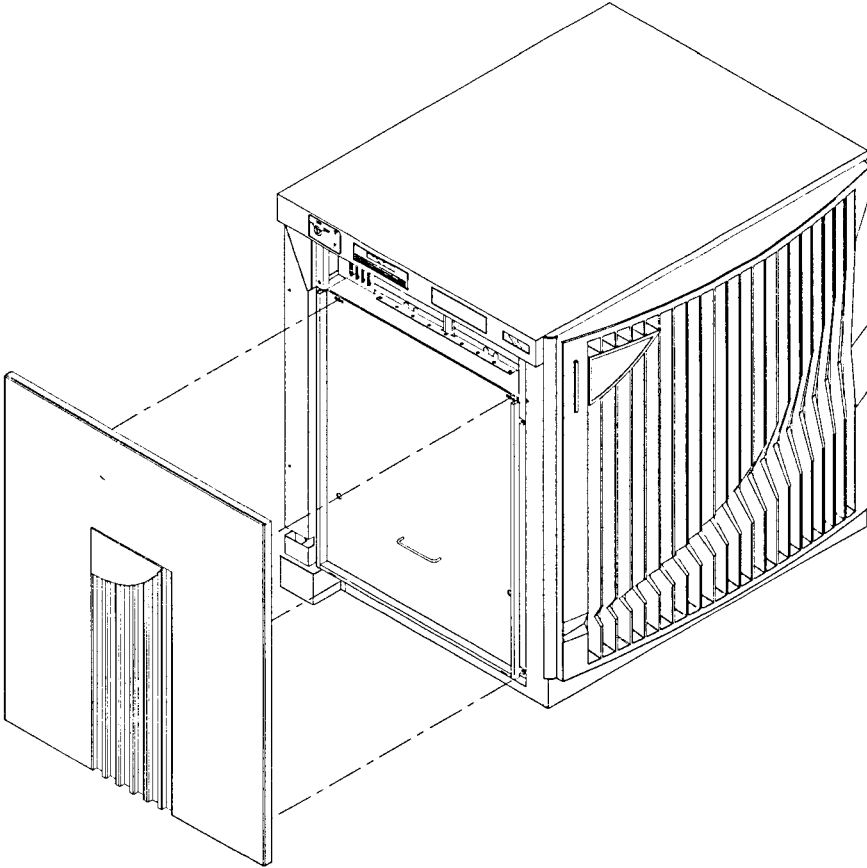
Figure 2 EIOB locations



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- Step 4** Remove the left or right side cabinet skin by pulling from the top and bottom of the skin until it pops out. Each skin has a set of four catch pins that secure it to the chassis as shown in Figure 3.

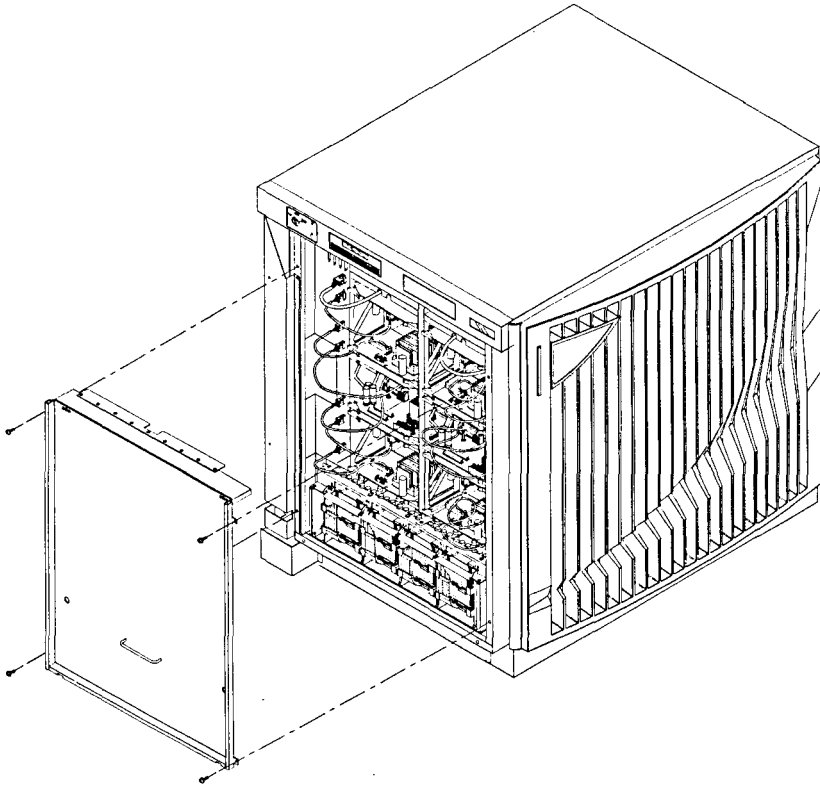
Figure 3 Removing the side skin



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Step 5 Remove the EMI panel by removing the four screws that fasten the panel to the chassis as shown in Figure 4.

