

# Dell EMC PowerEdge R750xa

## 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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# Chassis dimensions

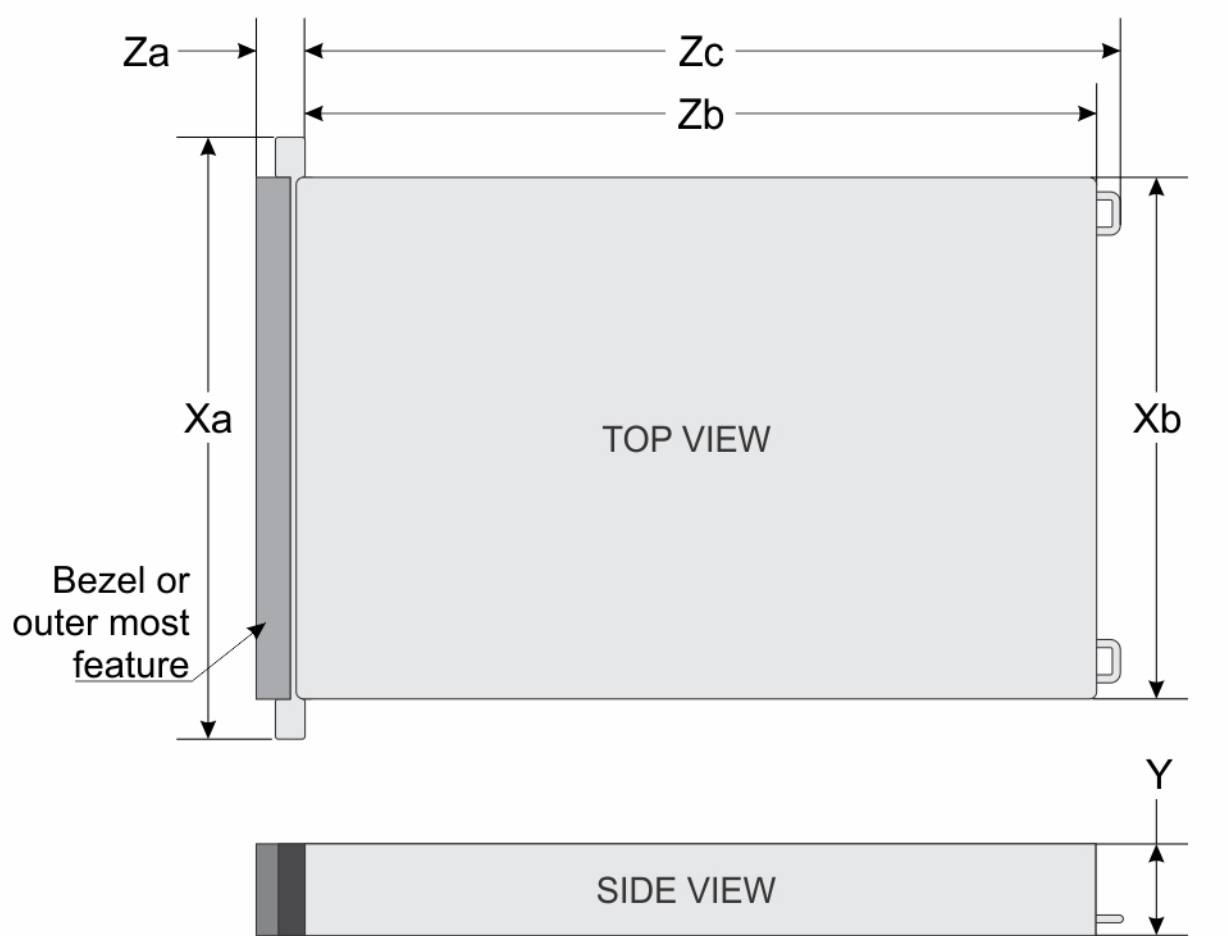


Figure 1. Chassis dimensions

Table 1. Chassis dimension for the system

| Drives        | Xa                         | Xb                     | Y                     | Za                                                                       | Zb                                          | Zc                                           |
|---------------|----------------------------|------------------------|-----------------------|--------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------|
| 6 or 8 drives | 482.0 mm<br>(18.97 inches) | 434.0 mm (17.0 inches) | 86.8 mm (3.41 inches) | 35.84 mm (1.41 inches) with bezel<br>22.0 mm (0.86 inches) without bezel | 837.2 mm (32.96 inches)<br>Ear to rear wall | 872.8 mm (34.36 inches)<br>Ear to PSU handle |

