One of the most critical aspects of an enterprise solution is the ability to detect and resolve issues. In this area, the E4060 and E4012 all-flash arrays offer significant depth of capabilities, including:

- Extensive capturing of diagnostic data provides comprehensive fault isolation and simplifies analysis of unanticipated events.
- Background monitoring proactively scans media and tracks drive health against defined thresholds.
- Integrated Recovery Guru diagnoses problems and provides the applicable procedure to use for recovery.
- With DDP technology and RAID 6, a drive rebuild continues even when an unreadable sector or second failure is encountered.
- NetApp Active IQ® telemetry is built into the E4060 and E4012, so you can take advantage of Active IQ hybrid cloud services to optimize your environment.

Secure Data, Secure Management
NetApp SANtricity drive encryption* combines local key management with drive-level encryption for comprehensive security for data at rest with no impact to performance. Because all drives eventually leave the data center through redeployment, retirement, or service, it's reassuring to know that your sensitive data isn't leaving with them. Customers can choose to manage the drive authentication keys natively for a simple lowest-cost solution or use a KMIP-compliant external key manager for centralized administration.

Management access to the E4060 and E4012 is protected with role-based access control, LDAP/Active Directory integration, and digital certificate management. The security administrator manages user privileges and password requirements. The exportable audit log gives visibility into management actions taken on the array. All management communication is over HTTPS. In addition, SAML support is available to optionally enable multifactor authentication for further protection against threats.

ENERGY STAR Certification
All E-Series systems use "85% PLUS" power supplies, exceeding the EPA ENERGY STAR requirement of 80% efficiency. See the latest EPA ENERGY STAR–certified E-Series configurations.

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 built for the environment:

- E4060 and E4012 are ASHRAE A2 compliant
- DE460C and DE212C are ASHRAE A3 compliant

Get more business value with services
Whether you're planning your next-generation data center, need specialized know-how for a major storage deployment, or want to optimize the operational efficiency of your existing infrastructure, NetApp Professional Services and NetApp Certified Partners can help.

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

Technical specs

	E4060 (DE460C)	E4012 (DE212C)	E5760 (DE406C)	E5724 (DE224C)
Form factor	4U/60 drives (both 2.5" and 3.5")	2U/12 drives (both 2.5" and 3.5")	4U/60 drives (both 2.5" and 3.5")	2U/24 drives (2.5")
Maximum raw capacity	1.3PB (using 60 × 22TB NL-SAS HDDs) 6.6PB with expansion shelves (total of 300 × 22TB NL-SAS drives)	264TB (using 12 × 22TB NL-SAS HDDs) 2.1PB with expansion shelves (total of 96 × 22TB NL-SAS HDDs)	1PB (using 60 × 18TB NL-SAS HDDs) 8.6PB with expansion shelves (total of 480 × 18TB NL-SAS drives)	286.2TB (6 × 1.8 TB + 18 x 15.3TB SSDs) 345.6TB (total of 192 × 1.8TB SAS HDDs
Maximum drives	300 HDDs (limit of 5 shelves total) 120 SSDs total	96 HDDs (limit of 8 shelves total) 96 SSDs (limit of 8 shelves total)	480 HDDs total 120 SSDs total	192 HDDs (limit of 8 shelves total) 120 SSDs total
System memory	32GB		32BG/128GB	
Drives supported[1]	NL-SAS 4TB, 8TB, 12TB, 22TB 10TB FIPS SSD 1.9TB (Please see Hardware Universe for current list of supported drives)	NL-SAS 4TB, 8TB, 12TB, 22TB 10TB FIPS SSD 1.9TB (Please see Hardware Universe for current list of supported drives)	NL-SAS 4TB, 8TB, 12TB, 18TB 10TB FIPS SAS 1.2TB, 1.8TB 1.8TB FIPS SSD 800GB, 1.6TB 1.6TB FIPS	SAS 1.2TB, 1.8TB 1.8TB FIPS SSD 800GB, 1.6TB, 3.8TB, 7.6TB, 15.3TB 1.6TB FIPS, 3.8TB FDE 15.3TB FDE

