

# **Compaq StorageWorks**

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## AIT Drive Reference Guide

Part Number: 155450-003

**Third Edition (November 2001)**

This guide provides step-by-step instructions for installation and as a reference for operation, troubleshooting, and future upgrades.

***COMPAQ***

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AIT Drive Reference Guide  
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# About this Guide

The following sections are covered:

- Text Conventions
- Symbols in Text
- Symbols on Equipment
- Getting Help
- Compaq Authorized Reseller

## Text Conventions

This document uses the conventions in Table 1 to distinguish elements of text.

**Table 1: Text Conventions**

Element	Convention	Examples
<ul style="list-style-type: none"><li>• <b>Named Keys</b></li><li>• <b>Key Sequences</b></li></ul>	<b>Bold</b>	<b>Home, Print Screen, Num Lock, Esc, PgUp</b> A plus sign (+) between two keys means that you should press them simultaneously: <b>Ctrl+A, Ctrl+Home, Alt+Ctrl+Del</b>
<ul style="list-style-type: none"><li>• Menu Items</li><li>• Directory Names</li><li>• Button Names</li><li>• Dialog Box Names</li></ul>	Initial Caps (for UNIX, AIX, and Solaris directory names, the exact case of every character is displayed).	On the File menu, choose Save. Save the file in the C:\StorageSets\Default directory. (UNIX, AIX, Solaris): Save the file in the /home/newuser/practice directory. To back up files, click the Backup Now button. In the Save As dialog box, choose the drive then the folder.

**Table 1: Text Conventions (Continued)**

Element	Convention	Examples
<ul style="list-style-type: none"> <li>• User Input and System Responses (Output and Error Messages)</li> <li>• COMMAND NAMES</li> <li>• Drive Names</li> </ul>	<p>Initial Caps and monospace font.</p> <p>COMMAND NAMES appear in upper case, unless they are case sensitive (UNIX, AIX, and Solaris command names are case sensitive and will not appear in uppercase).</p> <p>Entered &lt;variables&gt; are displayed in angle brackets (&lt; &gt;) and all lower case.</p>	<p>User Input and System Responses:</p> <ul style="list-style-type: none"> <li>• To exit from the program, type <code>Exit</code>.</li> <li>• At the prompt, type this command: <code>SHOW THIS_CONTROLLER</code> (no variable)</li> <li>• To see your settings, give the command: <code>SHOW &lt;storagesets&gt; FULL</code> (with variable)</li> <li>• You will see the <code>Continue?</code> message.</li> </ul> <p>Command Names</p> <ul style="list-style-type: none"> <li>• Use <code>SET THIS_CONTROLLER</code> to change parameters.</li> <li>• To manage storage, enter <code>RUN <i>sysmgr.exe</i></code></li> <li>• (UNIX, AIX, Solaris): To list files, give the <code>ls</code> command.</li> <li>• Drive Names: Navigate to your CD-ROM drive (usually <code>D:</code> or <code>E:</code>).</li> </ul>
<i>filenames</i>	<p>Unless case sensitive, use <i>lowercase italics</i>. If filenames are case-sensitive (UNIX, AIX, Solaris) or are easier to understand with some upper case letters, the exact case of each character is displayed.</p>	<p>To configure storage, edit <i>storageset.ini</i>. Changes are stored in <i>NewSystemConfigurationFile.ini</i>. (UNIX, AIX, Solaris): Errors are logged to <i>MixedCaseFile.txt</i>.</p>
Menu Command Sequences	<p>Initial Caps, with a right angle bracket (&gt;) between items. Menu items are displayed as shown on screen.</p>	<p>To compare documents, choose: Tools &gt; Documents &gt; Compare.</p>
URLs	<p>Sans serif font.</p>	<p>For update notices, visit: <a href="http://www.compaq.com/products/updates">http://www.compaq.com/products/updates</a></p>



## 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 or damage to equipment.

---



**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.

## Symbols on Equipment

These symbols may be located on equipment in areas where hazardous conditions may exist.



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 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.

---



Weight kg  
Weight lb

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

**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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## Important Safety Information

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

## Getting Help

If you still have a question after reading this guide, contact service representatives or visit our website.

## Compaq Technical Support

In North America, call the Compaq technical support at 1-800-OK-COMPAQ. This service is available 24 hours a day, 7 days a week.

**NOTE:** For continuous quality improvement, calls may be recorded or monitored.

Outside North America, call Compaq technical support at the nearest location. Telephone numbers for worldwide technical support are listed on the Compaq website: <http://www.compaq.com>.

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

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

## Compaq Website

The Compaq website has the latest information on this product as well as the latest drivers. Access the Compaq website at: <http://www.compaq.com/storage>. From this website, select SANworks.

## 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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## Overview of the AIT Drive

The Compaq AIT tape drive is a high-capacity data storage device that uses AIT (Advanced Intelligent Tape) technology. The tape drive provides low-cost, reliable data protection for entry-level servers, workstations, and desktop computers. With a backup software application it can provide up to a 2:1 data storage compression ratio. The AIT tape drive is shipped from the factory with data compression enabled; see Appendix D for more information on changing this setting.

### Requirements

Compaq recommends equipping the computer with a 32-bit Fast SCSI-2 Controller or higher. Any of these controllers fully supports the AIT tape drive. Install the controller before beginning the drive installation, using the documentation included with the controller.

**IMPORTANT:** All SCSI devices on the same bus must either be internal (within the computer) or in an external storage device, but not both. The exception is a CD-ROM drive, which may be internal when other devices are external or vice versa.

**NOTE:** This requirement does not apply to the AIT 35 IDE tape drive.

### Disaster Recovery Feature

Your new tape drive supports disaster recovery (DR) provided by various Compaq approved tape backup software vendors. With a few simple steps, your new tape drive becomes a bootable device that will boot your server and perform an automatic system restore from an AIT tape cartridge.

DR support for different operating systems is being added and updated frequently. To learn of the latest operating system support for DR, visit the product page for your tape drive at [www.compaq.com/storage](http://www.compaq.com/storage).

For more information refer to the *Compaq AIT Drive Documentation CD*.

## Features

The following table outlines the features of the Compaq AIT tape drives.

