



# NVIDIA and Samsung Build AI Factory to Transform Global Intelligent Manufacturing

## New AI Factory With 50,000 NVIDIA GPUs to Accelerate Agentic and Physical AI Applications for Advanced Chip Manufacturing, Mobile Devices and Robotics

### News Summary:

- Samsung and NVIDIA are building on a deep partnership of more than 25 years to extend their semiconductor collaboration from next-generation HBM and custom solutions to foundry services for manufacturing, AI and robotics.
- Samsung and NVIDIA are working together to innovate breakthroughs for next-generation semiconductors, as well as to power Samsung products and services across smartphones and robotics.
- Samsung is accelerating its chipmaking OPC lithography platform with NVIDIA CUDA GPU-accelerated infrastructure for chip manufacturing, achieving 20x performance gains in computational lithography and technology computer-aided design simulations.
- Samsung is building digital twins with NVIDIA Omniverse for global fabs to shorten time from design to operations and enable AI-driven predictive maintenance, operational optimization and real-time decision-making.
- Samsung is harnessing NVIDIA GPUs, NVIDIA CUDA-X libraries and solutions from Synopsys, Cadence and Siemens to achieve massive speedups in simulation, verification and manufacturing analysis.

**APEC Summit**—NVIDIA today announced plans with Samsung Electronics to build a new AI factory, representing a new era where intelligent computing and chip manufacturing converge. The state-of-the-art AI factory will combine Samsung's semiconductor technologies with NVIDIA platforms to establish the foundation of next-generation, AI-driven production.

Powered by more than 50,000 NVIDIA GPUs, Samsung's semiconductor AI factory will be a centerpiece of the company's digital transformation, integrating accelerated computing directly into full-fledged advanced chip manufacturing.

Through this collaboration, Samsung and NVIDIA are setting a global benchmark for AI-driven semiconductor manufacturing at scale, integrating data from physical equipment and production workflows to achieve predictive maintenance, process improvements and increased operational efficiency in autonomous fab environments.

"We are at the dawn of the AI industrial revolution — a new era that will redefine how the world designs, builds and manufactures," said Jensen Huang, founder and CEO of NVIDIA. "As Korea's and one of the world's foremost technology and industrial leaders, Samsung is forging its AI foundation with NVIDIA to lead the future of intelligent and autonomous manufacturing — transforming Samsung itself and the many industries around the world built on Samsung technologies."

"NVIDIA has been a visionary of this new AI era, and its technologies have empowered innovators to reinvent industries," said Jay Y. Lee, executive chairman of Samsung Electronics. "From Samsung's DRAM for NVIDIA's game-changing graphics card in 1995 to our new AI factory, we are thrilled to continue our longstanding journey with NVIDIA in leading this transformation as we envision creating new standards for the future and accelerating breakthroughs for the world."

From their first collaboration on NVIDIA's first graphics card NV1 with Samsung's DRAM to introducing the industry's first commercial HBM, and a key supply collaboration for HBM3E and HBM4 today, the companies celebrate a strong alliance spanning more than 25 years that has helped create the foundation for today's AI transformation. The companies will continue their semiconductor collaboration beyond HBM, GDDR, high-density memory modules, SOCAMM and custom solutions as well as foundry services to support the broader ecosystem.

Samsung is harnessing NVIDIA GPUs, [NVIDIA CUDA-X™](#) libraries and solutions from Synopsys, Cadence and Siemens to achieve massive speedups in circuit simulation, verification and manufacturing analysis. The companies are collaborating with these electronic design automation partners to innovate chip design, and will continue to reshape GPU-accelerated EDA tools and design technologies necessary for the AI era.

Samsung uses the [NVIDIA Omniverse™](#) platform as the foundation for its [digital twins](#), which provide physically accurate simulation environments. This virtual environment allows global fabs to shorten the time from design to operations and achieve AI-driven predictive maintenance, real-time decision-making and factory automation.

To speed intelligent logistics with a unified platform, Samsung is deploying [NVIDIA RTX PRO™ Servers](#) with [NVIDIA RTX PRO 6000 Blackwell Server Edition GPUs](#). The real-time digital twin of the Samsung fab will enable operational planning, anomaly detection and logistics optimization — a significant step toward a fully autonomous fab.

To accelerate computational lithography — the most computationally intensive workload in the semiconductor manufacturing process — the companies are integrating the [NVIDIA cuLitho](#) library into Samsung's advanced lithography platform, OPC.

The collaboration has led to 20x greater performance and scalable deployment across semiconductor manufacturing.

### **Samsung Accelerates Smart Manufacturing With Digital Twins, Robotics and Generative AI**

Samsung has been building its proprietary AI models powering more than 400 million Samsung devices with access to advanced reasoning capabilities, delivering breakthrough performance in real-time translation, multilingual interactions and intelligent summarization.

Samsung is charting the future of intelligent robotics across manufacturing automation and humanoid robot applications using NVIDIA robotics technologies on NVIDIA RTX PRO Servers.

To accelerate intelligent robot deployment, Samsung is using the [NVIDIA Isaac Sim](#)™ reference application, built on NVIDIA Omniverse and [NVIDIA Cosmos](#)™ world foundation models, to connect synthetic and real data, middleware and teleoperation, as well as the [NVIDIA Jetson Thor](#)™ high-performance edge AI platform optimized for humanoid robotics. Combined, these technologies enable the deployment of robots that can understand and interact with the physical world in real time.

NVIDIA and Samsung also worked with Korean telco operators and academic institutions to develop AI-RAN network technology, bringing together AI and mobile network workloads, which will be necessary for the adoption of physical AI.

### **About NVIDIA**

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

Certain statements in this press release including, but not limited to, statements as to: the AI industrial revolution redefining how the world designs, builds and manufactures; as Korea's and one of the world's foremost technology and industrial leaders, Samsung forging its AI foundation with NVIDIA to lead the future of intelligent and autonomous manufacturing — transforming Samsung itself and the many industries around the world built on Samsung technologies; the benefits, impact, performance, and availability of NVIDIA's products, services, and technologies; expectations with respect to NVIDIA's third party arrangements, including with its collaborators and partners; expectations with respect to technology developments; and other statements that are not historical facts are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which are subject to the "safe harbor" created by those sections based on management's beliefs and assumptions and on information currently available to management and 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 and political conditions; NVIDIA's reliance on third parties to manufacture, assemble, package and test NVIDIA's products; the impact of technological development and competition; development of new products and technologies or enhancements to NVIDIA's existing product and technologies; market acceptance of NVIDIA's products or NVIDIA's partners' products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of NVIDIA's products or technologies when integrated into systems; and changes in applicable laws and regulations, 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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