

Sun C4 Modular Tape Library

Just the Facts



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Positioning

Figure 1. The Sun C4 tape library



Introduction

Sun provides data storage solutions that deliver comprehensive availability, access, and protection for its customers critical business data. The Sun StorEdge™ C4 tape library is a low cost, entry automation product, helping to lower the total cost of ownership.

The Sun C4 modular tape library is designed for backup and restore of data in small and medium businesses or for department spaces of large corporations. For customers who have a concern with data growth, it is recommended that they consider the Sun StorageTek SL500 for its scalability and enterprise reliability..

The Sun C4 library can operate as direct attached storage or connected to a SAN with the use of the optional fibre channel card with Native NFC drives available in the near-future.

The Sun C4 library is only available with an LVD interface* and several LVD tape drive types . Each module has 32 LTO or 38 SDLT cartridge slots in two removable magazines, plus two fixed slots, for a native data capacity of up to 15.2 TB and a native throughput of up to 160 MB/sec. (576 GB per hour) when using LTO3. Each magazine holds 18 LTO or 15 SDLT cartridges. The Sun C4 library should be considered when the primary data set is between 125 GB and 3.0 TB and the backup window for that data is from 1 to 10 hours.

Key Messages

- **Delivers Value for Your Money:** The C4 tape library is priced to win in the highly competitive midrange market.
- **Excellent Density:** Achieve up to 15.2 TB of native capacity and 576 GB/Hr of native performance in a single C4 tape library.
- **Economical Serviceability:** Hot-swappable tape drives and redundant optional power supplies help reduce disruption to your operations and prevent library failures.



- **Simple Administration:** With integrated management, bulk magazines, intuitive front panels, and lowered mean time to repair, your administration of the libraries is simpler and less costly.
- **Fibre Channel Connectivity:** The SCSI-to-Fibre bridge with FCP-2 Error Recovery provides connectivity to a storage area network (SAN), allowing you to overcome the limitations of the traditional server-attached storage model.
- **SNMP Support:** “Industry-standard” protocol harnessed within tape automation and widely used for network monitoring and control protocol. Utilizing SNMP allows your organization to increase the performance of your infrastructure, anticipate and correct problems before they become critical, and automate and manage change in real time.
- **Choice of Media and Drive Support:** LTO Ultrium or SDLT media and drives are available for the C4 products, ensuring optimal utilization of your existing and future tape storage investments.
- **Multiple OS Support:** The C4 supports heterogenous platforms, including Solaris, Solaris x64, Windows, and/or LINUX.
- **Easy Service and Support:** The C4 comes with a one-year, next business day, on-site warranty. The warranty can be extended for long-term security and peace of mind at a relatively affordable price via Sun Spectrum™ service contract upgrades.

Product Availability

The Sun C4 tape library is currently shipping or will ship with the following:

<i>Interface Drive Type</i>	<i>Availability</i>
LVD – SDLT 600	Currently Shipping
LVD - LTO 2	Currently Shipping
LVD - LTO 3	Currently Shipping
FC Channel Card	Currently Shipping
Native Fibre Channel Drives (LTO3/SDLT 600)	Currently Shipping

Key Features and Benefits

Feature	Benefit
• Aggressive Price Point	• Allows customers to obtain the C4 tape library at an affordable price. The C4 is priced to attack the entry automation market effectively.
• Choice of Media Support	• LTO Ultrium or SDLT media and drives can be chosen for the C4 products to ensure customers can leverage existing and future tape media requirements.
• Dedicated fixed media slots	• Utilized for data cartridges to maximize capacity or configure as cleaning cartridge slots for unattended drive cleaning.
• SNMP Support	• “Industry-standard” protocol harnessed within tape automation and widely used for network monitoring and control protocol. SNMP allows your organization to increase the performance of



Feature	Benefit
<ul style="list-style-type: none"> • Fibre Channel Connectivity 	<p>your infrastructure, anticipate and correct problems before they become critical, and automate and manage change in real time.</p> <ul style="list-style-type: none"> • Connectivity to SANs allow organizations with multiple data centers to distribute access to storage assets independently of physical location.
<ul style="list-style-type: none"> • Full bulk access via removable magazines 	<ul style="list-style-type: none"> • Operator convenience that protects cartridges and data integrity. Full data availability if a module fails by swapping magazine into a working unit.
<ul style="list-style-type: none"> • High density 	<ul style="list-style-type: none"> • Saves valuable customer rack and data center floor space
<ul style="list-style-type: none"> • Ease of Service 	<ul style="list-style-type: none"> • The C4 tape library is customer installable

Target Markets/Users

The Sun C4 tape library is an entry-level library, designed for companies looking for the ability to cost-effectively scale their tape backup solution. This applies to small and medium-size businesses, as well as department spaces in large corporations. Although the C4 can scale, Sun recommends the SL500 for customers who are concerned with growth because of its scalability and enterprise reliability.

Sun C4 libraries can be integrated in SAN environments utilizing Native FC drives. SANs provide infinite scalability of capacity enabling fail-over and redundancy options that would be extremely difficult to accomplish otherwise. In addition, backups can be performed without interruptions in service or degradation to network performance.

Key target audience for the C4 are current Sun customers making up the existing L25 install base, the entry-level/midrange, x64 and SMB customers, plus customers looking to replace older automation products that are close to EOSL or can no longer be deployed with newer servers.

Midrange tape libraries target system integrators and customers who are shifting their purchases from low-performance/low-cost drives—such as minicartridges and DAT, to high-performance/higher cost tape drives such as LTO and SDLT, integrated into automated tape libraries. This is part of an overall trend in the IT community and customer base to centralize storage and storage management.

Industry/Customer	Key Features to Highlight
Customers with autoloader(s) that are looking to buy their first automation product.	Low entry price.
Department spaces with minimal growth.	Low entry price and good density.

Product Family Placement

Because the optimal choice of a secondary storage system depends on customer requirements and sensitivities, Sun offers a family of solutions to help customers make the best choice for their specific requirements and budgets. Sun's tape library offerings include the following (note that all capacities listed are native):

	<i>LTO 2</i>	<i>LTO3</i>	<i>SDLT 600</i>
<i>Sun C2 library autoloader¹</i>	3.2 TB	6.4 TB	4.8 TB
<i>Sun C4 Library</i>	6.4 TB	15.2 TB	9.6 TB
<i>Sun StorageTek L20</i>	4 TB	8 TB	6 TB
<i>Sun StorageTek L40</i>	8 TB	16 TB	12 TB
<i>Sun StorageTek L80</i>	16 TB	32 TB	24 TB
<i>Sun StorageTek SL500</i>	115 TB	230 TB	148 TB
<i>Sun StorEdge L180 tape library</i>	35 TB	70 TB	52 TB

¹The C2 library autoloader incorporates LTO 2 Half-Height drives (LTO-2 full height is not supported).



	<i>LTO 2</i>	<i>LTO3</i>	<i>SDLT 600</i>
<i>Sun StorageTek L1400 tape library</i>	269 TB	538 TB	403 TB
Sun StorageTek SL8500 tape library	2,000 TB	4,000 TB	3,000 TB

Internationalization and Localization

- The documentation provided with the Sun C4 tape library is localized into nine languages on a CD. These are English, French, Japanese, Korean, Simplified Chinese, Traditional Chinese, Italian, German, Spanish, and Swedish. The operator control panel is in English only.

Selling Highlights

Market Value Proposition

Sun provides data storage solutions that deliver comprehensive availability, access and protection for your business-critical data. Available with the leading tape drive technologies, the Sun C4 tape library offers an attractive entry price point for automation.

An attractive initial purchase price is just the beginning when it comes to the value of the C4. The C4 platform offers choice of LTO or SDLT media, hot-swappable drives and power, flexible capacity, and remote management at no additional cost. With its high density in a rackmount solution – it conserves your valuable floor space, too.

The C4 comes with a one-year next business day standard warranty. The warranty can be extended for long-term security and peace of mind at an affordable price. Additional 5x9x4 and 7x24x4 service contract upgrade response levels are also available. Professional Installation and Integration services can be purchased through Sun to ensure maximum uptime. Please contact Sun for availability in your region.

Product Features

- Aggressive price-point for entry-level automation
- 4U (C4) compact modules provide high density and conserve valuable rack space
- The ability to internally add drives as needed provides flexible capacity and performance
- Choice of LTO or SDLT media support ensuring optimal utilization of your existing and future tape storage investments
- Multiple OS Support for heterogenous platforms, including Solaris, Solaris x64, Windows, and/or Linux
- Bar code reader standard
- Remote management standard via integrated management
- SNMP Frameworks
- Ideal for storage requirements that are difficult to predict
- High availability through standard redundant power supplies
- Fibre Channel card with FCP-2 Error Recovery supporting both 1Gb/sec and 2Gb/sec environments with the ability to auto-negotiate to either speed depending on network speed
- Fixed media slots can be used for data cartridges to allow for maximum capacity or configured as cleaning cartridge slots to allow for unattended drive cleaning
- Full bulk access via cartridge magazines; priority-access load port with the ability to add/remove cartridges in each magazine while library remains online and operational
- Magazines are interchangeable between Sun C4 libraries and work in both left and right sides
- Advanced GUI front panel reduces training and simplifies library operation
- Hot-swappable, hot-pluggable tape drives



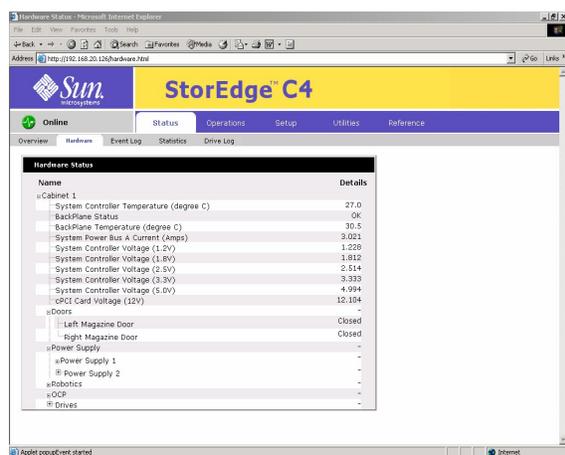
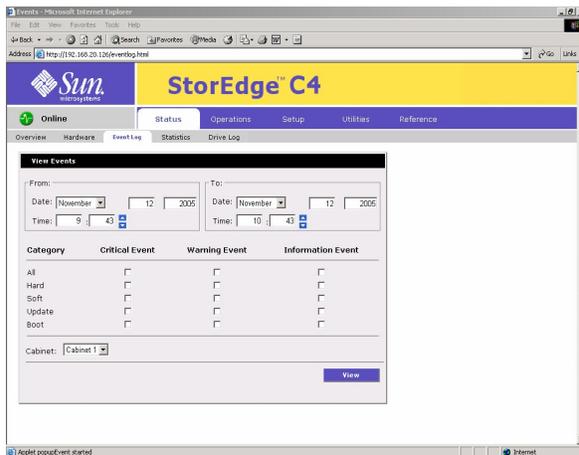
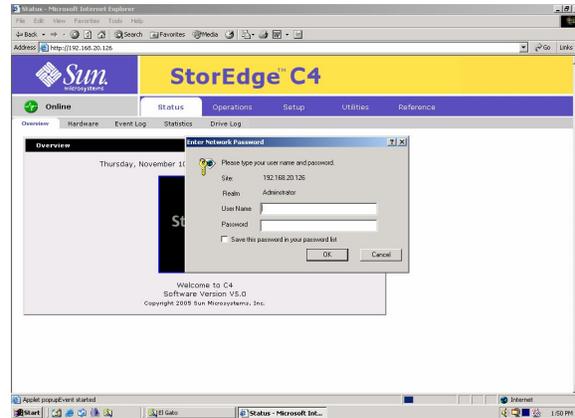
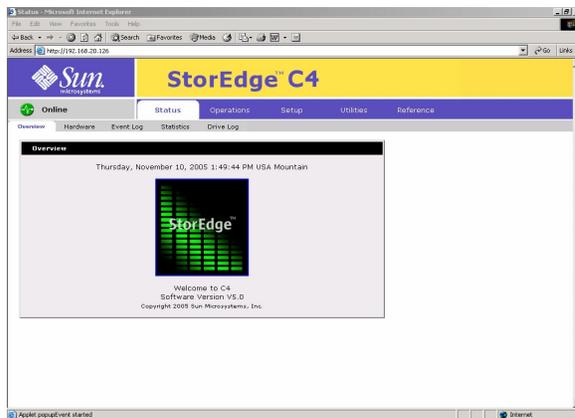
- Universal auto-ranging 110 to 240VAC power supply for worldwide use
- Customer Installable
- Scheduled preventative maintenance is not required
- Standard warranty is 1 year 5 x 8 x next business day on-site. Warranty uplifts available.

