Sun StorEdge™ T3 and T3+ Array Site Preparation Guide

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Contents

Figures

Tables

Preface

The *Sun StorEdge T3 and T3+ Array Site Preparation Guide* provides information on preparing a customer site for installation of a Sun StorEdge™ T3 or T3+ array, or an array rack system. This guide is intended for Sun™ field sales and technical support personnel.

Before You Read This Book

Read the *Sun StorEdge T3 Installation, Operation, and Service Manual* for product overview information. Read the safety information in the *Sun StorEdge T3 and T3+ Array Regulatory and Safety Compliance Manual* that is included with the array before attempting the installation.

How This Book Is Organized

Chapter 1 provides an overview of the preparation and installation requirements for the array.

Chapter 2 provides safety information for the local facility.

Chapter 3 describes facility requirements for the array.

Chapter 4 shows, in pictorial form, how a rack of Sun StorEdge T3 and T3+ arrays is packaged, and how to unpack it. It also describes how much clearance is needed to remove the outer packaging, and how to remove it from the shipping pallet.

Chapter 5 describes installation requirements for installing Sun StorEdge T3 and T3+ arrays in a rack or on a tabletop.

Appendix A contains requirements for operating an array in standard 19-inch EIA/RETMA cabinets and racks.

Appendix B provides a worksheet for gathering and recording the information required to successfully install an array.

Glossary provides a list of terms used in this document.

Using UNIX Commands

This document contains some information on basic UNIX® commands and procedures such as booting the devices. For further information, see one or more of the following:

- AnswerBook2™ online documentation for the Solaris™ software environment
- Other software documentation that you received with your system

Typographic Conventions

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

Shell Prompts

Shell	Prompt
C shell	*machine_name*%
C shell superuser	*machine_name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#
Sun StorEdge T3 and T3+ array	:/:

Related Documentation

Application	Title	Part Number
Latest array updates	*Sun StorEdge T3 and T3+ Array Release Notes*	816-1983
Installation overview	*Sun StorEdge T3 and T3+ Array Start Here*	816-0772
Safety procedures	*Sun StorEdge T3 and T3+ Array Regulatory and Safety Compliance Manual*	816-0774
Installation and operation	*Sun StorEdge T3 and T3+ Array Installation, Operation, and Service Manual*	816-0773
Configuration	*Sun StorEdge T3 and T3+ Array Configuration Guide*	816-0777
Administration	*Sun StorEdge T3 and T3+ Array Administrator's Guide*	816-0776
Cabinet installation	*Sun StorEdge T3 Array Cabinet Installation Guide*	806-7979
Disk drive specifications	*18-Gbyte, 1-inch, 10K rpm Disk Drive Specifications*	806-1493
	36 Gbyte, 10K rpm Disk Drive Specifications	806-6383
	73 Gbyte, 10K rpm 1.6-Inch Disk Drive Specifications	806-4800
Sun StorEdge Component Manager installation	*Sun StorEdge Component Manager Installation Guide - Solaris*	806-6645
	Sun StorEdge Component Manager Installation Guide - Windows NT	806-6646
Using the Sun StorEdge Component Manager	*Sun StorEdge Component Manager User's Guide*	806-6647
Latest Sun StorEdge Component Manager Updates	*Sun StorEdge Component Manager Release Notes*	806-6648

Accessing Sun Documentation Online

You can find the Sun StorEdge T3 and T3+ array documentation and other select product documentation for Network Storage Solutions at:

```
http://www.sun.com/products-n-solutions/hardware/docs/
Network_Storage_Solutions
```

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Site Planning Overview

This manual describes facilities and site design, and preparation and installation requirements for the Sun StorEdge T3 and T3+ array.

To determine the total components and arrays your shipment will include, consult your local Sun sales representative.

As a guide, typical configurations are included in Appendix A.

This chapter includes the following sections:

- "Product Description" on page 1-2
- "Customer Obligations" on page 1-3

1.1 Product Description

The Sun StorEdge T3 array is a high-performance, modular, scalable storage device that contains an internal RAID controller and nine disk drives with Fibre Channel connectivity to the data host. Extensive *reliability, availability, and serviceability* (RAS) features include redundant components, notification of failed components, and the ability to replace components while the unit is online. The Sun StorEdge T3+ array provides the same features as the Sun StorEdge T3 array, and includes an updated controller card with direct fiber-optic connectivity and additional memory for data cache.

The array can be used either as a standalone storage unit or as a building block, interconnected with other arrays of the same type and configured in various ways to provide a storage solution optimized to the host application. The array can be placed on a table top or rackmounted in a server cabinet or expansion cabinet.

In an *enterprise* configuration, also called a *partner group*, two controller units are paired using interconnect cables for back-end data and administrative connections. The enterprise configuration provides all the RAS of single controller units, plus redundant hardware RAID controllers with mirrored caches, and redundant host channels for continuous data availability for host applications.

In an enterprise configuration, one array is designated the master controller unit, handling all management services for both arrays. The other array is designated the alternative master controller unit and supplies controller redundancy, becoming available as a master controller if the master controller unit fails. For more information and sample layouts, see Appendix A.
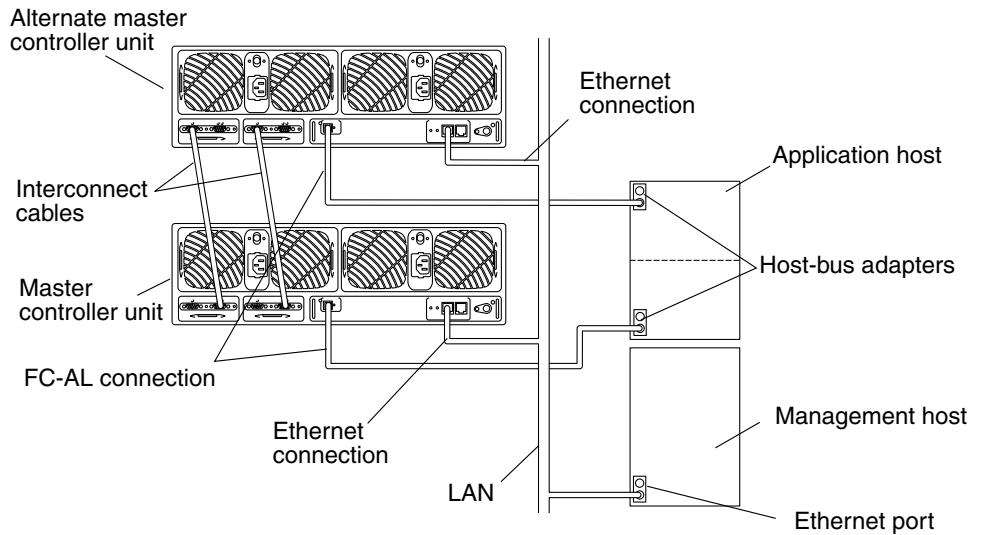
FIGURE 1-1   Sun StorEdge T3+ Array Enterprise Configuration

1.2   Customer Obligations

The customer is obliged to inform Sun Microsystems, Inc. of any and all ordinances and regulations that would affect installation. The customer is responsible for meeting all government codes and regulations concerning facilities. The customer is also responsible for compliance with the following requirements:

1. Meet all local, national, and international codes covered in this specification. The subjects covered include fire and safety, building, and electrical codes.

