

New Oracle® Cloud Infrastructure Bare Metal Instances Deliver Increased Performance for Computational Fluid Dynamics Workloads

Get Greater Return on Your Investment by Selecting Oracle BM.Optimized3.36 Instances Featuring 3rd Gen Intel® Xeon® Scalable Processors for your High Performance Computing Environment

An important tool in solving many engineering problems is computational fluid dynamics (CFD), which simulates the way that fluid flows around structures. Crash simulations are one type of CFD workload. Because these workloads are extremely compute-intensive, engineers often rely on high performance computing (HPC) clusters to deliver the resources these simulations require.

To meet the requirements of CFD and other very demanding workloads, Oracle Cloud Infrastructure (OCI) has introduced a bare-metal HPC solution featuring 3rd Gen Intel® Xeon® Scalable processors. Compared to older BM.HPC2.36 instances that cost the same amount, the new OCI BM.Optimized3.36 instances have many advantages that can speed CFD analysis, such as the latest in optimized processors, low latency networks, and fast local storage.

The LS-DYNA CFD benchmark software includes models that provide simulations of automobile collisions. The 3car model simulates a collision between three cars: a minivan rear-ends a compact car, which in turn hits a mid-size car. As Figure 1 shows, the OCI BM.Optimized3.36 instances enabled by 3rd Gen Intel Xeon Scalable processors ran the simulation in less time, as much as 24% less time than the older instances required.

LS-DYNA 3cars 3.36 vs 2.36

Lower is better

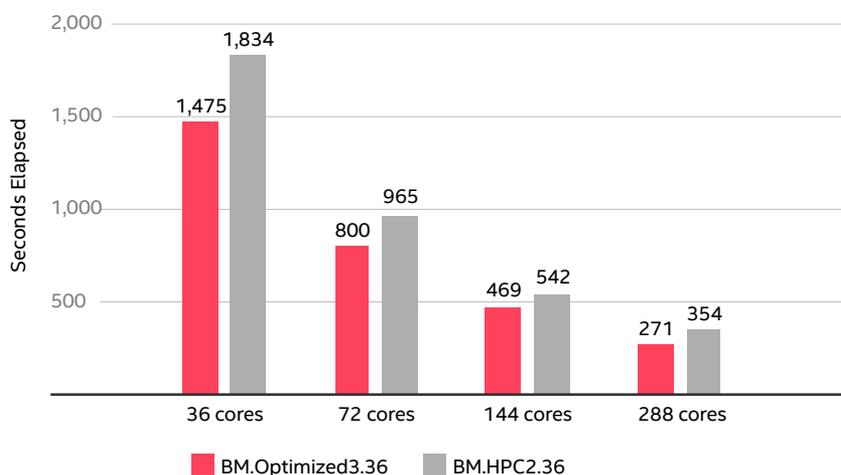


Figure 1. Time in seconds to complete the 3car model in LS-DYNA for both instance types at various core counts. Lower is better.

HPC-CFD

Reduce the Time to Complete Collision Simulations by up to 24% with BM.Optimized3.36 instances

vs. older BM.HPC2.36 instances

Get Better Performance at No Additional Cost by Selecting Bare Metal HPC instances Featuring 3rd Gen Intel Xeon Scalable Processors

The LS-DYNA car2car model simulates a head-on collision between two cars. As Figure 2 shows, the OCI BM.Optimized3.36 instances featuring 3rd Gen Intel® Xeon® Scalable processors again ran the simulation in less time, as much as 24% less time than the older instances required.

LS-DYNA car2car 3.36 vs 2.36

Lower is better

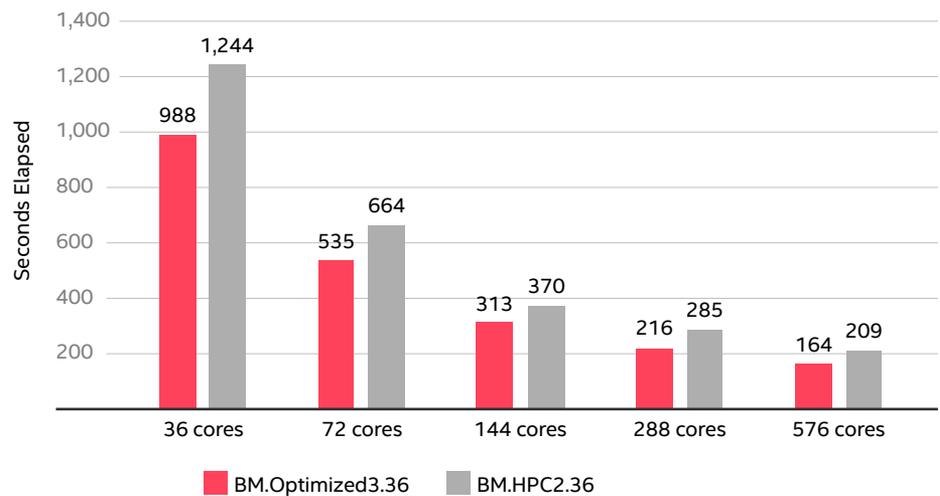


Figure 2. Time in seconds to complete the car2car model in LS-DYNA for both instance types at various core counts. Lower is better.

New OCI BM.Optimized3.36 Instances Let You Complete Workloads in Less Time While Spending the Same Amount

Oracle is using the same pricing structure for both the new OCI BM.Optimized3.36 instances and the older BM.HPC2.36 instances we tested. That means you can get improved technology and performance, along with improved security features inherent in the latest chips, without spending extra. That's a very compelling reason to go with the new instances.

Oracle + Intel = Bare Metal Instances with Flexible Compute Capabilities

The partnership between Intel and Oracle enables new flexible compute capabilities in the bare metal instances powered by 3rd Gen Intel Xeon processors. Admins can select the specific core and memory requirements that are appropriate for their workload needs. Their organizations get a best-of-both-worlds solution that combines the benefits of bare metal with the flexibility and convenience of the cloud.

Conclusion

If you run complex CFD workloads in HPC cloud instances, it's important to choose ones that offer the best combination of performance and value. In tests, new OCI BM.Optimized3.36 instances with 3rd Gen Intel Xeon Scalable processors completed complex simulations in less time than older BM.HPC2.36 instances, despite the fact that the two instances cost the same amount. The opportunity to solve engineering problems in less time without incurring additional operational expenses makes the new OCI BM.Optimized3.36 instances with 3rd Gen Intel Xeon Scalable processors a very attractive option.

Learn More

To begin running your computational fluid dynamics simulations on Oracle Cloud Infrastructure Bare Metal HPC Instances with 3rd Gen Intel Xeon Scalable processors, visit <https://www.oracle.com/cloud/hpc/>.

To read more about this OCI HPC testing, visit [this Oracle blog](#).



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 backup for configuration details. No product or component can be absolutely secure. Your costs and results may vary.

Intel technologies may require enabled hardware, software or service activation.

© Intel Corporation. Intel, the Intel logo, and other Intel marks are trademarks of Intel Corporation or its subsidiaries. Other names and brands may be claimed as the property of others.

Printed in USA 1221/JO/PT/PDF US001