Figure 4 Removing the EMI panel

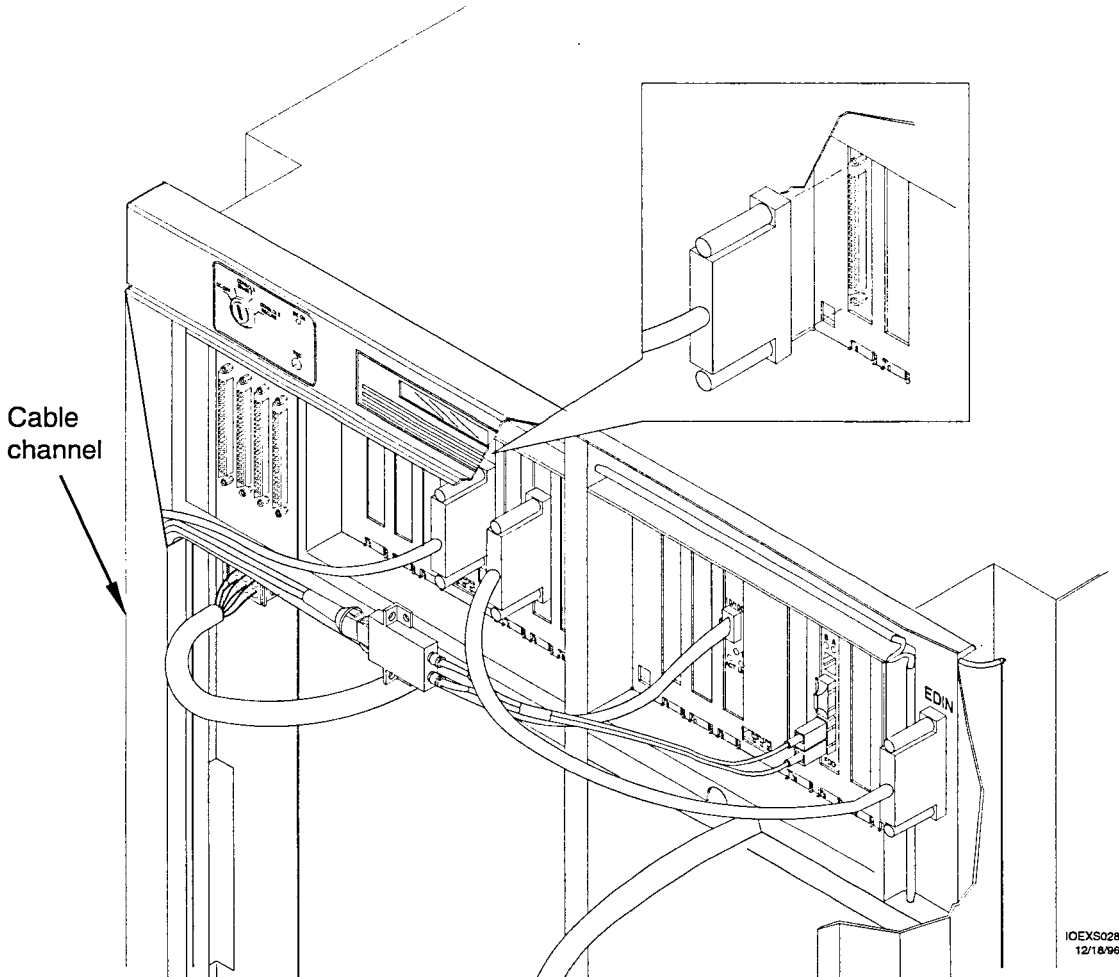


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Step 6 Attach the host system's SCSI cable to the connector on the controller as shown in Figure 5. Route the cable into the cable channel at the rear edge of the system chassis and feed it down through the channel to the cable opening at the bottom of the chassis. Pull the cable through so that it exits the system and reaches the rear of the autoloader comfortably.

Step 7 Reinstall the EMI panels and side skins.

