Dell EMC PowerEdge M640

Technical Specifications

Regulatory Model: HHB Series
Regulatory Type: HHB006

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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PowerEdge M640 overview

The PowerEdge M640 is a half-height blade supported on the PowerEdge M1000e enclosure and support up to:

- two 2.5 inch hard drives/SSDs
- two Intel Xeonscalablefamilyprocessors
- 16 DIMMs

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

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Technical specifications

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

Topics:

- System dimensions
- System weight
- Processor specifications
- System battery specifications
- Memory specifications
- Storage controller specifications
- Drive specifications
- Ports and connectors specifications
- Video specifications
- Environmental specifications

System dimensions

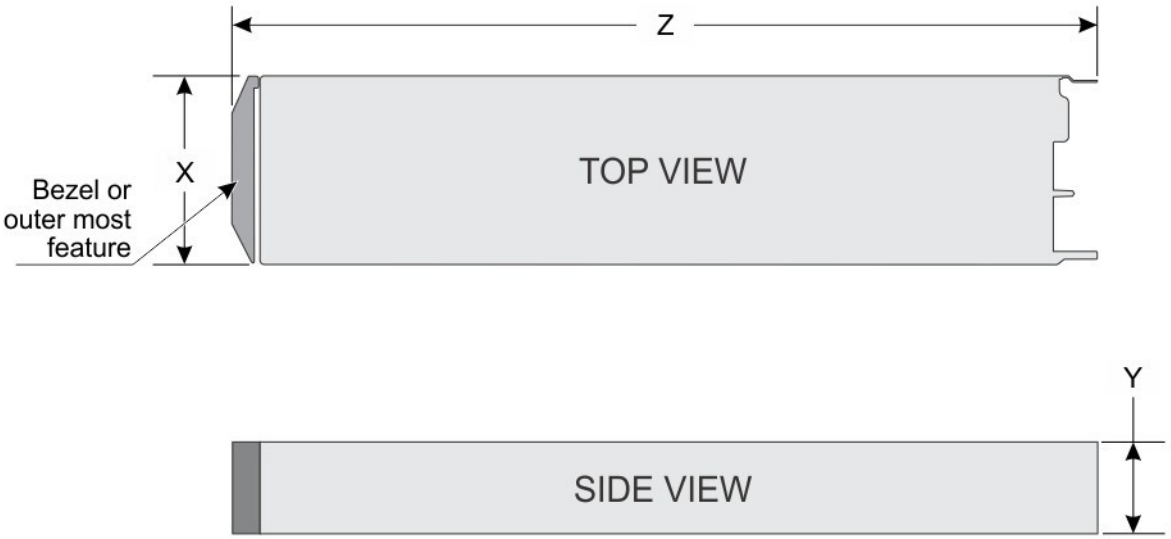

Figure 1. System dimensions

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

System	X	Y	Z (handle closed)
Dell EMC PowerEdge M640	197.9 mm (7.79 inches)	50.35 mm (1.98 inches)	544.32 mm (21.42 inches)

System weight

Table 2. System weight

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

Processor specifications

The PowerEdge M640 system supports up to two Intel Xeon scalable family processors.

System battery specifications

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

Memory specifications

The PowerEdge M640 system supports DDR4 registered DIMMs (RDIMMs) and load-reduced DIMMs (LRDIMMs). Supported memory bus frequencies are 2133 MT/s, 2400 MT/s, and 2666 MT/s.

Table 3. Memory specifications

Memory module sockets	Memory capacity	Minimum RAM	Maximum RAM
Sixteen 288-pin	· 8 GB, 16 GB, or 32 GB single rank or dual rank (RDIMMs) · 64 GB quad rank (LRDIMMs)	8 GB with dual processors (minimum one memory module per processor)	· Up to 512 GB RDIMM · Up to 1 TB LRDIMM

Storage controller specifications

The PowerEdge M640 system supports PowerEdge RAID Controller (PERC) H330, PERC H730P, S140 (SATA and NVMe drives), and Boot Optimized Server Storage (BOSS M.2).

