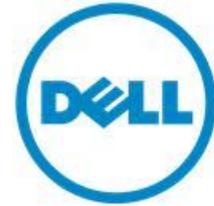


# PowerEdge T620



## Technical Guide



This enterprise-class, 2-socket tower server emphasizes balanced high performance, high availability, and built-in room for growth.



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# 1 System overview

## Introduction

The Dell™ PowerEdge™ T620 is a feature-rich, 2-socket tower server with up to 24 DIMM slots, storage capacity of up to thirty-two 2.5-inch or twelve 3.5-inch drive bays, and processing power from the Intel® Xeon® processor E5-2600 product family. The T620 shines in its ability to handle demanding workloads with up to 16 processor cores, high memory density, and high I/O bandwidth. The T620 is an excellent platform for key applications such as business analytics and intelligence, information management, customer relationship management, security management, desktop virtualization, medical imaging, and graphical rendering.

## Designed for demanding small and medium business environments and enterprise data centers

The extensive 768GB memory footprint, large local storage capacity, and I/O flexibility of the PowerEdge T620 make it an attractive platform for a wide range of applications and workloads, including server consolidation and virtualization. The T620 features allow you to achieve space savings, use your IT administrator's time more efficiently, and minimize potential software licensing fees.

The T620 is a flexible server with excellent energy efficiency and acoustical performance, allowing it to be placed into quiet office settings. The T620 can also be rack-mounted and is fully compatible with rack infrastructures. Businesses and organizations with remote offices need not worry, as the T620 offers consistent worldwide support.

## Safeguard your data and business

Features that protect data and help keep your server running are essential. The T620 and its large storage capacity offer both software-based RAID and hardware RAID controller options to protect critical business information. Features that help to keep your business up and running include reliability, availability, and serviceability (RAS) options like hot-pluggable fans, disks, and power supplies, along with redundant, failsafe hypervisors that minimize the need to take a server away from productive work to replace parts.

## Dell OpenManage systems management

The Dell OpenManage™ systems management portfolio includes the Integrated Dell Remote Access Controller 7 (iDRAC7) with Lifecycle Controller. Innovative embedded management features help IT administrators 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. OpenManage solutions integrate with and connect to third-party systems management solutions so you can maintain your single point of control and capitalize on your existing investment. OpenManage solutions simplify the lifecycle of deploying, updating, monitoring, and maintaining your Dell PowerEdge servers.



## New technologies

Table 1 summarizes the newest technologies used in the Dell PowerEdge 12<sup>th</sup> generation servers.

**Table 1. New technologies**

New technologies	Detailed descriptions
<b>Intel Xeon processor E5-2600 product family</b>	This new family of Intel processors has embedded PCI Express® (PCIe) lanes for improved I/O performance. See the Processor section for details.
<b>Intel C600 series chipset</b>	The Intel Platform Controller Hub (PCH) chip is implemented on the T620 server.
<b>1600 MT/s DDR3 memory</b>	Certain models of the Intel Xeon E5-2600 processors support 1600 MT/s memory. The T620 supports two DIMMs per channel at 1600 MT/s with these processors. See the Memory section for details.
<b>LRDIMM</b>	This new memory option, load reduced DIMM (LRDIMM), is designed with a buffer chip (or chips) to replace the register to help minimize loading. LRDIMMs can increase overall server system memory capacity and speed. See the Memory section for more information.
<b>Next generation PERC options</b>	The T620 supports the new PERC controller cards with improved functionality and faster performance. See the Storage section for details.
<b>PERC S110 software RAID solution</b>	This new software RAID solution supports RAID 0, 1, 5, and 10, and supports a maximum of four hot-plug SATA hard drives or SATA solid-state drives (SSDs). See the Storage section for details.
<b>Express Flash drives</b>	Dell Express Flash PCIe solid-state drives provide fast performance without requiring processor resources or capturing DRAM. The T620 supports up to four Express Flash drives. See the Storage section for details.
<b>iDRAC7 with Lifecycle Controller</b>	The new embedded system management solution for Dell servers features hardware and firmware inventory and alerting, in-depth memory alerting, faster performance, a dedicated gigabit port and many more features. See the Dell OpenManage systems management section for details.
<b>Internal GPU support</b>	The T620 supports internal graphics processing units (GPUs) for virtual desktop infrastructure (VDI) and medical imaging. See the Processor section for details.
<b>DC power supply</b>	A new 1100W DC power supply option is available for the T620.
<b>Advanced power management</b>	The T620 supports advanced power monitoring and power capping tools that can help manage power consumption. See the Power, thermal, and acoustics section for details.
<b>Fresh Air cooling</b>	Dell has tested and validated an integrated data center solution that enables you to operate at higher temperatures or even chiller-less. See the Power, thermal, and acoustics section for details.
<b>Failsafe hypervisors</b>	The internal dual SD module enables Dell's unique failsafe virtualization architecture, ensuring uptime by providing failover capability for embedded hypervisors such as VMware® vSphere® ESXi™.



## 2 System features

The Dell PowerEdge T620 can be used to consolidate the workload of multiple smaller or previous-generation servers. In comparison, the Dell PowerEdge T620 offers more disk drive options, more PCIe slots, PCIe 3.0, Express Flash PCIe solid-state drives, a larger memory footprint, and optional internal graphics processing unit (GPU) support.

### Comparison of PowerEdge systems

The PowerEdge T620 is a direct replacement for the predecessor T610 system and a natural transition system of the T710. Table 2 compares some of the features of the PowerEdge T620 to the T610 and T710.

**Table 2. Comparison of PowerEdge T610, T710, and T620**

Feature	PowerEdge T610	PowerEdge T710	PowerEdge T620
<b>Chassis</b>	Tower or 5U rack	Tower or 5U rack	Tower or 5U rack
<b>Processors</b>	Intel Xeon processors 5500 and 5600 series	Intel Xeon processors 5500 and 5600 series	Intel Xeon processor E5-2600 product family
<b>Internal interconnect</b>	Intel QuickPath Interconnect	Intel QuickPath Interconnect	Intel QuickPath Interconnect
<b>Memory<sup>1</sup></b>	12 x DDR3 RDIMM and UDIMM Up to 192GB	12 x DDR3 RDIMM and UDIMM Up to 192GB	24 x DDR3 RDIMM, UDIMM, and LRDIMM Up to 768GB
<b>Hard drive bays (hot plug)</b>	Up to 8 x 2.5" or 8 x 3.5"	Up to 16 x 2.5" or 8 x 3.5"	Up to 32 x 2.5" or 12 x 3.5"
<b>RAID controller</b>	PERC 6/i, SAS 6/iR, 6/E, H200, H700, H800	PERC 6/i, SAS 6/iR, 6/E, H200, H700, H800	PERC S110, H310, H710, H710P, H810
<b>Express Flash PCIe SSD</b>	Not supported	Not supported	Up to 4
<b>PCI slots</b>	6 PCIe 2.0	7 PCIe 3.0	7 PCIe 3.0
<b>Embedded NICs</b>	2 x 1GbE with TOE	4 x 1GbE with TOE	2 x 1GbE Dual Port LOM
<b>Power supplies</b>	Hot-plug, redundant power supply units: 570W or 870W	Hot-plug redundant power supply units: 750W or 1100W	Hot-plug, redundant power supply units: 495W, 750W, 1100W, or 1100W DC



Feature	PowerEdge T610	PowerEdge T710	PowerEdge T620
<b>Dell OpenManage Systems Management</b>	Dell OpenManage Dell Management Console (DMC) Lifecycle Controller 1.x iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x	Dell OpenManage Dell Management Console (DMC) Lifecycle Controller 1.x iDRAC6 (Express or Enterprise) with Lifecycle Controller 1.x	OpenManage Essentials Dell Management Console IT Assistant OMSA Agent OpenManage Power Center (requires iDRAC7 Enterprise with Lifecycle Controller) OpenManage Integrations and Connections iDRAC7 Express with Lifecycle Controller (standard option)
<b>Internal GPU</b>	Not supported	Not supported	Up to 4 (single width or double width)
<b>Power efficiency</b>	Gold	Gold	Titanium
<b>Availability</b>	Hot-plug drives, optional 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	Hot-plug drives, hot-plug redundant cooling, hot-plug redundant PSUs, internal dual SD module

<sup>1</sup>GB means 1 billion bytes and TB equals 1 trillion bytes; actual capacity varies with preloaded material and operating environment and will be less

## Specifications

Table 3 summarizes the specifications for each of the PowerEdge T620 features. For the latest information on supported features, visit [Dell.com](http://Dell.com).

**Table 3. Technical specifications**

Feature	PowerEdge T620 technical specification
<b>Form factor</b>	Tower (5U rack)
<b>Processors</b>	Intel Xeon processor E5-2600 product family
<b>Processor sockets</b>	2 sockets
<b>Internal interconnect</b>	2 x Intel QuickPath Interconnect (QPI) links: 6.4GT/s, 7.2GT/s, 8.0GT/s
<b>Cache</b>	2.5MB per core; core options: 2, 4, 6, 8
<b>Chipset</b>	Intel C600
<b>Memory<sup>1</sup></b>	Up to 768GB (24 DIMM slots): 2GB/4GB/8GB/16GB/32GB DDR3 up to 1600MT/s
<b>PCIe slots</b>	<b>7 PCIe slots:</b> <ul style="list-style-type: none"> <li>• Four x16 slots with x16 bandwidth, full-length, full-height</li> <li>• Two x8 slots with x8 bandwidth, full-length, full-height</li> <li>• One x8 slot with x4 bandwidth, full-length, full-height</li> </ul>



Feature	PowerEdge T620 technical specification	
<b>RAID controller</b>	<b>Internal controllers:</b> PERC S110 (SW RAID) PERC H310 PERC H710 PERC H710P	<b>External HBAs (RAID):</b> PERC H810 <b>External HBAs (non-RAID):</b> 6Gbps SAS HBA
<b>Hard drives (hot-plug)</b>	<b>Drive bay options:</b> <ul style="list-style-type: none"> <li>Up to 8 x 3.5" + 4 x Express Flash</li> <li>Up to 12 x 3.5"</li> <li>Up to 16 x 2.5" + 4 x Express Flash</li> <li>Up to 32 x 2.5"</li> </ul> <b>Hard drive options:</b> <ul style="list-style-type: none"> <li>2.5" Express Flash, SAS SSD, SATA SSD, SAS (15K, 10K), nearline SAS (7.2K), SATA (7.2K)</li> <li>3.5" nearline SAS (7.2K), SATA (7.2K), SAS (15K)</li> </ul> Self-encrypting drives (SEDs) available	
<b>Embedded NIC</b>	Intel Dual Port 1GbE LOM	
<b>Power supply</b>	Auto-ranging Titanium efficiency 750W AC power supply Auto-ranging Platinum efficiency 495W, 750W or 1100W AC power supply 1100W DC power supply	
<b>Availability</b>	High-efficiency, hot-plug, redundant power supplies; hot-plug drive bays; TPM; dual internal SD support; hot-plug redundant fan; optional bezel; information tag; ECC memory; interactive LCD screen; extended thermal support; ENERGY STAR® compliant; switch independent partitioning	
<b>Dell OpenManage Systems Management (Agent-free or with OpenManage Server Administrator [OMSA] Agent)</b>	<ul style="list-style-type: none"> <li>OpenManage Essentials</li> <li>Dell Management Console</li> <li>IT Assistant</li> <li>OMSA Agent</li> <li>OpenManage Power Center (requires iDRAC7 Enterprise with Lifecycle Controller)</li> <li>OpenManage Integrations and Connections:               <ul style="list-style-type: none"> <li>OpenManage Integration Suite for Microsoft® System Center</li> <li>Dell Management Plug-in for VMware vCenter™</li> <li>Connections for HP® Operations Manager, IBM® Tivoli® Netcool® and CA Network and Systems Management</li> </ul> </li> <li>iDRAC7 Express with Lifecycle Controller (standard option)               <ul style="list-style-type: none"> <li>Upgrade to iDRAC7 Enterprise with Lifecycle Controller</li> <li>Upgrade to 8GB vFlash media or 16GB vFlash media for iDRAC7 Enterprise with Lifecycle Controller</li> <li>Trial evaluation available for iDRAC7 Enterprise with Lifecycle Controller</li> </ul> </li> </ul>	
<b>Rack support</b>	ReadyRails™ sliding rails for tool-less mounting in 4-post racks with square or unthreaded round holes or tooled mounting in 4-post threaded hole racks, with support for optional tool-less cable management arm	



Feature	PowerEdge T620 technical specification
	Microsoft® Windows Server® 2012 Microsoft Windows Server 2008 R2 SP1, x64 (includes Hyper-V® v2) Microsoft Windows® Small Business Server 2011 SUSE® Linux® Enterprise Server Red Hat® Enterprise Linux®
<b>Operating systems</b>	<b>Optional embedded hypervisors:</b> Citrix® XenServer® VMware vSphere including ESX™ and ESXi Red Hat Enterprise Virtualization®  For more information on the specific versions and additions, visit <a href="http://Dell.com/OSsupport">Dell.com/OSsupport</a> .

