DELL Technologies

Specification Sheet

DELL POWERMAX

Dell PowerMax 2500 and 8500

The latest PowerMax models redefine performance at scale, delivering industry-leading cyber resiliency, AI-driven automation, and exceptional efficiency to help you unlock the full potential of your data. Built on the innovative PowerMaxOS 10 and a cutting-edge NVMe scale-out architecture, these systems incorporate advanced global inline data reduction to provide unmatched adaptability, high availability, and performance—empowering your organization to stay ahead in a competitive landscape.

The PowerMax 2500 offers a compelling solution for mission-critical storage, delivering up to 7x[1] more capacity (8PBe) in half the footprint of previous models. With the industry's most comprehensive data services, the 2500 is designed to handle demanding mixed workloads—block, file, and mainframe—while ensuring the highest levels of data availability and cyber resiliency. Both the PowerMax 2500 and 8500 models come with an industry-leading data reduction guarantee of 5:1 for Open Systems and 3:1 for Mainframe, providing exceptional efficiency.

Dell PowerMax Array

For organizations requiring massive consolidation, the PowerMax 8500 delivers unparalleled performance at scale. Supporting up to 16 nodes and a total capacity of 18PBe, it simplifies operations and reduces total cost of ownership (TCO). Ideal for the most demanding mixed workloads, the 8500 ensures uninterrupted operations and features advanced cyber resiliency, including Cyber Recovery Service for PowerMax (cyber vault), offered through Dell Professional Services.

Powered by the Dynamic Fabric architecture and Flexible RAID, PowerMax offers a scalable, flexible design that allows independent growth of nodes and storage capacity in single-drive increments. Leveraging Intel® Xeon® Scalable processors and the latest storage technologies—end-to-end NVMe, InfiniBand 100Gb/s, dual-ported NVMe flash drives, NVMe/TCP connectivity, and hardware-based data reduction—PowerMax is designed for 6 nines of availability. Additionally, it features intelligent PDUs for real-time power monitoring and alerting, ensuring continuously modern storage through Dell's Future-Proof program.

Specifications

Scale up and Scale out

PowerMax is built from modular storage components for compute and storage media. The compute modules are packaged as node pairs. Each node pair contains two PowerMax compute nodes, complete software and licensing, cache memory, redundant power, and connectivity modules. These are combined with 48-slot Dynamic Media Enclosures (DMEs) to configure NVMe flash drives. PowerMax arrays are delivered with the Inclusive Software package. NVMe drive capacity can be added to the system to scale up to a total effective capacity of 8 PBe on the PowerMax 2500 and up to 18 PBe on the PowerMax 8500.

Detailed specifications and a comparison of the PowerMax 2500 and 8500 arrays follow:

[1]Based on Dell's internal analysis comparing Effective Storage Capacity of the PowerMax 2500 compared with the PowerMax 2000, April 2025. Actual storage capacities will vary.

