

# Dell EMC PowerEdge R740

## Technical Specifications

## Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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# Technical specifications

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

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## System dimensions

This section describes the physical dimensions of the system.

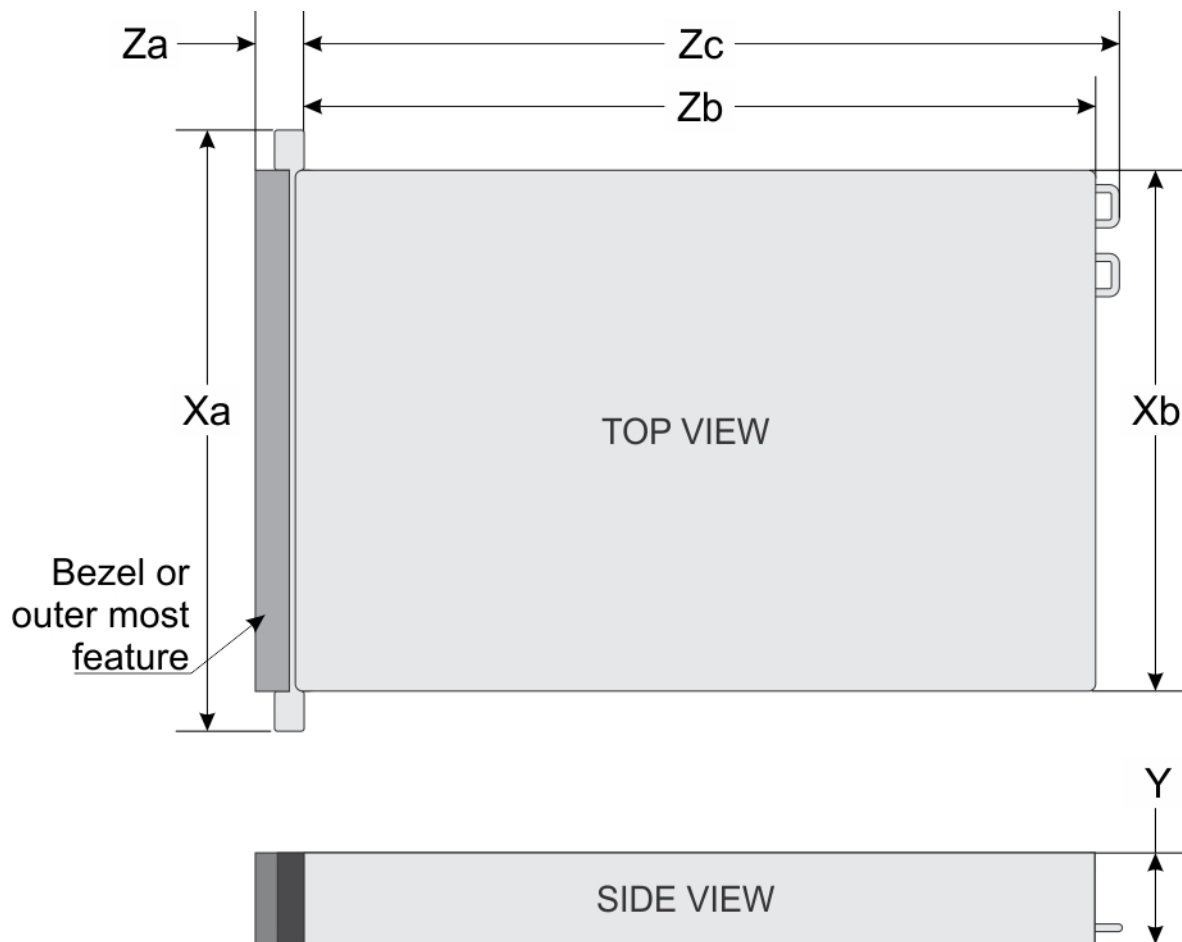


Figure 1. System dimensions of PowerEdge R740 system

Table 1. Dimensions

| System         | Xa                         | Xb                         | Y                        | Za (with bezel)           | Za (without bezel)       | Zb                         | Zc                         |
|----------------|----------------------------|----------------------------|--------------------------|---------------------------|--------------------------|----------------------------|----------------------------|
| PowerEdge R740 | 482.0 mm<br>(18.98 inches) | 434.0 mm<br>(17.09 inches) | 86.8 mm<br>(3.42 inches) | 35.84 mm<br>(1.41 inches) | 22.0 mm<br>(0.87 inches) | 678.8 mm<br>(26.72 inches) | 715.5 mm<br>(28.17 inches) |

## Chassis weight

Table 2. Chassis weight

| System                 | Maximum weight (with all drives/SSDs) |
|------------------------|---------------------------------------|
| 2.5 inch drive systems | 26.3 kg (57.98 lb)                    |
| 3.5 inch drive systems | 28.6 kg (63.05 lb)                    |

## Processor specifications

The PowerEdge R740 system supports up to two Intel Xeon Processor Scalable Family processors, up to 28 cores per processor.

**NOTE:** Processor sockets are not hot pluggable.

# Supported operating systems

The PowerEdge R740 supports the following operating systems:

Canonical Ubuntu LTS

Citrix XenServer

Microsoft Windows Server with Hyper-V

Red Hat Enterprise Linux

SUSE Linux Enterprise Server

VMware ESXi

 **NOTE:** For more information, go to [www.dell.com/ossupport](http://www.dell.com/ossupport).

## PSU specifications

The PowerEdge R740 system supports up to two AC or DC power supply units (PSUs).

**Table 3. PSU specifications**

| PSU                                               | Class                     | Heat dissipation (maximum) | Frequency | Voltage                          | High line 200v240 V | Low line 100– 140 V | DC     | Current     |
|---------------------------------------------------|---------------------------|----------------------------|-----------|----------------------------------|---------------------|---------------------|--------|-------------|
