


Dell EMC PowerEdge R440


Technical Specification


Regulatory Model: E45S001 Series
Regulatory Type: E45S



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:

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- [Chassis weight](#)
- [Processor specifications](#)
- [PSU specifications](#)
- [System battery specifications](#)
- [Expansion bus specifications](#)
- [Memory specifications](#)
- [Drive specifications](#)
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System dimensions

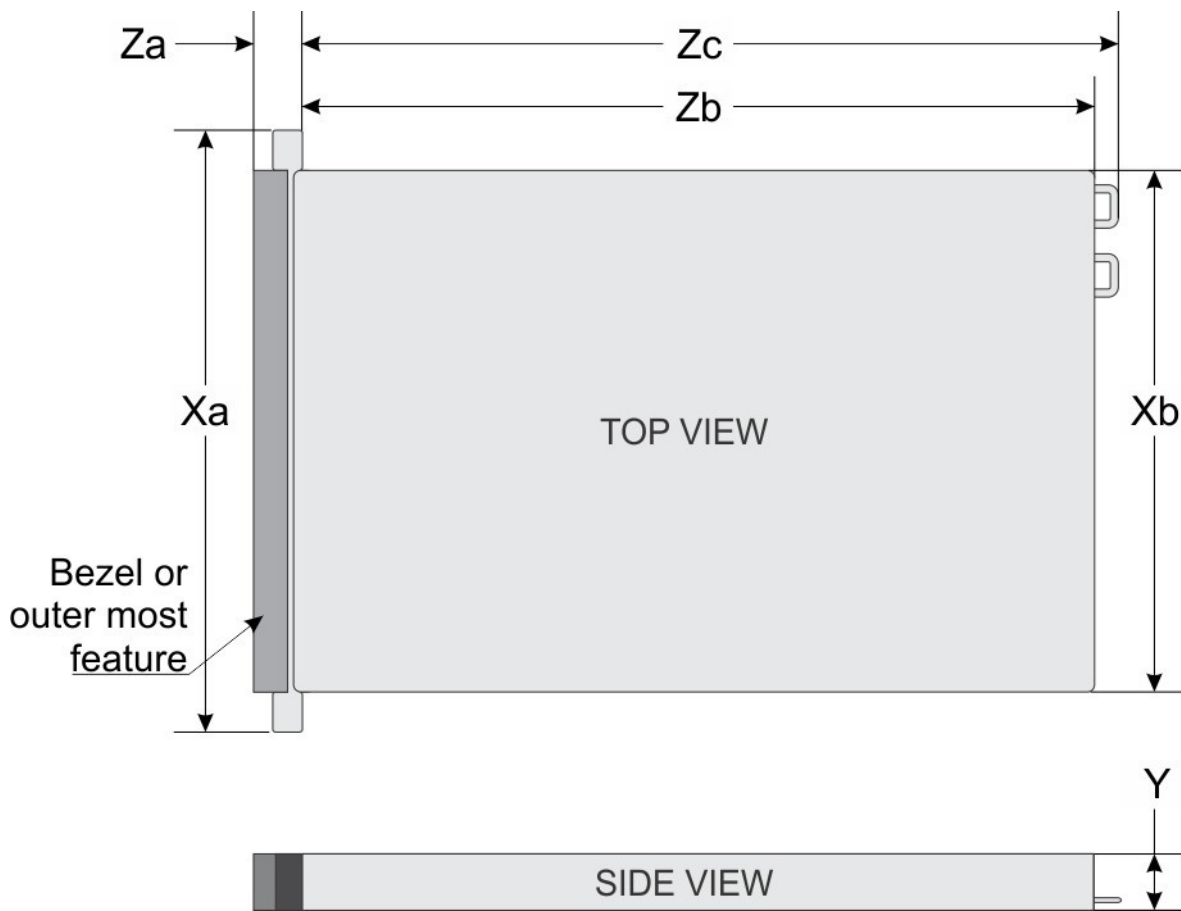


Figure 1. Dimensions of the PowerEdge R440 system

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) |
| 10x2.5 inch drives system | 16.8kg(37lb) |

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"> 8 GB, 16 GB, or 32 GB single rank or dual rank (RDIMMs) | <ul style="list-style-type: none"> 4 GB with single processor 8 GB with dual processors (minimum one memory module per processor) | <ul style="list-style-type: none"> Up to 256 GB with a single processor Up to 384 GB with a dual processor |

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"> · 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 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 _{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 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>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 MERV 11 or MERV 13 filtration.</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> |

| Particulatecontamination | Specifications |
|--------------------------|---|
| Corrosivedust | <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 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 AHSRAETC9.9. |

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 | <p>5°C to 40°C at 5% to 85% RH with 29°C dew point.</p> <p>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>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> |

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 | | | 10x2.5" with NVMe drive | 10x2.5" 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 | C30 | C35 | C35 | C35 |
| Intel Xeon Gold 6134 | 130 | 8 | C30 | C35 | C35 | C35 |
| Intel Xeon Gold 6126 | 125 | 12 | C35 | C35 | C35 | C35 |
| Intel Xeon Gold 6128 | 115 | 6 | C30 | C35 | C35 | C35 |
| Intel Xeon Gold 5122 | 105 | 4 | C30 | C35 | C35 | C35 |
| Intel Xeon Platinum 8156 | 105 | 4 | C30 | 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.

Appendix. Supported processor for R440

| CPU | Cores | Speed(GHz) | Memory Speed | TDP(W) | Threads |
|------------|-------|------------|--------------|--------|---------|
| Bronze3104 | 6 | 1.7 | 2133 | 85 | 6 |
| Bronze3106 | 8 | 1.7 | 2133 | 85 | 8 |
| Silver4108 | 8 | 1.8 | 2400 | 85 | 16 |
| Silver4110 | 8 | 2.1 | 2400 | 85 | 16 |
| Silver4112 | 4 | 2.6 | 2400 | 85 | 8 |
| Silver4114 | 10 | 2.2 | 2400 | 85 | 20 |
| Silver4116 | 12 | 2.1 | 2400 | 85 | 24 |
| Gold5118 | 12 | 2.3 | 2400 | 105 | 24 |
| Gold5120 | 14 | 2.2 | 2400 | 105 | 28 |
| Gold5122 | 4 | 3.6 | 2666 | 105 | 8 |
| Gold6126 | 12 | 2.6 | 2666 | 125 | 24 |
| Gold6130 | 16 | 2.1 | 2666 | 125 | 32 |
| Gold6132 | 14 | 2.6 | 2666 | 140 | 28 |
| Gold6140 | 18 | 2.3 | 2666 | 140 | 36 |
| Gold6152 | 22 | 2.1 | 2666 | 140 | 44 |
| Bronze3204 | 6 | 1.9 | 2133 | 85 | 6 |
| Silver4208 | 8 | 2.1 | 2400 | 85 | 16 |
| Silver4210 | 10 | 2.2 | 2400 | 85 | 20 |
| Silver4214 | 12 | 2.2 | 2400 | 85 | 24 |
| Silver4215 | 8 | 2.5 | 2400 | 85 | 16 |
| Silver4216 | 16 | 2.1 | 2400 | 100 | 32 |
| Gold5215 | 10 | 2.5 | 2667 | 85 | 20 |
| Gold5217 | 8 | 3 | 2667 | 115 | 16 |
| Gold5218 | 16 | 2.3 | 2667 | 125 | 32 |
| Gold5220 | 18 | 2.2 | 2667 | 125 | 36 |
| Gold5222 | 4 | 3.8 | 2933 | 105 | 8 |
| Gold6230 | 20 | 2.1 | 2933 | 125 | 40 |