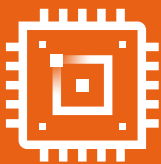


Select AWS EC2 Instances Featuring 3rd Gen Intel® Xeon® Scalable Processors for up to 1.25x the Redis Performance



Redis



**Achieve up to 1.25x
the Redis Operations/
Sec with M6i
Instances Featuring
3rd Gen Intel Xeon
Scalable Processors**

*vs. M5 Instances with
Older Processors*



**Achieve up to 1.25x
the Redis Operations/
Sec with R6i
Instances Featuring
3rd Gen Intel Xeon
Scalable Processors**

*vs. R5 Instances with
Older Processors*

M6i, R6i, and C6i Instances Delivered as Many or More Operations per Second than M5, R5, and C5 Instances with Older Processors

If your business relies on in-memory databases for real-time outputs—for example, machine learning, medical device analytics, or banking transactions—strong database performance is essential. Whether you need to support bidding in real time or keep gaming leaderboards up-to-date, your customers expect fast performance. When they enjoy a smooth, seamless experience, they could be more likely to engage with your services in the future. For organizations that use Redis—an open-source, in-memory data structure store—high-performing AWS Elastic Cloud Compute (EC2) instances can keep operations running smoothly. In tests with general-purpose, memory-optimized, and compute-optimized instances, we found that instances enabled by 3rd Gen Intel Xeon Scalable processors achieved a similar or higher rate of operations per second than instances with older processors. These performance gains make M6i, R6i, or C6i instances a wise choice for an organization seeking better performance for database work.

Up to 1.25x the Performance on General-Purpose Instances

Because different businesses have different workload sizes, we tested general-purpose instances at several vCPU counts. As Figure 1 shows, M6i instances with 3rd Gen Intel Xeon Scalable processors outperformed older M5 instances. They consistently delivered more operations per second, with 32vCPU M6i instances attaining 1.25 times the performance of 32vCPU M5 instances.

M6i vs. M5: Normalized Redis Operations per Second

Higher is better

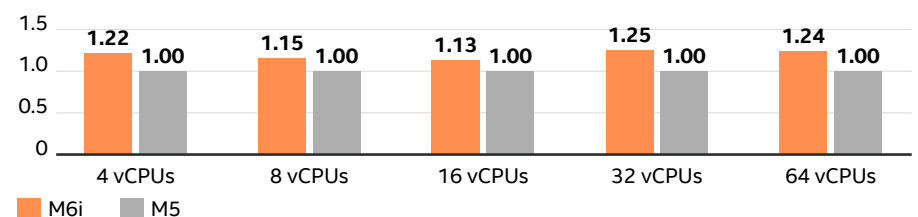


Figure 1. Relative performance, in operations per second, that M6i instances handled compared to M5 instances. Higher numbers are better.

Up to 1.25x the Performance on Memory-Optimized Instances

In tests on various sizes of memory-optimized instances, R6i instances featuring 3rd Gen Intel Xeon Scalable processors offered up to 1.25 times the performance of older R5 instances. Figure 2 shows that R6i instances achieved more operations per second at all sizes we tested.

R6i vs. R5: Normalized Redis Operations per Second

Higher is better

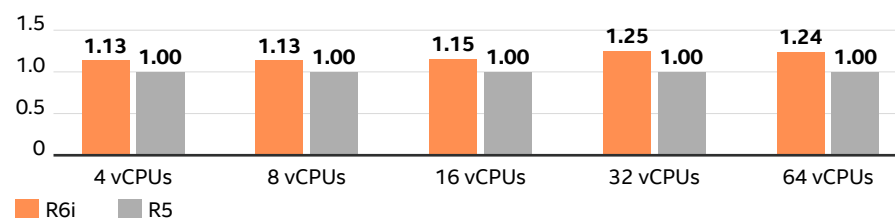


Figure 2. Relative performance, in operations per second, that R6i instances handled compared to R5 instances. Higher numbers are better.

Up to 1.1x the Performance on Compute-Optimized Instances

Compute-optimized C6i instances with 3rd Gen Intel® Xeon® Scalable processors delivered performance better than or comparable to older C5 instances. Note: At the two largest sizes we tested, vCPU counts differ between C6i and C5 instances; we configured them as closely as we could. Even with fewer vCPUs at these larger instance sizes, C6i instances achieved performance on par with C5 instances.

