NetApp E2700 Series

Gain enterprise-grade reliability and support with our cost-effective entry-level block storage system

KEY BENEFITS

Optimized Performance
Leverage the efficient performance design of the NetApp® E2700 for a wide range of mixed workloads.

Application Integration
Facilitate ongoing management and maintenance. Enable seamless integration into your environment through application-aware plug-ins for VMware, Oracle, and Microsoft and plug-ins and drivers for emerging applications, such as those from Splunk, Nagios, and OpenStack.

Ease of Use and Configuration
Easily install and administer E-Series storage systems using the powerful NetApp SANtricity® Storage Manager software, which provides an intuitive interface for administration.

The Challenge

Today, many small and medium-sized businesses and remote and branch offices seek new ways to manage growing data requirements with minimal cost and maintenance. Consistent performance delivery is an imperative. Yet managing data is increasingly complex—especially with limited resources, space, and power.

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

The NetApp E2700 storage system was designed as an entry-level storage system that can help you meet business requirements with 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 while minimizing complexity and maintenance, power, and space requirements. The intuitive interface of the E2700 simplifies configuration and maintenance while providing enterprise-level storage capabilities to deliver consistent performance, data integrity, and security.

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 dynamic rebuild technology uses every drive in the pool to rebuild a failed drive, enabling exceptional performance under failure.

DDP eliminates complex RAID management. With DDP, there are no idle spares to manage, and you do not need to reconfigure RAID when you expand your system. Compared with traditional RAID, DDP also significantly reduces the impact on performance after one or more drives fail.

A key feature of DDP is the capability to dynamically rebalance data across all the drives in the pool when drives are added or removed. Unlike the rigid configuration of a traditional RAID volume group, which has a fixed number of drives, with DDP you

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can add or remove multiple drives in a single operation. DDP dynamically rebalances across the remaining (or additional) drives more quickly than traditional RAID does. This faster rebalancing also applies to a rebuild case. If additional drives fail, faster rebuilds on failed drives reduce the exposure window for data loss from days to minutes.

Optimized for Performance Efficiency

The E2700 storage system optimizes price and performance to support any workload. High-performance file systems and data-intensive bandwidth applications benefit from the E2700's ability to sustain high read and write throughput. Database-driven transactional applications benefit from the E2700's high IOPS and low latency.

SSD Cache

The SSD Cache feature provides intelligent analytics-based caching capability for read-intensive workloads. Hot data is cached using higher-performance, lower-latency SSDs in the drive shelves. Users do not need to set up complicated policies to define the trigger for data movement between tiers—you can simply set it and forget it. SSD Cache is expandable up to 5TB per storage system.

SANtricity Synchronous and Asynchronous Mirroring: Proven Data Replication and Disaster Recovery Protection

With NetApp SANtricity Remote Mirroring, customers now have a proven and efficient disaster recovery method for maintaining access to business-critical data in site outages. SANtricity Remote Mirroring provides highly available data storage across a campus, across the state, or around the world. This mirroring simplifies managing data replication to meet the application service levels of both virtual and traditional environments. Asynchronous mode is available on both FC and IP networks; synchronous mode is available on FC networks only.

Modular Flexibility

The E2700 offers multiple form factors and drive technology options to best meet your requirements. The ultradense 60-drive system shelf supports up to 600TB 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. The E2700 12-drive shelf is a great fit for cost-conscious organizations that need to provide both performance and capacity. All three shelves support E2700 controllers or they can be used for expansion, enabling optimized configurations that best meet performance, capacity, and 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 FC, iSCSI (both optical and copper), and SAS, enable customers to connect according to performance, cost, or the need to 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. The system's ultradense 60-drive 4U disk shelf provides industry-leading performance and space efficiency to reduce rack space by up to 60%. 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 five-9s availability—often exceeding six-9s availability when NetApp best practices are followed. The E2700 is easy to install and use. It is optimized for performance efficiency and it fits into most application environments. The E2700 system offers an excellent price to performance ratio for small and medium-sized businesses, remote and branch offices, and workgroups within an enterprise.

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

- NetApp SANtricity Snapshot® copy 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. This feature minimizes network traffic while providing multiple Snapshot copies to improve recovery point objectives.
- SANtricity volume copy creates clones of volumes, which can be used for data analytics or other purposes.
- Data Assurance, based on the ANSI T10 PI standard, offers enterprise-grade data integrity and protects against silent data corruption.
- The NetApp AutoSupport® system proactively notifies users of potential issues before they occur.

Intuitive Management

NetApp SANtricity Storage Manager software offers a combination of rich features and ease of use. Storage administrators appreciate the extensive configuration flexibility that allows optimal performance tuning and complete control over data placement. SANtricity software supports dynamic expansion, reconfigurations, and maintenance without interrupting storage system I/O.

Application Integration

NetApp E-Series products are ideal for today's standard application environments, such as VMware and Microsoft Exchange, and databases, such as Oracle databases and Microsoft SQL Server. They are also ideal for the growing open-source big data applications such as NoSQL databases, including Couchbase, Mongo DB, Hadoop, and Splunk, and software-defined data center initiatives such as OpenStack and Ceph. Because of its configurable options, the system integrates with any environment. The E-Series also meets the reliability and sustained performance demands of transactional applications in which sustaining performance is critical.

