# Dell EMC PowerEdge R7525

## Technical Specifications

Regulatory Model: E68S
Regulatory Type: E68S001
August 2025
Rev. A10

## 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.**

# Contents

# 1

# Technical specifications

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

**Topics:**

# Chassis dimensions

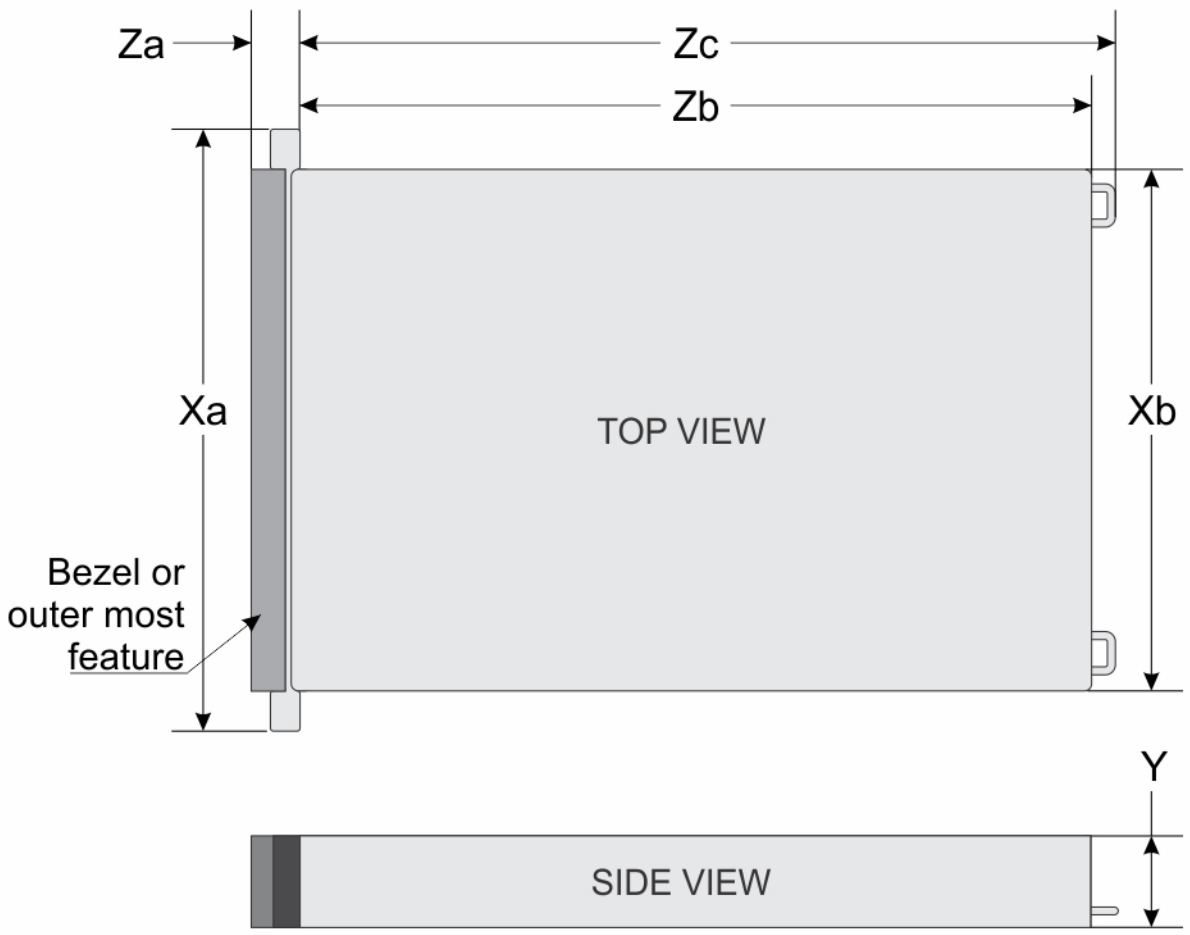


**Figure 1. Chassis dimensions**

**Table 1. PowerEdge R7525**

| Drives | Xa | Xb | Y | Za | Zb | Zc |
|---|---|---|---|---|---|---|
| 12 drives | 482.0 mm (18.97 inches) | 434.0 mm (17.08 inches) | 86.8 mm (3.41 inches) | With bezel: 35.84 mm (1.4 inches) Without bezel: 22.0 mm (0.87 inches) | 700.7 mm (27.58 inches) (Ear to rear wall) | 736.29 mm (28.98 inches) (Ear to PSU handle) |
| 24 drives | 482.0 mm (18.97 inches) | 434.0 mm (17.08 inches) | 86.8 mm (3.41 inches) | With bezel: 35.84 mm (1.4 inches) Without bezel: 22.0 mm (0.87 inches) | 700.7 mm (27.58 inches) (Ear to rear wall) | 736.29 mm (28.98 inches) (Ear to PSU handle) |

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

# Chassis weight

### Table 2. PowerEdge R7525

| System configuration | Maximum weight (with all drives/SSDs) |
|---|---|
| 12 x 3.5-inch | 36.3 kg (80.02 lb) |
| 8 x 3.5-inch | 33.2 kg (73.19 lb) |
| 24 x 2.5-inch | 28.6 kg (63.05 lb) |
| 16 x 2.5-inch | 26.6 kg (58.64 lb) |
| 8 x 2.5-inch | 24.6 kg (54.23 lb) |

# Processor specifications

### Table 3. PowerEdge R7525 processor specifications

| Supported processor | Number of processors supported |
|---|---|
