

Dell EMC PowerEdge R6525

Technical Guide

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 Product overview	5
Introduction	5
New technologies	5
2 System features	6
Product comparison	6
3 Chassis views and features	7
Front view of the system	7
Rear view of the system	7
Inside the system	8
Quick Resource Locator for PowerEdge R6525 system	9
4 Processor	10
Processor features	10
Supported processors	10
5 Memory	11
Supported memory	11
Memory speed	11
6 Storage	12
Supported drives	12
Storage controller	12
External drives	13
7 Networking and PCIe	14
Expansion card installation guidelines	14
8 Power, thermal, and acoustics	17
Power supplies	17
Thermal	17
Acoustics	18
9 Supported operating systems	19
10 Dell EMC OpenManage systems management	20
iDRAC9 with Lifecycle Controller	20
Agent-free management	24
Agent-based management	24
Dell EMC consoles	24
Dell EMC OpenManage systems management tools, utilities, and protocols	25
Integration with third-party consoles	26

OpenManage connections with third-party consoles.....	27
11 Dell Technologies Services	28
ProDeploy Enterprise Suite and Residency Services.....	28
ProDeploy Plus.....	29
ProDeploy.....	29
Basic Deployment.....	29
Server Configuration Services.....	29
Residency Services.....	30
Remote Consulting Services.....	30
Data Migration Service.....	30
ProSupport Enterprise Suite.....	30
ProSupport Plus.....	30
ProSupport.....	31
ProSupport One for Data Center.....	31
ProSupport for HPC.....	32
Support Technologies.....	32
Education Services.....	33
Dell Technologies Consulting Services.....	33
Managed Services.....	33
12 Appendix A. Additional specifications.....	34
Chassis dimensions.....	34
Chassis weight.....	35
Video specifications.....	35
USB ports specifications.....	35
Environmental specifications.....	36
13 Appendix B. Standards compliance.....	38
14 Appendix C Additional resources.....	39

Product overview

Introduction

The Dell EMC™ PowerEdge™ R6525 is Dell's latest 2-socket, 1U servers designed to run complex workloads using highly scalable memory, I/O, and network options. The PowerEdge R6525 features the 2nd Generation AMD® EPYC™, supports up to 32 DIMMs, PCI Express® PCIe Gen 4.0 enabled expansion slots, and a choice of network interface technologies to cover networking options.

The PowerEdge R6525 is a general-purpose platform capable of handling demanding workloads and applications, such as data warehouses, ecommerce, databases, and high-performance computing (HPC).

New technologies

The following table shows the new technologies for the PowerEdge R6525:

Table 1. New technologies

Technology	Detailed Description
2 nd Generation AMD® EPYC™ processors	<ul style="list-style-type: none"> Consult the Processor section for specific details 7nm processor technology AMD® Inter-chip global memory interconnect (xGMI) up to 64 lanes. Up to 64 cores per socket Up to 3.8 GHz Max TDP: 225W
3200 MT/s DDR4 memory	<ul style="list-style-type: none"> Up to 32 DIMMs 8x DDR4 Channels per socket, 2 DIMMs per channel (2DPC) Up to 3200 MT/s (configuration-dependent) Supports RDIMM, LRDIMM and 3DS DIMM
iDRAC9 with Lifecycle Controller	The embedded systems management solution for Dell servers features hardware and firmware inventory and alerting, in-depth memory alerting, faster performance, a dedicated gigabit port and many more features.
Wireless Management	The Quick Sync feature is an extension of NFC based low bandwidth interface. Quick Sync 2.0 offers feature parity with the previous versions of the NFC interface with improved user experience. To extend this Quick Sync feature to wide variety of Mobile OS's with higher data throughput, the Quick Sync 2 version replaces previous generation NFC technology with wireless at-the-box system management.
Power supply	<ul style="list-style-type: none"> 60mm dimension is the new PSU form factor Platinum 800W AC/HVDC (China Only) Platinum 1400W AC/HVDC (China Only)

System features

Product comparison

Table 2. Product comparison

Feature	PowerEdge R6525	PowerEdge R6415
CPU	Two 2nd Generation AMD® EPYC™ Series Processor	One AMD Naples® socket SP3 compatible processor
CPU Interconnect	Inter-chip global memory interconnect (xGMI)	N/A
Memory	32x DDR4 RDIMM, LRDIMM, 3DS	16x DDR4 RDIMM, LRDIMM
Disk Drives	3.5-inch, 2.5-inch: 12G SAS, 6G SATA HDD	3.5-inch, 2.5-inch: 12G SAS, 6G SATA HDD/SSD
Storage Controllers	Front PERC: H745, HBA345, H345 SW RAID: S150	Mini PERC: HBA330, H330, H730P, H740P SW RAID: S140
PCIe SSD	Up to 10x PCIe SSD	Up to 10x PCIe SSD
PCIe Slots	Up to 3 (PCIe 4.0)	Up to 2 (PCIe 3.0 x16)
NIC	LOM riser options: <ul style="list-style-type: none"> • 4 x 1 Gb • 4 x 10 Gb • 2 x 10 Gb + 2x 1 Gb • 2 x 25 Gb 	LOM riser options: <ul style="list-style-type: none"> • 2 x 1 Gb • 2 x 10 Gb Base-T • 2 x 10 Gb SFP+
OCP	OCP 3.0 Type 1: (Connector A)	OCP 2.0 Type 1: (Connector A)
USB Ports	Front: 1x USB 2.0, 1x iDRAC USB (Micro-AB USB) Rear: 1x USB 3.0, 1x USB 2.0	Front: 1x USB2.0, 1x iDRAC USB (Micro USB) Rear: 2x USB3.1_Gen1
Rack Height	1U	1U
Power Supplies	AC/HVDC (Platinum) 800 W, 1400 W	AC (gold) 450W cabled AC (Platinum) 550W
System Management	LC 3.x, OpenManage, QuickSync2.0, OMPC3, Digital License Key, iDRAC Direct (dedicated micro-USB port), Easy Restore	LC 3.x, OpenManage, QuickSync2.0, OMPC3, Digital License Key, iDRAC Direct (dedicated micro-USB port), Easy Restore, vFlash
Internal GPU	<ul style="list-style-type: none"> • 1x 75W (SW/FH) • 3x 75W (SW/LP) 	N/A
Availability	Hot-plug drives, Hot-plug Redundant Power supplies, BOSS, IDSDM	Hot-plug drives, Hot-plug Redundant Power supplies, BOSS, IDSDM

Chassis views and features

Front view of the system

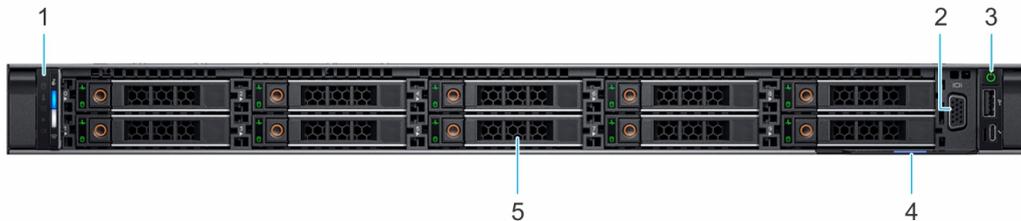


Figure 1. Front view of the 10 x 2.5-inch drive system

Table 3. Features available on the front of the system

Item	Ports, panels, and slots
1	Left control panel
2	VGA port
3	Right control panel
4	Information tag
5	Drive (10)

Rear view of the system

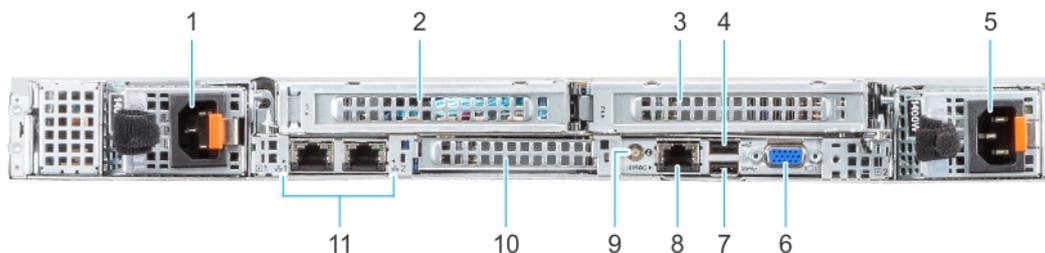


Figure 2. Rear view of the system

Table 4. Rear view of the system

Item	Ports, panels, or slots
1	Power supply unit (PSU 1)
2	PCIe expansion card riser (slot 1)
3	PCIe expansion card riser (slot 4)
4	USB 2.0 port (1)
5	Power supply unit (PSU 2)
6	VGA port
7	USB 3.0 port (1)

Item	Ports, panels, or slots
8	iDRAC dedicated port
9	System identification button
10	OCP NIC port (optional)
11	NIC port (2)

Inside the system

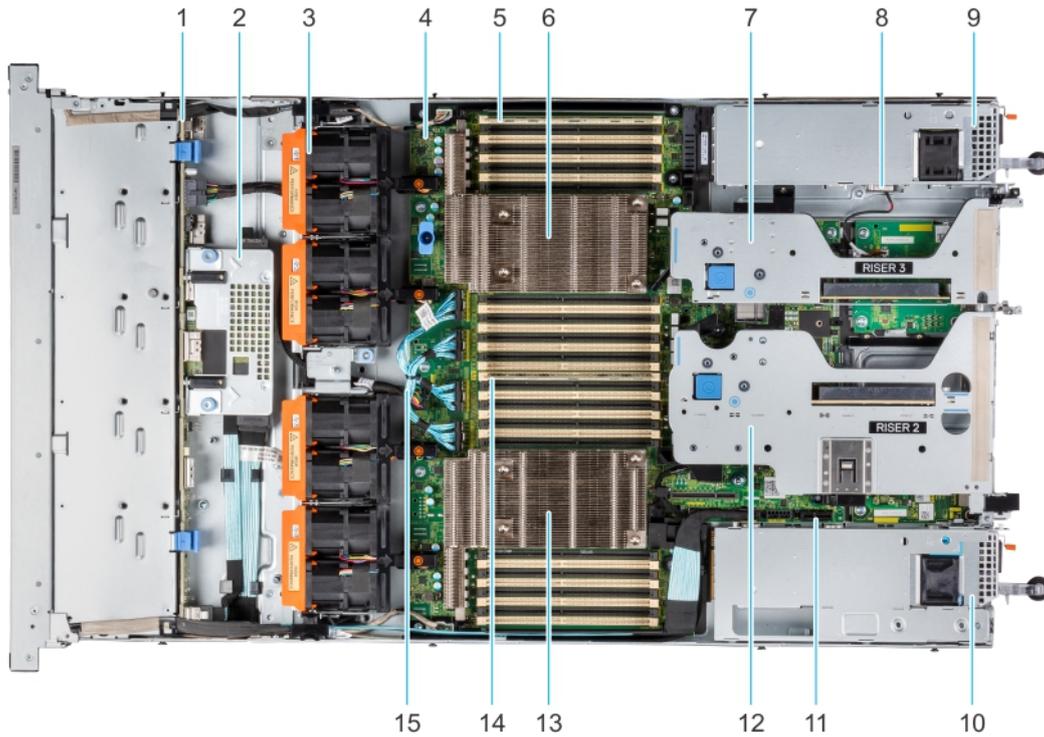


Figure 3. Inside the system

- | | |
|--|---|
| 1. Drive backplane | 2. Rear mounting front PERC module |
| 3. Dual fan module (4) | 4. System board |
| 5. Memory DIMM socket for processor 2 (B1) | 6. Heat sink for processor 2 |
| 7. Riser 3 | 8. Intrusion switch |
| 9. Power supply unit (PSU 2) | 10. Power supply unit (PSU 1) |
| 11. IDSDM/Internal USB card port | 12. Riser 2 |
| 13. Heat sink for processor 1 | 14. Memory DIMM socket for processor 1 (A1) |
| 15. xGMI cables | |