2. Document and inform Sun Microsystems, Inc. of any deviations from this specification.

A fully configured rackmounted system can weigh in excess of 1400 pounds (627 kg). Any floor that this system will cross has to be able to withstand this load.

Local Facility Safety

Install the Sun StorEdge T3 and T3+ arrays in accordance with the local safety codes and regulations at the facility site. This chapter provides safety information for the local facility and includes the following sections:

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

2.1 Handling Precautions

A fully configured rackmounted array system can weigh in excess of 1400 pounds (627 kg). Any floor that this system will cross has to be able to withstand this load.

The rackmounted system is equipped with wheels for ease in installation, and moveability of the system prior to installation. Use enough personnel when moving the rack, especially on sloping loading docks and ramps to gain access to a raised computer room floor. Move the rack slowly and deliberately, and make sure the floor is free of foreign objects and cables that the rack could roll over.

Sun Microsystems suggests that all personnel moving the rack wear protective footwear.

Install the rack on a level surface. At each corner, on the base of the rack, are adjustable non-skid pads. These must be extended when the rack is installed to stop the rack from rolling around. These pads are not to be used to level the rack.

The array weighs 67 pounds (30 kg). Use two people to lift the array to avoid injury. Choose a table or flat surface that can adequately support the arrays.

2.2 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.

2.2.1 Power Safety

- 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.

- 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.

- 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.

2.3 Placement of a Sun Product

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.

2.4 Laser Compliance Notice

Sun products that use laser technology comply with Class-1 laser requirements. Refer to the *Sun StorEdge T3 and T3+ Array Regulatory and Safety Compliance Manual* for this notice.

Facility Requirements

This chapter describes facilities requirements for the Sun StorEdge T3 and T3+ array, and includes the following sections:

- "Environmental Specifications" on page 3-2
- "Electrical and Power Specifications" on page 3-3
- "Physical Specifications" on page 3-5

3.1 Environmental Specifications

TABLE 3-1 Facility Environmental Specifications

Specifications	Operating	Nonoperating
Temperature	10° to 35°C with maximum gradient 20°C per hour	-40° to 70°C with maximum gradient 20°C per hour
Relative humidity	20 to 80% noncondensing with maximum gradient 10% per hour	5 to 95% noncondensing with maximum gradient 10% per hour
Altitude	-1,000 to +10,000 feet (-305 to +3,048 meters)	-1,000 to +40,000 feet (-305 to +12,192 meters)

3.1.1 Electromagnetic Compatibility (EMC)

The following is recommended for all installations:

■ All AC mains and supply conductors to power distribution boxes for both the rack system and the desktop system must be enclosed in metal conduit or raceway, when specified by local, national, and/or other applicable government codes and regulations. The supply conductors and power distribution boxes (or equivalent metal enclosure) are to be grounded at both ends.

■ The supplied arrays require voltages within minimum fluctuation. The facilities voltage supplied by the customer/end user must maintain a voltage of not more than (+/-) 5%.

■ The customer facilities shall provide suitable surge protection.

3.1.2 Secure Installation Requirements

This section contains the requirements for placement of the array(s).

3.1.2.1 Placement of Rackmounted Systems

The array rackmounted configuration can exceed 1400 pounds (627 kg).

The floor surface must be level. The rack is equipped with wheels, for ease in installation, and moveability of the system prior to installation. At each corner, on the base of the rack, are adjustable non-skid pads. These must be extended when the rack is installed to stop the rack from rolling around. These pads are not to be used to level the rack.

To minimize personal injury in the event of a seismic occurrence, Sun Microsystems suggest that the rack be securely fastened to a rigid structure extending from the floor to the ceiling or from the walls of the room in which the rack is located.

3.1.2.2 Placement of Individual Tabletop Units

The array weighs 67 pounds (30 kg). The array enterprise configuration weighs 135 pounds (60 kg).

Choose a table or flat surface that can adequately support the array. Do not place more than two arrays on a table, unless the table is rated to support the combined weight of the arrays designated to be installed, and the table is securely fastened to the wall or a rigid structure extending from the ceiling to the floor.

Do not stack more than two arrays. If the tabletop configuration is a greater number than two arrays, place the arrays side by side in stacks of two or one.

Do not place the arrays on the edge of the table. Set the array so that at least 50% of the it is inside the table or desk leg support area. Failure to do this may cause the table or desk to tip over.

3.2 Electrical and Power Specifications

This section contains electrical requirements for rackmounted and table top arrays.

3.2.1 Sun StorEdge T3 and T3+ Array Rackmounted Systems

All Sun StorEdge T3 and T3+ arrays require two independent power sources. Each array rack has two power conditioners (distribution), for redundancy, mounted in the base of the rack. Each array has two power and cooling units, and each power

and cooling unit on the array connects to a different conditioner. To maintain the power redundancy, each conditioner must be connected to independent power sources. TABLE 3-2 lists the power required for *each* conditioner.

TABLE 3-2   Power Specifications for the Array Rack (Each Conditioner Source)

Specification	Rating
Voltage and frequency	200 to 240 VAC, 47 to 63 Hz
Input current	20A max
Input power	3,600W max
Heat load	12,320 BTUs/hr. max

3.2.2   Sun StorEdge T3 and T3+ Array Units

All Sun StorEdge T3 and T3+ arrays require two independent power sources. Each array has two power and cooling units for redundancy. TABLE 3-3 lists the power required for *each* power and cooling unit.

TABLE 3-3   Power Specifications for the Sun StorEdge T3 and T3+ Array (Each Source)

Specification	Rating
Voltage and frequency	100 to 240 VAC, 47 to 63 Hz
Input current	5A max
Input power	450W max
Heat load	1,540 BTUs/hr. max

3.3 Physical Specifications

This section contains the physical requirements for array systems.