Figure 5 Connecting the SCSI cable to the host

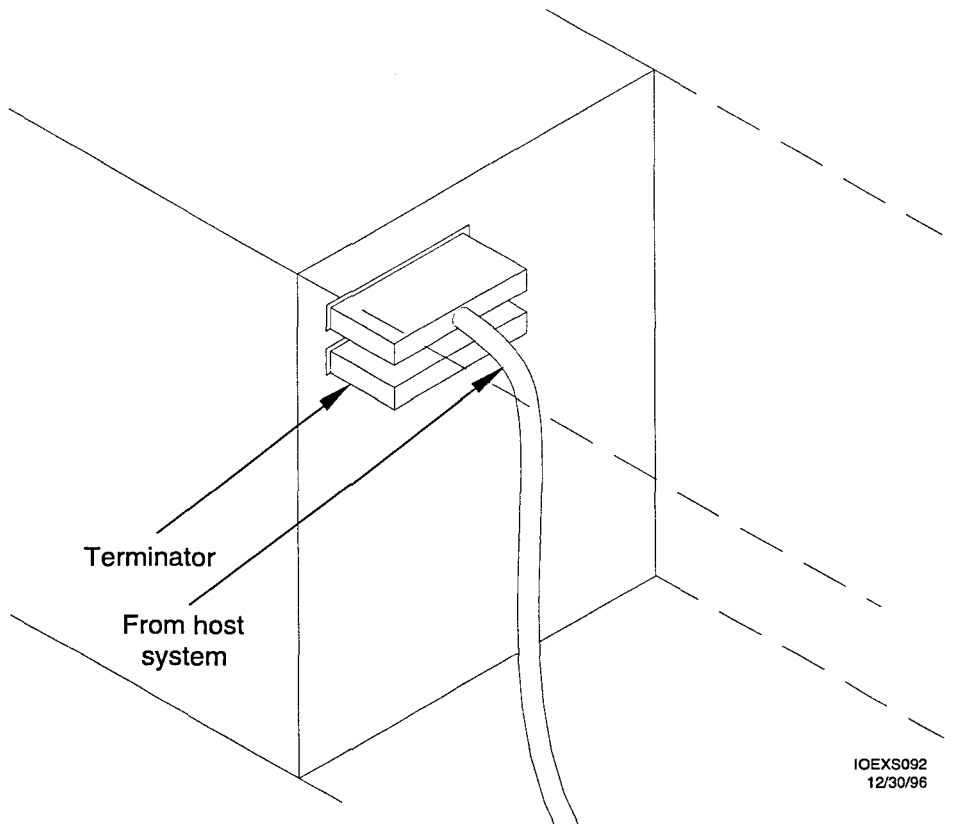


Connecting the Digital Tape Autoloader

Complete the following steps to connect the host system's SCSI cable to the Digital Tape Autoloader:

- Step 1** Attach the SCSI cable coming from the host system to one of the SCSI connectors on the rear of the autoloader as shown in Figure 6.

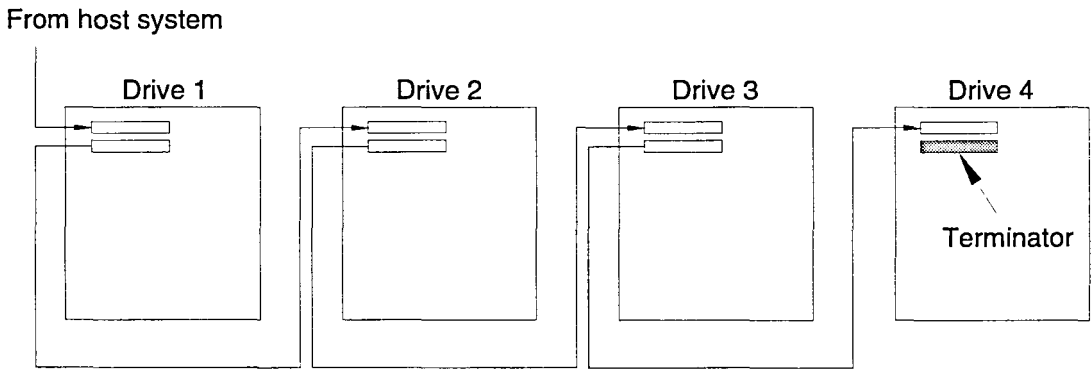
Figure 6 Connecting the autoloader



Step 2 If this is the only device you are connecting to this bus, install the SCSI terminator on the second SCSI connector on the rear of the autoloader (see Figure 6).

