

**DECpc**

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**525MB SCSI Tape Drive  
Installation Guide**

Order Number: EK-XATAA-IG-002

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# 1

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## Package Contents

The 525 MB SCSI tape cartridge is available in various kits to meet different end user operating system environments. The base kit (PCXAT-AA) contains the following:

- 525 MB SCSI Tape Drive
- 4 mounting screws
- 1 blank QIC 525 MB tape
- 1 cleaning kit
- Spare jumpers

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### NOTE

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This kit should be used for SCO UNIX or when you order a non-English language variation of the Sytos Plus for DOS software kit. See your Digital Sales Representative for language availability.

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The PCXAT-AB includes everything in the base kit plus the english version of Sytos Plus for DOS.

The PCXAT-AC includes everything in the base kit plus the english version of Sytos Plus for OS/2.

# 2

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## Introduction

The tape cartridge system is a high-capacity internal tape backup system. The many features of the tape drive include:

- 525MB formatted capacity
- 5 1/4 inch form factor
- Integrated SCSI controller
- 120 inches per second (IPS) tape speed
- Data transfer rate of 200 KB per second
- Burst rate of 2.4 MB per second

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**NOTE**

A separate Adaptec 1540B adapter is required to support OS/2 version 1.21 users.

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## Controls and Indicators

The tape drive has one LED and an eject button. There are only two possible conditions of the LED:

**Table 2-1. LED Summary**

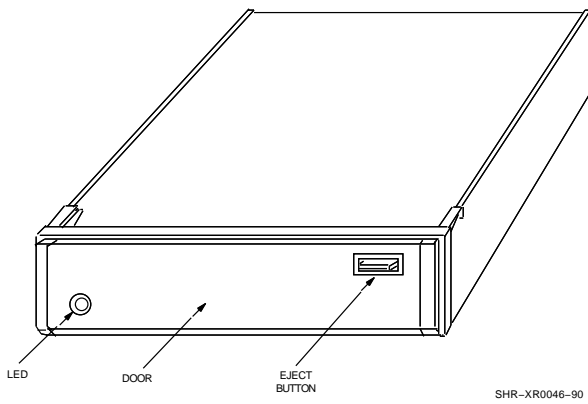
LED state	Condition
Off	Tape is not present or unloaded
Solid Green	Tape is loaded or tape in motion

The eject button unlocks the door and partially ejects the tape cartridge from the drive. (Figure 2-1)

## Tape Cartridge

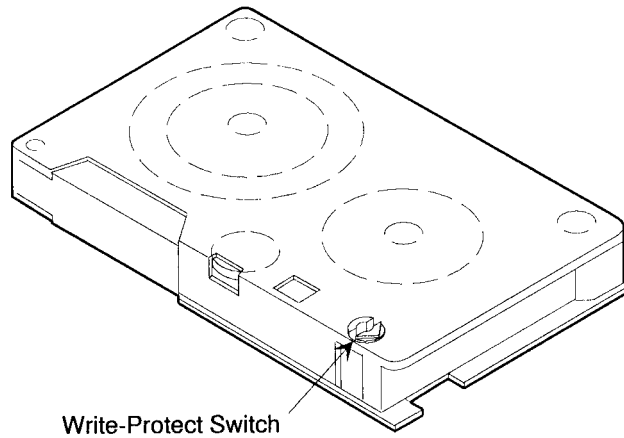
The tape drive is shipped with a DC6525 tape cartridge (Figure 2-2), however, the tape drive can be used with other standard format cartridges. Refer to Table 2-2.

Introduction



**Figure 2-1. TZK12 tape drive**





**Figure 2–2. The Quarter-Inch Tape Cartridge**

**Table 2–2. Cartridge Compatibility**

<b>Cartridge</b>	<b>Capacity <sup>1</sup></b>	<b>Format</b>	<b>Capability</b>
DC6525	up to 525 MB	QIC-320	Read/Write
DC6320	up to 320 MB	QIC-320	Read/Write
DC6150/DC600XTD	up to 120 MB	QIC-150	Read/Write
DC600A	up to 120 MB	QIC-120	Read /Write
DC300XLP	up to 45MB	QIC-24	Read only

<sup>1</sup>Operating system dependent

## Using the Tape Cartridge

This section explains proper tape cartridge handling how to write protect a tape.