Typical Applications

- Backup for active-use databases
To help ensure capacity for multiple backups of data (daily, weekly, and monthly), tape capacity should be configured for at least three to five times the capacity of on-line storage. Typically, customers perform full backups on Saturday with incremental backups during the week.
- Archival

Ease of Use/Administration

Simple administration through bulk magazines, intuitive graphical user interface (GUI) control front panel, internal robotics, and library management features make management of the Sun C4 library less costly by requiring fewer man hours of administrative time. Bulk loading allows for easy rotation of multiple generations of backup sets, practical transport and archival storage, and simplified labeling. The easy-to-read, intuitive front GUI control panel makes the libraries easy to understand, use and configure, including running diagnostic checks. Customers may avoid costly system downtime because serviceable parts are easily accessible from the rear or front of the unit.



Enabling Technology

C4 Scalability

Although up to 10 C4 libraries can be stacked in a single 42U rack, Sun recommends the SL500 for customers who need to grow beyond entry-level automation, given the SL500's scalability and enterprise reliability. The below diagram shows the concept for stacking C4 libraries.



Note: When using racks less than 42U in size, the amount of libraries supported in a single rack will be less than the above.

Reliability, Availability, and Serviceability (RAS)

Reliability, availability, and serviceability features for the Sun C4 tape library is listed in this section.

Reliability

- Mean time between failure (MTBF): 250,000 (C4) power-on hours
- Mean swaps between failure (MSBF): Greater than 2,000,000 (load/unload)
- Mean Time To Repair (MTTF): Less than 30 minutes

Availability

- Hot-swap tape drives and power supplies

Serviceability

- All field replaceable units (FRUs) can be accessed from the front or back of the module, which allows for on-site repair of the module without having to disassemble the rack system.
- 30 minute or less mean time to repair (MTTR)
- C4 standard warranty: 1 year, next business day on site
- 5 x 8 Help Desk Support with customer-based call closure with uplifts
- World-wide distributed parts management
- Global escalation policy

Specifications

Physical Dimensions

Feature	Sun C4 Library	
	US	Metric
Height	6.75 in.	171 mm
Width	19.0 in.	482 mm
Depth	31 in.	762 mm
Weight (w/o drives)	87 lb.	39 kg

Environment

Feature	Sun C4 Library	
	US	Metric
Power, Operating • Typical • Maximum	200 Watts 250 Watts	
Temperature • Operating • Nonoperating	+50°F to +95°F -40°F to +149°F	+10°C to +35°C -40°C to +65°C
Relative Humidity • Operating • Nonoperating	20% to 80% noncondensing 10% to 90% noncondensing	
Altitude • Operating • Nonoperating	-500 to +10,000 ft -500 to +40,000 ft	153 to +3,048 meters -153 to +12,192 meters
Vibration	0.21gRMS (random) 0.25 g (5-500-5 Hz, 5 sweeps), operating axis (bottom)	
Shock	4.0 g, 11 msec. half-sine, applied in all six directions	
Noise (in accordance with ISO 9296)	7.5 Bels operating 7.0 Bels idle	



Regulations

Category	Specifications
Safety	UL-1950, CSA 950, EN60950
RFI/EMI	FCC CFR 47-15J (Level A), EN55022 (CISPR 22) Level A, EN 55024 (CISPR 24), VCCI
Agency Markings	CE, VCCI, UL, FCC, CSA

Media and Drive Specifications

Tape Drive Specifications

Feature	LTO 2	LTO 3	SDLT 600
Interface	LVD	LVD	LVD
Capacity	200 GB native	400 GB native	300 GB native
Transfer Rate Sustained	30 MB/sec. native	80 MB/sec. native	36 MB/sec. native
Transfer Rate (GB/hr)	108GB/hr	288GB/hr	129GB/hr
Transfer Rate Peak	40 MB/sec. burst	320 MB/sec. burst	80 MB/sec. burst
Track Format	Proprietary, linear serpentine	Proprietary, linear serpentine	Proprietary, linear serpentine
Load to BOT Time	<10 seconds	<10 seconds	18 seconds
Max. Rewind Time	152 seconds	152 seconds	77 seconds
Average Access Time	76 seconds	53 seconds	79 seconds
Unload from BOT	3 seconds	3 seconds	19 seconds
Buffer Size	64 MB	128 MB	8 MB
Drive Life	250,000 hours @ 100% duty cycle	250,000 hours @ 100% duty cycle	250,000 hours @ 100% duty cycle

Tape Cartridge (Media) Specifications

Feature	LTO Ultrium 1	LTO Ultrium 2	LTO Ultrium 3	Super DLTtape I
Archival Life	30 years with less than 5% demagnetization loss	30 years with less than 5% demagnetization loss	30 years with less than 5% demagnetization loss	30 years with less than 5% demagnetization loss
Media Life	25,000 write/read passes	25,000 write/read passes	25,000 write/read passes	1,000,000 write/read passes
Media Operating Temperature	10° C to 45° C (max. Gradient: 11° C/Hr)	10° C to 45° C (max. Gradient: 11° C/Hr)	10° C to 45° C (max. Gradient: 11° C/Hr)	10° C to 40° C (max. gradient: 10 degrees C/hr)
Media Operating Relative Humidity	20% to 80% (max. Gradient: 10%/Hr)			



Feature	LTO Ultrium 1	LTO Ultrium 2	LTO Ultrium 3	Super DLTtape I
Media Operating Maximum Wet Bulb Temp.	26°C	26°C	26°C	25°C
Uncorrected Bit Error Rate	< 1 in 10 ¹⁷ bits	< 1 in 10 ¹⁷ bits	< 1 in 10 ¹⁷ bits	1 x 10 ¹⁷ bits read
Loads/Unloads	300,000 (no thread)	300,000 (no thread)	300,000 (no thread)	15,000 minimum

Tape Drive Cleaning

Cleaning cartridges can be put into any open slot in the library. Once the library performs an inventory, it identifies to the application software where the cartridge is for accessibility. The Sun C4 tape library does not have auto-clean features. It is up to the ISV to initiate a cleaning requirement. When a drive requires cleaning, it sends a "cleaning required" message to the host.

Note: A bad tape may trigger a cleaning request message. However, this does not mean the head needs cleaning, since the next good tape loaded resets the cleaning request message. If the tape cleaning message keeps appearing, the drive needs to be cleaned.



System Compatibility

Operating Environment Support

- Solaris™ 8, 9, 10 Operating Environment
- Solaris 10 for x64
- Red Hat Linux 3 & 4
- Windows 2002/2003
- SuSE Linux
- It is required that the latest st drive patch be installed when a new library is deployed. Latest patches are available on sunsolve.sun.com

st driver Patch Information	
Solaris 8	108725-xx
Solaris 9	113277-xx
Solaris 10	120251-xx

Note: No /kernel/drv/st.conf modifications are required for these operating. Modifications to /kernel/drv/st.conf will **not** be supported.

Sun Opteron-based Systems Only

Solaris 10 x86	64-bit
Red Hat Linux	(Version ES 3.0 U3 and later)
Microsoft Windows OS	NT-Enterprise Edition; 2000-Server, Advanced Server; and 2003-Server, Standard Edition, Web Edition, & Enterprise Edition. (Sun Fire V20z, V40z)
Microsoft Windows XP Professional	(Sun Java Workstations W1100z, W2100z)

Software Compatibility: C4

Note: NetBackup does not recognize the cartridge port on these libraries, as it does not function as a true media access port. NetBackup injects and ejects will not function with the C4.

Sun StorEdge Enterprise Backup Software 7.2 or later, with patches
Solstice Backup™ 6.1 software or later, with patches
VERITAS NetBackup 6.0 or later, with patches
VERITAS BackupExec 10x and later
Bakbone NetVault 7.1x and later
Utilization Suite 4.0 and later



Sun StorEdge Enterprise Backup Software 7.2 or later, with patches
Sun StoEdge Utilization Suite modules Recovery and Archive Service software (formerly SAM-FS). The Sun C4 individual are qualified with SAM-FS;

Hardware Compatibility

The following table lists supported platforms and HBAs for the Sun C4.

C4

Supported Platforms	<p style="text-align: center;">Sun Blade 1000, 1500, 2000 and 2500 workstations</p> <p style="text-align: center;">Sun Enterprise 250 and 450 servers</p> <p style="text-align: center;">Sun Fire v210, v240, v250, v440, v480, v490, v880, v880z, V890, V1280, V4800, V6800, x800, x900, 12K, 15K, 20K, 25K servers Sun Fire V20z, V40z, V60x, and V65x servers Sun Fire X4100, X4200, X4600</p> <p style="text-align: center;">Netra 20, t1120/1125, 1280 and 1400/1405 servers</p> <p style="text-align: center;">Sun Java Workstation W1100z/ W2100z</p> <p style="text-align: center;">Other Intel and AMD based platforms running Windows 2003, Red Hat Linux and SuSE Linux.</p>
Supported HBAs	<p style="text-align: center;">X6758A</p> <p style="text-align: center;">SG-XPC12SCSI-LM320</p>

User Interfaces

Library Remote Management

The C4 tape library utilizes a web-based interface which allows you to configure and manage the library from a remote workstation on the same network. The library is managed through the following web pages (accessible using Internet browser software installed on the host computer):

- **Status**
 - Allows you to view the following: hardware status, event logs, and statistics
- **Operations**
 - Allows you to perform cabinet operations remotely such as cartridge movement and inventory requests and drive operations
- **Setup**
 - Allows you to setup cabinet identification, user information, SCSI Ids, network information, events, and date and time information



- **Utilities**
 - Allows the user to run cabinet utilities remotely
- **Reference**
 - Allows links to related sites.

Remote Front Panel

C4 Remote Library Management provides a menu-driven remote interface that includes nearly all the functions available on the front panel of the library itself. From a remote browser anywhere in the world, the system administrator can check the status of the library, reconfigure the library, move tapes to and from drives and to the load ports, and initiate drive cleaning and system tests. The graphical representation of the slots and drives in the library shows the location of all tape media, including the barcode labels. Performing operations such as unloading tapes via the load port by initially moving tape cartridges from the slots via the browser is a convenient management technique that saves time and money. For example, the tapes can be ready in the load port when the operator goes to the library to retrieve them.

Component-Level Diagnostics

C4 library management allows the system administrator to check the status of the most critical library component — the tape drives. If the E-Mail Home system signals an error condition at the library, the administrator can check the status of individual subsystems in the library, or can insert a tape in the drive that is showing the error. The ability to remotely perform diagnostics can help eliminate the need for the administrator to go to the data center if an error condition arises, saving valuable time.



SNMP Support

SNMP is an "industry-standard" protocol harnessed within tape automation and widely used for network monitoring and control protocol. Utilizing SNMP allows your organization to increase the performance of your infrastructure, anticipate and correct problems before they become critical, and automate and manage change in real time.

Data is passed from SNMP agents, which are hardware and/or software processes reporting activity in each network device (hub, router, bridge, etc.) to the workstation console used to oversee the network. Originating in the UNIX community, SNMP has become widely used on all major platforms. The agents return information contained in a Management Information Base (MIB), which is a data structure that defines what is obtainable from the device and what can be controlled (turned off, on, etc.). Depending on what Application is used, the following files are provided for information purposes as a courtesy to users who choose to implement SNMP:



FC1202 Fibre Channel Card

The Sun C4 library is supported by an internal CPCI-based SCSI LVD to Fibre Channel Bridge for direct connectivity to a Storage Area Network (SAN). The FC1202 is sold as an x-option, which will allow any LVD SCSI based C4 library to connect to a SAN or directly to a host via fibre channel interface.

Fibre Channel allows customers to address many of the problems associated with large-scale data storage. Utilizing the FC1202 bridge, the customer will be able to completely integrate all the components on their storage network including disk drives, RAID devices, tape libraries, servers and other storage equipment.

Utilizing a Fibre Channel bridge to connect to a SAN allows customers to overcome the limitations of the traditional server-attached storage model. A simple SCSI architecture does not scale well to the large-capacity storage systems. Fibre Channel allows connectivity to a SAN which allows servers to be physically separate from the rest of the storage devices. While SCSI cabling requires devices to be within a few feet of each other, fibre channel supports distances of many kilometers. This flexibility allows the centralization of storage equipment even when servers are distributed. In short, SANs allow organizations with multiple data centers to distribute access to storage assets independently of physical location.

• FC1202 Key Features:

- Provides a maximum burst of 2Gb/sec, autonegotiates both 1Gb/sec and 2Gb/sec environments, and supports both FC-AL and Fabric.
- Support of FCP-2 Error Recovery for detecting any abnormal event on the Fibre Channel interface such as bit errors, loss of synch conditions, Loop Initializations (LIPs), or missing or out-of-order frames which lead to interruptions in data flow causing command failure which lead to missing data. Sun Microsystems is the only Solutions vendor that harnesses the attributes of the FCP-2 Error Recovery protocol in a Fibre Channel solution.

