Dell PowerEdge XR7620

Technical Guide

Regulatory Model: E89S Series
Regulatory Type: E89S001
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DELL Technologies

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Contents

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System overview

The Dell PowerEdge XR7620 is 2-socket, 2U server that supports:

- Rear Accessed Configuration (Normal Airflow) and Front Accessed Configuration (Reverse Airflow)
- Two 4th Generation Intel® Xeon® Scalable Processors with up to 32 cores per processor
- Up to 16 DDR5 DIMM slots
- Two redundant AC or DC power supply units
- Up to five PCIe slots (2 x16 Gen4/5, 2 x16 Gen4, 1 x16 LP Gen4) for networking, enabling flexible networking design
- Up to 4 x 2.5-inch SAS/SATA/NVMe Solid State Drives (SSDs), or 8 x E3.S NVMe drives

NOTE: Front-accessed configurations cannot be converted to Rear-accessed configurations, and vice versa.

NOTE: For more information about how to hot swap NVMe PCIe SSD U.2 device, see the *Dell Express Flash NVMe PCIe SSD User's Guide* at https://www.dell.com/support **> Browse all Products** > **Data Center Infrastructure** > **Storage Adapters & Controllers** > **Dell PowerEdge Express Flash NVMe PCIe SSD** > **Documentation** > **Manuals and Documents**.

NOTE: All instances of SAS, SATA drives are referred to as drives in this document, unless specified otherwise.

CAUTION: Do not install GPUs, network cards, or other PCIe devices on your system that are not validated and tested by Dell. Damage caused by unauthorized and invalidated hardware installation will null and void the system warranty.

Topics:

Key workloads

The key workloads for PowerEdge XR7620 are:

- Industrial automation
- Video analytics
- Point of sale analytics
- AI inferencing
- Edge asset data aggregation
- Analytics

New technologies

Table 1. New technologies

Technology	Detailed Description
4th Gen Intel® Xeon® Scalable Processors	Core count: Up to 32 core processor
	UPI speed: Up to 3 links per CPU, speed: 12.8 GT/s, 14.4 GT/s, 16 GT/s
	Maximum number of PCIe lanes per CPU: Integrated 80 PCIe 5.0 lanes @ 32GT/s PCIe Gen5
	Maximum TDP: 225 W

Table 1. New technologies (continued)

Technology	Detailed Description
4800 MT/s DDR5 Memory	Max 8 DIMM per processor and 16 DIMMs per system
	Supports DDR5 ECC RDIMM
Chassis Orientation	The XR7620 has two chassis options: 1. Rear Accessed Configuration , where power supplies and network cards are in the rear 2. Front Accessed Configuration , where power supplies and network cards are in the front
Flex I/O	LOM, 2x1Gb with BCM5720 LAN controller
	Rear I/O with: ● 1 x Dedicated iDRAC Ethernet port ● 1 x USB 3.0 ● 1 x USB 2.0 ● 1 x VGA port
	Serial Port Option with STD RIO board
	Optional OCP Mezz 3.0 (supported by x8 PCIe lanes)
	Front I/O with: ● 1 x USB 2.0 ● 1 x iDRAC Direct (Micro-AB USB) port
CPLD 1-wire	Support payload data of Front PERC, Riser, BP and Rear IO to BOSS-N1 and iDRAC
Dedicated PERC	Front Storage module PERC with Front PERC11 & PERC12
Software RAID	OS RAID / S160
Power Supplies	60 mm dimension is the new PSU form factor on 15G design
	Titanium 1100 W AC/HVDC
	Platinum 1400 W AC/HVDC
	1100 W -48 DC
	Titanium 1800 W AC/HVDC

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System features and generational comparison

The following table shows the comparison between the PowerEdge XR7620 with the PowerEdge XR12.

Table 2. Features comparison

Features	PowerEdge XR7620		PowerEdge XR12
Processors	2 x 4th Gen Intel® Xeon® Scalable Processors		1 x 3rd Generation Intel® Xeon Scalable Processor
CPU interconnect	Intel Ultra Path Interconnect (UPI)		Intel Lewisburg PCH (Intel® C620 Series Chipset)
Memory	• 16 x DDR5 RDIMM • Up to 4800 MT/s		8x RDIMM, LRDIMM DDR4 with ECC, Two Intel Optane Persistent Memory 200 series configurations: • 4+4 • 6+1 Number of DDR4 DIMMs plus number of Intel Optane Persistent Memory 200 series DIMMs
Storage Controllers	• PERC 11G: H755, H355 • PERC 12G: H965i • HBA 11: HBA355i • BOSS-N1 • Software RAID: S160		• PERC 10.5: H355 (Adapter) • PERC 11: H355*, HBA355i (Adapter), H755 (Adapter) • External Adapters: H840; HBA355e • Software RAID: S150 • BOSS-S1 (RAID)
Drive Bays	• Up to 8 x E3.S NVMe drives • Up to 4 x 2.5-inch SAS/SATA or NVMe drives		6 x 2.5-inch - 12 GB SAS, 6 GB SATA Up to 6 x NVMe • Up to 6 x 2.5-inch - 12 GB SAS, 6 GB SATA • Up to 6 x NVMe
Power Supplies	• 1800 W Titanium 200—240 VAC or 240 HVDC, hot swap redundant • 1400 W Platinum 100—240 VAC or 240 HVDC, hot swap redundant • 1100 W Titanium 100—240 VAC or 240 HVDC, hot swap redundant • 1100 W -48 — (-60) VDC, hot swap redundant		• Titanium 700 W Mixed Mode HLAC (200-240 V AC/240 V DC) • Platinum 800 W (WRAC and MM 240 V) • 800 W -48 V DC (-40 to -72 V DC) • *1100 W -48 V DC • Titanium 1100 W Mixed Mode (100 to 240 V AC/240 V DC) • *Platinum 1400 W (WRAC and MM 240 V) **NOTE:** *These PSUs are also available in reverse airflow design to support Front Accessed Configuration.
Cooling Options	Air Cooling		Air Cooling
Fans	Six cooling fans		Up to six cooling fans
Dimension	Height: 86.8 mm (3.41 inches)		Height: 86.8 mm (3.41 inches)
	Width: 482.6 mm (19 inches)		Width: 482 mm (18.97 inches)
	Depth:	Rear Accessed configuration Depth:	Depth: 772.13 mm (30.39 inches) with bezel

Table 2. Features comparison (continued)

Features	PowerEdge XR7620		PowerEdge XR12	
		• 448.8 mm (17.6 inches) Ear to rear wall • 496.3 mm (19.53 inches) with bezel • 471.8 mm (18.57 inches) without bezel		
		Front Accessed configuration Depth: • 572 mm (22.51 inches) with bezel • 471.8 mm (18.57 inches) without bezel		
Form Factor	2U rack server		2U rack server	
Embedded Management	• iDRAC9 • iDRAC Direct • iDRAC RESTful with Redfish • iDRAC Service Manual		• iDRAC9 • Lifecycle Controller • OpenManage • OME Power Manager • Digital License Key	
Bezel	LED bezel		Optional LCD bezel or security bezel	
OpenManage Software	• CloudIQ for PowerEdge plug in • OpenManage Enterprise • OpenManage Power Manager plugin • OpenManage Services plugin • OpenManage Update Manager plugin		• OpenManage Enterprise • OpenManage Power Manager plugin • OpenManage SupportAssist plugin • OpenManage Update Manager plugin	
Mobility	OpenManage Mobile		OpenManage Mobile	
Integrations and Connections	OpenManage Integrations • Microsoft System Center • OpenManage Integration for Microsoft System Center • OpenManage Integration with Windows Admin Center • OpenManage Integration with ServiceNow • Red Hat Ansible Modules • OpenManage Integration with VMware vCenter / VMware Aria Operations (OMEVV) • VMware vCenter and vRealize Operations Manager		OpenManage Integrations • BMC TrueSight • Microsoft System Center • Red Hat Ansible Modules • VMware vCenter	• IBM Tivoli Netcool/ OMNIbus • IBM Tivoli Network Manager IP Edition • Micro Focus Operations Manager • Nagios Core • Nagios XI
Security	• Cryptographically signed firmware • Secure Boot • Secure Erase • Silicon Root of Trust • System Lockdown (requires iDRAC9 Enterprise or Datacenter) • TPM 2.0 FIPS, CC-TCG certified, TPM 2.0 China NationZ • Secured Component Verification (Hardware integrity check)		• Cryptographically signed firmware • Secure Boot • Secure Erase • Silicon Root of Trust • System Lockdown (requires iDRAC9 Enterprise or Datacenter) • TPM 1.2/2.0 FIPS, CC-TCG certified, TPM 2.0 China NationZ	

Table 2. Features comparison (continued)

Features	PowerEdge XR7620		PowerEdge XR12
	• Data at Rest Encryption (SEDs with local or external key mgmt)		
Embedded NIC	2 x 1 GbE LOM		2 x 1 GbE LOM
Networking Options	OCP x8 (optional) Mezz 3.0		OCP x8 Mezz 3.0
GPU Options	Up to 5 x 75 W (Single Width Full Height/ Half Length, Low Profile) GPU or 2 x 300 W (Double Width Full Height/Full Length)		Up to 2 x 75 W/150 W (SW) and 2 x 300 W (DW/FH/FL) based on riser configuration
Ports	Rear Accessed Configuration Front Ports • 1 x USB 2.0 • 1 x iDRAC Direct (Micro-AB USB) port	Rear Accessed Configuration Rear Ports • 1 x USB 2.0 • 1 x iDRAC dedicated port • 1 x USB 3.0 • 1 x Serial (Optional, on Slot 5) • 1 x VGA	Rear Accessed Configuration • Front: ○ one standard USB 2.0 port ○ one micro USB 2.0 port dedicated to iDRAC management • Rear: ○ one standard USB 3.0 port ○ one standard USB 2.0 port ○ one Dedicated 1GbE ○ one Serial port ○ one VGA port
	Front Accessed Configuration Front Ports • 2 x USB 2.0 • 1 x iDRAC dedicated port • 1 x USB 3.0 • 1 x Serial (Optional, on Slot 5) • 1 x VGA • 1 x iDRAC Direct (Micro-AB USB) port	Front Accessed Configuration Rear Ports • NA	Front Accessed Configuration • Front: one standard USB 3.0 port, two standard USB 2.0 ports, one micro USB 2.0 port dedicated to iDRAC management, one Dedicated 1GbE, one Serial port, one VGA port • Internal: one standard USB 3.0 port on Riser 1B
	Internal Port: 1 x USB 3.0 (optional)		Internal: 1 x USB 3.0 port (optional)
PCIe	Up to 5 PCIe slots - full-height, half-length and low profile • 4 x PCIe (2 Gen4/5 + 2 Gen4) • 1 x LP Gen4		Up to 5 riser configuration options: • 3 x PCIe Gen4 (one x8 PCIe Gen4 + two x16 PCIe Gen4) • 3 x PCIe Gen4 (one x16 PCIe Gen4 + two x16 PCIe Gen4) (Only supported for Front Accessed Chassis) • 4 x PCIe Gen 4 (three x8 PCIe Gen4 + one x16 PCIe Gen 4) • 4 x PCIe Gen 4 (two x8 PCIe Gen 4 + two x16 PCIe Gen 4) (Only supported for Front Accessed Chassis) • 5 x PCIe Gen4 (five x8 PCIe Gen4)
Operating System and Hypervisors	• Canonical Ubuntu Server LTS • Microsoft Windows Server with Hyper-V • Red Hat Enterprise Linux • SUSE Linux Enterprise Server • VMware ESXi For specifications and interoperability details, see Dell Enterprise Operating Systems on		• Canonical Ubuntu Server LTS • Citrix Hypervisor • Windows Server LTSC with Hyper-V • Red Hat Enterprise Linux • SUSE Linux Enterprise Server • VMware ESXi For specifications and interoperability details, see Dell Enterprise Operating Systems on Servers,

Table 2. Features comparison (continued)

Features	PowerEdge XR7620	PowerEdge XR12
	Servers, Storage, and Networking page at Dell.com/OSsupport.	Storage, and Networking page at Dell.com/OSsupport.

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Chassis views and features

Topics:

- Chassis views
- Quick Resource Locator

Chassis views

Rear Accessed Configuration (Normal Airflow) for XR7620

Front view of XR7620 rear accessed chassis

Figure 1. XR7620 Rear accessed chassis front view with front bezel

Rear view of XR7620 rear accessed chassis

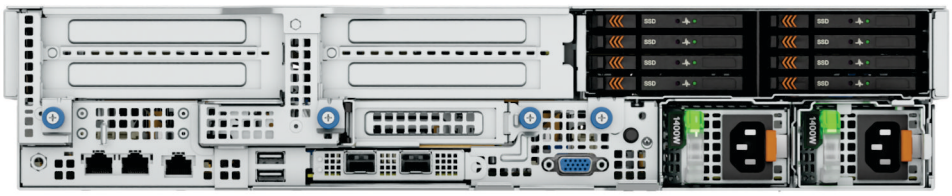

Figure 2. XR7620 Rear accessed chassis E3.S rear view

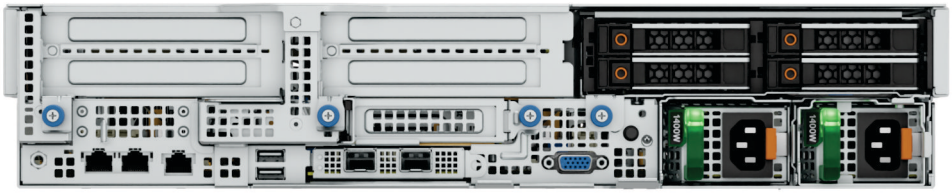

Figure 3. XR7620 Rear accessed chassis 4 x 2.5-inch rear view

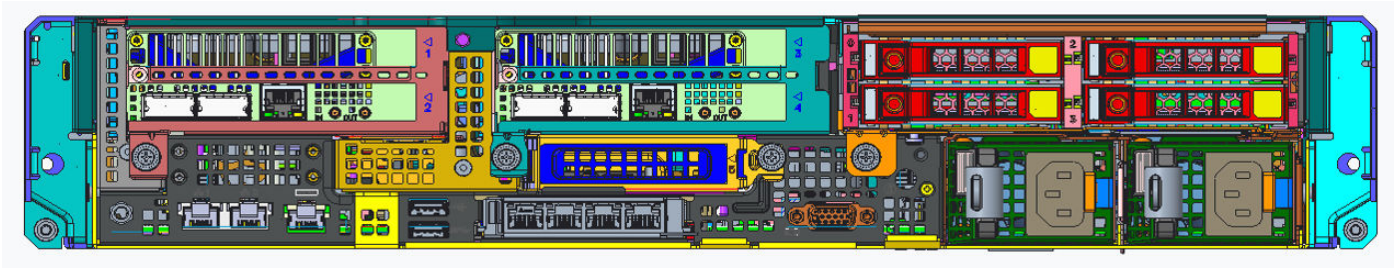

Figure 4. XR7620 FHFL 4 x 2.5 chassis

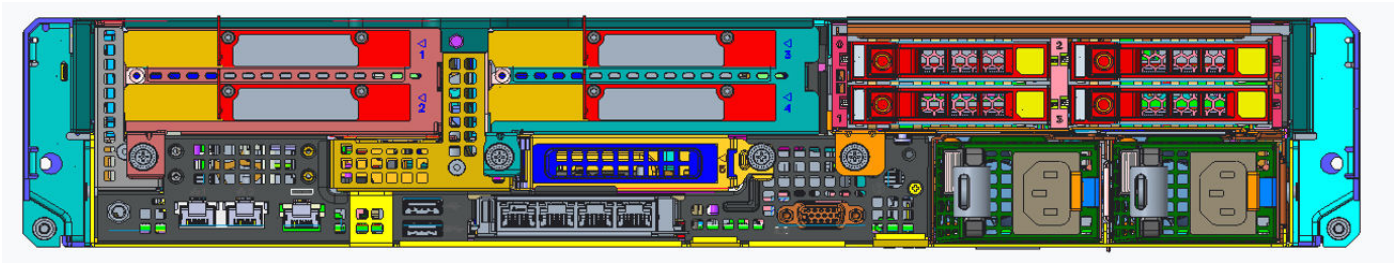

Figure 5. XR7620 FHHL 4 x 2.5 chassis

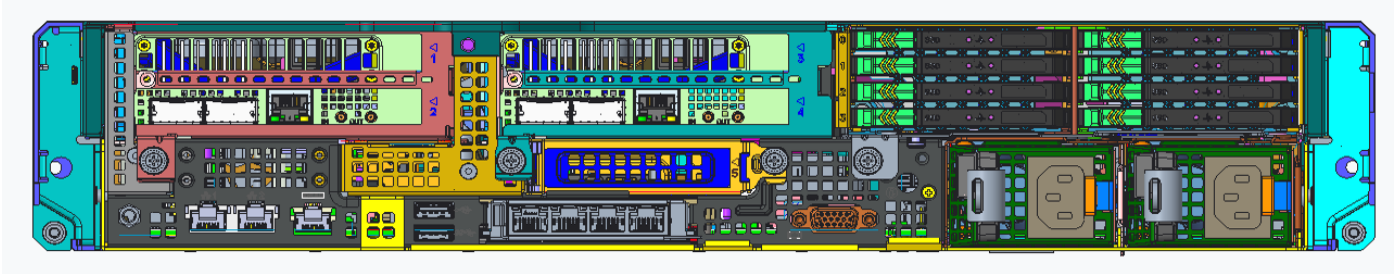

Figure 6. XR7620 FHFL E3.S chassis

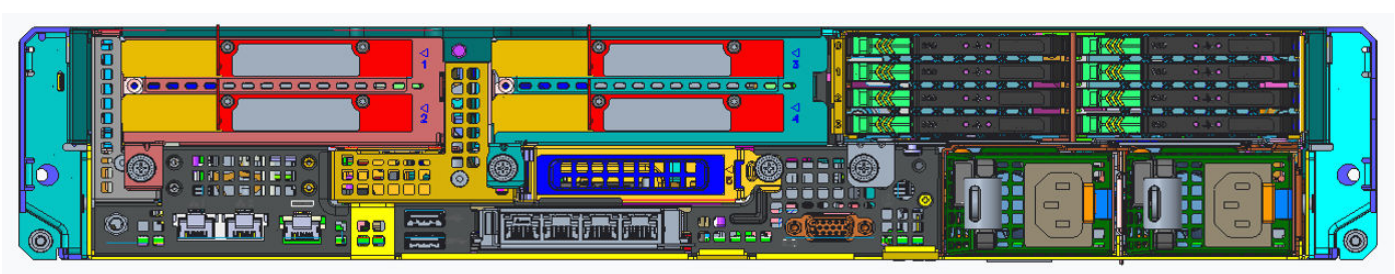

Figure 7. XR7620 FHHL E3.S chassis

Inside the XR7620 rear accessed chassis

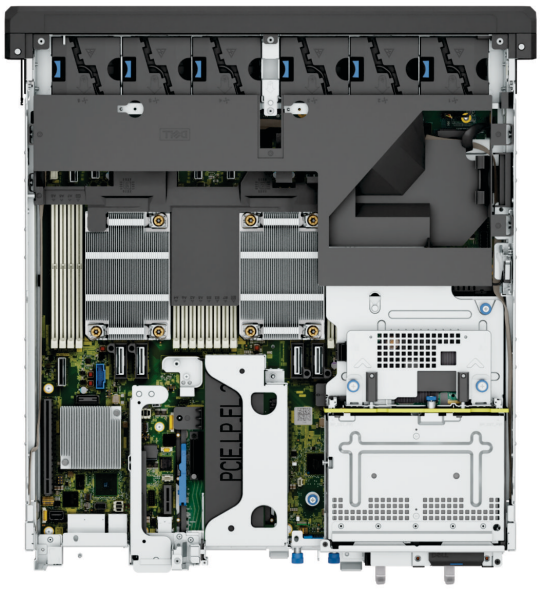

Figure 8. XR7620 Rear accessed internal view

Front Accessed Configuration (Reverse Airflow) for XR7620

Front view of XR7620 front accessed chassis

Figure 9. XR7620 Front accessed chassis with bezel

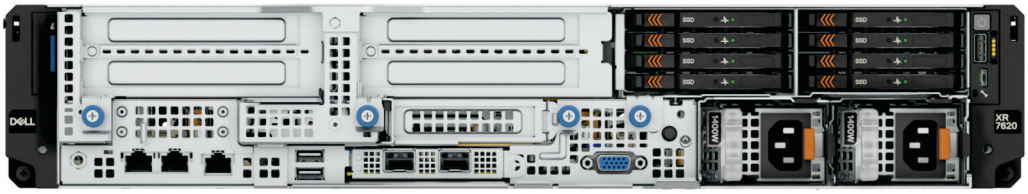

Figure 10. XR7620 Front accessed E3.S chassis front view

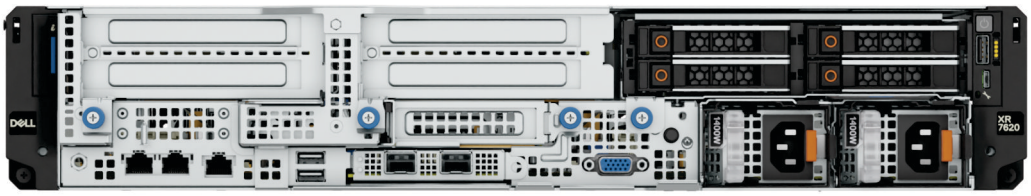

Figure 11. XR7620 Front accessed 4 x 2.5-inch chassis front view

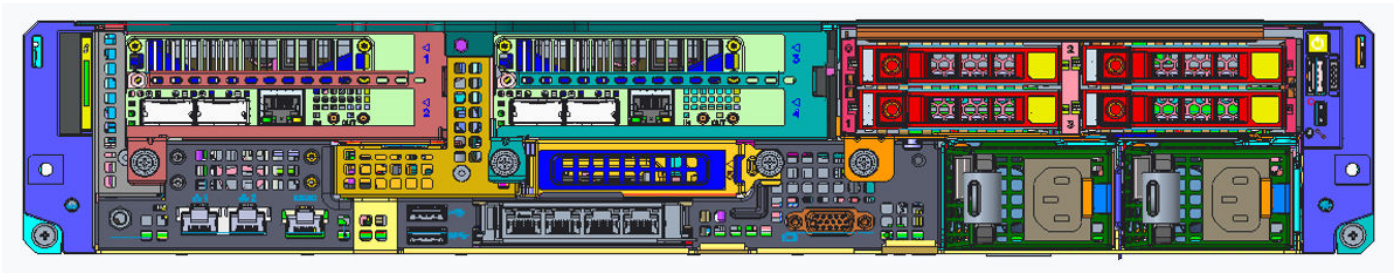

Figure 12. XR7620 Front accessed FHFL 4 x 2.5 chassis

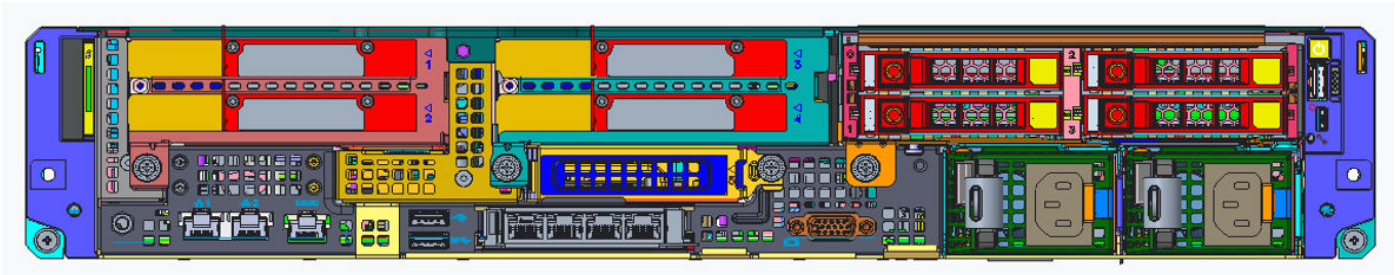

Figure 13. XR7620 Front accessed FHHL 4 x 2.5 chassis

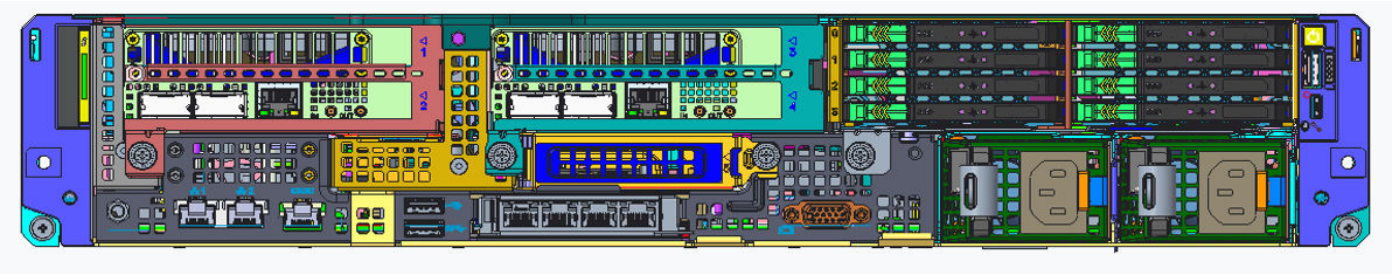

Figure 14. XR7620 Front accessed FHFL E3 chassis

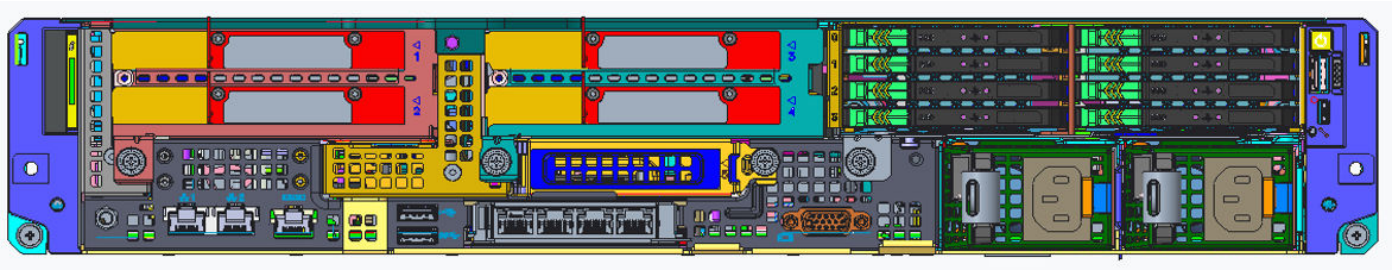

Figure 15. XR7620 Front accessed FHHL E3 chassis

Rear view of XR7620 front accessed chassis

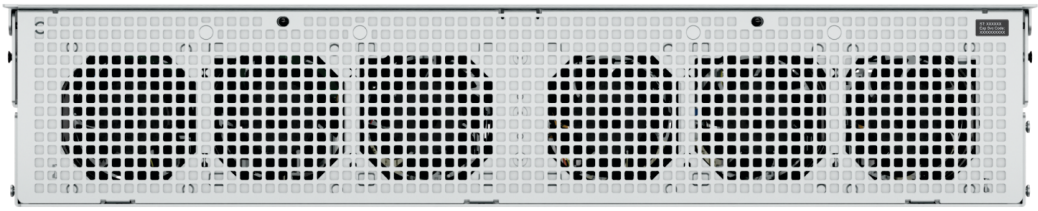

Figure 16. XR7620 Front accessed chassis rear view

Inside the XR7620 front accessed chassis

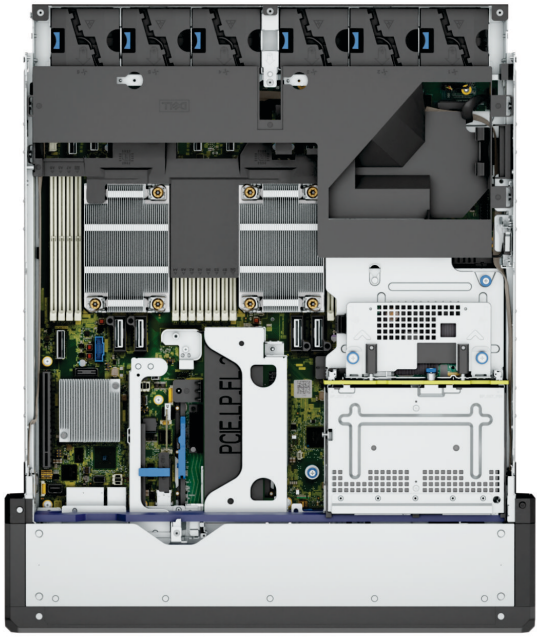

Figure 17. XR7620 Front accessed internal view

Quick Resource Locator

The QRL on everything (SILs, GSG, Owner's Manual except on the EST) is a generic QRL for XR7620 that leads to a webpage for that product. That webpage has links for things like setup and service videos, iDRAC manual, and other things that apply to the platform. The QRL on the EST is unique and specific to that service tag and will contain the Service Tag number and the iDRAC password. The label and the QRL code within it are printed on demand at the L10 factories. This QRL links to a webpage that shows the exact configuration as built for that customer, and the specific warranty purchased. It is one click away from the same content of generic information that applies to XR7620 that is available in the other QRLs.

Figure 18. Quick Resource Locator for XR7620

4

Processor

Topics:

- Processor features

Processor features

The 4th Generation Intel® Xeon® Processors stack is the next generation data center processor offering with significant performance increases, integrated acceleration, and next generation memory and I/O. Sapphire Rapids accelerate customer usages with unique workload optimizations.

The following lists the features and functions that are in the 4th Generation Intel® Xeon® Scalable Processor offering:

- Faster UPI with up to four Intel Ultra Path Interconnect (Intel UPI) at up to 16 GT/s, increasing multisocket bandwidth
- More, faster I/O with PCI Express 5 and up to 80 lanes (per socket)
- Enhanced Memory Performance with DDR5 support and memory speed up to 4800 MT/s in one DIMM per channel (1DPC) and 4400 MT/s in two DIMM per channel (2DPC)
- New built-in accelerators for data analytics, networking, storage, crypto, and data compression

Supported processors

The following table shows the Intel Sapphire Rapids SKUs that are supported on the XR7620.

Table 3. Supported Processors for XR7620

Processor	Clock Speed (GHz)	Cache (M)	UPI (GT/s)	Cores	Threads	Memory Speed (MT/s)	Memory Capacity	TDP
6448Y	2.1	60	16	32	64	4800	4 TB	225 W
6442Y	2.6	60	16	24	48	4800	4 TB	225 W
6426Y	2.5	38	16	16	32	4800	4 TB	185 W
5418Y	2	45	16	24	48	4400	4 TB	185 W
5416S	2	30	16	16	32	4400	4 TB	150 W
5415+	2.9	23	16	8	16	4400	4 TB	150 W
4416+	2	38	16	20	40	4000	4 TB	165 W
4410Y	2	30	16	12	24	4000	4 TB	150 W

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Memory subsystem

Topics:

Supported memory

Table 4. Memory technology

Feature	PowerEdge XR7620 (DDR5)
DIMM type	RDIMM
Transfer speed	4800 MT/s
Voltage	1.1 V

NOTE: Maximum DIMM transfer speed support dependent on CPU SKU and DIMM population

Table 5. Supported DIMMs

DIMM PN	Rated DIMM Speed (MT/s)	DIMM Type	DIMM Capacity (GB)	Ranks per DIMM	Data Width	DIMM Volts (V)
1V1N1	4800	RDIMM	16	1	x8	1.1
W08W9	4800	RDIMM	32	2	x8	1.1
J52K5	4800	RDIMM	64	2	x4	1.1
MMWR9	4800	RDIMM	128	4	x4	1.1

NOTE: The processor may reduce the performance of the rated DIMM speed.

System memory guidelines

The PowerEdge XR7620 system supports DDR5 registered DIMMs (RDIMMs).

Your system memory is organized into eight channels per processor and 16 memory sockets per system.

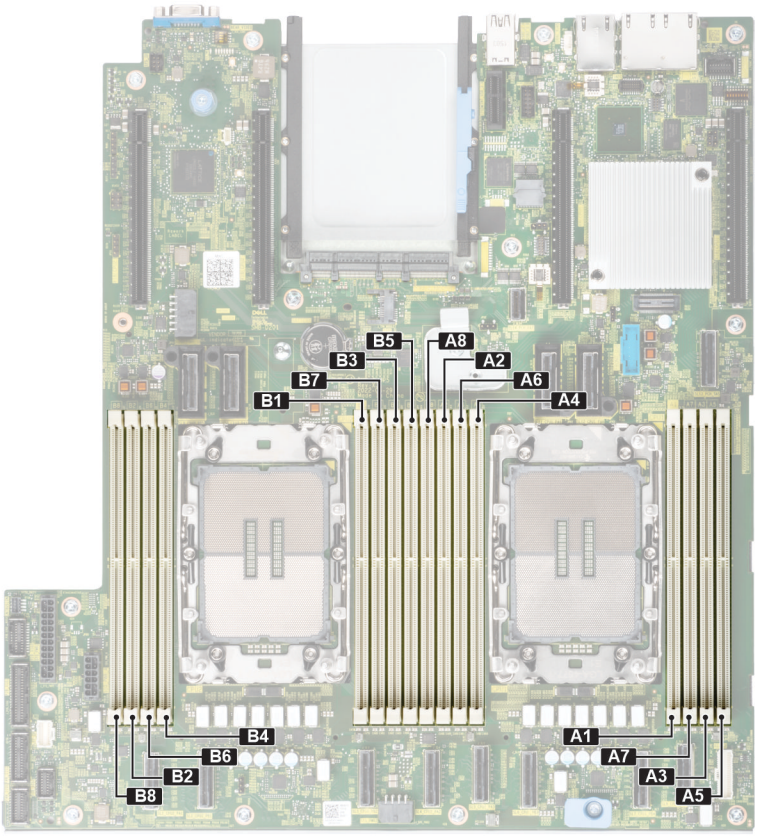

Figure 19. Memory channels

Memory channels are organized as follows:

Table 6. Memory channels

Processor	Channel A	Channel B	Channel C	Channel D	Channel E	Channel F	Channel G	Channel H
Processor 1	Slot A1	Slot A7	Slot A3	Slot A5	Slot A4	Slot A6	Slot A2	Slot A8
Processor 2	Slot B1	Slot B7	Slot B3	Slot B5	Slot B4	Slot B6	Slot B2	Slot B8

Table 7. Supported memory matrix

DIMM type	Rank	Capacity	DIMM rated voltage and speed	Operating Speed
				1 DIMM per channel (DPC)
RDIMM	1 R	16 GB	DDR5 (1.1 V), 4800 MT/s	4800 MT/s
	2 R	32 GB, 64 GB, 128 GB	DDR5 (1.1 V), 4800 MT/s	4800 MT/s

NOTE: The processor may reduce the performance of the rated DIMM speed.

General memory module installation guidelines

To ensure optimal performance of your system, observe the following general guidelines when configuring your system memory. If your system's memory configuration fails to observe these guidelines, your system might not boot, stop responding during memory configuration, or operate with reduced memory.

The memory bus may operate at speeds of 4800 MT/s, 4400 MT/s or 4000 MT/s depending on the following factors:

- System profile selected (for example, Performance, Performance Per Watt Optimized (OS), or Custom [can be run at high speed or lower])
- Maximum supported DIMM speed of the processors
- Maximum supported speed of the DIMMs

NOTE: MT/s indicates DIMM speed in MegaTransfers per second.

- All DIMMs must be DDR5.
- Memory mixing is not supported for different DIMM capacities.
- If memory modules with different speeds are installed, they operate at the speed of the slowest installed memory module(s).
- Populate memory module sockets only if a processor is installed.
  - For dual-processor systems, sockets A1 to A8 and sockets B1 to B8 are available.
  - A minimum of 1 DIMM must be populated for each installed processor.
- In **Optimizer Mode**, the DRAM controllers operate independently in the 64-bit mode and provide optimized memory performance.

Table 8. Memory population rules

Processor	Memory population	Memory population information
Dual processor (Start with processor1. Processor 1 and processor 2 population should match)	A{1}, B{1}, A{2}, B{2}, A{3}, B{3}, A{4}, B{4}, A{5}, B{5}, A{6}, B{6}, A{7}, B{7} A{8}, B{8}	2, 4, 8, 12, and 16 DIMMs are supported per system.

- Always populate memory channels identically with equal DIMMs for best performance.

Memory RAS features

Reliability, Availability, and Serviceability (RAS) features help keep the system online and operational without significant impact to performance and can decrease data loss and failing due to errors. RAS aids in rapid, accurate diagnosis of faults which require service.

The table below describes the memory RAS features supported on the platform.

Table 9. Supported RAS features

Feature	Description
Demand Scrubbing	Demand scrubbing is the ability to write corrected data back to the memory, once a correctable error is detected on a read transaction. This allows for correction of data in memory at the time of detection, and decreases the chances of a second error on the same address accumulating and causing a multi-bit error condition.
Patrol Scrubbing	Patrol scrubbing proactively searches the system memory repairing correctable errors preventing accumulation of single-bit errors and turning it into an uncorrected error. Patrol scrubbing is accomplished using an engine that generates requests to memory addresses in a stride. The engine will generate a memory request at the Pre-programmed frequency, and the demand scrubbing flow corrects the error, if any. Patrol scrubbing finds opportunities on idle cycles to scrub the memory and get rid of any detectable correctable errors. Patrol scrubs are intended to ensure that data with a correctable error does not remain in DRAM long enough to stand a significant chance of further corruption to an uncorrectable error due to high energy particle error. The IMC will issue a Patrol Scrub at a rate

Table 9. Supported RAS features (continued)

Feature	Description
	sufficient to write every line once a day. For a maximum channel capacity of 192 GB, this would be one scrub every 26.8 micro-sec. The Patrol Scrub rate is configurable using 16b scrub interval timer.
Permanent Fault Detection (PFD)	PFD is new with Sapphire Rapids processor. The logic determines if a given fault from DIMM is confined to a single device (Correctable), multi devices (Uncorrectable), or if the fault was transient. The ECC logic makes use of this information to correct the error from a faulty DRAM device.

For RAS modes that require matching DIMM populations, the same slot positions across channels must hold the same DIMM type regarding size and organization. DIMM timings do not have to match, but timings are set to support all DIMMs populated (that is, DIMMs with slower maximum timings force faster DIMMs to the slower of the maximum timing modes).

6

Storage

Topics:

Storage controllers

Dell RAID controller options offer performance improvements, including the fPERC solution. fPERC provides a base RAID HW controller without consuming a PCIe slot by using a small form factor and high-density connector to the base planar.

16G PERC Controller offerings are a heavy leverage of 15G PERC family. The Value and Value Performance levels carry over to 16G from 15G. New to 16G is the Avenger-based Premium Performance tier offering. This high-end offering drives IOPs performance and enhanced SSD performance.

Table 10. PERC Series controller offerings

Performance Level	Controller and Description
Entry	S160
Value	H355, HBA355i
Value Performance	H755
Premium Performance	H965i PCIe 4.0 at 16 Gb/s Memory: 8GB DDR4 3200 MT/s cache ARM Core speed: 1600 MHz Front mounted PERC form factor SAS/NVMe: 2 x8 MCIO (Low Profile R/A Slimline)

NOTE: For more information about the features of the Dell PowerEdge RAID controllers (PERC), Software RAID controllers, or BOSS card, and on deploying the cards, see the storage controller documentation at www.dell.com/storagecontrollermanuals.

Storage controller feature matrix

Table 11. Storage controller feature matrix

Model & Form Factors	Interface Support	PCI Support	SAS Connection	Cache Memory Size	Write Back Cache	RAID Levels	Max Drive Support	RAID Support
PowerEdge Server-Storage Controllers (PERC) Series 12								
H965i Front	24Gb/s SAS 6Gb/s SAS/SATA Gen3 (8 GT/s) NVMe	PCIe Gen 4	16 ports/lanes - 2x8 Internal	8GB NV	Flash Backed	0,1,5,6,10,50,60	16	Hardware

Table 11. Storage controller feature matrix (continued)

Model & Form Factors	Interface Support	PCI Support	SAS Connection	Cache Memory Size	Write Back Cache	RAID Levels	Max Drive Support	RAID Support
	Gen4 (16 GT/s) NVMe				Cache			
S160 Software RAID	Gen4 (16 GT/s) NVMe	PCIe Gen 4	N/A	No Cache	No Cache	0,1,5,10	8	Software RAID - Windows only
PowerEdge Server-Storage Controllers (PERC & SAS HBA) Series 11								
H755 Front (SAS/ SATA only)	12Gb/s SAS 6Gb/s SAS/SATA 3Gb/s SAS/SATA	PCIe Gen 4	16 ports- 2x8 Internal	8GB NV	Flash Backed Cache	0,1,5,6,10,50 ,60	16/ controller 50 with SAS Expander	Hardware
HBA355i Front	12Gb/s SAS 6Gb/s SAS/SATA 3Gb/s SAS/SATA	PCIe Gen 4	16 ports- 2x8 Internal	N/A	N/A	N/A	16/ controller 50 with SAS Expander	N/A
H355 Front	12Gb/s SAS 6Gb/s SAS/SATA	PCIe Gen 4	16 ports- 2x8 Internal	No Cache	No Cache	0,1, 10	Up to 32 RAID, or 32 Non- RAID	Hardware

NOTE:

1. RAID 5/50 removed from entry RAID card
2. SWRAID support for Linus provides a pre-boot configuration utility to configure MDRAID and degraded boot capability.
3. Internal controller supports only fPERC form factor.

This document is updated as changes happen, so for the latest version be sure to bookmark it rather than downloading an offline copy or refer to the Storage Controller Matrix on sales portal.

Internal storage configuration

XR7620 available internal storage configurations:

- 8 x E3.s NVMe direct
- 8 x E3.s NVMe RAID
- 4 x 2.5-inch SAS\SATA RAID or U.2 NVMe direct
- 4 x 2.5-inch U.2 NVMe direct

Boot Optimized Storage Solution (BOSS)

BOSS is a RAID solution that is designed to boot operating systems and segregate operating system boot drives from data on server-internal storage.