If you are connecting additional devices to this SCSI bus, instead of installing the terminator, connect the daisy-chain cable to the second SCSI connector on the rear of the first autoloader. Continue chaining devices together as shown in Figure 7. You can connect a maximum of seven devices on one SCSI bus. You must install a SCSI terminator on the last device.

Figure 7 Connecting multiple devices on the same bus



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Completing the installation

Perform the following steps to complete the installation:

- Step 1** Turn on power to the Digital Tape Autoloader and insert the key into the keyswitch on the front of the unit.
- Step 2** Insert the tape cartridges into the cartridge magazine. Cartridges are loaded and unloaded from the front of the magazine.
- Step 3** Insert the magazine into the Digital Tape Autoloader.
- Step 4** Turn the key to the "AUTOMATIC MODE" position and close the magazine door.
- Step 5** Press the Load/Unload button on the front panel. The tape drive should automatically load the first tape.

Software integration

When you add a device to your system or change characteristics of an existing one, you must integrate the device into SPP-UX.

Defining the OBP logical device

Before booting the nodes of your Exemplar system to the operating system level, you must specify a logical unit number for the Digital Tape Autoloader at the OpenBoot Prompt (OBP). Perform the following steps to define the device:

- Step 1** Restart the host system by turning on the operator panel keyswitch.
- Step 2** When the system boots to OBP, go to the Exemplar System Console window and determine the full device name with the `show-devs` command. Enter:

```
ok show-devs
```

at the OpenBoot ok prompt. `show-devs` with no argument displays all known devices on the specified node.

Step 3 Find the device path that includes the string `st` (SCSI tape) in the output from the `show-devs` command as shown in the following output example:

```
/pci@fe,10000/qlisp@0,0/st
```

Step 4 Define the SPP-UX logical-unit to physical-unit mapping using the `mkmap` command. This mapping is a label for tape and network devices that cannot be labeled like disks. `mkmap` has the following syntax:

```
mkmap logical_unit_number obp_path
```

where:

logical_unit_number

designates the logical-unit number of each device. If this is the first Digital Tape Autoloader, the logical-unit number would be 0, the second device would be 1, and so forth.

obp_path

represents the full device name as returned by the `show-devs` command in Step 3.

Use the device path from the output of the `show-devs` command in Step 3 and add the SCSI ID and logical unit number (LUN) (`@ID, LUN`) to the end of the device path.

```
ok mkmap 0 /pci@fe,10000/qlisp@0,0/st@5,0
```

Step 5 Use the `show-map` command to verify that the logical unit is correct.

```
ok show-map
```

```
Flag Unit Device Pathname  
0 /pci@fe,10000/qlisp@0,0/st@5,0
```

Step 6 Reset OBP so that the device tree is probed and built with the new logical unit number in place. Enter:

```
ok reset
```

Step 7 Verify during the boot process that probe and attach found the Digital Tape Autoloader. The tape drive is reported as LUN0 and the magazine loader is reported as LUN1 for a given SCSI ID target.

Creating device files

Once you have successfully installed and integrated the Digital Tape Autoloader, you need to create device files to access the drive. Use the following procedure to create the device files:

Step 1 From the Exemplar Console, change your working directory to the /dev directory.

```
# cd /dev
```

Step 2 Run the MAKEDEV utility with the tmid argument to create device files for the first four units. Enter:

```
# MAKEDEV tmid
```

MAKEDEV creates multiple /dev/tmid/rdlt entries for each unit. For example, device files for the first unit would be:

- rdlt0_20.0
- rdlt0_20.0i
- rdlt0_20.0n
- rdlt0_20.0ni
- rdlt0_10.0
- rdlt0_10.0i
- rdlt0_10.0n
- rdlt0_10.0ni
- rdlt0_2.6
- rdlt0_2.6n
- rdlt0_6.0
- rdlt0_6.0n

The device files have the following characteristics:

rdlt0

identifies this as a character device file for a Digital Tape Autoloader. In this example, the zero indicates this is the first logical Digital Tape Autoloader.

20.0 | 10.0 | 2.6 | 6.0

indicates the density. There are device files for 2.6 GB, 6.0 GB, 10.0 GB, and 20.0 GB densities. The 20.0 density requires an HP TapeIV (CompacTape IV™) tape cartridge.

n

indicates no rewind.

i

indicates compression.

Step 3 Make sure there is at least one tape in the magazine.

