

Dell EMC PowerEdge R740 and R740xd

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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Product overview

Introduction

The Dell EMC PowerEdge R740 and R740xd are two socket, 2U rack servers designed to run complex workloads using highly scalable memory, I/O capacity and network options. The R740 and R740xd features the 2nd Generation Intel® Xeon® Scalable processor family, up to 24 DIMMs, PCI Express® (PCIe) 3.0 enabled expansion slots, and a choice of network interface technologies to cover NIC and rNDC.

The PowerEdge R740 is a general-purpose platform capable of handling demanding workloads and applications, such as data warehouses, e-commerce, databases, and high-performance computing (HPC).

The PowerEdge R740xd adds extraordinary storage capacity options, making it well-suited for data-intensive applications that require greater storage, while not sacrificing I/O performance.

New technologies

Table 1. New technologies in R740 and R740xd

| New technology | Detailed description |
|--|--|
| 2nd Generation Intel® Xeon® Processor Scalable family | The 2nd Generation Intel® Xeon® Scalable processor family has advanced features that deliver exceptional performance and value. See the Processors section. |
| Intel C620 series chipset | Intel® Platform Controller Hub (PCH) |
| 2933 MT/s DDR4 memory | The 2nd Generation Intel® Xeon® Scalable processor family supports up to 2933 MT/s memory. The R740 and R740xd supports two DIMMs per channel at 2933 MT/s with select processors. See the Memory section for details. |
| Intel® Optane™ DC persistent memory | Up to 6 per CPU socket. Max 12 for 2S configuration. <ul style="list-style-type: none"> • 256GB, 512GB per DIMM • 1866, 2133, 2400, 2666 MT/s • Up to 6.14TB max, (7.68TB max with DCPMM and LDRIMM) |
| iDRAC 9 with Lifecycle Controller | The new embedded system management solution features hardware and firmware inventory and alerting, in-depth memory alerting, faster performance, a dedicated gigabit port and many more features. See the iDRAC section. |
| Wireless management | The Quick Sync 2.0 will offer feature parity with the previous server generation NFC interface and improved user experience. To extend this Quick Sync feature to wide variety of Mobile OS's with higher data throughput, the Quick Sync 2.0 version replaces the previous server generation NFC technology with wireless at-the-box system management. |

System features

Compared to the previous generation of Dell EMC PowerEdge servers, the R740 and R740xd have more drive bay options, more PCIe slots, next-generation RAID controllers and advanced system management.

Topics:

- [System features comparison](#)
- [Product specifications](#)

System features comparison

Table 2. Comparison of PowerEdge R740/R740xd and R730/R730xd

| Feature | PowerEdge R740/R740xd | PowerEdge R730/R730xd |
|--|--|---|
| CPU | 2 x 2nd Generation Intel® Xeon® Scalable processor family | Intel® Xeon® processor E5-2600 v3 product family |
| Intel Ultra Path Interconnect (UPI) | Intel® Ultra Path Interconnect (UPI) | Intel® QuickPath Interconnect (QPI) |
| Memory | <ul style="list-style-type: none"> • 24 x DDR4 RDIMM, LRDIMM • 12 x NVDIMM • 12 x DCPMM (Intel® Optane™ DC persistent memory) | 24 x DDR4 RDIMM, LRDIMM |
| Disk drives | <ul style="list-style-type: none"> • 3.5 -inch or 2.5 -inch 12Gb/s SAS, 6Gb/s SATA • Up to 24 x NVMe | <ul style="list-style-type: none"> • 3.5 -inch, 2.5 -inch or 1.8 -inch 12Gb/s SAS, 6Gb/s SATA • 4 x PCIe SSD with common slot |
| Storage controllers | Adapters: HBA330, H330, H730P, H740P, H840, 12G SAS HBA Mini Mono: HBA330, H330, H730P, H740P SW RAID: S140 | Adapters: HBA330, H330, H730, H730P, H830 (ext) Mini Mono: HBA330, H330, H730, H730P SW RAID: S130 |
| PCIe slots | Max 8 x PCIe 3.0 | Max 7 x PCIe 3.0 or 6 x PCIe 3.0 |
| rNDC | 4x 1GbE, 4x 10GbE, 2x 10GbE + 2x 1GbE, or 2x 25GbE | 4x 1GbE, 4x 10GbE, or 2x 10GbE + 2x 1GbE |
| USB ports | Front: <ul style="list-style-type: none"> • 1 x Dedicated iDRAC direct USB • 2 x USB 2.0 • 1 x USB 3.0 (optional only for R740) • 1 x Video Rear: <ul style="list-style-type: none"> • 1 x Dedicated iDRAC network port • 1 x Serial • 2 x USB 3.0 • 1 x Video | Front: two ports (USB 2.0), one managed port Rear: two ports (USB 3.0) Internal: one port (USB 3.0) |
| Rack height | 2U | 2U |

| Feature | PowerEdge R740/R740xd | PowerEdge R730/R730xd |
|--------------------------|--|--|
| Power supply | <ul style="list-style-type: none"> AC (Platinum): 495W, 750W, 1100W, 1600W, 2000W, 2400W AC (Titanium): 750W DC: 1100W DC: 750 W Mixed Mode Platinum (for China only) AC: 750 W Mixed Mode Platinum Mixed mode/HVDC: 750W, 1100W | <ul style="list-style-type: none"> AC: 495W, 750W, 1100W DC: 750W, 1100W |
| System management | Lifecycle Controller 3.x, OpenManage, QuickSync2.0, OMPC3, Digital License Key, iDRAC Direct(dedicated micro-USB port), Easy Restore, vFlash | Lifecycle Controller 3.x, OpenManage, QuickSync1.0, PM3, Digital License Key, iDRAC8, iDRAC Direct(dedicated micro-USB port), Easy Restore, vFlash |
| Internal GPU | <ul style="list-style-type: none"> *3 x 300W (double-width) or 6 x 150W (single-width) <p>NOTE: *Only supports up to 2 x NVIDIA M10 GPUs.</p> | <ul style="list-style-type: none"> 2 x 300W (double-wide) or 4 x 150W (single-wide) Not supported on R730xd FPGAs not supported on the R730/xd. |
| Availability | <ul style="list-style-type: none"> Hot-plug drives Hot-plug redundant cooling Hot-plug redundant power supplies IDSDM support Boot Optimized Storage Subsystem (BOSS) | <ul style="list-style-type: none"> Hot-plug drives Hot-plug redundant cooling Hot-plug redundant power supplies IDSDM support |

Product specifications

Table 3. R740 product specifications

| Features | Technical Specification |
|----------------------------|--|
| Processor | <ul style="list-style-type: none"> Up to two 2nd Generation Intel® Xeon® Scalable processors Up to 28 cores per processor |
| Memory | <ul style="list-style-type: none"> 24 DDR4 DIMM slots Supports RDIMM /LRDIMM, 3TB max Speeds up to 2933MT/s Up to 12 NVDIMM, 192 GB Max Up to 12 Intel® Optane™ DC persistent memory DCPMM, 6.14TB max, (7.68TB max with DPCMM + LRDIMM) |
| Storage controllers | <p>Internal controllers:</p> <ul style="list-style-type: none"> PERC H330 PERC H730P PERC H740P Software RAID (SWRAID) S140 <p>Boot Optimized Storage Subsystem:</p> <ul style="list-style-type: none"> HW RAID 2 x M.2 SSDs 240GB or 480GB <p>External PERC (RAID):</p> <ul style="list-style-type: none"> PERC H840 <p>12Gbps SAS HBAs (non-RAID):</p> <ul style="list-style-type: none"> External - 12Gbps SAS HBA (non-RAID) Internal- HBA330 (non-RAID) |

| Features | Technical Specification |
|--|---|
| Drive bays | Front drive bays: Up to 16 x 2.5" SAS/SATA (HDD/SSD) max 122.88TB or up to 8 x 3.5" SAS/SATA HDD max 128TB Optional DVD-ROM, DVD+RW |
| Power supplies | <ul style="list-style-type: none"> • Titanium 750W • Platinum 495W, 750W, 750W Mixed Mode HVDC (for China only), 750 W Mixed Mode 240 V DC (For china only),1100W, 1600W, 2000W, and 2400W • 1100W 380VDC (China and Japan only) • Gold 1100W -48VDC • Hot plug power supplies with full redundancy. Up to 6 hot plugs fans with full redundancy |
| Dimensions | <ul style="list-style-type: none"> • Form factor: Rack (2U) • Height: 86.8mm (3.4") • Width: 434.0mm (17.08") • Depth: 737.5mm (29.03") • Weight: 28.6kg (63lbs.) |
| NOTE: Dimensions do not include bezel | |
| Embedded management | iDRAC9, iDRAC RESTful with Redfish, iDRAC Direct, Quick Sync 2 wireless module optional |
| Bezel | Optional LCD Bezel or Security bezel |
| OpenManage™ Software | <ul style="list-style-type: none"> • OpenManage Enterprise • OpenManage Mobile • OpenManage Power Center |
| Integrations and connections | <p>Integrations:</p> <ul style="list-style-type: none"> • Microsoft® System Center • VMware® vCenter™ • BMC Truesight • Red Hat Ansible <p>Connections:</p> <ul style="list-style-type: none"> • Nagios Core & Nagios XI • Micro Focus Operations Manager i (OMi) • IBM Tivoli Netcool/OMNibus • IBM Tivoli® Network Manager IP Edition |
| Security | <ul style="list-style-type: none"> • TPM 1.2/2.0, optional TCM 2.0 • Cryptographically signed firmware • Secure Boot • System Lockdown (requires OpenManage Enterprise) • Secure erase |
| I/O & Ports | <p>Network daughter card options</p> <ul style="list-style-type: none"> • 4 x 1GbE • 2 x 10GbE + 2 x 1GbE • 4 x 10GbE • 2 x 25GbE <p>Front ports:</p> <ul style="list-style-type: none"> • Video • 2 x USB 2.0 • 1 x USB 3.0 (optional) • 1 x Dedicated iDRAC Direct Micro-USB <p>Rear ports:</p> <ul style="list-style-type: none"> • Video, serial |


| Features | Technical Specification |
|------------------------------------|--|
| | <ul style="list-style-type: none"> 2 x USB 3.0 1 x Dedicated iDRAC network port Video card: VGA Riser options with up to 8 PCIe Gen 3 slots, maximum of 4 x 16 slots |
| Accelerator options | Up to three 300W or six 150W GPUs, or up to three double-width or four single-width FPGAs. |
| Supported operating systems | <ul style="list-style-type: none"> Canonical® Ubuntu® LTS Citrix® Hypervisor Oracle® Linux Microsoft Windows Server® LTSC with Hyper-V Red Hat® Enterprise Linux SUSE® Linux Enterprise Server VMware® ESXi For specifications and interoperability details, see dell.com/OSsupport |
| Recommended support | Dell ProSupport Plus for critical systems or Dell ProSupport for premium hardware and software support for your PowerEdge solution. Consulting and deployment offerings are also available. |

R740xd product specifications

The following table shows the technical specifications for the PowerEdge R740xd:

Table 4. R740xd product specifications

| Features | Technical Specifications |
|----------------------------|---|
| Processor | <ul style="list-style-type: none"> Up to two 2nd Generation Intel® Xeon® Scalable processors Up to 28 cores per processor |
| Memory | <ul style="list-style-type: none"> 24 DDR4 DIMM slots Supports RDIMM /LRDIMM, up to 3TB Speeds up to 2933 MT/s Up to 12 NVDIMM, 192 GB Max Up to 12 Intel® Optane™ DC persistent memory DCPMM, 6.14TB max, (7.68TB max with DPCMM + LRDIMM) |
| Storage controllers | Internal controllers: <ul style="list-style-type: none"> PERC H730P PERC H740P Software RAID (SWRAID) S140 Boot Optimized Boot Optimized Storage Subsystem: <ul style="list-style-type: none"> HW RAID 2 x M.2 SSDs 240 GB or 480 GB External PERC (RAID): <ul style="list-style-type: none"> PERC H840 12Gbps SAS HBAs (non-RAID): <ul style="list-style-type: none"> External - 12Gbps SAS HBA (non-RAID) Internal - HBA330 (non-RAID) |
| Drive bays | Front bays: <ul style="list-style-type: none"> Up to 24 x 2.5" SAS/SSD/NVMe, max 184TB Up to 12 x 3.5" SAS/SATA HDD max 192TB Mid bay: |

| Features | Technical Specifications |
|-------------------------------------|---|
| | <ul style="list-style-type: none"> • up to 4 x 2.5" SAS/SSD, max 30.72TB • Up to 4 x 3.5" max 64TB <p>Rear bays:</p> <ul style="list-style-type: none"> • Up to 4 x 2.5" SAS/SSD/NVMe, max 30.72TB • Up to 2 x 3.5" max 32TB SAS/SATA HDD |
| Power supplies | <ul style="list-style-type: none"> • Titanium 750W • Platinum 495W, 750W, 750W Mixed Mode HVDC (for China only), 750W Mixed Mode 240 V DC (For China only), 1100W, 1600W, 2000W, and 2400W • 1100W 380VDC (China and Japan only) • Gold 1100W -48VDC • Hot plug power supplies with full redundancy • Up to 6 hot plugs fans with full redundancy |
| Dimensions | <ul style="list-style-type: none"> • Form factor: Rack (2U) • Height: 86.8mm (3.4") • Width*: 434mm (17.1") • Depth*: 737.5mm (29.0") • Weight: 33.1kg (73.0lbs.) <p> NOTE: * Dimensions do not include bezel.</p> |
| Embedded management | <ul style="list-style-type: none"> • iDRAC9 • Quick Sync 2 wireless module optional • iDRAC RESTful with Redfish • iDRAC Direct |
| Bezel | Optional LCD Bezel or Security bezel |
| OpenManage™ Software | <ul style="list-style-type: none"> • OpenManage Enterprise • OpenManage Mobile • OpenManage Power Center |
| Integrations and connections | <p>Integrations:</p> <ul style="list-style-type: none"> • Microsoft® System Center • VMware® vCenter™ • BMC Truesight • Red Hat Ansible <p>Connections:</p> <ul style="list-style-type: none"> • Nagios Core & Nagios XI • Micro Focus Operations Manager i (OMi) • IBM Tivoli Netcool/OMNibus • IBM Tivoli® Network Manager IP Edition |
| Security | <ul style="list-style-type: none"> • TPM 1.2/2.0, TCM 2.0 optional • Cryptographically signed firmware • Secure Boot • System Lockdown (requires OpenManage Enterprise) • Secure erase |
| I/O & Ports | <p>Network daughter card options:</p> <ul style="list-style-type: none"> • 4 x 1GbE or • 2 x 10GbE + 2 x 1GbE or • 4 x 10GbE or • 2 x 25GbE |

Features

Technical Specifications

Front ports:

- VGA
- 2 x USB 2.0
- 1 x USB 3.0 (optional)
- 1 x Dedicated iDRAC direct USB

Rear ports:

- VGA
- Serial
- 2 x USB 3.0
- 1 x Dedicated iDRAC network port

Video card:

- VGA

Riser options with p to 8 PCIe Gen 3 slots, maximum of 4 x 16 slots

Accelerator options

- Up to three 300W or six 150W GPUs or
- Up to three double-width or four single-width FPGAs.
- GPU and FPGA options are available only on 24 x 2.5 -inch drive chassis. Up to two GPUs are supported on NVMe configurations.

Supported operating systems

- Canonical® Ubuntu® LTS
- Citrix® Hypervisor
- Microsoft® Windows Server® LTSC with Hyper-V
- Oracle® Linux
- Red Hat® Enterprise Linux
- SUSE® Linux Enterprise Server
- VMware® ESXi®

Recommended support

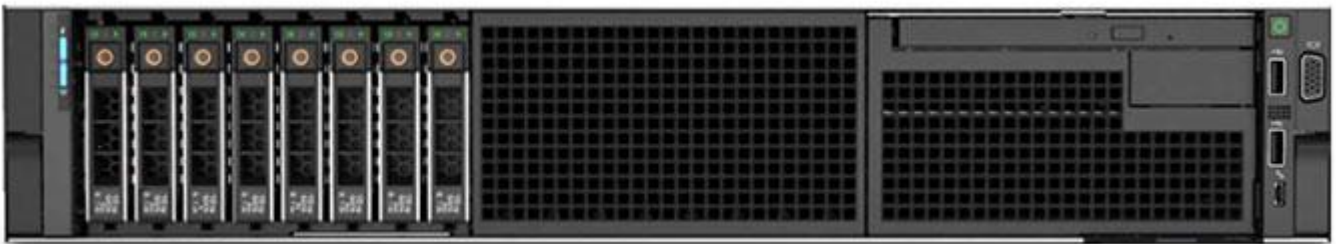
Dell ProSupport Plus for critical systems or Dell ProSupport for premium hardware and software support for your PowerEdge solution. Consulting and deployment offerings are also available.

Chassis views and features

R740 and R740xd front views

The R740 supports up to 16 x 2.5 -inch or up to 8 x 3.5 -inch front-accessible, hot-plug hard drives that are secured by a removable front bezel.

R740 Front view - 8 x 2.5 -inch hard drive configuration



R740 Front view - 16 x 2.5 -inch hard drive configuration



R740 Front view - 8 x 3.5 -inch hard drive configuration



R740xd

The R740xd supports up to 12x 3.5 -inch or up to 24 x 2.5 -inch front-accessible, hot-plug hard drives that are secured by a removable front bezel.

R740xd Front view - 12 x 3.5 -inch hard drive configuration



R740xd Front view - 24 x 2.5 -inch hard drive configuration



R740 and R740xd Rear views

The R740 back panel includes PSUs, Ethernet connectors, PCIe slots and many other features described in this guide

R740 Rear view - with 8x PCIe slots available



R740 Rear view - with 4x PCIe slots available with riser 2 and riser 3 blanks



R740xd

R740xd Rear view - with 2 x 3.5 -inch backplane installed



R740xd Rear view - with 4 x 2.5 -inch backplane installed



Internal view of the system

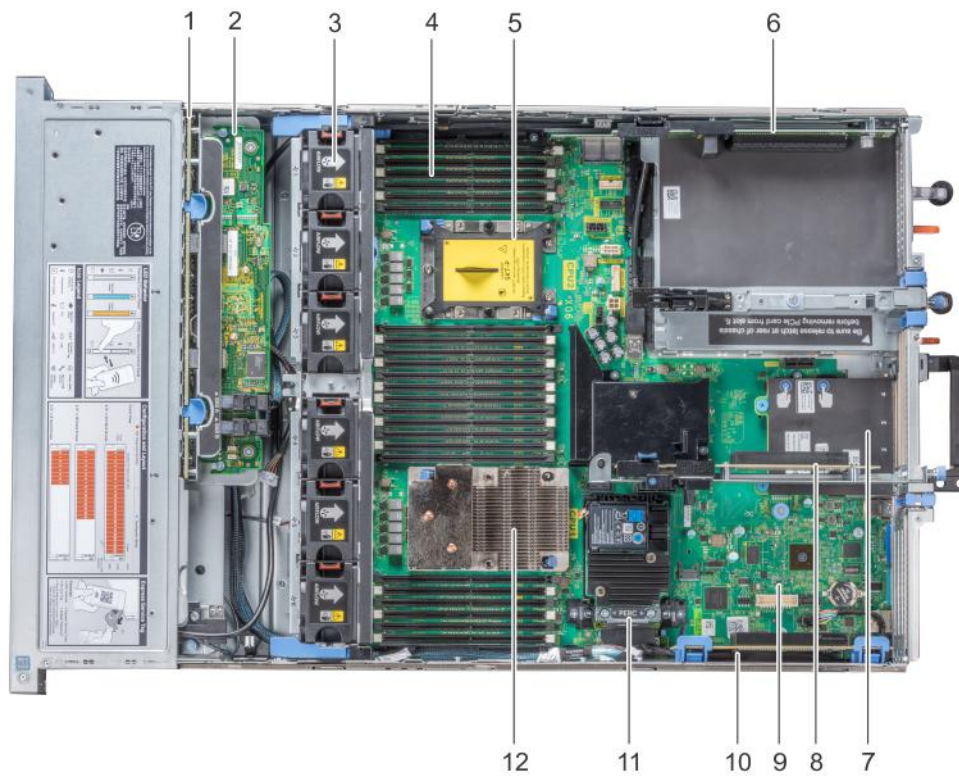


Figure 1. R740 internal chassis view

- | | |
|--|-------------------------------------|
| 1. hard drive backplane | 2. SAS expander card |
| 3. cooling fan in the cooling fan assembly (6) | 4. memory module |
| 5. CPU2 processor heat sink module socket | 6. expansion card riser 3 |
| 7. network daughter card | 8. expansion card riser 2 |
| 9. system board | 10. expansion card riser 1 |
| 11. integrated storage controller card | 12. CPU1 processor heat sink module |

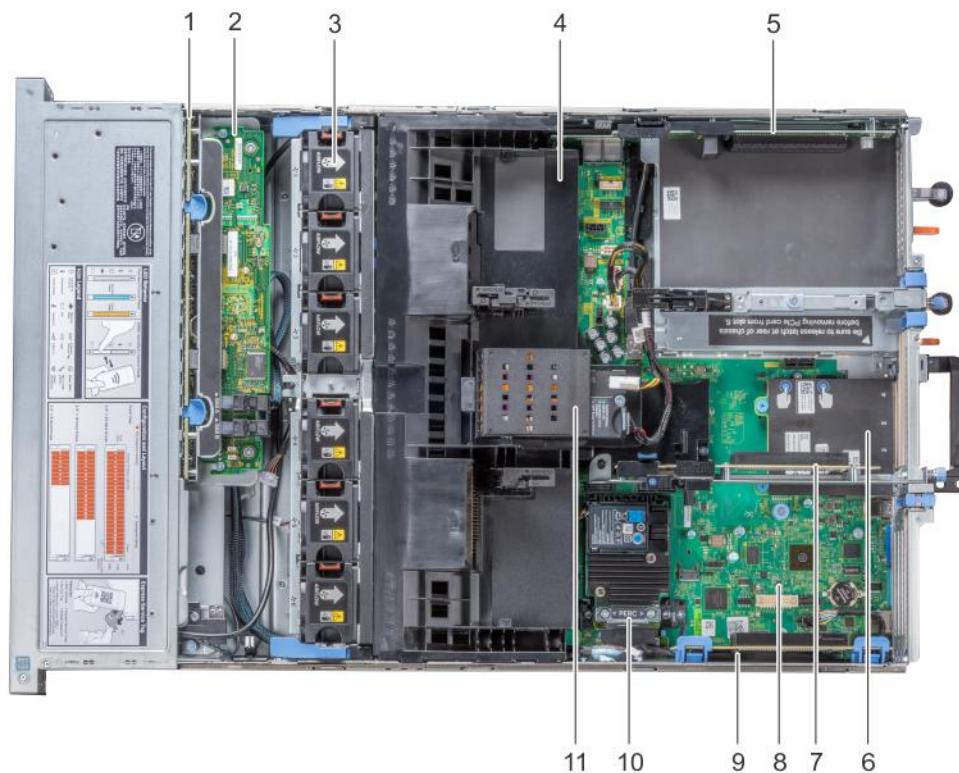


Figure 2. R740 internal chassis view – NVDIMM-N battery

- | | |
|--|--|
| 1. hard drive backplane | 2. SAS expander card |
| 3. cooling fan (6) in the cooling fan assembly | 4. air shroud |
| 5. expansion card riser 3 | 6. network daughter card |
| 7. expansion card riser 2 | 8. system board |
| 9. expansion card riser 1 | 10. integrated storage controller card |
| 11. NVDIMM-N battery | |

