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100% Authorized: Certified, US-market products - no grey market gear, guaranteed.

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"I wish I found them sooner!"

"We had been purchasing through a different vendor and the service with them was horrid and only got worse. I happened to come across their site and they had what I needed and at a better price! Staff was very responsive, and made it a pleasure to do business with!"

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EMC VNX SERIES UNIFIED STORAGE SYSTEMS

EMC® VNX® series unified storage systems deliver uncompromising scalability and flexibility for the mid-tier while providing market-leading simplicity and efficiency to minimize total cost of ownership.
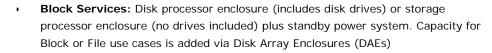
VNX5200®   VNX5400®   VNX5600®   VNX5800®   VNX7600®   VNX8000®

Specifications

ARCHITECTURE

Based on the powerful new family of Intel Xeon E5-2600 (Sandy Bridge) processors, the EMC VNX implements a modular architecture that integrates hardware components for block, file, and object with concurrent support for native NAS, iSCSI, Fibre Channel, and FCoE protocols. The series delivers file (NAS) functionality via two-to-eight Data Movers and block (iSCSI, FCoE, and FC) storage via dual Storage Processors leveraging full 6 Gb SAS disk drive topology. The system leverages the **patented MCx™ multi-core storage software operating environment** that delivers unparalleled performance efficiency. You can start with block or file functionality and easily upgrade to unified when needed. The unified configuration includes the following rack-mounted enclosures:

- **Block Services:** Disk processor enclosure (includes disk drives) or storage processor enclosure (no drives included) plus standby power system. Capacity for Block or File use cases is added via Disk Array Enclosures (DAEs)

- **File and Unified Services:** One or more data mover enclosures and a control station to deliver file protocols.

VNX PHYSICAL SPECIFICATIONS

BLOCK COMPONENTS	VNX5200	VNX5400	VNX5600	VNX5800	VNX7600	VNX8000
Min/Max Drives	4/125	4/250	4/500	4/750	4/1000	4/1500
Max FAST Cache	600GB	1TB	2TB	3TB	4.2TB	4.2TB
Array Enclosure	3U Disk Processor Enclosure (Holds 25x2.5″ SAS/Flash drives)					4U Storage Processor Enclosure (No drives)
Drive Enclosure Options (Disk Array Enclosure - DAE)	All models support 2U 25 drive trays for 2.5″ SAS/Flash drives					
	All models support 3U 15 drive trays for 3.5″ SAS/Flash drives					
	N/A	VNX5400 and above support 4U 60 drive trays for 3.5″ SAS/Flash drives				
Standby Power System	On board batteries, one for each Storage Processor					
Raid Options	0/1/10/3/5/6					
CPU/Memory per Array	2 x Intel Xeon E5-2600 4-Core 1.2 GHz /32 GB	2 x Intel Xeon E5-2600 4-Core 1.8 GHz /32 GB	2 x Intel Xeon E5-2600 4-Core 2.4 GHz /48 GB	2 x Intel Xeon E5-2600 6-Core 2.0 GHz /64 GB	2 x Intel Xeon E5-2600 8-Core 2.2GHz /128 GB	4 x Intel Xeon E5-2600 8- Core 2.7GHz /256 GB
Max Block UltraFlex™ IO Modules per Array	6	8	10	10	10	22
Embedded IO Ports per Array	4 x 4 lane SAS ports (for BE Connection					0
Base 6 Gb/s SAS BE Buses per Array	2 x 4 Lane	2 x 4 Lane	2 x 4 Lane	2 x 4 Lane	2 x 4 Lane	8 x 4 Lane
Max 6 Gb/s SAS BE Buses per Array	2 x 4 Lane	2 x 4 Lane	6 x 4 Lane or 2 x 4 Lane + 2 x 8 Lane	6 x 4 Lane or 2 x 4 Lane + 2 x 8 Lane	6 x 4 Lane or 2 x 4 Lane + 2 x 8 Lane	16 x 4 Lane or 8 x 8 Lane
Max Total Ports per Array	28	36	44	44	44	88
2/4/8 Gb/s FC Max Ports per Array	24	32	40	40	40	72
1 GBaseT iSCSI Max Total Ports per Array	16	16	16	16	16	16
10 GbE iSCSI Max Total Ports per Array	12	16	16	16	16	16
Max FCoE Total Ports per Array	12	16	20	20	20	36
FILE COMPONENTS**						
# File Data Movers	1-3	1-4	1-4	2-6	2-8	2-8
# Control Stations	1 x 1U Server standard, 2nd x 1U Server optional					
Data Mover: CPU/Memory	Intel Xeon 5600 / 6 GB	Intel Xeon 5600 / 6 GB	Intel Xeon 5600 / 12 GB	Intel Xeon 5600 / 12 GB	Intel Xeon 5600 / 24 GB	Intel Xeon 5600 / 24 GB
Max File UltraFlex IO Modules per Data Mover***	3	3	3	4	4	5

