



Dell PowerStore Gen 3 appliances

A new class of modern data platform

The next generation of Dell PowerStore's enterprise storage platform empowers you to achieve new levels of operational agility and harness the full potential of your data with advanced high-speed storage technologies and intelligent AI-powered automation. Accelerate block, file and container workloads with a scale-out and up unified platform that keeps pace with rapidly changing business requirements. Streamline DevOps with automated workflows, extensive support for containerized apps and deep ecosystem integrations that let you provision advanced PowerStore services from your management framework of choice. Leverage PowerStore with Dell Private Cloud to streamline deployments, achieve hypervisor flexibility, and enable integrated lifecycle management, simplifying operations and boosting efficiency.

Architecture

PowerStore utilizes Intel® Xeon® Scalable processors, high-speed PCIe interconnects, and autonomous active/active controllers with flexible, combined with flexible and advanced end-to-end NVMe technology including dual-ported compact E3 NVMe SSDs and NVMe-over-fabric networking (both FC and TCP), to deliver high-performance and ultra-low-latency for any workload. Always-on, zero performance impact data reduction with integrated next-gen Intel® QAT hardware compression offload reduces storage costs while built-in intelligent automation, active resource balancing, predictive analytics, and non-disruptive software upgrades ensures your storage environment remains continuously optimized. Built on a multi-generational platform designed to grow with your environment, PowerStore keeps your storage environment up-to-date, easy to manage, and ready to evolve with your business needs over time.

Per appliance ¹	1500	5500	9500		
Nodes	Each appliance includes two active/active nodes				
Processors	2 Intel Xeon CPUs 48 cores (2 x 24), 1.9GHz	4 Intel Xeon CPUs 96 cores (4 x 24 cores), 1.8GHz	4 Intel Xeon CPUs 128 cores (4 x 32 cores), 2.2GHz		
Memory	512GB	1024GB	2048GB		
Max drives	24	40	40		
Base enclosure	3U enclosure with dual active/active nodes and twenty-four (24) E3 drive slots	3U enclosure with dual active/active nodes and forty (40) E3 drive slots			
Backend expansion ²	Backend E3 drive enclosure expansion-ready				
Expansion connectivity ²	4x 100GbE QSFP ports				
Power supplies	Four redundant power supplies (PS) per base enclosure (two per node)				
Data resiliency	Dynamic Resiliency Engine (DRE), protects against multiple simultaneous drive failures				
Max OCP 3.0 IO modules	6	10	10		
Max front-end ports (all types)	24	40	40		
Max 32/64 Gb FC ports	16	32	32		
Max 10Gb BASE-T/iSCSI ports	24	40	40		

Max 25 GbE/iSCSI ports	24	40	40
Max 100 GbE/iSCSI ports	8	16	16
Max capacity per appliance ³	3.43 PBe (737 TB, 670 TiB raw)	5.81 PBe (1,229 TB, 1,117 TiB raw)	5.81 PBe (1,229 TB, 1,117 TiB raw)
Max capacity per cluster ³	13.72 PBe (2,948 TB, 2,681 TiB raw)	23.24 PBe (4,916 TB, 4,471 TiB raw)	23.24 PBe (4,916 TB, 4,471 TiB raw)
1 - Up to 4 appliances may be combined per scale-out cluster 2 - Expansion enclosures will be available in a future release. 3 - Effective capacity assumes average 6:1 data reduction and double drive tolerance. Actual results vary. Refer to PowerSizer for capacity data in your environment. Maximum capacities are dependent on drive sizes available at time of purchase. Maximum logical capacity supported per appliance is 8 exabytes (EB). Raw value is based on drive vendor raw base capacity. TB is base-10 decimal (1000x1000x1000x1000). TiB is base-2 binary (1024x1024x1024x1024).			

Connectivity

Connectivity options via OCP 3.0 IO modules for file, for NFS/SMB connectivity, and block storage for FC, iSCSI, NVMe/FC and NVMe/TCP host connectivity (see above table for number of modules supported per node).