R740xd

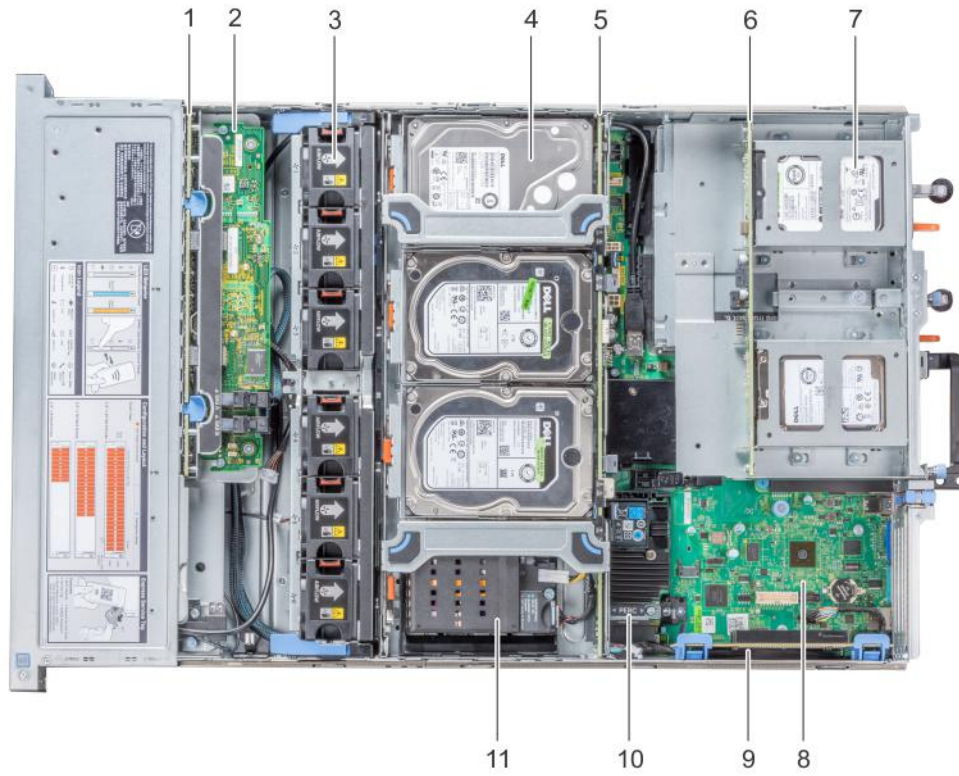


Figure 3. R740xd internal chassis view – hard drive tray and hard drive cage with NVDIMM-N battery

- | | |
|--|--|
| 1. hard drive backplane | 2. SAS expander card |
| 3. cooling fan (6) in the cooling fan assembly | 4. hard drive (4) in the hard drive tray |
| 5. mid hard drive backplane | 6. rear hard drive backplane |
| 7. hard drive (2 or 4) in the hard drive cage | 8. system board |
| 9. expansion card riser 1 | 10. integrated storage controller card |
| 11. NVDIMM-N battery | |

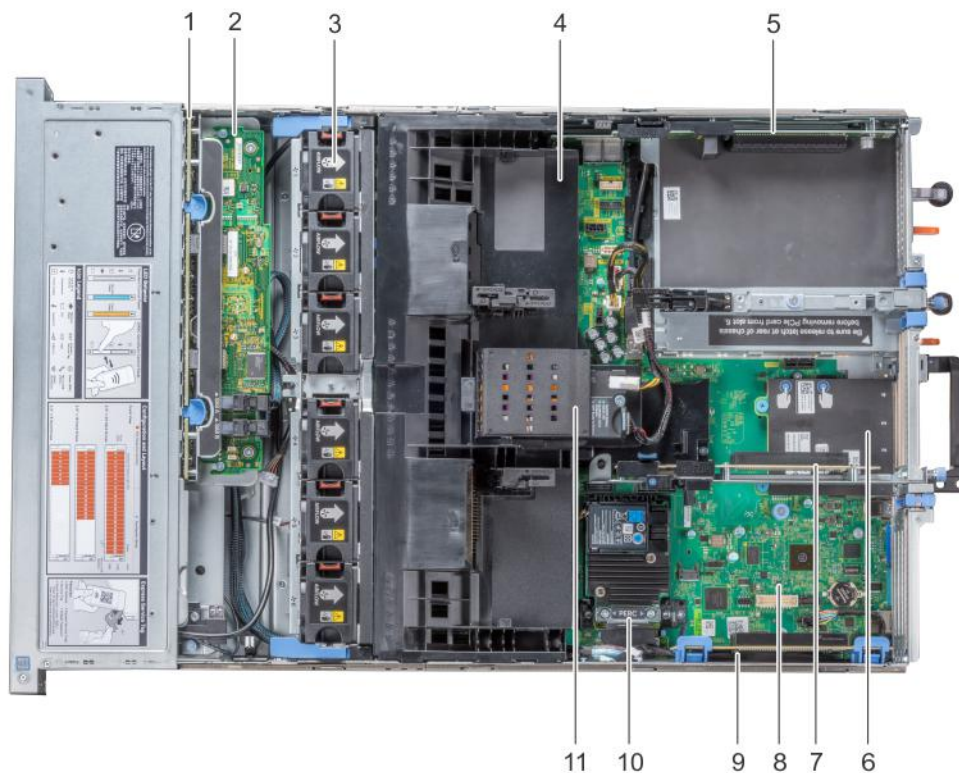


Figure 4. R740xd internal chassis view with NVDIMM-N battery on the air shroud

- | | |
|--|--|
| 1. hard drive backplane | 2. SAS expander card |
| 3. cooling fan (6) in the cooling fan assembly | 4. air shroud |
| 5. expansion card riser 3 | 6. network daughter card |
| 7. expansion card riser 2 | 8. system board |
| 9. expansion card riser 1 | 10. integrated storage controller card |
| 11. NVDIMM-N battery | |

For additional system views, see the Dell EMC PowerEdge R740 and R740xd installation and service manual on [Dell.com/Support/Manuals](https://www.dell.com/support/manuals)

Processors

The 2nd Generation Intel® Xeon® Scalable processor family provides the foundation for a powerful datacenter platform. The key features are as follows:

- Higher Per-Core Performance: Up to 28 cores, delivery high performance and scalability for compute-intensive workloads across compute, storage & network usages. 2nd Generation Intel® Xeon® Processors can offer even greater core or frequencies, or both.
- Large Memory Bandwidth/Capacity: 6 memory channels and up to 6 DCPMMs per socket of Intel® Optane™ DC persistent memory for data-centric workloads on select processors
- AI capability: Intel® Deep Learning Boost drives inferencing for vector neural networks right in your CPU
- Expanded I/O: 48 lanes of PCIe 3.0 bandwidth and throughput for demanding I/O-intensive workloads.
- Intel Ultra Path Interconnect (UPI): Up to three Intel UPI channels increase scalability of the platform to as many as eight sockets, as well as improves inter-CPU bandwidth for I/O intensive workloads.
- Intel Advanced Vector Extensions 512 (Intel AVX-512) with a single AVX512 fused multiply add (FMA) execution units. SKUs which support Advanced RAS enable a 2nd FMA execution unit.
- Security without Compromise: Near-zero encryption overhead enables higher performance on all secure data transactions with enhanced hardware mitigation.

Topics:

- [Supported processors](#)
- [Chipset](#)

Supported processors

The following table lists the supported 1st and 2nd Generation processors for the PowerEdge R740 and R740xd:

Table 5. 1st and 2nd Generation processors

| Medal | Processor | Frequency (GHz) | Cores/ Threads |
|----------|-----------|-----------------|----------------|
| Platinum | 8280 | 2.70 | 28/56 |
| Platinum | 8280M | 2.70 | 28/56 |
| Platinum | 8280L | 2.70 | 28/56 |
| Platinum | 8276 | 2.20 | 28/56 |
| Platinum | 8276M | 2.20 | 28/56 |
| Platinum | 8276L | 2.20 | 28/56 |
| Platinum | 8270 | 2.70 | 26/52 |
| Platinum | 8268 | 2.90 | 24/48 |
| Platinum | 8260 | 2.40 | 24/48 |
| Platinum | 8260M | 2.40 | 24/48 |
| Platinum | 8260L | 2.40 | 24/48 |
| Platinum | 8253 | 2.20 | 16/32 |
| Platinum | 8180M | 2.5 | 28/56 |
| Platinum | 8180 | 2.5 | 28/56 |
| Platinum | 8176M | 2.1 | 28/56 |
| Platinum | 8176 | 2.1 | 28/56 |
| Platinum | 8170M | 2.1 | 26/52 |

| Medal | Processor | Frequency (GHz) | Cores/ Threads |
|--------------|------------------|------------------------|-----------------------|
| Platinum | 8170 | 2.1 | 26/52 |
| Platinum | 8168 | 2.7 | 24/48 |
| Platinum | 8164 | 2.0 | 26/52 |
| Platinum | 8160M | 2.1 | 24/48 |
| Platinum | 8160 | 2.1 | 24/48 |
| Platinum | 8153 | 2.0 | 16/32 |
| Gold | 6254 | 3.10 | 18/36 |
| Gold | 6252 | 2.10 | 24/48 |
| Gold | 6248 | 2.50 | 20/40 |
| Gold | 6246 | 3.30 | 12/24 |
| Gold | 6244 | 3.60 | 8/16 |
| Gold | 6242 | 2.80 | 16/32 |
| Gold | 6240 | 2.60 | 18/36 |
| Gold | 6240M | 2.60 | 18/36 |
| Gold | 6240L | 2.60 | 18/36 |
| Gold | 6238 | 2.10 | 22/44 |
| Gold | 6238M | 2.10 | 22/44 |
| Gold | 6238L | 2.10 | 22/44 |
| Gold | 6234 | 3.30 | 8/16 |
| Gold | 6230 | 2.10 | 20/40 |
| Gold | 6226 | 2.70 | 12/24 |
| Gold | 6152 | 2.1 | 22/44 |
| Gold | 6150 | 2.7 | 18/36 |
| Gold | 6148 | 2.4 | 20/40 |
| Gold | 6146 | 3.2 | 12/24 |
| Gold | 6144 | 3.5 | 8/16 |
| Gold | 6142M | 2.6 | 16/32 |
| Gold | 6142 | 2.6 | 16/32 |
| Gold | 6140M | 2.3 | 18/36 |
| Gold | 6140 | 2.3 | 18/36 |
| Gold | 6138 | 2.0 | 20/40 |
| Gold | 6136 | 3.0 | 12/24 |
| Gold | 6134M | 3.2 | 8/16 |
| Gold | 6134 | 3.2 | 8/16 |
| Gold | 6132 | 2.6 | 14/28 |
| Gold | 6130 | 2.1 | 16/32 |
| Gold | 6128 | 3.4 | 6/12 |
| Gold | 6126 | 2.6 | 12/24 |
| Gold | 5222 | 3.80 | 4/8 |
| Gold | 5220S | 2.70 | 18/36 |

| Medal | Processor | Frequency (GHz) | Cores/ Threads |
|--------|-----------|-----------------|----------------|
| Gold | 5220 | 2.20 | 18/36 |
| Gold | 5218 | 2.30 | 16/32 |
| Gold | 5217 | 3.00 | 8/16 |
| Gold | 5215 | 2.50 | 10/20 |
| Gold | 5215M | 2.50 | 10/20 |
| Gold | 5215L | 2.50 | 10/20 |
| Gold | 5122 | 3.6 | 4/8 |
| Gold | 5120 | 2.2 | 14/28 |
| Gold | 5118 | 2.3 | 12/24 |
| Gold | 5117 | 2.0 | 14/28 |
| Gold | 5115 | 2.4 | 10/20 |
| Silver | 4216 | 2.10 | 16/32 |
| Silver | 4215 | 2.50 | 8/16 |
| Silver | 4214 | 2.20 | 12/24 |
| Silver | 4210 | 2.20 | 10/20 |
| Silver | 4208 | 2.10 | 8/16 |
| Silver | 4116 | 2.1 | 12/24 |
| Silver | 4114 | 2.2 | 10/20 |
| Silver | 4112 | 2.6 | 4/24 |
| Silver | 4110 | 2.1 | 8/16 |
| Silver | 4108 | 1.8 | 8/16 |
| Bronze | 3106 | 1.7 | 8/8 |
| Bronze | 3104 | 1.7 | 6/6 |
| Bronze | 3204 | 1.90 | 6/6 |

Table 6. Speed Select Technology- Performance Profile (SST-PP) (-Y) offerings

| Processor Model # | Frequency | Cores- Threads | R740 | R740xd |
|-------------------|------------|----------------|------|--------|
| 8260Y | • 2.40 GHz | • 24 - 48 | • | • |
| | • 2.50 GHz | • 20 - 40 | | |
| | • 2.70 GHz | • 16 - 32 | | |
| 6240Y | • 2.60 GHz | • 18 - 36 | • | • |
| | • 2.80 GHz | • 14 - 28 | | |
| | • 3.10 GHz | • 8 - 16 | | |
| 4214Y | • 2.20 GHz | • 12 - 24 | • | • |
| | • 2.30 GHz | • 10 - 20 | | |
| | • 2.40 GHz | • 8 - 16 | | |

Table 7. Search Optimized (-S) offerings

| Processor Model # | Frequency | Cores- Threads | R740 | R740xd |
|-------------------|-----------|----------------|------|--------|
| 5220S | 2.70 GHz | 18 - 32 | • | • |

Table 8. Single Socket (-U) offerings

| Processor Model # | Frequency | Cores- Threads | R740 | R740xd |
|-------------------|-----------|----------------|------|--------|
| 6212U | 2.40 GHz | 24 - 48 | • | • |
| 6210U | 2.50 GHz | 20 - 40 | • | • |
| 6209U | 2.10 GHz | 20 - 40 | • | • |

Table 9. VM Density Optimized (-V) offerings

| Processor Model # | Frequency | Cores- Threads | R740 | R740xd |
|-------------------|-----------|----------------|------|--------|
| 6262V | 1.90 GHz | 24 - 48 | • | • |
| 6222V | 1.80 GHz | 20 - 40 | • | • |

i **NOTE:** For the most up-to-date processor list visit see <https://www.dell.com/en-us/work/shop/povw/poweredge-r740> or <https://www.dell.com/en-us/work/shop/povw/poweredge-r740xd> (configurations button) or by talking to your representative.