| AMD EPYC 7002 or 7003 series processor | Two |

# PSU specifications

The PowerEdge R7525 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 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. PowerEdge R7525 PSU specifications

| PSU | Class (AC only) | Heat dissipation (maximum) | Frequency | Voltage | Current |
|---|---|---|---|---|---|
| 800 W Mixed Mode | Platinum | 3000 BTU/hr | 50/60 Hz | 100 -240 V AC | 9.2 - 4.7 A |
| | N/A | | DC | 240 V DC | 3.8 A |
| 1100 W Mixed Mode | Titanium | 4100 BTU/hr | 50/60 Hz | 100–240 V AC | 12 A-6.3 A (X2) |
| | N/A | | DC | 240 V DC | 5.2 A DC |
| 1100 W (-48Vdc) | N/A | 4265 BTU/hr | DC | (-48)-(-60) V DC | 27 A |
| 1400 W Mixed Mode | Platinum | 5250 BTU/hr | 50/60 Hz | 100 - 240 V AC | 12 - 8 A AC |
| | N/A | | DC | 240 V DC | 6.6 A DC |
| 2400W Mixed Mode | Platinum | 9000 BTU/hr | 50/60 Hz | 100 - 240 V AC | 13.5 - 11 A AC |
| | N/A | | DC | 240 V DC | 11.2 A DC |

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

**NOTE:** : If a system with AC 2400 W PSU operate at low line 100-120 V AC, then the power rating per PSU is derated to 1400 W.

**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**.

# Supported operating systems

The PowerEdge R7525 supports the following operating systems:

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

For more information, see www.dell.com/ossupport.

# Cooling fan specifications

The PowerEdge R7525 system supports up to six (STD), high performance silver grade (HPR (Silver)), or high performance gold grade (HPR (Gold)) cooling fans.