Min/Max 2/4/8 Gb/s FC Ports per Data Mover	4	4	4	4	4	4
Max IP Ports per Data Mover	8	8	8	12	12	16
Max 1 GBaseT Ports per Data Mover	8	8	8	12	12	16
Max 10 GbE Ports per Data Mover	4	4	4	6	6	8
Management	LAN 2x 10/100/1000 Copper GbE					
FUNCTIONAL LIMITS						
Max Raw Capacity	500 TB	1,000 TB	2,000 TB	3,000 TB	4,000 TB	6,000 TB
Max SAN Hosts	1,024	1,024	1,024	2,048	4,096	8,192
Max Number of Pools	15	15	20	40	40	60
Max Number of LUNs (Pool)	1,000	1,000	1,000	2,000	3,000	4,000
Max Number of LUNs (Classic)	2048	2048	2048	4096	4096	8192
Max Pool Based LUN Size	256 TB (Virtual Pool LUN)	256 TB (Virtual Pool LUN)	256 TB (Virtual Pool LUN)	256 TB (Virtual Pool LUN)	256 TB (Virtual Pool LUN)	256 TB (Virtual Pool LUN)
Max File System Size	16 TB	16 TB	16 TB	16 TB	16 TB	16 TB
Maximum Usable File Capacity per Data Mover	256 TB	256 TB	256 TB	256 TB	256 TB	256 TB
OS Support	Block OS's see EMC E-Lab™ Navigator and NAS Support Matrix on EMC Powerlink™					

* 60-Drive 4U DAE is a top-loading DAE and requires a high-density EMC rack.
** The File components are not required when ordering a block-only system.
*** Includes One UltraFlex IO Module per Data Mover reserved for connection to the captive array.
Note: In-family Data-in-Place conversions, i.e. converting from a smaller VNX platform to a large one, are also supported

VNX CONNECTIVITY

The VNX series provides flexible connectivity options via UltraFlex IO modules for both the file Data Movers for NAS connectivity and the block storage processors for FC and iSCSI host connectivity (see above table for number of modules supported per blade or SP).

ULTRAFLEX IO MODULE OPTIONS (BLOCK)	
IO Module	**Description**
Four-Port 8Gb/s Fibre Channel Module	FC module with four ports auto-negotiating to 2/4/8 Gbps; uses optical SFP and OM2/OM3 cabling to connect directly to host HBA or FC switch
Four-Port 1 Gb/s iSCSI Module with TOE	iSCSI module with four 1 GBaseT RJ-45 copper connections to Cat 6 cabling to Ethernet switch; includes TCP offload engine
Two-Port 10 Gb/s Opt iSCSI Module with TOE	iSCSI module with two 10 Gb/s Ethernet ports and choice of SFP+ optical connection or active twinax copper connection to Ethernet switch; includes TCP offload engine
Two-Port 10 GBASE-T iSCSI Module with TOE	iSCSI module with two 10 GBaseT Ethernet ports with copper connection to Ethernet switch; includes TCP offload engine
Two-Port 10 GbE FCoE Module	FCoE module with two 10 Gb/s Ethernet ports and choice of SFP+ optical connection or active twinax copper connection to converged enhanced Ethernet switch

Four-Port 6Gb/s SAS V2.0 Module	SAS module, used for back-end storage (DAE) connectivity to Block Storage Processors. Each SAS port has 4 lanes/port @ 6Gb, delivering 24Gb/s nominal throughput and connects to PCI-E Gen3. Can be configured as 4x4x6 or 2x8x6.