Chipset

The Dell EMC PowerEdge R740 and R740xd use the Intel C620 chipset (PCH) that provides extensive I/O support. Functions and capabilities include:

- ACPI Power Management Logic Support, Revision 4.0a
- PCI Express Base Specification Revision 3.0
- Integrated Serial ATA host controller, supports data transfer rates of up to 6 Gb/s on all ports.
- xHCI USB controller with SuperSpeed USB 3.0 ports
- Direct Media Interface
- Serial Peripheral Interface
- Enhanced Serial Peripheral Interface
- Flexible I/O - Allows some high speed I/O signals to be configured as PCIe root ports, PCIe uplink for use with certain PCH SKUs, SATA (and sSATA), or USB 3.0.
- General Purpose Input Output (GPIO)
- Low Pin Count interface, interrupt controller, and timer functions
- System Management Bus Specification, Version 2.0
- Integrated Clock Controller / Real Time Clock Controller
- Intel High Definition Audio and Intel Smart Sound Technology
- Integrated 10/1 Gb Ethernet
- Integrated 10/100/1000 Mbps Ethernet MAC
- Supports Intel Rapid Storage Technology Enterprise
- Supports Intel Active Management Technology and Server Platform Services
- Supports Intel Virtualization Technology for Directed I/O
- Supports Intel Trusted Execution Technology
- JTAG Boundary Scan support
- Intel Trace Hub for debug

For more information, visit [Intel.com](https://www.intel.com)

Memory

Each CPU has 12 memory DIMM slots. Those DIMMs are organized into 6 different channels so there are 2 DIMMs per channel. For best performance all memory channels should be populated with the same number of DIMMs, either 6 or 12 DIMMs per CPU.

Supported type DIMMs are:

- RDIMMs (Registered DIMM) - Provides for higher capacity options and advanced RAS features. It is the most commonly used DIMM type, and offers the best mix of frequency, capacity, and rank structure choices.
- LRDIMMs (Load Reduced DIMM) - Provides maximum capacity beyond that of an RDIMM but at a higher power consumption. Uses a buffer to reduce memory loading to a single load on all DDR signals, allowing for greater density.
- NVDIMM (Non-Volatile DIMM) - Provides a persistent memory solution with NAND and DRAM that maintains data in power loss, system crash, or normal shutdown. This solution requires a battery as a power source for an AC loss condition. It can be used in conjunction with RDIMMs.
- DCPMM (also known as Intel® Optane™ DC persistent memory) - Provides a large memory capacity at an affordable price. Any application can take advantage of DCPMM in Memory Mode with a compatible operating system. Unlock more performance as well as persistency when using an application that supports App Direct Mode. DCPMM is used in conjunction with RDIMMs or LRDIMMs and a maximum number of 6 DCPMMs can be used per CPU. This persistent memory technology does not require a battery.

Intel® Optane™ DC Persistent Memory (DCPMM)

Intel® Optane™ DC Persistent Memory is a new memory technology that allows customers to reach a large memory capacity at an affordable price. Additionally, when operating the memory in "App Direct Mode" the memory is persistent.

DCPMM comes in 3 different memory sizes, 128GB, 256GB, and 512GB.

RDIMMs and LRDIMMs are used in conjunction with Intel® Optane™ DC persistent memory. Each channel will be populated with up to one DIMM of DRAM and one DIMM of DCPMM. That means that each CPU will have up to 6 DIMMs of DRAM and 6 DIMMs of DCPMM. For best performance it is recommended to have all 12 DIMMs slots per CPU populated.

Intel Optane DC persistent memory operates in two modes, Memory Mode and Application Direct Mode:

Table 10. Operating modes

| Trait | Memory mode | App Direct Mode |
|---------------------|---|---|
| Application support | Any application | Application must state that it supports "App Direct Mode" |
| DRAM | Used as cache and is not available as system memory | Both DCPMM and DRAM are available as system memory |
| Persistence | No | Yes |

Supported memory

The table below lists the supported DIMMs for the R740 and R740xd:

Table 11. Supported memory

| DIMM Capacity | DIMM Type | DIMM Speed 1 DPC - 2 DPC | Ranks per DIMM | Data Width |
|---------------|-----------|--------------------------|----------------|------------|
| 8 GB | RDIMM | 2666 MT/s - 2666 MT/s | 1 | x8 |
| 16 GB | RDIMM | 2933 MT/s - 2666 MT/s | 2 | x8 |
| 32 GB | RDIMM | 2933 MT/s - 2666 MT/s | 2 | x4 |
| 64 GB | RDIMM | 2933 MT/s - 2666 MT/s | 2 | x4 |
| 128 GB | L RDIMM | 2666 MT/s - 2666 MT/s | 8 | x4 |
| 16 GB | NVDIMM-N | 2666 MT/s | 1 | x4 |

| DIMM Capacity | DIMM Type | DIMM Speed 1 DPC - 2 DPC | Ranks per DIMM | Data Width |
|---------------|-----------|--------------------------|----------------|------------|
| 256GB | DCPMM | 2666 MT/s | N/A | N/A |
| 512GB | DCPMM | 2666 MT/s | N/A | N/A |

DIMM speed and frequency

The table below lists the memory speed and frequency for the R740 and R740xd:

Table 12. Memory speed and frequency

| CPU Family | DIMM Type | DIMM Ranking | Capacity | Speed (MT/s) |
|---|-----------|--------------|-------------------------|--------------|
| Intel® Xeon® Scalable | RDIMM | 1R/2R | 8GB, 16GB, and 32GB | 2666 |
| 2nd Generation Intel® Xeon® Scalable | RDIMM | 1R | 8GB | 2666 |
| 2nd Generation Intel® Xeon® Scalable | RDIMM | 2R | 16GB, 32GB, and 64Gb | 2933 |
| Intel® Xeon® Scalable | LRDIMM | 4R/8R | 64GB and 128GB | 2666 |
| 2nd Generation Intel® Xeon® Scalable | LRDIMM | 8R | 128GB | 2666 |
| 2nd Generation Intel® Xeon® Scalable | DCPMM | N/A | 128GB, 256GB, and 512GB | 2666 |
| Intel® Xeon® Scalable or 2nd Generation Intel® Xeon® Scalable | NVDIMM | 1R | 16GB | 2666 |

Memory operating modes

Performance Optimized or Optimizer Mode: prioritizes performance and does not provide any RAS features beyond standard ECC (Error-Correcting Code).

Memory mirroring has two adjacent memory channels configured to write the same data to each channel. If one memory channel fails or encounters an error, the other channel continues to transmit data. It's an excellent safeguard for systems requiring uninterrupted operation, though it cuts memory capacity in half, can double the cost per gigabyte, and can increase power consumption.

Fault resilient memory is a Dell patented technology that works with the VMWare ESXi Hypervisor to provide a fault resilient zone that protects virtual machines from the ramifications of memory faults.

Memory sparing can reduce downtime from correctable errors by allocating one rank (64-bit wide data area on a DIMM) per channel (Single Rank Spare Mode) or two ranks per channel (Multi Rank Spare Mode) as memory spares. If a correctable error occurs in a rank or channel, it's moved to the spare rank while the OS is running. This prevents the error from causing a failure. Memory sparing reduces memory capacity by one rank per channel or two ranks per channel (depending if Single Rank or Multi Rank is selected) and increases the cost per gigabyte.

Storage

The Dell EMC PowerEdge R740 and R740xd provide scalable storage that allows you to adapt to your workload and operational demands. With comprehensive storage options, the R740 and R740xd offer various internal and external storage controllers, drive types and different chassis and backplanes for varied numbers of drives. Features such as NVMe, H740P and H840 RAID controller provide vastly accelerated performance over previous technologies. Dell EMC Express Flash drives use PCIe lanes to connect directly to the processor and chipset and are easily accessible through a hot-plug drive bay.

The PowerEdge R740 offers the storage options below:

- 8 x 2.5 -inch drives in front backplane
- 8 x 3.5 -inch drives in front backplane
- 16 x 2.5 -inch drives in front backplane
- No rear or mid-bay storage options

The PowerEdge R740xd expands the available options with new rear and mid-bay storage capabilities. It offers 12 x 3.5 -inch and 24 x 2.5 -inch storage options in the front backplane with the following additional options:

- A new 4 x 2.5 -inch rear storage option.
- A new 2 x 3.5 -inch rear storage option.
- The 4 x 3.5 -inch mid-bay storage option, which also supports 2.5 -inch drives in the Hybrid carrier

Topics:

- [Supported drives](#)
- [Storage controllers](#)
- [Optical Drives](#)
- [Tape Drives](#)
- [IDSDM with vFlash card](#)

Supported drives

The following table shows the list of supported drives by the R740 and R740xd:

Table 13. Supported drives

| Form Factor | Type | Speed | Rotational Speed | Capacities |
|------------------|----------|-------|------------------|--|
| 2.5 -inch | SATA SSD | 6Gb | N/A | 120GB Boot, 240GB Boot, 240GB, 400GB, 480GB, 800GB, 960GB, 1600GB, 1920GB, 3200GB, 3840GB. |
| 2.5 -inch | SATA | 6Gb | 7.2K | 1TB, 2TB |
| 2.5 -inch | SAS | 12Gb | 7.2K | 1TB, 2TB, 2TB(SED FIPS) |
| 2.5 -inch | SAS SSD | 12Gb | N/A | 400GB, 480GB, 800GB, 960GB, 1600GB, 1920GB, 3840GB, 7.68TB |
| 2.5 -inch | SAS | 12Gb | 10K | 300GB, 600GB, 768 GB, 1.2TB, 1.8TB, 2.4TB(P-RTS), 1.2TB(SED FIPS), 2.4TB (SED FIPS)(P-RTS) |
| 2.5 -inch | SAS | 12Gb | 15K | 300GB, 600GB, 900GB, 900GB (SED FIPS) |
| 3.5 -inch | SATA | 6Gb | 7.2K | 1TB, 2TB, 4TB, 8TB, 10TB, 12TB, 14TB, 16TB |
| 3.5 -inch | SAS | 12Gb | 7.2K | 1TB, 2TB, 4TB, 8TB, 10TB, 4TB (SED FIPS), 8TB (SED FIPS) |

The following table list the supported NVMe SSD drives:

Table 14. NVMe SSD offerings

Description

- 375GB 2.5 -inch device
- 1.6TB 2.5 -inch device
- 3.2TB 2.5 -inch device
- 3.84TB 2.5 -inch device
- 6.4TB 2.5 -inch device

Storage controllers

The PowerEdge R740 and R740xd supports the following storage controllers:

- Internal storage controller cards: H330, H730P, H740P, HBA330 and S140, Boot Optimized Storage Subsystem (BOSS) module.
- External storage controller cards: H840 and 12Gbps SAS HBA

Optical Drives

The PowerEdge R740 supports one of the following internal optical drive options:

- DVD-ROM
- DVD+ROM

The R740xd does not support an internal optical drive.

Tape Drives

The R740 and R740xd do not support internal tape drives. However, external tape backup devices will be supported on both R740 and R740xd.

