

Dell EMC PowerEdge R440

Technical Specifications

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.

Chapter 1: Technical specifications.....	4
System dimensions.....	4
Chassis weight.....	5
Processor specifications.....	5
Supported operating systems.....	5
PSU specifications.....	5
System battery	6
Expansion bus specifications.....	6
Memory specifications.....	6
Storage controller specifications.....	6
Drive specifications.....	6
Drives.....	6
Ports and connectors specifications.....	7
USB ports.....	7
NIC ports.....	7
Serial connector.....	7
VGA ports.....	7
Internal Dual SD Module.....	7
Video specifications.....	8
Environmental specifications.....	8
Standard operating temperature.....	9
Expanded operating temperature.....	9
Particulate and gaseous contamination specifications	11

Technical specifications

The technical and environmental specifications of your system are outlined in this section.

Topics:

- System dimensions
- Chassis weight
- Processor specifications
- Supported operating systems
- PSU specifications
- System battery
- Expansion bus specifications
- Memory specifications
- Storage controller specifications
- Drive specifications
- Ports and connectors specifications
- Video specifications
- Environmental specifications

System dimensions

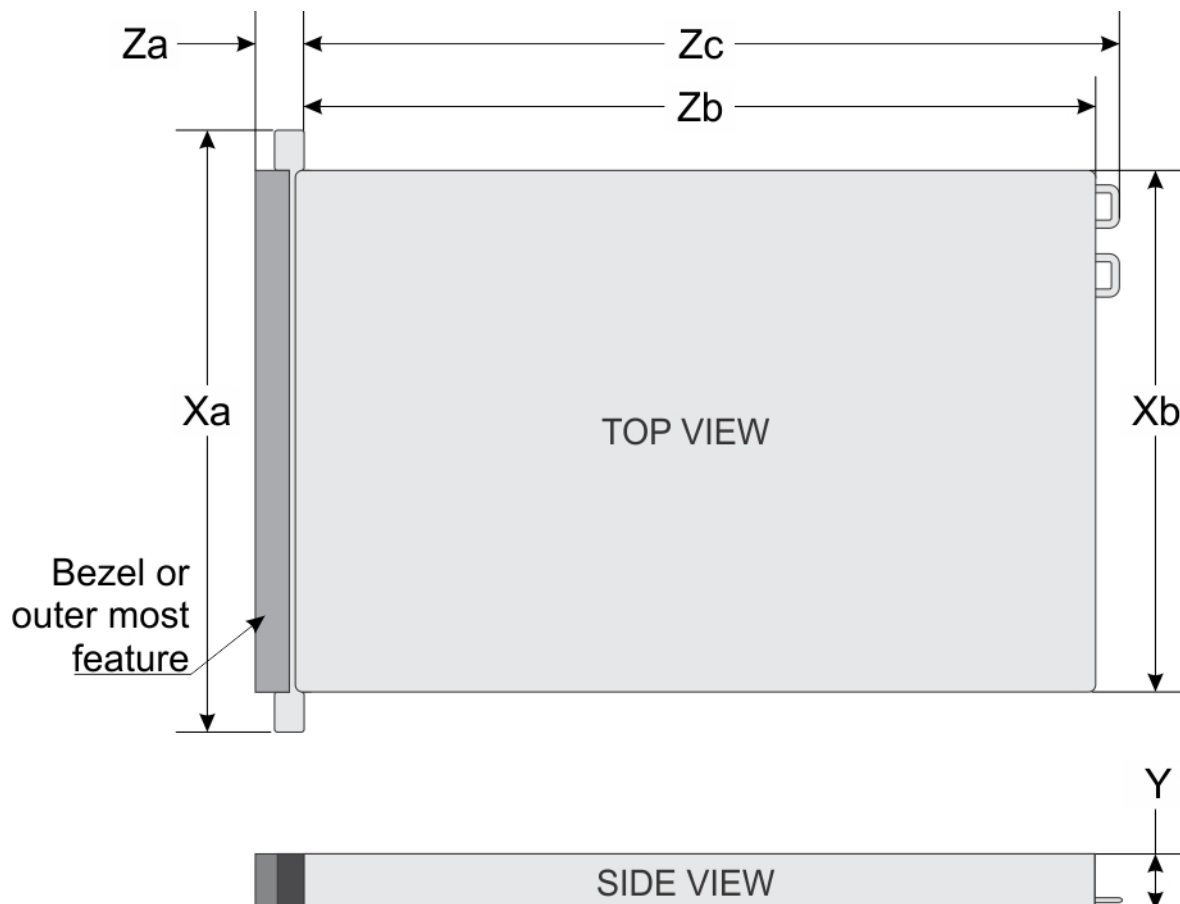


Figure 1. Dimensions of the Dell EMC PowerEdge R440 system

Table 1. Dimensions of the Dell EMC PowerEdge R440 system

Xa	Xb	Y	Za	Zb	Zc
482.0 mm (18.97 inches)	434.0 mm (17.08 inches)	42.8 mm (1.68 inches)	35.84 mm (1.41 inches) (with bezel) 22 mm (0.87 inches) (without bezel)	x4 and x10 = 657.25 mm (25.87 inches) x8 = 606.47 (23.87 inches)	x4 and x10 = 692.62 (27.26 inches) x8 = 641.85 mm (25.26 inches)

Chassis weight

Table 2. Dell EMC PowerEdge R440 system Chassis weight

System	Maximum weight (with all drives/SSDs)
4 x 3.5-inch drive system	17.64 Kg (38.90 lb)
8 x 2.5-inch drive system	16.04 Kg (35.36 lb)
10 x 2.5-inch drive system	16.81 Kg (37.07 lb)

Processor specifications

The Dell EMC PowerEdge R440 system supports up to two Intel Xeon Scalable Processor, up to 22 cores per processor.

Supported operating systems

The Dell EMC PowerEdge R440 system supports the following operating systems:

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

NOTE: For more information, go to www.dell.com/ossupport.

PSU specifications

The Dell EMC PowerEdge R440 system supports the following AC power supply units (PSU).

Table 3. PSU specifications

PSU	Class	Heat dissipation (maximum)	Frequency	Voltage
