



PowerEdge 14th-generation 1-socket Servers

Tech Note by:

Tad Walsh

SUMMARY

The new PowerEdge 14th-generation 1-socket servers help users simplify their IT, improve productivity and grow into the future.

The new servers combine new processors and faster memory technology with more I/O lanes and expanded internal storage capacity to deliver high, balanced performance and reliable operation.

Whether users are installing a server for the first time or enhancing an existing IT infrastructure, each of these new servers is an excellent platform for growing businesses and organizations.

The recent introduction of new PowerEdge 1-socket servers brings users new levels of performance, productivity and efficiency. The four new servers, the PowerEdge T140, T340, R240 and R340, feature several new internal technologies as well as the latest OpenManage systems management capabilities. Key among the new internal features are Intel's new Xeon E-2100 processors. These latest processors provide 50% more cores than those used in our previous-generation (13G) servers (i.e. up to 6 cores in the new 14G servers vs. 4 cores in PowerEdge 13G servers), enabling users to get more work done, faster.

Of course, just putting a more powerful, higher-performance processor in a server would result in bottlenecks if other aspects of the server internals were not also brought up to the latest levels. Thus, each of these new 14th-generation servers feature new memory and I/O technologies as well as expanded internal storage capacity:

- Memory technology supporting 2666 MT/s is implemented in the new servers, up 11% from the 2400 MT/s used in the previous 13G servers, enabling faster data transfer to- and from memory.
- The number of PCIe lanes has been increased 20% from 13G to 14G (from 20 lanes to 24 lanes), providing more avenues for data transfer which in turn helps to boost overall performance.
- There is also a 17% increase in internal storage capacity, raising the maximum internal storage capacity from 12TB per drive in 13G to 14TB per drive in the new 14G servers. This is made possible by higher-capacity drives. Note here that the *number* of supported drives did not increase; rather, the *capacity* of the drive that can be used in the servers increased.



The new PowerEdge R240 (top) and R340 (bottom) servers. Both are 1-socket, 1U.

Moreover, the new Xeon E-2100 processors bring new features for cloud security that seem to have been overlooked in the press: Intel SGX on the E-2100 processor family delivers hardware-based security and manageability features that further secure customer data and applications. In other words, Intel is bringing to the entry-level server space, features that provide an additional layer of hardware-enhanced security measures when used with properly enhanced cloud applications. The combination of higher performance and enhanced data security will enable businesses to operate smoothly by supporting the latest applications, spanning collaboration and productivity apps, file-sharing, storage and backup, and virtualization.



Use cases

While each of these new servers is considered an entry-level server, destined primarily for Small Businesses, their increased performance and enhanced security, combined with full OpenManage systems management capabilities, make them entirely relevant for Medium Business and remote offices / branch offices (ROBO) of large organizations as well. Furthermore, their different form factors (mini-tower, tower, rack server) and differentiated feature set indicate that they are optimized for different use cases and environments:

PowerEdge T140: This is an excellent server for desktop consolidation and general business applications, e.g. collaboration and productivity apps, file-and-print, mail and messaging, office data coordination and sharing. The T140 has a mini-tower form factor and typically goes to small office / home office (SOHO) users, which usually have 1-5 employees, sometimes up to as many as 7 as the business grows. The T140 helps these businesses to get organized, simplify the IT of their growing business onto a reliable platform, and attain greater productivity.

PowerEdge T340: The T340 tower server is well-suited for single-tier workloads and offers room for expansion. While it supports the same kind of general-purpose applications as the T140, the T340 offers greater internal storage capacity, accommodating users with very rapidly expanding data storage requirements, or allowing steady data growth for a longer period of time. Thus, the T340 is for Small Businesses where the priorities are on platform stability and expandability. Its convenient tower form factor also makes it a popular choice for ROBO sites, for example bank branches and retail outlets, both of which network back to a corporate data center.

PowerEdge R240: This 1-socket, 1u rack form factor server is excellent for both general-purpose and industry-specific workloads. It typically installs in Small and Medium Businesses where the IT infrastructure consists of multiple servers, storage enclosures and networking switches, thus driving the desire to install it all in a computer rack. The R240 can handle all the collaboration and productivity applications and data coordination and sharing mentioned above, and is also commonly used for web serving.

PowerEdge R340: The R340 1u rack server delivers similar performance and capacity as the R240 but offers greater high-availability and redundancy features, perhaps particularly with regard to its power supplies: The R340 offers up to two 350W or 550W hot-plug power supplies (compared to one cabled 250W PSU in the R240). Thus the R340 goes into the same type of SMB rack infrastructure environments as the R240 but where overcoming concerns about high availability and serviceability are a priority.

Why refresh installed servers now?

These new servers offer compelling reasons to upgrade from older, installed servers to the new technologies:

- Dramatic performance gains can deliver substantially increased productivity
- Faster response times delight users and customers
- More internal capacity means more headroom for growing businesses and organizations, allowing them to grow for a longer period of time on a stable platform
- Enhanced high availability features can result in more business uptime
- Reduced cost of maintenance through new hardware warranty support
- Flexibility with server OS support
- Enhanced support for virtualization, allowing users to consolidate more servers onto a single platform, potentially leading to reduced software licensing costs
- Lower, more efficient power utilization can lead to a reduced power bill
- Support for the latest systems management capabilities helps users to save time, save money, and reduce potential for error and downtime.

Conclusion

The new PowerEdge 14th-generation 1-socket servers help users simplify their IT, improve productivity and grow into the future. While each of the four servers is optimized for a different environment, each delivers high, balanced performance and reliable operation to users, making these new servers excellent IT platforms for growing businesses and organizations.