**Table 5. Cooling fan specifications**

| Fan type | Abbreviation | Also known as | Label color | Label image |
|---|---|---|---|---|
| **Standard fan** | STD | STD | No label |   |
| **High-performance fan (Silver grade) fan** | HPR (Silver) | HPR | Silver | **NOTE:** New cooling fans comes with the High Performance Silver Grade label. While the older cooling fans has the High Performance label. |

**Table 5. Cooling fan specifications (continued)**

| Fan type | Abbreviation | Also known as | Label color | Label image |
|---|---|---|---|---|
| | | | |  <br>**Figure 2. High performance fan**<br>  <br>**Figure 3. High performance (Silver grade) fan** |
| **High-performance fan (Gold grade) fan** | HPR (Gold) | VHP - Very High Performance | Gold | **NOTE:** New cooling fans comes with the High Performance Gold Grade label. While the older cooling fans has the High Performance label.<br>  <br>**Figure 4. Very high performance fan** |

**Table 5. Cooling fan specifications (continued)**

| Fan type | Abbreviation | Also known as | Label color | Label image |
|---|---|---|---|---|
| | | | |  **Figure 5. High performance (Gold grade) fan** |

**NOTE:** Mixing of STD, HPR (Silver), or HPR (Gold) fan is not supported.

**NOTE:** The STD, HPR (Silver), or HPR (Gold) fan installation depends on the system configuration. For more information about the supported fan configuration or matrix, see Thermal restriction matrix.

# System battery specifications

The PowerEdge R7525 system supports CR 2032 3.0-V lithium coin cell system battery.

# Expansion card riser specifications

**WARNING: Consumer-Grade GPU should not be installed or used in the Enterprise Server products.**

The PowerEdge R7525 system supports up to eight PCI express (PCIe) Gen 4 expansion cards.

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

| PCIe slot | With Regular shroud | PCIe slot length | R1a | R1b | R1c | R2a | R3a | R3b | R4a | R4b | R4c |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Slot 1 | Low profile and Full Height-Half Length | Low profile and Full Height-Half Length | | x8 | x16 | | | | | | |
| Slot 2 | Low profile and Full Height-Half Length | Full Height-3/4 and Full Length | x16(GPU) | x8 | x16 | | | | | | |
| Slot 3 | Low profile- | | | | | x16 | | | | | |

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

| PCIe slot | With Regular shroud | PCIe slot length | R1a | R1b | R1c | R2a | R3a | R3b | R4a | R4b | R4c |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Half Length | | | | | | | | | | |
| Slot 4 | Low profile and Full Height-Half Length | | | | | | | x8 | | | |
| Slot 5 | Low profile and Full Height-Half Length | Full Height-3/4 and Full Length | | | | | x16(GPU) | x8 | | | |
| Slot 6 | Low profile-Half Length | | | | | x16 | | | | | |
| Slot 7 | Low profile and Full Height-Half Length | Full Height-3/4 and Full Length | | | | | | | x16(GPU) | x8 | x16 |
| Slot 8 | Low profile and Full Height-Half Length | Low profile and Full Height-Half Length | | | | | | | | x8 | x16 |

# Memory specifications

The PowerEdge R7525 system supports the following memory specifications for optimized operation.

**Table 7. Memory specifications**

| DIMM type | Rank | Capacity | DIMM rated voltage and speed | Operating Speed on AMD EPYC™ processor | |
|---|---|---|---|---|---|
| | | | | 1 DIMM per channel (1DPC) | 2 DIMMs per channel (2DPC) |
| RDIMM | 1R | 8 GB | DDR4 (1.2V), 3200 MT/s | 3200 MT/s | 2933 MT/s |
| | 2R | 16 GB, 32 GB, 64 GB | DDR4 (1.2V), 3200 MT/s | 3200 MT/s | 2933 MT/s |
| LRDIMM | 4 R | 128 GB | DDR4 (1.2 V), 3200 MT/s | 3200 MT/s | 2933 MT/s |
| | 8R | 128 GB | DDR4 (1.2V), 2666 MT/s | 2666 MT/s | 2666 MT/s |
| | 8R | 128 GB | DDR4 (1.2V), 3200 MT/s | 3200 MT/s | 2933 MT/s |

**NOTE:** The older 32 GB capacity RDIMM memory with x4 data width and 8Gb DRAM density cannot be mixed with the newer 32GB capacity RDIMM memory with x8 data width and 16Gb DRAM density in the same AMD EPYC™ processor unit.

