**DELL**Technologies

# Dell EMC PowerEdge R440

Technical Specifications

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## Notes, cautions, and warnings

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

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

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

# Contents

# Technical specifications

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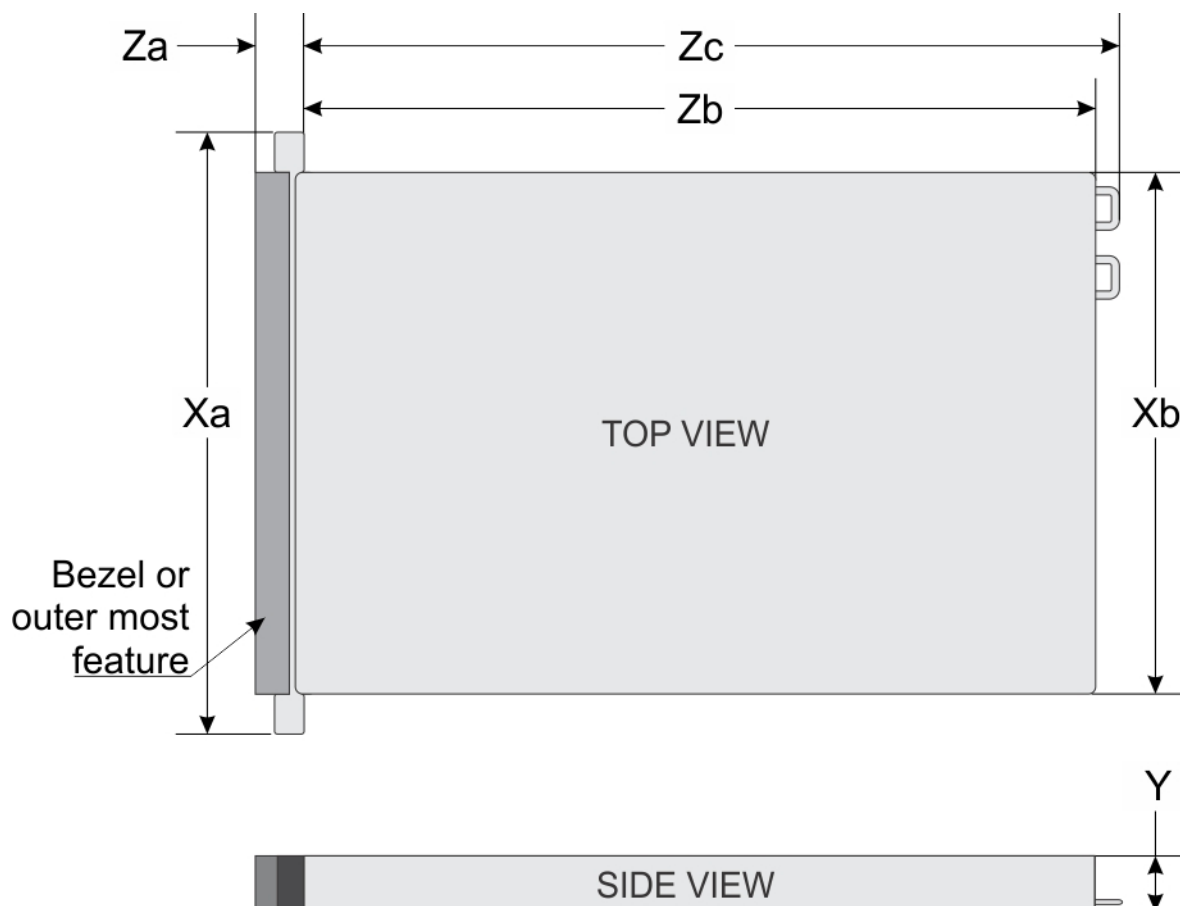
## System dimensions



**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)<br><br>22 mm (0.87 inches) (without bezel) | x4 and x10 = 657.25 mm (25.87 inches)<br><br>x8 = 606.47 (23.87 inches) | x4 and x10 = 692.62 (27.26 inches)<br><br>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 (no longer offering) | 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, H750, H740p, PowerEdge Non-RAID controller H330, HBA350i, Software RAID (SWRAID) S140
- **External PERC (RAID)**: H840
- **External HBAs (non-RAID)**: 12 Gbps SAS HBA, HBA355e
- **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

(i) **NOTE:** The new generation PERC 11 H750, H350 and HBA350i adapters cannot be mixed with the PERC H740P,H730P,H330,HBA330 adapters of the previous generations in one system.