ULTRAFLEX IO MODULE OPTIONS (FILE)	
IO Module	**Description**
Four-Port 1 GBASE-T IP Module	10/100/1000 BaseT module with four ports supporting RJ-45 copper connections to Cat 6 cabling to Ethernet switch
Two-Port 10 GbE Opt IP Module	IP module with two 10 Gb/s Ethernet ports and choice of SFP+ optical connection or active twinax copper connection to Ethernet switch
Two-Port 10 GBASE-T IP Module	IP module with two 10 GBaseT Ethernet ports with copper connection to Ethernet switch
Four-Port 8 Gb/s Fibre Channel Module	FC module with four ports auto-negotiating to 2/4/8 Gbps; uses optical SFP and OM2/OM3 cabling to connect directly to captive array and to provide NDMP tape connection

MAXIMUM CABLE LENGTHS

Shortwave optical OM2: 50 meters (8 Gb), 100 meters (4 Gb), and 300 meters (2 Gb)

Shortwave optical OM3: 150 meters (8 Gb), 380 meters (4 Gb), and 500 meters (2 Gb)

BACK-END (DISK) CONNECTIVITY

Each storage processor connects to one side of each of two, four, eight or sixteen (depending on model) redundant pairs of four-lane x 6 Gb/s Serial Attached SCSI (SAS) buses, providing continuous drive access to hosts in the event of a storage processor or bus fault. VNX models require four "vault" drives (SAS or Near-line SAS) and support a platform specific maximum number of disks (see VNX physical specifications table above). 300 GB per vault drive is consumed by VNX operating environment software and data structures.

DISK ARRAY ENCLOSURES			
	15x3.5" Drive DAE	**60x3.5" Drive DAE**	**25x2.5" Drive DAE**
Drive Types Supported	2.5" Flash (in 3.5" carrier) 2.5" 15K Rotating (in 3.5" carrier) 3.5" 15K Rotating 2.5" 10K Rotating (in 3.5" carrier) 3.5" Near-line Rotating	2.5" Flash (in 3.5" carrier) 2.5" 15K Rotating (in 3.5" carrier) 2.5" 10K Rotating (in 3.5" carrier) 3.5" Near-line Rotating	2.5" Flash 2.5" 15K Rotating 2.5" 10K Rotating 2.5" Near-line Rotating
Drive Mixing	No limitations	No limitations	No limitations
Controller Interface	6 Gb SAS	6 Gb SAS	6 Gb SAS

