

What's New with Dell PowerEdge 12th Generation Servers?



The latest Dell™ PowerEdge™ servers are a direct response to the needs of today's data centers. After listening closely to customers, Dell produced a family of servers and systems management tools that help address the key challenges that IT organizations face around the world. Think of them as servers designed by you, and engineered by Dell.

Dell PowerEdge servers help you accomplish more by improving system performance, increasing throughput capacity, and turning data into insights faster. All PowerEdge servers are designed with maximum memory density as a priority, because memory is a crucial component in getting more performance from a system. More memory means faster processing and more effective virtualization environments. Integrated, comprehensive and easy-to-use management tools enhance IT capabilities to deploy, update, monitor and maintain these systems throughout their lifecycle.

I/O optimization

To further optimize overall system performance, Dell has increased the I/O capacity on PowerEdge servers to provide greater flexibility and to address bottlenecks in connectivity. More expansion slots open up the possibilities for faster data access.

Dell's new Select Network Adapter family—a collection of modular network interface daughter cards—lets you choose the right integrated network without using up a valuable, additional PCI slot. You can pick between multiple speeds, vendors and technology options—such as switch independent partitioning, which allows you to share and manage bandwidth on 10GbE connections—and even upgrade your integrated network adapter later as your needs evolve.



Greater performance

Powering Dell's new servers are the latest processors from Intel. The Intel® Xeon® processor E5 series is at the heart of a flexible and efficient data center. Designed to deliver the best combination of performance, built-in capabilities and cost-effectiveness, they can power anything from virtualization and cloud computing, to design automation and real-time financial transactions.

Easy, complete systems management

Dell has streamlined and automated the most common system administrator tasks by embedding systems management technology, including the Dell Remote Access Controller (iDRAC) with Lifecycle Controller, into the latest generation of PowerEdge servers. The Dell OpenManage™ systems management portfolio of tools simplifies managing the server lifecycle of deploying, updating, monitoring and maintaining. With it, IT administrators can manage Dell servers in physical, virtual, local and remote environments, operating in-band or out-of-band, with or without a systems management software agent.

No compromise virtualization

Virtualization is one of the key design tenets for Dell PowerEdge 12th generation servers. With powerful processors, large memory footprints, high I/O bandwidth and flexible networking options, PowerEdge servers are a great solution for organizations looking to consolidate the inevitable server sprawl that results from explosive growth, or wanting to centralize their operations with a virtual desktop infrastructure (VDI) solution, or just wanting to run more applications virtualized on a single server hardware platform. With PowerEdge servers, choose from industry-leading hypervisors and take advantage of the integration of Dell's Virtual Integrated System (VIS) solution to enable complex virtualization environments in just a few mouse clicks, managing both physical and virtual assets.

Optimized energy management

The latest PowerEdge servers also offer greater efficiency in terms of power and energy—every component is optimized for the most efficient operation. Dell Servers are engineered for minimum power consumption and optimized to run at higher operating temperatures.

Ensuring reliability

Dell is committed to provide secure, continual access to the IT services that power your business. With reliability, availability and serviceability (RAS) features like hot-pluggable fans, disks and power supply units, even redundant failsafe hypervisors for the virtualization environment, Dell PowerEdge servers keep your data center running with rock-steady reliability.

In addition, PowerEdge servers implement a number of security features to protect your servers and data from accidental loss or malicious intrusions. You can authenticate the integrity of updates using digitally signed firmware, safeguard access to passwords and certificates with iDRAC Credential Vault and protect access to data at rest with automatic encryption and self-encrypting disks.

Transitioning to the new PowerEdge server line

This guide describes what you need to know about the new features of Dell PowerEdge 12th generation servers and the major differences between previous generations of servers to help you successfully transition to the latest technology. The following table provides a list of end-of-life PowerEdge systems and replacement systems.

End-of-life systems	Replacement systems
PowerEdge M610	PowerEdge M620
PowerEdge M710	PowerEdge R620
PowerEdge M710HD	PowerEdge R720
PowerEdge R610	PowerEdge R720xd
PowerEdge R710	PowerEdge T620
PowerEdge T610	
PowerEdge T710	

(The above systems will be discontinued beginning September 2012.)



