Dell PowerEdge XE9780

Technical Guide

DELL Technologies

Notes, cautions, and warnings

(i) **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

System overview

The Dell PowerEdge XE9780 is Dell's latest 2-socket, 10U air-cooled rack server that is designed to train the most demanding ML/DL large models.

The system features:

- Two 6thGeneration Intel® Xeon® Scalable Processors (up to 86C/350 W processor).
- Up to 32 DDR5 DIMM slots.
- Five standard cold-swap cooling fans on the mid tray for the HPM sled, and 15 standard hot-swap cooling fans on the rear of the system that is installed in the cooling fan sled designed to provide cooling for the GPU sled.
- Up to 4 x 150 W Gen5 x16 FHHL PCIe slots with 8 x NVIDIA B300 GPU configuration or up to 12 (8 x 75 W, 4 x up to 150 W) Gen5 x16 FHHL slots with 8 x NVIDIA B200 GPU configuration.
- Up to 16 x E3.S Gen5 NVMe direct drives or up to 10 x U.2 Gen5 NVMe SSD drives(pRTS).
- Eight NVIDIA HGX B300 NVL8 270 GB 1100W SXM6 GPUs, fully interconnected with NVIDIA NVLink technology or Eight NVIDIA HGX B200 180 GB 1000W SXM6 GPUs, fully interconnected with NVIDIA NVLink technology

Topics:

- Key workloads
- New technologies

Key workloads

The versatile XE9780 is designed to train the most demanding ML/DL large models including:

- Generative AI Training and Fine-Tuning
- Large natural language processing models, recommendation engines, speech recognition models, conversational AI, chatbots, and digital humans
- AI/ML/DL Training - especially large model training with large datasets
- HPC - Accelerate compute and simulation workloads

New technologies

Table 1. New technologies

Technology	Detailed Description
6th Generation Intel® Xeon® Scalable Processor	Core count: Up to 86 core per processor
	UPI speed: Up to 4 x UPIs/socket @ speeds up to 24 GT/s
	Maximum number of PCIe lanes per CPU: Up to 192 lanes of PCIe Gen5 for two-socket server design and up to 136 lanes for one-socket server designs.
	Maximum TDP: 500 W
6400 MT/s DDR5 Memory	Maximum 16 DIMM slots per processor, eight channels
	Supports up to 6400 MT/s (1 DPC) / 5200 MT/s (2 DPC)
Flex I/O	8x CX-8 OSFP with B300 GPU
	Front I/O with: ● 2 x dedicated iDRAC RJ45 ports ● 1 x OCP 3.0 Gen5 x8 ● 1 x BOSS-N1 DC-MHS with 2 x M.2 SSDs

Table 1. New technologies (continued)

Technology	Detailed Description
	• 1 x Type C USB port on right control panel • 1 x USB 2.0 on left control panel • 1 x Mini-DisplayPort on left control panel
iDRAC 10	The embedded systems management solution for Dell servers features hardware and firmware inventory and alerting, in-depth memory alerting, faster performance, a dedicated gigabit port and many more features. The iDRAC direct Type C USB port can be used by connecting Dell USB-C to 2.5 Gbps Ethernet Adapter dongle (DP/N : HYRGV). Once connected, laptop would be assigned IP 169.254.0.4 automatically and user will now be able to access idrac webGUI/ssh. ⓘ **NOTE:** To configure the Type-C USB port as iDRAC management port see iDRAC10 User Guide.
Accelerator	Eight NVIDIA HGX B300 NVL8 270 GB 1100W SXM6 GPUs, fully interconnected with NVIDIA NVLink technology
	Eight NVIDIA HGX B200 180GB 1000W SXM6 GPUs, fully interconnected with NVIDIA NVLink technology
Storage controller	Direct attached PCIe only
Power Supplies	73.5mm x185mm dimension
	• 12 Titanium 3200 W AC PSUs at 54 V

System features

The following table shows the features of the PowerEdge XE9780 with XE9680.

Table 2. Features

Features	PowerEdge XE9780	PowerEdge XE9680
Processors	Two 6thGeneration Intel® Xeon® Scalable Processors with up to 86 cores	- Two 5th Generation Intel Xeon Scalable processors with up to 64 cores or - Two 4th Generation Intel Xeon Scalable processors with up to 56 cores
Memory	DIMM Speed - Up to 6400 MT/s (1 DPC) - Up to 5200 MT/s (2 DPC) Memory Type - RDIMM Memory module slots 32 DDR5 DIMM slots - Supports DDR5 registered DIMMs (RDIMMs) slots Maximum RAM - RDIMM 4 TB max (If 256 GB is supported, then the max is 8 TB) post RTS	DIMM Speed - For 5th Generation Intel Xeon Scalable processors - Up to 5600 MT/s (1 DPC) - Up to 4400 MT/s (2 DPC) - For 4th Generation Intel Xeon Scalable processors - Up to 4800 MT/s (1 DPC) - Up to 4400 MT/s (2 DPC) Memory Type - RDIMM Memory module slots 32 DDR5 DIMM slots - Supports DDR5 registered DIMMs (RDIMMs) slots Maximum RAM - RDIMM 4 TB
Storage Controllers	Direct-attach PCIe SSD's only	- PERC12 (SAS4/SATA) - Internal Boot: Boot Optimized Storage Subsystem (NVMe BOSS-N1): HWRAID 2 x M.2 SSDs ⓘ **NOTE:** The XE9680-Gaudi3 configuration does not support PERC H965i or Software RAID.
Drive Bays	16 x E3.S EDSFF direct from PSB (x4 Gen5) 10 x U.2 Gen5 NVMe direct from PSB (post RTS)	Front bays: 16 x E3.S EDSFF direct from PSB (x4 Gen5) 8 x U.2 SAS/SATA with fPERC 8 x U.2 NVME direct from PSB ⓘ **NOTE:** The XE9680-Gaudi3 configuration supports only 8 x 2.5-inch NVMe SSD drives.
Power Supplies	3200 W AC Titanium	3200 W AC Titanium (available only in the US & Canada) 3000 W AC Titanium (Multi-rated, supports only XE9680-Gaudi3 configuration) 2800 W AC Titanium
Cooling Options	Air Cooling	Air Cooling
Fans	15 Standard grade GPU fans, All are hot swap fans	High performance (HPR) Gold fans

Table 2. Features (continued)

Features	PowerEdge XE9780	PowerEdge XE9680
	5 Standard grade CPU fans, All are cold swap fans	Six HPR fans on mid tray and Ten HPR GPU fans on the rear of the system (twelve rear GPU fans with Intel Gaudi3)
Dimension	Height: 439.5 mm (17.30 inches)	Height: 263.2 mm (10.36 inches)
	Width: 448.0 mm (17.63 inches)	Width: 482.0 mm (18.97 inches)
	Depth: 1044.7 mm (41.12 inches) with bezel	Depth: 1008.77 mm (39.71 inches) with bezel
	1023 mm (40.27 inches) without bezel	995 mm (39.17 inches) without bezel
Form Factor	10U rack server	6U rack server
Embedded Management	- iDRAC10 - iDRAC Direct - iDRAC RESTful with Redfish - iDRAC Service Manual The iDRAC direct Type C USB port can be used by connecting Dell USB-C to 2.5 Gbps Ethernet Adapter dongle (DP/N : HYRGV). Once connected, laptop would be assigned IP 169.254.0.4 automatically and user will now be able to access idrac webGUI/ssh. ⓘ **NOTE:** To configure the Type-C USB port as iDRAC management port see iDRAC10 User Guide.	- iDRAC9 - iDRAC Direct - iDRAC RESTful with Redfish - iDRAC Service Manual
Bezel	Optional front bezel or security bezel	Optional LCD bezel or security bezel
OpenManage Software	- CloudIQ for PowerEdge plug-in - OpenManage Enterprise (post RTS) - OpenManage Power Manager plug-in (post RTS) - OpenManage Service plug-in (post RTS) - OpenManage Update Manager plug-in (post RTS)	- CloudIQ for PowerEdge plug-in - OpenManage Enterprise - OpenManage Power Manager plug-in - OpenManage Service plug-in - OpenManage Update Manager plug-in
Mobility	Not supported	Not supported
OpenManage Integrations	- BMC TrueSight - OpenManage Integration with ServiceNow - Red Hat Ansible Modules - Terraform Providers	- BMC TrueSight - OpenManage Integration with ServiceNow - Red Hat Ansible Modules - Terraform Providers
Security	- Cryptographically signed firmware - Data at Rest Encryption (SEDs with local or external key mgmt) - Secure Boot - Secured Component Verification (Hardware integrity check) - Secure Erase - Silicon Root of Trust - System Lockdown (requires iDRAC10 Enterprise or Datacenter) - Soldered down TPM on Mezzanine DC-SCM	- Cryptographically signed firmware - Data at Rest Encryption (SEDs with local or external key mgmt) - Secure Boot - Secured Component Verification (Hardware integrity check) - Secure Erase - Silicon Root of Trust - System Lockdown (requires iDRAC9 Enterprise or Datacenter) - TPM 2.0 FIPS, CC-TCG certified, TPM 2.0 China
Embedded NIC	N/A	2 x 1 GbE LOM
Embedded OSFP	8 x OSFP with B300 GPU	6 x 800 Gb (available only with Intel Gaudi3)

Table 2. Features (continued)

Features	PowerEdge XE9780		PowerEdge XE9680	
Networking Options	1 x OCP 2 x dedicated iDRAC RJ45 ports		OCP x8 Mezz 3.0	
GPU Options	• 8 NVIDIA HGX B300 NVL8 270 GB 1100W SXM7 GPUs • 8 NVIDIA HGX B200 180 GB 1000W SXM6 GPUs		• 8x NVIDIA HGX H100/H800 80GB 700W SXM5 GPUs or • 8x NVIDIA HGX H200 141GB 700W SXM5 GPUs or • 8x NVIDIA HGX H20 96GB 500W SXM5 GPUs or • 8x NVIDIA HGX A100 80GB 500W SXM4 GPUs or • 8x AMD INSTINCT MI300X 192GB 750W OAM GPUs or • 8x Intel Gaudi3 128GB 900W OAM GPUs	
Ports	• 1 x iDRAC Direct (USB C) port • 2 x RJ45 dedicated iDRAC Ethernet ports • 1 x USB A • 1 x Mini-DisplayPort	Internal ports • USB 2.0	Front Ports • 1 x USB 2.0 • 1 x iDRAC Direct (Micro-AB USB) port • 1 x VGA	Rear Ports • 1 x USB 2.0 • 1 x iDRAC Direct Ethernet port • 1 x USB 3.0 • 1 x VGA
PCIe	• Up to 4 x Gen5 x16 Full-height, Half-length PCIe slots with NVIDIA B300 GPU configuration • 12 (8 x 75 W, 4 x up to 150 W) Gen5 x16 FHHL slots with NVIDIA B200 GPU configuration		10 Gen5 PCIe slots • 8 x16 Gen5 (x16 PCIe) Full-height, Half-length • 2 x16 Gen5 (x16 PCIe) Full-height, Half-length for SmartNIC/DPU ⓘ **NOTE:** 8 PCIe Gen5 slots with Intel Gaudi3. Slots 33 and 38 are unavailable due to thermal concerns.	

Operating System and Hypervisors	• Canonical Ubuntu Server LTS
	  ○ Supported GPUs: B300, B200
	• Red Hat Enterprise Linux
	  ○ Supported GPUs: B300
			• Canonical Ubuntu Server LTS
			  ○ Supported GPUs: A100, H100, H800, H200, H20, MI300X, Gaudi3
			• Red Hat Enterprise Linux
			  ○ Supported GPUs: A100, H100, H800, H200, H20, MI300X, Gaudi3
			• SUSE Linux Enterprise Server
			  ○ Supported GPUs: A100, H100, H800, H200, H20, MI300X, Gaudi3
			• VMware ESXi
			  ○ Supported GPUs: H100
			For specifications and interoperability details, see Dell Enterprise Operating Systems on Servers, Storage, and Networking page at Dell.com/OSsupport.	

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Chassis views and features

Topics:

*   Chassis views
*   Electronic Piece Part Identification (ePPID)

Chassis views

Front view of the system

Figure 1. 16 x E3.S NVMe Drives and B200 GPUs

Table 3. Features available on the front of the 16 x E3.S NVMe system with B200 GPUs

Item	Ports, panels, and slots	Icon	Description
1	Handle	N/A	Handle used to move the chassis.
2	OCP NIC	N/A	This port supports OCP 3.0.
3	GPU sled	N/A	GPU sled which contains NVIDIA B300 GPUs.
4	iDRAC dedicated RJ45 ports	品	Enables you to remotely access iDRAC. when the front iDRAC ports are connected with the network.
5	Handle	N/A	Handle used to move the chassis.