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" and 3.5")	2U, 24 drives (2.5")	2U, 12 drives (3.5")
Maximum raw capacity	600TB system shelf 1.9PB with disk shelves (using 10TB drives)	68.4TB system shelf 1.7PB with disk shelves (using 1.8TB,3.2TB, and 10TB drives)	120TB system shelf 1.9PB with disk shelves (using 10TB drives)
Maximum drives[1]	192 with mixed shelves 120 SSD limit (25 SSDs per 60-drive shelf)	192 120 SSD limit	192
Drives supported	4/6TB NL-SAS 7.2K FDE/non-FDE 8/10TB NL-SAS 7.2K non-FDE 6/10TB[2] NL-SAS 7.2K FIPS 900GB 1.2/1.8TB SAS 10K FDE/non-FDE 1.8TB SAS 10K FIPS 800GB, 1.6/3.2TB SSD non-FDE 800GB SSD FDE 1.6TB SSD FIPS	900GB, 1.2/1.8TB SAS 10K FDE/non-FDE 1.8TB SAS 10K FIPS 800GB, 1.6/3.2TB SSD non-FDE 800GB SSD FDE 1.6TB SSD FIPS	4/6TB NL-SAS 7.2K FDE/non-FDE 8/10TB NL-SAS 7.2K non-FDE 6/10TB[2] NL-SAS 7.2K FIPS
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 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 8.30 SANtricity System Manager 11.30		
High-availability features	Dual active controller with automated I/O path failover Auto load balancing and path connectivity monitoring Dynamic Disk Pools and traditional RAID levels 0, 1, 5, 6, and 10 Redundant, hot-swappable storage controllers, disk drives, power supplies, and fans Automatic rebuild after a drive failure Mirrored data cache with battery-backed destage to flash Proactive drive health monitoring 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 Snapshot copy SANtricity volume copy SANtricity synchronous and asynchronous mirroring SANtricity SSD Cache SANtricity Thin Provisioning with UNMAP Dynamic Disk Pools		
Optional software feature	SANtricity Drive Encryption		
System capabilities	Data Assurance (T10 PI) Dynamic volume expansion Dynamic capacity expansion and contraction Dynamic RAID-level migration Dynamic segment size migration System event monitor Proactive drive heath monitoring NetApp AutoSupport system Online SANtricity OS upgrades and drive firmware upgrades VMware vSphere Storage APIs—Array Integration Microsoft Offloaded Data Transfer		
Application plug-ins[3]	NetApp SANtricity Management Pack for Microsoft System Center Operations Manager NetApp SANtricity Plug-In for VMware vCenter NetApp SANtricity VASA Provider NetApp SANtricity Storage Replication Adapter for VMware vCenter Site Recovery Manager NetApp SANtricity Performance App for Splunk Enterprise NetApp SANtricity Plug-in for Nagios		
Open management	NetApp SANtricity OpenStack Cinder NetApp SANtricity Web Services Proxy (REST and SYMbol Web)		
System maximums	Hosts: 256 Volumes: 512 Snapshot copies: 512 Mirrors: 32		

1. All models can reach 192 drives when configured with intermixed disk shelves.
2. 10TB NL-SAS FIPS drive expected to be available in Nov 2016.
3. 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" (17.78cm)	3.47" (8.81cm)	3.4" (8.64cm)
Width	19" (48.26cm)	19" (48.26cm)	19" (48.26cm)
Depth	32.5" (82.55cm)	19.6" (49.78cm)	21.75" (55.25cm)
Weight[4]	237lb (105.2kg)	59lb (26kg)	61lb (27kg)

POWER[4]	E2760 SYSTEM SHELF[5]		E2724 SYSTEM SHELF[6]		E2712 SYSTEM SHELF[6]	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
kVA	1.009	1.219	0.482	0.632	0.361	0.516
Watts	999	1,206	477	626	358	511
BTU	3,408	4,117	1,628	2,134	1,220	1,744

POWER[4]	DE6600 DISK SHELF[5]		DE5600 DISK SHELF[6]		DE1600 DISK SHELF[6]	
	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	2,752	3,460	1,001	1,507	593	1099

4. E2760, DE6600, E2712, and DE1600 weight and power numbers are based off 6TB/8TB NL-SAS drives.
5. E2760 and DE6600 nominal voltage range is between 200 and 240 VAC.
6. E2712, E2724, DE1600, and DE5600 nominal voltage range is between 100 and 240 VAC.

The NetApp SANtricity applications plug-ins for Microsoft, VMware, Splunk, and Nagios environments provide a consolidated view of NetApp E-Series systems, such as the E2700. This view enables users to monitor and manage their NetApp E-Series storage from the application. Doing so reduces the total cost of ownership by eliminating the need to manually compile critical information from several different tools. This benefit streamlines the correlation of availability and performance problems across the entire set of IT components.

Disk Encryption (Licensed)
SANtricity Encryption[7] combines local key management with drive-level encryption to enable comprehensive security for data at rest that doesn't sacrifice performance or ease of use. Because 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. SANtricity also supports FIPS-certified hard drives for security-sensitive customers.

DevOps Ready
To enable the automation and agility that are needed in the DevOps-based IT revolution, the E2700 supports a REST-based web services proxy along with Java and Python client libraries. Modules for Puppet, Chef, and Ansible are available for open-source orchestration and configuration management. And for easy integration and automation in traditional IT and Windows ecosystems, the E2700 also supports Windows PowerShell and SMI-S 1.6.

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

For the latest EPA ENERGY STAR–certified E-Series configurations, see www.netapp.com/us/company/ourstory/sustainability/energy-star.aspx.

ASHRAE Compliant
All E-Series systems meet the certification requirements of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers), a global society that advances human well-being through sustainable technology for the built environment.

• The E2712 and E2724 are ASHRAE A3 compliant.
• The E2760 is ASHRAE A2 compliant.

7. Hardware and software for at-rest data encryption is not available in certain countries including Russia, Belarus, Kazakhstan and other Eurasian Customs Union countries.

About NetApp
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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