TruCluster Software Products

Hardware Configuration Technical Update for TL895 DLT Automated Tape Library

December 1999

Product Version:	TruCluster Production Server Software Version 1.6 and TruCluster Available Server Software Version 1.6
Operating System and Version:	Tru64 UNIX Version 4.0F

This technical update describes how to configure the TL895 Digital Linear Tape (DLT) Automated Tape Library (ATL) in a TruCluster Software Products environment. This technical update has been revised to include support for the KZPBA-CB UltraSCSI host bus adapter with the TL895.

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About This Technical Update

This technical update provides important information about using the TL895 Digital Linear Tape (DLT) automated tape library (ATL) with the TruCluster™ software products.

Audience

If you plan to use a TL895 DLT automated tape library in a TruCluster hardware configuration, read this addendum to the TruCluster Software Products *Hardware Configuration* manual.

Organization

This technical update contains an introductory chapter and a chapter covering the use and configuration of the TL895 DLT automated tape library in a TruCluster configuration.

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TL895 DLT Automated Tape Library

This technical update to the TruCluster Software Products *Hardware Configuration* manual provides important information about support for the TL895 DLT automated tape library with the TruCluster Production Server Software Version 1.6 and TruCluster Available Server Software Version 1.6 products.

1.1 General Overview

The TL895 DLT automated tape library was recently qualified for use with the TruCluster Production Server Software Version 1.6 and TruCluster Available Server Software Version 1.6 products with the KZPBA-CB UltraSCSI host bus adapter.

There is no TruCluster Software Products software release that coincides with the availability of support for the TL895 with the KZPBA-CB UltraSCSI host bus adapter. This technical update provides the TL895 configuration information that would be in Chapter 4 of the TruCluster Software Products *Hardware Configuration* manual.

For more information on the TL895, see the following:

- *TL895 DLT Tape Library Facilities Planning and Installation Guide* (EK-TL895-IG)
- *TL895 DLT Library Operator's Guide* (EK-TL895-OG)
- *TL895 DLT Tape Library Diagnostic Software User's Manual* (EK-TL895-UM)

For more information on upgrading from five to six or seven tape drives, see the *TL895 Drive Upgrade Instructions* manual.

1.2 TL895 DLT Aumotated Tape Library Overview

The DS-TL895-BA automated digital linear tape library consists of five TZ89N-AV tape drives and 100 tape cartridge bins (96 storage bins in a fixed-storage array (FSA) and 4 load port bins). The storage bins hold either CompacTape III, CompacTape IIIXT, or CompacTape IV cartridges. The maximum storage capacity of the library is 3500 GB uncompressed, based upon 100 CompacTape IV cartridges at 35 GB each.

The TL895 may be upgraded to six or seven tape drives with the addition of one or two DS-TL89X-UA upgrade kits.

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Preparing the TL895 DLT Automated Tape Library for Cluster Use

The topics in this chapter provide information on preparing the TL895 Digital Linear Tape (DLT) automated tape library for use on a shared SCSI bus with the TruCluster Production Server Software Version 1.6 and TruCluster Available Server Software Version 1.6 products.

Tape devices are supported only on those shared SCSI buses that use the KZPSA PCI SCSI adapter or the KZPBA-CB UltraSCSI host bus adapter.

Note

To achieve system performance capabilities, we recommend placing no more than two TZ89 drives on a SCSI bus segment. It is also recommended that storage be placed on shared SCSI buses that do not have tape drives.

2.1 Preparing the TL895 DLT Automated Tape Library for Shared SCSI Bus Usage

The TL895 DLT automated tape library contains a library controller and five TZ89N-AV tape drives (you can upgrade to seven tape drives).

Note

There are rotary switches on the library printed circuit board used to set the library and tape drive SCSI IDs. The SCSI IDs set by these switches are used for the first 20 to 30 seconds after power is applied, until the electronics is activated and able to set the SCSI IDs electronically.

The physical SCSI IDs should match the SCSI IDs set by the library electronics. Ensure that the SCSI ID set by the rotary switch and from the control panel do not conflict with any SCSI bus controller SCSI ID.

