

Dell EMC PowerEdge XE8545

Technical Guide

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.

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Product overview

Topics:

- [Introduction](#)
- [Product features](#)

Introduction

The PowerEdge XE8545 is a 2-socket, 4U rack system. It is designed to run complex workloads using highly scalable memory, I/O, and network options. The system supports the AMD EPYC 7003 Series processor, up to 32 DIMMs, PCI Express (PCIe) 4.0 enabled expansion slots, and a choice of network interface technologies to cover NIC.

The PowerEdge XE8545 is a standard air-cooled system capable of handling demanding workloads and applications, such as AI/ML and high-performance computing (HPC).

Product features

Table 1. New technologies

Technology	Detailed Description
AMD Milan SP3 Processor	<ul style="list-style-type: none"> • 7 nm process technology • AMD inter-chip global memory interconnect (xGMI2) up to 18 GT/s (64 lanes) • Up to 64 Zen3 cores / 128 threads per socket • 32 MB L3 share by 8 cores/CCD • Up to 4.1 GHz (Turbo) • Max TDP: 280 W
Memory	3200 MT/s DDR4 memory <ul style="list-style-type: none"> • Industry-leading memory bandwidth, with 8-channels of memory with 2 DPC per processor. In a two-socket server, support for up to 32 DIMMS of DDR4 • Supports RDIMM
Accelerator GPUs	4x NVIDIA A100 SXM4 w/ NVLINK <ul style="list-style-type: none"> • 40 GB/400 W • 80 GB/500 W
Power supply	86 mm dimension PSU form factor <ul style="list-style-type: none"> • 4 x 2400 W PSU, support three redundancy policies <ul style="list-style-type: none"> ○ Not redundant ○ PSU redundant ○ A/B Grid redundant

System features

Topics:

- [Product Information](#)

Product Information

Table 2. Product information

Feature	PowerEdge XE8545
Processor	Two AMD Milan (SP3) Processors
CPU Interconnect	Inter-chip global memory interconnect (xGMI-2)
Memory	32x RDIMM DDR4 with ECC
Disk Drives	Up to 10 x 2.5-inch – 12 Gb SAS SSD or 6 Gb SATA SSD
Storage Controllers	Internal Adapter : PERC H745, H755
PCIe SSD	Up to 8x NVMe SSD
PCIe Slots	Up to 4 (PCIe 4.0)
LOM	2 x 1 GbE
OCP	One OCP 3.0
USB Ports	Front: 1 x USB 2.0, 1 x iDRAC USB (Micro-AB USB) Rear: 1 x USB 3.0, 1 x USB 2.0
Rack Height	4U
Power Supplies	4 x 2400 W (Platinum) (Mixed Mode: AC 100 V~240 V input)
System Management	Front: 1 dedicated Micro USB for iDRAC Rear: 1 dedicated RJ45 for iDRAC
GPU	GPGPUs – NVIDIA A100 4-way SXM4 NVLINK GPU without switches
Availability	<ul style="list-style-type: none"> • Hot-plug drives • Hot-plug redundant cooling • Hot-plug redundant power supplies • BOSS S1V5

Chassis views and features

Topics:

- Front view of the system
- Rear view of the system
- Inside the system
- Quick Resource Locator for PowerEdge XE8545 system

Front view of the system

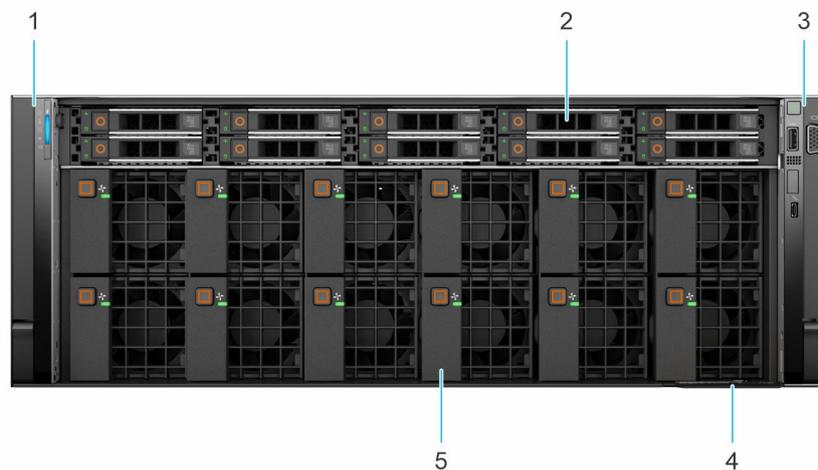


Figure 1. Front view of 10 x 2.5-inch drive system

Table 3. Features available on the front of the system

Item	Ports, panels, and slots	Icon	Description
1	Left control panel	N/A	Contains the system health, system ID, and the status LED. <ul style="list-style-type: none"> • Status LED: Enables you to identify any failed hardware components. There are up to five status LEDs and a system health LED (Chassis health and system ID) bar. For more information, see the Status LED indicators section.
2	Drive (10)	N/A	Enables you to install drives that are supported on your system. For more information about drives, see the www.dell.com/poweredgemanuals
3	Right control panel	N/A	Contains the power button, USB port, iDRAC Direct micro port, and the iDRAC Direct status LED.
4	Information tag	N/A	The Information 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 also contains the iDRAC secure default password.
5	GPU fan (12)	N/A	Enables you to install GPU fans for thermal regulation.

For more information about the ports, see the www.dell.com/poweredgemanuals section.

Left control panel view



Figure 2. Left control panel

Table 4. Left control panel

Item	Indicator, button, or connector	Icon	Description
1	System health and system ID indicator	N/A	Indicates the system health. For more information, see the www.dell.com/poweredgemanuals .
2	Status LED indicators	<i>i</i>	Indicates the status of the system. For more information, see the www.dell.com/poweredgemanuals .

NOTE: For more information about the indicator codes, see the www.dell.com/poweredgemanuals.

Right control panel view

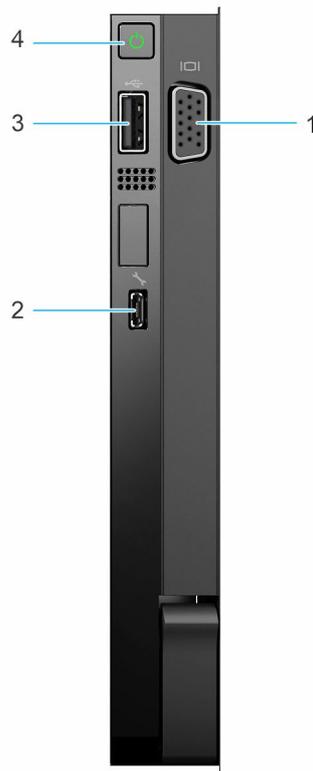


Figure 3. Right control panel view

Table 5. Right control panel

Item	Indicator or button	Icon	Description
1	VGA port		Enables you to connect a display device to the system. For more information, see the www.dell.com/poweredgemanuals .
2	iDRAC Direct port (Micro-AB USB)		The iDRAC Direct port (Micro-AB USB) enables you to access the iDRAC Direct Micro-AB features. For more information, see the <i>Integrated Dell Remote Access Controller User's Guide</i> available at https://www.dell.com/idracmanuals NOTE: You can configure iDRAC Direct by using a USB to micro USB (type AB) cable, which you can connect to your laptop or tablet. Cable length should not exceed 3 ft (0.91 meters). Performance could be affected by cable quality.
3	USB 2.0-compliant port		The USB port is a 4-pin connector and 2.0-compliant. This port enables you to connect USB devices to the system.
4	Power button		Indicates if the system is powered on or off. Press the power button to manually power on or off the system. NOTE: Press the power button to gracefully shut down the ACPI-compliant operating system.

NOTE: For more information on the ports, see the www.dell.com/poweredgemanuals.