| 495 W AC                                          | Platinum                  | 1908 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging        | 495 W               | 495 W               | NA     | 6.5 A–3 A   |
| 750 W AC                                          | Platinum                  | 2891 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging        | 750 W               | 750 W               | NA     | 10 A–5 A    |
| 750 W AC                                          | Titanium                  | 2843 BTU/hr                | 50/60 Hz  | 200–240 V AC, autoranging        | 750 W               |                     | NA     | 5 A         |
| 750 W Mixed Mode HVDC (for China only)            | Platinum                  | 2891 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging        | 750 W               | 750 W               | NA     | 10 A–5 A    |
|                                                   | Platinum                  | 2891 BTU/hr                | N/A       | 240 V DC, autoranging            | NA                  | NA                  | 750W   | 4.5 A       |
| 750 W Mixed Mode                                  | Platinum                  | 2891 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging        | 750 W               | 750 W               | NA     | 10 A–5 A    |
|                                                   | Platinum(F or China only) | 2891 BTU/hr                | N/A       | 240 V DC, autoranging            | NA                  | NA                  | 750 W  | 5 A         |
| 1100 W AC                                         | Platinum                  | 4100 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging        | 1100 W              | 1050 W              |        | 12 A–6.5 A  |
| 1100 W DC                                         | N/A                       | 4416 BTU/hr                | N/A       | –(48 V to –60 V) DC, autoranging | NA                  | NA                  | 1100 W | 32 A        |
| 1100 W Mixed Mode HVDC (for China and Japan only) | Platinum                  | 4100 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging        | 1100 W              | 1050 W              |        | 12 A–6.5 A  |
|                                                   | N/A                       | 4100 BTU/hr                | N/A       | 200–380 V DC, autoranging        | NA                  | NA                  | 1100 W | 6.4 A–3.2 A |
| 1600 W AC                                         | Platinum                  | 6000 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging        | 1600 W              | 800 W               | NA     | 10 A        |