	E4060 (DE460C)	E4012 (DE212C)	E5760 (DE406C)	E5724 (DE224C)
Host I/O ports	**Base I/O Ports**			
	4 ports 25Gb iSCSI (optical)		4 ports 16Gb FC or 4 ports 10Gb iSCSI (optical)	
	Optional Add-On I/O Ports			
	8 ports 32Gb FC 8 ports 10Gb iSCSI (copper) 8 ports 12Gb SAS (NOTE: SAS card not available at release)		8 ports 32Gb FC 8 ports 10Gb iSCSI (copper) 8 ports 25Gb iSCSI (optical) 8 ports 12Gb SAS 4 ports 100Gb InfiniBand (iSER or SRP) 4 ports 100Gb NVMe over InfiniBand 4 ports 100Gb NVMe over RoCE (Ethernet)	
Supported HICs	12Gb SAS*, 10Gb iSCSI RJ-45 or 32Gb FC		NVMe/IB, NVMe/FC, NVMe/RoCE, •SRP/IB, iSER/IB, FC, iSCSI, SAS	
System management	SANtricity System Manager (web-based, on-box)			
High-availability features	• Dual active controller with automated I/O path failover • Automatic 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, disk drives, power supplies, and fans • Automatic rebuild after a drive failure • Mirrored data cache with battery-backed destage to flash • Data Assurance (T10 PI ANSI standard to ensure data integrity) • Proactive drive health monitoring that identifies problems before they create issues • NetApp Active IQ • Online SANtricity OS upgrades and drive firmware upgrades • Online configuration changes • Up to six-nines availability (with appropriate configuration and service plans)			
Host operating systems	• Apple macOS • Microsoft Windows Server • Novell SUSE Linux Enterprise Server • Oracle Enterprise Linux • Red Hat Enterprise Linux • Rocky Linux • VMware ESX		• Apple macOS • CentOS Linux • IBM AIX • Microsoft Windows Server • Novell SUSE Linux Enterprise Server • Oracle Enterprise Linux • Oracle Solaris • Red Hat Enterprise Linux • Ubuntu Linux • VMware ESX	
Included software features	• SANtricity synchronous and asynchronous mirroring • SANtricity volume copy • SANtricity thin provisioning • SANtricity Snapshot • SANtricity SSD cache • SANtricity Cloud Connector			
Security features	• Drive encryption (FDE/FIPS) support[2] • Native encryption key management • External encryption key management (KMIP-compliant) • Role-based access control and audit log • LDAP support • SAML support to enable Multi-Factor Authentication • Common Criteria certification in progress			
System capabilities	• Dynamic Disk Pools and Traditional RAID coexistence • Dynamic volume expansion • Dynamic capacity expansion for DDP or RAID volume group • Dynamic capacity contraction (DDP only) • Dynamic RAID-level or segment size migration (traditional RAID only) • Embedded system event monitoring • Full Stripe Write Acceleration (FSWA) to accelerate system write performance (for qualifying workloads)			
Open management	• NetApp SANtricity Web Services embedded REST APIs • NetApp PowerShell Toolkit APIs • NetApp SANtricity Secure CLI			
Management enablers	• NetApp SANtricity Performance App for Splunk Enterprise[3] • VMware vSphere Storage APIs—Array Integration (VAAI) • Microsoft Windows Offloaded Data Transfer (ODX)			