Connectivity options		
Type	Description	Details
OCP 3.0 IO Module	Four-Port 10GBASE-T Module (File & Block)	Four port 10GBASE-T Ethernet IP/iSCSI module with copper connection to Ethernet switch
OCP 3.0 IO Module	Four-Port 25 Gb/s Optical Module (File & Block)	Four port IP/iSCSI module supporting 25GbE or 10GbE. Uses SFP+ optical connection or twinax copper connection (active/passive for 10GbE, passive for 25GbE) to Ethernet switch
OCP 3.0 IO Module	Four-Port 32 Gb/s Fibre Channel Module (Block only) ¹	Four port FC module with choice of 8Gb/s, 16Gb/s or 32Gb/s connectivity. Uses multimode optical SFP cabling to connect directly to host HBA or FC switch
OCP 3.0 IO Module	Four-Port 64 Gb/s Fibre Channel Module (Block only) ¹	Four port FC module with choice of 16Gb/s, 32Gb/s or 64Gb/s connectivity. Uses multimode optical SFP cabling to connect directly to host HBA or FC switch
OCP 3.0 IO Module	Two-Port 100 Gb/s Optical Module	Two port IP/iSCSI module with QSFP optical or active/passive copper connection to Ethernet switch
1 - Data-in-flight encryption capable		

Back-end (drive) connectivity

Each node connects using redundant RDMA connections, providing continuous drive access to hosts in the event of a node or port fault.

Supported media				
Drive Type	Interface	Raw base-10 Capacity *	Raw base-2 Capacity **	Base Enclosure
NVMe TLC SSD	PCIe 5.0	3.84 TB	3.4931 TiB	✓
NVMe TLC SSD	PCIe 5.0	7.68 TB	6.9863 TiB	✓
NVMe TLC SSD	PCIe 5.0	15.36 TB	13.9707 TiB	✓
NVMe QLC SSD	PCIe 5.0	30.72 TB	27.9396 TiB	✓
* Base-10 vendor raw TB (bytes X (1000 x 1000 x 1000 x 1000)) ** Base-2 vendor raw TiB (bytes X (1024 x 1024 x 1024 x 1024))			All drives are 512 bytes/sector. All drives are SED. FIPS 140-3 level 2 validated drives are available as an option. Consult a Dell or Partner Sales Rep for additional guidance.	

OE protocols and software facilities

Support is provided for a wide variety of protocols and advanced features available via various software suites, plug-ins, drivers, and packs.

Protocols and facilities supported		
Access-based Enumeration (ABE) for SMB protocol	Key Management Interoperability Protocol (KMIP) compliant external key manager for D@RE, including Hashicorp Vault	REST API: Open API that uses HTTP requests to provide management
Address Resolution Protocol (ARP)	Lock Manager (NLM) v1, v2, v3, and v4	RSVD v1 for Microsoft Hyper-V (SMB3)
Block Protocols: iSCSI, Fibre Channel (FCP SCSI-3), NVMe/FC, NVMe/TCP, vVols (including vVols over NVMe/FC and TCP)	Management & Data Ports IPv4 or IPv6	Simple Home Directory access for SMB protocol
DFS Distributed File System (Microsoft) as Standalone Root Server	NAS Servers Multi-protocol for UNIX and SMB clients (Microsoft, Apple, Samba)	Simple Mail Transfer Protocol and authentication (SMTP)
Direct Host Attach for Fibre Channel	Network Data Management Protocol (NDMP) v1-v4, 3-way	Simple Network Management Protocol v2c & v3 (SNMP) Trap support
Dynamic Access Control (DAC) with claims support	Network Information Service (NIS) Client	Virtual LAN (IEEE 802.1q)
Fail Safe Networking (FSN)	Network Status Monitor (NSM)	VMware Virtual Volumes (vVols) 2.0
Internet Control Message Protocol (ICMP)	Network Time Protocol (NTP) Client	vStorage APIs for Array Integration (VAAI)
Kerberos Authentication	NFS v3/v4 Secure Support	vStorage APIs for Storage Awareness (VASA)
LDAP (Lightweight Directory Access Protocol)	NT LAN Manager (NTLM)	Microsoft Entra ID SSO support

Security & compliance
Common Criteria - in process
Data at Rest Encryption (D@RE) in PowerStore utilizes Self-Encrypting Drives (SEDs) by respective drive vendors for primary storage. All drives are SED. FIPS 140-3 level 2 validated drives are available as an option. Consult a Dell or Partner Sales Rep for additional guidance.
(KMIP) compliant external key manager for D@RE
Multi-factor authentication via RSA SecurID
Immutable and secure snapshots
Multiparty authorization
IPv6 USGv6-R1 certification
Native SHA2 certificate
Restriction of Hazardous Substances (RoHS) compliance
TLS 1.3 support by default, TLS 1.1 and older are disabled by default. TLS 1.1 can be optionally enabled.
Multi-factor authentication via Common Access Card or Personal Identity Verification (CAC/PIV) cards for STIG enabled systems
PowerStoreOS has been STIG-hardened to meet the security requirements of the US Department of Defense
Data-in-flight encryption ready networking options – enabled via future software release

Service and support

World-Class Dell Technologies services	
Deployment Services	Dell ProDeploy Infrastructure Suite Dell Migration Services Dell Residency Services
Support Services	Lifecycle Extension with ProSupport Dell Optimize for Storage
Services & Support Technologies	MyService360

