Specification Sheet

DELL STORAGE SC5020 STORAGE ARRAY

Self-optimizing SSD, HDD or hybrid configuration options provide an affordable high-performance solution for mixed application environments

Accelerate your workloads, automate your savings

The Dell Storage SC5020 makes storage cost savings automatic with a modern architecture that optimizes your data center for economics while delivering transformational SSD, HDD or hybrid performance.

SC Series provides the lowest effective $/GB for flash and hybrid flash[1], giving companies of any size the technology advantage they need to compete in today's fast-changing markets. Highlights include:

- **Data Progression** – Achieve IOPS goals with the least expensive mix of storage media, even as performance needs evolve
- **Deduplication & Compression** – Dramatically reduce the raw capacity required to store data
- **RAID tiering** – Eliminate manual RAID provisioning, increase efficiency and utilization
- **Federation** – Simplify multi-array environments with quick and seamless data movement, plus proactive load balancing assistance via Live Migrate and Volume Advisor
- **ProSupport Services** – Reduce deployment costs with remote installation options that guarantee your project goes right the first time.
- **Persistent software licensing** – Future-proof your investment, minimize the cost of upgrades and expansions

All-new hardware platform

Designed as the next-generation successor to the popular SC4020 array, SC5020 is a performance powerhouse. With dual 8-core Intel processors, 4x more memory and a 12Gb SAS back end, the SC5020 delivers

- **Up to 45% more IOPs**[2]
- **Up to 3X more bandwidth**[3]
- **2X greater max capacity**

The new 3U "all-in-one" chassis includes 30 drive bays plus dual hot-swappable controllers, providing up to 460TB raw capacity in a single compact unit. A variety of expansion enclosures lets you scale up to 2PB per array – with even larger scale-out potential in federated multi-array systems.

But the advantages don't stop with fast hardware. SC5020 includes all the Storage Center Operating System (SCOS) features you've come to expect from SC Series storage.

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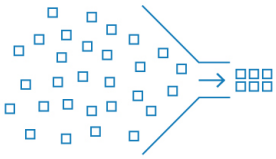
Intelligent advantage for modern workloads

Based on actual use and application performance requirements, SC Series Data Progression dynamically tunes multiple drive tiers and manages RAID levels for performance and cost savings. By default, all new data is written to fastest Tier 1 drives at RAID 10 performance levels, then converted to economical RAID 5/6 (on the same drives) for subsequent reads.

As data ages, it's moved to less expensive storage until it becomes more active again. Data is precisely where it's needed, when it's needed – the perfect combination of high IOPs and cost savings.

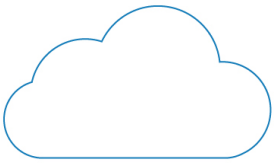
0-100% Flash architecture

Target specific price/ performance ratios with any mix of SSDs and HDDs – then modify the mix as your needs change. Add more flash to boost performance, or "cheap and deep" spinning disk as cold data volumes grow. Hot data will always be written to your fastest drives at the fastest RAID levels.



Intelligent Data Reduction

Like many SC services, Deduplication and Compression are applied dynamically at a sub-LUN level to optimize performance and reduce capacity needs throughout the data lifecycle. Fully integrated with Data Progression, SC data reduction saves money on SSDs, HDDs – or both in hybrid systems.



Low-Cost Business Continuity

Keep mission-critical apps running during unexpected outages and disasters with seamless volume-level auto-failover between local and remote arrays. Innovative Live Volume feature is native to SCOS – no extra hardware or software is required to create your "always available" storage environment.

Reliable SC Series investment protection

Despite its low initial and lifecycle costs, SC5020 includes all the advanced tools and integrations you need to be sure your array continues to provide value as your business grows and matures.

- **Dell Storage Manager** – Intuitive control and monitoring of one or multiple systems with powerful features like multi-hop replication, departmental "chargeback," QoS, VVols support and more.
- **Thin clones** – Easily create thousands of discrete volume copies for VDI, test/dev and other applications, without consuming additional storage space.
- **Data-at-rest encryption** – Supports optional FIPS 140-2 certified self-encrypting drives (SEDs), auto-lock on power down or removal
- **File and block in same storage pool** – via optional FS8600 scale-out NAS appliance
- **Integration with PS Series (EqualLogic™) arrays** — Unified management and bi-directional replication lets you combine two platforms in a single solution.
- **EMC ecosystem support** – PowerPath, ViPR, VPLEX, RecoverPoint, Connectrix, Data Domain and more
- **Broad 3rd-party integration** – VMware, Microsoft, Oracle, OpenStack, IBM, CommVault, VERITAS, Foglight and more.