3.3.1 Sun StorEdge T3 and T3+ Array Rackmounted Systems

3.3.1.1 Installation Clearances

For FRU removal and replacement:

■ The rack has a front door that is 24 inches (61 cm) wide. This is the required front clearance.

■ The rack has a back door that is 21 inches (53 cm) wide. This is the required back clearance.

3.3.1.2 Cooling Clearances

For cooling:

■ The rack has a front door that is 24 inches (61 cm) wide. This is the required front clearance.

■ The rack has a back door that is 21 inches (53 cm) wide. This is the required back clearance.

■ No cooling clearance is required on the sides of the rack.

3.3.1.3 Physical Dimensions

TABLE 3-4 Sun StorEdge T3 and T3+ Array Racks

Height	Width	Depth	Weight
74 inches	24 inches	36.5 inches	1,400 lbs
188 cm	61 cm	93 cm	627 kg

3.3.2 Sun StorEdge T3 and T3+ Array Units

3.3.2.1 Installation Clearances

For FRU removal and replacement, 15 inches (37 cm) is required front and back.

3.3.2.2 Cooling Clearances

For cooling, 6 inches (15 cm) is required front and back. No cooling clearance is required on the sides or the top and bottom of the array.

3.3.2.3 Physical Dimensions

TABLE 3-5 Sun StorEdge T3 and T3+ Array Units

Height	Width	Depth	Weight
5.25 inches	17.5 inches	18.5 inches	67 lbs
13.33 cm	44.45 cm	47 cm	30.4 kg

Unpacking the Array Rack

This chapter shows, in pictorial form, how a Sun StorEdge T3 and T3+ array rack is packaged, and how to unpack it. This chapter also describes how much clearance is needed to remove the outer packaging, and how to remove it from the shipping pallet.

Note – Make note of the clearances needed to remove the outer packaging.

All packaging for Sun products should be retained, so that it can be reused in the event that the product needs to be moved or shipped to a subsequent location during its life cycle.
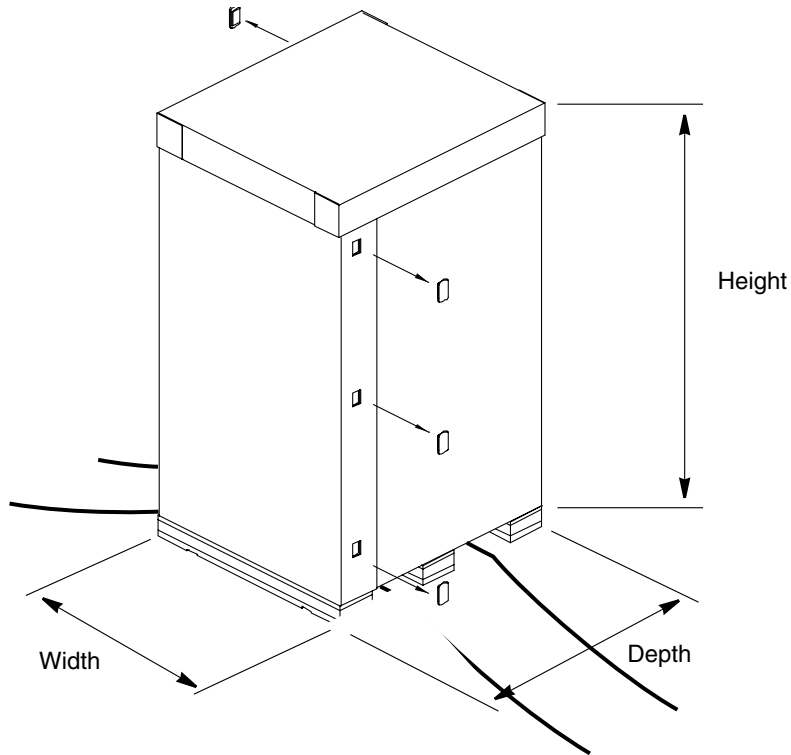
FIGURE 4-1   Sun StorEdge T3 and T3+ Array Rack Packaging

TABLE 4-1   Array Rack Packaging Dimensions

Packaging Dimensions	
Height	80 inches (203 cm)
Width	43 inches (109 cm)
Depth	47 inches (119 cm)
Weight	1500 lbs (672 kg)

Remove plastic locking clips (6)

