

Dell EMC PowerEdge R6415

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.

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Contents

1 Dell EMC PowerEdge R6415 overview.....	4
2 Technical specifications.....	5
System dimensions.....	6
Chassis weight.....	6
Processor specifications.....	7
PSU specifications.....	7
System battery specifications.....	7
Expansion bus specifications.....	7
Memory specifications.....	7
Drive specifications.....	8
Drives.....	8
Ports and connectors specifications.....	8
USB ports.....	8
NIC ports.....	8
Serial connector.....	9
VGA ports.....	9
Internal Dual SD Module and vFlash module.....	9
Video specifications.....	9
Environmental specifications.....	10
Particulate and gaseous contamination specifications	11
Standard operating temperature.....	12
Expanded operating temperature.....	12
Thermal restriction matrix.....	13
3 Documentation resources.....	14
4 Getting help.....	16
Contacting Dell.....	16
Documentation feedback.....	16
Accessing system information by using QRL.....	16
Quick Resource Locator for R6415.....	17
Receiving automated support with SupportAssist	17

Dell EMC PowerEdge R6415 overview

The PowerEdge R6415 is a 1U, single socket rack system and support these configurations:

- One AMD EPYC™ processor
- 16 DIMM slots
- Two redundant power supply units (PSU) or single cabled PSU
- Up to 4 x 3.5 inch or 8 x 2.5 inch SAS, Nearline SAS, or SATA drives or up to 10 x 2.5 inch NVMe drives (with 8 SAS/SATA/NVMe drives + 2 NVMe drives)

NOTE: Hot swap for the NVMe drives is supported for your system. For more information on correct usage and technical specifications, see the *Dell PowerEdge Express Flash NVMe PCIe SSD 2.5 inch Small Form Factor User's Guide* at Dell.com/support/manuals > All Products > Server, Storage, & Networking > Dell Adapters page.

NOTE: All instances of SAS, SATA hard drives, SSDs and NVMe drives are referred to as drives in this document, unless specified otherwise.

