



Sun StorageTek™ 9985 System

Datacenter-Class Availability and Functionality in a Flexible Package



Today, staying competitive means managing risk and keeping pace with the constant growth of data. In an era where information is shared at lightning speed, you can't afford to lose access to your data, even for a short time. To ensure that you stay up and running, you need to store and protect your data so that it's available when and where you need it. Many organizations have standardized on datacenter-class storage systems, but now need more flexible deployment options.

A building block for the high-end datacenter

To that end, Sun offers the Sun StorageTek™ 9985 system, delivering all the benefits of the Sun StorageTek™ 9990 system in a smaller more flexible, modular package. The StorageTek 9985 system provides an excellent foundation for complex data management needs, and complements the StorageTek 9990 system in an overall DLM strategy. For divisions or locations that don't require the scalability of the StorageTek 9990 system, the StorageTek 9985 system leverages the same crossbar architecture, microcode, and software — at a lower cost of entry. The StorageTek 9985 system delivers market-proven reliability and availability, as well as compatibility with the same software and management tools as the StorageTek 9990 system. Additionally, for customers who want to upgrade the technology of their Sun StorageTek™ 9970 systems, the StorageTek 9985 system is a compelling choice, providing improved performance, capacity, scalability, and manageability.

Datacenter features in a flexible, modular package

What sets the StorageTek 9985 system apart from the rest of the StorageTek 9900 series is its modular packaging, enabling more deployment options without sacrificing advanced functionality. Virtualization software supports management of multiple storage systems as a single unit. Logical

partitioning allows the allocation of disks, cache, and I/O to a particular customer or application, enabling organizations to meet service-level agreements. Advanced remote replication enables fast, complex disaster recovery through disk-based journaling and pull technology, for greater data reliability. And the system's WORM (write-once, read-many) capability enables data retention and regulatory compliance, protecting data by

Highlights

- The same crossbar architecture, software, microcode, connectivity protocols, and key components as the Sun StorageTek™ 9990 system, in a smaller modular package
- Storage virtualization supports data lifecycle management (DLM) by enabling multiple storage systems to be managed as one, creating a tiered storage infrastructure
- Logical partitioning allocates cache, disks, and I/O to specific applications and helps organizations meet service-level agreements
- Remote replication with disk-based journaling and pull technology for fast, reliable disaster recovery; multi-datacenter support and link failure mitigation; and workload management to reduce primary-system resource usage
- WORM (write-once, read-many) capability to protect data by making it nonerasable and non-writable, for data retention and compliance requirements



making it nonerasable and noncorruptible. In addition, the StorageTek 9985 system also delivers the multiprotocol connectivity required in many large datacenters, including support for mainframe connectivity (FC, NAS, FICON, and ESCON).

The StorageTek 9985 system supports Sun Fire™ servers, as well as the HP 9000 family, IBM 6000 SP, and P series, IBM Mainframes, Compaq AlphaServer, SGI Origin2000, and many more. In addition, the system supports most operating systems, including the Solaris™ Operating System, HP UX, HP True 64, IBM AIX, SGI IRIX, Linux®, Novell Netware, Microsoft Windows, and IBM z/OS.¹

Software choices to optimize your storage system

To ensure their data is protected, highly available, and easy to manage, organizations need software that can optimize your storage system. The StorageTek 9985 system utilizes all the same software of the StorageTek 9990 system, including the Universal Volume Manager for storage virtualization, Virtual Partitioning Manager for resource allocation, Tiered Storage Manager for data lifecycle management and both Universal Replicator and Truecopy for complex business continuity and disaster recovery plans.

Sun StorageTek™ 9900 Universal Volume Manager

Simplified management is a key component of large-scale data storage. The StorageTek 9900 Universal Volume Manager software allows you to virtualize and manage multiple storage systems connected to the StorageTek 9985 system under a single point of control. Using Universal Volume Manager, you can manage mixed storage systems from Sun and other vendors as if they were all one system. External storage volumes form a shared storage pool that can be used by multiple servers and multiple applications.



The Sun StorageTek 9985 system: Front and rear views.

Sun StorageTek™ 9900 Virtual Partitioning Manager

Sun StorageTek 9900 Virtual Partitioning Manager software enables the logical partitioning of ports, cache, and disk capacity on a StorageTek 9985 system and any attached, virtualized systems to create up to eight independently managed Virtual Private Storage Machines. Virtual Private Storage Machines create separate, dedicated storage resources for specific users, servers, or applications. StorageTek 9900 Virtual Partitioning Manager allocates storage resources based on business requirements and priorities, and allows you to update the allocation as needed, helping ensure the most efficient allocation of resources and enabling organizations to meet service-level agreements. To the host, partitions appear as individual, independently managed storage systems. Access to partitions is secure because administrators can only configure and manage resources within their assigned partitions.

