![NetApp logo]

Datasheet

NetApp E2600 Storage System

Affordable, reliable, and flexible storage

The Challenge
Organizations of all sizes struggle to deliver consistent performance while meeting escalating capacity requirements and increasing space restrictions. For entry-level and mid-range environments especially, these challenges must be met with minimal cost and complexity.

The Solution
The E2600 storage system is a streamlined performance solution designed with robust flexibility that makes it a great fit for wide-ranging requirements. Its streamlined performance is equally adept at supporting high-bandwidth and transaction-intensive workloads. The E2600's multiple disk shelf options enable custom configurations that can be optimized and seamlessly fit into any environment. And the E2600's fully redundant I/O paths, advanced protection features, and extensive diagnostic capabilities deliver high levels of availability, integrity, and security. The E2600 best-in-class price/performance design delivers on simple SAN storage for today's cost-conscious entry-level and midrange environments.

Streamlined Performance Efficiency
The E2600 storage system continues a heritage of streamlined performance that can support any workload. Data-intensive bandwidth applications benefit from the E2600's ability to sustain high read and write throughput, while database-driven transactional applications benefit from its responsiveness and linear scalability. The E2600 delivers on performance efficiency with its ability to maximize disk I/O cost effectively.

Intelligent cache tiering, using the SSD Cache feature, enhances performance by leveraging the superior performance of SSD media for the most frequently accessed blocks of data.

Modular Design
Understanding that each site is different, the E2600 offers multiple drive technologies and disk shelf options to seamlessly fit into any environment. Its 24-disk shelf maximizes performance per U while minimizing power consumption. For capacity-hungry environments, the 60-disk shelf maximizes rack density with support for up to 180TB in just 4U. And the 12-disk shelf is a great fit for cost-conscious organizations that need to deploy both performance and capacity drives. All three shelves support E2600 controllers or can be used for expansion, enabling optimized configurations that best meet performance, capacity, or cost requirements.

Full-time storage administrators appreciate the extensive configuration flexibility that allows optimal performance tuning and complete control over data placement; part-time system administrators love the intuitive interface and wizards designed to simplify their tasks.

Interface Flexibility

Today's infrastructures offer a wide variety of connectivity options, and the E2600's interface flexibility fits right in. Its SAS interfaces provide a high-speed, low-latency connection tailored to high-performance direct-attached solutions. iSCSI and FC interface options enable the E2600 to seamlessly integrate into existing data centers with established storage networks.

Seamless Protection: Dynamic Disk Pools

Patent-pending Dynamic Disk Pools (DDPs) greatly simplify traditional RAID management by distributing data, parity information, and spare capacity across a pool of drives, also enabling easier capacity expansion and greater data protection. DDP offers continued performance and seamless data protection by quickly recovering a failed drive up to eight times more quickly than traditional RAID.

While the E2600 offers both standard RAID and DDP volume groups, a key concept of DDP is the dynamic rebalancing of data during changes in the number of drives, whether adding drives or in the case of when a drive fails. Unlike a traditional RAID volume group's rigid configuration with a specific number of drives, Dynamic Disk Pools can optimize from a minimum of 11 to the maximum number of drives supported by the E2600 system.

Key tenets of DDP technology:

- Elimination of complex RAID management
- No idle spares to manage
- No reconfiguring of RAID when expanding
- Faster rebuild times associated with DDP following a failure of a drive (or multiple drives) when compared to traditional RAID schemes

When data is entrusted to your storage, protecting it is essential. Beyond DDP, the E2600 has advanced protection technologies built into SANtricity®, such

as data-at-rest encryption, proactive monitoring, background repair, and extensive diagnostic features; data is fully protected when it reaches the storage system.

Intelligent Cache Tiering

Using SSD Cache provides intelligent cache tiering capability to identify and host the subset of the data that is hot on the SSDs. Because this caching is data driven and works in real time, there is nothing to manage or maintain. Users are not required to set up complicated policies to define the trigger for data movement between tiers.

