# Sun™ StorEdge™ L3500 Facilities Planning and Installation Guide

**Sun microsystems**

THE NETWORK IS THE COMPUTER™

Adobe PostScript™

# Safety Agency Compliance Statements

Read this section before beginning any procedure. The following text provides safety precautions to follow when installing a Sun Microsystems product.

## Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.

- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.

- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

## Symbols

The following symbols may appear in this book:

**Caution** – There is risk of personal injury and equipment damage. Follow the instructions.

**Caution** – Hot surface. Avoid contact. Surfaces are hot and may cause personal injury if touched.

**Caution** – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.

**On** – Applies AC power to the system.

Depending on the type of power switch your device has, one of the following symbols may be used:

**Off** – Removes AC power from the system.

**Standby** – The On/Standby switch is in the *standby* position.

## Modifications to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems is not responsible for regulatory compliance of a modified Sun product.

## Placement of a Sun Product

**Caution** – Do not block or cover the openings of your Sun product. Never place a Sun product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your Sun product.

## SELV Compliance

Safety status of I/O connections comply to SELV requirements.

## European Ergonomics

In order to conform with the German ZH1/618 ergonomic standard, an antiglare treatment to the CRT has been provided. For text processing applications, a positive mode display (black characters on a white background) is required.

## Power Cord Connection

**Caution** – Sun products are designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.

**Caution** – Not all power cords have the same current ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.

**Caution** – Your Sun product is shipped with a grounding type (three-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

The following caution applies only to devices with a **Standby** power switch:

**Caution** – The power switch of this product functions as a standby type device only. The power cord serves as the primary disconnect device for the system. Be sure to plug the power cord into a grounded power outlet that is nearby the system and is readily accessible. Do not connect the power cord when the power supply has been removed from the system chassis.

## Lithium Battery

**Caution** – On Sun CPU boards, there is a lithium battery molded into the real-time clock, SGS No. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, or MK48T08. Batteries are not customer replaceable parts. They may explode if mishandled. Do not dispose of the battery in fire. Do not disassemble it or attempt to recharge it.

## System Unit Cover

You must remove the cover of your Sun computer system unit in order to add cards, memory, or internal storage devices. Be sure to replace the top cover before powering up your computer system.

**Caution** – Do not operate Sun products without the top cover in place. Failure to take this precaution may result in personal injury and system damage.

## Laser Compliance Notice

Sun products that use laser technology comply with Class 1 laser requirements.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

## CD-ROM

**Caution** – Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

# Einhaltung sicherheitsbehördlicher Vorschriften

Auf dieser Seite werden Sicherheitsrichtlinien beschrieben, die bei der Installation von Sun-Produkten zu beachten sind.

## Sicherheitsvorkehrungen

Treffen Sie zu Ihrem eigenen Schutz die folgenden Sicherheitsvorkehrungen, wenn Sie Ihr Gerät installieren:

• Beachten Sie alle auf den Geräten angebrachten Warnhinweise und Anweisungen.

• Vergewissern Sie sich, daß Spannung und Frequenz Ihrer Stromquelle mit der Spannung und Frequenz übereinstimmen, die auf dem Etikett mit den elektrischen Nennwerten des Geräts angegeben sind.

• Stecken Sie auf keinen Fall irgendwelche Gegenstände in Öffnungen in den Geräten. Leitfähige Gegenstände könnten aufgrund der möglicherweise vorliegenden gefährlichen Spannungen einen Kurzschluß verursachen, der einen Brand, Stromschlag oder Geräteschaden herbeiführen kann.

## Symbole

Die Symbole in diesem Handbuch haben folgende Bedeutung:

**Achtung** – Gefahr von Verletzung und Geräteschaden. Befolgen Sie die Anweisungen.

**Achtung** – Hohe Temperatur. Nicht berühren, da Verletzungsgefahr durch heiße Oberfläche besteht.

**Achtung** – Gefährliche Spannungen. Anweisungen befolgen, um Stromschläge und Verletzungen zu vermeiden.

**Ein** – Setzt das System unter Wechselstrom.

Je nach Netzschaltertyp an Ihrem Gerät kann eines der folgenden Symbole benutzt werden:

**Aus** – Unterbricht die Wechselstromzufuhr zum Gerät.

**Wartezustand** (Stand-by-Position) - Der Ein-/ Wartezustand-Schalter steht auf Wartezustand. Änderungen an Sun-Geräten.

Nehmen Sie keine mechanischen oder elektrischen Änderungen an den Geräten vor. Sun Microsystems, übernimmt bei einem Sun-Produkt, das geändert wurde, keine Verantwortung für die Einhaltung behördlicher Vorschriften

## Aufstellung von Sun-Geräten

**Achtung** – Um den zuverlässigen Betrieb Ihres Sun-Geräts zu gewährleisten und es vor Überhitzung zu schützen, dürfen die Öffnungen im Gerät nicht blockiert oder verdeckt werden. Sun-Produkte sollten niemals in der Nähe von Heizkörpern oder Heizluftklappen aufgestellt werden.

## Einhaltung der SELV-Richtlinien

Die Sicherung der I/O-Verbindungen entspricht den Anforderungen der SELV-Spezifikation.

## Ergonomie-Richtlinien

Um den Anforderungen der in Deutschland geltenden Ergonomie-Richtlinie ZH1/618 zu entsprechen, wurde der Bildschirm entspiegelt. Für Textverarbeitungsanwendungen wird ein positiver Anzeigemodus (schwarze Zeichen auf weißem Hintergrund) empfohlen.

## Anschluß des Netzkabels

**Achtung** – Sun-Produkte sind für den Betrieb an Einphasen-Stromnetzen mit geerdetem Nulleiter vorgesehen. Um die Stromschlaggefahr zu reduzieren, schließen Sie Sun-Produkte nicht an andere Stromquellen an. Ihr Betriebsleiter oder ein qualifizierter Elektriker kann Ihnen die Daten zur Stromversorgung in Ihrem Gebäude geben.

**Achtung** – Nicht alle Netzkabel haben die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastungsschutz und sind daher für Computersysteme nicht geeignet.

**Achtung** – Ihr Sun-Gerät wird mit einem dreiadrigen Netzkabel für geerdete Netzsteckdosen geliefert. Um die Gefahr eines Stromschlags zu reduzieren, schließen Sie das Kabel nur an eine fachgerecht verlegte, geerdete Steckdose an.

Die folgende Warnung gilt nur für Geräte mit Wartezustand-Netzschalter:

**Achtung** – Der Ein/Aus-Schalter dieses Geräts schaltet nur auf Wartezustand (Stand-By-Modus). Um die Stromzufuhr zum Gerät vollständig zu unterbrechen, müssen Sie das Netzkabel von der Steckdose abziehen. Schließen Sie den Stecker des Netzkabels an eine in der Nähe befindliche, frei zugängliche, geerdete Netzsteckdose an. Schließen Sie das Netzkabel nicht an, wenn das Netzteil aus der Systemeinheit entfernt wurde.

## Lithiumbatterie

**Achtung** – CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie (Teile-Nr. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, oder MK48T08). Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgewechselt werden, da sie bei falscher Handhabung explodieren kann. Werfen Sie die Batterie nicht ins Feuer. Versuchen Sie auf keinen Fall, die Batterie auszubauen oder wiederaufzuladen.

## Gehäuseabdeckung

Sie müssen die obere Abdeckung Ihres Sun-Systems entfernen, um interne Komponenten wie Karten, Speicherchips oder Massenspeicher hinzuzufügen. Bringen Sie die obere Gehäuseabdeckung wieder an, bevor Sie Ihr System einschalten.

**Achtung** – Bei Betrieb des Systems ohne obere Abdeckung besteht die Gefahr von Stromschlag und Systemschäden.

## Einhaltung der Richtlinien für Laser

Sun-Produkte, die mit Laser-Technologie arbeiten, entsprechen den Anforderungen der Laser Klasse 1.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

## CD-ROM

**Warnung** – Die Verwendung von anderen Steuerungen und Einstellungen oder die Durchfhrung von Prozeduren, die von den hier beschriebenen abweichen, knnen gefhrliche Strahlungen zur Folge haben.

# Conformité aux normes de sécurité

Ce texte traite des mesures de sécurité qu'il convient de prendre pour l'installation d'un produit Sun Microsystems.

## Mesures de sécurité

Pour votre protection, veuillez prendre les précautions suivantes pendant l'installation du matériel :

• Suivre tous les avertissements et toutes les instructions inscrites sur le matériel.

• Vérifier que la tension et la fréquence de la source d'alimentation électrique correspondent à la tension et à la fréquence indiquées sur l'étiquette de classification de l'appareil.

• Ne jamais introduire d'objets quels qu'ils soient dans une des ouvertures de l'appareil. Vous pourriez vous trouver en présence de hautes tensions dangereuses. Tout objet conducteur introduit de la sorte pourrait produire un court-circuit qui entraînerait des flammes, des risques d'électrocution ou des dégâts matériels.

## Symboles

Vous trouverez ci-dessous la signification des différents symboles utilisés :

**Attention :** risques de blessures corporelles et de dégâts matériels. Veuillez suivre les instructions.

**Attention :** surface à température élevée. Evitez le contact. La température des surfaces est élevée et leur contact peut provoquer des blessures corporelles.

**Attention :** présence de tensions dangereuses. Pour éviter les risques d'électrocution et de danger pour la santé physique, veuillez suivre les instructions.

**MARCHE** – Votre système est sous tension (courant alternatif).

Un des symboles suivants sera peut-être utilisé en fonction du type d'interrupteur de votre système:

**ARRET** – Votre système est hors tension (courant alternatif).

**VEILLEUSE** – L'interrupteur Marche/Veilleuse est en position « Veilleuse ».

## Modification du matériel

Ne pas apporter de modification mécanique ou électrique au matériel. Sun Microsystems n'est pas responsable de la conformité réglementaire d'un produit Sun qui a été modifié.

## Positionnement d'un produit Sun

**Attention :** pour assurer le bon fonctionnement de votre produit Sun et pour l'empêcher de surchauffer, il convient de ne pas obstruer ni recouvrir les ouvertures prévues dans l'appareil. Un produit Sun ne doit jamais être placé à proximité d'un radiateur ou d'une source de chaleur.

