


# Dell EMC PowerEdge C6400

## 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.

## Topics:

- Dimensions of the Dell EMC PowerEdge C6400 enclosure
- Chassis weight
- Supported operating systems
- PSU specifications
- Chassis management board specifications
- Drives and storage specifications
- Midplane specifications
- Environmental specifications

## Dimensions of the Dell EMC PowerEdge C6400 enclosure

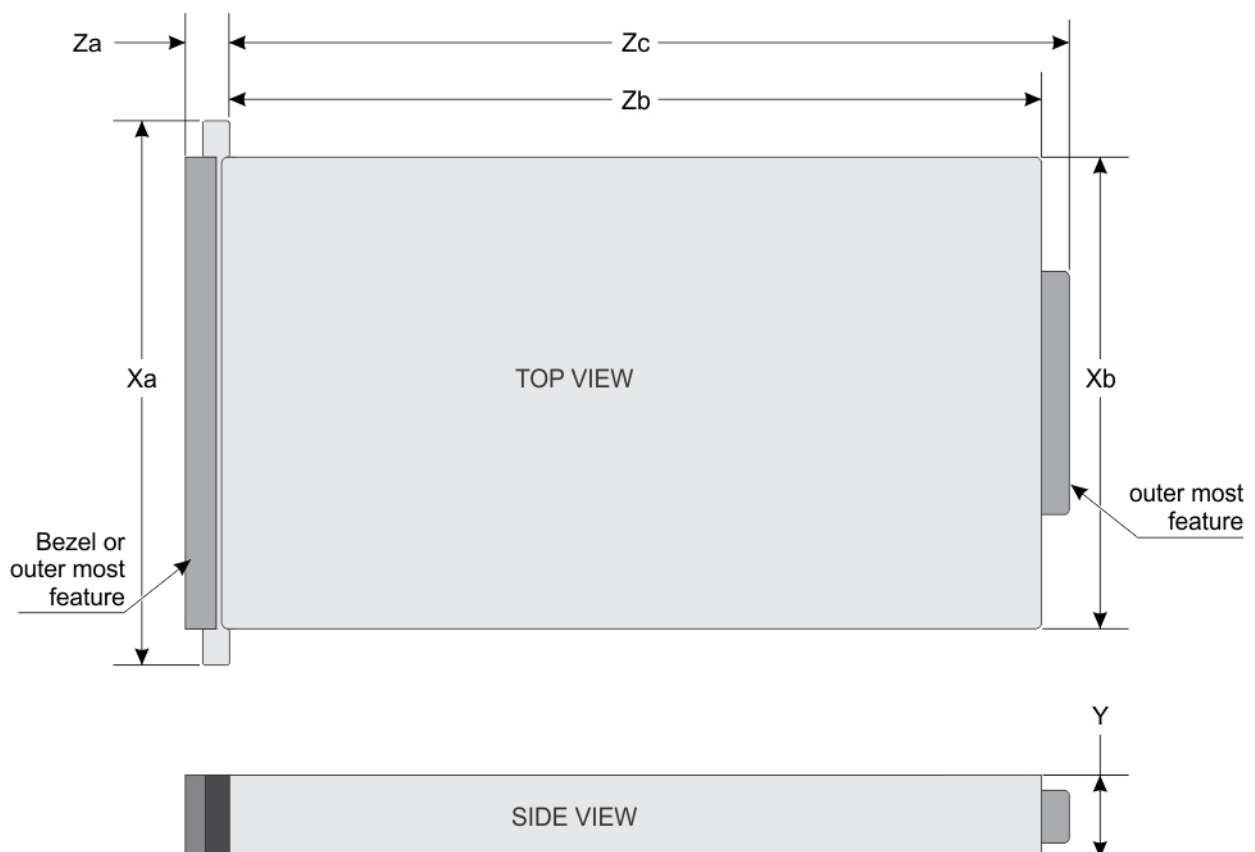


Figure 1. Dimensions of PowerEdge C6400 enclosure

**Table 1. Dimensions of the PowerEdge C6400 enclosure**

Xa	Xb	Y	Za	Zb	Zc
482.6 mm (19 inches)	448 mm (17.63 inches)	86.8 mm (3.41 inches)	26.8 mm (1.05 inches)	763.2 mm (30.28 inches)	797.3 mm (31.38 inches)