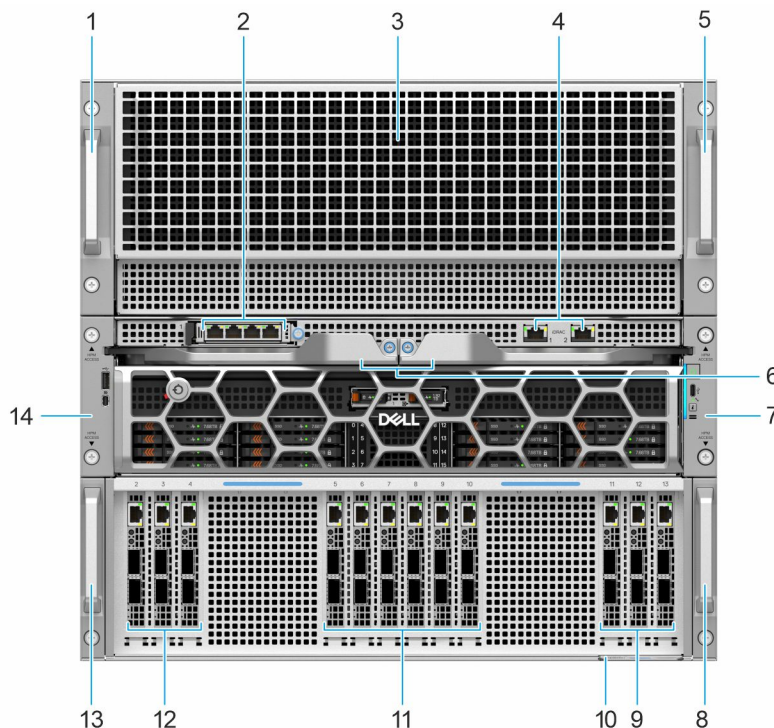| Item	Ports, panels, and slots	Icon	Description
6	CAM handle	N/A	CAM handle enables you to slide the HPM sled out of the chassis.
7	Right control panel	N/A	Contains the system ID, power button, Type-C USB port, and the ambient sensor vent.
8	Handle	N/A	Handle used to move the chassis.
9	PCIe card	N/A	PCIe expansion cards installed on slot 11, 12, 13. ⓘ **NOTE:** For the XE9780 with B300 GPUs, slot 3, 6, 9 and 12 can be used. ⓘ **NOTE:** For XE9780 with B200 GPUs, slots 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 can be used
10	Information tag	N/A	The Express Service Tag is a slide-out label panel that contains system information such as Service Tag, NIC, MAC address, and so on. If you have opted for the secure default access to iDRAC, the Information tag will also contain the iDRAC secure default password.
11	PCIe card	N/A	PCIe expansion cards installed on slot 5, 6 ,7, 8, 9, 10. ⓘ **NOTE:** For the XE9780 with B300 GPUs, slot 3, 6, 9 and 12 can be used. ⓘ **NOTE:** For XE9780 with B200 GPUs, slots 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 can be used
12	PCIe card	N/A	PCIe expansion cards installed on slot 2, 3, 4. ⓘ **NOTE:** For the XE9780 with B300 GPUs, slot 3, 6, 9 and 12 can be used. ⓘ **NOTE:** For XE9780 with B200 GPUs, slots 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 can be used
13	Handle	N/A	Handle used to move the chassis.
14	Left control panel (LCP)	N/A	Contains the USB port and Mini-Displayport.

Figure 2. 16 x E3.S NVMe Drives and B300 GPUs

Table 4. Features available on the front of the 16 × E3.S NVMe system with B300 GPUs

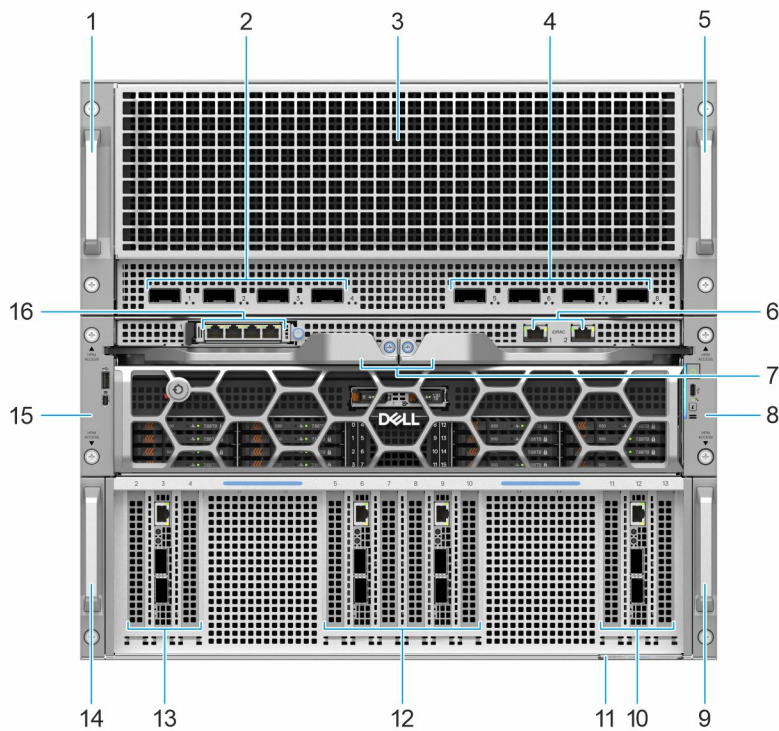| Item	Ports, panels, and slots	Icon	Description
1	Handle	N/A	Handle used to move the chassis.
2	OSFP ports	N/A	OSFP ports for communication.
3	GPU sled	N/A	GPU sled which contains NVIDIA B300 GPUs.
4	OSFP ports	N/A	OSFP ports for communication.
5	Handle	N/A	Handle used to move the chassis.
6	iDRAC dedicated RJ45 ports	🖧	Enables you to remotely access iDRAC. when the front iDRAC ports are connected with the network.
7	CAM handle	N/A	CAM handle enables you to slide the HPM sled out of the chassis.
8	Right control panel	N/A	Contains the system ID, power button, Type-C USB port, and the ambient sensor vent.
9	Handle	N/A	Handle used to move the chassis.
10	PCIe blank and PCIe cards	N/A	Blank filler for the PCIe expansion cards. ⓘ **NOTE:** For the XE9780 with B300 GPUs, slot 3, 6, 9 and 12 can be used. ⓘ **NOTE:** For XE9780 with B200 GPUs, slots 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 can be used
11	Information tag	N/A	The Express Service Tag is a slide-out label panel that contains system information such as Service Tag, NIC, MAC address, and so on. If you have opted for the secure default access to iDRAC, the Information tag will also contain the iDRAC secure default password.
12	PCIe blank and PCIe cards	N/A	Blank filler for the PCIe expansion cards.

Table 4. Features available on the front of the 16 x E3.S NVMe system with B300 GPUs (continued)

Item	Ports, panels, and slots	Icon	Description
			ⓘ **NOTE:** For the XE9780 with B300 GPUs, slot 3, 6, 9 and 12 can be used.
			ⓘ **NOTE:** For XE9780 with B200 GPUs, slots 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 can be used
13	PCIe blank and PCIe cards	N/A	Blank filler for the PCIe expansion cards. ⓘ **NOTE:** For the XE9780 with B300 GPUs, slot 3, 6, 9 and 12 can be used. ⓘ **NOTE:** For XE9780 with B200 GPUs, slots 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 can be used
14	Handle	N/A	Handle used to move the chassis.
15	Left control panel (LCP)	N/A	Contains the USB port and Mini-Displayport.
16	OCP NIC	N/A	This port supports OCP 3.0.

Rear view of the system
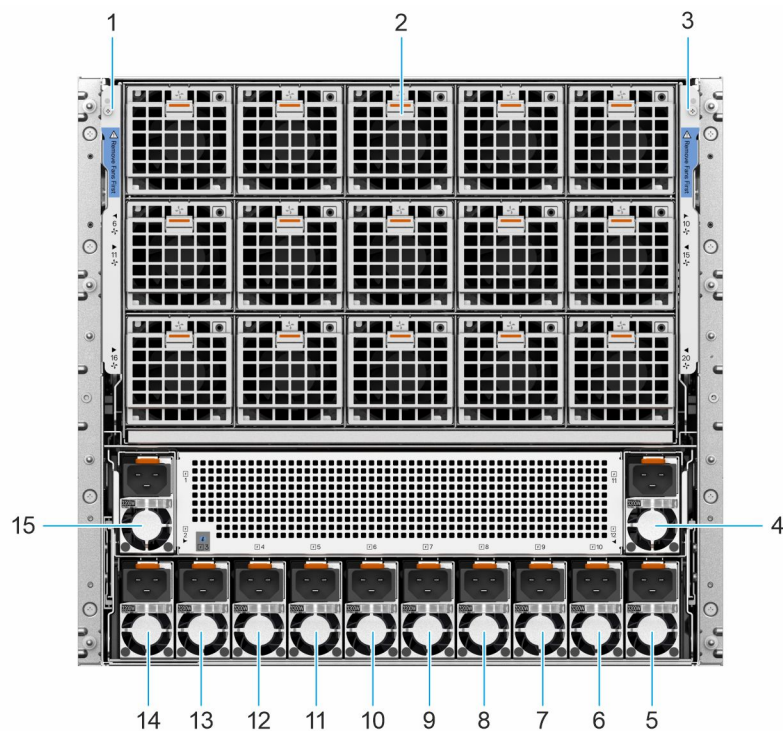
Figure 3. XE9780 system rear view

Table 5. Rear view of the system

Item	Ports, panels, or slots	Icon	Description
1	GPU fan cage handle	N/A	GPU fan cage that houses the GPU cooling fans. ⓘ **NOTE:** The screws need to be removed in order to pull the GPU handle which enables to remove the GPU fan sled.
2	GPU cooling fan	N/A	Used to cool the GPU sled.

Table 5. Rear view of the system (continued)

Item	Ports, panels, or slots	Icon	Description
3	GPU fan cage handle	N/A	GPU fan cage that houses the GPU cooling fans. ⓘ **NOTE:** The screws need to be removed in order to pull the GPU handle which enables to remove the GPU fan sled.
4	Power supply unit (PSU) 11	⚡	PSU 11 of the system
5	Power supply unit (PSU) 12	⚡	PSU 12 of the system
6	Power supply unit (PSU) 10	⚡	PSU 10 of the system
7	Power supply unit (PSU) 9	⚡	PSU 9 of the system
8	Power supply unit (PSU) 8	⚡	PSU 8 of the system
9	Power supply unit (PSU) 7	⚡	PSU 7 of the system
10	Power supply unit (PSU) 6	⚡	PSU 6 of the system
11	Power supply unit (PSU) 5	⚡	PSU 5 of the system
12	Power supply unit (PSU) 4	⚡	PSU 4 of the system
13	Power supply unit (PSU) 3	⚡	PSU 3 of the system
14	Power supply unit (PSU) 2	⚡	PSU 2 of the system
15	Power supply unit (PSU) 1	⚡	PSU 1 of the system

Inside the system
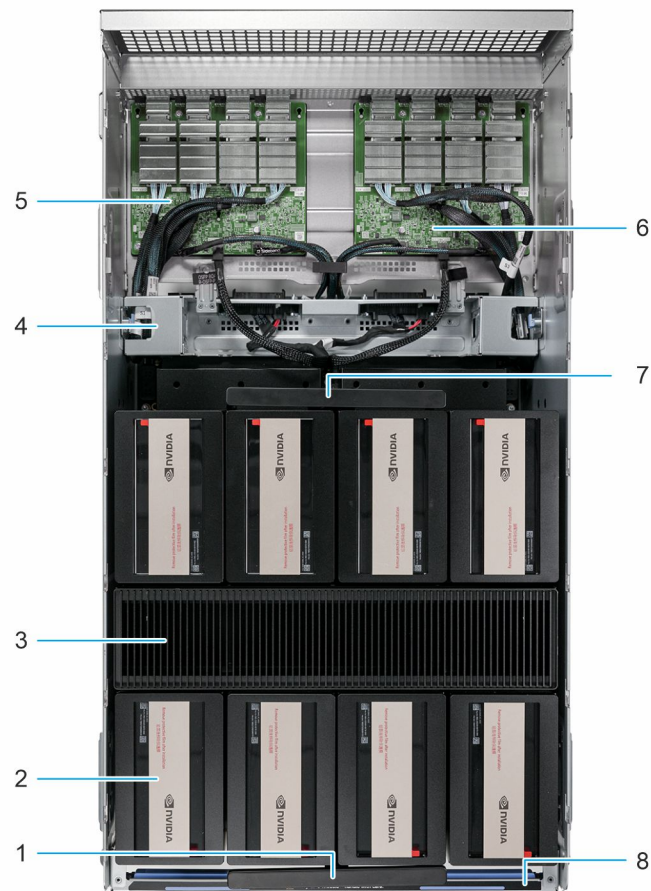
Figure 4. XE9780 system with B300 GPU

1. GPU Baseboard handle
3. NVSwitch cover
5. OSFP board with cable assemby
7. GPU Baseboard handle

2. B300 GPU heatsink
4. Panel mount bracket support tray
6. OSFP board with cable assemby
8. GPU sled
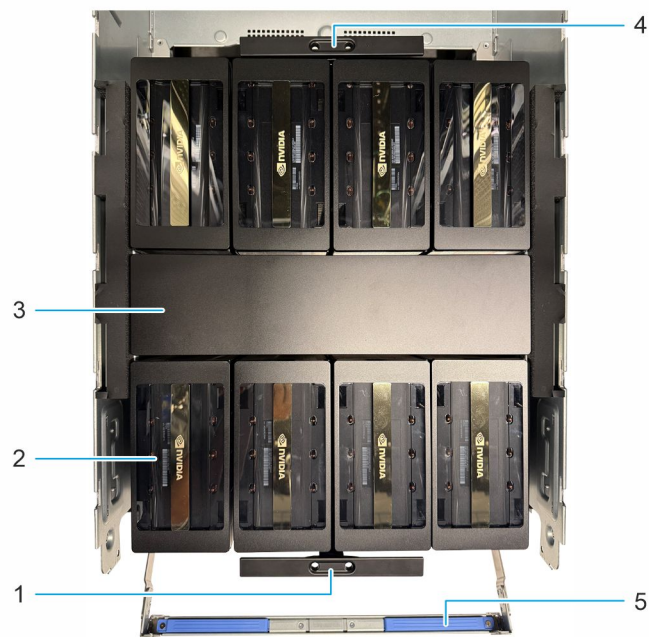
Figure 5. Inside view of the XE9780 with B200 GPU sled