Rear view of the system

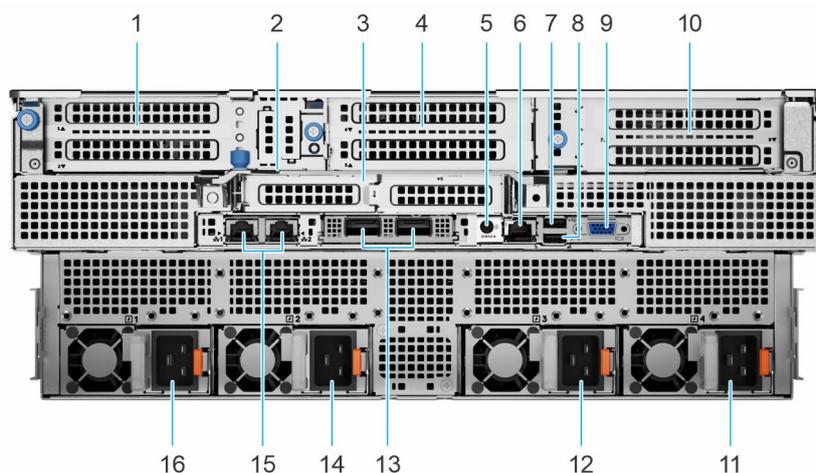


Figure 4. Rear view of the system

Table 6. Rear view of the system

Item	Ports, panels, or slots	Icon	Description
1	PCIe expansion card riser 1 (slot 2 only)	N/A	The expansion card riser enables you to connect PCI Express expansion cards. For more information on the expansion cards that are supported on your system, see www.dell.com/poweredgemanuals .
2	Rear Handle	N/A	The rear handle is used as a bracing bracket for chassis rigidity in a rack.
3	PCIe expansion card riser 2 (slot 6 only)	N/A	The expansion card riser enables you to connect PCI Express expansion cards. For more information on the expansion cards that are supported on your system, see www.dell.com/poweredgemanuals .
4	PCIe expansion card riser 3	N/A	This expansion card riser enables you to connect to the internal PCI Express device (GPU). For more information on the expansion cards that are supported on your system, see www.dell.com/poweredgemanuals .
5	System identification button		<p>Press the system ID button:</p> <ul style="list-style-type: none"> To locate a particular system within a rack. To turn the system ID on or off. <p>To reset iDRAC, press and hold the button for more than 16 seconds.</p> <p>NOTE:</p> <ul style="list-style-type: none"> To reset iDRAC using system ID, ensure that the system ID button is enabled in the iDRAC setup. If the system stops responding during POST, press and hold the system ID button (for more than 5 seconds) to enter the BIOS progress mode.
6	iDRAC dedicated port		Enables you to remotely access iDRAC. For more information, see the iDRAC User's Guide at www.dell.com/poweredgemanuals .
7	USB 2.0 port (1)		This port is USB 2.0-compliant.
8	USB 3.0 port (1)		This port is USB 3.0-compliant.

Table 6. Rear view of the system (continued)

Item	Ports, panels, or slots	Icon	Description
9	VGA port		Enables you to connect a display device to the system. For more information, see the www.dell.com/poweredgemanuals .
10	PCIe expansion card riser 4 (slot 7 and slot 8)	N/A	The expansion card riser enables you to connect PCI Express expansion cards. For more information on the expansion cards that are supported on your system, see www.dell.com/poweredgemanuals .
11	Power supply unit (PSU 4)		For more information on the PSU configurations, see the www.dell.com/poweredgemanuals .
12	Power supply unit (PSU 3)		For more information on the PSU configurations, see the www.dell.com/poweredgemanuals .
13	OCP NIC port (optional)	N/A	This port supports OCP 3.0. The NIC ports are integrated on the OCP card which is connected to the system board.
14	Power supply unit (PSU 2)		For more information on the PSU configurations, see the www.dell.com/poweredgemanuals .
15	NIC port (1,2)		The NIC ports are embedded on the LOM card that is connected to the system board.
16	Power supply unit (PSU 1)		For more information on the PSU configurations, see the www.dell.com/poweredgemanuals .

For more information on the ports and connectors, see the www.dell.com/poweredgemanuals.

Inside the system

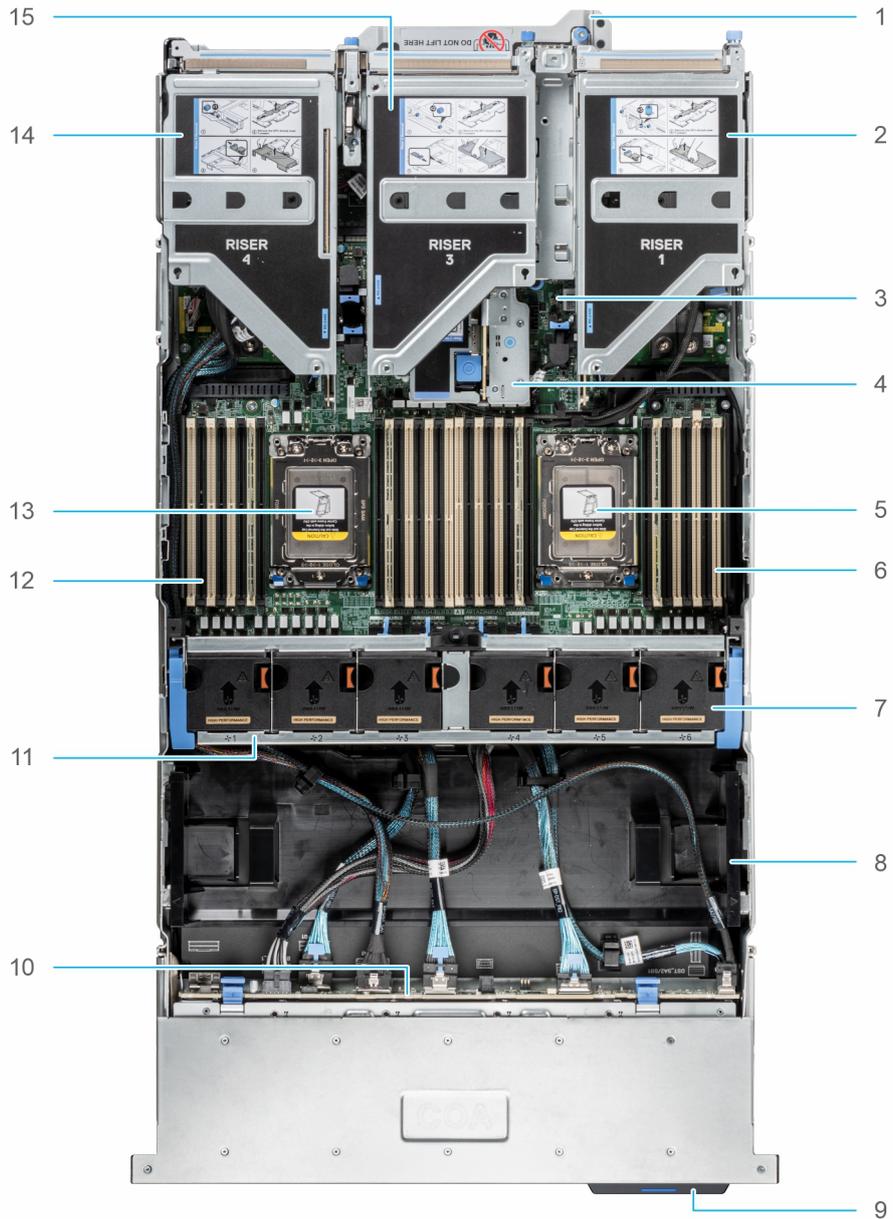


Figure 5. Inside the system

- | | |
|-------------------------------|--|
| 1. Handle | 2. Riser 1 |
| 3. System board | 4. Riser 2 |
| 5. Processor 1 socket | 6. Memory DIMM socket for processor 1 (E,F,G,H) |
| 7. Cooling fan assembly | 8. GPU air shroud |
| 9. Service tag | 10. Drive backplane |
| 11. Cooling fan cage assembly | 12. Memory DIMM socket for processor 2 (A,B,C,D) |
| 13. Processor 2 socket | 14. Riser 4 |
| 15. Riser 3 | |

Quick Resource Locator for PowerEdge XE8545 system



Figure 6. Quick Resource Locator for PowerEdge XE8545 system

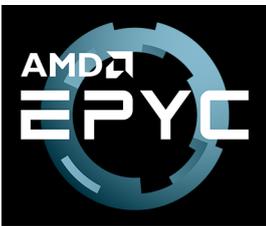
Processor



Topics:

- [Processor features](#)

Processor features



Processor features

The AMD EPYC "Milan" system on a chip (SOC) is next generation data center CPU supporting socket compatibility with EPYC 7000 "Naples" in SP3 socket infrastructure. Based on of AMD's new enhanced "Zen3" CPU core with integrated I/O controllers, AMD EPYC™ "Milan" SOC offers significant performance improvement from current generation production and the best performance per price and lowers TCO through an optimal balance of compute, memory, I/O and security.

