

TruCluster Software Products

Hardware Configuration Technical Update for TL890 Digital Linear Tape (DLT) MiniLibrary Expansion Unit

June 1998

Product Version: TruCluster Production Server
Software Version 1.5 and TruCluster
Available Server Version 1.5

Operating System and Version: DIGITAL UNIX Version 4.0D

This technical update describes how to configure the TL890 Digital Linear Tape (DLT) MiniLibrary expansion unit with a TL891 or TL892 DLT MiniLibrary in a TruCluster Software Products environment.

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Contents

About This Technical Update

1 TL890 DLT MiniLibrary Expansion Unit

- 1.1 General Overview 1-1
- 1.2 TL890 DLT MiniLibrary Expansion Unit Overview 1-1

2 Preparing the TL890 DLT MiniLibrary Expansion Unit

- 2.1 TL890 DLT MiniLibrary Expansion Unit Hardware 2-1
- 2.2 Preparing the DLT MiniLibraries for Shared SCSI Bus Usage 2-2
 - 2.2.1 Cabling the DLT MiniLibraries 2-2
 - 2.2.2 Configuring a Base Module as a Slave 2-4
 - 2.2.3 Powering Up the DLT MiniLibrary 2-6
 - 2.2.4 Setting the TL890/TL891/TL892 SCSI ID 2-7

Figures

- 2-1 TL890 and TL892 DLT MiniLibraries on Shared SCSI Buses 2-4

About This Technical Update

This technical update provides important information about using the TL890 Digital Linear Tape (DLT) MiniLibrary expansion unit with a TL891 or TL892 DLT MiniLibrary with the TruCluster™ software products.

Audience

If you plan to configure a TL890 DLT MiniLibrary expansion unit with a TL891 or TL892 DLT MiniLibrary 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 TL890 DLT MiniLibrary expansion unit with the TL891 and TL892 DLT MiniLibraries in a TruCluster configuration.

TL890 DLT MiniLibrary Expansion Unit

This technical update to the TruCluster Software Products *Hardware Configuration* manual provides important information about support for the TL890 Digital Linear Tape (DLT) MiniLibrary expansion unit as used with the TL891 and TL892 DLT MiniLibraries with the TruCluster Production Server Software Version 1.5 and TruCluster Available Server Software Version 1.5 products.

1.1 General Overview

The TL890 DLT MiniLibrary expansion unit was recently qualified for use with the TL891 and TL892 DLT MiniLibraries and the TruCluster Production Server Software Version 1.5 and TruCluster Available Server Software Version 1.5 products.

There is no TruCluster Software Products software release that coincides with the availability of support for the TL890, TL891, and TL892, so this technical update provides the TL890/TL891/TL892 configuration information that would be in Chapter 4 of the TruCluster Software Products *Hardware Configuration* manual.

Note

If you have a standalone TL891 or TL892 DLT MiniLibrary, use the *Hardware Configuration Technical Update for TL891 and TL892 DLT MiniLibraries* for configuration information. The TL891 and TL892 DLT MiniLibraries are configured differently when used without the TL890 DLT MiniLibrary expansion unit.

1.2 TL890 DLT MiniLibrary Expansion Unit Overview

You can use a DS-TL890-NE/NG expansion unit with up to three TL891/TL892 MiniLibraries (DS-TL891-NE/NG, DS-TL892-UA) in a rack mount configuration to manage simultaneous access to up to 46 cartridges and six TZ89N-AV tape drives. The TL890 DLT MiniLibrary expansion unit adds 16 cartridges to the ten-cartridge capacity of each TL891/TL892 DLT MiniLibrary base unit used with the expansion unit for a total capacity of

26, 36, or 46 cartridges. These DLT MiniLibraries may be mounted in DIGITAL SW500, SW800, or RETMA cabinet configurations.

The SCSI bus connectors are HD 68-pin, and the SCSI transfer is high-speed differential.

Tape devices are supported only on those shared SCSI buses that use KZPSA PCI SCSI adapters.