Software

All Inclusive Base Software	Management Software: • PowerStore Manager • Infrastructure Observability (cloud-based storage analytics with ProSupport) • Thin Provisioning • Dynamic Resiliency Engine (DRE) – Single & Dual parity • Data Reduction: Zero Detect/Deduplication/Compression • Proactive Assist: Configure remote support, online chat, open a service request, etc. • Quality of Service (Block, File) • File “Top Talkers” real-time performance analytics • Capacity Accounting Protocols: • Block • File Local Protection: • SED Based Encryption with self-managed and external key management • Local Point-In-Time Copies (Snapshots and Thin Clones) • Immutable & Secure Snapshots • File Level Retention (FLR) • Dell Common Event Enabler; AntiVirus Agent (CEPA) Remote Protection: • Native Synchronous/Asynchronous Block Replication • Native Metro Volume Synchronous Block Replication (VMware, Windows, Linux) • Native Metro Synchronous File replication with 3rd site witness for auto-failover • Native Synchronous/Asynchronous File Replication • Native PowerProtect DD integration - manage local or multicloud backups directly from PowerStore Migration: • Native block migration from Unity, Unity XT, PS Series, SC Series, VNX2, VMAX3, XtremIO, and 3rd-party arrays • Native file migration for Unity, Unity XT, VNX2
Interface Protocols	Block: FC, NVMe/FC, iSCSI, NVMe/TCP File: NFSv3, NFSv4, NFSv4.1, NFSv4.2; CIFS (SMB 1), SMB 2, SMB 3.0, SMB 3.02, and SMB 3.1.1; FTP and SFTP
Optional Solutions	Connectrix SAN Data Protection Suite: Backup, Archive and Collaboration Software PowerPath Migration Enabler PowerPath Multipathing PowerStore metro node (block synchronous metro Active/Active, zero RPO/RTO) Dell Cyber Detect for Storage Dell Private Cloud powered by Dell Automation Platform
Note: For more details on software licensing, please contact your sales representative	

Virtualization and container solutions

PowerStore supports a wide variety of protocol and advanced features available via various software suites and packs including but not limited to:

- Dell Virtual Storage Integrator (VSI) for VMware vSphere™: For provisioning, management, and cloning
- OpenStack Cinder Driver: For provisioning and managing block volumes within an OpenStack environment
- OpenStack Manila Driver: For provisioning and managing shared file systems within an OpenStack environment.
- VMware Site Recovery Manager (SRM) Integration: Managing failover and failback making disaster recovery rapid and reliable
- Virtualization API Integration: VMware: VAAI and VASA
- vRO Plugin for PowerStore
- Container Storage Interface (CSI) Plugin for PowerStore
- Container Storage Modules (CSM) for PowerStore: Enhances Kubernetes storage with features like replication, resiliency, observability, and RBAC.
- Ansible Module for PowerStore
- Terraform Provider

Electrical specifications

Power figures represent product configurations in typical operating conditions of 26°C and worst-case, maximums operating in extreme temperature environments of 40°C.

PowerStore Base System Enclosures			
	1500	5500	9500
	24xE3 NVMe drives, six OCP 3.0 IO modules	40xE3 NVMe drives, ten OCP 3.0 IO modules	40xE3 NVMe drives, ten OCP 3.0 IO modules
Power			
AC Line Voltage		200-240 VAC ± 10%, single phase, 47 to 63 Hz	
AC Line Current			
Typical operating temperature of 26°C	4.6 A max at 200V	8.2 A max at 200V	10 A max at 200V
Maximum operating temperature of 40°C	4.7 A max at 200V	8.7 A max at 200V	10.7 A max at 200V
Power Consumption			
Typical operating temperature of 26°C	915.4 W (932.3 VA) max at 200V-240V	1621 W (1640.7 VA) max at 200V-240V (+/- 10%)	1976.9 W (2000.9 VA) max at 200V-240V (+/- 10%)
Maximum operating temperature of 40°C	926.1 W (941.9 VA) max at 200V-240V	1728.7 W (1748.1 VA) max at 200V-240V (+/- 10%)	2108.1 W (2131.8 VA) max at 200V-240V (+/- 10%)
Heat Dissipation			
Typical operating temperature of 26°C	3.30 x 10 ⁶ J/hr (3,123Btu/hr) max 200VAC	5.84 x 10 ⁶ J/hr, (5,531 Btu/hr) max 200VAC	7.12 x 10 ⁶ J/hr, (6,745 Btu/hr) max 200VAC
Maximum operating temperature of 40°C	3.33 x 10 ⁶ J/hr (3,160 Btu/hr) max 200VAC	6.22 x 10 ⁶ J/hr, (5,898 Btu/hr) max 200VAC	7.59 x 10 ⁶ J/hr, (7,193 Btu/hr) max 200VAC
Power Factor		0.98 minimum at full load, 200 VAC	
In-rush Current		45 Apk “cold” per line cord, at any line voltage	
Startup Surge Current		120 Apk “hot” per line cord, at any line voltage	
AC Protection		20 A fuse on each power supply, single line	
AC Inlet Type	IEC320-C14	IEC320-C22	IEC320-C22
Ride-through Time	10 ms min		
Current Sharing	± 5 percent of full load, between power supplies		