### Tape Cartridge Handling

To avoid damage to your tape cartridge, and to ensure continued tape drive reliability:

- Do not drop or bang cartridge.
- Keep cartridge out of direct sunlight, away from heaters and other sources of heat.
- Store cartridge where the temperature is between 10 and 40°C (50 to 104°F).
- If cartridge has been exposed to extremes of heat or cold, allow it stabilize at room temperature for the same amount of time it was exposed—up to 24 hours.
- Avoid placing cartridge near sources of electromagnetic interference, such as terminals, motors, and video or X-ray equipment. Any tape exposed to a magnetic field can lose information.
- Store cartridge in a dust-free environment where the relative humidity is between 20 to 80 percent.
- Store cartridge in its protective container, on edge or stacked. However, when stacking cartridges, do not stack more than five high.
- Place an identification label only in the space provided for the label on the top of cartridge.

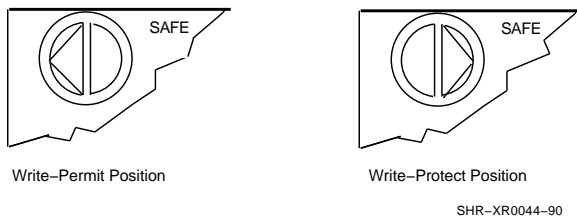
## Setting the Write-Protect Switch

The tape cartridge has a write-protect switch to prevent accidental overwrite of data. When the switch is rotated to **SAFE**, (Figure 2-3), data may not be written to the tape.

The tape drive reads and writes according to the following table, however the density selection and ability to write lower densities on higher density tape is operating system dependent

Observe the following guidelines when setting the write-protect switch. See Figure 2-3.

- If you are reading data or copying data from a tape, set the write-protect switch to **SAFE** (write protected).
- If you are writing data, set the write-protect switch to the write-permit position.



**Figure 2-3. Setting the Write-Protect Switch**

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## Pre-Installation

If you do not wish to install the tape yourself, contact Digital Services. A Digital Services technician can do the installation for you.

If you decide to install this drive on your own, please follow all instructions very carefully.

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### CAUTION

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Static electricity can destroy integrated circuits. Be sure to discharge any built-up static electricity by touching a grounded, metal object before handling the tape drive or by touching any of the computer's logic boards.

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## Pre-Installation

As you prepare and install the drive, keep the following cautions in mind:

- Carefully read the entire manual before installing the drive. Then, if you are unsure about your ability to do the job, you can contact Digital Services. A Digital Services technician will install the drive for you.

## Pre-Installation

- A cleaning kit is provided with the drive. No other preventive maintenance is required. Refer to the tape head cleaning instructions included with the cleaning cartridge. The cleaning interval depends on three main factors:

How often the tape is used  
The quality of the tape  
The quality of the environment

However, the recommended guideline is to clean the head every eight hours of use.

- Do not remove or tamper with the sealed top cover.
- The configuration of your computer system, your SCSI adapter, and each SCSI device must work together for optimum SCSI performance. Refer to the appropriate documentation as you configure the computer and the SCSI device.
- If you install the drive in a computer with an IDE drive, you must configure the IDE drive as Drive C.
- Refer to your operating system and application documentation for specific instructions on storing and accessing your programs on hard disk.

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### NOTE

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We recommend the you always make backup copy of all data on the hard drive before you replace or upgrade your SCSI adapter or install additional SCSI devices.

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## Preparing the Tape Drive

Before you install the tape drive, you must configure it for use in the computer. The drive is set at the factory to be used with either a SCSI or a IDE hard drive installed in the computer. The following are the factory default settings:

- The terminator power is supplied by the drive.
- The drive is set for logical address 2.
- The Autoload option is enabled. The drive automatically rewinds to the beginning of the tape (BOT) when you insert a cartridge.
- The parity check is enabled. The tape drive checks the parity of data transferred on the SCSI bus.
- The terminating resistors are installed. Terminating resistors are networks of resistors that terminate the SCSI bus. The last physical SCSI device connected to the SCSI interface cable must be terminated.

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**NOTE**

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SCSI terminators are not required for those devices with end-of-cable terminators or external terminators.