The new AMD EPYC processor provides more cores, I/O capacity, and memory capacity. The AMD EPYC processor adds new features including:

Compute

- Up to 64 AMD Zen3 x86 cores (128 threads)
- 32 MB L3 shared by 8 cores/CCD
- Platform processor
 1. Secure Boot
 2. Crypto coprocessor

Memory

- Eight channel DDR4 with ECC up to 3200 MT/s
- 32 GB/64 GB RDIMM
- Two DIMMs/channel
- Memory capacity 256 GB/channel

Integrated I/O

- Coherent links for 2-socket configurations
- Links can be reconfigured as 64 lanes of PCIe in one-socket configuration
- Up to 128 lanes of PCI Express Gen4
- Sixteen lanes switchable with SATA
- Server Controller Hub (USB, UART, SPI, LPC, I2C, etc.)

Table 7. Supported processor for the PowerEdge XE8545

Processor model number	Base frequency in GHz	Cores/Threads	TDP in W	L3 Cache in MB	Max DDR frequency (1 DPC) MHz
7513	2.6	32	200	128	3200
7713	2	64	225	256	3200
7543	2.7 - 2.8	32	225	256	3200
7763	2.5 - 2.6	64	280	256	3200
75F3	3.2 - 3.3	32	280	256	3200
7413	2.55 - 2.65	24	180	128	3200
7663	2.05 - 2.15	56	225	256	3200
74F3	3.15 - 3.25	24	240	256	3200
7643	2.2 - 2.3	48	225	256	3200

 **NOTE:** Eight channels and 3200 capable, performance optimized for four channels @2666

Memory

Topics:

- [Supported memory](#)
- [Memory speed](#)

Supported memory

The following table lists the memory technologies that are supported by the XE8545:

Table 8. Memory technology comparison

Feature	XE8545 (DDR4)
DIMM type	RDIMM
Transfer speed	3200 MT/s
	2933 MT/s
Voltage	1.2 V

The following table shows the supported DIMMs for the PowerEdge XE8545:

Table 9. Supported DIMMs for the PowerEdge XE8545

DIMM Speed(MT/s)	DIMM Type	DIMM Capacity(GB)	Ranks per DIMM	Data Width	DIMM Voltage (V)
3200	RDIMM	32	2	4	1.2
3200	RDIMM	64	2	4	1.2

Memory speed

Table 10. Supported memory matrix

DIMM type	Rank	Capacity	DIMM rated voltage and speed	AMD EPYC™ processor	
				1 DIMM per channel (1DPC)	2 DIMMs per channel (2DPC)
RDIMM	2R	32 GB, 64 GB	DDR4 (1.2V), 3200 MT/s	3200 MT/s	2933 MT/s

Storage

The PowerEdge XE8545 supports the following drive configurations:

- 10 x 2.5-inch backplane configuration with support up to 10 SAS/SATA drives.
- 8 x 2.5-inch backplane configuration with support up to 8 NVMe drives.

Topics:

- [PERC Controller](#)
- [Storage](#)

PERC Controller

The Dell PowerEdge RAID Controller (PERC) family of enterprise-class controllers is designed for enhanced performance, increased reliability, and fault tolerance. PERC controller also simplifies management - providing a powerful, easy-to-manage way to create a robust infrastructure and help maximize system uptime.

Table 11. PERC series controller offerings

Performance level	Description
Value Performance	H745, H755

Storage

Supported drives

Table 12. Supported drives - SAS and SATA or SSD

SATA SSD (MU)
480 GB Samsung SM883
960 GB Samsung SM883
1920 GB Samsung SM883
480 GB Intel S4610
960 GB Intel S4610
1920 GB Intel S4610

Table 13. SATA SSD (RI)

SATA SSD (RI)
Toshiba HK6-R RI 480 GB SSD SATA 6 GBps 2.5 512e ISE
MICRON 5300 RI SSDR,480G,2E,IT06,2.5,C,53R,EC
Samsung PM883a RI 960 GB SATA 6 GBps 2.5 512e ISE
Intel Youngsville Refresh S4510 RI 960 GB SSD SATA6 2.5 512e ISE
Hynix SE4011 RI 960 GB SATA 6 GBps 2.5 512e ISE
Toshiba HK6-R RI 960 GB SSD SATA 6 GBps 2.5 512e ISE

Table 13. SATA SSD (RI) (continued)

SATA SSD (RI)
MICRON 5300 RI SSDR,960G,2E,IT06,2.5,C,53R,EC
Samsung PM883a RI 1.92 TB SATA 6 GBps 2.5 512e ISE
Intel Youngsville Refresh S4510 RI 1.92 TB SSD SATA6 2.5 512e ISE
Toshiba HK6-R RI 1.92 TB SSD SATA 6 GBps 2.5 512e ISE
MICRON 5300 RI SSDR,1.9T,2E,IT06,2.5,C,53R,EC
Hynix SE4011 RI 1.92 TB SATA 6 GBps 2.5 512e ISE
WD, BEAR COVE QUANTUM 1WPD SSDR,3.8T,2E,FS12,2.5,W,BC1,EC
Samsung PM883a RI 3.84 TB SATA 6 GBps 2.5 512e ISE
Intel Youngsville Refresh S4510 RI 3.84 TB SSD SATA6 2.5 512e ISE
Toshiba HK6-R RI 3.84 TB SSD SATA 6 GBps 2.5 512e ISE
MICRON 5300 RI SSDR,3.8T,2E,IT06,2.5,C,53,EC
Hynix SE4011 RI 3.8 TB SATA 6 GBps 2.5 512e ISE
1920 GB FIPS -TOSHIBA Phoenix M5 512e /12 GB 2.5IN RI SSD 1.92 TB FIPS-140

Table 14. SAS SSD (RI)

SAS SSD (RI)
960 GB Samsung PM883
960 GB Seagate LangeBP 1WPD SSD, Value SAS, 2.5, 512e, SED
1.92 TB Seagate LangeBP 1WPD SSD, Value SAS, 2.5, 512e, SED
3.84 TB Seagate LangeBP 1WPD SSD, Value SAS, 2.5, 512e, SED
960 GB Seagate LangeBP 3WPD SSD, Value SAS, 2.5, 512e, SED
1.92 TB Seagate LangeBP 3WPD SSD, Value SAS, 2.5, 512e, SED
3.84 TB Seagate LangeBP 3WPD SSD, Value SAS, 2.5, 512e, SED
SSDR,1.9T,2E,IS12,2.5,T-5RI,EC (Toshiba Phoenix M5 RI SSD ISE 1.9 TB 2.5 SAS 12 GBps 512e) CM6
SSDR, 7.68 TB NVRII U.2 CM6
SSDR 6.4 TB NVMUI U.2 CM6
Samsung SSD, PM1643a RI, 2.5, SAS, RI, 1.92 TB EC
WD Phoenix Bear Cove Plus 1DWPD 1.92 TB 12 GBps SAS 2.5 512E ISE
PM1643 RI 960 GB 12 GBps SAS 2.5 512e ISE
WD Phoenix Bear Cove Plus 1DWPD 960 GB 12 GBps SAS 2.5 512E ISE
Hitachi Bear Cove TLC RI 960 GB 12 GBps SAS 2.5 512n ISE
Samsung SSD, PM1643a RI, 2.5, SAS, RI, 960 GB EC

Table 15. NVMe SSD

NVMe SSD
Intel P5800X, SSDR, 400 GB, NVWII, U.2
Intel P5800X, SSDR, 800 GB, NVWII, U.2
Intel P5500 1.92 TB, U.2
Intel P5500 3.84 TB, U.2

Table 15. NVMe SSD (continued)

NVMe SSD
Intel P5500 7.68 TB RI
Hynix PE8010, SSDR 960 GB NVRII, U.2
Hynix PE8010, SSDR 3.84 TB NVRII, U.2
SSDR, 3.2 TB, NVME 2.5 U.2 PM1735, V2
SSDR, 6.4 TB, NVME 2.5 U.2 PM1735, V2
SSDR, 1.92 TB, NVME 2.5 U.2 PM1733, V2
SSDR, 3.2 TB, NVME 2.5 U.2 PM1733, V2
SSDR 7.68 TB, NVME 2.5 U.2 PM1733, V2

Networking and PCIe

The PowerEdge XE8545 system supports two Network Interface Controller (NIC) ports embedded on the LOM card.

The PowerEdge XE8545 system also supports OCP NIC port integrated on the optional OCP card.

