



NetApp®



Datasheet

NetApp E2700 Storage System

Our entry-level block storage system delivers enterprise-class features with less complexity

KEY BENEFITS

Optimized Performance

Purpose-built for block storage environments, the efficient performance design of the E2700 is well suited for a wide range of mixed workloads.

Application Integration and Operations

The E2700 integrates into enterprise business application environments through its application-aware plug-ins for VMware®, along with databases such as Oracle® databases, and Microsoft® SQL Server®. The E2700 is designed to minimize ongoing management and maintenance.

Ease of Use and Configuration

The powerful SANtricity® Storage Manager software provides an intuitive interface for administering E-Series storage systems. No storage expertise is required. Installation is easy with the help of the storage wizard.

The Challenge

Today the challenge for small and medium businesses and remote and branch offices is to manage growing data requirements with minimal cost and maintenance. Consistent performance delivery is expected. Managing data is becoming more complex. And resources, space, and power are limited.

The Solution: Entry-Level Storage with Enterprise-Class Features

The NetApp E2700 storage system was designed as an entry-level storage system. It meets your business requirements by providing you reliable storage when you need it. Pay-as-you-grow flexibility makes the E2700 the ideal solution for companies of all sizes facing rapid, unpredictable growth. Unlike other storage systems that add file or virtualization layers in the I/O data path, E2700 systems are purpose-built to optimize performance for mixed workloads. The E2700 delivers high bandwidth and IOPS levels while minimizing complexity and maintenance, power, and space requirements. The intuitive interface of the E2700 simplifies installation and maintenance. It also provides enterprise-level storage capabilities to deliver consistent performance, data integrity, and security. Application-

aware plug-ins for Microsoft, Oracle, and VMware environments simplify administration and lower storage management costs.

Dynamic Disk Pools

Dynamic Disk Pools (DDP) simplify the management of traditional RAID groups by distributing data parity information and spare capacity across a pool of drives. DDP enhances data protection by enabling faster rebuilds after a drive failure, protecting against potential data loss if additional drive failures occur. DDP also generally provides better system performance under failure, during a drive rebuild, than traditional RAID. Dynamic Disk Pools eliminate complex RAID management, with no idle spares to manage, no reconfiguring of RAID when expanding, and a significantly reduced performance impact following failure of a drive or drives when compared to traditional RAID.

A key concept of DDP is the dynamic rebalancing of data, across all the drives in the pool, when drives are either added, to grow pool capacity, or reduced, in the event of a drive failure. Unlike the rigid configuration of a traditional RAID volume group, with a fixed number of drives, Dynamic Disk Pools can be optimized, from a minimum of 11 drives to the maximum number of drives supported by the E2700 system.

By changing the number of physical drives in the pool, DDP improves data protection by dynamically rebalancing across the remaining (or additional) drives more quickly than traditional RAID, all while maintaining greater system performance. Faster rebuilds reduce the exposure windows to data loss, in the event additional drive failures occur, from days to minutes. As drive capacities get larger, and data availability needs increase, protection against drive failures is more important than ever.

Thin Provisioning: Improve Storage Efficiency by Up to 33%

Thin provisioning eliminates overprovisioning of storage by allowing users to report full virtual allocation to hosts, but only physically allocating the actual capacity presently used. In other words, thin provisioning significantly lowers near-term storage costs and defers storage purchases to the future.

The result is lower storage total cost of ownership by reducing initial acquisition capacity and improving utilization.

With thin provisioning you get:

- No more guessing how much storage an application really needs
- Elimination of initial storage purchases based on inflated usage estimates
- Elimination of error-prone emergency out-of-space activities
- Improved storage utilization rates (up to 33%)
- Easy, one-time, single-click management at volume creation
- Autogrow to take care of usage expansion up to the maximum

Optimized for Performance Efficiency

The E2700 storage system delivers on price/performance efficiency designed to support any workload. High-performance file systems and data-intensive bandwidth applications benefit from the E2700's ability to sustain higher read and write throughput, while database-driven transactional applications benefit from its higher IOPS and low latency. Regardless of the entry-level application workload, the E2700 is designed to support maximum performance efficiency.

SSD Read Cache

The SSD read cache feature provides automated caching capability for "hot," high-reuse data by storing that data on higher performance, lower latency solid-state drives. This caching

approach works in real time, and users are not required to set up complicated policies to define the trigger for data movement between tiers. Simply set it and forget it. The E2700 SSD cache is expandable up to 5TB per storage system.

SANtricity Mirroring: Proven Data Replication and Disaster Recovery Protection

With NetApp® SANtricity mirroring, customers now have a proven and efficient disaster recovery method for maintaining access to business-critical data in the event of site outages. Available for both FC and IP networks, in either synchronous or asynchronous mode, SANtricity mirroring provides highly available data storage across campus, across the state, or around the world and simplifies the management of data replication to meet the application service levels of both virtual and traditional environments.

