Dell Storage SC8000 Array

Enhance your storage efficiency, performance and scalability with the Dell Storage SC8000 array controller. The SC8000 intelligently optimizes drive utilization, reducing total cost of ownership while providing high performance and granular control for large data stores.

The Dell Storage SC8000 seamlessly scales to meet a wide variety of workload requirements for midsize to large deployments. As part of the SC Series line, the SC8000 offers a self-optimizing architecture that responds to real-time data use and provides an advanced multi-tier SSD capability that can revolutionize your all-flash and hybrid-flash performance. With the SC8000, you can achieve performance levels over 300,000 for IOPS sequential reads[1] and over 100,000 IOPS with sub-millisecond latency on OLTP workloads.[2]

Enhance efficiency with resilient hardware

Help control data center operating expenses with Dell-driven efficiency, quality and durability. The SC8000 is a 2U rack chassis, with dual 6-core 2.5GHz Intel® Xeon® processors, built on the Dell PowerEdge™ 12th generation server platform with a custom configuration to support the needs of a midrange data center. The SC8000 offers exceptional power efficiency with dual redundant 80 PLUS® Platinum rated hot-swappable, low wattage power supplies and has six redundant hot-plug fans. Using Fresh Air™ technology, the SC8000 can operate at higher temperatures or even chiller-free environments to help reduce data center costs.

Providing up to five-nines of availability (99.999% availability), the SC8000 keeps critical customer data at the ready.[3] Combining resilient hardware and software with world-class Copilot Support helps businesses realize the continuous data availability critical to their success.

Increase storage optimization with intelligent, automated software

Built-in intelligence autotunes the storage environment, leveraging fully-integrated features for maximum efficiency, flexibility and performance. Empowered by real-time system information about each block of data, Storage Center software optimizes the placement, management and protection of data throughout its lifecycle. Storage is provisioned without wasted capacity. Data is moved where it's needed, when it's needed, automatically tiering between write-intensive and read-intensive SSDs and traditional hard drives for the ideal combination of performance and cost-savings.

At the core of the Storage Center software suite, true storage virtualization pools all resources across the array for maximum efficiency. Thin provisioning, compression and deduplication, as well as space-efficient snapshot technology

help you get more out of your storage investment. Business continuity software provides quick disaster recovery without user disruption. Data-at-rest encryption helps meet stringent compliance requirements, and federation support, with intelligent volume placement, enables the creation of large multiarray configurations under unified management.

Scale on a persistent, open, agile platform

SC8000 scales up to 960 SAS drives per dual controller system and scales-out to multiple systems across multiple sites, controlled by a single console. Simultaneous iSCSI, Fibre Channel (FC) and Fibre Channel over Ethernet (FCoE) front-end interconnect options provide flexibility in your data center.

Unlike systems that require you to rip and replace technology as your business needs change, the SC8000 supports the continual adoption of new technologies. You can easily mix and match SSD, SAS and FC drive technologies, upgrade storage array firmware and build a unified storage solution without worrying about a forklift upgrade. Use any combination of industry-standard technology at any time, adding capacity or making configuration changes without downtime or disruption. Incorporating the latest data center technologies is as simple as plugging in new components on the fly. The SC8000 adjusts automatically, restriping data across all drives and updating the in-flight use characteristics.

Deploying with other SC or PS Series arrays

SC8000 is ideal for both standalone and distributed deployments with SC4020, SC7020 or SC9000 arrays. Management, expansion and drive support options are shared across the portfolio. SC8000 and other SC arrays can now also interoperate and coexist in PS (EqualLogic) environments. Unified day-to-day management and bi-directional replication lets PS customers add SC arrays at any time, extending and increasing the value of either platform investment.

SC8000 technical specifications

Chassis overview	
Controllers	2 (active/active)
Processors	Two 2.5GHz 6-core Intel® Xeon® processors per controller
System memory	64GB per controller (128GB per array)
Operating system	Dell Storage Center OS (SCOS) 6.1 or greater
Expansion capacity	
Min/max drive	6/960 per array, more in federated systems[4]
Max raw capacity (SAN)	3PB per array (SSD or HDD), more in federated systems[4]
Max raw capacity (NAS)	• 3PB per array with optional FS8600 • 6PB in single namespace (with FS8600 and multiple SC8000 arrays)
Storage media	SAS and NL-SAS drives; different drive types, transfer rates and rotational speeds can be mixed in the same system • SSDs: write-intensive, read-intensive • HDDs: 15K, 10K, 7.2K RPM
Expansion enclosures	Mix and match from the following options • SC200 (12 x 3.5" drive slots, 6Gb SAS) • SC220 (24 x 2.5" drive slots, 6Gb SAS) • SC280 (84 x 3.5" drive slots, 6Gb SAS)
Network and expansion I/O	
PCIe Gen 3 slots	7 per controller • 4 full-height (cache card consumes one) • 3 low-profile Any slot may be used for either front-end network or back-end expansion capacity connections
Front-end connectivity	Fibre Channel (4Gb, 8Gb, 16Gb), iSCSI (1Gb, 10Gb), FCoE (10Gb) Simultaneous interface support
Maximum front-end ports	16 (Fibre Channel), 10 (1Gb iSCSI), 10 (10Gb iSCSI), 10 (FCoE) per controller Note: SC8000 controller can support up to 16 FC front-end ports with 4-port low-profile SAS back-end IO option.
Back-end connectivity	SAS (6Gb, 3Gb), Fibre Channel (2Gb, 4Gb, 8Gb)
Maximum back-end ports	16 (Fibre Channel), 20 (SAS) per controller Note: No SATA ports, FC and SATA enclosures are connected to FC8 IO card. Fibre Channel and SATA expansion enclosures connect to SC8000 via Fibre Channel IO expansion card.
Functional	
Array configurations	All-flash, hybrid or HDD arrays
Storage format	Block (SAN) and/or file (NAS) from same pool[5]

Data optimization	
Auto-tiering method	Policy-based migration based on real-time data usage, customizable 512KB-4MB page size
Auto-tiering structure	Up to 3 primary (media-based) tiers total, up to 2 SSD tiers (write- and read-intensive SSDs)
Tiering customizations	Default and user-defined profiles, option to "pin" volumes to any tier
RAID support	RAID 0, 1, 5, 6, RAID 10, and RAID 10 DM (dual mirror); any combination of RAID levels can exist on a single array
RAID tiering	Auto-provisions and dynamically restripes multiple RAID levels on the same tier; no need to pre-allocate RAID groups
Thin provisioning	Active by default on all volumes, operates at full performance across all features
Deduplication and compression	Selectable option per volume on SSD and/or HDD tiers Compression-only option also available
HDD optimization	FastTrack moves frequently accessed data to outer tracks for quicker response times

Data mobility and migration	
Replication	• Synchronous/Asynchronous via FC or iSCSI • Target/source relationships may be one-to-many or many-to-one • Supports all SC data services on source and target volumes • Change replication types and topologies on demand • Supports cross-platform replication with PS Series/EqualLogic arrays (either direction)
Volume mobility	• Live Migrate (included with base product) enables host-transparent data movement between arrays;[4] see also Federation section • Maintains snapshots/replication relationships
Thin import	Space-efficient, non-disruptive data migration from PS Series (EqualLogic) arrays
Thin clones	• Clone standalone volumes with zero duplication of data • Clones maintain independent snapshots and replication • Ideal for VDI, test/dev, other applications that require discrete instances of common data • More efficient than dedupe for database copies

Data protection, disaster recovery, security	
Business continuity	• Live Volume bi-directional auto-failover, auto-repair[6] • Continuous operations, disaster recovery, disaster avoidance • Includes third-site (tertiary) replication options • Zero RTO/RPO with customizable site failover SLAs per volume • Does not require identical hardware at each site • VMware Metro Stretch Cluster support • Microsoft Azure Site Recovery support
Thin snapshots	Records changes only, snapshots auto-migrate to lower-cost storage
Application data protection	Application Protection Manager Suite protects and restores host-side data from array in Oracle, Microsoft or VMware environments
Data-at-rest encryption	• Self-encrypting drives (SED) in SSD or HDD formats • Full-disk encryption (FDE) based on AES-256 • Drives certified to FIPS 140-2 Level 2 • Key Management Server options available for FIPS 140-2 Level 1, 2 and 3
External key manager support	• Gemalto's SafeNet KeySecure k460, SafeNet KeySecure k250, SafeNet KeySecure k150v • Thales EMS 200