<sup>1</sup>GB means 1 billion bytes and TB equals 1 trillion bytes; actual capacity varies with preloaded material and operating environment and will be less



## 3 Chassis views and features

The Dell PowerEdge T620 is a 5U rackable tower server. The T620 provides various storage options including different drive types, internal and external storage controllers, and different chassis options for the various hard drive configurations.

Some of the new features for the T620 chassis include:

- Updated industrial design including a new LCD panel and bezel (optional security bezel available)
- Support for persistent storage through internal USB and SD card slots
- Front access for vFlash media reader
- Front VGA port for rack-mount chassis
- Front LCD panel for rack-mount chassis

### Chassis views

The T620 is available in several configuration options, supporting up to 12 3.5-inch hard drives or up to 32 2.5-inch hard drives. All of these options can be selected in a tower or rack configuration at the time of purchase. A system, however, cannot be upgraded, reconfigured, or converted (for example, from tower to rack) after point of purchase. For the latest configuration details, visit [Dell.com](http://Dell.com). See the Storage section for details about the T620 hot-plug hard drive options.

Figure 1 shows the front view of the 32-drive bay tower chassis without a bezel. Features on the front panel include an interactive LCD control panel, USB connectors, a video connector, and a vFlash media card slot.

**Figure 1. Front view without bezel**



Figure 2 shows the optional bezel on the front of the T620 tower chassis.

**Figure 2. Front view with bezel**



Figure 3 shows the front view of the rackable T620 chassis without a bezel.

**Figure 3. Rackable front view without bezel**



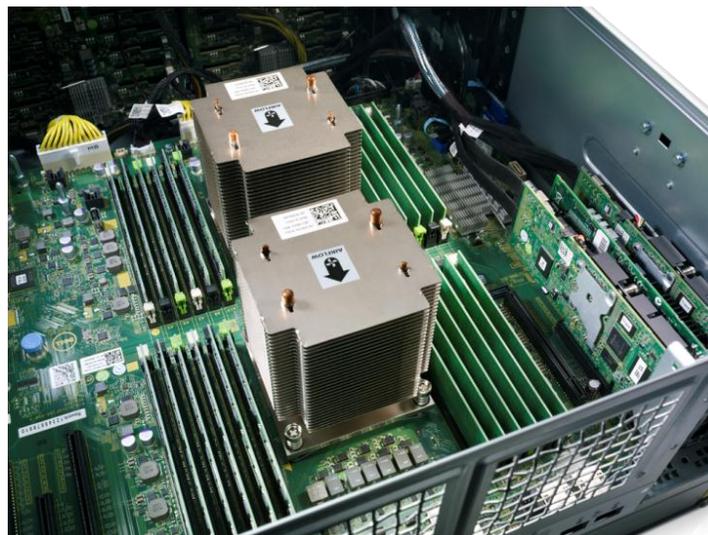
Figure 4 shows the back of the T620 chassis. Features on the back panel include the system identification light and button, serial connector, video connector, USB connectors, Ethernet connectors, PCIe slots, and power supplies.

**Figure 4. Back view**



Figure 5 is an internal view of the T620 showing processor heat sinks and associated DIMM slots.

**Figure 5. Internal view**



For additional system views, see the *Dell PowerEdge T620 Owner's Manual* on [Support.Dell.com/Manuals](http://Support.Dell.com/Manuals).



## Chassis features

Table 4 lists the features on the T620 chassis. For additional information on the T620 chassis features, see the *Dell PowerEdge T620 Owner's Manual* on [Support.Dell.com/Manuals](http://Support.Dell.com/Manuals).

**Table 4. Chassis features**

Feature	Description
<b>Power button and indicator</b>	ACPI-complaint power button with an integrated green power LED
<b>Front bezel</b>	Covers the system's front-loading hard drives; can be locked to prevent hard drives from being removed
<b>NMI button</b>	Recessed non-maskable interrupt (NMI) button used to troubleshoot software and device driver errors; use only if directed to do so by qualified support personnel or by the operating system's documentation
<b>System identification button</b>	Buttons on the back and front of a system to help identify the unit in a data center environment
<b>Information tag</b>	Slide-out label panel for recording system information
<b>USB connectors</b>	Six on the back panel; two on front panel
<b>Video connector</b>	Connects a monitor to the system
<b>LCD control panel</b>	Displays system ID, status information, and system error messages; two navigation buttons to scroll through the menu on the LCD and one select button
<b>vFlash media reader</b>	Supports one vFlash media card; functionality is activated only when iDRAC7 Enterprise is enabled
<b>Hard drives</b>	Up to thirty-two 2.5-inch or up to twelve 3.5-inch, front-accessible, hot-plug drives
<b>Hard drive activity LEDs</b>	Indicate the status and activity of the hard drives
<b>Optical drive (optional)</b>	Supports optional DVD drives; see the Storage section
<b>Tape drive (optional)</b>	See the Storage section
<b>Video connector</b>	One connector on front panel for rack mount
<b>PCIe slots</b>	Connects up to seven PCIe expansion cards
<b>Power supply units</b>	Up to two back-accessible, hot-plug power supplies
<b>Power supply indicators</b>	Indicate whether system has power
<b>NIC indicators</b>	Indicate network activity and status
<b>Ethernet connectors</b>	Choice of network connectors through the Select Network Adapter family
<b>Serial connector</b>	Connects a serial device to the system
<b>iDRAC7 Enterprise port</b>	Dedicated management port for optional iDRAC7 Enterprise



Feature	Description
<b>Quick Resource Locator (QRL)</b>	This code on the chassis can be scanned by a smartphone application to access additional information and resources for the server, including videos, reference materials, service tag information, and Dell contact information.

## Front control panel

The T620 has two versions of the front panel depending on the orientation of the system. The front control panel for a tower server has an LCD, which is an iDRAC-controlled graphics display that provides system information through error codes.

**Figure 6. Tower system with LCD panel**



The front control panel for a rack server has a VGA port to support a monitor.

**Figure 7. Rack system with VGA port**



## Quick Resource Locator

A useful feature included with Dell PowerEdge 12<sup>th</sup> generation servers is the Quick Resource Locator (QRL)—a model-specific Quick Response (QR) code that is located inside the T620 chassis cover (see Figure 8). Use your smartphone to access the Dell QRL app to learn more about the server.

**Figure 8. QRL code inside chassis cover**



This QRL code allows you to:

- View step-by-step videos, including overviews of system internals and externals, as well as detailed, concise, task-oriented videos and installation wizards



- Locate reference materials, including searchable owner's manual content, LCD diagnostics, and an electrical overview
- Look up your service tag so you can quickly gain access to your specific hardware configuration info and warranty information
- Contact Dell directly (by link) to get in touch with technical support and sales teams and provide feedback to Dell

These codes provide an easy way to retrieve the critical support information you need when you need it, making you more efficient and effective in managing your hardware.

## Security features

The PowerEdge servers have the features listed in Table 5 to help ensure the security of your data center.

**Table 5. Security features**

Security feature	Description
<b>Cover latch</b>	A tooled latch is integrated in the side cover to secure it to the rack chassis.
<b>Front bezel</b>	An optional metal bezel is mounted to the chassis front to provide the Dell ID. A lock on the bezel protects un-authorized access to the hard drives and optical drive. Although the bezel has an open area to allow access to the tape backup in bay 2, the rest of the system remains locked. System status is viewable on the LCD screen when the bezel is installed.
<b>TPM</b>	The Trusted Platform Module (TPM) is used to generate/store keys, protect/authenticate passwords, and create/store digital certificates. It also supports the Intel Xeon TXT functionality. TPM can also be used to enable the BitLocker™ hard drive encryption feature in Windows Server 2008. TPM 1.2 is supported. No TPM version is available for China or Russia.
<b>Power-off security</b>	BIOS has the ability to disable the power button function.
<b>Intrusion alert</b>	An internal switch is used to detect chassis intrusion.
<b>Secure mode</b>	BIOS has the ability to enter a secure boot mode through system setup. This mode includes the option to lock out the power and NMI switches on the control panel or set up a system password.



## 4 Processor

The Dell PowerEdge T620 features the Intel Xeon processor E5-2600 product family, which offers an ideal combination of performance, power efficiency, and cost. These processors provide high performance no matter what your constraint is—floor space, power, or budget—and on workloads that range from the most complicated scientific exploration to crucial web-serving and infrastructure applications. In addition to providing raw performance gains, improved I/O is also made possible with Intel Integrated I/O, which can reduce latency by adding more lanes and doubling bandwidth. This helps to reduce network and storage bottlenecks, unleashing the processor's performance capabilities.

### Processor features

The new Intel Xeon processor E5-2600 product family not only adds new features, but also improves upon many features of the predecessor Intel Xeon processor 5600 series, including:

- Up to two additional cores and up to 8MB more last level cache
- More memory—six additional DIMMs and support for up to 32GB DIMMs, which increases memory capacity from 288GB to 768GB
- Intel Integrated I/O has support for up to 80 lanes of PCIe 3.0, which can reduce latency
- Faster connections are provided throughout the system with support for DDR3 1600MT/s memory and 8.0GT/s QPI
- Intel Data Direct I/O (DDIO) allows I/O traffic to skip the main system memory and be directed straight to the processor cache, which can provide a significant reduction in latency as well as allowing memory to remain in a low-power state
- Intel Advanced Vector Extensions offer up to double the floating point operations per clock cycle by doubling the length of registers, which can be useful for addressing very complex problems or dealing with large-number calculations, which are integral to many technical, financial, and scientific computing problems
- Intel Turbo Boost Technology 2.0 delivers up to double the boost than the previous-generation turbo technology
- Continued improvements to both Intel TXT and AES-NI help to better protect systems and data

For more information on the Intel Xeon processor E5-2600 product family, visit [intel.com](http://intel.com).



## Supported processors

The T620 supports up to two processors with up to eight cores per processor. Table 6 lists the Intel Xeon E5-2600 processors supported by the PowerEdge T620. For the latest information on supported processors, visit [Dell.com/PowerEdge](http://Dell.com/PowerEdge).

**Table 6. Supported processors**

Model	Speed	TDP	Cache	Cores	QPI	Turbo
<b>E5-2690</b>	2.9GHz	135W	20M	8	8.0GT/s	Yes
<b>E5-2680</b>	2.7GHz	130W	20M	8	8.0GT/s	Yes
<b>E5-2670</b>	2.6GHz	115W	20M	8	8.0GT/s	Yes
<b>E5-2667</b>	2.9GHz	130W	15M	6	8.0GT/s	Yes
<b>E5-2665</b>	2.4GHz	115W	20M	8	8.0GT/s	Yes
<b>E5-2660</b>	2.2GHz	95W	20M	8	8.0GT/s	Yes
<b>E5-2650L</b>	1.8GHz	70W	20M	8	8.0GT/s	Yes
<b>E5-2650</b>	2.0GHz	95W	20M	8	8.0GT/s	Yes
<b>E5-2643</b>	3.3GHz	130W	10M	4	8.0GT/s	Yes
<b>E5-2640</b>	2.0GHz	95W	15M	6	7.2GT/s	Yes
<b>E5-2637</b>	2.0GHz	80W	5M	2	6.4GT/s	Yes
<b>E5-2630</b>	2.0GHz	95W	15M	6	7.2GT/s	Yes
<b>E5-2630L</b>	2.0GHz	60W	15M	6	7.2GT/s	Yes
<b>E5-2620</b>	2.0GHz	95W	15M	6	7.2GT/s	Yes
<b>E5-2609</b>	2.4GHz	80W	10M	4	6.4GT/s	NA
<b>E5-2603</b>	1.8GHz	80W	10M	4	6.4GT/s	NA

For information on processor installation and configuration, see the *Dell PowerEdge T620 Owner's Manual* on [Support.Dell.com/Manuals](http://Support.Dell.com/Manuals).

## GPU support

The T620 supports graphics processing unit (GPU) technology, providing accelerated performance for a variety of applications including virtual desktop infrastructure (VDI) medical imaging and graphical rendering implementations.

The T620 supports up to four 300W, full-length, single- or double-wide GPU cards. Each GPU card can support up to 6GB of dedicated GDDR5 memory and is actively cooled. Each GPU card has one or two power connectors to meet the high demand for power delivery. The power connectors are located on the back of the card. See Table 7 for a list of supported GPU cards.



