intel.

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.

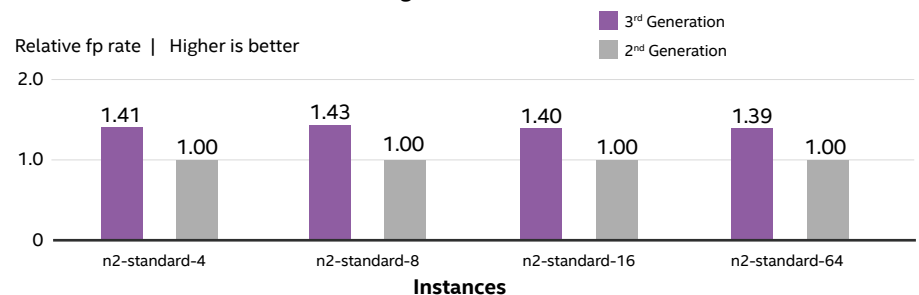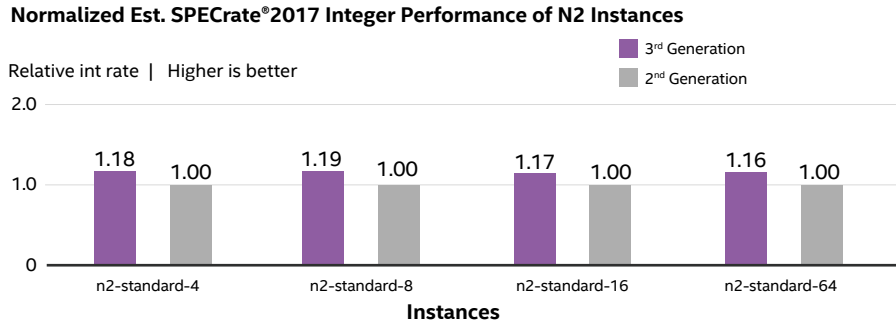**Normalized Est. SPECrate®2017 Floating Point Performance of N2 Instances**

Relative fp rate | Higher is better

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

Intel Workload Proof Series: SPECrate on Google Cloud N2 Generation Comparison

See backup for workloads and configurations. Results may vary.

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.

Normalized Est. SPECrate®2017 Integer Performance of N2 Instances

Relative int rate | Higher is better

■ 3rd Generation
■ 2nd Generation

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.