1. GPU Baseboard handle
2. B200 GPU heatsink
3. NVSwitch cover
4. GPU Baseboard handle
5. CAM lever for GPU sled
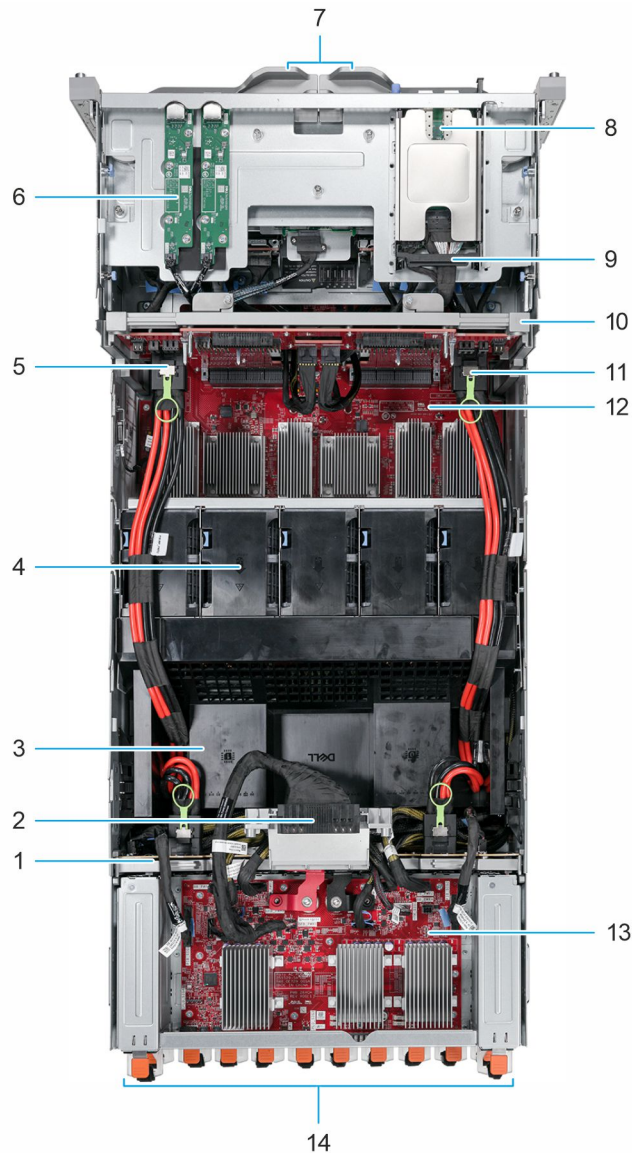
Figure 6. XE9780 HPM sled - inside the system

1. Power Interposer Board (PIB)
2. GPU Fan Panel Mount Cable
3. Air shroud
4. Cooling fan cage assembly
5. Busbar cable
6. iDRAC RJ-45 dedicated ports
7. CAM lever to remove the HPM sled
8. OCP NIC
9. OCP tray
10. Midplane
11. Busbar cable
12. PCIe Switch Retimer Base Board (PSRBB)
13. Power Distribution Board (PDB)
14. Power supply units (12)

Electronic Piece Part Identification (ePPID)

System components may contain non-volatile storage that is programmed with unique piece part identification information. This implementation is referred to as electronic Piece Part Identification (ePPID). When possible, the system collects this information and makes it available for viewing by customers and/or service personnel.

ePPID includes the following information:

● Dell Part Number (DPN)
● Part Revision Level
● Country of Origin
● Supplied ID Code

- Date Code (Date of Manufacture)
- Unique Sequence Number

Processor

Topics:

• Processor features

Processor features

The 6th Generation Intel® Xeon® Scalable Processor stack is the next-generation data center processor offering improved performance, standard increased memory speeds, expanded UPI speeds and enhanced security.

The following lists the features and functions that are in the 6th Generation Intel® Xeon® Scalable Processor offering:

- Increased core counts with up to 144 per processor
- Eight channels of DDR5
- Up to four 24-lane (x24) bidirectional Intel® UPI 2.0 ports with speeds up to 24 GT/s
- Memory Innovation - Flexible Memory Subsystem for Emerging Workloads
  - DDR5 - efficient bandwidth, lower latency Storage, and I/O Performance - Platform I/O Bandwidth
- Storage and I/O Performance - Platform I/O bandwidth and RAS for storage
  - 32-GT/s PCIe 5.0 and CXL 2.0 (RTS1.2) on CPU over Intel® Flex Bus
  - x2 PCIe bifurcation capability
  - 58 GT/s local, 37 GT/s remote PCIe P2P
  - Share Virtual Memory Support
  - Intel® Scalable I/O Virtualization (Intel® Scalable IOV
- Package
  - Intel socket E2:4710 pins Processor socket

Supported processors

The following table shows the Intel Granite Rapids(6th Generation Intel® Xeon® Scalable Processors) SKUs that are supported on the XE9780.

Table 6. 6th Generation Intel® Xeon® Scalable Processors for XE9780

Processor	Core count	Clock Speed (GHz)	Cache (M)	UPI (GT/s)	Threads	Turbo	Memory Speed (MT/s)	Memory Capacity	TDP
6787P	86	2	336	24	172	Turbo	6400	4 TB	350 W
6767P	64	2.4	336	24	128	Turbo	6400	4 TB	350 W
6747P	48	2.7	288	24	96	Turbo	6400	4 TB	330 W
6776P	64	2.3	336	24	128	Turbo	6400	4 TB	350 W

Memory subsystem

Topics:

• Supported memory

Supported memory

Table 7. Memory technology

Feature	PowerEdge XE9780 (DDR5)
DIMM type	RDIMM

Transfer speed	• For 6th Generation Intel Xeon Scalable processors
	  ○ Up to 6400 MT/s (1 DPC)
	  ○ Up to 5200 MT/s (2 DPC)

Voltage	1.1 V

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

Table 8. Supported memory configuration speed

Memory module sockets	CPUs	Speed	GPUs
32, 288-pin	6th Generation Intel® Xeon® Scalable Processors	6400 MT/s 1DIMM per channel, 5200 MT/s 2DIMMs per channel	B300
			B200

NVIDIA design guide require the minimum total memory capacity for Server with 8-way GPU

• B200 GPU: the minimum total memory capacity must greater than 1TB per system
• B300 GPU: the minimum total memory capacity must greater than 2TB per system

The following table lists the supported DIMMs for the XE9780. For the latest information about supported memory and memory configurations, reference the latest SDL.

Table 9. Supported DIMMs

DIMM PN	DIMM Speed (MT/s)	DIMM Type	DIMM Capacity (GB)	Ranks per DIMM	Data Width	DIMM Volts (V)
N66RP	6400	RDIMM	64	2	x4	1.1
JRGVT	6400	RDIMM	96	2	x4	1.1
9C0R6	6400	RDIMM	128	2	x4	1.1

Storage

Topics:

- Drives
- Internal storage configuration

Drives

The PowerEdge XE9780 system supports:

- 16 x E3.S Gen5 NVMe direct SSD drives
- 10 x U.2 Gen5 NVMe SSD drives (pRTS).

Internal storage configuration

Table 10. Internal Storage Configuration Matrix [NVIDIA GPUs]

Supported Options	Total HDD/ SSD (not BOSS)	NVMe	Front Storage	Rear Storage	PERC Qty	Storage Controller	CPU Qty
C01	16	Yes	16 x E3.S NVMe direct attached (S160)	N/A	0	Software RAID S160	2 CPU
C02	10	Yes	10 x 2.5-inch Gen 5 U.2 NVMe	N/A	0	Software RAID S160	2 CPU

Networking

Topics:

- Overview
- OCP 3.0 support

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 11. OCP 3.0 feature list

Feature	OCP 3.0
Form factor	SFF
PCIe Gen	Gen4
Max PCIe width	x8
Max no.of ports	4
Port type	BT/SFP/SFP+/SFP28
Max port speed	200 GbE
NC-SI	Yes
SNAPI	Yes
WoL	Yes
Power consumption	35 W

Supported OCP cards

OCP Cards

Table 12. Supported OCP cards

Form factor	DPN	Vendor	Port type	Port speed	Port count
OCP 3.0	J6CC8	Broadcom	Q56	100 GbE	2
	T635T	Broadcom	QSFP	200 GbE	2
	769PV	NVIDIA	QSFP	100 GbE	2
	YD26W	Broadcom	QSFP	25 GbE	4

Table 12. Supported OCP cards (continued)

Form factor	DPN	Vendor	Port type	Port speed	Port count
	7GGY4	NVIDIA	QSFP	25 GbE	2
	313Y1	Broadcom	QSFP	25 GbE	2
	59JPJ	Broadcom	BT	10 GbE	4
	J80CG	Intel	BT	10 GbE	4
	FC0HK	Intel	BT	10 GbE	2
	MN1T3	Broadcom	QSFP	10 GbE	2

OCP NIC 3.0 vs. rack Network Daughter Card comparisons

Table 13. 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 are SFF (small form factor)
Max PCIe Lanes	x8	Up to x16	Up to x16	See server slot priority matrix
Shared LOM	Yes	Yes	Yes	This is iDRAC port redirect
Aux Power	Yes	Yes	Yes	Used for Shared LOM

OCP form factors
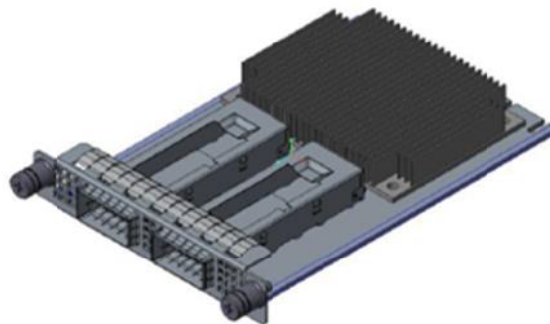
Figure 7. OCP 3.0 Small Card Form Factor (LS)

The process of installing the OCP card in the XE9780 system:

1. Slide the OCP card into the slot in the front of the system.
2. Push until the OCP card is fully connected to the connector on the system board.
3. Close the latch to lock the OCP card to the system.

PCIe subsystem

Topics:

- Slot priority matrix

Slot priority matrix

Table 14. Expansion card configurations for B200 PSBB and B300 PSRBB

Riser Configurations (RC)	Expansion card risers	Number of processors	PERC type supported	Rear storage possible	Upstream from x16 CPU 2 OCP Slot 1	Upstream from x16 CPU 2 PCIe Slot 2	Upstream from x16 CPU 2 PCIe Slot 3	Upstream from x16 CPU 2 PCIe Slot 4	Upstream from x16 CPU 2 PCIe Slot 5	Upstream from x16 CPU 2 PCIe Slot 6	Upstream from x16 CPU 2 PCIe Slot 7	Upstream from x16 CPU 1 PCIe Slot 8	Upstream from x16 CPU 1 PCIe Slot 9	Upstream from x16 CPU 1 PCIe Slot 10	Upstream from x16 CPU 1 PCIe Slot 11	Upstream from x16 CPU 1 PCIe Slot 12	Upstream from x16 CPU 1 PCIe Slot 13
RC0-B300 PSRBB	No Riser	2	N/A	No	1	0	1	0	0	1	0	0	1	0	0	1	0
RC0-B200 PSBB	No Riser	2	N/A	No	1	1	1	1	1	1	1	1	1	1	1	1	1

Table 15. Configuration : PSBB+B200

Card type	Slot priority	Maximum number of cards
NVIDIA Mellanox ConnectX-7, NDR 400G InfiniBand adapter card, 1x OSFP Direct Supply Method (single port)	4, 8, 7, 11, 2, 10, 5, 13, 6, 9, 3,12	12
NVIDIA Mellanox ConnectX-7 200 GB QSFP112 Gen 5.0 (dual port)	4, 8, 7, 11, 2, 10, 5, 13, 6, 9, 3,12	12
Broadcom 1000 BASE-T Adapter 1 GB (quad port)	4, 8, 7, 11, 2, 10, 5, 13, 6, 9, 3,12	12
Broadcom BCM 5719 PCIe adapter 1 GB (quad port)	4, 8, 7, 11, 2, 10, 5, 13, 6, 9, 3,12	12
Broadcom OCP 3.0 25 GB (dual port)	1	1
Broadcom OCP 3.0 1 GB (quad port)	1	1
NVIDIA GPU 1000 W AC QB	21, 22, 23, 24, 25, 26, 27, 28	8
NVIDIA GPU 1000 W AC	21, 22, 23, 24, 25, 26, 27, 28	8
BOSS DC-MHS	Integrated	1

Table 16. Configuration : PSRBB+B300

Card type	Slot priority	Maximum number of cards
NVIDIA B300 accelerator	21, 22, 23, 24, 25, 26, 27, 28	8

Table 16. Configuration : PSRBB+B300 (continued)

Card type	Slot priority	Maximum number of cards
NVIDIA DPU FH 200GB	6, 9, 3, 12	4
NVIDIA DPU FH 400GB (post RTS)	6, 9, 3, 12	4
NVIDIA OSFP NIC: 400G NDR	6, 9, 3, 12	4
Broadcom NIC 200 GB (dual port)	6, 9, 3, 12	4
NVIDIA NIC 400GB (single port), 100 GB (dual port)	6, 9, 3, 12	4
Intel NIC 100 GB (dual port)	6, 9, 3, 12	4
Broadcom NIC 100 GB (dual port)	6, 9, 3, 12	4
Broadcom OCP 3.0 200 GB (dual port)	1	1
Broadcom OCP 3.0 100 GB (dual port)	1	1
Intel OCP 3.0 100 GB (dual port)	1	1
NVIDIA OCP 3.0 100 GB (dual port)	1	1
Broadcom OCP 3.0 25 GB (dual port)	1	1
NVIDIA OCP 3.0 25 GB (dual port)	1	1
Intel OCP 3.0 25 GB (dual port)	1	1
Intel OCP 3.0 25 GB (quad port)	1	1
Broadcom OCP 3.0 25 GB (quad port)	1	1
Broadcom OCP 3.0 10 GB (dual port)	1	1
Intel OCP 3.0 10 GB (dual port) (post RTS)	1	1
Intel OCP 3.0 10 GB (quad port)	1	1
Broadcom OCP 3.0 (quad port) 10 GB	1	1

For add-in cards that can be mapped to the XE9780 and guidelines for installing expansion cards, see the XE9780 slot priority matrix file on Sales Portal

Power, thermal, and acoustics

PowerEdge servers have an extensive collection of sensors that automatically track thermal activity, which helps regulate temperature thereby 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
* Thermal
* Acoustics

Power

Table 17. Power tools and technologies
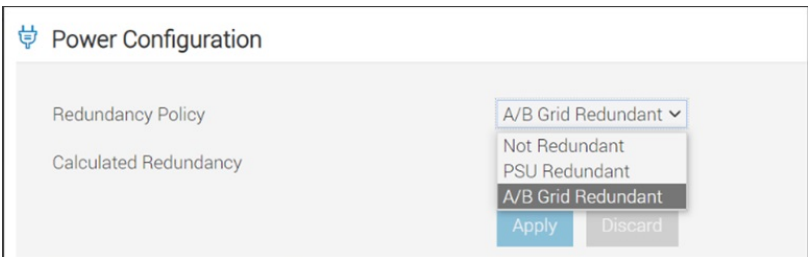
Feature	Description
Power Supply Units(PSU) portfolio	Dell's PSU portfolio includes intelligent features such as dynamically optimizing efficiency while maintaining availability and redundancy. Find additional information in the Power supply units section.
PSU redundancy options	- Full redundant (6+6) FR (System can get full performance) - A/B Grid Redundant (Supported in power configuration of iDRAC GUI) **Figure 8. PSU redundancy options**
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 Enterprise Infrastructure Planning Tool.
Industry Compliance	Dell's servers are compliant with all relevant industry certifications and guide lines, including 80 PLUS.
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.