	E4060 (DE460C)		E4012 (DE212C)		E5760 (DE406C)		E5724 (DE224C)	
System maximums	• Hosts/partitions: 256 • Volumes: 512 • Maximum DDP capacity per system: 12PB • Maximum DDP volume size: 4PB • Maximum RAID volume size: 4PB • Snapshot copies: 512 • Async mirror pairs: 32				• Hosts/partitions: 512 • Volumes: 2,048 • Maximum DDP capacity per system: 12PB • Maximum DDP volume size: 4PB • Maximum RAID volume size: 4PB • Snapshot copies: 2,048 • Async mirror pairs: 128			
Dimensions and weight	**E4060 SYSTEM SHELF DE460C DISK SHELF**		**E4012 SYSTEM SHELF DE212C DISK SHELF**		**E5760 SYSTEM SHELF DE460C DISK SHELF**		**E5724 SYSTEM SHELF DE224C DISK SHELF**	
Height	6.97" (17.70cm)		3.47" (8.81cm)		6.97" (17.70cm)		3.47" (8.81cm)	
Width	19" (48.26cm)		19" (48.26cm)		19" (48.26cm)		19" (48.26cm)	
Depth	38.25" (97.16cm)		21.1" (53.59cm)		38.25" (97.16cm)		19.27" (48.95cm)	
Weight[4]	E4060: 226lb (102kg)		E4012: 62lb (28kg)		E5760: 226lb (102kg)		E5724: 55.16lb (25kg)	
	DE460C: 221.014lb (99.46kg)		DE212C: 50.064lb (22.53kg)		DE460C: 221.014lb (99.46kg)		DE224C: 50.064lb (22.53kg)	
Power	**E4060 System Shelf**		**E4012 System Shelf**		**E5760 System Shelf**		**E5724 System Shelf**	
	Typical	**Maximum**	**Typical**	**Maximum**	**Typical**	**Maximum**	**Typical**	**Maximum**
kVA	0.587	0.701	0.587	0.701	0.587	0.701	0.587	0.701
Watts	581.79	694.15	581.79	694.15	581.79	694.15	581.79	694.15
BTU	1985.15	2368.54	1985.15	2368.54	1985.15	2368.54	1985.15	2368.54
Power	**DE460C Disk Shelf**		**DE212C Disk Shelf**		**DE224C Disk Shelf**			
	Typical	**Maximum**	**Typical**	**Maximum**	**Typical**		**Maximum**	
kVA	1.102	1.501	0.25	0.344	0.313		0.426	
Watts	1090.84	1485.62	248.7	343.7	309.7		422.06	
BTU	3722.1	5069.15	850.55	1175.5	1056.74		1440.13	

Contact Us

About NetApp

NetApp is the intelligent data infrastructure company combining unified data storage, integrated data services, and CloudOps solutions to turn a world of disruption into opportunity for every customer. NetApp creates silo-free infrastructure, then harnesses observability and AI, to enable the best data management. As the only enterprise-grade storage service natively embedded in the world's biggest clouds, our data storage delivers seamless flexibility and our data services create a data advantage through superior cyber-resilience, governance, and applications agility. Our CloudOps solutions provide continuous optimization of performance and efficiency through observability and AI. No matter the data type, workload or environment, transform your data infrastructure to realize your business possibilities with NetApp. www.netapp.com

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DATASHEET

NETAPP E4060/E4012

Gain affordable performance with our cost-effective hybrid flash arrays

The NetApp E4060 and E4012 systems are hybrid flash storage systems with a low acquisition cost and even lower cost of ownership. With the E4060 and E4012, you can streamline your IT infrastructure and drive down costs. Pay-as-you-grow flexibility makes the E4060 and E4012 excellent solutions 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, E4060 and E4012 hybrid arrays are purpose-built to optimize performance for mixed workloads. The E4060 and E4012 improve IOPS and throughput to help you extract value from your data and take action faster. The intuitive, on-box graphical interface simplifies configuration and maintenance while providing storage capabilities to deliver consistent performance, data integrity, reliability, and security.

Affordable Performance
The E4060 and E4012 storage systems balance price and performance. These systems deliver over 900K sustained IOPS and support a broad range of high-speed host interfaces, including 32Gb Fibre Channel (FC), 25Gb iSCSI, and it's 12Gb SAS-ready, to protect investment in storage networks.