**Table 7. GPU cards supported**

GPU card	Model	Length	Height	Width	Heatsink	Power consumption
NVIDIA®	C2075	247.65mm	111mm	Double	Active	215W
	Q6000	247.65mm	111mm	Double	Active	204W
ATI™ FirePro™	V7800	242mm	111mm	Single	Active	150W

## GPU configuration options

GPU cards are installed in the PCIe x16 2.0 interfaces, which are slots 2, 4, 5 and 7; slots 5 and 7 only work with two processors.

**Note:** You must select the GPU enablement kit at point of sale to install GPU or keep the system's GPGPU capability. GPU enablement kit is not upgradable after point of sales.

With one processor installed, two GPU cards are supported with the following restrictions:

- Slots 1, 2, 3, and 4 are available, therefore only two GPUs can be installed in slots 2 and 4
- Since double-wide GPU cards occupy two slots, only two can be installed and slots 1 and 3 are not available
- RAID cards cannot be installed with two double-wide GPU cards
- With single-wide GPU cards, the PERC H710, H710P, or H810 cannot occupy slots 1 or 3 (PERC cards have batteries that would overheat if located beside a GPU card)

With two processors installed, four GPU cards are supported, with the restrictions:

- Slots 2, 4, 5, and 7 are available
- Since double-wide GPU cards occupy two slots, slots 1, 3, and 6 are not available
- RAID cards cannot be installed with four double-wide GPU cards
- With single-wide GPU cards, the PERC H710, H710P, or H810 cannot occupy slots 1, 3, or 6 (PERCs have batteries that would overheat if located beside a GPU card)

With PCIe SSDs, two GPU cards can occupy slots 5 and 7. Slot 2 is for a PCIe SSD expander card and slot 4 cannot support a GPU card because of thermal restrictions.

## Operating system support for GPUs

Some operating systems have not been validated to support GPUs. See Table 23 and Table 24 for more information on operating system support of GPUs.

## Chipset

The Intel C600 chipset is implemented on the PowerEdge T620. For more information, visit [Intel.com](http://Intel.com).



## 5 Memory

More memory options are available than ever before with the Dell PowerEdge T620—greater capacities, higher frequencies, and more flexibility. The T620 supports up to 768GB of memory (24 DIMMs) and speeds up to 1600 MT/s, providing high performance in a variety of applications. High memory density means there is no compromise when it comes to virtualization.

Increase your uptime and reduce data loss due to Dell's focus on reliability, availability, and serviceability (RAS) features. RAS aids in the rapid and accurate diagnosis of faults which require service, increasing your memory reliability. System uptime is reinforced with RAS features like memory mirroring, sparing, and many others.

In addition to supporting existing unbuffered DIMMs (UDIMMs) and registered DIMMs (RDIMMs), the T620 supports load reduced DIMMs (LRDIMMs), which use a buffer to reduce memory loading and provide greater density, allowing for the maximum platform memory capacity.

### Supported memory

Table 8 lists the memory technologies supported by the T620.

**Table 8. Memory technologies supported**

Feature	UDIMM	RDIMM	LRDIMM
Register	No	Yes	Yes
Buffer	No	No	Yes
Frequencies*	800, 1066, or 1333MT/s	800, 1066, 1333, or 1600MT/s	1066 or 1333MT/s
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
Temperature sensor	Yes	Yes	Yes
Error Correction Code (ECC)	Yes	Yes	Yes
Single Device Disable Code (SDDC)	Yes (with advanced ECC mode)	Yes	Yes
Address parity	Yes	Yes	Yes

\*Although the T620 supports DIMM speeds of 800MT/s and 1066MT/s, you can only purchase this system with DIMM speeds of 1333MT/s and 1600MT/s on [Dell.com](http://Dell.com).



Table 9 lists the DIMMs supported by the T620. For the latest information on supported memory, visit [Dell.com](http://Dell.com).

**Table 9. DIMMs supported**

Capacity (GB)	Speed (MT/s)	Type	Ranks per DIMM	Data width	SDDC support	Voltage
2	1333	RDIMM	1	x8	Advanced ECC	1.35
2	1333	UDIMM	1	x8	Advanced ECC	1.35
2	1600	RDIMM	1	x8	Advanced ECC	1.5
4	1333	RDIMM	2	x8	Advanced ECC	1.35
4	1333	RDIMM	1	x4	All modes	1.35
4	1333	UDIMM	2	x8	Advanced ECC	1.35
4	1600	RDIMM	2	x8	Advanced ECC	1.5
8	1333	RDIMM	2	x4	All modes	1.35
8	1600	RDIMM	2	x4	All modes	1.5
16	1066	RDIMM	4	x4	All modes	1.35
16	1333	RDIMM	2	x4	All modes	1.35
16	1600	RDIMM	2	x4	All modes	1.5
32	1333	LRDIMM	4	x4	All modes	1.35
32	1333	RDIMM	4	x4	All modes	1.35

## Memory configurations

Flexible memory configurations are supported on the T620, ranging from capacities of 2GB (minimum) to 768GB (maximum). The system supports up to 12 DIMMs per processor (up to 24 DIMMs in a dual-processor configuration). The T620 has 4 memory channels per processor, with each channel supporting up to 3 DIMMs.

The T620 supports a flexible memory configuration, according to these basic rules:

- Speed: If DIMMs of different speeds are mixed, all channels across all processors operate at the slowest DIMM's common frequency.
- DIMM type: Only one type of DIMM is allowed per system: UDIMM, RDIMM, or LRDIMM. These types cannot be mixed.

The following additional memory population guidelines apply to the T620:

- Up to two quad-rank (QR) DIMMs and up to three dual-rank (DR) or single-rank (SR) DIMMs may be populated per channel. Although an LRDIMM is physically a QR DIMM, logic on the LRDIMM can make it appear as a DR DIMM to the system, allowing up to three LDRIMMs per channel.
- DIMMs must be installed in each channel, starting with the DIMM farthest from the processor.
- DIMMs should be installed with largest rank count to smallest. For example, if DR DIMMS are mixed with SR DIMMS, DR DIMMS should be placed in the lowest DIMM slots, followed by the SR DIMMS.



For more information on memory configuration, see the *Dell PowerEdge T620 Owner's Manual* on [Support.Dell.com/Manuals](http://Support.Dell.com/Manuals).

## Memory speed

The T620 supports memory speeds of 1600MT/s, 1333MT/s, 1066MT/s, and 800MT/s depending on the DIMM types installed and the configuration. All memory on all processors and channels run at the same speed and voltage. By default, the systems run at the highest speed for the channel with the lowest DIMM voltage and speed. The operating speed of the memory is also determined by the maximum speed supported by the processor, the speed settings in the BIOS, and the operating voltage of the system.

Table 10 lists memory configuration and performance details for the T620 based on the population of the number and type of DIMMs per memory channel.

**Table 10. Memory speed capabilities**

DIMM type	DIMM 0	DIMM 1	DIMM 2	Number of DIMMs	Speed (MT/s)			
					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		•		

\*Although the T620 supports DIMM speeds of 800MT/s and 1066MT/s, you can only purchase this system with DIMM speeds of 1333MT/s and 1600MT/s on [Dell.com](http://Dell.com).



## Memory RAS features

Reliability, availability, serviceability (RAS) features help keep the system online and operational without significant impact to performance, and can decrease data loss and crashing due to errors. RAS aids in rapid, accurate diagnosis of faults which require service. Table 11 describes the RAS features supported on the T620.

**Table 11. Memory RAS features**

Feature	Description
<b>Dense configuration optimized profile</b>	Increased memory reliability can be a result from this selectable platform profile that adjusts parameters to reduce faults regarding refresh rates, speed, temperature and voltage
<b>Memory demand and patrol scrubbing</b>	Demand scrubbing is the ability to write corrected data back to the memory once a correctable error is detected on a read transaction. Patrol scrubbing proactively searches the system memory, repairing correctable errors.
<b>Recovery from single DRAM device failure</b>	Recovery from Single DRAM Device Failure (SDDC) provides error checking and correction that protects against any single memory chip failure as well as multi-bit errors from any portion of a single memory chip.
<b>Failed DIMM isolation</b>	This feature provides the ability to identify a specific failing DIMM channel pair, thereby enabling the user to replace only the failed DIMM pair
<b>Memory mirroring: intra-socket</b>	Memory mirroring is a method of keeping a duplicate (secondary or mirrored) copy of the contents of memory as a redundant backup for use if the primary memory fails. The mirrored copy of the memory is stored in memory of the same processor socket.
<b>Memory address parity protection</b>	This feature provides the ability to detect transient errors on the address lines of the DDR channel.
<b>Memory sparing (rank)</b>	Memory sparing allocates one rank per channel as a spare. If excessive correctable errors occur in a rank or channel, it is moved to the spare area while the operating system is running to prevent the error from causing an uncorrectable failure.
<b>Memory thermal throttling</b>	This feature helps to optimize power/performance and can also be used to prevent DIMMs from overheating.

For information on memory mirroring and sparing configurations, see the *Dell PowerEdge T620 Owner's Manual* on [Support.Dell.com/Manuals](https://support.dell.com/Manuals).



## 6 Storage

With comprehensive storage options, the Dell PowerEdge T620 offers the choice of drive types, internal and external storage controllers, and different chassis options depending on the drive configuration.

Features such as Express Flash PCIe solid-state drives and CacheCade™ provide accelerated performance over previous technologies. Express Flash drives use PCIe lanes to connect directly to the processor and chipset. CacheCade uses Dell PERC storage controllers to accelerate performance over hard drives or traditional solid-state drives (SSDs).

### Internal storage

The T620 supports the following internal storage options:

- 3.5-inch options:
  - 4 x 3.5-inch hot-plug hard drives
  - 8 x 3.5-inch hot-plug hard drives
  - 8 x 3.5-inch hot-plug hard drives plus 4 Express Flash PCIe SSDs
  - 12 x 3.5-inch hot-plug hard drives
- 2.5-inch options:
  - 16 x 2.5-inch hot-plug drive bays
  - 16 + 16 x 2.5-inch hot-plug drive bays
  - 16 x 2.5-inch hot-plug drive bays plus 4 Express Flash PCIe SSDs
  - 32 x 2.5-inch hot-plug drive bays

**Note:** A system cannot be upgraded or reconfigured after point of purchase.

### Supported hard drives

Table 12 lists T620 hard drive options. For additional information, see [Dell.com/PowerEdge](http://Dell.com/PowerEdge).

**Table 12. Supported hard drives**

Form factor	Type	Speed (rpm)	Capacities
3.5"	SATA (3Gb)	7.2K	250GB, 500GB, 1TB, 2TB, 3TB
	Nearline SAS (6Gb)	7.2K	1TB, 2TB, 3TB
	SAS (6Gb)	15K	300GB, 600GB
2.5"	SATA (3Gb)	7.2K	250GB, 500GB, 1TB
	Nearline SAS (6Gb)	7.2K	500GB, 1TB
	SAS (6Gb)	10K	300GB, 600GB, 900GB
	SAS (6Gb)	15K	146GB, 300GB
	SAS SSD (SLC, 6Gb)	N/A	200GB, 400GB
	SATA SSD (MLC, 3Gb)	N/A	100GB, 200GB
	Express Flash PCIe SSD (SLC)	N/A	175GB, 350GB



## Express Flash drives

Express Flash drives use PCIe and SSD technologies to provide performance, scalability, and optimal serviceability. Accelerated performance with high IOPs is made possible without requiring processor resources or capturing DRAM. Also, Express Flash drives use a standardized 2.5-inch hot-plug form factor that saves critical PCIe slot space by moving drives from the back to the front of the system and allows a common management process for all drives.

The PowerEdge T620 has an option to support up to four 2.5-inch, hot-plug Express Flash drives with capacities of 175GB or 350GB. These drives can be configured to RAID 0 or RAID 1 through the OS RAID option.

Only the 8- or 16-drive bay chassis option supports Express Flash drives, and the T620 system must also have two processors, six system fans, and one removable media storage device. For additional configuration requirements, contact your Dell sales representative.

## External storage

The T620 supports the external storage devices types listed in Table 13. For additional information, visit [Dell.com/Storage](http://Dell.com/Storage).