Table 17. Power tools and technologies (continued)

Feature	Description
	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.
Fresh Air cooling	Refer to ASHRAE A3/A4 Thermal Restriction.
Rack infrastructure	Dell offers some of the industry's highest-efficiency power infrastructure solutions, including: ● Power distribution units (PDUs) ● Uninterruptible power supplies (UPSs) ● Energy Smart containment rack enclosures Find additional information at: Power and Cooling.

The power cap policy setting in the iDRAC configuration page controls CPU-related power consumption. In XE9780 systems, most of the power is consumed by GPU which cannot be controlled by this setting. Enabling the power cap feature will drive the CPU to run at very low or lowest frequency speed.

ⓘ **NOTE:** Dell recommends user to not enable Power Cap feature in the iDRAC configuration page for XE9780 systems.

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 XE9680.

Table 18. PSU specifications for the PowerEdge XE9780system

PSU	Power Rating	Class	Heat dissipation (maximum)	Frequency	Voltage	Current
3200 W Mixed Mode (Multi-rated)	3200 W	Titanium	11,850 BTU/hr	50/60 Hz	216.1 V AC–240 V AC	16.0 A
	N/A	N/A	11,850 BTU/hr	N/A	240 V DC	14.5 A
	2900 W	N/A	10,750 BTU/hr	50/60 Hz	200 V AC–216 V AC	16.0 A

The PowerEdge XE9780 supports up to 12 AC or DC power supplies with 6+6 redundancy, autosensing, and auto-switching capability.

To determine how much power each PSU delivers, the total system power requirement is divided by the number of PSUs in the system. For detailed power usage information, please refer to the iDRAC web GUI for real-time power metrics and system monitoring.
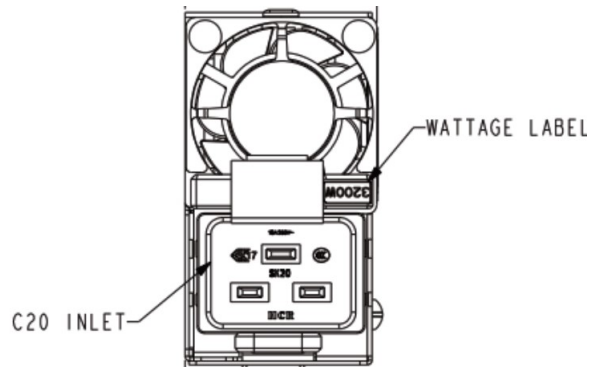
Figure 9. C20 PSU inlet connector

ⓘ **NOTE:** When selecting or upgrading the system configuration, to ensure optimum power utilization, verify the system power consumption with the Enterprise Infrastructure Planning Tool available at calc.

Table 19. C20 Input connector

Form Factor	Output	Power cord
Redundant 73.5 mm	3200 W 54 V	C19

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 10. Thermal design characteristics

The thermal design of the PowerEdge XE9780 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, chipsets, 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. A 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 a 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 XE9780 Installation and Service Manual at PowerEdge Manuals and "Advanced Thermal Control: Optimizing across Environments and Power Goals" on Dell.com.
- Cooling redundancy: The PowerEdge XE9780 fan module is two rotors design. Support fan redundancy at single fan module level, allowing continuous operation with one rotor failure in the system.
- Environmental Specifications: The optimized thermal management makes the PowerEdge XE9780 reliable under a wide range of operating environments.

Thermal restriction matrix

Table 20. Thermal Restriction Matrix- 6th Generation Intel® Xeon® Processors

Configuration					E3.S x16	
Component	Processor	cTDP	Cores	Part number	B300 + 4 x PCIe card + 8 x OSFP	B200 +12 x PCIe card
CPU	Intel GNR-SP 6787P	350 W	86	7FRX4	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
	Intel GNR-SP 6767P	350 W	64	KJWD6	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
	Intel GNR-SP 6747P	330 W	48	92C7P	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
	Intel GNR-SP 6776P	350 W	64	7RCHW	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
Memory			64GB RDIMM 6400 MT/s		2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
			96GB RDIMM 6400 MT/s		2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
			128GB RDIMM 6400 MT/s		2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
DPU			B3220		STD fan	-
			B3240		STD fan	-
GPU			NVIDIA B300 1100W 8-way		STD Fan	-
			NVIDIA B200 1000W 8-way		-	STD Fan

Other Thermal Restrictions

Configurations that support ASHRAE A3 and A4 are not available.

A PCIe blank (DPN: GYP32) is required if no PCIe card is installed in any slot.

A low-profile block is required when installing a low-profile card.

DIMM blanks are required if fewer than 16 DIMMs are installed.

M.2, OCP, and HDD blanks are required if the corresponding components are not installed.

GPU fans are hot-swappable and must be reinstalled within 30 seconds.

Acoustics

Acoustical design

Dell PowerEdge delivers sound quality and smooth transient response in addition to sound power levels and sound pressure levels that are oriented to deployment environments.

The acoustical design of the platform includes the following features:

Dell PowerEdge delivers sound quality and smooth transient response in addition to sound power levels and sound pressure levels that are oriented to deployment environments. Sound quality describes how disturbing or pleasing a person finds a sound, as a function of various psychoacoustical metrics and thresholds. Tone prominence is one such metric. Transient response refers to how sound changes with time. Sound power level, sound pressure level, and loudness refer to amplitude of sound.

A reference for comparison to sound pressure levels and loudness for familiar noise sources is given in the table below.

ⓘ **NOTE:** The Sound Cap feature is not supported; therefore, this option is not available in the BIOS setup menu.

Table 21. Acoustical Reference Points and Output Comparisons

Value measured at your ears	Equivalent familiar noise experience
LpA, dBA, re 20μPa	
90	Loud concert
75	Data center vacuum cleaner, voice must be elevated to be heard
60	Conversation levels
45	Whispering, open office layout, normal living room
35	Quiet office
30	Quiet library
20	Recording studio

For more information about PowerEdge acoustical design and metrics, see Understanding Acoustical Data and Causes of Sound in Dell Enterprise Products.

PowerEdge acoustical dependencies

PowerEdge acoustical dependencies are impacted by features such as ambient temperature, processor thermal design power, and system thermal profile selection.

Some product features impact acoustical server output more than others. The following features are considered strong drivers of acoustical response, thus configurations, or operating conditions that include these features may increase air mover speed and acoustical output of the server:

● Ambient temperature: Dell evaluates the acoustical performance of servers in a 23±2°C environment. Ambient temperatures more than 25°C has higher acoustical output and may experience larger fluctuations between state changes.
● GPU and Processor thermal design power (TDP): Higher-wattage GPUs and processors may require more airflows to cool under load and thus increase the potential acoustical output of the system.

Rack, rails, and cable management

Topics:

- Rails and cable management information

Rails and cable management information

The rail offerings for the PowerEdge XE9780 consist of only one type which is static. The cable management arm is not supported.

See the *Dell Enterprise Systems Rail Sizing and Rack Compatibility Matrix* available at rail-rack-matrix for information regarding:

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

Key factors governing proper rail selection include the following:

- Identifying the type of rack in which they will be installed.
- The spacing between the front and rear mounting flanges of the rack.
- The type and location of any equipment that is mounted in the back of the rack such as power distribution units (PDUs), and the overall depth of the rack.
- Overall depth of the rack

(i) **NOTE:** The XE9780 supports IR5000 series rack with up to four air cooled PowerEdge XE9780 servers in IR5048 and IR5052 racks.