**Table 3. PSU specifications (continued)**

| PSU       | Class    | Heat dissipation (maximum) | Frequency | Voltage                   | High line 200v240 V | Low line 100– 140 V | DC | Current |
|-----------|----------|----------------------------|-----------|---------------------------|---------------------|---------------------|----|---------|
| 2000 W AC | Platinum | 7500 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging | 2000 W              | 1000 W              | NA | 11.5 A  |
| 2400 W AC | Platinum | 9000 BTU/hr                | 50/60 Hz  | 100–240 V AC, autoranging | 2400 W              | 1400 W              | NA | 16 A    |

**NOTE:** Heat dissipation is calculated using the PSU wattage rating.

**NOTE:** This system is also designed to connect to the IT power systems with a phase to phase voltage not exceeding 240 V.

**NOTE:** PSUs rated for 1100 W Mixed Mode HVDC or 1100 W AC and higher require high-line voltage (200–240 V AC) to supply their rated capacity.

## System battery specifications

The PowerEdge R740 system supports CR 2032 3.0-V lithium coin cell system battery.

## Expansion bus specifications

The PowerEdge R740 system supports up to eight PCI express (PCIe) generation 3 expansion cards that can be installed on the system board using expansion card risers. The following table provides detailed information about the expansion card riser specifications:

**Table 4. Expansion card riser configurations**

| 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 or 2E       | 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 or 3B       | Slot 7                  | Full Height | Full Length | x8   |
|                      | Slot 8                  | Full Height | Full Length | x16  |

**Table 5. Expansion card riser specifications**

| Riser configuration and supported risers | Slot description                  | PCIe slots on riser 1 (Height and length) | Processor connection | PCIe slots on riser 2 (Height and length) | Processor connection | PCIe slots on riser 3 (Height and length) | Processor connection |
|------------------------------------------|-----------------------------------|-------------------------------------------|----------------------|-------------------------------------------|----------------------|-------------------------------------------|----------------------|
| Riser configuration 0 (No riser)         | No PCIe slots (only rear storage) | N/A                                       | N/A                  | N/A                                       | N/A                  | N/A                                       | N/A                  |
| Riser configuration 1 (1B+2 B)           | Four x8 slots                     | Slot 1: x8 full-height, full length       | Processor 1          | Slot 4: x8 low profile, half length       | Processor 1          | N/A                                       | N/A                  |
|                                          |                                   | Slot 2: x8 full-height, full length       | Processor 1          |                                           |                      |                                           |                      |
|                                          |                                   | Slot 3: x8 full-height, half length       | Processor 1          |                                           |                      |                                           |                      |
| Riser configuration 2 (1B+2C)            | Three x8 and one x16 slots        | Slot 1: x8 full-height, full length       | Processor 1          | Slot 4: x16 low profile, half length      | Processor 2          | N/A                                       | N/A                  |
|                                          |                                   | Slot 2: x8 full-height, full length       | Processor 1          |                                           |                      |                                           |                      |
|                                          |                                   | Slot 3: x8 full-height, half length       | Processor 1          |                                           |                      |                                           |                      |
| Riser configuration 3 (1A+2A)            | Two x8 and three x16 slots        | Slot 1: x16 full-height, full length      | Processor 1          | Slot 4: x16 full-height, full length      | Processor 2          | N/A                                       | N/A                  |
|                                          |                                   | N/A                                       | N/A                  | Slot 5: x8 full-height, full length       | Processor 2          |                                           |                      |
|                                          |                                   | Slot 3: x16 full-height, half length      | Processor 1          | Slot 6: x8 low profile, half length       | Processor 1          |                                           |                      |
| Riser configuration 4 (1A+2A+3A)         | Three x8 and four x16 slots       | Slot 1: x16 full-height, full length      | Processor 1          | Slot 4: x16 full-height, full length      | Processor 2          | Slot 7: x8 full-height, full length       | Processor 2          |
|                                          |                                   | N/A                                       | N/A                  | Slot 5: x8 full-height, full length       | Processor 2          |                                           | Processor 2          |
|                                          |                                   | Slot 3: x16 full-height, half length      | Processor 1          | Slot 6: x8 low profile, half length       | Processor 1          |                                           |                      |
| Riser configuration 15 (1A+2E+3B)        | Three x8 and four x16 slots       | Slot 1: x16 full-height, full length      | Processor 1          | Slot 4: x16 full-height, full length      | Processor 2          | Slot 7: x8 full-height, full length       | Processor 2          |
|                                          |                                   | N/A                                       | N/A                  | Slot 5: x8 full-height, full length       | Processor 2          | Slot 8: x16 full-height, full length      | Processor 2          |
|                                          |                                   | Slot 3: x16 full-height, half length      | Processor 1          | Slot 6: x8 low profile, half length       | Processor 1          |                                           |                      |