**Table 13. Supported external storage**

Device type	Description
External tape	ML6000
	TL4000
	TL2000
	124T
	114X
	LTO5 SAS
	LTO4 HH SAS
	LTO3-060 SCSI
	RD1000 USB
PowerVault NAS	Supports connection to current PowerVault NAS products
PowerVault DAS	Supports connection to current PowerVault DAS (including JBOD and RBOD enclosures) products
PowerVault SAN	Supports connection to current PowerVault SAN (including EqualLogic™ iSCSI, Dell EMC arrays and JBOD disk enclosures) products
PowerVault IDM	Supports connection to current PowerVault IDM (archive solutions, deduplication, B2D and data protection appliances) products



## Storage controllers

Dell provides highly capable RAID options for you to ensure that your data remains safe. Dell's RAID controller options offer impressive performance improvements, including the following features:

- FastPath™ I/O: This feature can help accelerate performance when operating on SSDs.
- Split mirror: This function allows you to break mirrored disk connection in order to quickly replace a drive.
- Physical disk power management (Dimmer Switch™): This feature allows for power control of spare or idle drives, which can save energy and operating expenses.

### Supported RAID controllers

The newest line of PERC (PowerEdge RAID Controller) cards offers high I/O performance for database applications and streaming digital media environments. The T620 supports the new PERC 8 family of controllers, adapter form factor only, with improved functionality and faster performance. The internal RAID controllers have a dedicated connection to the system board.

The T620 also supports the new software RAID solution that supports RAID 0, 1, 5, and 10. The T620 supports the PERC cards listed in Table 14.

**Table 14. RAID controllers**

Controller	Description	Features	RAID modes	Form factor	Usage model
<b>PERC H810</b> External	Eight-port, external and 6Gp/s PCIe RAID controller that supports up to 192 SATA and SAS hard drives or SSDs	Includes 1GB NV DDR3 cache, premium performance and feature set, security SED/EKMS, and SSD as cache	0, 1, 10, 5, 50, 6, 60	Adapter	Premium performance
<b>PERC H710P</b> Internal	Eight-port, internal 6Gb/s PCIe RAID controller that supports up to 32 SATA and SAS hard drives or SSDs	Includes 1GB NV DDR3 cache, premium performance and feature set, security SED/EKMS, and SSD as cache	0, 1, 10, 5, 50, 6, 60	Adapter	Premium performance
<b>PERC H710</b> Internal	Eight-port, internal 6Gb/s PCIe RAID controller that supports up to 32 SATA and SAS hard drives or SSDs	Includes 512MB DDR3 cache, advanced feature set, security SED/EKMS	0, 1, 10, 5, 50, 6, 60	Adapter	Performance
<b>PERC H310</b> Internal	Eight-port, internal 6Gb/s PCIe RAID that supports up to 32 SATA and SAS hard drives or SSDs	Supports hot-plug drives, expansion, pass-through	0, 1, 10, 5, 50	Adapter	Value
<b>PERC S110</b> Software RAID	3Gb/s SATA software RAID controller that supports up to 4 physical disks or 8 virtual disks	Supports hot-plug SATA drives (4 drive maximum); no expansion; Microsoft Windows only	0, 1, 5, 10	System board-embedded SATA	Entry-level



Table 15 lists the T620 backplane options and supported Dell PERC cards for the T620.

**Table 15. Hard-drive backplane options**

Backplane options	Number of hard drives	Controller	Drive types
8 x 3.5"	up to 4	PERC S110	SATA HDD/SSD
8 x 3.5"	8	PERC H310, H710, H710P	SATA HDD/SSD SAS HDD/SSD
12 x 3.5"	12	PERC H310, H710P	SATA HDD/SSD SAS HDD/SSD
16 x 2.5"	16	PERC H710, H710P	SATA HDD/SSD SAS HDD/SSD
Dual 16 x 2.5"	16 + 16	Dual PERC H710P	SATA HDD/SSD SAS HDD/SSD
Dual 16 x 2.5"	32	PERC H710P	SATA HDD/SSD SAS HDD/SSD
4 x PCIe SSD	4	PCIe interface SSD card + PERC H310, H710, H710P	Express Flash PCIe SSD

For more information about the latest PERC offerings, see [Dell.com/PERC](http://Dell.com/PERC).

## CacheCade

CacheCade is a technology that provides automated storage tiering on SSDs with the PERC H810 and H710. It works by detecting the most often accessed data and copying it over time to the CacheCade SSD(s) where that cached data is accessed directly, instead of accessing the hard disk drives. This can dramatically increase how your applications respond when they are under peak traffic times and how they perform when response time is critical.

CacheCade provides cost-effective performance scaling for database-type applications that perform lots of random reads, and saves the cost of adding extra drives.

## Optical drive

The T620 8-drive and 16-drive bay chassis, without the Express Flash PCIe SSDs, support up to three media bays through one of the following options:

- Up to two SATA half-height DVD-ROM or DVD R/W drives, plus one SAS tape drive
- Up to one SATA half-height DVD-ROM or DVD R/W drives, plus one internal Dell PowerVault™ RD1000 drive and one SAS tape drive

With the Express Flash PCIe SSDs, the T620 8-drive and 16-drive bay chassis can support one optical drive, one RD1000, or one SAS tape drive.

The T620 12-drive bay supports one media bay through one of the following options:

- Up to one SATA half-height DVD-ROM or DVD R/W drive
- Up to one internal PowerVault RD1000 drive
- Up to one SAS interface tape drive



The T620 32-drive bay chassis supports one slim 12.7mm optical drive and does not support a tape device.

## Tape drive

The T620 supports a combination tape drive configuration—a single system with two drives (one PowerVault LTO drive and one PowerVault RD1000 drive). Table 16 lists the types of internal tape devices and the required interface cards for each device. For additional information, visit [Dell.com/Storage](http://Dell.com/Storage).

**Table 16. Tape devices supported**

Tape devices	Interface cards
LTO5-140 SAS	Internal tape adapter
LTO4-120 HH SAS	Internal tape adapter
LTO3-080 SAS	Internal tape adapter
RD1000 SATA	Onboard SATA
External SAS tape	6Gb SAS HBA
External FC tape	FC HBA
External RD1000	USB



## 7 Networking and PCIe

The Dell PowerEdge T620 offers balanced, scalable I/O capabilities, including six integrated PCIe 3.0-capable expansion slots and one dedicated storage controller slot. Networking options for the T620 allow you to tailor your network throughput to match your application needs, enabling added I/O performance.

### Embedded NIC controller

The T620 system board has one embedded NIC controller. The Dual Port Intel GbE controller I350-AM2 has the following features:

- PCIe 2.0 (5.0GT/s)
- Energy Efficient Ethernet (EEE)
- RoHS, Halogen free

### PCIe expansion

For information on card installation, card requirements, and slot priorities, see the *Dell PowerEdge T620 Owner's Manual* on [Support.Dell.com/Manuals](http://Support.Dell.com/Manuals).

#### PCIe slots

PCIe connectivity is integrated with the processor, and the number of processors in a system impacts the number of PCIe slots and the bandwidth of each PCIe slot. The PowerEdge T620 offers seven PCIe slots. For a T620 system with one processor, slots 1 through 4 are available. For a T620 system with two processors, all slots are available.

#### PCIe expansion cards

The T620 supports a variety of PCIe expansion cards. Table 17 lists the supported add-in NICs and HBAs for the T620.

**Table 17. Supported NICs and HBAs**

Type	Adapter
1Gb/10Gb NIC	Broadcom® 5719 4x1Gb Base-T
	Broadcom 5720 2x1Gb Base-T
	Intel I350 4x1Gb Base-T
	Intel I350 4x1Gb Base-T
	Broadcom 57810S 2x10Gb SFP+
	Broadcom 57810S 2x10Gb Base-T
	Intel X540 2x10Gb Base-T
	Intel X520 2x10Gb SFP+



Type	Adapter
FC4/FC8 HBA	Brocade® BR1020 2x10Gb SPF+
	QLogic® QLE8262 2x10Gb SFP+
	QLogic QLE2460 4Gb
	QLogic QLE2462 4Gb
	QLogic QLE2560 8Gb
	QLogic QLE2562 8Gb
	Emulex® LPe12000 8Gb
	Emulex LPe12002 8Gb
	Brocade BR815 8Gb
	Brocade BR825 8Gb

Table 18 lists additional PCIe expansion cards for the T620.

**Table 18. Additional supported PCIe expansion cards**

Type	Adapter
PCIe bridge	PCIe bridge adapter for front-accessible, hot-plug Express Flash PCIe SSDs

For the latest information on all supported add-in PCIe expansion cards for the T620, visit [Dell.com](http://Dell.com).



## 8 Power, thermal, and acoustics

Lower overall system-level power draw is a result of Dell's breakthrough system design. PowerEdge servers maximize performance per watt through a combination of power and cooling, energy efficient technologies and tools. Additionally, PowerEdge servers have an extensive collection of sensors that automatically track thermal activity, which helps regulate temperature thereby reducing server noise and power consumption.

### Power consumption and energy efficiency

With the rise in the cost of energy coupled with increasing data center density, Dell provides tools and technologies to help you realize greater performance with less energy cost and waste. More efficient data center usage can reduce costs by slowing the need for additional center space. Table 19 lists the tools and technologies Dell offers to help you achieve your data center goals by lowering power consumption and increasing energy efficiency.

**Table 19. Power tools and technologies**

Feature	Description
<b>Power supply units (PSU) portfolio</b>	Dell's PSU portfolio includes intelligent features such as dynamically optimizing efficiency while maintaining availability and redundancy. Find additional information in the Power supply units section.
<b>Tools for right-sizing</b>	<p><b>Energy Smart Solution Advisor (ESSA)</b> is a tool that helps you determine the most efficient configuration possible. With ESSA, you can calculate the power consumption of your hardware, power infrastructure, and storage. ESSA can help you determine exactly how much power your server will use at a given workload, and the PSU Advisor can help you choose the best, most efficient PSU for your workload. Learn more at <a href="https://Dell.com/calc">Dell.com/calc</a>.</p> <p><b>Energy Smart Data Center Assessment</b> is a Dell Services offering that uses infrastructure and thermal analysis to help maximize system efficiency. Learn more at <a href="https://Dell.com/EnergySmart">Dell.com/EnergySmart</a>.</p>
<b>Industry compliance</b>	Dell's servers are compliant with all relevant industry certifications and guidelines, including 80 PLUS, Climate Savers, and ENERGY STAR®.
<b>Power monitoring accuracy</b>	PSU power monitoring improvements include: <ul style="list-style-type: none"><li>• Dell's power monitoring accuracy is currently 1%, whereas the industry standard is 5%</li><li>• More accurate reporting of power</li><li>• Better performance under a power cap</li></ul>
<b>Power capping</b>	Use Dell's systems management to set the power cap limit for your systems to limit the output of a PSU and reduce system power consumption. Dell is the first hardware vendor to leverage Intel Node Manager for circuit-breaker fast capping.



Feature	Description
<b>Systems management</b>	<p><b>iDRAC7 Enterprise</b> provides server-level management that monitors, reports, and controls power consumption at the processor, memory, and system level.</p> <p><b>Dell OpenManage Power Center</b> delivers group power management at the rack, row, and data center level for servers, power distribution units, and uninterruptible power supplies.</p>
<b>Active power management</b>	<p><b>Intel Node Manager</b> is an embedded technology that provides individual server-level power reporting and power limiting functionality. Dell offers a complete power management solution comprised of Intel Node Manager accessed through Dell iDRAC7 Enterprise and OpenManage Power Center that allows policy-based management of power and thermals at the individual server, rack and data center level.</p> <p><b>Hot spare</b> reduces power consumption of redundant power supplies.</p> <p><b>Thermal control of fan speed</b> optimizes the thermal settings for your environment to reduce fan consumption and lower system power consumption.</p> <p><b>Idle power</b> enables Dell servers to run as efficiently when idle as when at full workload.</p>
<b>Fresh Air cooling</b>	<p>With the thermal design and reliability of Dell products, you can have the capability to operate at excursion-based temperatures beyond the industry standard of 35°C (95°F) without impacting your availability model. This solution takes into account servers, networking, storage, and other infrastructure. Find additional information at <a href="http://Dell.com/FreshAir">Dell.com/FreshAir</a>.</p>
<b>Rack infrastructure</b>	<p>Dell offers some of the industry's highest-efficiency power infrastructure solutions, including:</p> <ul style="list-style-type: none"> <li>• <a href="#">Power distribution units</a> (PDUs)</li> <li>• <a href="#">Uninterruptible power supplies</a> (UPSs)</li> <li>• <a href="#">Energy Smart containment rack enclosures</a></li> </ul> <p>Find additional information at: <a href="http://content.dell.com/us/en/enterprise/power-and-cooling-technologies-components-rack-infrastructure.aspx">http://content.dell.com/us/en/enterprise/power-and-cooling-technologies-components-rack-infrastructure.aspx</a>.</p>

Find additional information at [Dell.com/PowerAndCooling](http://Dell.com/PowerAndCooling) and [Power.com/PowerCenter](http://Power.com/PowerCenter).