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

# Chassis weight

Table 2. Chassis weight

| System configuration                                              | Maximum weight (with all drives/SSDs) |
|-------------------------------------------------------------------|---------------------------------------|
| 6 x 2.5-inch + 4 x DW-FL cards (front) + 2 x LP PCIe cards (rear) | 29 kg (63.94 lb)                      |
| 8 x 2.5-inch + 4 x DW-FL cards (front) + 4 x PCIe cards (rear)    | 34.9 kg (76.94 lb)                    |

# Processor specifications

**Table 3. Dell EMC PowerEdge R750xa processor specifications**

| Supported processor                                                           | Number of processors supported |
|-------------------------------------------------------------------------------|--------------------------------|
| 3 <sup>rd</sup> Generation Intel Xeon Scalable processors with up to 40 cores | two                            |

# PSU specifications

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

**⚠ WARNING: Instructions for the qualified electricians only:**

**System using -(48-60) V DC or 240 V DC power supplies are intended for restricted access locations in accordance with Articles 110-5, 110-6, 110-11, 110-14, and 110-17 of the National Electrical Code, American National Standards Institute (ANSI)/National Fire Protection Association (NFPA) 70.**

**240 V DC power supplies shall be connected to the 240 V DC outlet from certified power distribution units if applicable in country or region of use.**

**Power supply cords/jumper cords and the associated plugs/inlets/connectors shall have appropriate electrical ratings referencing the rating label on the system when used for connection.**

**Table 4. PSU specifications for the system**

| PSU                                     | Class    | Heat dissipation (maximum) | Frequency | Voltage     | Peak power        | N/A               | N/A               | Peak power       | N/A              | Current     |
|-----------------------------------------|----------|----------------------------|-----------|-------------|-------------------|-------------------|-------------------|------------------|------------------|-------------|
|                                         |          |                            |           |             | High line/-72 VDC | High line/-72 VDC | High line 240 VDC | Low line/-40 VDC | Low line/-40 VDC |             |
| 1400 W AC                               | Platinum | 5459 BTU/hr                | 50/60 Hz  | 100 - 240 V | 2380 W            | 1400 W            | 1400 W            | 1785 W           | 1050 W           | 12 - 8 A    |
| 1400 W Mixed Mode HVDC (for China only) | N/A      | 5459 BTU/hr                | N/A       | 240 V       | 2380 W            | 1400 W            | 1400 W            | 1785 W           | 1050 W           | 6.6 A       |
| 2400 W AC                               | Platinum | 9213 BTU/hr                | 50/60 Hz  | 100 - 240 V | 4080 W            | 2400 W            | 2400 W            | 2380 W           | 1400 W           | 16 - 13.5 A |
| 2400 W Mixed Mode HVDC (for China only) | N/A      | 9213 BTU/hr                | N/A       | 240 V       | 2380 W            | 1400 W            | 1400 W            | 1785 W           | 1050 W           | 11.2 A      |

**NOTE:** When selecting or upgrading the system configuration, to ensure optimum power utilization, verify the system power consumption with the Dell Energy Smart Solution Advisor available at [Dell.com/ESSA](https://www.dell.com/ESSA).

# Supported operating systems

The PowerEdge R750xa system supports the following operating systems:

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

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

## Cooling fan specifications

### Cooling options

The Dell EMC PowerEdge R750xa requires various cooling components based on processor TDP, storage modules, graphical processing unit (GPU), persistent memory to maintain optimum thermal performance.

The Dell EMC PowerEdge R750xa offers two types of cooling options:

- Air cooling
- Processor liquid cooling (optional)

### Cooling fan specifications

The Dell EMC PowerEdge R750xa system supports up to six cooling fans.

**Table 5. Cooling fan specifications**

| Fan type   | Abbreviation | Also known as         | Label color | Label image                                                                                                                 |
|------------|--------------|-----------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------|
| System fan | Fan          | 60 x 76 mm system fan | NA          |  <p>Figure 2. 60 x 76 mm system fan</p> |

## System battery specifications

The PowerEdge R750xa system supports CR 2032 3.0-V lithium coin cell system battery.

## Expansion card riser specifications

The Dell EMC PowerEdge R750xa system supports up to four full height, or eight low profile riser slots with PCI express (PCIe) Gen 4 expansion cards.