Quick Resource Locator for PowerEdge R6525 system



Figure 4. Quick Resource Locator for PowerEdge R6525 system

Processor

The 2nd Generation AMD® EPYC™ processors provide several SKUs ranging from 16 cores and up to 64 cores variants.

Topics:

- [Processor features](#)
- [Supported processors](#)

Processor features

The key features of the 2nd Generation AMD® EPYC™.

- Support up to 64 cores
- Up to 8 channels with 2 DPC per CPU and 32 DIMMs in total
- Supports RDIMM, LRDIMM, NVDIMM-N, 3DS DIMM DDR4 with ECC up to 3200 MT/s
- Integrated PCI Express Gen 4 for improved bandwidth and connectivity
- Up to 128 lanes per CPU

Single CPU Configuration

The system is designed such that a single processor placed in the CPU1 socket will function normally. CPU and memory blanks associated with CPU2 are required to be populated for thermal reasons. The system will not boot if only the CPU2 socket is populated.

With Single CPU configuration, any Riser1 (xR1a/xR1b/xR2a/xR2b/aR3a/xR4c+aR4d) card and only xR1a will be functional.

CPU Restrictions

The following are 2nd Generation AMD EPYC™ CPU restrictions:

- The RTC/COMS is build in the CPU. Therefore, by remove or re-installing the CPU1 the RTC/COMS will be lost
- AMD® does not support early boot. There is no error message when there is no memory populating in the system

Supported processors

Table 5. Supported processor for the PowerEdge R6525

Processor model number	Base frequency in GHz	Cores/Threads	TDP in W	L3 Cache in MB	Max DDR frquency (1 DPC)
7742	2.25	64/128	225	256	3200
7702	2.00	64/128	200	256	3200
7542	2.90	32/64	225	128	3200
7502	2.50	32/64	180	128	3200
7452	2.35	32/64	155	128	3200
7402	2.80	24/48	180	128	3200
7352	2.30	24/48	155	128	3200
7302	3.00	16/32	155	128	3200
7262	3.20	8/16	155	128	3200

Memory

The PowerEdge R6525 system supports up to 32 DIMMS, 2 TB of memory, and speeds up to 3200MT/s.

The R6525 support registered (RDIMMs) and load reduced DIMMs (LRDIMMs) which use a buffer to reduce memory loading and provide greater density, allowing for the maximum platform memory capacity. Unbuffered DIMMs (UDIMMs) are not supported.

Topics:

- [Supported memory](#)
- [Memory speed](#)

Supported memory

The following table lists the memory technologies that are supported by the R6525:

Table 6. Memory technology comparison

Feature	R6525(DDR4)
DIMM type	RDIMM LRDIMM
Transfer speed	3200 MT/s 2666 MT/s
Voltage	1.2 V

The following table shows the supported DIMMs for the PowerEdge R6525:

Table 7. supported DIMMs for the PowerEdge R6525

DIMM Speed(MT/s)	DIMM Type	DIMM Capacity(GB)	Ranks per DIMM	Data Width	DIMM Volts	Minimum RAM(GB)	Maximum RAM(GB)
3200	RDIMM	8	1	8	12	8	128
3200	RDIMM	16	2	8	12	16	256
3200	RDIMM	32	2	4	12	32	512
3200	RDIMM	64	2	4	12	64	1TB
2666	LRDIMM	128	8	4	12	128	2TB
3200	LRDIMM	128	4	4	12	128	2TB

Memory speed

Table 8. Supported memory matrix

DIMM type	Rank	Capacity	DIMM rated voltage and speed	AMD EPYC™ processor	
				1 DIMM per channel (1DPC)	2 DIMMs per channel (2DPC)
RDIMM	1R	8 GB	DDR4 (1.2V), 3200 MT/s	3200 MT/s	2933 MT/s
	2R	16 GB, 32 GB, 64 GB	DDR4 (1.2V), 3200 MT/s	3200 MT/s	2933 MT/s
LRDIMM	8R	128 GB	DDR4 (1.2V), 2666 MT/s	2666 MT/s	2666 MT/s

Storage

The PowerEdge R6525 enables multiple storage configurations to tune the system configuration for variety of workloads. The R6525 is available in the following configuration types:

- 4 x 3.5-inch backplane configuration with support up to 4 SAS/SATA drives
- 8 x 2.5-inch backplane configuration with support up to 8 SAS/SATA drives
- 10 x 2.5-inch backplane configuration with support up to 10 SAS/SATA/NVMe drives

Topics:

- [Supported drives](#)
- [Storage controller](#)
- [External drives](#)

Supported drives

Table 9. Supported drives - SAS and SATA or SSD

Form Factor	Type	Speed	Rotational Speed	Capacities
2.5-inch	SAS	12 Gb	10 K	300 GB, 600 GB, 1.2 TB, 1.8 TB, 1.2 TB (SED/FIPS), 2.4 TB, 2.4 TB (SED/FIPS)
	SATA	6 Gb	7.2 K	1 TB, 2 TB
	SATA SSD (M.2)	6 Gb	N/A	120 GB, 240 GB
	SAS SSD	12 Gb	N/A	400 GB, 800 GB, 960 GB, 1.633 TB, 1.92 TB, 3.2 TB, 3.840 TB, 1.92 TB (SED/FIPS)
	SATA SSD	6 Gb	N/A	120 GB, 200 GB, 240 GB, 300 GB, 400 GB, 480 GB, 800 GB, 960 GB, 1.2 TB, 1.6 TB, 1.92 TB, 3.84 TB
	SAS	12 Gb	15 K	300 GB, 600 GB, 900 GB
	SAS	12 Gb	7.2 K	1 TB, 2 TB, 4 TB, 6 TB, 8 TB, 10 TB, 2 TB (SED/FIPS)
3.5-inch	SATA	6 Gb	7.2 K	1 TB, 2 TB, 4 TB, 6 TB, 8 TB, 10 TB
	SAS	12 Gb	7.2 K	1 TB, 2 TB, 4 TB, 8 TB, 10 TB, 4 TB (SED FIPS), 8 TB (SED FIPS)

Storage controller

Dell EMC RAID controller options offer performance improvements, including the Mini PERC solution. Mini PERC provides a base RAID HW controller without consuming a PCIe slot by using a small form factor and high density connector to the base planar.

The following table shows the supported storage controllers for the PowerEdge R6525:

Table 10. Supported storage controllers

Performance level	Description
Entry	S150 (SATA, NVMe) Software RAID SATA
Value	HBA345 (internal), 12Gbps SAS HBA (external)

Performance level	Description
	12 Gbps SAS HBA (external)
Value Performance	H345
Premium Performance	H745

External drives

The following table shows the supported external storage for the PowerEdge R6525:

Table 11. Supported external storage

Device Type	Description
External Tape	Supports connection to external USB tape products
NAS/IDM appliance software	Supports NAS software stack
JBOD	Supports connection to 12Gb MD-series JBODs

Networking and PCIe

The PowerEdge R6525 system supports two Network Interface Controller (NIC) ports embedded on the LOM card.

The PowerEdge R6525 system also supports OCP NIC port integrated on the optional OCP card.

Table 12. NIC port specification

Feature	Specifications
LOM card	1 GB x 2
OCP card (OCP 3.0)	1 GbE x 4, 10 GbE x 2, 25 GbE x 2, 25 GbE x 4, 50 GbE x 2, 100 GbE x 2

Topics:

- [Expansion card installation guidelines](#)

Expansion card installation guidelines

The PowerEdge R6525 supports PCI express (PCIe) generation 4.0 expansion cards that can be installed on the system board using expansion card risers.