The following sections describe how to prepare the TL895 for use on a shared SCSI bus in more detail.

2.1.1 TL895 Robotic Controller Required Firmware

Robotic firmware version N2.20 is the minimum firmware revision that will support TruCluster Software Products. For information on upgrading the robotic firmware see the Flash Download section of the *TL895 DLT Tape Library Diagnostic Software User's Manual*.

2.1.2 Setting the TL895 Tape Library SCSI IDs

The library and each tape drive must have the SCSI ID set (unless the default is sufficient). Table 2–1 lists the TL895 default SCSI IDs.

Table 2–1: TL895 Default SCSI ID Settings

SCSI Device	SCSI ID
Library	0
Drive 0	1
Drive 1	2
Drive 2	3
Drive 3	4
Drive 4	5
Drive 5	1
Drive 6	2

The SCSI IDs must be set mechanically, by the rotary switches, and electronically from the control panel. After you have set the SCSI IDs from the switches, power up the library and electronically set the SCSI IDs.

To electronically set the SCSI ID for the TL895 library and tape drives, follow these steps:

1. At the control panel, press the Operator tab.
2. On the Enter Password screen, enter the operator password. The default operator password is 1234. The lock icon is unlocked and shows an O to indicate that you have operator-level security clearance.
3. On the Operator screen, press the Configure Library button. The Configure Library screen displays the current library configuration.

Note

You can configure the library model number, number of storage bins, number of drives, library SCSI ID, and tape drive SCSI IDs from the Configure Library screen.

4. To change any of the configurations, press the Configure button.
5. Press the Select button until the item you wish to configure is highlighted. For the devices, select the desired device (library or drive) by scrolling through the devices with the arrow buttons. After the library or selected drive is selected, use the Select button to highlight the SCSI ID.
6. Use the arrow buttons to scroll through the setting choices until the desired setting appears.
7. When you have the desired setting, press the Change button to save the setting as part of the library configuration.
8. Repeat steps 5 through 7 to make additional changes to the library configuration.
9. Place the library back at the user level of security as follows:
   - Press the lock icon on the vertical bar of the control panel.
   - On the Password screen, press the User button.
   - A screen appears informing you that the new security level has been set. Press the Okay button. The lock icon appears as a locked lock and displays a U to indicate that the control panel is back at User level.
10. Power cycle the tape library to allow the new SCSI IDs to take affect.

2.1.3 TL895 Tape Library Internal Cabling

The default internal cabling configuration for the TL895 tape library has the library robotics controller and top drive (drive 0) on SCSI bus port 1. Drive 1 is on SCSI bus port 2, drive 2 is on SCSI bus port 3, and so on. A terminator (part number 0415619) is connected to each of the drives to provide termination at the tape drive end of the SCSI bus.

In this configuration each of the tape drives, except tape drive 0 and the robotics controller, require a SCSI ID on a separate SCSI bus. The robotics controller and tape drive drive 0 use two SCSI IDs on their SCSI bus.

You can reconfigure the tape drives and robotics controller to place multiple tape drives on the same SCSI bus with SCSI bus jumper (part number 6210567) included with the tape library.

