



## Datasheet

# NetApp E2700 Storage System

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

### Dynamic Disk Pools

Dynamic Disk Pools (DDPs) simplify the management of traditional RAID groups by distributing data parity information and spare capacity across a pool of drives. DDPs enhance data protection by enabling faster rebuilds after a drive failure, protecting against potential data loss if additional drive failures occur. DDPs also generally provide better system performance under failure during a drive rebuild than traditional RAID.

Dynamic Disk Pools eliminate complex RAID management. With DDPs, there are no idle spares to manage and you do not need to reconfigure RAID when expanding. DDPs also significantly reduce the impact on performance following failure of one or more drives when compared to traditional RAID.

A key feature of DDPs 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, DDPs can flexibly

accommodate 11 drives up to the maximum number of drives supported by the E2700 system. Multiple drives can be added or removed in a single operation. DDPs dynamically rebalance across the remaining (or additional) drives more quickly than traditional RAID. This faster rebalancing also applies to a rebuild case. If additional drive failures occur, faster rebuilds on failed drives reduce the exposure window for data loss from days to minutes.

### **Thin Provisioning: Improve Storage Efficiency by Up to 33%**

Thin provisioning eliminates overprovisioning of storage by automatically allocating storage internally. This feature provisions only what is used while reporting full allocations to hosts, significantly lowering storage use and future storage purchases. This benefit enables you to significantly lower near-term storage costs and defer storage purchases. It also enables you to lower the total cost of ownership by reducing initial acquisition capacity and improving utilization. Thin provisioning is best for datasets that grow slowly but significantly over time and do not require maximum performance.

With thin provisioning you can:

- Eliminate having to guess how much storage an application needs.
- Put an end to purchasing storage based on inflated usage estimates.
- Eliminate error-prone, emergency out-of-space activities.
- Improve storage utilization rates by up to 33%.
- Easily create volumes with one-time, single-click management.
- Set automatic growth policies.

### **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 higher read and write throughput. Database-driven transactional applications benefit from the E2700's higher IOPS and low latency.

### **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. Users do not have to set up complicated policies to define the trigger for data movement between tiers—you can simply set it and forget it. The E2700 SSD Cache can be expanded up to 5TB per storage system.

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

With NetApp SANtricity mirroring, customers now have a proven and an efficient disaster recovery method for maintaining access to business-critical data in site outages. SANtricity 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 480TB 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 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. 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 excellent price to performance 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® 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 may 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.

## E2700 TECHNICAL SPECIFICATIONS

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

	<b>E2760 SYSTEM SHELF DE6600 DISK SHELF</b>	<b>E2724 SYSTEM SHELF DE5600 DISK SHELF</b>	<b>E2712 SYSTEM SHELF DE1600 DISK SHELF</b>
Form factor	4U, 60 drives (both 2.5"/3.5")	2U, 24 drives (2.5")	2U, 12 drives (3.5")
Maximum raw capacity	480TB system shelf 1.5PB with disk shelves (using 8TB drives)	76.8TB system shelf 1.4PB with disk shelves (using 3.2TB and 8TB drives)	96TB system shelf 1.5PB with disk shelves (using 8TB drives)
Maximum drives <sup>1</sup>	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"> <li>2/3/4/6TB NL-SAS 7.2K FDE/non-FDE</li> <li>8TB NL-SAS 7.2K non-FDE</li> <li>6TB NL-SAS 7.2K FIPS</li> <li>600/900GB 1.2/1.8TB SAS 10K FDE/non-FDE</li> <li>1.8TB SAS 10K FIPS</li> <li>400/800GB, 1.6/3.2TB SSD non-FDE</li> <li>800GB SSD FDE</li> <li>1.6TB SSD FIPS</li> </ul>	<ul style="list-style-type: none"> <li>600/900GB, 1.2/1.8TB SAS 10K FDE/non-FDE</li> <li>1.8TB SAS 10K FIPS</li> <li>400/800GB, 1.6/3.2TB SSD non-FDE</li> <li>800GB SSD FDE</li> <li>1.6TB SSD FIPS</li> </ul>	<ul style="list-style-type: none"> <li>2/3/4/6 B NL-SAS 7.2K FDE/non-FDE</li> <li>8TB NL-SAS 7.2K non-FDE</li> <li>6TB NL-SAS 7.2K FIPS</li> </ul>
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 8.25 SANtricity Storage Manager 11.25		
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 Snapshot copies SANtricity Volume Copy SANtricity synchronous and asynchronous mirroring SANtricity SSD Cache SANtricity thin provisioning Dynamic Disk Pools		
Optional software feature	SANtricity drive encryption		
System capabilities	Data Assurance (T10 PI) Dynamic volume expansion Dynamic capacity expansion Dynamic RAID-level migration Dynamic segment size migration System Event Monitor Proactive drive health 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 <sup>2</sup>	SANtricity Plug-In for Oracle Enterprise Manager SANtricity Management Pack for Microsoft System Center Operations Manager SANtricity Plug-In for Microsoft SQL Server Management Studio 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 NetApp SANtricity Plug-in for Nagios		
Open management	SANtricity OpenStack Cinder SANtricity Web Services Proxy (REST and SYMBOL Web)		
System maximums	Hosts: 256 Volumes: 512 Snapshot copies: 512 Mirrors: 32		

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

2. No-charge download from [mysupport.netapp.com](http://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	237 lb (105.2 kg)		59 lb (26 kg)		61 lb (27 kg)	
	E2760 System Shelf		E2724 System Shelf		E2712 System Shelf	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
KVA	0.996	1.205	0.436	0.586	0.361	0.516
Watts	986	1,193	432	580	358	511
BTU	3,364	4,072	1,472	1,979	1,220	1,744
	DE6600 Disk Shelf		DE5600 Disk Shelf		DE1600 Disk Shelf	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
KVA	0.801	1.01	0.250	0.400	0.175	0.325
Watts	793	1001	248	396	174	322
BTU	2,707	3,415	845	1,352	593	1,099

### 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. 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 are ideal for today's standard application environments, such as VMware and Microsoft Exchange, and databases, such as Oracle databases, and Microsoft SQL Server. It is 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. The system integrates with any environment with its configurable options. The E-Series 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, VMware, Splunk, and Nagios provide a consolidated view of NetApp E-Series systems, such as the E2700. These plug-ins enable 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 Full Disk Encryption\* (FDE) 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.

### 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 [www.netapp.com/us/company/ourstory/sustainability/energy-star.aspx](http://www.netapp.com/us/company/ourstory/sustainability/energy-star.aspx)

\* 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.

[www.netapp.com](http://www.netapp.com)