Supported external tape drives:

- External RD1000 USB
- External LTO-5, LTO-6, LTO-7 and 6 Gb SAS tape drives
- 114X rack mount chassis with LTO-5, LTO-6, and LTO-7 6Gb SAS tape drives
- TL1000 with LTO-5, LTO-6, and LTO-7 6 Gb SAS tape drives
- TL2000 with LTO-5, LTO-6, and LTO-7 6 Gb SAS tape drives
- TL4000 with LTO-5, LTO-6, and LTO-7 6 Gb SAS tape drives
- TL4000 with LTO-5, LTO-6, and LTO-7 8Gb FC tape drives
- ML6000 with LTO-5, LTO-6, 6 Gb SAS tape drives
- ML6000 with LTO-5, LTO-6, LTO-7 8Gb FC tape drives

IDSDM with vFlash card

The PowerEdge R540 system supports Internal Dual SD module (IDSDM) and vFlash card. In the current generation of PowerEdge servers, IDSDM and vFlash card are combined into a single card module, and are available in these configurations:

- vFlash or
- IDSDM or
- vFlash and IDSDM

The IDSDM/vFlash card sits in the back of the system, in a Dell-proprietary slot. IDSDM/vFlash card supports three micro SD cards (two cards for IDSDM and one card for vFlash). Micro SD cards capacity for IDSDM is 16/32/64 GB while for vFlash the microSD card capacity is 16 GB.

Boot Optimized Storage Subsystem (BOSS)

BOSS is a simple RAID solution card that is designed specifically for booting the system's operating system, which supports up to two 6 Gbps M.2 SATA drives. This card has a x8 connector using PCIe gen 2.0 x2 lanes, available only in the low-profile and half-height form factor.

Networking and PCIe

The PowerEdge R740/R740xd offers balanced, scalable I/O capabilities, including integrated PCIe 3.0-capable expansion slots. Dell EMC Network Daughter Cards allow you to choose the right network fabric without using up a valuable PCI slot. You can pick the speed, technology, vendor, and other options, such as switch-independent partitioning, which allows you to share and manage bandwidth on 10 GbE connections. For details on the various networking cards available, talk to Dell representative or visit <https://www.dell.com/en-us/work/shop/povw/poweredge-r740> or <https://www.dell.com/en-us/work/shop/povw/poweredge-r740xd> and choose the green view configurations button at the top for a full list of options.

PCIe subsystem

There are a number of riser combinations offered for the R740 and R740xd. Specific riser options are required for certain options like GPU enablement and NVMe PCIe SSD enablement.

The following list the PCIe risers offered for both R740 and R740xd:

NOTE: The R740 and R740xd also offer "no riser" options for customers that do not require any PCIe cards in their system

The below table shows the PCIe expansion card riser configuration for R740 and R740xd:

Table 15. PCIe expansion card riser configuration for R740 and R740xd

| Expansion card riser | PCIe slots on the riser | Height | Length | Link |
|----------------------|-------------------------|-------------|-------------|------|
| Riser 1A | Slot 1 | Full Height | Full Length | x16 |
| | Slot 3 | Full Height | Half Length | x16 |
| Riser 1B | Slot 1 | Full Height | Full Length | x8 |
| | Slot 2 | Full Height | Full Length | x8 |
| | Slot 3 | Full Height | Half Length | x8 |
| Riser 1D | Slot 1 | Full Height | Full Length | x16 |
| | Slot 2 | Full Height | Full Length | x8 |
| | Slot 3 | Full Height | Half Length | x8 |
| Riser 2A | Slot 4 | Full Height | Full Length | x16 |
| | Slot 5 | Full Height | Full Length | x8 |
| | Slot 6 | Low Profile | Half Length | x8 |
| Riser 2B | Slot 4 | Low Profile | Half Length | x8 |
| Riser 2C | Slot 4 | Low Profile | Half Length | x16 |
| Riser 3A | Slot 7 | Full Height | Full Length | x8 |
| | Slot 8 | Full Height | Full Length | x16 |

The below table shows the PCIe riser configuration for R740 and R740xd:

Table 16. PCIe riser configuration

| Riser configuration | Numbers of CPUs | Supported PERC type | Possible rear storage |
|---------------------|-----------------|---------------------|-----------------------|
| No riser | 1 or 2 | Mini-Mono | Yes |
| 1B+2B | 1 or 2 | Mini-Mono / Adapter | Yes |
| 1B+2C | 2 | Mini-Mono / Adapter | Yes |

| Riser configuration | Numbers of CPUs | Supported PERC type | Possible rear storage |
|----------------------------|------------------------|----------------------------|------------------------------|
| 1A+2A | 2 | Adapter | No |
| 1A+2A+3A | 2 | Adapter | No |
| 1B+2A+3A | 2 | Mini-Mono / Adapter | No |
| 1D+2A+3A | 2 | Adapter | No |

Supported operating system

The following lists the supported operating systems for the PowerEdge R740 and R740xd:

1. Canonical® Ubuntu® Server LTS
2. Citrix® Hypervisor
3. Microsoft® Windows Server® LTSC with Hyper-V
4. Oracle® Linux
5. Red Hat® Enterprise Linux
6. SUSE® Linux Enterprise Server
7. VMware® ESXi®

For specifications and interoperability details, see [Dell.com/OSsupport](https://www.dell.com/ossupport).

Power, thermal and acoustics

Power

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.

Table 17. PSU specification

| Wattage | Frequency | Voltage | Class | Heat dissipation |
|---|-----------|----------------------|----------|------------------|
| 495W | 50/60Hz | 100-240Vac/6.5-3A | Platinum | 1908 BTU/hr |
| 750W | 50/60Hz | 100-240Vac/10-5A | Platinum | 2891 BTU/hr |
| 750WT | 50/60Hz | 200-240Vac/5A | Titanium | 2843 BTU/hr |
| 750W Mix Mode/ HVDC(China Only) | 50/60Hz | 100-240Vac/10-5A | Platinum | 2891 BTU/hr |
| | N/A | 240Vdc/4.5A | N/A | |
| 1100W DC | - | -48--60Vdc/32A | Gold | 4416 BTU/hr |
| 1100W | 50/60Hz | 100-240Vac/12-6.5A | Platinum | 4100 BTU/hr |
| 1100W Mix Mode/ HVDC(China and Japan Only) | 50/60Hz | 100-240Vac/12A-6.5A | Platinum | 4100 BTU/hr |
| | N/A | 200-380Vdc/6.4A-3.2A | N/A | 4100 BTU/hr |
| 1600W | 50/60Hz | 100-240Vac/10A | Platinum | 6000 BTU/hr |
| 2000W | 50/60Hz | 100-240Vac/11.5A | Platinum | 7500 BTU/hr |
| 2400W | 50/60Hz | 100-240Vac/16A | Platinum | 9000 BTU/hr |

Table 18. PSU efficiency

| Form factor | Output | Class | 10% | 20% | 50% | 100% |
|----------------|-----------|----------|--------|---------|--------|--------|
| Redundant 86mm | 495W AC | Platinum | 82.00% | 90.00% | 94.00% | 91.00% |
| | 750W AC | Titanium | 90.00% | 94.00% | 96.00% | 91.00% |
| | 750W AC | Platinum | 82.00% | 90.00% | 94.00% | 91.00% |
| | 750W HVDC | Platinum | 82.00% | 90.00% | 94.00% | 91.00% |
| | 1100W AC | Platinum | 89.00% | 93.00% | 94.50% | 92.00% |
| | 1100W DC | Gold | 80.00% | 88.00% | 91.00% | 88.00% |
| | 1600W AC | Platinum | 87.00% | 90.00% | 94.00% | 91.00% |
| | 2000W AC | Platinum | 89.00% | 93.0 0% | 94.00% | 91.00% |
| | 2400W AC | Platinum | 89.00% | 93.00% | 94.00% | 91.50% |

Thermal

Thermal management of the PowerEdge R740 and R740xd delivers high performance for the right amount of cooling to components at the lowest fan speeds across a wide range of ambient temperatures from 10°C to 35°C (50°F to 95°F) and to extended ambient temperature ranges (see [Environmental Specifications](#)). The benefits to you are lower fan power consumption (lower server system power and data center power consumption) and greater acoustical versatility.

NOTE: The recommended ambient temperature for R740 and R740xd is generally 30°C, there are some exceptions for R740xd GPU and NVMe configurations that can be found in the support documentation.

Thermal design

The PowerEdge R740 and R740xd server cooling builds on the features and capability of previous Dell EMC servers but expands support for higher power processors, PCIe cooling, and increased NVMe count. A new chassis mechanical architecture enables increased airflow capability for cooling of higher power and dense system configurations and results in fewer system restrictions and increased feature density. Dell Server Thermal, Mechanical, and Thermal Control designs are based on the following key tenets and order of priority.

The thermal design of the system reflects the following:

- **Optimized thermal design:** The system layout is architected for optimum thermal design. System component placement and layout are designed to provide maximum airflow coverage to critical components with minimal expense of fan power.
- **Comprehensive thermal management:** The thermal control system regulates the system fan speeds based on feedback from system component temperature sensors, as well as for system inventory and subsystem power draw. Temperature monitoring includes components such as processors, DIMMs, chipset, system inlet air temperature and hard disk drives.
- **Open and closed loop fan speed control:** Open loop fan control uses system configuration to determine fan speed based on system inlet air temperature. Closed loop thermal control uses temperature feedback to dynamically adjust fan speeds based on system activity and cooling requirements.
- **User-configurable settings:** With the understanding and realization that every customer has a unique set of circumstances or expectations from the system, in this generation of servers, we have introduced limited user-configurable settings in the iDRAC9 BIOS setup screen. For more information, see the Dell EMC PowerEdge system Installation and Service Manual on Dell.com/Support/Manuals and "Advanced Thermal Control: Optimizing across Environments and Power Goals" on Dell.com.
- **Cooling redundancy:** The system allows N+1 fan redundancy, allowing continuous operation with one fan failure in the system.

Acoustics

The PowerEdge R740 is quiet enough to be used in an office environment in typical and minimum configurations, and the R740Xd can also operate at a similar level in certain configurations.

Acoustical design

The acoustical design of the PowerEdge R740 and R740xd reflect the following:

- **Versatility:** The R740 and R740xd save you power draw in the data center but are also quiet enough for office environment in typical and minimum configurations. You may find that the system is sufficiently quiet where the sound it emits blends into the environment.
- **Adherence to Dell EMC's high sound quality standards:** Sound quality is different from sound power level and sound pressure level in that it describes how humans respond to annoyances in sound, like whistles and hums. One of the sound quality metrics in the Dell EMC specification is prominence ratio of a tone.
- **Noise ramp and descent at boot-up from power off:** Fan speeds and noise levels ramp during the boot process (from power-off to power-on) in order to add a layer of protection for component cooling in the event that the system were not to boot properly. In order to keep the boot-up process as quiet as possible, the fan speed reached during boot-up is limited to about half of full speed.
- **Noise level dependencies:** If acoustics is important to you, several configuration choices and settings are important to consider:
 - For lower acoustical output, use a small number of lower rotational-speed SATA hard drives, nearline SAS hard drives, or non-rotational devices like SSDs. 15k hard drives generate more acoustic noise than that of lower rotational-speed hard drives, and noise increases with number of hard drives.
 - Fan speeds and noise may increase from baseline factory configurations if certain profiles are changed by the user or the system configurations are updated.
 - iDRAC9 BIOS settings: Performance Per Watt (DAPC or OS) may be quieter than Performance or Dense Configuration (iDRAC Settings > Thermal > Max. Exhaust Temperature or Fan speed offset).
 - The quantity and type of PCIe cards installed: This affects overall system acoustics. Installation of more than two PCIe cards results in an increase in overall system acoustics.
 - Using a GPU card: This results in an increase in overall system acoustics.
 - PCIe controller-based SSD drives: Drives such as Express flash drives and Fusion-IO cards require greater airflow for cooling, and result in significantly higher noise levels.
 - Systems with an H330 PERC: This configuration may be quieter than those with an H730P PERC with battery backup. However, higher noise levels result when a system is configured as non-RAID.
 - Hot spare feature of power supply unit: In the system default setting, the Hot Spare Feature is disabled; acoustical output from the power supplies is lowest in this setting.

The following table shows the reference points and output comparisons:

Table 19. Reference points and output comparison

| Value measured at your ears | | Equivalent familiar noise experience |
|------------------------------------|-----------------|---|
| LpA, dBA, re 20 μ Pa | Loudness, sones | |
| 90 | 80 | Loud concert |
| 75 | 39 | Data center, vacuum cleaner, voice must be elevated to be heard |
| 60 | 10 | Conversation levels |

Rack rails

The rail offerings for the PowerEdge R740 consist of two general types: sliding and static

Sliding rails features summary

The sliding rails (two varieties are offered) allow the system to be fully extended out of the rack for service. They are available with or without the optional cable management arm (CMA).