PCIe expansion card risers

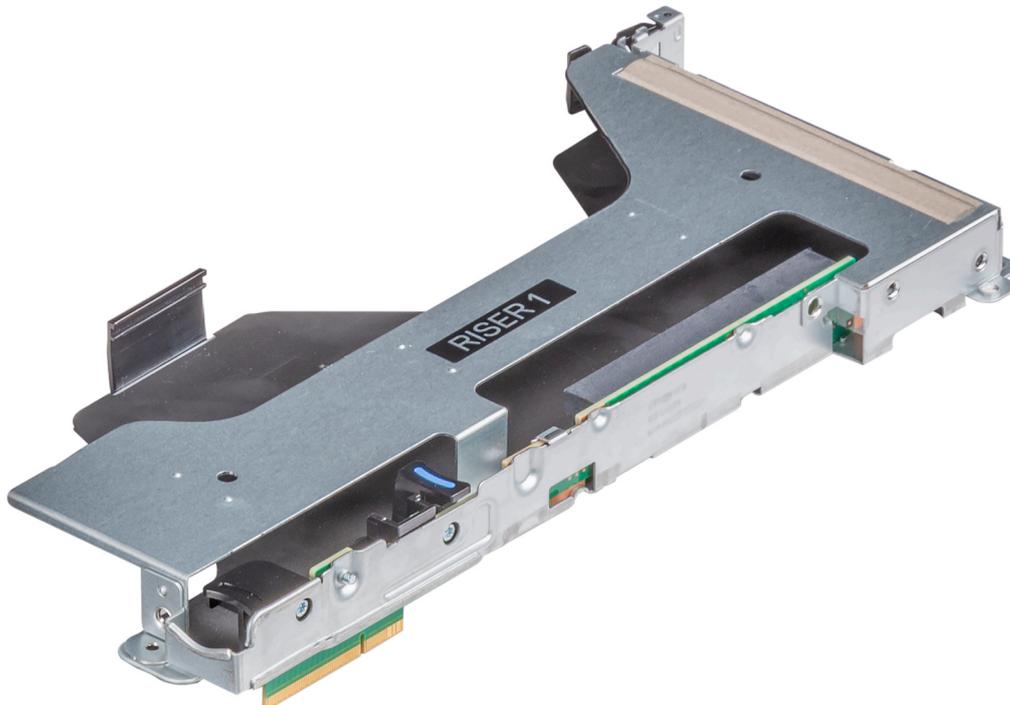


Figure 5. Slot 1 - Riser 1

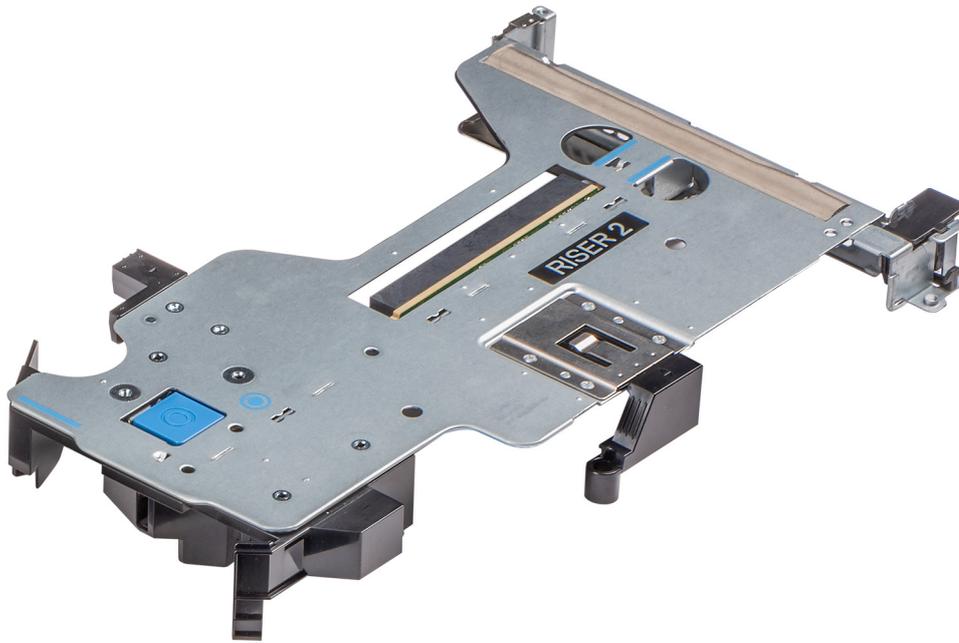


Figure 6. Slot 1 and 2 - Riser 2

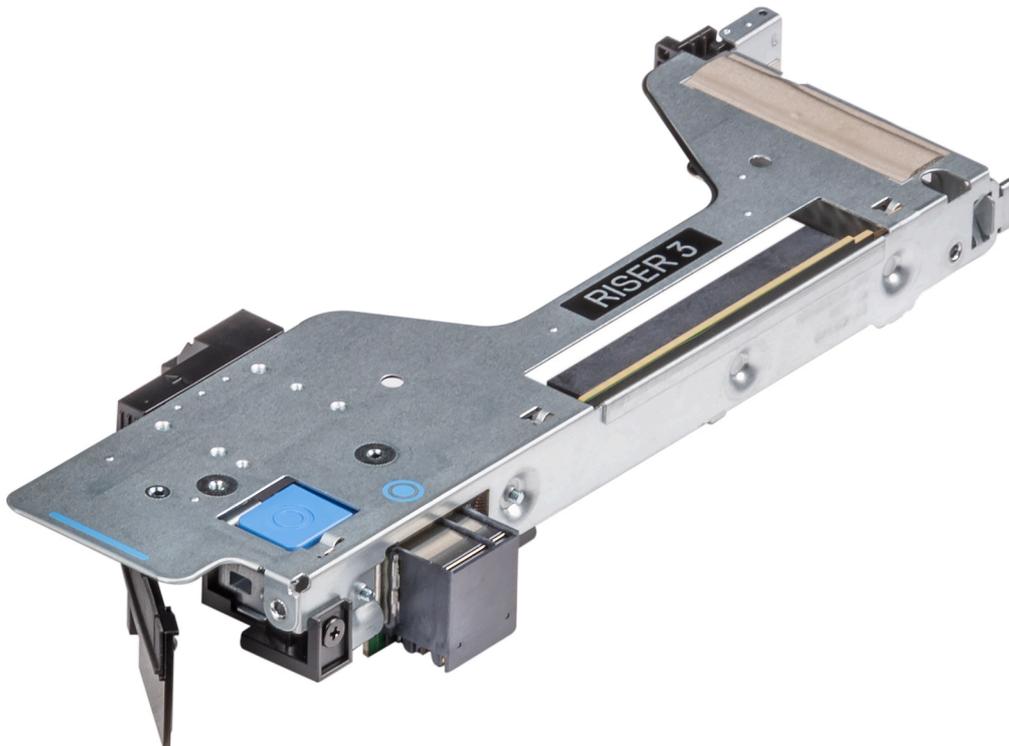


Figure 7. Slot 3 - Riser 3

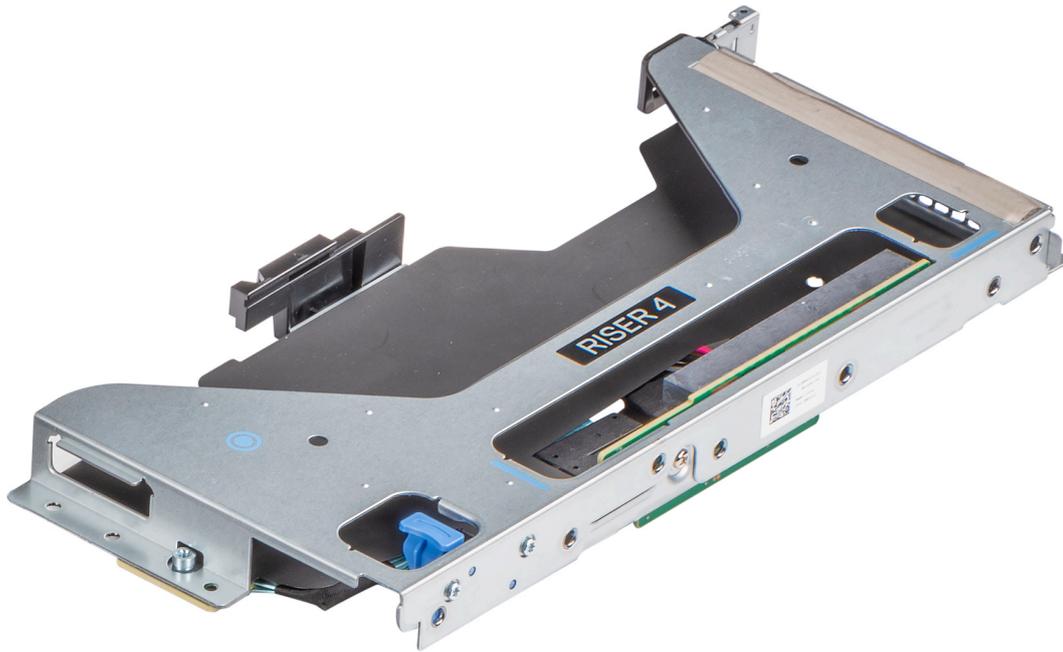


Figure 8. Slot 2 - Riser 4

The PowerEdge R6525 system supports up to four PCI express (PCIe) Gen 4 expansion cards.

Table 13. Expansion card slots supported on the system board

PCIe slot	Risers	Riser width	PCIe slot height	PCIe slot length	Slot width
Slot 1	R2a (Riser 2)	x32 PCIe	Low profile	Half length	x16
Slot 1	R1a (Riser 1)	x16 PCIe	Full height	3/4th length	x16
Slot 1	R2b (Riser 2)	x32 PCIe	Low profile	Half length	x16
Slot 2	R2a (Riser 2)	x32 PCIe	Low profile	Half length	x16
Slot 2	R2b (Riser 2)	x32 PCIe	Low profile	Half length	x16
Slot 2	R4c + R4d (Riser 4)	x16 PCIe	Full height	3/4th length	x16
Slot 3	R3a (Riser 3)	x16 PCIe	Low profile	Half length	x16

Power, thermal, and acoustics

Power supplies

Energy Smart power supplies have intelligent features, such as the ability to dynamically optimize efficiency while maintaining availability and redundancy. Also featured are enhanced power-consumption reduction technologies, such as high-efficiency power conversion and advanced thermal-management techniques, and embedded power-management features, including high-accuracy power monitoring.

The following table shows the supported power supplies for the PowerEdge R6525:

Table 14. Supported power supplies

Wattage	Frequency	Voltage	Class	Heat dissipation
800 W AC/HVDC (China Only)	50/60Hz	100-240Vac/9.2-3.8A	Platinum	3139 BTU/hr
	N/A	240Vdc/3.8A	N/A	3139 BTU/hr
1400 W AC/HVDC (China Only)	50/60Hz	100-240Vac/12-8A	Platinum	5459 BTU/hr
	N/A	240Vdc/6.6A	N/A	5459 BTU/hr

NOTE: If a system with AC 1400 W PSUs operate at low line 100-120 Vac, the power rating per PSU is derated to 1050 W

The following table shows the highline and lowline ratings:

Table 15. Highline and lowline ratings

Feature	800 W	1400 W
Peak Power (Highline)	1360 W	2380 W
Highline	800 W	1400 W
Peak Power (Lowline)	1360 W	1785 W
Lowline	800 W	1050 W
Highline 240 VDC	800 W	1400 W
Highline 200-380 VDC	N/A	N/A
DC -48--60 V	N/A	N/A

Thermal

The thermal management of the platform helps deliver high performance with the right amount of cooling to components, while maintaining the lowest fan speeds possible. This is done across a wide range of ambient temperatures from 10°C to 35°C (50°F to 95°F) and to extended ambient temperature ranges.

