

# Google Cloud N2 VMs with 3<sup>rd</sup> Gen Intel<sup>®</sup> Xeon<sup>®</sup> Scalable Processors Achieved up to 72% More Java Performance than Older N2 VMs



## Java Server



**Achieve up to 40% More SPECjbb<sup>®</sup> 2015 Max-jOPS Performance with N2 VMs Featuring 3<sup>rd</sup> Gen Intel Xeon Scalable Processors**

*vs. N2 VMs with Older CPUs*



**Achieve up to 72% More SPECjbb<sup>®</sup> 2015 Critical-jOPS Performance with N2 VMs Featuring 3<sup>rd</sup> Gen Intel Xeon Scalable Processors**

*vs. N2 VMs with Older CPUs*

## Get a Greater Return on Your Google Cloud Investment with N2 Virtual Machines Featuring 3<sup>rd</sup> Gen Intel Xeon Scalable Processors

If your company runs Java workloads on Google Cloud, or is considering doing so, it is important to select the virtual machines (VMs) that can deliver the best performance. You can achieve greater per-VM performance by choosing a new Google Cloud virtual machine featuring 3<sup>rd</sup> Gen Intel<sup>®</sup> Xeon<sup>®</sup> Scalable processors.

Many enterprise and cloud customers turn to SPECjbb<sup>®</sup> 2015, an industry-standard Java server benchmark that models an international supermarket company, to evaluate Java application performance. A series of tests compared the SPECjbb 2015 scores of new N2 VMs enabled by 3<sup>rd</sup> Generation Intel Xeon Scalable processors and older Google Cloud N2 series VMs with 2<sup>nd</sup> Gen Intel Xeon Scalable processors. Tests generated two metrics: max-jOPS and critical-jOPS. Depending on their size, the new VMs achieved max-jOPS performance of up to 40% and critical-jOPS performance of up to 72% more than the older VMs.

Regardless of the size of the Google Cloud N2 VMs you need, get the greatest value from your cloud investment by opting for new N2 virtual machines powered by 3<sup>rd</sup> Gen Intel Xeon Scalable processors.

### Looking at SPECjbb Max-jOPS

The max-jOPS metric in SPECjbb reflects the highest transaction throughput a system can achieve before additional requests fail. As Figure 1 shows, the new N2 VMs enabled by 3<sup>rd</sup> Gen Intel Xeon Scalable processors achieved more max-jOPS than the older N2 VMs at every size, with performance advantages ranging from 30% to 40% just from selecting the right generation of Intel Xeon Scalable processor-enabled virtual machine.

### Normalized Gen over Gen N2 Max-jOPS Performance

Max-jOPS | Higher is better

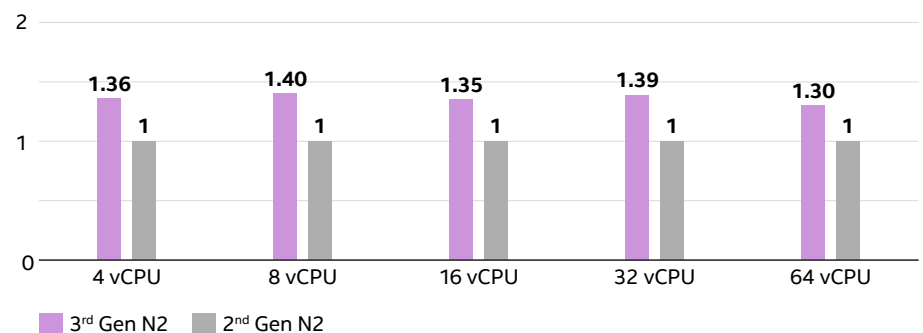
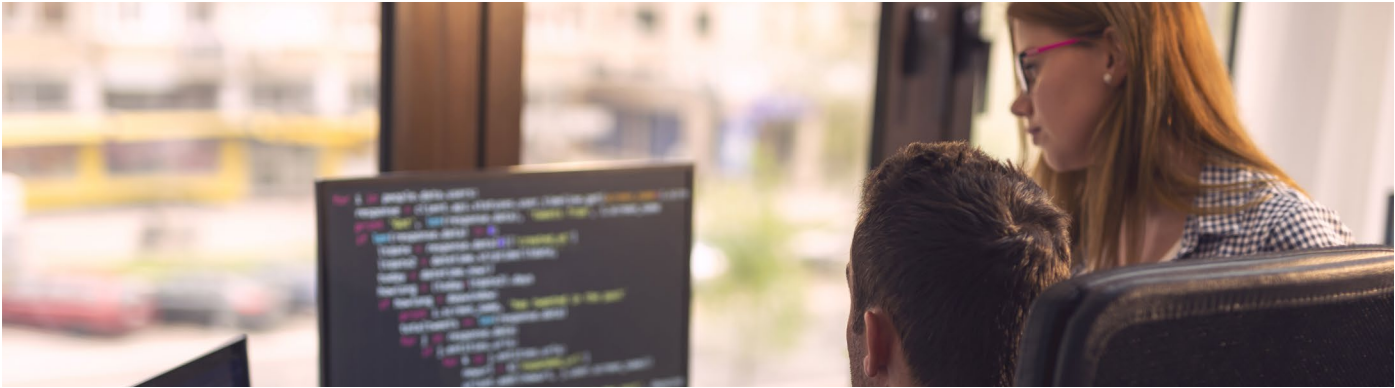