2

Preparing the TL890 DLT MiniLibrary Expansion Unit

The topics in this chapter provide information on preparing the TL890 DLT MiniLibrary expansion unit with the TL891 and TL892 DLT MiniLibraries for use on a shared SCSI bus with the TruCluster Production Server Software Version 1.5 and TruCluster Available Server Software Version 1.5 products.

Note

To achieve system performance capabilities, DIGITAL recommends placing no more than two TZ89 drives on a SCSI bus, and also recommends that no shared storage be placed on the same SCSI bus with a tape library.

2.1 TL890 DLT MiniLibrary Expansion Unit Hardware

The TL890 expansion unit is installed above the TL891/TL892 DLT MiniLibrary base units in a DIGITAL SW500, SW800, or RETMA cabinet. The expansion unit integrates the robotics in the individual modules into a single coordinated library robotics system. The TL890 assumes control of the media, maintaining an inventory of all media present in the system, and controls movement of all media. The tape cartridges can move freely between the expansion unit and any of the base modules via the system's robotically controlled pass-through mechanism. The pass-through mechanism is attached to the back of the expansion unit and each of the base modules.

For each TL891/TL892 base module beyond the first module, the pass-through mechanism must be extended by seven inches (the height of each module) with a DS-TL800-AA pass-through mechanism extension. A seven-inch gap may be left between base modules (providing there is sufficient space), but additional pass-through mechanism extensions must be used.

For complete hardware installation instructions, see the *DLT MiniLibrary (TL890) Expansion Unit User's Guide*.

The combination of the TL890 expansion unit and the TL891/TL892 MiniLibrary modules is referred to as a DLT MiniLibrary for the remainder of this discussion.

2.2 Preparing the DLT MiniLibraries for Shared SCSI Bus Usage

The following sections describe how to prepare the DLT MiniLibraries in more detail. It is assumed that the expansion unit, base modules, and pass-through and motor mechanism have been installed.

2.2.1 Cabling the DLT MiniLibraries

You must make the following connections to render the DLT MiniLibrary system operational:

- Expansion unit to the pass-through motor mechanism: The motor mechanism cable is about 1 meter long and has a DB-15 connector on each end. Connect it between the connector labeled Motor on the expansion unit to the motor on the pass-through mechanism.

Note

This cable is not shown in Figure 2-1 as the pass-through mechanism is not shown in the figure.

- Robotics control cables from each base module to the expansion unit: These cables have a DB-9 male connector on one end and a DB-9 female connector on the other end. Connect the male end to the Expansion Unit Interface connector on the base module and the female end to any Expansion Modules connector on the expansion unit.

Note

It does not matter which interface connector a base module is connected to.

- SCSI bus connection to the expansion unit robotics: Connect the shared SCSI bus that will control the robotics to one of the SCSI connectors on the expansion unit with a BN21K (or BN21L) cable. Terminate the SCSI bus with an H879-AA terminator on the other expansion unit SCSI connector.

- SCSI bus connection to each of the base module tape drives: Connect a shared SCSI bus to one of the DLT1 or DLT2 SCSI connectors on each of the base modules with BN21K (or BN21L) cables. Terminate the other DLT1 or DLT2 SCSI bus connection with an H879-AA terminator.

You can daisy chain between DLT1 and DLT2 (if present) with a 0.3-meter SCSI bus jumper (supplied with the TL891). Terminate the SCSI bus at the tape drive on the end of the shared SCSI bus with an H879-AA terminator.