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

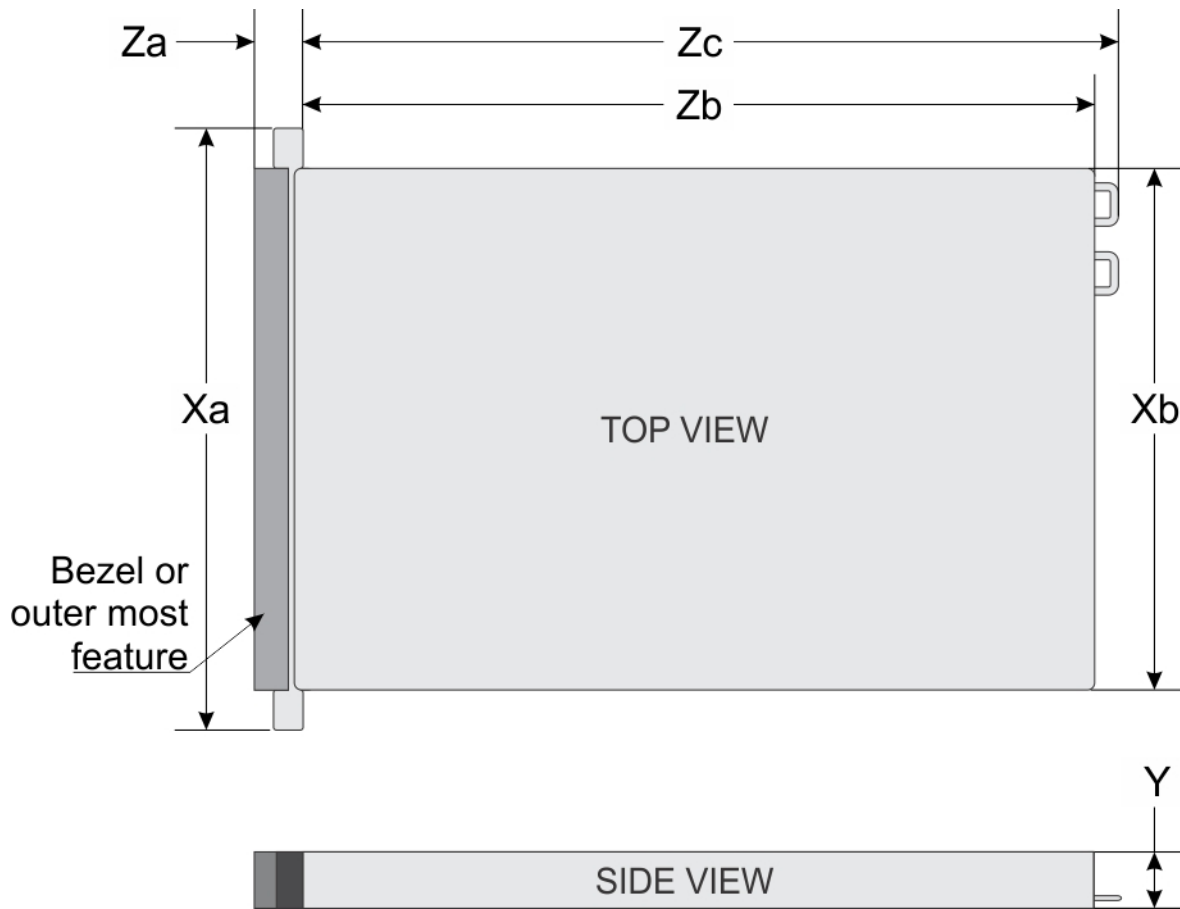


Figure 1. Dimensions of the PowerEdge R6415 system

Table 1. Dimensions of the PowerEdge R6415 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	16.91 kg (37.28 lb)
8 x 2.5 inch drive system	14.5 kg (34.17 lb)

System	Maximum weight (with all drives/SSDs)
10 x 2.5 inch drive system	16.01 kg (35.29 lb)

Processor specifications

The PowerEdge R6415 system supports one AMD EPYC™ processor.

PSU specifications

The PowerEdge R6415 system supports the following AC power supply units (PSUs).

Table 3. PSU specifications

PSU	Class	Heat dissipation (maximum)	Frequency	Voltage
550 W AC	Platinum	2107 BTU/hr	50/60 Hz	100–240 V AC, autoranging
450 W AC (cabled)	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 R6415 system supports CR 2032 3.0-V lithium coin cell system battery.

Expansion bus specifications

The PowerEdge R6415 system supports up to two Gen3 PCI express (PCIe) expansion cards, which need to be installed on the system board using expansion card risers. The R6415 system supports three configurations:

Riser configuration	Supported configuration
No riser	N/A
Single PCIe slot riser	1 x 16x Gen3 slot
Dual PCIe slot riser	2 x 16x Gen3 slots

Memory specifications

The PowerEdge R6415 system supports 16 DDR4 registered DIMM (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
Sixteen 288-pin	<ul style="list-style-type: none"> 8 GB, 16 GB, or 32 GB single rank or dual rank (RDIMMs) 64 or 128 GB* quad rank or octal rank (LRDIMMs) 	8 GB with single processor	Up to 2 TB with a single processor

* - Maximum DIMM capacity of 128 GB will be available at a later time.

NOTE: For optimal performance, populate one DIMM per channel with DDR4-2666 memory modules on the first slot of each memory channel. The first slot of each channel can be identified as the DIMM slots with white latches. For example, 64 GB system memory capacity can be divided into 8 x 8 GB DIMM slots.

Drive specifications

Drives

The PowerEdge R6415 system is available in these configurations:

- Up to 4 x 3.5 inch SAS or SATA drives
- Up to 8 x 2.5 inch SAS or SATA drives
- Up to 10 x 2.5 inch NVMe drives (with 8 SAS/SATA/NVMe drives + 2 NVMe drives)

NOTE: Hot swap for the NVMe drives is supported for your system. For more information on correct usage and technical specifications, see the *Dell PowerEdge Express Flash NVMe PCIe SSD 2.5 inch Small Form Factor User's Guide* at [Dell.com/support/manuals](https://www.dell.com/support/manuals) > All Products > Server, Storage, & Networking > Dell Adapters page.

