Choose AWS m6i Instances Featuring 3rd Gen Intel® Xeon® Scalable Processors to Gain Up to 44% More Estimated SPECrate®2017_fp_base Performance

AWS m6i Instances Beat m5 Instances with 2nd Gen Intel Xeon Scalable Processors in Floating-Point Performance

As more and more organizations move to the cloud, IT groups must confront the question of where to host their most complex workloads. Workloads that rely on floating-point calculations, such as large-scale scientific modeling and rendering, require especially robust cloud solutions to run smoothly.

The SPECrate®2017 Floating Point suite of benchmarks quantifies this type of performance, with higher estimated SPECrate®2017_fp_base performance indicating that a solution can handle more floating point computations in the same amount of time. In testing performed by Intel, Amazon Web Services (AWS) m6i instances enabled by 3rd Gen Intel Xeon Scalable processors delivered consistently greater estimated SPECrate®2017_fp_base performance than m5 instances enabled by 2nd Generation Intel Xeon Scalable processors—as much as 44% better performance. Given this significant boost, companies shifting to AWS may wish to take a close look at m6i instances for their most critical floating-point workloads.

Better Estimated SPECrate®2017_fp_base Performance for Small Instances

Intel tested m6i and m5 instances at three sizes: 4 vCPUs, 8 vCPUs, and 16 vCPUs. Figure 1 highlights the performance difference between the small, 4-vCPU m6i instances enabled by 3rd Gen Intel Xeon Scalable processors and the equivalent m5 instances with last-generation processors.

Normalized Estimated SPECrate®2017_fp_base Scores on 4 vCPUs
Higher is better

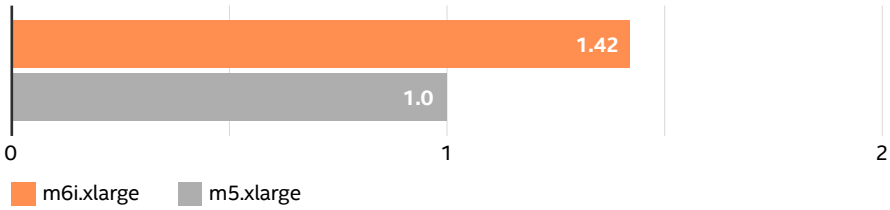

Figure 1. Relative est. SPECrate®2017_fp_base performance of 4-vCPU m6i instances vs. 4-vCPU m5 instances. Higher numbers are better.

SPECrate®2017

Achieve up to 42% more est. SPECrate®2017 _fp_base performance with 4-vCPU m6i instances
vs. m5 instances

Achieve up to 44% more est. SPECrate®2017 _fp_base performance with 8-vCPU m6i instances
vs. m5 instances

Achieve up to 37% more est. SPECrate®2017 _fp_base performance with 16-vCPU m6i instances
vs. m5 instances

Better Estimated SPECrate®2017_fp_base Performance for Medium-Size Instances

As Figure 2 shows, compared to the m5 instances, the m6i instances with new 3rd Gen Intel® Xeon® Scalable processors delivered the largest performance difference at the 8-vCPU size.

Normalized Estimated SPECrate®2017_fp_base Scores on 8 vCPUs
Higher is better

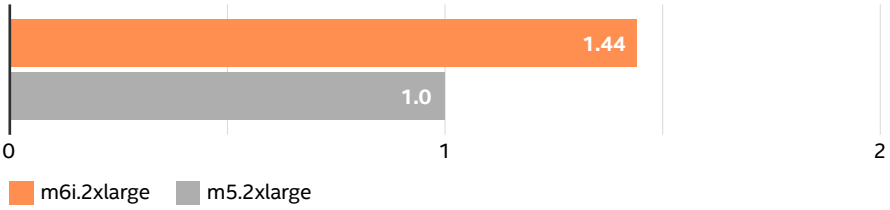

Figure 2. Relative est. SPECrate®2017_fp_base performance of 8-vCPU m6i instances vs. 8-vCPU m5 instances. Higher numbers are better.

Better Estimated SPECrate®2017_fp_base Performance for Larger Instances

At the largest size Intel tested—16 vCPUs—the m6i instances featuring 3rd Gen Intel Xeon Scalable processors again outperformed the m5 instances with 2nd Gen Intel Xeon Scalable processors, this time by 37% (see Figure 3).

Normalized Estimated SPECrate®2017_fp_base Scores on 16 vCPUs
Higher is better

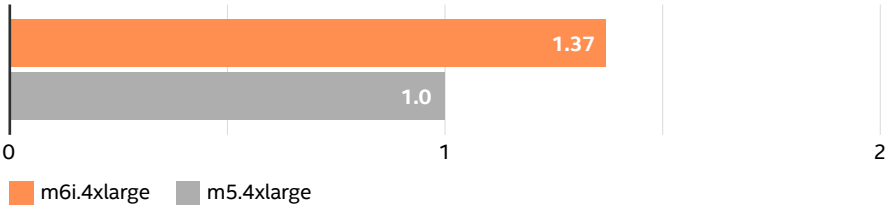

Figure 3. Relative est. SPECrate®2017_fp_base performance of 16-vCPU m6i instances vs. 16-vCPU m5 instances. Higher numbers are better.

These results show that whether an organization needs small 4-vCPU instances, medium 8-vCPU instances, or larger 16-vCPU instances for its floating-point workloads, m6i instances enabled by 3rd Gen Intel Xeon Scalable processors would be a strong choice.

Learn More

To get started running your floating-point workloads on AWS m6i instances enabled by 3rd Gen Intel Xeon Scalable processors, go to https://aws.amazon.com/ec2/instance-types/m6i/.

Tests performed by Intel on Oct.-Nov. 2021. All configs: AWS us-east-2, EBS 512GB, up to 10Gbps network BW, Ubuntu 20.04.3 LTS Kernel 5.11.0-1022-aws, cpu2017 v1.1.8, ICC 2021.4 revB_8GBqkmalloc, -xCORE-AVX512, ic2021.1-lin-core-avx512-rate-20201113_revB.cfg. All m5 VMs: Intel Xeon Platinum 8259CL CPU @ 2.50GHz. All m6i VMs: Intel Xeon Platinum 8375C CPU @ 2.90GHz. m5.xlarge: 4 cores, 16GB RAM, up to 4.75 Gbps Storage BW, 4 workload copies; m6i.xlarge: 4 cores, 16GB RAM, up to 12.5 Gbps storage BW 4 workload copies; m5.2xlarge: 8 cores, 32GB RAM, up to 4.75 Gbps storage BW, 8 workload copies; m6i.2xlarge: 8 cores, 32GB RAM, up to 12.5 Gbps storage BW, 16 workload copies; m5.4xlarge: 16 cores, up to 4.75 Gbps storage BW; m6i.4xlarge: 16 cores, up to 12.5 Gbps storage BW, 16 workload copies.

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