Datasheet

NetApp E2800 Series

Gain affordable performance and simplicity with our cost-effective all-flash and hybrid arrays

KEY BENEFITS

Optimized Performance
Leverage all flash for a wide range of mixed workloads.

Cloud Connectivity
Enable flexible and cost-effective backup and recovery to the cloud from a NetApp® E2800 Series system with NetApp SANtricity® Cloud Connector.

Ease of Use and Configuration
Easily install and administer NetApp E-Series storage systems by using the new on-box, web-based, and powerful NetApp SANtricity software.

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
All-flash and hybrid storage with low acquisition costs
The NetApp E2800 storage system offers all-flash and hybrid configuration options, so you can streamline your IT infrastructure and drive down costs. Pay-as-you-grow flexibility makes the E2800 an excellent solution for companies of all sizes that are facing rapid, unpredictable growth.

Unlike other storage systems that add file or virtualization layers in the I/O data path, E2800 systems are purpose-built to optimize performance for mixed workloads. An innovative controller that is built on Intel processor technology, along with a 12Gb SAS infrastructure, improves IOPS and throughput to help you extract value from your data and take action faster.

The E2800 offers an improved user experience with an on-box, web-browser-based interface that is modern, simple, and clean. The intuitive interface of the E2800 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) technology simplifies the management of traditional RAID groups by distributing data parity information and spare capacity across a pool of drives. The DDP technology 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 technology eliminates complex RAID management. With the DDP feature, 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 technology also significantly reduces the impact on performance after one or more drives fail.

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A key feature of DDP technology 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, the DDP feature lets you add or remove multiple drives in a single operation. DDP technology 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 Affordable Performance
The E2800 storage system optimizes price and performance to support any workload. The E2800 features an innovative entry-level controller that improves IOPS and throughput. Higher performance with solid-state drives (SSDs) enables the E2800 to maximize storage density, requiring fewer disks for better performance.

High-performance file systems and data-intensive bandwidth applications benefit from the ability of the E2800 to sustain higher read and write throughput. Database-driven transactional applications benefit from the higher IOPS and low latency of the E2800.

The controllers in the E2800 increase performance to a blazing-fast 300,000 IOPS. You can speed up data analysis from weeks to hours, process video up to six times faster, and generate reports three times faster. With that increased performance, you have access to the data that you need to make optimal decisions for your business.

SSD Cache for Improved Performance
The SSD cache feature provides intelligent analytics-based caching capability for read-intensive workloads. Hot data is cached by using higher-performance, lower-latency SSDs in the drive shelves. You 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 to up to 5TB per storage system.

SANtricity Synchronous and Asynchronous Mirroring: Proven Data Replication and Disaster Recovery Protection
With NetApp SANtricity Remote Volume Mirroring, you now have a proven and an efficient disaster recovery method for maintaining access to business-critical data in site outages. SANtricity Remote Volume Mirroring provides highly available data storage across a campus, across the state, or around the world. This mirroring simplifies data replication management to meet the application service levels of both virtual and traditional environments. Asynchronous mode is available on both FC and iSCSI networks; synchronous mode is available on FC networks only.

Modular Flexibility
With the E2800 flexible configuration options, including all-flash as well as hybrid SSD and HDD, you build just one architecture to support a multitiered data model. This feature is particularly suited for third platform applications such as Splunk, which uses hot, warm, cold, and frozen tiers.

The E2800 offers multiple form factors and drive technology options to meet your requirements:

- The ultradense 60-drive system shelf supports up to 600TB in just 4U and is optimal for environments with vast amounts of data and limited floor space, with either 2.5-inch or 3.5-inch drives.
- The 24-drive system shelf combines low power consumption and exceptional performance density with its high-performance 2.5-inch drives.
- The 12-drive shelf is a great fit for cost-conscious organizations that need to provide both performance and capacity, with either 2.5-inch SSDs or 3.5-inch drives.

Maximum Storage Density
Today's storage must keep up with continuous growth and must meet the most demanding capacity requirements. The E2800 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 E2800 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 E2800 is easy to install and to use. It is optimized for performance efficiency, and it fits into most application environments. The E2800 system offers excellent price-to-performance for small and medium-sized businesses, remote and branch offices, and workgroups within an enterprise.

The E2800 offers enterprise-level reliability, availability, and serviceability features:

- With NetApp SANtricity Snapshot™ capabilities, near-instantaneous, point-in-time copies or volume images can be created 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.
- SANtricity Cloud Connector enables flexible and cost-effective backup and recovery to the cloud from an E2800 Series system.
- The NetApp AutoSupport® system proactively notifies users about potential issues before they occur.

Intuitive Management
NetApp SANtricity software offers a combination of comprehensive 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 dynamic expansion, reconfigurations, and maintenance without interrupting storage system I/O.

E2800 TECHNICAL SPECIFICATIONS

All the data in the following table applies to dual-controller configurations.