BOSS feature matrix

Table 12. BOSS feature matrix

BOSS card	Drive Size	RAID levels	Stripe size	Virtual disk cache function	Maximum number of virtual disks	Maximum number of drives supported	Drive types	PCIe support	Disk cache policy	Support for Non-RAID disks	Cryptographic digital signature to verify firmware payload	Hot Plug
BOSS-N1 Monolithic	M.2 devices are read-intensive with 480 GB or 960 GB capacity	RAID 1 and RAID 0	Supports default 64K stripe size only	None	1	2	M.2 NVMe SSDs	Gen3	Drive default	No	Yes	Yes

Supported Drives

The table shown below lists the internal drives supported by the XR7620.

Table 13. Supported Drives

Form Factor	Type	Speed	Rotational Speed	Capacities
2.5 inches	vSAS	12 Gb	SSD	1.92 TB, 3.84 TB, 960 GB, 7.68 TB
2.5 inches	SAS	24 Gb	SSD	1.92 TB, 1.6 TB, 800 GB, 3.84 TB, 960 GB, 7.68 TB
2.5 inches	SATA	6 Gb	SSD	1.92 TB, 480 GB, 960 GB, 3.84 TB
2.5 inches	NVMe	Gen4	SSD	1.6 TB, 3.2 TB, 6.4 TB, 1.92 TB, 3.84 TB, 15.36 TB, 7.68 TB
2.5 inches	DC NVMe	Gen4	SSD	3.84 TB, 960 GB
EDSFF/E3.S	EDSFF/ E3.S	Gen4	SSD	3.84 TB, 7.68 TB

Solid State Drives (SSDs)

SSD Feature Matrix

The following table shows the types of SSD configurations on the PowerEdge XR7620:

Table 14. SSD feature matrix

Interface	Speed	From Factor	Endurance	Security	Capacity	Drive Description
DC NVMe	Gen4	2.5	RI	ISE	3.84 TB	Agnostic DC NVMe RI 3840 GB

Table 14. SSD feature matrix (continued)

Interface	Speed	From Factor	Endurance	Security	Capacity	Drive Description
DC NVMe	Gen4	2.5	RI	ISE	960 GB	Agnostic DC NVMe RI 960 GB
NVMe	Gen4	2.5	MU	ISE	1.6 TB	Agnostic NVMe MU 1600 GB
NVMe	Gen4	2.5	MU	ISE	1.6 TB	Solidigm P5620 NVMe MU 1600 GB
NVMe	Gen4	2.5	MU	SED FIPS	1.6 TB	Agnostic NVMe FIPs MU 1600 GB
NVMe	Gen4	2.5	MU	ISE	3.2 TB	Agnostic NVMe MU 3200 GB
NVMe	Gen4	2.5	MU	ISE	3.2 TB	Solidigm P5620 NVME MU 3200 GB
NVMe	Gen4	2.5	MU	ISE	6.4 TB	Agnostic NVMe MU 6400 GB
NVMe	Gen4	2.5	RI	ISE	1.92 TB	Agnostic NVMe RI 1920 GB
NVMe	Gen4	2.5	RI	ISE	1.92 TB	Solidigm P5520 NVMe RI 1920 GB
NVMe	Gen4	2.5	RI	ISE	3.84 TB	Solidigm P5520 NVMe RI 3840 GB
NVMe	Gen4	2.5	RI	ISE	3.84 TB	Agnostic NVMe RI 3840 GB
NVMe	Gen4	2.5	RI	ISE	15.36 TB	Agnostic NVMe RI 15360 GB
NVMe	Gen4	2.5	RI	ISE	7.68 TB	Solidigm P5520 NVMe RI 7680 GB
NVMe	Gen4	2.5	RI	ISE	7.68 TB	Agnostic NVMe RI 7680 GB
NVMe	Gen5	E3s	RI	ISE	3.84 TB	Agnostic E3s NVMe RI 3840 GB
NVMe	Gen5	E3s	RI	ISE	7.68 TB	Agnostic E3s NVMe RI 7680 GB
SAS	24 GBps	2.5	MU	ISE	1.6 TB	Agnostic SAS MU 1600 GB
SAS	24 GBps	2.5	MU	ISE	800 GB	Agnostic SAS MU 800 GB
SAS	24 GBps	2.5	MU	SED FIPS	1.92 TB	Kioxia PM6 FIPS MU 1920 GB
SAS	24 GBps	2.5	MU	SED FIPS	3.84 TB	Kioxia PM6 FIPS MU 3840 GB
SAS	24 GBps	2.5	MU	SED FIPS	960 GB	Kioxia PM6 FIPS MU 960 GB
SAS	24 GBps	2.5	RI	ISE	1.92 TB	Agnostic SAS RI 1920 GB
SAS	24 GBps	2.5	RI	ISE	3.84 TB	Agnostic SAS RI 3840 GB
SAS	24 GBps	2.5	RI	ISE	7.68 TB	Agnostic SAS RI 7680 GB
SAS	24 GBps	2.5	RI	SED FIPS	1.92 TB	Kioxia PM6 FIPS RI 1920 GB
SAS	24 GBps	2.5	RI	SED FIPS	3.84 TB	Kioxia PM6 FIPS RI 3840 GB
SAS	24 GBps	2.5	RI	SED FIPS	7.68 TB	Kioxia PM6 FIPS RI 7680 GB
SATA	6 GBps	2.5	MU	ISE	1.92 TB	Agnostic SATA MU 1920 GB
SATA	6 GBps	2.5	MU	ISE	480 GB	Agnostic SATA MU 480 GB
SATA	6 GBps	2.5	MU	ISE	960 GB	Agnostic SATA MU 960 GB
SATA	6 GBps	2.5	MU	ISE	3.84 TB	Agnostic SATA MU 3840 GB
SATA	6 GBps	2.5	RI	ISE	1.92 TB	Agnostic SATA RI 1920 GB
SATA	6 GBps	2.5	RI	ISE	3.84 TB	Agnostic SATA RI 3840 GB
SATA	6 GBps	2.5	RI	ISE	480 GB	Agnostic SATA RI 480 GB
SATA	6 GBps	2.5	RI	ISE	960 GB	Agnostic SATA RI 960 GB
vSAS	12 GBps	2.5	MU	SED	1.92 TB	Agnostic Value SAS SED MU 1920 GB
vSAS	12 GBps	2.5	MU	SED	3.84 TB	Agnostic Value SAS SED MU 3840 GB

Table 14. SSD feature matrix (continued)

Interface	Speed	From Factor	Endurance	Security	Capacity	Drive Description
vSAS	12 GBps	2.5	MU	SED	960 GB	Agnostic Value SAS SED MU 960 GB
vSAS	12 GBps	2.5	RI	SED	1.92 TB	Agnostic Value SAS SED RI 1920 GB
vSAS	12 GBps	2.5	RI	SED	7.68 TB	Agnostic Value SAS SED RI 7680 GB
vSAS	12 GBps	2.5	RI	SED	960 GB	Agnostic Value SAS SED RI 960 GB

This document is updated as changes happen, so be sure to bookmark it rather than downloading an offline copy to stay with the latest information or see the Drive and Platform Matrix.

SSD Facts

Unlike hard disk drives (HDDs) which use a spinning platter to store data, solid state drives (SSDs) use solid state memory NAND flash. HDDs have several different mechanical moving parts which make them susceptible to vibrational and handling interference. Solid state drives, on the other hand have no moving parts and are therefore much less susceptible to vibrational or handling damage even when impacted during use.

SSDs deliver high-performance input/output operations per second (IOPS), and very low latency for transaction - intensive server and storage applications. Properly used in systems with HDDs, they reduce total cost of ownership (TCO) through low power consumption and low operating temperature.

Dell offers different solid-state drive (SSD) solutions to meet different customer needs. Enterprise SSDs, as a class, are unique compared to client or consumer-based SSD in terms of reliability, performance and architecture. While consumer-based SSDs, such as those utilized in notebooks are designed with a focus on consumer-based workloads, rigidity and battery life, enterprise-class SSDs are designed around enterprise application I/O (input/output) requirements with focus points of random I/O performance, reliability, and protection of data during a sudden power-down.

Understanding the basics of enterprise-class SSDs allow customers to make informed decisions when comparing solutions:

- Over-provisioning: The Achilles' heel of SSDs are their write characteristics. To rewrite an area of an SSD that has already been written, the data must be erased and then written. In order to overcome a portion of the write performance penalty, Dell enterprise SSDs found across Dell PowerEdge products, all employ a practice that is known as over-provisioning of Flash. This practice keeps native Flash capacity beyond the user-defined capacity and uses the additional space as a scratch pad of sorts to quickly put down application write data on areas of Flash that are already in an erased state. The SSDs perform cleanup functions of this over-provisioned Flash space during time periods typically not impacting application performance.
- Write Endurance: Write endurance is the number of program/erase (P/E or write cycles) that can be applied to a block of flash memory before the storage media becomes unreliable. Due to different data center workloads and read/write needs, Dell offers different enterprise SSDs with different endurance ratings so customers can design the right solution for their needs.

Below are the different categories (swim lanes) of enterprise SSDs Dell offers:

- Mixed Use (MU, 3 WPD): 70/30 read/write workloads with medium endurance. E-mail/messaging, OLTP, and E-commerce are example workloads.
- Read Intensive (RI, 1 WPD): 90/10 read/write workloads with lower endurance. Database warehousing, media streaming, and VOD solutions are example workloads.

Dell enterprise SSDs support five kinds of host interface options:

- NVMe SSD: NVMe SSDs are a mainstream, high-performance, high reliability solid-state storage device that enables IOPS performance of up to 2000x more than conventional rotating hard drives.
- Datacenter NVMe: datacenter NVMe SSDs share the same value proposition as NVMe SSDs, but with a reduction in cost at only a minor performance tradeoff as compared to NVMe.
- SAS SSD: SAS SSDs are based on the industry standard SAS interface. SAS SSDs combine superior reliability, data integrity, and data fail recovery making them suitable for enterprise applications.
- Value SAS: Value SAS is a new class of SAS SSD that leverages the PowerEdge SAS server infrastructure to deliver SAS like performance at a cost that is competitive with SATA.
- SATA SSD: SATA SSDs are based on the industry standard SATA interface. SATA SSDs provide reasonable performance for enterprise servers.

Dell Enterprise SSDs will support a new form factor in addition to several existing:

- E3.S: A member of the EDSFF family, is designed to suit the edges of NVMe SSDs with x4 PCIe link widths, while it can also fit an x16 card. It supports power profiles up to 25 W and positioned to be a primary form factor for mainstream NVMe server storage subsystems as it can be used across a wide variety of platforms including modular and short depth chassis.

EDSFF E3.S drive led codes

The LEDs on the drive carrier indicate the state of each drive. The LEDs on the EDSFF E3.S drive have two LEDs: an activity LED (green) and a locate/fault LED (blue/amber). The activity LED blinks whenever the drive is accessed.

Figure 20. EDSFF E3.S drive indicators

1. Drive activity LED indicator
2. Drive status LED indicator
3. Drive capacity label

EDSFF E3.S drive led codes

E3.S hard drives have Green LED and Blue/Amber LED.

- Green LED shows : Drive power status , Activity
- Blue/Amber LED shows: Drive Fault, Locate

EDSFF indicator behavior

Table 15. EDSFF indicator behavior

Pattern Name	Description	Blue Element	Amber Element
Locate	This device is being identified.	ON (1 sec ON 1 sec OFF)	OFF
Fault	The device is in a fault condition.	OFF	ON (2 sec ON 1 sec OFF)
N/A	This device does not have fault or locate device.	OFF	OFF

NOTE: Locate behavior overrides Fault state.

Green LED

The green LED is driven and controlled by the device. The two functions for this LED are defined as follows:

- Power: This function indicates that the device has power and has no issues with its power regulation. Once the green LED is ON, it shall either remain ON or blink at the activity frequency unless the device determines power is no longer within its operating range.
- Activity: This function indicates if the device is being used.

Table 16. LED and device state per function for Green LED

Function/Device state	LED state
Power ON/Device is powered, no activity occurring.	ON
Activity/Device is powered, host initiated I/O activity occurring.	4 Hz nominal blink rate
Power OFF/Device is not powered.	OFF

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Networking

Topics:

Overview

PowerEdge offers a wide variety of options to get information moving to and from our servers. Industry best technologies are chosen, and systems management features are added by our partners to firmware to tie in with iDRAC. These adapters are rigorously validated for worry-free, fully supported use in Dell servers.

OCP 3.0 support

Table 17. OCP 3.0 feature list

Feature	OCP 3.0
Form factor	SFF
PCIe Gen	Gen4
Max PCIe width	x8, x16 (with OCP cable)
Max number of ports	4
Port type	BT/SFP/SFP+/SFP28/QSFP56
Max port speed	25 GbE, 100 GbE (with OCP cable)
NC-SI	Yes
SNAPI	Yes
WoL	Yes
Power consumption	15 W–35 W

Supported OCP cards

OCP NIC 3.0 vs. rack Network Daughter Card comparisons

Table 18. OCP 3.0, 2.0, and rNDC NIC comparison

Form Factor	Dell rNDC	OCP 2.0 (LOM Mezz)	OCP 3.0	Notes
PCIe Gen	Gen 3	Gen 3	Gen 4	Supported OCP3 is SFF (small form factor).
Max PCIe Lanes	x8	Up to x16	Up to x16	See server slot priority matrix.

Table 18. OCP 3.0, 2.0, and rNDC NIC comparison (continued)

Form Factor	Dell rNDC	OCP 2.0 (LOM Mezz)	OCP 3.0	Notes
Shared LOM	Yes	Yes	Yes	This is iDRAC port redirect.
Aux Power	Yes	Yes	Yes	Used for Shared LOM

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PCIe subsystem

Topics:

- PCIe risers

PCIe risers

Shown below are the riser offerings for the platform.

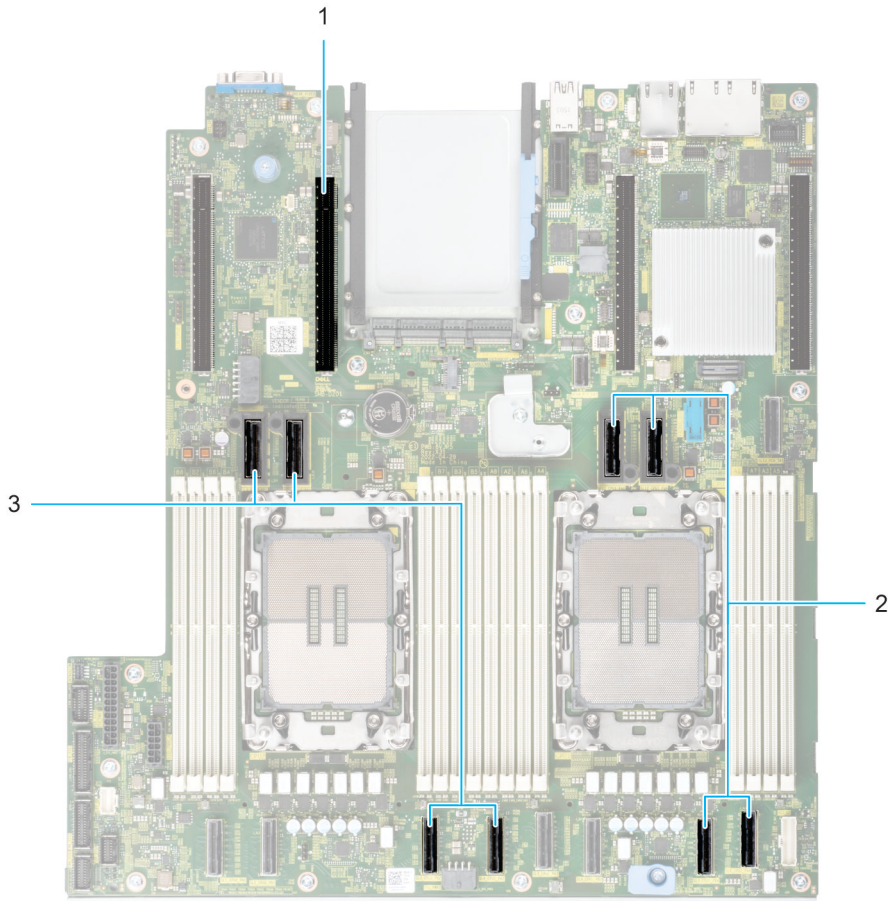

Figure 21. Riser connector location on system board

1. Riser connector 4
2. Riser connector 3
3. Riser connector 2 / BOSS N1 riser slot
4. Riser connector 1

Figure 22. Riser 1A

Figure 23. Riser 1B

Figure 24. Riser 2A

Figure 25. Riser 2B

Figure 26. Riser 3

Table 19. PCIe Riser Configurations

Config No.	Riser configuration	No. of Processors	PERC type supported	Rear storage possible
1	R1B+R2B+R3	2	fPERC	No
2	R1A+R2A+R3	2	fPERC	No

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Accelerator support

Accelerators such as Graphics Processing Units (GPUs), Field Programmable Gate Arrays (FPGAs) and Intelligence Processing Units (IPUs) complement and accelerate processors, using parallel processing to crunch large volumes of data faster. Accelerated data centers can also deliver better economics, providing breakthrough performance with fewer servers, resulting in faster insights and lower costs.

Topics:

NVIDIA support

The XR7620 supports the following NVIDIA GPUs:

Table 20. XR7620 NVIDIA GPU support list

Platform support details			GPU details		
GPU Name	**Maximum Qty.**	**Riser configuration support**	**PCIe**	**Form Factor**	**Power**
NVIDIA A2	5	RC1	x8	SW	60 W
	1	RC2	x8	SW	60 W
NVIDIA L4	5	RC1	x16	SW	70 W
	1	RC2	x16	SW	70 W
NVIDIA A30	2	RC2	x16	DW	165 W
NVIDIA A100	2	RC2	x16	DW	300 W
NVIDIA A800	2	RC2	x16	DW	300 W

NOTE: A800 GPU is available in China only.

Intel GPU support

The XR7620 supports the following Intel GPUs:

Table 21. XR7620 Intel GPU support list

Platform support details			GPU details		
GPU Name	**Maximum Qty.**	**Riser configuration support**	**PCIe**	**Form Factor**	**Power**
Intel PVC 300 W	2	RC2	x16	DW	300 W

NOTE: Each 300 W GPU requires one additional GPU power cable, GPU power cables are available in SKUs that are GPU ready, or it must be ordered separately as an upgrade kit, kindly contact a sales representative.

NOTE: Riser Configuration 2 offers the XR7620 GPU Ready option.

NOTE: In order to maintain system thermal health, install the GPU blank if the GPU card is not installed.

10

Power, thermal, and acoustics

PowerEdge servers have an extensive collection of sensors that automatically track thermal activity, which helps to regulate temperature by reducing server noise and power consumption. The table below lists the tools and technologies Dell offers to lower power consumption and increase energy efficiency.

Topics:

Power

Table 22. Power tools and technologies

Feature	Description
Power Supply Units(PSU) portfolio	Dell's PSU portfolio includes intelligent features such as dynamically optimizing efficiency while maintaining availability and redundancy. Find additional information in the Power supply units section.
Tools for right sizing	Enterprise Infrastructure Planning Tool (EIPT) is a tool that can help you determine the most efficient configuration possible. With Dell's EIPT, you can calculate the power consumption of your hardware, power infrastructure, and storage at a given workload. Learn more at www.dell.com/calc.
Industry Compliance	Dell's servers are compliant with all relevant industry certifications and guide lines, including 80 PLUS, Climate Savers and ENERGY STAR.
Power monitoring accuracy	PSU power monitoring improvements include: ● Dell's power monitoring accuracy is currently 1%, whereas the industry standard is 5% ● More accurate reporting of power ● Better performance under a power cap
Power capping	Use Dell's systems management to set the power cap limit for your systems to limit the output of a PSU and reduce system power consumption. Dell is the first hardware vendor to leverage Intel Node Manager for circuit-breaker fast capping.
Systems Management	iDRAC Enterprise and Datacenter provides server-level management that monitors, reports and controls power consumption at the processor, memory and system level. Dell OpenManage Power Center delivers group power management at the rack, row, and data center level for servers, power distribution units, and uninterruptible power supplies.
Active power management	Intel Node Manager is an embedded technology that provides individual server-level power reporting and power limiting functionality. Dell offers a complete power management solution comprised of Intel Node Manager accessed through Dell iDRAC9 Datacenter and OpenManage Power Center that allows policy-based management of power and thermal at the individual server, rack, and data center level. Hot spare reduces power consumption of redundant power supplies. Thermal control off a speed optimizes the thermal settings for your environment to reduce fan consumption and lower system power consumption. Idle power enables Dell servers to run as efficiently when idle as when at full workload.
Rack infrastructure	Dell offers some of the industry's highest-efficiency power infrastructure solutions, including:

Table 22. Power tools and technologies (continued)

Feature	Description
	• Power distribution units (PDUs) • Uninterruptible power supplies (UPSs) • Energy Smart containment rack enclosures Find additional information at: https://www.delltechnologies.com/en-us/servers/power-and-cooling.htm.