**Table 5. Expansion card riser specifications (continued)**

| Riser configuration and supported risers | Slot description            | PCIe slots on riser 1 (Height and length) | Processor connection | PCIe slots on riser 2 (Height and length) | Processor connection | PCIe slots on riser 3 (Height and length) | Processor connection |
|------------------------------------------|-----------------------------|-------------------------------------------|----------------------|-------------------------------------------|----------------------|-------------------------------------------|----------------------|
| Riser configuration 5 (1B+2A+3A)         | Six x8 and two x16 slots    | Slot 1: x8 full-height, full length       | Processor 1          | Slot 4: x16 full-height, full length      | Processor 2          | Slot 7: x8 full-height, full length       | Processor 2          |
|                                          |                             | Slot 2: x8 full-height, full length       | Processor 1          | Slot 5: x8 full-height, full length       | Processor 2          | Slot 8: x16 full-height, full length      | Processor 2          |
|                                          |                             | Slot 3: x8 full-height, half length       | Processor 1          | Slot 6: x8 low profile, half length       | Processor 1          |                                           |                      |
| Riser configuration 6 (1D+2A+3A)         | Five x8 and three x16 slots | Slot 1: x16 full-height, full length      | Processor 1          | Slot 4: x16 full-height, full length      | Processor 2          | Slot 7: x8 full-height, full length       | Processor 2          |
|                                          |                             | Slot 2: x8 full-height, full length       | Processor 1          | Slot 5: x8 full-height, full length       | Processor 2          | Slot 8: x16 full-height, full length      | Processor 2          |
|                                          |                             | Slot 3: x8 full-height, half length       | Processor 1          | Slot 6: x8 low profile, half length       | Processor 1          |                                           |                      |
| Riser configuration 16 (1D+2E+3B)        | Five x8 and three x16 slots | Slot 1: x16 full-height, full length      | Processor 1          | Slot 4: x16 full-height, full length      | Processor 2          | Slot 7: x8 full-height, full length       | Processor 2          |
|                                          |                             | Slot 2: x8 full-height, full length       | Processor 1          | Slot 5: x8 full-height, full length       | Processor 2          | Slot 8: x16 full-height, full length      | Processor 2          |
|                                          |                             | Slot 3: x8 full-height, half length       | Processor 1          | Slot 6: x8 low profile, half length       | Processor 1          |                                           |                      |

**NOTE:**

- Riser slots are not hot pluggable.
- Internal cable connectors are not hot pluggable.

## Memory specifications

**Table 6. Memory specifications**

| Memory module sockets | DIMM type | DIMM rank   | DIMM capacity | Single processor |             | Dual processors |             |
|-----------------------|-----------|-------------|---------------|------------------|-------------|-----------------|-------------|
|                       |           |             |               | Minimum RAM      | Maximum RAM | Minimum RAM     | Maximum RAM |
| Twenty four 288-pins  | LRDIMM    | Octa rank   | 128 GB        | 128 GB           | 1.5 TB      | 256 GB          | 3 TB        |
|                       |           | Quad rank   | 64 GB         | 64 GB            | 768 GB      | 128 GB          | 1.5 TB      |
|                       | RDIMM     | Single rank | 8 GB          | 8 GB             | 96 GB       | 16 GB           | 192 GB      |
|                       |           | Dual rank   | 16 GB         | 16 GB            | 192 GB      | 32 GB           | 384 GB      |
|                       |           | Dual rank   | 32 GB         | 32 GB            | 384 GB      | 64 GB           | 768 GB      |
|                       |           | Dual rank   | 64 GB         | 64 GB            | 768 GB      | 128 GB          | 1536 GB     |

