

PowerEdge R650

Compelling performance, high scalability, and density Providers

The Dell PowerEdge R650, is a full-featured enterprise server, designed to optimize workloads performance and data center density



Innovate at scale with challenging and emerging workloads

The Dell PowerEdge R650, powered by the 3rd Generation Intel® Xeon® Scalable processors is the optimal rack server to address application performance and acceleration. The PowerEdge R650, is a dual-socket/1U rack server that delivers outstanding performance for the most demanding workloads. It supports 8 channels of memory per CPU, and up to 32 DDR4 DIMMs @ 3200 MT/s speeds. In addition, to address substantial throughput improvements the PowerEdge R650 supports PCIe Gen 4 and up to 12 NVMe drives with improved air-cooling features and optional Direct Liquid Cooling to support increasing power and thermal requirements. This makes the PowerEdge R650 an ideal server for data center standardization on a wide range of workloads including; Database and Analytics, High-Frequency Trading, Traditional corporate IT, Virtual Desktop Infrastructure, and even HPC or AI/ML environments that require performance, and GPU support in a dense 1U form factor.

Increase efficiency and accelerate operations with autonomous collaboration

The Dell EMC OpenManage systems management portfolio tames the complexity of managing and securing IT infrastructure. Using Dell Technologies' intuitive end-to-end tools, IT can deliver a secure, integrated experience by reducing process and information silos in order to focus on growing the business. The Dell EMC OpenManage portfolio is the key to your innovation engine, unlocking the tools and automation that help you scale, manage, and protect your technology environment.

- Built-in telemetry streaming, thermal management, and RESTful API with Redfish offer streamlined visibility and control for better server management
- Intelligent automation lets you enable cooperation between human actions and system capabilities for added productivity
- Integrated change management capabilities for update planning and seamless, zero-touch configuration and implementation
- Full-stack management integration with Microsoft, VMware, ServiceNow, Ansible and many other tools

Protect your data assets and infrastructure with proactive resilience

The Dell PowerEdge R650 server is designed with a cyber-resilient architecture, integrating security deeply into every phase in the lifecycle, from design to retirement.

- Operate your workloads on a secure platform anchored by cryptographically trusted booting and silicon root of trust
- Maintain server firmware safety with digitally signed firmware packages
- Prevent unauthorized configuration or firmware change with system lockdown
- Securely and quickly wipe all data from storage media, including hard drives, SSDs and system memory with System Erase

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The Dell PowerEdge R650 offers compelling performance, high-speed memory and capacity, I/O bandwidth and storage to address data requirements – Ideal for:

- Traditional corporate IT
- Database and Analytics
- Virtual Desktop Infrastructure
- AI/ML and HPC