Modular Flexibility

The E2700 offers multiple form factors and drive technology options to best meet customer requirements. The ultra-dense 60-drive system shelf supports up to 360TB in just 4U and is perfect for environments with vast amounts of data and limited floor space. The E2700 24-system shelf combines low power consumption and exceptional performance density with its cost-effective 2.5" drives. And the E2700 12-drive shelf is a great fit for cost-conscious organizations that need to deploy both performance and capacity. All three shelves support E2700 controllers or can be used for expansion, enabling optimized configurations that best meet performance, capacity, or cost requirements.

Flexible Interface Options

The E2700 supports a complete set of host or network interfaces designed for either direct server attach or network environments. Multiple interface options, including SAS, iSCSI (both optical or copper), and FC, allow customers to connect with and protect existing investments in server and storage networks.

Maximum Storage Density

Today's storage must keep up with continuous growth and meet the most demanding capacity requirements. The E2700 is designed for capacity-intensive environments that also require efficient data center space, power,

and cooling utilization. Its ultra-dense 60-drive 4U disk shelf provides industry-leading performance and space efficiency that reduce rack space by up to 60%. And its high-efficiency power supplies can lower power and cooling use by up to 40%.

Proven Data Reliability, Availability, and Serviceability

The E2700 is based on a field-proven architecture that delivers high reliability and greater than 99.999% (five 9s) availability, often exceeding six 9s availability when following NetApp best practices. It is easy to install and use, is optimized for performance efficiency, and fits into most application environments. The E2700 system offers excellent price to performance for small and medium businesses, remote, and branch offices, as well as workgroups within an enterprise.

The E2700 offers enterprise-level reliability, availability, and serviceability features:

- With NetApp E-Series SANtricity mirroring, customers have a proven and efficient disaster recovery solution for maintaining access to business-critical data in the event of site outages or unplanned downtime. SANtricity supports both FC- and IP-based remote replication, in synchronous or asynchronous mode, for high availability across campuses, cities, or the world. The flexibility of FC- or IP-based remote mirroring enables IT departments to meet RPO/RTO for any virtual or traditional application environment.
- Enhanced SANtricity Snapshot® capabilities enable the creation of near-instantaneous, point-in-time copies or volume images for backup and file restoration. The system supports up to 512 point-in-time copies of data volumes and takes advantage of copy-on-write technology so that only changed blocks are transferred between the mirroring systems. This feature minimizes network traffic while providing multiple Snapshot copies to improve recovery point objectives.
- SANtricity volume copy creates clones of volumes, which may be used for data analytics or other purposes.

Intuitive Management

NetApp SANtricity Storage Manager software offers a combination of rich features and ease of use. Storage

E2700 TECHNICAL SPECIFICATIONS

All data in this table applies to dual-controller configurations.



	E2760 System Shelf DE6600 Disk Shelf	E2724 System Shelf DE5600 Disk Shelf	E2712 System Shelf DE1600 Disk Shelf
Form factor	4U, 60 drives (both 2.5"/3.5")	2U, 24 drives (2.5")	2U, 12 drives (3.5")
Maximum raw capacity	360TB system shelf 1.2PB with disk shelves (using 6TB drives)	43.2TB system shelf 1.1PB with disk shelves (using 1.8TB* and 6TB drives)	72TB system shelf 1.2PB with disk shelves (using 6TB drives)
Maximum drives**	192 with mixed shelves 120 SSD limit (25 SSDs per 60-drive shelf)	192 120 SSD limit	192
Drives supported	<ul style="list-style-type: none"> • 2/3/4/6TB NL-SAS 7.2K FDE/non-FDE • 600/900GB, 1.2/1.8*TB SAS 10K FDE/non-FDE • 400/800GB, 1.6TB SSD non-FDE • 800GB SSD FDE 	<ul style="list-style-type: none"> • 600/900GB, 1.2/1.8*TB SAS 10K FDE/non-FDE • 400/800GB, 1.6TB SSD non-FDE • 800GB SSD FDE 	<ul style="list-style-type: none"> • 2/3/4/6TB NL-SAS 7.2K FDE/non-FDE
DC power	Not available	Available option	Available option
System memory	8GB/16GB		
Included host I/O ports	4 ports 12Gb SAS		
Optional host I/O ports	4 ports or 8 ports 10Gb iSCSI (copper) 4 ports or 8 ports 10Gb iSCSI (optical) 4 ports or 8 ports 16Gb FC 4 ports or 8 ports 12Gb SAS		
Operating system and system management	SANtricity OS 8.20 SANtricity Storage Manager 11.20		
High-availability features	Dual active controller with automated I/O path failover Dynamic Disk Pools and traditional RAID levels 0, 1, 3, 5, 6, and 10 Redundant, hot-swappable storage controllers, disk drives, power supplies, and fans Automatic DDP or RAID rebuild following a drive failure Mirrored data cache with battery backup and destage to flash SANtricity proactive drive health monitoring identifies problem drives before they create issues Greater than 99.999% availability (with appropriate configuration and service plans)		
Host operating systems	Microsoft Windows Server®, Red Hat Enterprise Linux®, Novell SUSE Linux Enterprise Server, Apple® Mac® OS, Oracle Solaris, HP, HP-UX, CentOS Linux, Oracle Enterprise Linux, IBM AIX, VMware ESX®		
Included software features	SANtricity mirroring SANtricity volume copy SANtricity Snapshot SANtricity SSD cache SANtricity thin provisioning Dynamic Disk Pools		
Optional software feature	SANtricity drive encryption		
System capabilities	Data assurance (T10-PI standard) Dynamic volume expansion Dynamic capacity expansion Dynamic RAID-level migration Dynamic segment size migration System Event Monitor Proactive drive health monitoring AutoSupport™ Online SANtricity OS upgrades and drive firmware upgrades VMware vSphere® Storage APIs – Array Integration (VAAI) Microsoft Offloaded Data Transfer (ODX)		
Application plug-ins***	SANtricity Plug-In for Oracle Enterprise Manager SANtricity Management Pack for Microsoft System Center Operations Manager (SCOM) SANtricity Plug-In for Microsoft SQL Server Management Studio (SSMS) SANtricity Plug-In for VMware vCenter™ SANtricity VASA Provider SANtricity Storage Replication Adapter for VMware vCenter Site Recovery Manager SANtricity Performance App for Splunk Enterprise		
Open management	SANtricity OpenStack Cinder SANtricity Web Services Proxy (REST and SYMbol Web)		
System maximums	Hosts : 256 Volumes: 512 Snapshot copies: 512 Mirrors: 32		