Table 16. Thermal restriction matrix

Configuration		4 x 3.5-inch	8 x 2.5-inch	10 x 2.5-inch SAS	10 x 2.5-inch NVMe
Rear storage		3 LP/ 2 FH			
CPU TDP	CPU cTDP Max				
120 W	150 W	STD fan STD heat sink	STD fan STD heat sink	VHP fan STD heat sink	VHP fan STD heat sink
155 W	180 W	STD fan	STD fan	VHP fan	VHP fan

Configuration		4 x 3.5-inch	8 x 2.5-inch	10 x 2.5-inch SAS	10 x 2.5-inch NVMe
Rear storage		3 LP/ 2 FH	3 LP/ 2 FH	3 LP/ 2 FH	3 LP/ 2 FH
CPU TDP	CPU cTDP Max				
		STD heat sink	STD heat sink	STD heat sink	STD heat sink
180 W	200 W	HPR fan	HPR fan	VHP fan	VHP fan
		L-type heat sink	L-type heat sink	L-type heat sink	L-type heat sink
200 W	200 W	HPR fan	HPR fan	VHP fan	VHP fan
		L-type heat sink	L-type heat sink	L-type heat sink	L-type heat sink
225 W	240 W	HPR fan	HPR fan	VHP fan	VHP fan
		L-type heat sink	L-type heat sink	L-type heat sink	L-type heat sink
T4 GPU		HPR fan	HPR fan	VHP fan	VHP fan

Acoustics

The PowerEdge R6525 is a rack-mount server appropriate for attended data center environment. However, lower acoustical output is attainable with proper hardware or software configurations. For example, the minimum configuration of R6525 is quiet enough for typical office environment.

Table 17. PowerEdgeR6525 acoustical performance

Configuration	Entry	Volume - 1 (HPC)	Volume - 2 (Rear Storage)	Margin Rich
Acoustical Category	Category 2	Category 4	Category 3	Category 5
CPU Type	2 nd Generation AMD EPYC™ processor			
CPU TDP	120 W (8 cores)	E 200 W (64 cores)	120 W (16 cores)	225 W (64 cores)
CPU Quantity	1	2	2	2
Memory Type	8 GB DDR4 RDIMM	32 GB DDR4 RDIMM	16 GB DDR4 RDIMM	64 GB DDR4 RDIMM
DIMM Quantity	8	16	8	32
Backplane Type	4x 3.5-inch	10x 2.5-inch	4x 3.5-inch + 2x 2.5-inch	10x 2.5-inch
Hard drive Type	3.5-inch SATA 1 TB	2.5-inch SAS 1-K 2.4 TB + 2.5-inch NVMe	3.5-inch SAS 4 TB + 2.5-inch SSD	Intel P4500 2 TB NVMe SSD
Hard drive Quantity	2	6+4	4+2	10
PSU Type	800 W	1400 W	800 W	1400 W
PSU Quantity	2	2	2	2
PCI 1		Dual Port 25 GbE		Dual Port 200 GbE
PCI 2		Dual Port 25 GbE		
Front PERC	PERC H345	PERC H745P	PERC H745P	PERC H745P
OCP	Dual Port 10 GbE	Dual Port 25 GbE	Dual Port 10 GbE	Dual Port 25 GbE

Supported operating systems

The list below contains the primary operating systems supported on R6525:

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

For more information on the specific versions and additions, see <https://www.dell.com/support/home/Drivers/SupportedOS/poweredge-r6525>

Dell EMC OpenManage systems management

Whether your IT environment consists of a few servers or a few thousand servers, Dell EMC OpenManage systems management solutions provide comprehensive management features for evolving IT environments. OpenManage is based on open standards, and provides both agent-based and agent-free server life-cycle management functionality for Dell EMC PowerEdge servers. OpenManage solutions help you automate and streamline essential hardware management tasks.

Start with a firm foundation for efficient hardware management using OpenManage tools, utilities, and management consoles.

OpenManage systems management solutions consist of a combination of embedded management features and software products that help you automate and simplify the entire server life cycle: deploy, update, monitor, and maintain. OpenManage solutions are innovatively designed for simplicity and ease of use to help you reduce complexity, save time, achieve efficiency, control costs, and empower productivity. OpenManage centers on efficient management of server life cycle.

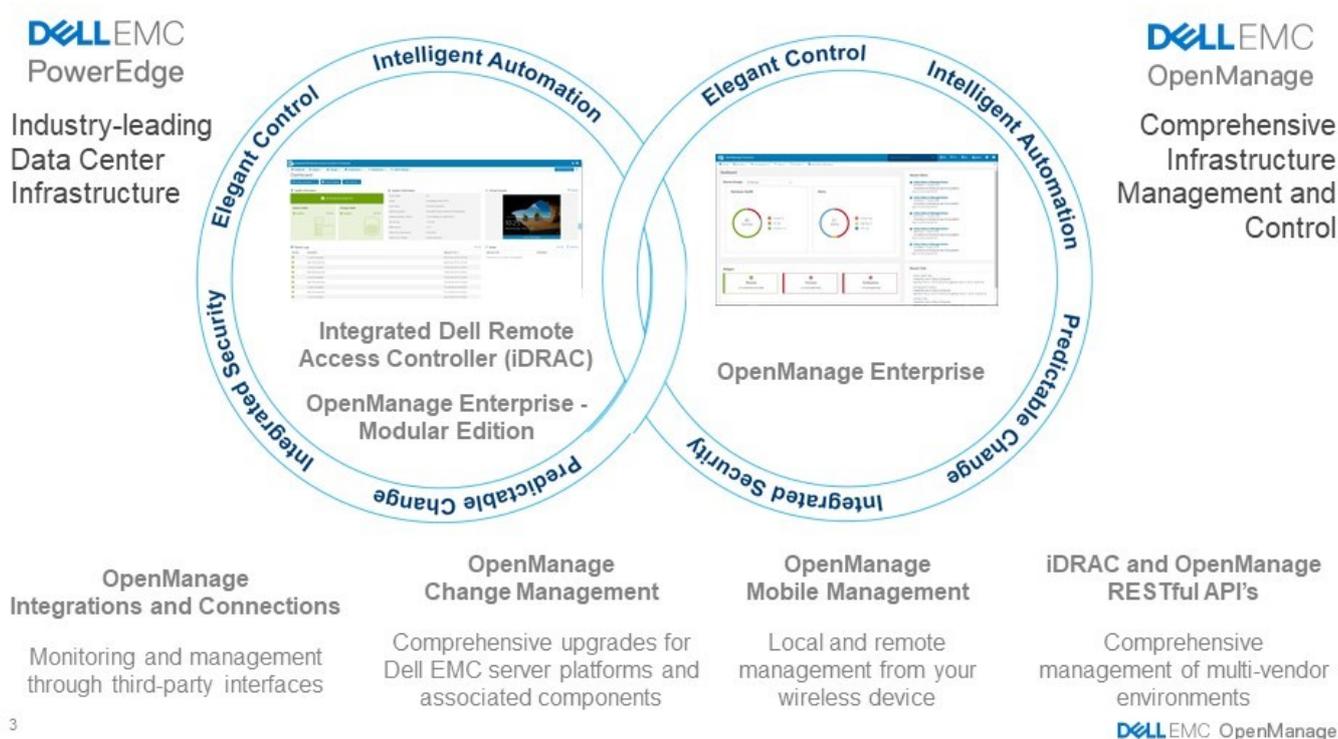


Figure 9. Server lifecycle management operations

Topics:

- [iDRAC9 with Lifecycle Controller](#)
- [Agent-free management](#)
- [Agent-based management](#)
- [Dell EMC consoles](#)
- [Dell EMC OpenManage systems management tools, utilities, and protocols](#)
- [Integration with third-party consoles](#)
- [OpenManage connections with third-party consoles](#)

iDRAC9 with Lifecycle Controller

The Integrated Dell Remote Access Controller 9 (iDRAC9) with Lifecycle Controller, the embedded intelligence of every Dell EMC PowerEdge new generation server, helps you manage Dell EMC servers agent-free or with a systems management agent, within physical,

virtual, local, and remote environments. iDRAC9 alerts you of server issues, enables remote server management, and reduces the need to physically go to the server. iDRAC9 with Lifecycle Controller is part of Dell EMC comprehensive OpenManage portfolio and works as a stand-alone or with other components such as OpenManage Essentials, OpenManage Mobile, OpenManage Power Center, Chassis Management Controller, and OpenManage Integrations for Microsoft, VMware, and BMC consoles to simplify, automate, and streamline IT operations.

Dell EMC BMC and iDRAC9 feature comparison

iDRAC9 Enterprise is available for the system. Dell EMC also offers BMC. A detailed feature comparison for Dell EMC BMC and iDRAC9 Express is shown in the following table.

Table 18. Feature comparison for Dell EMC BMC and iDRAC9 Enterprise

Feature	Dell EMC BMC	iDRAC9 Enterprise
Interfaces/Standards		
IPMI 2.0	Yes	Yes
DCMI 1.5	Yes	Yes
Web-based UI	Yes	Yes
Racadm command line (local and remote)	Yes	Yes
SMASH-CLP (SSH-only)	Yes	Yes
Telnet	Yes	Yes
SSH	Yes	Yes
WSMAN	Yes	Yes
RedFish API	Yes	Yes
Network Time Protocol	Yes	Yes
Connectivity		
Shared NIC	Yes	Yes
Dedicated NIC (with Ports card)	Yes	Yes
VLAN tagging	Yes	Yes
IPv4	Yes	Yes
IPv6	Yes	Yes
DHCP	Yes	Yes
Dynamic DNS	Yes	Yes
Operating system pass-through	Yes	Yes
Security		
Role-based authority	Yes	Yes
Local users	Yes	Yes
SSL encryption	Yes	Yes
IP blocking	Yes	Yes
Directory services (AD and LDAP)	No	Yes
Two-factor authentication	No	Yes
Single sign-on	No	Yes
PK authentication	Yes	Yes
New generation: Configuration Lockdown	No	Yes
New generation: System Erase of internal storage devices	Yes	Yes
Remote presence		

Feature	Dell EMC BMC	iDRAC9 Enterprise
Power control	Yes	Yes
Boot control	Yes	Yes
Serial-over-LAN	Yes	Yes
Virtual media	No	Yes
Virtual folders	No	Yes
Remote file share	No	Yes
Virtual console	Yes	Yes
VNC connection to operating system	No	Yes
Quality/bandwidth control	No	Yes
Virtual console collaboration (6 users)	No	Yes
Virtual console chat	No	Yes
Power and thermal		
Real-time power meter	Yes	Yes
Power thresholds and alerts	Yes	Yes
Real-time power graphing	Yes	Yes
Historical power counters	Yes	Yes
Power capping	Yes	Yes
Power Center integration	Yes	Yes
Temperature monitoring	Yes	Yes
Temperature graphing	Yes	Yes
Health monitoring		
Full agent-free monitoring	Yes	Yes
Predictive failure monitoring	Yes	Yes
SNMPv1, v2, and v3 traps and gets	Yes	Yes
Email Alerting	Yes	Yes
Configurable thresholds	Yes	Yes
Fan monitoring	Yes	Yes
Power supply monitoring	Yes	Yes
Memory monitoring	Yes	Yes
CPU monitoring	Yes	Yes
RAID monitoring for PERC	Yes	Yes
NIC monitoring	Yes	Yes
HD monitoring including JBOD enclosure	Yes	Yes
Out of band performance monitoring	No	Yes
Update		
Remote agent-free update	Yes	Yes
Embedded update tools	No	Yes
Sync with repository for scheduled updates	No	Yes
Autoupdate	No	Yes
Deployment and configuration		