## Conformité SELV

Sécurité : les raccordements E/S sont conformes aux normes SELV.

## Ergonomie européenne

Conformément à la norme d'ergonomie allemande ZH1/618, le CRT a été soumis à un traitement antireflets. Pour le traitement de texte, un affichage en mode positif (c'est-à-dire des caractères noirs sur fond blanc) est nécessaire.

## Connexion du cordon d'alimentation

**Attention :** les produits Sun sont conçus pour fonctionner avec des alimentations monophasées munies d'un conducteur neutre mis à la terre. Pour écarter les risques d'électrocution, ne pas brancher de produit Sun dans un autre type d'alimentation secteur. En cas de doute quant au type d'alimentation électrique du local, veuillez vous adresser au directeur de l'exploitation ou à un électricien qualifié.

**Attention :** tous les cordons d'alimentation n'ont pas forcément la même puissance nominale en matière de courant. Les rallonges d'usage domestique n'offrent pas de protection contre les surcharges et ne sont pas prévues pour les systèmes d'ordinateurs. Ne pas utiliser de rallonge d'usage domestique avec votre produit Sun.

**Attention :** votre produit Sun a été livré équipé d'un cordon d'alimentation à trois fils (avec prise de terre). Pour écarter tout risque d'électrocution, branchez toujours ce cordon dans une prise mise à la terre.

L'avertissement suivant s'applique uniquement aux systèmes équipés d'un interrupteur VEILLEUSE:

**Attention :** le commutateur d'alimentation de ce produit fonctionne comme un dispositif de mise en veille uniquement. C'est la prise d'alimentation qui sert à mettre le produit hors tension. Veillez donc à installer le produit à proximité d'une prise murale facilement accessible. Ne connectez pas la prise d'alimentation lorsque le châssis du système n'est plus alimenté.

## Batterie au lithium

**Attention :** sur les cartes CPU Sun, une batterie au lithium (référence MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, ou MK48T08.) a été moulée dans l'horloge temps réel SGS. Les batteries ne sont pas des pièces remplaçables par le client. Elles risquent d'exploser en cas de mauvais traitement. Ne pas jeter la batterie au feu. Ne pas la démonter ni tenter de la recharger.

## Couvercle

Pour ajouter des cartes, de la mémoire, ou des unités de stockage internes, vous devrez démonter le couvercle de l'unité système Sun. Ne pas oublier de remettre ce couvercle en place avant de mettre le système sous tension.

**Attention :** il est dangereux de faire fonctionner un produit Sun sans le couvercle en place. Si l'on néglige cette précaution, on encourt des risques de blessures corporelles et de dégâts matériels.

## Conformité aux certifications Laser

Les produits Sun qui font appel aux technologies lasers sont conformes aux normes de la classe 1 en la matière.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

## CD-ROM

**Attention** – L'utilisation de contrôles, de réglages ou de performances de procédures autre que celle spécifiée dans le présent document peut provoquer une exposition à des radiations dangereuses.

# Normativas de seguridad

El siguiente texto incluye las medidas de seguridad que se deben seguir cuando se instale algún producto de Sun Microsystems.

## Precauciones de seguridad

Para su protección observe las siguientes medidas de seguridad cuando manipule su equipo:

- Siga todas los avisos e instrucciones marcados en el equipo.
- Asegúrese de que el voltaje y la frecuencia de la red eléctrica concuerdan con las descritas en las etiquetas de especificaciones eléctricas del equipo.
- No introduzca nunca objetos de ningún tipo a través de los orificios del equipo. Pueden haber voltajes peligrosos. Los objetos extraños conductores de la electricidad pueden producir cortocircuitos que provoquen un incendio, descargas eléctricas o daños en el equipo.

## Símbolos

En este libro aparecen los siguientes símbolos:

**Precaución** – Existe el riesgo de lesiones personales y daños al equipo. Siga las instrucciones.

**Precaución** – Superficie caliente. Evite el contacto. Las superficies están calientes y pueden causar daños personales si se tocan.

**Precaución** – Voltaje peligroso presente. Para reducir el riesgo de descarga y daños para la salud siga las instrucciones.

**Encendido** – Aplica la alimentación de CA al sistema.

Según el tipo de interruptor de encendido que su equipo tenga, es posible que se utilice uno de los siguientes símbolos:

**Apagado** – Elimina la alimentación de CA del sistema.

**En espera** – El interruptor de Encendido/En espera se ha colocado en la posición de *En espera*.

## Modificaciones en el equipo

No realice modificaciones de tipo mecánico o eléctrico en el equipo. Sun Microsystems no se hace responsable del cumplimiento de las normativas de seguridad en los equipos Sun modificados.

## Ubicación de un producto Sun

**Precaución** – Para asegurar la fiabilidad de funcionamiento de su producto Sun y para protegerlo de sobrecalentamien-tos no deben obstruirse o taparse las rejillas del equipo. Los productos Sun nunca deben situarse cerca de radiadores o de fuentes de calor.

## Cumplimiento de la normativa SELV

El estado de la seguridad de las conexiones de entrada/salida cumple los requisitos de la normativa SELV.

## Normativa ergonómica europea

Para cumplir con el estándar de ergonomía alemán ZH1/618, se ha dotado a la pantalla con un tratamiento antireflectante. Para las aplicaciones de tratamiento de textos, se precisa un modo de visualización positivo (carácteres negros sobre fondo blanco).

## Conexión del cable de alimentación eléctrica

⚡ **Precaución** – Los productos Sun están diseñados para trabajar en una red eléctrica monofásica con toma de tierra. Para reducir el riesgo de descarga eléctrica, no conecte los productos Sun a otro tipo de sistema de alimentación eléctrica. Póngase en contacto con el responsable de mantenimiento o con un electricista cualificado si no está seguro del sistema de alimentación eléctrica del que se dispone en su edificio.

⚡ **Precaución** – No todos los cables de alimentación eléctrica tienen la misma capacidad. Los cables de tipo doméstico no están provistos de protecciones contra sobrecargas y por tanto no son apropiados para su uso con computadores. No utilice alargadores de tipo doméstico para conectar sus productos Sun.

⚡ **Precaución** – Con el producto Sun se proporciona un cable de alimentación con toma de tierra. Para reducir el riesgo de descargas eléctricas conéctelo siempre a un enchufe con toma de tierra.

La siguiente advertencia se aplica solamente a equipos con un interruptor de encendido que tenga una posición "En espera":

⚡ **Precaución** – El interruptor de encendido de este producto funciona exclusivamente como un dispositivo de puesta en espera. El enchufe de la fuente de alimentación está diseñado para ser el elemento primario de desconexión del equipo. El equipo debe instalarse cerca del enchufe de forma que este último pueda ser fácil y rápidamente accesible. No conecte el cable de alimentación cuando se ha retirado la fuente de alimentación del chasis del sistema.

## Batería de litio

⚠ **Precaución** – En las placas de CPU Sun hay una batería de litio insertada en el reloj de tiempo real, tipo SGS Núm. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, o MK48T08. Las baterías no son elementos reemplazables por el propio cliente. Pueden explotar si se manipulan de forma errónea. No arroje las baterías al fuego. No las abra o intente recargarlas.

## Tapa de la unidad del sistema

Debe quitar la tapa del sistema cuando sea necesario añadir tarjetas, memoria o dispositivos de almacenamiento internos. Asegúrese de cerrar la tapa superior antes de volver a encender el equipo.

⚠ **Precaución** – Es peligroso hacer funcionar los productos Sun sin la tapa superior colocada. El hecho de no tener en cuenta esta precaución puede ocasionar daños personales o perjudicar el funcionamiento del equipo.

## Aviso de cumplimiento con requisitos de láser

Los productos Sun que utilizan la tecnología de láser cumplen con los requisitos de láser de Clase 1.

```
Class 1 Laser Product
Luokan 1 Laserlaite
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Laser Klasse 1
```

## CD-ROM

⚠ **Precaución** – El manejo de los controles, los ajustes o la ejecución de procedimientos distintos a los aquí especificados pueden exponer al usuario a radiaciones peligrosas.

## GOST-R Certification Mark



Z001
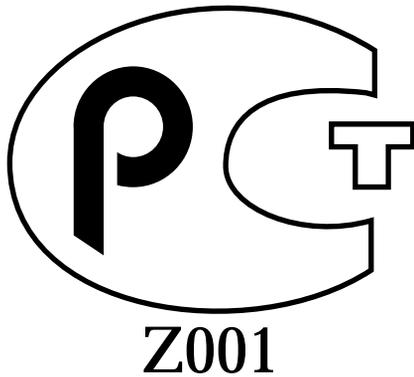
## Nordic Lithium Battery Cautions

### Norge

⚠ **A D V A R S E L** – Litiumbatteri — Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

### Sverige

⚠ **VARNING** – Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

### Danmark

⚠ **ADVARSEL!** – Litiumbatteri — Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

### Suomi

⚠ **VAROITUS** – Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

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# Preface

This book explains how to unpack and install the Sun™ StorEdge™L3500 automated tape library. It includes information about choosing an appropriate installation site, unpacking the library, transporting the library to the installation site, and performing the installation.

Make sure that you read the "Safety Agency Compliance" section beginning on page iii. Then refer to the specific chapters to find the information you need.

# Who Should Read This Book

This book was written for authorized field service engineers (FSEs) and other technical personnel who routinely install L3500 libraries. Because of the weight of the library and the complexity of the site requirements and installation procedures, unauthorized personnel should not perform these procedures.

