

Dell EMC PowerEdge M640

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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Dell EMC PowerEdge M640 system overview

The Dell EMC PowerEdge M640 system is a half-height blade supported on the PowerEdge M1000e enclosure and supports up to:

- Two Intel Xeon scalable processors
- 16 DIMM slots
- Two 2.5-inch HDDs/SSDs

 **NOTE:** All instances of SAS, SATA hard drives and SSDs are referred to as drives in this document, unless specified otherwise.

Technical specifications

Topics:

- System dimensions
- System weight
- Processor specifications
- Supported operating systems
- System battery specifications
- Memory specifications
- Mezzanine card specifications
- Storage controller specifications
- Drive specifications
- Ports and connectors specifications
- Video specifications
- Environmental specifications

System dimensions

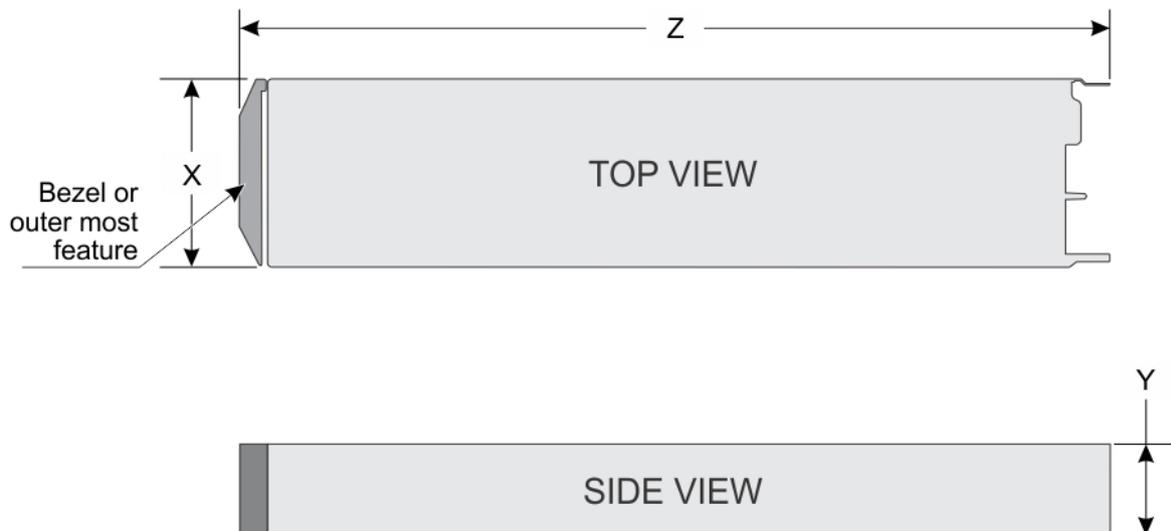


Figure 1. System dimensions

Table 1. System dimensions of the Dell EMC PowerEdge M640 system

System	X	Y	Z (handle closed)
Dell EMC PowerEdge M640	197.92 mm (7.79 inches)	50.35 mm (1.98 inches)	544.32 mm (21.43 inches)

System weight

Table 2. System weight

System	Maximum weight
Dell EMC PowerEdge M640	6.4 kg (14.11 lb)

Processor specifications

The Dell EMC PowerEdge M640 system supports up to two Intel Xeon Scalable processors, up to 28 cores per processor.

Supported operating systems

The Dell EMC PowerEdge M640 system supports the following operating systems:

1. RedHat Enterprise Linux
2. Novell SuSE Linux Enterprise Server
3. Microsoft Windows Server
4. VMware
5. Citrix Xen Server
6. Canonical Ubuntu LTS

For more information, go to www.dell.com/ossupport

System battery specifications

The Dell EMC PowerEdge M640 system supports CR 2032 3.0-V lithium coin cell system battery.