**Table 6. Memory specifications (continued)**

| Memory module sockets | DIMM type | DIMM rank   | DIMM capacity | Single processor                    |                                     | Dual processors |                  |
|-----------------------|-----------|-------------|---------------|-------------------------------------|-------------------------------------|-----------------|------------------|
|                       |           |             |               | Minimum RAM                         | Maximum RAM                         | Minimum RAM     | Maximum RAM      |
|                       | NVDIMM-N  | Single rank | 16 GB         | Not supported with single processor | Not supported with single processor | RDIMM: 192 GB   | RDIMM: 384 GB    |
|                       |           |             |               |                                     |                                     | NVDIMM-N: 16 GB | NVDIMM-N: 192 GB |
|                       | DCPMM     | NA          | 128 GB        | RDIMM: 192GB                        | RDIMM: 384 GB                       | RDIMM: 384 GB   | LRDIMM: 1536 GB  |
|                       |           |             |               | DCPMM: 128 GB                       | DCPMM: 128 GB                       | DCPMM: 1536 GB  | DCPMM: 1536 GB   |
|                       |           | NA          | 256 GB        | NA                                  | NA                                  | RDIMM: 192 GB   | LRDIMM: 1536 GB  |
|                       |           |             |               | NA                                  | NA                                  | DCPMM: 2048 GB  | DCPMM: 3072 GB   |
|                       |           | NA          | 512 GB        | NA                                  | NA                                  | RDIMM: 384 GB   | RDIMM: 1536 GB   |
|                       |           |             |               | NA                                  | NA                                  | DCPMM: 4096 GB  | DCPMM: 6144 GB   |

**NOTE:** 8 GB RDIMMs and NVDIMM-N must not be mixed.

**NOTE:** 64 GB LRDIMMs, 128 GB LRDIMMs must not be mixed.

**NOTE:** Minimum of two CPUs are required for any configurations that support NVDIMM-N.

**NOTE:** DCPMM can be mixed with RDIMMs and LRDIMMs.

**NOTE:** Mixing of DDR4 DIMM Types (RDIMM, LRDIMM), within channel, integrated memory controller, socket, or across sockets is not supported.

**NOTE:** x4 and X8 DDR4 DIMM can be mixed within channel.

**NOTE:** Mix of Intel Data center persistent memory module operating modes (App Direct, Memory Mode) is not supported within socket or across sockets.

**NOTE:** Memory DIMM slots are not hot pluggable.

## Storage controller specifications

The PowerEdge R740 system supports:

- Internal storage controller cards: PowerEdge RAID Controller (PERC) H330, PERC H730P, PERC H740P, HBA330, S140, Boot Optimized Server Storage (BOSS-S1), H750 (adapter only) , H350 and HBA350i (adapter only).

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

- External storage controller cards: PERC H840, 12Gbps SAS HBA, and HBA355e.

**NOTE:** Mini-PERC socket is not hot pluggable.

**NOTE:** H750/H350 and HBA350i cards cannot be mixed with H730P, H740P, H330, and HBA330 cards.

# Drive specifications

## Drives

The PowerEdge R740 system supports SAS, SATA, Nearline SAS hard drives or SSDs.