550 W AC	Platinum	2559 BTU/hr	50/60 Hz	100–240 V AC, autoranging
450 W AC	Bronze	1871 BTU/hr	50/60 Hz	100–240 V AC, autoranging

NOTE: Heat dissipation is calculated using the PSU wattage rating.

NOTE: This system is also designed to connect to the IT power systems with a phase-to-phase voltage not exceeding 230 V.

System battery

The Dell EMC PowerEdge R440 system supports CR 2032 3.0-V lithium coin cell system battery.

Expansion bus specifications

The Dell EMC PowerEdge R440 system supports PCI express (PCIe) generation three expansion cards, which must be installed on the system board using expansion card risers.

Table 4. Expansion card riser configurations

Expansion card riser	PCIe slots on the riser	Height	Length	Link
LOM riser	Slot 1	Mezz type	Mezz type	x8
Right riser	Slot 2	Low Profile	Half Length	x16
Right riser	Slot 2	Full Height	Half Length	x16
PCIe passive bridge	Slot-integrated	Low Profile	Half Length	x8
Internal riser	Slot-integrated	Low Profile	Half Length	x8
Left riser	Slot 2	Low Profile	Half Length	x16
Left riser	Slot 3	Low Profile	Half Length	x16

Memory specifications

Table 5. Memory specifications

DIMM type	DIMM rank	DIMM capacity	Single processor		Dual processors	
			Minimum RAM	Maximum RAM	Minimum RAM	Maximum RAM
RDIMM	Single rank	8 GB	8 GB	80 GB	16 GB	128 GB
RDIMM	Dual rank	16 GB	16 GB	160 GB	32 GB	256 GB
RDIMM	Dual rank	32 GB	32 GB	320 GB	64 GB	512 GB
LRDIMM	Quad rank	64 GB	64 GB	640 GB	128 GB	1024 GB

Storage controller specifications

The Dell EMC PowerEdge R440 system supports:

- **Internal controllers:** PowerEdge Expandable RAID Controller (PERC) H330, H730p, H740p, HBA330, Software RAID (SWRAID) S140
- **External PERC (RAID):** H840
- **External HBAs (non-RAID):** 12 Gbps SAS HBA
- **Boot Optimized Storage Subsystem (BOSS):** HWRAID 2 x M.2 SSDs 120GB, 240 GB with 6Gbps
 - x8 connector using PCIe gen 2.0 x2 lanes, available only in the low-profile and half-height form factor

Drive specifications

Drives

The Dell EMC PowerEdge R440 system supports:

- Up to 4 x 3.5-inch drives with hard drive adapter, internal, hot swappable SAS, SATA, or Nearline SAS drives
- Up to 8 x 2.5-inch drives or 10 x 2.5-inch drives with hard drive adapter, internal, hot swappable SAS, SATA, or Nearline SAS drives
- Up to 4 x 3.5-inch drives or 8 x 2.5-inch drives or 10 x 2.5-inch drives with hard drive adapter, internal, hot swappable SATA SSDs
- 10 x 2.5-inch drives with up to 4 NVMe PCIe drives

Drives are supplied in hot swappable drive carriers that fit in the drive slots.