Memory specifications

Table 3. Memory specifications

Memory module sockets	DIMM type	DIMM rank	DIMM capacity	Single processor		Dual processors	
				Minimum RAM	Maximum RAM	Minimum RAM	Maximum RAM
Sixteen 288-pins	LRDIMM	Octa rank	128 GB	128 GB	1024 GB	256 GB	2048 GB
		Quad rank	64 GB	64 GB	512 GB	128 GB	1024 GB
	RDIMM	Single rank	8 GB	8 GB	64 GB	16 GB	128 GB
		Dual rank	16 GB	16 GB	128 GB	32 GB	256 GB
		Dual rank	32 GB	32 GB	256 GB	64 GB	512 GB
		Dual rank	64 GB	64 GB	512 GB	128 GB	1024 GB

Mezzanine card specifications

The Dell EMC PowerEdge M640 system supports two PCIe x8 Gen 3 slots mezzanine card supporting dual port 10 Gb Ethernet, quad port 1 Gb, FC8 Fibre Channel, FC16 Fibre Channel, or Infiniband mezzanine cards.

Storage controller specifications

The Dell EMC PowerEdge M640 system supports:

- **Internal controllers:** Software RAID S140, PERC9 H330, H730P
 - **NOTE:** S140 is supported only on SATA and NVMe drives.
- **Boot Optimized Storage Subsystem (BOSS):**
 - HWRAID 2 x M.2 SSDs 120GB, 240 GB with 6 Gbps. BOSS card has x8 connector using PCIe gen 2.0 x2 lanes, available only in the low-profile and half-height form factor.
 - Internal Dual SD Module optional
 - Two CPUs are required for the BOSS card to function.

Drive specifications

Hard drives

The Dell EMC PowerEdge M640 system supports up to two 2.5-inch, hot-swappable SAS/SATA HDDs, SSDs, or PCIe NVMe drives. The hard drives or SSDs are supplied in a hot-swappable drive carriers that fit in the drive bays and these drives connect to the system board through the drive backplane.

Ports and connectors specifications

USB ports

The Dell EMC PowerEdge M640 system supports:

- One USB 3.0-compliant port on the front of the system
- One micro USB/iDRAC direct USB 2.0-compliant port on the front of the system
- One USB 3.0-compliant internal port

NOTE: The micro USB 2.0-compliant port on the front of the system can only be used as an iDRAC Direct or a management port.

Internal Dual SD Module

The Dell EMC PowerEdge M640 system supports two internal micro SD cards dedicated for the hypervisor. This card offers the following features:

- Dual card operation — maintains a mirrored configuration by using micro SD cards in both slots and provides redundancy.
- Single card operation — single card operation is supported, but without redundancy.

NOTE: One IDSDM card slot is dedicated for redundancy. It is recommended to use Dell EMC branded micro SD cards associated with the IDSDM/micro SD vFlash configured systems.

Micro SD vFlash connector

The Dell EMC PowerEdge M640 system supports one dedicated micro SD card for vFlash support.

Video specifications

Table 4. Video specifications

Features	Specifications
Video type	Matrox G200eW3 graphics controller integrated with iDRAC
Video memory	4 GB DDR4 shared with iDRAC application memory

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/poweredge manuals

Table 5. 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 (68°F/h)

Table 6. 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 26°C (78.8°F) maximum dew point.

Table 7. Maximum vibration specifications

Maximum vibration	Specifications
Operating	0.26 G _{rms} at 5 Hz to 350 Hz (all operation orientations).
Storage	1.87 G _{rms} at 10 Hz to 500 Hz for 15 min (all six sides tested).

Table 8. 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 9. Maximum altitude specifications

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

Table 10. 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°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°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°F/228 ft) above 950 m (3,117 ft).

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 may need to rectify the environmental conditions. Re-mediation of environmental conditions is the responsibility of the customer.

Table 11. 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. <i>i</i> 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. <i>i</i> NOTE: 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. <i>i</i> NOTE: This condition applies to data center and non-data center environments.
Corrosive dust	<ul style="list-style-type: none"> Air must be free of corrosive dust. Residual dust present in the air must have a deliquescent point less than 60% relative humidity. <i>i</i> NOTE: This condition applies to data center and non-data center environments.

Table 12. Gaseous contamination specifications

Gaseous contamination	Specifications
Copper coupon corrosion rate	<300 Å/month per Class G1 as defined by ANSI/ISA71.04-1985.
Silver coupon corrosion rate	<200 Å/month as defined by AHSRAE TC9.9.

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

Standard operating temperature

Table 13. 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.