**NOTE:** The older 128 GB capacity LRDIMM memory at 2666 MT/s speed cannot be mixed with the new 128 GB capacity LRDIMM memory at 3200 MT/s speed.

### Table 8. Memory module sockets

| Memory module sockets | Speed |
|---|---|
| 32, 288-pin | 3200 MT/s, 2933 MT/s, 2666 MT/s |

# Storage controller specifications

The PowerEdge R7525 system supports the following controller cards:

### Table 9. PowerEdge R7525 system controller cards

| Internal controllers | External controllers |
|---|---|
| • PERC H755<br>• PERC H755N<br>• PERC H745<br>• PERC H345<br>• HBA345<br>• HBA355<br>• S150<br>• Boot Optimized Storage Subsystem (BOSS-S1): HWRAID 2 x M.2 SSDs<br>• Boot Optimized Storage Subsystem (BOSS-S2): HWRAID 2 x M.2 SSDs | • 12Gbps SAS Ext. HBA<br>• PERC H840<br>• HBA355E |

### Table 10. PowerEdge R7525 Front PERC and Adapter PERC support on back planes

| Front PERC | Adapter PERC |
|---|---|
| 8 x 3.5 inches SAS/SATA | 12 x 3.5 inches SAS/SATA |
| 16 x 2.5 inches SAS/SATA | 12 x 3.5 inches + Rear 2 x 2.5 inches |
| 24 x 2.5 inches (16 SAS/SATA X 2.5 inches + 8 X 2.5 inches NVME) | 12 x 3.5 inches + Rear 2 x 2.5 inches NVME |
| 8 x 2.5 inches NVMe | 16 x 2.5 inches SAS/SATA |

# Drive specifications

## Drives

The PowerEdge R7525 system supports:

- 8 x 3.5-inch hot-swappable SAS, SATA drives.
- 8 x 2.5 inch NVMe drives.
- 12 x 3.5-inch hot-swappable SAS, SATA drives.
- 16 x 2.5-inch hot-swappable SAS, SATA drives.
- 24 x 2.5-inch hot-swappable SAS, SATA , or NVMe drives.

Backplane

- Up to 8 x 3.5-inch SAS, SATA drives.
- Up to 8 x 2.5 inch NVMe drives.
- Up to 12 x 3.5-inch SAS, SATA drives.
- Up to 16 x 2.5-inch SAS, SATA drives.
- Up to 24 x 2.5-inch NVMe drives.

- Up to 2 x 2.5-inch rear SAS, SATA, or 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 11. PowerEdge R7525 system 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 3.0-compliant ports | One | Internal USB 3.0-compliant port | One |
| Micro-USB 2.0 compliant port | One | USB 2.0-compliant ports | One | | |

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

**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 PowerEdge R7525 system supports up to two 10/100/1000 Mbps Network Interface Controller (NIC) ports embedded on the LAN on Motherboard (LOM) and integrated on the optional OCP cards.

### Table 12. NIC port specification

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

## Serial connector specifications

The PowerEdge R7525 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 PowerEdge R7525 system supports two DB-15 VGA port one each on the front and back panels.

## IDSDM

The PowerEdge R7525 system supports Internal Dual SD module (IDSDM).

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

### Table 13. Supported SD card storage capacity

| IDSDM card |
| --- |
| • 16 GB<br>• 32 GB<br>• 64 GB |

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

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

# Video specifications

The PowerEdge R7525 system supports integrated Matrox G200 graphics controller with 16 MB of video frame buffer.