## Power supply units

Energy Smart power supplies have intelligent features, such as the ability to dynamically optimize efficiency while maintaining availability and redundancy. Also featured are enhanced power-consumption reduction technologies, such as high-efficiency power conversion and advanced thermal-management techniques, and embedded power-management features, including high-accuracy power monitoring.

The T620 supports the following power supply units:

- 495W AC
- 750W AC
- 1100W AC
- 1100W DC



Figure 9 shows a 750W power supply extended from the T620 chassis.

**Figure 9. 750W power supply unit**



The PowerEdge T620 supports up to two AC or DC power supplies with 1 + 1 redundancy, auto-sensing, and auto-switching capability.

Dell PSUs have achieved Platinum and Titanium efficiency levels as shown in Table 20.

**Table 20. Power supply efficiency**

Form factor	Output	Class	Efficiency targets by load			
			10%	20%	50%	100%
Redundant 86mm	495W AC	Platinum	82.0%	90.0%	94.0%	91.0%
	750W AC	Platinum	82.0%	90.0%	94.0%	91.0%
	750W AC	Titanium	90.0%	94.0%	96.0%	91.0%
	1100W AC	Platinum	89.0%	93.0%	94.5%	92.0%
	1100W DC	N/A	80.0%	88.0%	91.0%	88.0%

## Thermal and acoustics

Optimized thermal management makes the PowerEdge T620 cool and quiet. Benefiting from smart cooling fan speed control, the T620 can keep both high performance and low acoustics across a wide range of ambient temperatures from 10°C to 35°C (50°F to 95°F) and to extended ambient temperature ranges (see Table 31). A typically configured T620 is quiet enough for an office environment, and a minimally configured T620 is quiet enough for a library.

### Thermal design

The thermal design of the PowerEdge T620 reflects the following:

- **Multiple sensors are monitored for thermal feedback control:** The PowerEdge T620 dynamically controls system cooling fan speed based on responses from all component temperature sensors, including processors, hard disk drives, DIMMs, storage cards, and the inlet ambient temperature. The thermal control also detects and responds to hardware configuration. The thermal



management adjusts cooling according to what the system really needs, and draws lower fan power draw and generates lower acoustical noise levels than servers without such controls.

- **Environmental specifications:** The optimized thermal management makes the T620 reliable under a wide range of operating environments. Many configurations are compliant in expanded operating temperature environments, but a few are not. For environmental specifications and for configuration limitations on expanded operating temperature environments, see Table 31 in Appendix A.

## Acoustical design

The acoustical design of the PowerEdge T620 reflects the following:

- **Quiet library acoustics:** The PowerEdge T620 is quiet enough for a library when minimally configured or quiet enough for an office setting in a typical configuration.
- **Adherence to Dell's high sound quality standards:** Sound quality is different from sound power level and sound pressure level in that it describes how humans respond to annoyances in sound, like whistles, hums, and so on. One of the sound quality metrics in the Dell specification is prominence ratio of a tone, which is listed in Table 21.
- **Configurable for low acoustics:** The following are configuration considerations you should make if acoustics is important to you:
  - Storage devices:
    - Because hard drive noise scales with spindle speed, the quietest option for rotational storage media is a 7200-rpm SATA drive. The loudest option is a 15k SAS drive.
    - Solid-state drives are even quieter than rotational drives because they have no sound associated with spinning.
    - Noise levels increase with the quantity of hard drives; using fewer hard drives will have a lower acoustical output.
    - PCIe SSD cards, such as Fusion-io, require more airflow for cooling, resulting in significantly higher noise levels.
    - **Redundant fans:** Fan noise from the non-redundant, two-fan system is lower than that of the redundant, six-fan system.
    - Impacts of cards:
      - > Quantity of PCIe cards: When more than two PCIe cards are installed, the system fan speed/noise level will be higher.
      - > Types of PCIe cards: The fan speed/noise level will be higher if a GPU and PERC H710 is installed.
    - **System Profile settings in BIOS and Thermal settings in iDRAC7 BIOS settings:** Performance Per Watt (DAPC or OS) may be quieter than Performance or Dense Configuration (iDRAC Settings > Thermal > Max. Exhaust Temperature or Fan speed offset).
    - **Hot spare feature of power supply unit:** In system default setting, the hot spare feature is disabled; acoustical output from the power supplies is lowest in this setting.
    - **RAID Setup with PERC H310:** A system configured as non-RAID will have a higher noise level than a system configured as RAID.
  - **Noise ramp and descent during bootup from power off:** Fan speed noise levels ramp during the boot process (from power off to power on) to add a layer of protection for component cooling in case the system does not boot properly. To keep the bootup process as quiet as possible, the fan speed reached during bootup is limited to about half of full speed.



Table 21 details the acoustical performance for the T620.

**Table 21. Acoustical performance**

Configuration (23 ± 2°C ambient)	CPUs	Hard drives	Power supply unit	Memory	PCI cards	Operating mode	L <sub>WA</sub> -UL <sup>1</sup> (bels)	L <sub>PA</sub> <sup>2</sup> (dBA)	Prominent tones <sup>3</sup>
<b>Minimum</b>	1	1 x 3.5" 250GB SATA (7.2K)	1 x 495W	1 x 2GB	None	Idle <sup>4</sup>	3.7	24	None
						Stressed <sup>5</sup>	3.8	24	None
<b>Typical</b>	2	8 x 2.5" 300GB SAS (15K)	2 x 750W	8 x 4GB	1 x PERC H710 1 x 10GbE NIC	Idle <sup>4</sup>	4.6	30	None
						Stressed <sup>5</sup>	4.6	30	None

<sup>1</sup>L<sub>WA</sub>-UL is the upper limit sound power levels (L<sub>WA</sub>) calculated per section 4.4.1 of ISO 9296 (1988) and measured in accordance to ISO 7779 (2010).

<sup>2</sup>L<sub>PA</sub> is the average A-weighted sound pressure level from the four bystander positions calculated per section 4.3 of ISO9296 (1988) and measured in accordance with ISO 7779 (2010). The system is placed in a half rack enclosure (base of system is 25 cm above reflective floor).

<sup>3</sup>Prominent tone: Criteria of D.6 and D.11 of ECMA-74 11th ed. (2010) are followed to determine if discrete tones are prominent. The system is placed in a half rack enclosure (base of system is 75 cm above reflective floor) and acoustic transducer is at front bystander position, ref ISO 7779 (2010 Section 8.6.2).

<sup>4</sup>Idle: Reference ISO 7779 (2010) definition 3.1.7; system is running in its operating system but no other specific activity.

<sup>5</sup>Stressed processor: An operating mode per ISO 7779 (2010) definition 3.1.6. The software SPECPower at 50% loading is activated to stress the processors.

For more information on Dell's acoustical design, see the [Dell Enterprise Acoustics](#) white paper.



## 9 Rack rails and cable management

The Dell PowerEdge T620 is a rackable tower server. The sliding rail system for the T620 provides tool-less support for racks with square or unthreaded round mounting holes including all generations of Dell racks. Compared to the T610 sliding rails that required adapter brackets, the sliding rails for the T620 offer support for threaded hole racks with the ReadyRails II mounting interface. The T620 supports only sliding rails; static rails not supported.

The optional cable management arm (CMA) can be mounted on either the left or right side of the sliding rails without the use of tools for fast and easy deployment.

### Sliding rail system

The sliding rail system allows you to fully extend the server out the rack for easy access for service. The rails ship in the tool-less mounting configuration, but can be converted to the tooled configuration very quickly and easily.

The sliding rails are available with or without the optional CMA. Figure 10 shows the sliding rails with the optional CMA.

**Figure 10. Sliding rails with optional CMA**

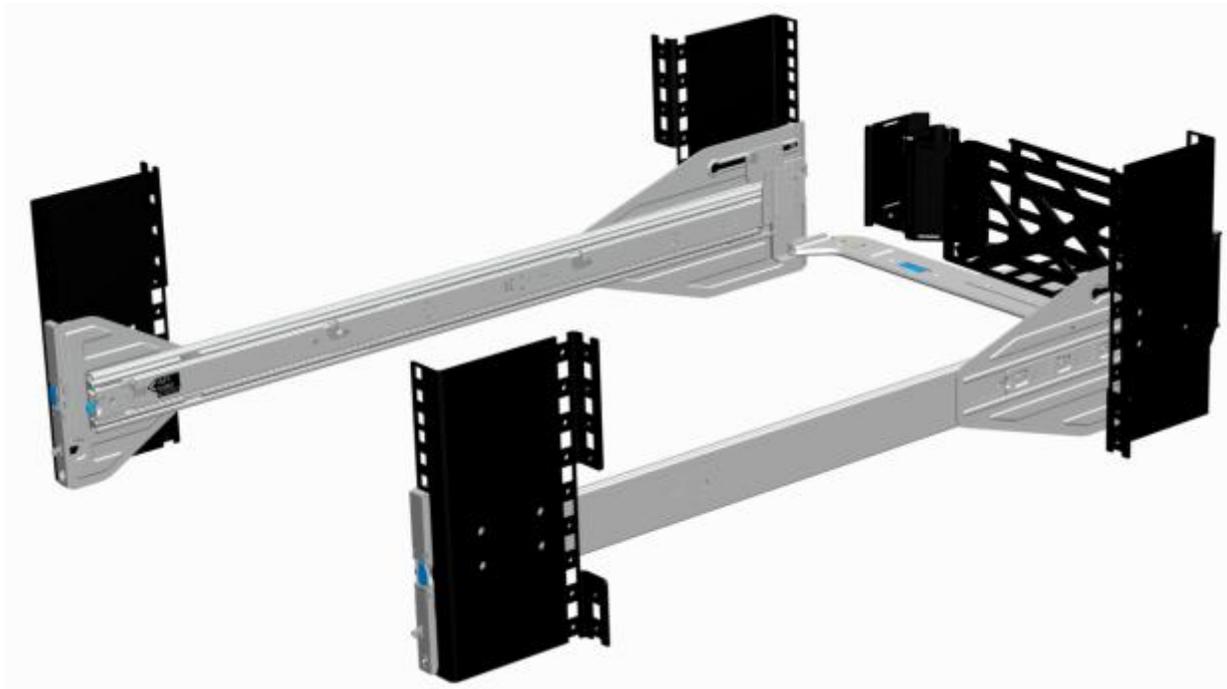


Table 22 lists the rack type supported by the T620 rails. The T620 does not support mounting in a 2-post rack.

**Table 22. T620 supported rack rail system**

System	Rail identifier	Mounting interface	Rail type	Rack types supported				
				4-post			2-post	
				Square	Round	Thread	Flush	Center
<b>T620</b>	C2	ReadyRails II	Sliding	✓	✓	✓	X	X

For detailed information about static and sliding rails, see the Rack rail specifications section in Appendix A. For more information on installing the T620 in a rack, see the *Rack Installation Instructions* on [Support.Dell.com/Manuals](https://support.dell.com/manuals).

## Cable management arm

The optional CMA organizes and secures the cords and cables exiting the back of the server and unfolds to allow the server to extend out of the rack without having to detach the cables. Some key features of the T620 CMA include:

- Large U-shaped baskets to support dense cable loads
- Open vent pattern for optimal airflow
- Ability to be mounted on either side
- Use of hook-and-loop straps rather than plastic tie wraps to eliminate the risk of cable damage during cycling
- Low-profile fixed tray to both support and retain the CMA in its fully closed position
- Ability to mount the CMA and tray without the use of tools, due to snap-in designs



# 10 Operating systems and virtualization

The Dell PowerEdge T620 supports a wide range of industry-standard operating systems and virtualization software.

## Supported operating systems

Table 23 lists the primary operating systems supported on the T620. For the latest information on supported operating systems, see [Dell.com/OSsupport](http://Dell.com/OSsupport).

**Table 23. Primary operating system support**

Operating System	Platform	Edition
<b>Red Hat Enterprise Linux 5.8<sup>1</sup></b>	x32, x64	N/A
<b>Red Hat Enterprise Linux 6.2<sup>2</sup></b>	x64	N/A
<b>SUSE Linux Enterprise Server 11 SP2</b>	x64	N/A
<b>SUSE Linux Enterprise Server 10 SP4</b>	x64	N/A
<b>Microsoft Windows Server 2012</b>	x64	Standard Data center
<b>Microsoft Windows Small Business Server 2011<sup>3</sup></b>	x64	Standard Premium Add-on
	X86	Web Standard Enterprise
<b>Microsoft Windows Server 2008 SP2</b>	x64 (with Microsoft Hyper-V role enabled)	Web Standard Enterprise Data center
<b>Microsoft Windows Server 2008 R2 with SP1</b>	x64 (with Hyper-V role enabled)	Web Standard Enterprise Data center

<sup>1</sup>RHEL 5.7 is the minimum supported version. Current drop in box option is RHEL 5.8.