Table 13. Standard operating temperature specifications (continued)

Standard operating temperature	Specifications
Humidity percentage range	10% to 80% Relative Humidity with 26°C (78.8°F) maximum dew point.

Expanded operating temperature

Table 14. Expanded operating temperature specifications

Expanded operating temperature	Specifications
Continuous operation	<p>5°C to 40°C at 5% to 85% RH with 29°C dew point.</p> <p>i NOTE: Outside the standard operating temperature (10°C to 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, de-rate maximum allowable dry bulb temperature by 1°C per 175 m above 950 m (1°F per 319 ft).</p>
Less than or equal to 1% of annual operating hours	<p>–5°C to 45°C at 5% to 90% RH with 29°C dew point.</p> <p>i NOTE: 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°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 maybe reported on the LCD panel and in the System Event Log.

Expanded operating temperature restrictions

The expanded operating temperature restrictions for the Dell EMC PowerEdge M640 system are listed here:

- Do not perform a cold startup below 5°C.
- The operating temperature specified is for a maximum altitude of 3048 metres (10,000 feet).
- NVME drives are not supported.
- AEP DIMMs are not supported.
- 105 W/4 C, 115 W/6 C, 130 W/8 C, 140 W/14 C or higher wattage processor (TDP > 140 W) are not supported.
- NEBS SKU processors higher than 85 W are not supported.
- Peripheral cards and /or peripheral cards greater than 25 W, that are not verified by Dell EMC, are not supported.

Thermal Restriction matrix

Table 15. Thermal restrictions matrix

Thermal Design Power (TDP) for the processor	Core count	Processors	Ambient restriction		
			M1000e	VRTX	FX2
205W	28/24	8180; 8168	Not supported	C25, DIMM limit 2*	C25, Special limit*

Table 15. Thermal restrictions matrix (continued)

Thermal Design Power (TDP) for the processor	Core count	Processors	Ambient restriction		
			M1000e	VRTX	FX2
205W	28/26/24	8280; 8270;8268;8280M;8280L	Not supported	C25, DIMM limit 2*	C25, Special limit*
205W	24/16/20	6248R;6246R;6242R	Not supported*	Not supported*	Not supported*
200W	18	6154;6254	Not supported	C25, DIMM limit 2*	C25, Special limit*
165W	28/26/18	8176; 8170; 6150	C30, DIMM limit 1*	C35, DIMM limit 1*	C30, DIMM limit 1*
165W	12	6246	C25, Special limit*	C30, DIMM limit 1*	C25, Special limit*
165W	28/24	6240R;6238R;6212U;8276; 8260;8260M;8260L;8276M;8276L	C30	C35	C30
150W	26/24/20	8164; 8160; 6148	C30	C35	C30
150W	16/12	6142; 6136; 8158	C30	C35	C30
150W	24	8160T	C25, DIMM limit 2*	C25, DIMM limit 2*	C25, DIMM limit 2*
150W	8	6244	C25, Special limit*	C30, DIMM limit 1*	C25, Special limit*
150W	24/20/18/16	6248;6240;6242;6252;6210U;6240M	C30	C35	C30
150W	24/16/8	6252N	C25, Special limit*	C30, DIMM limit 1*	C25, Special limit*
150W	16/26/16/24	6226R/6230R/6208U/5220R	C30	C35	C30
140W	22/8	6152; 6140	C40E45	C40E45	C35
140W	14	6132	C30	C35	C30
140W	22	6238;6238M	C40E45	C40E45	C35
135W	24	6262V	C40E45	C40E45	C35
130W	8	6234	C40E45	C40E45	C35
130W	8	6134	C30	C35	C30
130W	8	4215R	C30	C35	C30
125W	20/16	6138; 6130; 8153	C40E45	C40E45	C35
125W	12	6126	C40E45	C40E45	C35
125W	20	6138T	C30	C35	C30
125W	16	6130T	C30	C35	C30
125W	12	6126T	C30	C35	C30
125W	20/18/16/12	6209U;6230;5220S;5218;8253;6226;5220	C40E45	C40E45	C35
125W	20/16/4	6230N	C35	C35	C35
125W	20	5218R	C40E45	C40E45	C35
115W	6	6128	C30	C35	C30

Table 15. Thermal restrictions matrix (continued)