C6i vs. C5: Normalized Redis Operations per Second

Higher is better

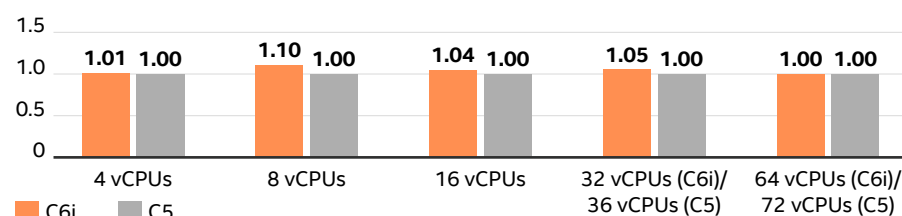


Figure 3. Relative performance, in operations per second, that C6i instances handled compared to C5 instances. Higher numbers are better.

Conclusion

In tests across instance types and with various sizes, AWS EC2 instances featuring 3rd Gen Intel Xeon Scalable processors achieved more Redis operations per second than older instances. If your organization needs powerful performance to support in-memory databases and keep real-time operations running smoothly, choose M6i, R6i, or C6i instances enabled by 3rd Gen Intel Xeon Scalable processors.

Learn More

To begin running your Redis workloads on AWS EC2 M6i instances, visit <https://aws.amazon.com/ec2/instance-types/m6i/>; for R6i instances, visit <https://aws.amazon.com/ec2/instance-types/r6i/>; for C6i instances, visit <https://aws.amazon.com/ec2/instance-types/c6i/>.

All tests by Intel on 5/08/2022 on AWS us-west-2 region. All tests config: Ubuntu 20.04.4 LTS; 5.13.0-1022-aws kernel; v1.24.2.intel-14-gcdbf9cc9; gcc 9.4.0; ldd 2.31; 4 clients; Pipelined requests: 128 and Latency limit: 1msec and Redis version:6.2.4 and Memtier Benchmark version:1.3.0; and Datasize: 128-byte and Number of Redis processes to spawn per processor: 1 and 1:0 set get ratio. C5/m5/r5=CLX x86_64 CPUs; c6i/m6i/r6i=ICX x86_64 CPUs. Instance details: m5.xlarge: 4 vCPUs, 16GB RAM; m5.2xlarge: 8 vCPUs, 32GB RAM; m5.4xlarge: 16 vCPUs, 64GB RAM; m5.8xlarge: 32 vCPUs, 130GB; m5.16xlarge: 64 vCPUs, 261GB RAM; m6i.xlarge: 4 vCPUs, 16GB RAM; m6i.2xlarge: 8 vCPUs, 32GB RAM; m6i.4xlarge: 16 vCPUs, 64GB RAM; m6i.8xlarge: 32 vCPUs, 129GB; m6i.16xlarge: 64 vCPUs, 259GB RAM; c5.xlarge: 4 vCPUs, 8GB RAM; c5.2xlarge: 8 vCPUs, 16GB RAM; c5.4xlarge: 16 vCPUs, 32GB RAM; c5.9xlarge: 36 vCPUs, 71GB; c5.18xlarge: 72 vCPUs, 144GB RAM; c6i.xlarge: 4 vCPUs, 8GB RAM; c6i.2xlarge: 8 vCPUs, 16GB RAM; c6i.4xlarge: 16 vCPUs, 32GB RAM; c6i.8xlarge: 32 vCPUs, 64GB; c6i.16xlarge: 64 vCPUs, 129GB RAM; r5.xlarge: 4 vCPUs, 32GB RAM; r5.2xlarge: 8 vCPUs, 64GB RAM; r5.4xlarge: 16 vCPUs, 130GB RAM; r5.8xlarge: 32 vCPUs, 261GB; r5.16xlarge: 64 vCPUs, 522GB RAM; r6i.xlarge: 4 vCPUs, 32GB RAM; r6i.2xlarge: 8 vCPUs, 64GB RAM; r6i.4xlarge: 16 vCPUs, 129GB RAM; r6i.8xlarge: 32 vCPUs, 259GB; r6i.16xlarge: 64 vCPUs, 519GB RAM



Performance varies by use, configuration and other factors. Learn more at www.intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See above for configuration details. No product or component can be absolutely secure. Your costs and results may vary.

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