Lift lid off

Remove banding
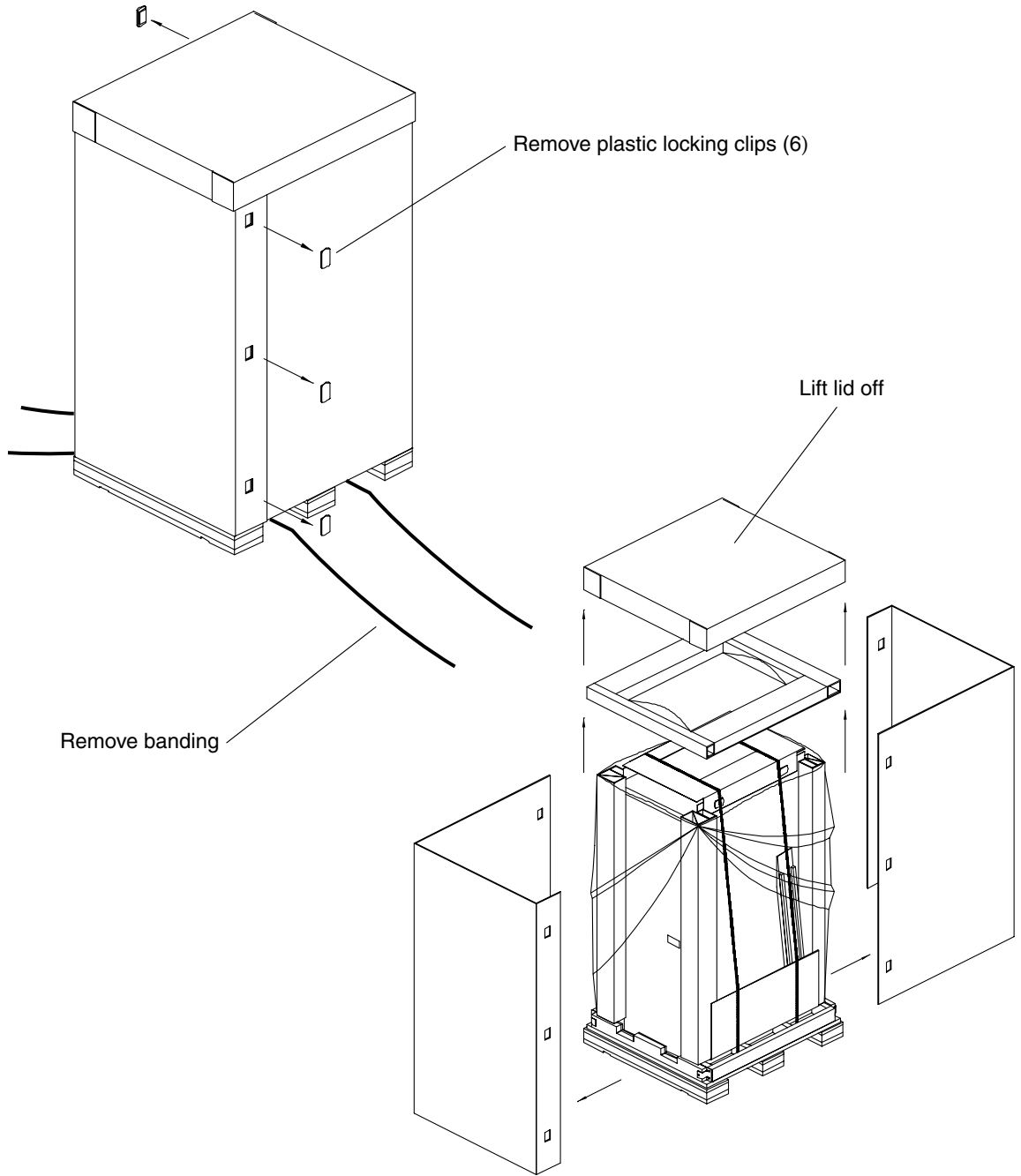
FIGURE 4-2 Rack Packaging Removal Detail
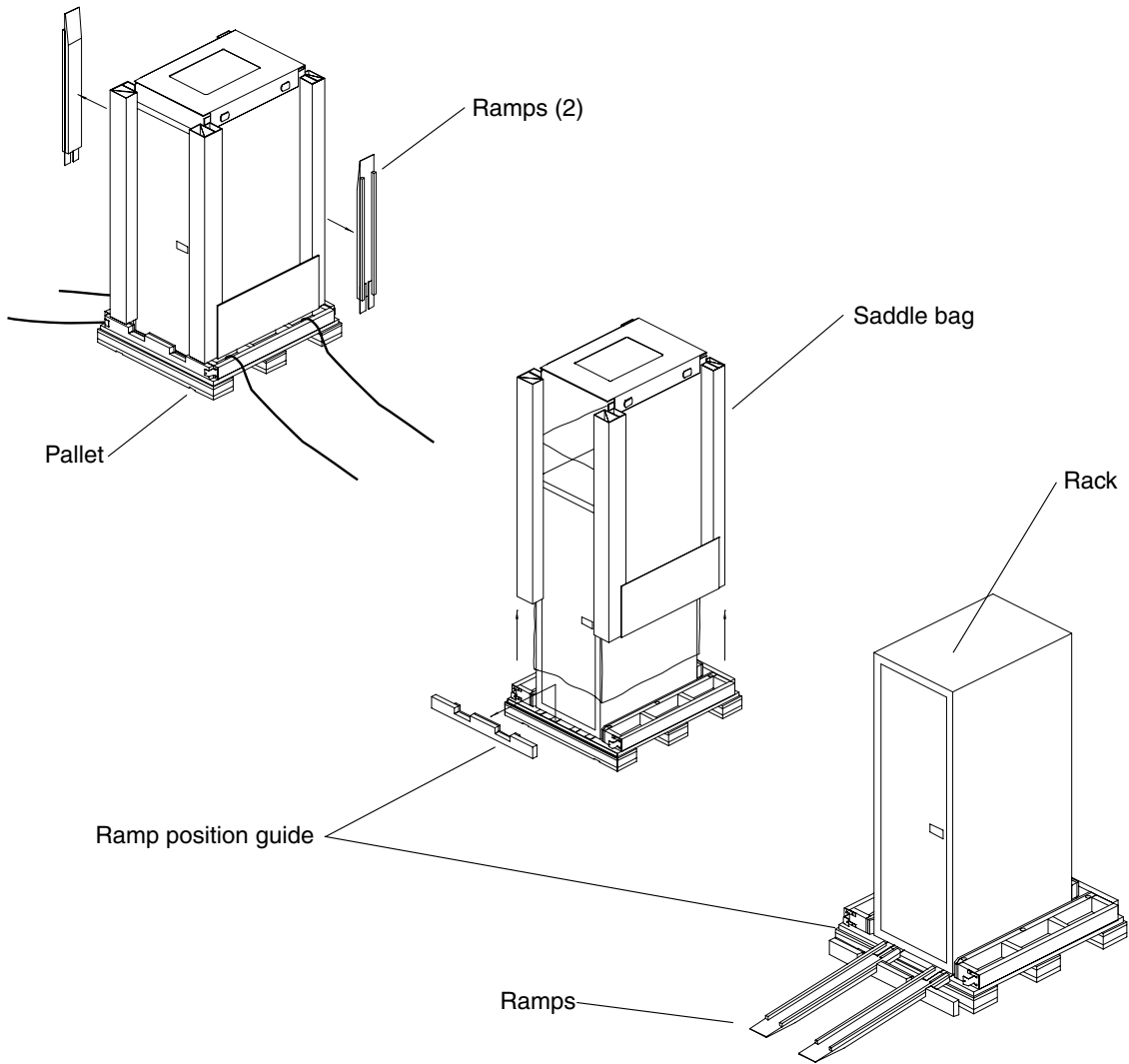
FIGURE 4-3 Removing the Saddle Bag and Positioning the Ramps

Ramps (2)

Saddle bag

Rack

Pallet

Ramp position guide

Ramps

!\ **Caution –** Take care when removing the rack from the pallet. Use two or more people to roll the rack down the ramps provided. Wear protective footwear.