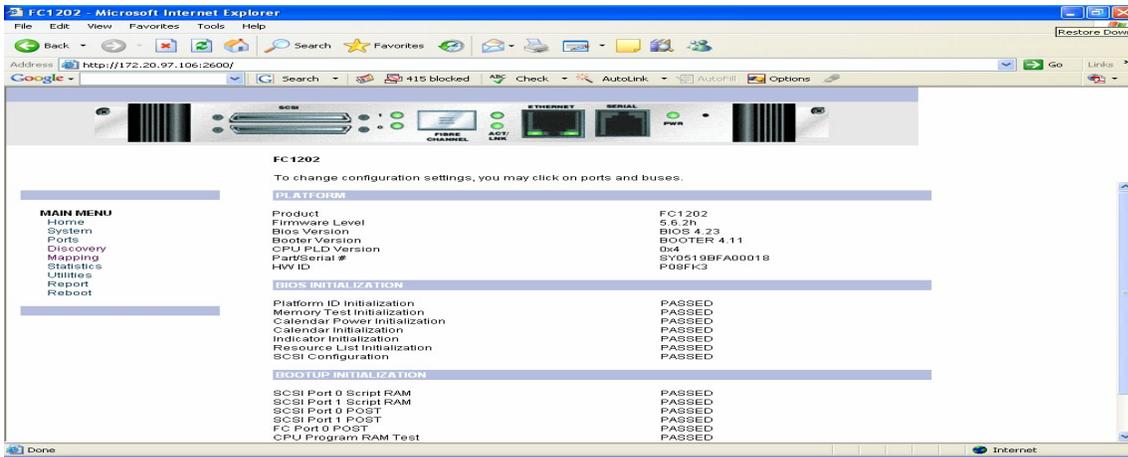
FC1202 Configuration Guidelines:

The FC1202 is customer installable in the C4 and the C4 can accommodate one FC1202 card per module.

Because the FC1202 supports both 1Gb/sec and 2Gb/sec environments, it is important to understand how the Fibre Channel card is configured when utilizing different tape drives (e.g. LTO-2, SDLT 320 etc.) in regards to their throughput speeds and interaction with 1Gb and 2Gb networks.

A C4 harnesses only one FC1202 Fibre Channel card per module and therefore can support up to a maximum of one tape drive per port (e.g. two tape drives per FC1202 card) regardless of using LTO 2 or SDLT 600 tape drives regardless of 1Gb/sec or 2Gb/sec network speeds being utilized.





Software Compatibility

The Sun C4 tape library is supported by VERITAS NetBackup, Solstice Backup software, and many other storage management software applications. Refer to the SunSolve web site at <http://sunsolve.sun.com> for the appropriate patches.

These libraries are supported on leading database applications:

- Informix
- Lotus Notes on Microsoft Windows NT
- Lotus Notes on SPARC™ systems
- MS Exchange
- MS SQL Server
- Oracle
- Oracle on Microsoft Windows NT
- SAP
- Sybase

Backup Applications

VERITAS NetBackup and Sun StorEdge Enterprise Backup Software storage management applications have their own documentation, which helps users get set up and running with tape automation products such as the Sun C2 and C4 tape libraries. Note: NetBackup does not recognize the cartridge port on these libraries, as it does not function as a true media access port. NetBackup injects and ejects will not function with the C2.

Controller

If the library controller fails, the library is considered non-functional. Since the robotics controller communicates with the robot and all functional controls and calibration values are held on that board, the library is "dead" (even in a manual mode) if a failure occurs with the library controller. This has no



impact on the data stored on the tapes in the library, and the tapes are accessible via bulk magazine unload.

Racks

The Sun C4 tape library fits into and are supported in the Sun rack 900 and Sun StorEdge expansion racks up to 72". The Sun C4 library is 4U. The Universal Rackmount kit is pre-bundled in each C4 base unit, so customers will not be required to purchase additional hardware when racking into racks other than the Sun rack 900 and Sun StorEdge expansion racks up to 72".

Ordering Information

Follow the steps described in the instructions below to order a Sun C4 library.

C4 Configuration Guide (SCSI - LVD) (SDLT600, LTO2, LTO3)

Step 1 (Required) C4 Library Base Configuration

Order quantity (1).

SDLT600 LVD Library Base		
Part Number	Description	Details
SG-XLIBSDLTS-C4	<ul style="list-style-type: none"> • 4RU rackmount enclosure with 19" rack kit • (32) cartridge slots total via <ul style="list-style-type: none"> ✓ (2) fixed cartridge slots and ✓ (2) 15-slot SDLT media magazines. • (2) empty tape drive bays • (1) power supply • LVD SCSI library robotics interface • Built-in pass-through port • Barcode reader • Installation Guide and User Guides CD-ROM 	<ul style="list-style-type: none"> • Base configurations do not include any tape drives and need to be ordered separately. • The LVD SCSI library robotics interface has two VHDCI68 Connectors.
LTO2/LTO3 LVD Library Base		
Part Number	Description	Details
SG-XLIBLTOS-C4	<ul style="list-style-type: none"> • 4RU rackmount enclosure with 19" rack kit • (38) cartridge slots total via <ul style="list-style-type: none"> ✓ (2) fixed cartridge slots and ✓ (2) 18-slot LTO media magazines. • (2) empty tape drive bays • (1) power supply • LVD SCSI library robotics interface • Built-in pass-through port • Barcode reader • Installation Guide and User Guides CD-ROM 	<ul style="list-style-type: none"> • Base configurations do not include any tape drives and need to be ordered separately. • The LVD SCSI library robotics interface has two VHDCI68 Connectors.

Notes:

- The C4 library is customer installable and installation is **not** included with the library. EIS installation service should be ordered if the customer wants Sun to install the product.
- An optional 2nd power supply may be added to the library for redundancy.
- The built-in pass-through port of the C4 library allows other C4 libraries to be stacked in a rack and tape cartridges passed between libraries. No additional hardware is needed to utilize this scalability feature.
 - ✓ It is **not** EMI Compliant to have more than (2) “**Non-RoHS Compliant**” C4 libraries installed into a single rack.
 - ✓ There are **no** EMI issues when more than (2) “**RoHS Compliant**” C4 libraries (eta ~end of April 2006) are installed into a single rack.
 - ✓ You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Different drive types **can** be mixed in a library enclosure.
 - ✓ The (2) fixed cartridge slots in the library accommodate SDLT600, LTO2 and LTO3 media cartridges, regardless of C4 base library type (SDLT base or LTO base).



- ✓ The robotic mechanism in the different library bases is universal and can pick up any cartridge type.
- ✓ However, the (2) media magazines included in the different C4 library bases are specific to the base type ordered. So, if mixed drive types are desired in the library enclosure then (1) of the optional media magazines (of the opposite type) will need to be ordered and swapped out with one of the media magazines included in the base.
 - Example: If the C4 “SDLT600” library base is ordered it will include (2) SDLT600 media magazines, and if mixed drive types are desired in the library enclosure then (1) LTO2/LTO3 media magazine will need to be ordered and swapped out with one of the SDLT600 media magazines included in the base.
- The C4 Library base units do **not** ship with any power cords or any data or cleaning cartridges.

Fibre versions are as follows:

LTO3 FC Library Base		
Part Number	Description	Details
SG-XLIBLTOFC-C4	<ul style="list-style-type: none"> • Sun StorageTek[™] C4 LTO FC tape library base, 2 LTO drive bays, 38 cartridge slots; 4U rackmount. Supports native FC drives only. RoHS-6 compliant 	<ul style="list-style-type: none"> • Base configurations do not include any tape drives and need to be ordered separately.

SDLT FC Library Base		
Part Number	Description	Details
SG-XLIBSDLTFC-C4	<ul style="list-style-type: none"> • Sun StorageTek[™] C4 SDLT FC tape library base, 2 SDLT drive bays, 32 cartridge slots; 4U rackmount. Supports native FC drives only. RoHS-6 compliant 	<ul style="list-style-type: none"> • Base configurations do not include any tape drives and need to be ordered separately.



Step 2 (Required) Tape Drives

Order up to (2) per C4.

Part Number	Description	Details
SG-XTAPSDLT6S-C	SDLT600 LVD Tape Drive (Quantum) <ul style="list-style-type: none">• Tape drive• Installation guide• SCSI jumper cable and Terminator	• HD68 Connector
SG-XTAPLTO2S-C	LTO2 LVD Tape Drive (HP) <ul style="list-style-type: none">• Tape drive• Installation guide• SCSI jumper cable and Terminator	• HD68 Connector
SG-XTAPLTO3S-C	LTO3 LVD Tape Drive (HP) <ul style="list-style-type: none">• Tape drive• Installation guide• SCSI jumper cable and Terminator	• HD68 Connector
SG-XTAPLTO3FC-C	Sun StorageTek[™] C-series LTO 3 native FC tape drive; 400GB native capacity, 80 MB/sec native throughput. RoHS-6 compliant.	•
SG-XTAPSDLT6FC-C	Sun StorageTek[™] C-series SDLT 600 native FC tape drive; 300GB native capacity, 36 MB/sec native throughput. RoHS-6 compliant.	•

Notes:

- Different drive types **can** be mixed in a library enclosure.
 - ✓ The (2) fixed cartridge slots in the library accommodate SDLT600, LTO2 and LTO3 media cartridges, regardless of C4 base library type (SDLT base or LTO base).
 - ✓ The robotic mechanism in the different library bases is universal and can pick up any cartridge type.
 - ✓ However, the (2) media magazines included in the different C4 library bases are specific to the base type ordered. So, if mixed drive types are desired in the library enclosure then (1) of the optional media magazines (of the opposite type) will need to be ordered and swapped out with one of the media magazines included in the base.
 - Example: If the C4 “SDLT600” library base is ordered it will include (2) SDLT600 media magazines, and if mixed drive types are desired in the library enclosure then (1) LTO2/LTO3 media magazine will need to be ordered and swapped out with one of the SDLT600 media magazines included in the base.

Step 3 (Required) Power Cord

Order quantity (1) or (2). Order qty (1) if the redundant power supply in step 6 **is not** being ordered, and order qty (2) if the redundant power supply in step 6 **is** being ordered.

Part Number	Description
X311L	North American/Asian
X312L	Continental Europe
X312E	China
X312F	Argentina
X312G	Korea
X314L	Swiss
X317L	U.K.
X332A	Taiwan
X383L	Danish



X384L	Italian
X386L	Australian

Step 4 (Required) Host Bus Adapters

Order appropriate HBA and quantity. See C4 support matrix for HBA/Onboard SCSI support details. (see notes)

Part Number	Description	Details
SG-XPCI2SCSI-LM320 (Last Order Date: 04/14/06 SunWIN# 462367)	PCI, Dual-Channel Ultra320 LVD SCSI	<ul style="list-style-type: none"> VHDCI68 connectors Does not ship with any SCSI cables.
SGXPCI2SCSILM320-Z	PCI, Dual-Channel Ultra320 LVD SCSI Host Bus Adapter (RoHS-6 Compliant)	<ul style="list-style-type: none"> VHDCI68 connector Does not ship with any SCSI cables.
SG-XPCI1SCSI-LM320 (Last Order Date: 04/14/06 SunWIN# 462370)	PCI, Single-Channel Ultra320 LVD SCSI	<ul style="list-style-type: none"> VHDCI68 connector Does not ship with any SCSI cables.
SGXPCI1SCSILM320-Z	PCI, Single-Channel Ultra320 LVD SCSI, Low Profile, includes standard and low profile brackets (RoHS-6 Compliant)	<ul style="list-style-type: none"> VHDCI68 connector Does not ship with any SCSI cables.
Onboard SCSI Ports	<ul style="list-style-type: none"> Sun Blade 2500 Sun Fire V210, V240, V250 	

Notes:

Using SDLT600, LTO2 SCSI Tape Drives with:

SG-XPCI2SCSI-LM320 HBA

- (1) SCSI port needed for each (2) tape drives.

SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA

- (1) SCSI port needed for each (2) tape drives.

On-board SCSI Port of the Sun Blade 2500S/2500R, Sun Fire V210, V240, V250

- Up to (2) tape drives connected to onboard SCSI port.

Using LTO3 SCSI Tape Drive with:

SG-XPCI2SCSI-LM320 HBA

- (1) SCSI port needed for each (1) tape drive.

SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA

- (1) SCSI port needed for each (1) tape drive.

On-board SCSI Port of the Sun Blade 2500S/2500R, Sun Fire V210, V240, V250

- Up to (1) tape drive connected to onboard SCSI port.