Ports and connectors specifications

USB ports

The PowerEdge R6415 system supports:

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">• Two USB 2.0 ports	<ul style="list-style-type: none">• Two USB 3.0 ports	<ul style="list-style-type: none">• One internal USB 3.0 port

(One AB– Micro USB 2.0 port (dedicated iDRAC Direct) + one standard USB 2.0 port)

NOTE: The micro USB 2.0 compliant port on the front of the system can only be used as an iDRAC Direct or a management port

NIC ports

The PowerEdge R6415 system supports two onboard network ports accessible from the back panel, each port supports up to 1 Gbps. The system also supports LAN on Motherboard (LOM) on an optional riser card.

You can install one LOM riser card. The supported options are listed here:

- 2 x 1 Gb Base-T
- 2 x 10Gb Base-T

- 2 x 10Gb SPF+

NOTE:

- You can install up to four PCIe add-on NIC cards.
- For information about Linux network performance settings, see the *Linux® Network Tuning Guide for AMD EPYC™ Processor Based Servers* AMD tuning guide.

Serial connector

The serial connector connects a serial device to the system. The PowerEdge R6415 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 R6415 system supports two 15-pin VGA ports one each on the front and back panels.

Internal Dual SD Module and vFlash module

The PowerEdge R6415 system supports two options for the Internal Dual SD Module (IDSMD) and vFlash module:

- vFlash memory card slot along with dual MicroSD cards supported on the same module
- vFlash memory card slot module

NOTE:

- In the IDSMD one of the MicroSD card slots is dedicated for redundancy.
- The IDSMD card provides software RAID1 support for the MicroSD cards.
- Dual MicroSD cards are not required as the module can operate with only one card but will provide no redundancy or RAID capability.

Video specifications

The PowerEdge R6415 system supports Matrox G200eR2 graphics card with 16 MB capacity.

Table 6. 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

Resolution	Refresh rate (Hz)	Color depth (bits)
1920 x 1080	60	8, 16, 32
1920 x 1200	60	8, 16, 32

Environmental specifications

NOTE: For additional information about environmental measurements for specific system configurations, see 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)	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 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	10% to 80% 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 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).

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 MERV11 or MERV13 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>
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 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 35°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 3050 m (10,000 ft).
- Redundant power supply configuration is required.

- Cabled power supply unit is not supported.
- Non-Dell qualified peripheral cards and/or peripheral cards greater than 25 W are not supported.
- Processors that consume more than 180 W are not supported.

Thermal restriction matrix

Table 17. Thermal restriction matrix for R6415

Features, processor type and specifications			Configuration type and ambient temperature support		
Storage configuration			4 x 3.5 inch drives	8 x 2.5 inch drives	10 x 2.5 inch drives (NVMe)
Fan type			Standard fan	Standard fan	Standard fan
CPU heat sink type			1U heat sink	1U heat sink	1U heat sink
Processor number	TDP (W)	Core count	Ambient = 35°C	Ambient = 35°C	Ambient = 30°C
AMD 7601	180 W	32	Yes	Yes	Yes
AMD 7551P	180 W	32	Yes	Yes	Yes
AMD 7451	180 W	24	Yes	Yes	Yes
AMD 7401P	155 W/170 W	24	Yes	Yes	Yes
AMD 7351P	155 W/170 W	16	Yes	Yes	Yes
AMD 7251	120 W	8	Yes	Yes	Yes
AMD 7281	155 W/170 W	16	Yes	Yes	Yes

Documentation resources

This section provides information about the documentation resources for your system.

Table 18. Additional documentation resources for your system

Task	Document	Location
Setting up your system	For more information about installing and securing the system into a rack, see the rack documentation included with your rack solution.	Dell.com/poweredgemanuals
	For information about setting up and turning on the system, see the <i>Getting Started Guide</i> document that is shipped with your system.	Dell.com/poweredgemanuals
Configuring your system	For information about the iDRAC features, configuring and logging in to iDRAC, and managing your system remotely, see the Integrated Dell Remote Access Controller User's Guide.	Dell.com/idracmanuals
	For information about installing the operating system, see the operating system documentation.	Dell.com/operatingsystemmanuals
	For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the RACADM Command Line Reference Guide for iDRAC.	Dell.com/idracmanuals
	For information about updating drivers and firmware, see the Methods to download firmware and drivers section in this document.	To download drivers: Dell.com/support/drivers
Managing your system	For information about systems management software offered by Dell, see the Dell OpenManage Systems Management Overview Guide.	Dell.com/openmanagemanuals
	For information about setting up, using, and troubleshooting OpenManage, see the Dell OpenManage Server Administrator User's Guide.	Dell.com/openmanagemanuals
	For information about installing, using, and troubleshooting Dell OpenManage Essentials, see the Dell OpenManage Essentials User's Guide.	Dell.com/openmanagemanuals
	For information about installing and using Dell SupportAssist, see the Dell EMC SupportAssist Enterprise User's Guide.	Dell.com/serviceabilitytools
	For understanding the features of Dell Lifecycle Controller, see the Dell Lifecycle Controller User's Guide.	Dell.com/idracmanuals

