

Dell EMC PowerEdge T40



The Dell EMC PowerEdge T40 is the dependable building block for your small business. The Dell EMC PowerEdge T40 is the on-premise dependable and efficient 1S tower server you can wisely invest in to support your growing business.

© 2018 Dell Inc. or its subsidiaries. All rights reserved. Dell, EMC, and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.

2019 - 06

Rev. A00

Contents

1 Product overview.....	5
Introduction.....	5
New technologies.....	5
2 System features.....	6
Product comparison.....	6
Product specifications.....	6
3 Chassis views and features.....	8
System configurations.....	8
Front view of the system.....	9
Rear view of the system.....	10
Inside the system.....	11
Locating the information tag of your system.....	11
4 Processors.....	12
Processor features.....	12
Supported processors.....	12
Chipset.....	12
5 Memory	15
Supported memory.....	15
Memory speed.....	15
6 Storage.....	17
Supported hard drives.....	17
Storage controllers.....	17
Optical drives.....	17
7 Networking and PCIe.....	18
PCIe slots.....	18
PCI card dimensions.....	18
8 Power, thermal, and acoustics.....	19
Power.....	19
Thermal.....	20
Thermal design.....	20
Acoustics.....	21
9 Appendix A. Additional specifications.....	23
Chassis dimensions.....	23
Video.....	23

USB ports.....23
Environmental specifications..... 24

10 Appendix B. Standards compliance..... 25

11 Appendix C Additional resources..... 26

Product overview

Introduction

The Dell EMC PowerEdge T40 is the on-site dependable and efficient server you can wisely invest in to support your small business or remote offices. The foundational features of the T40 enable you to easily consolidate, store, and share files with colleagues. The T40 enables you to address common business workloads affordably. It is ideal for business applications like file and print and mail and messaging. This server can be used in many different industries.

New technologies

The following table shows the list of new technologies offered by the PowerEdge T40:

New Technologies	Detailed Descriptions
Intel® Xeon® processor E-2224G	The latest Xeon E-2224G processor has increased CPU speed and embedded PCIe lanes that will improve the IO performance and hardware-enhanced security. Please refer to the Processors section for details.
Intel® C246 series chipset	C246 is the latest chipset for workstation and AMT (Intel® Active Management Technology) Server, please refer to the Chipset section for details.
DDR4 memory with higher bandwidth	Up to 64GB DDR4 2666 MT/s
New Windows Server OS Support	Windows Server 2019 and Windows Server 2016 support

System features

Product comparison

The following table shows the comparison between the PowerEdge T40 and PowerEdge T30:

Feature Improvements	T40	T30
Newest Coffee Lake-S refresh processor	<ul style="list-style-type: none"> Intel® Xeon® E2224G 	<ul style="list-style-type: none"> Intel® Xeon® E3-1200 v5
Latest Chipset	Intel® C246	Intel® C236
DDR4 Memory with higher bandwidth	Up to 64GB DDR4 2666 MT/s	Up to 64GB DDR4 2133 MT/s
Updated basic systems management	Intel® AMT 12.0	Intel® AMT 11.0
New Server OS support	<ul style="list-style-type: none"> Windows Server 2019 Windows Server 2016 Ubuntu Server 18.04 LTS 	<ul style="list-style-type: none"> Windows Server 2016 Windows Server 2012 Windows Server 2012 R2 Windows Server 2008 R2 (test only) RHEL 7.2 Ubuntu 14.04, 16.04
Smaller Chassis	20.4L	27.4L

Product specifications

The following table list the technical specifications for the PowerEdge T40:

Table 1. Product specifications of the PowerEdge T40

Feature	Technical specifications
Form Factor	Tower
Processors	Intel® Xeon® processor E-2224G (TDP 71W)
Processor Sockets	1
Front Side Bus or Hyper Transport	DMI 3.0
Cache	8MB for quad core Xeon E-2224G
Chipset	Intel C246
Memory	Up to 64GB (4 DIMM Slots) 8GB/16GB 2666MT/s Unbuffered with ECC
MIN/ MAX RAM	Xeon configuration: 8GB/64GB (ships standard with 8GB DIMM)

Feature	Technical specifications
I/O Slots	3 PCIe slots: One PCIe Gen3 x16 slot with x16 Connector Two PCIe Gen3 x4 slot with x4 Connector (Open End) One PCI slot
RAID Controller	<ul style="list-style-type: none"> • Internal Controllers: Intel VROC 6.X • External Controllers: N/A
Drive Bays	Up to three 3.5 -inch cabled SATA drives
Maximum Internal Storage	12TB for 3 HDD config (12TB with 3 x 3.5 -inch 4TB 5.4K SATA)
SATA Hard Drives	3.5 -inch Client SATA (7.2K RPM) 1TB (with standard pre-configured server models) 3.5 -inch Client SATA (7.2K RPM) 2TB; (cuskit offering) 3.5 -inch Client SATA (5.4K RPM) 4TB (cuskit offering)
Embedded LOM/	Integrated Intel® I219 Gigabit Ethernet LAN 10/100/1000
NIC	
Power Supply	Cabled 300W Bronze with auto sensing Power supply
Availability	<ul style="list-style-type: none"> • ECC Memory • Intel VROC (Previously known as RSTe) SW RAID • TPM2.0 (WW offering, exclude China & Russia)
Video	Integrated graphic : <ul style="list-style-type: none"> • Xeon E-2224G: Integrated Intel® UHD Graphics P630
Remote Management	Intel AMT 12.0 (Only on Xeon CPU)
Systems Management	<ul style="list-style-type: none"> • Intel AMT 12.0 (Only on Xeon CPU)