**Table 1–1: AIT Drive Features**

Feature	AIT 35 IDE	AIT 35	AIT 50	AIT 100
Sustained transfer rate	4 MB/s (approx. 8 MB/s with data compression)	4 MB/s (approx. 8 MB/s with data compression)	6 MB/s (approx. 12 MB/s with data compression)	12 MByte/sec (approximately 24 MByte/sec with data compression)
Supported format	AIT-1	AIT-1	AIT-1, AIT-2	AIT-1, AIT-2, AIT-3
Burst transfer rate	66.6 MB/s	40 MB/s	40 MB/s	160 MB/s
Buffer Memory	8 MB	8 MB non-parity	8 MB parity	18 MB
Interface	IDE ATAPI UDMA-4	Embedded SCSI Ultra160LVD, Ultra/WIDE, Single-ended or Low Voltage Differential	Embedded SCSI Ultra160LVD, Ultra/WIDE, Single-ended or Low Voltage Differential	Embedded SCSI Ultra160LVD, Ultra/WIDE, Single-ended or Low Voltage Differential
MIC Support	Yes	Yes	Yes	Yes
Tape Alert	Yes	Yes	Yes	Yes
<b>NOTE:</b> Not compatible with the DDS and EXABYTE format tapes.				

## Installation Overview

1. If not present, install the controller.
2. Set the SCSI ID. (Refer to the installation instructions on the *Compaq AIT Drive Documentation CD*.)  
**NOTE:** Step 2 does not apply to the Compaq AIT 35 IDE tape drive.
3. Install the tape drive. (Refer to the installation instructions on the *Compaq AIT Drive Documentation CD*.)
4. Install the software drivers. (See Chapter 2, “Installing the Software Drivers.”)
5. Install backup application software.





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## Installing the Software Drivers

The following operating environments support the AIT tape drives:

- Microsoft Windows NT
- Microsoft Windows 2000
- Novell NetWare
- Compaq Tru64 UNIX
- OpenVMS
- SCO OpenServer
- SCO UnixWare
- Sun Solaris Intel Platform Edition

### Device Drivers

Drivers for SCSI controllers are located on the Support Software Diskettes and on the Compaq SmartStart for Servers CD. Tape device driver location depends on the operating system and third-party software that is being used. The Compaq Native Drivers CD contains generic drivers for Microsoft-related server products. You can also download SCSI and tape drivers from the Compaq website at [www.compaq.com](http://www.compaq.com). The drivers on downloaded Support Software Diskettes may be newer versions with new functionality and upgraded utilities.

Refer to the appropriate operating system in this documentation for more details on tape device drivers.

**NOTE:** Solaris drivers are only available on the Compaq website at <http://www.compaq.com/support/files/server/us/index.html>.

## Windows NT

Drivers for the SCSI controllers are found on the Support Software Diskettes and on the Compaq SmartStart for Servers CD. SmartStart ships with each computer. Support Software Diskettes can be downloaded from the Compaq website. Tape device drivers are found on the Compaq Native Drivers CD. The Compaq Native Drivers CD ships with each tape drive and its contents can be downloaded from the Compaq website.

Most third-party backup software vendors have their own drivers or method to discover the device. Therefore, the drivers found on the Compaq Native Drivers CD may not be required for functionality with products such as Veritas Backup Exec and Computer Associates ARCserve.

**IMPORTANT:** If the SCSI controller to which your drive is attached was not present during your initial Windows NT installation, install the SCSI device driver for the controller **before** installing the tape driver.

## Additional Information

For additional information:

- Refer to your backup application installation guide for more information regarding additional software that may be needed
- Refer to “Compaq SCSI Controller Support” in the *ntreadme.hlp* file on the Compaq Support Software for Microsoft Windows NT diskette, version 1.21 or later.
- Refer to “Compaq Tape Support” in the *ntreadme.hlp* file on the Compaq Support Software for Windows NT diskette.

## Windows 2000

Drivers for the SCSI controllers are found on the Support Software Diskettes and on the Compaq SmartStart for Servers CD. Smart Start ships with each computer. Support Software Diskettes can be downloaded from the Compaq website. Tape device drivers are found on the Compaq Native Drivers CD. The Compaq Native Drivers CD ships with each tape drive and its contents can be downloaded from the Compaq website.

Most third-party backup software vendors have their own drivers or method to discover the device. Therefore, the drivers found on the Compaq Native Drivers CD may not be required for functionality with products such as Veritas Backup Exec and Computer Associates ARCserve.

Refer to your backup application installation guide for more information regarding additional software that may be needed.

To install the controller drivers:

1. Log on as Administrator.
2. Insert the Compaq SmartStart for Servers CD, version 4.9 or higher into the CD-ROM drive.
3. When the license agreement screen appears, click I Agree, and then **OK** to continue. The System Utility Screen appears.
4. Click the Compaq Support Paq icon once to highlight, then click **OK**. The compaq Remote Deployment Utility appears.
5. Click on the checkboxes to select or deselect the desired items, then click **Install** on the tool bar.
6. All selected items are installed and the Installation Results screen displays, showing which drivers were loaded successfully.

## Novell NetWare

Drivers for the SCSI controllers are located on the Compaq SmartStart for Servers CD and Support Software Diskettes. Smart Start ships with each computer. Support Software can be downloaded from the Compaq website. The software tape device driver is located either with your tape backup software or with the operating system. Compaq does not provide a .CDM tape driver for native NetWare support.

- Refer to your backup application installation guide for more information regarding additional software that might be needed.
- Run the *readme.com* file on any of the Novell Software Support Diskettes (NSSD) for driver installation instructions.
- Be sure to load the drivers in accordance with the Compaq controller being used.

There are additional driver issues if you wish to use applications requiring the Advanced SCSI Programming Interface (ASPI) support. For more information, see the following section.

## NetWare ASPI Support

The *Readme.com* on the Novell Software Support Diskette (NSSD) outlines the specific drivers you need to support ASPI tape backup applications.

NWASPI is used by some third party software vendors such as Veritas Backup Exec in versions prior to BackupExec for Netware Version 9.0. After 9.0 NWASPI will be replaced by the Veritas driver BECDM.CDM. This driver is loaded automatically when you start the backup application. If you are using NWASPI you can load it from the C:\nwserver\drivers directory. It is recommended that you download and use the latest NWASPI driver from the Novell website.

Refer your third party vendor documentation for specific details regarding how tape drivers are loaded.

## Compaq Tru64 UNIX

The Compaq Tru64 UNIX operating system uses Dynamic Device Recognition (DDR), which allows the operating system to recognize the AIT drive without a software tape device driver.

If the following message is seen on any version of Compaq Tru64 UNIX, you should update the DDR database to include the new device parameters.

```
ctape_ioctl: unmapped scsi density code (0x30)-DDR
entry needed
```

**Table 2–1: Density Codes**

Format	Density Code
AIT1	30h
AIT2	31h
AIT3	32h

The SCSI tape drive for True64 UNIX provides a standard tape drive interface. This is the tape driver for any Compaq SCSI tape device connected to a True64 UNIX operating system. Facilities are provided to allow the addition of SCSI tape drives to the system.

