



NVIDIA Powers Europe's Fastest Supercomputer

NVIDIA Grace Hopper Platform Boosts Simulation and Training on Jülich's JUPITER Supercomputer to Drive Europe's Scientific Breakthroughs at Exascale Speed

ISC—NVIDIA today announced that the JUPITER supercomputer, powered by the NVIDIA Grace Hopper™ platform, is the fastest in Europe — delivering a more than 2x speedup for high-performance computing and AI workloads compared with the next-fastest system.

Soon capable of running 1 quintillion FP64 operations per second, JUPITER is on track to be Europe's first exascale supercomputer. The system enables faster simulation, training and inference of the largest AI models — including for climate modeling, quantum research, structural biology, computational engineering and astrophysics — empowering European enterprises and nations to drive scientific discovery and innovation.

Among the top five systems on the TOP500 list of the world's fastest supercomputers, JUPITER is the most energy efficient, at 60 gigaflops per watt.

Comprising nearly 24,000 [NVIDIA GH200 Grace Hopper Superchips](#) and interconnected with the [NVIDIA Quantum-2 InfiniBand](#) networking platform, JUPITER is expected to reach over 90 exaflops of AI performance and is based on Eviden's BullSequana XH3000 liquid-cooled architecture.

JUPITER also incorporates NVIDIA's full stack of software for optimized performance.

"AI will supercharge scientific discovery and industrial innovation," said Jensen Huang, founder and CEO of NVIDIA. "In partnership with Jülich and Eviden, we're building Europe's most advanced AI supercomputer to enable the leading researchers, industries and institutions to expand human knowledge, accelerate breakthroughs and drive national advancement."

Built for Scientific Breakthroughs

Hosted by the Jülich Supercomputing Centre at the Forschungszentrum Jülich facility in Germany, JUPITER is owned by the EuroHPC Joint Undertaking.

"With JUPITER's extreme performance, Europe has taken a giant leap into the future of science, technology and sovereignty," said Anders Jensen, executive director of the EuroHPC Joint Undertaking. "JUPITER's computing power will serve as a catalyst for scientific discovery, propelling foundational research across the continent in fields as diverse as climate modeling, energy systems and biomedical innovation."

"JUPITER is a landmark achievement for European science and technology," said Thomas Lippert, codirector of the Jülich Supercomputing Centre. "Powered by NVIDIA's accelerated computing and AI platforms, JUPITER is advancing the frontier of foundation model training and high-performance simulation, enabling researchers across Europe to tackle challenges of unprecedented complexity."

"JUPITER will substantially advance quantum algorithm and hardware development," added Kristel Michielsen, codirector of the Jülich Supercomputing Centre. "Hybrid quantum HPC-computation will profit from powerful tools such as the NVIDIA CUDA-Q platform and the NVIDIA cuQuantum software development kit."

"JUPITER's launch is not just an extraordinary technical success — delivering an exascale machine and Jülich's modular data center in less than nine months — it marks a pivotal moment for European high-performance computing," said Emmanuel Le Roux, senior vice president and global head of advanced computing at Eviden, Atos Group. "It clearly demonstrated the technological leadership of the European Eviden-led consortium, which designed, built and delivered this world-class system."

Early testing of JUPITER was conducted with the Linpack benchmark, which was also used to determine the TOP500 ranking.

The JUPITER supercomputer represents a new generation of computing systems, uniting NVIDIA's end-to-end software stack to solve challenges in areas including:

- **Climate and weather modeling:** Enables high-resolution, real-time environmental simulations and visualization, using the [NVIDIA Earth-2](#) open platform. This contributes to global community initiatives like the Earth Virtualization Engines project, which aims to create a digital twin of the Earth to better understand and address climate change.
- **Quantum computing research:** Advances quantum algorithm and hardware development with powerful tools such as the [NVIDIA CUDA-Q](#)™ platform and the [NVIDIA cuQuantum](#) software development kit.
- **Computer-aided engineering:** Reinvents product design and manufacturing through AI-driven simulation and digital

twin technologies, powered by the [NVIDIA PhysicsNeMo™](#) framework, [NVIDIA CUDA-X™](#) libraries and the [NVIDIA Omniverse™](#) platform.

- **Drug discovery:** Streamlines the creation and deployment of AI models vital to pharmaceutical research through the [NVIDIA BioNeMo™](#) platform, accelerating time to insight in biomolecular science and drug discovery.

German and other European researchers can [apply for access to JUPITER](#).

About NVIDIA

[NVIDIA](#) (NASDAQ: NVDA) is the world leader in accelerated computing.

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