## Chassis weight

**Table 2. Chassis weight of the Dell EMC PowerEdge C6400 enclosure with PowerEdge C6420 sleds**

System	Maximum weight (with all sleds and drives)
12 x 3.5-inch hard drive systems	43.62 Kg (96.16 lb)
24 x 2.5-inch hard drive systems	41.46 Kg (91.40 lb)
No backplane systems	34.56 Kg (76.19 lb)

## Supported operating systems

The Dell EMC PowerEdge C6400 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

**i** **NOTE:** For more information about the specific versions and additions, see <https://www.dell.com/support/home/drivers/supportedos/poweredge-c6400>

## PSU specifications

The Dell EMC PowerEdge C6400 enclosure supports two AC power supply units (PSUs).

**Table 3. PSU specifications**

PSU wattage	Class	Heat dissipation (maximum)	Frequency	Voltage	Maximum input current
2400 W AC	Platinum	9000 BTU/hr	50/60 Hz	100–240 V AC, autoranging	14 A–16 A
2000 W AC	Platinum	7500 BTU/hr	50/60 Hz	100–240 V AC, autoranging	11.5 A
1600 W AC	Platinum	6000 BTU/hr	50/60 Hz	100–240 V AC, autoranging	10 A

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

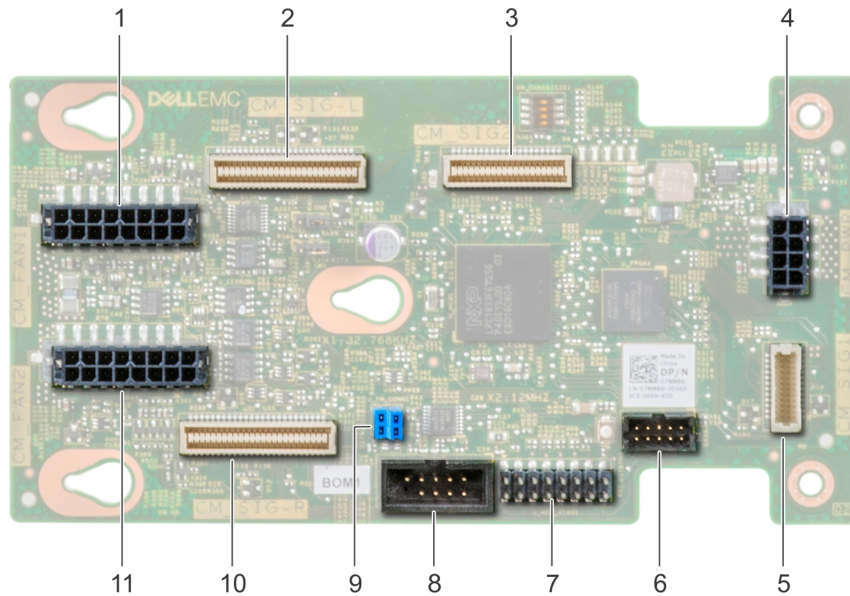
**i** **NOTE:** This system is also designed to connect to the IT power systems with a phase to phase voltage not exceeding 240 V.

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

**NOTE:** If a system with 2000 W AC PSU operates at low line 100–120 V AC, then the power rating per PSU is derated to 1000 W.

**NOTE:** If system with 1600 W AC PSU operates at low line 100–120 V AC, then the power rating per PSU is derated to 800 W.

