

Reap Greater CPU Integer and Floating Point Performance by Selecting Google Cloud N2 Instances Featuring 3rd Gen Intel[®] Xeon[®] Scalable Processors



SPECrate



Achieve up to 43% More Est. SPECrate[®]2017_fp_base Performance with N2 Instances Featuring 3rd Gen Intel Xeon Scalable Processors

vs. N2 Instances with Previous-Gen Processors



Achieve up to 19% More Est. SPECrate[®]2017_int_base Performance with N2 Instances Featuring 3rd Gen Intel Xeon Scalable Processors

vs. N2 Instances with Previous-Gen Processors

These Instances Achieved Better Estimated SPECrate[®]2017_int_base and SPECrate[®]2017_fp_base Scores Than N2 Instances with 2nd Gen Intel Xeon Scalable Processors

If your organization is moving complex workloads to the cloud, deciding which instances will deliver the best performance is important. The results of industry-standard benchmarks such as SPECrate[®]2017 Integer and SPECrate[®]2017 Floating Point can help you understand the capabilities of the many options available.

In Intel testing on Google Cloud at multiple instance sizes, N2 instances offered strong performance; with 3rd Gen Intel Xeon Scalable processors, they delivered higher estimated SPECrate[®]2017_int_base performance. They also had higher estimated SPECrate[®]2017_fp_base performance than N2 instances with 2nd Gen Intel Xeon Scalable processors.

Better Floating Point Performance

Some workloads—including large-scale scientific modeling and rendering—rely on floating-point calculations, which are resource intensive. To gauge how certain Google instances handle this type of performance, Intel performed tests with the SPECrate[®]2017 Floating Point suite of benchmarks. A higher estimated SPECrate[®]2017_fp_base performance score indicates a solution's ability to handle more floating point computations in a given time period.

Figure 1 shows the SPECrate[®]2017_fp_base performance for four pairs of Google Cloud N2 instances, with sizes ranging from 4 to 64 CPUs. At every size, the N2 instance featuring 3rd Gen Intel Xeon Scalable processors outperformed the instance with the older processor, delivering up to 43% more estimated integer performance.

Normalized Est. SPECrate[®]2017 Floating Point Performance of N2 Instances

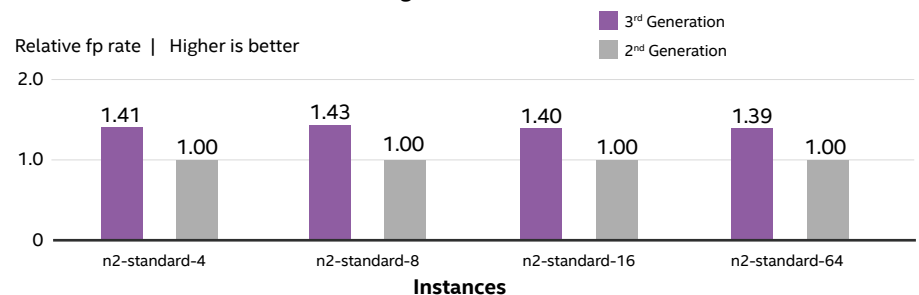


Figure 1. Relative estimated SPECrate[®]2017_fp_base performance of four sizes of N2 instances. Higher numbers are better.

Better Integer Performance

For many applications—both on-premises and in the cloud—strong integer performance is a requirement. The SPECrate®2017 Integer benchmark measures integer performance, with higher scores representing greater throughput.

Figure 2 shows the SPECrate®2017_int_base performance for four pairs of Google Cloud N2 instances, with sizes ranging from 4 to 64 CPUs. While both types of instances offered strong performance, at every size, the N2 instances featuring 3rd Gen Intel® Xeon® Scalable processors outperformed the instances with the older processor. As Figure 2 shows, they achieved up to 19% more estimated integer performance.

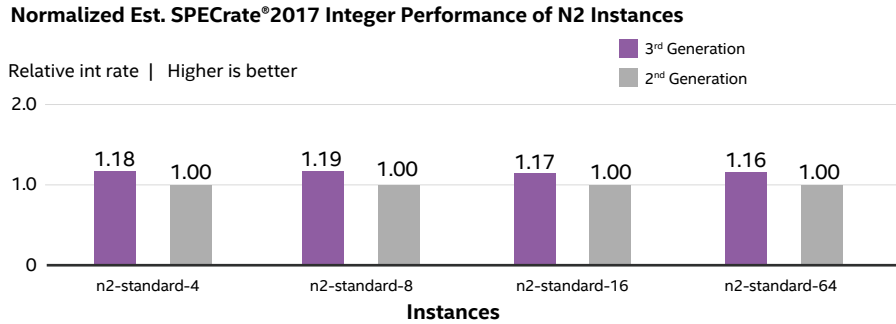


Figure 2. Relative estimated SPECrate®2017_int_base performance of four sizes of N2 instances. Higher numbers are better.

Conclusion

For organizations seeking the best cloud platforms for their CPU-intensive workloads, Google Cloud N2 instances offer strong performance. At each of the four sizes Intel tested, Google Cloud N2 instances enabled by 3rd Gen Intel Xeon Scalable processors delivered higher estimated SPECrate®2017_fp_base performance and higher estimated SPECrate®2017_int_base performance than N2 instances with older processors.

Learn More

To get started running your CPU-intensive workloads on Google Cloud N2 instances enabled by 3rd Gen Intel Xeon Scalable processors, visit https://cloud.google.com/compute/docs/general-purpose-machines#n2_machines.

Tests by Intel completed February 16, 2022. All tests on GCP us-central1-a with Ubuntu 20.04.3 LTS kernel 5.11.0-1023-gcp, FOR-OEMS-confidential-cpu2017-1.1.8-ic2021.4-binaries-20210904_beta.tar.xz, c2021.4, cpu2017-1.1.5.iso. Instance details: n2-standard-4: Intel (R) Xeon (R) CLX CPU @ 2.80GHz, 4 vCPU, 16GB RAM; n2-standard-4: Intel (R) Xeon (R) ICX CPU @ 2.60GHz, 4 vCPU, 16GB RAM; n2-standard-8: Intel (R) Xeon (R) CLX CPU @ 2.80GHz, 8 vCPU, 32GB RAM; n2-standard-8: Intel (R) Xeon (R) ICX CPU @ 2.60GHz, 8 vCPU, 32GB RAM; n2-standard-16: Intel (R) Xeon (R) CLX CPU @ 2.80GHz, 16 vCPU, 64GB RAM; n2-standard-16: Intel (R) Xeon (R) ICX CPU @ 2.60GHz, 16 vCPU, 64GB RAM; n2-standard-64: Intel (R) Xeon (R) CLX CPU @ 2.80GHz, 64 vCPU, 256GB RAM; n2-standard-64: Intel (R) Xeon (R) ICX CPU @ 2.60GHz, 64 vCPU, 256GB 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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Printed in USA 0822/JO/PT/PDF US001