Power Supply Units

Energy Smart power supplies have intelligent features, such as the ability to dynamically optimize efficiency while maintaining availability and redundancy. Also featured are enhanced power-consumption reduction technologies, such as high-efficiency power conversion and advanced thermal-management techniques, and embedded power-management features, including high-accuracy power monitoring. The table below shows the power supply unit options that are available for the XR7620.

Table 23. Power Supply Unit Options

Wattage	Frequency	Voltage/Current	Class	Heat dissipation
1100 W mixed mode	50/60 Hz	100 – 240 Vac/12 — 3.6 A	Titanium	4100 BTU/hr
	N/A	240 Vdc/5.2 A	N/A	4100 BTU/hr
1100 W -48 DC	N/A	-48—-60 Vdc/ 27 A	N/A	4625 BTU/hr
1400 W mixed mode	50/60 Hz	100 – 240 Vac/12 — 8 A	Platinum	5250 BTU/hr
	N/A	240 Vdc/6.6 A	N/A	5250 BTU/hr
1800 W mixed mode	50/60 Hz	200 – 240 Vac/10 A	Titanium	6750 BTU/hr
	N/A	240 Vdc/8.2 A	N/A	6750 BTU/hr

NOTE: If a system with AC 1400 W or 1100 W PSUs operates at low line 100-120 Vac, and then the power rating per PSU is degraded to 1050 W.

Figure 27. PSU power cords

Table 24. PSU power cords

Form factor	Output	Power cord
Redundant 60 mm	1100 W AC	C13
	1100 W -48 DC	DC inlet/input
	1400 W AC	C13
	1800 W AC	C15

NOTE: C13 power cord combined with C14 to C15 jumper power cord can be used to adapt 1800 W PSU.

Thermal

PowerEdge servers have an extensive collection of sensors that automatically track thermal activity, which helps regulate temperature thereby reducing server noise and power consumption.

Thermal design

Thermal management of the platform helps deliver high performance with the right amount of cooling to components, while maintaining the lowest fan speeds possible. This is done across a wide range of ambient temperatures from 10°C to 35°C (50°F to 95°F) and to extended ambient temperature ranges.

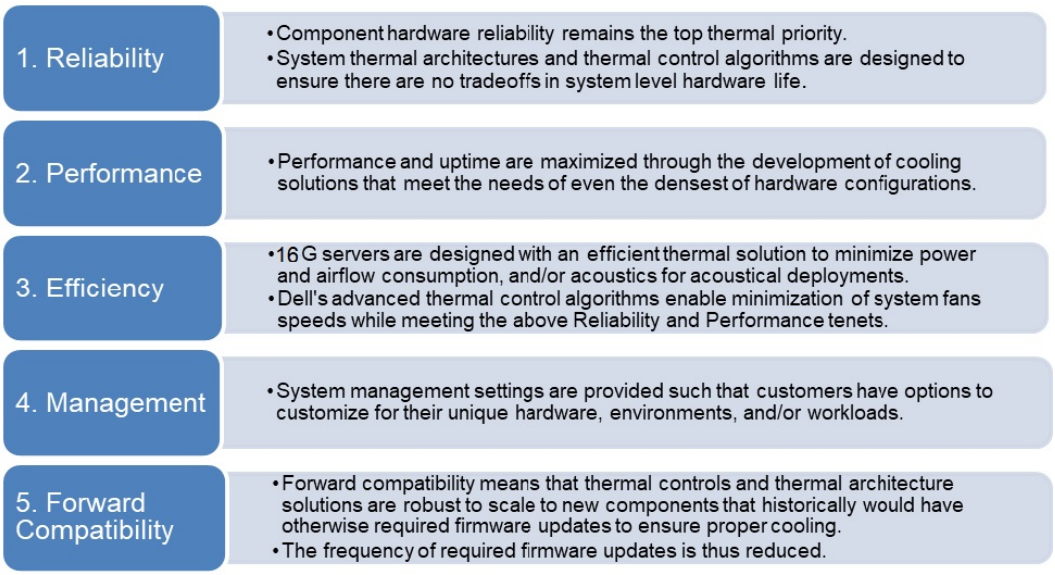

Figure 28. Thermal design characteristics

The thermal design of the PowerEdge XR7620 reflects the following:

- Optimized thermal design: The system layout is architected for optimum thermal design.
- System component placement and layout are designed to provide maximum airflow coverage to critical components with minimum expense of fan power.
- Comprehensive thermal management: The thermal control system regulates the fan speed based on several different responses from all system-component temperature sensors, and inventory for system configurations. Temperature monitoring includes components such as processors, DIMMs, chipset, the inlet air ambient, hard disk drives, and OCP.
- Open and closed loop thermal fan speed control: Open loop thermal control uses system configuration to determine fan speed based on inlet air ambient temperature. Closed loop thermal control method uses feedback temperatures to dynamically determine proper fan speeds.
- User-configurable settings: With the understanding and realization that every customer has unique set of circumstances or expectations from the system, in this generation of servers, we have introduced limited user- configurable settings residing in the iDRAC BIOS setup screen. For more information, see the Dell PowerEdge XR7620 Installation and Service Manual at www.dell.com/poweredgemanuals and “Advanced Thermal Control: Optimizing across Environments and Power Goals” on Dell.com.
- Cooling redundancy: The XR7620 allows N+1 fan redundancy, allowing continuous operation with one fan failure in the system.
- Environmental Specifications: The optimized thermal management makes the XR7620 reliable under a wide range of operating environments.

Acoustics

PowerEdge XR7620 acoustics

Dell PowerEdge XR7620 is a 2U rack-mount server that is designed for data center acoustics. However, some configurations, for example, those without GPUs or running GPUs at low loading, may be appropriate for general use spaces.

Acoustical experience has been tested for Basic, Mainstream, Feature Rich and Hilltop-1 configurations for Front Accessed chassis (also called Reverse Airflow) chassis where power supplies and network cards are in the front.

Table 25. Acoustical configurations of XR7620

Configuration	Basic	Mainstream	Feature Rich	Hilltop-1
CPU TDP	150 W	165 W	185 W	185 W
CPU Quantity	2	2	2	2
RDIMM Memory	32G DDR5 RDIMM	32G DDR5 RDIMM	64G DDR5 RDIMM	32G DDR5 RDIMM
Memory Quantity	2	4	8	16
Backplane Type	1. 5-inch x 4 BP	1. 5-inch x 4 BP	E3.S x 8 BP	E3.S x 8 BP
Storage Type	2.5" SATA SSD 480G	2.5" SATA SSD 960G	E3 NVMe 1.92T	E3 NVMe 1.92T
Storage Quantity	2	4	8	8
BOSS/M.2	BOSS N1 2 x 480G	BOSS N1 2 x 480G	X	X
PSU Type	1100 W	1400 W	1400 W	1800 W
PSU Quantity	2	2	2	2
OCP	1 x 10G 2 Port	1 x 10G 4 Port	X	X
PCI 1	X	GPU A2	GPU A30	GPU A100
PCI 2	X	GPU A2	X	X
PCI 3	X	X	X	GPU A100
PCI 4	X	X	X	X
PCI 5	X	X	25 GbE 4 Port	100 GbE 4 Port
PERC	Front H755	Front H755	Front H965i	Front H965i

Acoustical performance data that are associated with each configuration of XR7620 is provided in the below table:

Table 26. Acoustical performance of XR7620

Configuration		Basic	Mainstream	Feature Rich	Hiltop-1
Acoustical Performance: Idle/ Operating @ 25°C Ambient					
$L_{wA,m}$(B)	Idle	5.5	5.5	6.7	6.7
	Operating	5.5	5.5	6.7	6.7
K_V(B)	Idle	0.4	0.4	0.4	0.4
	Operating	0.4	0.4	0.4	0.4
$L_{pA,m}$(dB)	Idle	41	41	52	52
	Operating	41	41	52	52
Prominent tones		No prominent tones in Idle and Operating			
Acoustical Performance: Idle @ 28°C Ambient					

Table 26. Acoustical performance of XR7620 (continued)

Configuration	Basic	Mainstream	Feature Rich	Hiltop-1
$L_{wA,m}$ (B)	5.6	5.6	6.9	6.9
K_v (B)	0.4	0.4	0.4	0.4
$L_{pA,m}$ (dB)	43	43	54	54
Acoustical Performance: Max. Loading @ 35°C Ambient				
$L_{wA,m}$ (B)	7.1	9.0	8.3	9.3
K_v (B)	0.4	0.4	0.4	0.4
$L_{pA,m}$ (dB)	56	75	69	79

- $L_{wA,m}$: The declared mean A-weighted sound power level (LwA) is calculated per section 5.2 of ISO 9296 with data collected using the methods that are described in ISO 7779. Data presented here may not be fully compliant with ISO 7779.
- $L_{pA,m}$: The declared mean that A-weighted emission sound pressure level is at the bystander position per section 5.3 of ISO 9296 and measured using methods that are described in ISO 7779. The system is placed in a 24U rack enclosure, 25 cm above a reflective floor. Engineering data presented here may not be fully compliant with ISO 7779 declaration requirements.
- **Prominent discrete tones:** Criteria of Annex D of ECMA-74 and Prominence Ratio method of ECMA-418 are followed to determine if discrete tones are prominent and to report them, if so.
- **Idle mode:** The steady-state condition in which the server is energized but not operating any intended function.
- **Operating mode:** Operating mode is represented by the maximum of the steady state acoustical output at 50% of CPU TDP or active storage drives for the respective sections of Annex C of ECMA-74.

Category 3: General Use Space

When Dell determines that a specific Enterprise product is to be predominantly used in a general use space, and then the acoustical specification of the below table applies. These products could be found in laboratories, schools, restaurants, open office space layouts, small ventilated closets, so forth, though not in close proximity to any particular person nor in quantities greater than a few in any location. People within proximity of a few of these products should not experience any impact to speech intelligibility or annoyance from the noise of the product. A rack product sitting on a table in a common area is an example.

Table 27. Dell Enterprise Category 3, "General Use" acoustical specification category

Measurement Position re AC0158	Metric, re AC0159	Test Modes, re AC0159 (note must be in steady state, see AC0159, except where noted below).			
		Standby in 23±2°C Ambient	Idle in 23±2°C Ambient	Operating in 23±2°C Ambient – if not otherwise specified in the program's configuration document, and then processor and hard drive operating modes are required.	Simulate (that is, set fan speeds representative) for Idle at 28° C & 35° C Ambient, and for 100% loading and maximum configuration, at 35°C Ambient.
Sound Power	LWA, m, B	≤ 5.2	≤ 5.5	≤ 5.8	Report
Sound Quality (both positions must meet limits): Front Binaural HEAD and Rear Microphone	Tones, Hz, dB	No prominent tones per criteria D.10.6 and D.10.8 of ECMA-74			Report tones
	Tonality, tu	≤ 0.35	≤ 0.35	≤ 0.35	Report
	Dell Modulation, %	≤ 35	≤ 35	≤ 35	Report
	Loudness, sones	Report	Report	Report	Report
	LpA-single point, dBA	Report	Report	Report	Report
Front Binaural HEAD	Transients	• Oscillation (see AC0159), if	N/A		

Table 27. Dell Enterprise Category 3, "General Use" acoustical specification category (continued)

		observed, during 20-minute steady-state observation, must adhere to the following two criteria: ○ Max. {ΔLpA} < 3.0 dB ○ Event count < 3 for "1.5 dB < ΔLpA < 3.0 dB" ○ Acoustical Jump (see AC0159), during air mover speed transition from Idle to Operating Mode must be ≤ 15 dB. • Startup behavior ○ Report Startup behavior re. AC0159 ○ Startup must proceed smoothly, that is, no sudden or large jumps, and fan speed during startup must not exceed 50% of its maximum. ∞ Transient inputs: Report time-history sound pressure levels re AC0159 "Train of Step Functions on Processor"	
Any	Other	No rattles, squeaks, or unexpected noises Sound should be "even" around the EUT (one side should not be dramatically louder than another) Unless otherwise specified, the "default" thermal-related settings shall be selected for BIOS and iDRAC.	

Table 27. Dell Enterprise Category 3, "General Use" acoustical specification category (continued)

		Specific operating conditions will be defined in "Configurations & Configuration Dependencies" for each platform.
Sound Pressure	LpA-reported, dBA, re AC0158 and program configuration document	Report for all mics

Category 4: Attended Data Center

When Dell determines that a specific Enterprise product is to be predominantly used in an attended data center, and then the acoustical specification of the below table applies. The phrase "attended data center" is used to mean a space in which many (from tens to 1000 s) of Enterprise products are deployed in proximity (that is, in the same room) to personnel whose speech (perhaps with raised voices) is expected to be intelligible over the data center noise. Hearing protection or hearing monitoring programs are not expected in these areas. Examples in this category include monolithic rack products. When Dell determines that a specific Enterprise product is to be predominantly used in a general use space, and then the acoustical specification of Table 37 applies. These products could be found in laboratories, schools, restaurants, open office space layouts, small ventilated closets, etc., though not close to any particular person nor in quantities greater than a few in any location. People within proximity of a few of these products should not experience any impact to speech intelligibility or annoyance from the noise of the product. A rack product sitting on a table in a common area is an example.

Table 28. Dell Enterprise Category 4, "Attended Data Center" acoustical specification category

Measurement Position re AC0158	Metric, re AC0159	Test Modes, re AC0159 (note must be in steady state, see AC0159, except where noted below).				Simulate (that is, set fan speeds representative) for 100% loading and maximum configuration, at 35°C Ambient.
		Standby in 23±2°C Ambient	Idle in 23±2°C Ambient	Operating in 23±2°C Ambient – if not otherwise specified in the program's configuration document, and then processor and hard drive operating modes are required.	Simulate (that is, set fan speeds representative) for Idle at 28°C & 35°C Ambient.	
Sound Power	LWA, m, B	Report	≤ 6.9	≤ 7.1	Report	≤ 8.5
Front Binaural HEAD	Tones, Hz, dB	Report	< 15 dB	< 15 dB	Report	< 20 dB
	Tonality, tu	Report	Report	Report	Report	Report
	Dell Modulation, %	Report	Report	Report	Report	Report
	Loudness, sones	Report	Report	Report	Report	Report
	LpA-single point, dBA	Report	Report	Report	Report	Report
	Transients	• Oscillation (see AC0159), if observed, during 20-minute steady-state observation, must adhere to the	N/A			

Table 28. Dell Enterprise Category 4, "Attended Data Center" acoustical specification category (continued)

		following two criteria: ○ Max. {ΔLpA} < 3.0 dB ○ Event count < 3 for "1.5 dB < ΔLpA < 3.0 dB" ○ Acoustical Jump (see AC0159), during air mover speed transition from Idle to Operating Mode must be ≤ 15 dB. ○ Startup behavior ▪ Report Startup behavior re. AC0159 ▪ Startup must proceed smoothly, that is, no sudden or large jumps, and fan speed during startup must not exceed 50% of its maximum.	

Table 28. Dell Enterprise Category 4, "Attended Data Center" acoustical specification category (continued)

		∞ Transient inputs: Report time-history sound pressure levels re AC0159 "Train of Step Functions on Processor"	
Any	Other	No rattles, squeaks, or unexpected noises Sound should be "even" around the EUT (one side should not be dramatically louder than another) Unless otherwise specified, the "default" thermal-related settings shall be selected for BIOS and iDRAC. Specific operating conditions will be defined in "Configurations & Configuration Dependencies" for each platform.	
Sound Pressure	LpA-reported, dBA	Report for all mics	

Category 6: Data Center Modular/Modular Enclosure

When the product is a blade for or a blade enclosure itself, and then the hosting blade enclosure must adhere to the acoustical specification in below Table. If the parties responsible for selection of product acoustical specification category determine that a specific blade or blade enclosure will be deployed in a more stringent acoustical environment, and then specific configurations, capabilities, and/or userships must be requested in formal documentation so that features to support the more restrictive performance may be designed as appropriate

Table 29. Dell Enterprise Category 6, "Data Center Modular/Modular Enclosure" acoustical specification category

Measurement Position re AC0158	Metric, re AC0159	Test Modes, re AC0159 (note must be in steady state, see AC0159, except where noted below).				Simulate (that is, set air mover speeds representative) for 100% loading and maximum configuration, at 35°C Ambient.
		Standby in 23±2° C Ambient	Idle in 23±2°C Ambient	Operating in 23±2°C Ambient – if not otherwise specified in the program's configuration document, and then processor and hard drive operating modes are required.	Simulate (that is, set fan speeds representative) for Idle at 28° C & 35° C Ambient, and for 100% loading and maximum configuration, at 35°C Ambient.	
Sound Power	LWA, m, B	Report	≤ 8.2	≤ 7.8	Report	Report
Sound Quality (both positions must meet limits): Front Binaural HEAD and Rear Microphone	Tones, Hz, dB	Report	< 15 dB	< 15 dB	Report	Report
	Tonality, tu	Report	Report	Report	Report	Report
	Dell Modulation, %	Report	Report	Report	Report	Report
	Loudness, sones	Report	Report	Report	Report	Report
	LpA-single point, dBA	Report	Report	Report	Report	Report

Table 29. Dell Enterprise Category 6, "Data Center Modular/Modular Enclosure" acoustical specification category (continued)

Front Binaural HEAD	Transients	• Oscillation (see AC0159), if observed, during 20-minute steady-state observation, must adhere to the following two criteria: ○ Max. {ΔLpA} < 3.0 dB ○ Event count < 3 for "1.5 dB < ΔLpA < 3.0 dB" ○ Acoustical Jump (see AC0159) ΔLpA during fan speed transitions between operating states . ○ Startup behavior ▪ Report Startup behavior re. AC0159 ▪ Startup must proceed smoothly, that is, no sudden or large jumps, and fan speed	NA

Table 29. Dell Enterprise Category 6, "Data Center Modular/Modular Enclosure" acoustical specification category (continued)

		during startup must not exceed 50% of its maximum. ∞ Transient inputs: Report time-history sound pressure levels re AC0159 “Train of Step Functions on Processor”	
Any	Other	No rattles, squeaks, or unexpected noises Sound should be “even” around the EUT (one side should not be dramatically louder than another) Unless otherwise specified, the “default” thermal-related settings shall be selected for BIOS and iDRAC. Specific operating conditions will be defined in “Configurations & Configuration Dependencies” for each platform.	
Sound Pressure	LpA-reported, dBA	Report for all mics	

11

Rack, rails, and cable management

Topics:

Rails and cable management information

The rail offerings for the PowerEdge XR7620 consist of sliding rails. The cable management offerings consist of an optional cable management arm (CMA) and an optional strain relief bar (SRB).

See the *Enterprise Systems Rail Sizing and Rack Compatibility Matrix* available at https://i.dell.com/sites/csdocuments/Business_solutions_engineering-Docs_Documents/en/rail-rack-matrix.pdf for information regarding:

- Specific details about rail types.
- Rail adjustability ranges for various rack mounting flange types.
- Rail depth with and without cable management accessories.
- Rack types that are supported for various rack mounting flange types.

Key factors governing proper rail selection include the following:

- Spacing between the front and rear mounting flanges of the rack.
- Type and location of any equipment that is mounted in the back of the rack such as power distribution units (PDUs).
- Overall depth of the rack.

Sliding rails features summary

The sliding rails allow the system to be fully extended out of the rack for service. There are two types of sliding rails available, ReadyRails II sliding rails and Stab-in/Drop-in sliding rails. The sliding rails are available with or without the optional cable management arm (CMA) or strain relief bar (SRB).

B29 sliding rails for 4-post and 2-post racks

- Support stab-in installation of the chassis to the rails.
- Support for tooled and tool-less installation in 19" EIA-310-E compliant square, unthreaded round hole and threaded round hole 4-post racks.
- Support for tooled installation in 2-post racks.
- Support full extension of the system out of the rack to allow serviceability of key internal components.
- Support for optional strain relief bar(SRB).
- Support for optional strain cable management arm(CMA).

  NOTE: For situations where CMA support is not required, the outer CMA mounting brackets can be uninstalled from the sliding rails. This reduces the overall length of the rails and eliminates the potential interferences with rear-mounted PDUs or the rear rack door.

  NOTE: If the rack has both short depth and long depth servers, do not use CMA.

B30 sliding rails for Pelican Custom racks

- Support stab-in installation of the chassis to the rails.
- Support for tooled installation in Pelican Custom racks.
- Support full extension of the system out of the rack to allow serviceability of key internal components.
- Support for optional strain relief bar(SRB).
- Support for optional strain cable management arm(CMA).

NOTE: For situations where CMA support is not required, the outer CMA mounting brackets can be uninstalled from the sliding rails. This reduces the overall length of the rails and eliminates the potential interferences with rear-mounted PDUs or the rear rack door.

NOTE: If the rack has both short depth and long depth servers, do not use CMA.

Scan the QRL code for the documentation and trouble-shooting information regarding the installation procedures for Drop-in/ Stab-in rail types.