## Chassis management board specifications



**Figure 2. Chassis management board specifications**

- |   |  |
|---|--|
| 1. Fan cage 1 connector for fans 1 and 2              | 2. Left midplane signal cable                        |
| 3. Chassis management board signal cable to backplane | 4. Chassis management board power connector from PIB |
| 5. Chassis management board signal cable to PIB       | 6. FPGA connector                                    |
| 7. MCU connector                                      | 8. COM connector                                     |
| 9. Firmware jumpers                                   | 10. Right midplane signal cable                      |
| 11. Fan cage 2 connector for fans 3 and 4             |  |

## Drives and storage specifications

The Dell EMC PowerEdge C6400 enclosure supports SAS and SATA hard drives and Solid State Drives (SSDs).

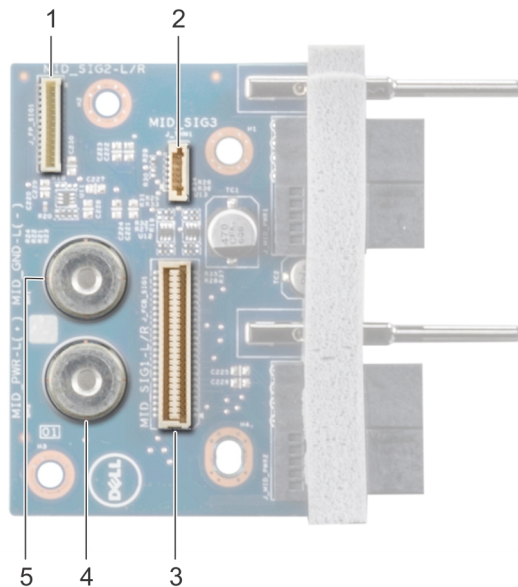
**Table 4. Supported drive options for the Dell EMC PowerEdge C6400 enclosure**

Maximum number of drives in the enclosure	Maximum number of drives assigned per sled
12 x 3.5-inch drive systems	Three SAS or SATA hard drives and SSDs per sled
24 x 2.5-inch drive systems	Six SAS or SATA hard drives and SSDs per sled
24 x 2.5-inch drive systems with NVMe	The NVMe backplane supports either of these configurations: <ul style="list-style-type: none"> <li>Two NVMe drives and four SAS or SATA hard drives and SSDs per sled</li> <li>Six SAS or SATA hard drives and SSDs per sled</li> </ul>
M.2 SATA drive (optional)	The supported capacity of the M.2 SATA card is up to 240 GB <b>NOTE:</b> The M.2 SATA card can be installed on the x16 riser slot (slot 5).
Micro-SD card (optional) for boot (up to 64 GB)	One on each PCIe riser of each sled

**Table 5. Supported RAID options with M.2 SATA drives**

Options	Single M.2 SATA drive without RAID	Dual M.2 SATA drives with hardware RAID
Hardware RAID	No	Yes
RAID Mode	N/A	RAID 1
Number of drives supported	1	2
Supported CPUs	CPU 1	CPU 1 and CPU 2

## Midplane specifications



**Figure 3. Midplane specifications**

- |   |   |
|---|---|
| 1. Midplane signal connector 2              | 2. Thermal sensor cable connector       |
| 3. Chassis management board cable connector | 4. Midplane +12 V power cable connector |
| 5. Midplane power cable ground connector    |   |

## Environmental specifications

The sections below contains information about the environmental specifications of the system.

**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)

## Standard operating temperature specifications

**NOTE:**

1. Not available: Indicates that the configuration is not offered by Dell EMC.
2. Not supported: Indicates that the configuration is not thermally supported.

**NOTE:** All components including the DIMMs, communication cards, M.2 SATA, and PERC cards can be supported with sufficient thermal margin if the ambient temperature is equal to or below to the maximum continuous operating temperature listed in these tables except for the Mellanox DP LP card and Intel Rush Creek card.

**Table 6. Standard operating temperature specifications**

Standard operating temperature	Specifications
Temperature ranges (for altitude less than 950 m or 3117 ft)	10°C–35°C (50°F–95°F) with no direct sunlight on the equipment.

