Synopsys Accelerates Chip Design with NVIDIA Grace Blackwell and AI to Speed Electronic Design Automation

Announcing Up to 30x Projected Performance Gains on the NVIDIA Grace Blackwell Platform to Speed Circuit Simulations for Next-Generation Semiconductors

News Highlights:

- Today's GTC keynote featured Synopsys as part of the ecosystem with full-stack EDA suite acceleration across design, verification, and manufacturing on NVIDIA GPU and NVIDIA CUDA-X libraries.
- Leveraging the NVIDIA GB200 Grace Blackwell Superchip, Synopsys PrimeSim is projected to accelerate circuit simulation by up to 30x.[1]
- Leveraging the NVIDIA B200 Blackwell architecture, Synopsys Proteus is projected to accelerate computational lithography simulations by up to 20x.[1]
- NVIDIA NIM inference microservices integration driving 2x faster time-to-information with generative AI-powered Synopsys.ai Copilot.[2]
- Optimizing more than 15 Synopsys solutions for NVIDIA Grace CPU in 2025.

SUNNYVALE, Calif., March 18, 2025 /PRNewswire/ -- Synopsys Inc. (Nasdaq: SNPS) today announced the next phase of its work with NVIDIA to accelerate chip design up to 30x with the NVIDIA Grace Blackwell platform.

To achieve this speedup, Synopsys announced at the GTC global AI conference that it is using NVIDIA CUDA-X libraries to optimize its solutions for next-generation semiconductor development. The company is also expanding support for the NVIDIA Grace CPU architecture and enabling more than 15 Synopsys solutions in 2025.

"At GTC, we're unveiling the latest performance results observed across our leading portfolio when optimizing Synopsys solutions for the NVIDIA Blackwell platform to accelerate computationally-intensive chip design workflows," said Sassine Ghazi, president and CEO of Synopsys. "Synopsys technology is mission-critical to the productivity and capabilities of engineering teams from silicon to systems. By harnessing the performance of NVIDIA accelerated computing, we can help customers unlock new breakthroughs and deliver innovation even faster."

"Chip design is one of the most complex engineering challenges in human history," said Jensen Huang, founder and CEO of NVIDIA. "With NVIDIA Blackwell and CUDA-X, Synopsys is cutting simulation times from days to hours—advancing chip design to power the AI revolution."

Synopsys and NVIDIA are advancing a multi-year collaborative effort to accelerate electronic design automation (EDA) workloads. Synopsys is further applying NVIDIA accelerated compute architectures, including the NVIDIA GB200 Grace Blackwell Superchip, to achieve significant, projected runtime gains for workflows including circuit simulation, computational lithography, Technology Computer-Aided Design (TCAD), physical verification, and materials engineering. These accelerated workflows include:

- **Circuit Simulation:** Synopsys PrimeSim™ SPICE simulation workloads are projected to achieve a 30x speed up utilizing the NVIDIA Grace Blackwell platform. Today, customers can achieve up to 15x speed up utilizing NVIDIA GH200 Superchips. NVIDIA accelerated computing architectures enable the simulation of challenging circuits to achieve signoff with SPICE-level accuracy, reducing runtimes from days to hours.
- **Computational Lithography:** The production-proven choice for accelerating computational lithography for more than two decades, Synopsys Proteus™ provides optical proximity correction (OPC) software and inverse imaging technology (ILT) to resolve challenges at leading technology nodes. By leveraging NVIDIA technologies, Synopsys is delivering game-changing technology to advance this computationally-intensive manufacturing process. Today, Synopsys Proteus is optimized for NVIDIA H100 GPUs and integrated with the NVIDIA cuLitho library, achieving a 15x speed up of OPC. Leveraging the NVIDIA Blackwell platform, Synopsys Proteus is expected to accelerate computational lithography simulations by up to 20x.
- **TCAD Simulation:** Early results applying GPU-enabled capabilities and NVIDIA CUDA-X libraries to the Synopsys Sentaurus™ TCAD process and device simulation solution is projected to accelerate time to results up to 10x. This solution is currently under development and is expected to be available to customers later this year.
- **Materials Engineering:** Synopsys QuantumATK® delivers atomic-scale modeling for semiconductor and materials research and development. Utilizing CUDA-X libraries on the NVIDIA Hopper architecture can accelerate time to results up to 100x, enabling customers to simulate and analyze a wide range of materials with greater efficiency.

Synopsys plans to continue enabling accelerated computing on NVIDIA platforms throughout its portfolio.

Advancing Synopsys Solutions with NVIDIA AI Software
Synopsys and NVDIA's efforts to accelerate chip design extend to speeding chip design with generative AI using NVIDIA NIM microservices:

- Generative AI Software for Chip Design: Today, customers using Synopsys' Gen AI-powered knowledge assistant, Synopsys.ai Copilot, are realizing an average 2x productivity improvement compared to prior methods. The integration of NVIDIA NIM microservices is projected to enable an additional 2x speedup for even faster time to answers.[2]

Optimizing Synopsys EDA with Grace CPU

- Additionally, Synopsys is enabling more than 15 solutions using the Grace CPU architecture for Synopsys EDA workloads spanning circuit simulation, physical verification, static timing analysis, and functional verification. The company plans to further increase support on the Grace CPU architecture in 2025.

Synopsys at GTC 2025
Synopsys is demonstrating at GTC 2025 March 18th through 21st in booth #222 in the Design and Simulation Pavilion. The company is also presenting sessions on semiconductor manufacturing and materials engineering and AI-driven chip design. For more information about Synopsys' presence at GTC, visit https://www.synopsys.com/events/nvidia-gtc.html.

[1] Compared to CPU-based models.
[2] Synopsys.ai Copilot knowledge assistance without NVIDIA NIM integration.

About Synopsys
Catalyzing the era of pervasive intelligence, Synopsys, Inc. (Nasdaq: SNPS) delivers trusted and comprehensive silicon to systems design solutions, from electronic design automation to silicon IP and system verification and validation. We partner closely with semiconductor and systems customers across a wide range of industries to maximize their R&D capability and productivity, powering innovation today that ignites the ingenuity of tomorrow. Learn more at www.synopsys.com.

Forward-Looking Statements
This press release contains forward-looking statements, including, but not limited to, statements regarding strategies related to products, technology and services and planned product releases and capabilities. These statements involve risks, uncertainties and other factors that could cause our actual results, time frames or achievements to differ materially from those expressed or implied in such forward-looking statements. Such risks, uncertainties and factors that could affect Synopsys' results is included in filings we make with the SEC from time to time, including in the sections entitled "Risk Factors" in our latest Annual Report on Form 10-K and in our latest Quarterly Report on Form 10-Q. The information provided herein is as of March 18, 2025. Synopsys undertakes no duty to, and does not intend to, update any forward-looking statement, whether as a result of new information, future events or otherwise, unless required by law.

Editorial Contact
Kelli Wheeler
Synopsys, Inc.
corp-pr@synopsys.com

SOURCE Synopsys, Inc.

Additional assets available online: