Get up to 37% More SQL Server OLTP Performance by Selecting Premium Series Microsoft Azure® SQL Managed Instance VMs With 3rd Gen Intel® Xeon® Scalable Processors

These VMs Achieved More New Orders per Minute than SQL Managed Instance VMs with Older Processors

Many companies are moving their online transaction processing (OLTP) workloads to the cloud. Azure SQL Managed Instance is a cloud database service that, according to Microsoft, "combines the broadest SQL Server database engine compatibility with all the benefits of a fully managed and evergreen platform as a service."[1]

Regardless of the type of OLTP applications your company uses, strong performance is important to provide your users—be they customers or employees—with a speedy, responsive experience. We conducted benchmark testing to measure the performance of two Azure SQL Managed Instance VM series:

- Standard Series (Gen 5), with logical CPUs based on older-generation Intel processors (5.1GB RAM per CPU vCore)[2]
- Premium Series, with logical CPUs based on 3rd Gen Intel Xeon Scalable 2.8 GHz processors (7GB RAM per CPU vCore)

In our testing, Premium Series Azure SQL Managed Instance VMs with 3rd Gen Intel Xeon Scalable processors delivered up to 37% better OLTP performance. This stronger performance can help provide a smoother and speedier user experience.

Comparing VMs with 16 vCPUs

To compare the two Azure SQL Managed Instance VM series, we employed TPROC-C, an open-source OLTP workload that is part of the HammerDB benchmarking tool. TPROC-C reports performance in terms of new orders per minute (NOPM). (Note that TPROC-C results are in no way comparable to official TPC-audited results.) As Figure 1 shows, by choosing 16-vCPU Premium Series Azure SQL Managed Instance VMs featuring 3rd Gen Intel Xeon Scalable processors over the same size Standard Series VMs enabled by older processors, you could enjoy 37% more performance.

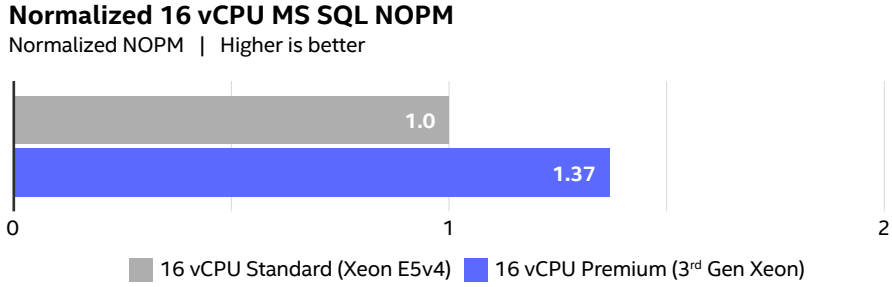

Figure 1. Relative TPROC-C performance in new orders per minute of the 16-vCPU Premium Series Azure SQL Managed Instance VMs and Standard Series VMs. Higher is better.

Microsoft SQL

37% More SQL Server OLTP Performance with 16 vCPU Premium Series Azure SQL Managed Instance VMs

vs. Standard Series VMs enabled by older processors

30% More SQL Server OLTP Performance with 8 vCPU Premium Series Azure SQL Managed Instance VMs

vs. Standard Series VMs enabled by older processors

Intel Workload Proof Series: SQL Server Transaction Processing on Azure Standard Series VMs vs. Premium Series VMs

Comparing VMs with 8 vCPUs

As Figure 2 shows, by choosing 8-vCPU Premium Series Azure SQL Managed Instance VMs with 3rd Gen Intel® Xeon® Scalable processors over 8-vCPU Standard Series VMs enabled by older processors, you could enjoy 30% more performance.

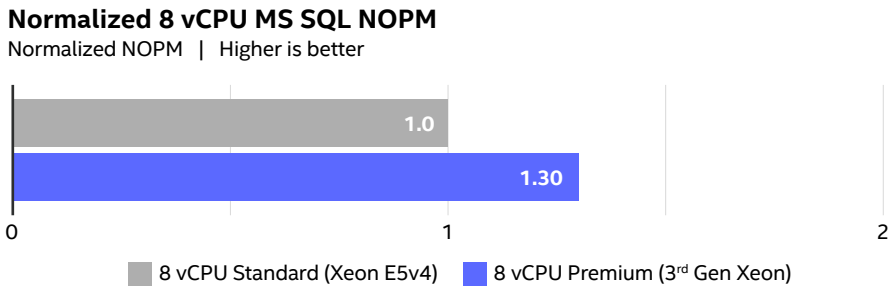

Figure 2. Relative TPROC-C performance in new orders per minute of the 8-vCPU Premium Series Azure SQL Managed Instance VMs and Standard Series VMs. Higher is better.

Conclusion

Regardless of how your business uses OLTP databases, processing more new orders per minute can translate to more satisfied users. Our testing showed that opting for Premium Series Azure SQL Managed Instance VMs with 3rd Gen Intel Xeon Scalable processors can give your applications a processing rate up to 37% higher than that of Standard Series VMs enabled by older processors.

Learn More

To begin running your OLTP workloads on Premium Series Azure SQL Managed Instance virtual machines featuring 3rd Gen Intel Xeon Scalable processors, visit https://azure.microsoft.com/en-us/products/azure-sql/managed-instance/.

1. "What is Azure SQL Managed Instance?" https://docs.microsoft.com/en-us/azure/azure-sql/managed-instance/sql-managed-instance-paas-overview.
2. Note that the Standard Series VMs may be based on any of several older Intel processors, which may be 2.3 GHz or 2.5 GHz processors. In our testing, the Standard Series VMs used Intel Xeon E5-2673 v4 processors (2.3 GHz).

Single VM tests by Intel on 12/10/2021. All VMs configured with Microsoft SQL Server 2019 Compatible, Windows HammerDB 4.2, 2TB storage with 1250GB for data and 750GB for log, and all tests were in the Azure EastUS region. Instance details: Intel Broadwell, 5,1 GB RAM/vCore: Intel® E5-2673 v4 (Broadwell) 2.3 GHz, 8 vCPUs and 16 vCPUs. Intel Ice Lake, 7 GB RAM/vCore: Intel® 8370C (Ice Lake) 2.8 GHz processors, 8 vCPUs and 16 vCPUs

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