Chassis views and features

System configurations

The PowerEdge T40 offers 3 types of configurations:

The following table shows the types supported configurations:

Table 2. System configurations

Configurations	Details
Configuration	1x CPU Xeon E-2224G 1X8GB ECC UDIMM 2666 MT/s 1X1TB 7.2K RPM Client SATA HDD DVD +/- R/W 300W Bronze PSU
Drop in the box items/ship from Parts and Accessories and S&P	2 nd - 4 th DIMM 2 nd - 3rd HDD OS

Front view of the system

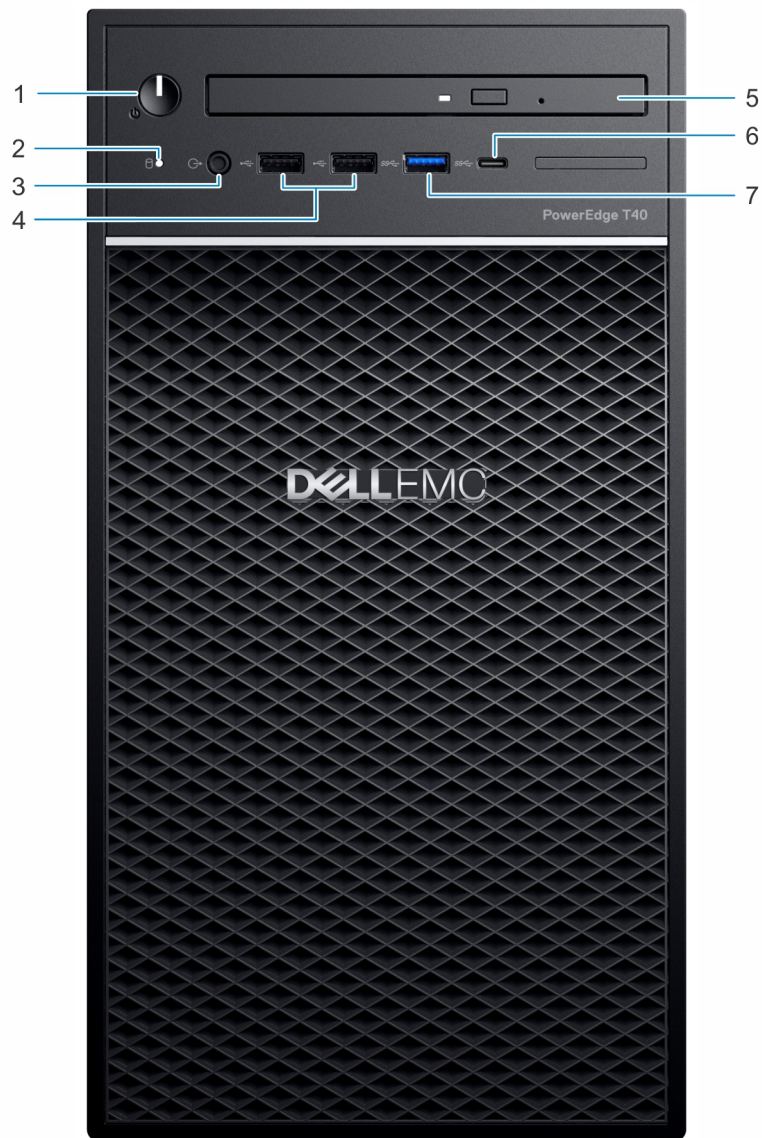


Figure 1. Front view of the system

- | | |
|---------------------------------------|---------------------------------|
| 1. Power button/Diagnostics indicator | 2. Drive activity LED indicator |
| 3. 3.5 mm Headphone port | 4. USB 2.0 Type-A port (2) |
| 5. Optical drive | 6. USB 3.1 Type-C port |
| 7. USB 3.0 Type-A port | |