Feature	Dell EMC BMC	iDRAC9 Enterprise
Embedded operating deployment tools	No	Yes
Embedded configuration tools	No	Yes
AutoDiscovery	No	Yes
Remote operating system deployment for vMedia	No	Yes
Embedded driver pack	Yes	Yes
Full configuration inventory	Yes	Yes
Inventory export	Yes	Yes
Remote configuration	Yes	Yes
Zero touch configuration	No	Yes
System retire and repurpose	Yes	Yes
New generation: iDRAC Connection View	No	Yes
New generation: BIOS configuration page in iDRAC UI	Yes	Yes
Diagnostics, service, and logging		
Embedded diagnostic tools	Yes	Yes
Part replacement	No	Yes
Server configuration backup	No	Yes
Server configuration restore	Yes	Yes
Easy restore for system configuration, including USB and rSPI	Yes	Yes
Health LED only	Yes	Yes
New generation: Quick Sync 2.0	NA	NA
New generation: iDRAC Direct 2.0 with micro USB port on rear	Yes	Yes
iDRAC Service Module (iSM)	Yes	Yes
Embedded Tech Support Report	Yes	Yes
Crash screen capture	No	Yes
Crash video capture, requires iSM or OMSA	No	Yes
Boot capture	No	Yes
Manual reset for iDRAC	Yes	Yes
Virtual NMI	Yes	Yes
Operating system watchdog (requires iSM or OMSA)	Yes	Yes
System event log	Yes	Yes
Lifecycle log	Yes	Yes
Work notes	Yes	Yes
Remote syslog	No	Yes
License management	Yes	Yes

Agent-free management

As Dell EMC PowerEdge servers have embedded server life-cycle management, often, there is no need to install an OpenManage systems management software agent into the operating system of a Dell EMC PowerEdge server. This greatly simplifies and streamlines the management footprint.

Agent-based management

Most systems management solutions require pieces of software, called agents, to be installed on each node to be managed within the IT environment. Also, the same agent is often used as a local interface into hardware health. It may be accessed remotely as a management interface, typically referred to as a one-to-one interface. For customers that continue to use agent-based solutions, Dell EMC provides OpenManage Server Administrator.

Dell EMC consoles

The central console in a systems management solution is often referred to as the one-to-many console. The central console provides a rapid view and insight into the overall health of all systems in the IT environment. The Dell EMC systems management portfolio includes several powerful consoles from which to choose depending on your requirements, including the following:

Dell EMC OpenManage Enterprise

Dell EMC OpenManage Enterprise is an intuitive infrastructure management console. Designed to take the complexity out of IT infrastructure management, it delivers better results with less time and fewer steps. OpenManage Enterprise helps IT professionals balance time and energy between complex IT infrastructure and business goals.

Simplify

- Robust, intuitive management capabilities regardless of form factor
- OpenManage Enterprise reduces learning time with a HTML5 UI that includes an elastic search engine. It goes to critical information and tasks easier and quicker. The automatable processes, templates, and policies can be created and edited using a simple menu-driven interface.

Unify

- One-to-many management from a single console—Built for scale
- OpenManage Enterprise supports up to 8,000 devices regardless of form factors. It supports Dell EMC PowerEdge racks, towers, and modular servers. It also monitors and creates alerts for third-party devices or PowerVault MD and ME Storage systems.

Automated

- Automated IT processes for greater efficiency
- From discovery to retirement, activities can be managed in the same console. In minutes, devices can be deployed automatically with templates based on service tags or node IDs.

Secure

- Designed for security throughout the infrastructure life cycle
- Security is always the top priority. To protect your infrastructure, OpenManage Enterprise detects drift from a user-defined configuration template, alerts users, and remediates misconfigurations based on presetup policies.

For more information, see the [Dell OpenManage Enterprise page](#).

OpenManage Mobile

OpenManage Mobile (OMM) is a software application that enables easy, convenient, and secure monitoring and management of PowerEdge servers remotely or at-the-server. With OpenManage Mobile, IT Administrators can securely perform several data center monitoring and remediation tasks using an Android or iOS mobile device. The OpenManage Mobile app is available as a free software download from the Apple Store and the Google Play Store.

OMM can also monitor and manage PowerEdge servers through an OpenManage Essentials console or by directly accessing the server's iDRAC.

The OpenManage Essentials console can be accessed through OpenManage Mobile over a secure IP network. This allows you to monitor all devices that are managed by OpenManage Essentials such as Dell EMC servers, storage, networking, firewall, and supported third-party devices.

Key features of OpenManage Mobile when connected through OpenManage Essentials console:

- Connect to multiple servers which have OME installed, from a single mobile device

- Connect to multiple servers individually through the iDRAC interface
- Receive critical alert notifications on your mobile device as they arrive into your OpenManage Essentials management console
- Acknowledge, forward, and delete alerts from your mobile device
- Browse through device details, firmware inventory, and event logs of individual systems
- Perform several server management functions such as power-on, power cycle, reboot, and shutdown from the mobile application

Key Features of OpenManage Mobile when connected through iDRAC:

- Connect to any previous generation PowerEdge servers remotely
- Assign IP address, change credentials, and update common BIOS attributes for bare metal configuration
- Configure one server manually, or multiple servers simultaneously through a template
- Browse server details, health status, hardware and firmware inventory, networking details, and system event or LC logs. Share this information easily with other IT Administrators
- Access SupportAssist reports, Last Crash screen and video for both previous and current generation PowerEdge servers
- Access virtual console and reduce the need for crash carts
- Power on, shut down, or reboot your server from anywhere
- Run any RACADM command

OpenManage Enterprise Power Manager

OpenManage Enterprise Power Manager is a plug-in for OpenManage Enterprise V3.2 and later. Power Manager provides monitoring and management at a one to many levels of server power and thermal. The features of Power Manager are:

- Measure and manage power consumption and monitors thermal readings—OME Power Manager provides greater insight into a data center's energy usage through detailed measurement of energy consumption throughout a data center. Power Manager gives administrators the ability to measure and manage the power consumption of up to 3,000 servers and track both short-term and long-term historical data.
- Create and implement multiple usage policies—Power Managers simplifies implementation of power policies across a data center. When it is used with the previous generation or later versions of the PowerEdge servers, OpenManage Enterprise Advanced license, and an iDRAC Enterprise license, administrators can control power consumption to each row, rack, or group of PE servers. Also, administrators can create reports on energy usage and thermal readings on a group-by-group basis.
- Reduce consumption during low-load hours—Power Manager helps administrators to save power by allowing management of a server room according to business needs. Power Manager allows administrators to implement policies that reduce the power consumption when the demand on the systems is lower. It can also assign maximum power to the servers that run the most important applications.

For more information, see [OpenManage Enterprise Power Manager User's Guide](#).

Dell EMC OpenManage systems management tools, utilities, and protocols

Dell EMC OpenManage systems management tools and utilities consist of the following:

Dell EMC Repository Manager

Dell EMC Repository Manager (DRM) is an application that helps you to:

- Identify the updates that are relevant to the systems in your data center
- Identify and notify you when updates are available
- Package the updates into different deployment formats

To automate the creation of baseline repositories, DRM provides advanced integration capabilities with iDRAC/Lifecycle controller, OpenManage Essentials, Chassis Management Controller, OpenManage Integration for VMware vCenter and OpenManage Integration for Microsoft System Center (OMIMSSC). Also, DRM packages updates into custom catalogs that can be used for deployment.

Dell EMC Repository Manager can create the following deployment tools:

- Custom catalogs
- Lightweight deployment pack
- Bootable Linux ISO
- Custom Server Update Utility (SUU)

For more information, see Dell EMC Repository Manager user's guide available at Dell.com/support/manuals.

Dell Update Packages

Dell Update Packages (DUPs) are self-contained executables supported by Microsoft Windows or Linux that update a component on a server and applications like OMSA, iSM, and DSET.

DUPs can be executed in UI or in CLI-mode.

For more information, see the Dell EMC Update Packages user's guide available at www.delltechcenter.com/DSU.

Dell Remote Access Controller Administration (RACADM) CLI

The RACADM command-line utility provides a scriptable interface to perform inventory, configuration, update, and health status check of PowerEdge servers. RACADM operates in multiple modes.

- Local—supports running RACADM commands from the managed server's operating system
- SSH or Telnet—known as Firmware RACADM; is accessible by logging in to iDRAC using SSH or Telnet
- Remote—supports running RACADM commands from a remote management station such as a laptop or desktop

RACADM is supported by the iDRAC with Lifecycle Controller and by the Chassis Management Controller of the M1000e, VRTX and FX2 modular systems. Local and Remote RACADM is supported on Windows Server, Windows clients, and on Red Hat, SuSe, and Ubuntu Linux.

For more information, see the RACADM Command Line reference guide for iDRAC and CMC available at Dell.com/support/manuals.

iDRAC with Lifecycle Controller Embedded Management APIs

iDRAC with Lifecycle Controller provides a range of standards-based applications programming interfaces (APIs) that enable scalable and automated management of PowerEdge servers. Standard systems management APIs have been developed by organizations such as the Institute of Electrical and Electronics Engineers (IEEE) and Distributed Management Task Force (DMTF). These APIs are widely used by commercial systems management products and by custom programs and scripts developed by IT staff to automate management functions such as discovery, inventory, health status checking, configuration, update, and power management. The APIs supported by iDRAC with Lifecycle Controller include:

- **Redfish**—In 2015, the DMTF Scalable Platforms Management Forum (SPMF) published Redfish, an open industry-standard specification and schema designed to meet the needs of IT administrators for simple, modern, and secure management of scalable platform hardware. Dell is a key contributor to the Redfish standard, acting as co-chair of the SPMF, promoting the benefits of Redfish, and working to deliver those benefits within industry-leading systems management solutions. Redfish is a next-generation management standard using a data model representation inside a hypermedia RESTful interface. The data model is defined in terms of a standard, machine-readable schema, with the payload of the messages expressed in JSON and the OData v4 protocol.
- **WSMan**—The Web Services For Management (WSMan) API, first published by the DMTF in 2008, is the most mature and robust API provided by iDRAC with Lifecycle Controller. WSMan uses a Simple Object Access Protocol (SOAP) with data modeled using the Common Information Model. WSMan provides interoperability between management applications and managed resources, and identifies a core set of web service specifications and usage requirements that expose a common set of operations central to all systems management.
- **IPMI**—The Intelligent Platform Management Interface (IPMI) is a message-based, hardware-level interface specification that can operate over both LAN and serial interfaces. IPMI is supported broadly by server vendors, systems management solutions, and open source software.
- **SNMP**—The Simple Network Management Protocol (SNMP) helps in standardizing the management of network devices. SNMP allows commercial management consoles created for monitoring network switches and routers to also monitor X86 servers. SNMP is primarily used to deliver event messages to alert administrators of problems on their systems but can also be used to discover, inventory and configure servers.

