

# Exceeding the Expectations of AI Performance Through MLPerf

## Article

### Lenovo AI is building momentum

Achieving success at the highest standards is not simply measured by achieving one single goal and riding off into the sunset on that merit alone. Success is measured by constant improvement and enhancements, which in the world of Artificial Intelligence (AI) means everything to the end user. AI requires significant processing power for its tasks and proving such capabilities requires a respected and establish partner to benchmark.

MLCommons has been a partner of Lenovo AI for 2 years now with a mission to “build fair and useful benchmarks” creating unbiased evaluations on the inference and training of hardware, software, and services. The benchmarking is known as MLPerf, which is becoming an industry standard for performance qualification.

Lenovo AI has continually improved their results quarter after quarter by improving the performance results of their submissions. Through this partnership Lenovo can confidently showcase industry setting standards of their hardware and software, which in return helps customers identify the best solutions for their environments.

### MLPerf Inference v3.0 highlights

The highlights for MLPerf Inference v3.0 include the following:

- Support for NVIDIA A100 GPUs on MLPerf Inference v3.0 AI Benchmark
- Optimized Lenovo Server for AI:
  - Lenovo ThinkSystem SR670 V2 with 8x NVIDIA A100 80GB PCIe GPUs

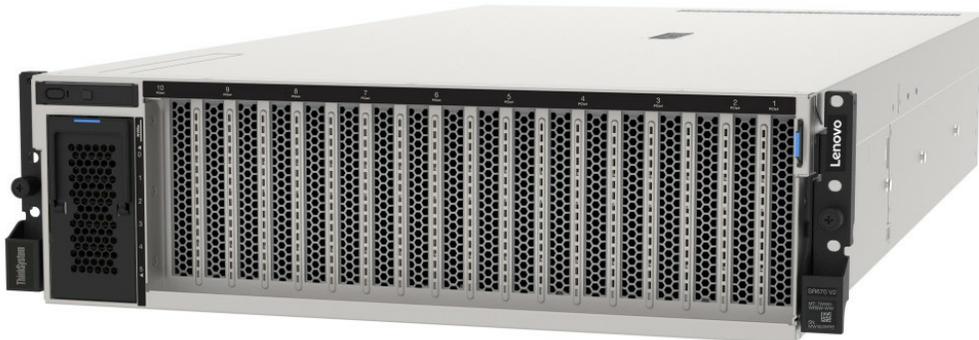


Figure 1. Lenovo ThinkSystem SR670 V2 configured to support eight double-wide GPUs

## MLPerf results

Lenovo AI achieved astounding results in the MLPerf Inference v3.0 benchmarking results, winning 7 out of 10 scenarios in that category.

- Resnet50 Server – Queries 275,034.00 (Category Leader)
- 3D-UNet 99 – Offline Samples 28.5854 (Category Leader)
- 3D-UNet 99.9 – Offline Samples 28.5854 (Category Leader)
- RNNT
  - Server Queries - 98,598.90 (Category Leader)
  - Offline Samples – 106,757.00 (Category Leader)
- BERT 99 Server – Queries 24,305.00 (Category Leader)
- BERT 99.9 Server – Queries 11,798.40 (Category Leader)

## Lenovo collaborates with NVIDIA

Lenovo demonstrated AI performance across various infrastructure configurations, running on Lenovo ThinkSystem platforms. We showcased the efficiency and performance of our air-cooled systems, providing both PCIe and HGX deployment options in a standard data center platform that enterprises of all sizes can quickly deploy.

Lenovo collaborates extensively with NVIDIA in the AI realm. Through our Lenovo AI Innovation Centers, we're working with NVIDIA to ensure the success of our mutual customers' AI initiatives. This provides customers with access to Lenovo and NVIDIA AI experts to aid with consulting on projects, the proper infrastructure to run a proof of concept, and proof of ROI before deployment. As the AI world continues to evolve, collaborations make coming to market an easier and more effective process.

## For more information

For more information, see the following resources:

Explore Lenovo AI solutions:

<https://www.lenovo.com/us/en/servers-storage/solutions/analytics-ai/>

Engage the Lenovo AI Center of Excellence:

<https://lenovoaicodelab.atlassian.net/servicedesk/customer/portal/3>

MLCommons®, the open engineering consortium and leading force behind MLPerf, has now released new results for MLPerf benchmark suites:

- Benchmark results: <https://mlcommons.org/en/inference-datacenter-30/>
- MLCommons: <https://mlcommons.org/en/news/mlperf-inference-1q2023/>

## Author

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## Related product families

Product families related to this document are the following:

- [Artificial Intelligence](#)
- [MLPerf Benchmark](#)
- [ThinkSystem SR670 V2 Server](#)

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