Array family	PowerMax 2500	PowerMax 8500
Node Pairs		
NUMBER OF NODE PAIRS	1 to 2	1 to 8
NODE PAIR MODULE	3U	3U
CPU	Memory config 1[7]-3: Intel Xeon Gold 5218 2.8 GHz with 16 core[1] Memory config 4: Intel Xeon Gold 6240L	Memory config 2-3: Intel Xeon Gold 6254 3.9 GHz with 18 core[1] Memory Config 4: Intel Xeon Gold 8280L
CORE NUMBER PER CPU/PER NODE PAIR/PER SYSTEM	Memcfg 1[7]-3: 16/64/128 Memcfg 4: 18/72/144[5]	Memcfg 1-3: 18/72/576 Memcfg 4: 20/112/736[4,5]
DYNAMIC FABRIC	Direct Connection InfiniBand: 100 Gbps per port	InfiniBand Dual Redundant Fabric: 100 Gbps per port
CACHE		
CACHE-SYSTEM MIN (RAW)	896GB	1792GB
CACHE-SYSTEM MAX (RAW)	15.36TB	45.056TB[4]
CACHE-PER NODE PAIR OPTIONS	896GB, 1.792TB, 3.584TB, 7.680TB	1.792TB, 3.584TB, 7.680TB
VAULT		
VAULT STRATEGY	Vault to Flash	Vault to Flash
VAULT IMPLEMENTATION	2 to 4 NVMe SED Flash Module/Node Pair[3]	4 NVMe SED Flash Module /Node Pair[3]
FRONT-END I/O MODULES		
MAX. FRONT-END I/O MODULES/NODE PAIR	8	8
FRONT-END I/O MODULES AND PROTOCOLS SUPPORTED	2 x 100Gb/s (Ethernet, iSCSI, SRDF, NVMe/TCP) 4 x 64Gb/s (FC, NVMe, SRDF)[6] 4 x 32Gb/s (FC, NVMe/FC, FICON, SRDF) 4 x 25Gb/s (Ethernet, iSCSI, SRDF, NVMe/TCP) 4 x 10Gb/s (Ethernet, iSCSI, SRDF, NVMe/TCP) 1 x zHyperlink Port (MF, zHyperlink)	2 x 100Gb/s (Ethernet, iSCSI, SRDF, NVMe/TCP) 4 x 64Gb/s (FC, NVMe, SRDF)[6] 4 x 32Gb/s (FC, NVMe/FC, FICON, SRDF) 4 x 25Gb/s (Ethernet, iSCSI, SRDF, NVMe/TCP) 4 x 10Gb/s (Ethernet, iSCSI, SRDF, NVMe/TCP) 1 x zHyperlink Port (MF, zHyperlink)
POWERMAX FILE MODULES		
MAX FILE I/O MODULES/SOFTWARE NODES	4	4
FILE I/O MODULES SUPPORTED	10 Gb/s: 4 x 10Gb/s File 25 Gb/s: 4 x 25Gb/s File	10 Gb/s: 4 x 10Gb/s File 25 Gb/s: 4 x 25Gb/s File
POWERMAX FILE SOFTWARE NODES		
MAX SOFTWARE FILE NODES	4 (1 per Node, 2 per Node pair)	8 (1 per Node, 2 per Node pair)
MAX FILE CAPACITY/ARRAY (PETABYTES USABLE)	8PiBe	18PiBe

[1] CPUs run continuously in turbo mode, except at significantly high ambient temperatures.

[2] The 2 remaining ports can be allocated for PowerMax File.

[3] Encryption will be disabled if not ordered.

[4] Memory Config 4 is limited to a maximum of 4 node pairs in PowerMax 8500.

[5] Expanded cores only for Memory Config 4.

[6] Only multi-mode support is available.

[7] Not available with SRDF in PowerMax 2500.

Array family	PowerMax 2500		PowerMax 8500	
CAPACITY, DRIVES				
Max Capacity per Array (Open)[1,7]	8PiBe / 8.8 PBe		18 PiBe / 20 PBe	
Base capacity (Open)	30.72TBu		30.72Tbu	
Max Capacity per Array (Mainframe)[7, 8]	3.8PiBe / 4.1PBe		9.8 PiBe / 10.7PBe	
Base capacity (Mainframe)	15.36TBu		15.36Tbu	
Incremental Flash Capacity Upgrades	TLC: 3.84TB, 7.68TB, 15.36TB, 30.72TB[3] QLC: 15.36TB, 30.72TB[3]		TLC: 3.84TB, 7.68TB, 15.36TB, 30.72TB[3]	
Maximum Drives per Array	96		384	
Maximum Drives per System Bay	96/192/288[2]		192/384	
Minimum Drive Count per System	6 (Mainframe) / 10 (Open)		6 (Mainframe) / 10 (Open)	
NVMe DRIVES				
NVMe units accepted (2.5 in.)	3.84TB, 7.68TB, 15.36TB, 30.72TB[3,9a]		3.84TB, 7.68TB, 15.36TB, 30.72TB[3,9b]	
Interface BE	Dual PCIe Gen 3 x8 NVMe attached interface		NVMe/NVMeoF via Dual 100G InfiniBand Fabric	
Flexible RAID options with support	RAID 1 (1+1) RAID 5 (4+1)[6] RAID 5 (8+1) RAID 5 (12+1)	RAID 6 (12+2) RAID 6 (24+2)[11]	RAID 1 (1+1) RAID 5 (8+1) RAID 5 (12+1)	RAID 6 (12+2) RAID 6 (24+2)[11]
Mixed RAID group support	No		No	
Support for Mixed Drive Capacities	Yes[3]		Yes[3]	
NVMe DYNAMIC MEDIA ENCLOSURE				
48 x 2.5” Drive DME	Yes		Yes	
CABINET SETTINGS				
Standard 19" bays	Yes		Yes	
System Bay configurations	Up to 3 Systems/Bay		Up to 6 Node Pairs/Bay[4,5]	
Third-party rack mount option	Yes		Yes	
DISPERSION				
Standard and third-party enclosures	N/A — single floor tile system		Yes	
PRE-CONFIGURATION FROM FACTORY				
100% Thin Provisioned	Yes		Yes	
HOST SUPPORT				
Open Systems	Yes		Yes	
Mainframe	Yes		Yes	
Mixed Mainframe and Open Systems	Yes		Yes	
POWER OPTIONS				
Input power options	Single phase or three-phase Delta or Wye		Single phase or three-phase Delta or Wye	
POWER DISTRIBUTION UNIT				
Intelligent PDU	Default[10]		Default[10]	