Step 5 (Required) SCSI Cables

Order appropriate cable and quantity. (see notes)

Part Number	Description	Details
X3830B	4-meter VHDCI68-VHDCI68	<ul style="list-style-type: none"> For use with SG-XPCI2SCSI-LM320, SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA's or system on-board SCSI ports. (HBA port directly to C4 robotics interface)
X3831B	10-meter VHDCI68-VHDCI68	<ul style="list-style-type: none"> For use with SG-XPCI2SCSI-LM320, SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA's or system on-board SCSI ports. (HBA port directly to C4 robotics interface)



X3830A	4-meter HD68-VHDCI68	• For use with SG-XPCI2SCSI-LM320, SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA's or system on-board SCSI ports. (HBA port directly to tape drive)
X3831A	10-meter HD68-VHDCI68	• For use with SG-XPCI2SCSI-LM320, SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA's or system on-board SCSI ports. (HBA port directly to tape drive)

Notes:

Using SDLT600, LTO2 SCSI Tape Drives with:

SG-XPCI2SCSI-LM320 HBA

- (1) “VHDCI68-VHDCI68” SCSI cable needed (regardless of number of tape drives in the C4).

SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA

- (1) “VHDCI68-VHDCI68” SCSI cable needed (regardless of number of tape drives in the C4).

On-board SCSI Port of the Sun Blade 2500S/2500R, Sun Fire V210, V240, V250

- (1) “VHDCI68-VHDCI68” SCSI cable needed (regardless of number of tape drives in the C4).

Using LTO3 SCSI Tape Drive with:

SG-XPCI2SCSI-LM320 HBA

- (1) “VHDCI68-VHDCI68” SCSI cable needed for a C4 config with one tape drive **or...**
- (1) “VHDCI68-VHDCI68” SCSI cable **and** (1) “HD68-VHDCI68” SCSI cable needed for a C4 config with two tape drives.

SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA

- (1) “VHDCI68-VHDCI68” SCSI cable needed for a C4 config with one tape drive **or...**
- (1) “VHDCI68-VHDCI68” SCSI cable **and** (1) “HD68-VHDCI68” SCSI cable needed for a C4 config with two tape drives.

On-board SCSI Port of the Sun Blade 2500S/2500R, Sun Fire V210, V240, V250

- (1) “VHDCI68-VHDCI68” SCSI cable needed (max of 1 LTO3 tape drive in C4 supported when connecting to on-board ports).



Step 6 (Optional) Redundant Power Supply

Choose quantity (1) if redundant power is desired for the C4 Library.

Part Number	Description	Details
SG-XREDPWR-C	Redundant C4 Library Power Supply	

Step 7 (Optional) Sun Racks

Choose quantity (1) of one of the below supported Sun racks and appropriate options. (see notes)

Sun Rack 1000-42		
Part Number	Description	Details
SRK-XAZ042A-IP	Sun Rack 1000-42 with PDS	• Order power cord kit separately.
X6828A	Domestic Power Cord Kit (4-pack)	• Order qty (1).
X6826A	Filler Panel Kit (12RU)	• Optional but recommended

Notes:

- It is not EMI Compliant to have more than (2) “Non-RoHS Compliant” C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) “RoHS Compliant” C4 libraries are installed into a single rack.
- You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Up to (10) C4 libraries can be installed in the Sun Rack 1000-42 (not to exceed 2 Non-RoHS libraries though).
- It is recommended to install rack filler panels in any unused rack space in the Sun Rack 1000-42 for optimum airflow.

Sun Rack 1000-38		
Part Number	Description	Details
SRK-XRS038A-IP	Sun Rack 1000-38 with PDS	• Order power cord kit separately.
X6828A	Domestic Power Cord Kit (4-pack)	• Order qty (1).
X6826A	Filler Panel Kit (12RU)	• Optional but recommended

Notes:

- It is not EMI Compliant to have more than (2) “Non-RoHS Compliant” C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) “RoHS Compliant” C4 libraries are installed into a single rack.
- You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Up to (9) C4 libraries can be installed in the Sun Rack 1000-38 (not to exceed 2 Non-RoHS libraries though).
- It is recommended to install rack filler panels in any unused rack space in the Sun Rack 1000-38 for optimum airflow.

Sun Rack 900-38		
Part Number	Description	Details
SR9-XKM038A-IP	Sun Rack 900-38 with PDS	• Order power cord kit separately.
X6828A	Domestic Power Cord Kit (4-pack)	• Order qty (1).
X6826A	Filler Panel Kit (12RU)	• Optional but recommended

Notes:

- It is not EMI Compliant to have more than (2) “Non-RoHS Compliant” C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) “RoHS Compliant” C4 libraries are installed into a single rack.
- You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Up to (9) C4 libraries can be installed in the Sun Rack 900-38 (not to exceed 2 Non-RoHS libraries though).
- It is recommended to install rack filler panels in any unused rack space in the Sun Rack 900-38 for optimum airflow.



Sun StorEdge 72" Expansion Cabinet		
Part Number	Description	Details
SG-XARY030A (Last Order Date: 04/14/06 SunWIN# 462450)	Sun StorEdge 72" Expansion Cabinet with Sequencers	• Order power cords separately.
X3858A	(1) Domestic Power Cord	• Order qty (2).
X9818A	Front Door	• Optional, not required for L500.

Notes:

- It is not EMI Compliant to have more than (2) "Non-RoHS Compliant" C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) "RoHS Compliant" C4 libraries are installed into a single rack.
- You can mix and match "Non-RoHS Compliant" and "RoHS Compliant" C4 libraries in a single rack as long as you don't exceed (2) "Non-RoHS Compliant" libraries due to the EMI issues.
- Up to (9) C4 libraries can be installed in the Sun StorEdge 72" Expansion Cabinet (not to exceed 2 Non-RoHS libraries though).
- The C4 library has type "A" front to back airflow, so fan tray and air baffle are not needed for the cabinet.

Step 8 (Optional) Tape Media

Either "Barcoded" or "Non-barcoded" media available. Order quantities as needed.

SDLT600 Media	
Part Number	Description
SG-XMEDSDLT2D-20	20-Pack of SDLT600 Non -barcoded Data Cartridges
SG-XMEDSDLTCL-10	10-Pack of SDLT220/SDLT320/SDLT600 Non -barcoded Cleaning Cartridges
LTO2 Media	
Part Number	Description
SG-MEDLTO2-20B	20-Pack of LTO2 Barcoded Data Cartridges <ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled without the completed barcode label order form. • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • "Barcoded media orders are non-cancelable & non-returnable", this note should be added to every barcoded media quote. • The "LTO2/LTO Barcode Label Order Form" can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)
SG-MEDLTOCL-10B	10-Pack of LTO2/LTO Barcoded Cleaning Cartridges <ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled without the completed barcode label order form. • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • "Barcoded media orders are non-cancelable & non-returnable", this note should be added to every barcoded media quote. • The "LTO2/LTO Barcode Label Order Form" can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)
SG-XMEDLTO200GB-10	10-Pack of LTO2 Non -barcoded Data Cartridges
SG-XMEDLTOUNVCL-10	10-Pack of LTO2/LTO Non -barcoded Cleaning Cartridges
LTO3 Media	
Part Number	Description
SG-MEDLTO3-20B	20-Pack of LTO3 Barcoded Data Cartridges <ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled



	<p>without the completed barcode label order form.</p> <ul style="list-style-type: none"> • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • “Barcoded media orders are non-cancelable & non-returnable”, this note should be added to every barcoded media quote. • The “LTO3/LTO2/LTO2V/LTO Barcode Label Order Form” can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)
SG-XMEDLTO3-10	10-Pack of LTO3 Non -barcoded Data Cartridges
SG-XMEDLTOUNVCL-10	10-Pack of LTO3/LTO2/LTO2V/LTO Non -barcoded Cleaning Cartridges
SG-MEDLTOCL-10B	<p>10-Pack of LTO3/LTO2/LTO2V/LTO Barcoded Cleaning Cartridges</p> <ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled without the completed barcode label order form. • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • “Barcoded media orders are non-cancelable & non-returnable”, this note should be added to every barcoded media quote. • The “LTO3/LTO2/LTO2V/LTO Barcode Label Order Form” can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)

Notes:

- Barcoded SDLT600 media is not currently available from Sun.
- The C4 Library does **not** ship with any data or cleaning cartridges.

Step 9 (Optional) Additional Media Magazines

Each C4 library base ships with (2) media magazines so an additional media magazine should not be needed. Order quantity (1), **“Only If”** the customer wishes to use mixed media/drive types in an enclosure. (see notes)

Part Number	Description
SG-XMAGSDLT-C	15-Slot SDLT600 Media Magazine
SG-XMAGLTO-C	18-Slot LTO2/LTO3 Media Magazine

Notes:

- Different drive types **can** be mixed in a library enclosure.
 - ✓ The (2) fixed cartridge slots in the library accommodate SDLT600, LTO2 and LTO3 media cartridges, regardless of C4 base library type (SDLT base or LTO base).
 - ✓ The robotic mechanism in the different library bases is universal and can pick up any cartridge type.
 - ✓ However, the (2) media magazines included in the different C4 library bases are specific to the base type ordered. So, if mixed drive types are desired in the library enclosure then (1) of the optional media magazines (of the opposite type) will need to be ordered and swapped out with one of the media magazines included in the base.
 - Example: If the C4 “SDLT600” library base is ordered it will include (2) SDLT600 media magazines, and if mixed drive types are desired in the library enclosure then (1) LTO2/LTO3 media magazine will need to be ordered and swapped out with one of the SDLT600 media magazines included in the base.



C4 Library System Support Matrix

For the most up-to-date information, please see: <https://extranet.stortek.com/interop/interop>

Systems	On Board SCSI	SG-XPCI2SCSI-LM320 LVD (PCI)	SG-XPCI1SCSI-LM320 SGXPCI1SCSILM320-Z LVD (PCI)	X6758A LVD (PCI)	X4422A-2 LVD X4422A LVD X2222A LVD (PCI)
Ultra 2, 5, 10, 30, 60, 80	No	No	No	No	No
Sun Blade 150	No	No	No	No	No
Sun Blade 1000, 2000	No	Yes	No	Yes	No
Sun Blade 1500	No	Yes	No	Yes	No
Sun Blade 2500	Yes	Yes	No	Yes	No
SJW W1100z, W2100z	No	Yes ¹	Yes ²	No	No
Enterprise 220R, 420R	No	No	No	No	No
Enterprise 250, 450	No	Yes	No	Yes	No
Enterprise 3x00 - 6x00	No	No	No	No	No
Enterprise 10000	No	No	No	No	No
Sun LX50	No	No	No	No	No
Sun Fire T2000	No	No	Yes	No	No
Sun Fire V20z, V40z	No	Yes ³	Yes ⁴	No	No
Sun Fire X4100, X4200	No	No	Yes ⁵	No	No
Sun Fire V60x, V65x	No	No	No	No	No
Sun Fire V120	No	No	No	No	No
Sun Fire V210, V240	Yes	Yes	No	Yes	No
Sun Fire V250	Yes	Yes	No	Yes	No
Sun Fire 280R	No	Yes	No	Yes	No
Sun Fire V440	No	Yes	No	Yes	No
Sun Fire V480, V490	No	Yes	No	Yes	No
Sun Fire V880, V880z, V890	No	Yes	No	Yes	No
Sun Fire V1280	No	Yes	No	Yes	No
Sun Fire 3800	No	No	No	No	No
Sun Fire 4800, 4810, 6800	No	Yes	No	Yes	No
Sun Fire 12K, 15K	No	Yes	No	Yes	No
Sun Fire E2900	No	Yes	No	Yes	No
Sun Fire E4900, E6900	No	Yes	No	Yes	No
Sun Fire E20K, E25K	No	Yes	No	Yes	No

¹The C4 Library is supported connected to the SG-XPCI2SCSI-LM320 HBA in the Sun Java Workstations W1100z and W2100z running Solaris 10 x64, RHEL 3.0, Microsoft Windows XP (Professional).

²The C4 Library is supported connected to the SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA in the Sun Java Workstations W1100z and W2100z running Solaris 10 x64 (3/05 or later), RHEL 3.0, Microsoft Windows XP (Professional).

³The C4 Library is supported connected to the SG-XPCI2SCSI-LM320 HBA in the Sun Fire V20z and V40z servers running Solaris 10 x64, RHEL 3.0, Microsoft Windows Server 2000 (Advanced Server), Windows Server 2003 (Standard Edition, Web Edition, Enterprise Edition).