<sup>2</sup>RHEL 6.1 is the minimum supported version. Current factory install is RHEL 6.2

<sup>3</sup>Not validated for use with GPUs



Support of the operating systems listed in Table 24 is limited to a virtual environment as a guest operating system. Please contact the software vendor for additional support or questions about running the operating system in a virtualized environment.

**Table 24. Virtual guest operating system support**

Operating System	Platform	Edition
<b>Microsoft Windows 2003<sup>1</sup></b>	x86	Web
	x86	Standard Enterprise
<b>Microsoft Windows 2003 R2 with SP2<sup>1</sup></b>	x64	Standard Enterprise Datacenter

<sup>1</sup>Not validated for use with AMD® GPUs

## Supported virtualization

One of the key features for virtualization on the T620 is the support for a fail-safe hypervisor. By running a hypervisor on an optional SD card and installing a backup copy on the other mirrored SD card, you can protect against hardware failure and maximize virtualization uptime.

Table 25 highlights the virtualization support for the T620.

**Table 25. Virtualization support**

Operating systems	Version	Options
<b>VMware<sup>1</sup></b>	vSphere v4.1 U2	ESX Classic DIB
	vSphere v4.1 U2	ESXi Installable DIB
	vSphere v4.1 U2	ESXi Embedded FI
	vSphere v5.0	ESXi (one version) DIB
	vSphere v5.0 U1	ESXi (one version) FI/DIB
	vSphere v5.1	ESXi (one version) DIB
<b>Citrix</b>	XenServer 6.0	N/A DIB
<b>Red Hat<sup>2</sup></b>	Enterprise Virtualization 3.0	N/A DIB

FI = factory install; DIB = drop in box

<sup>1</sup>vSphere Fault Tolerance is supported with these versions

<sup>2</sup>No OpenManage support; drop-in-box license registration card only



# 11 Dell OpenManage systems management

Whether your IT environment consists of a few servers or a few thousand servers, Dell OpenManage systems management solutions provide comprehensive management for evolving IT environments. OpenManage is based on open standards and provides agent-based and agent-free server lifecycle management functionality for Dell PowerEdge servers. OpenManage solutions help you automate and streamline essential hardware management tasks.

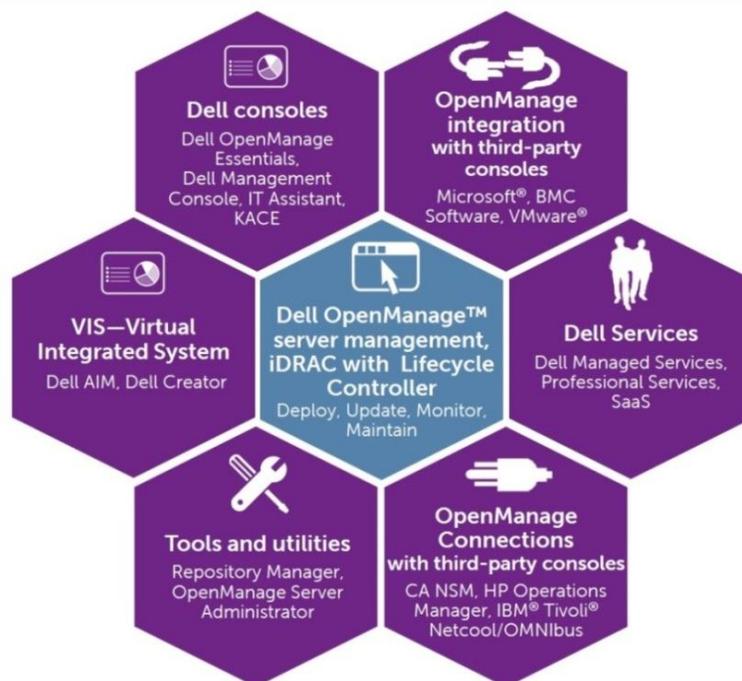
The advanced management capabilities of Dell OpenManage also integrates into offerings from other popular systems management solutions that you may already use, making Dell platforms easy to manage and deploy in any IT environment. This ensures your IT services are available when your business needs them. If you have already standardized on offerings from industry leaders, such as BMC Software, Microsoft, Symantec™, VMware, or other vendors, you can leverage OpenManage integration and connections developed for use with your existing systems management framework to efficiently manage Dell servers, storage, business-client PCs, and network devices.

Start with a firm foundation for efficient hardware management using OpenManage tools, utilities, and management consoles. OpenManage systems management solutions consist of a combination of embedded management features and software products that help you automate and simplify the entire server lifecycle: deploy, update, monitor, and maintain. OpenManage solutions are innovatively designed for simplicity and ease of use to help you reduce complexity, save time, achieve efficiency, control costs, and empower productivity.

## Systems management solutions

Dell systems management solutions include a wide variety of tools, products, and services that enable you to leverage an existing systems management framework. As shown in Figure 11, Dell systems management solutions are centered around OpenManage server management, featuring Integrated Dell Remote Access Controller 7 (iDRAC7) with Lifecycle Controller.

**Figure 11. Dell systems management solutions**



## OpenManage systems management

The Dell OpenManage systems management portfolio includes powerful hardware and software management tools and consoles. OpenManage simplifies the lifecycle of deploying, updating, monitoring, and maintaining your Dell PowerEdge servers.

### iDRAC7 with Lifecycle Controller

iDRAC7 with Lifecycle Controller is the heart of Dell's second generation of Dell PowerEdge server embedded management functionality. In addition to enabling agent-free management, 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. Table 26 describes the functions and benefits of iDRAC7 with Lifecycle Controller.

**Table 26. iDRAC7 with Lifecycle Controller functions and benefits**

Feature	Function	Benefit
<b>Out of band (OOB)</b>	iDRAC7 offers real-time OOB discovery, inventory, deployment monitoring, alerting and updates for servers and internal storage	Manage servers independent of the OS type or status—even if an OS is not installed
<b>Single code base</b>	All server types have the same embedded management hardware and firmware	Simplified and consistent maintenance across server platforms
<b>Dedicated GigE port (PowerEdge rack and tower systems)</b>	Gigabit Ethernet replaces 10/100 on predecessor iDRAC6	Fast throughput for better performance; compatibility with setup for switches
<b>Email alerts</b>	Simplified, more informative, and expanded coverage than previous versions of iDRAC	More detail allows IT administrators to be more efficient in diagnosing and remediating an issue; alerts include a direct, embedded URL in the email notification to further speed resolution
<b>vFlash media</b>	Enabled with iDRAC7 Enterprise	Allows for use of a non-Dell SD card
<b>Enhanced power management</b>	Integration with Intel Node Manager provides data center level power monitoring and capping (requires iDRAC7 Enterprise)	Fine tune data center power policies, capping, and usage; report on historical power usage by rack, row or room using Power Center Manager (new)
<b>Electronic licensing</b>	Upgrades to iDRAC7 Express or iDRAC7 Enterprise by software licensing key and license portal (may require installation of hardware option for 300-500 series servers)	Digital license installed in factory; free 30-day trial versions are available; uses a license management portal versus paper-based licenses and simplifies license management. For most server models, embedded server management and electronic licensing enables feature enhancements that do not require installation of additional hardware or system downtime.



## iDRAC7 feature comparison

iDRAC7 Enterprise is available for the PowerEdge T620, and Dell also offers an option of iDRAC7 Express. A detailed feature comparison for iDRAC7 Enterprise and iDRAC7 Express is shown in Table 27.

**Table 27. Feature comparison for iDRAC7 Express and Enterprise**

Feature (function)	iDRAC7 Enterprise	iDRAC7 Express
Local configuration with USC	•	•
IPMI 2.0	•	•
Embedded diagnostics	•	•
Local OS install	•	•
Local updates	•	•
Driver pack	•	•
Shared NIC (LOM)	•	•
Remote update	•	•
Power control	•	•
Encryption	•	•
Crash screen capture <sup>1</sup>	•	•
IPv6	•	•
Auto-discovery	•	•
Auto-recovery	•	•
Web GUI	•	•
Remote CLI	•	•
Local/SSH CLI	•	•
Serial redirection	•	•
Remote configuration	•	•
Email alerts	•	•
SNMP alerts	•	•
Power monitoring	•	•
Comprehensive monitoring	•	•
Dedicated NIC 1Gbps (100MB in iDRAC6)	•	
Part replacement	•	
Backup and restore configurations	•	
Virtual console (4 user)	•	
Virtual console chat	•	
Support for customer-supplied SD cards for vFlash media	•	



Feature (function)	iDRAC7 Enterprise	iDRAC7 Express
Virtual flash partitions	•	
Virtual media	•	
Virtual folders	•	
Remote file share	•	
Crash video playback	•	
Boot record/playback	•	
Power capping	•	
Enterprise group power management	•	
Directory services (AD, LDAP)	•	
PK authentication	•	
Two-factor authentication <sup>2</sup>	•	

<sup>1</sup>Requires OMSA agent on target server

<sup>2</sup>Uses Microsoft ActiveX<sup>®</sup> on Internet Explorer<sup>®</sup> only

## Agent-based management

Most systems management solutions require pieces of software, called agents, to be installed on each node in order to be managed within the IT environment. Additionally, the same agent is often used as a local interface into the hardware health and may be accessed remotely as a management interface, typically referred to as a one-to-one interface. Dell provides OpenManage Server Administrator for customers who continue to use agent-based solutions.

### OpenManage Server Administrator

The Dell OpenManage Server Administrator (OMSA) agent gives you a comprehensive, one-to-one systems management solution for both local and remote servers and their storage. OMSA can help simplify single-server monitoring with a secure command-line interface (CLI) or Web-based management graphical user interface (GUI). It can also be used to view system configuration, inventory, health, and performance.

### Agent-free management

Because Dell PowerEdge servers have embedded server lifecycle management, in many cases, there is no need to install an OpenManage systems management software agent into the operating system of a Dell PowerEdge server. This greatly simplifies and streamlines the management footprint.

## Dell consoles

The central console in a systems management solution is often referred to as the one-to-many console. The central console provides a rapid view and insight into the overall health of all systems in the IT environment. The Dell systems management portfolio includes several powerful consoles, depending upon your needs, including the following:

- **Dell OpenManage Essentials**—OpenManage Essentials (OME) is a recently released systems management console that provides a comprehensive view of Dell systems, devices, and components in an enterprise network. It is used to monitor Dell PowerEdge servers, EqualLogic and PowerVault storage, and PowerConnect™ switches; to update and configure Dell servers;



and to create asset reports. OpenManage Essentials also communicates health status alerts for Dell servers, storage, and network devices to the Dell KACE™ K1000 service desk. OpenManage Essentials is available as a no-charge software download from [Support.Dell.com](http://Support.Dell.com).

- **Dell Management Console**—Dell Management Console (DMC) offers sophisticated data center management capabilities with comprehensive reporting features. DMC can perform basic hardware management and can manage operating systems and applications using various plug-ins from Symantec.
- **Dell IT Assistant**—Dell IT Assistant (ITA) is a console for managing Dell servers, storage arrays, and other components distributed throughout a network. Dell IT Assistant allows for easy identification of system issues through alerts, helping to reduce system downtime. Systems administrators can easily monitor systems anywhere within their network using ITA. ITA is supported on the T620, however, enhanced functionality is now available with OpenManage Essentials.

## OpenManage systems management tools and utilities

Dell OpenManage systems management tools and utilities consist of the following:

- **Dell Repository Manager**—The Dell Repository Manager (RM) is a standalone GUI-based productivity tool that helps simplify the process of managing downloads and baseline BIOS, firmware, and driver updates. Repository Manager can create deployment disks as well as create and manage customized repositories.
- **Dell OpenManage Server Update Utility**—The Dell Server Update Utility (SUU) is a DVD-based application for identifying and applying BIOS and firmware updates to your Dell PowerEdge servers.
- **Dell OpenManage Systems Build and Update Utility**—The Dell System Build and Update Utility (SBUU) provides one-to-one and one-to-many deployment and single-server update capabilities in the pre-operating system environment.
- **Dell Update Packages**—The Dell Update Packages (DUP) is a self-contained executable in a standard package format that updates a software element on a Dell server such as the BIOS, a driver, firmware and other software updates.
- **Dell OpenManage Deployment Toolkit**—The Dell OpenManage Deployment Toolkit (DTK) is a CLI-based tool that includes a set of utilities for configuring and deploying Dell PowerEdge systems, and can be used to build scripted, unattended OS installations to deploy large numbers of servers in a reliable fashion.
- **RACADM**—The RACADM command-line utility provides a scriptable interface that allows you to locally or remotely configure iDRAC7.
- **IPMITool**—IPMITool includes scriptable console application programs used to control and manage remote systems using the IPMI version 1.5 and later protocol.