Rack Installation

Installing the rail for round and square hole racks
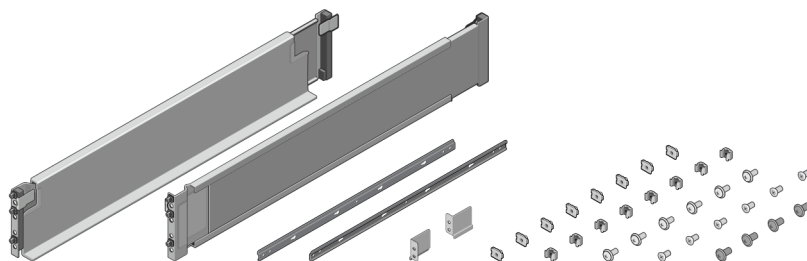
Figure 11. Rail components for round and square hole rack
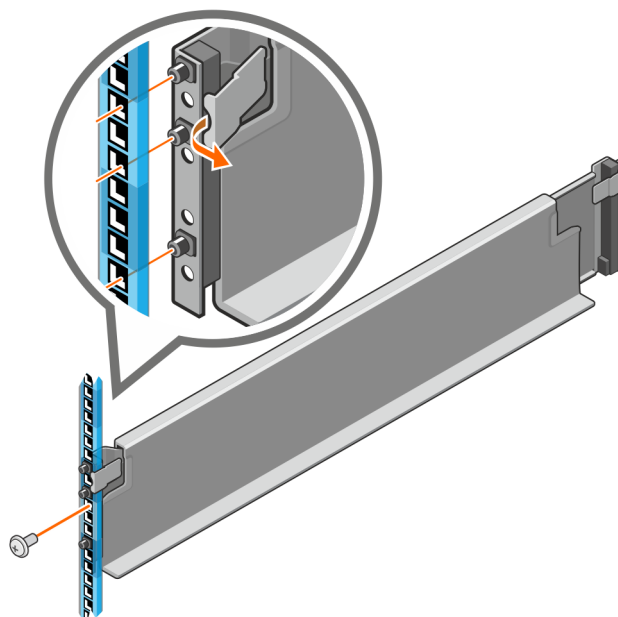
Figure 12. Installing the rail for square holes rack post front
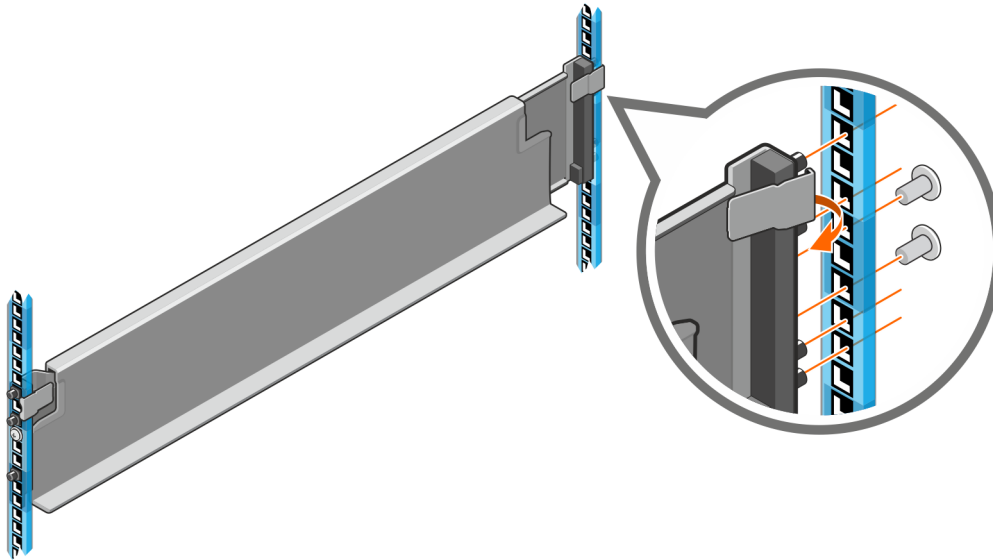
Figure 13. Installing the rail for rear rack post
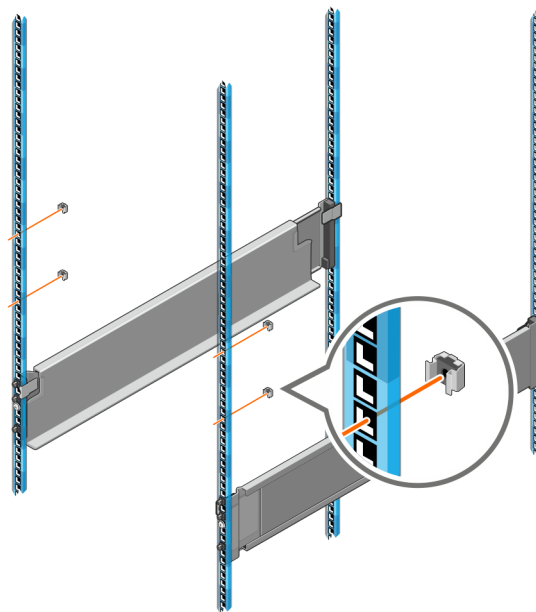
Figure 14. Installing clips
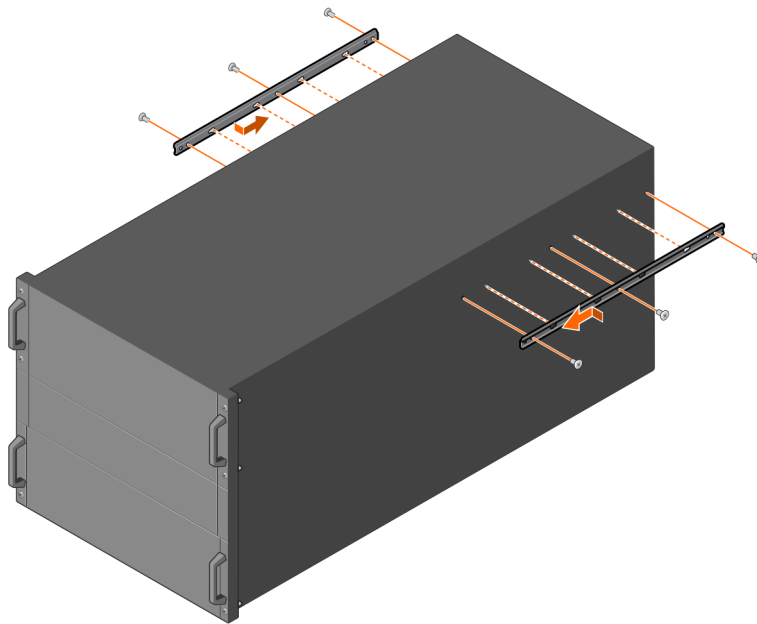
Figure 15. Installing upper chassis rail member
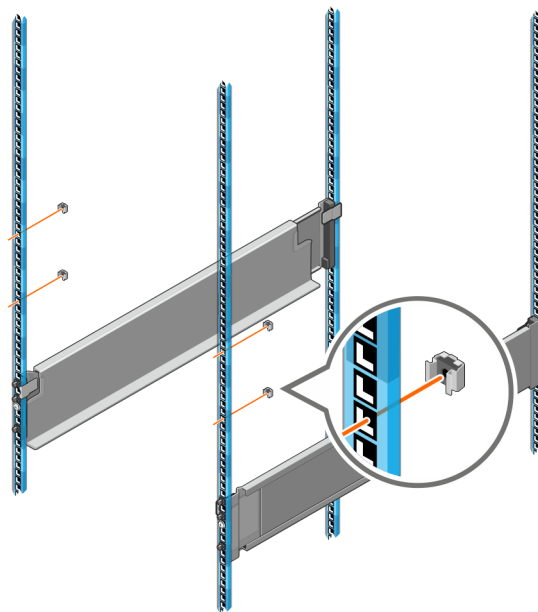
Figure 16. Installing the clips to post
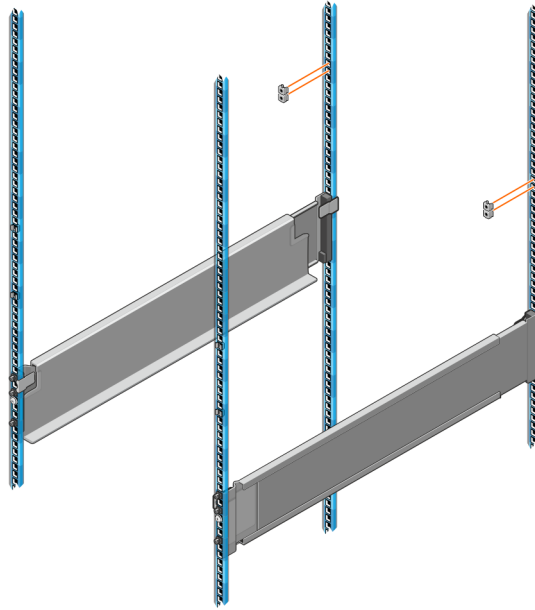
Figure 17. Installing the clips to post
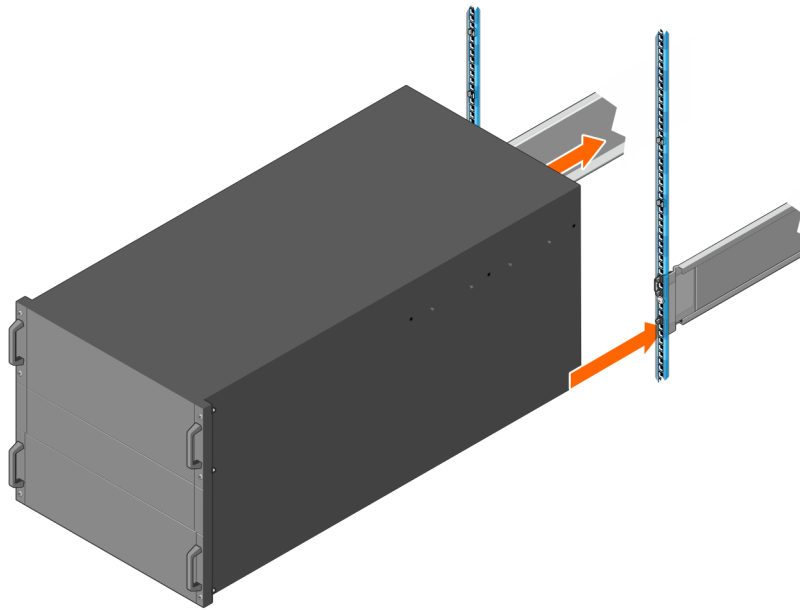
Figure 18. Installing system to rack
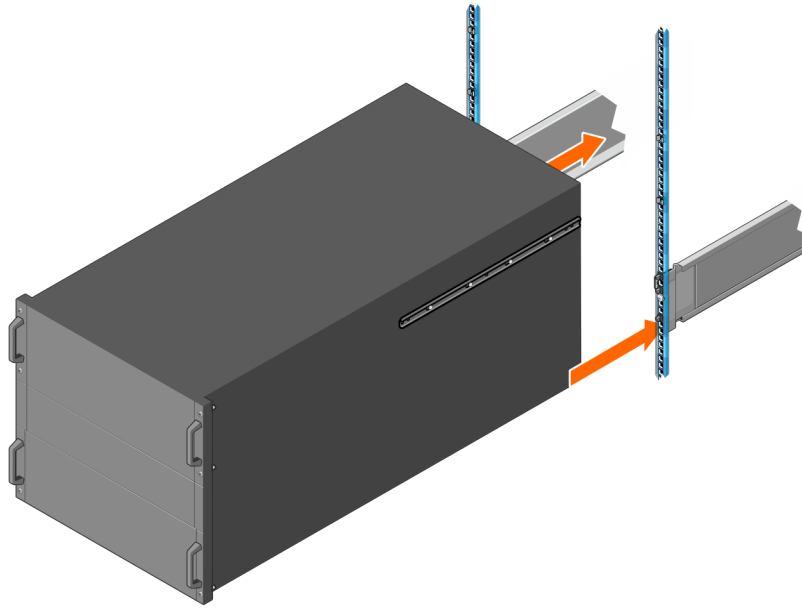
Figure 19. Shipping
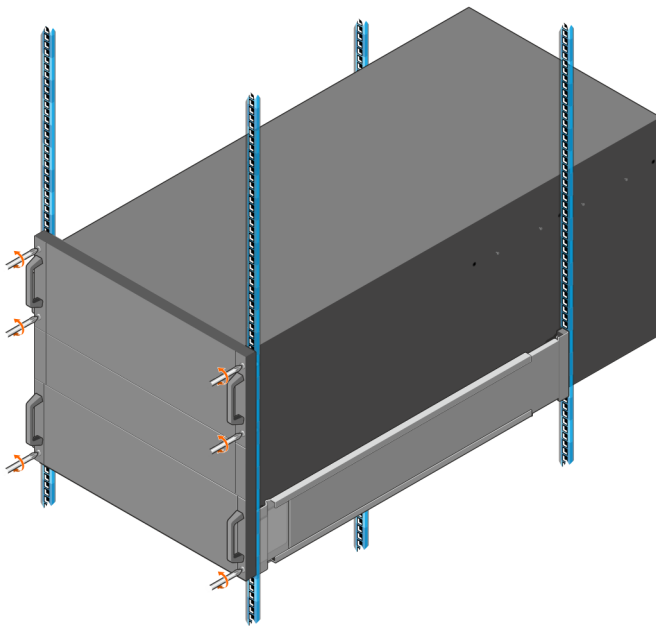
Figure 20. Installing shipping bracket and screws
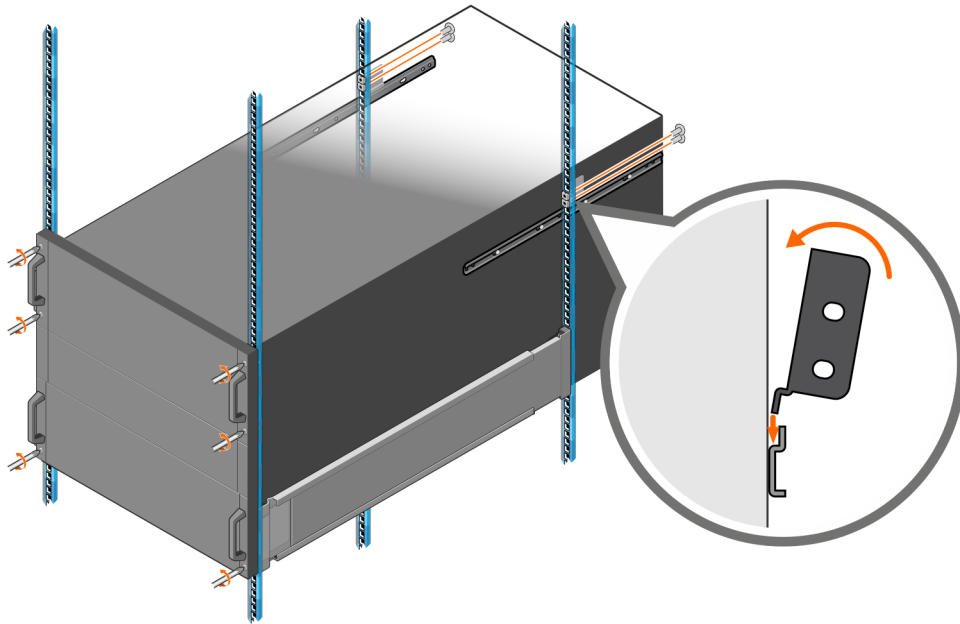
Figure 21. Shipping
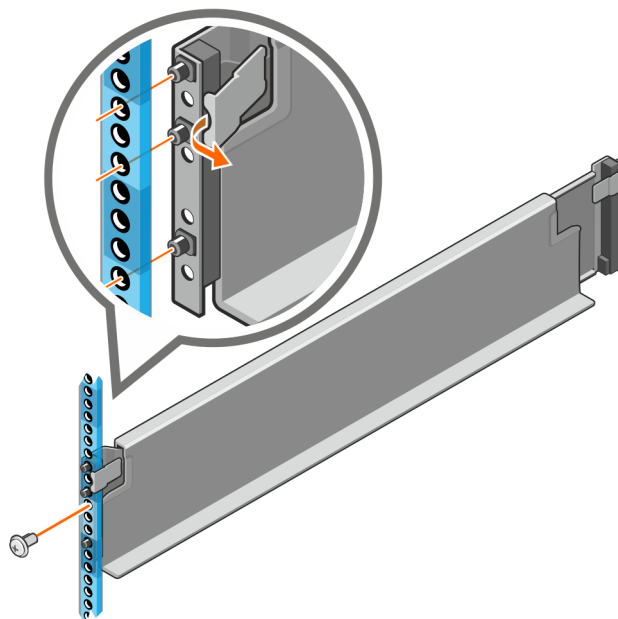
Figure 22. Installing rail for front round hole rack post
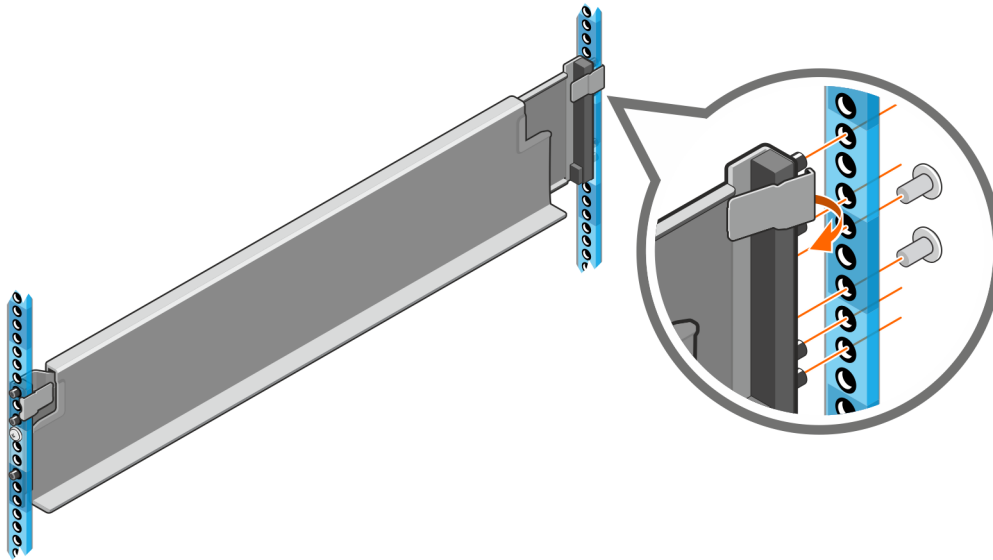
Figure 23. Installing the rail to the rear
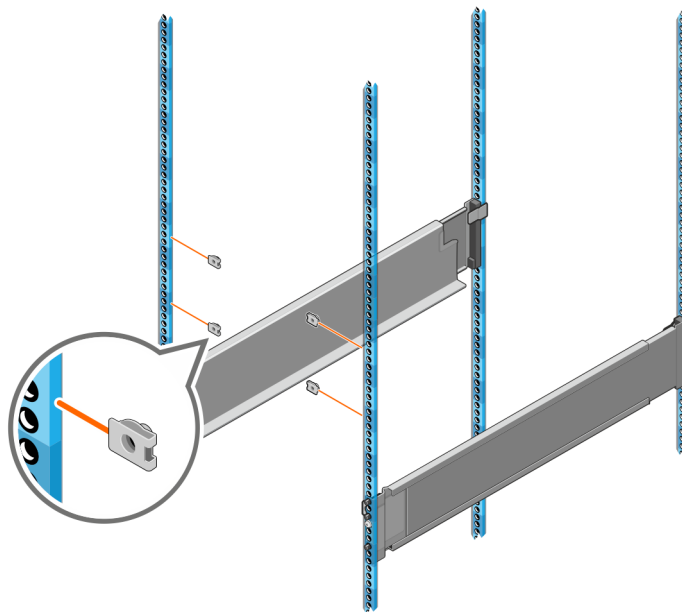
Figure 24. Installing clips
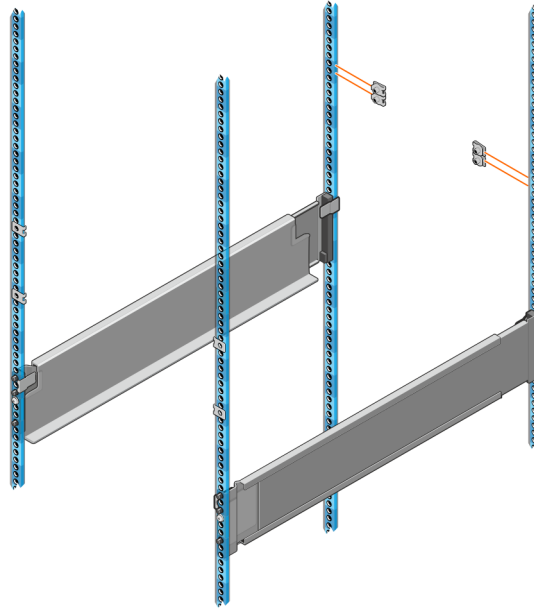
Figure 25. Shipping- Installing the clips
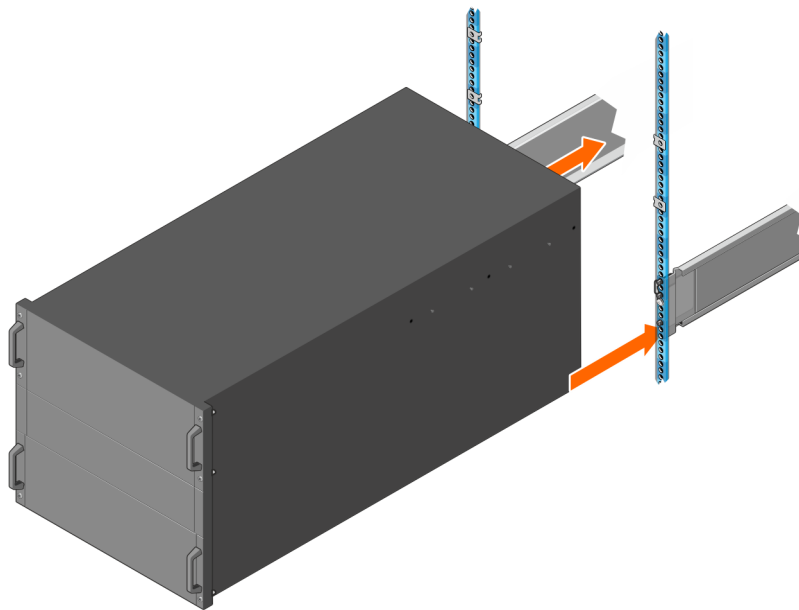
Figure 26. Installing system to the rack
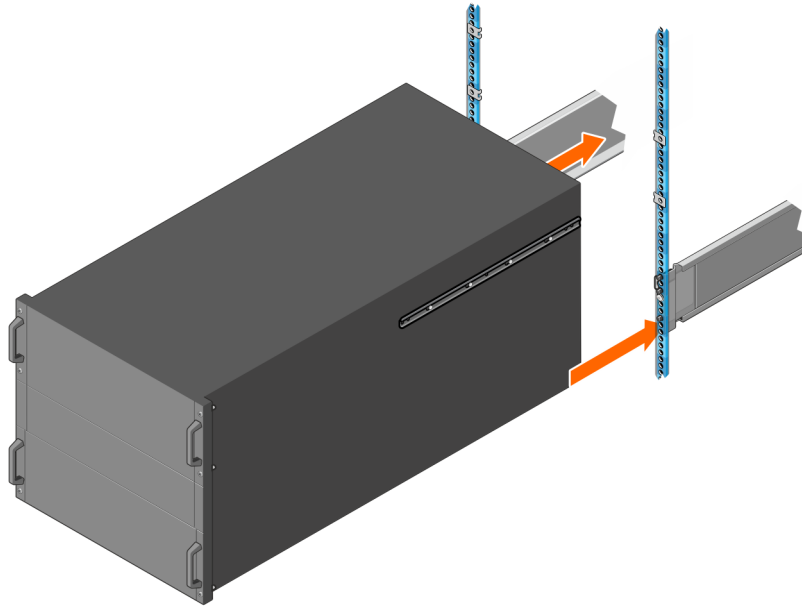
Figure 27. Shipping-Installing system to the rack
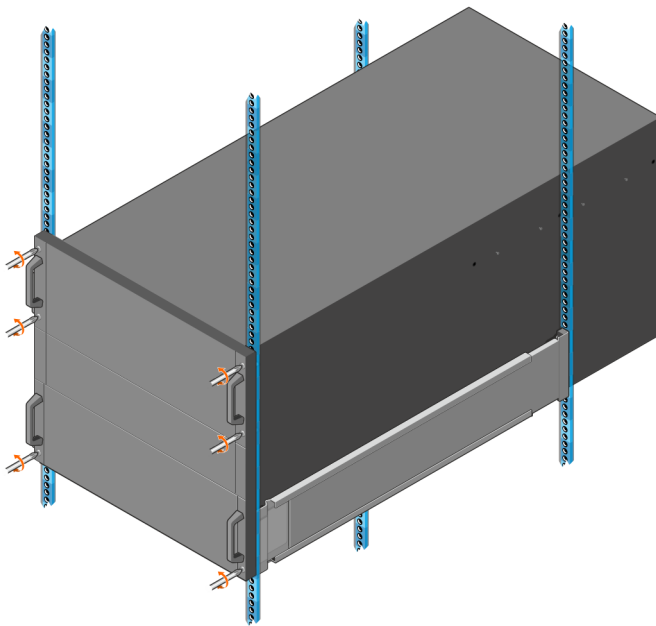
Figure 28. Installing shipping bracket and screws
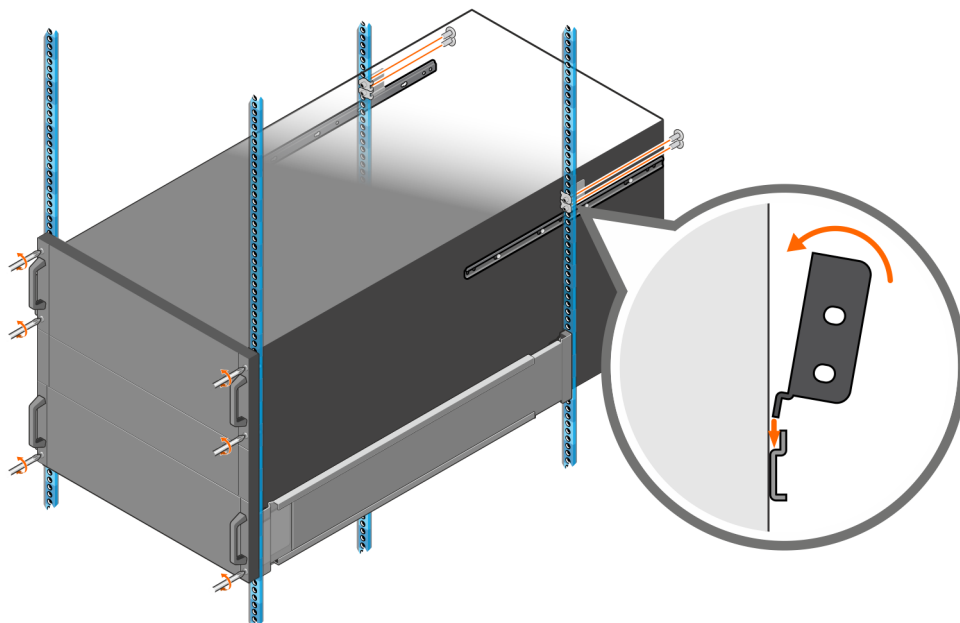
Figure 29. Shipping-Installing shippinng bracket and screws