Table 16. NIC port specification

Feature	Specifications
LOM card	1 GB x 2
OCP card (OCP 3.0)	1 GbE x 4, 10 GbE x 2, 25 GbE x 2, 25 GbE x 4, 50 GbE x 2, 100 GbE x 2

Topics:

- [Expansion card installation guidelines](#)

Expansion card installation guidelines

The following table describes the supported expansion cards:

Table 17. Expansion card riser configuration 1

PCIe slots	Width	Length	Height	Processor 1	Processor 2	Processor 2	Processor 2
				Riser 1A	Riser 2C	Riser 3D	Riser 4B
Slot 2	DW	HL	FH	x16	-	-	-
Slot 6	SW	HL	LP	-	x16	-	-
Slot 7	SW	HL	FH	-	-	-	x8
Slot 8	SW	HL	FH	-	-	-	x8

Table 18. Expansion card riser configuration 2

PCIe slots	Width	Length	Height	Processor 1	Processor 2	Processor 2	Processor 2
				Riser 1A	Riser 2C	Riser 3D	Riser 4A
Slot 2	DW	HL	FH	x16	-	-	-
Slot 6	SW	HL	LP	-	x16	-	-
Slot 7	SW	HL	FH	-	-	-	x16

NOTE: The expansion-card slots are not hot-swappable.

The following table provides guidelines for installing expansion cards to ensure proper cooling and mechanical fit. The expansion cards with the highest priority should be installed first using the slot priority indicated. All the other expansion cards should be installed in the card priority and slot priority order.

Table 19. Configuration 1: Riser 1A + Riser 2C + Riser 3D + Riser 4B

Card type	Slot priority	Maximum number of cards
Mellanox (NIC: 25 Gb - Full Height) CX5, S28	2	1

Table 19. Configuration 1: Riser 1A + Riser 2C + Riser 3D + Riser 4B (continued)

Card type	Slot priority	Maximum number of cards
Mellanox (NIC: 25 Gb - Low Profile) CX5, S28	6	1
Mellanox (NIC: 100 Gb - Full Height) CX6	2	1
Mellanox (NIC: 100 Gb - Full Height) Q56	2	1
Intel (NIC: 25 Gb - Full Height) SFP	2	1
Broadcom (NIC: 25 Gb - Full Height) 57414	2	1
Mellanox (NIC - Full Height) HDRV	2	1
Mellanox (NIC: 100 Gb - Low Profile) CX6	6	1
Mellanox (NIC: 100 Gb - Low Profile) Q56	6	1
Intel (NIC: 25 Gb - Low Profile) SFP	6	1
Broadcom (NIC: 25 Gb - Low Profile) 57414	6	1
Mellanox (NIC - Low Profile) HDRV	6	1
Inventec (PERC: 4 GB - Full Height/Low Profile) H745	7	1
Foxconn (PERC: 4 GB - Full Height/Low Profile) H755	7	1
Inventec (BOSS - Full Height) S1V5	8	1
Nvidia (GPU - 40 GB) A100	21~24	1
Nvidia (GPU - 80 GB) A100	21~24	1
Broadcom (OCP3: 25 Gb)	Internal	1
Intel (OCP3: 1 Gb)	Internal	1
Mellanox (OCP3: 25 Gb)	Internal	1
Broadcom (NIC: 100 Gb - Full Height) 2P, Q28	2	1
Broadcom (NIC: 100 Gb - Low Profile) 2P, Q28	6	1
Broadcom (NIC: 25 Gb - Full Height) 4P, S28	2	1
Broadcom (NIC: 100 Gb - Full Height) 2P, Q56	2	1
Broadcom Broadcom (NIC: 100 Gb - Low Profile) 2P, Q56	6	1
Intel (NIC: 100 Gb - Full Height) 2P, Q28	2	1
Intel (NIC: 100 Gb - Low Profile) 2P, Q28	6	1
Intel (OCP3: 25 Gb) 4P, S28	Internal	1

Table 20. Configuration 2: Riser 1A + Riser 2C + Riser 3D + Riser 4A

Card type	Slot priority	Maximum number of cards
Mellanox (NIC: 25 Gb - Full Height) CX5, S28	2, 7	1
Mellanox (NIC: 25 Gb - Low Profile) CX5, S28	6	1
Mellanox (NIC: 100 Gb - Full Height) CX6	2, 7	2
Mellanox (NIC: 100 Gb - Full Height) Q56	2, 7	2
Intel (NIC: 25 Gb - Full Height) SFP	2, 7	2
Broadcom (NIC: 25 Gb - Full Height) 57414	2, 7	2
Mellanox (NIC - Full Height) HDRV	2, 7	2
Mellanox (NIC: 100 Gb - Low Profile) CX6	6	1
Mellanox (NIC: 100 Gb - Low Profile) Q56	6	1
Intel (NIC: 25 Gb - Low Profile) SFP	6	1
Broadcom (NIC: 25 Gb - Low Profile) 57414	6	1
Mellanox (NIC - Low Profile) HDRV	6	1
Nvidia (GPU - 40 GB) A100	21~24	1
Nvidia (GPU - 80 GB) A100	21~24	1
Broadcom (OCP3: 25 Gb)	Internal	1
Intel (OCP3: 1 Gb)	Internal	1
Mellanox (OCP3: 25 Gb)	Internal	1
Broadcom (NIC: 100 Gb - Full Height) 2P, Q28	2, 7	2
Broadcom (NIC: 100 Gb - Low Profile) 2P, Q28	6	1
Broadcom (NIC: 25 Gb - Full Height) 4P, S28	2, 7	2
Broadcom (NIC: 100 Gb - Full Height) 2P, Q56	2	1
Broadcom Broadcom (NIC: 100 Gb - Low Profile) 2P, Q56	6	1
Intel (NIC: 100 Gb - Full Height) 2P, Q28	2, 7	2
Intel (NIC: 100 Gb - Low Profile) 2P, Q28	6	1
Intel (OCP3: 25 Gb) 4P, S28	Internal	1

Power, thermal, and acoustics

Topics:

- [Power](#)
- [Thermal](#)
- [Acoustics](#)

Power

The PowerEdge XE8545 system has an extensive collection of sensors that automatically track thermal activity, and helps to regulate temperature and reduce server noise and power consumption.

Table 21. Power tools and technologies

Feature	Description
PSU portfolio	Dell EMC's PSU portfolio includes intelligent features such as dynamically optimizing power usage while maintaining availability and redundancy.
Industry compliance	Dell EMC's servers are compliant with all relevant industry certifications and guidelines, including 80 PLUS, Climate Savers, and ENERGY STAR.
Power monitoring accuracy	PSU power monitoring improvements include: <ul style="list-style-type: none"> • Power monitoring accuracy of 1%, lower than the industry standard of 5% • More accurate reporting of power • Better performance under a power cap
Power capping	Use Dell EMC systems management software to set your system power cap to limit the output of a PSU and reduce system power consumption.
Systems management	iDRAC Enterprise 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.
Rack infrastructure	Dell EMC offers some of the industry's highest efficiency power infrastructure solutions, including: <ul style="list-style-type: none"> • Power distribution units (PDUs) • Uninterruptible power supplies (UPSs) • Energy Smart containment rack enclosures For additional information see: Rack Infrastructure

Thermal

The 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).

 **NOTE:** For more information on thermal restrictions, see [Thermal Restrictions](#).

Acoustics

Sound power and sound pressure levels increase with greater populations or higher utilization, while sound quality remains good even as the frequency content changes. The PowerEdge XE8545 is designed, acoustically, suitable for usage in "unattended data center" environment. The phrase "unattended data center" is used to mean a space in which many (from tens to 1000s) of Enterprise products are deployed together, its own heating and cooling systems condition the space, and operators or engineers of equipment enter generally only to deploy, service, or decommission equipment. Hearing protection or hearing monitoring programs may be expected (per government or company guidelines) in these areas.

Supported operating systems

The PowerEdge XE8545 supports the following operating systems:

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

For more information about the specific versions and additions, see <https://www.dell.com/support/home/drivers/supportedOS>.