DISK DRIVES

Nominal Capacity	100 GB SSD*	200 GB SSD *	400 GB SSD*	800 GB SSD*	300 GB 15K Drive	300 GB 15K Drive	600 GB 15K Drive	600 GB 10K Drive	900 GB 10K Drive	1.2TB 10K Drive	2 TB 7.2K Drive	3 TB 7.2K Drive	4 TB 7.2K Drive
Formatted Capacity (GB)	93.16	186.3	372.5	745.1	272.59	272.59	545.19	545.1	833.4	1,100.6	1,836	2794	3726
Supported in 15 drive DAE	√	√	√	√	√		√	√	√	√	√	√	√
Supported in 25 drive DAE	√	√	√	√		√		√	√	√			
Supported in 60 drive DAE	√	√	√	√		√		√	√	√	√	√	√
Rotational Speed	Solid State	Solid State	Solid State	Solid State	15,000 rpm	15,000 rpm	15,000 rpm	10,000 rpm	10,000 rpm	10,000 rpm	7,200 rpm	7,200 rpm	7,200 rpm
Interface	6 Gb SAS	6 Gb SAS	6 Gb SAS	6 Gb SAS	6 Gb SAS	6 Gb SAS	6 Gb SAS	6 Gb SAS	6 Gb SAS	6Gb SAS	6 Gb SAS	6 Gb SAS	6 Gb SAS
Data Buffer	N/A SSD	N/A SSD	N/A SSD	N/A SSD	16 MB min	16 MB min	16 MB min	16 MB min	16 MB min	16 MB min	16 MB min	16 MB min	16 MB min
ACCESS TIME													
Average Read	N/A	N/A	N/A	N/A	3.4 msec	2.8 msec	3.4 msec	3.7 msec	3.7 msec	3.7 msec	8.5 msec	8.5 msec	8.5 msec
Average Write	N/A	N/A	N/A	N/A	3.9 msec	3.3 msec	3.9 msec	4.2 msec	4.2 msec	4.2 msec	9.5 msec	9.5 msec	9.5 msec
Rotation Latency	N/A	N/A	N/A	N/A	2.0 msec	2.0 msec	2.0 msec	3.0 msec	3.0 msec	3.0 msec	4.16 msec	4.16 msec	4.16 msec
NOMINAL POWER CONSUMPTION (WATTS)													
Operating Mode	8.5	8.5	8.5	8.5	12.92	9.07	16.35	5.6	5.6	5.6	12.2	12.2	12.2
Idle Mode	5.5	5.5	5.5	5.5	8.74	5.25	11.68	3.1	3.1	3.1	8.0	8.0	8.0

* 100GB and 200GB SSDs are available in SLC or eMLC technology. 400GB and 800GB SSD are eMLC technology. eMLC can only be used in FAST VP use cases.

** 520 bytes/sector, 1 MB = 1,048,576 bytes

VNX OE PROTOCOLS AND SOFTWARE FACILITIES

The VNX series offers support for a wide variety of protocols and advanced features available via various software suites and packs.

PROTOCOLS AND FACILITIES SUPPORTED

- Access-based Enumeration (ABE) for Microsoft Windows Server 2003

- Address Resolution Protocol (ARP)

- Automated Volume Management (AVM): file system provisioning

- Block Protocols: iSCSI, Fibre Channel (FCP SCSI-3), and FCoE

- Common Criteria Certification: EAL 2+FLR Assurance Level

- Controller based Data at Rest Encryption (D@RE)

- DFS Distributed File System (Microsoft) as Leaf node or Root Server

- Ethernet Trunking

- File Protocols: NFSv2, v3, v4, and v4.1 with pNFS; CIFS (SMB 1, SMB 2 and SMB 3); FTP (including SFTP and FTPs)

- FileMover API: Open API for automated, transparent data movement between tiers of the storage network

- Lock Manager (NLM) v1, v3, and v4

- Failsafe Networking

- Internet Control Message Protocol (ICMP)

- Kerberos Authentication

- Lightweight Directory Access Protocol (LDAP)

- LDAP signing for Windows

- Link Aggregation (IEEE 802.3ad)

- Management Port IPv4 and/or IPv6

- Network Data Management Protocol (NDMP) v1-v4

- Network Information Service (NIS) Client

- Network Status Monitor (NSM) v1

- Network Time Protocol (NTP) client

- NT LAN Manager (NTLM)

- Object support via EMC Atmos™ Virtual Edition

- Portmapper v2

- Restriction of Hazardous Substances (RoHS) compliance

- Routing Information Protocol (RIP) v1-v2

- Simple Network Management Protocol V1-V3 (SNMP)

- Simple Network Time Protocol (SNTP)

- UNIX archive utilities (tar/cpio)

- Virtual Data Movers for Microsoft Windows clients

- Virtual LAN (IEEE 802.1q)