Operating Systems and Virtualization

Topics:

- Supported operating systems

Supported operating systems

The PowerEdge XE9780 supports the following operating systems.

Table 22. OS-GPU Compatibility Matrix

Operating System	Supported GPUs
Canonical Ubuntu Server LTS	B300, B200
Red Hat Enterprise Linux	B300

For more information, go to Operating System Manuals.

12

Dell Systems Management

Dell delivers management solutions that help IT administrators effectively deploy, update, monitor, and manage IT assets. Dell 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)
•   Systems Management software support matrix

Integrated Dell Remote Access Controller (iDRAC)

iDRAC10 delivers advanced, agent-free, local and remote server administration. Embedded in every PowerEdge server, iDRAC10 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; 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 iDRAC10 in-place across the Dell PowerEdge portfolio, the same IT administration techniques and tools can be applied throughout. This consistent management platform allows 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.

Zero-Touch Provisioning (ZTP) is embedded in iDRAC. ZTP is an Intelligent Automation Dell's agent-free management. Once a PowerEdge server is connected to power and networking that system can be monitored and fully managed, whether you are standing in front of the server or remotely over a network. With no need for software agents, an IT administrator can:

● Monitor
● Manage
● Update
● Troubleshoot, and remediate Dell servers.

The iDRAC direct Type C USB port can be used by connecting Dell USB-C to 2.5 Gbps Ethernet Adapter dongle (DP/N : HYRGV). Once connected, laptop would be assigned IP 169.254.0.4 automatically and user will now be able to access idrac webGUI/ssh.

ⓘ **NOTE:** To configure the Type-C USB port as iDRAC management port see iDRAC10 User Guide.

With features like zero-touch deployment and provisioning, and System Lockdown, iDRAC10 is purpose-built to simplify server administration. For those customers whose existing management platform uses in-band management, Dell does provide iDRAC Service Module, a lightweight service that can interact with both iDRAC10 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.

iDRAC10 offers the following license:

Table 23. iDRAC10 license for PowerEdge XE9780 system:

License	Description
iDRAC10 Datacenter	● Available as an upsell on all servers. ● Includes additional automation features and virtual console and security features. ● Bundled with Secure Enterprise Key Management (SEKM) and Secure Component Verification (SCV) licenses. ● Includes key features such as telemetry streaming and thermal management. ● Includes advanced accelerators (GPU and DPU) system management and advanced air and liquid cooling.

For a full list of iDRAC features by license tier, see the **Integrated Dell Remote Access Controller 10 User's Guide** at Dell.com.

For more details on iDRAC10 including white papers and videos, see:

● Support for Integrated Dell Remote Access Controller 10 (iDRAC10) is on the Knowledge Base page at Dell.com

Systems Management software support matrix

Table 24. Systems Management software support matrix

Categories	Features	PE mainstream
Embedded Management and In-band Service	iDRAC10 (Data center licenses)	Supported
	iDRAC Direct	Supported
	iDRAC RESTful API with Redfish	Supported
	iDRAC Service Module (iSM)	Supported
Tools	Dell System Update	Supported
	Dell Repository Manager	Supported
	Enterprise Catalogs	Supported
	iDRAC RESTful API with Redfish	Supported
	IPMI	Supported
	RACADM CLI	Supported
Integrations and connections	BMC Truesight	Supported
	OpenManage Integration with ServiceNow	Supported
	RedHat Ansible Modules	Supported
	Terraform Providers	Supported
Security	Secure Enterprise Key Management	Supported
	Secure Component Verification	Supported
Standard operating system	Canonical Ubuntu Server LTS, Red Hat Enterprise Linux	Supported (Tier-1)

Appendix A. Additional specifications

Topics:

Chassis dimensions

Figure 30. Chassis dimensions

Table 25. Chassis dimension for the PowerEdge XE9780system

Drives	Xa	Xb	Y	Za	Zb	Zc
16 x E3.s NVMe drives or system	482.3 mm (18.98 inches)	448.0 mm (17.63 inches	439.5 mm (17.30 inches)	43.7 mm (1.72 inches) with bezel 22.0 mm (0.87 inches) without bezel	966 mm (38.03 inches, bottom) Ear to rear GPU fan	1001 mm (39.40 inches) Ear to Fan handle

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

(i) **NOTE:** Chassis length is longer than usual, need to consider potential interferences with the rear mounted PDU or the rear rack door when installed on rack.

System weight

Table 26. Weight for the PowerEdge XE9780 system with 16 x E3.s SSDs

System configuration	Maximum weight (with all drives/SSDs)
XE9780 system with fully populated with B200	163.20 kg (359.04 pounds)
XE9780 system with fully populated with B300	159.65 kg (351.23 pounds)

> ⚠️ **WARNING: The system is heavy, so ensure adequate support and balance during movement and installation; a lift is required for loads over 120 pounds, as the system can slide and cause damage when being installed or removed from a higher position on the rack.**

NIC port specifications

The PowerEdge XE9780 supports up to two 10/100/1000 Mbps Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM) and integrated on the optional Open Compute Project (OCP) cards.

