

Sun StorEdge™ 9970 and 9980 Systems

High-end data center storage solution for massive consolidation.



Simplified infrastructure and management

Easy to operate and control, with powerful tools for configuring, tuning, and monitoring the system.

Exceptional performance

Unique crossbar switch architecture optimizes performance with 128-GB cache and 15.9-GB/sec bandwidth.

Extreme availability

Instant access to continuously protected data—no single point of failure.

Massive scalability

Systems scale in performance, connectivity, and capacity, accommodating more than 1000 drives.

Today's enterprise-critical data services require 24x7, non-disruptive systems availability—keeping your business up and running is everything. That's what Sun StorEdge™ 9970 and 9980 systems are all about. These storage systems provide a second-generation crossbar switch architecture that delivers exceptional performance and availability that scales with capacity and connectivity. The systems' virtualization capabilities allow for more flexibility in configuring your SAN infrastructure, enabling greater connectivity for supporting storage consolidation. And with proactive maintenance service with call-home capability and prompt support by mission-critical support centers worldwide, Sun StorEdge 9970 and 9980 systems make an excellent solution for the high-end data center.

The Sun StorEdge 9970 and 9980 systems deliver the highest levels of availability and performance for data center environments.



High-performance, massively scalable, highly available storage systems for extreme storage consolidation.

For a storage solution to deliver the availability, performance, and low total cost of ownership that customers demand, it has to be an integral part of the end-to-end IT infrastructure. Sun StorEdge™ 9970 and 9980 systems bring together next-generation, highly available hardware platforms and a wide array of integrated data- and storage-management software.

Sun StorEdge 9980 System

For companies that need the highest levels of performance and capacity for large-scale storage consolidation and demanding data-intensive applications, the Sun StorEdge 9980 system is the ideal solution. This scalable storage system has a base configuration consisting of two frames: the Control Frame, which contains the cache and switch modules, host and drive interfaces, disk array processors, and the service processor; and the Array Frame, which supports up to 256 disk drives and redundant power supplies. Up to four Array Frames can be added allowing the Sun StorEdge 9980 system to expand to 1024 drives and providing up to 147.5 TB of raw storage. Physical interfaces can scale to 64 separate Fibre Channel, and 48 interfaces for ESCON and 32 FICON host connections, and as many as 8192 open systems hosts can be accommodated by using SAN switches.

Sun StorEdge 9970 System

For businesses looking for a high-density storage solution in a small data center footprint, the

Sun StorEdge 9970 system is the answer. This storage system is a single-frame configuration that scales to 17.5 TB of raw storage and can accommodate up to 128 disks. ESCON and FICON interfaces can be grown to 24 physical connections, and 48 for Fibre Channel. Only six square feet of floor space is required to install this high-density storage system.

Sun StorEdge 9970 and 9980 System

Business Benefits

Storage Consolidation

- Centralizes storage for lower total cost of ownership
- Supports open systems and mainframe connectivity
- Enables creation of up to 8192 volumes

- Integrates easily into existing SAN infrastructure with the ability to support up to 8192 open systems hosts
- Scales up to 147.5 TB of raw storage
- Prevents I/O-intensive applications from affecting response times

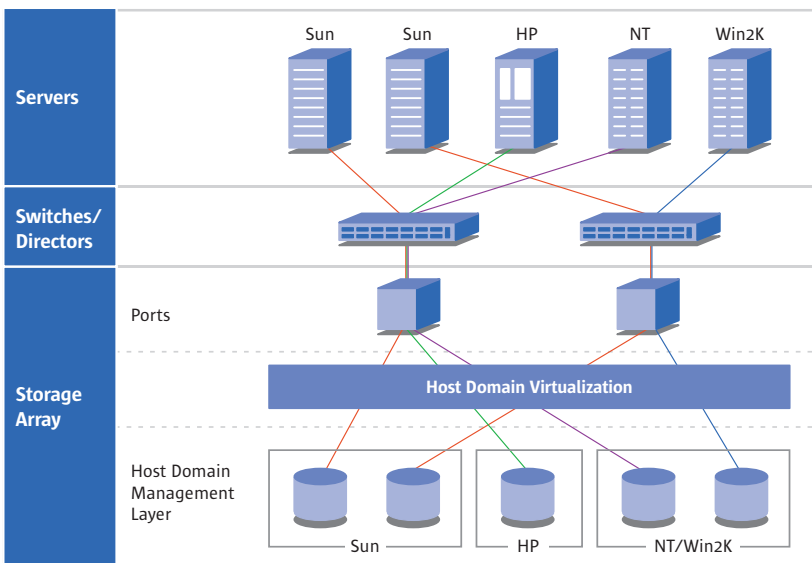
Data Continuation

- Supports point-in-time copy and remote copy for backup and duplication
- Enables asynchronous or synchronous data transmission over long distances via single-mode fibre, dark fibre, or IP
- Implements extensive component redundancy for continuous operation
- Cache data is mirrored and retained up to 48 hours if power fails
- Automatically detects link failures and redirects data traffic to alternate connections