See the following websites for information on True64 UNIX device drivers and updating the DDR database:

- [www.tru64unix.compaq.com/docs/pub\\_page/devdoc\\_list.html](http://www.tru64unix.compaq.com/docs/pub_page/devdoc_list.html)
- [www.tru64unix.compaq.com/docs/base\\_doc/DOCUMENTATION/V51\\_HTML/MAN/MAN8/0086\\_\\_\\_\\_.HTM](http://www.tru64unix.compaq.com/docs/base_doc/DOCUMENTATION/V51_HTML/MAN/MAN8/0086____.HTM)
- [www.tru64unix.compaq.com/docs/base\\_doc/DOCUMENTATION/V51\\_HTML/MAN/MAN4/0107\\_\\_\\_\\_.HTM](http://www.tru64unix.compaq.com/docs/base_doc/DOCUMENTATION/V51_HTML/MAN/MAN4/0107____.HTM)

## OpenVMS

The OpenVMS operating system uses Dynamic Device Recognition (DDR), which allows the operating system to recognize the AIT drive without a software tape device driver.

## SCO OpenServer

The drivers required to support the AIT tape drive under SCO OpenServer are:

- The SCO SCSI tape (**stp**) driver, which is built into SCO OpenServer; see the SCO System Administrator's Guide for information on configuring the driver.
- An appropriate SCSI controller driver.

Drivers for the SCSI controllers and tape drive hardware are located on the Support Software Diskettes and on the Compaq SmartStart for Servers CD. The Support Software ships with each computer or can be downloaded from the Compaq website. The software tape device driver is located either with your tape backup software or with the operating system. Refer to your backup application installation guide for more information regarding additional software that might be needed.

Refer to the appropriate *readme* file on the Support Software Diskettes. The required driver is CHA.

In addition, the appropriate version of the Compaq Extended Feature Supplement (EFS) for SCO OpenServer is required:

**NOTE:** For SCO OpenServer 5, use Compaq EFS version 5.26 or higher.

EFS for SCO OpenServer is available on the Compaq SmartStart for Servers CD and is installed and configured automatically during a SmartStart installation.

## Configuring the SCSI ID for SCO OpenServer

In the preconfigured kernel used to install SCO OpenServer, the following SCSI IDs are automatically set:

- Disk = 0
- Tape = 2
- CD-ROM = 5

To determine the SCSI ID of the new tape drive (if not known):

1. Run System Configuration and look under “Review or Modify Hardware Settings,” then “View and Edit Details.” The values reported for controller number, target ID, LUN, and bus number will be used during `mkdev tape` command.
2. Boot the computer to single user mode and run the `mkdev tape` command.
3. Remove the default tape device from controller 0, ID 2.
4. Add the new tape drive to the configuration.
5. Relink the kernel and reboot the computer to multi-user mode.
6. Run the `hwconfig` command to ensure the new tape configuration is correct. The information will appear in a line such as:

```
%tape - - - type= S ha=0 id=2 lun=0 ht=...
```

In the above example, “id=2” indicates that the SCSI ID is 2.

See the *Getting Started* booklet that came with the AIT tape drive for more information on setting the SCSI ID.

**IMPORTANT:** The SCO OpenServer install kernel will only communicate with the first SCSI controller in the system. Remove the generic tape at ID2, then add the correct tape driver using correct ID, bus, and LUN values.

## SCO UnixWare

The drivers required to support Compaq SCSI tape drives under SCO UNIX are the SCO SCSI tape (**stp**) driver and an appropriate SCSI controller driver. The **stp** driver is built into SCO UNIX. Consult the SCO System Administrator's Guide for directions on configuring the SCSI tape driver.

Refer to the documentation accompanying the Compaq Support Software for SCO UnixWare, versions 2.x to 7.x., Compaq EFS 2.2x for UnixWare 2.1, or Compaq EFS 7.2x for UnixWare 7.x. The required driver is CPQSC.

EFS for SCO UnixWare is available on the Compaq SmartStart for Servers CD. The Compaq EFS for SCO UNIX is installed and configured automatically during a SmartStart installation.

The Support Software ships with each computer or it can be downloaded from the Compaq website.

## Sun Solaris Intel Platform Edition

The table below provides information on identifying appropriate drivers for Compaq SCSI controllers.

**Table 2–2: Sun Solaris**

Controller	Software Driver Information
32-Bit Fast SCSI-2 32-Bit Fast-Wide SCSI-2 Wide-Ultra SCSI-3 64-Bit Dual Channel Wide Ultra-2 SCSI	For Solaris 2.6, 7, and 8, refer to the Solaris documentation. The Compaq Solaris driver updates can be downloaded from the Compaq website. The required driver is CPQNCR.
64-Bit/66-MHz Single Channel Wide Ultra3 64-Bit/66-MHz Dual Channel Wide Ultra3	For Solaris 7 and 8, refer to the Solaris documentation. The Solaris driver can be downloaded from the Compaq website or the Adaptec website. The required driver is CADP160.





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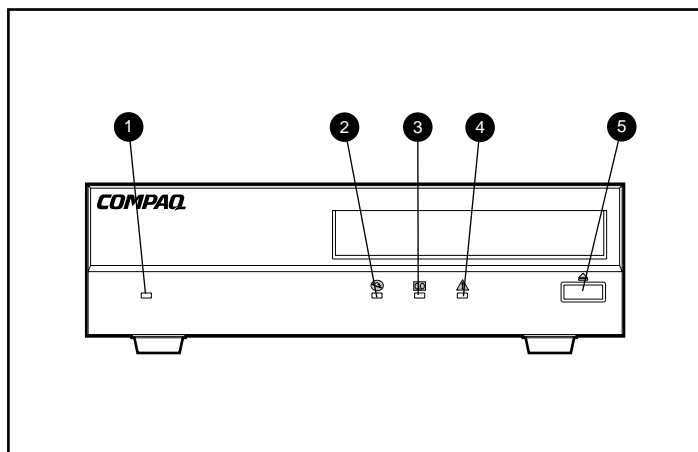
## Operating the AIT Drive

This chapter describes:

- Front panel LED Indicators
- Importance of using Compaq-approved cassettes
- Cassette loading and ejecting
- Forcing the ejection of a cassette
- Write-protecting a cassette
- Cassette handling and storage

### Front Panel





The front panel of the AIT drive contains Power ❶, Busy ❷, Tape ❸, and Status ❹ Light Emitting Diode (LED) indicators and an eject button ❺, as described in Table 3-1.