⁴The C4 Library is supported connected to the SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA in the Sun Fire V20z and V40z servers running Solaris 9 x86 (4/04 or later), Solaris 10 x86 (3/05 or later), RHEL 3.0, SuSE Linux Enterprise Server 8 and 9, Windows Server 2000 (Advanced Server), Windows Server 2003 (Standard Edition, Web Edition, Enterprise Edition).

⁵The C4 Library is supported connected to the SG-XPCI1SCSI-LM320, SGXPCI1SCSILM320-Z HBA in the Sun Fire X4100 and X4200 servers running Solaris 10 x64, RHEL 3.0 and 4.0, SuSE Linux Enterprise Server 9, Windows Server 2003 (Standard Edition, Enterprise Edition).



Systems	On Board SCSI	SG-XPCI2SCSI-LM320 LVD (PCI)	SG-XPCI1SCSI-LM320 SGXPCI1SCSILM320-Z LVD (PCI)	X6758A LVD (PCI)	X4422A-2 LVD X4422A LVD X2222A LVD (PCI)
Netra t1 100, 105	No	No	No	No	No
Netra T1 AC200, DC200	No	No	No	No	No
Netra 120	No	No	No	No	No
Netra 240	Yes	No	No	No	No
Netra 440	No	No	No	No	No
Netra 20, 1280	No	Yes	No	Yes	No
Netra 1120/1125, 1400/1405	No	Yes	No	Yes	No

C4 Configuration Guide (LVD SCSI / Fibre Bridge) (SDLT600, LTO2, LTO3)

Configuration and Support Notes

An LVD SCSI / Fibre Bridge configuration can be configured either in Fabric mode using SAN 4.4.x.x configuration rules, or FC-AL mode. Fabric mode requires the use of switches between HBA's and the fibre channel bridge, FC-AL mode is configured direct connect from HBA's to the fibre channel bridge.

- See supported configurations section below for supported device combinations in a “Switch Configuration” and “Direct Attached Configuration”.
- See SAN 4.4.x WWW (SunWIN# 397802) for additional Fabric mode information and a complete list of supported hosts, switches and HBA's. This guide only lists current switches and HBA's.

Supported Switch Configurations:

SDLT600, LTO2, LTO3 SCSI Tape Drives and FC Bridge with:		
	Host Bus Adapters (HBA's)	Switches
Sun 2Gb	SG-XPCI2FC-QF2-Z SG-XPCI2FC-QF2 SG-XPCI1FC-QL2	Sun 64-port / QLogic 5200 / Brocade 200E, 4100, 24000, 48000 / McData 4500, 6140
	SG-XPCI1FC-QLC-Z / SG-XPCI1FC-QLC	Sun 64-port / QLogic 5200 / Brocade 200E, 4100 / McData 4500
Emulex 2Gb	SG-XPCI1FC-EM2 / SG-XPCI2FC-EM2	Sun 64-port / QLogic 5200 / Brocade 200E, 4100, 24000, 48000 / McData 4500, 6140

Supported Direct Attached Configurations:

SDLT600, LTO2, LTO3 SCSI Tape Drives and FC Bridge with:	
Sun 2Gb	SG-XPCI2FC-QF2-Z / SG-XPCI2FC-QF2 / SG-XPCI1FC-QL2
	SG-XPCI1FC-QLC-Z / SG-XPCI1FC-QLC
Emulex 2Gb	SG-XPCI1FC-EM2 / SG-XPCI2FC-EM2

Step 1 (Required) C4 Library Base Configuration

Order quantity (1)

SDLT600 LVD Library Base		
Part Number	Description	Details
SG-XLIBSDLTS-C4	<ul style="list-style-type: none"> • 4RU rackmount enclosure with 19” rack kit • (32) cartridge slots total via: <ul style="list-style-type: none"> ✓ (2) fixed cartridge slots and ✓ (2) 15-slot SDLT media magazines. • (2) empty tape drive bays • (1) power supply and power cord • LVD SCSI library robotics interface • Built-in pass-through port • Barcode Reader • Installation Guide and User Guides CD-ROM 	<ul style="list-style-type: none"> • Base configurations do not include any tape drives and need to be ordered separately. • The LVD SCSI library robotics interface two VHDCI68 Connectors.
LTO2/LTO3 LVD Library Base		
Part Number	Description	Details
SG-XLIBLTO3-C4	<ul style="list-style-type: none"> • 4RU rackmount enclosure with 19” rack kit • (38) cartridge slots total via: 	<ul style="list-style-type: none"> • Base configurations do not include any tape drives and need to be ordered



	<ul style="list-style-type: none"> ✓ (2) fixed cartridge slots and ✓ (2) 18-slot LTO media magazines. • (2) empty tape drive bays • (1) power supply and power cord • LVD SCSI library robotics interface • Built-in pass-through port • Barcode Reader • Installation Guide and User Guides CD-ROM 	<p>separately.</p> <ul style="list-style-type: none"> • The LVD SCSI library robotics interface two VHDCI68 Connectors.
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Notes:

- The C4 library is customer installable and installation is **not** included with the library. EIS installation service should be ordered if the customer wants Sun to install the product.
- An optional 2nd power supply may be added to the library for redundancy.
- The built-in pass-through port of the C4 library allows other C4 libraries to be stacked in a rack and tape cartridges passed between libraries. No additional hardware is needed to utilize this scalability feature.
 - ✓ It is **not** EMI Compliant to have more than (2) “**Non-RoHS Compliant**” C4 libraries installed into a single rack.
 - ✓ There are **no** EMI issues when more than (2) “**RoHS Compliant**” C4 libraries (eta ~end of April 2006) are installed into a single rack.
 - ✓ You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Different drive types **can** be mixed in a library enclosure.
 - ✓ The (2) fixed cartridge slots in the library accommodate SDLT600, LTO2 and LTO3 media cartridges, regardless of C4 base library type (SDLT base or LTO base).
 - ✓ The robotic mechanism in the different library bases is universal and can pick up any cartridge type.
 - ✓ However, the (2) media magazines included in the different C4 library bases are specific to the base type ordered. So, if mixed drive types are desired in the library enclosure then (1) of the optional media magazines (of the opposite type) will need to be ordered and swapped out with one of the media magazines included in the base.
 - Example: If the C4 “SDLT600” library base is ordered it will include (2) SDLT600 media magazines, and if mixed drive types are desired in the library enclosure then (1) LTO2/LTO3 media magazine will need to be ordered and swapped out with one of the SDLT600 media magazines included in the base.
- The C4 Library base units do **not** ship with any power cords or any data or cleaning cartridges.

Step 2 (Required) FC1202 Bridge (LVD SCSI to Fibre Channel Card Option)

Order quantity (1).

Part Number	Description	Details
SG-XFCCARD2-C	FC1202 Bridge (LVD SCSI to Fibre Channel Card Option) <ul style="list-style-type: none"> • FC1202 LVD to FC bridge board • (2) VHDCI68 pin cables • (1) Cat5 ethernet crossover cable • FC1202 Documentation CD 	<ul style="list-style-type: none"> • The fibre port on the FC1202 bridge is a 2Gb LC fibre connector. • There are two SCSI ports on the FC1202 bridge which are VHDCI68 pin connectors.

Notes:

- A maximum of (1) FC1202 bridge is supported in the C4.

Step 3 (Required) Tape Drives

Order up to (2) per C4.

Part Number	Description	Details
SG-XTAPSDLT6S-C	SDLT600 LVD Tape Drive (Quantum) <ul style="list-style-type: none"> • Tape drive • Installation guide • SCSI jumper cable and Terminator 	<ul style="list-style-type: none"> • HD68 Connector



SG-XTAPLTO2S-C	LTO2 LVD Tape Drive (HP) <ul style="list-style-type: none"> • Tape drive • Installation guide • SCSI jumper cable and Terminator 	<ul style="list-style-type: none"> • HD68 Connector
SG-XTAPLTO3S-C	LTO3 LVD Tape Drive (HP) <ul style="list-style-type: none"> • Tape drive • Installation guide • SCSI jumper cable and Terminator 	<ul style="list-style-type: none"> • HD68 Connector

Notes:

- Different drive types **can** be mixed in a library enclosure.
 - ✓ The (2) fixed cartridge slots in the library accommodate SDLT600, LTO2 and LTO3 media cartridges, regardless of C4 base library type (SDLT base or LTO base).
 - ✓ The robotic mechanism in the different library bases is universal and can pick up any cartridge type.
 - ✓ However, the (2) media magazines included in the different C4 library bases are specific to the base type ordered. So, if mixed drive types are desired in the library enclosure then (1) of the optional media magazines (of the opposite type) will need to be ordered and swapped out with one of the media magazines included in the base.
 - Example: If the C4 “SDLT600” library base is ordered it will include (2) SDLT600 media magazines, and if mixed drive types are desired in the library enclosure then (1) LTO2/LTO3 media magazine will need to be ordered and swapped out with one of the SDLT600 media magazines included in the base.

Step 4 (Optional) Redundant Power Supply

Choose quantity (1) if redundant power is desired for the C4 Library.

Part Number	Description	Details
SG-XREDPWR-C	Redundant C4 Library Power Supply	

Step 5 (Required) Power Cord

Order quantity (1) or (2). Order qty (1) if the redundant power supply in step 4 **is not** being ordered, and order qty (2) if the redundant power supply in step 4 **is** being ordered.

Part Number	Description
X311L	North American/Asian
X312L	Continental Europe
X312E	China
X312F	Argentina
X312G	Korea
X314L	Swiss
X317L	U.K.
X332A	Taiwan
X383L	Danish
X384L	Italian
X386L	Australian

Step 6 (Required) Host Bus Adapters

Order appropriate HBA(s) and quantity. (see notes)

Sun 2Gb HBA's		
Part Number	Description	Details
SG-XPCI2FC-QF2-Z	PCI, Dual Channel Fibre (RoHS Compliant)	<ul style="list-style-type: none"> • LC connectors
SG-XPCI1FC-QL2	PCI, Single Channel Fibre	<ul style="list-style-type: none"> • LC connector



SG-XPCI1FC-QLC-Z	PCI, Single Channel Fibre Entry Level (RoHS Compliant)	<ul style="list-style-type: none"> • LC connector • Only supported in Sun Fire V20z¹, V40z, X4100², X4200 servers with C4/FC Bridge (see footnotes).
SG-XPCI2FC-QF2 (Last Order Date: 04/14/06 SunWIN# 462411)	PCI, Dual Channel Fibre	<ul style="list-style-type: none"> • LC connectors
SG-XPCI1FC-QLC (Last Order Date: 04/14/06 SunWIN# 462417)	PCI, Single Channel Fibre Entry Level	<ul style="list-style-type: none"> • LC connector • Only supported in Sun Fire V20z, V40z, X4100, X4200 servers with C4/FC Bridge (see footnotes).
Emulex 2Gb HBA's		
Part Number	Description	Details
SG-XPCI1FC-EM2	PCI, Single Channel Fibre	<ul style="list-style-type: none"> • LC connector
SG-XPCI2FC-EM2	PCI, Dual Channel Fibre	<ul style="list-style-type: none"> • LC connectors

¹The C4 / FC Bridge is supported connected to the SG-XPCI1FC-QLC and SG-XPCI1FC-QLC-Z HBA's in the Sun Fire V20z and V40z servers running Solaris 10 x64, Red Hat Enterprise Linux 3.0 (32/64-bit), SuSE Linux Enterprise Server 8 (32/64-bit), SuSE SLES 9 (32/64-bit), Windows Server 2000/2003.

²The C4 / FC Bridge is supported connected to the SG-XPCI1FC-QLC and SG-XPCI1FC-QLC-Z HBA's in the Sun Fire X4100 and X4200 servers running Solaris 10 x64, RHEL 3.0 and 4.0, SuSE Linux Enterprise Server 9, Windows Server 2003 (Standard Edition, Enterprise Edition).



Notes:

Switch Configuration:

**Using SDLT600, LTO2 SCSI Tape Drives with:
2Gb HBA and 2Gb/4Gb Switch**

- (1) HBA port needed for each (2) tape drives.
- (1) SCSI tape drive per SCSI port on the FC1202 bridge.

Using LTO3 SCSI Tape Drives with:

2Gb HBA and 2Gb/4Gb Switch

- (1) HBA port needed for each (1) tape drive.
- (1) SCSI tape drive per FC1202 bridge.
- However, because a maximum of only (1) FC1202 bridge is supported in the C4 the maximum number of LTO3 tape drives that could be configured would be (1). Connecting (2) LTO3 tape drives to the FC1202 bridge is supported, however full LTO3 performance will not be utilized.

Direct Attached Configuration:

**Using SDLT600, LTO2 SCSI Tape Drives with:
2Gb HBA direct connect**

- (1) HBA port needed for each (2) tape drives.
- (1) SCSI tape drive per SCSI port on the FC1202 bridge.