Table 27. NIC port specification for the system

Feature	Specifications
Dedicated iDRAC RJ45 ports	Two front dedicated RJ45 ports for iDRAC connectivity.
OCP NIC 3.0 card	RTS: Broadcom 25G x2, Nvidia 25G x2
	pRTS: Broadcom 10G/100G/200G x2, 10G/25G x4, Nvidia 100G x2, Intel 10G x2, Intel 10G x4

Mini-DisplayPort specifications

The PowerEdge XE9780 system supports One Mini-DisplayPort on left control panel of the system.

Video specifications

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

Table 28. Supported front video resolution options for the system

Resolution	Name	Refresh rate (Hz)	Horizontal frequency kHz	Pixel clock MHz
640 x 480	VGA	60	31.5 kHz	25.175 MHz
640 x 480	VGA	72	37.9 kHz	31.5 MHz
640 x 480	VGA	75	37.5 kHz	31.5 MHz
640 x 480	VGA	85	43.3 kHz	36.0 MHz
800 x 600	SVGA	60	37.0 kHz	40.0 MHz
800 x 600	SVGA	72	48.1 kHz	50.0 MHz
800 x 600	SVGA	75	46.9 kHz	49.5 MHz
800 x 600	SVGA	85	-	-
1024 x 768	XGA	60	48.4 kHz	65.0 MHz
1024 x 768	XGA	72	57.67 kHz	78.43 MHz

Resolution	Name	Refresh rate (Hz)	Horizontal frequency kHz	Pixel clock MHz
1024 x 768	XGA	75	60.0 kHz	78.75 MHz
1024 x 768	XGA	85	68.7 kHz	94.5 MHz
1152 x 864	XGA+	75	-	-
1280 x 800	WXGA	60 Hz	62.625 kHz	107.21 MHz
1280 x 800	WXGA	75	64.0 kHz	108.0 MHz
1280 x 1024	SXGA	60	64.0 kHz	108.0 MHz
1280 x 1024	SXGA	75	80.0 kHz	135.0 MHz
1280 x 1024	SXGA	85	-	-
1360 x 768	HD	60 Hz	55.9 kHz	106.5 MHz
1440 x 900	WXGA+	60 Hz	55.5 kHz	88.75 MHz
1440 x 900	WXGA+	60 Hz (RB)	-	-
1440 x 900	WXGA+	75 Hz	-	-
1440 x 900	WXGA+	85 Hz	55.54 kHz	97.75 MHz
1600 x 900	HD+	60 Hz (RB)	55.54 kHz	97.75 MHz
1600 x 900	HD+	60 Hz (RB)	60.00 kHz	108.0 MHz
1600 x 1200	UXGA	60 Hz	75.0 kHz	162.0 MHz
1600 x 1200	UXGA	60 Hz (RB)	74.01 kHz	130.25 MHz
1600 x 1200	UXGA	65	-	-
1600 x 1200	UXGA	70	-	-
1600 x 1200	UXGA	75	-	-
1600 x 1200	UXGA	85	-	-
1680 x 1050	WSXGA+	65 Hz (RB)	-	-
1680 x 1050	WSXGA+	70 Hz	-	-
1680 x 1050	WSXGA+	75 Hz	-	-
1680 x 1050	WSXGA+	85 Hz	-	-
1920 x 1080	FHD	60 Hz	67.158 kHz	-
1920 x 1080	FHD	60 Hz (RB)	66.587 kHz	138.5 MHz
1920 x 1200	WUXGA	60 Hz	74.556 kHz	193.25 MHz
1920 x 1200	WUXGA	60 Hz (RB)	74.038 kHz	154.00 MHz
1920 x 1200	WUXGA	75 Hz	-	-
1920 x 1200	WUXGA	85 Hz	74.038 kHz	~220.75 MHz VCO limit is ~244MHz

(i) **NOTE:** (RB) - Reduced Blanking for Digital Displays requiring less blank time. This was introduced for Signal Integrity improvements by reducing Pixel Clock rates for VGA- Analog input devices.

USB ports specifications

Table 29. PowerEdge XE9780 USB specifications

Front		Internal	
USB port type	**No. of ports**	**USB port type**	**No. of ports**
USB 2.0-compliant port	One	USB 3.1-compliant port	One
USB type C dual-mode host/BMC Direct port	One		

ⓘ **NOTE:** The Type-C USB compliant port can be used to connect USB devices or as an iDRAC Direct port.

ⓘ **NOTE:** Avoid connecting USB devices to the iDRAC Direct port of the XE9780 system during system initialization, POST, boot operations, or GPU firmware updates.

PSU rating

Below table lists the power capacity of the PSUs in High/Low line operation mode.

Table 30. PSUs Highline and Lowline Ratings

Features	3200 W Titanium
Peak Power (Highline/-72 VDC)	5280 W
Highline/-72 VDC	3200 W
	2900 W
Peak Power (Lowline/-40 VDC)	N/A
Lowline/-40 VDC	N/A
Highline 240 VDC	3200 W
DC-48-60 V	N/A

The PowerEdge XE9780 supports 12 AC or DC power supplies.

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

Table 31. PSU Efficiency Level

Form Factor	Output	Class	10%	20%	50%	100%
Redundant 86mm	3200 W AC	Titanium	90.00%	94.00%	96.00%	91.00%

Environmental specifications

ⓘ **NOTE:** For additional information about environmental certifications, refer to the Product Environmental Datasheet located with the Manuals & Documents on Dell Support.

Table 32. Continuous operation specifications for ASHRAE A2

Temperature	Specifications
Allowable continuous operations	
Temperature ranges for altitudes <= 900 m (<= 2953 ft)	10–35°C (50–95°F) with no direct sunlight on the equipment

Table 32. Continuous operation specifications for ASHRAE A2 (continued)

Temperature	Specifications
Humidity percent ranges (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 (1.8°F/984 Ft) above 900 m (2953 Ft)

Table 33. Continuous operation specifications for ASHRAE A3

Temperature	Specifications
Allowable continuous operations	
Temperature ranges for altitudes <= 900 m (<= 2953 ft)	5 to 40°C (41 to 104°F) with no direct sunlight on the equipment
Humidity percent ranges (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/300 m (1.8°F/984 Ft) above 900 m (2953 Ft)

Table 34. Continuous operation specifications for ASHRAE A4

Temperature	Specifications
Allowable continuous operations	
Temperature ranges for altitudes <= 900 m (<= 2953 ft)	5 to 45°C (41 to 113°F) with no direct sunlight on the equipment
Humidity percent ranges (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/125 meters (1.8°F/410 feet) above 900 meters (2,953 feet)

Table 35. Shared requirements across all categories

Temperature	Specifications
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°C to 65°C (-104°F 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)

Table 36. Maximum vibration specifications

Maximum vibration	Specifications
Operating	0.21Grms at 5Hz to 500Hz for 10min (all x, y, and z axes)
Storage	1.38 G1.88Grms at 10Hz to 500Hz for 15min (all six sides tested) at 7 Hz to 250 Hz for 15 minutes

Table 37. Maximum shock pulse specifications

Maximum shock pulse	Specifications
Operating	Six consecutively executed shock pulses in the positive and negative x, y, and z axes of 6G for up to 11ms
Storage	Six consecutively executed shock pulses in the positive and negative x, y, and z axes (one pulse on each side of the system) of 71 G for up to 2 ms.

Thermal restriction matrix

Table 38. Thermal Restriction Matrix- 6th Generation Intel® Xeon® Processors

Configuration					E3.S x16	
Component	Processor	cTDP	Cores	Part number	B300 + 4 x PCIe card + 8 x OSFP	B200 +12 x PCIe card
CPU	Intel GNR-SP 6787P	350 W	86	7FRX4	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
	Intel GNR-SP 6767P	350 W	64	KJWD6	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
	Intel GNR-SP 6747P	330 W	48	92C7P	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
	Intel GNR-SP 6776P	350 W	64	7RCHW	2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
Memory			64GB RDIMM 6400 MT/s		2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
			96GB RDIMM 6400 MT/s		2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
			128GB RDIMM 6400 MT/s		2U-Ext HSK/ STD Fan	2U-Ext HSK/STD Fan
DPU			B3220		STD fan	-
			B3240		STD fan	-
GPU			NVIDIA B300 1100W 8-way		STD Fan	-
			NVIDIA B200 1000W 8-way		-	STD Fan

Other Thermal Restrictions

Configurations that support ASHRAE A3 and A4 are not available.

A PCIe blank (DPN: GYP32) is required if no PCIe card is installed in any slot.

A low-profile block is required when installing a low-profile card.

DIMM blanks are required if fewer than 16 DIMMs are installed.

M.2, OCP, and HDD blanks are required if the corresponding components are not installed.

GPU fans are hot-swappable and must be reinstalled within 30 seconds.

Appendix B. Standards compliance

The system conforms to the following industry standards.

Table 39. Industry standard documents

Standard	URL for information and specifications
ACPIAdvance Configuration and Power Interface Specification, v6.4	Specifications and Tools
Ethernet IEEE Std 802.3-2022	IEEE Standards Association
IPMI Intelligent Platform Management Interface, v2.0	IPMI
DDR5 Memory DDR5 SDRAM Specification	DDR5 SDRAM
PCI Express PCI Express Base Specification, v5.0	pciexpress
PMBus Power System Management Protocol Specification, v1.2	PMBus specifications
SAS Serial Attached SCSI, 3 (SAS-3) (T10/INCITS 519)	SCSI
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. USB document library
NVMe Express Base Specification. Revision 2.0c	NVMe 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	

Appendix C Additional resources

Table 40. 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
QR code for system resources	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

Appendix D: Service and support

Topics:

Why attach service contracts

Dell PowerEdge XE servers include a standard three-year hardware warranty covering repair or replacement of defective components. This warranty reflects the commitment to product quality but is limited to hardware-related issues and does not include software support. For extended warranty coverage and comprehensive support of both hardware and software, choose the ProSupport Infrastructure Suite.

ProSupport Infrastructure Suite

Enterprise-class support that aligns with the criticality of your systems, the complexity of your environment, and how you allocate your IT resources. ProSupport Infrastructure Suite offers three service tiers: Basic Hardware Support, ProSupport for Infrastructure and ProSupport Plus for Infrastructure. These services extend hardware coverage, ensuring continued support beyond the standard warranty period. ProSupport and ProSupport Plus also address common software-related issues, ensuring comprehensive support for both hardware and software. ProSupport Plus offers enhanced capabilities, including support for third-party software, proactive system maintenance, and personalized guidance for performance optimization and other advanced needs. To ensure uninterrupted operation and optimal performance of Dell PowerEdge XE servers, it is recommended to evaluate and select the appropriate ProSupport Infrastructure Suite service based on the specific requirements of your environment.

	Basic Hardware Support†	ProSupport	BEST ProSupport Plus
Outcome Assistance and Advocacy *via assigned Technical Customer Success Manager* ⓘ			
Enjoy a frictionless customer experience with cross-functional lifecycle management aligned to your goals			✓
Accelerate time-to-value through onboarding assistance, education and success planning			✓
Turn challenges into opportunities with actionable strategies powered by data and AI-driven analytics			✓
Ensure coverage continuity while preparing to scale for future success			✓
Proactive Monitoring & Actionable Insights *via Dell's connectivity solutions and tools*			
Quickly visualize performance through a current system health score		✓	✓
Cybersecurity monitoring and mitigation recommendations provide another layer of protection		✓	✓
Predictive performance and capacity analysis address bottlenecks		✓	✓
Prevent or plan for downtime with predictive hardware anomaly detection		✓	✓
Energy consumption and carbon footprint forecasting support sustainability and stewardship initiatives		✓	✓
Get ahead of problems with proactive issue detection with automated case creation	✓	✓	✓
Streamline internal IT efforts with efficient service request and escalation management tools	✓	✓	✓
Minimize disruptions by self-dispatching eligible parts	✓	✓	✓
Support Essentials			
Receive an assigned incident manager for Sev 1 issues who will work your issue through to resolution		✓	✓
Count on Mission Critical Support during Sev 1 incidents and natural disasters ⓘ			✓
Keep systems code current and performing at peak through Proactive System Maintenance			✓
Get priority access to senior technical support engineers—skip the queues and callbacks			✓
Bringing your own software? We provide limited 3rd party software support ⓘ			✓
Choose onsite parts delivery and labor response that meets your needs	Next Business Day	NBD or 4-hour	4-hour
Select product coverage that best augments your internal resources	Hardware	Hardware & Software	Hardware & Software
Have an issue? We are here for you by phone, chat and online	Local business hours	24/7/365	24/7/365

Figure 31. ProSupport Infrastructure Suite

ProSupport Plus for Infrastructure

ProSupport Plus for Infrastructure is designed for customers who require proactive, predictive, and personalized support for business-critical systems. This service is ideal for environments managing essential applications and workloads where optimal performance and preventative maintenance are paramount. ProSupport Plus is recommended for PowerEdge XE servers to ensure comprehensive, preventative support for business-critical systems.

ProSupport Plus includes 4-hour onsite parts and labor response, all the features of ProSupport, and the following exclusive to ensure maximum uptime and system reliability:

1. **Priority Access to Senior Support Experts:** First in line access to Dell's most experienced support engineers for advanced troubleshooting and issue resolution.
2. **Mission Critical Support:** Rapid response and resolution for Severity 1 issues to minimize downtime and restore operations as quickly as possible.
3. **Technical Customer Success Manager (TCSM):** A dedicated advocate for cross-functional lifecycle management, advocacy, onboarding, and strategic planning throughout your technology journey.
4. **Proactive Systems Maintenance:** Semiannual updates to firmware, BIOS, and drivers to enhance system performance and availability.
5. **Third-Party Software Support:** Dell serves as a single point of accountability for eligible third-party software installed on ProSupport Plus systems, regardless of whether the software was purchased from Dell.

