

ThinkEdge SE100 with NVIDIA RTX 2000E Ada GPU Delivers Exceptional MLPerf 5.1 Results for Edge AI in Retail

Article

Imagine walking into a modern retail store where AI seamlessly enhances the shopping experience. Smart cameras count foot traffic, monitor shelf inventory, and analyze customer behavior—all in real time. Behind the scenes, this is powered by **Lenovo's ThinkEdge SE100** equipped with the **NVIDIA RTX 2000E Ada GPU**, delivering **industry-leading performance** as demonstrated in the latest MLPerf v5.1 Inference benchmark.



Figure 1. ThinkEdge SE100 edge server

Real-World Retail Use Case: AI at the Edge

Retailers are increasingly deploying edge AI to optimize operations and improve customer engagement. Use cases include:

- **People counting** for traffic analysis and staffing optimization
- **Shelf inventory monitoring** to reduce out-of-stock incidents
- **Behavior analysis** to understand customer preferences and improve layout

These tasks rely on computer vision models like ResNet for classification and RetinaNet for object detection—both included in the MLPerf benchmark suite.

MLPerf v5.1: A Trusted Industry Standard

MLPerf is the gold standard for evaluating machine learning performance across hardware platforms. The Inference Edge suite measures latency and throughput under real-world conditions, ensuring results are:

- Transparent and reproducible
- Representative of diverse workloads
- Relevant to edge deployments

SE100 vs. Jetson AGX Orin: Performance That Matters

In MLPerf v5.1, the **SE100 with RTX 2000E Ada GPU** outperformed the **Jetson AGX Orin 64GB** across key models, as shown in the table below.

Table 1. Key benchmark results

Model	Task	SE100 Latency ↓	SE100 Throughput ↑
3D-UNet	Medical Imaging	1.2× faster	1.2× higher
ResNet	Image Classification	2.22× faster	1.45× higher
RetinaNet	Object Detection	1.93× faster	1.2× higher
Stable Diffusion XL	Generative AI	1.53× faster	1.48× higher

Despite having a lower theoretical **AI TOPS** (142 INT8 Sparse TOPS vs. 275), the SE100's real-world performance proves that **MLPerf results matter more than peak specs**.

Why SE100 Is Ideal for Edge AI:

- **Compact and energy-efficient** for deployment in retail environments
- **Low latency** ensures real-time responsiveness
- **High throughput** supports multiple concurrent AI tasks
- **Powered by Intel Ultra 7 255H CPU and RTX 2000E Ada GPU**

Conclusion

The **SE100** is a powerful edge AI solution that delivers **measurable performance gains** in real-world scenarios. Whether you're optimizing retail operations, deploying smart surveillance, or driving automation projects, Lenovo's SE100 stands out as a **reliable, high-performance platform** validated by MLPerf v5.1.

Resources

For more information, see these resources:

- ThinkEdge SE100 Product Guide
<https://lenovopress.lenovo.com/lp1995-lenovo-thinkedge-se100-server>
- ThinkSystem NVIDIA RTX 2000E Ada 16GB PCIe Active GPU Product Guide:
<https://lenovopress.lenovo.com/lp2207-thinksystem-nvidia-rtx-2000e-ada-16gb-pcie-active-gpu>
- Intel Arc Pro B-Series GPUs and Xeon 6 Shine in MLPerf Inference v5.1:
<https://newsroom.intel.com/artificial-intelligence/intel-arc-pro-b-series-gpus-and-xeon-6-shine-in-mlperf-inference-v5-1>
- Intel Arc Pro B-Series GPUs and Xeon 6 Shine in MLPerf Inference v5.1:
<https://www.techpowerup.com/340826/intel-arc-pro-b-series-gpus-and-xeon-6-shine-in-mlperf-inference-v5-1>

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Related product families

Product families related to this document are the following:

- [MLPerf Benchmark](#)
- [ThinkEdge SE100 Server](#)

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