StorageTek SL8500
Modular Library System

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If your storage requirements are rapidly outpacing your IT budget, you probably need to simplify your data access strategy while maintaining current staff levels. Oracle's StorageTek SL8500 modular library system is the foundation of this strategy. With the StorageTek SL8500, your organization can streamline its operations while maximizing availability and compliance—all with minimal cost and disruption but with a maximum of security and flexibility.

Meet Data Growth Head On

StorageTek SL8500 is the world's most scalable tape library, accommodating growth up to 857 PB native (or 2.1 EB with 2.5:1 compression), making it an extremely flexible and compact option for intelligent archiving of vital corporate information. This should come as no surprise, given that Oracle archives more data than any other company in the world.

Because scheduled downtime is unacceptable in many enterprise data centers, the StorageTek SL8500 offers the industry-leading ability to grow while operating. The system's RealTime Growth feature means that additional slots and drives—and the robotics to serve them—can be added while the original StorageTek SL8500 modular library system continues to operate. Capacity-on-demand capability further allows you to tap into physical capacity incrementally, so you can grow at your own pace and pay only for the capacity you need. Thus, with the StorageTek SL8500 you can scale to accommodate future growth—adding capacity and performance without disruption.

To meet the high-performance needs of your enterprise data center, each StorageTek SL8500 library is equipped with four or eight robots working in parallel to provide a multithreaded solution. This reduces queuing, especially during peak work periods. As the system scales, each additional StorageTek SL8500 added to the aggregate system comes equipped with more robotics, so the performance can scale to stay ahead of your requirements as they grow. Additionally, with the StorageTek SL8500 modular library system's unique centerline architecture, drives are kept in the center of the library alleviating robot contention. Robots travel one-third to one-half the distance required by competitive libraries, improving cartridge-to-drive performance. For customers with high-volume import/export requirements, our new bulk

KEY FEATURES

A COMPREHENSIVE, HIGHLY SCALABLE STORAGE SOLUTION

- Highest scalability and performance on the market with capacity up to 2.1 EB in a single complex with use of Oracle's StorageTek T10000D tape drive (assumes 2.5:1 compression)

- Connect up to 32 library complexes for up to 67 EB of storage, behind a single library control interface (assumes 2.5:1 compression)

- RealTime Growth capability for nondisruptive addition of slots, drives, and robotics to handle increased workloads

- Easy consolidation with flexible partitioning and Any Cartridge Any Slot technology for seamless mixed media support

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- Share across environments, including mainframe and open systems
- Industry-leading availability with redundant and hot-swappable robotics and library control cards
- Eco savings with 50 percent less floorspace and reduced power and cooling

cartridge access port (CAP) improves import/export capacity by 3.7x and performance by up to 5x. Optimize Your Environment

To help your storage dollars go further, the StorageTek SL8500 modular library system offers the most flexible solution for partitioning, sharing, and managing. Native physical partitioning requires no extra hardware or software. You can create up to 8 partitions in a single library or 16 partitions in a complex; assign them for mainframe and/or open systems use; and address resources in any configuration including noncontiguous resource assignments. With Any Cartridge Any Slot technology, you can seamlessly use the drive types that make sense for your access and storage needs—there is never a requirement to replace slots or to add special drive frames to accommodate different technologies. Choose capacity-centric StorageTek T10000 tape drives or Linear Tape Open (LTO) tape drives.

The StorageTek SL8500 system can be shared across heterogeneous environments, such as Oracle Solaris, Linux, AS/400, mainframe, UNIX, and Windows NT environments, so you can easily match the library configuration to your backup requirements. What's more, with Oracle's StorageTek Virtual Storage Manager System, you can use your library in a virtual enterprise mainframe environment.

Because multiple libraries can be consolidated into one unit, StorageTek SL8500 also can save on power and cooling. And since floor space is often at a premium, the StorageTek SL8500 system offers very high density, and its space savings grow as it scales. Each capacity module is only 37.5 inches long but adds another 1,728 slots to the system.