Important transition information

New features of Dell PowerEdge 12th generation servers include:

- New Intel Xeon E5-2600 Product Family (codenamed Sandy Bridge)
- Enhanced memory scalability with Load Reduced DDR3 DIMM (LRDIMM) technology
- Support for PCIe Generation 3 (Gen3)
- PCIe x16 support for graphics processing unit (GPU) on R620, R720, and T620 for VDI or high performance computing (HPC) implementations
- Agent-free management with new iDRAC7 with Lifecycle Controller
- Next-generation RAID controllers with improved performance, non-volatile cache, and optional CacheCade™ capability
- Integration of Intel Node Manager power management infrastructure
- Dell's fail-safe virtualization redundant hypervisor infrastructure
- PowerEdge Select Network Adapter infrastructure (not supported on T620)
- Switch independent partitioning technology
- Dell Express Flash PCIe SSD hard drives
- Updated rail kits and cable management arms
- Improved energy efficiency

Previous-generation features that are **not supported** on the new systems include:

- iDRAC6
- Intel Xeon Processors 5500 and 5600 Series
- Previous-generation hard-drive carriers (blades)
- Previous-generation rail kits and cable management arms
- Previous-generation software images cannot be used

The following sections compare the new PowerEdge servers with their predecessor systems.



PowerEdge rack servers

Designed for exceptional performance on a wide range of applications, the new series of PowerEdge rack servers feature an increased memory footprint, the latest Intel® Xeon® processor E5-2600 product family, powerful I/O, and expanded internal storage capabilities.

Feature	PowerEdge R710	PowerEdge R720 (new)	PowerEdge R720xd (new)
Chassis	2U rack	2U rack	2U rack
Processors	Intel® Xeon® processors 5500 and 5600 series	Intel Xeon processor E5-2600 product family	Intel Xeon processor E5-2600 product family
Internal interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect
Memory	18 x DDR3 RDIMM and UDIMM	24 x DDR3 RDIMM, UDIMM, and Load Reduced DDR3 DIMM (LRDIMM)	24 x DDR3 RDIMM, UDIMM, and LRDIMM
Hard drive bays	8 x 2.5", hot-plug or 6 x 3.5" hot-plug	16 x 2.5" hot-plug or 8 x 3.5" hot-plug	24 x 2.5" hot-plug + 2 x 2.5" internal or 12 x 3.5" hot-plug+ 2 x 2.5" internal
RAID	PERC 6/i, SAS 6/iR, PERC 6/E, H200, H700, H800	PERC S110, H310, H710, H710P, H810 (external); supports multiple (2) internal RAID controllers	PERC H310, H710, H710P, H810 (external); supports multiple (2) internal RAID controllers
PCI slots	4 PCIe Gen2	7 PCIe Gen3	6 PCIe Gen3
Onboard NICs	4 x 1GbE with optional TOE	Select Network Adapter—minimum configuration: 4 x 1Gb, 10GbE (optional)	Select Network Adapter—minimum configuration: 4 x 1Gb, 10GbE (optional)
Power supplies	Hot-plug, redundant: 570W, 870W	Hot-plug, redundant, common power supply unit: 495W, 750W, 1100W, 1100W DC ¹	Hot-plug, redundant, common power supply unit: 495W, 750W, 1100W, 1100W DC ¹
Systems management	Dell OpenManage™ Dell Management Console Lifecycle Controller 1.x	Dell OpenManage Essentials Dell Management Console Lifecycle Controller 2.x OpenManage Power Center	Dell OpenManage Essentials Dell Management Console Lifecycle Controller 2.x OpenManage Power Center
Remote management	iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x	iDRAC7 (Express or Enterprise) with Lifecycle Controller 2.x	iDRAC7 (Express or Enterprise) with Lifecycle Controller 2.x
Support for internal graphics processing unit (GPU)	No	2 x 300W or 4 x 150W	No
Power efficiency	Gold	Platinum	Platinum
High availability (HA)	Hot-plug drives, redundant cooling hot-plug, redundant power supply units (PSUs)	Hot-plug drives, hot-plug redundant cooling, hot-plug redundant PSUs, internal dual SD module	Hot-plug drives, hot-plug redundant cooling, hot-plug redundant PSUs, internal dual SD module

¹1100W DC PSU available Q2 2012.



Feature	PowerEdge R610	PowerEdge R620 (new)
Chassis	1U rack	1U rack
Processors	Intel® Xeon® processors 5500 and 5600 series	Intel Xeon processor E5-2600 product family
Internal interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect
Memory	12 x DDR3 RDIMM and UDIMM	24 x DDR3 RDIMM, UDIMM, and LRDIMM
Hard drive bays	6 x 2.5" hot-plug	10 x 2.5" hot-plug
RAID	PERC 6/i, SAS 6/iR, PERC 6/E, H200, H700, H800	PERC S110, H310, H710, H710P, H810
PCI slots	2 + 1 PCIe Gen2	3 PCIe Gen3
Onboard NICs	4 x 1GbE with optional TOE	Select Network Adapter—minimum configuration: 4 x 1Gb
Power supplies	Hot-plug, redundant: 502W, 717W	Hot-plug, redundant, common power supply unit: 495W, 750W, 1100W, 1100W DC ¹
Systems management	Dell OpenManage™ Dell Management Console Lifecycle Controller 1.x	Dell OpenManage Essentials Dell Management Console Lifecycle Controller 2.x OpenManage Power Center
Remote management	iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x	iDRAC7 (Express or Enterprise) with Lifecycle Controller 2.x
Support for internal Graphics Processing Unit (GPU)	No	1 x 75W
Power efficiency	Energy-efficient power supply option	Platinum
High Availability (HA)	Hot-plug drives, redundant cooling, hot-plug, redundant PSUs	Hot-plug drives, hot-plug redundant cooling, hot-plug redundant PSUs, internal dual SD module