**i** | **NOTE:** Some configurations require a lower ambient temperature. For more information, see the following tables.

**Table 7. Maximum continuous operating temperature for nonfabric dual processor configuration**

TDP Watts	Process or model	Heat sink model	Max memory/processor	3.5-inch chassis			2.5-inch chassis						No-BP Chassis
				12x Drives	8x Drives	4x Drives	24x Drives	20x Drives	16x Drives	12x Drives	8x Drives	4x Drives	N/A
205 W	8280	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8	Not Supported (2°C)	Not Supported (10°C)	Not Supported (11°C)	Not Supported (19°C)	20	21	21	21	21	30
	8280L	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8					20	21	21	21	21	30
	8280M	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8					20	21	21	21	21	30
	8270	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8					20	21	21	21	21	30
	8268	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8					20	21	21	21	21	30
200 W	6254	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8	Not Supported (6°C)	Not Supported (14°C)	Not Supported (15°C)	20	21	22	22	22	22	30
165 W	8276	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	Not Supported (11°C)	Not Supported (18°C)	Not Supported (19°C)	30	30	30	30	30	35	35
	8276L	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8				30	30	30	30	30	35	35
	8276M	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8				30	30	30	30	30	35	35
	8260	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8				30	30	30	30	30	35	35



**Table 7. Maximum continuous operating temperature for nonfabric dual processor configuration (continued)**

TDP Watts	Process or model	Heat sink model	Max memory/processor	3.5-inch chassis			2.5-inch chassis						No-BP Chassis
				12x Drives	8x Drives	4x Drives	24x Drives	20x Drives	16x Drives	12x Drives	8x Drives	4x Drives	N/A
	8260L	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8				30	30	30	30	30	35	35
	8260M	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8				30	30	30	30	30	35	35
	8260C	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8				30	30	30	30	30	35	35
150 W	6252	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	Not Supported(14°C)	21	23	30	30	30	30	30	35	35
	6248	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8		21	23	30	30	30	30	30	35	35
	6240	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8		21	23	30	30	30	30	30	35	35
	6242	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8		21	23	30	30	30	30	30	35	35
	6244	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8		21	23	30	30	30	30	30	35	35
	6240C	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8		21	23	30	30	30	30	30	35	35
125 W	6230	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	25	30	30	30	30	35	35	35	35	35
	5220	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	25	30	30	30	30	35	35	35	35	35
	5218	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	25	30	30	30	30	35	35	35	35	35

**Table 7. Maximum continuous operating temperature for nonfabric dual processor configuration (continued)**

TDP Watts	Process or model	Heat sink model	Max memory/processor	3.5-inch chassis			2.5-inch chassis						No-BP Chassis
				12x Drives	8x Drives	4x Drives	24x Drives	20x Drives	16x Drives	12x Drives	8x Drives	4x Drives	N/A
	5218B	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	25	30	30	30	30	35	35	35	35	35
	8253	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	25	30	30	30	30	35	35	35	35	35
	6238T	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	25	30	30	30	30	35	35	35	35	35
	6230N	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	25	30	30	30	30	35	35	35	35	35
115 W	5217	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8	25	30	30	30	30	35	35	35	35	35
105 W	5218T	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8	30	35	35	35	35	35	35	35	35	35
	5218N	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8	30	35	35	35	35	35	35	35	35	35
	5222	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8	30	35	35	35	35	35	35	35	35	35
	8256	CPU1: FMM2M   CPU2: V2DRD	CPU1: 6   CPU2: 8	30	35	35	35	35	35	35	35	35	35
100 W	4216	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	30	35	35	35	35	35	35	35	35	35
85 W	5215	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
	5215M	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35

**Table 7. Maximum continuous operating temperature for nonfabric dual processor configuration (continued)**

TDP Watts	Processor model	Heat sink model	Max memory/processor	3.5-inch chassis			2.5-inch chassis						No-BP Chassis
				12x Drives	8x Drives	4x Drives	24x Drives	20x Drives	16x Drives	12x Drives	8x Drives	4x Drives	N/A
70 W	5215L	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
	4215	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
	4214	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
	4214C	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
	4210	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
	4208	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
	3204	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35
70 W	4209T	CPU1: JYKMM   CPU2: V2DRD	CPU1: 8   CPU2: 8	35	35	35	35	35	35	35	35	35	35