Rear view of the system

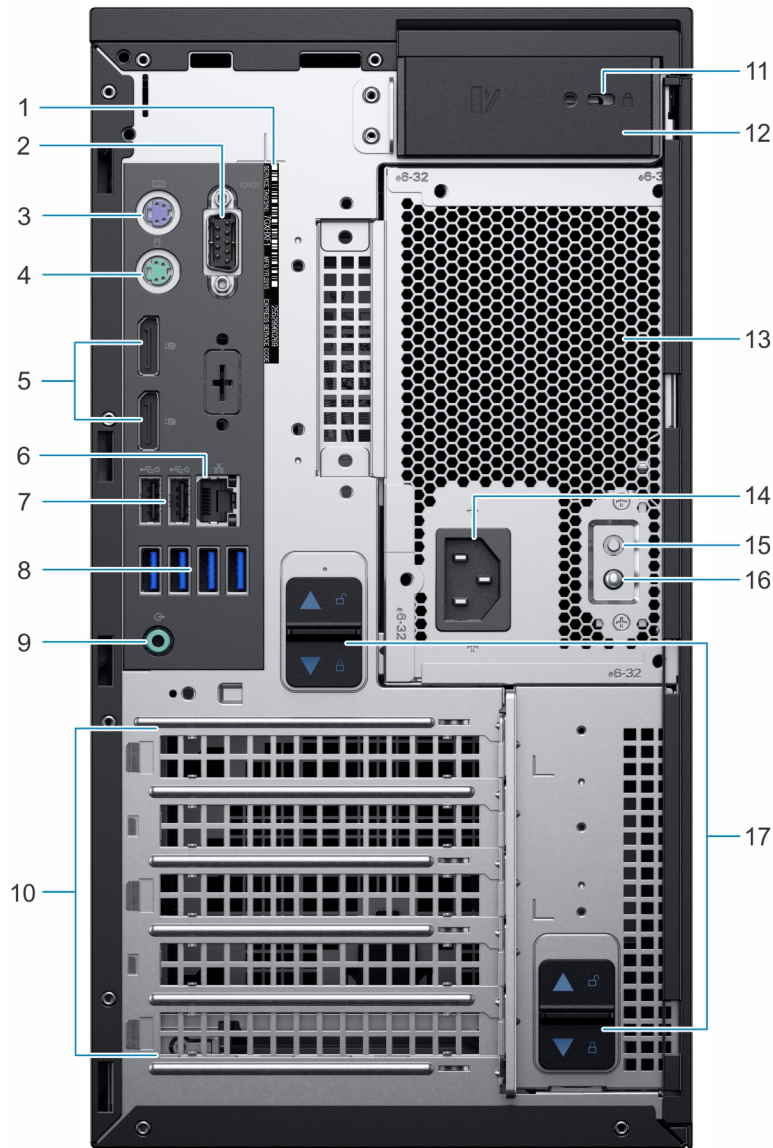


Figure 2. Rear view of the system

- | | |
|--|---|
| 1. Service tag | 2. Serial port |
| 3. PS2 port (Keyboard) | 4. PS2 port (Mouse) |
| 5. Display Port (2) | 6. NIC port |
| 7. USB 2.0 Type-A with SmartPower (2) | 8. USB 3.0 Type-A ports (4) |
| 9. Audio line-out port | 10. Expansion card slots (4) |
| 11. Kensington/padlock slot | 12. System cover release latch |
| 13. Power Supply Unit (PSU) | 14. Power connector port |
| 15. Power Supply Unit (PSU) Built-in Self Test (BIST) button | 16. Power Supply Unit (PSU) Built-in Self Test (BIST) LED |
| 17. PSU hinge release latch | |

Inside the system



Figure 3. Inside the system

- | | | | |
|----|--------------------------------|----|------------------|
| 1. | Cabled Power Supply Unit (PSU) | 2. | Intrusion switch |
| 3. | Cabled drive 01 | 4. | Cabled drive 02 |
| 5. | System board | 6. | Cabled drive 03 |
| 7. | Expansion card slots (4) | | |

Locating the information tag of your system

Your system is identified by a unique Express Service Code and Service Tag number. The Express Service Code is found on a sticker on the top surface of the system and Service Tag is found on a sticker on the rear of the system. This information is used by Dell to route support calls to the appropriate personnel.

Processors

The PowerEdge T40 system introduces a single socket, entry-level server based on the Intel® socket LGA1151 to support Intel® Xeon® processors.

Processor features

The following list highlights the features of the PowerEdge T40 processor:

- Increased performance with up to 4 processor cores
- Media and display features for premium 4K content support
- Intel SGX: enclave memory size increase on upcoming 4 core SKUs
- Four DMI3 lanes
- 16 PCIe Gen 3 links capable of 8.0 GT/s
- Socket H4, LGA package (LGA1151)
- Integrated 2 channel DDR4 memory controller
- Execute Disable Bit
- Support Turbo Boost Technology 2.0
- Increases CPU frequency if operating below thermal, power, and current limits
- Intel® Virtualization Technology (Intel® VT)

Supported processors

The following table lists the supported processors for the PowerEdge T40:

Model	Speed (GHz)	Power (Watts)	Cores	L2/L3 Cache (MB)	Threads	Turbo	Memory (MHz)	Process	RTS
E- 2224G	3.50	71W	4	8	4	Yes (up to 4.70GHz)	2666	14nm	RTS