## Integration with third-party consoles

Dell OpenManage easily integrates with several leading third-party consoles, including:

- **Dell Server Management Pack Suite for Microsoft System Center Operations Manager (SCOM)**—This suite of server management packs enables several functions through System Center Operations Manager, including in-band discovery and monitoring of racks and towers, out-of-band discovery and monitoring through iDRAC7 with Lifecycle Controller, as well as performance and advanced monitoring.
- **Dell Lifecycle Controller Integration (DLCI) for Microsoft System Center Configuration Manager (SCCM)**—This pack contains Dell Lifecycle Controller Integration (DLCI), which



integrates OpenManage functions in SCCM to manage the Dell PowerEdge servers, including auto-discovery, operating system deployment and configuration of hardware elements, (RAID, NIC, BIOS, iDRAC), OS and hypervisor agnostic updates, firmware management, and system viewer utilities.

- **Dell Server PRO Management Pack for Microsoft System Center Virtual Machine Manager (SCVMM)**—This pack manages Dell physical servers and hosts of virtual machines (VMs) by using Microsoft System Center Operations Manager/System Center Essentials (SCOM/SCE) and System Center Virtual Machine Manager (SCVMM). It provides guidance for remedial actions based on alerts to best manage virtual machines and handle the impacts appropriately.
- **Dell Management Plug-in for VMware vCenter**—This plug-in allows IT administrators to monitor, provision, and manage the physical PowerEdge server hardware and firmware from a dedicated Dell menu accessed through the VMware vCenter console using the same role-based access control model as vCenter, combining physical server management.
- **BMC Software**—Dell and BMC Software work together to simplify IT by ensuring tight integration between Dell server, storage, and network management functionality and the BMC Software process and data center automation products.

## OpenManage connections with third-party consoles

Dell OpenManage provides connections with many third-party consoles, including:

- **Dell OpenManage Connection for Computer Associates Network and Systems Management**—This connection allows you to monitor PowerEdge servers and PowerVault storage arrays from within the Computer Associates Network and Systems Management (CANSM) console.
- **Dell OpenManage Connection for HP Operations Manager**—This connection enables several functions through HP Operations Manager, including auto-grouping, SNMP trap reception, global health monitoring, and a context-sensitive launch of OpenManage Server Administrator.
- **Dell OpenManage Connection for IBM Tivoli Netcool/OMNIBus**—This connection provides event monitoring capabilities to monitor Dell PowerEdge servers and Dell EqualLogic systems. It allows event monitoring, automatic event correlation, and launching device consoles from the Netcool/OMNIBus console.

## Dell server management operations

Dell OpenManage systems management is centered on automating the server management lifecycle—Deploy, Update, Monitor, and Maintain. To manage an infrastructure properly and efficiently, you must perform all of these functions easily and quickly. iDRAC7 with Lifecycle Controller technology provides you with these intelligent capabilities embedded within the server infrastructure. This allows you to invest more time and energy on business improvements and less on maintenance. Figure 12 illustrates the various operations that can be performed during the server's lifecycle.



Figure 12. Systems management server lifecycle

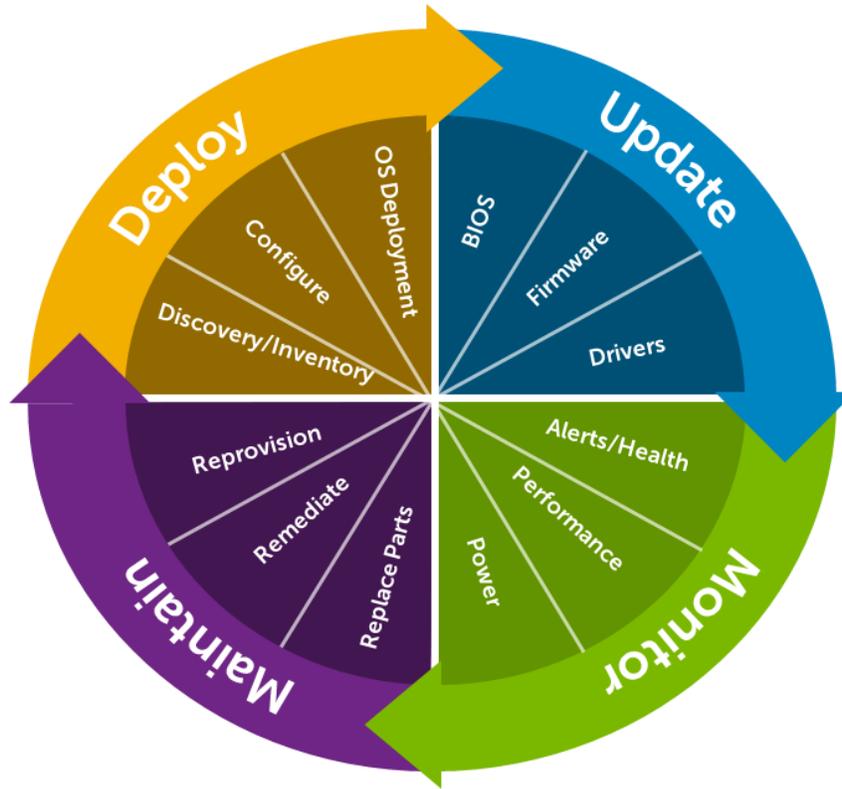


Table 28 lists the products that are available for one-to-one and one-to-many operations, and when they are used in the server’s lifecycle.

Table 28. One-to-one and one-to-many operations

Operation	One-to-one	One-to-many	
<b>Deploy</b>	<ul style="list-style-type: none"> <li>• Lifecycle Controller GUI</li> <li>• DTK</li> <li>• SBUU</li> </ul>	<ul style="list-style-type: none"> <li>• Symantec Deployment Server</li> <li>• Dell Management Plug-in for VMware vCenter</li> <li>• Dell KACE K1000 Appliance</li> <li>• Lifecycle Controller Remote Services</li> <li>• BMC BladeLogic integration with Lifecycle Controller</li> </ul>	<ul style="list-style-type: none"> <li>• Dell Server Deployment Pack (DSDP) for Microsoft System Center Configuration Manager and Dell Lifecycle Controller Integration (DLCI) for Microsoft System Center Configuration Manager</li> </ul>
<b>Update</b>	<ul style="list-style-type: none"> <li>• iDRAC7 with LifeCycle Controller</li> <li>• Lifecycle Controller GUI</li> <li>• Repository Manager</li> <li>• DUP</li> <li>• SUU</li> <li>• SBUU</li> <li>• Dell Management Plug-in for VMware vCenter</li> </ul>	<ul style="list-style-type: none"> <li>• Dell OpenManage Essentials</li> <li>• Dell OpenManage ITA</li> <li>• Dell Management Console</li> <li>• Lifecycle Controller Remote Services</li> </ul>	<ul style="list-style-type: none"> <li>• Dell Update Catalogs for Microsoft System Center Configuration Manager</li> <li>• Dell Lifecycle Controller Integration (DLCI) for Microsoft System Center Configuration Manager</li> </ul>



Operation	One-to-one	One-to-many	
<b>Monitor</b>	<ul style="list-style-type: none"> <li>• iDRAC7</li> <li>• OMSA</li> </ul>	<ul style="list-style-type: none"> <li>• Dell OpenManage Essentials</li> <li>• Dell OpenManage ITA</li> <li>• BMC ProactiveNet Performance Management</li> <li>• Dell OpenManage Power Center</li> <li>• Dell Management Console</li> </ul>	<ul style="list-style-type: none"> <li>• Dell Management Plug-in for VMware vCenter</li> <li>• BMC ProactiveNet</li> <li>• Dell Server Management Pack Suite for Microsoft System Center Operations Manager (SCOM)</li> </ul>
<b>Maintain</b>	<ul style="list-style-type: none"> <li>• iDRAC7</li> <li>• Lifecycle Controller GUI</li> </ul>	<ul style="list-style-type: none"> <li>• Lifecycle Controller Remote Services</li> </ul>	<p>Remediate:</p> <ul style="list-style-type: none"> <li>• Dell Server PRO Management Pack for Microsoft System Center Virtual Machine Manager (SCVMM)</li> </ul> <p>Replace parts:</p> <ul style="list-style-type: none"> <li>• Dell Lifecycle Controller Integration (DLCI) for Microsoft System Center Configuration Manager</li> </ul>

For additional detailed information on Dell's systems management portfolio, see the *Dell Systems Management Overview Guide* on [Support.Dell.com/Manuals](http://Support.Dell.com/Manuals).

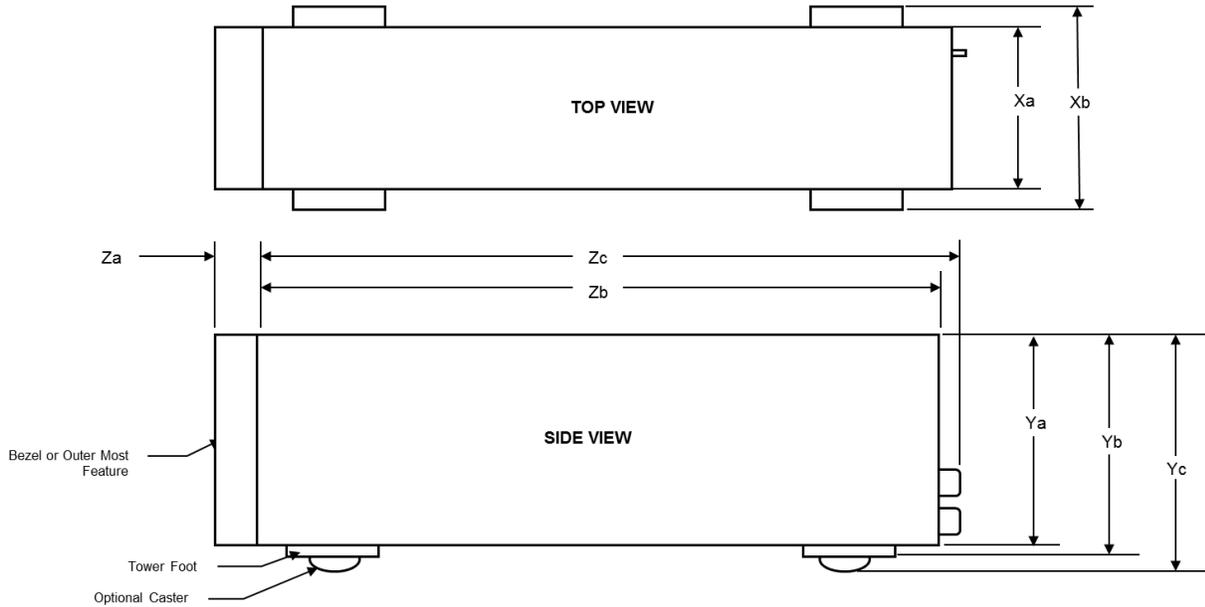


# Appendix A. Additional specifications and options

## Chassis dimensions

Figure 13 details the dimensions of the Dell PowerEdge T620 chassis.

**Figure 13. Tower and rack chassis dimensions**



Chassis type	Xa	Xb	Ya	Yb	Yc	Za with bezel	Za without bezel	Zb <sup>1</sup>	Zc
<b>Tower</b>	217.9mm	304.5mm	434.5mm	443.5mm	471.5mm	15.9mm	0.0mm	659.9mm	692.8mm
<b>Rack</b>	482.4mm	434.5mm	217.9mm	n/a	n/a	37.3mm	21.4mm	638.5mm	671.4mm

<sup>1</sup>Zb goes to the nominal back wall external surface where the motherboard I/O connectors reside.

## Chassis weight

Table 29 lists the weight of the T620 chassis at maximum configuration.

**Table 29. Tower and rack chassis weight**

Chassis type	Chassis configuration	Weight
<b>Tower</b>	8-drive bay	43.3Kg (95.5lb)
	12-drive bay	45.0Kg (99.2lb)
	16-drive bay	39.7Kg (87.6lb)
	32-drive bay	41.8Kg (92.2lb)
<b>Rack</b>	3.5-inch drive bay	43.1Kg (94.8lb)
	2.5-inch drive bay	39.9Kg (87.8lb)



## Power supply specifications

Table 30 lists power supply specifications for the PowerEdge T620.