Achieve 24/7 Availability

There is no time for downtime in your demanding enterprise storage environment, so the StorageTek SL8500 system is designed to minimize both unscheduled and scheduled maintenance. The StorageTek SL8500 system offers the highest level of component redundancy to support your 24/7 environment. Drives, power supplies, library control cards, and robotics are hot swappable. With redundant robotics and an integrated service safety door, the library can continue to operate while a failed robot is replaced. The service door is built into the library, so it does not require an outage to engage it. Dedicated TCP/IP with optional dual or multicontrol path technology provides control path failover. Yet to obtain the highest level of availability, redundant and hot-swappable library control cards minimize both planned and unplanned library outages.

To reduce the financial and legal risk associated with data loss, Oracle also offers solutions to protect data onsite, offsite, and in transit. StorageTek library media validation supporting the StorageTek T10000 tape drives' Data Integrity Validation feature can periodically scan your data archives, ensuring the integrity of your data throughout its lifecycle. Oracle's StorageTek VolSafe tape cartridge and secure media technology, which provides write-once, read-many (WORM) capability, is available for the StorageTek T10000 tape drives. StorageTek VolSafe tape cartridge technology complies with strict electronic storage regulatory and legal requirements. WORM-capable media also is available for LTO tape drives.

The StorageTek SL8500 system also works with Oracle Key Manager, an appliance that provides a simple, centralized, scalable solution for managing the keys used to encrypt

and decrypt data written by tape drives. The platform-independent Oracle Key Manager complies with Federal Information Processing Standards Publications (FIPS PUBS) 140-2 and runs without regard to application, operating platform, or primary storage device.

Manage with Ease

Managing tape storage has never been easier. Oracle's StorageTek Tape Analytics software simplifies tape storage management because it takes a proactive approach to eliminate library, drive, and media errors thorough an intelligent monitoring software application available exclusively for Oracle's StorageTek tape libraries. A proactive approach to managing the health of a tape environment improves the performance and reliability of existing tape investments and helps executives make informed decisions about future expenditures.

StorageTek Tape Analytics software provides tape storage customers with access to leading-edge tape monitoring software that goes far beyond exposing a red, yellow, or green indicator. Rather, StorageTek Tape Analytics software provides insights into more than 370 detailed drive, media, and library health attributes that empower tape storage administrators to make proactive decisions about their tape environments prior to device failures.

For advanced tape management capabilities, Oracle's StorageTek Automated Cartridge System Library Software (StorageTek ACSLS) eases the administrative burden of managing complex tape environments by centralizing library management. Manage up to 67 EB behind a single library control interface by connecting to 32 library complexes (assumes 2.5:1 compression). With StorageTek ACSLS you can consolidate your library resources, optimize library performance, and fully utilize your available storage capacity. Through dynamic configuration capabilities and the queuing of commands during short-term outages, StorageTek ACSLS reduces downtime.

Engage the Storage Experts

Oracle Advanced Customer Support Services helps you address storage challenges by delivering installation, configuration, optimization, and ongoing monitoring and tailored support. Oracle service professionals help you achieve the highest levels of system performance and availability with diagnostic and monitoring tools that help anticipate,

identify, and remediate any potential issues. Oracle service experts help you realize more value from your storage infrastructure—with less disruption to your business. For more information, contact your Oracle representative, email acsdirect_us@oracle.com, or visit oracle.com/acs.

