

Dell PowerScale Hybrid

The PowerScale hybrid nodes handle a wide variety of large-scale data workloads while lowering your costs.

The PowerScale family comprises of PowerScale and Isilon scale-out file storage platforms configured with the PowerScale OneFS operating system. PowerScale OneFS provides the intelligence behind the highly scalable, high-performance modular storage solution that can grow with your business. A OneFS powered cluster can be built with a flexible choice of storage platforms including all-flash, hybrid and archive nodes. These solutions provide the performance, choice, efficiency, flexibility, scalability, security, and protection for you to store massive amounts of unstructured data within a cluster.

PowerScale Hybrid NAS platforms are highly flexible and strike a balance between large capacity and high-performance storage to provide support for a broad range of enterprise file workloads. The PowerScale hybrid platforms co-exist seamlessly in the same cluster with your existing PowerScale or Isilon nodes to drive your traditional and modern applications.

The PowerScale and Isilon Hybrid nodes include:

PowerScale H700 and H7000

PowerScale H700 provides maximum performance and value to support a demanding file workload. The H700 provides capacity up to 1.2 PB per chassis. The H700 includes inline compression and deduplication capabilities



PowerScale H7000 is a versatile, high performance, high-capacity hybrid platform which supports up to 1.6 PB per chassis. The deep chassis based H7000 is an ideal to consolidate a range of file workloads on a single platform. The H7000 includes inline compression and deduplication capabilities

Embedded, integrated, or attached OEM versions are available for PowerScale hybrid nodes as either de-branded or re-branded solutions.

PowerScale H700 Hybrid Specifications

H700 ATTRIBUTES & OPTIONS	2 TB HDD	4 TB HDD	8 TB HDD	12 TB HDD	16 TB HDD	20 TB HDD
Chassis capacity	120 TB	240 TB	480 TB	720 TB	960 TB	1.2 PB
Hard disc drives (HDD) (3.5") per chassis	60					
Self-encrypting drive (SED HDD) FIPS140-2 compliant option	Yes, except 20 TB drives					
Operating system	OneFS 9.2.1 or later					
Number of nodes per chassis	4					
ECC memory (per node)	192 GB					
Cache (per Node) solid state drives (SSD) (800 GB, 1.6 TB, 3.2 TB or 7.68 TB)	1 or 2 Capacity and number of SSDs determined by HDD size and count					

Front-end networking (per node)	2 x 100GbE (QSFP28) or 2 x 25GbE (SFP28)
Infrastructure (back-end) networking (per node)	2 InfiniBand connections with QDR links or 2 x 100 GbE (QSFP28) or 2 X 25 GbE (SFP28)
Max Power Consumption @ 200~240v (per chassis) ¹	1528 Watts (@25°C)
Typical thermal rating	5213 BTU/hr

¹Values at <25° C are reflective of more steady state maximum values during normal operation

PowerScale H7000 Hybrid Specifications

H7000 ATTRIBUTES & OPTIONS	12 TB HDD	16 TB HDD	20 TB HDD
Chassis capacity	960 TB	1.28 PB	1.6 PB
Hard disc drives (HDD) (3.5") per chassis	80		
Self-encrypting drive (SED HDD) FIPS140-2 compliant option	Yes, except 20 TB drives		
Operating system	OneFS 9.2.1 or later		
Number of nodes per chassis	4		
ECC memory (per node)	384 GB		
Cache (per node) solid state drives (SSD) (3.2TB or 7.68TB)	1 or 2 Capacity and number of SSDs determined by HDD size and count ²		
Front-end networking (per node)	2 x 100GbE (QSFP28) or 2 X 25 GbE (SFP28)		
Infrastructure (back-end) networking (per node)	2 InfiniBand connections with QDR links or 2 x 100 GbE (QSFP28) or 2 X 25 GbE (SFP28)		
Max Power Consumption @ 200~240v (per chassis) ¹	1688 Watts (@25°C)		
Typical thermal rating	5759 BTU/hr		

¹Values at <25° C are reflective of more steady state maximum values during normal operation

²20TB drive version of H7000 default with one 7.68TB cache drive while 12 and 16TB drive versions default with two 3.2TB cache drives

CLUSTER ATTRIBUTES	H700	H7000
Number of chassis	1 to 63	
Number of nodes	4 to 252	
Raw cluster capacity	120 TB to 75.6 PB	960 TB to 100.8 PB
Rack units	4 to 252	