**Figure 3–1: Front panel components**

**NOTE:** Depending on your model, your tape drive may differ slightly from the illustration.



































**Table 3–1: Front Panel**

Callout	Icon	Description
①	None	Power LED
②		Busy LED
③		Tape LED
④		Status LED
⑤		Eject Button
<b>NOTE:</b> The power LED is not on the internal unit.		







## Front Panel LED Indicators

The following table describes and explains the front panel LEDs.

**Table 3–2: Front Panel LEDs**

LED			STATE		
			Activity	Cartridge	Other
			None	None	None
			SCSI	None	None
			Drive	Loading/Unloading	None
			Drive	Loading/Unloading	Write-protected
			None	Loaded	End of Cleaning Tape
			None	Loaded	None
			SCSI	Loaded	None
			SCSI/Drive	Loaded	None
—			—	Loaded	Write-protected
—		—	—	Loaded	Error Rate Warning
—	—		—	—	Cleaning Request
—	—		—	—	Self-Test Failure
	—	—	—	—	Waiting for Reset
—		—	—	—	Waiting for Eject

**Legend: (NOTE: The AIT external drive has a power LED.)**

LED Flash Symbol	LED display
	Off
	On
	Quick flashes
	Quick flashes with a long pause in between
	Long flash with a short pause in between
	Two quick flashes with a long pause in between

## Importance of Using Compaq-Approved Cassettes

Compaq-approved cassettes are thoroughly tested to meet high-quality standards. Before Compaq recommends a cassette, the quality and reliability of the magnetic media and the cassette are evaluated. Do not use unapproved cassettes; they may not be compatible with Compaq tape drives.

**Table 3-3: Cassette Specifications**

<b>AIT 35 IDE</b>	<b>AIT 35</b>	<b>AIT 50</b>	<b>AIT 100</b>
25-GB 170 m (557 ft)	25-GB 170 m (557 ft)	25-GB 170 m (557 ft)	25-GB 170 m (557 ft)
35-GB 230 m (754 ft)	35-GB 230 m (754 ft)	35-GB 230 m (754 ft)	35-GB 230 m (754 ft)
		50-GB 230 m (754 ft)	50-GB 230 m (754 ft)
			100-GB 230 m (754 ft)
<b>NOTE:</b> The AIT drive does not support the DDS and EXABYTE formatted cassettes.			

**IMPORTANT:** Compaq only supports media bearing the Compaq logo in Compaq tape drives.

## Loading and Ejecting a Cassette

### Loading a Cassette

Insert a cassette into the slot on the front panel of the tape drive. As the cassette is inserted, the drive takes it and automatically loads it into the drive mechanism.

### Ejecting a Cassette

The cassette can be removed from the drive either by using a software command or by pressing the eject button. If you press the eject button, the cassette rewinds before the drive ejects the cassette from the slot.

**NOTE:** If the eject button is pressed when the drive is busy, the drive finishes the task it is engaged in before it responds. This ensures that the task is terminated in a controlled manner and no data is lost.

## Forcing the Ejection of a Cassette



**CAUTION:** You can lose data if you force the ejection of a cassette or the cassette can end up invalidly formatted because End of Data (EOD) may not have been written. Force an ejection only as a last resort; never use it as a quick way to eject the cassette.

---

A cassette can be forced to eject when immediate ejection is required, even at the risk of losing data. To eject a cassette immediately, hold the eject button down for at least 5 seconds. The cassette is immediately unthreaded and the cassette is ejected, regardless of what operation the drive was performing.

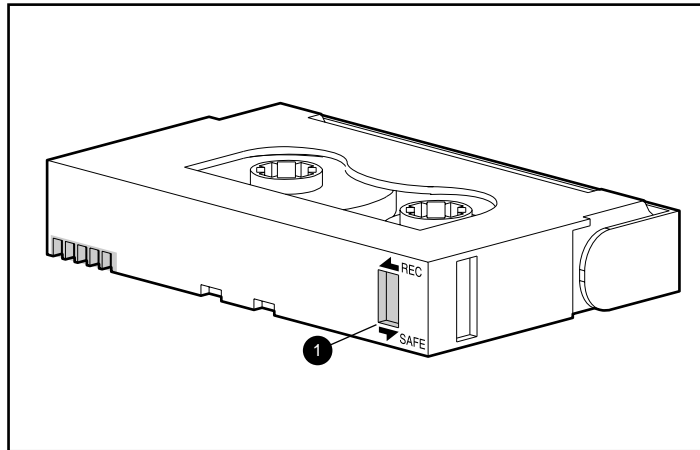


**WARNING:** There is a risk of electrical shock. If a cassette is jammed inside the drive, do not attempt to open the tape drive. Refer all service to a Compaq authorized service provider.

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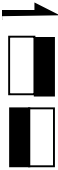
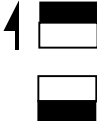
## Write-Protecting a Cassette

The cassette has a write-protect switch ❶ to prevent accidental erasure of data. Before loading the cassette into the drive, position the write-protect switch on the front of the cassette. By moving the switch to **SAFE**, the cassette is write-protected and by moving the switch to **REC**, the cassette is write-enabled.



**Figure 3-2: Cassette write-protect switch**

**NOTE:** Your tape switch may differ from the illustration.

		<p>Using your fingernail, push the switch in the direction of the arrow to protect the tape from writing or accidental erasure.</p> <p>Return the switch to its original position to re-enable writing.</p>
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Certain AIT cassettes provided by Compaq support Memory in Cassette (MIC). This feature enables the cassettes to store important cassette information in memory, which allows faster access to data. MIC cassettes can be easily identified by the gold connector pads located left of the write-protect switch.

**IMPORTANT:** The Tape Log, which contains a history of usage of the tape, is not updated when the cassette is write-protected. The Tape Log becomes inaccurate if a cassette is used write-protected, and the media warning cannot be relied on to indicate that the cassette needs to be copied and replaced.

## **Cassette Handling and Storage**

For longer life of recorded or unrecorded cassettes, store cassettes in a clean environment with these conditions:

- Keep the cassette out of direct sunlight and away from heaters and other heat sources.
- Store the cassette in temperatures between 5° C and 32° C (41°F to 89.6°F).
- If the cassette has been exposed to conditions outside of the operating specifications, stabilize it at room temperature for the same amount of time it was exposed—up to 24 hours.
- Do not place the cassette near electromagnetic interference sources, such as video monitors, motors, magnets, and video or X-ray equipment. Data on the cassette can be altered.
- Store the cassette in a dust-free environment where the relative humidity is between 20 percent and 60 percent. For longer cartridge life, store the cassette at 20 percent to 40 percent relative humidity.