Clearance

100 inches (254 cm)
minimum clearance
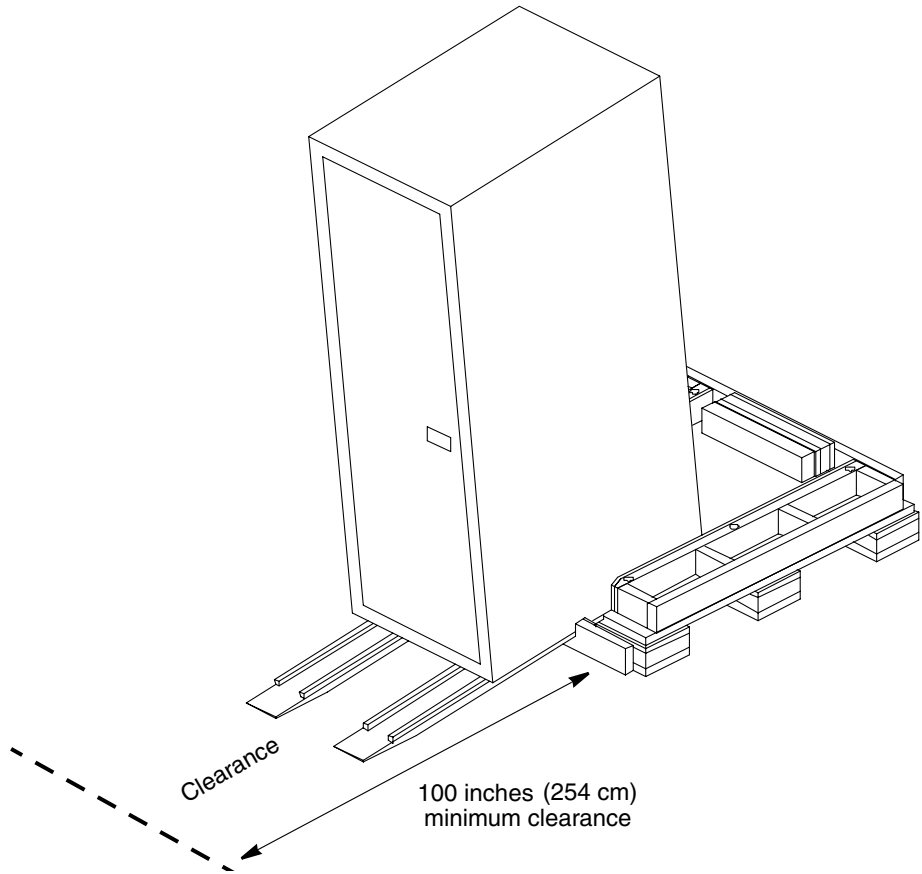
Removing the Sun StorEdge Rack From the Shipping Pallet

TABLE 4-2   Sun StorEdge T3 and T3+ Array Rack Dimensions

Rack Dimensions	
Height	74 inches (188 cm)
Width	24 inches (61 cm)
Depth	36.5 inches (93 cm)
Weight	1400 lbs (627 kg)

Array Rack and Tabletop Installation Requirements

This chapter describes installation requirements for installing Sun StorEdge T3 and T3+ arrays in a rack or on a tabletop, and includes the following sections:

5.1 Array Rack Placement

⚠

Caution – The array rackmounted configuration can exceed 1400 pounds (627 kg).

Follow these guidelines when preparing a rackmount placement for your system.

- The floor surface must be level.
- The rack is equipped with wheels, for ease in installation and moveability of the system prior to installation. Move the rack slowly and deliberately, and make sure the floor is free of foreign objects and cables that the rack could roll over.
- At each corner, on the base of the rack, are adjustable non-skid pads. These must be extended when the rack is installed to stop the rack from rolling around.
- Leave enough space in front of the rack to access components for servicing. The rack has a front door. The door is 24 inches (61 cm) wide. This is the required front clearance.
- Leave enough space in back of the rack to access components for servicing. The rack has a back door. The back door is 21 inches (53 cm) wide. This is the required back clearance.
- Keep power and interface cables clear of foot traffic. Route cables inside walls, under the floor, through the ceiling, or in protective channels or raceways. Route interface cables (excluding fiber optic cables) away from motors and other sources of magnetic or radio frequency interference.
- Do not exceed cable length limitations. See TABLE 5-1 for cable specifications and lengths.
- The array rack requires two separate power sources. These power sources are to be independent to each other, and each controlled by a separate circuit breaker at the power distribution point.
- Up to eight arrays can be installed in one array rack.

5.2 Tabletop Placement

Sun StorEdge T3 and T3+ arrays can be placed to sit on a desk or a table. Follow these guidelines when preparing a tabletop placement for your system.

- Choose a desk or a table that can support 67 pounds (30 kg) for one fully configured array or 135 pounds (60 kg) for two arrays.

- Do not place the array(s) on the edge of the table. Set the array so that at least 50% of the array is inside the table or desk leg support area. Failure to do this may cause the table to tip over.

- Leave enough space in front and in back of the array to access components for servicing. To remove the components requires a clearance of 15 inches (37 cm) front and back of the array.

- Provide a minimum space of 6 inches (15 cm) in front and in back of the array for adequate air flow.

- Keep power and interface cables clear of foot traffic. Route cables inside walls, under the floor, through the ceiling, or in protective channels or raceways. Route interface cables (excluding fiber optic cables) away from motors and other sources of magnetic or radio frequency interference.

- Do not exceed cable length limitations. See TABLE 5-1 for cable specifications and lengths.

- Ensure that the operating environment for the array does not exceed the specifications. See TABLE 3-1 for environmental specifications.

- Use two people to lift the array to avoid injury. The array can weigh up to 67 pounds (30 kg).

- Do not place the array in a vertical position. Place the array horizontally.

- If you are installing two arrays, as in a partner group, you can stack one array on top of the other. Do not stack more than two arrays together.

- The array requires two separate power sources. These power sources are to be independent to each other, and controlled by two separate circuit breakers at the power distribution point.

5.3 Cable Specifications

TABLE 5-1 Cable Specifications

Cable Type	Connector	Maximum Length
Host interface (FC-AL):		82.021 ft (25 m)
• Sun StorEdge T3 array requires copper adapter (MIA)	DB-9 copper	
• Sun StorEdge T3+ array requires LC-SFF to SC fiber-optic cable	LC-SFF	
Shielded Ethernet:	RJ-45	328.084 ft (100 m)
• 10/100BASE-T, category 5 (Sun StorEdge T3+ array)		
• 10BASE-T, category 3 (Sun StorEdge T3 array)	RJ-45	
Serial (Available only to qualified field service representatives.)	RJ-11 (Sun StorEdge T3 array) RJ-45 (Sun StorEdge T3+ array)	82.021 ft (25 m)
Power (110V)	Standard	n/a
Power (220V)	Standard	n/a
Array interconnect cable	DB-9 (not FC-AL compliant)	24 in. (61 cm)

Cabinet and Rack Requirements

This appendix contains requirements for installing a Sun StorEdge T3 and T3+ array in standard 19-inch Electronics Industries Association/Radio Electronics Television Manufacturers Association (EIA/RETMA) cabinets or racks. The array is designed to be compatible with Sun and other standard 19-inch EIA/RETMA cabinets or racks. However, you must make sure the cabinet or rack you are using meets the requirements in this chapter before installing and operating the array.