Dell EMC OpenManage systems management

Dell EMC OpenManage Portfolio

Simplifying hardware management through ease of use and automation

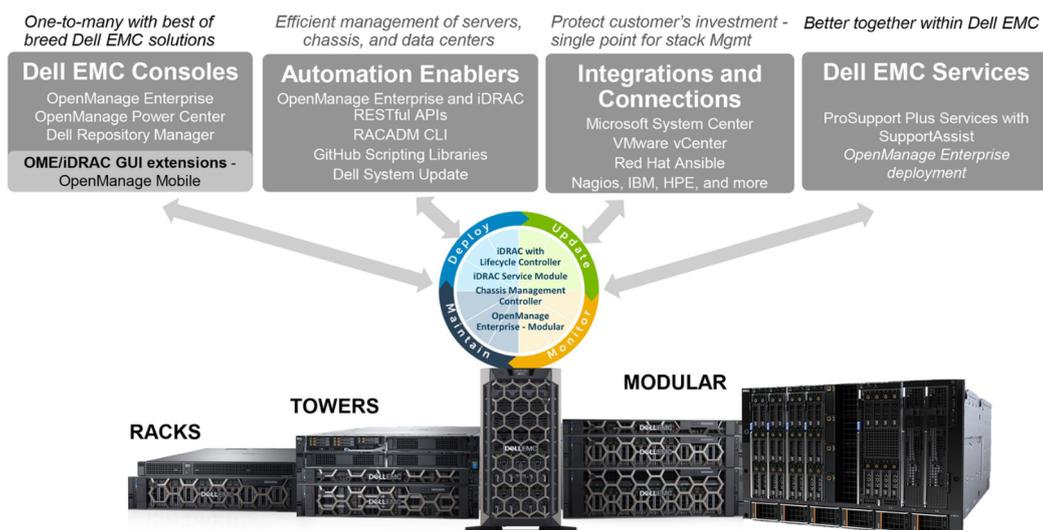


Figure 7. Dell EMC OpenManage Portfolio

Dell EMC 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 EMC servers effectively and efficiently; in physical, virtual, local, and remote environments, operating in-band, and out-of-band (agent-free). The OpenManage portfolio includes innovative embedded management tools such as the integrated Dell Remote Access Controller (iDRAC), Chassis Management Controller and Consoles like OpenManage Enterprise, OpenManage Power Manager plug in, and tools like Repository Manager.

Dell EMC has developed comprehensive systems management solutions based on open standards and has integrated with management consoles that can perform advanced management of Dell hardware. Dell EMC has connected or integrated the advanced management capabilities of Dell hardware into offerings from the industry's top systems management vendors and frameworks such as Ansible, thus making Dell EMC platforms easy to deploy, update, monitor, and manage.

The key tools for managing Dell EMC PowerEdge servers are iDRAC and the one-to-many OpenManage Enterprise console. OpenManage Enterprise helps the system administrators in complete lifecycle management of multiple generations of PowerEdge servers. Other tools such as Repository Manager, which enables simple yet comprehensive change management.

OpenManage tools integrate with systems management framework from other vendors such as VMware, Microsoft, Ansible, and ServiceNow. This enables you to use the skills of the IT staff to efficiently manage Dell EMC PowerEdge servers.

Topics:

- [Server and Chassis Managers](#)
- [Dell EMC consoles](#)
- [Automation Enablers](#)
- [Integration with third-party consoles](#)
- [Connections for third-party consoles](#)
- [Dell EMC Update Utilities](#)
- [Dell resources](#)

Server and Chassis Managers

- Integrated Dell Remote Access Controller (iDRAC)
- iDRAC Service Module (iSM)

Dell EMC consoles

- Dell EMC OpenManage Enterprise
- Dell EMC Repository Manager (DRM)
- Dell EMC OpenManage Enterprise Power Manager plugin to OpenManage Enterprise
- Dell EMC OpenManage Mobile (OMM)

Automation Enablers

- OpenManage Ansible Modules
- iDRAC RESTful APIs (Redfish)
- Standards-based APIs (Python, PowerShell)
- RACADM Command Line Interface (CLI)
- GitHub Scripting Libraries

Integration with third-party consoles

- Dell EMC OpenManage Integrations with Microsoft System Center
- Dell EMC OpenManage Integration for VMware vCenter (OMIVV)
- Dell EMC OpenManage Ansible Modules
- Dell EMC OpenManage Integration with ServiceNow

Connections for third-party consoles

- Micro Focus and other HPE tools
- OpenManage Connection for IBM Tivoli
- OpenManage Plug-in for Nagios Core and XI

Dell EMC Update Utilities

- Dell System Update (DSU)
- Dell EMC Repository Manager (DRM)
- Dell EMC Update Packages (DUP)
- Dell EMC Server Update Utility (SUU)
- Dell EMC Platform Specific Bootable ISO (PSBI)

Dell resources

For additional information about white papers, videos, blogs, forums, technical material, tools, usage examples, and other information, go to the OpenManage page at <https://www.dell.com/openmanagemanuals> or the following product pages:

Table 22. Dell resources

Resource	Location
Integrated Dell Remote Access Controller (iDRAC)	https://www.dell.com/idracmanuals
iDRAC Service Module (iSM)	https://www.dell.com/support/kbdoc/000178050/
OpenManage Ansible Modules	https://www.dell.com/support/kbdoc/000177308/
OpenManage Essentials (OME)	https://www.dell.com/support/kbdoc/000175879/
OpenManage Mobile (OMM)	https://www.dell.com/support/kbdoc/000176046
OpenManage Integration for VMware vCenter (OMIVV)	https://www.dell.com/support/kbdoc/000176981/
OpenManage Integration for Microsoft System Center (OMIMSSC)	https://www.dell.com/support/kbdoc/000147399
Dell EMC Repository Manager (DRM)	https://www.dell.com/support/kbdoc/000177083
Dell EMC System Update (DSU)	https://www.dell.com/support/kbdoc/000130590
Dell EMC Platform Specific Bootable ISO (PSBI)	Dell.com/support/article/sln296511
Dell EMC Chassis Management Controller (CMC)	www.dell.com/support/article/sln311283
OpenManage Connections for Partner Consoles	https://www.dell.com/support/kbdoc/000146912
OpenManage Enterprise Power Manager	https://www.dell.com/support/kbdoc/000176254
OpenManage Integration with ServiceNow (OMISNOW)	Dell.com/support/article/sln317784

 **NOTE:** Features may vary by server. Please refer to the product page on <https://www.dell.com/manuals> for details.

Appendix A. Additional specifications

Topics:

- Chassis dimensions
- System weight
- Video specifications
- USB ports specifications
- Environmental specifications