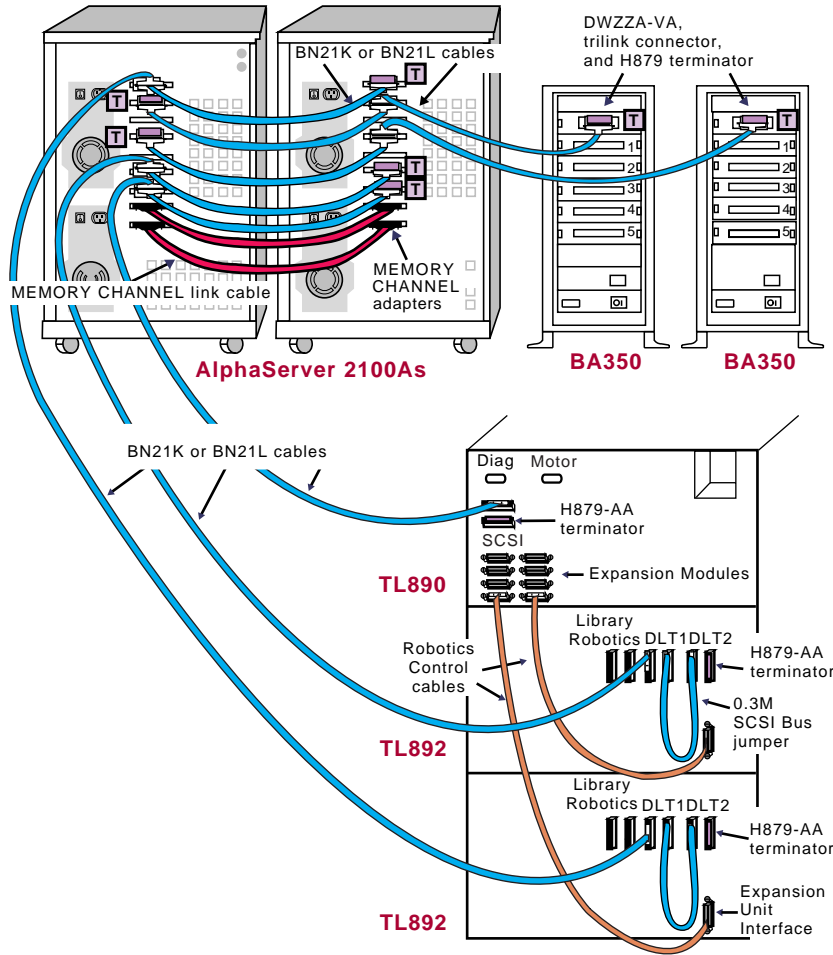
Notes

Do not connect a SCSI bus to the SCSI connectors for the library connectors on the base modules.

DIGITAL recommends that no more than two TZ89 tape drives be on a SCSI bus.

Figure 2-1 shows a MiniLibrary configuration with two TL892 DLT MiniLibraries and a TL890 DLT MiniLibrary expansion unit. The TL890 library robotics is on one shared SCSI bus, and the two TZ89 tape drives in each TL892 are on separate, shared SCSI buses. Note that the pass-through mechanism and cable to the library robotics motor is not shown in this figure.

Figure 2-1: TL890 and TL892 DLT MiniLibraries on Shared SCSI Buses



NOTE: This drawing is not to scale.

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2.2.2 Configuring a Base Module as a Slave

The TL891/TL892 base modules are shipped configured as standalone systems. When they are used in conjunction with the TL890 DLT MiniLibrary expansion unit, the expansion unit must control the robotics of each of the base modules. Therefore, the base modules must be configured as a slave to the expansion unit.

After the hardware and cables are installed, but before you power up the expansion unit in a MiniLibrary system for the first time, you must

reconfigure each of the base modules in the system as a slave. The expansion unit will not have control over the base module robotics when you power up the MiniLibrary system if you do not reconfigure the base modules as a slave.

To reconfigure a TL891/TL892 base module as a slave to the TL890 DLT MiniLibrary expansion unit, perform the following procedure on each base module in the system:

1. Turn on the power switch on the TL891/TL892 base module to be reconfigured.

Note

Do not power on the expansion unit. Leave it powered off until all base modules have been reconfigured as slaves.

After a series of self-tests have executed, the default screen will be displayed on the base module control panel:

```
DLT0 Idle
DLT1 Idle
Loader Idle
0> _ _ _ _ _ <9
```

The default screen shows the state of the tape drives, loader, and number of cartridges present for this base module. A rectangle in place of the underscore indicates that a cartridge is present in that location.

2. Press the Enter button to enter the Menu Mode, displaying the Main Menu.
3. Depress the down arrow button until the Configure Menu item is selected, then press the Enter button.