**Table 7. Supported drive options for the PowerEdge R740 system**

| Drives                | Supported configuration                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------------------------------|
| Eight drives system   | Up to eight 3.5 inch or 2.5 inch (SAS, SATA or Nearline SAS) front accessible drives in slots 0 through 7 |
| Sixteen drives system | Up to sixteen 2.5 inch (SAS, SATA or SSD) front accessible drives in slots 0 through 15                   |

 **NOTE:** Hard drives are hot swappable.

## Optical drive

The PowerEdge R740 system supports one optional slim SATA DVD-ROM drive or DVD +/-RW drive.

# Ports and connectors specifications

## USB ports

The PowerEdge R740 system supports:

- Two USB 2.0-compliant ports on the front of the system
- One internal USB 3.0-compliant port
- One optional USB 3.0-compliant port on the front of the system
- One micro USB 2.0-compliant port in the front of the system for iDRAC Direct
- Two USB 3.0-compliant ports on the back of the system

## NIC ports

The PowerEdge R740 system supports up to four Network Interface Controller (NIC) ports that are integrated on the network daughter card (NDC), and are available in the following configurations:

- Four RJ-45 ports that support 10, 100 and 1000 Mbps
- Four RJ-45 ports that support 100 M, 1 G and 10 Gbps
- Four RJ-45 ports, where two ports support maximum of 10 G and the other two ports maximum of 1 G
- Two RJ-45 ports that support up to 1 Gbps and 2 SFP+ ports that support up to 10 Gbps
- Four SFP+ ports that support up to 10 Gbps
- Two SFP28 ports that support up to 25 Gbps

 **NOTE:** You can install up to eight PCIe add-on NIC cards.

 **NOTE:** NDC slot is not hot pluggable.

## VGA ports

The Video Graphic Array (VGA) port enables you to connect the system to a VGA display. The PowerEdge R740 system supports two 15-pin VGA ports on the front and back panels.

 **NOTE:** The VGA ports are not hot pluggable.

## Serial connector

The PowerEdge R740 system supports one serial connector on the back panel, which is a 9-pin connector, Data Terminal Equipment (DTE), 16550-compliant.

 **NOTE:** The Serial port is not hot pluggable.

## Internal Dual SD Module or vFlash card

The PowerEdge R740 system supports Internal Dual SD module (IDSDM) and vFlash card. In 14th 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 are 16/32/64 GB while for vFlash the microSD card capacity is 16 GB.

 **NOTE:** IDSDM and vFlash slot is not hot pluggable.

## Video specifications

The PowerEdge R740 system supports integrated Matrox G200eW3 graphics controller with 16 MB of video frame buffer.

**Table 8. Supported video resolution options**

| Resolution  | Refresh rate (Hz) | Color depth (bits) |
|-------------|-------------------|--------------------|
| 1024 x 768  | 60                | 8, 16, 32          |
| 1280 x 800  | 60                | 8, 16, 32          |
| 1280 x 1024 | 60                | 8, 16, 32          |
| 1360 x 768  | 60                | 8, 16, 32          |
| 1440 x 900  | 60                | 8, 16, 32          |
| 1600 x 900  | 60                | 8, 16, 32          |
| 1600 x 1200 | 60                | 8, 16, 32          |
| 1680 x 1050 | 60                | 8, 16, 32          |
| 1920 x 1080 | 60                | 8, 16, 32          |
| 1920 x 1200 | 60                | 8, 16, 32          |

 **NOTE:** 1920 x 1080 and 1920 x 1200 resolutions are only supported in reduced blanking mode.

## Environmental specifications

 **NOTE:** For additional information about environmental certifications, please refer to the Product Environmental Datasheet located with the Manuals & Documents on [www.dell.com/poweredgemanuals](http://www.dell.com/poweredgemanuals).