Information about operating the library can be found in the *Sun StorEdge L3500 Operator's Guide.*

# How This Book Is Organized

*This guide is organized into the following chapters:.*

- *Chapter 1, "Installation Overview"*
- *Chapter 2, "Library Specifications and Site Requirements"*
- *Chapter 3, "Installing the Library"*
- *Appendix A, "SCSI Cabling Options"*
- *"Glossary"*
- *"Index"*

# Using UNIX Commands

This document may not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- *Solaris 2.x Handbook for SMCC Peripherals*
- AnswerBook™ online documentation for the Solaris™ 2.x software environment
- Other software documentation that you received with your system

# Typographic Conventions

**TABLE P-1**    Typographic Conventions

| Typeface or Symbol | Meaning | Examples |
|---|---|---|
| `AaBbCc123` | The names of commands, files, and directories; on-screen computer output. | Edit your `.login` file.<br>Use `ls -a` to list all files.<br>`% You have mail.` |
| **`AaBbCc123`** | What you type, when contrasted with on-screen computer output. | `%` **`su`**<br>`Password:` |
| *AaBbCc123* | Book titles, new words or terms, words to be emphasized. Command-line variable; replace with a real name or value. | Read Chapter 6 in the *User's Guide*.<br>These are called *class* options.<br>You *must* be `root` to do this.<br>To delete a file, type `rm` *filename*. |

# Shell Prompts

**TABLE P-2**    Shell Prompts

| Shell | Prompt |
|---|---|
| C shell | *machine_name*% |
| C shell superuser | *machine_name*# |
| Bourne shell and Korn shell | $ |
| Bourne shell and Korn shell superuser | # |

# Related Documentation

**TABLE P-3**   Related Documentation

| Application | Title | Part Number |
|---|---|---|
| Unpacking | *Sun StorEdge L3500 Unpacking Instructions* | 805-1039 |
| Operating | *Sun StorEdge L3500 Operator's Guide* | 805-1035 |

# Ordering Sun Documents

SunDocs$^{SM}$ is a distribution program for Sun Microsystems technical documentation. Contact SunExpress for easy ordering and quick delivery. You can find a listing of available Sun documentation on the World Wide Web.

**TABLE P-4**   SunExpress Contact Information

| Country | Telephone | Fax |
|---|---|---|
| Belgium | 02-720-09-09 | 02-725-88-50 |
| Canada | 1-800-873-7869 | 1-800-944-0661 |
| France | 0800-90-61-57 | 0800-90-61-58 |
| Germany | 01-30-81-61-91 | 01-30-81-61-92 |
| Holland | 06-022-34-45 | 06-022-34-46 |
| Japan | 0120-33-9096 | 0120-33-9097 |
| Luxembourg | 32-2-720-09-09 | 32-2-725-88-50 |
| Sweden | 020-79-57-26 | 020-79-57-27 |
| Switzerland | 0800-55-19-26 | 0800-55-19-27 |
| United Kingdom | 0800-89-88-88 | 0800-89-88-87 |
| United States | 1-800-873-7869 | 1-800-944-0661 |
| **World Wide Web:** `http://www.sun.com/sunexpress/` | | |

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If a card is not available, you can email or fax your comments to us. Please include the part number of your document in the subject line of your email or fax message.

- Email: `smcc-docs@sun.com`
- Fax:  SMCC Document Feedback
       1-650-786-6443

# Installation Overview

The Sun StorEdge L3500 comes pre-configured with two DLT™ 7000 tape drives and can be configured with a maximum of seven DLT™ 7000 drives and 100 cartridge slots. It includes a robotic handling mechanism that moves cartridges between the slots and the drives. The native capacity of the L3500 is 3,500 Gbytes, with 100 DLTtape IV cartridges at 35 Gbytes each.

This section explains how to install the L3500 library with your Sun system.

The Sun StorEdge L3500 comes with the following items:

- Two/four DLT 7000 drives
- 96 slots (fixed)
- Four mailbox slots (load port)
- Bar-code reader
- Seven blank DLTtape IV cartridges and a cleaning cartridge
- One/two 4-meter, 68-pin-to-68-pin differential SCSI cables[1]
- One/two differential SCSI terminators[2]
- U.S. power cable
- Bar-code labels
- Cleaning cartridge bar-code labels

1. One 4-meter cable is supplied with the two drive configuration, and two 4-meter cables are supplied with the four drive configuration.

2. One differential SCSI terminator is supplied with the two drive configuration, and two differential SCSI terminators are supplied with the four drive configuration.

You must perform the following steps to install the tape library. These are detailed in the following pages.

## Getting Ready

1. **Modify the** `st.conf` **file.**

2. **Determine the SCSI ID address for the library and the tape drives.**

3. **Shut down the operating system.**

4. **Turn off the power to your Sun system and peripherals.**

## Connecting the Tape Library

5. **Determine the SCSI bus length.**

6. **Connect the tape library.**

7. **Turn on the power to the tape library.**

## Configuring the Tape Library

8. **Set the SCSI ID for the tape library and drives.**

9. **Turn off the power to the tape library. Wait 30 seconds and then turn the power back on.**

## Starting Up Your Sun System

10. **Turn on the power to any peripherals and to your Sun system.**

11. **Verify the configuration of the** `st.conf` **file is correct.**

12. **Reboot your Sun system using the** `boot -r` **command.**

13. **Load the tape library with cartridges.**

# Getting Ready

## Modifying the `st.conf` File

You must modify the `st.conf` file so your Sun system will recognize the tape library.

Read this entire procedure before editing the `st.conf` file.

---

**Note –** Syntax is critical. You must type commas, semicolons, and beginning and ending quotation marks exactly as shown. Some numerical fields are preceded by `0x`. Lines preceded with a # character are comment lines and are not read by the system. Do *not* type in a # character with any of the following lines you enter in the `st.conf` file.

---

1. **Become superuser and make a copy of the original** `st.conf` **file** /kernel/drv/ `st.conf` **as a backup (** `st.conf.old` **).**

```
% su
Password:
# cp /kernel/drv/st.conf st.conf.old
```

2. **Edit the** `st.conf` **file.**

   Using an editor, scroll through the `st.conf` file to the following line:

```
# tape-config-list=
```

   a. **Delete the # character that begins the line, if it hasn't already been removed.**

   b. **Using the editor, continue to scroll until you come to the following line entry:**

```
# "EXABYTE EXB8500C", "Exabyte 8500C Helical Scan", "EXB-850X",
```

   c. **On the next line, add the following entry exactly as shown:**

```
"Quantum DLT7000", "Quantum DLT 7000", "Q7DLT";
```

**d. Using the editor, continue to scroll until you come to the following line entry:**

```
"EXB-850X = 1,0x29,0,0xce39,4,0x14,0x15,0x8c,0x8c,1;
```

**e. On the next line, add the following entry exactly as shown:**

```
Q7DLT =1,0x36,0,0xD639,4,0x82,0x83,0x84,0x85,2;
```

**f. Save the file as** st.conf**.**

# Determining the SCSI IDs

Under the Solaris™ 2.x software environment, you can set the SCSI device identifier (SCSI ID) addresses for the tape library and tape drives to any SCSI ID available from 0 to 7. SCSI ID 7 is reserved for the host or the SCSI host adaptor card.

**Caution –** The tape library and each installed tape drive must have a unique SCSI ID.

● **Type** `probe-scsi-all` **at the** `ok` **prompt to determine the SCSI IDs that are currently set.**

Table 1 shows the default SCSI IDs. You will set the IDs when you configure the tape library.

**TABLE 1-1**   Default SCSI IDs for the L3500, Tape Drives, and Sun System

| Device/Unit | SCSI ID | Description |
|---|---|---|
| Robotics Controller | 0 | Tape library |
| Tape drive 0 | 2 | Top drive |
| Tape drive 1 | 3 | Second drive |
| Tape drive 2 | 4 | Third drive |
| Tape drive 3 | 5 | Bottom drive |
| Computer system (host) or SCSI host adapter SBus card | 7 | Enables the host to act as the initiator of commands on the SCSI bus. |

# Shutting Down the Operating System

Before you can install the Sun StorEdge L3500, you must shut down the operating system. If you leave out a step, the system may fail to boot or to correctly configure the library and tape drives.

**Caution –** The system will not recognize the new device unless you follow the shutdown procedures for your operating system. Specifically, only Solaris 2.x software uses the `touch /reconfigure` command to ensure autoconfiguration when the system is powered on.

**1. Become superuser by typing `su` and pressing Return.**

```
% su
Password: superuser password
# touch /reconfigure
```

This command ensures that the operating system checks for the presence of any newly installed devices when you power on or boot your system.

**Note –** If your system is acting as a server, inform the mounted users that the system will be going down. If your system is a stand-alone system, use the `halt`, `shutdown`, or `init0` commands.

**2. Type `/usr/sbin/shutdown -y -g30 -i0` and press Return.**

```
# /usr/sbin/shutdown -y -g30 -i0
.
.
.
.
ok
```

The 0 in `g30` and `i0` is a zero.

A message is sent notifying all users who are logged in that they have 30 seconds (`-g30`) before the system begins to shut down. The `ok` or > prompt is displayed once the operating environment is shut down.

**3. At the `ok` or > prompt, power off the system.**

# Powering Off Your Sun System

● **Turn the on/off switch to the off (O) position for each device of your Sun system in the following order:**

1. Any peripheral drive units

2. Sun system

3. Monitor

**Caution –** After the power switches are turned to the off (O) position, the green light-emitting diodes (LEDs) on all units should not be lit and the fans should not be running. All power cords should remain plugged into each unit and wall outlets to prevent damage to the equipment by static electricity from your body.

**Caution –** Always wait 30 seconds between turning off the power and turning it back on again. This pause prevents possible damage to power supply components.

# Connecting the Tape Library

The Sun StorEdge L3500 is supported on the following SCSI host adapters:

■ DWIS - Differential, Fast-Wide Intelligent SCSI (X1062A)

The tape library uses a single-wire SCSI configuration as the default. See "Installing the Library" on page 21 for information on how to connect the tape library to your Sun system.

# Determining the SCSI Bus Length

A *bus* is a signal route to which several parts of a computer system can be connected so that signals can pass between them. The total length of a SCSI bus includes:

■ The length of the external SCSI cable *plus*
■ The length of the internal SCSI buses for the device and the system

## SCSI Bus Length

Your Sun system performance is reliable with a maximum differential SCSI bus length of 72 feet (24 meters), as shown in Figure 3. The internal signal path of your system unit and the external SCSI cables must not exceed this maximum length. If this length is exceeded, the system will not run in a reliable manner.

## Computing SCSI Bus Lengths

When connecting the L3500 to your system, find the total SCSI bus length for your configuration. To do this, add the length of the internal bus lengths of each device of the system to the length of the external SCSI cable. The length of the SCSI bus inside the L3500 is 2 meters.