VNX SOFTWARE

	VNX5200, VNX5400, VNX5600, VNX5800, VNX7600 AND VNX8000
Unisphere™ Management Suite: Simple, intuitive management, monitoring and troubleshooting for VNX	Management Software includes: Unisphere element manager (Block / File / Unified) Unisphere Central (consolidated dashboard and alerting) Unisphere Analyzer (monitoring and troubleshooting) Unisphere QoS Manager (Quality of Service) VNX Monitoring and Reporting (SRM Lite for VNX)
Protocols	CIFS, NFS, pNFS, FC, FCoE, iSCSI included
Base Software (VNX OE) Core storage capabilities (connectivity, efficiency and migration) included at no extra cost	*Includes:* All Protocols (See above) Thin Provisioning Fixed Block Deduplication (Block Use Case) Block Compression File Deduplication and Compression SAN Copy
FAST™ Suite: Automatically optimize for the highest system performance and the lowest storage cost simultaneously	Optimize performance and cost concurrently with: - Dynamic tiering of data across drives - Extendable cache for performance boost
Events and Retention Suite: Keep data safe from changes, deletions, and malicious activity	Disk-based WORM functionality Anti-virus integration and alerting
Local Protection Suite: Practice Safe Data Protection and Repurposing	Block storage snaps and clones Continuous Data Protection for DVR-like recovery for block storage File system snaps
Remote Protection Suite: Protect data against localized failures, outages, and disasters	Unified storage replication with DVR-like recovery Integrated WAN deduplication and bandwidth reduction Granular file system level replication and recovery
Application Protection Suite: Automate application copies and prove compliance	Self-service application copy management Prove protection compliance Includes Replication Manager and AppSync™
Storage Analytics	VMware® vRealize™ Operations for VNX/VNXe3200, EMC Adapter for VNX (supports VMAX and VPLEX)
Total Protection Pack	Local Protection Suite + Remote Protection Suite + Application Protection Suite
Total Efficiency Pack	FAST Suite + VNX Events & Retention Suite+ Local Protection Suite + Remote Protection Suite + Application Protection Suite
Encryption	Controller based, Data at Rest Encryption (D@RE)

NOTE: For more details on software licensing, please contact your sales representative.

VIRTUALIZATION FACILITIES AND TITLES

The VNX series offers support for a wide variety of protocol and advanced features available via various software suites and packs including but not limited to:

- EMC Virtual Storage Integrator (VSI) for VMware vSphere™ 5: For provisioning, management, cloning, and deduplication

- Site Recovery Manager (SRM) Integration: Managing failover and failback making disaster recovery rapid and reliable

- Virtualization API Integration: VMWare: VAAI and VASA. Hyper-V: Offloaded Data Transfer (ODX) and Offload Copy for File

- AppSync: Host-based, service oriented management of array-based copies of data

- EMC Storage Integrator (ESI) – For provisioning within the Microsoft management context (Systems Center) for Hyper-V and SharePoint

ADDITIONAL OPTIONAL EMC TITLES

- EMC VIPR SRM Suite®: VNX integration with EMC Storage management infrastructure

- EMC PowerPath®: path management

- EMC Cloud Tiering Appliance (CTA and CTA/VE): policy-based cloud tiering, file archiving, and migration

VNX ELECTRICAL SPECIFICATIONS

(All power numbers are based on maximum configurations. For configuration specific power specifications please refer to the EMC Power Calculator at powercalculator.emc.com with your Powerlink account.)