Figure 29. Quick resource locator for combo rails

Rack Installation

Drop-in design means that the system is installed vertically into the rails by inserting the standoffs on the sides of the system into the slots in the inner rail members with the rails in the fully extended position. The recommended method of installation is to first insert the rear standoffs on the system into the rear slots on the rails to free up a hand and then rotate the system down into the remaining J-slots while using the free hand to hold the rail against the side of the system.

Stab-in design means that the inner (chassis) rail members must first be attached to the sides of the system and then inserted into the outer (cabinet) members installed in the rack.

Installing system into the rack (option A)

1. Pull the inner rails out of the rack until they lock into place.

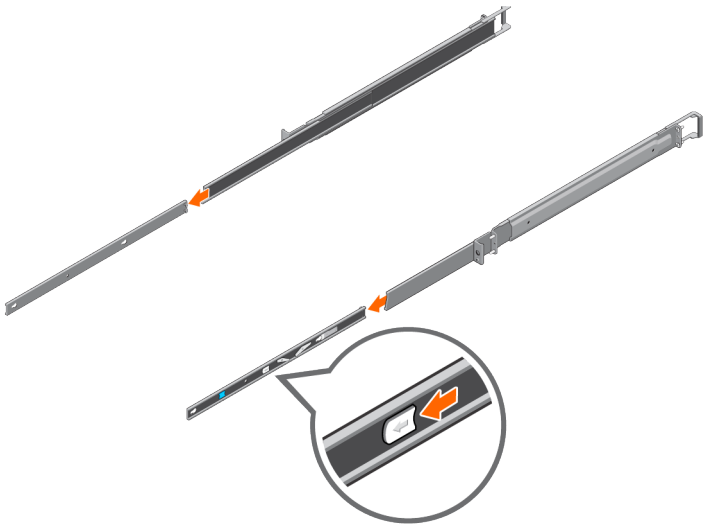

Figure 30. Pull out inner rail

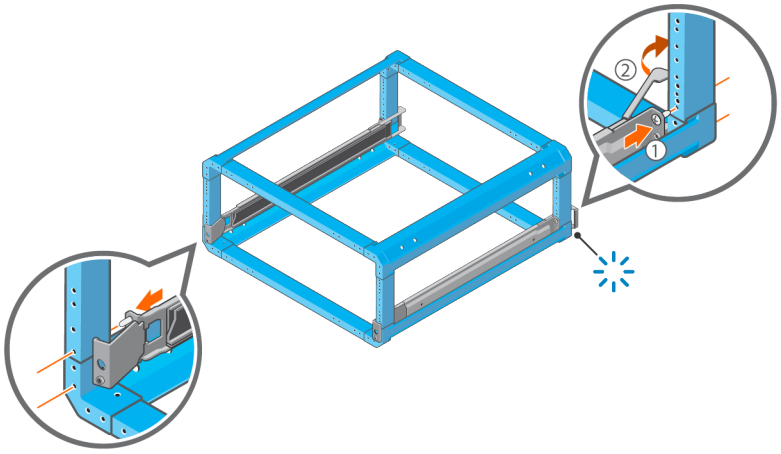

Figure 31. Installing the rail

2. Install the optional supplied hardware to secure rails to the rack.

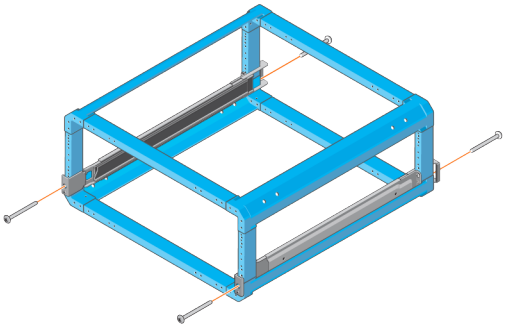

Figure 32. Installing optional supplied hardware to secure rails to the rack

3. Attach the inner rails to the system by aligning it to the standoffs and secure it using the screws.

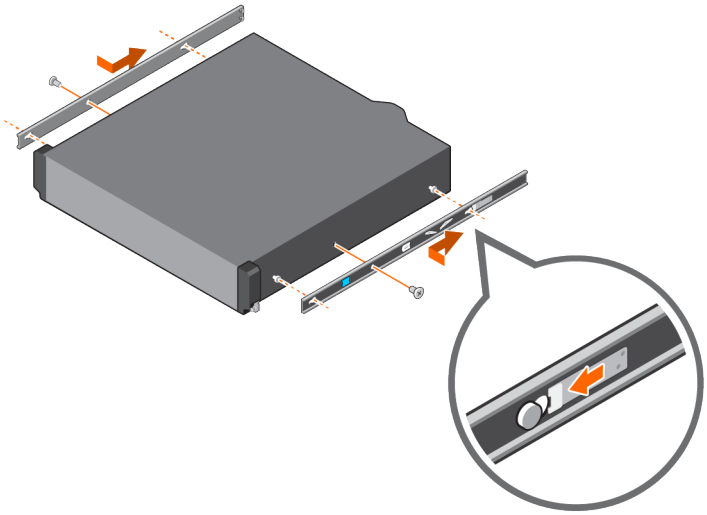

Figure 33. Attach the inner rails to the system

4. With the intermediate rails extended, install the system into the extended rails.

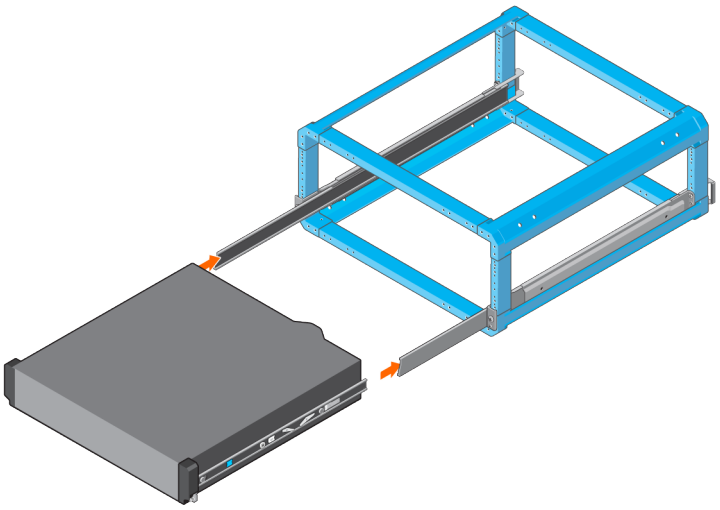

Figure 34. Install system into the extended rails

5. Push the system inward until the lock levers click into place.
6. Pull the blue side release lock tabs forward or backward on both rails and slide the system into the rack until the system is in the rack.

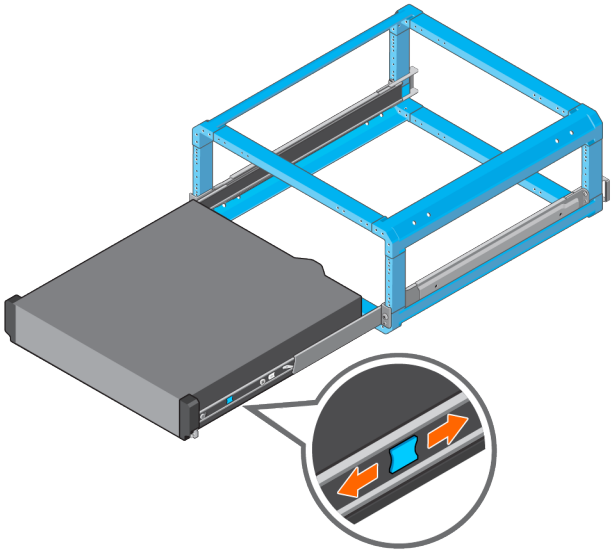

Figure 35. Slide system into the rack

Installing the system into the rack (option B: Stab-In)

1. Install the rail.

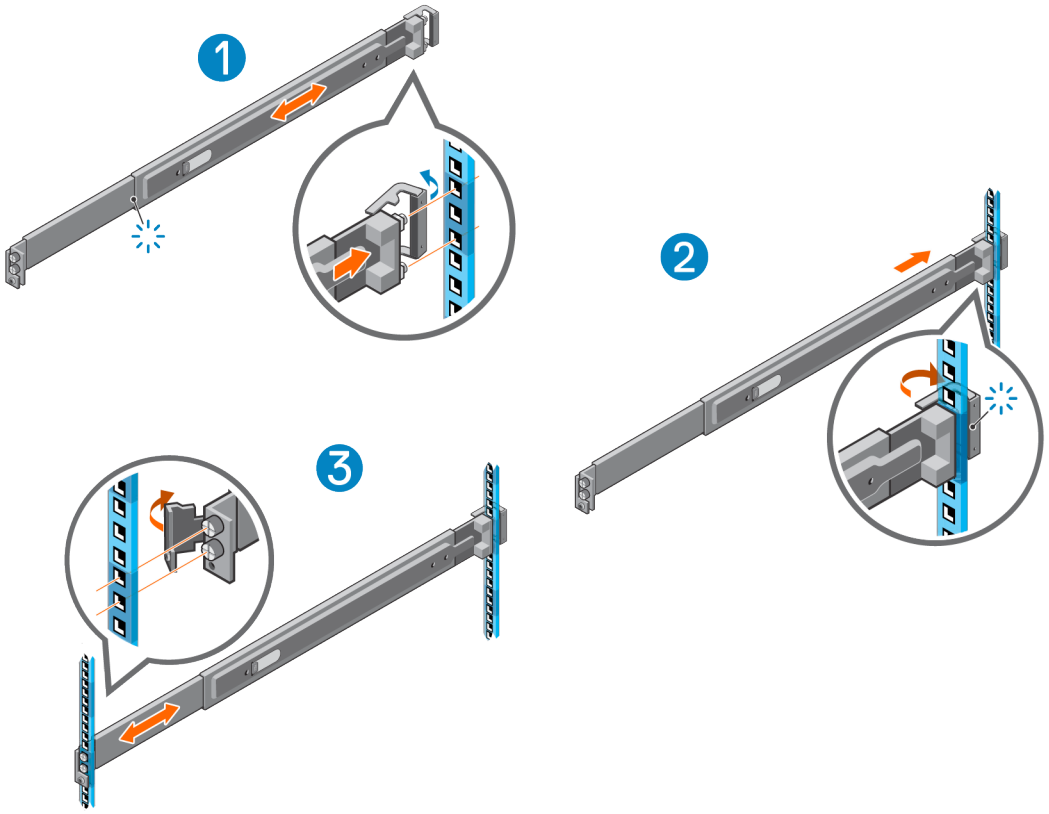

Figure 36. Install the rail

2. Install the supplied hardware to secure rails for the rack.

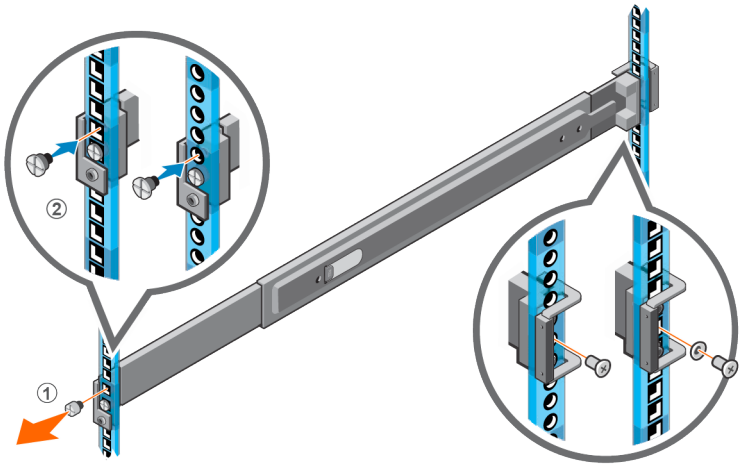

Figure 37. Install the supplied hardware to secure rails for the rack

3. Pull the intermediate rails out of the rack until they lock into place.
4. Release the inner rail lock by pulling forward on the white tabs and sliding the inner rail out of the intermediate rails.
5. Attach the inner rails to the sides of the system by aligning the slots on the rail with the standoffs on the system and sliding forward on the system until they lock into place.

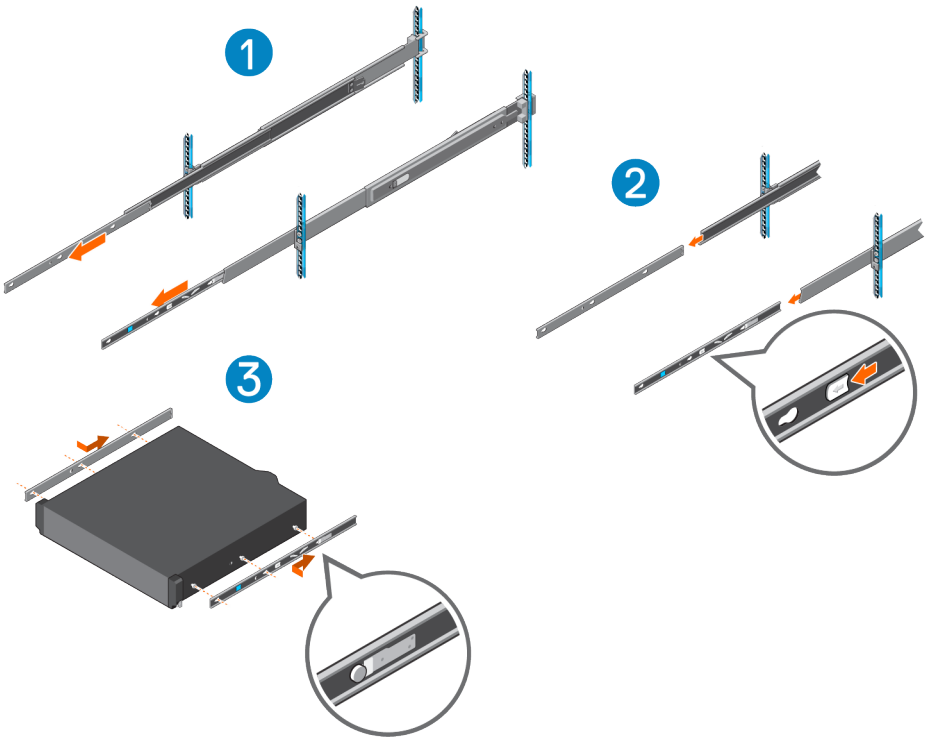

Figure 38. Pull out the intermediate rail

6. With the intermediate rails extended, install the system into the extended rails. Pull blue slide release lock tabs forward or backward on both rails, and slide the system into the rack.

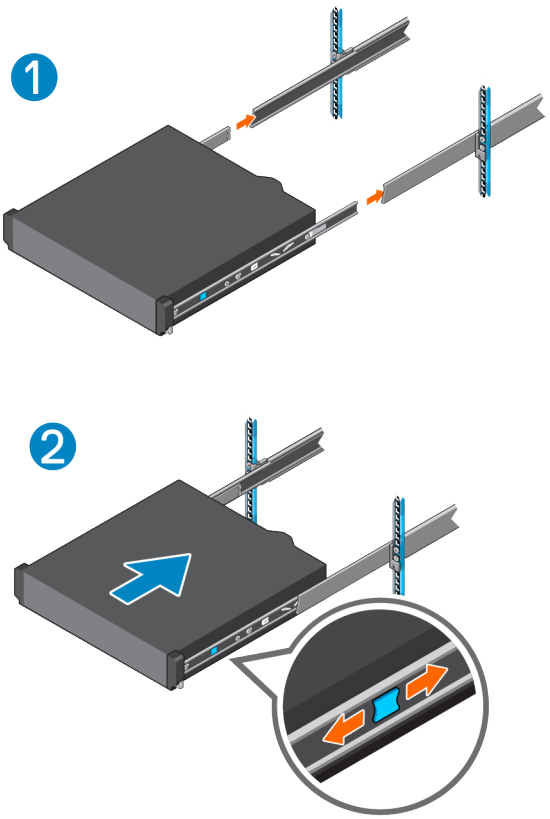

Figure 39. Install system into the rails

7. Secure the system to the rails.

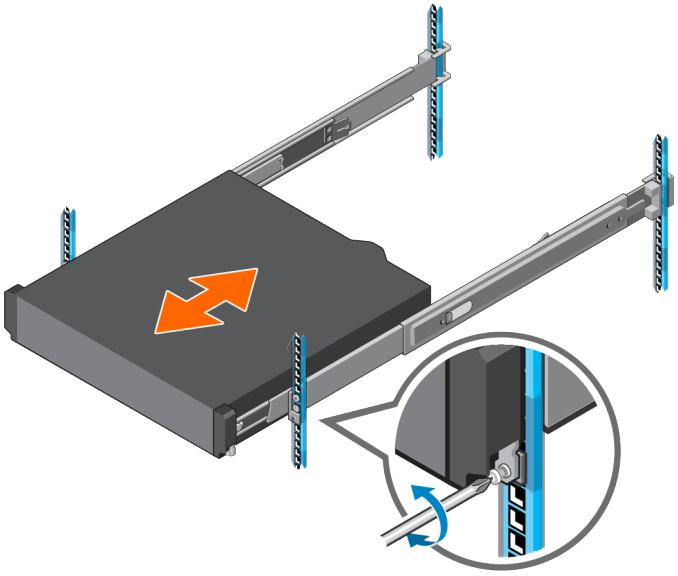

Figure 40. Secure system to rails

8. Secure the cables and route them along the brackets on the rails.

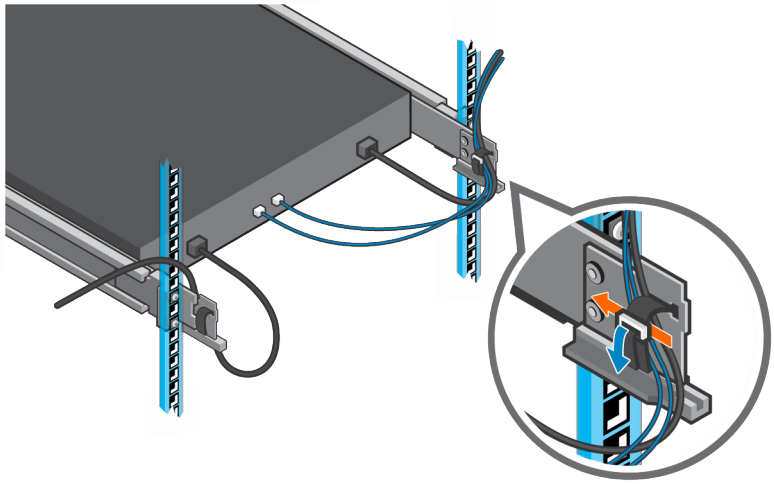

Figure 41. Securing the cables

12

Operating Systems and Virtualization

Topics:

Supported Operating Systems

The PowerEdge system supports the following operating systems:

- Canonical® Ubuntu® Server LTS
- Microsoft® Windows Server® with Hyper-V
- Red Hat® Enterprise Linux
- SUSE® Linux Enterprise server
- VMware® ESXi®

Links to specific OS versions and editions, certification matrices, Hardware Compatibility Lists (HCL) portal, and Hypervisor support are available at Dell Enterprise Operating Systems.

Supported Virtualization

VMware vSphere (aka ESXi) is the virtualization software for workload consolidation from physical to virtualized environments.

One of the key features for virtualization on the platform is the support for a failsafe hypervisor. By running the hypervisor on an optional medium to high endurance storage card (i.e. BOSS) and installing a backup copy on another card, you can protect against hardware failure and avoid virtualization downtime. The table below highlights the virtualization support.

Table 30. Supported Virtualization

Operating Systems	Release
Microsoft	Windows Server 2019 Data C enter w/Hyper-V
Microsoft	Windows Server 2019 Standard w/Hyper-V
VMware	VMware ESXi 8.0
VMware	VMware ESXi 7.0 U3

The current version of ESXi is 8.0 (Nov CY22 GA), and the previous major release 7.0 U3 (Jan CY22 GA) with patch. Both versions support 16G, 15G, and 14G volume servers. With 8.x we do not support 13G Servers, however with 7.x we support few of the 13G servers refer to the 7.x Server compatibility guide to get the exact list. The certification requires that once a platform is added to VMware Compatibility Guide (VCG), there is continual sustaining certification when new VMware patches, updates, Dell driver, and firmware are updated.

The listing for the certification can be found at here.

13

Dell OpenManage Systems Management

Dell delivers management solutions that help IT administrators effectively deploy, update, monitor, and manage IT assets. OpenManage solutions and tools enable you to quickly respond to problems by helping them to manage Dell servers efficiently; in physical, virtual, local, and remote environments; all without the need to install an agent in the operating system.

The OpenManage portfolio includes:

- Innovative embedded management tools - integrated Dell Remote Access Controller (iDRAC)
- Consoles - OpenManage Enterprise
- Extensible with plug-ins - OpenManage Power Manager
- Update tools - Repository Manager

Dell has developed comprehensive systems management solutions that are based on open standards and has integrated with management consoles from partners such as Microsoft and VMware, allowing advanced management of Dell servers. Dell management capabilities extend to offerings from the industry's top systems management vendors and frameworks such as Ansible, Splunk, and ServiceNow. OpenManage tools automate the full span of server life cycle management activities along with powerful RESTful APIs to script or integrate with your choice of frameworks.