Chipset

The following features supported by the chipset and may not be implemented on T40:

Table 3. Chipset features

PCH feature	C246	T40
TXT	Y	Y
Node Manager	Y	N
ECC	Y	Y
Intel vPRO/AMT12	Y	AMT 12 only
Rapid Storage technology	Y	N

PCH feature	C246	T40
vROC (Previously known as RSTe- Rapid Storage technology enterprise)	Y	Y
Integrated processor graphics	Y	Y
Int. Gbe MAC	Y	N
eSPI	Y	N
IO Flex	Y	Y
Software Guard Extensions (SGX)	Y	Y
USB3.1 Gen1 Up to	10	5
USB3.1 Gen2 Up to	6	1
USB 2.0 Up to	14	10
SATA 3.0 ports Up to	8	4
SATA Express ports Up to	3	0
PCIe 3.0 ports	24	10
SPI (MB) FW image	7	UI
supported displays	3	2X DP

- Active Management Technology (AMT):
 - The T40 supports AMT 12.0. Details please refer to Server Management section
 - DMI interface:
 - Direct Media Interface 3 (DMI3) connects the CPU1 to the PCH. DMI3 is like a four -lane PCI Express supporting a speed of 8 GT/s per lane.
 - PCI Express interface:
 - PCI Express Generation 3 (PCIe Gen3) is capable of 8 GT/s bit rate (compared to PCIe Gen 2's 5 GT/s) per lane.
 - AHCI:
 - The PCH SATA controller provides hardware support for Advanced Host Controller Interface (AHCI), a standardized programming interface for SATA host controllers developed through a joint industry effort. Platforms supporting AHCI may take advantage of performance features such as port independent DMA Engines-each device is treated as a master-and hardware-assisted native command queuing.
 - AHCI defines transactions between the SATA controller and software and enables advanced performance and usability with SATA. Platforms supporting AHCI may take advantage of performance features such as no master/slave designation for SATA devices-each device is treated as a master-and hardware assisted native command queuing. AHCI also provides usability enhancements such as hot-plug and advanced power management. AHCI requires appropriate software support (such as, an AHCI driver) and for some features, hardware support in the SATA device or additional platform hardware. Visit the Intel web site for current information on the AHCI specification.
 - The PCH SATA controller supports all the mandatory features of the Serial ATA Advanced Host Controller Interface Specification, Revision 1.3.1 and many optional features, such as hardware assisted native command queuing, aggressive power management, LED indicator support, and hot-plug using interlock switch support (additional platform hardware and software may be required depending upon the implementation).
-  NOTE: For reliable device removal notification while in AHCI operation without the use of interlock switches (surprise removal), interface power management should be disabled or the associated port.**
- Low Pin Count Interface (LPC):
 - The PCH implements an LPC interface as described in the Low Pin Count Interface Specification, Revision 1.1 <http://www.intel.com/design/chipsets/industry/lpc.htm>.
 - Serial Peripheral Interface (SPI):

- The PCH provides one Serial Peripheral Interface (SPI). The interface implements 3 Chip Select signals (CS#), allowing up to two flash devices and one TPM device to be connected to the PCH. The CS0# and CS1# are used for flash devices and CS2# is dedicated to TPM.
- The SPI interfaces support either 1.8V or 3.3V.



NOTE: The SPI interface covered in this chapter is for flash and TPM support only. This interface is distinct from the other SPIs described in this document such as the Generic SPI (GSPI).

- Advanced Programmable Interrupt Controller (APIC):
 - The I/O APIC within the PCH supports 40 APIC interrupts. Each interrupt has its own unique vector assigned by software. The I/O APIC handles interrupts very differently than the 8259. Briefly, these differences are:
 - Method of Interrupt Transmission. The I/O APIC transmits interrupts through memory writes on the normal data path to the processor, and interrupts are handled without the need for the processor to run an interrupt acknowledge cycle.
 - Interrupt Priority. The priority of interrupts in the I/O APIC is independent of the interrupt number. For example, interrupt 10 can be given a higher priority than interrupt 3.
 - More Interrupts. The I/O APIC in the PCH supports a total of 24 interrupts.
 - Multiple Interrupt Controllers. The I/O APIC architecture allows for multiple I/O APIC devices in the system with their own interrupt vectors.
- RTC:
 - The PCH contains a Motorola MC146818B-compatible real-time clock with 256 bytes of battery-backed RAM. The Real-Time Clock (RTC) performs two key functions—keeping track of the time of day and storing system data, even when the system is powered down. The RTC operates on a 32.768-KHz crystal and a 3V battery.
 - The RTC also supports two lockable memory ranges. By setting bits in the configuration space, two 8-byte ranges can be locked to read and write accesses. This prevents unauthorized reading of passwords or other system security information.
 - The RTC also supports a date alarm that allows for scheduling a wake-up event up to 30 days in advance, rather than just 24 hours in advance
- GPIO:
 - GPIO Serial Expander (GSX) is the capability provided by the PCH to expand the GPIOs on a platform that needs more GPIOs than the ones provided by the PCH. The solution requires external shift register discrete components.
- System Management Bus (SMBus 2.0):
 - The PCH provides a System Management Bus (SMBus) 2.0 host controller as well as an SMBus Slave Interface. The PCH is also capable of operating in a mode in which it can communicate with I2C compatible devices. The host SMBus controller supports up to 100- KHz clock speed.
- JTAG Boundary-Scan
 - This section contains information regarding the PCH testability signals that provides access to JTAG, run control, system control, and observation resources. PCH JTAG (TAP) ports are compatible with the IEEE Standard Test Access Port and Boundary Scan Architecture 1149.1 and 1149.6 Specification, as detailed per device in each BSDL file. JTAG Pin definitions are from IEEE Standard Test Access Port and Boundary-Scan.
- Software Guard Extensions (SGX)
 - SGX is a feature supported on the T40.