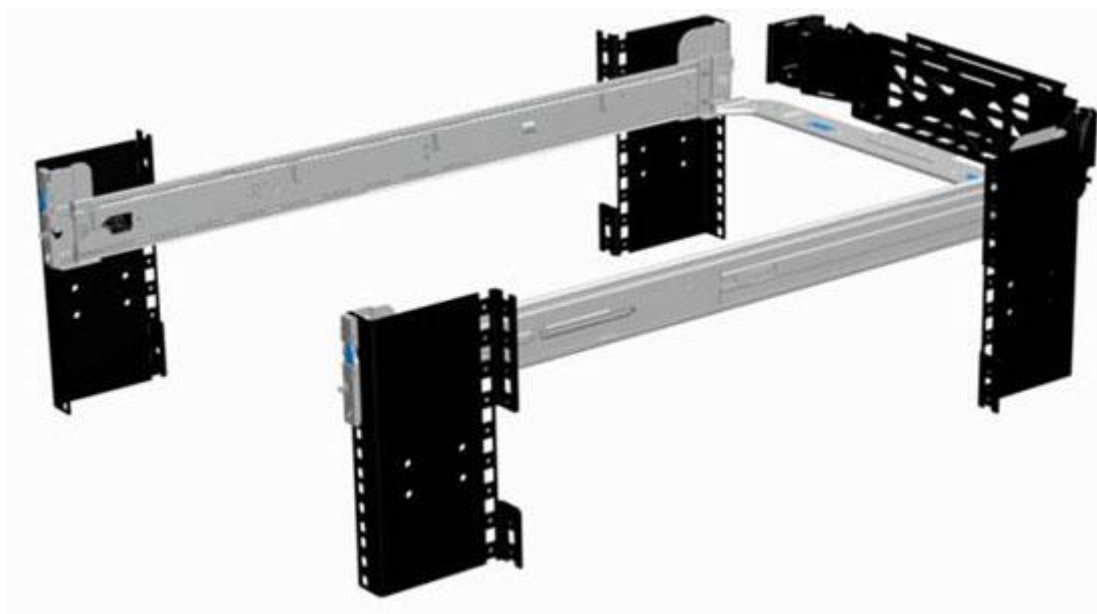


Figure 5. Sliding rails with optional CMA

ReadyRails-Sliding rails for 4-post racks

- Supports Drop-in Installation of the chassis to the rails.
- Support for tool-less installation in 19" EIA-310-E compliant square or unthreaded round hole 4-post racks including all generations of the Dell racks.
- Support for tooled installation in 19" EIA-310-E compliant threaded hole 4-post racks.
- Support full extension of the system out of the rack to allow serviceability of key internal components.
- Support for optional cable management arm (CMA).
- Minimum rail mounting depth without the CMA: 714 mm.
- Minimum rail mounting depth with the CMA: 845 mm.
- Square-hole rack adjustment range: 631-868 mm.
- Round-hole rack adjustment range: 617-861 mm.
- Threaded-hole rack adjustment range: 631-883 mm.

Stab-in/Drop-in sliding rails for 4-post racks (New for 14G systems)

- Supports drop-in or stab-in installation of the chassis to the rails.
- Support for tool-less installation in 19" EIA-310-E compliant square, unthreaded round hole racks including all generations of the Dell racks. Also supports tool-less installation in threaded round hole 4-post racks.
- Required for installing R740 in a Dell EMC Titan or Titan-D rack.
- Support full extension of the system out of the rack to allow serviceability of key internal components.
- Support for optional cable management arm (CMA).
- Minimum rail mounting depth without the CMA: 714 mm.
- Minimum rail mounting depth with the CMA: 845 mm.

- Square-hole rack adjustment range: 603-915 mm.
- Round-hole rack adjustment range: 603-915 mm.
- Threaded-hole rack adjustment range: 603-915 mm.

Static rails

The static rails support a wider variety of racks than the sliding rails. However, they do not support serviceability in the rack and are thus not compatible with the CMA.

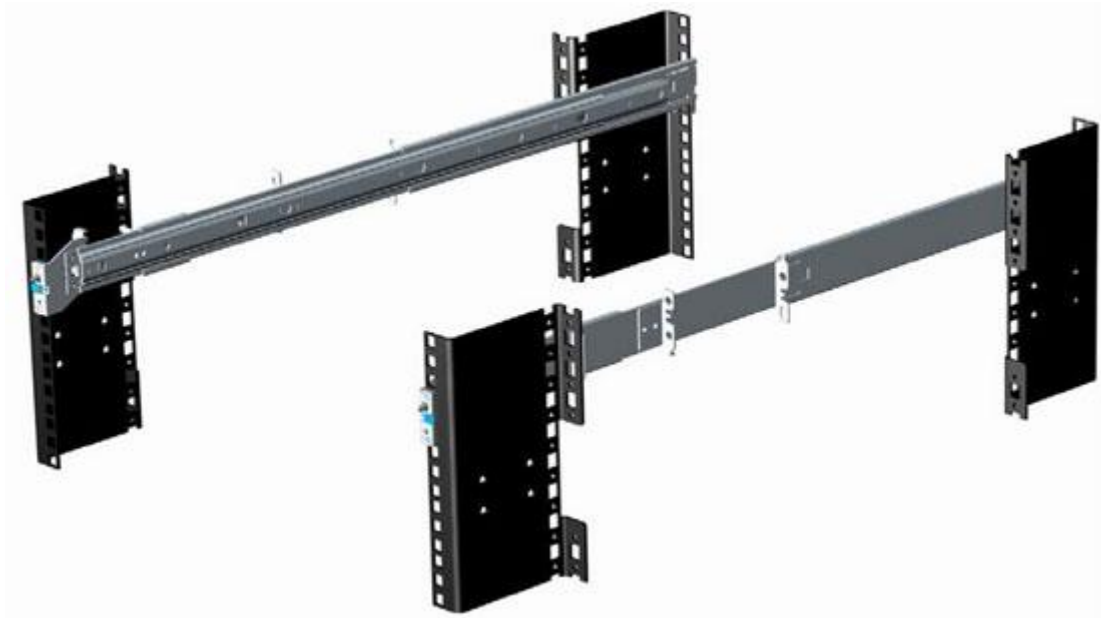


Figure 6. Static rails

Static rails features summary

Static Rails for 4-post & 2-post Racks:

- Supports Stab-in installation of the chassis to the rails.
- Support tool-less installation in 19" EIA-310-E compliant square or unthreaded round hole 4-post racks including all generations of Dell racks.
- Support tool installation in 19" EIA-310-E compliant threaded hole 4-post and 2-post racks.
- Minimum rail mounting depth: 622 mm.
- Square-hole rack adjustment range: 608-879 mm.
- Round-hole rack adjustment range: 594-872 mm.
- Threaded-hole rack adjustment range: 608-890 mm.

NOTE: One key factor in selecting the proper rails is identifying the type of rack in which they are installed.

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 for evolving IT environments. OpenManage is based on open standards and provides agent-based and agent-free server lifecycle 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 lifecycle: 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 around efficient management of server lifecycle.

The Dell EMC OpenManage Portfolio

Simplifying hardware management through ease of use, intelligent automation and integrated security

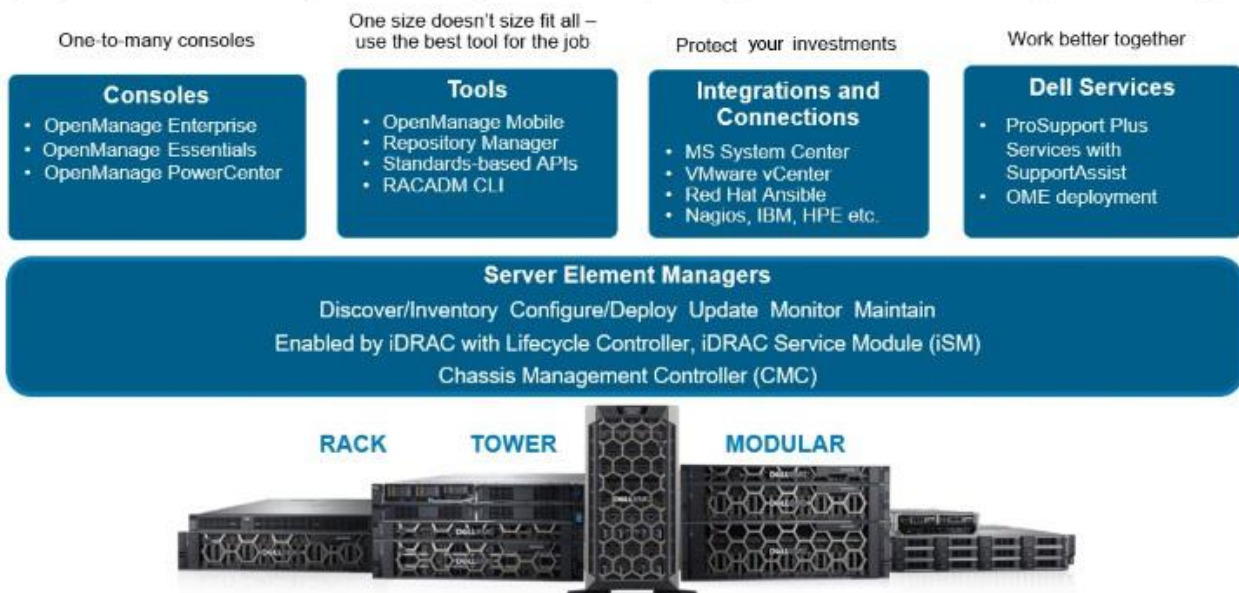


Figure 7. Server lifecycle management operations

Topics:

- iDRAC 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
- Dell EMC server management operations

iDRAC with Lifecycle controller

The integrated Dell Remote Access Controller 9 (iDRAC9) with Lifecycle Controller is embedded within every Dell EMC PowerEdge server and provides functionality that helps IT administrators deploy, update, monitor, and maintain servers with no need for any additional software to be installed. iDRAC functions regardless of operating system or hypervisor presence because from a pre-OS or bare-metal state, iDRAC is ready to work because it is embedded within each server from the factory.

iDRAC features and comparison

The R740 supports the following iDRAC licenses – Basic (default), Express (upgrade) and Enterprise (upgrade).