For more information about the entire OpenManage portfolio, see:

- The latest Dell Systems Management Overview Guide.

Topics:

Integrated Dell Remote Access Controller (iDRAC)

iDRAC9 delivers advanced, agent-free, local and remote server administration. Embedded in every PowerEdge server, iDRAC9 provides a secure means to automate a multitude of common management tasks. Because iDRAC is embedded within every PowerEdge server, there is no additional software to install; just plug in power and network cables, and iDRAC is ready to go. Even before installing an operating system (operating system) or hypervisor, IT administrators have a complete set of server management features at their fingertips.

With iDRAC9 in-place across the Dell PowerEdge portfolio, the same IT administration techniques and tools can be applied throughout. This consistent management platform allows easy scaling of PowerEdge servers as an organization's infrastructure grows. Customers can use the iDRAC RESTful API for the latest in scalable administration methods of PowerEdge servers. With this API, iDRAC enables support for the Redfish standard and enhances it with Dell extensions to optimize at-scale management of PowerEdge servers. By having iDRAC at the core, the entire OpenManage portfolio of Systems Management tools allows every customer to tailor an effective, affordable solution for any size environment.

Zero Touch Provisioning (ZTP) is embedded in iDRAC. ZTP - Zero Touch Provisioning is Intelligent Automation Dell's agent-free management puts IT administrators in control. Once a PowerEdge server is connected to power and networking, that system can be monitored and fully managed, whether you're standing in front of the server or remotely over a network. In fact, with no need for software agents, an IT administrator can: · Monitor · Manage · Update · Troubleshoot and remediate Dell servers With features like zero-touch deployment and provisioning, iDRAC Group Manager, and System Lockdown, iDRAC9 is purpose-built to make server administration quick and easy. For those customers whose existing management platform utilizes in-band management, Dell does provide iDRAC Service Module, a lightweight service that can interact with both iDRAC9 and the host operating system to support legacy management platforms.

When ordered with DHCP enabled from the factory, PowerEdge servers can be automatically configured when they are initially powered up and connected to your network. This process uses profile-based configurations that ensure each server is configured per your specifications. This feature requires an iDRAC Enterprise license.

iDRAC9 offers following license tiers:

Table 31. iDRAC9 license tiers

License	Description
iDRAC9 Basic	• Available only on 100-500 series rack/tower • Basic instrumentation with iDRAC web UI • For cost conscious customers that see limited value in management
iDRAC9 Express	• Default on 600+ series rack/tower, modular, and XR series • Includes all features of Basic • Expanded remote management and server life-cycle features
iDRAC9 Enterprise	• Available as an upsell on all servers • Includes all features of Basic and Express. Includes key features such as virtual console, AD/LDAP support, and more • Remote presence features with advanced, Enterprise-class, management capabilities
iDRAC9 Datacenter	• Available as an upsell on all servers • Includes all features of Basic, Express, and Enterprise. Includes key features such as telemetry streaming, Thermal Manage, automated certificate management, and more • Extended remote insight into server details, focused on high end server options, granular power, and thermal management

For a full list of iDRAC features by license tier, see Integrated Dell Remote Access Controller 9 User's Guide at Dell.com.

For more details on iDRAC9 including white papers and videos, see:

- Support for Integrated Dell Remote Access Controller 9 (iDRAC9) on the Knowledge Base page at Dell.com

Systems Management software support matrix

Table 32. Systems Management software support matrix

Categories	Features	PE mainstream
Embedded Management and In-band Services	iDRAC9 (Express, Enterprise, and Datacenter licenses)	Supported
	OpenManage Mobile	Supported
	iDRAC Service Module (iSM)	Supported
	Driver Pack	Supported
Change Management	Update Tools (Repository Manager, DSU, Catalogs)	Supported
	Server Update Utility	Supported
	Lifecycle Controller Driver Pack	Supported
	Bootable ISO	Supported
Console and Plug-ins	OpenManage Enterprise	Supported
	Power Manager Plug-in	Supported
	Update Manager Plug-in	Supported
	OpenManage Services Plug-in	Supported
	CloudIQ	Supported
Integrations and connections	OM Integration with VMware Vcenter/vROps	Supported
	OM Integration with Microsoft System Center (OMIMSC)	Supported
	Integrations with Microsoft System Center and Windows Admin Center (WAC)	Supported
	ServiceNow	Supported

Table 32. Systems Management software support matrix (continued)

Categories	Features	PE mainstream
	Ansible	Supported
	Third-party Connectors (Nagios, Tivoli, Microfocus)	Supported
Security	Secure Enterprise Key Management	Supported
	Secure Component Verification	Supported
Standard operating system	Red Hat Enterprise Linux, SUSE, Windows Server 2021 Ubuntu, CentOS	Supported (Tier-1)

14

Appendix A: Additional specifications

Topics:

Chassis dimensions

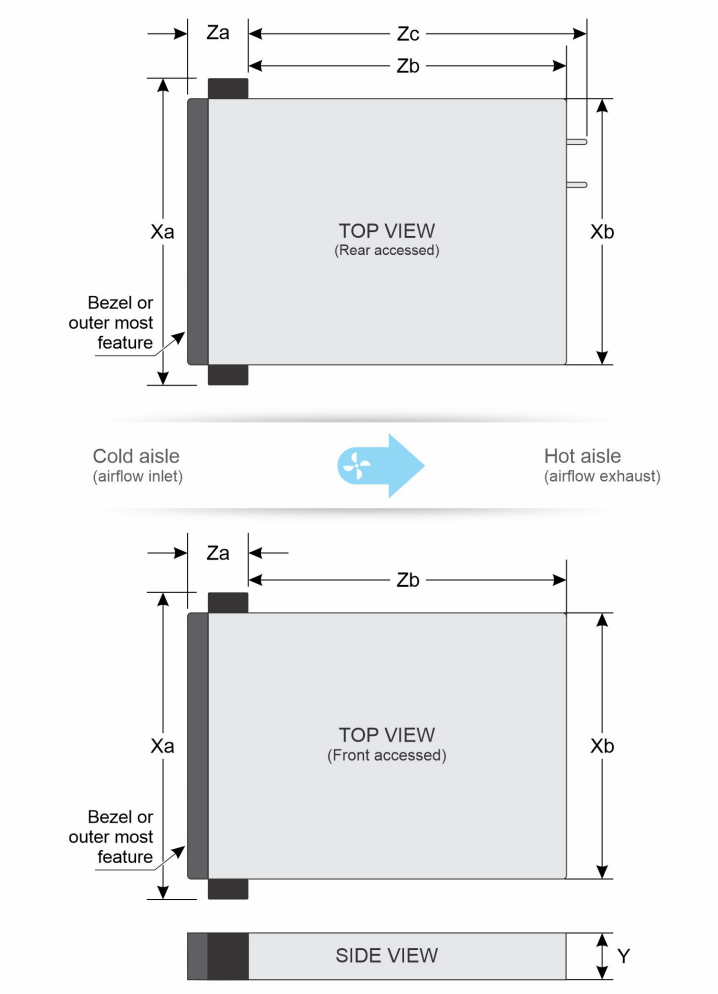

Figure 42. Chassis dimensions

Table 33. PowerEdge XR7620 chassis dimensions

Configuration	Xa	Xb	Y	Za	Zb	Zc
Rear Accessed configuration	482.6 mm (19 inches)	447 mm (17.59 inches)	86.8 mm (3.41 inches)	47.5 mm (1.87 inches) with bezel	448.8 mm (17.6 inches) Ear to rear wall	484.3 mm (19.06 inches) Ear to PSU handle)
Front Accessed configuration	482.6 mm (19 inches)	447 mm (17.59 inches)	86.8 mm (3.41 inches)	123 mm (4.84 inches) with bezel	449 mm (17.67) Ear to rear wall	NA

NOTE: Without the front bezel, Rear Accessed configuration support racks with 80 mm spacing from rack post to inside surface of rack door. With the front bezel installed, the Rear Accessed configuration system support racks with 100 mm spacing from rack post to inside surface of the rack door.

NOTE: Zb is the nominal rear wall external surface where the system board I/O connectors reside.

System weight

Table 34. PowerEdge XR7620 system weight for Rear accessed configuration

System configuration	Maximum weight for rear accessed configuration (with all drives/SSDs)
A server with fully populated drives	21.16 kg (46.64 pounds)
A server without drives and PSU installed	15.78 kg (34.78 pounds)

Table 35. PowerEdge XR7620 system weight for Front accessed configuration

System configuration	Maximum weight for front accessed configuration (with all drives/SSDs)
A server with fully populated drives	21.16 kg (46.64 pounds)
A server without drives and PSU installed	16.94 kg (37.34 pounds)

NIC port specifications

The PowerEdge XR7620 system supports two 10/100/1000 Mbps Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM) and up to four ports integrated on the Open Compute Project (OCP) cards.

Table 36. NIC port specification for the system

Feature	Specifications
LOM	1 Gb x 2
(Optional) OCP card (OCP 3.0)	1GbE x 4, 10 GbE x 2, 10 GbE x 4, 25 GbE x 2 SFP28, 25 GbE x 4 SFP28

NOTE: On the system board, the supported OCP PCIe width is x8; when x16 PCIe width is installed, it is downgraded to x8.

USB ports specifications

Table 37. PowerEdge XR7620 USB ports specifications for Rear Accessed configuration

Front		Rear		Internal (optional)	
USB port type	**No. of ports**	**USB port type**	**No. of ports**	**USB port type**	**No. of ports**
USB 2.0-compliant port	One	USB 2.0-compliant port	One	Internal USB 3.0	One
Micro-USB 2.0-compliant port for iDRAC Direct	One	USB 3.0-compliant ports	One		

NOTE: The micro USB 2.0 compliant port can only be used as an iDRAC Direct or a management port.

NOTE: BOSS-N1 and Internal USB are mutually exclusive.

Table 38. PowerEdge XR7620 USB ports specifications for Front Accessed configuration

Front		Internal (optional)	
USB port type	**No. of ports**	**USB port type**	**No. of ports**
USB 2.0-compliant port	Two	Internal USB 3.0	One
USB 3.0-compliant ports	One		
Micro-USB 2.0-compliant port for iDRAC Direct	One		

NOTE: The micro USB 2.0 compliant port can only be used as an iDRAC Direct or a management port.

NOTE: BOSS-N1 and Internal USB are mutually exclusive.

Video specifications

The PowerEdge XR7620 system supports integrated Matrox G200 graphics controller with 16 MB of video frame buffer.

Table 39. Supported video resolution options

Resolution	Refresh rate (Hz)	Color depth (bits)
1024 x 768	60	8, 16, 32
1280 x 800	60	8, 16, 32
1280 x 1024	60	8, 16, 32
1360 x 768	60	8, 16, 32
1440 x 900	60	8, 16, 32
1600 x 900	60	8, 16, 32
1600 x 1200	60	8, 16, 32
1680 x 1050	60	8, 16, 32
1920 x 1080	60	8, 16, 32
1920 x 1200	60	8, 16, 32

PSU rating

Below table lists the power capacity the PSUs in high/low line operation mode.

Table 40. PSUs highline and lowline ratings

—	1100 W Titanium	1100 W -48 VDC	1400 W Platinum	1800 W Titanium
Highline	1100 W	N/A	1400 W	1800 W
Lowline	1050 W	N/A	1050 W	N/A
Highline 240 VDC	1100 W	N/A	1400 W	1800 W
DC-48-60 V	N/A	1100 W	N/A	N/A

The PowerEdge XR7620 supports up to two AC power supplies with 1+1 redundancy, autosensing, and auto switching capability.

If two PSUs are present during POST, a comparison is made between the wattage capacities of the PSUs. In case the PSU wattages do not match, the larger of the two PSUs is enabled. Also, there is a PSU mismatch warning that is displayed in BIOS, iDRAC, or on the system LCD.

If a second PSU is added at run-time, in order for that particular PSU to be enabled, the wattage capacity of the first PSU must equal the second PSU. Otherwise, the PSU is flagged as unmatched in iDRAC and the second PSU is not enabled.

Dell PSUs have achieved Platinum efficiency levels as shown in the table below.

Table 41. PSU efficiency level

Efficiency Targets by Load						
Form factor	**Output**	**Class**	**10%**	**20%**	**50%**	**100%**
Redundant 60 mm	1100 W AC	Titanium	90.00%	94.00%	96.00%	91.50%
	1100 W -48 VDC	N/A	85.00%	90.00%	92.00%	90.00%
	1400 W AC	Platinum	89.00%	93.00%	94.00%	91.50%
	1800 W AC	Titanium	90.00%	94.00%	96.00%	94.00%

Environmental specifications

The PowerEdge XR7620 system operates in these environmental categories: ASHRAE A2/A3/A4 and Edge1 (50°C) and Edge2 (55°C).

NOTE: For additional information about environmental certifications, refer to the Product Environmental Datasheet located with the Documentation > Regulatory Information on www.dell.com/support/home.

Table 42. Continuous operation specifications for ASHRAE A2

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	10–35°C (50–95°F) with no direct sunlight on the equipment
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 80% RH with 21°C (69.8°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/300 m (33.8°F/984 Ft) above 900 m (2953 Ft)

Table 43. Continuous operation specifications for ASHRAE A3

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	5–40°C (41–104°F) with no direct sunlight on the equipment

Table 43. Continuous operation specifications for ASHRAE A3 (continued)

-	Allowable continuous operations
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 85% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/175 m (33.8°F/574 Ft) above 900 m (2953 Ft)

Table 44. Continuous operation specifications for ASHRAE A4

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	5–45°C (41–113°F) with no direct sunlight on the equipment
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 90% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/125 m (33.8°F/410 Ft) above 900 m (2953 Ft)

Table 45. Continuous operation specifications for Edge1 (50°C) and Edge2 (55°C)

-	Allowable continuous operations
Temperature range for altitudes <= 900 m (<= 2953 ft)	(-5)–55°C (23–131°F) with no direct sunlight on the equipment
Humidity percent range (non-condensing at all times)	8% RH with -12°C minimum dew point to 90% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/80 m (33.8°F/410 Ft) above 900 m (2953 Ft)

NOTE: Do not perform a cold startup below 5°C.

Table 46. Common environmental specifications for ASHRAE A2, A3, A4, Edge1 (50°C) and Edge2 (55°C)

-	Allowable continuous operations
Maximum temperature gradient (applies to both operation and non-operation)	20°C in an hour* (36°F in an hour) and 5°C in 15 minutes (41°F in 15 minutes), 5°C in an hour* (41°F in an hour) for tape **NOTE:** * - Per ASHRAE thermal guidelines for tape hardware, these are not instantaneous rates of temperature change.
Non-operational temperature limits	-40 to 65°C (-104 to 149°F)
Non-operational humidity limits	5% to 95% RH with 27°C (80.6°F) maximum dew point
Maximum non-operational altitude	12,000 meters (39,370 feet)
Maximum operational altitude	3,048 meters (10,000 feet)

NOTE: Do not perform a cold startup below 5°C

Table 47. Maximum vibration specifications for the system

Maximum vibration	Specifications

Operating	• 0.21 Grms at 5 Hz to 500 Hz (all operation orientations)
	• For Military (with Military tool kit),
	  ○ Method 514.8; Category 20(Marine Vehicles) Annex D 2.9a (Wheeled vehicles) Procedure I, 5 Hz to 500 Hz
	  ○ Method 514.8; Category 21(Ground Vehicles) Annex D 2.10, procedure I, 10 Hz to 100 Hz

Storage	• 1.88 Grms at 10 Hz to 500 Hz for 15 minutes (all six sides tested)

Table 47. Maximum vibration specifications for the system (continued)

Maximum vibration	Specifications
	• For Military (with Military tool kit), ○ Method 514.6; Category 4. 1 Hour per axis, 3 axes, 5-500 Hz, X@0.76 Grms, Y@0.21 Grms, Z@1.08 Grms , 60 minutes/axis

Table 48. Maximum shock pulse specifications for the system

Maximum shock pulse	Specifications
Operating	• Six consecutively executed shock pulses in the positive and negative x, y, and z axes of 6 G for up to 11 ms.(4 pulse on each side of the system) • For Military (with Military tool kit) ○ Method 516.8 Procedure I, 40G, 11ms, 3 shocks, +-per direction, 3 axes
Operating (Navy)	MIL-STD-901E, Grade A, Class 2, Type A, in approved military transit case
Storage	• Six consecutively executed shock pulses in the positive and negative x, y, and z axis (one pulse on each side of the system) of 71 G for up to 2 ms. • For Military (with Military tool kit) ○ Method 516.8 Procedure V, 40G, 11ms, 3 shocks, +-per direction, 3 axes

Particulate and gaseous contamination specifications

The following table defines the limitations that help avoid any equipment damage or failure from particulates and gaseous contamination. If the levels of particulates or gaseous pollution exceed the specified limitations and result in equipment damage or failure, you may need to rectify the environmental conditions. Remediation of environmental conditions is the responsibility of the customer.

Table 49. Particulate contamination specifications

Particulate contamination	Specifications
Air filtration	Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit **NOTE:** This condition applies to data center environments only. Air filtration requirements do not apply to IT equipment designed to be used outside a data center, in environments such as an office or factory floor. **NOTE:** Air entering the data center must have MERV11 or MERV13 filtration.
Conductive dust	Air must be free of conductive dust, zinc whiskers, or other conductive particles **NOTE:** This condition applies to data center and non-data center environments.
Corrosive dust	• Air must be free of corrosive dust • Residual dust present in the air must have a deliquescent point less than 60% relative humidity **NOTE:** This condition applies to data center and non-data center environments.
Walk-Up Edge Data Center or Cabinet (sealed, closed loop environment)	Filtration is not required for cabinets that are anticipated to be opened 6 times or less per year. Class 8 per ISO 1466-1 filtration as defined above is required otherwise

Table 49. Particulate contamination specifications (continued)

Particulate contamination	Specifications
	NOTE: In environments commonly above ISA-71 Class G1 or that may have known challenges, special filters may be required.

Table 50. Gaseous contamination specifications

Gaseous contamination	Specifications
Copper coupon corrosion rate	<300 Å/month per Class G1 as defined by ANSI/ISA71.04-2013
Silver coupon corrosion rate	<200 Å/month as defined by ANSI/ISA71.04-2013

Thermal air restrictions

Table 51. Air cooling configurations thermal restriction for AHSRAE A3 and A4

ASHRAE	A3/40°C (104°F)	A4/45°C (113°F)
CPU	< 185 W	≤ 120 W

Thermal restriction matrix

Thermal restriction for Front accessed configuration

NOTE: Minimum cold boot temperature at ≥ 5°C.

Table 52. Thermal restriction without full-length cards - Front accessed configuration

Chassis configuration	TDP	XR7620 Front accessed configuration - Without full-length cards				
		ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)	Edge1 (Max 50°C)	Edge2 (Max 55°C)
CPU	225 W	Supported	Not supported			
	185 W		Supported			
	165 W					
	150 W					
Memory	DDR5 RDIMM 16 GB					
	DDR5 RDIMM 32 GB					
	DDR5 RDIMM 64 GB					
	DDR5 RDIMM 128 GB		Not supported			

Table 53. Thermal restrictions without full-length cards - Front accessed configuration

Chassis configuration	XR7620 Front accessed configuration - Without full-length cards				
Ambient temperature	ASHARE A2 (Max 35°C)	ASHARE A3 (Max 40°C)	ASHARE A4 (Max 45°C)	Edge1 (Max 50°C)	Edge2 (Max 55°C)
Nvidia GPU A2	Support up to 45°C.			Not supported.	
Nvidia GPU L4	Support up to 45°C.			Not supported.	

Table 53. Thermal restrictions without full-length cards - Front accessed configuration (continued)

Chassis configuration		XR7620 Front accessed configuration - Without full-length cards				
Ambient temperature		**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**	**Edge1 (Max 50°C)**	**Edge2 (Max 55°C)**
M.2 NVMe (BOSS-N1)	Micron 7400	960 GB support up to 50°C. Only 480 GB can support up to 55°C.				
	Micron 7450					
	Hynix PE8010	1.92 TB/960 GB only support up to 50°C. 480 GB can support up to 55°C.				
	Hynix PE9010					
	Hynix PE9030	800 GB support up to 50°C.				
EDSFF E3.S		Support up to 45°C.			Not supported.	
2.5-inch U.2 NVMe SSD		Support up to 40°C. Hynix PE8010 only supports up to 35°C.		Not supported.		
PCIe COMM Card		Non-Dell qualified PCIe card is not supported.				
OCP COMM Card		Non-Dell qualified PCIe card is not supported.				
Active Optical Cables/Transceivers		• QSFP optic cables or transceivers with 70C spec support only up to 50°C. • QSFP optic cables or transceivers with 85°C spec support up to 55°C. • SFP optic cables or transceivers support up to 55°C.				