If the SCSI bus length exceeds 24 meters, or you have to install more than 15 SCSI devices, you can install some of the devices on additional SCSI buses by installing a DWIS SCSI Host Adapter card with desktop systems or with deskside systems. The SCSI Host Adapter card provides an additional SCSI port (SCSI bus) for your system.

Host          SCSI peripheral     SCSI peripheral   SCSI peripheral

max. 24 meters
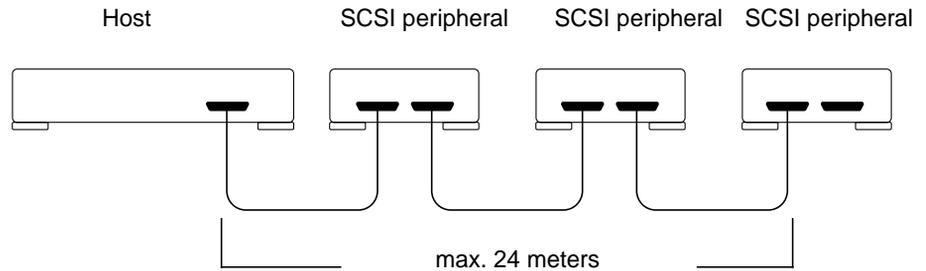
**FIGURE 1-1**   Maximum Differential SCSI Bus Length

## Terminating SCSI Devices

You must attach a regulated SCSI terminator to the SCSI port at the end of the SCSI bus. A terminator holds the bus at a predetermined signal level when the bus is not active and maintains impedance matching.

All SCSI daisy-chains must be terminated at the last unit attached to the SCSI bus. Also, a terminator is built in to all SBus SCSI cards and to all host systems to terminate that end of the bus. The regulated terminators must be used for all 68-pin SCSI buses having fast SCSI drives on a fast SCSI host.

### SCSI Termination Guidelines

- The SCSI device at the end of a daisy-chain *must* be electrically terminated.
- Only the last device in a SCSI daisy-chain is terminated.

If the tape library is not the last physical device on the SCSI bus, plug a SCSI cable into each connector. If the tape library is the last physical device on the SCSI bus, plug a SCSI cable into one of the connectors and the appropriate SCSI external terminator into the other connector.

If you are connecting the tape library to a single SCSI bus, you must install the SCSI bus jumper block into the middle two connectors. If you are installing the tape library on two SCSI buses, the SCSI bus jumper cable is not needed.

## Powering On the Tape Library

After connecting the tape library to your Sun system, turn the power on to the tape library. See "To Apply Power to the Library" on page 24 for information on how to power on the tape library.

# Configuring the Tape Library

You should next configure the tape library by setting the SCSI ID addresses for the library and drives.

## Setting the SCSI IDs for the Tape Library and Drives

See "To Set SCSI Addresses and Run System Tests" on page 25 for information on how to set or change the SCSI IDs for the L3500 library and drive.

## Cycling Power to the Tape Library

After setting the SCSI IDs for the tape library and drives, follow these steps:

1. **Turn the power off to the tape library.**

2. **Wait 30 seconds.**

3. **Turn the power back on to the tape library.**

# Starting Up Your Sun System

After you have finished configuring the tape library, turn the power on to any peripherals and to your Sun system.

## Verifying the `st.conf` File Configuration

1. **Halt the operating system by following the normal procedure.**

2. **Reboot the system with the `-r` option to recognize the tape library:**

```
% boot -r
```

Watch the boot messages for any indications of problems with the `st.conf` entry.

Note any indicated line numbers. If any error messages occur, edit the `st.conf` file again (see "Modifying the st.conf File" on page 3) and then reboot.

3. **Install a tape cartridge in the tape drive and wait for the drive to fully load the cartridge.**

4. **Verify that the `st.conf` entry is correct.**

```
% mt -f /dev/rmt/0 status
```

You may need to replace the 0 with 1, 2, and so on, until you find the number that the system has identified for the new device.

**TABLE 1-2**    Possible Returned Messages

| Message | Meaning |
| --- | --- |
| `Other tape drive` | The library is correctly recognized. |

**TABLE 1-2**    Possible Returned Messages

| Message | Meaning |
| --- | --- |
| Specific Sense Key returned | Not usually an issue. |
| No Additional Sense | There are no error conditions. |
| Unit Attention | The drive has just been powered on or a tape has been inserted. |

## Error Messages From the Tape Library

- SCSI tape drive indicates the st.conf entry is incorrect. You must edit the st.conf file and reboot until you no longer see SCSI Tape Drive.
- No tape loaded or drive offline indicates there is no cartridge in the drive or that the cartridge is not yet loaded. Install a cartridge or wait for the cartridge load to complete and retry the mt status command.
- No such file or directory indicates there is no tape drive attached to that rmt (remote) number. Try another rmt number.

## For Information on Software Commands

Check the man pages for additional information on software commands. Type man mt  to get a listing of numerous helpful commands.

# Rebooting the System

Reboot the system so that it will recognize the new tape library:

```
% boot -r
```

# Loading the Tape Library With Tape Cartridges

See "To Load Tape Cartridges" on page 25 for information on how to load the L3500 with tape cartridges.

# Library Specifications and Site Requirements

This chapter describes library physical specifications and addresses the floor and electrical requirements of the site.

## Library Description

The Sun StorEdge L3500 cabinet (FIGURE 2-1) is the automated storage and retrieval component of an automated tape library system. The library includes as many as seven *digital linear tape (DLT™)* tape drives and can store up to 96 DLT cartridges in a *fixed storage array (FSA)*. An operator-accessible *load port* at the front of the library can hold an additional four cartridges for a total of 100.

A host computer communicates with the library through a SCSI interface using the SCSI-2 medium changer command set. In a typical operation, the host commands the robotics to transfer tape cartridges between storage bins (in the FSA), tape drives or the load port. Each time a tape cartridge is transferred, a *cartridge handling mechanism (CHM)* moves to the tape cartridge location where it "picks" the tape cartridge, moves it to the designated (new) location, and then "places" it.

Fixed storage array (FSA) (96 cartridge bins)

Cartridge handing mechanism (CHM)

Vertical carriage

Horizontal carriage

Load port (open) (4 additional cartridges)

Control panel

Door handle (door shown open)

Tape drives (7)

(Front)
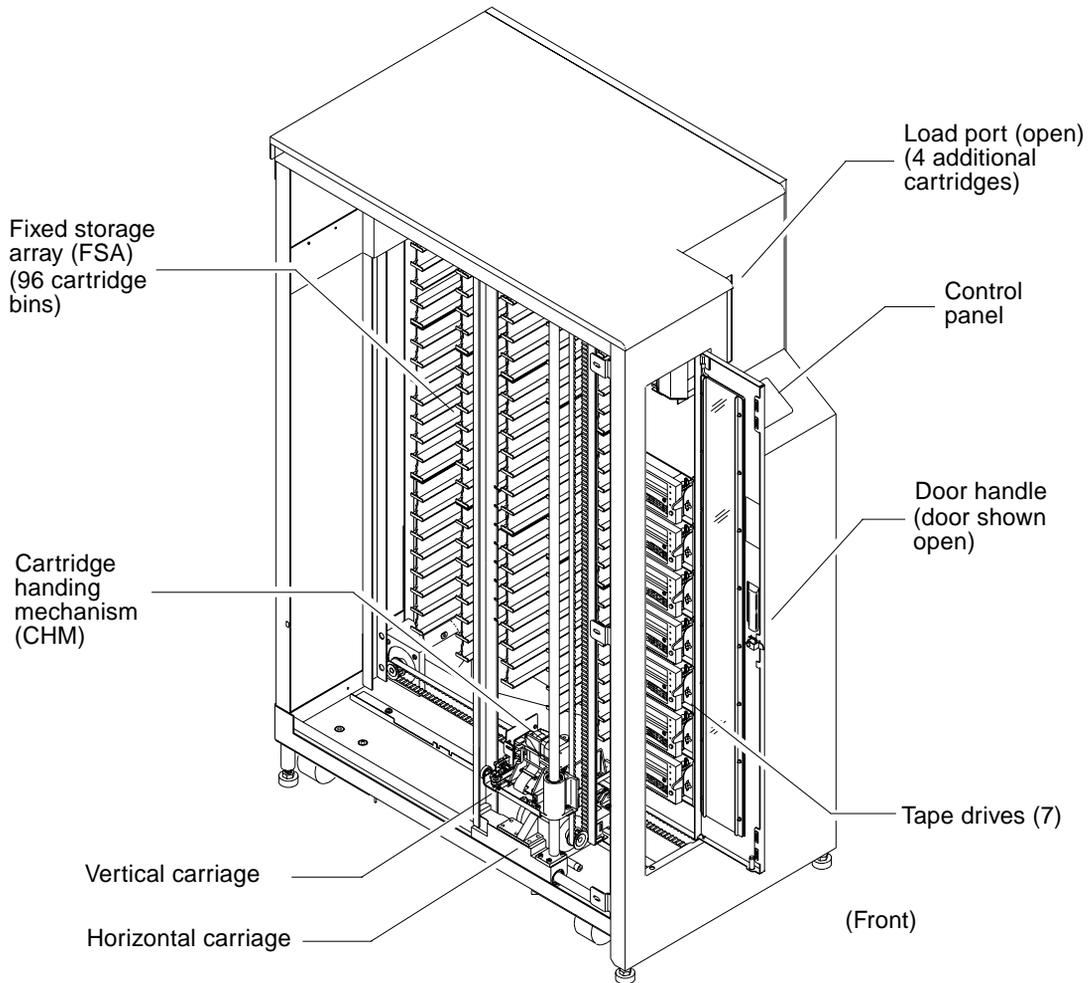
**FIGURE 2-1**   Sun StorEdge L3500 library (Left Panel Removed)

## Supported Tape Drives and Cartridges

The L3500 library supports DLT™7000 tape drives. These drives use CompacTape III™ (dark gray) and CompacTape IV™ cartridges (black).

⚠️ **Caution –** DO NOT USE CompacTape I™, CompacTape II™, or CompacTape IIIXT™ tape cartridges in this library.