**Table 6. Expansion card slots supported on the system board**

| PCIe slot | With GPGPU shroud                                                                 | GPU riser module right with R1 paddle card | R2a (Riser 2) | R3b (Riser 3) | GPU riser module left with R4 paddle card |
|-----------|-----------------------------------------------------------------------------------|--------------------------------------------|---------------|---------------|-------------------------------------------|
| Slot 3    | Low profile- Half length                                                          | -                                          | x16           | -             | -                                         |
| Slot 4    | Full height- Half length                                                          | -                                          | -             | x8            | -                                         |
| Slot 5    | Full height- Half length                                                          | -                                          | -             | x8            | -                                         |
| Slot 6    | Low profile- Half length                                                          | -                                          | x16           | -             | -                                         |
| Slot 31   | Single width/<br>Dual width-<br>Full height-Full length(with Dell custom bracket) | -                                          | -             | -             | x16                                       |
| Slot 32   | Single width/<br>Dual width-<br>Full height-Full length(with Dell custom bracket) | -                                          | -             | -             | x16                                       |
| Slot 33   | Single width/<br>Dual width-<br>Full height-Full length(with Dell custom bracket) | x16                                        | -             | -             | -                                         |
| Slot 34   | Single width/<br>Dual width-<br>Full height-Full length(with Dell custom bracket) | x16                                        | -             | -             | -                                         |

## Memory specifications

The system Dell EMC PowerEdge R750xa supports the following memory specifications for optimized operation.

**Table 7. Memory specifications**

| DIMM type | DIMM rank   | DIMM capacity | Single processor |             | Dual processor |             |
|-----------|-------------|---------------|------------------|-------------|----------------|-------------|
|           |             |               | Minimum RAM      | Maximum RAM | Minimum RAM    | Maximum RAM |
| RDIMM     | Single rank | 8 GB          | 8 GB             | 128 GB      | 16 GB          | 256 GB      |
|           | Dual rank   | 16 GB         | 16 GB            | 256 GB      | 32 GB          | 512 GB      |
|           |             | 32 GB         | 32 GB            | 512 GB      | 64 GB          | 1 TB        |
|           |             | 64 GB         | 64 GB            | 1 TB        | 128 GB         | 2 TB        |
| LRDIMM    | Quad rank   | 128 GB        | 128 GB           | 2 TB        | 256 GB         | 4 TB        |

**Table 7. Memory specifications (continued)**

| DIMM type                                | DIMM rank | DIMM capacity | Single processor |             | Dual processor |             |
|------------------------------------------|-----------|---------------|------------------|-------------|----------------|-------------|
|                                          |           |               | Minimum RAM      | Maximum RAM | Minimum RAM    | Maximum RAM |
| Intel Persistent Memory 200 series (BPS) | Dual rank | 128 GB        | 128 GB           | 1 TB        | 256 GB         | 2 TB        |
|                                          |           | 256 GB        | 256 GB           | 2 TB        | 512 GB         | 4 TB        |
|                                          |           | 512 GB        | 512 GB           | 4 TB        | 1 TB           | 8 TB        |

**NOTE:** 8 GB RDIMM is not supported with Intel Persistent Memory 200 series (BPS) .

**Table 8. Memory module sockets**

| Memory module sockets | Speed     |
|-----------------------|-----------|
| 32, 288-pin           | 3200 MT/s |

## Storage controller specifications

The Dell EMC PowerEdge R750xa system supports the following controller cards:

**Table 9. Storage controller cards for the system**

| Internal controllers                                                                                                                                                                                                                                                                                                                                                          | External controllers                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• S150</li> <li>• PERC H745</li> <li>• PERC H755</li> <li>• PERC H755N</li> <li>• PERC H345</li> <li>• PERC H355</li> <li>• HBA355i</li> <li>• Boot Optimized Storage Subsystem (BOSS-S2): HWRAID 2 x M.2 SSDs 240 GB or 480 GB</li> <li>• Boot Optimized Storage Subsystem (BOSS-S1): HWRAID 2 x M.2 SSDs 240 GB or 480 GB</li> </ul> | <ul style="list-style-type: none"> <li>• PERC H840</li> <li>• HBA355E</li> </ul> |

**NOTE:** The software RAID S150 is supported on either SATA drives with chipset SATA only backplane or NVMe drives in universal slots with processor direct PCIe cable connected backplane.

## Drive specifications

### Drives

The Dell EMC PowerEdge R750xa system supports :

- 8 x 2.5-inch hot-swappable SAS, SATA drives, or NVMe drives.
- 6 x 2.5-inch hot-swappable NVMe drives.