The SSD cache feature provides intelligent analytics-based caching capabilities for read-intensive workloads. Hot data is cached by using higher-performance, lower-latency SSDs in the drive shelves, with the full dataset being stored on HDDs. You don't need to set up complicated policies to define the trigger for data movement between tiers. You can simply set it and forget it. The SSD cache is expandable to up to 8TB per storage system.

Ease of use
The E4060 and E4012 have a modular design and simple management tools that make it easy to scale without adding management complexity. The on-box, browser-based SANtricity System Manager GUI enables you to streamline deployment and start working with your data in under 10 minutes.

You can use SANtricity System Manager to walk through workload-appropriate provisioning, or you can provision workloads on your own. NetApp Dynamic Disk Pools (DDP) technology dramatically simplifies RAID management by distributing data, parity, and spare capacity across a pool of drives, with intelligent defaults, minimal decision making, and no stranded capacity after deletions. A single E4060 or E4012 system can support both DDP and traditional RAID volumes if your workloads require it.

Advanced Data Protection
NetApp SANtricity DDP technology enables storage administrators to simplify RAID management, improve data protection, and maintain predictable performance under all conditions. DDP technology evenly distributes data, protection information, and spare capacity across the entire pool of drives, simplifying setup and maximizing use. This innovative technology minimizes the performance impact of a drive failure and can return the system to optimal condition up to 8x faster than traditional RAID. With shorter rebuild times and patented technology to prioritize reconstruction, DDP capabilities significantly reduce exposure to multiple disk failures, offering a level of data protection that simply can't be achieved with traditional RAID.

With SANtricity software, all management tasks can be performed while the storage remains online with complete read/write data access. Storage administrators can make configuration changes, conduct maintenance, or expand the storage capacity without disrupting I/O to attached hosts. SANtricity software online capabilities include:

- Dynamic Disk Pool allows for easy capacity increases and decreases.
- Dynamic volume expansion enables administrators to increase the capacity of an existing volume.
- Dynamic segment size migration enables administrators to change the segment size of a given volume.
- Dynamic RAID-level migration changes the RAID level of a RAID group on the existing drives without requiring the relocation of data. Supported RAID levels are 0, 1, 5, 6, and 10.
- All firmware updates (controller, drive, IOM) are nondisruptive, with no interruption to data access.

KEY BENEFITS

Affordable Performance
Leverage flash in an affordable hybrid system for a wide range of mixed workloads.

Worry-Free Reliability
The NetApp E4060 and E4012 are entry-level products with enterprise-level redundancy, automated management, and field-proven availability.

Proven Simplicity
A modern, on-box, browser-based GUI enables you to get access to your data in under 10 minutes, with simple, flexible administration.

To protect against data loss and downtime events, both locally and over long distances, the E4060 and E4012 offer integrated data protection features including:

- NetApp Snapshot™ technology. Create and restore point-in-time copies of datasets in less than a second to protect against accidental data loss on the local array.
- Volume copy. Create a complete physical copy (clone) of a volume for applications that require a full point-in-time copy of production data.
- Asynchronous mirroring. Volume replication over FC or IP long distance to a remote site keeps your business operations running no matter what happens.
- Synchronous mirroring. Continuous volume replication is enabled over FC at campus distances.

With the E4060 and E4012 arrays, you can easily replicate data to another E4060, E4012, or other NetApp E-Series system. With this capability, you can create a high-speed, low-latency recovery system that runs at the same speed as your production operations. This flexibility in design allows you to choose the profile of performance and cost to meet your business requirements.

High Availability and Enterprise Reliability
The E4060 and E4012 are based on a field-proven architecture that delivers high reliability and 99.9999% availability when NetApp best practices are followed. The E4060 and E4012 offer a secure, reliable foundation for your valuable data.

Designed to have no single point of failure, E4060 and E4012 have fully redundant I/O paths with automated failover and extensive diagnostic capabilities that alert on and actively help resolve failures. SANtricity Data Assurance (based on the T10 PI industry standard) validates data integrity and protects against silent data corruption.