

# Dell EMC PowerEdge R440

## Technical Specification

## 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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# Technical specifications

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

Topics:

- System dimensions
- Chassis weight
- Processor specifications
- PSU specifications
- System battery specifications
- Expansion bus specifications
- Memory specifications
- Drive specifications
- Ports and connectors specifications
- Video specifications
- Environmental specifications

# System dimensions

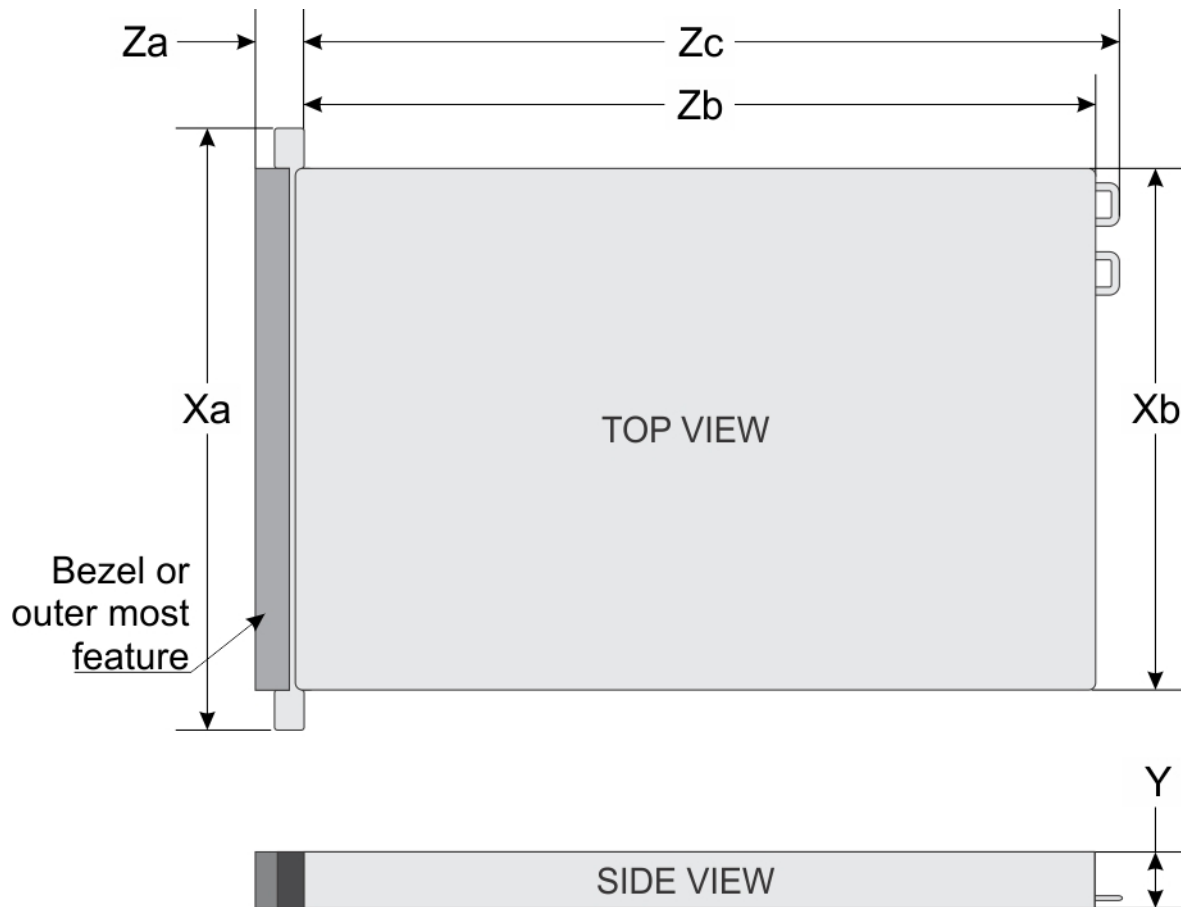


Figure 1. Dimensions of the PowerEdge R440 system

Table 1. Dimensions of the PowerEdge R440 system

Xa	Xb	Y	Za (with bezel)	Za (without bezel)	Zb	Zc
482.0 mm (18.97 inches)	434.0 mm (17.08 inches)	42.8 mm (3.41 inches)	35.84 mm (1.41 inches)	22 mm (0.87 inches)	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. Chassis weight

System	Maximum weight (with all drives/SSDs)
4 x 3.5 inch drive system	17.5 kg (38.58 lb)
8 x 2.5 inch drive system	15.2 kg (33.51 lb)

System	Maximum weight (with all drives/SSDs)
10 x 2.5 inch drive system	16.8 kg (37 lb)

## Processor specifications

The PowerEdge R440 system supports up to two Intel Xeon Processor Scalable Family processors.

## PSU specifications

The PowerEdge R440 system supports the following AC or DC 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 specifications

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

## Expansion bus specifications

The PowerEdge R440 system supports PCI express (PCIe) generation six expansion cards, which need to be installed on the system board using expansion card risers. The R440 system supports three types of expansion card risers.

## Memory specifications

The PowerEdge R440 system supports 16 DDR4 registered DIMMs (RDIMMs) slots. Supported memory bus frequencies are 2666 MT/s, 2400 MT/s, 2133 MT/s, and 1866 MT/s.