Drive specifications

Hard drives

The PowerEdge M640 system supports up to two 2.5-inch, hot-swappable SAS/SATA hard drives, SSDs, or PCIe NVMe drives.

Ports and connectors specifications

USB ports

The PowerEdge M640 system supports:

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

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

Internal Dual SD Module

The 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 branded micro SD cards associated with the IDSDM/micro SD vFlash configured systems.

Micro SD vFlash connector

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

Video specifications

Table 4. Video specifications

Video type	Matrox G200 graphics controller integrated with iDRAC
Video memory	4 GB DDR4 shared with iDRAC application memory

Environmental specifications

NOTE: For additional information about environmental measurements for specific system configurations, see Dell.com/environmental_datasheets.

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. 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.

Particulatecontamination	Specifications
	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. NOTE: 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. 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.

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.
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
Less than or equal to 10% of annual operating hours	5°C to 40°C at 5% to 85% RH with 29°C dew point. 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. 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).
Less than or equal to 1% of annual operating hours	-5°C to 45°C at 5% to 90% RH with 29°C dew point.

Expanded operating temperature	Specifications
	NOTE: Outsidethestandardoperatingtemperature (10°Cto 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. For temperatures between 40°C and 45°C, de-rate maximum allowable temperatureby1°Cper125mabove950m(1°Fper228ft).

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

NOTE: Whenoperatingintheexpandedtemperaturerange, ambienttemperaturewarningsmaybereportedonthe LCDpaneland in the System Event Log.

Expanded operating temperature restrictions

The expanded operating temperature restrictions for the FC640 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, are not supported.

Thermal Restriction matrix

Table 15. Thermal restrictions matrix

Thermal Design Power (TDP) for the processor	Core count	Processors	Ambient restriction
165W	28/26/18	8176; 8170; 6150	C30, DIMM limit 1*
150W	26/24/20	8164; 8160; 6148	C30
150W	16/12	6142; 6136; 8158	C30
140W	22/18	6152; 6140	C35
140W	14	6132	C30
130W	8	6134	C30
125W	20/16	6138; 6130; 8153	C35
125W	12	6126	C35
115W	6	6128	C30
105W	4	5122; 8156	C30
105W	14/12	5120; 5118	C40** E45***
85W	12/10/8/6/4	4116; 5115; 4114; 4110; 4108; 3106; 3104; 4112	C40** E45***
150W	24	8160T	C25
125W	20	6138T	C30

Thermal Design Power (TDP) for the processor	Core count	Processors	Ambient restriction
125W	16	6130T	C30
125W	12	6126T	C30
105W	14	5120T	C30
85W	14	5119T	C40** E45***
85W	12	4116T	C40** E45***
85W	10	4114T	C40** E45***
70W	8	4109T	C40** E45***

* DIMMlimit 1 – Max 64 GBLRDIMMs. No 128GB, No AEP(Apache Pass). Thisisapplicableonlyforsystemswithdualprocessors.

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

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

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Documentation resources

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

Table 16. Additional documentation resources for your system

Task	Document	Location
Setting up your system	For more information about installing and securing the system into a rack, see the rack documentation included with your racksolution.	Dell.com/poweredgemanuals
	For information about installing the system into the enclosure, see the *Getting Started Guide* document that is shipped with your system.	
	For information about setting up and turning on the system, see the *Getting Started Guide* document that is shipped with your system.	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 Integrated Dell Remote Access Controller User's Guide.	Dell.com/idracmanuals
	For information about installing the operating system, see the operating system documentation.	Dell.com/operatingsystemmanuals
	For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the RACADM Command Line Reference Guide for iDRAC.	Dell.com/idracmanuals
	For information about updating drivers and firmware, see the Methods to download firmware and drivers section in this document.	To download drivers: Dell.com/support/drivers
Managing your system	For information about systems management software offered by Dell, see the Dell OpenManage Systems Management Overview Guide.	Dell.com/openmanagemanuals
	For information about setting up, using, and troubleshooting OpenManage, see the Dell OpenManage Server Administrator User's Guide.	Dell.com/openmanagemanuals
	For information about installing, using, and troubleshooting Dell OpenManage Essentials, see the Dell OpenManage Essentials User's Guide.	Dell.com/openmanagemanuals
	For information about installing and using Dell SupportAssist, see the Dell EMC SupportAssist Enterprise User's Guide.	Dell.com/serviceabilitytools