¹1100W DC PSU available Q2 2012.

Dell continues to offer static rails (for lower-cost deployment) in addition to sliding rails (for in-rack serviceability) for most rack-mount platforms. New slim rail sets introduced with Dell PowerEdge 12th generation servers (1U and 2U) offer improved installation with a new drop-in design, compatibility between more server models, the ability to accommodate multiple chassis depths, and new native support for threaded-hole racks. All of these features combine to deliver a more consistent experience.



PowerEdge tower servers

Designed for exceptional capability, the newest PowerEdge tower servers feature expanded internal storage capabilities, increased memory footprint, powerful I/O, and the latest Intel Xeon processors.

Feature	PowerEdge T610	PowerEdge T710	PowerEdge T620 (new)
Chassis	Tower or 5U rack	Tower or 5U rack	Tower or 5U rack
Processors	Intel® Xeon® processors 5500 and 5600 series	Intel® Xeon® processors 5500 and 5600 series	Intel Xeon processor E5-2600 product family
Internal interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect
Memory	12 x DDR3 RDIMM and UDIMM	18 x DDR3 RDIMM and UDIMM	24 x DDR3 RDIMM, UDIMM, LRDIMM
Hard drive bays	8 x 2.5" hot-plug or 8 x 3.5" hot-plug	16 x 2.5" hot-plug or 8 x 3.5" hot-plug	32 x 2.5" hot-plug or 12 x 3.5" hot-plug
PCI slots	5 + 1 PCIe Gen2	6 + 1 PCIe Gen2	7 PCIe Gen3
Onboard NICs	2 x 1GbE with TOE	4 x 1GbE with TOE	2 x 1GbE with TOE
Power supplies	Hot-plug, redundant: 570W, 870W	Hot-plug, redundant: 1100W	Hot-plug, redundant, common power supply unit: 495W, 750W, 1100W
Systems management	Dell OpenManage™ Dell Management Console Lifecycle Controller 1.x	Dell OpenManage Dell Management Console Lifecycle Controller 1.x	Dell OpenManage Essentials Dell Management Console Lifecycle Controller 2.x OpenManage Power Center
Remote management	iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x	iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x	iDRAC7 (Express or Enterprise) with Lifecycle Controller 2.x
High Availability (HA)	Hot-plug drives, optional redundant cooling, hot-plug redundant PSUs	Hot-plug drives, hot-plug redundant cooling, hot-plug redundant PSUs	Hot-plug drives, optional redundant cooling, hot-plug redundant PSUs, internal dual SD module

PowerEdge blade servers

Designed for even the most-taxing environments, the latest PowerEdge blade servers feature unprecedented memory density and superb performance with no compromise on enterprise-class features.

Feature	PowerEdge M610	PowerEdge M710HD	PowerEdge M620
Chassis; enclosure	Half-height blade; PowerEdge M1000e Blade Enclosure	Half-height blade; PowerEdge M1000e Blade Enclosure	Half-height blade; PowerEdge M1000e Blade Enclosure
Processors	Intel® Xeon® processors 5500 and 5600 series	Intel® Xeon® processors 5500 and 5600 series	Intel Xeon processor E5-2600 product family
Internal interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect
Memory	12 x DDR3 RDIMM and UDIMM	18 x DDR3 RDIMM and UDIMM	24 x DDR3 RDIMM, UDIMM, and LRDIMM
Hard drive bays	2 x 2.5" hot-plug	2 x 2.5" hot-plug	2 x 2.5" hot-plug
Express Flash support	No	No	Yes
I/O	2 PCIe Gen2 x8 mezz. card slots	2 PCIe Gen2 x8 mezz. card slots	2 x PCIe Gen3 x8 mezz. card slots
Optional SD port	Yes (RIPS)	Yes	Yes (redundant hypervisor)
Systems management	Dell OpenManage™ Dell Management Console Lifecycle Controller 1.x	Dell OpenManage™ Dell Management Console Lifecycle Controller 1.x	Dell OpenManage Essentials Dell Management Console Lifecycle Controller 2.x OpenManage Power Center
Remote management	iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x, Chassis Management Controller (CMC) 3.x	iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x, Chassis Management Controller (CMC) 3.x	iDRAC7 (Express for Blades or Enterprise) with Lifecycle Controller 2.x, Chassis Management Controller (CMC) 4.x



New Intel Xeon processors

Featuring Intel Xeon processor E5 family processors, the new line of PowerEdge servers are capable of handling even the most demanding workloads. The following table compares the latest and previous generations of Intel Xeon processors supported by PowerEdge servers.