**Table 9. Temperature specifications**

| Temperature                                                    | Specifications                                                        |
|----------------------------------------------------------------|-----------------------------------------------------------------------|
| Storage                                                        | –40°C to 65°C (–40°F to 149°F)                                        |
| Continuous operation (for altitude less than 950 m or 3117 ft) | 10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment. |
| Maximum temperature gradient (operating and storage)           | 20°C/h (36°F/h)                                                       |

**Table 10. Relative humidity specifications**

| Relative humidity | Specifications                                                                                   |
|-------------------|--------------------------------------------------------------------------------------------------|
| Storage           | 5% to 95% RH with 33°C (91°F) maximum dew point. Atmosphere must be non-condensing at all times. |
| Operating         | 10% to 80% relative humidity with 29°C (84.2°F) maximum dew point.                               |

**Table 11. Maximum vibration specifications**

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

**Table 12. Maximum shock specifications**

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

**Table 13. Maximum altitude specifications**

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

**Table 14. Operating temperature de-rating specifications**

| Operating temperature de-rating | Specifications                                                                     |
|---------------------------------|------------------------------------------------------------------------------------|
| Up to 35°C (95°F)               | Maximum temperature is reduced by 1°C/300 m (1.8°F/547 ft) above 950 m (3,117 ft). |
| 35°C to 40°C (95°F to 104°F)    | Maximum temperature is reduced by 1°C/175 m (1.8°F/319 ft) above 950 m (3,117 ft). |
| 40°C to 45°C (104°F to 113°F)   | Maximum temperature is reduced by 1°C/125 m (1.8°F/228 ft) above 950 m (3,117 ft). |

## Standard operating temperature

Table 15. Standard operating temperature specifications

| Standard operating temperature                                 | Specifications                                                        |
|----------------------------------------------------------------|-----------------------------------------------------------------------|
| Continuous operation (for altitude less than 950 m or 3117 ft) | 10°C to 35°C (50°F to 95°F) with no direct sunlight on the equipment. |
| Humidity percentage range                                      | 10% to 80% Relative Humidity with 29°C (84.2°F) maximum dew point.    |

## Expanded operating temperature

Table 16. Expanded operating temperature specifications

| Expanded operating temperature  | Specifications                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ≤ 10% of annual operating hours | <p>5°C to 40°C at 5% to 85% RH with 29°C dew point.</p> <p><b>i</b> <b>NOTE:</b> Outside the standard operating temperature (10°C to 35°C), the system can operate down to 5°C or up to 40°C for a maximum of 10% of its annual operating hours.</p> <p>For temperatures between 35°C to 40°C, de-rate maximum allowable temperature by 1°C per 175 m above 950 m (1.8°F per 319 ft).</p>   |
| ≤ 1% of annual operating hours  | <p>–5°C to 45°C at 5% to 90% RH with 29°C dew point.</p> <p><b>i</b> <b>NOTE:</b> Outside the standard operating temperature (10°C to 35°C), the system can operate down to –5°C or up to 45°C for a maximum of 1% of its annual operating hours.</p> <p>For temperatures between 40°C and 45°C, de-rate maximum allowable temperature by 1°C per 125 m above 950 m (1.8°F per 228 ft).</p> |

**i** **NOTE:** When operating in the expanded temperature range, system performance may be impacted.

**i** **NOTE:** When operating in the expanded temperature range, ambient temperature warnings may be reported in the System Event Log.

## Expanded operating temperature restrictions

- 128 GB LRDIMM is not supported for FAC.
- Do not perform a cold startup below 5°C.
- The operating temperature specified is for a maximum altitude of 3050 m (10,000 ft).
- 150 W/8 core, 165 W/12 core and higher wattage processor [Thermal Design Power (TDP)>165 W] are not supported.
- Redundant power supply unit is required.
- Non-Dell qualified peripheral cards and/or peripheral cards greater than 25 W are not supported.
- PCIe SSD is not supported.
- NVDIMM-Ns are not supported.
- DCPMMs are not supported.
- GPU is not supported.
- Tape backup unit is not supported.

## Thermal restrictions

Following table lists the configuration required for efficient cooling.

