

AWS EC2 M7i Instances: Support More Customers and More Transactions



MySQL



Handle More
Simultaneous Transactions



Accelerate Response
Times on Customer- and
Employee-Facing Apps

These Cloud Instances Featuring 4th Gen Intel® Xeon® Scalable Processors Handled Nearly Twice the Online Transaction Processing (OLTP) Work of Instances with Older Processors

For many businesses, online transaction processing (OLTP) lies at the heart of company function. While strong OLTP database performance is essential for ecommerce—supporting customer purchases, online shopping cart changes, and updating inventory counts—it also appears in many other contexts. Electronic medical record (EMR) systems, for example, rely on speedy OLTP database performance for health workers to access and make changes. A good travel booking site also requires a high-performing database to show up-to-date flights and seats. A database’s ability to process a higher rate of transactions means it could support more customer activity and deliver the newest information more quickly. This means that the cloud instance your company chooses to run these critical workloads on can affect customer satisfaction—and your organization’s bottom line.

MySQL, which says that it is the “world’s most popular” open-source database, has a customer portfolio that includes YouTube, Uber, Netflix, Walmart, and more.¹ Using a MySQL database, we ran tests on three Amazon Web Services (AWS) EC2 instance types at various sizes: M7i instances with 4th Gen Intel® Xeon® Scalable processors, M6i instances with 3rd Gen Intel Xeon Scalable processors, and M5 instances with 2nd Gen Intel Xeon Scalable processors. We used the HammerDB TPROC-C benchmark in our tests. Results reveal drastic performance gains from the M7i instances, making them a wise choice for your OLTP database workloads.

A Multi-Generation Performance Comparison

First, we compared the performance of newer M6i and M7i instances against older M5 instances. The M6i instances achieved up to 1.37 times the new orders per minute (NOPM) of the M5 instances. But as Figure 1 shows, the best performance came from the M7i instances, which delivered up to 1.91 times the NOPM.

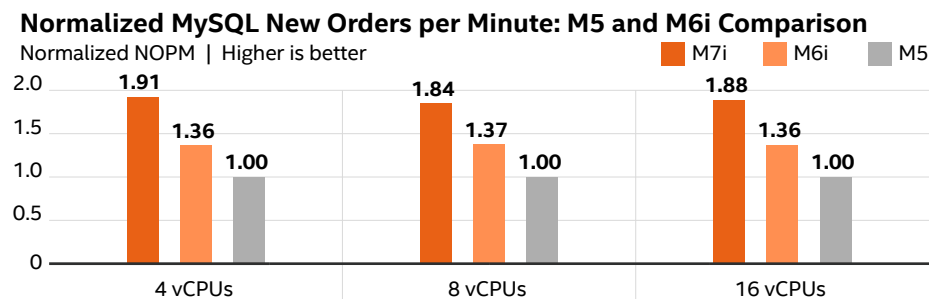


Figure 1. Relative new orders per minute that M7i and M6i instances achieved compared to M5 instances. M7i instances feature 4th Gen Intel Xeon Scalable processors, M6i instances feature 3rd Gen Intel Xeon Scalable processors, and M5 instances feature 2nd Gen Intel Xeon Scalable processors. Higher is better.

Discover Even Better Performance with M7i Instances

While a multi-generation view can be helpful for some organizations, we also sought to understand the performance benefits of instances featuring 4th Gen Intel® Xeon® Scalable processors compared to the previous generation. In our M7i and M6i instance comparison, we found that M7i instances handled up to 1.40 times the NOPM of the M6i instances (Figure 2). These performance advantages indicate that both customers and employees could enjoy a smoother user experience on OLTP-based applications. And your organization could gain the ability to support more user transactions at once, reducing bottlenecks during peak traffic.

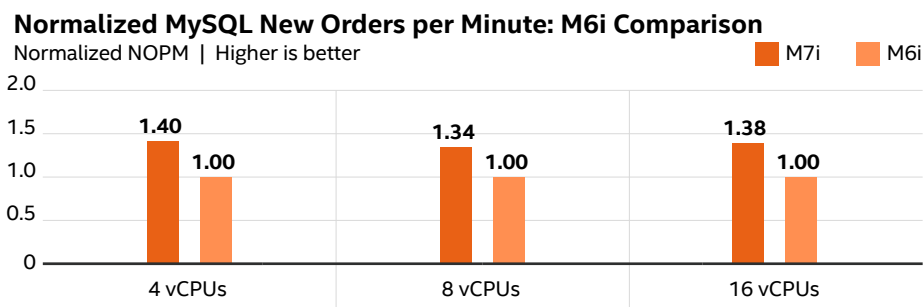


Figure 2. Relative new orders per minute that M7i instances achieved compared to M6i instances. M7i instances feature 4th Gen Intel Xeon Scalable processors, and M6i instances feature 3rd Gen Intel Xeon Scalable processors. Higher is better.

Conclusion

Whether your company features a storefront for online purchases, utilizes an EMR system, or anything in between, customers and workers stand to benefit from better OLTP database performance. And by supporting more transactions, organizations could also unlock greater revenue from online shopping, for example. If your organization relies on M5 instances and is thinking of upgrading, AWS EC2 instances featuring 4th Gen Intel Xeon Scalable processors handled up to 1.91 times the new orders per minute. And if you've already migrated to M6i instances, the performance boost of M7i instances—up to 1.40 times—is still worth the consideration. Upgrade to M7i instances for a compelling boost to your essential OLTP workloads.

Learn More

To begin running your OLTP workloads on AWS EC2 M7i instances, visit <https://aws.amazon.com/ec2/instance-types/m7i/>.

¹ "MySQL," <https://www.mysql.com/>.

All tests by Intel in Aug. 2023 on AWS. Software: HammerDB 4.4, MySQL 8.0.3.1, K8s 1.24.4, Containerd 1.6.15-1, Ubuntu 22.04.2 LTS w/ Kernel 5.19.0-1025-aws or 5.19.0-1029-aws on m7i, WSF 22.53. All m7i VMs: Intel Xeon Platinum 8488C, 500GB SSD or 800GB on 64vCPU, all m6i VMs: Intel Xeon Platinum 8375C 500GB SSD, all m5 VMs: Intel Xeon Platinum 8259CL, 500GB SSD. All VMs: 4GB RAM/vCPU. Network Gbps: m5.xlarge – m5.4xlarge: up to 10; m5.8xlarge: 10, m5.16xlarge: 25; m6/7i.xlarge – m6/7i.4xlarge: up to 12.4, m6/7i.8xlarge: 12.5, m6/7i.16xlarge: 25.



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