Thermal Design Power (TDP) for the processor	Core count	Processors	Ambient restriction		
			M1000e	VRTX	FX2
115W	8	5217	C35	C35	C35
115W	20	6222V	C35	C35	C35
105W	4	5122; 8156	C30	C35	C30
105W	14/12	5120; 5118	C40E45	C40E45	C40E45
105W	14	5120T	C30	C35	C30
105W	4	5222/8256	C30	C35	C30
105W	16	5218T	C30	C30	C30
100W	16	4216	C40E45	C40E45	C40E45
95W	10	4210T	C40E45	C40E45	C40E45
85W	12/10/8/6/4	4116; 5115; 4114; 4110; 4108; 3106; 3104; 4112	C40E45	C40E45	C40E45
85W	14	5119T	C40E45	C40E45	C40E45
85W	12	4116T	C40E45	C40E45	C40E45
85W	10	4114T	C40E45	C40E45	C40E45
85W	12/10/8/6	5215;4215;4214;4216; 4210;4208;3204;5215M;5215L	C40E45	C40E45	C40E45
70W	8	4109T	C40E45	C40E45	C40E45

* DIMM limit 1 – Max 64 GB LRDIMMs. No 128 GB, No AEP(Apache Pass). This is applicable only for systems with dual processors.

* DIMM limit 2– Max 32 GB LRDIMMs. No 128 GB/ 64 GB, No AEP(Apache Pass). This is applicable only for systems with dual processors.

* Special limit – No drives, No Backplane, No PCIe, and Max 64GB LRDIMM

**C indicates that the processor is continuously operating at the specified temperature or lower.

***E indicates the expanded operating temperature specified for the processor.

* Not Supported - Only supported in a 1 socket config at ambient 30C

Documentation resources

This section provides information about the documentation resources for your system.

To view the document that is listed in the documentation resources table:

- From the Dell EMC support site:
 1. Click the documentation link that is provided in the Location column in the table.
 2. Click the required product or product version.
-  **NOTE:** To locate the product name and model, see the front of your system.
- 3. On the Product Support page, click **Manuals & documents**.
- Using search engines:
 - Type the name and version of the document in the search box.

Table 16. Additional documentation resources for your system

Task	Document	Location
Setting up your system	For information about installing the system into the enclosure, see the <i>Getting Started Guide</i> document that is shipped with your system.	www.dell.com/poweredgemanuals
Configuring your system	For information about the iDRAC features, configuring and logging in to iDRAC, and managing your system remotely, see the <i>Integrated Dell Remote Access Controller User's Guide</i> . For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the <i>RACADM CLI Guide for iDRAC</i> . For information about Redfish and its protocol, supported schema, and Redfish Eventing are implemented in iDRAC, see the <i>Redfish API Guide</i> . For information about iDRAC property database group and object descriptions, see the <i>Attribute Registry Guide</i> .	www.dell.com/poweredgemanuals
	For information about earlier versions of the iDRAC documents, see the iDRAC documentation. To identify the version of iDRAC available on your system, on the iDRAC web interface, click ? > About .	www.dell.com/idracmanuals
	For information about installing the operating system, see the operating system documentation.	www.dell.com/operatingsystemmanuals
	For information about updating drivers and firmware, see the <i>Methods to download firmware and drivers</i> section in this document.	www.dell.com/support/drivers
Managing your system	For information about systems management software offered by Dell, see the <i>Dell</i>	www.dell.com/poweredgemanuals

Table 16. Additional documentation resources for your system (continued)

