



Maximize your upgrade by minimizing hypervisor costs with a new AMD EPYC 7551P processor-powered single-socket Dell EMC PowerEdge R7415

Get similar database performance at half the licensing cost of an Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U

Making room for business growth and increased profits by replacing older hardware with new tech that handles more database transactions and consolidates workloads onto fewer servers is a sound business decision. But should you choose single-socket servers powered by AMD EPYC™ 7551P processors or dual-socket servers powered by Intel® Xeon® Gold 6130 processors? The single-processor AMD EPYC option is tempting because VMware® vSphere® licensing costs for each server will be half those of the Intel Xeon dual-processor option. But these savings are only useful if the single-socket server can match the performance of the dual-socket server.

Through hands-on testing, our engineers found that replacing four-year-old dual-socket Supermicro SuperServer® 2028U servers powered by Intel Xeon E5-2680 v3 processors with either a current-generation AMD EPYC 7551P processor-powered single-socket Dell EMC™ PowerEdge™ R7415 solution or a current-generation Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U solution would improve database performance enough for a consolidation ratio of 15:4 while increasing overall transactions per VM.

Fifteen dual-socket legacy servers would require 30 VMware vSphere licenses (one per socket). The four Intel Xeon Gold 6130 processor-powered dual-socket servers that could replace them would require eight licenses, but the four AMD EPYC 7551P processor-powered single-socket servers would require only four licenses. Based on current pricing, the AMD EPYC 7551P solution would deliver annual licensing savings of \$48K over the legacy solution and \$7,451 over the current-generation Intel Xeon Gold 6130 solution.

Fewer servers = cost savings*
over
15:4 consolidation of 60 virtual machines
\$48K VMware vSphere license savings

*15 dual-socket Supermicro 2028U servers powered by Intel Xeon E5-2680 v3 processors vs. 4 single-socket Dell EMC PowerEdge R7415 servers powered by AMD EPYC 7551P processors.

Clinging to aging servers may cost more than you think

If you're running four-year-old servers such as the Intel Xeon E5-2680 v3 processor-powered dual-socket Supermicro SuperServer 2028U we tested, updating your servers can offer you savings on operating expenses other than licensing costs. Some benefits of upgrading include:

- Newer servers can do more work, which lets you consolidate several older servers, leading to potential savings in rack space, port costs, energy, and licensing costs.
- New hardware restarts the clock on hardware warranties and alleviates concern regarding aging hardware. This could reduce administrative time and hassle since all hardware is new.
- New servers use the latest technology, which can mitigate security risks.

About the AMD EPYC 7551P processor

According to AMD, "the EPYC 7551P processor delivers 2-socket features and performance on a 1-socket budget—helping organizations lower TCO and right-size for key data center workloads without feature compromise."¹

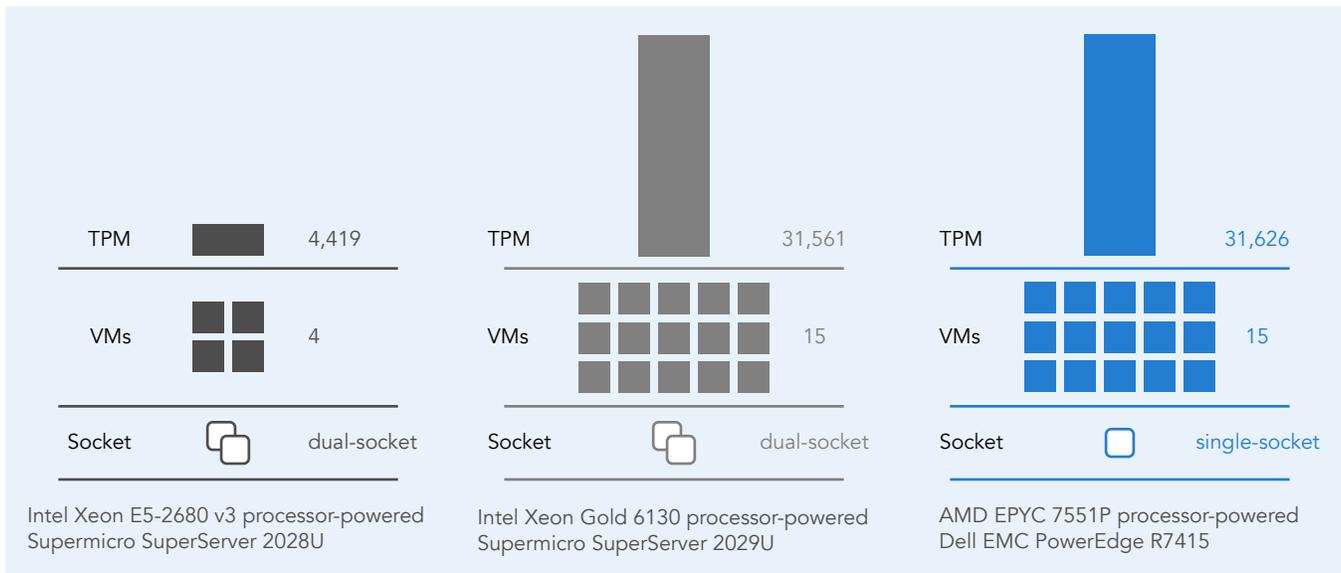
Cut hypervisor licensing costs in half

We compared the database performance of three server solutions using the HammerDB benchmark, which reports performance in transactions per minute (TPM) and new orders per minute (NOPM²). First, we tested a legacy solution, an Intel Xeon E5-2680 v3 processor-powered dual-socket Supermicro SuperServer 2028U server. Then, we compared its performance to these current-generation solutions:

- AMD EPYC 7551P processor-powered single-socket Dell EMC PowerEdge R7415 solution
- Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U solution

About the Dell EMC PowerEdge R7415

According to Dell EMC, "The PowerEdge R7415 delivers cost-efficient scalability in a single-socket design. Add plenty of storage and memory capacity to meet the needs of demanding workloads. With the enterprise-class AMD EPYC processor, the R7415 delivers software-defined storage or business analytics in a single-processor design."³



As the illustration above shows, the dual-socket legacy solution supported only four VMs, with each VM averaging just 4,419 TPM, while each new solution supported 15 VMs with an average of approximately 31,000 TPM. Both new server options could deliver a consolidation ratio of 15:4 while increasing overall transactions per VM versus the legacy solution.

But that’s only half the story. For companies with data centers using VMware vSphere Enterprise Plus, choosing the AMD EPYC 7551P processor-powered single-socket Dell EMC PowerEdge R7415 instead of the Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U means you’ll pay software licensing costs on only one socket per server instead of two.

For example, in a 60-VM deployment, the annual licensing costs for four Dell EMC PowerEdge R7415 servers, four Supermicro SuperServer 2029U servers, and 15 legacy Supermicro SuperServer 2028U servers are as follows:

Annualized cost of VMware vSphere Enterprise Plus licenses with 3-year basic support ⁴	
Four AMD EPYC 7551P processor-powered single-socket Dell EMC PowerEdge R7415	\$7,451
Four Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U	\$14,902
15 Intel Xeon E5-2680 v3 processor-powered dual-socket Supermicro SuperServer 2028U	\$55,882

In this scenario, upgrading the dual-socket legacy servers we tested to new AMD EPYC 7551P processor-powered single-socket Dell EMC PowerEdge R7415 servers could provide substantial savings in your operating expense budget by cutting VMware vSphere licensing costs by over \$48K—with the single-socket VMware hypervisor licensing fees coming in at half the cost of the Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U servers. These single-processor savings come with all the other benefits inherent in an upgrade, including the latest in embedded management and hardware that is at the beginning of its lifecycle.

During our tests, we also captured the average power each server used under load and while idle. We found that the AMD EPYC 7551P processor-powered Dell EMC PowerEdge R7415 server used less power in watts than the new Intel Xeon Gold 6130 processor-powered Supermicro SuperServer 2029U—23 percent less under load and 31 percent less while idle. This means that selecting the AMD EPYC 7551P processor-powered Dell EMC PowerEdge R7415 could reduce the amount you spend on power.



Conclusion

Abandoning aging hardware for new technology provides budget-minded companies an opportunity to invest in their future, offering the benefits of workload consolidation and savings in licensing costs. In our head-to-head tests, the current-generation, AMD EPYC 7551P processor-powered single-socket Dell EMC PowerEdge R7415 solution performed similarly to a current-generation, Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U solution: Both supported 15 VMs and averaged similar database performance in each VM—dramatically outperforming the legacy Intel Xeon E5-2680 v3 processor-powered dual-socket Supermicro SuperServer 2028U.

By selecting the AMD EPYC 7551P processor-powered single-socket Dell EMC PowerEdge R7415, however, your company could get similar database performance at half the VMware vSphere licensing costs of an Intel Xeon Gold 6130 processor-powered dual-socket Supermicro SuperServer 2029U. The single-socket AMD solution also used less power under load and while idle, making it a compelling choice for companies looking to minimize their operating expenses.

- 1 AMD EPYC 7000 Series, accessed June 19, 2019, https://www.amd.com/en/products/epyc-7000-series?gclid=EAlalQobChMloa6X57v24glVBBgMCh1oRgHtEAAYiAAEg-Jy-PD_BwE.
- 2 We include the NOPM numbers in the science report for full transparency, but focus only on the TPM numbers in this report.
- 3 Dell PowerEdge R7415 Rack Server, accessed June 19, 2019, <https://www.dell.com/en-us/work/shop/povw/poweredge-r7415>.
- 4 VMware Store, VMware vSphere Enterprise Plus, accessed July 12, 2019, https://store.vmware.com/store?Action=pd&Env=BASE&Locale=en_US&SiteID=vmware&productID=284281000&src=eBIZ_LandingPage_vSphereEnterprisePlus_Buy_US_&utm_source=VsphereLanding06132018_&utm_medium=landing&utm_campaign=VsphereLanding06132018.

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