# Bin and Tape Drive Numbering Conventions

FIGURE 2-2 shows the numbering conventions for the 100-cartridge library's fixed storage array bins, load port bins, and tape drives. This numbering convention is used in the diagnostic software and the control panel.
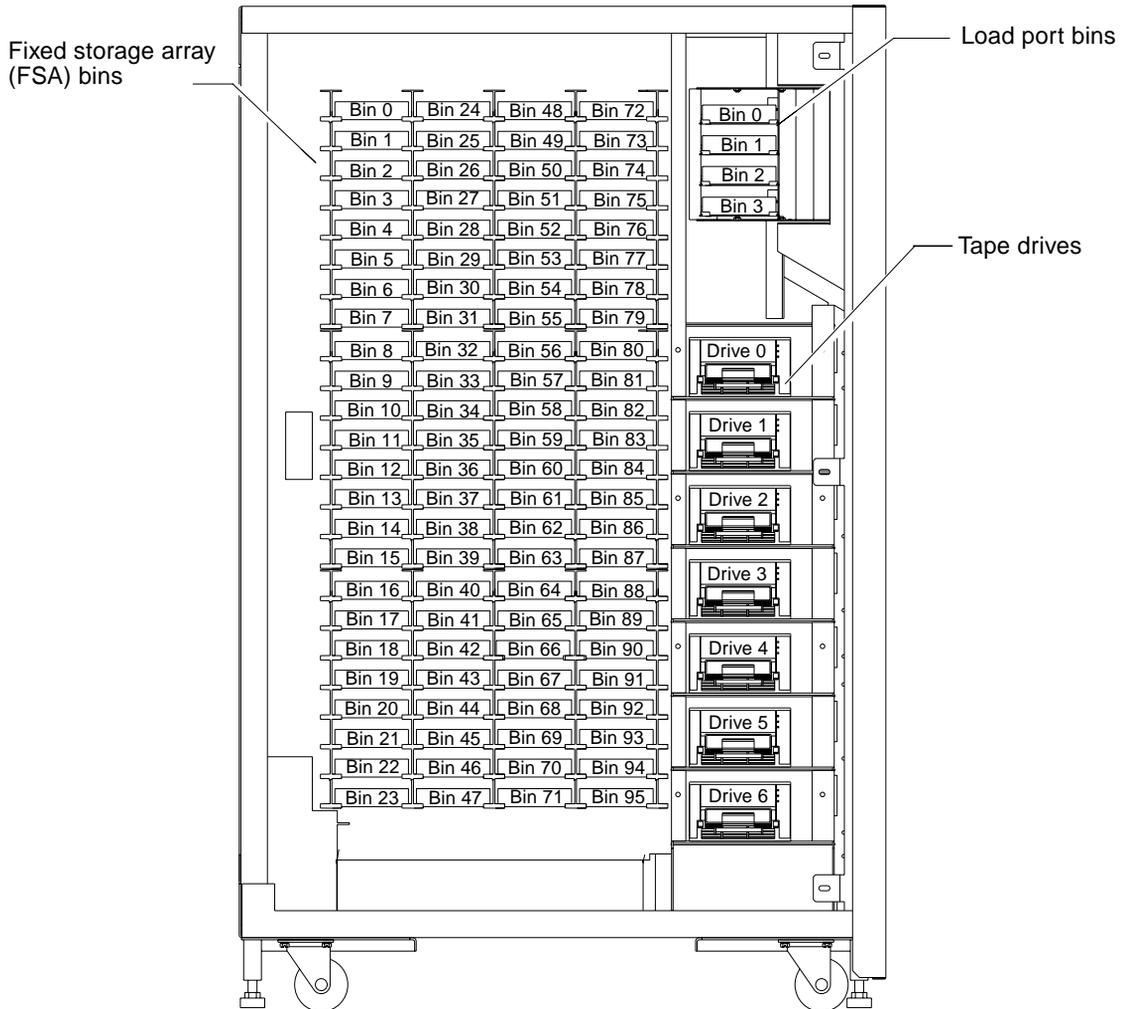


**FIGURE 2-2**  Library Numbering Conventions (100-Cartridge Model, Left-Side View)

# Library Specifications

The following tables provide the specifications of the Sun StorEdge L3500 library.

**TABLE 2-1**     Mechanical specifications

| | |
|---|---|
| **height** | 56.5 inches (143.5 cm) |
| **width** | 23.5 inches (59.7 cm) |
| **depth** | 36.5 inches (92.7 cm) |
| **weight** | 550 lb. (250 kg) with 96 DLT cartridges and 7 DLT tape drives installed |

**TABLE 2-2**     Power specifications

| | |
|---|---|
| **AC power rating** | 100-120V/200-240V, 7A/3.5A, 50/60 Hz |
| **AC voltage range** | 90-132 VAC or 180-264 VAC |
| **frequency range** | 47-63 Hz |

**TABLE 2-3**     Environmental specifications

| | |
|---|---|
| **temperature**<br>    **storage-short-term (< 60 days)**<br>    **storage-long-term (>60 days)**<br>    **transport**<br>    **operating** | <br>-40 to 151$^\circ$F (-40 to 66$^\circ$C)<br>41 to 122$^\circ$F (5 to 50$^\circ$C)<br>-40 to 151$^\circ$F (-40 to 66$^\circ$C)<br>50 to 90$^\circ$F (10 to 32$^\circ$C) |
| **relative humidity**<br>    **non-operating (storage)**<br>    **non-operating (transport)**<br>    **operating** | <br>95% (Max. Wet Bulb Temp: 90$^\circ$F/32$^\circ$C)<br>95% (Max. Wet Bulb Temp: 115$^\circ$F/46$^\circ$C)<br>10-90% (Max. Wet Bulb Temp: 82$^\circ$F/28$^\circ$C) |
| **altitude**<br>    **short-term (<60 days storage)**<br>    **operating** | <br>42,000 ft. (12.8 km)<br>13,200 ft. (4.0 km, 471 mmHg) @ 76$^\circ$F/ 24.4$^\circ$C Max. |

# Site Requirements

The following sections provide the floor space, leveling, floor type and loading requirements for the floor of the installation site.

## Floor Space

FIGURE 2-3 shows the floor space required by the L3500 library, including the off-load and maintenance access areas.
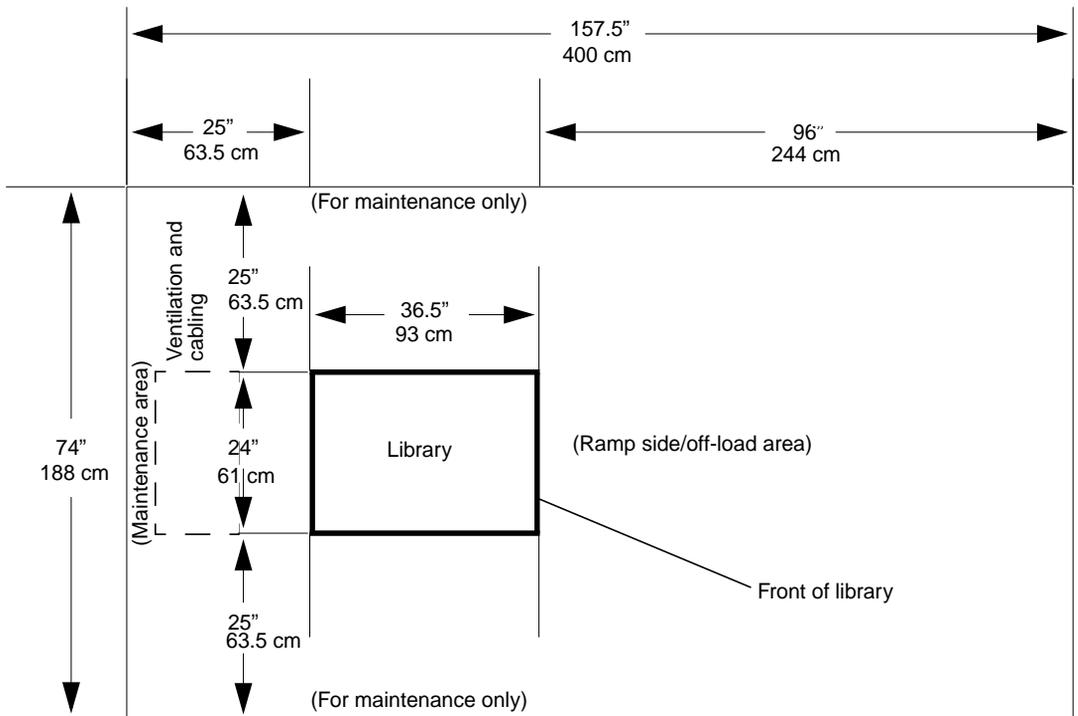


**FIGURE 2-3**  Library Floor Space Requirements

# Floor Leveling

The floor must be level to within 1/4 inch (6.35 mm) over
a 6 foot x 6 foot (1.83 m$^2$ ) area.

# Floor Loading

A standard raised computer floor rated at 250 lb/ft$^2$ (113 kg/0.0929 m$^2$ )
is sufficient to support a fully loaded L3500 library.

# Floor Clearance

The cabinet has a nominal floor clearance of 0.75 inch (1.9 cm).

# Power

The library's auto-ranging motor and logic power supplies accept single phase,
90-264 VAC input power at 47-63 Hz.

The power inlet connector is an IEC-320 connector (FIGURE 2-4). For international
applications, you must replace the power cord set with a harmonized 3x2.0mm$^2$
power cord set that is approved by the country where used.

~100-120V / ~200 - 240V
3.5A / 7A  50/60 Hz
IEC-320 Type

Ground

Line

Neutral
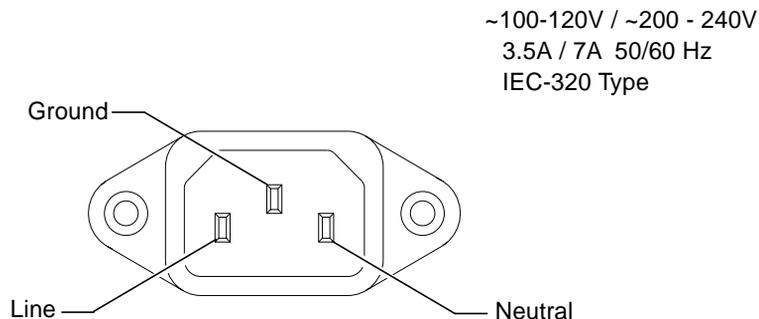
**FIGURE 2-4**   Library AC Power Receptacle

# Grounding

The library must be plugged into a grounded AC outlet.