Step 4 Verify communication with the drive using the `mt` command:

```
# mt -t /dev/tmid/rdlt0_6.0n rew
```

If you get an I/O error, make sure you have integrated the device correctly and created the device files. If the error persists, call the Technical Assistance Center (TAC).

Step 5 Check the read/write capability of the drive using the `tar` utility. To write data to the tape, enter:

```
tar cvbf 128 /dev/tmid/rdlt0_6.0 ./etc
```

To read the data back from the tape, enter:

```
tar xvbf 128 /dev/tmid/rdlt0_6.0 >/dev/null
```

Again, if you get an I/O error, make sure you have integrated the device correctly and created the device files. If the error persists, call the Technical Assistance Center (TAC).

The unit is now ready for service.

This chapter provides information on troubleshooting installation and configuration problems with the Digital Tape Autoloader. A list of Field Replaceable Units (FRUs) is also provided.

Troubleshooting

The Digital Tape Autoloader does not contain any field-serviceable parts. Troubleshooting procedures described in this section are limited to verifying that the unit is configured properly and has a valid connection.

If your autoloader unit is not functioning properly, it may be due to a connection or configuration problem. Try using the following troubleshooting tips to identify the problem:

- Check the connection.

Check to see if you are using the correct cable and that the cable is connected and operating properly.

- Check the SCSI ID.

Each device on the SCSI bus must have a unique SCSI ID assigned. Check each device on this SCSI bus to determine if more than one device is attempting to use the same SCSI ID.

- Check the SCSI controller.

Perform a visible inspection of the SCSI controller in the host system to make sure the controller is seated properly in the PCI bus slot. If necessary, power down the system, reseal the controller, and restart the system.

If you suspect the SCSI controller is malfunctioning, you may want to run diagnostics to check the controller's operational state. Refer to the *PCI Ultra SCSI Installation and Service Guide: Exemplar S-Class and X-Class Servers* for details on running diagnostics.

- Check OBP.

Examine the logical-unit to physical-unit mapping information that OBP maintains. The `show-map` command displays a list of known devices. Check to see if the entry for the Digital Tape Autoloader is valid. A valid entry should look similar to the following:

```
ok show-map
```

```
Flag Unit Device Pathname
0 /pci@fe,10000/qlisp@0,0/st@5,0
```

Refer to the section, "Software integration," in Chapter 3 for more information on physical-unit to logical-unit mapping.

- Check the device files.

Make sure that device files exist for the Digital Tape Autoloader. Device files are located in the `/dev/tmid` directory. Refer to the section, "Creating device files," in Chapter 3 for more information about device files.

If you are still unable to produce a working unit, contact your local HP customer representative or call the Technical Assistance Center at one of the following locations for information on servicing the unit:

- Within the continental U.S., call 1 (800) 952-0379.
- From Canada, call 1 (800) 345-2384.
- All others, contact your local HP sales office.

FRU list

The following table lists the Hewlett-Packard Convex Division (CXD) part numbers for the Digital Tape Autoloader Field Replaceable Units (FRUs). In some cases, standard Hewlett-Packard part numbers are also listed.

Table 6 Digital Tape Autoloader FRU list

Description	Part number
Digital Tape Autoloader unit ¹	550-001105-200
Magazine	207-000050-001
3 ft. differential SCSI cable for daisy-chaining multiple units	217-000005-006
20 ft. M68HD - M50CENT SCSI-2 differential cable for host connection	604-500029-200
SCSI terminator	207-000015-011
DLT CompacTape IV tape cartridge	C5141F
Cleaning cartridge	C5142A
OEM product manual	207-000050-002

1. The two keys provided with the Digital Tape Autoloader are not FRUs.

Tape utility enhancements

A

This appendix describes changes made to tape utilities in SPP-UX V5.1 to support the Digital Tape Autoloader's unattended multivolume backup capability.

dump and restore

The `dump` utility has been modified to support unattended backup. The `-e` option has been added to perform an eject at End of Tape (EOT) or End of Dump. If `dump` runs out of tapes, it prints a message and waits until a new magazine is loaded. This option overrides the `-S` option.

Note

Do not use the `-e` option with a "no rewind" device when you are expecting to get multiple dumps on a single tape.

The `restore` utility has not been modified. System operators must respond to prompts for each tape and manually mount the tapes when running `restore`.

fbackup and frecover

There are no new arguments to `fbackup` and `frecover`, but they have been modified to better facilitate unattended backups. When `fbackup` and `frecover` detect EOT, an `OFFL` command is sent to the tape device. When the `ioctl()` returns, the next tape is loaded and `fbackup`, or `frecover`, continues from where it left off. If the next tape could not be loaded due to EOM (End of Medium) or an error condition, the operator is prompted to intervene. `fbackup` does not support "no rewind" devices.