### Table 14. Supported front video resolution options

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

### Table 15. Supported rear video resolution options

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

# 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.

### Table 16. 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 17. Operational climatic range category A3

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

### Table 18. 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 19. 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 (41°F in 15 minutes), 5°C in an hour* (41°F in an hour) for tape<br>**NOTE:** * - Per ASHRAE thermal guidelines for tape hardware, these are not instantaneous rates of temperature change. |
| Non-operational temperature limits | -40 to 65°C (-104 to 149°F) |
| Non-operational humidity limits | 5% to 95% RH with 27°C (80.6°F) maximum dew point |
| Maximum non-operational altitude | 12,000 meters (39,370 feet) |
| Maximum operational altitude | 3,048 meters (10,000 feet) |

### Table 20. Maximum vibration specifications

| Maximum vibration | Specifications |
|---|---|
| Operating | 0.26 $G_{rms}$ at 5 Hz to 350 Hz (all operation orientations) |
| Storage | 1.88 $G_{rms}$ at 10 Hz to 500 Hz for 15 minutes (all six sides tested) |

**Table 21. 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 air restrictions

## Fresh air environment

- Two PSUs are required in redundant mode, however single PSU failure is not supported.
- NVMe drive is not supported.
- 128 GB or greater capacity DIMMs are not supported.
- Both SW and DW GPGPU/FPGA are not supported.
- CPU TDP equal or greater than 180 W are not supported.
- Rear drives are not supported.
- PCIe card TDP more than 25 W is not supported

## ASHRAE A3 environment

- Two PSUs are required in redundant mode, however single PSU failure is not supported.
- NVMe drive is not supported.
- 128 GB or greater capacity DIMMs are not supported.
- Both SW and DW GPGPU/FPGA are not supported.
- CPU TDP equal or greater than 180 W are not supported.
- Rear drives are not supported.
- PCIe card TDP more than 25 W is not supported.

## ASHRAE A4 environment

- Two PSUs are required in redundant mode, however single PSU failure is not supported.
- NVMe drive is not supported.
- 128 GB or greater capacity DIMMs are not supported.
- CPU TDP equal or greater than 155 W are not supported (Only 120 W processor supports A4).
- Rear drives are not supported.
- 12 x 3.5-inch chassis is not supported.
- BOSS and OCP are not supported.
- PCIe card TDP more than 25 W is not supported.

## Liquid cooling: Fresh air environment

- Two PSUs are required in redundant mode. Single PSU failure is not supported.
- NVMe drive is not supported.
- 256 GB and higher capacity DIMM is not supported.
- Both SW and DW GPGPU/FPGA are not supported.
- Rear drive configuration is not supported.
- PCIe card TDP more than 25 W is not supported.

## Liquid cooling: ASHRAE A3 environment

- Two PSUs are required in redundant mode, however single PSU failure is not supported.

- NVMe drive is not supported.
- 256 GB and higher capacity DIMM is not supported.
- Both SW and DW GPGPU/FPGA are not supported.
- Rear drive configuration is not supported.
- PCIe card TDP more than 25 W is not supported.

## Liquid cooling: ASHRAE A4 environment

- Two PSUs are required in redundant mode, however single PSU failure is not supported.
- NVMe drive is not supported.
- 256 GB and higher capacity DIMM is not supported.
- Both SW and DW GPGPU/FPGA are not supported.
- Rear drive configuration is not supported.
- PCIe card TDP more than 25 W is not supported.

# Thermal restriction matrix

**Table 22. Thermal restriction matrix**

| Configuration | | 8 x 2.5-inch NVMe | 16 x 2.5-inch SAS | 16 x 2.5-inch NVMe | 24 x 2.5-inch SAS | | | 16 x 2.5-inch SAS + 8 x 2.5-inch NVMe | 24 x 2.5-inch NVMe | 8 x 3.5-inch | 12 x 3.5-inch | | | Ambient temperature |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rear storage | | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x Rear 2.5-inch No Rear Fan | 4 x Rear 2.5-inch with Rear Fan | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x Rear 2.5-inch No Rear Fan | 4 x Rear 2.5-inch with Rear Fan | |
| CPU TDP/ cTDP | 120 W | STD fan 1U STD HSK | STD fan 1U STD HSK | STD fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | 35°C |
| | 155 W | STD fan 1U STD HSK | STD fan 1U STD HSK | STD fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | 35°C |
| | 170 W | STD fan 1U STD HSK | STD fan 1U STD HSK | STD fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | STD fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | HPR fan 1U STD HSK | 35°C |
| | 180 W | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | 35°C |