Sun StorageTek™ 9900 HiCommand Tiered Storage Manager

Sun StorageTek 9900 HiCommand Tiered Storage Manager lets you store and manage data according to its current business value, storing it on the appropriate media, or tier, to satisfy quality of service and cost requirements as they change over time. A critical piece of information included in an online transaction, for example, becomes less important when the transaction is complete. The Tiered Storage Manager enables administrators to easily match price, performance, and availability needs to storage system characteristics. This software manages and automates the movement of data into the correct tier according to cost, performance, data protection, and business requirements.

Sun StorageTek™ 9900 Universal Replicator

Replication of data is key to business continuity, maximizing uptime and enabling disaster recovery. The ability to replicate effectively in any environment over any distance without

data loss is critical. The StorageTek 9900 Universal Replicator goes beyond traditional replication to achieve unmatched data protection. Delivering the ability to asynchronously replicate over any distance in a heterogeneous environment, this software represents a technological breakthrough that enables you to significantly lower the cache and resource consumption of the primary storage system.

You can use this software, for example, to replicate from a StorageTek 9990 system to a StorageTek 9985 system, regardless of the distance. The software uses performance-optimized disk-based journaling and a pull-style replication engine to help mitigate link failures, preventing data loss even in the event of a communications breakdown. This software also helps you to improve bandwidth utilization and optimize your resource usage.

Sun StorageTek™ 9900 TrueCopy

Remote Replication

Sun StorageTek 9990 TrueCopy Remote Replication software automates the data recovery process, so that in case of an interruption, business operations can resume in a matter of seconds. With both synchronous and asynchronous capability, TrueCopy replicates data independent of the host, over any distance, without affecting application performance for data duplication, backup and disaster recovery. Whether an interruption is a planned test or an unexpected disruption, StorageTek 9900 TrueCopy Remote Replication software reduces recovery time by using continuously available online copies. This software facilitates regulatory compliance, reduces the frequency and duration of planned maintenance outages, and improves business resilience by enabling nondisruptive testing. The synchronous replication of StorageTek 9900 TrueCopy Remote Replication software complements

StorageTek 9900 Universal Replicator software to help you achieve advanced multi-datacenter replication, with up-to-date copies of data in various locations.

Sun StorageTek™ 9900 ShadowImage In-System Replication

StorageTek 9900 ShadowImage In-System Replication software uses high-speed, non-disruptive local mirroring to rapidly create multiple copies of mission-critical data within all StorageTek 9900 series systems, in both mainframe and open-system environments. This software keeps your data RAID-protected and fully recoverable, simplifying and speeding the recovery process. Its consistency-group function provides multi-volume, point-in-time copies of applications and databases. Through its Quick Restore feature, it reduces recovery time from data corruption. ShadowImage can handle large data volumes without affecting performance, creating copies for backup, testing, and data mining without impacting revenue-generating applications. ShadowImage reduces testing time and increases competitive advantage by facilitating information sharing within the organization and providing always-available copies of current production data. Space-efficient copies can be created by using the copy-on-write (COW) feature.

Sun StorageTek™ 9900 HiCommand Device Manager

Sun StorageTek 9900 HiCommand Device Manager software allows you to manage all StorageTek 9900 series systems and any other storage products that comply with the Storage Management Initiative Specification (SMI-S) from a single, central platform. It enables users to logically organize and manage storage to reflect the needs of different organizations or departments. This software provides an immediate view of available storage and current usage, enabling easy deployment of storage resources according to

current needs. It simplifies automation of data management and configuration — improving organizational operations. Sun StorageTek 9900 HiCommand Device Manager software helps mitigate risk by allowing automated failover and providing quick access to complementary products. By reducing training costs and allowing single-point administration, this software can help reduce operational costs.

Sun StorageTek™ 9900 HiCommand Tuning Manager

Sun StorageTek 9900 HiCommand Tuning Manager software maps, monitors, analyzes, and reviews storage network resources. This software provides an intuitive, Web-based interface that enables forecasting of future storage needs. StorageTek 9900 HiCommand Tuning Manager software integrates seamlessly with key business applications such as Oracle® and Microsoft SQL to facilitate consolidation of storage resource management procedures. Fully integrated with StorageTek 9900 HiCommand Device Manager, it can help reduce total cost of ownership by improving storage performance, capacity management and maximizing storage utilization.