Memory

The PowerEdge T40 supports up to four DDR4 DIMMs. It is designed to support the socket H4, Intel® Coffee Lake class CPU, which has 2 memory channels per CPU, with each channel supporting up to 2 DIMMs. The maximum system population at launch will be 64GB. The minimum system population is one 8GB DIMM.

Dell EMC recommends ECC memory to minimize the risk of uncorrectable system error, data loss and/or silent data corruption. Non-ECC memory shall never be used for mission-critical applications.

The following table shows the specifications for the DIMMs:

Features	Specifications
DIMM types	Unbuffered ECC DDR4 DIMMs
Max Frequency	2666 MT/s
DIMM Slots	4
DIMM Channels	2 channels per processor
Support Memory DIMM capacity	<ul style="list-style-type: none"> 8GB(ECC) 16GB (ECC)
Minimum & Maximum System Memory	8GB (Minimum) & 64GB (Maximum)
Memory Ranks	Single Rank and Dual Rank DIMMs are supported

Supported memory

The following table list the supported DIMMs for the PowerEdge T40:

DIMM Speed (MT/s)	DIMM Type	DIMM Capacity (GB)	Ranks per DIMM	Data Width	DIMM Voltage
2666	ECC UDIMM	8	1	x8	1.2
2666	ECC UDIMM	16	2	x8	1.2

Memory speed

The PowerEdge T40 supports 2666MT/s DDR4 memory. This system will run all memory on all CPUs and channels at the same speed and voltage. By default, the system will run at the highest speed for the lowest voltage of the worst-case channel DIMM configuration.

Operating speed of the system is determined by:

- Supported speed of DIMMs
- DIMM configuration on any channel
- Max speed supported by the CPU
- Speed request by user in BIOS setup screen

Operating voltage of the system is determined by:

- Voltages supported by the DIMMs which is 1.2V.
- Voltages supported by the platform.
- Configuration of the DIMM

Storage

The list below are basic information about hard drive storage for the PowerEdge T40:

- The PowerEdge T40 supports up to 3 x3.5 -inch entry level HDD
- 3 x 3.5 -inch cabled SATA from the system board SATA connector
- The T40 factory configuration only comes with 1 set of HDD/HDD carrier.
- If the customer wants to install 2nd or 3rd HDD they need to purchase APOS cust kit. The APOS cust kit includes the HDD, HDD carrier and cable.

Supported hard drives

The following table shows the supported hard drives for the PowerEdge T40:

HDD type	Capacity	Rotation Speed	Description	Vendor	Available Time	HDD Category
3.5 -inch SATA	1TB	7.2K	HD,1TB,S3,7.2K,512E,PH-OASIS	Seagate	RTS	Entry
3.5 -inch SATA	1TB	7.2K	HD,1TB,S3,7.2K,512E,TSH-MARS	Toshiba	RTS	Entry
3.5 -inch SATA	1TB	7.2K	HD,1T,S3,7.2K,3.5,512E,XL1000C	Western Digital	RTS	Entry
3.5 -inch SATA	2TB	7.2K	HD,2T,S3,7.2,3.5,SMR,SGT-V11X	Seagate	RTS	Entry
3.5 -inch SATA	2TB	7.2K	HD,2TB,S3,7.2K,512E,TSH-MARS	Toshiba	RTS	Entry
3.5 -inch SATA	4TB	5.4K	HD,4T,5.4,3.5,26,WD-GP1334M	Western Digital	RTS	Entry
3.5 -inch SATA	4TB	5.4K	HD,4T,S3,5.4,3.5,SMR,SGT-V11	Seagate	RTS	Entry

Storage controllers

The PowerEdge T40 supports Intel® VROC (Virtual RAID on CPU) software RAID. Intel® VROC supports RAID modes 0,1,5, and 10. However, the T40 does not support RAID 10 as RAID 10 is supported only on system with 4 entry level HDDs

Optical drives

T40 supports one internal Ultra Slim optical drive and can boot from internal optical drive.