**Table 22. Thermal restriction matrix (continued)**

| Configuration | | 8 x 2.5-inch NVMe | 16 x 2.5-inch SAS | 16 x 2.5-inch NVMe | 24 x 2.5-inch SAS | | | 16 x 2.5-inch SAS + 8 x 2.5-inch NVMe | 24 x 2.5-inch NVMe | 8 x 3.5-inch | 12 x 3.5-inch | | | Ambient temperature |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rear storage | | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x Rear 2.5-inch No Rear Fan | 4 x Rear 2.5-inch with Rear Fan | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x Rear 2.5-inch No Rear Fan | 4 x Rear 2.5-inch with Rear Fan | |
| | 200 W | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | 35°C |
| | 225 W | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | 35°C |
| | 240 W | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | STD fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | HPR fan 2U Full HSK | 35°C |
| | 280 W - 64C | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan* 2U Full HSK | HPR fan 2U Full HSK | VHP fan 2U Full HSK | STD fan* 2U Full HSK | HPR fan* 2U Full HSK | STD fan 2U Full HSK | HPR fan* 2U Full HSK | HPR fan* 2U Full HSK | HPR fan* 2U Full HSK | 35°C |
| | 280 W - 32C | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan* 2U Full HSK | HPR fan 2U Full HSK | VHP fan 2U Full HSK | STD fan* 2U Full HSK | HPR fan* 2U Full HSK | STD fan 2U Full HSK | - | - | - | 35°C |
| | 280 W - 64C/ 32C | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan 2U Full HSK | STD fan* 2U Full HSK | HPR fan 2U Full HSK | VHP fan 2U Full HSK | STD fan* 2U Full HSK | HPR fan* 2U Full HSK | STD fan 2U Full HSK | - | - | - | 35°C |
| | 280 W - 24C/ 16C | VHP fan 2U Full HSK | VHP fan 2U Full HSK | VHP fan 2U Full HSK | | | | | | | | | | |

### Table 22. Thermal restriction matrix (continued)

| Configuration | | 8 x 2.5-inch NVMe | 16 x 2.5-inch SAS | 16 x 2.5-inch NVMe | 24 x 2.5-inch SAS | | | 16 x 2.5-inch SAS + 8 x 2.5-inch NVMe | 24 x 2.5-inch NVMe | 8 x 3.5-inch | 12 x 3.5-inch | | | Ambient temperature |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rear storage | | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x Rear 2.5-inch No Rear Fan | 4 x Rear 2.5-inch with Rear Fan | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x Rear 2.5-inch No Rear Fan | 4 x Rear 2.5-inch with Rear Fan | |
| 128 GB LRDIMM | - | STD fan | STD fan | STD fan | STD fan | HPR (Silver) fan | HPR (Silver) fan | STD fan | HPR (Silver) fan | STD fan | HPR (Silver) fan*, if TDP ≥ 200 W | HPR (Silver) fan*, if TDP ≥ 170 W | HPR (Silver) fan* | 35°C |

**NOTE:** * Supported ambient temperature is 30°C.

**NOTE:** Three fan modules are required for single processor, and six fan modules are required for dual processor system.