**Table 4. Memory specifications**

Memory module sockets	Memory capacity	Minimum RAM	Maximum RAM
Twelve 288-pin	<ul style="list-style-type: none"> <li>8 GB, 16 GB, or 32 GB single rank or dual rank (RDIMMs)</li> </ul>	<ul style="list-style-type: none"> <li>4 GB with single processor</li> <li>8 GB with dual processors (minimum one memory module per processor)</li> </ul>	<ul style="list-style-type: none"> <li>Up to 256 GB with a single processor</li> <li>Up to 384 GB with a dual processor</li> </ul>

## Drive specifications

### Drives

The 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

## Ports and connectors specifications

### USB ports

The following table provides more information about the USB specifications:

**Table 5. USB specifications**

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

### NIC ports

The 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 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 PowerEdge R440 system supports two 15-pin VGA ports.

### Internal Dual SD Module

The PowerEdge R440 system supports two optional flash memory card slots with an internal dual MicroSD module.

**NOTE:** One card slot is dedicated for redundancy.

### Video specifications

The PowerEdge R440 system supports Matrox G200eR2 graphics card with 16 MB capacity.

**Table 6. 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

## Environmental specifications

**NOTE:** For additional information about environmental measurements for specific system configurations, see [Dell.com/environmental\\_datasheets](https://www.dell.com/environmental_datasheets).

**Table 7. 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)	5°C to 40°C (41°F to 104°F) with no direct sunlight on the equipment.
Fresh air	For information about fresh air, see Expanded Operating Temperature section.
Maximum temperature gradient (operating and storage)	20°C/h (68°F/h)

**Table 8. 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	5% to 85% relative humidity with 29°C (84.2°F) maximum dew point.

**Table 9. Maximum vibration specifications**

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



**Table 10. 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 11. Maximum altitude specifications**

Maximum altitude	Specifications
Operating	3048 m (10,000 ft)
Storage	12,000 m (39,370 ft)

**Table 12. Operating temperature de-rating specifications**

Operating temperature de-rating	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).

## 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 13. 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><b>NOTE:</b> 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><b>NOTE:</b> 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><b>NOTE:</b> This condition applies to data center and non-data center environments.</p>

## Particulate contamination

## Specifications

Corrosive dust

- Air must be free of corrosive dust.
- Residual dust present in the air must have a deliquescent point less than 60% relative humidity.

**NOTE:** This condition applies to data center and non-data center environments.

Table 14. 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.

# Standard operating temperature

Table 15. 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 16. 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.

**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.

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.

**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 17. Thermal restriction matrix for R440**

Storage configuration			10x 2.5" with NVMe drive	10x 2.5" drive	8x 2.5" drive	4x 3.5" drive
Processor number	TDP (W)	Core count	Ambient = 35°C	Ambient = 35°C	Ambient = 30°C	Ambient = 30°C
Intel Xeon Gold 6152	140	22	C35	C35	C35	C35
Intel Xeon Gold 6140		18	C35	C35	C35	C35
Intel Xeon Gold 6138	125	20	C35	C35	C35	C35
Intel Xeon Gold 6130		16	C35	C35	C35	C35
Intel Xeon Platinum 8153		16	C35	C35	C35	C35
Intel Xeon Gold 6132	140	14	<b>C30</b>	C35	C35	C35
Intel Xeon Gold 6134	130	8	<b>C30</b>	C35	C35	C35
Intel Xeon Gold 6126	125	12	C35	C35	C35	C35
Intel Xeon Gold 6128	115	6	<b>C30</b>	C35	C35	C35
Intel Xeon Gold 5122	105	4	<b>C30</b>	C35	C35	C35
Intel Xeon Platinum 8156	105	4	<b>C30</b>	C35	C35	C35

Intel Xeon Gold 5120	105	14	C35	C35	C35	C35
Intel Xeon Gold 5118	105	12	C35	C35	C35	C35
Intel Xeon Gold 5115	85	10	C35	C35	C35	C35
Intel Xeon Silver 4116	85	12	C35	C35	C35	C35
Intel Xeon Silver 4114	85	10	C35	C35	C35	C35
Intel Xeon Silver 4110	85	8	C35	C35	C35	C35
Intel Xeon Silver 4108	85	8	C35	C35	C35	C35
Intel Xeon Bronze 3106	85	8	C35	C35	C35	C35
Intel Xeon Bronze 3104	85	6	C35	C35	C35	C35
Intel Xeon Silver 4112	85	4	C35	C35	C35	C35

## Safety instructions

- ⚠ WARNING:** Whenever you need to lift the system, get others to assist you. To avoid injury, do not attempt to lift the system by yourself.
- ⚠ WARNING:** Opening or removing the system cover while the system is powered on may expose you to a risk of electric shock.
- ⚠ CAUTION:** Do not operate the system without the cover for a duration exceeding five minutes.
- ⚠ CAUTION:** Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell EMC is not covered by your warranty. Read and follow the safety instructions that are shipped with your product.
- ⓘ NOTE:** Dell EMC recommends that you always use a static mat and static strap while working on components inside the system.
- ⓘ NOTE:** To ensure proper operation and cooling, the system must be populated always with air shrouds and with either a component or with a blank.

To avoid injury to yourself or damage to the system, follow these guidelines:

- Always disconnect the system from the power outlet whenever you are working inside the system.
- If possible, wear a grounded wrist strap as you work inside the system. Or discharge any static electricity by touching the bare metal chassis of system case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging until you are ready to use the component for the installation.