# Installing the Library

This chapter explains how to install the Sun StorEdge L3500 library using the following procedures:

- Gathering required tools
- Leveling the library
- Setting up and testing the library
- Connecting the library to a host computer

To ensure a problem-free installation, these procedures should be followed in order. The on-site system administrator should also be present during these procedures.

# Gathering Required Tools

Make sure you have the tools listed in TABLE 3-1 before beginning this installation.

**TABLE 3-1**    Required tools

| Quantity | Item |
|:---:|:---|
| 1 | #2 Phillips screwdriver |
| 1 | wire cutters |
| 1 | carpenter's level |
| 1 | ¾ inch open-ended wrench |
| 1 | digital voltmeter (DVM) |
| 1 | ESD protection kit |

# Leveling the Library

## ▼ To Level the Library

**Note –** Completing this task involves leveling one side of the library at a time, moving in a clockwise direction from the front to the right-side of the library.

1. **Move the library onto its designated footprint in the final installation area.**

2. **Lower each foot of the library until it makes contact with the floor.**

**Caution –** When adjusting the feet for leveling purposes, DO NOT raise any foot so that excess weight is transferred to any single caster.

3. **Moving in a clockwise direction from the library front, rotate each foot clockwise so that each caster is raised approximately 1/4 inch off of the floor.**

4. **Center a carpenter's level on the top front edge of the library.**

5. **Check the gauge on the level. If the front of the library is level, proceed to Step 6. If it is not level:**

   a. **Determine the tilt of the library and adjust the appropriate front foot with the wrench, checking the gauge each time that a foot is rotated** 1/4 **turn.**

   b. **Repeat Step 5 until the front is level, then continue to the next step.**

6. **Center the carpenter's level on the top left edge of the library.**

7. **Check the gauge on the level. If the left side of the library is level, proceed to Step 8. If it is not level:**

   a. **Determine the tilt of the library and adjust the appropriate left side foot with the wrench, checking the gauge each time that a foot is rotated** 1/4 **turn.**

   b. **Repeat Step 7 until the left side is level, then continue to the next step.**

8. **Center the carpenter's level on the top-rear edge of the library.**

9. **Check the gauge on the level. If the rear of the library is level, proceed to Step 10. If it is not level:**

a. Determine the tilt of the library and adjust the appropriate rear foot with the wrench, checking the gauge each time that a foot is rotated 1/4 **turn.**

b. Repeat Step 9 until the rear is level, then continue to the next step.

10. Center a carpenter's level on the top right-side edge of the library.

11. Check the gauge on the level. If the right side of the library is level, proceed to Step 12. If it is not level perform the following:

a. Determine the tilt of the library and adjust the appropriate right-side foot with the wrench, checking the gauge each time that a foot is rotated 1/4 **turn.**

b. Repeat Step 11 until the right side is level, then continue to the next step.

12. After leveling all sides, center the level on the top-front edge and check the gauge. Make any minor adjustments necessary then move in a clockwise fashion around the library, repeating this step, until the library is level.

# Setting Up and Testing the Library

The purpose of the following procedures is to verify the proper operation of the L3500 before placing the library in operation.
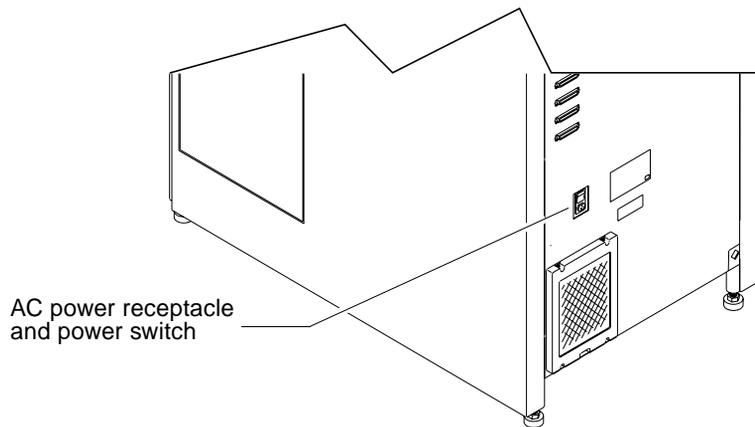
# ▼ To Apply Power to the Library

**1. Verify the following:**

- Actuators move freely in the horizontal and vertical directions
- All doors are closed
- All cosmetic panels are attached
- Power switch in the (off) O position

⚠ **Caution –** Using a digital voltmeter (DVM), verify that the facility power is 90-132VAC or 180-264 VAC @ 47-63Hz before connecting the AC power cord.

**2. Connect the AC power cord to the rear panel and facility power (**FIGURE 3-1**).**

**3. On the rear panel, set the power switch to the (on) | position (**FIGURE 3-1**).**

**4. After several seconds, verify that the control panel displays library status.**

AC power receptacle
and power switch

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**FIGURE 3-1**   Library Power Receptacle and Power Switch Location

## ▼ To Set SCSI Addresses and Run System Tests

After power is applied to the library, you need to:

1. **Set library and tape drive SCSI addresses.**

2. **Run a library system test.**

Setting SCSI addresses requires operator- or service-level security clearance at the library control panel. Running system tests requires service-level clearance. Refer to the *Sun StorEdge L3500 Operator's Guide* and the *Sun StorEdge L3500 Service Manual* for a description of these procedures.

## ▼ To Configure Library Options

In addition, you can change the default configuration (in bold) of these options:

- Library power-up state (**online**/offline)
- Auto clean (**enable**/disable)
- Retries (**enable**/disable)
- Exabyte emulation (enable/**disable**)
- Read barcode labels (**yes**/no)
- Auto inventory (**yes**/no)
- Auto load (**enable**/disable)

These procedures require operator- or service-level security clearance at the library control panel. For a description of these procedures, refer to the *Sun StorEdge L3500 Operator's Guide.*

## ▼ To Load Tape Cartridges

You can load the library with tape cartridges by:

- Using the load port
- Bulk loading through the storage array door

For more information about opening the storage array door or using the load port, refer to the *Sun StorEdge L3500 Operator's Guide.*

# Connecting the Library to the Host Controller

This section explains how to connect the host cables to the library. The library can be configured for four separate host SCSI connections (four-wire) with all buses terminating externally (TABLE 3-2). These host connections are discussed in Appendix A.

**TABLE 3-2**  Library configurations

| Library Configuration | Default SCSI Wiring Configuration |
|---|---|
| 2/100 | 1-Wire |
| 4/100 | 2-Wire |
| 7/100 | 4-Wire |

**Note –** Internal SCSI cabling changes are required to set up a bus configuration different than the default. Any additional cables required for internal cabling changes are provided in the library accessories kit. The accessories kit does NOT include any additional cabling or terminators for connection to the host computer.

## ▼ To Connect the Library to the Host Using the Default Two-Wire, Four-Drive Configuration:

**1. Remove power from the library.**

**a. Press** STANDBY **button in the control panel.**

Verify that System Offline appears in the display.

**b. At the back panel, set the** POWER **switch to the (off) O position.**

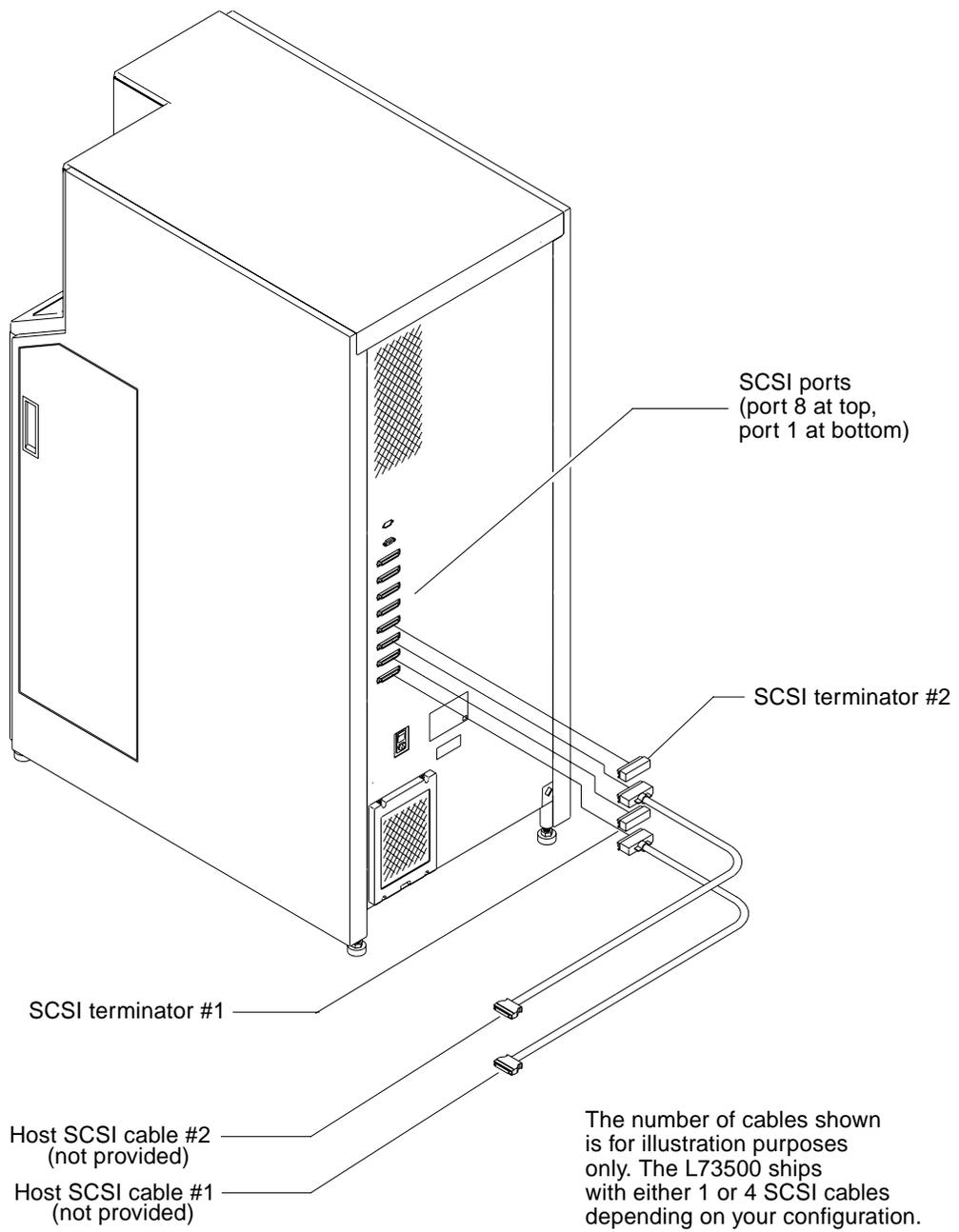**2. Turn off all SCSI devices that will be connected on the same bus as the library.**

**Caution –** The library uses differential (diff) SCSI connections. If your host adapter is single-ended (SE) SCSI, you must use a SE-to-diff converter for proper communications.