Simplified Management

- Provides simple tools for configuring, tuning, and monitoring the storage system
- Allows hosts with disparate operating systems to share the same physical port, significantly reducing the number of ports needed to interface to a complex SAN
- System administrators can manage more storage systems

Host Domain Virtualization simplifies physical connectivity by significantly reducing the number of ports required to interface with Sun StorEdge 9970 and 9980 systems in a complex SAN.



Data- and Storage-Management Software*Sun StorEdge 9900 Resource Manager Software*

A packaged set of tools that provides simplified storage management, enabling administrators to configure the system and adjust performance to match the application, and allowing them to create, configure, add, and allocate LUNs to certain paths or assign multiple paths to a single LUN. Host access may be restricted to predefined LUNs so that servers in a SAN can share Sun StorEdge 9900 series interfaces. Sun StorEdge 9900 Remote Console-Storage Navigator software allows users to monitor the system from a private LAN.

Sun StorEdge 9900 HiCommand Software

Delivers the framework and tools for allocating and managing storage through a single, easy-to-use GUI. Administrators can configure, monitor, and tune Sun StorEdge 9900 series systems and manage multi-platform hosts centrally.

Sun StorEdge 9900 Dynamic Link Manager Software

Provides host-based, automatic server-path failover and path-load balancing for heterogeneous environments.

Sun StorEdge 9900 Tuning Manager Software

Provides intelligent and proactive monitoring, reporting, and forecasting of storage resources. Tuning Manager helps optimize systems by providing immediate views of the entire infrastructure, including applications, servers, and storage subsystems to accurately forecast trends and storage needs and allocate resources accordingly.

Sun StorEdge 9900 ShadowImage Software

Replicates large volumes of data within the storage system without impacting service levels, timing out, or affecting performance. Volumes can be split from the application and used for uninterrupted system backups, application testing, or data mining.

Sun StorEdge 9900 TrueCopy Software

Provides recovery management capabilities that minimize the impact of downtime and help ensure nonstop access to data. Replicates data within a local data center or between remote data centers, and creates and maintains copies of information for production, disaster recovery, data mining, or migration applications.

Sun StorEdge 9900 Multi-Platform Backup/Restore Software

Fully automates the backup process when centralizing tape backups from multiple platforms.

Sun StorEdge 9900 Performance Monitor Software

Monitors systems and allows users to obtain statistics about workloads on disks and ports.

Sun StorEdge 9900 Extended Remote Copy Software

Provides compatibility with the S/390 XRC product for backups and data replication.

Sun StorEdge 9900 CruiseControl Software

Simplifies management of performance levels by automatically monitoring, analyzing, tuning, and balancing volumes experiencing high activity and forecasting performance levels. Thresholds can be set and approved manually or automatically.

Sun StorEdge 9900 RapidXchange Software

Uses high-speed ESCON and Fibre Channel connections to help improve data exchange between mainframes and open systems hosts.

Sun StorEdge Priority Access Software

Allows users of open systems to designate prioritized ports, or WWNs (for production servers), and non-prioritized ports (for development servers), and set thresholds and upper limits for I/O activity of these ports or WWNs.

Sun StorEdge SANtinel Software

A component of SE9900 Resource Manager software for the SE9970 and SE9980 systems.

Helps ensure security in storage area networking environments through restricted server access. With SANtinel you can deny access to unauthorized users and safeguard your mission-critical information.

Also available:

- Sun Cluster 3.0 software
- Sun StorEdge Traffic Manager software
- Sun StorEdge Utilization Suite software
- Sun StorEdge SAM FS/QFS
- Sun StorEdge Availability Suite software
- Sun StorEdge Performance Suite software
- Sun StorEdge Resource Management Suite software

Sun Services

Sun Services provides true end-to-end support expertise across your entire infrastructure.

Sun StorEdge 9900 Control Centers

Coordinates pre-sales, installation, as well as the coordination of the receipt and problem resolution dispatch for Sun StorEdge™ 9900 Remote Response, providing remote proactive, preemptive, and preventative support for your Sun StorEdge 9900 series systems.

Sun StorEdge 9900 Joint Support Center

Provides co-dedicated Sun and Hitachi Data Systems server, storage and interconnect equipment, as well as personnel to provide joint problem resolution exclusively for Sun StorEdge 9900 customers.