Chassis dimensions

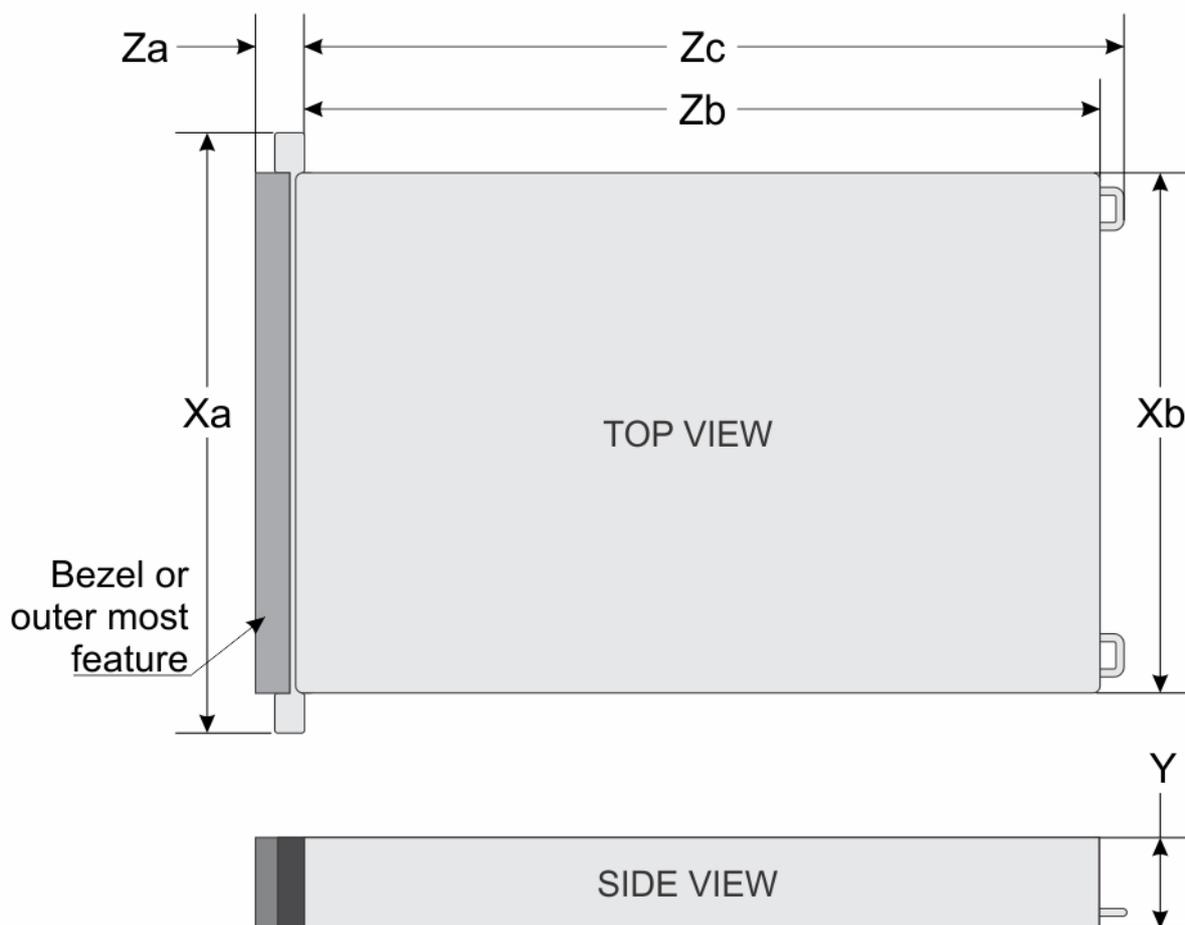


Figure 8. Chassis dimensions

Table 23. Chassis dimension for the system

Drives	Xa	Xb	Y	Za	Zb	Zc
10 drives	482.0 mm (18.97 inches)	447.0 mm (15.59 inches)	174.8 mm (6.88 inches)	35.84 mm (1.4 inches)With bezel22.0 mm	810 mm (31.88 inches)Ear to rear wall	845.59 mm (33.29

Table 23. Chassis dimension for the system

Drives	Xa	Xb	Y	Za	Zb	Zc
				(0.87 inches) Without bezel		inches) Ear to PSU handle

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

System weight

Table 24. System weight of the PowerEdge XE8545 system

System configuration	Maximum weight (with all drives/SSDs)
10 x 2.5-inch	48.61 kg (107.17 lb)

Video specifications

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

Table 25. Supported front video resolution options for the system

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

Table 26. Supported rear video resolution options for the system

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

USB ports specifications

Table 27. USB specifications

Front		Rear	
USB port type	No. of ports	USB port type	No. of ports
USB 2.0-compliant port	One	USB 3.0-compliant port	One
Micro-USB 2.0 compliant port	One	USB 2.0-compliant port	One

- NOTE:** The micro USB 2.0 compliant port can only be used as an iDRAC Direct or a management port.
- NOTE:** The USB 2.0 specifications provide a 5 V supply on a single wire to power connected USB devices. A unit load is defined as 100 mA in USB 2.0, and 150 mA in USB 3.0. A device may draw a maximum of 5 unit loads (500 mA) from a port in USB 2.0; 6 (900 mA) in USB 3.0.
- NOTE:** The USB 2.0 interface can provide power to low-power peripherals but must adhere to USB specification. An external power source is required for higher-power peripherals to function, such as external CD/DVD Drives.

Environmental specifications

- NOTE:** For additional information about environmental certifications, refer to the *Product Environmental Datasheet* located with the Manuals & Documents on www.dell.com/support/home.

Table 28. Operational climatic range category 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
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 (33.8°F/984 Ft) above 900 m (2953 Ft)

- NOTE:** Certain system hardware configurations may require operating temperatures to be less than 28°C. For more information, see the Thermal air restrictions section.

Table 29. 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 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)

Table 30. Maximum vibration specifications

Maximum vibration	Specifications
Operating	0.21 G _{rms} at 5 Hz to 500 Hz (all operation orientations)
Storage	1.88 G _{rms} at 10 Hz to 500 Hz for 15 minutes (all six sides tested)

Table 31. Maximum shock pulse specifications

Maximum shock pulse	Specifications
Operating	Six consecutively executed shock pulses in the positive and negative x, y, and z axis of 6 G for up to 11 ms.
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.

Thermal restriction matrix

Table 32. Thermal restriction matrix

TDP (W)	Heat sink type	Fan Type	2 x 2.5" SAS + 8 x 2.5" NVMe			
			ASHRAE A2 (Max 35° C)	Ambient Limit (Max 30° C)	Ambient Limit (Max 25° C)	Ambient Limit (Max 20° C)
AMD Milan 64C 280W 2.5-2.6 GHz 256 MB	2U CPU Heat sink	Very High Performance Fan	Supported			
AMD Milan 24C 240W 3.15 GHz 256 MB						
AMD Milan 64C 225W 2.05-2.15 GHz 256 MB						
AMD Milan 32C 225W 2.7-2.8 GHz 256 MB						
AMD Milan 64C 225W 2.0 GHz 256 MB						
AMD Milan 48C 225W 2.2-2.3 GHz 256 MB						
AMD Milan 24C 180W 2.55-2.65 GHz 128 MB						

Table 33. GPU/FPGA thermal restriction matrix

TDP (W)	Heat sink type	Fan Type	ASHRAE A2 (Max 35° C)	Ambient Limit (Max 30° C)	Ambient Limit (Max 25° C)	Ambient Limit (Max 20° C)
Nvidia 500 W A100 80 GB GPU	2.5U GPU Heat sink	Very High Performance Fan	Not supported	Not supported (Max ambient support limit = 28° C)	Supported	Supported
Nvidia 400 W A100 40 GB GPU			Supported	Supported	Supported	Supported

NOTE: When the 80 GB GPUs are installed, the iDRAC sets the thermal warning threshold to 28° C instead of the normal 38° C.

NOTE: If System Board Inlet Temp reaches 28° C - 32° C, a warning message is logged. It is possible the GPUs may lower power consumption to avoid thermal damage. This results in lower GPU performance.

Table 34. Processor and heat sink matrix

Heat sink	Processor TDP
2U HPR (Silver) HSK	Supports all TDP

Particulate and gaseous contamination specifications

The following table defines the limitations that help avoid any damages to the IT equipment and/or, or both failure from particulate and gaseous contamination. If the levels of particulate or gaseous pollution exceed the specified limitations and results in equipment damage or failure, you must rectify the environmental conditions. Remediation of environmental conditions is the responsibility of the customer.

Table 35. Particulate contamination specifications

Particulate contamination	Specifications
Air filtration	<p>Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit.</p> <p>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.</p> <p>NOTE: Air entering the data center must have MERV11 or MERV13 filtration.</p> <p>NOTE: Air filtering can also be accomplished by filtering room air with MERV8 filter per ANSI/ASHRAE Standard 127</p>
Conductive dust	<p>Air must be free of conductive dust, zinc whiskers, or other conductive particles.</p> <p>NOTE: This condition applies to data center and non-data center environments.</p> <p>NOTE: Common sources of conductive dust include manufacturing processes, and zinc whiskers from the plating on the bottom of raised floor tiles</p>
Corrosive dust	<ul style="list-style-type: none"> Air must be free of corrosive dust. Residual dust present in the air must have a deliquescent point less than 60% relative humidity. <p>NOTE: This condition applies to data center and non-data center environments.</p>

Table 36. 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

NOTE: Maximum corrosive contaminant levels measured at ≤50% relative humidity.

Thermal air restrictions

ASHRAE A2 environment

- CPU TDP > 280 W are not supported.
- PCIe card TDP > 25 W is not supported.
- Nvidia A100 80 GB GPU (Max TDP with 500 W) is not supported within ASHRAE A2. Maximum Ambient temperature supported is 28°C.

Appendix B. Standards compliance

The system conforms to the following industry standards.