**NOTE:** For more information about how to hot swap NVMe PCIe SSD U.2 device, see the *Dell Express Flash NVMe PCIe SSD User's Guide* at <https://www.dell.com/support> **Browse all Products > Data Center Infrastructure > Storage Adapters & Controllers > Dell PowerEdge Express Flash NVMe PCIe SSD > Documentation > Manuals and Documents.**

# Ports and connectors specifications

## USB ports specifications

Table 10. USB specifications

| Front                       |              | Rear                    |              | Internal (Optional)             |              |
|-----------------------------|--------------|-------------------------|--------------|---------------------------------|--------------|
| USB port type               | No. of ports | USB port type           | No. of ports | USB port type                   | No. of ports |
| USB 2.0-compliant port      | One          | USB 2.0-compliant port  | One          | Internal USB 3.0-compliant port | One          |
| Micro-USB 2.0, iDRAC Direct | One          | USB 3.0-compliant ports | One          |                                 |              |

- NOTE:** The micro USB 2.0 compliant port can only be used as an iDRAC Direct or a management port.
- NOTE:** The USB 2.0 specifications provide a 5 V supply on a single wire to power connected USB devices. A unit load is defined as 100 mA in USB 2.0, and 150 mA in USB 3.0. A device may draw a maximum of 5 unit loads (500 mA) from a port in USB 2.0; 6 (900 mA) in USB 3.0.
- NOTE:** The USB 2.0 interface can provide power to low-power peripherals but must adhere to USB specification. An external power source is required for higher-power peripherals to function, such as external CD/DVD Drives.

## NIC port specifications

The Dell EMC PowerEdge R750xa system supports up to two Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM) and integrated on the optional OCP cards.

Table 11. NIC port specification for the system

| Feature            | Specifications                                            |
|--------------------|-----------------------------------------------------------|
| LOM card           | 1 GbE x 2                                                 |
| OCP card (OCP 3.0) | 1 GbE x 4, 10 GbE x 2, 10 GbE x 4, 25 GbE x 2, 25 GbE x 4 |

## Serial connector specifications

The Dell EMC PowerEdge R750xa system supports one optional card type serial connector, which is a 9-pin connector, Data Terminal Equipment (DTE), 16550-compliant .

The optional serial connector card is installed similar to an expansion card filler bracket.

## VGA ports specifications

The Dell EMC PowerEdge R750xa system supports One DB-15 VGA port one each on the front and back (optional for liquid cooling) panels.

## IDSDM (optional)

The Dell EMC PowerEdge R750xa system supports Internal Dual SD module (IDSDM).

The IDSDM supports two SD cards and is available in the following configurations:

**Table 12. Supported SD card storage capacity**

| IDSDM card                                                                            |
|---------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>16 GB</li> <li>32 GB</li> <li>64 GB</li> </ul> |

 **NOTE:** One IDSMD card slot is dedicated for redundancy.

 **NOTE:** Use Dell EMC branded SD cards that are associated with the IDSMD configured systems.

## Video specifications

The Dell EMC PowerEdge R750xa system supports integrated Matrox G200 graphics controller with 16 MB of video frame buffer.

**Table 13. Supported resolution options for the system**

| 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          |

## Environmental specifications

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

**Table 14. Operational climatic range category A2**

| Temperature                                           | Specifications                                                                    |
|-------------------------------------------------------|-----------------------------------------------------------------------------------|
| Allowable continuous operations                       |                                                                                   |
| Temperature ranges for altitudes <900 m (<2953 ft)    | 10–35°C (50–95°F) with no direct sunlight on the equipment                        |
| Humidity percent ranges (non-condensing at all times) | 8% RH with -12°C minimum dew point to 80% RH with 21°C (69.8°F) maximum dew point |
| Operational altitude de-rating                        | Maximum temperature is reduced by 1°C/300 m (33.8°F/984 Ft) above 900 m (2953 Ft) |

**Table 15. Operational climatic range category A3**

| Temperature                     | Specifications |
|---------------------------------|----------------|
| Allowable continuous operations |                |

**Table 15. Operational climatic range category A3 (continued)**

| Temperature                                           | Specifications                                                                    |
|-------------------------------------------------------|-----------------------------------------------------------------------------------|
| Temperature ranges for altitudes < 900 m (< 2953 ft)  | 5–40°C (41–104°F) with no direct sunlight on the equipment                        |
| Humidity percent ranges (non-condensing at all times) | 8% RH with -12°C minimum dew point to 85% RH with 24°C (75.2°F) maximum dew point |
| Operational altitude de-rating                        | Maximum temperature is reduced by 1°C/175 m (33.8°F/574 Ft) above 900 m (2953 Ft) |

**Table 16. Operational climatic range category A4**

| Temperature                                           | Specifications                                                                    |
|-------------------------------------------------------|-----------------------------------------------------------------------------------|
| Allowable continuous operations                       |                                                                                   |
| Temperature ranges for altitudes < 900 m (< 2953 ft)  | 5–45°C (41–113°F) with no direct sunlight on the equipment                        |
| Humidity percent ranges (non-condensing at all times) | 8% RH with -12°C minimum dew point to 90% RH with 24°C (75.2°F) maximum dew point |
| Operational altitude de-rating                        | Maximum temperature is reduced by 1°C/125 m (33.8°F/410 Ft) above 900 m (2953 Ft) |