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## Cleaning the AIT Drive

Reliable backup of your system is the product of at least four components:

- A reliable tape drive
- Quality cassettes
- Regular backup schedule with backup media stored off-site
- Routine tape drive maintenance

Compaq tape drives are designed to operate reliably under worst-case conditions; however, they require simple routine maintenance to operate efficiently. Regular cleaning is the most essential step in properly maintaining a tape drive and preventing errors.

### Reliability of Backup Devices

The reliability of any backup device is directly related to its duty cycle (the number of hours per day that the device is in use). For example, if a tape drive designed for 1-GB backups is being used to back up a 10-GB computer, the result on that drive will be premature aging and reliability problems.

### Importance of Routine Cleaning

The tape drive has a cleaning roller built in, which assists in preventing and recovering from head contamination. This feature minimizes buildup on the read/write heads so fewer cleaning cycles with a cleaning cassette are required. However, Compaq recommends a routine cleaning schedule every 100 hours of use to keep the tape drive in good working order. The drive also needs cleaning when the drive Status LED displays long flashes with short pauses (see Chapter 3, “Operating the AIT Drive,” Table 3-2).

**IMPORTANT:** Regular cleaning is vital to trouble-free operation of any tape device. Failure to follow recommended cleaning procedures could result in serious damage to the tape drive.

When a drive is cleaned according to a regular schedule, one cleaning cycle typically removes accumulated dirt and particle deposits. However, in a dusty environment, one cleaning cycle may not fully clean the AIT drive read/write heads. Up to four cleaning cycles may be necessary to fully clean the drive.

## **Errors Resulting from Cleaning Neglect**

Failure to observe routine maintenance and cleaning of tape drives can result in the following errors:

- **Dropouts**

Caused by weak signal strength from dirty read/write heads, a dropout can result in reduced cassette capacity and backup performance.

- **Media errors**

The backup cassettes can be jammed, torn, or otherwise damaged by a dirty read/write head.

- **Read or write errors**

Because of a dirty read/write head, data may not be recorded on the cassette during backup. Even if the data is on the backup cassette, retrieval may not be possible if the dirty head cannot read the data.

- **Format failures**

During backup, data is laid on the cassette in a certain format for easy retrieval. A dirty write head can cause format failures, which means that data can be lost or impossible to retrieve.

- **Bad blocks**

Because of media damage (see media errors above), the cassette may not accept backup data. Also, the read/write head may be unable to retrieve data from bad blocks.

## Tape Drive Cleaning Procedure

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**CAUTION:** Do not use alcohol or a cleaning solution to clean AIT drives. Do not clean read/write heads with a cotton swab. Fibers from a cotton swab can cause permanent damage to the head.

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1. Insert the cleaning cassette into the drive. The drive automatically takes the cassette, loads it, and cleans the heads.

When cassette cleaning is finished, the drive ejects it.

2. If the tape drive does not eject the cassette and the Status LED is flashing (see Chapter 3, “Operating the AIT Drive,” Table 3-2), press the eject button, discard the cassette, and insert a new cleaning cassette.

**NOTE:** Step 2 indicates the cleaning cassette is exhausted. Throw away the used cleaning cassette.

After removing the cleaning cassette from the drive, write the cleaning date on the cassette label. This provides a record of how many times the cleaning cassette has been used. The cleaning cassette typically has a life of 35 cleaning cycles.



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## Troubleshooting the AIT Drive

### Eliminating Resource Conflicts

Many of the problems associated with tape drive installation are a result of resource conflicts between the tape drive components and the other components in the computer.

Before following the troubleshooting procedures in this guide, complete the system configuration worksheet (see Table 5-1). Use the worksheet to identify and correct resource conflicts.

### Completing the System Configuration Worksheet

1. Run the Compaq System Configuration Utility and select Step 4.
2. Record the switch settings for all option boards on the worksheet (see Table 5-1) under Recommended Switch Settings.
3. Remove the computer cover and record the actual switch settings from all option boards under Actual Option Board Switch Settings.
4. Compare the settings recorded on the worksheet. If there are any differences, set the board switches as recommended by the Compaq System Configuration Utility.

**Table 5–1: System Configuration Worksheet**

Item			Notes		
Operating System					
Operating System Version					
Software Available Base Memory					
Tape Software Vendor and Product					
Tape Software Version					
Compaq System Configuration Utility Version (EISA-based Compaq computers only)					
System Configurative Switch Settings			Actual Switch Settings		
ADDR	IRQ	DMA	ADDR	IRQ	DMA

## Quick Checklist

To prevent hardware and software failures, use the following checklists.

### Hardware

To prevent hardware failures, make sure the following tasks have been properly completed:

- The Compaq System Configuration Utility (Intel-based computers only) has been checked for conflicts.
- The System Reference Manual (SRM) console (AlphaServers only) has verified the tape drive installation.
- The AlphaBios (AlphaServers only) has verified the tape drive installation.

- The tape drive switches and jumpers have been set correctly.
- The power and SCSI signal cables are connected correctly and the controller is seated properly.
- The SCSI signal cable does not exceed the recommended length.
- If multiple devices share the same SCSI bus, ensure that each one has a unique SCSI ID.

## Software

To prevent software failures, make sure the software is properly functioning:

- The tape drive passes the Compaq Diagnostics Utility (Intel-based computers only) test.
- The controller has been configured using the Compaq System Configuration Utility (Intel-based computers only.)
- The adapter has been configured using the SRM console or AlphaBios (AlphaServers only.)
- The correct software drivers are being used. (Make sure that the operating system driver for the tape drive matches the drive type.)
- The version of the tape drive software supports the tape hardware you are using.

If software problems persist, try reinstalling the tape drive software.

## Installation Troubleshooting

Follow the procedures in this section if the tape drive has not been operational since it was installed in the computer. Turn on the computer and insert a cassette.