Table 54. Thermal restriction with full-length cards - Front accessed configuration

Chassis configuration	TDP	XR7620 Front accessed configuration - With full-length cards		
		ASHARE A2 (Max 35°C)	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
CPU	225 W	Not supported		
	185 W	Supported	Supported	Not supported
	165 W			Supported
	150 W			
Memory	DDR5 RDIMM 16 GB			
	DDR5 RDIMM 32 GB			
	DDR5 RDIMM 64 GB			
	DDR5 RDIMM 128 GB		Not supported	

Table 55. Thermal restrictions with full-length cards - Front accessed configuration

Chassis configuration	XR7620 Front accessed configuration - With full-length cards		
Ambient temperature	**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
Nvidia GPU A2	Only support up to 35°C with CPU ≤ 185 W.	Not supported.	
Nvidia GPU L4	Only support up to 35°C with CPU ≤ 185 W.	Not supported.	
Nvidia GPU A100 80G	Support up to 45°C.		
Nvidia GPU A30			
Nvidia GPU A800			
Intel Ponte Vecchio (PVC) 300 W			
2.5-inch U.2 NVMe SSD	Support up to 40°C. Hynix PE8010 only supports up to 35°C.		Not supported.

Table 55. Thermal restrictions with full-length cards - Front accessed configuration (continued)

Chassis configuration	XR7620 Front accessed configuration - With full-length cards		
Ambient temperature	**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
PCIe COMM Card	Non-Dell qualified PCIe card is not supported.		
OCP COMM Card			

Thermal restriction for Rear accessed configuration

NOTE: Minimum cold boot temperature at ≥ 5°C.

Table 56. Thermal restriction without full-length cards - Rear accessed configuration

Chassis configuration	TDP	XR7620 Rear accessed configuration - Without full-length cards		
		ASHARE A2 (Max 35°C)	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
CPU	225 W	Supported	Not supported	
	185 W		Supported	
	165 W			
	150 W			
Memory	DDR5 RDIMM 16 GB			
	DDR5 RDIMM 32 GB			
	DDR5 RDIMM 64 GB			
	DDR5 RDIMM 128 GB		Not supported	

Table 57. Thermal restriction without full-length cards - Rear accessed configuration

Chassis configuration		XR7620 Rear accessed configuration - Without full-length cards		
Ambient temperature		**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4(Max 45°C)**
Nvidia GPU A2		Only support up to 35°C with CPU ≤ 205 W	Not supported.	
Nvidia GPU L4		Only support up to 35°C with CPU ≤ 205 W		
M.2 NVMe (BOSS-N1)	Micron 7400	Max 960 GB support up to 35°C.		
	Micron 7450			
	Hynix PE8010	Max 1.2 TB support up to 35°C.		
	Hynix PE9010			
	Hynix PE9030	Max 800 GB support up to 50°C.		
2.5-inch NVMe SSD		Support up to 35°C.		
PCIe COMM Card		Above 35°C, PCIe cards support Extended OperatingTemperature (EOT 65°C) Range is required. Above 35°C PCIe card power > 25 W is not supported. Non-Dell qualified PCIe card is not supported.		
OCP COMM Card		Non-Dell qualified PCIe card is not supported.		

Table 57. Thermal restriction without full-length cards - Rear accessed configuration (continued)

Chassis configuration	XR7620 Rear accessed configuration - Without full-length cards		
Ambient temperature	**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4(Max 45°C)**
Active Optical Cables/Transceivers	Not support optic cables or transceivers with 70°C spec. Optic cables or transceivers with 85C spec support up to 45°C.		

Table 58. Thermal restriction with full-length cards - Rear accessed configuration

Chassis configuration	TDP	XR7620 Rear accessed configuration - With full-length cards		
		ASHARE A2 (Max 35°C)	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
CPU	225 W	Not supported		
	185 W	Supported	Supported	Not supported
	165 W			Supported
	150 W			
Memory	DDR5 RDIMM 16 GB			
	DDR5 RDIMM 32 GB			
	DDR5 RDIMM 64 GB			
	DDR5 RDIMM 128 GB		Not supported	

Table 59. Thermal restrictions with full-length cards - Rear accessed configuration

Chassis configuration	XR7620 Rear accessed configuration - With full-length cards		
Ambient temperature	**ASHARE A2 (Max 35°C)**	**ASHARE A3 (Max 40°C)**	**ASHARE A4 (Max 45°C)**
Nvidia GPU A2	Not supported.		
Nvidia GPU L4			
Nvidia GPU A30	Support up to 40°C.		Not supported.
Nvidia GPU A100 80G			
Nvidia GPU A800			
Intel Ponte Vecchio (PVC) 300 W	PVC support up to 40°C.		
BOSS M.2	Support up to 35°C.	Not supported.	
2.5-inch NVMe SSD			
PCIe COMM Card	Above 35°C, PCIe cards support Extended OperatingTemperature (EOT 65°C) Range is required. Above 35°C PCIe card power > 25 W is not supported. Non-Dell qualified PCIe card is not supported.		
OCP COMM Card	Non-Dell qualified PCIe card is not supported.		
Active Optical Cables/ Transceivers	Not support optic cables or transceivers with 70°C spec. Optic cables or transceivers with 85°C spec support up to 45°C.		

Other Thermal Restrictions

- Rear accessed configuration supports only up to 45°C.
- On Front accessed configuration chassis, when 1U CPU HSK XTCC1 is installed, above 45°C ambient is not supported.
- Full-length cards and half-length cards cannot be mixed on PCIe slot 1~4 in configuration.

- At least 1x full-length card is needed for 1U HS configuration, no cards configuration only support with 2U height CPU Heat sink.
- Minimum cold boot temperature at ≥ 5°C.
- SAS/SATA SSD minimum operating temperature ≥ 0°C
- Two PSUs are needed in redundancy mode over 50°C ambient. In the event of a PSU failure, system performance may be reduced.
- Hot swap fan is not supported.
- DIMM Blank is required for any empty slot.
- HDD blank is required for any empty slot.
- E3.S blank is required for any empty slot.
- PSU blank is required for any empty slot.
- OCP blank is required for any empty slot.
- GPU internal blank is required for any empty slot on full-length configuration.
- Full-height PCIe blank is required for any empty slot (PCIe slot 1~4).
- Low profile PCIe blank is required for any empty slot (PCIe slot 5).

NOTE: Fan speed may increase at ambient < 0°C with SAS/SATA SSD. This indicates that the fan is working as design for overall system stability.

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Appendix A. Standards compliance

The system conforms to the following industry standards.

Table 60. Industry standard documents

Standard	URL for information and specifications
ACPIAdvance Configuration and Power Interface Specification, v6.4	https://uefi.org/specsandtesttools
Ethernet IEEE Std 802.3-2022	https://standards.ieee.org/
MSFT WHQL Microsoft Windows Hardware Quality Labs	microsoft.com/whdc/system/platform/pcdesign/desguide/serverdg.mspx
IPMI Intelligent Platform Management Interface, v2.0	intel.com/design/servers/ipmi
DDR5 Memory DDR5 SDRAM Specification	jedec.org/standards-documents/docs/jesd79-4.pdf
PCI Express PCI Express Base Specification, v5.0	pcisig.com/specifications/pciexpress
PMBus Power System Management Protocol Specification, v1.2	http://pmbus.org/Assets/PDFS/Public/PMBus_Specification_Part_I_Rev_1-1_20070205.pdf
SAS Serial Attached SCSI, 3 (SAS-3) (T10/INCITS 519)	http://www.t10.org/
SATA Serial ATA Rev. 3.3	sata-io.org
SMBIOS System Management BIOS Reference Specification, v3.3.0	DMTF SMBIOS
TPM Trusted Platform Module Specification, v1.2 and v2.0	trustedcomputinggroup.org
UEFI Unified Extensible Firmware Interface Specification, v2.7	uefi.org/specifications
PI Platform Initialization Specification, v1.7	
USB Universal Serial Bus v2.0 and SuperSpeed v3.0 (USB 3.1 Gen1)	USB Implementers Forum, Inc. https://usb.org/documents
NVMe Express Base Specification. Revision 2.0c	https://nvmexpress.org/specifications/
NVMe Command Set Specifications 1. NVM Express NVM Command Set Specification. Revision 1.1c 2. NVM Express Zoned Namespaces Command Set. Revision 1.0c 3. NVM Express® Key Value Command Set. Revision 1.0c	
NVMe Transport Specifications 1. NVM Express over PCIe Transport. Revision 1.0c 2. NVM Express RDMA Transport Revision. 1.0b 3. NVM Express TCP Transport. Revision 1.0c	
NVMe NVM Express Management Interface. Revision 1.2c	
NVMe NVMe Boot Specification. Revision 1.0	

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Appendix C Additional resources

Table 61. Additional resources

Resource	Description of contents	Location
Installation and Service Manual	This manual, available in PDF format, provides the following information: • Chassis features • System Setup program • System indicator codes • System BIOS • Remove and replace procedures • Diagnostics • Jumpers and connectors	Dell.com/Support/Manuals
Getting Started Guide	This guide ships with the system, and is also available in PDF format. This guide provides the following information: • Initial setup steps	Dell.com/Support/Manuals
Rack Installation Guide	This document ships with the rack kits, and provides instructions for installing a server in a rack.	Dell.com/Support/Manuals
System Information Label	The system information label documents the system board layout and system jumper settings. Text is minimized due to space limitations and translation considerations. The label size is standardized across platforms.	Inside the system chassis cover
Quick Resource Locator (QRL)	This code on the chassis can be scanned by a phone application to access additional information and resources for the server, including videos, reference materials, service tag information, and Dell contact information.	Inside the system chassis cover
Enterprise Infrastructure Planning Tool (EIPT)	The Dell online EIPT enables easier and more meaningful estimates to help you determine the most efficient configuration possible. Use EIPT to calculate the power consumption of your hardware, power infrastructure, and storage.	Dell.com/calc

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Appendix D: Service and support

Topics:

Default support levels

This system offers 3 years Dell ProSupport Next Business Day (NBD), including 24x7 phone support and NBD parts and labor support.

Default deployment levels

This system is defaulted to the ProDeploy Dell Server which includes onsite hardware installation and remote software configuration. Optionally, the customer may choose to any of the factory or field deployment offers listed below.

Other services and support information

Dell Technologies Services include a wide, customizable range of service options to simplify the assessment, design, implementation, management and maintenance of IT environments and to help transition from platform to platform.

Depending on the current business requirements and correct level of service for customers, we provide factory, onsite, remote, modular, and specialized services that fit the customer requirements and budget. We will help with a little or a lot, based on the customers choice, and provide access to our global resources.

Dell deployment services

Dell ProDeploy Infrastructure Suite

ProDeploy Infrastructure Suite provides a variety of deployment offerings that satisfy a customer's unique needs. It is made up of 5 offers: ProDeploy Configuration Services, ProDeploy Rack Integration Services, Basic Deployment, ProDeploy, and ProDeploy Plus.

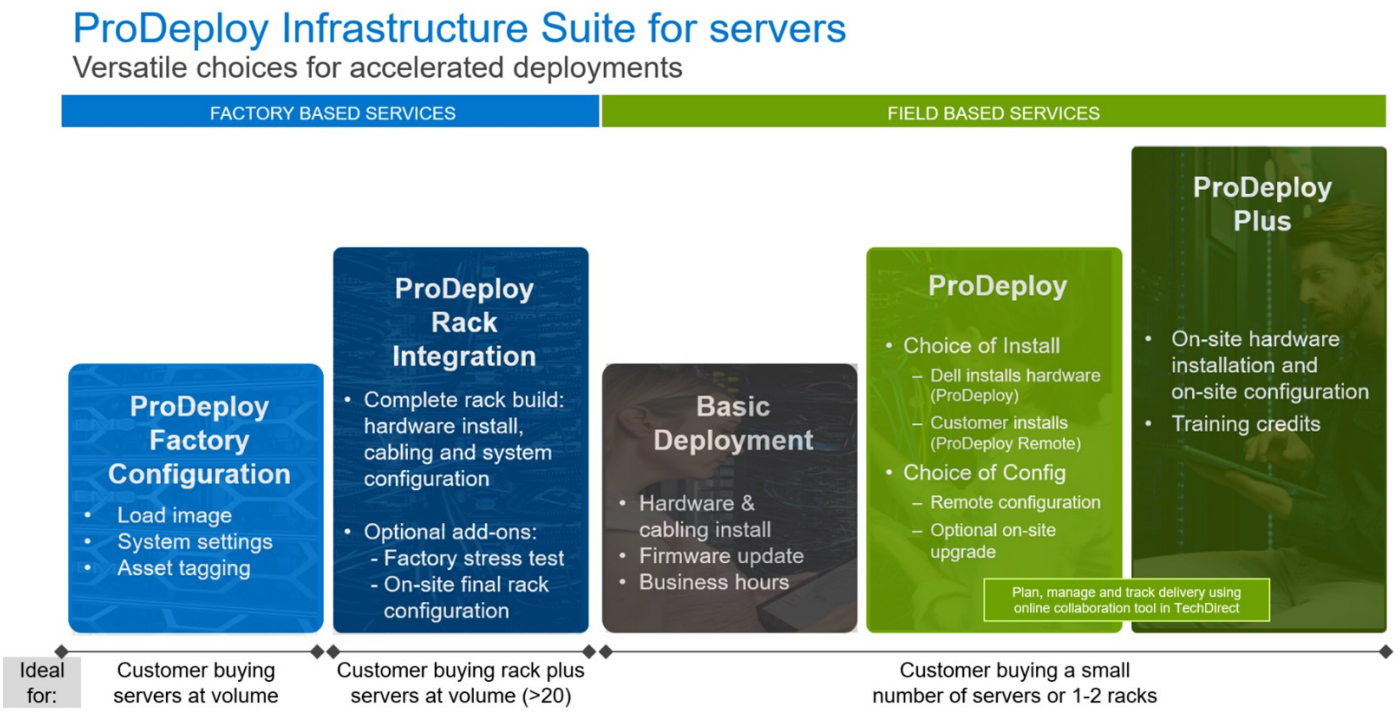

Figure 43. ProDeploy Infrastructure Suite for servers

The new Factory Services consist of two tiers of deployment that happen prior to shipping to the customer's site.

Factory Based Services:

- ProDeploy Factory Configuration - Ideal for customers buying servers in volume and seeking pre-configuration prior to shipping such as: custom image, system settings, and asset tagging so it arrives ready to use out of the box. Furthermore, servers can be packaged and bundled to meet specific shipping and distribution requirements for each customer location to facilitate the rollout process. Upsell one of the field based services (below) if a customer needs assistance with the final server installation.
- ProDeploy Rack Integration - Ideal for customers seeking to build out fully integrated racks prior to shipping. These rack builds include hardware install, cabling, and full system configuration. You can also add-on a factory stress test and optional on-site final rack configuration to complete the rack installation.
  - STANDARD SKUs for Rack Integration is available in US only and requires:
    - 20 or more devices (R and C series servers and all Dell or non-Dell switches). Use Informational SKUs for Dell switches or 3rd party products
    - Shipping to contiguous US
  - USE CUSTOM QUOTE for Rack Integration for:
    - All countries except USA
    - Racks containing less than 20 servers
    - Any rack that includes VxRail or Storage
    - Shipping outside contiguous US
    - Shipping to multiple locations

Field Based Services:

- Basic Deployment consists of the hardware installation, cabling and firmware update during normal standard business hours. Basic Deployment is traditionally sold to Competency Enabled Partners. Competency enabled partners often have Dell do the hardware installation while they complete the software configuration.
- ProDeploy consists of your hardware installation and configuration of the software using offshore resources. ProDeploy is great for customers who are price sensitive or who are remote from their data centers and don't require an onsite presence.
- ProDeploy Plus will give you in-region or onsite resources to complete the engagement for the customer. It also comes with additional features such as Post Deployment Configuration Assistance and Training Credits.

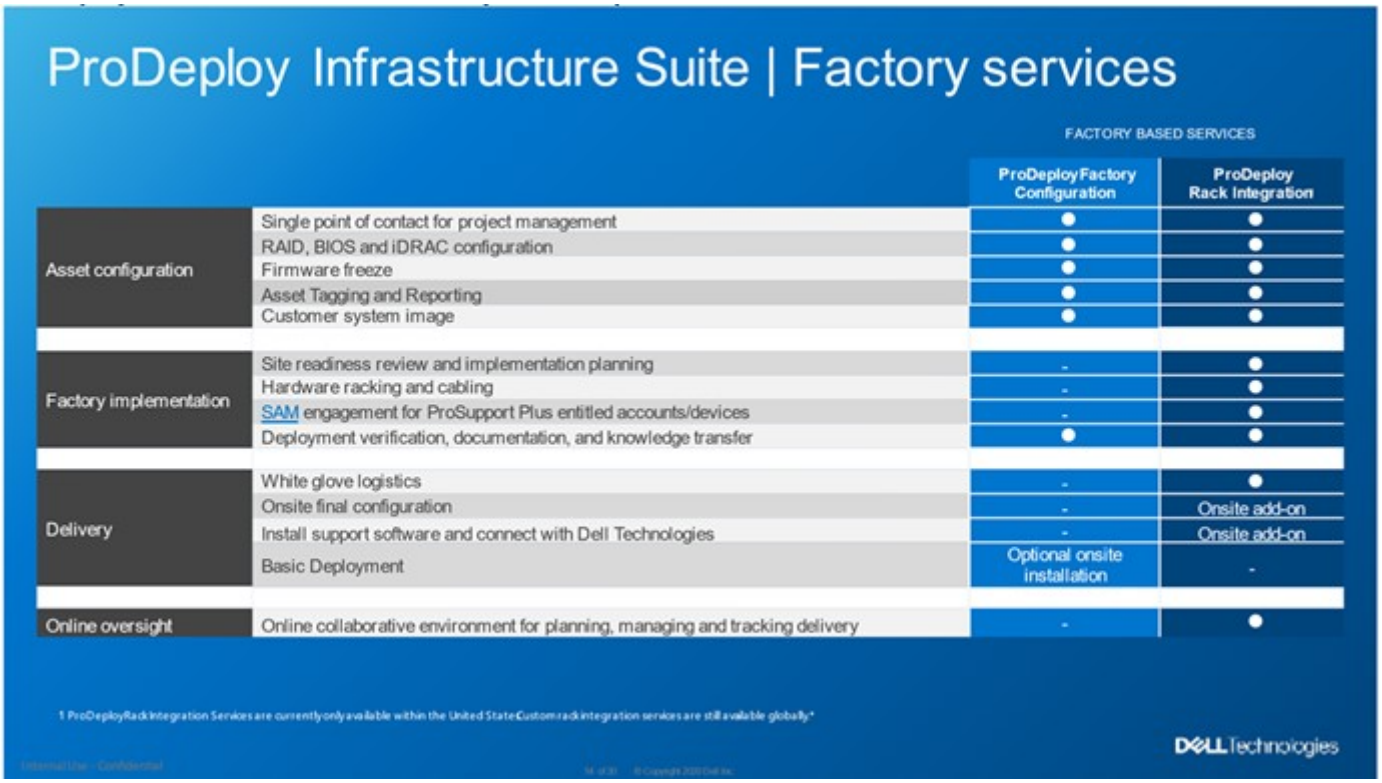

Figure 44. ProDeploy Infrastructure Suite - Factory services

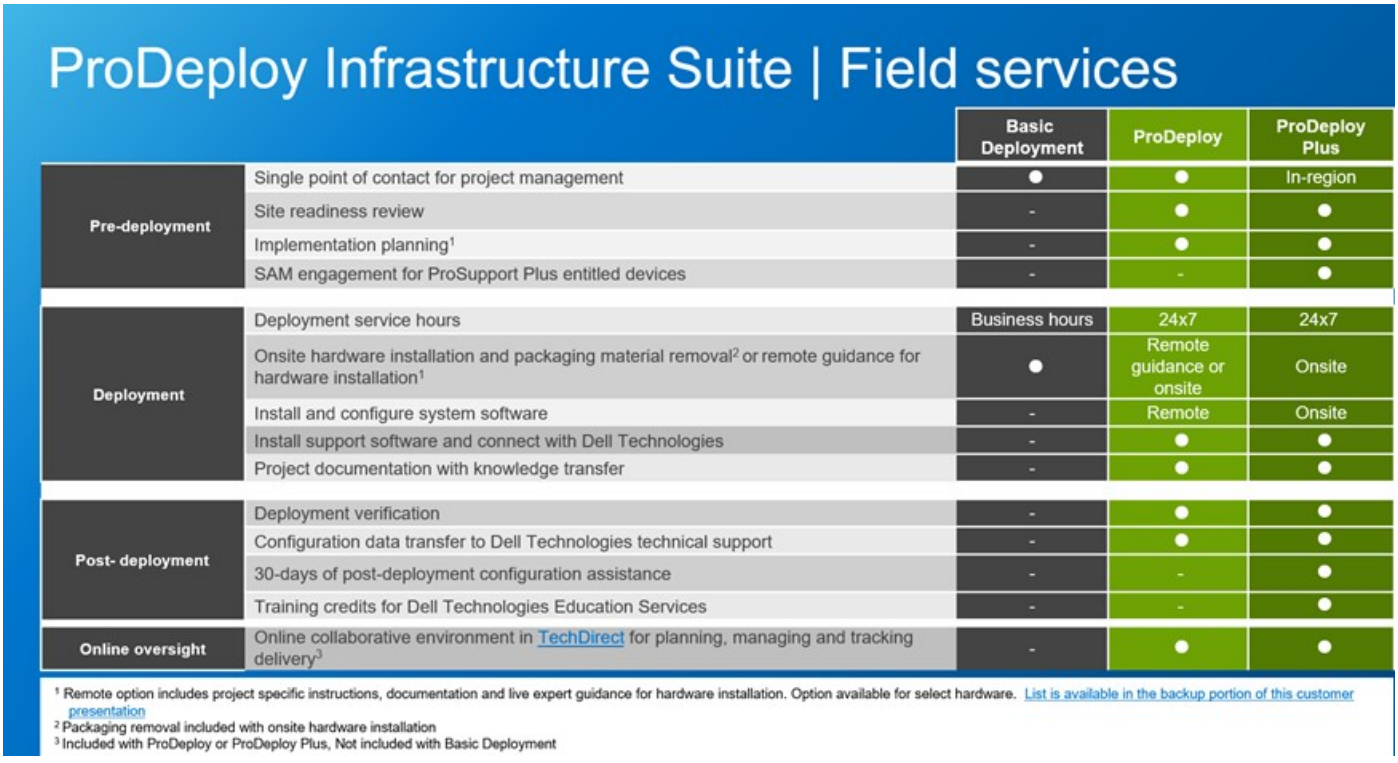

Figure 45. ProDeploy Infrastructure Suite - Field services

Dell ProDeploy Plus for Infrastructure

From beginning to end, ProDeploy Plus provides the skill and scale that is must successfully perform demanding deployments in today's complex IT environments. Certified Dell experts start with extensive environmental assessments and detailed migration

planning and recommendations. Software installation includes set up of our enterprise connectivity solution (secure connect gateway) and OpenManage system management utilities.