Feature	Technical Specifications	
Processor	Up to two 3rd Generation Intel Xeon Scalable processors, with up to 40 cores per processor	
Memory	<ul style="list-style-type: none"> 32 DDR4 DIMM slots, supports RDIMM 2 TB max or LRDIMM 8 TB max, speeds up to 3200 MT/s Up to 16 Intel Persistent Memory 200 series (BPS) slots, 12 TB max Supports registered ECC DDR4 DIMMs only 	
Storage controllers	<ul style="list-style-type: none"> Internal controllers: PERC H745, HBA3551, S150, H355, H345, H755, H755N Boot Optimized Storage Subsystem (BOSS-S1): HW RAID 2 x M.2 SSDs 240 GB or 480 GB Boot Optimized Storage Subsystem (BOSS-S2): HW RAID 2 x M.2 SSDs 240 GB or 480 GB External PERC (RAID): PERC H840, HBA355E 	
Drive Bays	<p>Front bays:</p> <ul style="list-style-type: none"> Up to 10 x 2.5-inch SAS/SATA/NVMe (HDD/SSD) max 153 TB Up to 4 x 3.5-inch SAS/SATA (HDD/SSD) max 64 TB Up to 8 x 2.5-inch SAS/SATA/NVMe (HDD/SSD) max 122.8 TB <p>Rear bays:</p> <ul style="list-style-type: none"> Up to 2 x 2.5-inch SAS/SATA/NVMe (HDD/SSD) max 30.7 TB 	
Power Supplies	<ul style="list-style-type: none"> 800 W Platinum AC/240 Mixed Mode 1100 W Titanium AC/240 Mixed Mode 1400 W Platinum AC/240 Mixed Mode 1800 W Titanium AC/240 Mixed Mode 1100 W DC -48 - 60 V 	
Cooling Options	Air cooling, optional processor liquid cooling	
Fans	<ul style="list-style-type: none"> Standard fan/High performance SLVR fan/High performance GOLD fan Up to four sets (dual fan module) hot plug fans 	
Dimensions	<ul style="list-style-type: none"> Height – 42.8 mm (1.7 inches) Width – 482 mm (18.97 inches) Depth – 758.27 mm (29.85 inches) – without bezel 772.11 mm (30.39 inches) – with bezel 	
Form Factor	1U rack server	
Embedded Management	<ul style="list-style-type: none"> iDRAC9 iDRAC Service Module iDRAC Direct Quick Sync 2 wireless module 	
Bezel	Optional LCD bezel or security bezel	
OpenManage Software	<ul style="list-style-type: none"> OpenManage Enterprise OpenManage Power Manager plugin OpenManage SupportAssist plugin OpenManage Update Manager plugin 	
Mobility	OpenManage Mobile	
Integrations and Connections	<p>OpenManage Integrations</p> <ul style="list-style-type: none"> BMC Truesight Microsoft System Center Red Hat Ansible Modules VMware vCenter and vRealize Operations Manager 	<p>OpenManage Connections</p> <ul style="list-style-type: none"> IBM Tivoli Netcool/OMNibus IBM Tivoli Network Manager IP Edition Micro Focus Operations Manager Nagios Core Nagios XI
Security	<ul style="list-style-type: none"> Cryptographically signed firmware Secure Boot 	<ul style="list-style-type: none"> Silicon Root of Trust System Lockdown (requires iDRAC9 Enterprise or Datacenter) TPM 1.2/2.0 FIPS, CC-TCG certified, TCM 2.0 optional
Embedded NIC	2 x 1 GbE LOM	
Network options	1 x OCP 3.0 (x8 PCIe lanes)	
GPU options	Up to three 75 W single-width GPU	
Ports	<p>Front Ports</p> <ul style="list-style-type: none"> 1 x Dedicated iDRAC Direct micro-USB 1 x USB 2.0 1 x VGA <p>Internal Ports:</p> <ul style="list-style-type: none"> 1 x USB 3.0 	<p>Rear Ports:</p> <ul style="list-style-type: none"> 1 x Dedicated BMC Ethernet port 1 x VGA 2 x USB 3.1 Type A ports
PCIe	Up to 3 x PCIe Gen4 low profile slots (all x16 except one x8 slot with SNAP I/O modules) or 2 x PCIe (Gen4) full height slots	
Operating System and Hypervisors	<ul style="list-style-type: none"> Canonical Ubuntu Server LTS Citrix Hypervisor Microsoft Windows Server with Hyper-V Red Hat Enterprise Linux SUSE Linux Enterprise Server VMware ESXi <p>For specifications and interoperability details, see Dell.com/OSsupport.</p>	
OEM-ready version available	From bezel to BIOS to packaging, your servers can look and feel as if they were designed and built by you. For more information, visit Dell.com/OEM .	

Recommended support and services

Dell ProSupport Plus for critical systems or Dell ProSupport for premium hardware and software support for your PowerEdge solution. Consulting and deployment offerings are also available. Contact your Dell representative today for more information. Availability and terms of Dell Services vary by region. For more information, visit Dell.com/ServiceDescriptions.

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