[1] Maximum capacity per array based on 5:1 Data Reduction.

[2] 288 drives can be supported in a single cabinet when three systems are packaged in the same rack.

[3] Up to two consecutive compatible drive capacities, e.g. 3.84TB and 7.68TB are supported per storage resource pool (SRP.)

[4] This is based on a dense configuration. System bay configuration can also support a balanced configuration.

[5] Dense configurations allow 6 node pairs in System Bay 1 and 2 additional node pairs in System Bay 2.

[6] R5(4+1) is MF only and supports only 3.84TB drives.

[7] PB is base-10 decimal notation (1000x1000x1000x1000x1000). PiB is base-2 binary notation (1024x1024x1024x1024x1024).

[8] Maximum mainframe capacity is based on 3:1 Data Reduction.

[9a] 30TB drives supported with RAID 5 (8+1) and RAID 5 (12+1) or RAID 6 and with memory configurations 2,3,4 (not 1) for PowerMax 2500.

[9b] 30TB drives supported with RAID 6 and with memory configurations 2,3,4 (not 1) for PowerMax 8500.

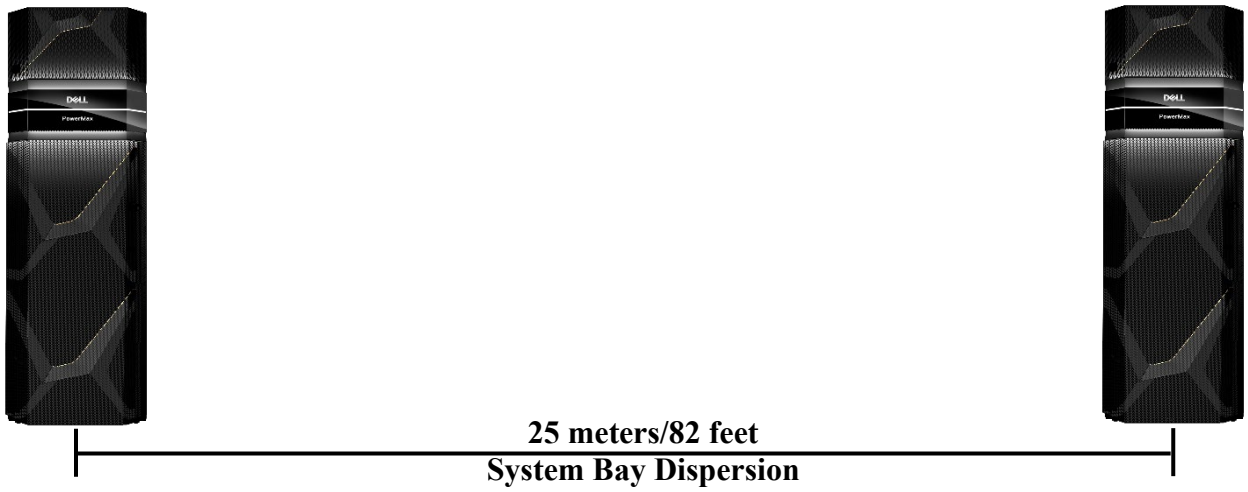
[10] PowerMax offers an intelligent PDU by default with PowerMax 10.1 release that enables real-time telemetry and monitoring of power, voltage, current, external temperature, and humidity.