The information in this appendix includes:

- "Cabinet and Rack Hardware" on page A-2
- "Specifications" on page A-6
- "Product Servicing" on page A-7
- "SunService Policy on Third-Party Products" on page A-8

A.1 Cabinet and Rack Hardware

A *cabinet* is a freestanding and self-supporting enclosure for housing electrical and electronic equipment. It is usually fitted with doors and side panels, which may or may not be removable. A *rack* is an open structure for mounting electrical and electronic equipment. This section describes features of cabinets and racks that can be used to hold an array.

A.1.1 Physical Dimensions

There are two types of mounting kits available for the array:

- Rackmount hardware that can be adapted to install the array in standard 19-inch EIA/RETMA cabinets.
- Rackmount hardware for mounting arrays in standard 19-inch EIA/RETMA racks.

To use one of these kits, the rack or cabinet must meet the criteria listed in TABLE A-1.

TABLE A-1 Cabinet and Rack Dimensions

Measurement	Cabinet	Rack
Depth (the distance between the front and back flanges)	30 to 34 in. 76.2 cm to 86.4 cm	3 in. or 6 in. 7.6 cm to 15.2 cm
Mounting hole pitch (the width between the mounting holes)	18.3 in.[1] 46.5 cm	18.3 in.[1] 46.5 cm

1. This is an industry standard dimension and confirms that the structure is a 19-inch cabinet or rack.
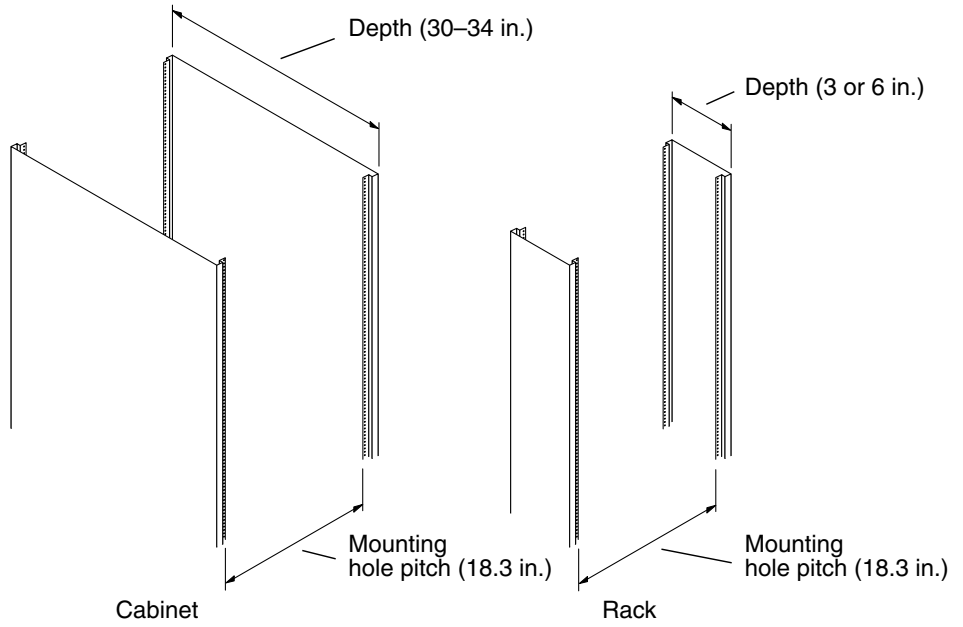
FIGURE A-1 Cabinet and Rack Physical Measurements

Also, the mounting flanges must contain the industry standard repeating hole pattern shown:

Mounting hole pitch
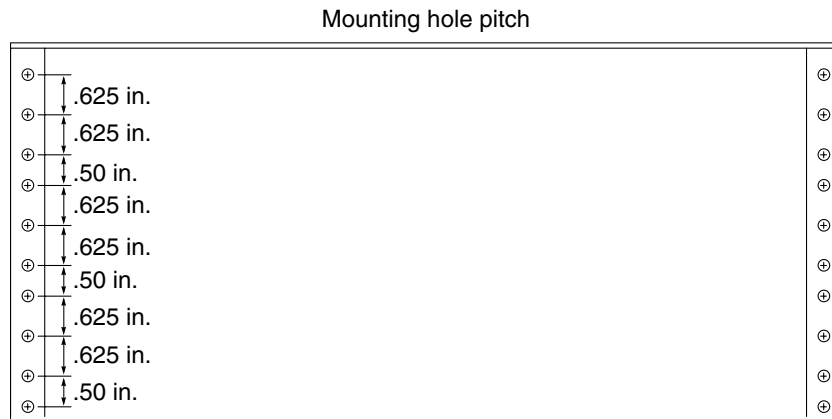
FIGURE A-2   Industry Standard Repeating Hole Pattern

A.1.2   Vertical Mounting Space

Vertical mounting space is defined in rack units (RUs). One rack unit is equivalent to 1.75 inches (4.4 cm) of vertical mounting space, or three mounting holes. Subsystems such as the array are usually specified as requiring some number or RUs of mounting space.

To install the array in a cabinet or rack, the cabinet or rack must support the RU measurements listed in TABLE A-2.