3. **Connect the two library-to-host SCSI cables to the host adapters. Use** TABLE 3-2 **on page 26 to determine the number of SCSI cables required.**

4. **Connect a library-to-host SCSI cable to the library back panel (**FIGURE 3-2**) at SCSI PORT 1.**

---

**Note –** FIGURE 3-2 **shows a two-wire, four-drive configuration. If you are using a different configuration, the cable connections will be different. See Appendix A for more information about different configurations.**

---

5. **Install the SCSI terminator (provided in the accessories kit) for host SCSI cable 1 on the rear panel connector labeled SCSI PORT 2.**

6. **Connect the other library-to-host SCSI cable to the library rear panel at SCSI PORT 3.**

7. **Install the SCSI terminator (provided in the accessories kit) for host SCSI cable 2 on the rear panel connector labelled SCSI PORT 4 (**FIGURE 3-2**).**

8. **On the library back panel, turn on the library by setting the POWER button to the on (|) position.**

9. **After several seconds, verify that the control panel shows system status.**

10. **Turn on all other SCSI targets connected.**

11. **Turn on the host computer.**

SCSI ports
(port 8 at top,
port 1 at bottom)

SCSI terminator #2

SCSI terminator #1

Host SCSI cable #2
(not provided)

Host SCSI cable #1
(not provided)

The number of cables shown
is for illustration purposes
only. The L73500 ships
with either 1 or 4 SCSI cables
depending on your configuration.

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**FIGURE 3-2**   Connecting SCSI Cables (Two-Wire, Four-Drive Configuration)

# SCSI Cabling Options

## SCSI Configuration Overview

In factory-default configuration, the library is configured for two separate host SCSI connections (two-wire) and four drives. In this configuration, the library robotics controller and the top two drives (drives 0 and 1) are on one SCSI bus (SCSI PORT 1) and the other two drives (drives 2 and 3) are on a second bus (SCSI PORT 3).

The tape drives and the library can be reconfigured according to your needs by using the cable (part no. 6210567) provided in the accessories kit shipped with each unit. Refer to TABLE 3-2 on page 26.

### SCSI Ports

The library has eight 68-pin Micro-D SCSI connectors on the back of the unit labeled SCSI PORT 1 through SCSI PORT 8 (TABLE A-1).

**Note –** The accessories kit contains 1 or 4 SCSI cables depending on your configuration. See TABLE 3-2 on page 26 to determine the number of SCSI cables required for your configuration.

**TABLE A-1**    Library SCSI addresses (default)

| SCSI Device | SCSI Address[1] |
|---|---|
| robotics controller | 0 |
| tape drive 0 (top) | 1 |
| tape drive 1 | 2 |
| tape drive 2 | 3 |
| tape drive 3 | 4 |
| tape drive 4 | 5 |
| tape drive 5 | 6 |
| tape drive 6 (bottom) | 1 (second bus) |

1. SCSI address 7 is typically reserved for the host computer.

# Single-Wire Configuration

This configuration of the library has all of the SCSI devices on a single SCSI bus from the host controller. The host SCSI bus connects to the back panel connector labeled SCSI PORT 1 and is externally terminated at the connector labeled SCSI PORT 4. Refer to FIGURE A-1.

The back panel connectors labeled SCSI PORT 2 and SCSI PORT 3 are not used in this configuration.

**Note –** The spare SCSI cable from the accessories kit is required to configure the library in a single-wire configuration.
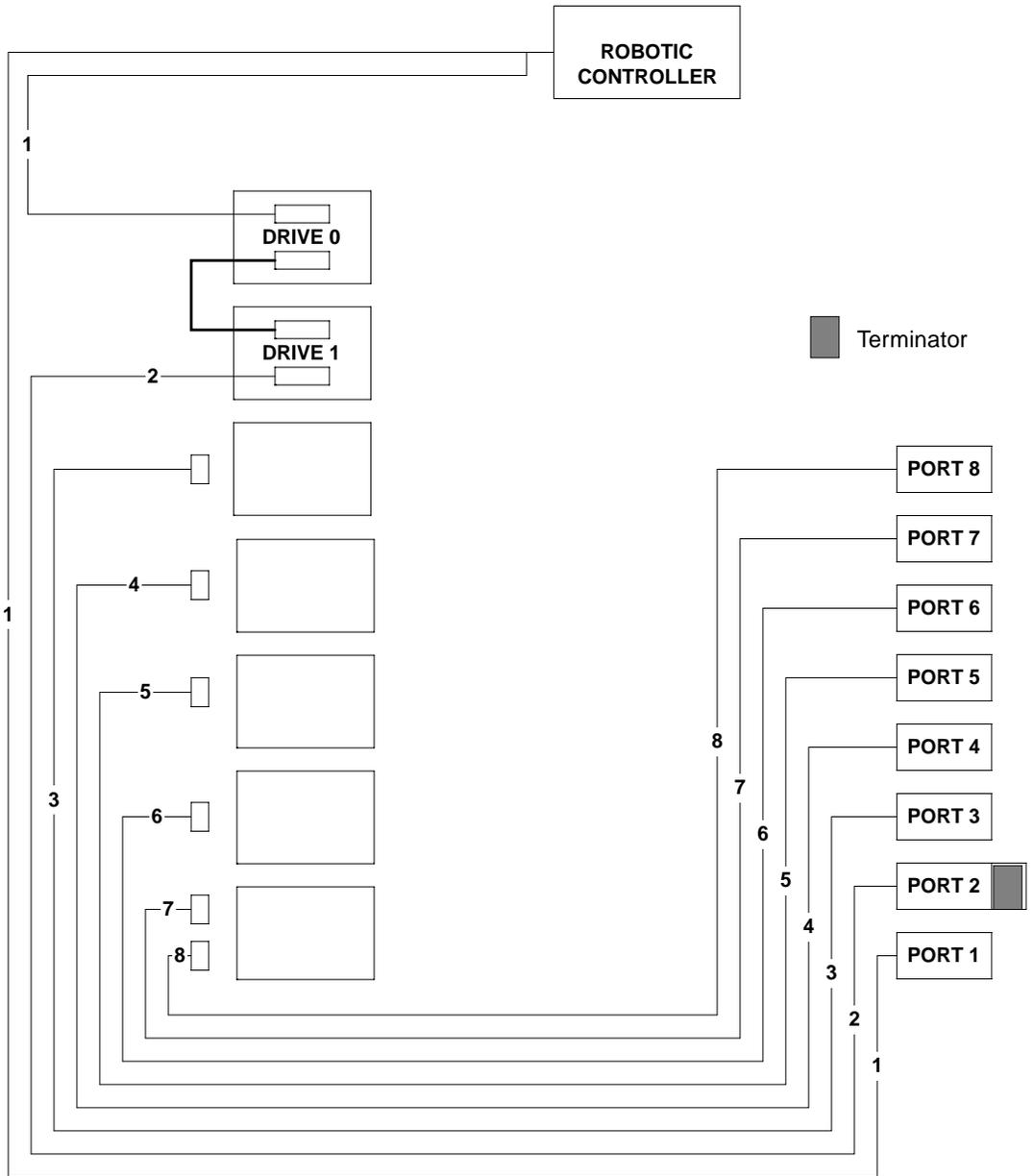
**FIGURE A-1**   SCSI cabling block diagram (2 drives, 1 wire)

# Two-Wire SCSI Configuration

This configuration connects the robotics controller, Drive 0, and Drive 1 on one SCSI channel (interface). The second SCSI channel is configured for drive 2 and drive 3. Refer to FIGURE A-2.

The first channel from the host controller connects to the back panel connector labeled SCSI PORT 1 on the back of the unit and externally terminates at the connection labeled SCSI PORT 2. The second SCSI channel from the host connects to the connector labeled SCSI PORT 3 and externally terminates at the back panel connector labeled SCSI PORT 4.