i | **NOTE: The features listed in bold in the below table are new for iDRAC9.**

Table 20. iDRAC feature comparison

| Features | iDRAC8 Basic | iDRAC9 Basic | iDRAC8 Express | iDRAC9 Express | iDRAC8 Express for Blades | iDRAC9 Express for Blades | iDRAC8 Enterprise | iDRAC9 Enterprise |
|----------------------------------|--------------|--------------|----------------|----------------|---------------------------|---------------------------|-------------------|-------------------|
| Interface/Standards | | | | | | | | |
| Redfish | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IPMI 2.0 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| DCMI 1.5 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Web-based GUI | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Racadm command line—local/remote | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SMASH-CLP—SSH-only | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Telnet | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SSH | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Serial redirection | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| WSMAN | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Network Time Protocol | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Connectivity | | | | | | | | |
| Shared NIC | Yes | Yes | Yes | Yes | N/A | N/A | Yes | Yes |
| Dedicated NIC | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| VLAN tagging | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IPv4 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IPv6 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| DHCP (new default; no static IP) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| DHCP with Zero Touch | No | No | No | No | No | No | No | Yes |
| Dynamic DNS | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| OS pass-through | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| iDRAC Direct-Front panel USB | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Connection View | No | Yes | No | Yes | No | Yes | No | Yes |
| NFS v4 | No | Yes | No | Yes | No | Yes | No | Yes |
| NTLM v1 and NTLM v2 | No | Yes | No | Yes | No | Yes | No | Yes |
| Security | | | | | | | | |

| Features | iDRAC8 Basic | iDRAC9 Basic | iDRAC8 Express | iDRAC9 Express | iDRAC8 Express for Blades | iDRAC9 Express for Blades | iDRAC8 Enterprise | iDRAC9 Enterprise |
|---|--------------|--------------|----------------|----------------|---------------------------|---------------------------|-------------------|-------------------|
| Role-based authority | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Local users | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SSL encryption | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| IP blocking | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Directory services—AD, LDAP | No | No | No | No | No | No | Yes | Yes |
| Two-factor authentication | No | No | No | No | No | No | Yes | Yes |
| Single sign-on | No | No | No | No | No | No | Yes | Yes |
| PK authentication | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| FIPS 140-2 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Secure UEFI boot-certificate management | No | Yes | No | Yes | No | Yes | No | Yes |
| Lock down mode | No | | No | No | No | No | No | Yes |
| Unique iDRAC default password | No | Yes | No | Yes | No | Yes | No | Yes |
| Customizable Security Policy Banner-login page | No | Yes | No | Yes | No | Yes | No | Yes |
| Quick Sync 2.0-optional auth for read operations | No | Yes | No | Yes | No | Yes | No | Yes |
| Quick Sync 2.0-add mobile device number to LCL | No | Yes | No | Yes | No | Yes | No | Yes |
| Remote Presence | | | | | | | | |
| Power control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Boot control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Serial-over-LAN | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Virtual Media | No | No | No | No | Yes | Yes | Yes | Yes |
| Virtual Folders | No | No | No | No | No | No | Yes | Yes |
| Remote File Share | No | No | No | No | No | No | Yes | Yes |
| Virtual Console | No | No | No | No | Yes | Yes | Yes | Yes |
| HTML5 access to virtual console | No | No | No | No | Yes | Yes | Yes | Yes |
| VNC connection to OS | No | No | No | No | No | No | Yes | Yes |
| Quality/bandwidth control | No | No | No | No | No | No | Yes | Yes |
| Virtual Console collaboration—6 users | No | No | No | No | No | No | Yes | Yes |
| Virtual Console chat | No | No | No | No | No | No | Yes | Yes |
| Virtual Flash partitions | No | No | No | No | No | No | Yes | Yes |
| Group manager | No | No | No | No | No | No | No | Yes |
| HTTP/HTTPS support along with NFS/CIFS | No | Yes | No | Yes | No | Yes | No | Yes |
| Power and Thermal | | | | | | | | |
| Real-time power meter | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

| Features | iDRAC8 Basic | iDRAC9 Basic | iDRAC8 Express | iDRAC9 Express | iDRAC8 Express for Blades | iDRAC9 Express for Blades | iDRAC8 Enterprise | iDRAC9 Enterprise |
|--|--------------|--------------|----------------|----------------|---------------------------|---------------------------|-------------------|-------------------|
| Power thresholds & alerts | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Real-time power graphing | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Historical power counters | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Power capping | No | No | No | No | No | No | Yes | Yes |
| Power Center integration | No | No | No | No | No | No | Yes | Yes |
| Temperature monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Temperature graphing | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Health Monitoring | | | | | | | | |
| Predictive failure monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SNMPv1, v2 and v3—traps and gets | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Email alerting | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Configurable thresholds | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Fan monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Power Supply monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Memory monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| CPU monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| RAID monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| NIC monitoring | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HD monitoring—enclosure | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Out of Band Performance Monitoring | No | No | No | No | No | No | Yes | Yes |
| Alerts for excessive SSD wear | No | Yes | No | Yes | No | Yes | No | Yes |
| Customizable settings for Exhaust Temperature | No | Yes | No | Yes | No | Yes | No | Yes |
| Update | | | | | | | | |
| Remote agent-free update | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Embedded update tools | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Sync with repository—scheduled updates | No | No | No | No | No | No | Yes | Yes |
| Auto update | No | No | No | No | No | No | Yes | Yes |
| Improved PSU firmware updates | No | Yes | No | Yes | No | Yes | No | Yes |
| Deployment and Configuration | | | | | | | | |
| Local configuration via F10 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Embedded OS deployment tools | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Embedded configuration tools | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| AutoDiscovery | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Remote OS deployment | No | No | Yes | Yes | Yes | Yes | Yes | Yes |

| Features | iDRAC8 Basic | iDRAC9 Basic | iDRAC8 Express | iDRAC9 Express | iDRAC8 Express for Blades | iDRAC9 Express for Blades | iDRAC8 Enterprise | iDRAC9 Enterprise |
|---|--------------|--------------|----------------|----------------|---------------------------|---------------------------|-------------------|-------------------|
| Embedded driver pack | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Full configuration inventory | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Inventory export | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Remote configuration | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Zerotouch configuration | No | No | No | No | No | No | Yes | Yes |
| System Retire/Repurpose | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Server Configuration Profile in GUI | No | Yes | No | Yes | No | Yes | No | Yes |
| Diagnostics, Service and Logging | | | | | | | | |
| Embedded diagnostic tools | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Part Replacement | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Server Configuration Backup | No | No | No | No | No | No | Yes | Yes |
| Server Configuration Restore | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Easy Restore—system configuration | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Easy Restore Auto Timeout | No | Yes | No | Yes | No | Yes | No | Yes |
| LED health status indicator | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| LCD screen—iDRAC9 requires optional bezel | Yes | Yes | Yes | Yes | N/A | N/A | Yes | Yes |
| Quick Sync—require NFC bezel (13 G only) | Yes | No | Yes | No | N/A | No | Yes | No |
| Quick Sync 2.0—requires BLE/WiFi hardware | No | Yes | No | Yes | No | N/A | No | Yes |
| iDRAC Direct—front USB mgmt port | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| iDRAC Service Module (iSM) embedded | No | Yes | No | Yes | No | Yes | No | Yes |
| iSM to inband alert forwarding to consoles | No | Yes | No | Yes | No | Yes | No | Yes |
| Crash screen capture | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Crash video capture | No | No | No | No | No | No | Yes | Yes |
| Boot capture | No | No | No | No | No | No | Yes | Yes |
| Manual reset for iDRAC—LCD ID button | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Remote reset for iDRAC—requires iSM | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Virtual NMI | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| OS watchdog | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SupportAssist Report—embedded | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| System Event Log | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

| Features | iDRAC8 Basic | iDRAC9 Basic | iDRAC8 Express | iDRAC9 Express | iDRAC8 Express for Blades | iDRAC9 Express for Blades | iDRAC8 Enterprise | iDRAC9 Enterprise |
|--|--------------|--------------|----------------|----------------|---------------------------|---------------------------|-------------------|-------------------|
| Lifecycle Log | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Enhanced logging in the Lifecycle controller log | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Work notes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Remote Syslog | No | No | No | No | No | No | Yes | Yes |
| License management | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Improved customer experience | | | | | | | | |
| iDRAC -Faster processor, more memory | No | Yes | No | Yes | No | Yes | No | Yes |
| GUI rendered in HTML5 | No | Yes | No | Yes | No | Yes | No | Yes |
| Add BIOS configuration to iDRAC GUI | No | Yes | No | Yes | No | Yes | No | Yes |
| iDRAC support for SW RAID licensing | No | Yes | No | Yes | No | Yes | No | Yes |

Agent-free management

As Dell EMC PowerEdge servers have embedded server lifecycle management, in many cases, 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 in order to be managed within the IT environment. Additionally, the same agent is often used as a local interface into the hardware health and 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, depending upon your needs, including the following:

OpenManage Enterprise

OpenManage Enterprise is the next generation of OpenManage Essentials. It simplifies, centralizes, and automates the full span of server lifecycle management activities. It helps in discovery, configuration, deployment, updates, and remediation. These tasks are performed within a single console that unifies management of tower, rack, and modular platforms. OpenManage Enterprise helps in standardizing and supporting IT management policies and practices.

The OpenManage Enterprise console simplifies and strengthens the current capability of OpenManage Essentials in the following areas:

- Reduced time and effort that is required to manage small and large-scale IT environments using HTML5 GUI
- Simplified GUI workflow to provide a single management layer that unifies the management of PowerEdge tower, rack, and modular platforms
- Packaged and delivered as virtual appliance and supports ESXi, HyperV, and KVM
- Redesigned architecture on CentOS with the PostgreSQL database. Operating system and database license are no longer required
- Centralized user management with role-based access control
- Enabled with customer automation and solution integration using Northbound API
- Enhanced policy-driven management

For more information, see www.dell.com/support/article/sln310714

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 a OpenManage Enterprise or Essentials console or by directly accessing the server's iDRAC.

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

If you are remote, you can access iDRAC over a secure IP network.

Key Features of OpenManage Mobile (When connected through OpenManage Enterprise or Essentials console):

- Connect to multiple servers which have OpenManage Enterprise installed, from a single mobile device.
- Connect to multiple servers individually through the iDRAC interface.
- Receive critical alert notification on your mobile device as they arrive into your OpenManage Enterprise 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 legacy PowerEdge servers remotely. For more information, see OpenManage Mobile compatibility matrix at dell.com/support
- Access rack, tower and modular servers through Quick Sync 2 modules or Quick Sync bezels as applicable.
- 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 & 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 more information, see OpenManage Mobile compatibility matrix at dell.com/support)
- 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 Power Center

OpenManage Power Center is a one-to-many application that can read power usage and thermal readings information from Dell EMC servers, Power Distribution Units (PDU), and Uninterruptible Power Supplies (UPS). It can aggregate this information into rack, row, and room-level views. On servers with iDRAC Enterprise license, you can also cap or throttle the power consumption. You may need to set power caps to reduce the power consumption due to external events such as brownouts or failures of data-center cooling devices. You can also use power capping to safely increase the numbers of servers in a rack to match the power that is provisioned for that rack.

For more information, see OpenManage Power Center User's Guide available at Dell.com/openmanagemanuals.

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 when updates are available.
- Package the updates into different deployment format.

To automate the creation of baseline repositories, DRM provides advanced integration capabilities with iDRAC/LC, 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 (DUP) is a self-contained executable supported by Microsoft Windows or Linux that updates a component on a server and applications like OMSA, iSM, and DSET.

DUPs can be executed in GUI or in CLI mode.

For more information, see 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 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 utilizing the WSMan interface. The iDRAC with LC 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 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 v4.0 onwards. This helps in checking hardware health and alerting into vRealize operations, which also includes dashboard and reporting on the server environment.

You can 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 EMC server management operations

Dell EMC OpenManage systems management is centered on automating the server management lifecycle — deploy, update, monitor and maintain. To manage an infrastructure properly and efficiently, you must perform all of these functions easily and quickly. iDRAC9 with Lifecycle Controller technology provides you with these intelligent capabilities embedded within the server infrastructure. This allows you to invest more time and energy on business improvements and less on maintenance.

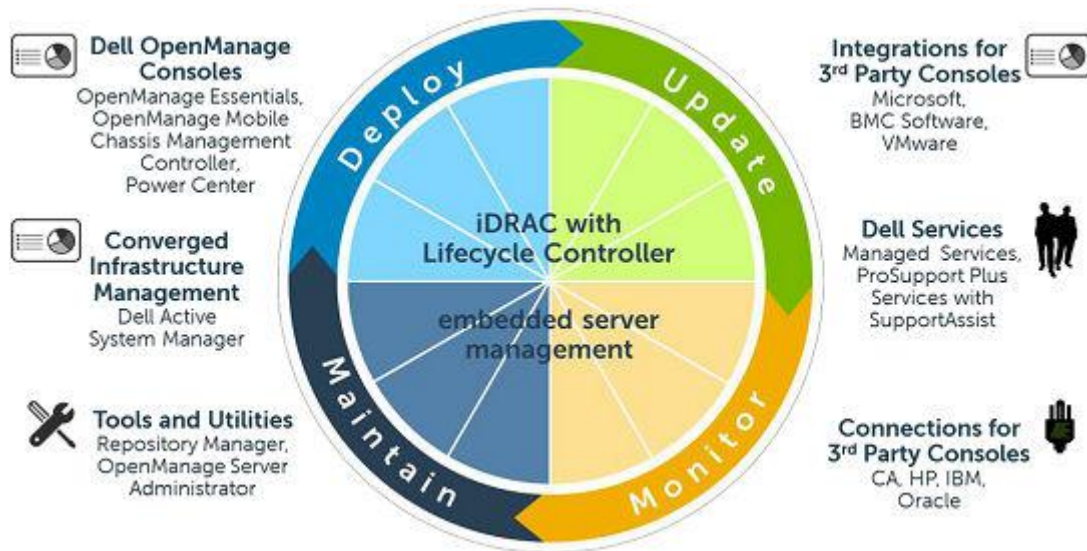


Figure 8. Systems management server lifecycle

The following table lists the products that are available for one-to-one and one-to-many operations, and when they are used in the server's lifecycle.

