

NVIDIA Grace Superchip: Superior Performance and Energy Efficiency in Lenovo HR650N Server

Article

To demonstrate the superior performance of the NVIDIA Grace superchip, Lenovo conducted benchmark tests comparing Grace with other leading architectures using an open-source crash simulation software. This article introduces the results that highlight Grace's exceptional efficiency and processing power.

The Study

Running OpenRadioss, a Lenovo HR650N server with NVIDIA Grace superchip's performance and energy efficiency were weighed against the reference architecture for the software. OpenRadioss is free, publicly available FEA (finite element analysis) software for simulation of impact, shock and highly dynamic events.

The Lenovo HR650N Server, announced at NVIDIA GTC in March 2024, is purpose-built for high performance computing based on NVIDIA MGX modular reference design. It offers flexibility for storage and front PCIe slots and supports DPUs. The server showcases the partnership between Lenovo and NVIDIA as they work together to address accelerated workloads.



Figure 1. Lenovo HR650N front view

The Results

The Lenovo HR650N server with NVIDIA Grace superchip outperformed the OpenRadioss's reference architecture with 1.4x better performance. Even more impressively, the server delivered this performance with up to 2.2x better energy efficiency.

Key Takeaway

Computer-Aided Engineering (CAE) customers using FEA codes like OpenRadioss in their data centers can enhance their simulations with Lenovo servers powered by NVIDIA Grace CPU Superchips. This combination not only accelerates simulations but also significantly reduces energy consumption, saving both time and resources.

Learn more about the study by watching the replay of the Lenovo session **Exploring OpenRadioss Performance with NVIDIA Grace Superchip on Lenovo HPC Servers** from the [OpenRadioss User Meeting, September 2024](#).

For more information about how Lenovo and NVIDIA are partnering to deliver best-in-class solutions, visit the [Lenovo-NVIDIA alliance page](#).

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Jarrold Gough serves as the Lenovo ISG Global NVIDIA Alliance Manager, leveraging over eleven years of diverse experience in the IT industry. Throughout his career, he has held various roles spanning sales, engineering, and marketing. Jarrod is dedicated to fostering strategic partnerships, uniting organizations to drive exceptional business outcomes and innovation.

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