**Table 8. Maximum continuous operating temperature for non-fabric single processor configuration**

TDP Watts	Processor model	Heat sink model	Max memory/processor	3.5-inch chassis			2.5-inch chassis						No-BP Chassis
				12x Drives	8x Drives	4x Drives	24x Drives	20x Drives	16x Drives	12x Drives	8x Drives	4x Drives	N/A
205W	8280	CPU1: FMM2M	CPU1: 6	30	30	30	35	35	35	35	35	35	35
	8280L	CPU1: FMM2M	CPU1: 6	30	30	30	35	35	35	35	35	35	35
	8280M	CPU1: FMM2M	CPU1: 6	30	30	30	35	35	35	35	35	35	35
	8270	CPU1: FMM2M	CPU1: 6	30	30	30	35	35	35	35	35	35	35

**Table 8. Maximum continuous operating temperature for non-fabric single processor configuration (continued)**

TDP Watts	Processor model	Heat sink model	Max memory/processor	3.5-inch chassis			2.5-inch chassis						No-BP Chassis
				12x Drives	8x Drives	4x Drives	24x Drives	20x Drives	16x Drives	12x Drives	8x Drives	4x Drives	N/A
	8268	CPU1: FMM2M	CPU1: 6	30	30	30	35	35	35	35	35	35	35
200 W	6254	CPU1: FMM2M	CPU1: 6	30	30	30	35	35	35	35	35	35	35
165 W	6212U	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	8276	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	8276L	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	8276M	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	8260	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	8260L	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	8260M	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	8260C	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
150 W	6210U	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	6252	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	6248	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	6240	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	6242	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
	6244	CPU1: FMM2M	CPU1: 6	30	35	35	35	35	35	35	35	35	35
	6240C	CPU1: FMM2M	CPU1: 6	30	35	35	35	35	35	35	35	35	35
125W	6230	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	5220	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	5218	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	5218B	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35

**Table 8. Maximum continuous operating temperature for non-fabric single processor configuration (continued)**

TDP Watts	Processor model	Heat sink model	Max memory/processor	3.5-inch chassis			2.5-inch chassis						No-BP Chassis
				12x Drives	8x Drives	4x Drives	24x Drives	20x Drives	16x Drives	12x Drives	8x Drives	4x Drives	N/A
	8253	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	6238T	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	6230N	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
115 W	5217	CPU1: FMM2M	CPU1: 6	30	35	35	35	35	35	35	35	35	35
105 W	5218T	CPU1: FMM2M	CPU1: 6	30	35	35	35	35	35	35	35	35	35
	5218N	CPU1: FMM2M	CPU1: 6	30	35	35	35	35	35	35	35	35	35
	5222	CPU1: FMM2M	CPU1: 6	30	35	35	35	35	35	35	35	35	35
	8256	CPU1: FMM2M	CPU1: 6	30	35	35	35	35	35	35	35	35	35
100 W	4216	CPU1: JYKMM	CPU1: 8	30	35	35	35	35	35	35	35	35	35
85 W	5215	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	5215M	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	5215L	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	4215	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	4214	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	4214C	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	4210	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	4208	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
	3204	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35
70 W	4209T	CPU1: JYKMM	CPU1: 8	35	35	35	35	35	35	35	35	35	35