CAUTION: Before attempting to remove or install a drive while the system is running, see the documentation for the storage controller card to ensure that the host adapter is configured correctly.

CAUTION: Do not turn off or restart your system while a drive is being formatted. Doing so can cause a drive failure.

When you format a drive, allow enough time for the formatting to complete. Be aware that high-capacity drives can take a long time to format.

Ports and connectors specifications

USB ports

Table 6. Dell EMC PowerEdge R440 system USB specifications

Front panel	Back panel	Internal USB
<ul style="list-style-type: none"> • One USB 2.0-compliant port • One iDRAC Direct (Micro-AB USB) port 	<ul style="list-style-type: none"> • Two USB 3.0-compliant port 	<ul style="list-style-type: none"> • One internal USB 3.0 port

NIC ports

The Dell EMC PowerEdge R440 system supports two Network Interface Controller (NIC) ports on the back panel, which have two 1 Gbps configuration.

NOTE: You can install up to five PCIe add-on NIC cards.

Serial connector

The serial connector connects a serial device to the system. The Dell EMC PowerEdge R440 system supports one serial connector on the back panel, which is a 9-pin connector, Data Terminal Equipment (DTE), 16550-compliant.

VGA ports

The Video Graphic Array (VGA) port enables you to connect the system to a VGA display. The Dell EMC PowerEdge R440 system supports two 15-pin VGA ports.

Internal Dual SD Module

The Dell EMC PowerEdge R440 system supports two optional flash memory card slots with an internal dual MicroSD module. The IDSDM or vFlash module combines the IDSDM or vFlash features into a single module.

NOTE: One card slot is dedicated for redundancy.

Video specifications

The Dell EMC PowerEdge R440 system supports Matrox G200eW3 graphics card with 16 MB capacity.

Table 7. Supported video resolution options

Resolution	Refresh rate (Hz)	Color depth (bits)
640x480	60,70	8, 16, 32
800x600	60,75, 85	8, 16, 32
1024x768	60,75, 85	8, 16, 32
1152x864	60,75, 85	8, 16, 32
1280x1024	60,75	8, 16, 32
1440x900	60	8, 16, 32
1920x1200	60	8, 16, 32

Environmental specifications

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

Table 8. Temperature specifications

Temperature	Specifications
Storage	-40°C to 65°C (-40°F to 149°F)
Continuous operation (for altitude less than 950 m or 3117 ft)	10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment.
Fresh air	For information about fresh air, see the Expanded Operating Temperature section.
Maximum temperature gradient (operating and storage)	20°C/h (68°F/h)

Table 9. Relative humidity specifications

Relative humidity	Specifications
Storage	5% to 95% RH with 33°C (91°F) maximum dew point. Atmosphere must be non-condensing at all times.
Operating	10% to 80% relative humidity with 29°C (84.2°F) maximum dew point.

Table 10. Maximum vibration specifications

Maximum vibration	Specifications
Operating	0.26 G _{rms} at 5 Hz to 350 Hz (all operation orientations).
Storage	1.88 G _{rms} at 10 Hz to 500 Hz for 15 min (all six sides tested).

Table 11. Maximum shock specifications

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

Table 11. Maximum shock specifications (continued)

Maximum shock	Specifications
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.

Table 12. Maximum altitude specifications

Maximum altitude	Specifications
Operating	30482000 m (10,0006560 ft)
Storage	12,000 m (39,370 ft)

Table 13. Operating temperature derating specifications

Operating temperature derating	Specifications
Up to 35°C (95°F)	Maximum temperature is reduced by 1°C/300 m (1°F/547 ft) above 950 m (3,117 ft).
35°C to 40°C (95°F to 104°F)	Maximum temperature is reduced by 1°C/175 m (1°F/319 ft) above 950 m (3,117 ft).
40°C to 45°C (104°F to 113°F)	Maximum temperature is reduced by 1°C/125 m (1°F/228 ft) above 950 m (3,117 ft).

Standard operating temperature

Table 14. Standard operating temperature specifications

Standard operating temperature	Specifications
Continuous operation (for altitude less than 950 m or 3117 ft)	10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment.