StorageTek SL8500 Modular Library System Specifications

	StorageTek SL8500 Modular Library System (Base Configuration)	StorageTek SL8500 Modular Library System (Complex Configuration)
Performance		
Throughput per hour, native (uncompressed)[2]	StorageTek T10000D[1] (64 drives, 252 MB/sec) – 58.1 TB/hr.	StorageTek T10000D[1] (640 drives, 252 MB/sec) – 580.6 TB/hr.
	LTO 7 (64 drives, 300 MB/sec) – 69.1 TB/hr.	LTO 7 (640 drives, 160 MB/sec) – 691.2 TB/hr.
	LTO 6 (64 drives, 160 MB/sec) – 39.6 TB/hr.	LTO 6 (640 drives, 160 MB/sec) – 368.64 TB/hr.
Audit time (with redundant HandBots)	<12 min.	<40 min.
Average cell-to-drive time	<11 sec per HandBot	<11 sec per HandBot
Capacity		
Capacity, native (uncompressed)[2]	StorageTek T10000D[3] (2,000carts, 8.5 TB/cart) – 17 PB	StorageTek T10000D[3] (100,000 carts, 8.5 TB/cart) – 850 PB
	LTO 7 (2,000carts, 6.0 TB/cart) – 12 PB	LTO 7 (100,000 carts, 6.0TB/cart) – 600 PB
	LTO 6 (2,000 carts, 2.5 TB/cart) – 5 PB	LTO 6 (100,000 carts, 2.5 TB/cart) – 250 PB
Number of cartridge slots	Starts at 2,000 customer-usable slots	100,000 customer-usable slots
Number of tape drives/types	• *Up to 64 drives of any combination of supported drives, including* • *StorageTek T10000: Fibre Channel and FICON LTO: Fibre Channel*	• *Up to 640 drives of any combination of supported drives, including* • *StorageTek T10000: Fibre Channel and FICON LTO: Fibre Channel*
Cartridge access port (CAP)	288 CAP slots	Up to 2,880 CAP slots
Availability		
Nondisruptive serviceability	PDU (optional 2N), DC power supplies, tape drives, redundant robotics, and library control cards	
Mean exchanges/swaps between failures (MEBF/MSBF)	2,000,000 per HandBot	
Library hardware availability	0.99996 (Includes 2N power, redundant robotics, and redundant library electronics)	
Compatibility		
Supported host platforms	A wide variety, including Oracle Solaris, z/OS, AS/400, AIX, HP-UX, Windows, Linux; please check with your Oracle account rep for your specific environment.	
Robotics control interfaces	TCP/IP (IEEE 802.3, 100BASE-T, half-duplex)	
Any Cartridge Any Slot technology	Any supported cartridge type can be placed in any cell; no partitions or special drive or cartridge frames are required.	
Management		
Oracle's StorageTek Library Console software	TCP/IP remote monitoring is standard. Touchscreen operator panel is optional.	
Digital vision system	A unique digital vision camera system performs continuous calibration and reads barcodes.	
Continuous automation calibration	No periodic maintenance or alignment is required.	
Automatic self-discovery	All drives, media types, slots, and CAPs have auto-discovery and auto-configuration.	

Mechanical (library)

Height	93.15 in. (236.6 cm)	93.15 in. (236.6 cm)
Depth	109 in. (276.9 cm)	296.5 in. (753.1 cm)
Width	67.3 in. (170.8 cm)	733.3 in. (1,862.5 cm)
Weight (library only)	3,300 lb. (1,497 kg)	77,894 lb. (35,339 kg)

Environmental

Temperature (operating)	+60°F to +90°F (+16°C to +32°C)
Temperature (nonoperating)	+50°F to +104°F (+10°C to +40°C)
Relative humidity (operating)	20% – 80%
Relative humidity (nonoperating)	20% – 80%

Power

Voltage	Choice of 220 VAC to 240 VAC @ 50 Hz–60 Hz three-phase (Delta or Wye) or single-phase—optional redundant inputs of any of the above
Drives	Drive power consumption varies (refer to individual drive specifications)
Power consumption/dissipation	Varies by configuration

Regulatory Compliance

Safety	UL 60950-1; CAN/CSA-C22.2 No. 60950-1; EN/IEC 60950-1, -23
Emissions	FCC (47 CFR 15, Subpart B) Class A; CE (EN55022 Class A, EN61000-3-2, EN61000-3-3); VCCI V-3 Class A; ICES-003 Class A, KN22 Class A, and AS/NZS CISPR22 Class A
Immunity	EN55024, KN24, and CISPR24

[1]StorageTek T10000D measured as native sustained throughput.

[2]Only currently sold drives are listed, however the following drives are also compatible with the StorageTek SL8500 modular library system: StorageTek T10000A/B/C, StorageTek T9840A/B/C/D, StorageTek T9940B, StorageTek LTO 2/3/4/5, StorageTek DLT-S4, and StorageTek SDLT 600.

[3]Assumes use of StorageTek T10000 maximum capacity feature, which supports up to 8.5 TB per cartridge on StorageTek T10000D. Without the feature enabled, each cartridge supports 8 TB native capacity on StorageTek T10000D.

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Oracle is committed to developing practices and products that help protect the environment