DVD Type	Description	Time
8X (DVDRW)	SLIM SATA TRAY SMD NO BZL A03 (DVD+/-RW, 8X, 9.5T,GU90N,HLDS)	RTS
8X (DVDRW)	ULTRA SLIM SATA DVD S-MULIT DL (DVD+/-RW,8X,9.5T,PLDS)	RTS

Networking and PCIe

The PowerEdge T40 uses a dedicated RJ-45 Management 10/100/1000 Mbps Ethernet port in rear of server .

PCIe slots

The PowerEdge T40 provides the following PCIe slots:

- Slot 1 : PCIe Gen3 x16 (x16 Connector) - FH/HL , from CPU
- Slot 2 : PCI - FH/HL from PCH
- Slot 3 : PCIe Gen3 x4 (x4 Connector) - FH/HL(Open ended) , from PCH
- Slot 4 : PCIe Gen3 x4 (x4 Connector) - FH/HL(Open ended) , from PCH

NOTE:

- Supports 25W maximum power for all four PCIe cards.
- Does not support hot-swapping of PCIe cards.
- Does not support PCIe cards with extra 6-pin/8-pin power connector needed.

PCI card dimensions

Slots	Type	Voltage supported	Max Height (inch ,cm)	Max Length (inch, cm)	Max Wattage	Cards supported
Slot 1	PCIe x16 Gen3	3.3V/12V	Standard Height 4.38 in / 11.13 cm	Harlf Length 6.6 in/ 16.76 cm	75	Graphics, Gigabit NIC, Parallel / Serial
Slot 2	PCI	3.3V/5V/12V/-12V	Standard Height 4.38 in / 11.13 cm	Harlf Length 6.6 in/ 16.76 cm	25	1394
Slot 3	PCIe x4 Gen3	3.3V/12V	Standard Height 4.38 in / 11.13 cm	Harlf Length 6.6 in/ 16.76 cm	25	Gigabit NIC, Parallel / Serial
Slot 4	PCIe x 4 Gen3	3.3V/12V	Standard Height 4.38 in / 11.13 cm	Harlf Length 6.6 in/ 16.76 cm	25	Graphics, Gigabit NIC, Parallel / Serial

Power, thermal, and acoustics

Power

The base system will include a single 300W power supply. This unit will provide power to the T40 system board and the three internal hard drive bays. Power will be "soft-switched" allowing power cycling via a switch on the front of the system enclosure, or via software control (through server management functions.) The power system will be compatible with industry standards, such as ACPI and Server 2000.

To supply power to the processors, standard VRD modules that conform to VRD (VRD12 Bromolow) specification. This approach reduces the board layout complexity while offering design modularity.

The following table shows the specifications of the power supply:

Table 4. Power supply specifications

Attribute	Value
Power Supply	APFC
Wattage	300W
AC input Voltage Range	100Vac - 240 Vac
AC input current (low AC range/high AC range)	6A / 3A
AC input Frequency	50Hz to 60Hz
AC holdup time (80% load)	16 mS
Average Efficiency	EPA Bronze: 82-85-82% @20-50-100% load

Table 5. DC parameters

Attribute	Value
+12.0V output	12VB/16.5A; 12VC/16A
+5.1V auxiliary output	4.0A
+5.1V	13A
+3.3V	10A
Maximum continuous total DC output power	300W
The maximum continuous combined output power (12VB&12VC)	216W
Max Heat dissipation	1024 BTU/hr.
Power Supply Fan	92mm *25mm

Table 6. Compliance

Attribute	Value
ErP Lot3	Yes
Climate Savers / 80Plus Compliant	Yes

Attribute	Value
FEMP Standby Power Compliant	Yes
CECP Compliant	Yes
CEC Compliant	Yes

Table 7. Key specifications and efficiency

Attribute	Value
80 Plus	Bronze
Power Factor Correction	Active
FCC Classification	Class B
Max Output Current	12V / 16.5A ; Standby / 4.0A
Input Voltage Range	90V - 264V AC
Iin (100-200VAC)	3A -6A
Initial In-rush Current	110A (peak)
Secondary In-rush Current	35A (peak)

Thermal

PowerEdge servers have an extensive collection of sensors that automatically track thermal activity, which helps regulate temperature thereby reducing server noise and power consumption.

Thermal management of PowerEdge T40 delivers high performance for the right amount of cooling to components at the lowest fan speeds across a wide range of ambient temperatures from 10°C to 35°C (50°F to 95°F). The benefits to you are lower fan power consumption (lower server system power and data center power consumption) and greater acoustical versatility

Thermal design

PowerEdge T40 server cooling builds on the features and capability of previous Dell EMC servers but expands support for higher power processors. A new chassis mechanical architecture enables increased airflow capability for cooling of higher power and dense system configurations and results in fewer system restrictions and increased feature density.