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SC5020	
Chassis Overview	
Chassis format	All-in-one (dual controllers, internal drive bays, networking and expansion ports)
Rack size	3U
Controllers	2 hot-swappable per chassis (active/active)
Processors	Intel® Xeon® Processor E5-2630 v3, 2.4GHz, 8 cores
Internal storage capacity	30 x 2.5” drive bays
System memory	128GB per SC5020 array (64GB per controller), more in federated systems (over 1024GB) [4]
Operating system	Dell Storage Center OS (SCOS) 7.2 or greater
Expansion Capacity	
Supported expansion enclosures	Dell SC420: 24 x 2.5” drive bays (12Gb SAS) Dell SC400: 12 x 3.5” drive bays (12Gb SAS)
Controller Nodes	2 dual-active controllers per array; up to 16 controllers per federated system[4]
Maximum drive count	222 (30 internal, plus 192 external), more in federated systems (over 1776)[4]
Max raw capacity	2PB per array (SSD or HDD), more in federated systems (over 16PB)[4]
Max raw capacity (NAS)	2 PB per array with optional FS8600 4PB in single namespace (with FS8600 and multiple SC Series arrays)
Storage media	SAS and NL-SAS drives; different drive types, transfer rates, rotational speeds can be mixed in the same system. SSD: write-intensive and read-intensive drives HDD: 15K, 10K, 7.2K RPM
Network and Expansion I/O	
Front-end-network protocols	FC, iSCSI, SAS (supports simultaneous multiprotocol); Up to 16 FE ports per array, more in federated systems (over 128) [4]
Max 32Gb FC ports	8 per array (SFP+)
Max 16Gb FC ports	8 per array (SFP+)
Max 10Gb/1Gb iSCSI ports	Up to 8 SFP+ or BaseT ports per array
Max 12Gb SAS ports	Up to 8 12Gb SAS[5] ports
Management ports	2 per array (1Gb BASE-T)
Back-end expansion ports	4 12Gb SAS (Wide-Port) per array, more in federated systems (over 32).[4] Up to 16 expansion enclosures per array, more in federated systems (over 128) [4]
Functional	
Array configurations	All-flash, hybrid or HDD arrays
Storage format	Native block (SAN), file (NAS) from same pool with optional FS8600

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SC5020	
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	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 in 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
Thin snapshots	Records changes only, snapshots auto-migrate to lower-cost storage 8,192 maximum snapshots per array, 65,536 per federated system
Intelligent deduplication and compression	Selectable option per volume on SSD and/or HDD tiers in hybrid configurations Compression-only option also available on any configuration
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 in base product) enables host-transparent data movement among arrays; see also Federation section
Federated multi-array systems	Live Migrate (included in base product) enables host-transparent movement of volumes among arrays Snapshots maintained/preserved during migration
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 with Live Volume Managed Replication[6] Zero RTO/RPO with customizable site failover SLAs per volume Does not require identical hardware at each site VMware Metro Stretch Cluster support VMware Site Recovery Manager
Thin snapshots	Records changes only, snapshots auto-migrate to lower-cost storage 8,192 maximum snapshots per array, 65,536 per federated system
Replay Manager	Application-consistent snapshots in Microsoft or VMware environments

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SC5020	
Data Protection, Disaster Recovery, Security (cont.)	
Data-at-rest encryption	Self-encrypting drives (SEDs) in SSD or HDD formats Full Disk Encryption (FCE) based on AES-256 Drives certified to FIPS 140-2 Level 2 Key Management Server (KMS) 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 Multi-array, multi-site and cross-platform (PS Series) 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, SC5020, SC4020.[5]
Scripting support	Microsoft PowerShell API RESTful API
Host OS support	Microsoft® Windows Server®, Oracle® Solaris, HP®-UX, Oracle Linux, IBM® AIX®, Novell® NetWare, SLES, Apple, HPTru64, VMware®, Citrix® XenServer®, RedHat®
Third-party application integration	VMware, Microsoft, IBM, OpenStack, Oracle, Symantec, Commvault, Foglight, Docker (see SC Series Management spec sheet for more details)
Coexistence with PS Series 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
Workload management	QoS, VVOLs
Physical	
Rack size	3U
Height	13.33 cm (5.25 inches)
Width	44.5 cm (17.52 inches)
Depth	78.5 cm (30.9 inches)
Weight at max configuration	24.22 kg (53.4 lb)
Weight empty	15.15 kg (33.4 lb)
Power	
Power/wattage	2 hot-swappable 1485W power supplies; 1485W maximum power
Heat dissipation	5,067 BTU/hr maximum
Voltage	200-240 VAC
Frequency	50/60 Hz
Amperage	1485/100 – 14A, 1485/240 – 6.2A

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SC5020	
Environmental Operating Conditions	
Operating temperature	50 - 95°F (10 - 35°C)
Non-operating temperature	-40 - 149°F (-40 - 65°C)
Operating humidity ranges (non-condensing)	10% to 80% with 29°C (84.2°F) maximum dew point
Non-operating humidity (non-condensing)	5% to 95% with 33°C (91°F) maximum dew point
Inlet type	NEMA 5-15/CS22.2, n°42
Services, Warranties[1]	
Services	Dell ProSupport with deployment and consulting services. Optional ProSupport Plus is available offering proactive and preventative services to improve performance and stability. Dell Optimize is 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. SSD warranty covers all formats: SLC, MLC and TLC

Footnotes

1 – Net usable capacity of Dell array with 5 years of support, after 4:1 data reduction, vs. major competitors net of data reduction. Street price analysis is based on a variety of sources including analyst data, price sheets when available, and public information as of January 2017.

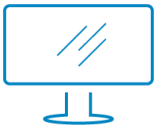
2, 3 -- Based on April 2017 internal Dell testing, compared to previous-generation SC4020. Actual performance will vary depending upon application and configuration.

4 – Multiple SC Series (SC9000, SC7020, SC5020, SC4020) arrays may be deployed in federated configurations using the Live Migrate feature included with firmware version 7.1 and above. 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.

5 – Front-end SAS only supported with Dell PowerEdge 13th generation servers or later.

6 – Requires optional Live Volume feature

7 – Availability and terms of Dell Services vary by region. Contact your Dell representative or Authorized Partner for details.



Learn more about Dell Storage SC5020 solutions

Contact a Dell Storage Expert

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