**Table 5-2: Installation Troubleshooting**

Problem	Try This
Tape light on the tape drive does not illuminate.	<ul style="list-style-type: none"> <li>• Make sure the tape drive power cable is connected.</li> <li>• Remove the signal cable from the tape drive. If the light starts working, check for a defective cable, an incorrectly installed cable, or a defective controller/adapter.</li> <li>• Replace the tape drive.</li> </ul>

**Table 5-2: Installation Troubleshooting**

Problem	Try This
<p>Tape light on the tape drive illuminates, but the drive does not respond to commands.</p>	<p><b>Intel-based Computers</b></p> <p>Run the Compaq System Configuration Utility from the hard drive or from diskette, record the option board settings (use worksheet in Table 5-1), and restart the computer. Configure all the boards in the system, then check the following:</p> <ul style="list-style-type: none"> <li>• Verify that all installed boards appear in the slot diagram. Add any missing boards.</li> <li>• Verify that the switch settings shown by the Compaq System Configuration Utility match the physical settings used on the boards (see worksheet). Ensure that the actual board settings match the settings shown by the utility.</li> </ul> <p><b>AlphaServers</b></p> <p>Use the SRM console command line system to verify and/or correct the adapter configuration.</p> <p>Use AlphaBios to verify and/or correct the adapter configuration.</p>
<p>Compaq System Configuration Utility or the SRM console or AlphaBios does not recognize the tape drive.</p>	<ul style="list-style-type: none"> <li>• Check the connections of the signal cable.</li> <li>• Check the seating of the controller/adapter.</li> <li>• Ensure tape drive power cable is oriented correctly and inserted completely.</li> <li>• If multiple SCSI devices are used, make sure that on each SCSI bus, each device has a unique SCSI ID.</li> <li>• Your drive should be shipped from the factory with all terminators removed. Verify that all terminators have been removed.</li> <li>• If none of these steps solve the problem, then remove, replace, and test each of the following components separately: cables, tape drive, and the controller.</li> <li>• Contact a Compaq authorized service provider.</li> </ul>



## SCO OpenServer Systems

1. Verify that the tape driver is configured in the kernel.
  - a. Use the `hwconfig` command or view the bottom of the file, `/usr/adm/messages`, to determine whether the driver is installed or to determine the current cassette parameters.
  - b. Use the `mkdev tape` command to install the driver in the kernel or to modify the current cassette parameters.
2. If you are using the tape drive to install SCO OpenServer and a controller, verify that the drive is connected to the controller.

## Windows NT Systems

1. Confirm that the SCSI controller software driver has been installed and started.
  - a. Use the Windows NT Setup program to determine if the driver is installed.
  - b. Use the “Devices” Control Panel applet to determine if the driver is started.
  - c. If necessary, reinstall the driver.
2. Confirm that the tape drive driver has been installed and started.
  - a. Use the Windows NT Setup program to determine if the driver is installed.
  - b. Use the “Devices” Control Panel applet to determine if the driver is started.
  - c. If necessary, reinstall the driver.

## Novell NetWare Systems

Refer to the *storage.rdm* file on the Support Software for Novell Products (NSSD) diskette, which was supplied with your workstation, server, or tape drive for troubleshooting information.

## Compaq AlphaServer Troubleshooting

### Compaq Tru64 UNIX and OpenVMS Systems

1. Confirm that the tape drive has been installed:
  - a. After initialization, enter `show device` at the SRM prompt to verify that the tape drive has been installed,
  - or
  - b. Enter `show config` at the SRM prompt to verify that the system recognizes the tape drive. It also identifies which SCSI adapter it is connected to, and its SCSI ID number.
2. If the tape drive is not listed:
  - a. Make sure there are no SCSI ID conflicts. If the tape drive SCSI ID needs to be changed refer to the AlphaServer user manual for additional information.
  - b. If the SCSI ID is changed, enter `initialize` at the SRM prompt. This reinitializes the system power up diagnostics.
  - c. Enter `show device` at the SRM prompt to confirm the new SCSI ID number.
  - d. Make sure the terminator on the tape drive is present and the power and SCSI signal cables are seated properly.

### Windows NT Systems

Confirm that the tape drive has been installed:

1. After installing the tape drive, power up the system. During the tape drive power up self-test, select the **F2** key to enter the AlphaBios setup mode.
2. Select "Display system configuration."
3. Select "SCSI configuration."
4. Select the adapter that is connected to the tape drive.
5. The tape drive and the SCSI ID it was assigned should be listed.

Refer to the AlphaServer user manual for additional information.

## Resolving Operating Problems

If the AIT tape drive worked previously but now does not, try the following:

1. Clean the tape drive heads.
2. Use TSMC to test your drive and media. Both Standard and Custom tests are available. Refer to the *Compaq Tape Storage Management Console User Guide* for specific instructions on running these tests.
3. Replace the tape.
4. If multiple tape drives are used, make sure that on each SCSI bus, each tape drive has a unique SCSI ID.
5. Your drive should be shipped from the factory with all terminators removed. Verify that all terminators have been removed.
6. Determine what has changed in the system since the last tape backup.
  - a. If the system configuration has been changed, try removing the change to see if it affects the tape backup system.
  - b. If a board or option has been added, check its DMA, IRQ, and port address settings for conflicts. Try removing the board or option.
  - c. If a SCSI device has been added, check for SCSI ID conflicts and proper termination.
7. Check the AIT tape drive connections. Reseat the controller, SCSI signal cable, and power cable.
8. Replace the cables, tape drive, and finally, the controller.

## Correcting Intermittent Failures

If the AIT tape drive works only intermittently:

1. Clean the tape drive heads.
2. For Intel-based computers, use TSMC to test your drive and media. Both Standard and Custom tests are available. Refer to the *Compaq Tape Storage Management Console User Guide* for specific instructions on running these tests.

For AlphaServers, use `show config` at the SRM console.

3. If the tape backup procedure starts correctly but then stops with an error:
  - a. Use TEST to check the tape drive firmware revision level.
  - b. If the error occurs on the same file or directory each time, correct any errors that you find with the file system by running a file system utility such as *scandisk.exe*. If the problem continues with a particular file or directory, remove that file or directory from the backup list.
4. If the tape backup procedure starts correctly but stops intermittently:
  - a. Check the DMA, IRQ, and port address settings for conflicts. If there is a conflict, change the setting or remove the conflicting board.
  - b. Try using a new cassette.
5. Check the Compaq website to be sure the drive has the latest firmware upgrade. If not, upgrade by using one of the methods listed in, “Upgrading Firmware.”

## Upgrading Firmware

To upgrade firmware on Compaq Intel-based computers, use the Tape Storage Management Console (TSMC), a firmware upgrade cassette, or Options ROMPaq.

### Upgrading Firmware Using TSMC

TSMC keeps track of all available firmware versions for specific Compaq products.

TSMC has three options to retrieve firmware or application updates from the Web. You can use the Download command available in the TSMC program, the File Retrieval program located in the TSMC directory, or the Update tab from the Summary screen.

#### File Retrieval

File Retrieval is a separate program that can be run from outside of TSMC. This program can be run from any Microsoft Windows NT or Microsoft Windows 2000 system to retrieve firmware or application updates. File Retrieval can be found in the parent directory of TSMC Server.