Task	Document	Location
	OpenManage Systems Management Overview Guide.	
	For information about setting up, using, and troubleshooting OpenManage, see the Dell OpenManage Server Administrator User's Guide.	www.dell.com/openmanagemanuals > OpenManage Server Administrator
	For information about installing, using, and troubleshooting Dell OpenManage Essentials, see the Dell OpenManage Essentials User's Guide.	www.dell.com/openmanagemanuals > OpenManage Essentials
	For information about installing, using, and troubleshooting Dell OpenManage Enterprise, see the Dell OpenManage Enterprise User's Guide.	www.dell.com/openmanagemanuals > OpenManage Enterprise
	For information about installing and using Dell SupportAssist, see the Dell EMC SupportAssist Enterprise User's Guide.	www.dell.com/serviceabilitytools
	For information about partner programs enterprise systems management, see the OpenManage Connections Enterprise Systems Management documents.	www.dell.com/openmanagemanuals
	For information about viewing inventory, performing configuration, and monitoring tasks, remotely turning on or off servers, and enabling alerts for events on servers and components using the Dell Chassis Management Controller (CMC), see the CMC User's Guide.	www.dell.com/openmanagemanuals > Chassis Management Controllers
Working with the Dell PowerEdge RAID controllers	For information about understanding the features of the Dell PowerEdge RAID controllers (PERC), Software RAID controllers, or BOSS card and deploying the cards, see the Storage controller documentation.	www.dell.com/storagecontrollermanuals
Understanding event and error messages	For information about the event and error messages that are generated by the system firmware and agents that monitor system components, see the Error Code Lookup.	www.dell.com/qrl
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.	www.dell.com/poweredgemanuals

Getting help

Topics:

- [Contacting Dell EMC](#)
- [Documentation feedback](#)
- [Accessing system information by using QRL](#)
- [Receiving automated support with SupportAssist](#)
- [Recycling or End-of-Life service information](#)

Contacting Dell EMC

Dell EMC provides several online and telephone based support and service options. If you do not have an active internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell EMC product catalog. Availability varies by country and product, and some services may not be available in your area. To contact Dell EMC for sales, technical assistance, or customer service issues:

Steps

1. Go to www.dell.com/support/home.
2. Select your country from the drop-down menu on the lower right corner of the page.
3. For customized support:
 - a. Enter your system Service Tag in the **Enter your Service Tag** field.
 - b. Click **Submit**.
The support page that lists the various support categories is displayed.
4. For general support:
 - a. Select your product category.
 - b. Select your product segment.
 - c. Select your product.
The support page that lists the various support categories is displayed.
5. For contact details of Dell EMC Global Technical Support:
 - a. Click [Global Technical Support](#).
 - b. The **Contact Technical Support** page is displayed with details to call, chat, or e-mail the Dell EMC Global Technical Support team.

Documentation feedback

You can rate the documentation or write your feedback on any of our Dell EMC documentation pages and click **Send Feedback** to send your feedback.

Accessing system information by using QRL

You can use the Quick Resource Locator (QRL) located on the information tag in the front of the M640, to access the information about the Dell EMC PowerEdge M640.

Prerequisites

Ensure that your smartphone or tablet has the QR code scanner installed.

The QRL includes the following information about your system:

- How-to videos
- Reference materials, including the Installation and Service Manual, and mechanical overview
- Your system service tag to quickly access your specific hardware configuration and warranty information
- A direct link to Dell to contact technical assistance and sales teams

Steps

1. Go to www.dell.com/qrl and navigate to your specific product or
2. Use your smartphone or tablet to scan the model-specific Quick Resource (QR) code on your system or in the Quick Resource Locator section.

Quick Resource Locator for PowerEdge M640 system



Figure 2. Quick Resource Locator for PowerEdge M640 system

Receiving automated support with SupportAssist

Dell EMC SupportAssist is an optional Dell EMC Services offering that automates technical support for your Dell EMC server, storage, and networking devices. By installing and setting up a SupportAssist application in your IT environment, you can receive the following benefits:

- **Automated issue detection** — SupportAssist monitors your Dell EMC devices and automatically detects hardware issues, both proactively and predictively.
- **Automated case creation** — When an issue is detected, SupportAssist automatically opens a support case with Dell EMC Technical Support.
- **Automated diagnostic collection** — SupportAssist automatically collects system state information from your devices and uploads it securely to Dell EMC. This information is used by Dell EMC Technical Support to troubleshoot the issue.
- **Proactive contact** — A Dell EMC Technical Support agent contacts you about the support case and helps you resolve the issue.

The available benefits vary depending on the Dell EMC Service entitlement purchased for your device. For more information about SupportAssist, go to www.dell.com/supportassist.

Recycling or End-of-Life service information

Take back and recycling services are offered for this product in certain countries. If you want to dispose of system components, visit www.dell.com/recyclingworldwide and select the relevant country.