Dell Server Thermal, Mechanical, and Thermal Control designs are based on the following key tenets and order of priority:

Reliability:

- Component hardware remains the top thermal priority.
- System thermal architectures and thermal control algorithms are designed to ensure there are no tradeoffs in system level hardware life.

Performance:

- Performance and uptime are maximized through the development of cooling solutions that meet the needs of even the densest of hardware configurations.

Efficiency:

- T40 is designed with an efficient thermal solution to minimize power and airflow consumption, and/or acoustics for acoustical deployments.
- Dell EMC's advanced thermal control algorithms enable minimization of system fans speeds while meeting the above Reliability and Performance tenets.

Management:

- System management settings are provided such that customers have options to customize for their unique hardware, environments, and/or workloads.

Forward compatibility:

- Forward compatibility means that thermal controls and thermal architecture solutions are robust to scale to new components that historically would have otherwise required firmware updates to ensure proper cooling.
- The frequency of required firmware updates is thus reduced.

The following table summarizes the standard environmental limits for the PowerEdge T40:

Temperature	Specifications
Storage	-40C to 65C (-40F - 149F)
Continuous operation (for altitude less than 950m or 3117 ft)	10C to 35C (50F to 95F) with no direct sunlight on the equipment
Maximum temperature gradient (operating and storage)	20C/h (36F/h)

Acoustics

Optimized thermal management makes the PowerEdge T40 cool and quiet. Benefitting from smart cooling thermal control algorithm, the T40 can keep both high performance and good acoustics across a wide range of ambient temperatures (5°C ~ 35°C). Though the fan-induced sound is inevitable for cooling purposes, thermal control is optimized at normal operating condition and the sound should be unnoticeable when the system is working in typical environment (~45dBA). However, the acoustic noise might be noticeable at CPU stress condition to support higher system performance.

The following table shows the acoustic test result for the PowerEdge T40:

Stress Mode	Configuration	LWA (Bels)
Idle	<ul style="list-style-type: none"> • Xeon E- 2224G • 1x 8G 2666 ECC DIMM 	3.4
CPU Stress	<ul style="list-style-type: none"> • 1 x 1TB 7.2K RPM 3.5 -inch HDD 	4.8
HDD Stress		3.4

When Dell EMC determines that a specific enterprise product is to be used on a table-top in office environment, around a seated user's head height, then the acoustical specification of following table applies. Small, light-weight towers are examples of these types of products.

The following table shows the category 1 acoustics for the PowerEdge T40:

Measurement Position re AC0158	Metric, re AC0159	Test Modes, re AC0159 (note must be in steady state, see AC0159, except where noted below)			
		Standby in 23±2°C Ambient	Idle in 23±2°C Ambient	Operating in 23±2°C Ambient - if not otherwise specified in the program's configuration document, then processor and hard drive operating modes are required	Simulate (i.e., set fan speeds representative) for Idle at 28 & 35°C Ambient, and for 100% loading and maximum configuration, at 35°C Ambient

Sound Power	LwA-UL, bels	≤ 4.5	≤ 5.0	≤ 5.3	Report
Sound Quality (both positions must meet limits): Front Binaural HEAD and Rear Microphone	Tones, Hz, dB	No prominent tones per criteria D.10.6 and D.10.8 of ECMA-74			Report tones
	Tonality, tu	≤ 0.35	≤ 0.35	≤ 0.35	Report
	Dell Modulation, %	≤ 35	≤ 35	≤ 35	Report
	Loudness, sones	Report	Report	Report	Report
	LpA-single point, dBA	Report	Report	Report	Report
Front Binaural HEAD	Transients	<ul style="list-style-type: none"> • Oscillation (see AC0159), if observed, during 20-minute steady-state observation, must adhere to the following two criteria: <ul style="list-style-type: none"> – Max. {ΔLpA} < 3.0 dB – Event count < 3 for "1.5 dB < ΔLpA < 3.0 dB" • Overshoot (see AC0159), ΔLpA, during fan speed transitions between idle and operating states or between any two operating states must be < 3.0 dB • Startup behavior: <ul style="list-style-type: none"> – Report Startup behavior re AC0159 – Startup must proceed smoothly, i.e., no sudden or large jumps, and fan speed during startup must not exceed 50% of its maximum • Transient inputs: Report time-history sound pressure levels re AC0159 "Train of Step Functions on Processor" 			N/A
Any	Other	<ul style="list-style-type: none"> • No rattles, squeaks, or unexpected noises • Sound should be "even" around the EUT (one side should not be dramatically louder than another) • Unless otherwise specified, the "default" thermal-related settings shall be selected for BIOS. • Specific operating conditions will be defined in "Configurations & Configuration Dependencies" for each platform. 			
Sound Pressure	LpA-reported, dBA, re AC0158 and program configuration document	Report for all mics	Report for all mics	Report for all mics	Report for all mics