**Table 9. Configuration Restrictions with Mellanox Navi Dual Port Card with Active (Optical) connectivity**

TDP Watts	3.5-inch chassis			2.5-inch chassis				No-BP Chassis
	12x HDDs	8x HDDs	4x HDDs	24x HDDs	16x HDDs	8x HDDs	4x HDDs	N/A
205 W	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	23
200 W	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	23
173 W	Not supported	Not supported	Not supported	Not supported	Not supported	24	24	28
165 W	Not supported	Not supported	Not supported	24	25	25	26	29
160 W	Not supported	Not supported	Not supported	24	25	26	26	30
150 W	Not supported	Not supported	Not supported	26	27	28	28	31
140 W	Not supported	23	25	28	29	29	30	33
135 W	Not supported	24	25	29	30	30	31	33
130 W	Not supported	24	26	30	31	31	31	34
125 W	20	25	27	30	31	32	32	35
115 W	21	27	28	32	33	34	34	>35
113 W	21	27	28	32	33	34	34	>35
105 W	22	28	30	34	35	>35	>35	>35
85 W	23	32	33	>35	>35	>35	>35	>35
70 W	25	34	>35	>35	>35	>35	>35	>35

**Table 10. Configuration Restrictions with Intel Rush Creek**

TDP Watts	3.5-inch chassis			2.5-inch chassis				No-BP Chassis
	12x HDDs	8x HDDs	4x HDDs	24x HDDs	16x HDDs	8x HDDs	4x HDDs	N/A
205 W	Not supported	Not supported	Not supported	Not supported	Not supported	20	20	23
200 W	Not supported	Not supported	Not supported	Not supported	Not supported	21	21	24
173 W	Not supported	Not supported	Not supported	20	20	23	24	28
165 W	Not supported	Not supported	Not supported	22	22	24	25	29
160 W	Not supported	Not supported	Not supported	22	22	24	26	29
150 W	Not supported	Not supported	Not supported	24	24	26	27	30
140 W	Not supported	Not supported	Not supported	26	26	27	28	31

**Table 10. Configuration Restrictions with Intel Rush Creek (continued)**

TDP Watts	3.5-inch chassis			2.5-inch chassis				No-BP Chassis
	12x HDDs	8x HDDs	4x HDDs	24x HDDs	16x HDDs	8x HDDs	4x HDDs	N/A
135 W	Not supported	Not supported	20	26	26	28	29	32
130 W	Not supported	Not supported	20	27	27	29	29	33
125 W	Not supported	Not supported	21	28	28	30	30	33
115W	Not supported	21	23	29	31	31	32	34
105 W	20	23	24	30	33	33	34	>35
85 W	24	26	27	34	>35	>35	>35	>35
70 W	25	28	29	>35	>35	>35	>35	>35

**Table 11. Configuration Restrictions with Intel NVMe SSD AIC P4800X**

TDP Watts	3.5-inch chassis			2.5-inch chassis				No-BP Chassis
	12x HDDs	8x HDDs	4x HDDs	24x HDDs	16x HDDs	8x HDDs	4x HDDs	N/A
205 W	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported
200 W	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported
173 W	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	20
165 W	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	20
160 W	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	25
150 W	Not supported	Not supported	Not supported	Not supported	20	20	20	25
140 W	Not supported	Not supported	Not supported	20	20	20	20	25
135 W	Not supported	Not supported	Not supported	20	20	20	20	25
130 W	Not supported	Not supported	Not supported	20	20	20	20	25
125 W	Not supported	Not supported	Not supported	20	25	25	25	30
115 W	Not supported	Not supported	Not supported	25	25	25	25	30
105 W	Not supported	Not supported	Not supported	25	25	25	25	30
85 W	Not supported	Not supported	Not supported	30	30	30	30	>35
70 W	Not supported	Not supported	Not supported	>35	>35	>35	>35	>35

## Expanded operating temperature specifications

**Table 12. Expanded operating temperature**

Expanded operating temperature	Specifications
Continuous operation	<p>5°C–40°C at 5% to 85% RH with maximum 29°C dew point.</p> <p><b>NOTE:</b> Outside the standard operating temperature (10°C–35°C), the system can operate continuously in temperatures as low as 5°C and as high as 40°C.</p> <p>For temperatures between 35°C and 40°C, derate maximum allowable temperature by 1°C per 175 m above 950 m (1°F per 319 ft).</p>
≤ 1% of annual operating hours	<p>–5°C–45°C at 5% to 90% RH with maximum 29°C dew point.</p> <p><b>NOTE:</b> Outside the standard operating temperature (10°C–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–45°C, derate maximum allowable temperature by 1°C per 125 m above 950 m (1°F per 228 ft).</p>

