DELL Technologies

Data Sheet

Dell PowerScale All-Flash

PowerScale all-flash storage nodes redefine performance and scale.

Dell PowerScale all-flash storage nodes are designed to accelerate demanding file and object workloads with consistent high performance, operational simplicity, and robust cyber resiliency across edge, core, and cloud environments. Powered by the OneFS operating system, its software-defined architecture scales linearly from terabytes to exabytes, delivering the massive throughput and low-latency access critical for AI and HPC workloads. And PowerScale clusters can combine all-flash, hybrid, and archive nodes within a single namespace, optimizing performance and cost for every workload.

PowerScale all-flash nodes integrate effortlessly into existing PowerScale or Isilon clusters, accelerating performance for both traditional and modern workloads, while maintaining simple, consistent management.

PowerScale F910

PowerScale F910 is the latest in our next-generation all-flash nodes lineup and provides massive AI-ready performance with the ultimate capacity in a highly dense 2U configuration. Each node hosts 24 NVMe SSDs. F910 allows you to scale raw storage from 92 TB to 2.9 PB per node. The F910 includes in-line compression and deduplication to maximize efficiency. The minimum number of PowerScale nodes per cluster is three while the maximum cluster size is 252 nodes. The F910 is best suited for high-capacity workloads within demanding verticals like media and entertainment, high frequency trading, healthcare and accelerating phases of the AI lifecycle for Generative AI applications.

PowerScale F710

Our next-generation PowerScale F710, leveraging PowerEdge R660, delivers high performance and improved density in a 1U platform with up to 10 all-flash NVMe SSD drives per node. The F710 allows you to scale raw storage from 38 TB to 1.2 PB per node. The F710 includes in-line compression and deduplication. The minimum number of PowerScale nodes per cluster is three while the maximum cluster size is 252 nodes. The F710 is best suited for Generative AI and AI workloads, as well as high performing vertical workloads like, media and entertainment, healthcare and life sciences, high frequency trading, and EDA workloads - and is the world's first ethernet-based storage appliance certified with NVIDIA DGX SuperPOD.

PowerScale F210

PowerScale F210 is also part of our next-generation all-NVMe lineup. It delivers significant performance gains over the previous generation in a cost-effective 1U form factor with up to 4 NVME all-flash SSD drives per node. The F210 offers a 15TB QLC option and allows you to scale raw storage from 8 TB to 61 TB per node and up to 15 PB of raw capacity per cluster. It also includes in-line compression and deduplication. The minimum number of PowerScale nodes per cluster is three while the maximum cluster size is 252 nodes. The F210 is best suited for customer beginning their AI and Analytics journey, and other high-demanding workloads that require a balance of performance and capacity.

PowerScale F910 All-NVMe Specifications

F910 ATTRIBUTES & OPTIONS	3.84 TB SSD	7.68 TB SSD	15.36 TB SSD	30.7 TB SSD	61.4 TB SSD [2]	122 TB SSD*
Raw node capacity	92 TB	184 TB	368TB	736.8 TB	1.4 PB	2.9PB
NVMe SSD drives (2.5”) per node	24					
Self-Encrypting Drives (SED)	Yes (requires OneFS 9.8)					
Operating system	PowerScale OneFS 9.8 or later					
ECC memory (per node)	512 GB					
Front-end networking (per node)	Dual port 25G NIC supporting 10G or 25G connections Dual port 100G NIC supporting 40G or 100G connections Dual port 200G or 400G Ethernet NIC[3] Dual port 200G InfiniBand NIC (HDR)					
Infrastructure networking (per node)	Dual port 100G NIC supporting 40G or 100G connections Dual port 200G or 400G Ethernet NIC[3] Dual port 200G InfiniBand NIC (HDR)					
Max Power Consumption @ 200~240V (per node)[1]	877 Watts (@25°C), 913 Watts (@35°C)					
Typical thermal rating	2992 BTU/hr (@25°C), 3115 BTU/hr (@35°C)					

*Requires OneFS 9.11.0.0
[1]Values at <25° C are reflective of more steady state maximum values during normal operations
[2]Requires OneFS 9.10
[3]Requires OneFS 9.13

PowerScale F710 All-NVMe Specifications

F710 ATTRIBUTES & OPTIONS	3.84 TB SSD	7.68 TB SSD	15.36 TB SSD	30.7 TB SSD	61.4 TB SSD[2]	122 TB SSD*
Raw node capacity	38 TB	77 TB	154 TB	307 TB	614 TB	1.2 PB
NVMe SSD drives (2.5”) per node	10					
Self-Encrypting Drives (SED)	Yes (requires OneFS 9. 7)					
Operating system	Yes (requires OneFS 9. 7)					
ECC memory (per node)	512 GB					
Front-end networking (per node)	Dual port 25G NIC supporting 10G or 25G connections Dual port 100G NIC supporting 40G or 100G connections Dual port 200G Ethernet NIC Dual port 200G InfiniBand NIC (HDR)					
Infrastructure networking (per node)	Dual port 100G NIC supporting 40G or 100G connections Dual port 200G Ethernet NIC Dual port 200G InfiniBand NIC (HDR)					
Max Power Consumption @ 200~240V (per node)[1]	769 Watts (@25°C), 887 Watts (@35°C)					
Typical thermal rating	2622 BTU/hr (@25°C), 3025 BTU/hr (@35°C)					