Note: Power consumption values for enclosures are based on fully populated enclosures (power supplies, drives and I/O modules).

Weight and Dimensions			
	1500	5500	9500
Weight kgs/lbs	Empty: 49.29 / 108.66 Full: 53.2 / 117.3	Empty 61.05 / 134.6 Full 67.6 / 149	Empty 61.05 / 134.6 Full 67.6 / 149
Vertical size	3 rack units	3 rack units	3 rack units
Height cm/inches	13.34 / 5.25	13.34 / 5.25	13.34 / 5.25
Width cm/inches	44.72 / 17.61	44.72 / 17.61	44.72 / 17.61
Depth to rear face (cm/inches)	79.1 / 31.14	89.1 / 35.08	89.1 / 35.08
Depth including latches (cm/inches)	91.2 / 35.91	101.2 / 39.84	101.2 / 39.84

Cabinets	
Standard 42U 1200mm Cabinet	
Power Configuration	One, two, three, four, five, six power domains, each redundant
Power Inlet Count	Two, four, six, eight, ten, or twelve (two per domain)
Plug Types	NEMA L6-30P or IEC309-332 P6 or IP57 (Australia)

Input Power Capacity	1 Domain: 4,800 VA @ 200 VAC, 5,760 VA @ 240 VAC 2 Domain: 9,600 VA @ 200 VAC, 11,520 VA @ 240 VAC 3 Domain: 14,400 VA @ 200 VAC, 17,280 VA @ 240 VAC 4 Domain: 19,200 VA @ 200 VAC, 23,040 VA @ 240 VAC 5 Domain: 24,000 VA @ 200 VAC, 28,800 VA @ 240 VAC 6 Domain: 28,800 VA @ 200 VAC, 34,560 VA @ 240 VAC
AC Protection	20 A site circuit breakers on each power branch
42U Cabinet Dimensions	Height – 78.4 in (199.1 cm); Width - 23.6 in (60.0 cm); Depth - 39.3 in (99.8 cm); Weight Empty – 387 lb (176 kg)

Operating Environment

	Description	Specification
Recommended Range Operation	The limits under which equipment will operate the most reliably while still achieving reasonably energy-efficient data center operation.	18°C to 27°C (64.4°F to 80.6°F) and 15°C (59°F) dew point
Continuous Allowable Range Operation	Data center economization techniques (e.g. free cooling) may be employed to improve overall data center efficiency. These techniques may cause equipment inlet conditions to fall outside the recommended range but still within the continuously allowable range. Equipment may be operated without any hourly limitations in this range.	5°C to 35°C (50°F to 95°F) at 20% to 80% relative humidity with 21°C (69.8°F) maximum dew point (maximum wet bulb temperature). De-rate maximum allowable dry bulb temperature at 1°C per 300m above 950m (1°F per 547 ft above 3117 ft).
Improbable Operation (Excursion Limited)	During certain times of the day or year, equipment inlet conditions may fall outside the continuously allowable range but still within the expanded improbable range. Equipment operation is limited to ≤ 10% of annual operating hours in this range.	35°C to 40°C (with no direct sunlight on the equipment) at -12°C minimum dew point and 8% to 85% relative humidity with 24°C maximum dew point (wet bulb temperature). Outside the continuously allowable range (10°C to 35°C), the system can operate down to 5°C or up to 40°C for a maximum of 10% of its annual operating hours. For temperatures between 35°C and 40°C (95°F to 104°F), de-rate maximum allowable dry bulb temperature by 1°C per 175m above 950m (1°F per 319 ft above 3117 ft).
Temperature Gradient		20°C / hour (36°F / hour)
Altitude	Max Operating	3,050m (10,000ft)

Statement of Compliance

Dell Information Technology Equipment is compliant with all currently applicable regulatory requirements for Electromagnetic Compatibility, Product Safety, and Environmental Regulations where placed on market.

Detailed regulatory information and verification of compliance is available at the Dell Regulatory Compliance website.

<https://www.dell.com/learn/us/en/uscorp1/regulatory-compliance>



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