Using LTO3 SCSI Tape Drives with:

2Gb HBA direct connect

- (1) HBA port needed for each (1) tape drive.
- (1) SCSI tape drive per FC1202 bridge.
- However, because a maximum of only (1) FC1202 bridge is supported in the C4 the maximum number of LTO3 tape drives that could be configured would be (1). Connecting (2) LTO3 tape drives to the FC1202 bridge is supported, however full LTO3 performance will not be utilized.

Step 7 (Required/Optional) Fibre Channel Switches

The quantity of switches needed is determined based on the total number of switch ports needed. Skip this step if customer already has switches or requests a “direct attached” config. Order appropriate switch and quantity. (see notes)

Sun 64-Port 2Gb Switch		
Part Number	Description	Details
SG-XSW64-BASE (Last Order Date: 04/14/06 SunWIN# 462432)	Sun 64-Port 2Gb Switch	<ul style="list-style-type: none"> • Order SFP's separately. • Comes with (32) ports, order (1 to 4) of the below 8-port expansion blades to add the additional (8 to 32) ports. • Includes rack kit for Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSW64-BLADE-8P	Sun 8-Port Expansion Blade	<ul style="list-style-type: none"> • Up to (4) 8-port expansion modules can be added to the SG-XSW64-BASE base. • Order SFP's separately.
QLogic SANbox 5200 16-Port 2Gb Stackable Switch		
Part Number	Description	Details
SG-XSWQLG5200-8P (Last Order Date: 04/14/06 SunWIN# 462432)	QLogic SANbox 16-Port 2Gb Stackable Switch with (8) active ports.	<ul style="list-style-type: none"> • SFP's included for all (16) switch ports. • Comes with (8) ports active, order (1 or 2) of the below 4-port license key to activate an additional (4 or 8) ports. • Includes rack kit for 19" industry standard Non-Sun racks. • The additional slide rail kit below is needed to install switch into Sun Rack 900-38, Sun Rack 1000-38, Sun



		Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWQLG5200-20P (Last Order Date: 04/14/06 SunWIN# 462432)	QLogic SANbox 16-Port 2Gb Stackable Switch with (16) active ports and (4) active 10Gb ISL ports.	<ul style="list-style-type: none"> SFP's included for all (16) switch ports. Comes with all (16) ports active. Includes rack kit for 19" industry standard Non-Sun racks. The additional slide rail kit below is needed to install switch into Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet. If stacking (3) or (4) SG-XSWQLG5200-20P switches together, the long copper 10Gb ISL cable below is needed.
SG-XSWQLG5200-RK	Slide Rail Kit	<ul style="list-style-type: none"> Slide rail kit needed for Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWQLG5200-UPG	QLogic 4-port License Key	<ul style="list-style-type: none"> Up to (2) 4-port license keys can be ordered for the SG-XSWQLG5200-8P QLogic 5200 switch.
SG-XSWQLG5200-CBL	Long Copper 10Gb ISL Cable	<ul style="list-style-type: none"> (1) needed when stacking (3) SG-XSWQLG5200-20P switches. (3) needed when stacking (4) SG-XSWQLG5200-20P switches.
Brocade 200E 16-Port 4Gb Switch		
Part Number	Description	Details
SG-XSWBRO200E-8P-Z	Brocade 200E 16-Port 4Gb Switch with (8) active ports and (8) shortwave SFP's, with full fabric capability enabled. (RoHS Compliant)	<ul style="list-style-type: none"> Comes with (8) ports active, order (1 or 2) of the below 4-port license keys to enable the additional (4 or 8) ports. Order rack kit separately.
SG-XSWBRO200E-8P (Last Order Date: 05/26/06 SunWIN# 466018)	Brocade 200E 16-Port 4Gb Switch with (8) active ports and (8) shortwave SFP's, with full fabric capability enabled.	<ul style="list-style-type: none"> Comes with (8) ports active, order (1 or 2) of the below 4-port license keys to enable the additional (4 or 8) ports. Order rack kit separately.
SG-XSWBRO200E-NE-Z	Brocade 200E 16-Port 4Gb Switch with (8) active ports and (8) shortwave SFP's, with full fabric capability not enabled. (RoHS Compliant)	<ul style="list-style-type: none"> Comes with (8) ports active, order (1 or 2) of the below 4-port license keys to enable the additional (4 or 8) ports. Order rack kit separately.
SG-XSWBRO200E-8PNE (Last Order Date: 05/26/06 SunWIN# 466018)	Brocade 200E 16-Port 4Gb Switch with (8) active ports and (8) shortwave SFP's, with full fabric capability not enabled.	<ul style="list-style-type: none"> Comes with (8) ports active, order (1 or 2) of the below 4-port license keys to enable the additional (4 or 8) ports. Order rack kit separately.
SG-XSWBRO200E-UP-Z	(1) Brocade 200E 4-port license key, with (4) shortwave SFP's. (RoHS Compliant)	<ul style="list-style-type: none"> Up to (2) 4-port license keys can be ordered for the SG-XSWBRO200E-8P-Z, SG-XSWBRO200E-8P, SG-XSWBRO200E-NE-Z, SG-XSWBRO200E-8PNE bases.
SG-XSWBRO200E-UPG (Last Order Date: 05/26/06 SunWIN# 466018)	(1) Brocade 200E 4-port license key, with (4) shortwave SFP's.	<ul style="list-style-type: none"> Up to (2) 4-port license keys can be ordered for the SG-XSWBRO200E-8P-Z, SG-XSWBRO200E-8P, SG-XSWBRO200E-NE-Z, SG-XSWBRO200E-8PNE bases.



SG-XSWBRO3X50-RK-Z	Brocade 200E Rackmount Kit (RoHS Compliant)	<ul style="list-style-type: none"> For use with Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWBRO3X50-RK (Last Order Date: 05/26/06 SunWIN# 466018)	Brocade 200E Rackmount Kit	<ul style="list-style-type: none"> For use with Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
Brocade 4100 32-Port 4Gb Switch		
Part Number	Description	Details
SG-XSWBRO4100-16-Z	Brocade 4100 32-Port 4Gb Switch with (16) active ports. (RoHS Compliant)	<ul style="list-style-type: none"> Comes with (16) ports active, order (1 or 2) of the below 8-port license keys to enable the additional (8 or 16) ports. Order SFP's separately. Includes rack kit for use with Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWBRO4100-16P (Last Order Date: 05/26/06 SunWIN# 466018)	Brocade 4100 32-Port 4Gb Switch with (16) active ports.	<ul style="list-style-type: none"> Comes with (16) ports active, order (1 or 2) of the below 8-port license keys to enable the additional (8 or 16) ports. Order SFP's separately. Includes rack kit for use with Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWBRO4100-32-Z	Brocade 4100 32-Port 4Gb Switch with (32) active ports. (RoHS Compliant)	<ul style="list-style-type: none"> Order SFP's separately. Includes rack kit for use with Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWBRO4100-32P (Last Order Date: 05/26/06 SunWIN# 466018)	Brocade 4100 32-Port 4Gb Switch with (32) active ports.	<ul style="list-style-type: none"> Order SFP's separately. Includes rack kit for use with Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWBRO4100-UPG	(1) Brocade 4100 8-port license key	<ul style="list-style-type: none"> Up to (2) 8-port license keys can be ordered for the SG-XSWBRO4100-16-Z or SG-XSWBRO4100-16P base.
Brocade 48000 256-Port 4Gb Switch		
Part Number	Description	Details
SG-XSWBRO48K-ZP-Z	Brocade 256-Port 4Gb Switch with (0) ports (no blade modules). (RoHS Compliant)	<ul style="list-style-type: none"> Order Blade Modules and SFP's separately. Order geo-specific country kit separately. Comes with (0) ports, order (1 to 8) of the below 16-port or 32-port blade modules to configure the appropriate number of switch ports. Includes rack kit for Sun 72" Expansion Cabinet.
SG-XSWBRO48K-ZP (Last Order Date: 05/26/06 SunWIN# 466018)	Brocade 256-Port 4Gb Switch with (0) ports (no blade modules).	<ul style="list-style-type: none"> Order Blade Modules and SFP's separately. Order geo-specific country kit separately. Comes with (0) ports, order (1 to 8) of the below 16-port or 32-port blade modules to configure the appropriate number of switch ports. Includes rack kit for Sun 72" Expansion Cabinet.
SG-XSWBRO4GB-M16-Z	(1) Brocade 48000 16-Port 4Gb Blade Module (RoHS Compliant)	<ul style="list-style-type: none"> Up to (8) 16-port blade modules can be added to the SG-XSWBRO48K-ZP-Z base. SFP's not included with blade modules, order separately.
SG-XSWBRO4GB-	(1) Brocade 48000 16-Port	<ul style="list-style-type: none"> Up to (8) 16-port blade modules can be added to the



MOD16 (Last Order Date: 05/26/06 SunWIN# 466018)	4Gb Blade Module	SG-XSWBRO48K-ZP base. • SFP's not included with blade modules, order separately.
SG-XSWBRO4GB-M32-Z	(1) Brocade 48000 32-Port 4Gb Blade Module (RoHS Compliant)	• Up to (8) 32-port blade modules can be added to the SG-XSWBRO48K-ZP-Z base. • SFP's not included with blade modules, order separately.
SG-XSWBRO4GB-MOD32 (Last Order Date: 05/26/06 SunWIN# 466018)	(1) Brocade 48000 32-Port 4Gb Blade Module	• Up to (8) 32-port blade modules can be added to the SG-XSWBRO48K-ZP base. • SFP's not included with blade modules, order separately.
SG-XSWBRO-PWR-01-Z	Brocade 48000 North America Country Kit (RoHS Compliant)	• Order one for each Brocade 48000 Switch, see SunWIN Token#466018 for other geo country kits.
SG-XSWBRO-12000-01 (Last Order Date: 05/26/06 SunWIN# 466018)	Brocade 48000 North America Country Kit	• Order one for each Brocade 48000 Switch, see SunWIN Token#410888 for other geo country kits.
McData 4500 16-Port 2Gb Switch		
Part Number	Description	Details
SG-XSWMD4500-8P (Last Order Date: 04/14/06 SunWIN# 462432)	McData 4500 16-Port 2Gb Switch	• Comes with (8) ports active, order (1 or 2) of the below 8-port activation licenses to enable the additional (8 or 16) ports. • Order SFP's separately. • Includes rack kit for Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42, Sun 72" Expansion Cabinet and Sun Fire Cabinet.
SG-XSWMD4500-UPG	(1) McData 4500 8-port Activation License	• Up to (2) 8-port activation licenses can be ordered for the SG-XSWMD4500-8P base.
McData 6140 140-Port 2Gb Switch		
Part Number	Description	Details
SG-XSWM6140-64P (Last Order Date: 04/14/06 SunWIN# 462432)	(1) McData 6140 140-Port 2Gb Switch with (64) Active Ports	• Comes with (64) ports active, order (1 to 19) of the below 4-port module boards to add an additional (4 to 76) usable ports. • Order SFP's separately. • Includes rack kit, only supported in McData Rack.
SG-XSWM6140-ZP	(1) McData 6140 140-Port 2Gb Switch with (0) Active Ports	• Comes with (0) ports active, order (1 to 35) of the below 4-port module boards to add (4 to 140) usable ports. • Order SFP's separately. • Includes rack kit, only supported in McData Rack.
SG-XSWMD-MOD-4P-2G	(1) McData 4-port Module Board	• Up to (19) 4-port module boards can be ordered for the SG-XSWM6140-64P base. • Up to (35) 4-port module boards can be ordered for the SG-SG-XSWM6140-ZP base. • Order SFP's separately.

Notes:

- One switch port needed for each HBA(port).
- One switch port needed for each FC1202 fibre bridge port.



- Switches, expansion blades, switch modules, module boards do not include SFP's so they will need to be ordered separately. (except QLogic 5200 and Brocade 200E)

Step 8 (Required / Optional) SFP's for the FC Switches

Small Form-factor Pluggable (SFP) transceivers are installed into each switch port and act as adapters to connect fibre cables to storage devices and host bus adapters to the switches. Skip this step if customer already has switches or requests a “direct attached” configuration. Order appropriate SFP and quantity. (see notes)

SFP's for Sun 2Gb, Brocade 2Gb and McData 2Gb Switches (SFP's included with QLogic 5200)		
Part Number	Description	Details
XSFP-SW-2GB	2Gb SFP (shortwave)	• LC connector
XSFP-SW-2GB-4PK	2Gb SFP's (4-pack, shortwave)	• LC connector
SFP's for Brocade 4Gb Switches (SFP's included with Brocade 200E)		
Part Number	Description	Details
XSFP-SW-4GB (RoHS Compliant)	4Gb SFP (shortwave)	• LC connector
XSFP-SW-4GB-4PK (RoHS Compliant)	4Gb SFP's (4-pack, shortwave)	• LC connector
SG-XSWBRO4100-SFP (Last Order Date: 04/14/06 SunWIN# 462432)	4Gb SFP (shortwave)	• LC connector

Notes:

- Quantity (1) SFP needed for each switch port being used.