* Expected availability mid-2015.

** All models are capable of reaching 192 drives when configured with intermixed disk shelves.

*** No-charge download from mysupport.netapp.com.

Dimensions and Weight	E2760 System Shelf DE6600 Disk Shelf		E2724 System Shelf DE5600 Disk Shelf		E2712 System Shelf DE1600 Disk Shelf	
Height	7.0" (17.78 cm)		3.47" (8.81 cm)		3.4" (8.64 cm)	
Width	19" (48.26 cm)		19" (48.26 cm)		19" (48.26 cm)	
Depth	32.5" (82.55 cm)		19.6" (49.78 cm)		21.75" (55.25 cm)	
Weight	232 lb (105.2 kg)		57.32 lb (26 kg)		59.52 lb (27 kg)	
	E2760 System Shelf		E2724 System Shelf		E2712 System Shelf	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
KVA	1.009	1.219	0.482	0.632	0.361	0.516
Watts	999	1206	477	626	358	511
BTU	3408	4117	1628	2134	1220	1744
	DE6600 Disk Shelf		DE5600 Disk Shelf		DE1600 Disk Shelf	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
KVA	0.815	1.024	0.296	0.446	0.175	0.325
Watts	806	1014	293	442	174	322
BTU	2752	3460	1001	1507	593	1099

administrators appreciate the extensive configuration flexibility, which allows optimal performance tuning and complete control over data placement. With its dynamic capabilities, SANtricity software supports on-the-fly expansion, reconfigurations, and maintenance without interrupting storage system I/O.

Application Integration

NetApp E-Series products have been deployed and used in today's most popular application environments such as VMware and Microsoft Exchange and databases such as Oracle databases, Microsoft SQL Server, and others. The system integrates into any environment with its configurable options. It also meets the reliability and sustained performance demands of transactional applications, in which sustaining performance is critical.

The NetApp SANtricity Applications Plug-Ins for Microsoft, Oracle, and VMware provide a consolidated view of the NetApp E-Series systems, like the E2700. They enable users to monitor and

manage their NetApp E-Series storage from the application. This reduces the total cost of ownership by eliminating the need to manually compile critical information from several different tools, thus streamlining the correlation of availability and performance problems across the entire set of IT components.

Disk Encryption (Licensed)

SANtricity full-disk encryption combines local key management with drive-level encryption for comprehensive security for data at rest that doesn't sacrifice performance or ease of use. As all drives eventually leave the data center through redeployment, retirement, or service, it is reassuring to know that your sensitive data isn't leaving with them.

ENERGY STAR Certified

All E-Series systems utilize "85% PLUS" power supplies, exceeding the EPA ENERGY STAR requirements of 80% efficiency.

The modular E-Series storage systems can be deployed in tens of thousands of

different energy-efficient configurations. The following configurations are EPA ENERGY STAR certified:

- E2712 up to 24 drives
- E2724 up to 48 drives
- E2760 up to 120 drives



For the latest EPA ENERGY STAR certified E-Series configurations, see either of the following:

<http://www.netapp.com/us/company/ourstory/sustainability/energy-star.aspx>

http://www.energystar.gov/certified-products/detail/data_center_storage

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Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.

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