	E2860 SYSTEM SHELF DE460C DISK SHELF	E2824 SYSTEM SHELF DE224C DISK SHELF	E2812 SYSTEM SHELF DE212C DISK SHELF
Type	All-flash storage array or hybrid storage array	All-flash storage array or hybrid storage array	All-flash storage array or hybrid storage array
Form factor	4U, 60 drives (both 2.5" and 3.5")	2U, 24 drives (2.5")	2U, 12 drives (3.5" or 2.5" SSD)
Maximum raw capacity	600TB system shelf 1.8PB with disk shelves (using 10TB drives)	76.8TB system shelf 1.4PB with disk shelves (using 3.2TB and 10TB drives)	1120TB system shelf 1.4PB with disk shelves (using 10TB drives)
Maximum drives[1]	180 with mixed shelves 120 SSD limit (25 SSDs per 60-drive shelf)	180 120 SSD limit	180 120 SSD limit
Drives supported	4/8/10TB NL-SAS 10TB NL-SAS FIPS 900GB, 1.2/1.8TB SAS 1.8TB SAS FIPS 800GB, 1.6/3.2TB SSD 1.6TB SSD FIPS	900GB, 1.2/1.8TB SAS 1.8TB SAS 10K FIPS 800GB, 1.6/3.2TB SSD 1.6TB SSD FIPS	4/8/10TB NL-SAS 6/10TB NL-SAS FIPS 800GB SSD 1.6TB SSD FIPS
System memory	16GB/64GB		
Included host I/O ports	4 ports 16Gb FC or 4 ports 10Gb iSCSI (optical) or 4 ports 10Gb iSCSI (copper)		
Optional host I/O ports	8 ports 16Gb FC 8 ports 10Gb iSCSI (optical) 4 ports 10Gb iSCSI (copper) 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 technology and traditional RAID levels 0, 1, 5, 6, and 10 Redundant, hot-swappable storage controllers, 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 macOS, Oracle Solaris, HPE HP-UX, CentOS Linux, Oracle Enterprise Linux, IBM AIX, VMware ESX		
Included software features	SANtricity Snapshot SANtricity volume copy SANtricity Cloud Connector SANtricity synchronous and asynchronous mirroring[2] SANtricity SSD cache SANtricity thin provisioning with UNMAP Dynamic Disk Pools technology 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 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 180 drives when they are configured with intermixed disk shelves.
2. Synchronous mirroring is supported with FC only, and asynchronous mirroring is supported with FC and iSCSI.
3. Plug-ins can be downloaded at no charge from mysupport.netapp.com.

DIMENSIONS AND WEIGHT	E2860 SYSTEM SHELF DE460C DISK SHELF	E2824 SYSTEM SHELF DE224C DISK SHELF	E2812 SYSTEM SHELF DE212C DISK SHELF
Height	6.87" (17.46cm)	3.34" (8.48cm)	3.41" (8.66cm)
Width	17.66" (44.86cm)	19" (48.26cm)	19" (48.26cm)
Depth	37.09" (94.23cm)	19" (48.26cm)	21.1" (53.59cm)
Weight[8]	E2860: 249.1lb (113kg) DE460C: 247.4lb (112.2kg)	60.5lb (27.44kg)	63.9lb (28.98kg)

POWER[4]	E2860 SYSTEM SHELF[5]		E2824 SYSTEM SHELF[6]		E2812 SYSTEM SHELF[6]	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
kVA	1.284	1.543	0.503	0.674	0.451	0.568
Watts	1,256	1,537	501.4	673.6	451.3	565.4
BTU	4,297	5,258	1,715	2,303.7	1,543.4	1,933.7

POWER[4]	DE460C DISK SHELF[5]		DE224C DISK SHELF[6]		DE212C DISK SHELF[6]	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
kVA	1.203	1.466	0.302	0.45	0.25	0.344
Watts	1,174	1,460	298.8	451.9	248.7	343.7
BTU	4,015	4,994	1,022.15	1,545.5	850.55	1,175.5

4. The E2812, DE460C, and DE212C weight and power numbers are based on 6TB/8TB NL-SAS drives.
5. The E2860 and DE460C nominal voltage range is between 200VAC and 240VAC.
6. The E2812, E2824, DE212C, and DE224C nominal voltage range is between 100VAC and 240VAC.

SANtricity Storage Manager gives you full control and visibility across your E-Series storage systems. Released with the E2800, SANtricity System Manager is a modern, browser-based, on-box tool that allows you to manage and monitor your E2800 by using an intuitive web interface.

Disk Encryption

To enable comprehensive security for data at rest without sacrificing performance or ease of use, SANtricity encryption[7] combines local key management with drive-level encryption. 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 System

To enable the automation and agility that are needed in the DevOps-based IT revolution, E2800 supports REST-based, embedded web services 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, E2800 also supports Windows PowerShell and Storage Management Initiative Specification (SMI-S) 1.6.

ENERGY STAR Certification

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 Compliance

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:

• E2812, E2824, DE212C, and DE224C are ASHRAE A4 compliant.
• E2860 and DE460C are ASHRAE A3 compliant.

Express Pack Bundles

By simplifying the quote-to-order process, Express Pack bundles for the E2800 Series help reduce complexity and increase efficiency.

PART NUMBER	DESCRIPTION
E2824HA-0002-EP	E2824HA 8GB,12x800GB SSD NoFDE, 16Gb FC or 10Gb iSCSI 8p,EP
E2824HA-0003-EP	E2824, HA 24X800 GB SSD, 16Gb FC or 10Gb iSCSI 8p, Flash
E2824HA-0004-EP	E2824, HA, 12X900 GB SAS,16Gb FC or 10Gb iSCSI 8p, HDD
E2812HA-0006-EP	E2812, HA, 12X4 TB NL-SAS, 16Gb FC or 10Gb iSCSI 4p, HDD
E2812HA-0007-EP	E2812, HA, 12X8 TB NL-SAS,16Gb FC or 10Gb iSCSI 4p, HDD
E2824HA-0008-EP	E2824HA 8GB,24x900GB, NoFDE,16Gb FC or 10Gb iSCSI, 8p, HDD
E2824HA-0008-EP	E2824HA 8GB,24x1.2TB, NoFDE,16Gb FC or 10Gb iSCSI 8p, HDD
E2860HA-0010-EP	E2860HA 8GB,60x4TB NoFDE,16Gb FC or 10Gb iSCSI, 8p, HDD

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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