TABLE A-2   Mounting Kit RU Measurement

Number of Arrays	Cabinet	Rack
One	4 RUs	Not available
Two	7 RUs	7 RUs
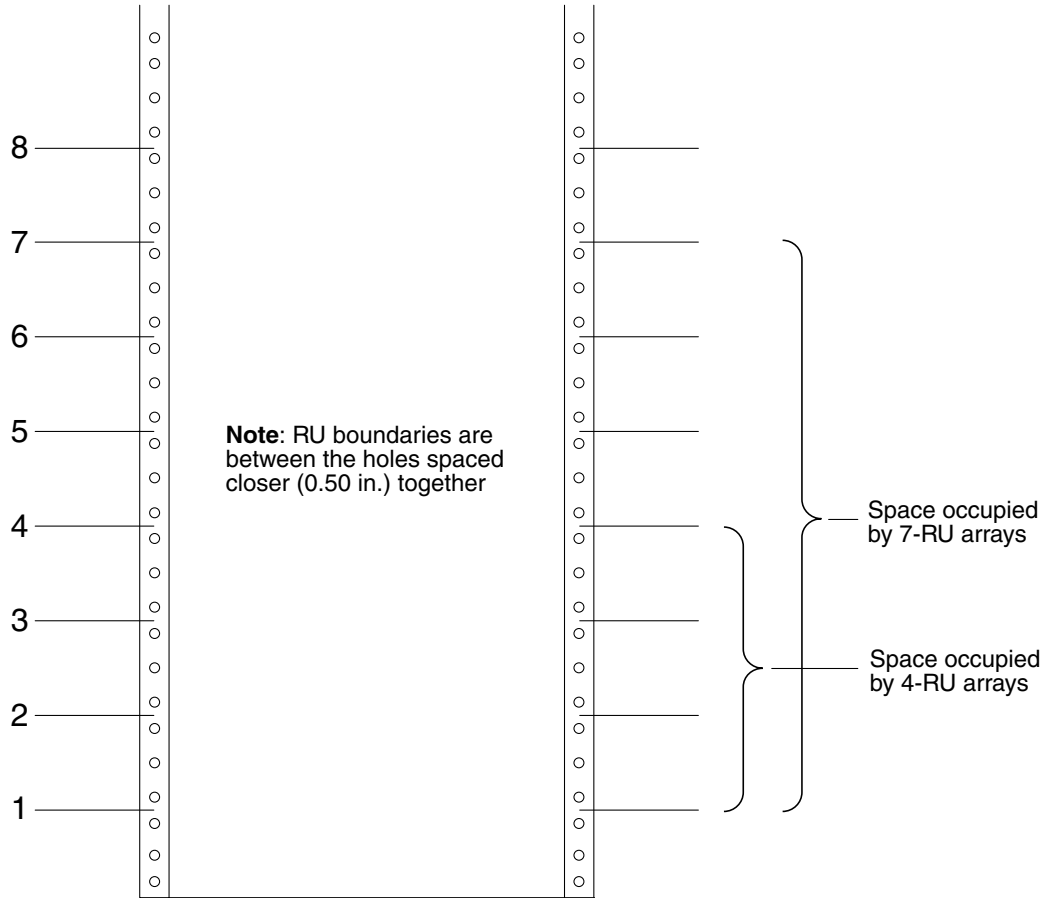
FIGURE A-3 Rack Unit Spacing

A.2 Specifications

To use the Sun StorEdge T3 and T3+ array in a standard 19-inch EIA/RETMA cabinet or rack, the environment must meet the specifications outlined in this section, along with those listed in the *Sun StorEdge T3 and T3+ Array Installation, Operation, and Service Manual*.

Note – For power system redundancy, you must use two separate connectors supplied by two different power sources (the power requirements listed are for each connector).

TABLE A-3   Power Specifications

Specifications	Rating
Voltage and frequency	100 to 240 VAC, 47 to 63 Hz
Input current	5A max
Input power	450W
Heat load	1,540 BTUs/hr max

TABLE A-4   Environmental Specifications

Specifications	Operating	Nonoperating	Notes
Temperature	5° to 35°C with maximum gradient 20°C per hour	-40° to 70°C with maximum gradient 20°C per hour	This measurement is for air entering the unit through the front panel.
Ventilation	25 in.^{2} (63.5 cm$^{2)}$ in front open area 25 in.^{2} (63.5 cm$^{2)}$ in back open area		Unrestricted airflow through front and back cabinet doors (if present) is required for each array. Maintain proper exhaust ventilation by ensuring that there are no physical restrictions to airflow at the back of the cabinet.
Relative humidity	20 to 80% noncondensing with maximum gradient 10% per hour	5 to 95% noncondensing with maximum gradient 10% per hour	

TABLE A-4   Environmental Specifications *(Continued)*

Specifications	Operating	Nonoperating	Notes
Effective altitude (from drive specification)	−1,000 to +10,000 ft (-305 to +3,048 m)	-1,000 to +40,000 ft (-305 to +12,192 m)	
Shock (from drive specification)	4.0G for maximum duration of 11 ms (half sinewave)	15G for maximum duration of 11 ms (half sinewave)	Shock can be applied from any axis X,Y, or Z.
Vibration (from drive specification)	5 to 500 Hz @ 0.25G (swept sinewave)	5 to 500 Hz @ 1.0G (swept sinewave)	Vibration can be applied from any axis X,Y, or Z.
			The cabinet or rack must not exert any excessive shock or vibration to the product that could interfere with proper operation.

A.3   Product Servicing

To allow room for service, the array must be installed in a rack or cabinet such that:

■ The front and back LED status indicators are visible.

■ Cables and connections are accessible and are not subject to stress from adjacent panels or closed doors.

■ Field-replaceable units (FRUs) are accessible for servicing and replacement.

See "Array Rack Placement" on page 5-2 and "Tabletop Placement" on page 5-3 for guidelines on product placement.

A.4 SunService Policy on Third-Party Products

Sun Microsystems, Inc. and its affiliates (Sun), provide product warranties only for products listed on Sun Network Storage Product Group's price list (Sun Products).

It is the policy of the SunService[SM] group to provide a warranty for all Sun Products pursuant to the terms set forth in the original purchase agreement. Sun does not provide any warranties, implied or express, on products purchased by customers from third-party vendors and installed on Sun Products.

Customers can install third-party products without voiding Sun's warranty accompanying the Sun Products. Installation of third-party products, however, may void certain regulatory certifications.

Service calls that originate as a result of the failure of a third-party product, or any damage to a Sun Product resulting from the installation or presence of a third-party product, will be billed to the Customer at Sun's then-current time and materials rates.

Preinstallation Worksheet

This appendix provides a worksheet for gathering and recording the information required to successfully install a Sun StorEdge T3 and T3+ array. It includes the following sections:

Use this worksheet to preplan the data, Ethernet, and TFTP connections from the application, management and TFTP host system(s). The application, management and TFTP hosts can all reside on the same server.

Note – Root access is required for all hosts during installation.

- "Host System Types" on page B-1
- "Information Required Prior to Installation" on page B-2

B.1 Host System Types

TABLE B-1 lists the host system types supported by the Sun StorEdge T3 and T3+ array.