To assist automating system management tasks and simplify API integration, Dell provides PowerShell and Python libraries and script examples using the WSMan interface. The iDRAC with Lifecycle Controller pages of Dell Techcenter offer a library of technical white papers detailing the use of the embedded management APIs. For more information, see delltechcenter.com/iDRAC and delltechcenter.com/LC.

Integration with third-party consoles

Dell EMC OpenManage provides integration with several leading third-party consoles, including:

OpenManage Integration Suite for Microsoft System Center

The combination of Dell OpenManage Integration Suite and Microsoft System Center simplifies and enhances deployment, configuration, monitoring and updating of Dell servers and storage in physical and virtual environments. Our agent-free and agent-based plug-ins deliver a unique level of integration and efficiency when managing Dell hardware within a System Center environment.

The OpenManage Integration Suite for Microsoft System Center includes: Dell Server and Storage Management Packs for System Center Operations Manager (SCOM), Dell Server Deployment Packs and Update Catalogs for System Center Configuration Manager (SCCM), and tools for optimizing management of Dell PowerEdge servers in virtual environments using System Center Virtual Machine Manager (SCVMM).

OpenManage Integration for VMware vCenter

The OpenManage Integration for VMware vCenter (OMIVV) allows you to monitor, provision, and manage PowerEdge server hardware and firmware. You can perform these tasks through a dedicated Dell menu that can be accessed directly through the VMware vCenter console. OMIVV also allows granular control and reporting for the hardware environment using the same role-based access control model as vCenter. The OpenManage Management Pack for vRealize Operations Manager is available with OMIVV version 4.0 and later. This helps to checking hardware health and alerting into vRealize operations, which also includes dashboard and reporting on the server environment.

Use the following features to manage and monitor Dell hardware within the virtualized environment:

- Alerting and monitoring environment for servers and chassis
- Monitoring and reporting for servers and chassis
- Updating firmware on servers
- Deploying enhanced options

For more information, see delltechcenter.com/omivv.

 **NOTE: The Dell EMC Repository Manager integrates with OpenManage Integration for VMware vCenter. The Dell EMC Repository Manager provides advanced functionality, simplifies the discovery, and deployment of new updates.**

BMC Software

Dell EMC and BMC Software work together to simplify IT by ensuring tight integration between Dell EMC server, storage, and network management functionality and the BMC Software process and data center automation products.

OpenManage connections with third-party consoles

Dell EMC OpenManage Connections gives you an easy path to adding support for third-party devices, so you can continue to use your existing management tools while easily adding Dell EMC server systems to your existing IT environment. Integrate new systems at your own pace. Manage new Dell EMC servers and storage with your legacy management tools, while extending the useful life of your existing resources. With OpenManage Connections you can add monitoring and troubleshooting of Dell EMC assets to your IT infrastructure.

- OpenManage Connection for Nagios Core and Nagios XI
- OpenManage Connection for HPE Operations Manager i (OMi)

For more information on these OpenManage Connections, visit Dell.com/openmanage.

Dell Technologies Services

Dell Technologies Services include a wide, customizable range of service choices to simplify the assessment, design, implementation, management and maintenance of IT environments and to help you transition from platform to platform. Depending on your current business requirements and the level of service right for you, we provide factory, on-site, remote, modular, and specialized services that fit your needs and budget. We'll help with a little or a lot—your choice—and provide access to our global resources.

For more information, see DellEMC.com/Services.

Topics:

- [ProDeploy Enterprise Suite and Residency Services](#)
- [Remote Consulting Services](#)
- [Data Migration Service](#)
- [ProSupport Enterprise Suite](#)
- [ProSupport Plus](#)
- [ProSupport](#)
- [ProSupport One for Data Center](#)
- [ProSupport for HPC](#)
- [Support Technologies](#)
- [Education Services](#)
- [Dell Technologies Consulting Services](#)
- [Managed Services](#)

ProDeploy Enterprise Suite and Residency Services

ProDeploy Enterprise Suite gets your server out of the box and into optimized production—fast. Our elite deployment engineers with broad and deep experience utilizing best-in-class processes along with our established global scale can help you around the clock and around the globe. From simple to the most complex server installations and software integration, we take the guess work and risk out of deploying your new server technology.

		Basic Deployment	ProDeploy	ProDeploy Plus
Pre-deployment	Single point of contact for project management		●	In-region
	Site readiness review		●	●
	Implementation planning		●	●
	Technology Service Manager (TSM) engagement for ProSupport Plus entitled devices			●
Deployment	Deployment service hours	Business hours	24x7	24x7
	Onsite hardware installation*	●	●	●
	Packaging materials disposal	●	●	●
	Install and configure system software		●	Onsite
	Project documentation with knowledge transfer		●	●
Post-deployment	Deployment verification		●	●
	Configuration data transfer to Dell EMC technical support		●	●
	30-days of post-deployment configuration assistance			●
	Training credits for Dell EMC Education Services			●

Figure 10. ProDeploy Enterprise Suite capabilities

 **NOTE:** Hardware installation not applicable on selected software products.

ProDeploy Plus

From beginning to end, ProDeploy Plus provides the skill and scale needed to successfully execute demanding deployments in today's complex IT environments. Certified Dell EMC experts start with extensive environmental assessments and detailed migration planning and recommendations. Software installation includes set up of most versions of Dell EMC SupportAssist and OpenManage system management utilities. Post-deployment configuration assistance, testing, and product orientation services are also available.

ProDeploy

ProDeploy provides full service installation and configuration of both server hardware and system software by certified deployment engineers including set up of leading operating systems and hypervisors as well as most versions of Dell EMC SupportAssist and OpenManage system management utilities. To prepare for the deployment, we conduct a site readiness review and implementation planning exercise. System testing, validation, and full project documentation with knowledge transfer complete the process.

Basic Deployment

Basic Deployment delivers worry-free professional installation by experienced technicians who know Dell EMC servers inside and out.

HPC deployments require specialist that understand that cutting edge is yesterday's news. Dell EMC deploys the world's fastest systems and understands the nuances that make them perform. ProDeploy for HPC provides:

- Global team of dedicated HPC specialists
- Proven track record, thousands of successful HPC deployments
- Design validation, bench marking and production orientation

Learn more at <http://DellEMC.com/HPC-Services>

ProDeploy for HPC

Get more out of your cluster starting Day One

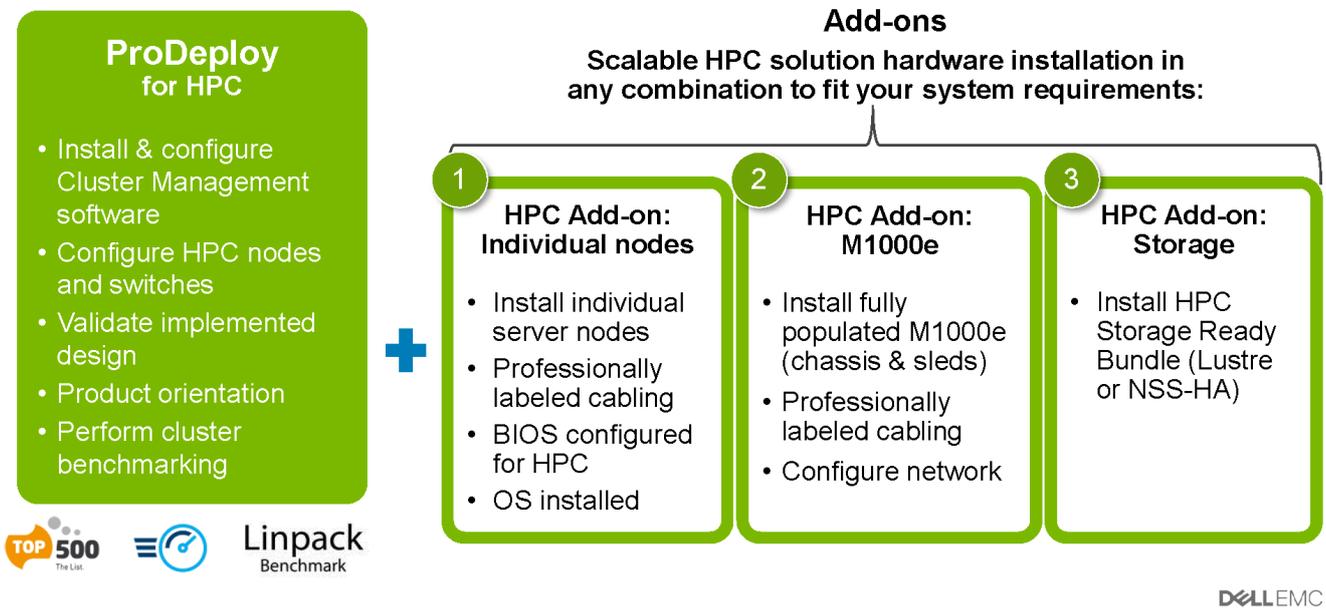


Figure 11. ProDeploy for HPC

Server Configuration Services

With Rack Integration and other Server Configuration Services, you save time by receiving your systems racked, cabled, tested, and ready to integrate into the data center. Dell EMC staff pre-configure RAID, BIOS and iDRAC settings, install system images, and even install third-party hardware and software.

For more information, see [Server Configuration Services](#).

Residency Services

Residency Services helps customers transition to new capabilities quickly with the assistance of on-site or remote Dell EMC experts whose priorities and time you control. Residency experts can provide post implementation management and knowledge transfer related to a new technology acquisition or day-to-day operational management of the IT infrastructure.