*Requires OneFS 9.11.0.0
[1]Values at <25° C are reflective of more steady state maximum values during normal operations
[2]Requires OneFS 9.10

PowerScale F210 All-NVMe Specifications

F210 ATTRIBUTES & OPTIONS	1.92 TB SSD	3.84 TB SSD	7.68 TB SSD	15.36 TB SSD
Raw node capacity	7.7 TB	15 TB	31 TB	61 TB
NVMe SSD drives (2.5”) per node	4			
Self-Encrypting drive(SED SSD) FIPS 140-2 compliant option	Yes (requires OneFS 9.7)			
Operating system	Yes (requires OneFS 9.7)			
ECC memory (per node)	128GB			
Front-end networking (per node)	D ual port 25G NIC supporting 10G or 25G connections (SFP+/SFP28) Dual port 100G NIC supporting 40G or 100G connections			
Infrastructure networking (per node)	Dual port 25G NIC supporting 10G or 25G connections Dual port 100G NIC supporting 40G or 100G connections Dual port 200G InfiniBand NIC (HDR)			
Max Power Consumption @ 200~240V (per node)[1]	286 Watts (@25°C), 309 Watts (@35°C)			
Typical thermal rating	975 BTU/hr (@25°C), 1054 BTU/hr (@35°C)			

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

CLUSTER ATTRIBUTES	Number of nodes	Raw cluster capacity	Rack units
F910	3 to 252	276 TB 737 PB	3 to 252
F710	3 to 252	115 TB 307 PB	3 to 252
F210	3 to 252	23 TB to 15 PB	3 to 252

Cluster scalability limitations may apply.

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	1U or 2U rack mountable PowerScale with 3 nodes minimum. Four self-contained Isilon 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 upto 252 nodes. The minimum number of all-flash nodes per cluster is three for PowerScale and four forIsilon. 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.
NDMP Backup	Supports two-way NDMP backups for effective data protection.

PRODUCT ATTRIBUTES	
Data retention	SmartLock policy-based retention and protection against accidental deletion.
Security	STIG hardening, a host-based firewall, RBAC with auditing, encryption for data at rest and in flight, Secure Boot, anti-virus integration, improve security and strengthen control. Optional features add SmartLock WOR immutability, Multi-Party Authorization, and broader Cyber Protection Suite capabilities for ransomware resilience and governance.
Efficiency	SmartDedupe data deduplication option, which can reduce storage requirements by up to 35 percent. Inline data reduction and compression.
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, NFSoRDMA, 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	Syn clQ fast and flexible one-to-many file-based asynchronous replication between clusters. SmartSync provides efficient file to file and file to object data movement.

ENVIRONMENTAL SPECIFICATIONS - POWER

Power factor is a measure of how effectively you are using electricity. The power factor of an AC electrical porwer system is defined as the ratio of the real power absorbed by the load to the apparent power flowing in the circuit and is a dimensionless number in the closed interval of -1 to 1. A power factor of less than one indicates the voltage and current are not in phase, reducing the instantaneous product of the two.

For max power consumption information during unexpected environmental conditions, please referto the “Site Preparation and Planning Guide”.

POWER SUPPLY: Key Specifications and Efficiency for PowerScale F210, F710, and F910

Attribute	F710 and F210	F910
Class	Platinum	Platinum
Frequency	50/60 Hz	50/60 Hz
Voltage	100-240V, F210: 9.2 A-4.7A, F710: 12 A-8A	100-240V, 12 A-8A

Operating Environment: 10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment For additional information about environmental measurements for specific system configurations, see Dell.com/environmental datasheets

OPERATING ENVIRONMENT	Compliant with ASHRAE A3 data center environment guidelines

DIMENSIONS/ WEIGHT:

The following specifications apply to F910:

- Height: 86.8 mm (3.41 inches)
- Width: 482 mm (18.97 inches)
- Depth: 772.13 mm (30.39 inches) with bezel
- Weight: 72.2 lbs. (32.75 kg)

The following specifications apply to F210 and F710

- Height: 42.8mm (1.68”)
- Width: 482mm (18.97”)
- Depth: 822.88mm (32.39”) with bezel
- Weight: F210 - 44.8 lbs (20.3 kg), F710 - 49.6 lbs (22.5 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.

The PowerScale F210, F710, and F910 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.