**Table 30. Power supply specifications**

Specification	1100W DC	1100W AC	750W AC	495W AC
<b>Current consumption</b>	32A	12A–6.5A	10A–5A	6.5A–3A
<b>Supply voltage</b>	-48V to -60V DC	100–240VAC <sup>1</sup>	100–240VAC <sup>1</sup>	100–240VAC <sup>1</sup>
<b>Frequency</b>	N/A	50/60Hz	50/60Hz	50/60Hz
<b>Heat dissipation (BTU/hr max)</b>	4416	4100	2843 <sup>2</sup> 2891 <sup>3</sup>	1908

<sup>1</sup>Auto-ranging

<sup>2</sup>Titanium efficiency

<sup>3</sup>Platinum efficiency

## Environmental specifications

Table 31 details the environmental specifications for the T620. For additional information about environmental measurements for specific system configurations, see [Dell.com/environmental\\_datasheets](http://Dell.com/environmental_datasheets).

**Table 31. Environmental specifications**

Fresh Air: temperature, humidity, altitude de-rating	
<b>Continuous operation</b>	10°C to 35°C (50°F to 95°F) at 10% to 80% relative humidity with 26°C (78.8°F) maximum dew point (maximum wet bulb temperature). De-rate maximum allowable dry bulb temperature at 1°C per 300m above 950m (1°F per 547 ft above 3117 ft).
<b>Expanded operation</b>	<p>When operating in the expanded temperature range, system performance may be impacted, and ambient temperature warnings may be reported on the LCD and in the System Event Log.</p> <p><b>≤ 10% of annual operating hours:</b> 5°C to 10°C and 35°C to 40°C (with no direct sunlight on the equipment) at 5% to 85% relative humidity with 26°C dew point (maximum wet bulb temperature). Outside the standard operating temperature (10°C to 35°C), the system can operate down to 5°C or up to 40°C for a maximum of 10% of its annual operating hours. For temperatures between 35°C and 40°C (95°F to 104°F), de-rate maximum allowable dry bulb temperature by 1°C per 175m above 950m (1°F per 319 ft above 3117 ft).</p> <p><b>≤ 1% of annual operating hours:</b> -5°C to 5°C and 40°C to 45°C (with no direct sunlight on the equipment) at 5% to 90% relative humidity with 26°C dew point (maximum wet bulb temperature). 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. For temperatures between 40°C and 45°C (104°F to 113°F), de-rate maximum allowable dry bulb temperature by 1°C per 125m above 950m (1°F per 228 ft above 3117 ft).</p> <p><b>Expanded operation restrictions:</b></p> <ul style="list-style-type: none"> <li>• System must have six fans</li> <li>• No cold startup below 5°C</li> <li>• Maximum altitude for the operating temperature must be 3050m (10,000ft)</li> <li>• Not supported: <ul style="list-style-type: none"> <li>– Express Flash PCIe SSD</li> <li>– GPU</li> <li>– LRDIMM</li> <li>– 130W 4-core, 135W, and 150W processors</li> </ul> </li> </ul>



- Non-redundant power supplies
- Peripheral cards not qualified by Dell
- Peripheral cards greater than 25W

### Temperature

**Operating** See Fresh Air for temperature information

**Storage** -40°C to 65°C (-40°F to 149°F) with a maximum temperature gradation of 20°C per hour

### Relative humidity

**Operating** See Fresh Air for relative humidity information

**Storage** 5% to 95% at a maximum wet bulb temperature of 33°C (91°F); atmosphere must be condensing at all times

### Maximum vibration

**Operating** 0.26 Grms at 5Hz to 350Hz in all orientations

**Storage** 1.87 Grms at 10Hz to 500Hz for 15 minutes (all six sides tested)

### Maximum shock

**Operating** Half sine shock in all operational orientations of 31G +/- 5% with a pulse duration of 2.6ms +/- 10%

**Storage** Half sine shock on all six sides of 71G +/- 5% with a pulse duration of 2ms +/- 10%; square wave shock on all six sides of 27G with velocity change at 235 in/sec or greater

### Altitude

**Operating** -15.2m to 3048m (-50 ft to 10,000 ft)

**Storage** -15.2m to 12,000m (-50 ft to 39,370 ft)

### Airborne contaminant level

Class G1 or lower as defined by ISA-S71.04-1985

## Rack rail specifications

Table 32 lists the spacing dimensions for the T620 sliding rails.

**Table 32. Rail adjustability range**

System	Rail Identifier	Rail Type	Rail Adjustability Range (mm)						Rail Depth (mm)	
			Square		Round		Threaded		without CMA	with CMA
			Min	Max	Min	Max	Min	Max		
<b>T620</b>	C2	Sliding	686	756	672	749	686	771	760	840



## Video specifications

The Dell PowerEdge T620 iDRAC7 incorporates an integrated video subsystem connected to the PCH through the PCIe and internal PCIe switch and PCIe to PCI-bridge. The graphics controller is the 2D Matrox G200. The video frame buffer (16MB) is contained within the iDRAC RAM (256MB) device. Front access video is available for rack mount chassis.

The T620 system supports the 2D graphics video modes listed in Table 33.

**Table 33. Supported video modes**

Port	Resolution	Refresh rate (Hz)	Color depth (bit)
<b>Back VGA port</b>	640 x 480	60, 70	8, 16, 32
	800 x 600	60, 75	8, 16, 32
	1024 x 768	60, 75	8, 16, 32
	1152 x 864	60, 75	8, 16, 32
	1280 x 1024	60	8, 16, 32
<b>Front VGA port</b>	640 x 480	60, 70	8, 16, 32
	800 x 600	60, 75	8, 16, 32
	1024 x 768	60	8, 16, 32

## USB peripherals

USB peripherals are supported through the front and back USB ports on the T620. These ports are USB 2.0 compliant.



## Appendix B. Standards compliance

The Dell PowerEdge T620 conforms to the industry standards listed in Table 34.

**Table 34. Industry standard documents**

Standard	URL for information and specifications
<b>ACPI</b> Advance Configuration and Power Interface Specification, v2.0c	<a href="http://www.acpi.info">www.acpi.info</a>
<b>Ethernet</b> IEEE 802.3-2005	<a href="http://standards.ieee.org/getieee802/802.3.html">standards.ieee.org/getieee802/802.3.html</a>
<b>HDC</b> Hardware Design Guide Version 3.0 for Microsoft Windows Server	<a href="http://www.microsoft.com/whdc/system/platform/pcdesign/designguide/serverdg.msp">www.microsoft.com/whdc/system/platform/pcdesign/designguide/serverdg.msp</a>
<b>IPMI</b> Intelligent Platform Management Interface, v2.0	<a href="http://www.intel.com/design/servers/ipmi">www.intel.com/design/servers/ipmi</a>
<b>DDR3 Memory</b> DDR3 SDRAM Specification, Rev. 3A	<a href="http://www.jedec.org/download/search/JESD79-3C.pdf">www.jedec.org/download/search/JESD79-3C.pdf</a>
<b>LPC</b> Low Pin Count Interface Specification, Rev. 1.1	<a href="http://developer.intel.com/design/chipsets/industry/lpc.htm">developer.intel.com/design/chipsets/industry/lpc.htm</a>
<b>PCI Express</b> PCI Express Base Specification Rev. 2.0 and 3.0	<a href="http://www.pcisig.com/specifications/pciexpress">www.pcisig.com/specifications/pciexpress</a>
<b>PMBus</b> Power System Management Protocol Specification, v1.2	<a href="http://pmbus.info/specs.html">pmbus.info/specs.html</a>
<b>SAS</b> Serial Attached SCSI, v1.1	<a href="http://www.t10.org">www.t10.org</a>
<b>SATA</b> Serial ATA Rev. 2.6; SATA II, SATA 1.0a Extensions, Rev. 1.2	<a href="http://www.sata-io.org">www.sata-io.org</a>
<b>SMBIOS</b> System Management BIOS Reference Specification, v2.7	<a href="http://www.dmtf.org/standards/smbios">www.dmtf.org/standards/smbios</a>
<b>TPM</b> Trusted Platform Module Specification, v1.2	<a href="http://www.trustedcomputinggroup.org">www.trustedcomputinggroup.org</a>
<b>UEFI</b> Unified Extensible Firmware Interface Specification, v2.1	<a href="http://www.uefi.org/specs">www.uefi.org/specs</a>
<b>USB</b> Universal Serial Bus Specification, Rev. 2.0	<a href="http://www.usb.org/developers/docs">www.usb.org/developers/docs</a>
<b>Windows Logo</b> Windows Logo Program System and Device Requirements, v3.10	<a href="http://www.microsoft.com/whdc/winlogo/hwrequirements.msp">www.microsoft.com/whdc/winlogo/hwrequirements.msp</a>



## Appendix C. Additional resources

Table 35 provides a list of documents and websites that provide for more information on the Dell PowerEdge T620.

**Table 35. Additional resources**

Resource	Description of contents	Location
<b>PowerEdge T620 Owner's Manual</b>	<p>This manual is provided in HTML format on the CD provided with the T620 system, and also in HTML and PDF format at the Dell support site. A printed version is available in Asian languages as a customer-orderable option. This manual provides information on the following:</p> <ul style="list-style-type: none"><li>• Chassis features</li><li>• System Setup program</li><li>• System messages</li><li>• System codes and indicators</li><li>• System BIOS</li><li>• Remove and replace procedures</li><li>• Troubleshooting</li><li>• Diagnostics</li><li>• Jumpers and connectors</li></ul>	<a href="http://Support.Dell.com/Manuals">Support.Dell.com/Manuals</a>
<b>PowerEdge T620 Getting Started Guide</b>	<p>This guide is printed and shipped with the system, and is also available in PDF format on the Dell support site. This guide provides information on the following:</p> <ul style="list-style-type: none"><li>• Initial setup steps</li><li>• Key system features</li><li>• Technical specifications</li></ul>	<a href="http://Support.Dell.com/Manuals">Support.Dell.com/Manuals</a>
<b>Rack Installation Instructions</b>	<p>This printed document is provided with the rack kits. The document provides the instructions for installing the server in a rack.</p>	<a href="http://Support.Dell.com/Manuals">Support.Dell.com/Manuals</a>
<b>Cable Management Arm Installation Instructions</b>	<p>This printed document is provided with the rack kits. The document provides the instructions for installing the cable management arm on the rack.</p>	<a href="http://Support.Dell.com/Manuals">Support.Dell.com/Manuals</a>
<b>Information Update</b>	<p>This document is printed and shipped with the system, and is also available in PDF format on the Dell support site. This document provides information on system updates.</p>	<a href="http://Support.Dell.com/Manuals">Support.Dell.com/Manuals</a>
<b>System Information Label</b>	<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



Resource	Description of contents	Location
<b>Quick Resource Locator (QRL)</b>	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 contact information.	Inside the system chassis cover
<b>Dell Energy Smart Data Center Assessment</b>	This tool uses infrastructure and thermal analysis to help maximize system efficiency.	<a href="http://Dell.com/EnergySmart">Dell.com/EnergySmart</a>
<b>Energy Smart Solution Advisor</b>	The Dell online Energy Smart Solution Advisor (ESSA) enables easier and more meaningful estimates to help you determine the most efficient configuration possible. Use ESSA to calculate the power consumption of your hardware, power infrastructure, and storage.	<a href="http://Dell.com/ESSA">Dell.com/ESSA</a>
<b>Power and cooling technologies</b>	Provides details for improving energy efficiency in the data center.	<a href="http://Dell.com/PNC">Dell.com/PNC</a>
<b>Energy management</b>	Provides information on Dell's Fresh Air cooling solutions.	<a href="http://Dell.com/FreshAir">Dell.com/FreshAir</a>
<b>Operating system matrix for Dell PowerEdge systems</b>	Provides updated information on which operating systems are available on which PowerEdge systems.	<a href="http://Dell.com/OSsupport">Dell.com/OSsupport</a>
<b>Processor and chipset</b>	Provides more information about the T620 processors and chipset.	<a href="http://Intel.com">Intel.com</a>
<b>Dell PowerEdge RAID controllers</b>	Provides more information on Dell PowerEdge RAID controllers (PERC).	<a href="http://Dell.com/PERC">Dell.com/PERC</a>
<b>Power distribution unit</b>	Provides help selecting a rack-based power distribution unit (rPDU).	<a href="http://DellPDU.com">DellPDU.com</a>
<b>Uninterruptible power supply</b>	Provides help selecting an uninterruptible power supply (UPS) model.	<a href="http://DellUPS.com">DellUPS.com</a>
<b>Volatility information</b>	Contact your Dell sales representative.	<a href="http://Dell.com">Dell.com</a>
<b>Dell Enterprise Acoustics</b>	White paper that explores the mechanisms of, people's reaction to, language of, and Dell's work to control noise from Enterprise products.	<a href="http://www.dell.com/downloads/global/products/pedge/en/acoustical-education-dell-enterprise-white-paper.pdf">www.dell.com/downloads/global/products/pedge/en/acoustical-education-dell-enterprise-white-paper.pdf</a>