Table 21. One-to-one and one-to-many operations

| Operation | One-to-one | One-to-many |
|-----------------|---|---|
| Deploy | <ul style="list-style-type: none"> • Lifecycle Controller GUI • DTK | <ul style="list-style-type: none"> • OpenManage Integration for VMware vCenter • OpenManage Integration for BMC BladeLogic • OpenManage Integration for Microsoft System Center Configuration Manager |
| Update | <ul style="list-style-type: none"> • iDRAC9 with Lifecycle Controller • Repository Manager • DUP • SUU • OpenManage Integration for VMware vCenter | <ul style="list-style-type: none"> • Dell EMC OpenManage Essentials • OpenManage Integration for Microsoft System Center Configuration Manager |
| Monitor | <ul style="list-style-type: none"> • iDRAC9 with Lifecycle Controller • OMSA | <ul style="list-style-type: none"> • Dell EMC OpenManage Essentials • Dell EMC OpenManage Power Center • OpenManage Integration for VMware vCenter • OpenManage Integration for Microsoft System Center Operations Manager |
| Maintain | <ul style="list-style-type: none"> • iDRAC9 with Lifecycle Controller • IPMI | <ul style="list-style-type: none"> • Lifecycle Controller Remote Services Remediate and replace parts: • OpenManage Integration for Microsoft System Center Virtual Machine Manager (SCVMM) • Server Pro Management Pack and Lifecycle Controller Integration (DLCI) |

For additional detailed information on Dell EMC systems management portfolio, visit Dell.com/OpenManage.

Appendix A. Additional specifications

The following sections contain information about additional system specifications.

Topics:

- Chassis dimensions
- Chassis weight
- Video
- USB peripherals
- Environmental specifications

Chassis dimensions

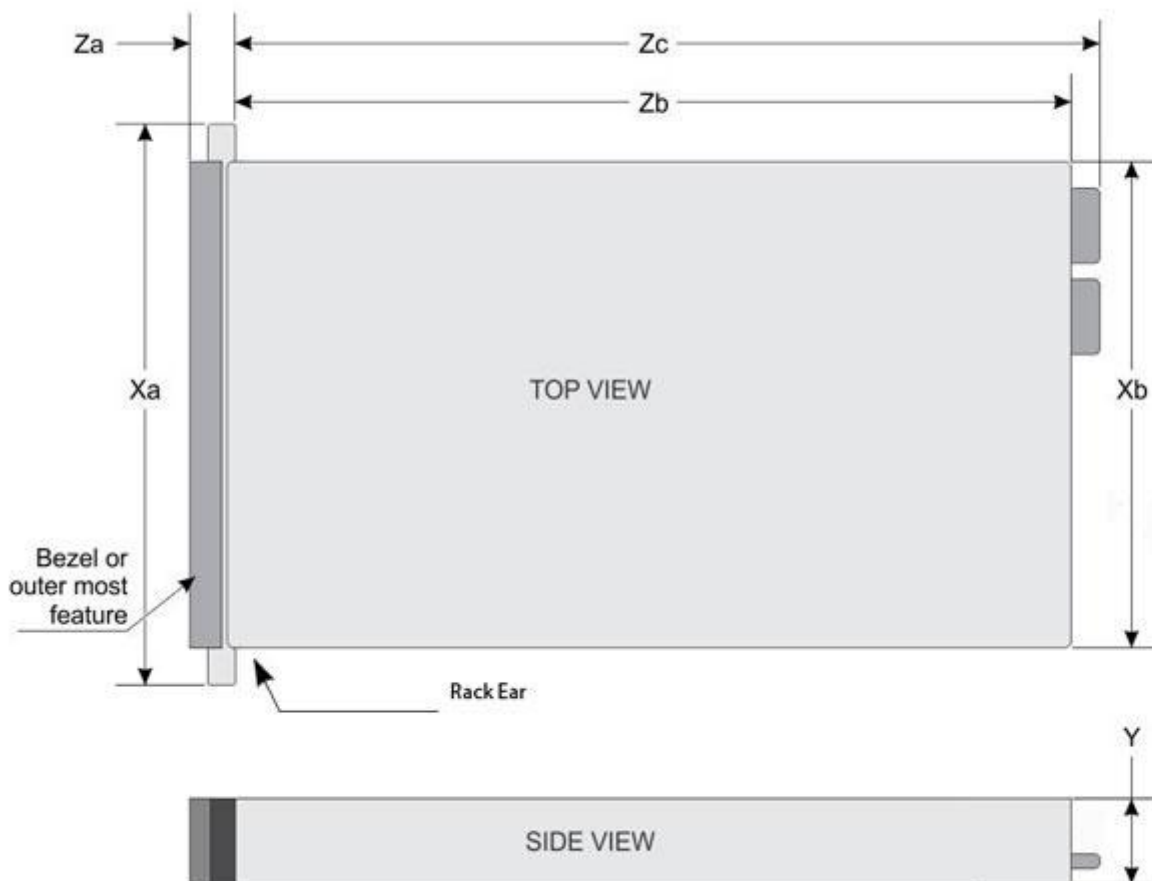


Figure 9. Chassis Dimensions for R740 and R740xd

The following table describes the chassis dimensions:

Table 22. Chassis dimensions

| Chassis dimensions (cm) | | | | | | |
|-------------------------|----------|---------|----------|------------------|----------|----------|
| Xa | Xb | Y | Za bezel | Za without bezel | Zb | Zc |
| 482.0 mm | 434.0 mm | 86.8 mm | 35.84mm | 22.0 mm | 678.8 mm | 715.5 mm |

Chassis weight

This section describes the weight of the system.

Table 23. Chassis weight

| Configuration | Maximum Weight |
|-------------------------|-------------------|
| 2.5-inch HDD for R740 | 26.3Kg (57.98 lb) |
| 3.5-inch HDD for R740 | 28.6Kg (63.05 lb) |
| 2.5-inch HDD for R740xd | 28.1Kg (61.95 lb) |
| 3.5-inch HDD for R740xd | 33.1Kg (72.91 lb) |

Video

The PowerEdge R740 system supports the Matrox G200eW3 graphics module. The following table shows the video specifications:

Table 24. Video specifications

| Resolution | Refresh rate | Horizontal frequency | Pixel clock | Rear panel | Front panel |
|--------------------|--------------|----------------------|-------------|------------|-------------|
| 1024 x 768 | 60 Hz | 48.4 kHz | 65.0 MHz | Yes | Yes |
| 1280 x 800 | 60 Hz | 49.7 kHz | 83.5 MHz | Yes | Yes |
| 1280 x 1024 | 60 Hz | 64.0 kHz | 108.0 MHz | Yes | TBD |
| 1360 x 768 | 60 Hz | 47.71 kHz | 85.5 MHz | Yes | Yes |
| 1440 x 900 | 60 Hz | 55.9 kHz | 106.5 MHz | Yes | TBD |
| 1600 x 900 | 60 Hz (RB) | 55.54 kHz | 97.75 MHz | Yes | Yes |
| 1600 x 1200 | 60 Hz | 75.0 kHz | 162.0 MHz | TBD | TBD |
| 1680 x 1050 | 60 Hz (RB) | 64.7 kHz | 119.0 MHz | Yes | TBD |
| 1920 x 1080 | 60 Hz | 67.158 kHz | 173.0 MHz | TBD | No |
| 1920 x 1200 | 60 Hz | 74.556 kHz | 193.25 MHz | TBD | No |

USB peripherals

Front, rear, and internal USB ports are included in the base system for R740 and R740xd. Rear and internal ports support up to USB 3.0, while front ports support USB 2.0. The R740 offers an upsell option that adds an additional USB 3.0 port to the front of the chassis. The USB upsell module cable connects to the internal USB port on the planar and the default internal moves closer to the front of the chassis

Environmental specifications

See Dell EMC PowerEdge R740 and R740xd installation service manuals on Dell.com/Support/Manuals for detailed environmental specifications.

Appendix B. Standards compliance

Table 25. Industry standard documents

| Standard | URL for information and specifications |
|--|---|
| ACPI Advance Configuration and Power Interface Specification, v2.0c | https://uefi.org/specsandtesttools |
| Ethernet IEEE 802.3-2005 | https://standards.ieee.org/ |
| HDG Hardware Design Guide Version 3.0 for Microsoft Windows Server | microsoft.com/whdc/system/platform/pcdesign/designguide/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 | http://pmbus.org/Assets/PDFS/Public/PMBus_Specification_Part_I_Rev_1-1_20070205.pdf |
| SAS Serial Attached SCSI, v1.1 | http://www.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 26. Additional resources

| Resource | Description of contents | Location |
|--|---|---|
| PowerEdge R740/R740xd Installation Service Manuals | <p>This manual, available in PDF format, provides the following information:</p> <ul style="list-style-type: none"> • Chassis features • System Setup program • System messages • System codes and indicators • System BIOS • Remove and replace procedures • Troubleshooting • Diagnostics • Jumpers and connectors | Dell.com/Support/Manuals |
| PowerEdge R740/R740xd 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 • Key system features • Technical specifications | Dell.com/Support/Manuals |
| Rack Installation Instructions | This document ships with the rack kits, and provides instructions for installing a server in a rack. | Dell.com/Support/Manuals |
| Information Update | This document ships with the system, is also available in PDF format online, and provides information on system updates. | 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 contact information. | Inside the system chassis cover |
| Energy Smart Solution Advisor (ESSA) | The Dell 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 |

Appendix D. Support and deployment 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.

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.

Deployment services

Deployment services details and exceptions can be found in service description documents at the Enterprise Configuration and Deployment page on Dell.com.

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

With Dell EMC ProSupport Services, we can help you keep your operation 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. 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 figure consists of 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 11. ProSupport Enterprise Suite

ProSupport Plus

When you purchase PowerEdge servers, we recommend ProSupport Plus, our proactive and preventative support, for business-critical systems. ProSupport Plus provides 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
- 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 will help you minimize disruptions and maximize availability of your PowerEdge server workloads with:

- 24x7x365 access to certified hardware and software experts
- Collaborative 3rd party support
- Hypervisor and OS 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

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, it 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 | ProSupport Plus | ProSupport One for Data Center |
|--|---------------------------------------|---------------------------------------|--------------------------------|
| Remote technical support | 24x7 | 24x7 | 24x7 |
| Parts and labor response options | Next business day or Mission Critical | Next business day or Mission Critical | Flexible |
| Automated issue detection and case creation | ● | ● | ● |
| Self-service case initiation and management | ● | ● | ● |
| Hypervisor and OS support | ● | ● | ● |
| Priority access to specialized support experts | | ● | ● |
| Designated Technology Service Manager | | ● | ● |
| Personalized assessments and recommendations | | ● | ● |
| On-demand support and utilization reports | | ● | ● |
| Systems Maintenance guidance | | Semiannual | Optional |
| Designated technical and field support teams | | | ● |

Figure 12. Enterprise Support feature comparison

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 customers 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.

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 13. SupportAssist model

Get started at Dell.com/SupportAssist

TechDirect

Boost your IT teams 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 needs. 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.com

Additional professional services

Dell Education Services

Dell Education Services offers the PowerEdge server training courses designed to help you achieve more with your hardware investment. The curriculum is designed in conjunction with the server development team, as well as Dell EMC's technical support team, to ensure that the training delivers the information and practical, hands-on skills you and your team need to confidently manage and maintain your Dell EMC server solution. To learn more or register for a class today, visit LearnDell.com/Server.

Dell EMC Global Infrastructure Consulting Services

Dell EMC Global Infrastructure Consulting Services use skilled solution architects, innovative tools, automated analysis and Dell EMC's intellectual property to give rapid insight into the root causes of unnecessary complexity. We seek better answers than traditional service models, and our strategy is to help quickly identify high-impact, short-duration projects that deliver return on investment (ROI) and free

up resources. The results are practical, action-oriented plans with specific, predictable, measurable outcomes. From data center optimization to server virtualization to systems management, our consulting services can help build a more efficient enterprise.

Dell EMC Managed Services

Dell EMC Managed Services are a modular set of lifecycle services designed to help you automate and centrally configure, deploy, and manage your day-to-day data center operations. These services extend your existing on-premise IT infrastructure with off-premise cloud services designed to better address challenges with mobility, highly distributed organizations, security, compliance, business continuity, and disaster preparedness.