

# NVIDIA Grace Hopper Superchip Powers JUPITER, Defining a New Class of Supercomputers to Propel AI for Scientific Discovery

## NVIDIA GH200 Marks New Era in Supercomputing to Tackle Grand Challenges in Material Science, Climate Research, Drug Discovery and More

**SC23**—NVIDIA today announced that JUPITER — which launches a new class of supercomputers for AI-driven scientific breakthroughs — will be powered by the NVIDIA Grace Hopper™ accelerated computing architecture to deliver extreme-scale computing power for AI and simulation workloads.

Hosted at the Forschungszentrum Jülich facility in Germany, JUPITER — which is owned by the EuroHPC Joint Undertaking and contracted to Eviden and ParTec — is being built in collaboration with NVIDIA, ParTec, Eviden and SiPearl to accelerate the creation of foundational AI models in climate and weather research, material science, drug discovery, industrial engineering and quantum computing.

JUPITER marks the debut of a quad [NVIDIA GH200 Grace Hopper Superchip](#) node configuration, based on Eviden's BullSequana XH3000 liquid-cooled architecture, with a booster module comprising close to 24,000 NVIDIA GH200 Superchips interconnected with the [NVIDIA Quantum-2 InfiniBand](#) networking platform. Being the world's most powerful AI system, JUPITER can deliver over 90 exaflops of performance for AI training — 45x more than Jülich's previous JUWELS Booster system — and 1 exaflop for high performance computing (HPC) applications, while consuming only 18.2 megawatts of power.

The quad GH200 features an innovative node architecture with 288 Arm Neoverse cores capable of achieving 16 petaflops of AI performance using up to 2.3 terabytes of high-speed memory. Four GH200 processors are networked through a high-speed NVIDIA NVLink® connection.

“The JUPITER supercomputer powered by NVIDIA GH200 and using our advanced AI software will deliver exascale AI and HPC performance to tackle the greatest scientific challenges of our time,” said Ian Buck, vice president of hyperscale and HPC at NVIDIA. “Our work with Jülich, Eviden and ParTec on this groundbreaking system will usher in a new era of AI supercomputing to advance the frontiers of science and technology.”

“At the heart of JUPITER is NVIDIA's accelerated computing platform, making it a groundbreaking system that will revolutionize scientific research,” said Thomas Lippert, director of the Jülich Supercomputing Centre. “JUPITER combines exascale AI and exascale HPC with the world's best AI software ecosystem to boost the training of foundational models to new heights.”

“Jülich Supercomputing Centre's JUPITER system is the latest example of the significant strides Eviden's making with the NVIDIA GH200,” said Emmanuel Le Roux, group senior vice president and global head of HPC, AI and quantum at Eviden. “Collaborating with NVIDIA to integrate the revolutionary GH200 into the BullSequana XH3000 supercomputer will empower the research and scientific community to push the boundaries of simulations, tackle scientific challenges and accelerate uncharted discoveries.”

The JUPITER supercomputer defines a new class of supercomputers by combining NVIDIA's full stack of software solutions to solve some of the world's toughest challenges, including in the areas of:

- Climate and weather prediction — Accelerates high-resolution climate and weather simulations with interactive visualization using the [NVIDIA Earth-2](#) full-stack, open platform to participate in global projects such as the Earth Virtualization Engines (EVE) initiative.
- Drug discovery — Simplifies and speeds up the development and deployment of models critical to drug discovery using the [NVIDIA BioNeMo™](#) and [NVIDIA Clara™](#) platforms.
- Quantum computing technologies — Delivers giant leaps in quantum computing research through the NVIDIA [cuQuantum](#) software development kit and [CUDA® Quantum](#) platform.
- Industrial engineering — Transforms the engineering design, development and manufacturing processes with AI-accelerated simulation and digital twins powered by the [NVIDIA Modulus](#) framework and [NVIDIA Omniverse™](#) platform.

Installation of the JUPITER system is expected in 2024.

Watch NVIDIA's [SC23 special address](#) featuring Buck and professor Kristel Michielsens from the Jülich Supercomputing Centre to learn more about the JUPITER supercomputer.

## About NVIDIA

Since its founding in 1993, [NVIDIA](https://nvidianews.nvidia.com/) (NASDAQ: NVDA) has been a pioneer in accelerated computing. The company's invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined computer graphics, ignited the era of modern AI and is fueling industrial digitalization across markets. NVIDIA is now a full-stack computing company with data-center-scale offerings that are reshaping industry. More information at <https://nvidianews.nvidia.com/>.

Certain statements in this press release including, but not limited to, statements as to: JUPITER being powered by NVIDIA Grace Hopper; the benefits, impact, and performance of JUPITER, the NVIDIA GH200 Grace Hopper Superchip, NVIDIA Quantum-2 InfiniBand, and NVIDIA NVLink; JUPITER delivering exascale AI and HPC performance to tackle the greatest scientific challenges of our time; NVIDIA's work with Jülich and Eviden ushering in a new era of AI supercomputing to advance the frontiers of science and technology; JUPITER and NVIDIA's accelerated computing platform revolutionizing scientific research; and the timing of the installation of JUPITER are forward-looking statements that are subject to risks and uncertainties that could cause results to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners' products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems; as well as other factors detailed from time to time in the most recent reports NVIDIA files with the Securities and Exchange Commission, or SEC, including, but not limited to, its annual report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports filed with the SEC are posted on the company's website and are available from NVIDIA without charge. These forward-looking statements are not guarantees of future performance and speak only as of the date hereof, and, except as required by law, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances.

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