ProSupport for Infrastructure

ProSupport for Infrastructure provides comprehensive 24x7x365 support for hardware and software, ideal for production workloads and applications that are important but not business-critical. ProSupport for Infrastructure is designed to keep your IT environment running smoothly with expert assistance and proactive solutions. This service ensures minimized disruptions and maximized availability of PowerEdge XE server workloads through:

- **24x7x365 Support:** Immediate remote support routing to the next available technician (no waiting for a call back), with 4-hour and Next Business Day onsite parts and labor dispatch options.
- **Broad, Centralized Support:** A single point of contact for hardware and software assistance, covering hypervisors, operating systems, applications, and eligible third-party software purchased from Dell and installed on ProSupport-covered servers.
- **Incident Management:** A dedicated Incident Manager for Severity 1 issues, collaborating with Dell experts and staying engaged until resolution.
- **Enhanced Proactive and Predictive Tools:** AI-driven anomaly detection, automated case creation followed by proactive outreach from Dell support, and infrastructure health/cybersecurity/energy monitoring via Dell AIOps and connectivity platforms.
- **Global Consistency:** A seamless support experience, regardless of location or language.

Basic Hardware Support

Basic Hardware Support provides foundational support for hardware issues, including:

- Access to technical support during local business hours (phone, chat, online).
- Next Business Day (NBD) onsite parts and labor response.
- Hardware troubleshooting only (no software troubleshooting, unless it's to confirm hardware functionality).
- Proactive automated issue detection and automated case creation if the system is connected (customer receives notification and must contact Dell to proceed; unattended queue approach).

Specialty Support Services

Optional specialty support services complement the ProSupport Infrastructure Suite to provide additional expertise that are critical for modern data center operations.

Hardware coverage add-ons to ProSupport or ProSupport Plus

- **Keep Your Hard Drive (KYHD), Keep Your Component (KYC), or Keep Your GPU (KYGPU):**

Normally if a device fails under warranty, Dell replaces it using a one-for-one exchange process.KYHD/KYCC/KYGPU gives you the option to retain your device. It provides full control of sensitive data and minimizes security risk by letting you retain possession of failed drives, components, or GPU when receiving replacement parts without incurring additional cost.

- **Onsite Diagnosis Service:**

  Ideal for sites with non-technical staff. A Dell certified field technician performs initial troubleshooting diagnosis onsite and collaborates with remote Dell support engineers to resolve the issue. Customers can request dispatch of an onsite technician at any time for any severity support incident.

- **ProSupport Add-on for HPC (High Performance Computing):**

  The ProSupport Add-on for HPC enhances a ProSupport Infrastructure Suite service contract by providing solution-aware support tailored to the unique needs of maintaining an HPC environment. Key features include:

  - Access to Senior HPC Experts: Direct support from specialists with deep expertise in HPC systems.
  - Advanced HPC Cluster Assistance: Guidance on performance optimization, interoperability, and configuration.
  - Enhanced End-to-End Support: Comprehensive solution-level support for HPC environments.
  - Remote Pre-Support Engagement: Collaboration with HPC specialists during deployment implementation to ensure a smooth setup process.

- **Carrier-Grade Support:**

  Carrier-Grade Support service is designed for leading global telecommunications customers. It offers direct access to Dell solution experts specializing in telecommunications applications and outcomes. This service includes a hardware uptime guarantee, ensuring system restoration within 4 hours for Severity 1 issues. If service-level agreements (SLAs) are not met, Dell assumes penalties and fees, reinforcing its commitment to reliability and performance.

Personalized support and supplemental infrastructure expertise

- **Technical Account Manager (TAM):** The Dell TAM service provides a designated technology expert who monitors and manages the performance and configuration of specific technology sets. TAMs strive to gain deep knowledge of your environment and business goals in order to deliver recommendations for Dell solutions that optimize IT performance and resilience.
- **Designated Support Engineer (DSE):** The Dell DSE service provides an assigned technical expert that delivers personalized, hands-on troubleshooting expertise. Acting as your direct point of contact for all support needs, our DSEs ensure swift problem resolution, real-time communication and tailored recommendations to help you maintain a resilient and efficient IT environment.
- **Multivendor Support Service (MVS):** Support your non-Dell infrastructure devices under one support contract serviced by Dell. An MVS support contract can include coverage for Broadcom, Cisco, Fujitsu, HPE, Hitachi, Huawei, IBM, Lenovo, NetApp, Oracle, Quanta, Supermicro and others.

Services for Large Enterprises

- **ProSupport One for Data Center:**

  ProSupport One for Data Center is designed to deliver scalable, efficient, and reliable support for complex IT environments. ProSupport One for Data Center is available for large and distributed data centers with over 1,000 assets (including servers, storage, data protection, and networking devices) or a significant investment in Dell storage and HCI products. Built on the foundation of ProSupport, this support offer is designed for Dell's largest customers, enabling them to customize a support solution that meets their unique hardware and software needs. Key benefits include:

  - **Customized Support:** Tailor support services to address unique data center environments and existing IT systems and capabilities.
  - **Cost-Effective Options:** Choose support that aligns with technical support consumption and budget, optimizing investments while maintaining required service levels.
  - **Resource Augmentation:** Add a Technical Account Manager (TAM) or Designated Support Engineer (DSE) to augment your team. TAMs provide advanced knowledge and advice to help customers realize maximum value from their enterprise investments and the DSE is a designated product-focused troubleshooting expert who understands the environment to enhance overall health.
  - **Enhanced Infrastructure Management:** Leverage advanced automation, real-time infrastructure monitoring, and AI-powered analytics to streamline operations, reduce risks, and minimize downtime.

- **Onsite Parts Service (OPS)**

Ideal for large organizations that have their own staff to support their data center, OPS enables Dell and the customer to collaboratively manage parts inventory located at the customer's designated facility. Dell Logistics Online Inventory Solution (LOIS) software program is used to monitor and automate replenishment of inventory in the customer's onsite parts locker. As a replacement part is scanned out of inventory for use, the LOIS software automatically initiates a replenishment order with Dell that is either shipped the next day or delivered onsite by Dell during a scheduled onsite service visit. LOIS also allows customers to integrate their inventory system directly to Dell TechDirect using APIs to further streamline the support and parts management processes.

End-of-Life Services

- **Asset Recovery Services** are available on infrastructure products such as servers, storage and networking assets. The service provides secure disposition, regulatory compliance, value recovery, and environmental reporting—helping customers retire IT infrastructure with confidence while supporting sustainability goals.
- **Data Sanitization & Data Destruction** services render data unrecoverable on repurposed or retired products such as servers, storage and data protection hardware. Data Sanitization is performed according to NIST SP 800-88 r1 guidelines which ensures complete and irreversible removal of sensitive data from devices. When erasure is not feasible, Data Destruction services provide physical destruction of hard drives. All activities are documented, with detailed compliance reports provided for both data sanitization and data destruction outcomes—helping organizations retire infrastructure assets safely and in alignment with regulatory expectations.

ProDeploy Infrastructure Suite

ProDeploy Flex for factory rack integration and cluster services

For small or large opportunities desiring preconfigured servers and/or networking delivered in fully or partially populated racks, our services for AI infrastructure deployment deliver end-to-end, rack-scale deployment and validation for PowerEdge XE platforms paired with options for AI networking. These services include factory rack integration (L11), cluster build (L12), and acceptance testing to ensure Day-1 readiness and peak performance for AI workloads.

- Infrastructure Readiness Assessment to evaluate the data center prior to an AI deployment to include: datacenter layout, power/cooling (including liquid cooling), cabling, airflow, and site logistics.
- Factory rack integration (L11) of advanced PowerEdge XE servers integrated with NVIDIA InfiniBand switches or Ethernet options from Dell or NVIDIA are put through a set of strenuous tests to validate functionality of the solution prior to shipping.
- Rack placement, power connectivity, and liquid-cooling connectivity if applicable.
- Cluster build (L12) turns multiple integrated racks into a high-performance cluster: deploy all inter-rack cabling, configure the AI fabric, validate cluster, and perform acceptance testing.
- Knowledge transfer and project documentation to equip your team for Day-2 operations and ongoing improvements.

ProDeploy Flex for factory rack integration is the most effective method to deploy rack solutions and optimize at scale.

ProDeploy Plus for onsite builds

For smaller quantity solutions that don't require factory rack integration, ProDeploy Plus is ideal. This service provides expert onsite installation and configuration for complex PowerEdge XE platforms. All implementations are performed by Dell-badged employees, not 3rd parties, to ensure the utmost care and expertise is maintained through the entire process.

- Accelerate time to value with Dell engineers, site readiness and implementation planning, full onsite software installation and configuration, and validation prior to handoff.
- Proven speed: up to 3x faster planning and deployment versus in house admins with the ProDeploy Infrastructure Suite.
- Ideal for smaller XE deployments or unique proof-of-concept racks when factory services are not being used; complements rack integration for larger, rack scale AI builds.
- Reduce risk on GPU dense systems with Dell's specialized XE deployment practices and testing rigor built for AI servers.

Supplemental Deployment Services

Additional ways to expand scope or deploy for unique scenarios.

Residency Services

Certified technical professionals act like an extension of your IT staff to enhance internal capabilities and resources and help you realize faster adoption and maximized ROI of new technology. Residency Services help customers transition to new capabilities quickly by leveraging specific technology skill sets. 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.

- Global experts available to serve in-person (onsite) or virtual (remote).
- Engagements starting at 2 weeks with flexibility to adjust.
- Residency is available for project management needs, and many different technology skills sets such as: AI expertise, compute, storage, networking, security, multi-cloud, data management, and modern workforce applications.

Additional Deployment Time (ADT)

You can expand the scope of a ProDeploy engagement leveraging Additional Deployment Time (ADT). ADT covers additional non-complex tasks beyond the usual quantity of deliverables of the ProDeploy offers. ADT can also be used as a standalone service without ProDeploy, to accomplish tasks related to Project Management or Technical Resource Expertise. ADT is sold in blocks of four hours remote or eight hours onsite. The Dell delivery team can help scope the number of hours required for specific customer needs.

Data Migration Services

Migrating data sets is no easy task. Our experts use proven tools and processes to streamline data migrations and avoid compromising data. A customer project manager works with our experienced team of experts to create a migration plan. Data migration is part of every technology upgrade, platform change, and shift to the cloud. You can rely on Dell data migration services to perform a seamless transition while our customers can keep their focus on their core business.

DAY 2 – Automation Services with Ansible

Dell solutions are built as "automation ready" with integrated APIs (Application Programming Interfaces) to allow customers to programmatically call actions on the product through code. Although Dell has published Ansible automation use cases, some customers need additional assistance with GitOps. By the end of the service, the customer will have the foundational components required to accelerate automation and understand how the programming works together: Day 1 and Day 2 use case automation scripts (ansible modules), CI/CD tool (Jenkins), and Version control (Git).

Dell Technologies Consulting Services

Accelerate Modernization Initiatives with Dell Consulting

When it comes to your IT and business goals, there are a ton of possible initiatives you can focus on and problems you can solve. But it can be confusing and complex when deciding what you should prioritize for your organization and where to start. The experts at Dell Technologies Consulting Services help you harmonize your business and IT needs with our outcome-focused approach. From strategy to full-scale implementation, we can deliver more, faster, so you and your organization can get back to innovating. We listen to and understand your unique needs, then collaborate with you to help you deliver the most value to your business. With decades of expertise and repeatable, proven processes, you get consistent outcomes and accelerated time-to-value. All with a holistic approach to your business outcomes. So whether you're looking to deliver cloud platforms, workforce experiences, data and applications, or achieve a resilient security posture for your business, you can be confident that your organization is heading in the right direction with Dell.

The first step: Half-day workshops.

Identify priorities to build your digital future. Our facilitated workshop discussions focus on the activities required to achieve your desired end state and conclude with next steps to further advance your business and IT strategies.

Available workshops: AI, Multicloud, Apps & Data, Modern Workforce, Security & Resiliency.

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 that are 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.

Cyber-Security Services

Managed Detection and Response (MDR)

Dell Managed Detection and Response Pro Plus is our fully-managed, 360° security operations solution comprised of our most cutting-edge, preventive and responsive cybersecurity services. MDR Pro Plus was designed with your top security concerns in mind, allowing you to focus on your core business goals while Dell handles your security operations. First, we have Vulnerability Management. With this service, we'll do ongoing scanning of the customer's environment looking for software that needs to be patched. Next is Pen Testing and Attack Simulation Management. This service will continuously validate security controls and policies with automated Breach and Attack Simulation (BAS), because a misconfiguration can lead to an exposure which an attacker can exploit. The service also includes an annual penetration test to determine if a skilled threat actor could exploit pathways leading to critical assets or data. Third, Managed Security Awareness Training. This service will educate the customer's end users so that they don't inadvertently put the customer at risk. If you think about our annual compliance training modules, there is always a security module. This is the same type of thing, but rather than once a year, it will be smaller, bite-size pieces of content delivered throughout the year. Fourth is our Managed Detection and Response service which provides 24x7 threat detection and investigation, analysis of end-to-end activity by threat actors, threat hunting, and quick initiation of cyber incident response when needed. Customers can choose between SecureWorks Taegis XDR, CrowdStrike Falcon XDR or Microsoft Defender XDR as the security analytics platform our analysts will use to monitor their environment. All four of these services are delivered by experienced, certified Dell security experts using advanced technology such as the SecureWorks Taegis XDR, CrowdStrike Falcon XDR or Microsoft Defender XDR security platforms.

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 that is required for real transformation.

Dell Technologies Learning Services offers training and certifications that are designed to help customers achieve more from their hardware investment. To learn more or register for a class today, see learning.dell.com.