Note

The control panel up and down arrows have an auto-repeat feature. When you press either button for more than one-half second, the control panel behaves as if you were pressing the button about four times per second. The effect stops when you release the button.

4. Press the down arrow button until the Set Special Config menu is selected and press the Enter button.

5. Press the down arrow button repeatedly until the Alternate Config item is selected and press the Enter button.
6. Press the down arrow button to change the alternate configuration from the default (Standalone) to Slave. Press the Enter button.
7. After the selection stops flashing and the control panel indicates that the change is not effective until a reboot, press the Enter button.
8. When the Special Configuration menu reappears, turn the power switch off and then on to cycle the power. The base module is now reconfigured as a slave to the TL890 expansion unit.
9. Repeat the steps for each TL891/TL892 base module present that is a slave to the TL890 expansion unit.

2.2.3 Powering Up the DLT MiniLibrary

When turning on power to the DLT MiniLibrary, power must be applied to the TL890 expansion unit simultaneously or after power is applied to the the TL891/TL892 base modules. If the expansion unit is powered on first, its inventory of modules may be incorrect and the contents of some or all of the modules will be inaccessible to the system and to the host.

When the expansion unit comes up, it will communicate with each base module through the expansion unit interface and inventory the number of base modules, tape drives, and cartridges present in each base module. After the MiniLibrary configuration has been determined, the expansion unit will communicate with each base module and indicate to the base module which cartridge group that base module contains. The cartridges slots are numbered by the expansion unit as follows:

- Expansion unit: 0 through 15
- Top TL891/TL892: 16 through 25
- Middle TL891/TL892: 26 through 35
- Bottom TL891/TL892: 36 through 45

When all initialization communication between the expansion module and each base module has completed, the base modules will display their cartridge numbers according to the remapped cartridge inventory.

For instance, the middle base module default screen would be displayed as follows:

```
DLT2 Idle
DLT3 Idle
Loader Idle
26> _ _ _ _ _ <35
```

2.2.4 Setting the TL890/TL891/TL892 SCSI ID

After the base modules have been reconfigured as slaves, each base module control panel still provides tape drive status and error information, but all control functions are carried out from the expansion unit control panel. This includes setting the SCSI ID for each of the tape drives present.

To set the SCSI IDs for the tape drives in a MiniLibrary configured with TL890/TL891/TL892 hardware, follow these steps:

1. Apply power to the MiniLibrary, ensuring that you power up the expansion unit after or at the same time as the base modules.
2. Wait until power-on self-tests (POST) have terminated and the expansion unit and each base module display the default screen.
3. At the expansion unit control panel, press the Enter button to display the Main Menu.
4. Press the down arrow button until the Configure Menu item is selected, and then press the Enter button to display the Configure submenu.
5. Press the down arrow button until the Set SCSI item is selected and press the Enter button.
6. Press the up or down arrow button to select the appropriate tape drive (DLT0 Bus ID:, DLT1 Bus ID:, DLT2 Bus ID:, and so on) or library robotics (Library Bus ID:) for which you wish to change the SCSI bus ID. Assuming that each base module has two tape drives, the top base module contains DLT0 and DLT1. The next base module down contains DLT2 and DLT3. The bottom base module contains DLT4 and DLT5. The default SCSI IDs, after being reconfigured by the expansion unit, are as follows:
 - Library Bus ID: 0
 - DLT0 Bus ID: 1
 - DLT1 Bus ID: 2
 - DLT2 Bus ID: 3
 - DLT3 Bus ID: 4
 - DLT4 Bus ID: 5
 - DLT5 Bus ID: 6
7. Press Enter when you have the item selected for which you wish to change the SCSI ID.

8. Use the up and down arrows to select the desired SCSI ID. Press the Enter button to save the new selection.
9. Press the Escape button once to return to the Set SCSI Submenu to select another tape drive or the library robotics, and then repeat steps 6, 7, and 8 to set the SCSI ID.
10. If there are other items you wish to configure, press the Escape button until the Configure submenu is displayed, then select the item to be configured. Repeat this procedure for each item you wish to configure.
11. If there are no more items to be configured, press the Escape button until the Default window is displayed.