PowerScale Attributes

PRODUCT ATTRIBUTES	
Scale-out architecture	Distributed fully symmetric clustered architecture that combines modular storage with OneFS operating system in a single volume, single namespace, and single filesystem
Modular design	Four self-contained Isilon or PowerScale nodes include server, software, HDDs and SSDs in a 4U rack-mountable chassis. All nodes can be integrated into existing PowerScale and Isilon clusters with backend Ethernet or InfiniBand connectivity
Scalability	A cluster can scale up to 252 nodes. A minimum number of hybrid nodes per cluster is four for PowerScale and four for Isilon. Add nodes to scale performance and capacity. A single cluster can deliver up to 186PB raw capacity.
High availability	No-single-point-of-failure. Self-healing design protects against disk or node failure; includes back-end intra-cluster failover
Operating system	PowerScale OneFS distributed file system creates a cluster with a single file system and single global namespace. It is fully journaled, fully distributed, and has a globally coherent write/read cache
Data protection	FlexProtect file-level striping with support for N+1 through N+4 and mirroring data protection schemes
2-way NDMP	Supports two ports of Fibre Channel (8G) that allows for two-way NDMP connections and two ports of standard 10GbE connectivity
Data retention	SmartLock policy-based retention and protection against accidental deletion
Security	File system audit capability and STIG hardening to improve security and control of your storage infrastructure and address regulatory compliance requirements. PowerScale Cyber Protection powered by Superna Ransomware Defender can be included
Efficiency	SmartDedupe data deduplication option, which can reduce storage requirements. Inline data reduction and compression available on F200, F600, F900, F810, H5600, H700, H7000, A300 and A3000 nodes
Automated storage tiering	Policy-based automated tiering options including SmartPools and CloudPools software to optimize storage resources and lower costs
Network protocol support	NFSv3, NFSv4, NFS Kerberized sessions (UDP or TCP), SMB1 (CIFS), SMB2, SMB3, SMB3-CA, Multichannel, HTTP, FTP, NDMP, SNMP, LDAP, HDFS, S3, ADS, NIS reads/writes
Data replication	SyncIQ fast and flexible one-to-many file-based asynchronous replication between clusters. SmartSync provides flexible file to file and file to object data movement

ENVIRONMENTAL SPECIFICATIONS – POWER

H700 and H7000: Dual-redundant, hot-swappable 1450W power supplies with power factor correction (PFC); rated for input voltage 180 – 265 VAC (optional rack mount step-up transformer for 90-130 VAC input regions)

Power factor and efficiency rate for **H700**

System Load	Efficiency	PF
10%	93.13%	0.8573
20%	95.29%	0.9538
50%	96.00%	0.9865
100%	94.47%	0.9953

Power factor and efficiency rate for **H7000**

System Load	Efficiency	PF
10%	89.74%	0.933
20%	94.28%	0.982
50%	95.11%	0.996
100%	92.93%	0.998

CFM – Volume of airflow; cubic feet/minute

H7000: each Node 60CFM, total chassis 240CFM (max.)

H700: each Node 70CFM, total chassis 280CFM (max)

OPERATING ENVIRONMENT

Compliant with ASHRAE A3 data center environment guidelines

DIMENSIONS / WEIGHT:

H700:

- Height: 7" (17.8 cm); Width: 17.6" (44.8 cm);
- Depth (front NEMA rail to rear 2.5" SSD cover ejector): 35.8" (91.0 cm);
- Depth (front of bezel to rear 2.5" SSD cover ejector): 37.6" (95.5 cm)

H7000:

- Height: 7" (17.8 cm); Width: 17.6" (44.8 cm);
- Depth: (front NEMA rail to rear 2.5" SSD cover ejector): 40.4" (102.6 cm);
- Depth: (front of bezel to rear 2.5" SSD cover ejector): 42.2" (107.1 cm);

The following max weights per Chassis/node:

- H700: 261 lbs. (118.4 kg)
- H7000: 311.7 lbs. (141.4 kg)

MINIMUM SERVICE CLEARANCES

Front: 40" (88.9 cm), rear: 42" (106.7 cm)

Safety and EMI Compliance

Statement of Compliance

This Information Technology Equipment is compliant with the electromagnetic compatibility and product safety regulations/standards required by the countries in which the product is sold. Compliance is based on FCC part 15, CISPR22/CISPR24 and EN55022/EN55024 standards, including applicable international variations. Compliant Class A products are

marketed for use in business, industrial, and commercial environments. Product Safety compliance is based on IEC 60950-1 and EN 60951-1 standards, including applicable national deviations.

This Information Technology Equipment is in compliance with EU RoHS Directive 2011/65/EU.

The individual devices used in this product are approved under a unique regulatory model identifier that is affixed to each individual device rating label, which may differ from any marketing or product family name in this datasheet.

PowerScale H700 and H7000 nodes are Energy Star compliant.



For additional information see <http://support.dell.com> under the Safety & EMI Compliance Information tab.

Take the next step

Contact your Dell sales representative or authorized reseller to learn more about how PowerScale scale-out NAS storage can benefit your organization.



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