[11] Only 15.36TB and 30.72TB drive capacities are supported with R6(24+2).

Array family	PowerMax 2500	PowerMax 8500
SRDF AND FRONT-END I/O PROTOCOLS COMPATIBLE		
100 Gb/s Ethernet Host Ports, iSCSI Ports, NVMe/TCP Ports, SRDF Ports		
Maximum/Node Pair	16	16
Maximum number per array	32	128
64 Gb/s FC Host Ports, NVMe Ports, SRDF Ports		
Maximum/Node Pair	32	32
Maximum number per array	64	256
32 Gb/s FC Host Ports, FICON Ports, SRDF Ports		
Maximum/Node Pair	32	32
Maximum number per array	64	256
25 Gb/s Ethernet Host Ports, iSCSI Ports (Optical), SRDF Ports (Optical), NVMe/TCP Ports (Optical)		
Maximum/Node Pair	32	32
Maximum number per array	64	256
10 Gb/s Ethernet Host Ports, iSCSI Ports (Optical), SRDF Ports (Optical), NVMe/TCP Ports (Optical)		
Maximum/Node Pair	32	32
Maximum number per array	64	256
zHyperlink ports		
Maximum number of ports/Node Pair	2	2
Maximum number of ports per array	4	4
EMBEDDED File Ports		
10 Gb/s File ports		
Maximum number of software data transfer/ports	16	16
Maximum number of ports per array	64	256
25 Gb/s File ports		
Maximum number of software data transfer/ports	16	16
Maximum number of ports per array	64	256

System bay dispersion

System Bay Dispersion allows customers to separate any individual or contiguous group of system bays by up to a distance of 82 feet (25 meters) from System Bay 1. This provides unsurpassed datacenter flexibility in solving floor loading constraints or working around obstacles that might preclude fully contiguous configurations. This is applicable only to the PowerMax 8500, as the PowerMax 2500 is a single-bay solution.



Support for flash drives

The PowerMax 2500 and PowerMax 8500 support the latest dual-ported native NVMe Flash units. All drives support two independent I/O channels with automatic failover fault isolation. Consult your Dell sales representative for the latest list of supported drives and types. All capacities are based on 1 GB = 1,000,000,000 bytes. Actual usable capacity may vary by configuration.

2.5" NVMe flash drives used in base systems and capacity pack upgrades

Platform support	PowerMax 2500/8500	PowerMax 2500/8500	PowerMax 2500/8500	PowerMax 2500/8500 Mem Config 4 Only
Nominal capacity (GB)	3840[1]	7680[1]	15360[1]	30720[1]
Type	NVMe Flash	NVMe Flash	NVMe Flash	NVMe Flash
Raw capacity (GB)	3840	7680	15360	30720
Open systems formatted capacity (GB)[2]	3840.30	7680.61	15047.65	30095.05
Mainframe 3390 formatted capacity (GB)[2]	3840.30	7680.61	15047.65	30095.05

[1] In any configuration, capacity upgrades can contain a maximum of two different underlying drive sizes to achieve the best useful capacity desired. This is automatically optimized by the configuration tools.

[2] Formatted capacities shown are for RAID 5 (12+1). Values vary slightly with different RAID types.