Note

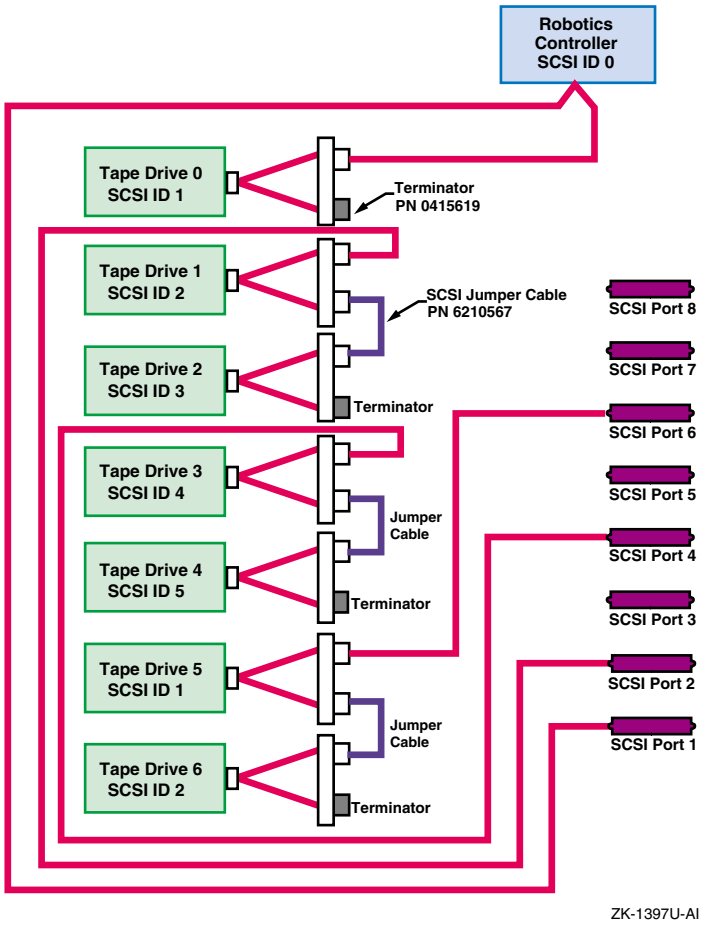
We recommend placing no more than two TZ89 drives on a SCSI bus segment. We also recommend that storage be placed on shared SCSI buses that do not have tape drives.

To reconfigure TL895 SCSI bus configuration, follow these steps:

1. Remove the SCSI bus cable from one drive to be daisy chained.
2. Remove the terminator from the other drive to be daisy chained.
3. Ensure that the drive that will be the last drive on the SCSI bus has a terminator installed.
4. Install a SCSI bus jumper cable (part number 6210567) on the open connectors of the two drives to be daisy chained.

Figure 2–1 shows an example of a TL895 that has tape drives 1, 3, and 5 daisy chained to tape drives 2, 4, and 6 respectively.

Figure 2–1: TL895 Tape Library Internal Cabling



2.1.4 Upgrading a TL895

The TL985 DLT automated tape library can be upgraded from five to six or seven tape drives with one or two DS-TL89X-UA upgrade kits. Besides the associated documentation, the upgrade kit contains one TZ89N-AV tape drive, a SCSI bus terminator, a SCSI bus jumper (part number 6210567) so you can place more than one drive on the same SCSI bus, and other associated hardware.

Before the drive is physically installed, set the SCSI ID rotary switches (on the library printed circuit board) to the same SCSI ID that will be electronically set. After the drive installation is complete, set the electronic SCSI ID using the Configure menu from the control panel (see Section 2.1.2).

The actual upgrade is beyond the scope of this document. See the *TL895 Drive Upgrade Instructions* manual for upgrade instructions.

2.1.5 Connecting the TL895 Tape Library to the Shared SCSI Bus

The TL895 tape library has up to 3 meters of internal SCSI cabling per SCSI bus. Because of the internal SCSI cable lengths, it is not possible to use a trilink connector or Y cable to terminate the SCSI bus external to the library as is done with other devices on the shared SCSI bus. Each SCSI bus must be terminated internal to the tape library at the tape drive itself with the installed SCSI terminators. Therefore, TruCluster configurations using the TL895 tape libraries must ensure that the tape libraries are on the end of the shared SCSI bus.

In a TruCluster configuration with a TL895 tape library, the member systems and StorageWorks enclosures or DEC RAID subsystems may be isolated from the shared SCSI bus because they use trilink connectors or Y cables. However, because the TL895 cannot be removed from the shared SCSI bus, all ASE services that use any shared SCSI bus attached to the TL895 must be stopped before the tape loader can be removed from the shared bus.

To add a TL895 tape library to a shared SCSI bus, select the member system or storage device that will be the next to last device on the shared SCSI bus. Connect a BN21K, BN21L, or BN31G cable between a trilink or Y cable on that device to the appropriate tape library port.