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

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

## Operating temperature derating specifications

**Table 13. Operating temperature**

Operating temperature derating	Specifications
≤ 35°C (95°F)	Maximum temperature is reduced by 1°C/300 m (1°F/547 ft) above 950 meters (3,117 ft).
35°C–40°C (95°F–104°F)	Maximum temperature is reduced by 1°C/175 m (1°F/319 ft) above 950 meters (3,117 ft).
≥ 45°C (113°F)	Maximum temperature is reduced by 1°C/125 m (1°F/228 ft) above 950 meters (3,117 ft).

## Relative humidity specifications

**Table 14. Relative humidity specifications**

Relative humidity	Specifications
Storage	5% to 95% RH with 33°C (91°F) maximum dew point. Atmosphere must be noncondensing always.
Operating	10% to 80% relative humidity with 29°C (84.2°F) maximum dew point.



## Temperature specifications

**Table 15. Temperature specifications**

Temperature	Specifications
Storage	-40°C–65°C (-40°F to 149°F)
Continuous operation (for altitude less than 950 m or 3117 ft)	10°C–35°C (50°F to 95°F) with no direct sunlight on the equipment.
Fresh air	For information about fresh air, see Expanded Operating Temperature section.
Maximum temperature gradient (operating and storage)	20°C/h (68°F/h)

**NOTE:** Some configurations require a lower ambient temperature for more information, see the [Standard operating temperature specifications](#).

## Particulate and gaseous contamination specifications

**Table 16. 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.
<b>NOTE:</b> This condition applies only to data center environments. 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.	
<b>NOTE:</b> Air entering the data center must have MERV11 or MERV13 filtration.	
Conductive dust	Air must be free of conductive dust, zinc whiskers, or other conductive particles.
<b>NOTE:</b> This condition applies to data center and non-data center environments.	
Corrosive dust	Air must be free of corrosive dust.
Residual dust present in the air must have a deliquescent point less than 60% relative humidity.	
<b>NOTE:</b> This condition applies to data center and non-data center environments.	

**Table 17. 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 per Class G1 as defined by ANSI/ISA71.04-2013
<b>NOTE:</b> Maximum corrosive contaminant levels measured at ≤50% relative humidity.	

## Maximum vibration specifications

Table 18. Maximum vibration specifications

Maximum vibration	Specifications
Operating	0.26 Grms at 5 Hz to 350 Hz (all operation orientations).
Storage	1.88 Grms at 10 Hz to 500 Hz for 15 min (all six sides tested).

## Maximum shock specifications

Table 19. Maximum shock specifications

Maximum shock	Specifications
Operating	24 executed shock pulses 6 G in the positive and negative x, y, z axis for up to 11 ms (four pulses on each side of the system).
Storage	6 consecutively executed shock pulses of 71 G in the positive and negative x, y, z axes for up to 2 ms (one pulse on each side of the system).

## Maximum altitude specifications

Table 20. Maximum altitude specifications

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

## Fresh Air Operation

### Fresh Air operation restrictions

- Processors with a TDP greater than 105 W are not supported
- Support for processors of 85 W and below without PERC restrictions
- 3.5-inch drive configuration is not supported
- 114-mm heat sink is required for the processor in CPU1 socket
- Kerby-flat OCP is not supported
- M.2 card on DCS Mezzanine slot is not supported.
- NVMe SSD is not supported
- AEP DIMM and LRDIMM are not supported
- PCIe cards greater than 25 W are not supported
- H730 PERC and H330 support for 105-W processors
- No PERC restrictions for 85 W and lesser TDP processors