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# 4

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## Installation

Turn off the computer, and disconnect the power cords and the data cables. Remove the computer cover as illustrated in your computer user's guide.

Mounting the tape drive varies between different DECpc and DECstation systems. Refer to your system User's Guide or SCSI Expansion Box Installation Guide for information about installing the drive in the appropriate drive bay.

After you install the tape drive and all other SCSI devices, you must complete the installation by following these steps:

1. If applicable, install the SCSI host adapter as directed in the SCSI Host Adapter Installation Guide.

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**NOTE**

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Some DECpc or DECstation computers have a built-in SCSI adapter. See your computer user's guide to determine its SCSI adapter type.

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2. Connect the SCSI cable to the tape drive cable connector on the SCSI adapter. The connectors are keyed to ensure proper pin 1 alignment.
3. Connect all internal drive cables to the drives. These cables are keyed to connect in only one way. Do not force or twist the cables as you connect them.

## Installation

4. Connect a four-pin power cable to the internal SCSI drive. The connectors are keyed for proper pin 1 orientation. Power cables are identical and can be connected interchangeably to any internal drive.

## Determining Your SCSI Adapter Type

You must determine your SCSI adapter type before closing the computer cover or installing the software. There are currently three supported SCSI adapter types:

Adaptec AIC 6260  
Adaptec AHA 1540B  
Western Digital 7000EX

These adapters can be identified by looking at the SCSI adapter board or by looking on the main logic board for the built-in controller.

These adapters can also be identified as follows:

- The Adaptec 6260 is a built-in SCSI adapter used in all current DECpc Workstation series personal computers.
- The Adapter AHA 1540B SCSI controller is an AT compatible adapter board used on DECstation 3xx and 4xx (PC4xx) series computers.
- The Western Digital 7000EX SCSI controller is an EISA bus adapter board used on DECpc 433T.

After you have identified your SCSI adapter type, close the computer cover, reconnect all the cables, and turn on the computer.



## **Inserting the Tape Cartridge**

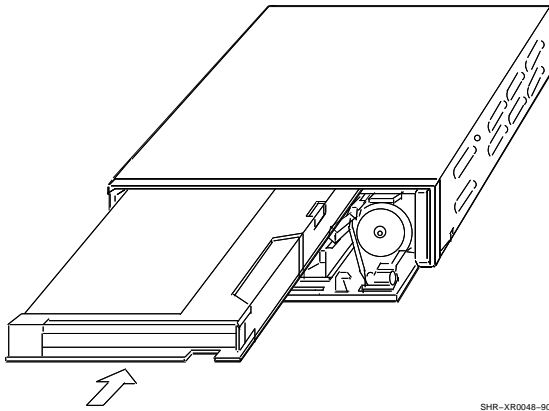
Open the drive door by pressing the eject button. Insert the tape cartridge into the drive with the cartridge's write-protect switch in the upper right corner. Slide the cartridge straight into the cartridge area until you feel resistance. Then, close the cartridge door.

When the tape is properly inserted, the LED will be solid green and you can issue host operating system commands.

## **Removing the tape cartridge from the drive**

Press the eject button. The door will open and the cartridge will eject part way. Pull down on the cartridge door, grasp the cartridge and slide it out of the drive.

Installation



SHR-XR0048-90

**Figure 4-1. Inserting The Tape Cartridge**

## Retensioning

For satisfactory performance it is recommended that the cartridge be retensioned (running the tape one complete end-to-end pass) in any of the following cases:

1. Each time it is inserted in the drive.
2. After prolonged operation over a limited area.
3. After exposure to a temperature change greater than 30F (16c)
4. After one hour of start-stop or shuffle operation.

The retension command may be selected in the options menu within the Sytos Plus software for DOS and OS/2 operating system. The SCO UNIX command is TAPE RETEN.

## Starting the System

When you turn on your computer after the tape is inserted, the drive will reposition the tape to Beginning-of-tape (BOT) and will perform a cartridge autoload.

### Notes to IDE Hard Drive Users

The tape drive can be used with either SCSI or IDE hard drives. If your computer has a SCSI hard drive, the SCSI adapter recognizes this drive as SCSI Target 0 and the SCSI tape drive as SCSI Target 2.