**Table 17. Shared requirements across all categories**

| Temperature                                                                | Specifications                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Allowable continuous operations                                            |                                                                                                                                                                                                                                                                |
| Maximum temperature gradient (applies to both operation and non-operation) | 20°C in an hour* (36°F in an hour) and 5°C in 15 minutes (9°F in 15 minutes), 5°C in an hour* (9°F in an hour) for tape<br><i>i</i> <b>NOTE:</b> * - Per ASHRAE thermal guidelines for tape hardware, these are not instantaneous rates of temperature change. |
| Non-operational temperature limits                                         | -40 to 65°C (-104 to 149°F)                                                                                                                                                                                                                                    |
| Non-operational humidity limits                                            | 5% to 95% RH with 27°C (80.6°F) maximum dew point                                                                                                                                                                                                              |
| Maximum non-operational altitude                                           | 12,000 meters (39,370 feet)                                                                                                                                                                                                                                    |
| Maximum operational altitude                                               | 3,048 meters (10,000 feet)                                                                                                                                                                                                                                     |

**Table 18. Maximum vibration specifications**

| Maximum vibration | Specifications                                                                      |
|-------------------|-------------------------------------------------------------------------------------|
| Operating         | 0.21 G <sub>rms</sub> at 5 Hz to 500 Hz for 10 minutes (all operation orientations) |
| Storage           | 1.88 G <sub>rms</sub> at 10 Hz to 500 Hz for 15 minutes (all six sides tested)      |

**Table 19. Maximum shock pulse specifications**

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

## Thermal restriction matrix

**Table 20. Label reference**

| Label | Description                              |
|-------|------------------------------------------|
| STD   | Standard                                 |
| HPR   | High performance                         |
| HSK   | Heat sink                                |
| LP    | Low profile                              |
| FH    | Full height                              |
| DW    | Double Wide (Xilinx FPGA accelerator)    |
| BPS   | Intel Persistent Memory 200 series (BPS) |

**Table 21. Processor and heat sink matrix**

| Heat sink  | Processor TDP         |
|------------|-----------------------|
| 2U HPR HSK | For all processor TDP |

**Table 22. Thermal restriction matrix**

| Configuration    |       | Minimum                                 | Typical      | Maximum      | Ambient temperature |
|------------------|-------|-----------------------------------------|--------------|--------------|---------------------|
| Front GPU TDP    |       | 70 W SW x 4                             | 250 W DW x 4 | 300 W DW x 4 |                     |
| Front drives     |       | x1 SAS/SATA                             | x8 SAS/SATA  | x8 NVMe      |                     |
| CPU TDP/<br>cTDP | 105 W | System Fan (60 x 76 mm) with 2U HPR HSK |              |              | 35°C                |
|                  | 120 W |                                         |              |              |                     |
|                  | 135 W |                                         |              |              |                     |
|                  | 150 W |                                         |              |              |                     |
|                  | 165 W |                                         |              |              |                     |
|                  | 185 W |                                         |              |              |                     |
|                  | 205 W |                                         |              |              |                     |
|                  | 220 W |                                         |              |              |                     |
|                  | 230 W |                                         |              |              |                     |
|                  | 240 W |                                         |              |              |                     |
|                  | 250 W |                                         |              |              |                     |
|                  | 265 W |                                         |              |              |                     |
|                  | 270 W |                                         |              |              |                     |

**NOTE:** Six System fans (60 x 76 mm) are required for all the configurations.

**NOTE:** T4 GPU card is supported on riser 2 (R2a slot 3/6) with maximum power loading.

**NOTE:** Xeon(R) 8368Q supports only processor liquid cooling.

**NOTE:** Only ASHRAE A2 category ambient temperature is supported.

**NOTE:** For all memory configuration only System fan (60 x 76 mm) with 2U HPR HSK is used.

**NOTE:** BPS DIMMs supported only at 30°C ambient temperature.

 **NOTE:** 128 GB LRDIMM, 64 GB RDIMM, 32 GB RDIMM, 16 GB RDIMM and 8 GB RDIMM supports at 35°C ambient temperature.

## 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 23. Particulate contamination specifications**

| Particulate contamination | Specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Air filtration            | <p>Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit.</p> <p> <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> <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> <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> <b>NOTE:</b> This condition applies to data center and non-data center environments.</p>                                                                                                                                                                                                                                                 |

**Table 24. 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.              |