Sun Support Services Solution Centers

Have parts depots and field engineering offices worldwide. These Solution Centers are networked to share best practices and knowledge management that can leverage Sun's expertise and solutions to Sun customers worldwide.

SunSpectrum™ Gold and Platinum Services

Provide access to the VERITAS-Oracle-Sun Joint Escalation Center (VOS JEC) and to Sun's Vendor Integration Program (SunVIP™).

Sun StorEdge™ 9970 and 9980 System Requirements

System Capacity	Sun StorEdge 9980	Sun StorEdge 9970
Number of disks (with spares)	5 to 1024	5 to 128
Hot spares (maximum)	16	4
Total raw capacity		
146 GB, 10,000-rpm drive	147.5 TB	17.5 TB
73 GB, 15,000-rpm drive	74.7 TB	9.3 TB
73 GB, 10,000-rpm drive	74.7 TB	9.3 TB
36 GB, 15,000-rpm drive	36.8 TB	4.6 TB
Usable raw capacity for RAID 5 (max.)	7+1	3+1
Open systems	127.8 TB	15.0 TB
S/390 compatible	119.0 TB	14.1 TB
Usable capacity for RAID 1+ (max.)	4+4	2+2
Open systems	73.0 TB	8.9 TB
S/390 compatible, 73 GB, 10,000-rpm drive	63.5 TB	7.7 TB

Data Cache	Sun StorEdge 9980	Sun StorEdge 9970
Maximum	128 GB	64 GB
Minimum	4 GB	2 GB
Increments	4 GB	2 GB

Shared/Control Memory	Sun StorEdge 9980	Sun StorEdge 9970
	Up to 3 GB	Up to 3 GB

Logical Device Support (theoretical)	Sun StorEdge 9980	Sun StorEdge 9970
Number of devices	Up to 8192	Up to 8192

Client-Host Interface Processors (CHIP)	Sun StorEdge 9980	Sun StorEdge 9970
Number of CHIP pairs	Up to 4	Up to 3
Simultaneous data transfers per CHIP pair	8	8
Physical interfaces per CHIP pair	Up to 16	Up to 16
Interface speed (Fibre Channel)	2 Gb/sec	2 Gb/sec

Physical Interfaces	Sun StorEdge 9980	Sun StorEdge 9970
Maximum (redundant pairs)		
Fibre Channel	0, 8, 16, 24, 32, or 64	0, 8, 16, 24, or 48
ESCON	0, 8, 16, 24, 32, or 48	0, 8, 16, 24, or 32
FICON	0, 8, 16, 24, 32, or 48	0, 8, 16, or 24

Array Control Processor (ACP)	Sun StorEdge 9980	Sun StorEdge 9970
Number of ACP pairs	Up to 4	1 or 2
Disks per ACP pair	Up to 256	Up to 128

Bandwidth	Sun StorEdge 9980	Sun StorEdge 9970
Per fully configured system	15.9 GB/sec (10.6 GB/sec data, 5.3 GB/sec control)	7.9 GB/sec (5.3 GB/sec data, 2.6 GB/sec control)

Environment	Sun StorEdge 9980	Sun StorEdge 9980	Sun StorEdge 9970
	Control Frame	Array Frame	Integrated Control/Array Frame
Heat	2.17 kW	6.61 kW	4.52 kW
Power	2.31 kVA	7.16 kVA	4.87 kVA

Dimensions and Weight	Sun StorEdge 9980	Sun StorEdge 9980	Sun StorEdge 9970
Height	186.0 cm (73.2 in.)	186.0 cm (73.2 in.)	186.0 cm (73.2 in.)
Width (with side panels)	78.2 cm (30.77 in.)	75.0 cm (29.5 in.)	78.2 cm (30.77 in.)
Depth	80.0 cm (31.5 in.)	80.0 cm (31.5 in.)	80.0 cm (31.5 in.)
Weight	553.0 kg (1216.6 lb.)	755.0 kg (1661.0 lb.)	796.0 kg (1752.0 lb.)

Operating System Support	Sun StorEdge 9980	Sun StorEdge 9980	Sun StorEdge 9970
Open systems	Compaq Tru64 UNIX	Solaris™ Operating Environment	HP-UX
			IBM AIX
			Novell NetWare
			Red Hat Linux
			SGI IRIX
			Microsoft Windows 2000
			Microsoft Windows NT
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	Sun™ Cluster 3.0	VERITAS Cluster Server (VCS)–Solaris	HP MC/ServiceGuard
			IBM HACMP
			Microsoft Cluster Server (MSCS)
			Compaq TruCluster
			Novell Cluster Services
			VMS Cluster
			Sun StorEdge 9900 SDLM
			VERITAS Volume Manager/DMP

For additional information on this product, go to www.sun.com/storage/highend

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