If your computer has an IDE hard drive, the SCSI adapter detects only the SCSI tape drive. (The IDE controller on the main logic board detects the IDE drive.) Because no SCSI hard drive is installed, the SCSI adapter will not detect SCSI Target 0. The following message will be displayed during power up:

*Drive C: Already Installed  
Checking for SCSI Target 0 LUN 0  
SCSI Target 0 LUN 0 not found  
(22) Strike the F1 key to continue*

This does not effect the normal operation of the computer or the SCSI tape drive. Press **F1** to continue startup.

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**NOTE**

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For DECstation OS/2 version 1.21 users, an IDE drive must be used as the primary drive. A separate Adaptec 1540B adapter is required for SCSI hard disk drives.

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## Installing the Software

You must use the Sytos Plus File Backup Manager with the SCSI tape drive for DOS and OS/2 operating systems.

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**NOTE**

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For DECpc 433T OS/2 version 1.21 users, the Adaptec 1540B ASPIOS2 driver file extensions for AHA164X.BID and AHA154X.BID must be renamed to avoid conflict with the WD7000EX LADDR drivers. For example, rename AHA164X.BID to AHA164X.TZK and AHA154X.BID to AHA154X.TZK.

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Your Sytos Plus kit contains the following:

- 3 1/2-inch installation diskette
- User Registration card
- Quick Backup card
- Getting Started book
- User's Guide

Refer to the Sytos Plus Getting Started booklet for specific instructions.

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**NOTE**

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Please fill out and return the registration card included in the Sytos Plus kit to register for technical support.

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For SCO UNIX, contact your SCO UNIX representative for information about configuring your system with the appropriate software drivers.

# 5

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## Technical Appendix

This section explains how to change the operation of the tape drive by re-installing jumpers and re-configuring the termination resistors.

## Technical Appendix

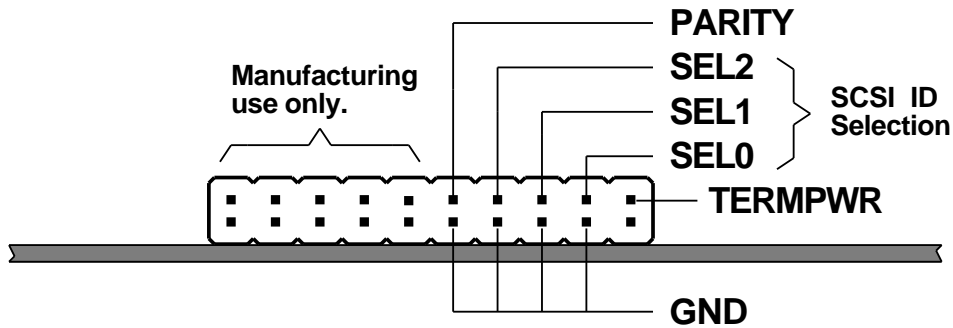
A jumper is a clip that contains metal contacts. To install a jumper, place it over two adjacent pins. This installation either completes or bypasses a circuit to enable or disable a function of the drive.

There are two blocks of jumpers on the SCSI drive. To configure the drive, install jumpers on the pins to enable the functions you want to use. It is important to keep your current system configuration in mind as you configure the drive.

There are also three terminating resistors installed on the drive. Terminating resistors are resistors networks that terminate the SCSI bus. The last physical SCSI device connected to the SCSI interface must be terminated.

## Terminator Power Source

TPWR on the jumper block enables you to select the terminating power source for the installed SCSI external terminating resistors. The TPWR jumper is installed (enabled) as the factory default setting. See Figure 5-1 for jumper location.



**TERMPWR (Terminator Power) – When jumper is installed, power for the terminator is provided by drive.**

SHR-XR0107A-90

Figure 5-1. Terminator Power



## SCSI Parity Checking

PARITY on jumper block enables SCSI parity checking. The PARITY jumper is installed (enabled) as the factory default setting. See Figure 5-1 for jumper location.

## SCSI Address

DRIVE SELECT 2,1,0 are used to select one of seven logical SCSI addresses for the drive. The default address is Logical Drive 2. To change the logical address of the drive, install jumpers (using the spare jumpers) as described in the following table.