Postdeployment configuration assistance, testing, and product orientation services are also available.

Dell ProDeploy for Infrastructure

ProDeploy provides full-service installation and configuration of both server hardware and system software by certified deployment engineers including set up of leading operating systems and hypervisors as well our enterprise connectivity solution (secure connect gateway) and OpenManage system management utilities. To prepare for the deployment, we conduct a site readiness review and implementation planning exercise. System testing, validation, and full project documentation with knowledge transfer complete the process.

Dell Basic Deployment

Basic Deployment delivers worry-free professional installation by experienced technicians who know Dell servers inside and out.

Additional Deployment Services

You can tailor the ProDeploy Infrastructure Suite offer to meet your customer's unique needs by leveraging "Additional Deployment Time." ADT will cover additional tasks above the normal scope of the standard offers. ADT can be sold for Project Management or Technical Resources and is sold as blocks of four hours remote or eight hours on-site.

Dell ProDeploy for HPC (available in US/Canada only. All other regions use custom)

HPC deployments require specialists that understand that cutting edge is yesterday's news. Dell deploys the world 's fastest systems and understands the nuances that make them perform. ProDeploy for HPC provides:

- Global team of dedicated HPC specialists
- Proven track record, thousands of successful HPC deployments
- Design validation, benchmarking, and product orientation

Learn more at Dell.com/HPC-Services.

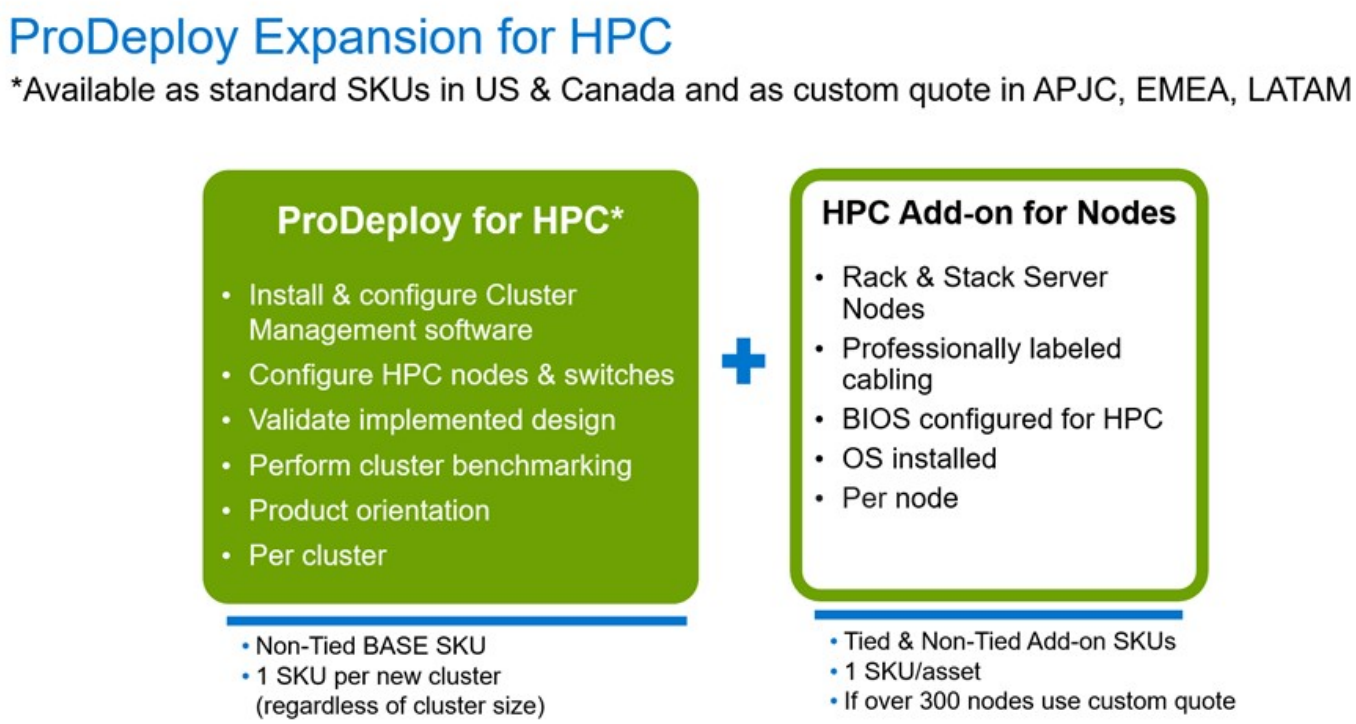

Figure 46. ProDeploy Expansion for HPC

Dell custom deployment Services

Dell custom rack integration and other Dell configuration services help customers save time by providing systems that are racked, cabled, tested, and ready to be integrated into the data center. Dell support preconfigure RAID, BIOS and iDRAC settings, install system images, and even install third-party hardware and software.

For more information, see Server Configuration Services.

Dell Residency Services

Residency Services help customers transition to new capabilities quickly with the assistance of onsite or remote Dell experts whose priorities and time they control.

Residency experts can provide post implementation management and knowledge transfer that is related to a new technology acquisition or day-to-day operational management of the IT infrastructure.

Dell Data Migration Services

Protect business and data of the customer with our single point of contact to manage data migration projects.

A customer project manager works with our experienced team of experts to create a plan using industry-leading tools and proven processes that are based on global best practices to migrate existing files and data, so business systems are up and running quickly and smoothly.

Dell Enterprise Support Services

Dell ProSupport Enterprise Suite

With the ProSupport Enterprise Suite, we help keep IT systems running smoothly, so customers can focus on running their business. We help maintain peak performance and availability of the most essential workloads. ProSupport Enterprise Suite is a suite of support services that enable customers to build the solution that is right for their organization. They choose support models that are based on how they use technology and where they want to allocate resources. From the desktop to the data center, address everyday IT challenges, such as unplanned downtime, mission-critical needs, data and asset protection, support planning, resource allocation, software application management and more. Optimize customer IT resources by choosing the right support model.

Table 62. ProSupport Enterprise Suite

Service	Support model	Description
ProSupport Enterprise Suite	ProSupport Plus for Enterprise	Proactive, predictive, and reactive support for systems that look after your business-critical applications and workloads
	ProSupport for Enterprise	Comprehensive 24 x 7 predictive and reactive support for hardware and software
	Basic hardware support	Reactive hardware support during normal business hours

Dell ProSupport Plus for Enterprise

When customers purchase PowerEdge server, we recommend ProSupport Plus, our proactive and preventative support service for business-critical systems. ProSupport Plus provides all the benefits of ProSupport, plus the following:

- An assigned Services Account Manager who knows their business and environment
- Immediate advanced troubleshooting from an engineer
- Personalized, preventive recommendations that are based on analysis of support trends and best practices from across the Dell Technologies infrastructure solutions customer base to reduce support issues and improve performance
- Predictive analysis for issue prevention and optimization that is enabled by secure connect gateway technology
- Proactive monitoring, issue detection, notification, and automated case creation for accelerated issue resolution enabled by secure connect gateway
- On-demand reporting and analytics-based recommendations that are enabled by secure connect gateway and TechDirect

Dell ProSupport for Enterprise

ProSupport service offers highly trained experts around the clock and around the globe to address IT needs. We help minimize disruptions and maximize availability of PowerEdge server workloads with:

- 24x7 support through phone, chat and online
- Predictive, automated tools and innovative technology
- A central point of accountability for all hardware and software issues
- Collaborative third-party support
- Hypervisor, operating system and application support
- Consistent experience regardless of where customers are located or what language they speak

  NOTE: Subject to service offer country or region availability.
- Optional onsite parts and labor response options including next business day or four-hour mission critical

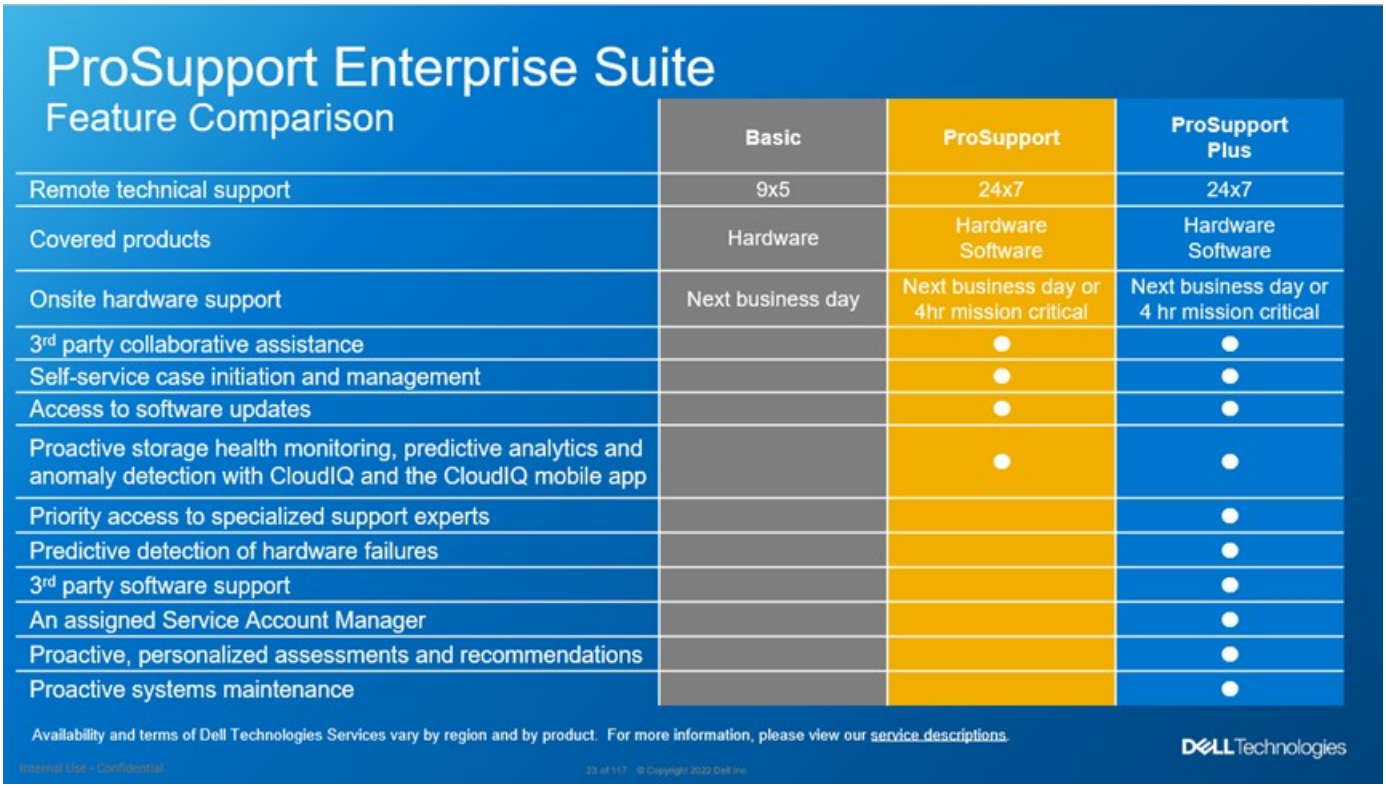

Figure 47. ProSupport Enterprise Suite

Dell ProSupport One for Data Center

ProSupport One for Data Center offers flexible site-wide support for large and distributed data centers with more than 1,000 assets. This offering is built on standard ProSupport components that leverage our global scale but are tailored to a customer's needs. While not for everyone, this service option offers a truly unique solution for Dell Technologies largest customers with the most complex environments.

- Team of assigned Services Account Managers with remote, on-site options
- Assigned ProSupport One technical and field engineers who are trained on the customer's environment and configurations
- On-demand reporting and analytics-based recommendations that are enabled by secure connect gateway and TechDirect
- Flexible on-site support and parts options that fit their operational model
- A tailored support plan and training for their operations staff

Dell ProSupport Add-on for HPC

The ProSupport Add-on for HPC provides solution-aware support including:

- Access to senior HPC experts
- Advanced HPC cluster assistance: performance, interoperability, and configuration
- Enhanced HPC solution level end-to-end support
- Remote presupport engagement with HPC Specialists during ProDeploy implementation

Learn more at Dell.com/HPC-Services.

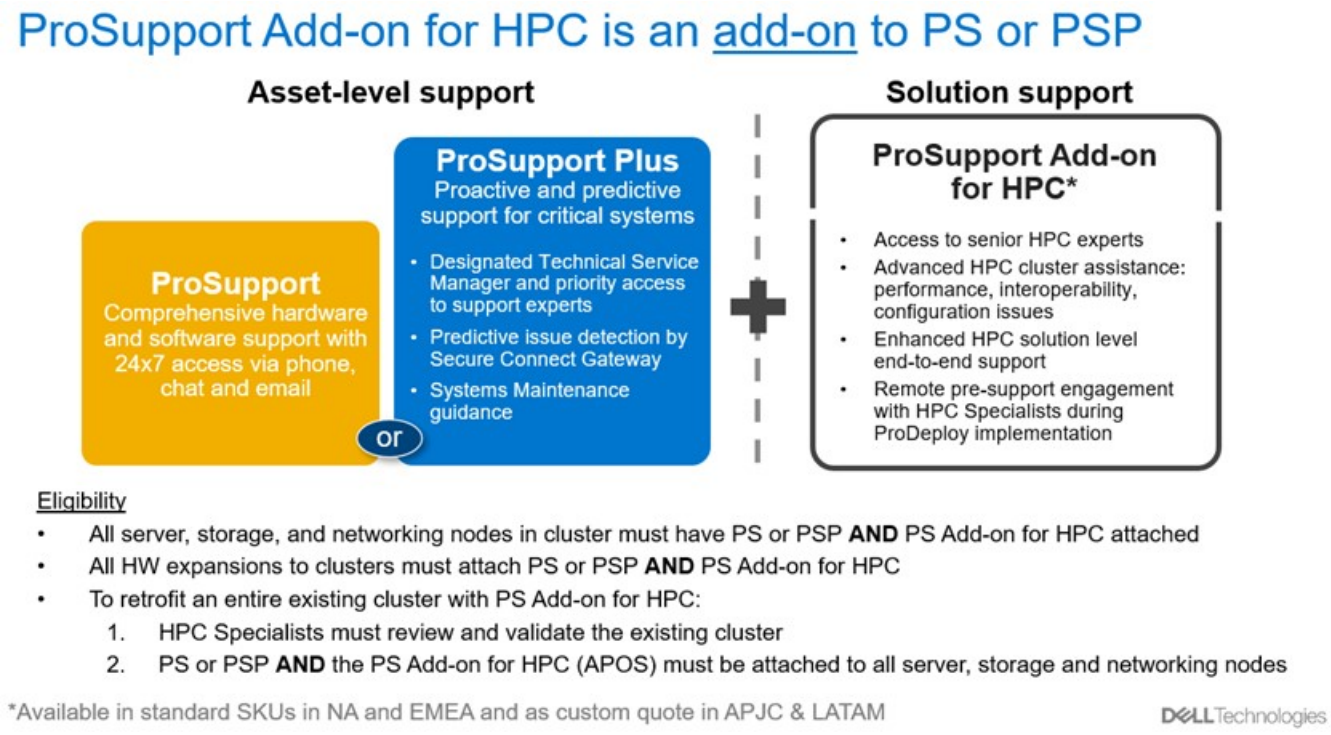

Figure 48. ProSupport Add-on for HPC is an add-on to PS or PSP

Support Technologies

Powering the support experience with predictive, data-driven technologies.

NOTE: SupportAssist Enterprise capabilities are now part of the secure connect gateway technology.

Enterprise connectivity

The best time to solve a problem is before it happens. The automated proactive and predictive support features enabled by the secure connect gateway technology helps reduce steps and time to resolution, often detecting issues before they become a crisis. The gateway technology is available in virtual and application editions. It is also implemented as a direct connect version for select Dell hardware and a Services plugin within OpenManage Enterprise for PowerEdge servers. The legacy SupportAssist Enterprise solution has been retired and is now replaced by the secure connect gateway solutions.

Benefits include:

- Value: Our connectivity solutions are available to all customers at no additional charge
- Improve productivity: Replace manual, high-effort routines with automated support
- Accelerate time to resolution: Receive issue alerts, automatic case creation, and proactive contact from Dell experts
- Gain insight and control: Optimize enterprise devices with insights in portals reporting like TechDirect, and get predictive issue detection before the problem starts

NOTE: Connect devices can access these features. Features vary depending on the service level agreement for the connected device. ProSupport Plus customers experience the full set of automated support capabilities.

Table 63. Features enabled by connectivity

—	Basic hardware warranty	ProSupport	ProSupport Plus
Automated issue detection and system state information collection	Supported	Supported	Supported
Proactive, automated case creation and notification	Not supported	Supported	Supported

Table 63. Features enabled by connectivity (continued)

—	Basic hardware warranty	ProSupport	ProSupport Plus
Predictive issue detection for failure prevention	Not supported	Not supported	Supported

Get started at DellTechnologies.com/secureconnectgateway.

Dell TechDirect

TechDirect helps boost IT team productivity when supporting Dell systems.

Boost your productivity with online servoce for Dell products from TechDirect. From deployment to technical support, TechDirect lets you do more with less effort and faster resolution. You can:

- OPen and manage support requests or in-warranty systems
- Execute online self-service for parts dispatch
- Collaborate on ProDeploy infrastructure deployment projects online
- Manage proactive and preditive alerts from secure connect gateway technology that help maximize uptime
- Integrate services functionality into your help desk with TechDirect APIs
- Join over 10,000 companies that choose TechDirect

Register at TechDirect.Dell.com.

Dell Technologies Consulting Services

Our expert consultants help customers transform faster, and quickly achieve business outcomes for the high value workloads Dell PowerEdge systems can handle. From strategy to full-scale implementation, Dell Technologies Consulting can help determine how to perform IT, workforce, or application transformation. We use prescriptive approaches and proven methodologies that are combined with portfolio and partner ecosystem of Dell Technologies to help achieve real business outcomes. From multi cloud, applications, DevOps, and infrastructure transformations, to business resiliency, data center modernization, analytics, workforce collaboration, and user experiences-we are here to help.

Dell Managed Services

Some customers prefer Dell to manage the complexity and risk of daily IT operations, Dell Managed Services utilizes proactive, AI enabled delivery operations and modern automation to help customers realize desired business outcomes from their infrastructure investments. With these technologies, our experts run, update and fine-tune customer environments aligned with service levels, while providing environment-wide and down-to-the-device visibility. There are two types of managed service offers. First the outsourcing model or CAPEX model where Dell manages the customer owned assets using our people and tools. The second is the as-a-Service model or OPEX model called APEX. In this service, Dell owns all technology and all the management of it. Many customers will have a blend of the two management types depending on the goals of the organization.

Figure 49. Dell Managed Services

Dell Technologies Education Services

Build the IT skills required to influence the transformational outcomes of the business. Enable talent and empower teams with the right skills to lead and perform transformational strategy that drives competitive advantage. Leverage the training and certification required for real transformation.

Dell Technologies Education Services offers PowerEdge server training and certifications that are designed to help customers achieve more from their hardware investment. The curriculum delivers the information and the practical, firsthand skills that their team must confidently install, configure, manage, and troubleshoot Dell servers.

To learn more or register for a class today, see Education.Dell.com.