Sun StorageTek™ 9900 Storage Area Management (SAM) Suite

The Sun StorageTek 9900 Storage Area Management (SAM) suite is a comprehensive, application-oriented suite of components that allows you to manage the performance and capacity of your entire storage infrastructure. This suite manages users' StorageTek 9900 series system's performance and functionality according to their specific business needs. The suite's management modules visually render and administer your entire data infrastructure as a shared utility, supporting multiple-vendor storage systems, switches, servers, host bus adapters, and file systems that serve business applications. Centralized control of the multivendor

storage environment enables you to rapidly deploy applications and ensure their availability, reduce errors and operational costs, maximizing return on current and future storage investments, while enhancing the simplified management of heterogeneous storage environments.

Sun StorageTek 9985 System Specifications

System performance

System I/Os	2.5 M/s
Aggregate internal bandwidth (max. config.)	12 GB/s (8.5 GB/s data, 3.6 GB/s control)

System capacity

Internal storage (with 300 GB drives)	72 TB
Number of disks (with spares)	Five to 240
Hot spares (maximum)	One to four
RAID levels	1, 1+0, 5, 6
External storage support (total)	16 PB

Maximum internal raw capacity

300 GB, 10K-rpm drives	69.0 TB
146 GB, 15K/10K-rpm drives	34.5 TB
73 GB, 15K-rpm drives	17.2 TB

Usable capacity for RAID 5 (max.) with 300 GB drives

Open systems	56.5 TB
z/OS compatible	53.0 TB

Usable capacity for RAID 1+ (max.) with 300 GB drives

Open systems	34.0 TB
S/390 compatible	29.6 GB

Data cache

Cards	One
Base memory	Four GB
Maximum memory	64 GB

Control memory

Control memory	Up to six GB
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Logical device support

Open Systems	Up to 16,384
z/OS	Up to 65,536

Virtual partition volumes

Private virtual storage machines	Up to eight
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Front-end directors

Number of front-end directors	One to two
Number of simultaneous data transfers	Up to 16 or 32 per front-end director
Interface speed (Fibre Channel)	One, two, or four Gb/s

Physical interfaces

Maximum (redundant pairs)	
Fibre Channel	16-48
ESCON	0-16
FICON	0-16
NAS blades/ports	0-1/0-8

Back-end directors

Number of back-end directors	One
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Power

AC input, one phase	60 Hz: 200 V, 208 V or 230 V
	50 Hz: 200 V, 220 V, 230 V or 240 V

Environment

Heat	1.67 kW
Power	1.86 kVA

Dimensions (Integrated controller/array, or array rack)

Height	192.0cm (75.53 in.)
Width	61.0cm (24.0 in.)
Depth	92.5cm (36.39 in.)
Weight (max.)	158-251 kg (348-554 lbs.)

Learn More

Contact a sales representative for more information.
Or visit Sun on the Web at: sun.com/storage/highend.

Software

Storage virtualization and DLM	Sun StorageTek 9900 Universal Volume Manager Sun StorageTek 9900 Virtual Partitioning Manager Sun StorageTek 9900 Tiered HiCommand Storage Manager
Business continuity, disaster recovery, and data movement	Sun StorageTek 9900 Universal Replicator Sun StorageTek 9900 TrueCopy Replication Sun StorageTek 9900 ShadowImage In-System Replication Sun StorageTek 9900 Business Continuity Manager Sun StorageTek 9900 Volume Migration Software Sun StorageTek 9900 FlashCopy
Data protection	Sun StorageTek 9900 Data Retention Utility
Storage management	Sun StorageTek 9900 HiCommand Device Manager Sun StorageTek 9900 HiCommand Tuning Manager Sun StorageTek 9900 Dynamic Link Manager Sun StorageTek 9900 SAM Suite

Operating system support ⁽¹⁾

Open systems	Solaris OS 7, 8, 9, 10 HP-UX IBM AIX Microsoft Windows NT Microsoft Windows 2000; Microsoft Windows 2003 Compaq Tru64 UNIX® IRIX Novell NetWare Red Hat Linux Enterprise
Mainframe	OS/390 MVS/ESA MVS/XA TPF/MPLF VM/ESA VM/XA VM/HPO VSE/ESA VSE/SP; Z/OS Linux for Z Series
Host failover and alternate path	SunCluster™ 3.0 and 3.1 VERITAS ClusterServer HP MC/ServiceGuard IBM HACMP Microsoft Cluster Server Novell Cluster Server TruCluster

Warranty/service

Warranty	Three years coverage Year one: next day on-site response Years two and three: parts exchange Business hours phone support
Installation service	Sun StorageTek 9900 Installation Service (included)
Service upgrades	SunSpectrum™ service upgrades are available

¹ Consult a Sun sales and systems engineering representative for the latest information regarding supported operating systems and servers.