DPE / SPE / DAE ENCLOSURES									
	VNX5200 DPE (25x2.5″ drives)	**VNX5400 DPE (25x2.5″ drives)**	**VNX5600 DPE (25x2.5″ drives)**	**VNX5800 DPE (25x2.5″ drives)**	**VNX7600 DPE (25x2.5″ drives)**	**VNX8000 SPE**	**15x3.5″ Disk Array Enclosure**	**60x3.5″ Disk Array Enclosure**	**25x2.5″ Disk Array Enclosure**
POWER									
Energy Star Certified		Yes**	Yes**						
AC Line Current (operating maximum)	4.3A max at 200 Vac 8.0 A max at 100V*	4.3 A max at 200 Vac 8.0 A max at 100V*	4.4 A max at 200 Vac	4.4 A max at 200 Vac	4.5 A max at 200 Vac	7.25 A max at 200 Vac	2.8 A max at 100 Vac, 1.4 A max at 200 Vac	6.0 A max at 200 Vac	2.5 A max at 100 Vac, 1.3 A max at 200 Vac
Power Consumption (operating maximum)	860 VA (835 W) max (200V) 798 VA (768 W) max (100V*)	860 VA (835 W) max (200V) 798 VA (768 W) max (100V*)	870 VA (845 W)max	870 VA (845 W) max	905 VA (880 W) max	1,450 VA (1,380 W) max	280 VA (235 W) max	1,200 VA (1,130 W) max	250 VA (230 W) max
Power Factor	0.97 min at 200V at full load, low voltage 0.96 min at 100V* at full load, low voltage	0.97 min at 200V at full load, low voltage 0.96 min at 100V* at full load, low voltage	0.98 min at full load, low voltage	0.98 min at full load, low voltage	0.98 min at full load, low voltage	0.98 min at full load, low voltage	0.98 min at full load, low voltage	0.98 min at full load, low voltage	0.98 min at full load, low voltage
Heat Dissipation (operating maximum)	3.01×10^6 J/hr, (2,850 Btu/hr) max (200V) 2.77×10^6 J/hr, (2,621 Btu/hr) max (100V*)	3.01×10^6 J/hr, (2,850 Btu/hr) max (200V) 2.77×10^6 J/hr, (2,621 Btu/hr) max (100V*)	3.04×10^6 J/hr, (2,890 Btu/hr) max	3.04×10^6 J/hr, (2,890 Btu/hr) max	3.17×10^6 J/hr, (3,010 Btu/hr) max	4.97×10^6 J/hr, (4,710 Btu/hr) max	8.46×10^5 J/hr, (800 Btu/hr) max	4.07×10^6 J/hr, (3,860 Btu/hr) max	8.28×10^5 J/hr, (785 Btu/hr) max
In-rush Current	30 A max for ½ line cycle, per line cord at 240 Vac	30 A max for ½ line cycle, per line cord at 240 Vac	30 A max for ½ line cycle, per line cord at 240 Vac	30 A max for ½ line cycle, per line cord at 240 Vac	30 A max for ½ line cycle, per line cord at 240 Vac	30 A max for ½ line cycle, per line cord at 240 Vac	50 A max for ½ line cycle, per line cord at 240 Vac 25 A max for ½ line cycle, per line cord at 120 Vac	30 A max for ½ line cycle, per line cord at 240 Vac	50 A max for ½ line cycle, per line cord at 240 Vac 25 A max for ½ line cycle, per line cord at 120 Vac
Startup Surge Current	29 A rms max for 50 ms, at any line voltage	29 A rms max for 50 ms, at any line voltage	29 A rms max for 50 ms, at any line voltage	29 A rms max for 50 ms, at any line voltage	29 A rms max for 50 ms, at any line voltage	29 A rms max for 50 ms, at any line voltage	10.6 A rms max for 100 ms, at any line voltage	27 A rms max for 100 ms, at any line voltage	10.6 A rms max for 100 ms, at any line voltage
AC Protection	10 A fuse on each power supply	10 A fuse on each power supply	10 A fuse on each power supply	10 A fuse on each power supply	10 A fuse on each power supply	10 A fuse on each power supply	10 A fuse on each power supply, both phases	12 A fuse on each line cord, both phases	10 A fuse on each power supply, both phases
AC Inlet Type	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, per power zone	IEC320-C14 appliance coupler, **two** per power zone	IEC320-C14 appliance coupler, per power zone
Ride-through	12 ms min	12 ms min	12 ms min	12 ms min	12 ms min	12 ms min	30 ms min	30 ms min	30 ms min