Expanded operating temperature

Table 15. Expanded operating temperature specifications

Expanded operating temperature	Specifications
Continuous operation	<p>5°C to 40°C at 5% to 85% RH with 29°C dew point.</p> <p>i NOTE: Outside the standard operating temperature (10°C to 40°C), the system can operate continuously in temperatures as low as 5°C and as high as 40°C.</p> <p>For temperatures between 35°C and 40°C, de-rate maximum allowable temperature by 1°C per 175 m above 950 m (1°F per 319 ft).</p>
≤ 1% of annual operating hours	<p>–5°C to 45°C at 5% to 90% RH with 29°C dew point.</p> <p>i NOTE: Outside the standard operating temperature (10°C to 40°C), the system can operate down to –5°C or up to 45°C for a maximum of 1% of its annual operating hours.</p> <p>For temperatures between 40°C and 45°C, de-rate maximum allowable temperature by 1°C per 125 m above 950 m (1°F per 228 ft).</p>

i **NOTE:** When operating in the expanded temperature range, system performance may be impacted.

NOTE: When operating in the expanded temperature range, ambient temperature warnings may be reported on the bezel's LCD panel and in the System Event Log.

Expanded operating temperature restrictions

- Do not perform a cold startup below 5°C.
- The operating temperature specified is for a maximum altitude of 3048 m (10,000 ft).
- 105 W/4C, 115 W/6C, 130 W/8C, 140 W/14C or higher wattage processor (TDP>140 W) are not supported.
- Redundant power supply configuration is required.
- Non-Dell qualified peripheral cards and/or peripheral cards greater than 25 W are not supported.
- NVMe drives are not supported.
- Apache Pass DIMM and NVDIMM are not supported.

Thermal restriction matrix

Table 16. Thermal restriction matrix for Dell EMC PowerEdge R440 system

Storage configuration			10x 2.5-inch with NVMe drive	10x 2.5-inch drive	8x 2.5-inch drive	4x 3.5-inch drive
Processor number	TDP (W)	Core count	Ambient support = 35°C			
Intel Xeon Gold 6152	140	22	Yes	Yes	Yes	Yes
Intel Xeon Gold 6140		18	Yes	Yes	Yes	Yes
Intel Xeon Gold 6138	125	20	Yes	Yes	Yes	Yes
Intel Xeon Gold 6130		16	Yes	Yes	Yes	Yes
Intel Xeon Platinum 8153		16	Yes	Yes	Yes	Yes
Intel Xeon Gold 6132	140	14	No C30	Yes	Yes	Yes
Intel Xeon Gold 6134	130	8	No C30	Yes	Yes	Yes
Intel Xeon Gold 6126	125	12	Yes	Yes	Yes	Yes
Intel Xeon Gold 6128	115	6	No C30	Yes	Yes	Yes
Intel Xeon Gold 5122	105	4	No C30	Yes	Yes	Yes
Intel Xeon Platinum 8156	105	4	No C30	Yes	Yes	Yes
Intel Xeon Gold 5120	105	14	Yes	Yes	Yes	Yes
Intel Xeon Gold 5118	105	12	Yes	Yes	Yes	Yes

Table 16. Thermal restriction matrix for Dell EMC PowerEdge R440 system (continued)

Storage configuration			10x 2.5-inch with NVMe drive	10x 2.5-inch drive	8x 2.5-inch drive	4x 3.5-inch drive
Intel Xeon Gold 5115	85	10	Yes	Yes	Yes	Yes
Intel Xeon Silver 4116	85	12	Yes	Yes	Yes	Yes
Intel Xeon Silver 4114	85	10	Yes	Yes	Yes	Yes
Intel Xeon Silver 4110	85	8	Yes	Yes	Yes	Yes
Intel Xeon Silver 4108	85	8	Yes	Yes	Yes	Yes
Intel Xeon Bronze 3106	85	8	Yes	Yes	Yes	Yes
Intel Xeon Bronze 3104	85	6	Yes	Yes	Yes	Yes
Intel Xeon Silver 4112	85	4	Yes	Yes	Yes	Yes

Particulate and gaseous contamination specifications


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

Table 17. 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>i 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>i NOTE: Air entering the data center must have MERV11 or MERV13 filtration.</p>
Conductive dust	<p>Air must be free of conductive dust, zinc whiskers, or other conductive particles.</p> <p>i NOTE: This condition applies to data center and non-data center environments.</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>i NOTE: This condition applies to data center and non-data center environments.</p>

Table 18. Gaseous contamination specifications

Gaseous contamination	Specifications
Copper coupon corrosion rate	<300 Å/month per Class G1 as defined by ANSI/ISA71.04-1985.
Silver coupon corrosion rate	<200 Å/month as defined by AHSRAE TC9.9.

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