Step 9 (Required) Fibre Channel Cables

Order appropriate cable(s) and quantity. (see notes)

LC-LC Fibre Cables	
Part Number	Description
X9733A	5-meter Fibre Cable
X9734A	15-meter Fibre Cable
X9736A	25-meter Fibre Cable
X9738A	50-meter Fibre Cable

Notes:

Switch Configuration:

**Using SDLT600, LTO2, LTO3 SCSI Tape Drives with:
2Gb HBA and 2Gb/4Gb Switch**

- Order quantity (1) LC-LC cable (for the HBA port).
- Order quantity (1) LC-LC cable (for the FC1202 fibre port).

Direct Attached Configuration:

**Using SDLT600, LTO2, LTO3 SCSI Tape Drives with:
2Gb HBA direct connect**

- Order quantity (1) LC-LC cable (for the FC1202 fibre port).

Step 10 (Optional) Sun Racks

Choose quantity (1) of one of the below supported Sun racks and appropriate options. (see notes)

Sun Rack 1000-42		
Part Number	Description	Details
SRK-XAZ042A-IP	Sun Rack 1000-42 with PDS	• Order power cord kit separately.
X6828A	Domestic Power Cord Kit (4-pack)	• Order qty (1).



X6826A	Filler Panel Kit (12RU)	• Optional but recommended
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Notes:

- It is not EMI Compliant to have more than (2) “Non-RoHS Compliant” C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) “RoHS Compliant” C4 libraries are installed into a single rack.
- You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Up to (10) C4 libraries can be installed in the Sun Rack 1000-42 (not to exceed 2 Non-RoHS libraries though).
- It is recommended to install rack filler panels in any unused rack space in the Sun Rack 1000-42 for optimum airflow.

Sun Rack 1000-38		
Part Number	Description	Details
SRK-XRS038A-IP	Sun Rack 1000-38 with PDS	• Order power cord kit separately.
X6828A	Domestic Power Cord Kit (4-pack)	• Order qty (1).
X6826A	Filler Panel Kit (12RU)	• Optional but recommended

Notes:

- It is not EMI Compliant to have more than (2) “Non-RoHS Compliant” C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) “RoHS Compliant” C4 libraries are installed into a single rack.
- You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Up to (9) C4 libraries can be installed in the Sun Rack 1000-38 (not to exceed 2 Non-RoHS libraries though).
- It is recommended to install rack filler panels in any unused rack space in the Sun Rack 1000-38 for optimum airflow.

Sun Rack 900-38		
Part Number	Description	Details
SR9-XKM038A-IP	Sun Rack 900-38 with PDS	• Order power cord kit separately.
X6828A	Domestic Power Cord Kit (4-pack)	• Order qty (1).
X6826A	Filler Panel Kit (12RU)	• Optional but recommended

Notes:

- It is not EMI Compliant to have more than (2) “Non-RoHS Compliant” C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) “RoHS Compliant” C4 libraries are installed into a single rack.
- You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Up to (9) C4 libraries can be installed in the Sun Rack 900-38 (not to exceed 2 Non-RoHS libraries though).
- It is recommended to install rack filler panels in any unused rack space in the Sun Rack 900-38 for optimum airflow.

Sun StorEdge 72” Expansion Cabinet		
Part Number	Description	Details
SG-XARY030A (Last Order Date: 04/14/06 SunWIN# 462450)	Sun StorEdge 72” Expansion Cabinet with Sequencers	• Order power cords separately.
X3858A	(1) Domestic Power Cord	• Order qty (2).
X9818A	Front Door	• Optional, not required for L500.

Notes:

- It is not EMI Compliant to have more than (2) “Non-RoHS Compliant” C4 libraries installed into a single rack.
- There are no EMI issues when more than (2) “RoHS Compliant” C4 libraries are installed into a single rack.



- You can mix and match “Non-RoHS Compliant” and “RoHS Compliant” C4 libraries in a single rack as long as you don't exceed (2) “Non-RoHS Compliant” libraries due to the EMI issues.
- Up to (9) C4 libraries can be installed in the Sun StorEdge 72” Expansion Cabinet (not to exceed 2 Non-RoHS libraries though).
- The C4 library has type “A” front to back airflow, so fan tray and air baffle are not needed for the cabinet.

Step 11 (Optional) Tape Media

Either “Barcoded” or “Non-barcoded” media available. Order quantities as needed.

SDLT600 Media	
Part Number	Description
SG-XMEDSDLT2D-20	20-Pack of SDLT600 Non -barcoded Data Cartridges
SG-XMEDSDLTCL-10	10-Pack of SDLT220/SDLT320/SDLT600 Non -barcoded Cleaning Cartridges
LTO2 Media	
Part Number	Description
SG-MEDLTO2-20B	20-Pack of LTO2 Barcoded Data Cartridges <ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled without the completed barcode label order form. • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • “Barcoded media orders are non-cancelable & non-returnable”, this note should be added to every barcoded media quote. • The “LTO2/LTO Barcode Label Order Form” can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)
SG-MEDLTOCL-10B	10-Pack of LTO2/LTO Barcoded Cleaning Cartridges <ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled without the completed barcode label order form. • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • “Barcoded media orders are non-cancelable & non-returnable”, this note should be added to every barcoded media quote. • The “LTO2/LTO Barcode Label Order Form” can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)
SG-XMEDLTO200GB-10	10-Pack of LTO2 Non -barcoded Data Cartridges
SG-XMEDLTOUNVCL-10	10-Pack of LTO2/LTO Non -barcoded Cleaning Cartridges
LTO3 Media	
Part Number	Description
SG-MEDLTO3-20B	20-Pack of LTO3 Barcoded Data Cartridges <ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled without the completed barcode label order form. • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • “Barcoded media orders are non-cancelable & non-returnable”, this note should be added to every barcoded media quote. • The “LTO3/LTO2/LTO2V/LTO Barcode Label Order Form” can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)
SG-XMEDLTO3-10	10-Pack of LTO3 Non -barcoded Data Cartridges
SG-XMEDLTOUNVCL-10	10-Pack of LTO3/LTO2/LTO2V/LTO Non -barcoded Cleaning Cartridges
SG-MEDLTOCL-10B	10-Pack of LTO3/LTO2/LTO2V/LTO Barcoded Cleaning Cartridges



	<ul style="list-style-type: none"> • IMPORTANT NOTE: Orders for barcoded media CANNOT be fulfilled without the completed barcode label order form. • Order form to be provided to customer by sales representative at time of quoting. • Customer must define barcode sequence, library and color scheme. • “Barcoded media orders are non-cancelable & non-returnable”, this note should be added to every barcoded media quote. • The “LTO3/LTO2/LTO2V/LTO Barcode Label Order Form” can be found on the Tape Media Page on located off of the External Tape Storage Guide on the SE Handbook (Xmen)
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Notes:

- Barcoded SDLT600 media is not currently available from Sun.
- The C4 Library does **not** ship with any data or cleaning cartridges.

Step 12 (Optional) Additional Media Magazines

Each C4 library base ships with (2) media magazines so an additional media magazine should not be needed. Order quantity (1), **“Only If”** the customer to use mixed media/drive types in an enclosure. (see notes)

Part Number	Description
SG-XMAGSDLT-C	15-Slot SDLT600 Media Magazine
SG-XMAGLTO-C	18-Slot LTO2/LTO3 Media Magazine

Notes:

- Different drive types **can** be mixed in a library enclosure.
 - ✓ The (2) fixed cartridge slots in the library accommodate SDLT600, LTO2 and LTO3 media cartridges, regardless of C4 base library type (SDLT base or LTO base).
 - ✓ The robotic mechanism in the different library bases is universal and can pick up any cartridge type.
 - ✓ However, the (2) media magazines included in the different C4 library bases are specific to the base type ordered. So, if mixed drive types are desired in the library enclosure then (1) of the optional media magazines (of the opposite type) will need to be ordered and swapped out with one of the media magazines included in the base.

Example: If the C4 “SDLT600” library base is ordered it will include (2) SDLT600 media magazines, and if mixed drive types are desired in the library enclosure then (1) LTO2/LTO3 media magazine will need to be ordered and swapped out with one of the SDLT600 media magazines included in the base.

What Ships with Each Product:

Sun C4 library base units ship with the following items.

Item	Quantity
Sun C4 Tape Library base unit	1
Sun C4 Tape Library Installation Guide	1
Sun C4 Tape Library User's Guide	1
Sun C4 Tape Library a User's Guide CD ROM	1
Sun C4 Tape Library Regulatory Statements	1
Unpack Sun C4 Tape Library Unpacking Instructions	1
Standard power cord (U.S.)	1



Item	Quantity
Rackmount Kit for Sun 900 and Sun StorEdge 72" rack	1
Data Labels are not included within the C4 base Tape Library and are part of the tape drive kits	0

Drives ship with the following items.

Item	Quantity
Tape Drive	1
Drive Installation Guide	1
LVD Drive Terminator	1
SCSI jumper cable	1
Drive filler plates	2
LTO3, LTO2 or SDLT600: Cleaning cartridge labels: Data cartridge labels:	5 40

Fibre Channel cards (referenced in manuals as FC1202) ship with the following items.

Item	Quantity
FC1202 LVD SCSI to Fibre Bridge	1
VHDCI-HD68 pin cables	2
Cat5 Ethernet (crossover) Cable	1
FC1202 Quick Reference Guide	1
FC1202 Documentation CD	1

Sun Upgrade Advantage Program (UAP)

Customers can protect their investment in Sun StorEdge by trading up to a Sun StorEdge(TM) C2 or C4 autoloaders. For C2, customers can trade-in old legacy Sun StorEdge L280, L7, L8, L9, L400, L140 or Non Sun autoloaders and receive up to 7% off the list price of a new C2 autoloader. For C4, customers can trade-in old legacy Sun StorEdge L20/40/60, 11000, L1800, L25 and Non Sun systems and receive up to 8% off a new C4 autoloader.

Note: Trade-in allowances can only be applied to the base and drives only. Any services such as training, maintenance, software or any other hardware component does not receive the allowance.

Customers must return a full system cabinet with all drives. Sun will handle the disposition of older assets for customer at no charge. Please order one RMA Kit (part number UG-RMA) for one for one trade-ins. When consolidating, order one RMA Kit (part number CU-CONSOL-RMA) when multiple systems are being traded-in. RMA kits provide customers instructions on where to return the used residual equipment.

The array being traded-in must be owned by, used by, and in the possession of the customer atleast (90) days prior to trading-in. To qualify for the trade-in allowance, the customer must return within 90 days, a fully functional system with all drives. If trade-in is not returned within 90 days, Sun may bill back and customer agrees to pay promptly the full amount of the trade-in allowance. No credit or return of trade-in equipment will be allowed after expiration of 90 days. For customers who wish to use the online returns web tool or are requesting pickup of traded equipment must do so before their return date. More information on Sun returns can be found at: www.sun.com/ibb/upgrades/sunreturns.html.

Sun Storage Consolidation Trade-in Program

Storage UAP product matrices containing standard upgrade allowance codes are included in the Sun Configuration guide, at <http://ibb.eng/upgrades> or on SunWin:

One for one storage trade-ins	Sun Win Token #94719
Storage Consolidation	Sun Win Token #112445
Component trade-ins	Sun Win Token #108142

To determine the value of the trade-in, apply the allowance to the list price of the Sun StorEdge C2 or C4. The trade-in allowance in addition to the customers contracted discount is all taken off the list price of the base and drives. The value of the trade-in can be reinvested towards the purchase of professional services, support, or additional components.

For additional help on upgrades, IBB representatives are trained and ready to assist you at <http://ibb.eng/org/> or send an email to UAP@sun.com for any help on deals.

Resources:

- Internal IBB Upgrades Home Page: ibb.eng/upgrades
- To find your local IBB sales representative:<http://ibb.eng/org/>
- External IBB Upgrades Home Page: www.sun.com/ibb/upgrades
- Storage Consolidation Calculator: <http://ibb.eng/>



- This tool helps you calculate what is being traded-in and what is being purchased and provides trade-in allowance code.
- Sun Returns: www.sun.com/ibb/uprades/sunreturns.html.

Service and Support

Support Programs

The SunSpectrumSM program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs, ranging from mission-critical support for maximum solution availability to backup assistance for self-support customers. The SunSpectrum program provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the SolarisSM Operating Environment software, and telephone support for SunSM software packages. Customers should check with their local Sun Enterprise Services representatives for program and feature availability in their areas.