Remote Consulting Services

When you are in the final stages of your PowerEdge server implementation, you can rely on Dell EMC Remote Consulting Services, and our certified technical experts to help you optimize your configuration with best practices for your software, virtualization, server, storage, networking, and systems management.

Data Migration Service

Protect your business and data with our single point of contact to manage your data migration project. Your project manager will work with our experienced team of experts to create a plan using industry-leading tools and proven processes based on global best practices to migrate your existing files and data so your business system get up and running quickly and smoothly.

ProSupport Enterprise Suite

Dell EMC ProSupport Services, we help you keep operations running smoothly, so you can focus on running your business. We will help you maintain peak performance and availability of your most essential workloads. Dell EMC ProSupport is a suite of support services that enable you to build the solution that is right for your organization. For HPC, Dell EMC provides solution-aware support including access to dedicated HPC solution experts to help manage the complexities of supporting a multiple-vendor cluster.

Choose support models based on how you use technology and where you want to allocate resources. From the desktop to the data center, address everyday IT challenges, such as unplanned downtime, mission-critical needs, data and asset protection, support planning, resource allocation, software application management and more. Optimize your IT resources by choosing the right support model.

The image shows three vertical rectangular boxes, each with a colored header and a white body. The first box has a blue header and contains text about ProSupport Plus. The second box has an orange header and contains text about ProSupport. The third box has a green header and contains text about ProSupport One for Data Center.

Service Name	Description
ProSupport Plus	Optimize your critical systems and free up staff to innovate the business. ProSupport Plus provides an assigned Technology Service Manager and access to senior technical engineers that quickly diagnose issues and provide personalized guidance to avoid problems before they ever impact your business.
ProSupport	Keep your hardware and software running smoothly with 24x7 access to technology engineers as well as proactive and preventive technologies to help you get ahead of issues.
ProSupport One for Data Center	Get a tailored, personalized support experience for your large IT environment, including an assigned service account management expert as well as flexible parts and labor options.

Figure 12. ProSupport Enterprise Suite

ProSupport Plus

When you purchase your PowerEdge server, we recommend ProSupport Plus, our proactive and preventative support service for your business-critical systems. ProSupport Plus provides you with all the benefits of ProSupport, plus the following:

- An assigned Technology Service Manager who knows your business and your environment
- Access to senior ProSupport engineers for faster issue resolution of issues
- Personalized, preventive recommendations based on analysis of support trends and best practices from across the Dell EMC customer base to reduce support issues and improve performance
- Predictive analysis for issue prevention and optimization enabled by SupportAssist
- Proactive monitoring, issue detection, notification, and automated case creation for accelerated issue resolution enabled by SupportAssist
- On-demand reporting and analytics-based recommendations enabled by SupportAssist and TechDirect

ProSupport

Our ProSupport service offers highly trained experts around the clock and around the globe to address your IT needs. We help minimize disruptions and maximize availability of PowerEdge server workloads with:

- 24 x 7 x 365 access to certified hardware and software experts
- Hypervisor and operating system support
- Consistent level of support available for Dell EMC hardware, software, and solutions
- Onsite parts and labor response options including next-business-day or four-hour-mission-critical
- A single point of accountability for any eligible third-party software

Enterprise Support Services Feature Comparison

	Basic	ProSupport	ProSupport Plus
Remote technical support	9x5	24x7	24x7
Covered products	Hardware	Hardware Software	Hardware Software
Onsite hardware support	Next business day	Next business day or 4hr mission critical	Next business day or 4 hr mission critical
Automated issue detection & proactive case creation		●	●
Self-service case initiation and management		●	●
Access to software updates		●	●
Priority access to specialized support experts			●
3 rd party software support			●
Assigned Technology Service Manager			●
Personalized assessments and recommendations			●
Semiannual systems maintenance			●

Availability and terms of Dell Technologies services vary by region and by product. For more information, please view our Service Descriptions available on Dell.com



Figure 13. Dell EMC Enterprise Support model

ProSupport One for Data Center

ProSupport One for Data Center offers flexible site-wide support for large and distributed data centers with more than 1,000 assets. This offering is built on standard ProSupport components that leverage our global scale but are tailored to your company's needs. While not for everyone, this service option offers a truly unique solution for Dell EMC's largest customers with the most complex environments.

- Team of assigned Technology Services Managers with remote, on-site options
- Assigned ProSupport One technical and field engineers who are trained on your environment and configurations
- On-demand reporting and analytics-based recommendations enabled by SupportAssist and TechDirect
- Flexible on-site support and parts options that fit your operational model
- A tailored support plan and training for your operations staff

ProSupport for HPC

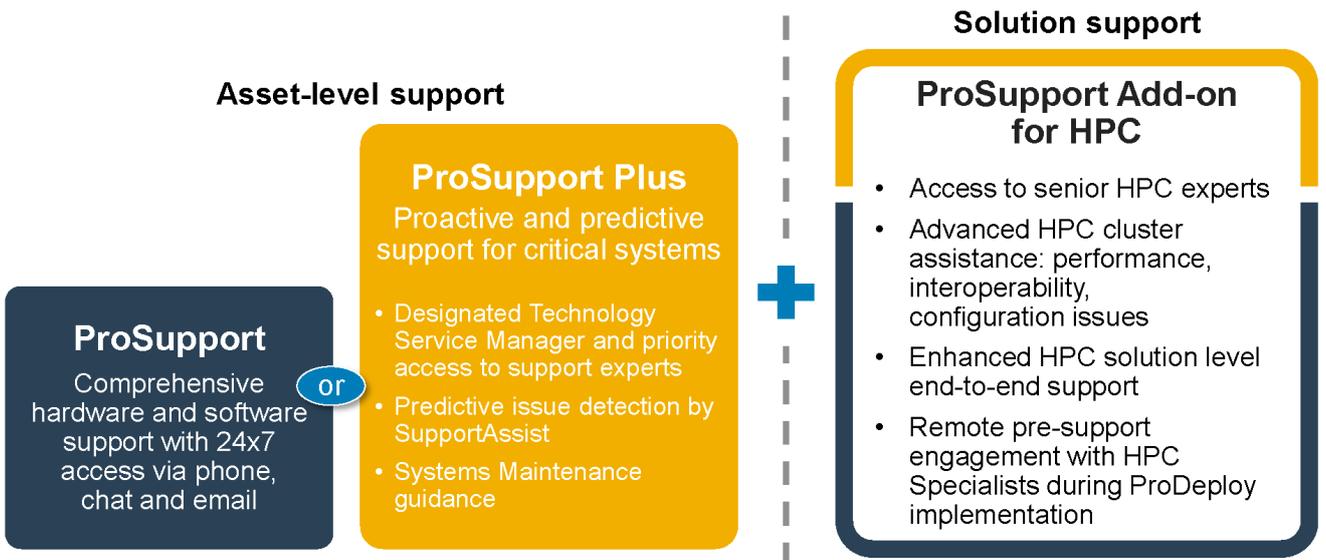
The ProSupport for HPC provides solution-aware support including:

- Access to senior HPC experts
- Advanced HPC cluster assistance: performance, interoperability & configuration
- Enhanced HPC solution level end-to-end support
- Remote pre-support engagement with HPC Specialists during ProDeploy implementation

Learn more at DellEMC.com/HPC-Services.

ProSupport Add-on for HPC

Delivering a true end-to-end support experience across your HPC environment



DELL EMC

8 © Copyright 2018 Dell Inc.

Figure 14. Prosupport for HPC

Support Technologies

Powering your support experience with predictive, data-driven technologies.

SupportAssist

The best time to solve a problem is before it happens. The automated proactive and predictive technology SupportAssist helps reduce steps and time to resolution, often detecting issues before they become a crisis. Benefits include:

- Value —SupportAssist is available to all customer at no additional charge
- Improve productivity—replace manual, high-effort routines with automated support
- Accelerate time to resolution—receive issue alerts, automatic case creation, and proactive contact from Dell EMC experts
- Gain insight and control—optimize enterprise devices with on-demand ProSupport Plus reporting in TechDirect, and get predictive issue detection before the problem starts

NOTE: SupportAssist is included with all support plans, but features vary based on service level agreement.

	Basic Hardware Warranty	ProSupport	ProSupport Plus
Automated issue detection and system state information collection	•	•	•
Proactive, automated case creation and notification		•	•
Predictive issue detection for failure prevention			•
Recommendation reporting available on-demand in TechDirect			•

Figure 15. SupportAssist model

Get started at Dell.com/SupportAssist

TechDirect

Boost IT team productivity when supporting Dell EMC systems. With over 1.4 million self-dispatches processed each year, TechDirect has proven its effectiveness as a support tool. You can:

- Self-dispatch replacement parts
- Request technical support
- Integrate APIs into your help desk

Or, access all your Dell EMC certification and authorization requirements. Train your staff on Dell EMC products, as TechDirect allows you to:

- Download study guides
- Schedule certification and authorization exams
- View transcripts of completed courses and exams

Register at techdirect.dell.

Education Services

Build the IT skills required to influence the transformational outcomes of the business. Enable talent and empower teams with the right skills to lead and execute transformational strategy that drives competitive advantage. Leverage the training and certification required for real transformation.

Dell Technologies Education Services offers PowerEdge server training and certifications designed to help you achieve more from your hardware investment. The curriculum delivers the information and the practical, hands-on skills that you and your team need to confidently install, configure, manage, and troubleshoot your Dell EMC servers. To learn more or register for a class today, see LearnDell.com/Server.

Dell Technologies Consulting Services

Our expert consultants help you transform faster, and quickly achieve business outcomes for the high value workloads Dell EMC PowerEdge systems can handle.

From strategy to full-scale implementation, Dell Technologies Consulting can help you determine how to execute your IT, workforce, or application transformation.

We use prescriptive approaches and proven methodologies combined with Dell Technologies' portfolio and partner ecosystem to help you achieve real business outcomes. From multi-cloud, applications, DevOps, and infrastructure transformations, to business resiliency, data center modernization, analytics, workforce collaboration, and user experiences—we're here to help.

Managed Services

Reduce the cost, complexity, and risk of managing IT. Focus your resources on digital innovation and transformation while our experts help optimize your IT operations and investment with managed services backed by guaranteed service levels.