### Table 23. Air cooling and liquid cooling: GPU/FPGA thermal restriction matrix

| Configuration (Front storage) | Fan type | Max CPU TDP/ cTDP | GPU/FPGA ( Ambient temperature ) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | T4 | V100 (16 GB) | V100S | M10 | Snow white | RTX 6000 | RTX 8000 | A100 | MI100 | A40 | A10 | A30 | A16 | MI210 | A2 |
| No Backpane | HPR (Silver) | 280 W | 30°C | 35°C | 30°C | 35°C | 35°C | 35°C | 35°C | 35°C | 30°C | 30°C | 30°C | 35°C | 35°C | 35°C | 30°C |
| 8 x 2.5-inch NVMe | HPR (Silver) | 280 W | 30°C | 35°C | 30°C | 35°C | 35°C | 35°C | 35°C | 35°C | 30°C | 30°C | 30°C | 35°C | 35°C | 35°C | 30°C |
| 16 x 2.5-inch SAS | HPR (Silver) | 280 W | 30°C | 35°C | 30°C | 35°C | 35°C | 35°C | 35°C | 35°C | 30°C | 30°C | 30°C | 35°C | 35°C | 35°C | 30°C |
| 16 x 2.5-inch NVMe | HPR (Gold) | 280 W | 30°C | 35°C | 30°C | 35°C | 35°C | 35°C | 35°C | 35°C | 30°C | 30°C | 30°C | 35°C | 35°C | 35°C | 30°C |
| 16 x 2.5-inch SAS + 8 x 2.5- | HPR (Gold) | 280 W | 30°C | 35°C | 30°C | 35°C | 35°C | 35°C | 35°C | 35°C | 30°C | 30°C | 30°C | 35°C | 35°C | 35°C | 30°C |

### Table 23. Air cooling and liquid cooling: GPU/FPGA thermal restriction matrix (continued)

| Configuration (Front storage) | Fan type | Max CPU TDP/ cTDP | GPU/FPGA ( Ambient temperature ) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | T4 | V100 (16 GB) | V100S | M10 | Snow white | RTX 6000 | RTX 8000 | A100 | MI100 | A40 | A10 | A30 | A16 | MI210 | A2 |
| inch NVMe | | | | | | | | | | | | | | | | | |
| 8 x 3.5-inch SAS | HPR (Silver) | 280 W | 30°C | 35°C | 30°C | 35°C | 35°C | 35°C | 35°C | 35°C | 30°C | 30°C | 30°C | 35°C | 35°C | 35°C | 30°C |

**NOTE:** GPU is not supported in 12 x 3.5-inch hard drive and 24 x 2.5-inch NVMe configuration systems.

**NOTE:** Low Profile and Full Height T4 cards are installed in order to support maximun 6 pcs T4 in x 16 slots.

**NOTE:** In Liquid Cooling system, maximum two DW GPUs are supported.

### Table 24. Processor and heat sink matrix

| Heat sink | Processor TDP |
|---|---|
| STD HSK | < 180 W |
| 2U HPR (Silver) HSK | >= 180 W |
| L-type HSK | Supports all TDP (system should be installed with GPU/ FGPA/long PCIe cards) |

**NOTE:** All GPU/FGPA cards require 1U L-type HSK and GPU shroud.

### Table 25. Label reference

| Label | Description |
|---|---|
| STD | Standard |
| HPR (Silver) | High performance (silver grade) |
| HPR (Gold) | High performance (gold grade) |
| HSK | Heat sink |
| LP | Low profile |
| FH | Full height |

### Table 26. Liquid cooling: CPU thermal restrictions (non-GPU/FPGA)

| Configuration | | 8 x 2.5-inch NVMe | 16 x 2.5-inch SAS | 16 x 2.5-inch NVMe | 16 x 2.5-inch SAS + 8 x 2.5-inch NVMe | 24 x 2.5-inch NVMe | 8 x 3.5-inch | 12 x 3.5-inch | |
|---|---|---|---|---|---|---|---|---|---|
| Rear storage | | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x rear 2.5-inch, No rear fan |
| CPU TDP/ cTDP | 120 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |

**Table 26. Liquid cooling: CPU thermal restrictions (non-GPU/FPGA) (continued)**

| Configuration | | 8 x 2.5-inch NVMe | 16 x 2.5-inch SAS | 16 x 2.5-inch NVMe | 16 x 2.5-inch SAS + 8 x 2.5-inch NVMe | 24 x 2.5-inch NVMe | 8 x 3.5-inch | 12 x 3.5-inch | |
|---|---|---|---|---|---|---|---|---|---|
| **Rear storage** | | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **2 x rear 2.5-inch, No rear fan** |
| | 155 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 170 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 180 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 200 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 225 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 240 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 280 W | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |

**Table 27. Liquid cooling: Memory thermal restrictions (non-GPU/FPGA)**

| Configuration | | 1 DPC | 2 DPC | 8 x 2.5-inch NVMe | 16 x 2.5-inch SAS | 16 x 2.5-inch NVMe | 16 x 2.5-inch SAS + 8 x 2.5-inch NVMe | 24 x 2.5-inch NVMe | 8 x 3.5-inch | 12 x 3.5-inch | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rear storage** | | | | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **No Rear Drives** | **2 x rear 2.5-inch, No rear fan** |
| Memory | 8 GB RDIMM 3200 | 2.8 | 2.0 | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 16 GB RDIMM 3200 | 4.3 | 3.0 | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 32 GB RDIMM 3200 | 6.9 | 4.8 | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |

**Table 27. Liquid cooling: Memory thermal restrictions (non-GPU/FPGA) (continued)**

| Configuration | | 1 DPC | 2 DPC | 8 x 2.5-inch NVMe | 16 x 2.5-inch SAS | 16 x 2.5-inch NVMe | 16 x 2.5-inch SAS + 8 x 2.5-inch NVMe | 24 x 2.5-inch NVMe | 8 x 3.5-inch | 12 x 3.5-inch | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rear storage | | | | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | No Rear Drives | 2 x rear 2.5-inch, No rear fan |
| | 64 GB RDIMM 3200 | 8.3 | 5.8 | STD fan | STD fan (A4 support) | STD fan | STD fan | STD fan | STD fan (A4 support) | STD fan (A4 support) | STD fan (A3 support) |
| | 128 GB LRDIMM 2666 | 12.4 | 9.9 | STD fan | STD fan (A3 support) | STD fan | STD fan | STD fan | STD fan (A3 support) | STD fan (A3 support) | STD fan (A3 support) |

# Particulate and gaseous contamination specifications

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

**Table 28. Particulate contamination specifications**

| Particulate contamination | Specifications |
|---|---|
| Air filtration: Conventional Data Center only | Data center air filtration as defined by ISO Class 8 per ISO 14644-1 with a 95% upper confidence limit<br>**NOTE:** Filtering room air with a MERV8 filter, as specified in ANSI/ASHRAE Standard 127, is a recommended method for achieving the necessary environmental conditions.<br>**NOTE:** Air entering the data center must have MERV11 or MERV13 filtration.<br>**NOTE:** This condition applies to data center environments only. Air filtration requirements do not apply to IT equipment designed to be used outside a data center, in environments such as an office or factory floor. |
| Walk-Up Edge Data Center or Cabinet (sealed, closed loop environment) | Filtration is not required for cabinets that are anticipated to be opened six times or less per year. Class 8 per ISO 1466-1 filtration as defined above is required otherwise.<br>**NOTE:** In environments commonly above ISA-71 Class G1 or that may have known challenges, special filters may be required. |
| Conductive dust: data center and non-data center environments | Air must be free of conductive dust, zinc whiskers, or other conductive particles.<br>**NOTE:** Conductive dust, which can interfere with equipment operation, can originate from various sources, including manufacturing processes and zinc whiskers that may develop on the plating of raised floor tiles.<br>**NOTE:** This condition applies to data center and non-data center environments. |

### Table 28. Particulate contamination specifications (continued)

| Particulate contamination | Specifications |
|---|---|
| Corrosive dust: data center and non-data center environments | • Air must be free of corrosive dust.<br>• Residual dust present in the air must have a deliquescent point less than 60% relative humidity.<br>**NOTE:** This condition applies to data center and non-data center environments. |

### Table 29. Gaseous contamination specifications

| Gaseous contamination | Specifications | Notes |
|---|---|---|
| Copper coupon corrosion rate | ISA-71 Class G1: <300 Å/month | Per ANSI/ISA71.04 |
| Silver coupon corrosion rate | ISA-71 Class G1: <200 Å/month | Per ANSI/ISA71.04 |