You can select which firmware to download from the Firmware Retrieval screen. You can also choose to update the TSMC application from this utility. This file is automatically downloaded into the Download directory under the TSMC directory.



**CAUTION:** Firmware dictates the behavior of your device. Be sure to select the latest version.

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## Update Tab

The Update tab is available by clicking the Summary link in the upper left hand corner of the screen. It functions much like the Firmware Retrieval utility. When you select the tab the Update screen appears. You can select individual or multiple files for download. Make your selections and click the Retrieve Selections button. You can also download the TSMC application from this screen.

## Firmware Tab

The Firmware tab is accessible for each tape automation device. There are two methods to choose from:

- Automatic
- Manual

Click **Auto** if you want to use Compaq-recommended firmware updates (from the Compaq FTP site). Click **Manual** if you have a specific firmware file that you want to use.

**NOTE:** Manual firmware files **MUST** be located in the Downloads folder of the parent TSMC directory. Typically, this is located at /Program Files/Compaq/TSMC Server/Downloads.

After you select a file, the Download options screen appears. Before proceeding, be sure to read the following cautions.



**CAUTION:** Do not interrupt the download process or eliminate power to the device while the download process is running. Doing so may render your device unusable.

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**CAUTION:** ESL9000 and TL895 libraries use serial port downloads. Make sure a serial cable is attached to the device and your host computer. If a download fails to succeed, TSMC causes a “forced re-download.” Follow the directions on your screen to complete the procedure.

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Remember that TSMC determines download parameters for you when you select a firmware file. If you must change download parameters, consult with Compaq support personnel.

Your tape device may need to be in a specific state to receive new firmware. For example, the media may need to be ejected prior to the firmware download. Check your tape device documentation for specific instructions.

After specifying a file or arriving to this dialog after using the firmware database, click on Download. Do not interrupt the download process or eliminate power to the device while the download process is running. Doing so may render your device unusable.

**NOTE:** After firmware updates are made to devices, you should run a Force Rescan command. This properly updates the drive information, reflecting the firmware update.

## Upgrading the Firmware by Cassette for all Computers

**IMPORTANT:** To obtain a firmware upgrade cassette, contact a Compaq authorized service provider.

The Compaq AIT tape drive allows you to upgrade the firmware using a firmware upgrade cassette. Follow the steps below to complete the firmware upgrade. The process takes at least 3 minutes to complete.



**CAUTION:** Do not disconnect power at any time during the upgrade. Disconnecting power during an upgrade may corrupt the firmware and make the drive unusable.

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1. Exit all tape applications before proceeding with firmware upgrade.
2. Verify that the drive is not engaged in any SCSI activity by ensuring that the Busy and Tape LEDs are off and that the host is not accessing the drive.
3. Insert the firmware upgrade cassette into the drive.
4. The upgrade process is automatic. When the process is complete, the cassette is ejected. Remove it and replace it in its box.

## Upgrading the Firmware Using Options ROMPaq for Compaq Intel-based Computers

**NOTE:** This procedure only works on Compaq Intel-based Computers. For Compaq AlphaServers, see “Upgrading the Firmware by Cassette for all Computers.”

The Compaq AIT tape drive firmware can be upgraded by downloading the Options ROMPaq Utility from the Compaq website at [www.compaq.com](http://www.compaq.com) or by creating a diskette from the Compaq SmartStart for Servers CD.

**IMPORTANT:** Make sure that you select Options ROMPaq if you are downloading or creating a diskette from the SmartStart for Servers CD. Do not use ROMPaq for this procedure. ROMPaq is for upgrading Compaq computers and workstation firmware.

### Downloading Options ROMPaq Utility from the Compaq Website

The Options ROMPaq Utilities must be run from diskette. If you download the utilities from the Compaq website, follow the directions on the website to create the diskette.

### Creating an Options ROMPaq Diskette from Compaq SmartStart

If you use the Compaq SmartStart for Servers CD, follow these directions to create the diskette:

1. Be sure that you are using the most current version of the Compaq SmartStart for Servers CD.
2. Boot the computer from the Compaq SmartStart for Servers CD.
3. From the Compaq System Utilities screen, select Create Support Software.
4. At the Diskette Builder screen, select the appropriate option for your computer model.
5. Follow the instructions on the screen to create the Options ROMPaq diskette.

### Upgrading Firmware from an Options ROMPaq Diskette

After you have created an Options ROMPaq diskette, use the following steps to upgrade the firmware.

1. Shut down the computer.
2. Insert the Options ROMPaq diskette into the computer diskette drive.
3. Power ON the computer.

4. Press **Enter** at the Welcome screen.
5. At the Select a Device screen, select the tape drive from the list of programmable devices. This may be the only item in the list. Press **Enter**.
6. At the Select An Image screen, you will see information describing your tape drive, the date of the existing ROM version, and the date of the latest ROM version. Press **Enter**.
7. Review the information on the Caution screen. Press **Enter** to reprogram the system ROM or **Esc** to discontinue reprogramming and return to the Select An Image screen.

A message that says:

Reprogramming Firmware

indicates that the option ROM is being reprogrammed. Do not interrupt ROM reprogramming.



**CAUTION:** Do not interrupt this cycle. Interrupting the ROM reprogramming leaves the firmware in an unknown state. You may not be able to use the tape drive if this happens. You are notified when reprogramming is completed.

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- a. When the Options ROMPaq is finished reprogramming the system ROM, press **Esc** to exit the System ROMPaq utility.
- b. Remove the Options ROMPaq diskette and restart the computer.



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## Agency Notices

### Regulatory Compliance Identification Numbers

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

### 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 (that is, 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 which class (A or B) the equipment falls into. 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. Once the class of the device is determined, refer to the following corresponding statement.

## **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 different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

## **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.

## **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:

Compaq Computer Corporation  
P. O. Box 692000, Mail Stop 530113  
Houston, Texas 77269-2000

or call 1-800-652-6672 (1-800-OK COMPAQ).

For questions regarding this FCC declaration, contact:

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

or call (281) 514-3333.

To identify this product, refer to the Part, Series, or Model number found on 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.

## European Union Notice



Products bearing the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).

Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

- EN 55022 (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
- EN 60950 (IEC 60950) - 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。



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## Electrostatic Discharge

To prevent damage to 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 can damage system boards or other static-sensitive devices. This type of damage can 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 for assistance with product installation, contact your Compaq authorized reseller.