Proven Data Replication and Disaster Recovery

With NetApp E-Series SANtricity remote mirroring, customers have a proven and efficient disaster recovery schema for maintaining access to business-critical data in the event of site outages. Available for both FC and IP networks, SANtricity remote mirroring provides highly available data storage

E2600 TECHNICAL SPECIFICATIONS

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

	E2660 (DE6600)	E2624 (DE5600)	E2612 (DE1600)
Maximum raw capacity	240TB with expansion to 768TB	28.8TB with expansion 700.8TB	48TB with expansion 768TB
Form factor	4U/60 drives	2U/24 drives	2U/12 drives
Maximum disk drives*	180 using only 60 drive shelves 192 with expansions shelves 75 SSDs: 25 SSDs/60-drive shelf	192 120 SSDs	192
Drive types supported	2/3/4TB NL-SAS 7.2k FDE/non-FDE 600/900GB,1.2TB SAS 10k FDE/non-FDE 400GB, 800GB, 1.6TB SSD non-FDE 800GB SSD FDE	600/900GB,1.2TB SAS 10k FDE/ non-FDE 400GB, 800GB, 1.6TB SSD non-FDE 800GB SSD FDE	2/3/4TB NL-SAS 7.2k FDE/ non-FDE
System ECC memory	4GB		
Base ports for host I/O	Four 6GB SAS		
Additional ports for host I/O	Four 6GB SAS Eight 8GB FC Eight 1GB iSCSI Four 10GB iSCSI		
Operating system	SANtricity 11.10		
High-availability features	Dual active controller with automated I/O path failover Supports Dynamic Disk Pools and traditional RAID levels 0, 1, 3, 5, 6, and 10 simultaneously Redundant, hot-swappable storage controllers, disk drives, power supplies, and cooling fans Dynamic Disk Pools dynamic rebalancing for change in drive counts up or down Automatic 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 issues99.999% availability (with appropriate configuration and service plans)		
Operating systems	Microsoft® Windows Server®, Red Hat Enterprise Linux®, Novell SUSE Linux Enterprise Server, VMware® ESX®, Oracle® Solaris, HP HP-UX, Apple® Mac® OS		
Software features	**Standard** SANtricity Remote Mirroring SANtricity Volume Copy SANtricity Snapshot™ SANtricity SSD Cache SANtricity Thin Provisioning Data Assurance (T10P1) Dynamic Disk Pools Dynamic volume expansion Dynamic capacity expansion Dynamic RAID-level migration Dynamic segment size migration Event monitoring Proactive drive heath monitoring Nondisruptive firmware upgrades Media scan with autoparity check and correction	**Optional Extended-Value Software** SANtricity Disk Encryption	

*Based on same form factor disk shelves. All models are capable of reaching 192 disk drives when configured with intermixed drive shelves.

E2600 TECHNICAL SPECIFICATIONS CONT'D

Dimensions and weight	E2660 system shelf DE6600 disk shelf	E2624 system shelf DE5600 disk shelf	E2612 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)

	E2660 system shelf		E2624 system shelf		E2612 system shelf	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
KVA	0.899	1.109	0.337	0.487	0.283	0.433
Watts	890	1097	333	482	281	429
BTU	3036	3745	1138	1644	957	1464

	DE6600 disk shelf		DE5600 disk shelf		DE1600 disk shelf	
	Typical	Maximum	Typical	Maximum	Typical	Maximum
KVA	0.782	0.992	0.225	0.375	0.172	0.322
Watts	774	982	223	371	170	318
BTU	2641	3350	761	1267	580	1086

across campus, the state, or the world and simplifies the management of data replication to meet the application service levels of both virtual and traditional environments.

Storage Efficiency

Thin provisioning eliminates overprovisioning of storage by automatically allocating storage internally, only as it is actually used, while reporting full allocations to hosts, significantly lowering storage use and future storage purchases. The goal of thin provisioning is to reduce storage TCO (capex and opex) by reducing initial acquisition capacity and improving utilization.

Key tenets of thin provisioning:

• Remove the guesswork on application and storage capacity requirements
• Eliminate large initial storage purchases based on inflated storage capacity estimates
• Decrease the frequency of error-prone emergency out-of-space activities
• Target to improve storage utilization rates up to 33%
• Experience simple installation and setup with one-time management at volume creation
• Have automatic growth management of usage expansion to maximum storage

Intuitive Simple Management

NetApp SANtricity storage management software combines robustness and ease of use. Full-time storage administrators appreciate the extensive configuration flexibility, which allows optimal performance tuning and complete control over data placement; part-time system administrators love the intuitive interface and wizards designed to simplify their tasks. And with its dynamic capabilities, SANtricity software supports on-the-fly expansion, reconfiguration, and maintenance without interrupting storage system I/O.

Proven Reliability

The E2600 is based on a field-proven design architected to provide high reliability and availability. Its redundant components, automated path failover, and online administration keep organizations productive 24/7/365. And the E2600's advanced protection features and extensive diagnostic capabilities deliver high levels of data integrity.

About NetApp

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