TABLE B-1 Host System Types

Application host	Utilizes the FC-AL Fibre Channel connection as a data path to and from the array.
Management host	Administers configuration and health monitoring of the array through a network connection.
TFTP host	Downloads bootcode to the array through a network connection.

B.2 Information Required Prior to Installation

Use the preinstallation worksheet on the following page to record the information you will need to install each array.

Item	Management Host	Application Host	TFTP Host
Host ID			
Host name			
Host IP address			
Gateway IP address			
Array IP address			
Array name			
TFTP host address			
OS/patch revision level			
VERITAS DMP release			
Primary application			
StorTools™ release			
Sun StorEdge Component Manager release			

Legend:

Required Field	
Optional Field	
Not Applicable	

Glossary

A

administrative domain Partner groups (interconnected controller units) that share common administration through a master controller.

alternate master controller unit Also called "alternate master unit," the secondary array unit in a partner group that provides failover capability from the master controller unit.

Alternate Pathing (AP) A mechanism that reroutes data to the other array controller in a partner group upon failure in the host data path. Alternate Pathing requires special software to perform this function.

auto cache mode The default cache mode for the Sun StorEdge T3 and T3+ array. In a fully redundant configuration, cache is set to write-behind mode. In a nonredundant configuration, cache is set to write-through mode. Read caching is always performed.

auto disable The Sun StorEdge T3 and T3+ array default that automatically disables a disk drive that has failed.

B

buffering Data that is being transferred between the host and the drives.

C

command-line interface (CLI)
The interface between the Sun StorEdge T3 and T3+ array's pSOS operating system and the user in which the user types commands to administer the array.

controller unit
A Sun StorEdge T3 and T3+ array that includes a controller card. It can be use as a standalone unit or configured with other Sun StorEdge T3 and T3+ arrays.

G

Dynamic Multi-Pathing (DMP)
A VERITAS Volume Manager feature that provides an Alternate Pathing mechanism for rerouting data in the event of a controller failover.

E

enterprise configuration
One or more partner groups (pair of interconnected controller units) in a system configuration.

erasable programmable read-only memory (EPROM)
Memory stored on the controller card; useful for stable storage for long periods without electricity while still allowing reprogramming.

expansion unit
A Sun StorEdge T3 and T3+ array without a controller card. It must be connected to a controller unit to be operational.

F

Fibre Channel Arbitrated Loop (FC-AL) A 100 Mbyte/s serial channel that enables connection of multiple devices (disk drives and controllers).

field-replaceable unit (FRU) A component that is easily removed and replaced by a field service engineer or a system administrator.

FLASH memory device (FMD) A device on the controller card that stores EPROM firmware.

G

Gigabit Interface Converter (GBIC) An adapter used on an SBus card to convert fiber-optic signal to copper.

gigabyte (GB or Gbyte) One gigabyte is equal to one billion bytes (1X109).

graphical user interface (GUI) A software interface that enables configuration and administration of the Sun StorEdge T3 and T3+ array using a graphic application.

H

host bus adapter (HBA) An adapter that resides on the host.

hot spare A drive in a RAID 1 or RAID 5 configuration that contains no data and acts as a standby in case another drive fails.

hot-swappable The characteristic of a field-replaceable unit (FRU) to be removed and replaced while the system remains powered on and operational.

I

input/output operations per second (IOPS)   A performance measurement of the transaction rate.

interconnect cable   An FC-AL cable with a unique switched-loop architecture that is used to interconnect multiple Sun StorEdge T3 and T3+ arrays.

interconnect card   An array component that contains the interface circuitry and two connectors for interconnecting multiple Sun StorEdge T3 and T3+ arrays.

L

LC   An industry standard name used to describe a connector standard. The Sun StorEdge T3+ array uses an LC-SFF connector for the host FC-AL connection.

light-emitting diode (LED)   A device that converts electrical energy into light that is used to display activity.

logical unit number (LUN)   One or more drives that can be grouped into a unit; also called a volume.

M

master controller unit   Also called a "master unit," the main controller unit in a partner-group configuration.

media access control (MAC) address   A unique address that identifies a storage location or a device.

media interface adapter (MIA)   An adapter that converts fiber-optic light signals to copper.

megabyte (MB or Mbyte)   One megabyte is equal to one million bytes (1X106).

megabytes per second (MB/s)   A performance measurement of the sustained data transfer rate.

multi-initiator configuration   A supported array configuration that connects two hosts to one or more array administrative domains through hub or switch connections.

P

parity   Additional information stored with data on a disk that enables the controller to rebuild data after a drive failure.

partner group   A pair of interconnected controller units. Expansion units interconnected to the pair of controller units can also be part of the partner group.

power and cooling unit (PCU)   A FRU component in the Sun StorEdge T3 and T3+ array. It contains a power supply, cooling fans, and an integrated UPS battery. There are two power and cooling units in a Sun StorEdge T3 and T3+ array.

pSOS   An operating system built into the Sun StorEdge T3 and T3+ array RAID Controller firmware, which provides interfaces between the mounted RAID volumes and the database environment.

Q

quiesce   To halt all drive activity.

R

read caching   Data for future retrieval, to reduce disk I/O as much as possible.

redundant array of independent disks (RAID)   A configuration in which multiple drives are combined into a single virtual drive to improve performance and reliability.

reliability, availability, serviceability (RAS)   A term to describe product features that include high availability, easily serviced components, and very dependable.

reverse address resolution protocol (RARP) A utility in the Solaris operating environment that enables automatic assignment of the array IP address from the host.

S

SC An industry standard name used to describe a connector standard.

Simple Network Management Protocol (SNMP) A network management protocol designed to give a user the capability to remotely manage a computer network.

small form factor (SFF) An industry standard describing a type of connector. An LC-SFF connector is used for the host FC-AL connection to the Sun StorEdge T3+ array.

synchronous dynamic random access memory (SDRAM) A form of dynamic random access memory (DRAM) that can run at higher clock speeds than conventional DRAM.

system area Located on the disk drive label, the space that contains configuration data, boot firmware, and file-system information.

U

uninterruptable power source (UPS) A component within the power and cooling unit. It supplies power from a battery in the case of an AC power failure.

V

volume Also called a logical unit or LUN, a volume is one or more drives that can be grouped into a unit for data storage.

W

workgroup configuration A standalone array connected to a host system.

world wide name (WWN) A number used to identify array volumes in both the array system and Solaris environment.

write caching Data used to build up stripes of data, eliminating the read-modify-write overhead. Write caching improves performance for applications that are writing to disk.