**Table 17. Thermal restrictions configuration**

| Configuration           | Number of processors | Heatsink                                  | Processor/DIMM blank | DIMM blanks  | Type of air shroud | Fan                                                     |
|-------------------------|----------------------|-------------------------------------------|----------------------|--------------|--------------------|---------------------------------------------------------|
| PowerEdge R740          | 1                    | One 1U standard heat sink for CPU ≤ 125 W | Required             | Not required | Standard           | Four standard fans and one blank to cover two fan slots |
|                         |                      | One 2U standard heat sink for CPU > 125 W |                      |              |                    |                                                         |
| PowerEdge R740          | 2                    | Two 1U standard heat sink for CPU ≤ 125 W | Not required         | Not required | Standard           | Six standard fans                                       |
|                         |                      | Two 2U standard heat sink for CPU > 125 W |                      |              |                    |                                                         |
| PowerEdge R740 with GPU | 2                    | Two 1U high performance heat sink         | Not required         | Not required | GPU air shroud     | Six high performance fans                               |

## Ambient temperature limitations

The following table lists configurations that require ambient temperature less than 35°C.

**i** **NOTE:** The ambient temperature limit must be adhered to ensure proper cooling and to avoid excess CPU throttling, which may impact system performance.

**Table 18. Configuration based ambient temperature restrictions**

| System         | Front backplane        | Processor Thermal Design Power (TDP)      | Processor heat sink | Fan type             | GPU                          | Ambient restriction |
|----------------|------------------------|-------------------------------------------|---------------------|----------------------|------------------------------|---------------------|
| PowerEdge R740 | 8 x 3.5 inch SAS/SATA  | 150 W/8 core, 165 W/12 core, 200 W, 205 W | 1U high performance | High performance fan | ≥1 double-width/single-width | 30°C                |
|                | 8 x 2.5 inch SAS/SATA  | 150 W/8 core, 165 W/12 core, 200 W, 205 W | 1U high performance | High performance fan | ≥1 double-width/single-width | 30°C                |
|                | 16 x 2.5 inch SAS/SATA | 150 W/8 core, 165 W/12 core, 200 W, 205 W | 1U high performance | High performance fan | ≥1 double-width/single-width | 30°C                |

## Particulate and gaseous contamination specifications

The following table defines the limitations that help avoid any equipment damage or failure from particulate and gaseous contamination. If the levels of particulate or gaseous pollution exceed the specified limitations and result in equipment damage or failure, you may need to rectify the environmental conditions. Remediation of environmental conditions is the responsibility of the customer.

**Table 19. Particulate contamination specifications**

| Particulate contamination | Specifications                                                                                          |
|---------------------------|---------------------------------------------------------------------------------------------------------|
| Air filtration            | Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit. |

**Table 19. Particulate contamination specifications (continued)**

| Particulate contamination | Specifications                                                                                                                                                                                                                                                                                                                                    |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | <p>① <b>NOTE:</b> The ISO Class 8 condition applies to data center environments only. This air filtration requirement does not apply to IT equipment designed to be used outside a data center, in environments such as an office or factory floor.</p> <p>① <b>NOTE:</b> Air entering the data center must have MERV11 or MERV13 filtration.</p> |
| Conductive dust           | <p>Air must be free of conductive dust, zinc whiskers, or other conductive particles.</p> <p>① <b>NOTE:</b> This condition applies to data center and non-data center environments.</p>                                                                                                                                                           |
| Corrosive dust            | <ul style="list-style-type: none"> <li>• Air must be free of corrosive dust.</li> <li>• Residual dust present in the air must have a deliquescent point less than 60% relative humidity.</li> </ul> <p>① <b>NOTE:</b> This condition applies to data center and non-data center environments.</p>                                                 |

**Table 20. Gaseous contamination specifications**

| Gaseous contamination        | Specifications                                              |
|------------------------------|-------------------------------------------------------------|
| Copper coupon corrosion rate | <300 Å/month per Class G1 as defined by ANSI/ISA71.04-2013. |
| Silver coupon corrosion rate | <200 Å/month as defined by ANSI/ISA71.04-2013.              |

① **NOTE:** Maximum corrosive contaminant levels measured at ≤50% relative humidity.