**Note –** This is the default configuration of the library as shipped from the factory. The external SCSI terminators are provided in the accessories kit, but they are not shipped installed on the back panel.
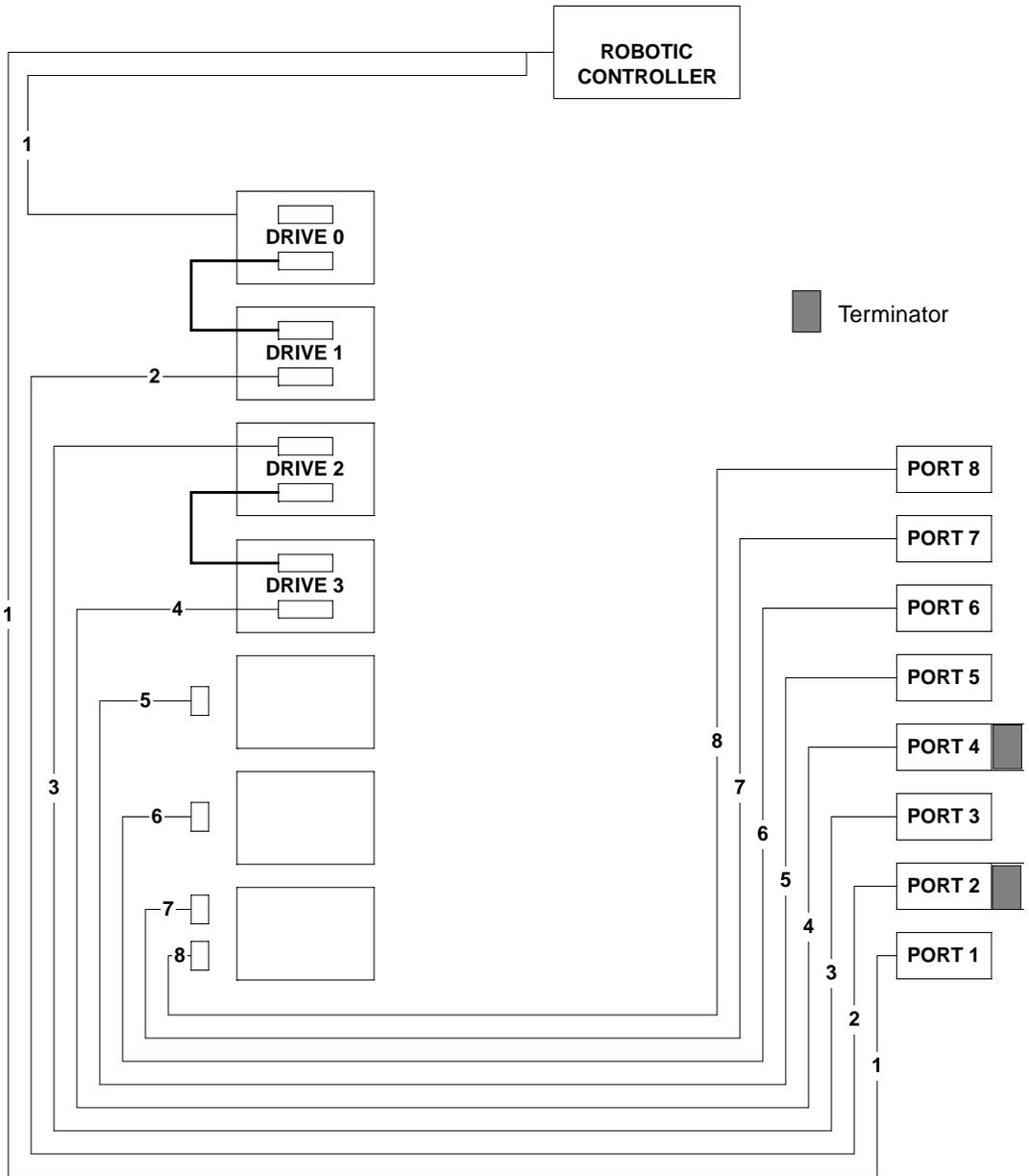
**FIGURE A-2**  SCSI cabling block diagram (4 drives, 2 wires)

# Four-Wire SCSI Configuration

This configuration connects the robotics controller and drive 0 on one SCSI channel from the host controller, and the remaining drives in the system are individually connected to separate SCSI channels to the host. Refer to FIGURE A-3.

The first channel from the host connects to the back panel connector labeled SCSI PORT 1 and terminates internally at the drive interface PWA for Drive 1. The second channel from host controller connects to the back panel connector labeled SCSI PORT 2 and terminates internally at the drive interface PWA for Drive 3.

The third channel from the host controller connects to the connector labeled SCSI PORT 3 and terminates internally at the drive interface PWA for Drive 5. The fourth channel from the host controller connects to the connector labeled SCSI PORT 4 and terminates internally at the drive interface PWA for Drive 6.

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**Note –** This configuration of the library requires two additional SCSI terminators. The accessories kit includes two terminators that can be used internally or externally with the library.
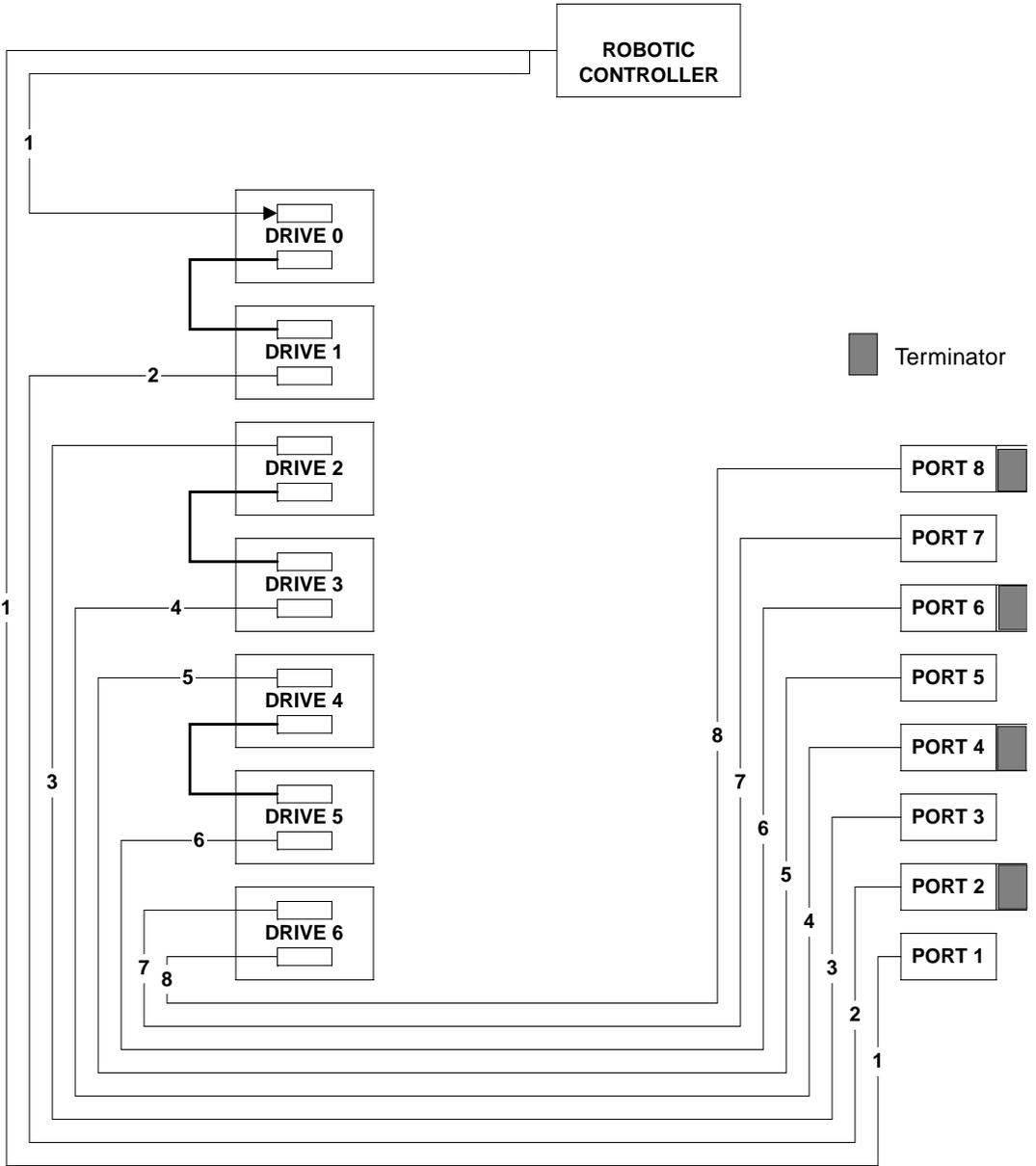
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**FIGURE A-3**   SCSI cabling block diagram (7 drives, 4 wires)

# Glossary

**actuators** Robotic components that move inside the library to manipulate cartridges. These include the gripper, extension axis, vertical and horizontal axes.

**automated tape library** A robotic storage and retrieval system for DLT tape cartridges.

**bar code label** The identification label on DLT tape cartridges.

**bar code scanner** A device that is mounted on the extension axis that reads the cartridge bar code labels.

**calibration** The software measurements and configuration required for successful operation of the library.

**control panel** The L3500 operator interface.

**DLT** Digital linear tape.

**EIA/TIA-574** A serial communications cabling and protocol standard for nine pin connectors, sometimes referred to as RS-232. The diagnostic port (DIAG), on the rear of the library, uses this protocol.

**extension axis assembly** Mounted onto the vertical axis, the extension axis assembly consists of the gripper assembly and the horizontal axis on which the gripper assembly is mounted.

**extension axis belt** The drive belt connecting the extension motor/gearbox to the gripper.

**FCC Class A** Standard established by the U.S. Federal Communications Commission governing electromagnetic emissions.

**FSA** Fixed storage array. This is a 3-column by 32-row fixture mounted inside the library. Its purpose is to store up to 96 cartridges in the library.

**FSE** Field service engineer.

| | |
|---|---|
| **gripper assembly** | The assembly that mounts on the extension axis and grips cartridges; referred to as the gripper. |
| **horizontal belt** | The drive belt connecting the horizontal motor to the horizontal axis assembly. |
| **host** | Host computer. |
| **host computer** | The computer that issues SCSI commands to control the library robotics. |
| **L3500** | Sun StorEdge L3500. The storage and retrieval component of an automated tape library system used for storing and handling DLT cartridges. |
| **load port** | The operator accessible component of the library that allows up to four cartridges to be import/export loaded and unloaded into/from the library. |
| **MTBF** | Mean time between failures. |
| **MTTR** | Mean time to repair. |
| **NVRAM** | Non-volatile RAM. |
| **online** | Ready for communications with a host. |
| **PC** | Personal computer. |
| **pick** | The act of removing a cartridge from one location in preparation for placing it in another location. |
| **place** | The act of placing a cartridge in a location after it has been picked from another location. |
| **PROM** | Programmable read-only memory. |
| **RAM** | Random access memory. |
| **rear panel** | The rear cosmetic panel of the library that contains the AC power switch, AC power receptacle and connectors for attaching external cabling to the library. |
| **RS-232** | A serial communications cabling and protocol standard for nine-pin connectors. |
| **SCSI** | Small computer system interface, a communications standard for attaching peripheral equipment to computers. |
| **tape drive** | The mechanism that reads and writes data from and to a tape cartridge. |
| **UL** | Underwriters Laboratories. |
| **vertical belt** | The drive belt connecting the vertical motor to the vertical axis assembly. |

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