# Drive specifications

## Drives

The Dell EMC PowerEdge R440 system supports:
- 4x3.5 configuration: up to 4 SAS or SATA drives (SDD/HDD) / Nearline SAS HDDs
- 8x2.5 configuration: up to 8 SAS or SATA drives (SDD/HDD)
- 10x2.5 configuration: up to 10 SAS or SATA drives (SDD/HDD)
- 10x2.5 with NVMe configuration: up to 4 NVMe SSDs + SAS or SATA drives (SDD/HDD) on remaining slots

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 |
| --- | --- | --- |
| • One USB 2.0-compliant port<br>• One iDRAC Direct (Micro-AB USB) port | • Two USB 3.0-compliant port | • 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 three NIC cards (two PCIe AIC cards and one OCP card).

## 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.

## IDSDM or vFlash card

The Dell EMC PowerEdge R440 systemIDSDM module contains both Internal Dual SD Module (IDSDM) and vFlash card that are combined into a single card module. The following are options available for PowerEdge R440 system:

- VFlash only
- IDSDM only
- vFlash + IDSDM

# 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) |
|---|---|---|
| 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 |

# Environmental specifications

(i) **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). |

**Table 10. Maximum vibration specifications (continued)**

| Maximum vibration | Specifications |
|---|---|
| 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. |
| 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 | 5°C to 40°C at 5% to 85% RH with 29°C dew point.<br>(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.<br>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). |
| ≤ 1% of annual operating hours | −5°C to 45°C at 5% to 90% RH with 29°C dew point. |

**Table 15. Expanded operating temperature specifications (continued)**

| Expanded operating temperature | Specifications |
|---|---|
| | ⓘ **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. |
| | 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). |

ⓘ **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 6240 | 150 | 18 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 6242 | 150 | 16 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 6248 | 150 | 20 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 6252 | 150 | 24 | Yes | Yes | Yes | Yes |
| 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 |

| 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 6132 | 140 | 14 | No<br>C30 | Yes | Yes | Yes |
| Intel Xeon Gold 6134 | 130 | 8 | No<br>C30 | Yes | Yes | Yes |
| Intel Xeon Gold 6126 | 125 | 12 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 6128 | 115 | 6 | No<br>C30 | Yes | Yes | Yes |
| Intel Xeon Gold 6230 | 125 | 20 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 5122 | 105 | 4 | No<br>C30 | Yes | Yes | Yes |
| Intel Xeon Gold 5215 | 85 | 10 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 5217 | 115 | 8 | No<br>C30 | Yes | Yes | Yes |
| Intel Xeon Gold 5218 | 125 | 16 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 5220 | 125 | 18 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 5222 | 105 | 4 | No<br>C30 | Yes | Yes | Yes |
| Intel Xeon Platinum 8156 | 105 | 4 | No<br>C30 | Yes | Yes | Yes |
| Intel Xeon Gold 5120 | 105 | 14 | Yes | Yes | Yes | Yes |
| Intel Xeon Gold 5118 | 105 | 12 | Yes | Yes | Yes | Yes |
| 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 Silver 4208 | 85 | 8 | 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 Silver 4210 | 85 | 10 | Yes | Yes | Yes | Yes |
| Intel Xeon Silver 4214 | 85 | 12 | Yes | Yes | Yes | Yes |
| Intel Xeon Silver 4215 | 85 | 8 | Yes | Yes | Yes | Yes |
| Intel Xeon Silver 4216 | 100 | 16 | 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 Bronze 3204 | 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 | Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit.<br>ⓘ **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.<br><br>ⓘ **NOTE:** Air entering the data center must have MERV11 or MERV13 filtration. |
| Conductive dust | Air must be free of conductive dust, zinc whiskers, or other conductive particles.<br>ⓘ **NOTE:** This condition applies to data center and non-data center environments. |
| Corrosive dust | ● Air must be free of corrosive dust.<br>● Residual dust present in the air must have a deliquescent point less than 60% relative humidity.<br>ⓘ **NOTE:** This condition applies to data center and non-data center environments. |

**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. |

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