**Table 5–1. SCSI ID Jumper Settings**

SCSI ID	SCSI ID Jumper <sup>1</sup> Positions		
	SEL2	SEL1	SEL0
0	Out	Out	Out
1	Out	Out	In
2	Out	In	Out
3	Out	In	In
4	In	Out	Out
5	In	Out	In
6	In	In	Out
7	In	In	In

<sup>1</sup>Default SCSI ID is 2.

## Autoload Option

The autoload option is the default. This option is not selectable via jumper. This setting enables the drive to automatically reset the tape to the beginning of tape (BOT) when you insert a cartridge.

## Terminating Resistors

Three terminating resistors are installed on the drive. The terminating resistors are eight-pin 220/330-ohm resistors modules plugged horizontally into sockets on the printed circuit board. Terminating resistors are required on the last SCSI device that is daisy-chained connected on the SCSI interface cable. The default is terminating resistors installed.

The last physical SCSI device connected to the SCSI interface cable must be terminated. Therefore, termination must be done within the drive. To remove the terminating resistor packs use needle nose pliers to carefully pull the packs through the slotted opening in the top of the drive.

If you remove the terminating resistors, store them in a safe place. If you later re-install the terminating resistors, note that Pin 1 orientation. Pin 1 is marked by a dot on the bottom of the terminating resistor module.

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**NOTE**

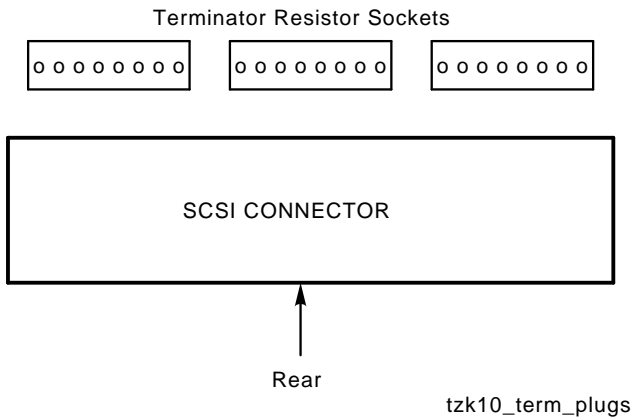
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Please note that SCSI terminators are not required for those devices with end-of-cable terminators or external terminators.

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Technical Appendix

TOP VIEW (Looking into the drive)



# A

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## Cartridge Tape Drive Specifications

The following table describes the cartridge tape drive specifications.

**Table A-1. Cartridge Tape Drive Specifications**

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Mode of operation:	Streaming
Drive interface:	SCSI-1
Dimensions:	44 mm (1.732 in)H x 146.05 mm (5.75 in)W x 208.28 mm (8.20 in)D
Weight (without cartridge):	1.1 kg (2.4 lbs)
Media:	DC6525 or Digital approved equivalent.
Track width, write:	0.1778 mm +0.0000/-0.0127 mm (0.0070" +).0000" /-0.0005"
Track width, read:	0.1270 mm +0.0127/-0.0000 mm (0.0050" +).0005" /-0.0000"
Data density:	16,000 (bpi)
Number of tracks:	26
Transfer rate:	200 Kbytes/s at average streaming mode 2.4 Mbytes/s at SCSI (maximum)
Tape speed:	3.05 cm/s (120 IPS)

(continued on next page)

## Cartridge Tape Drive Specifications

**Table A-1 (Cont.). Cartridge Tape Drive Specifications**

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Track format:	Multiple track serpentine recording
Power requirements:	+12 V $\pm$ 5% @ 1.0 A (2.0 A surge), 150 mV ripple peak-to-peak +5 V $\pm$ 5% @ 1.2 A (1.8 A surge), 150 mV ripple peak-to-peak
Power consumption	
Nominal:	20 W
Peak:	33 W
Environmental	
Operating temperature:	5°C (50°F) to 40°C (104°F)
Non-operating temperature:	-30°C (-22°F) to +60°C (151°F)
Operating humidity:	20% to 80% RH maximum
Non-operating humidity:	10% to 90% RH maximum
Operating altitude:	2.4 km (13,000 ft)
Non-operating altitude:	4.9 km (40,000 ft)

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