Energy consumption and heat dissipation at <26°C and >35°C

Component	PowerMax 2500				PowerMax 8500			
Maximum power and heat dissipation at temperatures < 26°C [2] and > 35°C [3]	Maximum total power consumption (kVA)		Maximum heat dissipation (Btu/h)		Maximum total power consumption (kVA)		Maximum heat dissipation (Btu/h)	
	< 26°C	> 35°C	< 26°C	> 35°C	< 26°C	> 35°C	< 26°C	> 35°C
System Cabinet 1, Single (Node Pair, Single DME) PowerMax 2500	2.213	3.131	7,551	10.683	N/A	N/A	N/A	N/A
System Cabinet 1, Two (Single Node Pair, Single DME) PowerMax 2500	4.426	6.262	15,102	21,366	N/A	N/A	N/A	N/A
System Cabinet 1, Three (Single Node Pair, Single DME) PowerMax 2500	6.639	9.393	22,654	32,049	N/A	N/A	N/A	N/A
System Cabinet 1, One (Dual Node Pair, Single DME) PowerMax 2500	3.724	5.113	12.706	17.445	N/A	N/A	N/A	N/A
System Cabinet 1, Two (Dual Node Pair, Single DME) PowerMax 2500	7.448	10.225	25.412	34.890	N/A	N/A	N/A	N/A
System Cabinet 1, Three (Dual Node Pair, Single DME) PowerMax 2500	11.171	15.338	38.119	52.335	N/A	N/A	N/A	N/A
System Cabinet 1, One (Dual Node Pair, Dual DME) PowerMax 2500	4.426	6.262	15,102	21,366	N/A	N/A	N/A	N/A
System Cabinet 1, Two (Dual Node Pair, Dual DME) PowerMax 2500	8.852	12.524	30,205	42,732	N/A	N/A	N/A	N/A
System Cabinet 1, Three (Dual Node Pair, Dual DME) PowerMax 2500	13.278	18.785	45,307	64,099	N/A	N/A	N/A	N/A
System Cabinet 1, Balanced (Four Node Pair, Four DME) PowerMax 8500	N/A	N/A	N/A	N/A	11.178	14.736	38,140	50,281
System Cabinet 2, Balanced (Four Node Pair, Four DME) PowerMax 8500	N/A	N/A	N/A	N/A	10.846	14.404	37,007	49,148
System Cabinet 1, Dense (Six Node Pair, Four DME) PowerMax 8500	N/A	N/A	N/A	N/A	14.899	19.376	50,839	66,115
System Cabinet 2, Balanced (Two Node Pair, Four DME) PowerMax 8500	N/A	N/A	N/A	N/A	7.124	9.764	24,308	33,315

[1] Power values for configurations with two, three, and four node pairs, placed in the System 2 Enclosure (PowerMax 8500 only)

[2] Values at <26 °C reflect the maximum values in a more stable state during normal operation

[3] Power values and heat dissipations are shown at >35 °C to reflect the higher power levels associated with both the battery recharge cycle and the initiation of high ambient temperature Adaptive Cooling algorithms.

Physical specifications

Component	Height (in./cm)	Width (in./cm)	Depth (in./cm)	Weight (maximum lb/kg)
System Bay 1, Four Node Pair, Four DME (Balanced) PowerMax 8500	78.4/199.2	23.5/60	47.3/120	1537/697
System Bay 2, Four Node Pair, Four DME (Balanced) PowerMax 8500	78.4/199.2	23.5/60	47.3/120	1410/640
System Bay 1, Six Node Pair, Four DME (Dense) PowerMax 8500	78.4/199.2	23.5/60	47.3/120	1806/819
System Bay 2, Dual Node Pair, Four DME (Dense) PowerMax 8500	78.4/199.2	23.5/60	47.3/120	1136/515
System Bay 1, Single Node Pair, Single DME PowerMax 2500	78.4/199.2	23.5/60	45.2/114.8	675/306
System Bay 1, Dual Node Pair, Single DME PowerMax 2500	78.4/199.2	23.5/60	45.2/114.8	813/369
System Bay 1, Dual Node Pair, Dual DME PowerMax 2500	78.4/199.2	23.5/60	45.2/114.8	900/408
System Bay 1, Three Node Pair, Three DME PowerMax 2500	78.4/199.2	23.5/60	45.2/114.8	1125/510
System Bay 1, Four Node Pair, Four DME PowerMax 2500	78.4/199.2	23.5/60	45.2/114.8	1375/624
System Bay 1, Six Node Pair, Six DME PowerMax 2500	78.4/199.2	23.5/60	45.2/114.8	1838/834