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## Specifications

### Dimensions and Weight

Table C-1: Dimensions and Weight

Drive	Height	Width	Depth	Weight
AIT 35 IDE, AIT 35 LVD, AIT 50, AIT 100 (3.5" Internal Drive without rails)	41.2 mm 1.62 in	101.6 mm 4.00 in	155.0 mm 6.10 mm	0.75 kg* 1.65 lb
AIT 35 IDE, AIT 35 LVD, AIT 50, AIT 100 (5.25" Internal Drive without rails)	41.2 mm 1.62 in	149.0 mm 5.87 in	155.0 mm 6.10 in	1.02 kg 2.24 lb
AIT 50 (External Drive)	58.0 2.28 in	189.0 mm 7.44 in	262.0 mm 10.31 in	2.3 kg 5.07 lb
AIT 35 LVD, AIT 100 (External Drive)	64.5 mm 2.54 in	198.0 mm 7.80 in	246.0 mm 9.69 in	2.4 kg 5.29 lb

\*without a cassette and a front bezel

### Acoustic Noise

Table C-2: Acoustic Noise for all models

Actions	Decibels
Streaming Write/Read	40 dB
Insert/Eject	60 dB

## Altitude

**Table C-3: Altitude for all models**

Action	Altitude
Operating	0 to 3,048 meters (0 to 10,000 feet)

## Temperature and Humidity Range

**Table C-4: Temperature and Humidity for all models**

Actions	Temperature	Humidity
Operating	5°C to 40°C ( $\Delta T < 10^\circ\text{C/h}$ ) 41°F to 104°F ( $\Delta T 50^\circ\text{F/h}$ )	20 to 60% RH (20 to 80% for AIT-100), non-condensing Maximum wet bulb temperature = 26°C (79°F)
Non-Operating (mech.)	-40°C to 70°C ( $\Delta T 20^\circ\text{C/h}$ ) -40°F to 158°F ( $\Delta T 68^\circ\text{F/h}$ )	5 to 95% RH ( $\Delta RH < 30\%/h$ )
<b>IMPORTANT:</b> Do not cover fan. The tape drive can malfunction if the internal temperature rises too high.		

## Power Requirements

**Table C–5: Power Requirements for AIT 35 IDE, AIT 35, and AIT 50**

Voltage	Max Ripple	Current	
		Typical	Maximum
5V +/- 5%	100 mV p-p	1.55A	2.5A
12V +/- 10%	100 mV p-p	0.35A	1.2A

**Table C–6: Power Requirements for AIT 100**

Voltage	Max Ripple	Current	
		Typical	Maximum
5V +/- 5%	100 mV p-p	2.4A	2.6A
12V +/- 10%	100 mV p-p	0.5A	1.2A



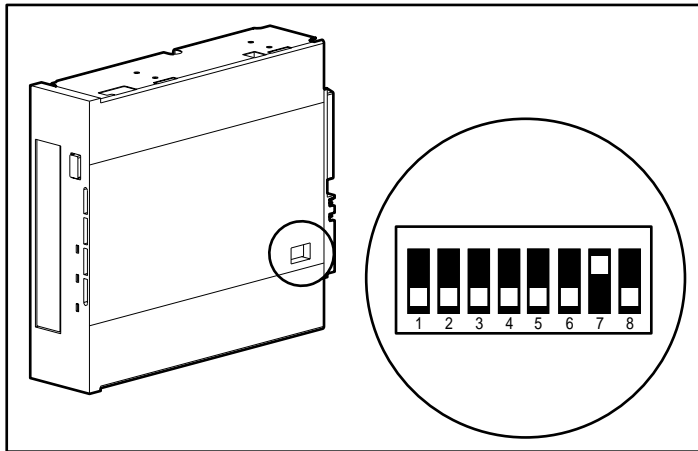
# D

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## Data Compression

The AIT tape drive ships from the factory with data compression enabled for writing. The drive is equipped with Adaptive Lossless Data Compression (ALDC) algorithm. In this mode, data is always compressed when writing to the cassette, but the drive is capable of reading both compressed and uncompressed cassettes.

For the drive to write uncompressed data, you must change the data compression setting. This can be changed through software or using the DIP switches (see Figure D-1). Consult your backup application software documentation for the data compression enabling and disabling procedure.



**Figure D-1: DIP switch settings**

**Table D-1: DIP Switch Descriptions**

Switches	Description	Default Position
1	Reserved	OFF
2	Reserved	OFF
3	Reserved	OFF
4	Reserved	OFF
5	Not Connected	OFF
6	Not Connected	OFF
7	Data Compression Control-1	ON
8	Reserved	OFF

**NOTE:** Compaq does not recommend changing the factory-set DIP switches.

**Table D-2: Data Compression ON Switch**

<b>DC Control-1 (Position 7)</b>	<b>Definition</b>
OFF	Compression disabled at power-on.
ON	Compression enabled at power-on.





## Daisy Chaining

As an optional configuration, two AIT tape drives can be connected to the same SCSI channel at the same time. Use no longer than a 6-ft cable to attach the initial drive, then use no longer than a 3-ft cable to daisy chain the additional drive.

**IMPORTANT:** Do not connect more than two drives per SCSI controller.

1. If the first drive has a terminator on the SCSI connector ❶, remove it.
2. Connect the tape drives together by placing a SCSI cable between the SCSI connector ❷ of the first drive to the SSI connector ❸ of the second drive.
3. Place the terminator (not shown) on the SCSI connector ❹ of the second drive.
4. Power ON all peripheral devices.
5. Power ON the computer.

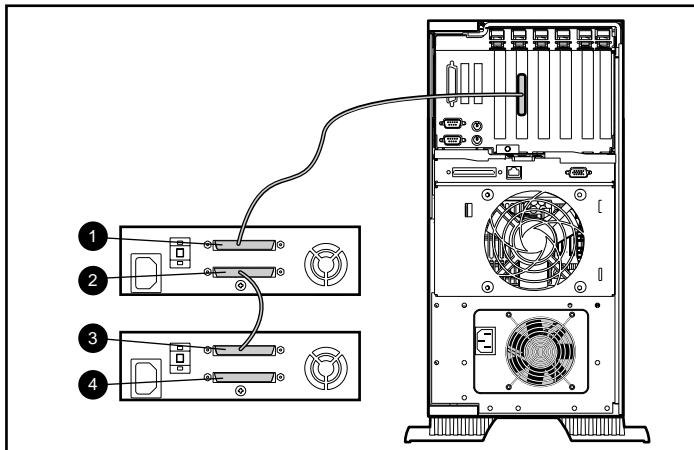


Figure E-1: Daisy Chaining



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