Time									
Current Sharing	± 5 percent of full load, between power supplies	± 5 percent of full load, between power supplies	± 5 percent of full load, between power supplies	± 5 percent of full load, between power supplies	± 5 percent of full load, between power supplies	± 5 percent of full load, between power supplies	± 10 percent of full load, between power supplies	± 10 percent of full load, between power supplies	± 10 percent of full load, between power supplies
DIMENSIONS									
Weight	41 kgs (90.395 lbs)	41 kgs (90.395 lbs)	41 kgs (90.395 lbs)	41 kgs (90.395 lbs)	41 kgs (90.395 lbs)	49.9 kgs (110 lbs)	Empty: 32/14.5	Empty: 81/36.7	Empty: 22.1/10.0
Vertical size	3 NEMA units	3 NEMA units	3 NEMA units	3 NEMA units	3 NEMA units	4 NEMA units	3 NEMA units	4 NEMA units	2 NEMA units
Height	13.33 cm (5.25 in)	13.33 cm (5.25 in)	13.33 cm (5.25 in)	13.33 cm (5.25 in)	13.33 cm (5.25 in)	17.78 cm (7.00 in)	13.33 cm (5.25 in)	17.78 cm (7.00 in)	8.76 cm (3.45 in)
Width	44.45 cm (17.5 in)	44.45 cm (17.5 in)	44.45 cm (17.5 in)	44.45 cm (17.5 in)	44.45 cm (17.5 in)	44.45 cm (17.5 in)	44.45 cm (17.5 in)	44.45 cm (17.5 in)	44.45 cm (17.5 in)
Depth	61.0 cm (24 in)	61.0 cm (24 in)	61.0 cm (24 in)	61.0 cm (24 in)	61.0 cm (24 in)	83.8 cm (33 in)	35.56 cm (14 in)	35 in + cable mgmt. arm (needs 44in deep rack)	33.02 cm (13 in)

*Please note that there is a 100-120V power supply option available for the 5200 and 5400. These systems must have the correct power supply installed to operate at 100V-120V. *Please be aware that with the 100V-120V power supply option, 10GBaseT block UltraFlex IO modules are not supported.*

ENERGY STAR

**Restrictions apply to the use of Near Line SAS drives

NOTE: Each VNX8000 SPE requires a Standby Power Supply (see the following information)

	VNX 8000 Standby Power Supply
POWER	**2.2KW 2U SPS (Note all ratings assume fully configured systems)**
AC Line Voltage	200 to 240 Vac ± 10%, single-phase, 47 to 63 Hz
AC Line Current, Internal and Pass-through	0.1 A max at 200 Vac, internal power consumption (Up to 11 A max at 200 Vac, pass-through to AC outlets)
Internal Power Consumption	150 VA (135 W) pk in hi-charge mode, 20 VA (12 W) in float charge mode
Power Factor	N/A for pass-through load, internal 10 VA load is 0.60 power factor
Heat Dissipation	43.2×10^3 J/hr, (40 Btu/hr) steady state
In-rush Current	25 A max for ½ line cycle, per power supply at 240 Vac
AC Protection	20 A circuit breaker
AC Inlet Type	IEC320-C14 appliance coupler with switch
AC Outlet Type	IEC320-C13 appliance coupler, quantity four
Charge Times	5.5 hours max
AC Failure Detect Time	12 ms max
Transfer Time	25 ms max
Dimensions (H/W/L)	3.37 in/17.5 in/28 in or 8.56 cm/44.45 cm/71.1 cm
Weight	79 lb/35.9 Kg