Class	Feature	Intel Xeon Processors 5500 Series	Intel Xeon Processors 5600 Series	Intel Xeon Processors E5-2600 Series
Basic Cost-efficient with basic features	Frequency	1.86–2.26GHz	1.6–2.26GHz	1.8–2.4GHz
	Cores	2 to 4	4	4
	Cache	4MB	Up to 12MB	10MB
	QPI speed	4.8GT/s	4.8GT/s	6.4GT/s
	Max DDR3 memory speed	800MHz	1066MHz	1066MHz
	TDP	80W	80W	80W
	Turbo/HT	No Turbo, no HT	No Turbo, no HT	No Turbo, no HT
Standard Best balance of performance, value, and advanced features	Frequency	2.26–2.53GHz	2.40–2.53GHz	2.0–2.5GHz
	Cores	4	4 to 6	6
	Cache	8MB	12MB	15MB
	QPI speed	5.86GT/s	5.86GT/s	7.2GT/s
	Max DDR3 memory speed	1066MHz	Up to 1333MHz	1333MHz
	TDP	80W	80W	95W
	Turbo/HT	Turbo, HT	Turbo, HT	Turbo 2.0, HT
Advanced Performance-oriented with highest functionality and optimal server ROI	Frequency	2.66–2.93GHz	2.66–3.46GHz	2.0–2.9GHz
	Cores	4	6	8
	Cache	8MB	12MB	20MB
	QPI speed	6.4GT/s	6.4GT/s	8.0GT/s
	Max DDR3 memory speed	1333MHz	1333MHz	1600MHz
	TDP	95W	95–130W	95–135W
	Turbo/HT	Turbo, HT	Turbo, HT	Turbo 2.0, HT
Low power Focused on energy efficiency with lowest power and best performance per watt	Frequency	2.13–2.40GHz	1.86–2.26GHz	1.8–2.0GHz
	Cores	4	4 to 6	6 to 8
	Cache	Up to 8MB	12MB	Up to 20MB
	QPI speed	Up to 5.86GT/s	Up to 5.86GT/s	Up to 8.0GT/s
	Max DDR3 memory speed	Up to 1066MHz	Up to 1333MHz	Up to 1600MHz
	TDP	60W	40–60W	60–70W
	Turbo/HT	Turbo, HT	Turbo, HT	Turbo 2.0, HT



Class	Feature	Intel Xeon Processors 5500 Series	Intel Xeon Processors 5600 Series	Intel Xeon Processors E5-2600 Series
Frequency optimized Ideal for HPC and technical computing with the highest frequency processor offering	Frequency	Not available for Intel Xeon Processors 5500 Series	2.93-3.60GHz	2.6-3-3GHz
	Cores		4	2 to 6
	Cache		12MB	Up to 15MB
	QPI speed		6.4GT/s	8.0GT/s
	Max DDR3 memory speed		Up to 1333MHz	1600MHz
	TDP		95-130W	80-130W
	Turbo/HT		Turbo, HT	Turbo 2.0, HT

GPU support

Providing accelerated performance for a variety of applications, including VDI and HPC implementations, GPU technology is supported on a number of PowerEdge systems, as detailed in the following table.

PowerEdge server	GPU card support (maximum)
M610x	2 single-width or 1 double-width
R620 (new)	1 single-width ¹
R720 (new)	4 single-width or 2 double-width
T620 (new)	4 double-width ²

¹75W actively cooled GPU only

²Actively cooled GPU only; other power-supply configuration requirements apply

Increased memory capabilities

With increased memory capacity and DIMM density, the new PowerEdge server line offers greater flexibility with expandable memory options.

Memory types supported

The following table lists the memory types supported by the new PowerEdge servers.

Feature	UDIMM	RDIMM	LRDIMM
Register	No	Yes	Yes
Buffer	No	No	Yes
Frequencies	800, 1066, 1333, or 1600MHz	800, 1066, 1333, or 1600MHz	1066 or 1333MHz
Ranks supported	1 or 2	1, 2, or 4	4
Capacity per DIMM	2 or 4GB	2, 4, 8, 16, or 32GB	32GB
Maximum DIMMS per channel	2	3	3
DRAM technology	x8	x4 or x8	x4



Feature	UDIMM	RDIMM	LRDIMM
Temperature sensor	Yes	Yes	Yes
ECC	Yes	Yes	Yes
SDDC	Yes (with advanced ECC mode)	Yes	Yes
Address parity	Yes	Yes	Yes

Memory frequency capabilities

The following table lists memory configuration and performance details for the new PowerEdge servers, based on the population of the number and type of DIMMs per memory channel.