Figure 1. Relative SPECjbb 2015 Max-jOPS results for five sizes of newer Google Cloud N2 VMs and older N2 VMs.



## Looking at SPECjbb Critical-jOPS

The critical-jOPS metric in SPECjbb reflects throughput under response time. As Figure 2 shows, the new N2 VMs enabled by 3<sup>rd</sup> Gen Intel® Xeon® Scalable processors achieved higher critical-jOPS scores than the older N2 VMs at every size, with performance advantages as high as 72%.

### Normalized Gen over Gen N2 Critical-jOPS Performance

Critical-jOPS | Higher is better

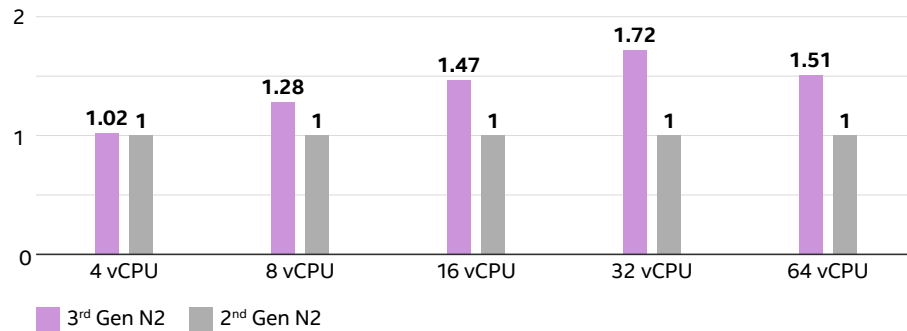


Figure 2. Relative SPECjbb 2015 Critical-jOPS results for five sizes of newer Google Cloud N2 VMs and older N2 VMs.

## Conclusion

To harness better performance on the Java applications you're running on Google Cloud, choose new N2 virtual machines enabled by 3<sup>rd</sup> Gen Intel Xeon Scalable Processors.

## Learn More

To begin running your websites on Google Cloud N2 virtual machine instances with 3<sup>rd</sup> Gen Intel Xeon Scalable processors, visit <https://cloud.google.com/compute/docs/general-purpose-machines>.

Tests by Intel completed Dec. 2021. All tests on Google Cloud us-ccentral1-a with Ubuntu 20.04.3 LTS kernel 5.11.0-1023-Google Cloud, jbb103, and OpenJDK "16.0.1" 2021-04-20. VM details: n2-standard-4: Intel CLX CPU @ 2.8GHz OR Intel ICX CPU @2.6GHz, 16GB RAM, Groups=1, Max heap=10GB/grp; n2-standard-8: Intel CLX CPU @ 2.8GHz OR Intel ICX CPU @2.6GHz, 32GB RAM, Groups=1, Max heap=25.6GB/grp; N2-standard-16: Intel CLX CPU @ 2.8GHz OR Intel ICX CPU @2.6GHz, 65GB RAM, Groups=1, Max heap=51.2GB/grp; n2-standard-32: Intel CLX CPU @ 2.8GHz OR Intel ICX CPU @2.6GHz, 132GB OR 131GB RAM, Groups=1, Max heap=51.2GB/grp for CLX, 102.4GB/grp for ICX; n2-standard-64: Intel CLX CPU @ 2.8GHz OR Intel ICX CPU @2.6GHz, 264GB RAM, Groups=1, Max heap=102.4GB/grp



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

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