SunSpectrum program support contracts are available both during and after the warranty program. Customers may choose to uplift the service and support agreement to meet their business needs by purchasing a SunSpectrum contract. For more information on the SunSpectrum program offerings refer to the following URL: <http://www.sun.com/service/support/sunspectrum/index.html>

The three levels of SunSpectrum support contracts available for the Sun C4 library are outlined below.

Program	Description
Mission-Critical SunSpectrum PlatinumSM Support	Designed to support client-server, mission critical solutions by focusing on failure prevention, rapid recovery and year round technical services planning. Support is provided 24 x 7.
Business-Critical SunSpectrum GoldSM Support	Includes a complete package of proactive and responsive services for customers who require maximum uptime for their strategic business-critical systems. Support is provided 24 x 7.
System Coverage SunSpectrum SilverSM Support	Combines the service expertise, responsive on-site support and technical support by telephone and SunSolve SM CD/on-line services. Support is provided 8 a.m. to 8 p.m. Mon. through Fri.

Warranty

The standard warranty for the Sun C4 library is one year, next business day on-site. Visit the warranty website at: <http://www.sun.com/service/support/warranty/> for more information on Sun hardware warranties.

Education

A product training module is available. This Web-based, self-paced training course is available anytime and anywhere to Sales Reps, SEs, and Channel Partners worldwide at the following URLs.

- **From the MySales Portal (<http://MySales.central/>)**
 1. Go to the "Training" section
 2. Click "Workgroup Products"
 3. Click "Volume Storage Products"



- **From the Partner Portal (<http://channel.sun.com/>)**
 1. Go to "Competency" section
 2. Click "Web-based Product Training"
 3. Click "Production Information" (under "Products and Programs")
 4. Click "Volume Storage Products"

Sun Professional Service

Sun Professional Service Engagement offers a range of Tape Library Implementation Services, which, when combined, deliver a working Sun C4 tape library backup system. Generally speaking, they integrate the hardware and software components together. This provides customers with a platform that can be used to develop and implement their production backup and restore policies. In addition, Sun Professional Service will architect the customer backup solution as part of the workshop, independent from the actual engagement. The Sun Professional Service Engagement Tape Library Implementation Services available include:

- Sun C4 Tape Library Implementation
- Sun StorEdge SAM-FS
- VERITAS NetBackup Implementation
- Solstice Backup Implementation
- VERITAS NetBackup/Solstice Backup Oracle HotBackup Implementation

The services, when combined, address the following customer needs:

- Functional testing of the tape library
- Configuration of either VERITAS NetBackup or Solstice Backup™ software with the backup server system and tape library
- Configuration of Oracle HotBackup software for either VERITAS NetBackup or Solstice Backup
- Functional testing of the backup server with an existing client system using single files of UFS for backup and restores.

The customer deliverables are:

- Tape library tested and functional in a production environment
- Full configuration documentation

Hardware installation is not covered under the Sun Professional Service Engagement Tape Implementation Services. The hardware must be installed prior to this service being performed. Sun Professional Service Engagement Tape Library Implementation Services cover configuration of the tape library, installation and configuration of VERITAS NetBackup or Solstice Backup software and the installation and configuration of Oracle HotBackup for either VERITAS NetBackup or Solstice Backup. Only Oracle backup is addressed by the Sun Professional Service Engagement Tape Implementation Services. Other database offerings can be provided as a separate quote by Sun Professional Service Engagement Services, however.

These services, when combined, provide a basic functional, tested backup and restore platform, but does not develop any policies, procedures, nor is the backup and restore platform ready for full production. Additional service needs that customers may have can be discussed with the Sun Enterprise Support Service Sales Representative.



More information about the Sun Professional Service Engagement Tape Library Implementation Services can be found on the Sun Professional Service Engagement Services web site. Go to the URL:
http://sunps.central/Services/storage/tape_library/index.html

A Statement of Work must be completed and approved by the customer and included with the Sales Quote. This ensures a successful Sun Professional Engagement Tape Library Implementation Service for the customer. The Statement of Work details what activities are performed by Sun Professional Service Engagement Services, the responsibilities of the customer, as well as specific terms and conditions of the service. Contact the local Sun Enterprise Support Service Sales Representative as early in the sales cycle as possible to complete this SOW and to help ensure the included Sun Professional Service Engagement Services can meet customers' needs.

Competition



Competitive Differentiation: C4

	Sun C4	ADIC Scalar 24	ODI Neo 2000
Common Architecture	✓		
Redeployable	✓		✓
Scalability	✓		✓
End-User Implementable	✓		
Integrated Management	✓		
COD	✓		
Modular	✓	✓	✓

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Glossary

Actuators	Robotic components that move inside the library to manipulate cartridges. These include the gripper, extension axis, and vertical and horizontal axes.
Arbitrated Loop	Arbitrated Loop is a topology in which host computers and storage devices are connected together with hubs. Hubs may be cascaded to increase the number of loop participants (up to 126). The available Fibre Channel bandwidth of 100 MBPS is shared amongst all of the devices. If four computers were communicating with four separate storage devices on the loop, each connection would be able to sustain approximately 25 MBPS. Because of this sharing, devices must arbitrate for access to the loop before sending data.
Archive	The process of moving data from one medium to another where it is stored for later use.
Autoloader	<p>A peripheral device that contains</p> <ul style="list-style-type: none">• A mechanism for moving cartridges sequentially or under program control• Several storage locations for storage media• One drive capable of reading or writing the media• Interface circuitry <p>When commanded by a host system, autochangers can transport media back and forth between storage locations and the drive residing in the autoloader.</p>
Automatic tape library	A robotic storage and retrieval system for digital linear tape cartridges.
Backup	The process of copying data to a secondary medium for protection in the event that the original copy is lost and needs to be recovered.
Bar code label	The identification label on digital linear tape cartridges.
Bin	A storage receptacle for a tape cartridge.
Compression	A procedure in which data is transformed by the removal of redundant information in order to reduce the number of bits required to represent the data.
Control panel	The panel on the front of the library that contains the Status Display Area, as well as the indicators and control button.
cPCI	The "c" in cPCI stands for compact. PCI connectors on board-level devices can use compact PCI (cPCI) connectors.
Differential	<i>See</i> Single-ended.
DLT	Digital linear tape. Linear tape recording technology (contrasted with helical scan). Digital linear tape technology segments tape media into parallel, horizontal tracks, and records data by running the tape past a stationary head. digital linear tape provides higher performance than helical scan technology.
Fabric	A Fabric requires one or more switches to interconnect host computers with

	storage devices. With a Fabric, the bandwidth is not shared. Each connection between two ports on the switch has a dedicated 100 MBPS.
Fibre Channel	A very high-speed, full-duplex data communications scheme that is optimized to carry large blocks of data, with very low latency (10 to 30 msec.) for both channel-type and LAN-type connections.
GBIC	GBIC stands for Gigabit Interface Converter. It is a removable Fibre Channel transceiver unit that plugs into a socket on a Fibre Channel device. Fibre Channel cables are then plugged into the GBIC. They provide a simple method to switch between the copper signals on the circuit boards of the Fibre Channel devices to an optical signal used to interconnect devices. GBICs are universal in that they can be swapped on many vendors' Fibre Channel devices. Optical GBICs come with two types of lasers, short wave (good for 500 meters) or long wave (good for 10 km). Copper GBICs are also available. They are nothing more than a signal pass through device.
Host	The host computer system acting as controller for the drive.
Host adapter	A device that connects a peripheral device I/O protocol and medium to the computer system's I/O bus.
Host computer	The computer that issues SCSI commands to control the library robotics.
HSM	Hierarchical storage management. A method for keeping infrequently used data in secondary storage, then restoring it automatically when a user calls for the data. The underlying premise behind HSM is that if the most frequently used data is kept in the fastest (primary) storage, most of the time users perceive the overall system performance as if all the data were in fast storage. HSM software transparently "migrates" least frequently used data to more economical media, then restores it automatically as needed. HSM systems can provide users with performance and economy without sacrificing application portability or storage system transparency.
IOPS	Input/output operations per second, a measure of I/O performance usually used to quote random I/O performance.
LCD	Liquid crystal display.
Load	The process in which a drive takes in an inserted cartridge and goes online.
Load port	The operator-accessible component of the library that allows cartridges to be import/export loaded and unloaded into/from the library.
Magazine	A holder for tape cartridges used in robotic handling of media.
MCBF	Mean cycles between failure. An activity-dependent measure of reliability for a robotic cartridge handling system.
MSBF	Mean swaps between failure. A measure of reliability for the robotic cartridge handling system, this is the average expected number of full cartridge exchanges (i.e., the cartridge is unloaded from the digital linear tape drive and placed back into its storage slot, and a new cartridge is removed from its storage slot and loaded into the tape drive) between failures of equipment.
MTBF	Mean time between failure. The average expected time between failures of equipment, usually measured in operating hours.

MTTR	Mean time to repair.
Offline	A drive is offline if a tape is currently unloaded or not in the drive. The host has limited access, and cannot perform any commands that would cause tape motion. The host can, however, load a tape if one is inserted and can execute any diagnostic tests that do not require tape motion.
Online	A drive is online when a tape is loaded. The host has access to all command operations, including those that access the tape, set configurations and run diagnostic tests.
PCI	Peripheral component interconnect. PCI is an industry standard bus used in servers, workstations, and PCs.
Pick	Preparation for placing cartridge in another location.
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.
Robotics	The library robotics consist of the following components: gripper mechanism, vertical actuator, horizontal actuator, and extension actuator.
Storage Area Network	A SAN is a configuration where servers and workstations are connected to storage in a flexible, scalable high performance, high capacity, managed environment. Fibre Channel products are the core building for SANs.
SBus	An I/O (input/output) bus used with host systems or boards designed according to SPARC™ processor architecture.
SCSI	Small computer system interface. A standard command specification and command set that enables computers and peripherals to communicate with each other. Sun's current of tape drives adhere to the SCSI-2 specification.
SCSI address	The octal representation of the unique address (0-7) assigned to a narrow device, or hexadecimal representation of the unique address (0-15) assigned to a wide SCSI device.
Sequential access	Sequential access devices store data sequentially in the order received. Tape devices are the most common sequential access devices. By contrast, disk drives are direct access devices, where data is stored in blocks, not necessarily sequentially.
Single-ended	SCSI devices can be single ended or differential. Single-ended devices transmit signals by setting a line in the cable to a pattern of high and low voltages in relation to a ground line. Differential devices send signals by swapping over high and low states between two lines. This is more expensive to implement, but reduces interference and allows longer cable lengths. Single-ended and differential devices must not be mixed on one SCSI bus.
StackLink	A mechanism that connects two or more Sun StorEdge L25 and/or L100 units by enabling cartridges to be passed from a slot in one module to an available drive in another module.
SWIS/S	Single-ended, wide, intelligent SCSI/SBus host adapter.
Termination	A SCSI bus (or cable) can have many devices plugged into it, but the end of the cable furthest from the host computer must always be terminated to avoid signals being reflected back and interfering with other signals. The



terminator both absorbs signals and provides power to the lines in the cable. For this reason, it must itself be provided with power. Terminators can be of two types, active and passive.

Tape library

Type of tape autochanger that allows media to be accessed randomly.

Throughput

A measure of sequential I/O performance, quoted in MB per second. *See* IOPS.

Transfer rate

The rate at which data is transferred from one device to another, for example from the host computer to the tape drive during backup.

Materials Abstract

All materials will be available on SunWIN except where noted otherwise. **Need to update this section**

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
Product Literature – <i>Sun C4 Modular Tape Libraries, Just the Facts</i>	Reference Guide (this document)	Training Sales Tool	SunWIN, Reseller Web	351394
References – <i>Sun C4 Tape Library, Data Sheet</i> – <i>Sun StorEdge Product Family Overview Quick Reference Card</i>	Data Sheet for Product Quick Reference Card	Sales Tool Sales Tool	SunWIN, Reseller Web, COMAC SunWIN	351395 73691
External Web Sites – <i>Sun StorEdge Web Site</i> – <i>Tape Backup Solutions Main Page</i> – <i>Sun C4 webpage</i>	http://www.sun.com/storage http://www.sun.com/storage/tape.html http://www.sun.com/storage/tape/125/index.html			
Internal Web Sites – <i>Network Storage Web Site</i> – <i>Installation Information</i>	http://webhome.ebay/networkstorage/products http://gets.central			



Internal Information

Sun Proprietary — Confidential: Internal Use Only

The information in this section is for internal use only and is to be distributed on a need to know basis only.

Future/Roadmap

Please refer to the “Product Availability Matrix” for tape drive technology information.

Contact the product manager for additional details, as needed.

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Data Management Group