DIMM type	DIMM 0	DIMM 1	DIMM 2	# of DIMMs	Speed (MHz)			
					800	1066	1333	1600
UDIMM	SR			1	•	•	•	
	DR			1	•	•	•	
	SR	SR		2	•	•	•	
	SR	DR		2	•	•	•	
	DR	DR		2	•	•	•	
RDIMM	SR			1	•	•	•	•
	DR			1	•	•	•	•
	QR			1	•	•		
	SR	SR		2	•	•	•	•
	SR	DR		2	•	•	•	
	DR	DR		2	•	•	•	•
	QR	SR		2	•			
	QR	DR		2	•			
	QR	QR		2	•			
	SR	SR	SR	3	•	•		
	SR	SR	DR	3	•	•		
	SR	DR	DR	3	•	•		
	DR	DR	DR	3	•	•		
	LRDIMM	QR			1		•	•
QR		QR		2		•	•	
QR		QR	QR	3		•		

SR=Single Rank, DR=Dual Rank, QR=Quad Rank; UDIMM=Unbuffered DIMM, RDIMM=Registered DIMM, LRDIMM=Load Reduced DIMM



New I/O options

Networking options for the new PowerEdge server line allow you to tailor your network throughput to match your application needs, enabling added I/O performance. The following tables list the supported I/O options.

Rack and tower server I/O support

Form factor	Device name	Speed	R720	R720xd	R620	T620
Select Network Adapter	Broadcom® 4x1Gb	1Gb	•	•	•	
	Intel 4x1Gb	1Gb	•	•	•	
	Broadcom 2x1Gb+2x10Gb SFP+	1Gb/10Gb	•	•	•	
	Intel 2x1Gb+2x10Gb BT	1Gb/10Gb	•	•	•	
1Gb/10Gb adapters	Broadcom 5720 2x1Gb	1Gb	•	•	•	•
	Broadcom 5720 4x1Gb	1Gb	•	•	•	•
	Intel I350 2x1Gb	1Gb	•	•	•	•
	Intel I350 4x1Gb	1Gb	•	•	•	•
	Broadcom 2x10Gb 57810S SFP+	10Gb	•	•	•	•
	Intel X540 2x10Gb SFP+	10Gb	•	•	•	•
	Intel X540 2x10Gb BT	10Gb	•	•	•	•
	QLogic® QLE8262 2x10G SFP+	10Gb	•	•	•	•
Brocade® BR1020 2x10G SFP+	10Gb	•	•	•	•	
1Gb/10Gb LOM	Broadcom 5720	1Gb				•
FC4/FC8 adapters	QLogic QLE2460	4Gb	•	•	•	•
	QLogic QLE2462	4Gb	•	•	•	•
	QLogic QLE2560	8GB	•	•	•	•
	QLogic QLE2562	8GB	•	•	•	•
	Emulex® LPe12000	8Gb	•	•	•	•
	Emulex LPe12002	8Gb	•	•	•	•
	Brocade BR815	8GB	•	•	•	•
	Brocade BR825	8GB	•	•	•	•

Blade server I/O support

Form factor	Device name	Protocol	M620
Select Network Adapter	Broadcom 57810S 2x10Gb KR	10Gb	•
	Intel X520 2x10Gb KR	10Gb	•
	QLogic QMD8262 2x10Gb KR	10Gb	•
1Gb/10Gb adapters	Intel 4x1Gb	1Gb	•
	Broadcom 57810S 2x10Gb KR	10Gb	•
	Intel X520 2x10Gb XAUI/KR	10Gb	•
	QLogic QME8262 2x10Gb KR	10Gb	•
	Brocade BR1741M 2x10Gb KR	10Gb	•
FC4/FC8	QLogic QME2572	8GB	•
	Emulex LPe1205-M	8Gb	•



Enhanced storage performance capacity

The latest generation of PowerEdge servers brings additional storage performance, reliability and capacity. New PowerEdge Expandable RAID Controller (PERC) cards feature non-volatile memory (NVM) in cache and can even boost RAID performance further with CacheCade™—the ability to use solid state disks (SSDs) as an expanded cache for enhanced throughput. And with the addition of Dell's Express Flash PCIe-SSDs to the PowerEdge lineup—a front-accessible and hot-pluggable PCIe SSD technology—as well as increased internal storage capabilities on the new PowerEdge rack and tower servers, you now have more storage technologies, options and capacities to choose from than ever before.

The following table provides a list of end-of-life and replacement RAID controllers.

End-of-life controller	Replacement controller
PERC H800 PERC 6/E	PERC H810
PERC H700 PERC 6/i	PERC H710P PERC H710
PERC S300 PERC H200 SAS 6/iR	PERC H310
PERC S100	PERC S110

Supported RAID controllers

The following table describes the RAID controllers supported by the new PowerEdge servers.

Controller	Features	RAID modes supported	Form factor	Usage model
PERC H710P (internal)	Includes 1GB NV cache, premium performance and feature set, security SED/EKMS, and SSD as cache	0, 1, 10, 5, 50, 6, 60	Adapter, mini (H810 is adapter type only)	Premium performance
PERC H810 (external)				
PERC H710	Includes 512MB cache, advanced feature set, security SED/EKMS, and SSD as cache	0, 1, 10, 5, 50, 6, 60	Adapter, mini	Performance
PERC H310	Supports hot-swap drives, expansion, tape drives, pass-thru	0, 1, 10, 5, 50	Adapter, mini	Value
PERC S110 (software RAID)	Supports hot-swap SATA drives (4 drive maximum); no expansion; Windows only	0, 1, 5, 10	Motherboard embedded SATA	Entry-level

Supported hard drives

The following table lists the hard drives supported by the new PowerEdge servers.

Hard drive type	Capacity	M620	R620	R720	R720xd	T620
3.5" SATA (7.2K, 3Gb)	250GB			•	•	•
	500GB			•	•	•
	1TB			•	•	•
	2TB			•	•	•
3.5" nearline SAS (7.2K, 6Gb)	1TB			•	•	•
	2TB			•	•	•



Hard drive type	Capacity	M620	R620	R720	R720xd	T620
	3TB			•	•	•
3.5" SAS (15K, 6Gb)	300GB			•	•	•
	600GB			•	•	•
2.5" SATA (7.2K, 3Gb)	250GB	•	•	•	•	•
	500GB	•	•	•	•	•
	1TB	•	•	•	•	•
2.5" nearline SAS (7.2K, 6Gb)	500GB	•	•	•	•	•
	1TB	•	•	•	•	•
	1TB (SED)	•	•	•	•	•
2.5" SAS (10K, 6Gb)	300GB	•	•	•	•	•
	600GB	•	•	•	•	•
	900GB	•	•	•	•	•
	900GB (SED)	•	•	•	•	•
2.5" SAS (15K, 6Gb)	146GB	•	•	•	•	•
	300GB	•	•	•	•	•
	300GB (SED)	•	•	•	•	•
2.5" SAS SSD (SLC, 6Gb)	200GB	•	•	•	•	•
	400GB	•	•	•	•	•
2.5" SATA SSD (MLC, 3Gb)	100GB	•	•	•	•	•
	200GB	•	•	•	•	•

PowerEdge Express Flash device support

The following table details the PowerEdge Express Flash PCIe-SSD device support on the new PowerEdge servers.

PowerEdge server	Express Flash supported
M620	2 internal
R620	2 internal
R720	4 internal
T620	4 internal



Supported operating systems

For information on which operating systems are supported on the new and previous generations of PowerEdge servers, visit Dell.com/OSsupport.

Virtualization support

The following table highlights the virtualization support for the new PowerEdge servers.

Server	VMware® ESXi™ v5.0 U1 FI	VMware ESXi v5.0 U1 HCL	VMware ESXi v5.0 U1 Fault Tolerance	VMware ESXi v5.0 U1 Essentials Plus	Citrix® XenServer™ 6.0
M620	•	•	•	•	•
R620	•	•	•	•	•
R720	•	•	•	•	•
R720xd	•	•		•	•
T620	•	•	•	•	•

FI=Factory Install; HCL=Hardware Compatibility List

Simplified and automated systems management

Dell has streamlined and automated the most common tasks that systems administrators perform throughout the server lifecycle of deploy, update, monitor and maintain. Leveraging the latest industry standard protocols and methods, the Dell OpenManage suite of tools enhances systems management by embedding management capabilities directly in the system itself.

Systems management transitions

The following table lists some key feature changes from the previous generation of Dell PowerEdge servers.

Previous generation	New generation
Integrated Dell Remote Access Controller 6 (iDRAC6)	Integrated Dell Remote Access Controller 7 with Lifecycle Controller 2.x, digital license key enablement
Lifecycle Controller 1.x	Lifecycle Controller 2.x
IT Assistant (ITA)	OpenManage Essentials (OME) (new)
Chassis Management Controller (CMC) 3	Chassis Management Controller (CMC) 4
OpenManage Server Administrator 6.5 (OMSA)	OpenManage Server Administrator 7 (OMSA) or Agent-free management
Baseboard Management BIOS Binary (BBB)	Unified Extensible Firmware Interface (UEFI)
—	OpenManage Power Center Management Console (new)



iDRAC7 with Lifecycle Controller

The iDRAC7 with Lifecycle Controller is the heart of the new generation of Dell PowerEdge server embedded management. Besides enabling Agent-free management, the iDRAC7 with Lifecycle Controller provides remote access to the system—whether or not there is a functioning operating system running on the server. These embedded features improve all aspects of a typical server lifecycle: deploy, update, monitor and maintain.

The following table describes the features and benefits of iDRAC7 with Lifecycle Controller.

Feature	Function	Benefit
Out of band (OOB)	iDRAC7 offers real-time OOB monitoring, inventory, and alerting for servers, storage and networking	Receive hardware notifications and email alerts independent of the OS type or status—even if an OS is not installed
Single Code Base	All server types have same embedded management hardware and firmware	Simplified and consistent maintenance across server platforms
Improved performance	The iDRAC7 has a faster processor, memory, video compression offload and many other performance improvements	A smoother, real-time, user experience for remote management and less time performing common tasks
Dedicated GigE port (rack and tower systems)	Gigabit Ethernet replaces 10/100 on iDRAC6	Faster throughput for better performance; better compatibility with setup for switches
Email Alerts	Simplified, more informative and greater coverage than previous versions of iDRAC	More detail allows IT pros to be more efficient in diagnosing and remediating an issue. Direct, embedded URL in email notification, launch to iDRAC7 GUI or remote console.
vFlash media	No longer a separate order feature; is included with iDRAC7 Enterprise	Simplifies the ordering process and combines full feature set to the iDRAC7 Enterprise; allows for use of a non-Dell SD card
Enhanced power management	Integration with Intel Node Manager provides data center level management (requires iDRAC7 Enterprise)	Fine tune data center power usage and report on historical power usage by rack, row or room using Power Center Manager (new)
Electronic licensing	Upgrades to iDRAC7 Express or iDRAC7 Enterprise by software licensing key and license portal (may require hardware option for 200-500 series servers)	New systems come with digital license installed from factory; free 30-day trial versions are available; uses a license management portal versus paper-based licences and simplifies license management

iDRAC7 with Lifecycle Controller licensing

The licensing for the iDRAC7 is now digital-key enabled in the new generation of Dell PowerEdge servers. In other words, you can upgrade to a higher level with a license key. This also allows for a free 30-day trial license. In most cases, no additional hardware is required to be installed. The table below highlights the key features for each license level and compares to the features contained in the previous generation of Dell PowerEdge servers.

Feature (function)	BMC	Basic management	iDRAC6 Express	iDRAC7 Express	iDRAC7 Express for Blades	iDRAC 6 Enterprise	iDRAC 6 Enterprise with vFlash	iDRAC7 Enterprise
Local configuration with USC	•	•	•	•	•	•	•	•
IPMI 2.0	•	•	•	•	•	•	•	•
Embedded diagnostics	•	•	•	•	•	•	•	•
Local OS install	•	•	•	•	•	•	•	•
Local updates		•	•	•	•	•	•	•
Driver pack		•	•	•	•	•	•	•
Encryption			•	•	•	•	•	•
Shared NIC (LOM) ¹	•	•	•	•		•	•	•
Dedicated NIC 1Gbps (100MB in iDRAC6)					• ²	•	•	• ²



Feature (function)	BMC	Basic management	iDRAC6 Express	iDRAC7 Express	iDRAC7 Express for Blades	iDRAC 6 Enterprise	iDRAC 6 Enterprise with vFlash	iDRAC7 Enterprise
IPv6			•	•	•	•	•	•
Auto-discovery			•	•	•	•	•	•
Auto-recovery			•	•	•	•	•	•
Web GUI			•	•	•	•	•	•
Remote CLI				•	•	•	•	•
Local/SSH CLI			•	•	•	•	•	•
Serial redirection			•	•	•	•	•	•
Remote config			•	•	•	•	•	•
Remote update		• ³	•	•	•	•	•	•
Email alerts			•	•	•	•	•	•
SNMP alerts				•	•	•	•	•
Comprehensive monitoring				•	•	•	•	•
Part replacement							•	•
Backup & restore configurations							•	•
Virtual console (4 user)					• ⁴	•	•	•
Virtual console chat								•
Support for customer supplied SD cards for vFlash media								•
Virtual flash partitions							•	•
Virtual media					•	•	•	•
Virtual folders								•
Remote file share						•	•	•
Crash screen capture ⁵			•	•	•	•	•	•
Crash video playback								•
Boot record/playback			•			•	•	•
Power control		• ³	•	•	•	•	•	•
Power monitoring			•	•	•	•	•	•
Power capping								•
Enterprise group power management								•
Directory services (AD, LDAP)			•			•	•	•
PK authentication						•	•	•
Two-factor authentication ⁶			•			•	•	•