Appendix A. Additional specifications

Chassis dimensions

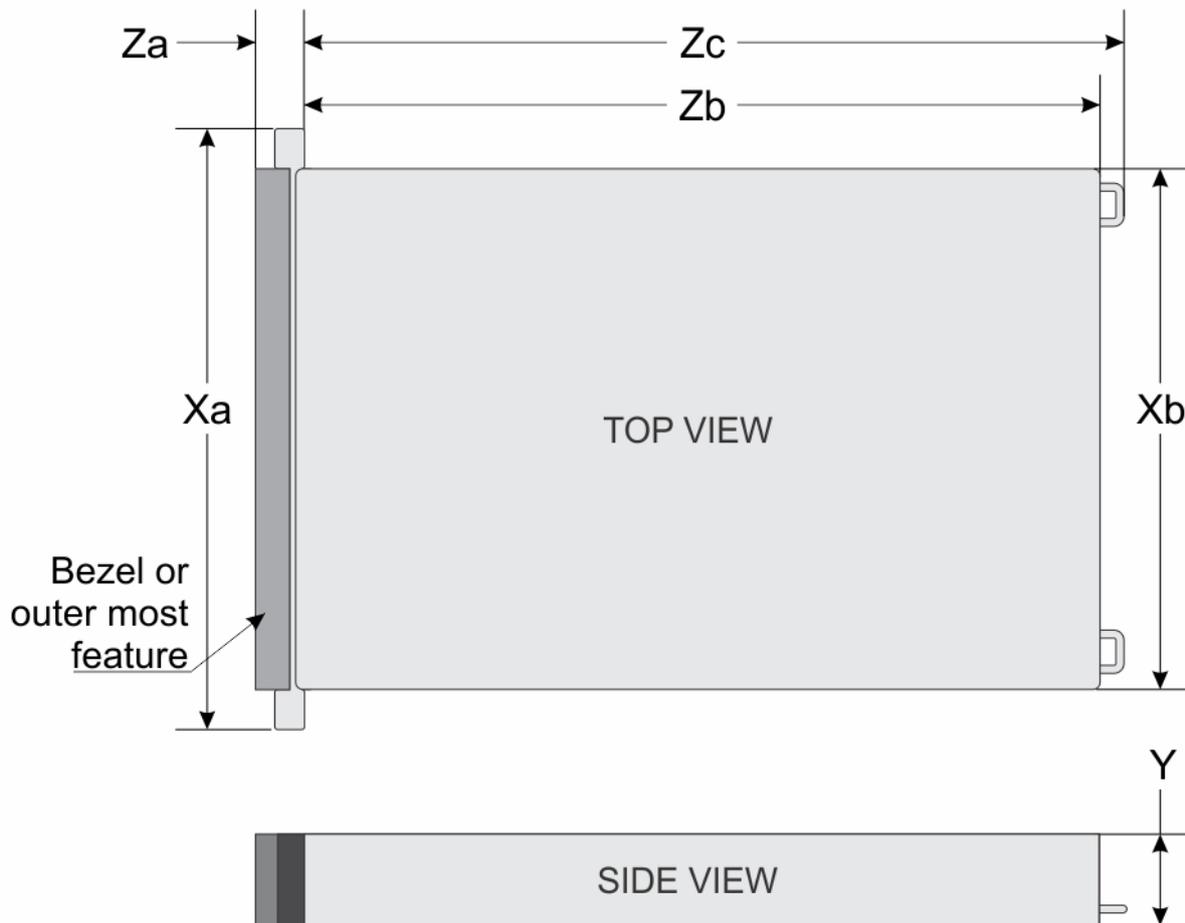


Figure 16. Chassis dimensions

Table 19. PowerEdge R6525 chassis dimensions

Drives	Xa	Xb	Y	Za	Zb*	Zc
Eight drives	482.0 mm (18.97 inches)	434.0 mm (17.08 inches)	42.8 mm (1.68 inches)	With bezel: 35.84 mm (1.4 inches) Without bezel: 22.0 mm (0.87 inches)	700.7 mm (21.58 inches) (Ear to rear wall)	736.27 mm (28.98 inches) (Ear to PSU handle)
Four or ten drives	482.0 mm (18.97 inches)	434.0 mm (17.08 inches)	42.8 mm (1.68 inches)	With bezel: 35.84 mm (1.4 inches) Without bezel: 22.0 mm (0.87 inches)	751.48 mm (29.58 inches) (Ear to I/O label)	787.05 mm (30.98 inches) (Ear to PSU handle)

NOTE: Zb* is the nominal rear wall external surface where the system board I/O connectors reside.

Chassis weight

Table 20. PowerEdge R6525 chassis weight

System configuration	Maximum weight (with all drives/SSDs)
4 x 3.5-inch	21.8 kg (48.06 lb)
8 x 2.5-inch	19.2 kg (42.33 lb)
10 x 2.5-inch	21.8 kg (48.06 lb)

Video specifications

The PowerEdge R6525 system supports integrated Matrox G200 graphics controller with 16 MB of video frame buffer.

Table 21. Supported front 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

Table 22. Supported rear 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

USB ports specifications

Table 23. PowerEdge R6525 system USB specifications

Front		Rear		Internal	
USB port type	No. of ports	USB port type	No. of ports	USB port type	No. of ports
USB 2.0-compliant port	One	USB 3.0-compliant ports	One	Internal USB 3.0-compliant port	One

Front		Rear		Internal	
USB port type	No. of ports	USB port type	No. of ports	USB port type	No. of ports
Micro-USB 2.0 compliant port	One	USB 2.0-compliant ports	One		

NOTE: The micro USB 2.0 compliant port can only be used as an iDRAC Direct or a management port.

Environmental specifications

The following sections contain information about the environmental specifications of PowerEdge R6525.

NOTE: For additional information about environmental certifications, refer to the *Product Environmental Datasheet* located with the Manuals & Documents on <https://www.dell.com/support/>

Table 24. Operational climatic range category A2

Temperature	Specifications
Allowable continuous operations	
Temperature ranges for altitudes <= 900 m (<= 2953 ft)	10–35°C (50–95°F) with no direct sunlight on the equipment
Humidity percent ranges (non-condensing at all times)	8% RH with -12°C minimum dew point to 80% RH with 21°C (69.8°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/300 m (1.8°F/984 Ft) above 900 m (2953 Ft)

Table 25. Operational climatic range category A3

Temperature	Specifications
Allowable continuous operations	
Temperature ranges for altitudes <= 900 m (<= 2953 ft)	5–40°C (41–104°F) with no direct sunlight on the equipment
Humidity percent ranges (non-condensing at all times)	8% RH with -12°C minimum dew point to 85% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/175 m (1.8°F/574 Ft) above 900 m (2953 Ft)

Table 26. Operational climatic range category A4

Temperature	Specifications
Allowable continuous operations	
Temperature ranges for altitudes <= 900 m (<= 2953 ft)	5–45°C (41–113°F) with no direct sunlight on the equipment
Humidity percent ranges (non-condensing at all times)	8% RH with -12°C minimum dew point to 90% RH with 24°C (75.2°F) maximum dew point
Operational altitude de-rating	Maximum temperature is reduced by 1°C/125 m (1.8°F/410 Ft) above 900 m (2953 Ft)

Table 27. Shared requirements across all categories

Temperature	Specifications
Allowable continuous operations	
Maximum temperature gradient (applies to both operation and non-operation)	20°C in an hour* (36°F in an hour) and 5°C in 15 minutes (9°F in 15 minutes), 5°C in an hour* (9°F in an hour) for tape

Temperature	Specifications
	 NOTE: * - Per ASHRAE thermal guidelines for tape hardware, these are not instantaneous rates of temperature change.
Non-operational temperature limits	-40 to 65°C (-104 to 149°F)
Non-operational humidity limits	5% to 95% RH with 27°C (80.6°F) maximum dew point
Maximum non-operational altitude	12,000 meters (39,370 feet)
Maximum operational altitude	3,048 meters (10,000 feet)

Table 28. 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 minutes (all six sides tested)

Table 29. Maximum shock pulse specifications

Maximum shock pulse	Specifications
Operating	Six consecutively executed shock pulses in the positive and negative x, y, and z axis of 6 G for up to 11 ms.
Storage	Six consecutively executed shock pulses in the positive and negative x, y, and z axis (one pulse on each side of the system) of 71 G for up to 2 ms.

Appendix B. Standards compliance

The system conforms to the following industry standards.

Table 30. Industry standard documents

Standard	URL for information and specifications
ACPI Advance Configuration and Power Interface Specification, v2.0c	acpi.info
Ethernet IEEE 802.3-2005	standards.ieee.org/getieee802/802.3.html
HDG Hardware Design Guide Version 3.0 for Microsoft Windows Server	microsoft.com/whdc/system/platform/pcdesign/design/desguide/serverdg.mspx
IPMI Intelligent Platform Management Interface, v2.0	intel.com/design/servers/ipmi
DDR4 Memory DDR4 SDRAM Specification	jedec.org/standards-documents/docs/jesd79-4.pdf
PCI Express PCI Express Base Specification Rev. 2.0 and 3.0	pcisig.com/specifications/pciexpress
PMBus Power System Management Protocol Specification, v1.2	pmbus.info/specs.html
SAS Serial Attached SCSI, v1.1	t10.org
SATA Serial ATA Rev. 2.6; SATA II, SATA 1.0a Extensions, Rev. 1.2	sata-io.org
SMBIOS System Management BIOS Reference Specification, v2.7	dmtf.org/standards/smbios
TPM Trusted Platform Module Specification, v1.2 and v2.0	trustedcomputinggroup.org
UEFI Unified Extensible Firmware Interface Specification, v2.1	uefi.org/specifications
USB Universal Serial Bus Specification, Rev. 2.0	usb.org/developers/docs

Appendix C Additional resources

Table 31. Additional resources

Resource	Description of contents	Location
Installation and Service Manual	<p>This manual, available in PDF format, provides the following information:</p> <ul style="list-style-type: none"> • Chassis features • System Setup program • System indicator codes • System BIOS • Remove and replace procedures • Diagnostics • Jumpers and connectors 	Dell.com/Support/Manuals
Getting Started Guide	<p>This guide ships with the system, and is also available in PDF format. This guide provides the following information:</p> <ul style="list-style-type: none"> • Initial setup steps 	Dell.com/Support/Manuals
Rack Installation Guide	This document ships with the rack kits, and provides instructions for installing a server in a rack.	Dell.com/Support/Manuals
System Information Label	The system information label documents the system board layout and system jumper settings. Text is minimized due to space limitations and translation considerations. The label size is standardized across platforms.	Inside the system chassis cover
Quick Resource Locator (QRL)	This code on the chassis can be scanned by a phone application to access additional information and resources for the server, including videos, reference materials, service tag information, and Dell EMC contact information.	Inside the system chassis cover
Energy Smart Solution Advisor (ESSA)	The Dell EMC online ESSA enables easier and more meaningful estimates to help you determine the most efficient configuration possible. Use ESSA to calculate the power consumption of your hardware, power infrastructure, and storage.	Dell.com/calc