Input power requirements

Single phase North American, International and Australian

Specification	North American 3-wire connection (2 L and 1 G)[1]	International and Australian 3-wire connection (1 L, 1 N and 1 G)[1]
Input nominal voltage	200 - 240 VAC +/- 10% L – L nom	220 - 240 VAC +/- 10% L – N nom
Frequency	50 - 60 Hz	50 - 60 Hz
Circuit Breakers	30 A	30 or 32 A
Power zones	Two	Two
PowerMax 2500 minimum input line cord requirements per system	One-Node Pair, one-DME system: One 30 A or 32 A single-phase line cord per power zone for each system.	
PowerMax 2500 maximum input line cord requirements per system	Two-Node Pair, two-DME system: Two 30 A or 32 A single-phase line cords per power zone.	
PowerMax 8500 minimum input line cord requirements per system	One-Node Pair, one-DME system: One 30 A or 32 A single-phase line cord per power zone.	
PowerMax 8500 maximum input line cord requirements per system	Six-Node Pair, four-DME system in one rack: Six 30 A or 32 A single-phase line cords per power zone.	

[1] L = line or phase, N = neutral, G = ground

Three-phase North American, International, Australian

Specification	North American (DELTA) 4-wire connection (3 L and 1 G)[1]	International (WYE) 5-wire connection (3 L, 1 N and 1 G)[1]
Input voltage [2]	200 - 240 VAC +/- 10% L – L nom	220 - 240 VAC +/- 10% L – N nom
Frequency	50 - 60 Hz	50 - 60 Hz
Circuit Breakers	50 A	30/32 A
Power zones	Two	Two
Minimum power requirements at customer site	One 50 A three-phase line cord per power zone.	One 30 A or 32 A three-phase line cord per power zone.
Maximum power requirements at customer site[3]	Two 50 A three-phase line cords per power zone.	Two 30 A or 32 A three-phase line cords per power zone.

[1]L = line or phase, N = neutral, G = ground

[2]An imbalance of AC input currents may exist on the three-phase power source feeding the array, depending on the configuration. The customer's electrician must be alerted to this possible condition to balance the phase-by-phase loading conditions within the customer's data center

[3]A second input AC line cord must be added for each power zone when the total number of Node Pairs and DAEs (combined) in a rack reaches seven.

Radio frequency interference

Electro-magnetic fields which include radio frequencies can interfere with the operation of electronic equipment. Dell products have been certified to withstand radio frequency interference in accordance with EN61000-4-3. In Data Centers that employ intentional radiators, such as cell phone repeaters, the maximum ambient RF field strength should not exceed 3 volts/meter.

Repeater power level (watts)	Recommended minimum distance (feet/meters)
1	9.84 FT (3 M)
2	13.12 (4 M)
5	19.69 FT (6 M)
7	22.97 FT (7 M)
10	26.25 FT (8 M)
12	29.53 FT (9 M)
15	32.81 FT (10 M)

Dell Technologies global services

Dell Technologies World Class Services	
Implementation services	• Dell ProDeploy Enterprise Suite • Dell Data Migration Services • Dell Residency Services • Dell Data Sanitization Services for Enterprise
Support services	• Dell ProSupport Enterprise Suite • Dell Keep Your Hard Drive for Enterprise
Managed services	• Dell Managed Services for Storage
Dell Technologies Consulting Services	• Cyber Recovery Services for PowerMax (Cyber Vault) • Advisory Services workshops
Dell Technologies Education Services	• PowerMax technical training courses and certifications
Support technology and services	• MyService360 • Secure Remote Services, SupportAssist Enterprise

DECLARATION OF CONFORMITY

Dell Technologies IT equipment complies with all applicable regulatory requirements for electromagnetic compatibility, product safety, and environmental standards when placed on the market. Detailed regulatory information and compliance verification are available on the Dell standards compliance website. http://dell.com/regulatory_compliance

This product has been tested and verified whether it will work within the permitted range of environmental attributes of ashrae's 2-level operating condition class between 10°C and 35°C and within the corresponding relative humidity range.