New PowerEdge R250 Overview

Tech Note by

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Summary

After nearly three years, Dell Technologies has released the new PowerEdge R250 - an entry level 1S rack server designed to power value workloads and applications for budget-conscious users that prioritize reduced costs over expanded feature sets.

This DfD was written to inform readers on what new capabilities they can expect from the PowerEdge R250, including coverage of the product features, systems management, security, and value proposition explaining which use cases are best suited for small businesses looking to invest in this value rack server.

Market Positioning

The [PowerEdge R250](#) was designed to be the most economical entry within the single-socket 1U PowerEdge rack server space. Small businesses requiring the most affordable rack server, while still receiving the enterprise features and high-quality experience that the PowerEdge brand is known for, will gain the most from this offering.

The standard-depth form factor and low acoustic footprint makes the R250 a perfect solution for storefront and ROBO locations, as it fits in most small spaces and is inaudible to those nearby. Customers intending to use this in enterprise data centers or near-Edge facilities can also utilize the small form factor to occupy small spaces within dedicated hosting racks or equipment closets. Regardless of where deployed – the PowerEdge R250 delivers new levels of performance, flexibility and affordability that will help drive both business and organizational success to budget-conscious customers.

Expanded Product Features

Intel® Xeon® E-2300 Processors
Perhaps the most notable hardware addition to the PowerEdge T150 is the inclusion of Intel's latest Xeon® E-2300 processor family. This uses the Cypress Cove CPU microarchitecture; offering a **19% increase of IPC** (instructions per cycle) while also increasing IGP cores, L1 cache speeds and L2 cache speeds, when compared to previous generation Xeon® E-2200 processors. These performance increases, in tangent with other new features listed below, allow for up to **28% faster IO speeds** when compared to the previous generation PowerEdge R240.

Memory
Memory capabilities have vastly improved, with the latest Xeon® E-series memory controllers now supporting up to four DDR4 UDIMMs at **3200MT/s** (a 20% increase over the previous generation). The supported DIMM capacity has also doubled from 16GB to **32GB.** Having twice as much data stored in faster DIMMs will significantly reduce data transfer times, resulting in increased productivity.

Storage/RAID
Support for **four** cabled or hot-plug **3.5" HDD/SSD drives** is offered. Additionally, **vSAS (Value SAS) SSD support has been expanded** to provide more options to further offer an affordable, performance SSD tier. Drives can be configured with Dell Technologies BOSS-S1 and PERC HW RAID solutions, and can be mapped to add-in cards options such as the S150, H345/H355, H745/H755 and HBA355i.

I/O
Another major improvement is newly added support for two slots of **PCIe Gen4** - the fourth iteration of the PCIe standard. Compared to PCIe Gen3, the throughput per lane doubles from 8GT/s to **16GT/s**, effectively cutting transfer times in half for data traveling from storage to CPU.

Power/Cooling
Only one power supply unit is required to run the power-optimized PowerEdge R250. This PSU has been upgraded from a 250W AC Cabled Bronze PSU to a **450W AC Cabled Bronze PSU**. Four non-hot swap fans reside in the middle of the chassis to cool the components that generate the most heat – a design intent focusing on power and cooling optimization.

Manageability (Size, Weight and Acoustics)
The rack dimensions are marginally smaller than the previous-gen PowerEdge R240, with dimensions of **42.8mm (H) x 534.59mm (W) x 434mm (D)**. The maximum weight with all drives populated is extremely light, at **12.48kg (or 27.51lb)**, allowing for effortless deployment. Lastly, the acoustical output has a wide range, between **22db** for entry-level configurations operations at idle conditions and **46db** for feature-rich configurations operating at max performance conditions. More often than not, acoustics will fall in line with the quieter, office-friendly range. However, if this is not the case, customers can ensure office-friendly acoustics by keeping ambient floor temperatures at 23^0 C. These various chassis measurements make the R250 ideal for storefront, office and ROBO locations.

Figure 1 – Side angle of the sleek, new PowerEdge R250

Simple and Intuitive Systems Management

Managing the PowerEdge R250 is simple and intuitive with the Dell integrated systems management tool – **iDRAC9** (Integrated Dell Remote Access Controller). iDRAC9 is a hardware device containing its own processor, memory and network interface that provides administrators with an abundance of server operation information to a dashboard screen that can be remotely accessed and managed. Operational conditions such as temperatures, fan speeds, chassis alarms, power supplies, RAID status and individual disk status are always monitored so businesses will have the flexibility to allocate limited resources to where they are most needed.

Exceptional Security

Legacy Boot support has been deprecated by Intel® and replaced with the superior **UEFI** (Unified Extensible Firmware Interface) **Secure Boot**, which has better programmability, greater scalability, and higher security. UEFI Secure Boot also provides faster booting times and support for 9ZBs, while legacy BIOS is limited to 2.2TB boot drives. Customers who purchase the latest Xeon® E-2300 processors will also inherit Intel **SGX** (Software Guard Extensions) baked into their CPUs. SGX security provides maximum protection by encrypting sections of memory to create highly secured environments to store sensitive data. This feature is an instrumental security feature for Edge customers that consistently transfer data between the cloud and the client.

Recommended Use Cases

The PowerEdge R250 was designed to accommodate budget-conscious customers looking for the lowest-cost PowerEdge rack server. By trading non-critical features, such as hot-plug and redundancy support, for a reduced total cost, **the price of the baseline R250 is ~50% less** than the baseline R350 that offers these enterprise features. This positions the PowerEdge R250 as our most affordable rack server solution - perfect for a small business that has no need for enterprise class hardware features or the ability to scale workloads.

With a standard-depth 1U chassis and low acoustical output, the R250 can be deployed at virtually any location. Whether that be an enterprise data center, near/mid Edge site, or inside the closet just down the hall, the R250 brings new levels of performance, efficiency and versatility that help grow small businesses. Some common workloads that are powered by the PowerEdge R250 include traditional business applications (filing, printing, mailing, messaging, billing), virtualization, private cloud, and collaboration/sharing.

Please keep in mind that the PowerEdge R250 was designed to value affordability over feature-richness, resulting in the removal of some features/support (to reduce cost) that may be valuable for customers intending to scale their workloads. Small businesses that value enterprise-class features, or intend to scale their workloads, should strongly consider investing in the PowerEdge R350 rack server.

Conclusion

The PowerEdge R250 has been crafted to be Dell Technologies most cost-effective PowerEdge rack server offering. By only including the most critical features a small business would need, budget conscious customers can have the high-quality experience that the PowerEdge brand is known for at the most affordable price-point. The PowerEdge R250 is the perfect solution for small businesses looking to invest in an entry-level rackmount server for their business needs.

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