Table 37. Industry standard documents

Standard	URL for information and specifications
ACPI Advance Configuration and Power Interface Specification, v2.0c	https://uefi.org/specsandtesttools
Ethernet IEEE 802.3-2005	https://standards.ieee.org/
HDG Hardware Design Guide Version 3.0 for Microsoft Windows Server	microsoft.com/whdc/system/platform/pcdesign/desguide/serverdg.mspx
IPMI Intelligent Platform Management Interface, v2.0	intel.com/design/servers/ipmi
DDR4 Memory DDR4 SDRAM Specification	jedec.org/standards-documents/docs/jesd79-4.pdf
PCI Express PCI Express Base Specification Rev. 2.0 and 3.0	pcisig.com/specifications/pciexpress
PMBus Power System Management Protocol Specification, v1.2	http://pmbus.org/Assets/PDFS/Public/PMBus_Specification_Part_1_Rev_1-1_20070205.pdf
SAS Serial Attached SCSI, v1.1	http://www.t10.org/
SATA Serial ATA Rev. 2.6; SATA II, SATA 1.0a Extensions, Rev. 1.2	sata-io.org
SMBIOS System Management BIOS Reference Specification, v2.7	dmtf.org/standards/smbios
TPM Trusted Platform Module Specification, v1.2 and v2.0	trustedcomputinggroup.org
UEFI Unified Extensible Firmware Interface Specification, v2.1	uefi.org/specifications
USB Universal Serial Bus Specification, Rev. 2.0	usb.org/developers/docs

Appendix C Additional resources

Table 38. Additional resources

Resource	Description of contents	Location
Installation and Service Manual	This manual, available in PDF format, provides the following information: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 EMC contact information.	Inside the system chassis cover
Energy Smart Solution Advisor (ESSA)	The Dell EMC online ESSA enables easier and more meaningful estimates to help you determine the most efficient configuration possible. Use ESSA to calculate the power consumption of your hardware, power infrastructure, and storage.	Dell.com/calc

Dell Technologies Services

Dell Technologies Services include a wide, customizable range of service choices to simplify the assessment, design, implementation, management and maintenance of IT environments and to help you transition from platform to platform. Depending on your current business requirements and the level of service right for you, we provide factory, on-site, remote, modular, and specialized services that fit your needs and budget. We'll help with a little or a lot—your choice—and provide access to our global resources.

For more information, see DellEMC.com/Services.

Topics:

- [Deployment Services](#)
- [Dell Technologies Consulting Services](#)
- [Dell EMC Managed Services](#)
- [Dell Technologies Education Services](#)

Deployment Services

Dell EMC ProDeploy Enterprise Suite

ProDeploy Enterprise Suite gets your server out of the box and into optimized production—fast. Our elite deployment engineers with broad and deep experience utilizing best-in-class processes along with our established global scale can help you around the clock and around the globe. From simple to the most complex server installations and software integration, we take the guess work and risk out of deploying your new server technology.

		Basic Deployment	ProDeploy	ProDeploy Plus
Pre-deployment	Single point of contact for project management	-	●	In-region
	Site readiness review	-	●	●
	Implementation planning	-	●	●
	SAM engagement for ProSupport Plus entitled devices	-	-	●
Deployment	Deployment service hours	Business hours	24x7	24x7
	Remote guidance for hardware installation or Onsite hardware installation and packaging material removal	Onsite	Remote or Onsite	Onsite
	Install and configure system software	-	Remote	Onsite
	Install support software and connect with Dell Technologies	-	●	●
	Project documentation with knowledge transfer	-	●	●
Post-deployment	Deployment verification	-	●	●
	Configuration data transfer to Dell EMC technical support	-	●	●
	30-days of post-deployment configuration assistance	-	-	●
	Training credits for Dell EMC Education Services	-	-	●

Figure 9. ProDeploy Enterprise Suite capabilities

 **NOTE:** Hardware installation not applicable on selected software products.

Dell EMC ProDeploy Plus

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

migration planning and recommendations. Software installation includes set up of most versions of Dell EMC SupportAssist and OpenManage system management utilities. Post-deployment configuration assistance, testing, and product orientation services are also available.

Dell EMC ProDeploy

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 as most versions of Dell EMC SupportAssist 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 EMC ProDeploy for HPC

HPC deployments require specialists that understand that cutting edge is yesterday's news. Dell EMC 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

ProDeploy for HPC

Get more out of your cluster starting Day One

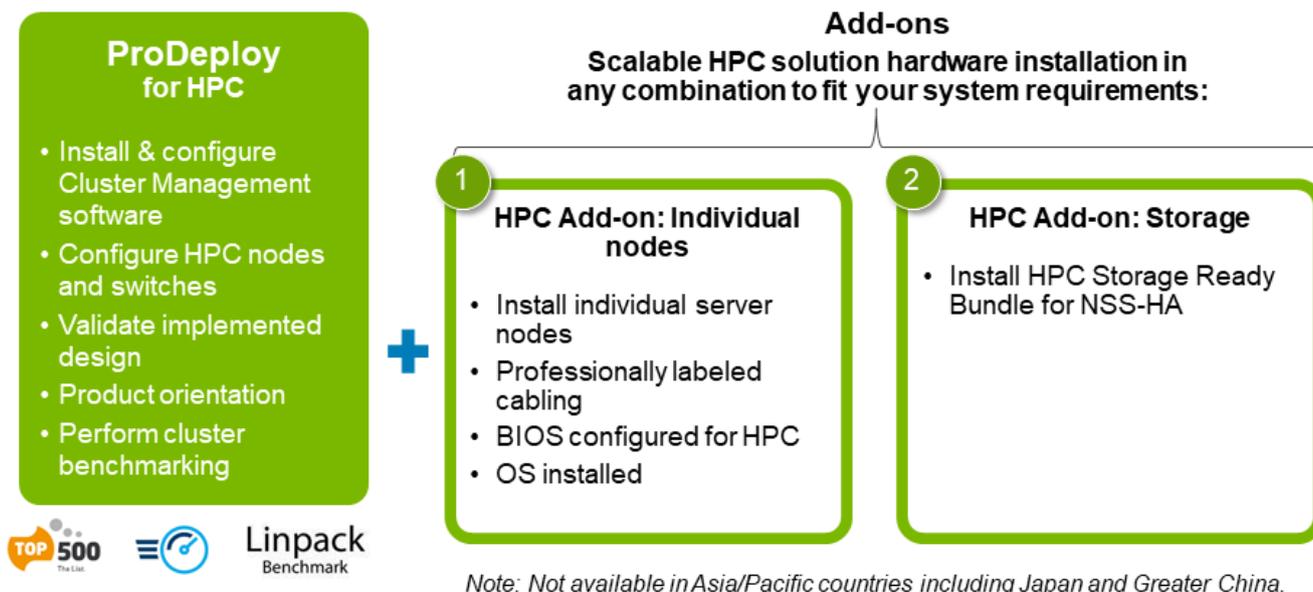


Figure 10. Dell EMC ProDeploy for HPC

Dell EMC Basic Deployment

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

Dell EMC Server Configuration Services

With Dell EMC Rack Integration and other Dell EMC PowerEdge Server Configuration Services, you save time by receiving your systems racked, cabled, tested, and ready to integrate into the data center. Dell EMC staff pre-configure RAID, BIOS and iDRAC settings, install system images, and even install third-party hardware and software.

For more information, see [Server Configuration Services](#).

Dell EMC Residency Services

Residency Services helps customers transition to new capabilities quickly with the assistance of on-site or remote Dell EMC experts whose priorities and time you control. Residency experts can provide post implementation management and knowledge transfer related to a new technology acquisition or day-to-day operational management of the IT infrastructure.

Dell EMC Data Migration Service

Protect your business and data with our single point of contact to manage your data migration project. Your project manager will work with our experienced team of experts to create a plan using industry-leading tools and proven processes based on global best practices to migrate your existing files and data so your business system get up and running quickly and smoothly.

Support Services

ProSupport Enterprise Suite

With the ProSupport Enterprise Suite, we can help you keep your operation running smoothly, so you can focus on running your business. We will help you maintain peak performance and availability of your most essential workloads. ProSupport Enterprise Suite is a suite of support services that enable you to build the solution that is right for your organization. Choose support models based on how you use technology and where you 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 your IT resources by choosing the right support model.



Figure 11. ProSupport Enterprise Suite

Dell EMC ProSupport Plus for Enterprise

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

- An assigned Services Account Manager who knows your business and your environment
- Immediate advanced troubleshooting from an engineer who understands your PowerEdge server
- Personalized, preventive recommendations 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 enabled by SupportAssist
- Proactive monitoring, issue detection, notification, and automated case creation for accelerated issue resolution enabled by SupportAssist
- On-demand reporting and analytics-based recommendations enabled by SupportAssist and TechDirect

Dell EMC ProSupport for Enterprise

Our ProSupport service offers highly trained experts around the clock and around the globe to address your 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 3rd party support
- Hypervisor, operating system and application support
- Consistent experience regardless of where you are located or what language you speak
- Optional onsite parts and labor response options including next business day or four-hour mission critical

NOTE: Subject to service offer country availability.