Management	
Management interface	• Dell Storage Manager (DSM), formerly Enterprise Manager • Multi-array, multi-site, cross-platform management from single interface
Federation	Create large multi-array systems under unified management, with seamless workload migration between arrays via included Live Migrate feature. Add arrays non-disruptively, efficiently utilizing their combined capacity and performance. Volume Advisor monitors federated arrays to suggest optimal data placement and load balancing. Volume movement does not impact snapshots or replication data protection. Federate like or unlike arrays: SC9000, SC8000, SC7020, SC4020.[4]
Scripting support	Microsoft PowerShell API, RESTful API
Host OS support	Microsoft Windows Server®, Oracle® Solaris, HP®-UX, Oracle Enterprise Linux, IBM® AIX®, Novell® NetWare®, SUSE® Enterprise Linux®, Apple®, HPTru64, VMware, Citrix® XenServer®, RedHat®
Third-party application integration	VMware, Oracle, Microsoft, IBM, OpenStack™, Symantec™, CommVault®, Foglight™, Docker™; see the SC Series Management spec sheet for additional integrations and details
Coexistance with PS Series (EqualLogic) arrays	• Replication in either direction • Day-to-day management from a single interface • Thin import: space-efficient, non-disruptive data migration from PS Series arrays
Certifications	VMware vSphere Metro Storage Cluster, VMware SRM, Veritas Storage Foundations Suite, IBM VIOS Recognized, Oracle Validated Infrastructure (OVI); see Dell Storage Support Matrix for additional certifications and details
Reporting/Alerts	Support Assist (phone home), remote diagnostics and performance monitoring, automated alerts, reports and notifications, departmental chargeback
Physical	
Power supplies	Dual, redundant 750W 80 PLUS® Platinum certified power supplies[7]
Max power	425W
Inlet type	NEMA 5-15/CS22.2, n°42
Chassis	Rack size: 2U Height: 87.3 mm (3.44 inch) Width: 482.4 mm (18.98 inch) with rack latches, 444 mm (17.08 inch) without rack latches Depth: 755.8 mm (29.75 inch) with bezel Weight: 19.73 kg (43.5 lb)
Rack support	ReadyRails™ II static rails for tool-less mounting in 4-post racks with square or unthreaded round holes or tooled mounting in 4-post threaded-hole racks
Environmental	Temperature Operating: 50°F to 95°F (10°C to 35°C) Non-operating: -40°F to 149°F (-40°C to 65°C) Humidity Operating: 10% to 80% with 29°C (84.2°F) maximum dew point Non-operating: 5% to 95% with 33°C (91°F) maximum dew point
Services, warranties[8]	
Services	Dell Copilot support with deployment and consulting services. Dell Copilot Optimize available for additional ongoing strategic counsel and guidance from a highly trained system analyst.
Diagnostics engine	Integrated Dell Remote Access Controller (iDRAC)
System sizing	Dell Performance Analysis Collection Kit (DPACK) tool
Drive warranty	All SSDs and HDDs are warrantied for full lifetime wear-out replacement with valid service agreement

End-to-end technology solutions

Reduce IT complexity, lower costs and eliminate inefficiencies by making IT and business solutions work harder for you. You can count on Dell for end-to-end solutions to maximize your performance and uptime. A proven leader in Servers, Storage and Networking, Dell Enterprise Solutions and Services deliver innovation at any scale. And if you're looking to preserve cash or increase operational efficiency, Dell Financial Services™ has a wide range of options to make technology acquisition easy and affordable. Contact your Dell Sales Representative for more information.

OEM-ready version available

From bezel to BIOS to packaging, your storage arrays can look and feel as if they were designed and built by you. For more information, visit Dell.com/OEM.[9]

[1] Internal test performed by Dell in March 2013 with Storage Center v6.3.10 on dual SC8000 controllers running workloads using IOmeter with a 100% read, 100% sequential load with 4K sector transfer size. Actual performance will vary based on configuration, usage and manufacturing variability.

[2] Internal test performed by Dell in March 2013 with Storage Center v6.3.10 on dual SC8000 controllers running OLTP type workloads using IOmeter with a 100% random, 70/30 read/write mix and 8K sector transfer size. Actual performance will vary based on configuration, usage and manufacturing variability.

[3] Results based on June 2015 internal Dell testing with actual MTBF calculated from a run time total of 67.3 million+ hours (accumulated by 16123 systems). Run time and availability impacting failures for a 6-month period from 8/2014 through 1/2015. Estimated weighted average MTTR of 8.16 hours for 12 hour part SLA. Actual performance will vary based on configuration, usage and manufacturing variability. A minimum of a 4-hour support option is required, other support options are available.

[4] Multiple SC Series (SC9000, SC8000, SC7020, SC4020) arrays may be deployed in federated configurations using the Live Migrate feature included with firmware version 7.1. Transparent, non-disruptive volume movement among arrays is enabled, allowing the combined capacity and cache of the entire federated cluster to be seamlessly utilized for maximum performance and scalability in expanding data centers. For example, a cluster of eight SC9000 arrays can provide a total of 8,192 drives (up to 48PB raw capacity) with over 4TB of system memory. Similar capability is available for arrays running previous firmware versions using the optional Live Volume feature.

[5] NAS support requires optional Dell Storage FS8600 NAS appliance.

[6] Requires optional Live Volume feature and 6.7-level firmware.

[7] See Dell Energy Smart Solutions Advisor at http://essa.us.dell.com/DellStarOnline/DCCP.aspx.

[8] Availability and terms of Dell Services vary by region. For more information, visit Dell.com/ServiceDescriptions.

[9] OEM-ready available on certain models.

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