

# Achieve Better Decision Support Performance with AWS C5 Instances Featuring 2<sup>nd</sup> Gen Intel<sup>®</sup> Xeon<sup>®</sup> Scalable Processors and Granulate



Spark



**Boost Decision Support Performance by up to 40% by Adding Granulate Cloud Solutions to AWS c5.12xlarge Instances Featuring 2<sup>nd</sup> Gen Intel Xeon Scalable Processors**

*vs. c5.12xlarge Instances without Granulate*



**Improve Decision Support Performance by up to 12% by Selecting AWS c5.12xlarge Instances Featuring 2<sup>nd</sup> Gen Intel Xeon Scalable Processors with Granulate**

*vs. c6g.12xlarge Instances with Graviton Processors*

## These Instances, with Granulate Real-Time Continuous Optimization, Perform More Work Than C6g Instances with Graviton Processors

Decision support system (DSS) workloads help organizations collect and analyze data to derive insights that drive many critical business decisions. Companies choosing to run DSS workloads in the cloud require instances that deliver excellent performance. We used a DSS benchmark to evaluate the performance of several Amazon Web Services (AWS) EC2 cloud instance types. First, we compared C5 instances, enabled by 2<sup>nd</sup> Gen Intel Xeon Scalable processors, with and without Granulate Real-Time Continuous Optimization (Granulate), a workload optimizer that can boost Intel processor performance and increase productivity. Next, we compared the C5 instance with Granulate to a C6g instance using Graviton processors.

The Granulate-enabled instance outperformed both its C5 counterpart without Granulate and the Graviton processor-based C6g instance. These findings suggest that businesses can benefit from greater DSS performance by choosing C5 instances enabled by Intel with Granulate.

### Granulate Improved Performance by up to 40%

Figure 1 shows how Granulate affected the decision support performance of the c5.12xlarge instance, increasing the speed by up to 40%.

#### Relative Completion Speed: C5 with vs. without Granulate

Normalized speed | Higher is better

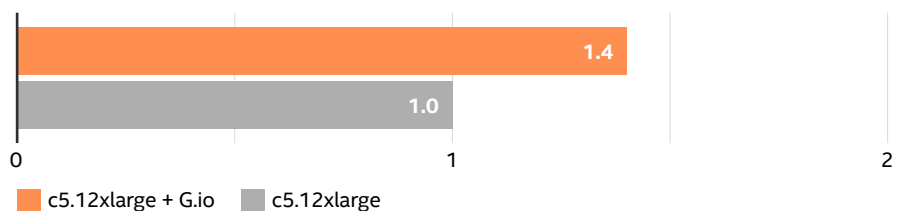


Figure 1. Decision support performance achieved by a c5.12xlarge instance, featuring 2<sup>nd</sup> Gen Intel Xeon Scalable processors, both with and without Granulate.

## A C5 Instance with Granulate Outperformed a Graviton Processor-Based C6g Instance

As Figure 2 shows, the c5.12xlarge instance enabled by 2<sup>nd</sup> Gen Intel® Xeon® Scalable processors with Granulate delivered up to 12% greater performance than the c6g.12xlarge instance based on the Graviton processors.

### Relative Completion Speed: C5 with Granulate vs. C6g without Granulate

Normalized speed | Higher is better

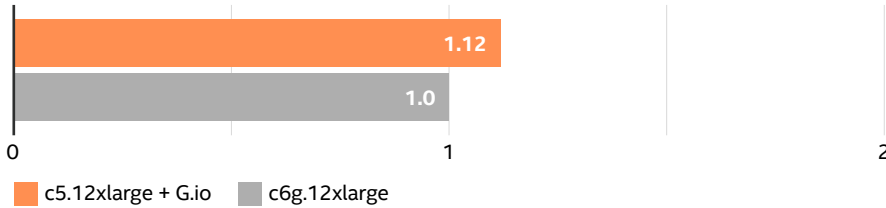


Figure 2. Decision support performance achieved by a c5.12xlarge instance with 2<sup>nd</sup> Gen Intel Xeon Scalable processors and Granulate vs. a c6g.12xlarge instance with Graviton processors.

## Conclusion

Our tests measured the decision support performance of two AWS C5 instances featuring 2<sup>nd</sup> Gen Intel Xeon Scalable processors—both with and without Granulate Real-Time Continuous Optimization—and one AWS C6g instance based on Graviton processors. Adding Granulate improved performance by up to 40% on the C5 instance we tested, and the Granulate-enabled C5 instance outperformed the C6g instance tested by up to 12%.

## Learn More

To begin running your decision support workloads on Amazon C5 instances with 2<sup>nd</sup> Gen Intel Xeon Scalable processors with Granulate, visit <https://aws.amazon.com/ec2/instance-types/c5/>.



Testing performed by Intel in June 2021. All 4-node tests run on AWS us-east-2 with 48 vCPUs, 96GB RAM, 4 EBS 200GB for 16,000 IOPS, 1GB Storage BW, Hadoop 3.3.0, Hive 3.1.2, Spark 3.0.1, and TPC-DS v. 1.1.0. Granulate tests used Granulate agent v. 2.2.0. Instance details: c5.12xlarge: Intel Xeon 8275CL, 12 Gbps Network BW, AWS Linux Kernel 4.14.177-139.254.amzn2.x86\_64 #1 SMP; c6g.12xlarge: arm64 Graviton 2, 20Gbps Network BW, AWS Linux 4.14.231-173.360.amzn2.aarch64 #1 SMP.



Performance varies by use, configuration and other factors. Learn more at [www.intel.com/PerformanceIndex](http://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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