Enterprise Support Services Feature Comparison

	Basic	ProSupport	ProSupport Plus
Remote technical support	9x5	24x7	24x7
Covered products	Hardware	Hardware Software	Hardware Software
Onsite hardware support	Next business day	Next business day or 4hr mission critical	Next business day or 4 hr mission critical
3 rd party collaborative assistance		●	●
Automated issue detection & proactive case creation		●	●
Self-service case initiation and management		●	●
Access to software updates		●	●
Priority access to specialized support experts			●
3 rd party software support			●
Assigned Services Account Manager			●
Personalized assessments and recommendations			●
Semiannual systems maintenance			●

Availability and terms of Dell Technologies services vary by region and by product. For more information, please view our Service Descriptions available on Dell.com

Figure 12. Dell EMC Enterprise Support model

Dell EMC 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 your company'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 your environment and configurations
- On-demand reporting and analytics-based recommendations enabled by SupportAssist and TechDirect
- Flexible on-site support and parts options that fit your operational model
- A tailored support plan and training for your operations staff

Dell EMC ProSupport for HPC

ProSupport Add-on for HPC

Delivering a true end-to-end support experience across your HPC environment

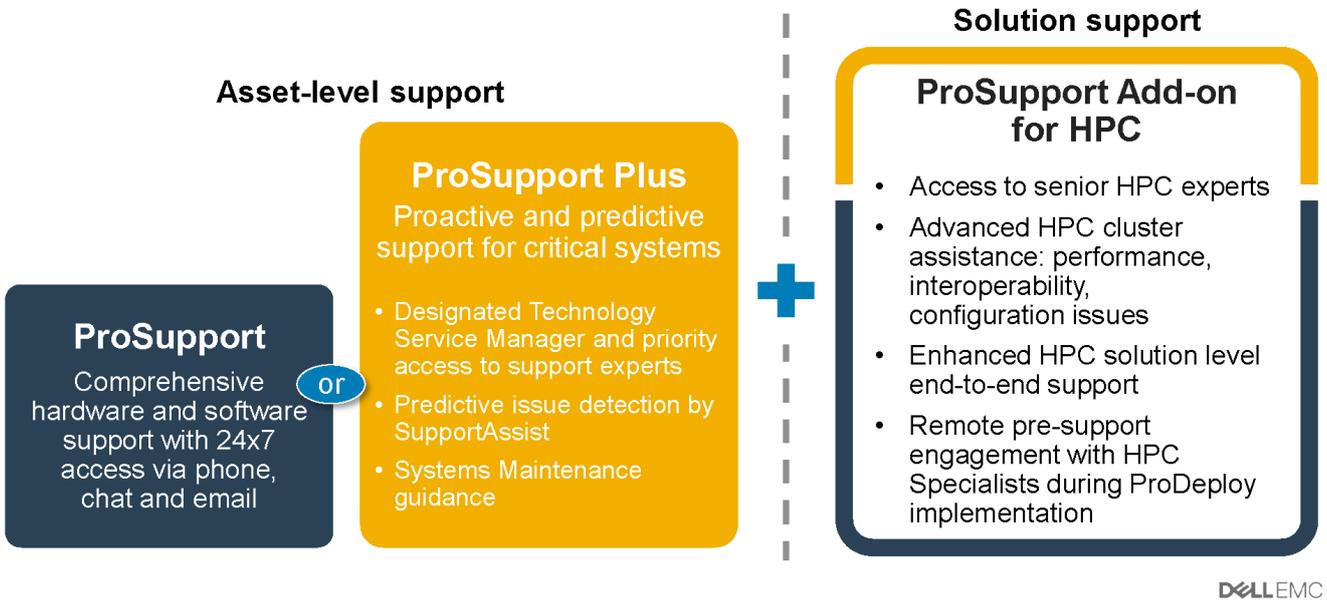


Figure 13. Dell EMC ProSupport for HPC

Support Technologies

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

Dell EMC SupportAssist

The best time to solve a problem is before it happens. The automated proactive and predictive technology SupportAssist helps reduce steps and time to resolution, often detecting issues before they become a crisis. Benefits include:

- Value—SupportAssist is 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 EMC experts
- Gain insight and control—optimize enterprise devices with on-demand ProSupport Plus reporting in TechDirect, and get predictive issue detection before the problem starts

NOTE: SupportAssist is included with all support plans, but features vary based on service level agreement.

	Basic Hardware Warranty	ProSupport	ProSupport Plus
Automated issue detection and system state information collection	•	•	•
Proactive, automated case creation and notification		•	•
Predictive issue detection for failure prevention			•
Recommendation reporting available on-demand in TechDirect			•

Figure 14. SupportAssist model

Get started at Dell.com/SupportAssist

Dell EMC TechDirect

Boost IT team productivity when supporting Dell EMC systems. With over 1.4 million self-dispatches processed each year, TechDirect has proven its effectiveness as a support tool. You can:

- Self-dispatch replacement parts
- Request technical support
- Integrate APIs into your help desk

Or, access all your Dell EMC certification and authorization requirements. Train your staff on Dell EMC products, as TechDirect allows you to:

- Download study guides
- Schedule certification and authorization exams
- View transcripts of completed courses and exams

Register at [techdirect.dell](https://techdirect.dell.com).

Dell Technologies Consulting Services

Our expert consultants help you transform faster, and quickly achieve business outcomes for the high value workloads Dell EMC PowerEdge systems can handle.

From strategy to full-scale implementation, Dell Technologies Consulting can help you determine how to execute your IT, workforce, or application transformation.

We use prescriptive approaches and proven methodologies combined with Dell Technologies' portfolio and partner ecosystem to help you 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're here to help.

Dell EMC Remote Consulting Services

When you are in the final stages of your PowerEdge server implementation, you can rely on Dell EMC Remote Consulting Services and our certified technical experts to help you optimize your configuration with best practices for your software, virtualization, server, storage, networking, and systems management.

Dell EMC Managed Services

Reduce the cost, complexity, and risk of managing IT. Focus your resources on digital innovation and transformation while our experts help optimize your IT operations and investment with managed services backed by guaranteed service levels.

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 execute 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 designed to help you achieve more from your hardware investment. The curriculum delivers the information and the practical, hands-on skills that you and your team need to confidently install, configure, manage, and troubleshoot your Dell EMC servers. To learn more or register for a class today, see LearnDell.com/Server.

Dell Financial Services (DFS)

Dell Financial Services is a global provider of innovative payment and consumption solutions for hardware, software and services, allowing organizations to align and scale the cost of IT solutions with technology consumption and budget availability. DFS supports all customers, from consumers to small businesses up to the largest global corporations.

Why leverage Payment Solutions from DFS?

- **Optimize Payment Solutions** - Tailor one or more of our solutions to your needs and grow the business.
- **Ease Budget Constraints** - Reduce capital expenses and free up budgets with flexible payment solutions.
- **Increase Efficiency** - Flexible payment transactions allow your infrastructure to grow when needed without relying on a fixed, capital budget.

Topics:

- [Flex On Demand \(FOD\)](#)
- [Flex On Demand for PowerEdge Servers](#)

Flex On Demand (FOD)

- Flex On Demand (FOD) is a metered payment solution for Dell EMC storage, data protection, hyperconverged infrastructure, servers, converged infrastructure and the Dell Technologies Cloud Platform.
- With Flex On Demand, the technology is metered - at a component level - based on how much a specific technology is used.
- You are able to choose your committed or baseline capacity and pay for it at an agreed upon rate each month. When capacity requirements increase above the baseline capacity level, buffer capacity can be utilized at the same rate.
- With Flex On Demand, you can scale up and down within the available buffer capacity and easily manage unpredictable growth, workload bursts, and temporary changes in IT infrastructure requirements.

Flex On Demand for PowerEdge Servers

Flex On Demand gives you unprecedented levels of flexibility in how you consume our technology, allowing you to elastically scale up or down to meet your needs.

Who could benefit from a Flex On Demand consumption model?

Flex On Demand could benefit customers looking to:

- Conserve cashflow
- Achieve predictable payments when usage is variable
- Increase business agility by having immediate access to buffer capacity
- Shift technology spending from a capital expenditure to an ongoing operating expense

Dell EMC PowerEdge servers and Flex On Demand combine the industry's best-selling servers with innovative consumption-based payment programs. It allows you to improve economics, increase flexibility and embrace choice:

- **Improve Economics** - Pay for server resources based on actual hourly usage and avoid the costs of over-provisioning so you can achieve public cloud economics in the data center.
- **Increase Flexibility** - Respond quickly to new service requests, workload fluctuations and changes driven by the business to improve IT flexibility.
- **Embrace Choice** - Choose the infrastructure that's configured to your requirements and payment schedule that works for you.