Task	Document	Location
	For information about partner programs enterprise systems management, see the OpenManage Connections Enterprise Systems Management documents.	Dell.com/openmanagemanuals
Working with the Dell PowerEdge RAID controllers	For information about understanding the features of the Dell PowerEdge RAID controllers (PERC), Software RAID controllers, or BOSS card and deploying the cards, see the Storage controller documentation.	Dell.com/storagecontrollermanuals
Understanding event and error messages	For information about checking the event and error messages generated by the system firmware and agents that monitor system components, see the Dell Event and Error Messages Reference Guide.	Dell.com/openmanagemanuals > OpenManage software
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.	Dell.com/poweredgemanuals

Getting help

Topics:

- [Contacting Dell](#)
- [Documentation feedback](#)
- [Accessing system information by using QRL](#)
- [Receiving automated support with SupportAssist](#)

Contacting Dell

Dell provides several online and telephone based support and service options. If you do not have an active internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical assistance, or customer service issues:

- 1 Go to Dell.com/support.
- 2 Select your country from the drop-down menu on the lower right corner of the page.
- 3 For customized support:
 - a Enter your system Service Tag in the **Enter your Service Tag** field.
 - b Click **Submit**.The support page that lists the various support categories is displayed.
- 4 For general support:
 - a Select your product category.
 - b Select your product segment.
 - c Select your product.The support page that lists the various support categories is displayed.
- 5 For contact details of Dell Global Technical Support:
 - a Click [Global Technical Support](#).
 - b The **Contact Technical Support** page is displayed with details to call, chat, or e-mail the Dell Global Technical Support team.

Documentation feedback

You can rate the documentation or write your feedback on any of our Dell documentation pages and click **Send Feedback** to send your feedback.

Accessing system information by using QRL

You can use the Quick Resource Locator (QRL) to get immediate access to the information about your system.

Prerequisites

Ensure that your smartphone or tablet has the QR code scanner installed.

The QRL includes the following information about your system:

- How-to videos
- Reference materials, including the Owner's Manual, LCD diagnostics, and mechanical overview

- Your system service tag to quickly access your specific hardware configuration and warranty information
- A direct link to Dell to contact technical assistance and sales teams

Steps

- 1 Go to Dell.com/QRL and navigate to your specific product or
- 2 Use your smartphone or tablet to scan the model-specific Quick Resource (QR) code on your Dell PowerEdge system or in the Quick Resource Locator section.

Quick Resource Locator for R6415

Quick Resource Locator for PowerEdge R6415



Figure 2. Quick Resource Locator for R6415

Receiving automated support with SupportAssist

Dell SupportAssist is an optional Dell Services offering that automates technical support for your Dell server, storage, and networking devices. By installing and setting up a SupportAssist application in your IT environment, you can receive the following benefits:

- **Automated issue detection** — SupportAssist monitors your Dell devices and automatically detects hardware issues, both proactively and predictively.
- **Automated case creation** — When an issue is detected, SupportAssist automatically opens a support case with Dell Technical Support.
- **Automated diagnostic collection** — SupportAssist automatically collects system state information from your devices and uploads it securely to Dell. This information is used by Dell Technical Support to troubleshoot the issue.
- **Proactive contact** — A Dell Technical Support agent contacts you about the support case and helps you resolve the issue.

The available benefits vary depending on the Dell Service entitlement purchased for your device. For more information about SupportAssist, go to Dell.com/SupportAssist.