CABINETS		
	Standard 40U Cabinet	**Dense 40U Cabinet**
AC Line Voltage	200 to 240 Vac ± 10%, single-phase, 47 to 63 Hz	200 to 240 Vac ± 10%, single-phase, 47 to 63 Hz
Power Configuration	Two power domains (base and extended), each redundant	One, two, three or four power domains, each redundant
Power Inlet Count	Either two (for redundant base configuration) or four (for redundant extended configuration)	Two, four, six, or eight (two per domain)
Plug Types	NEMA L6-30P or IEC309-332 P6 or IP57 (Australia)	NEMA L6-30P or IEC309-332 P6 or IP57 (Australia)
Input Power Capacity	4,800 VA @ 200 Vac, 5,760 VA @ 240 Vac (base configuration) 9,600 VA @ 200 Vac, 11,520 VA @ 240 Vac (extended configuration)	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
AC Protection	30 A site circuit breakers on each power branch	30A site circuit breakers on each power branch (8 max)
40U Cabinet Dimensions	Height - 75 in (190.8 cm); Width - 24.0 in (61.1 cm); Depth - 39.0 in (99.2 cm); Weight Empty – 380 lb (173 kg)	Height – 75 in (190.8 cm); Width – 24.0 in (61.1 cm); Depth – 44 in (111.8 cm); Weight Empty – 435 lb (197.3 kg)

DATA MOVER ENCLOSURES (DME), AND CONTROL STATIONS			
(1) DME with (2) Data Movers (All VNX2 Models)			**(1) Control Station**
POWER			
AC Line Voltage	100 to 240 Vac± 10%, single-phase, 47 to 63 Hz		
AC Line Current (operating maximum)	5.3 A max at 100 Vac, 2.7 A max at 200 Vac		1.0 A max at 100 Vac, 0.5 A max at 200 Vac
Power Consumption (operating maximum)	530 VA (500 W) max		100 VA (90 W) max
Power Factor	0.98 min at full load, low voltage		0.90 min at full load, low voltage
Heat Dissipation (operating maximum)	1.80×10^6 J/hr, (1,710 Btu/hr) max		3.24×10^5 J/hr, (310 Btu/hr) max
In-rush Current	15 A max for ½ line cycle, per line cord at 240 Vac 8 A max for ½ line cycle, per line cord at 120 Vac		
Startup Surge Current	27 A rms max for 50 ms, at any line voltage		N/A
AC Protection	7.8 A fuse on each power supply, both phases		N/A
AC Inlet Type	IEC320-C14 appliance coupler, per power zone		
Ride-through Time	30 ms min		N/A
Current Sharing	± 15 percent of full load, between power supplies		N/A
DIMENSIONS			
Weight	23.8 kg (52.5 lb)		10.5kg (23.3 lb)
Vertical size	2 NEMA units		1 NEMA unit
Height	8.89 cm (3.50 in)		4.45 cm (1.75 in)
Width	44.45 cm (17.50 in)		43.8 cm (17.25 in)
Depth	61.0 cm (24.0 in)		55.37 cm (21.8in)

OPERATING ENVIRONMENT
(MEETS ASHRAE EQUIPMENT CLASS A3)

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) at 5.5°C (41.9°F) dew point to 60% relative humidity 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.	10°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).
Expanded Allowable Range Operation	During certain times of the day or year, equipment inlet conditions may fall outside the continuously allowable range but still within the expanded allowable range. Equipment operation is limited to ≤ 10% of annual operating hours in this range.	5°C to 10°C and 35°C to 40°C (with no direct sunlight on the equipment) at -12°C dew point and 8% to 85% relative humidity with 24°C dew point (maximum 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).
Exceptions to Expanded Allowable Range Operation	When operating in the expanded allowable temperature range, system performance is guaranteed while the system is awaiting or being serviced.	Due to certain rare operational modes, it is recommended that service be deferred on 60x3.5" Disk Array Enclosures when temperatures exceed 35°C.
Temperature Gradient		20°C / hour (36°F / hour)
Altitude	Max Operating	3050m (10,000ft)

ELECTROMAGNETIC EMISSIONS AND IMMUNITY

FCC Class A EN55022 Class A

CE Mark VCCI Class A (for Japan)

ICES-003 Class A (for Canada) AS/NZS 3548 Class A (for Australia/New Zealand)

EN55024 Immunity, ITE BSMI Class A (for Taiwan)

QUALITY AND SAFETY STANDARDS

UL 60950; CSAC 22.2-60950, EN 60950

Manufactured under an ISO 9000-registered quality system

ETSI EN 300 386

CONTACT US

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REDEFINE

SPECIFICATION SHEET

EMC²