Tapes used by an `fbackup` session each have a session ID in their headers, as well as sequential volume numbers. `frecover` checks for the right session ID and volume number when using multiple tapes on a `recover` session. The operator is prompted if a mismatch is detected.

Refer to the `dump(1m)`, `restore(1m)`, `fbackup(1m)`, and `frecover(1m)` man pages for more information.

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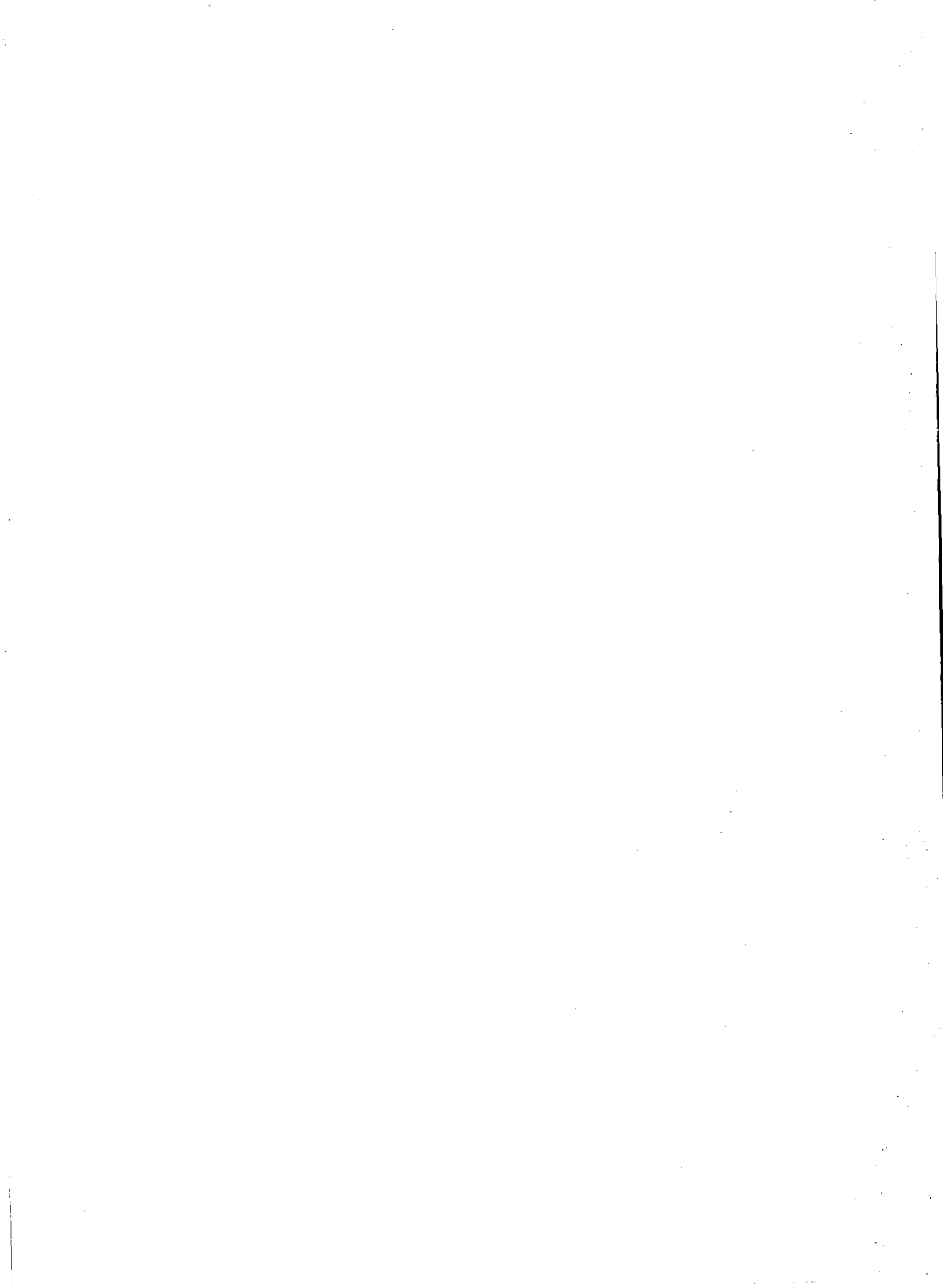
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