Task	Document	Location
	For understanding the features of Dell Lifecycle Controller, see the Dell Lifecycle Controller User's Guide.	Dell.com/idracmanuals
	For information about partner programs enterprise systems management, see the OpenManage Connections Enterprise Systems Management documents.	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.	Dell.com/cmcmanuals
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.	Dell.com/storagecontrollermanuals
Understanding event and error messages	For information about checking the event and error messages generated by the system firmware and agents that monitor system components, see the Dell Event and Error Messages Reference Guide.	Dell.com/openmanagemanuals > OpenManage software
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.	Dell.com/poweredgemanuals

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Getting help

Topics:

- Receiving automated support with SupportAssist
- Contacting Dell
- Documentation feedback
- Accessingsysteminformationbyusing QRL

Receiving automated support with SupportAssist

Dell SupportAssist is an optional Dell Services offering that automates technical support for your Dell 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 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 Technical Support.
- Automated diagnostic collection — SupportAssist automatically collects system state information from your devices and uploads it securelyto Dell. Thisinformationisusedby Dell Technical Supporttotroubleshoottheissue.
- Proactive contact — A Dell Technical Support agent contacts you about the support case and helps you resolve the issue.

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

Contacting Dell

Dell 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 product catalog. Availability varies by country and product, and some services may not be available in your area. Tocontact Dell for sales, technical assistance, or customer service issues:

1. Go to Dell.com/support.
2. Select your country from the drop-down menu on the lower right corner of the page.
3. For customized support:
   a. EnteryoursystemService TagintheEnteryourService Tagfield.
   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 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 Global Technical Support team.

Documentation feedback

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

Accessing system information by using QRL

You can use the Quick Resource Locator (QRL) to get immediate access to the information about your system. The QRL is located on the top of the system cover and provides access to generic information about your system. If you want to access information specific to the system service tag, such as configuration and warranty, you can access QR code located on the system Information tag.

Prerequisites

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

The QRL includes the following information about your system:

- How-to videos
- Reference materials, including the Owner's Manual, LCD diagnostics, and mechanical overview
- A direct link to Dell to contact technical assistance and sales teams

Steps

1. Go to 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 PowerEdge system or in the Quick Resource Locator section.

Quick Resource Locator for PowerEdge M640 system

Figure 2. Quick Resource Locator for PowerEdge M640 system

Appendix. Supported processor for M640

Processor	SKU type	Clock (GHz)	Core	Memory Speed(MHz)	TDP(W)
8176	Platinum	2.1	28	2666	165W
4110	Silver	2.1	8	2400	85W
6140M	Gold	2.3	18	2666	140W
8160	Platinum	2.1	24	2666	150W
6138	Gold	2	20	2666	125W
3104	Bronze	1.7	6	2133	85W
6152	Gold	2.1	22	2666	140W
4114	Silver	2.2	10	2400	85W
6148	Gold	2.4	20	2666	150W
6126	Gold	2.6	12	2666	125W
4116	Silver	2.1	12	2400	85W
6150	Gold	2.7	18	2666	165W
5120	Gold	2.2	14	2400	105W
6130	Gold	2.1	16	2666	125W
6134M	Gold	3.2	8	2666	130W
6136	Gold	3	12	2666	150W
6134	Gold	3.2	8	2666	130W
8160M	Platinum	2.1	24	2666	150W
6128	Gold	3.4	6	2666	115W
6132	Gold	2.6	14	2666	140W
6142	Gold	2.6	16	2666	150W
3106	Bronze	1.7	8	2133	85W
6140	Gold	2.3	18	2666	140W
5118	Gold	2.3	12	2400	105W
5122	Gold	3.6	4	2666	105W
4112	Silver	2.6	4	2400	85W
4108	Silver	1.8	8	2400	85W