Appendix A. Additional specifications

Chassis dimensions

The following table shows the physical dimension measurements of the PowerEdge T40:

Table 8. Chassis weight

Chassis Volume (liters)s	20.41L
Chassis Weight (pounds/kilograms)	18.5lb / 8.4kg

Table 9. Chassis dimensions

Height (inches/centimeters)	13.19" / 33.50 cm
Width (inches/centimeters)	6.95"/ 17.66 cm
Depth (inches/centimeters)	14.15"/ 35.95 cm

Table 10. Packaging parameters

Height (inches/centimeters)	19.38" / 49.2 cm
Width (inches/centimeters)	18.5" / 47.0 cm
Depth (inches/centimeters)	13.88" / 35.3 cm
Shipping Weight (pounds/kilograms - includes packaging materials)	23.3lb/ 10.6 kg

Video

The following list the supported video options for the PowerEdge T40:

 **NOTE: Integrated graphic varies depending on CPU offerings**

- Integrated Intel® UHD Graphics with (2) DP
- Intel® Xeon®: Integrated Intel® UHD Graphics P630

USB ports

The PowerEdge T40 supports the USB ports mentioned below:

System	PowerEdge T40
Front panel	2X USB 2.0 ports USB 3.1 Type-C port USB 3.0 port
Back panel	4 x USB 3.0 ports

2X USB 2.0 ports (with Smart Power)

Environmental specifications

The following table shows the PowerEdge T40 environmental specifications:

Table 11. Temperature and humidity

Operating Temperature	10-35°C (50-95°F)
Non-Operating (Storage) Temperature	-40-65°C (-40-149°F)
Operating Relative Humidity	20% to 80% with 21°C (69.8°F) maximum dew point.
Non-Operating (Storage) Humidity	5% to 95% with 27°C(80.6°F) maximum dew point

Table 12. Maximum vibration

Operating	0.26G rms random at 5Hz to 350 Hz
Non-Operating	1.88 G rms random at 10 Hz to 500 Hz for 15 minutes

Table 13. Maximum shock

Operating	Six consecutively executed shock pulses in the positive and negative x, y, and z axis of 6G for up to 11 ms.
Non-Operating	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..

Table 14. Maximum altitude

Operating	3,048 m (10,000 ft)
Non-Operating	12,000 meters(39,370 feet)

Appendix B. Standards compliance

The system conforms to the following industry standards.

Table 15. Industry standard documents

Standard	URL for information and specifications
ACPI Advance Configuration and Power Interface Specification, v2.0c	acpi.info
Ethernet IEEE 802.3-2005	standards.ieee.org/getieee802/802.3.html
HDG Hardware Design Guide Version 3.0 for Microsoft Windows Server	microsoft.com/whdc/system/platform/pcdesign/designguide/serverdg.msp
IPMI Intelligent Platform Management Interface, v2.0	intel.com/design/servers/ipmi
DDR4 Memory DDR4 SDRAM Specification	jedec.org/standards-documents/docs/jesd79-4.pdf
PCI Express PCI Express Base Specification Rev. 2.0 and 3.0	pcisig.com/specifications/pciexpress
PMBus Power System Management Protocol Specification, v1.2	pmbus.info/specs.html
SAS Serial Attached SCSI, v1.1	t10.org
SATA Serial ATA Rev. 2.6; SATA II, SATA 1.0a Extensions, Rev. 1.2	sata-io.org
SMBIOS System Management BIOS Reference Specification, v2.7	dmtf.org/standards/smbios
TPM Trusted Platform Module Specification, v1.2 and v2.0	trustedcomputinggroup.org
UEFI Unified Extensible Firmware Interface Specification, v2.1	uefi.org/specifications
USB Universal Serial Bus Specification, Rev. 2.0	usb.org/developers/docs

Appendix C Additional resources

Table 16. Additional resources

Resource	Description of contents	Location
Installation and Service Manual	<p>This manual, available in PDF format, provides the following information:</p> <ul style="list-style-type: none"> · Chassis features · System Setup program · System messages · System codes and indicators · System BIOS · Remove and replace procedures · Troubleshooting · Diagnostics · Jumpers and connectors 	Dell.com/Support/Manuals
Getting Started Guide	<p>This guide ships with the system, and is also available in PDF format. This guide provides the following information:</p> <ul style="list-style-type: none"> · Initial setup steps · Key system features · Technical specifications 	Dell.com/Support/Manuals
Information Update	<p>This document ships with the system, is also available in PDF format online, and provides information on system updates.</p>	Dell.com/Support/Manuals
System Information Label	<p>The system information label documents the system board layout and system jumper settings. Text is minimized due to space limitations and translation considerations. The label size is standardized across platforms.</p>	Inside the system chassis cover
Quick Resource Locator (QRL)	<p>This code on the chassis can be scanned by a phone application to access additional information and resources for the server, including videos, reference materials, service tag information, and Dell EMC contact information.</p>	Inside the system chassis cover