¹Rack and tower systems only; ²Blade-to-chassis internal connection is 100MB; ³Feature available with IPMI, not web GUI; ⁴Single user; ⁵Requires OMSA agent on target server; ⁶Uses Active-X on Microsoft Internet Explorer® only



Agent-free server management

With the launch of the new generation of Dell PowerEdge servers, Dell has enhanced embedded management without the need to install a software-based agent within the host operating system. At the heart of the new server embedded management is the iDRAC7 with Lifecycle Controller technology. Together, they provide a robust set of management functions that can be leveraged throughout the entire server lifecycle.

Agent-free advantages

No software agent required to install or maintain

Non-intrusive to software environment

OS and hypervisor agnostic

Consistent hardware monitoring and management across multiple OS types and multiple hypervisors

Agent-free monitoring now includes

Monitors PERC and direct-attached storage (DAS)

Monitors NIC and CNA health, link status, and performance

Provides informative e-mail alerting, even if the operating system is down

Monitors hardware, firmware and BIOS inventory and settings

Dell OpenManage Essentials

Dell OpenManage Essentials is the newest option for managing Dell PowerEdge servers and direct attached storage. OpenManage Essentials provides an easy-to-install, one-to-many (1:M), management console for system administrators to maximize uptime and health for Dell systems. OpenManage Essentials is a Dell hardware element management solution that is optimized for managing your Dell infrastructure, and can integrate with other Dell OpenManage solutions and select third-party tools to provide end-to-end IT management. As a follow-up product to Dell IT Assistant, OpenManage Essentials provides for a simple migration of an existing IT Assistant database.

OpenManage Essentials (OME)

Monitors health status and events for Dell PowerEdge servers, EqualLogic™ and PowerVault™ MD series storage and PowerConnect™ switches

Provides hardware-level control and management for PowerEdge servers, blades and internal storage arrays

Allows hardware control of Microsoft® Windows®, Linux®, VMware, HyperV® and XenServer environments

Enables deeper management and control of Dell blade chassis, EqualLogic and PowerVault MD series storage, PowerConnect switches through context-sensitive links and the launch of their respective element-management tools

Integrates with the following Dell solutions :

- Dell Repository Manager—allows precise control of hardware environment
- OpenManage Power Center—optimizes power consumption of your servers
- Dell KACE 1000 Management Appliance—communicates Dell server, storage and switch health status alerts to the KACE K1000 service desk

Provides easy-to-use and low-touch maintenance

OME improvement over IT Assistant

Includes Agent-free health status and SNMP alerting for new PowerEdge servers with iDRAC7, simplified alert action definition and activation and supports EqualLogic storage and PowerConnect switches

Allows for a simplified hardware-patch process, multi-site hardware patching (Repository Manager integration) and compliance-driven/detected deviation

Has improved monitoring functionality for VMware environments and includes monitoring functionality for Citrix XenServer environments

Supports EqualLogic and PowerConnect switches

Includes added integration with more value-added tools and solutions

Has a modern look and feel, quick GUI responsiveness, supports a remote database during install and provides a simplified upgrade to a remote database



Power management

With the launch of the new Dell PowerEdge generation servers, Dell will also be releasing Dell OpenManage Power Center—a simple and effective power management console. OpenManage Power Center provides a management platform to collect, sum, and aggregate power usage across rack, row, and room with the ability to customize power-reduction policies that can help maximize real-time power usage. Dell OpenManage Power Center leverages the built-in functions of the Intel Node Manager instrumentation, built in to every Dell PowerEdge server.

Monitored devices	PDU monitored power (alternate)	Direct power monitoring (limited)	Direct power monitoring and capping (full capability)
PowerEdge R720, R620, T620, and M620	Yes	Yes, standard	Yes with iDRAC7 Enterprise
Previous generation of PowerEdge racks and towers	Yes	Yes with redundant hot-plug power supply	Not supported
PowerEdge R210 II, T110 II	Yes	Not supported	Not supported
PowerEdge C, PowerConnect, Dell EqualLogic, previous-generation Dell servers, HP, IBM	Yes	Not supported	Not supported

Additional resources

This transition guide only provides an overview of the new PowerEdge systems and their supported features. For more detailed system information, please see these additional resources:

- System information on Dell.com/PowerEdge
- System manuals on Support.Dell.com/Manuals

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