



Silvaco to Accelerate Physics-Based Digital Twins for Semiconductor Design and Manufacturing Using NVIDIA AI and Accelerated Computing

July 27, 2026

Silvaco is integrating NVIDIA accelerated computing and AI with its physics-based simulation portfolio to advance digital twins for semiconductor design and manufacturing

SANTA CLARA, Calif., July 26, 2026 (GLOBE NEWSWIRE) -- Silvaco Group, Inc. (Nasdaq: SVCO) ("Silvaco"), a leading provider of TCAD, EDA software, and semiconductor IP solutions, and NVIDIA, a global leader in accelerated computing and AI, today announced a collaboration to advance next-generation digital twins for semiconductor design and manufacturing using NVIDIA accelerated computing and AI.

Silvaco is combining decades of physics-based modeling expertise with NVIDIA's accelerated computing, CUDA-X™ libraries, PhysicsNeMo, Omniverse libraries, and Nemotron open models to help customers build, train, and deploy high-fidelity digital twins capable of predicting, optimizing, and validating complex semiconductor systems with unprecedented speed and accuracy.

Together, Silvaco's physics-based simulation portfolio and NVIDIA accelerated computing and AI will help customers design, simulate and optimize increasingly complex semiconductor technologies.

Partnership Focus Areas

GPU-Accelerated Physics Simulation

Silvaco intends to use NVIDIA accelerated computing and CUDA-X™ libraries to accelerate its semiconductor device, process, photonics, and multiphysics simulation solutions, enabling dramatic reductions in simulation runtimes and increased design productivity. As an early proof point, Silvaco completed a fully scaled 3D FDTD simulation of a photonic edge coupler with 3.2 billion mesh nodes on 32 NVIDIA GPUs connected with NVLink in under four hours. The workload did not converge on CPUs, and the result achieved less than 0.15 dB difference between measurement and simulation.

AI-Driven Surrogate Modeling

Silvaco intends to leverage NVIDIA PhysicsNeMo to develop customizable AI surrogate models that complement high-fidelity physics simulation and accelerate exploration of design alternatives.

Digital Twin Visualization and Collaboration

Silvaco plans to connect its digital twin environment with NVIDIA Omniverse libraries™ and NVIDIA Cosmos™ to deliver collaborative, real-time visualization and simulation environments spanning semiconductor fabs, manufacturing systems, robotics platforms and infrastructure applications to provide interactive visualization and collaboration across semiconductor design and manufacturing workflows.

Scaled Engineering Workflows

Silvaco aims to establish cloud-native workflows that support design, testing, and validation across distributed teams and compute environments.

Delivering Measurable Customer Value

By combining the technologies, Silvaco expects to help customers:

- **Reduce Simulation Cycles from Weeks to Days**
GPU-accelerated simulation and AI-driven modeling will enable faster design iterations and reduced time-to-market.
- **Improve Accuracy and Insight**
High-fidelity digital twins will provide deeper visibility into system performance, enabling more precise validation and optimization.
- **Scale Engineering and Collaboration**
Cloud-based visualization and AI-driven workflows will enable global teams to collaborate more efficiently and execute complex simulations at scale.

"The convergence of physics-based simulation, accelerated computing, and artificial intelligence is transforming design and manufacturing," said Walden C. Rhines, President and Chief Executive Officer of Silvaco. "By combining Silvaco's deep expertise in semiconductor and multiphysics digital twins with NVIDIA's industry-leading computing and AI platforms, we can help customers model increasingly complex systems with greater speed, fidelity, and confidence. Together, we are positioning the industry for a future where AI-powered digital twins can fundamentally transform how semiconductor technologies are designed, validated, and optimized."

"Digital twins are becoming essential tools for engineering and manufacturing innovation," said Da Yang, senior director of product, semiconductor and EDA at NVIDIA. "By using NVIDIA AI, open models, libraries and accelerated computing, Silvaco is connecting high-fidelity simulation, helping customers move faster from modeling to insight across semiconductor design and manufacturing."

The combination of Silvaco and NVIDIA solutions is expected to enable advanced digital twin applications including:

- Semiconductor process, device, packaging, and photonics simulation
- AI-assisted development of next-generation chips and advanced nodes
- Factory optimization and predictive manufacturing

This collaboration brings together Silvaco's semiconductor modeling expertise with NVIDIA accelerated computing and AI to advance high-fidelity simulation, AI surrogate models, and digital twins across semiconductor design and manufacturing.

About Silvaco

Silvaco is a provider of AI-enabled TCAD and EDA solutions, and SIP solutions that enable semiconductor design and digital twin modeling through AI software and innovation. Silvaco's solutions are used for semiconductor and photonics processes, devices, and systems development across display, power devices, automotive, memory, high-performance compute, foundries, photonics, internet of things, and 5G/6G mobile markets for complex SoC design. Silvaco is headquartered in Santa Clara, California, and has a global presence with offices located in North America, Europe, Brazil, China, Egypt, Japan, Korea, Singapore, Taiwan, and Vietnam. Learn more at [silvaco.com](https://www.silvaco.com).

Safe Harbor Statement

This press release contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, each as amended, that are intended to be covered by the "safe harbor" provisions of those sections. Forward-looking statements give our current expectations and projections relating to our financial condition, results of operations, plans, objectives, future performance and business and can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements are typically identified by the use of words such as "anticipate," "expect," "intend," "plan," "believe," "estimate," "potential," "continue" and similar expressions, although not all forward-looking statements contain these words. These statements are based on the Company's current expectations and assumptions and are subject to risks, uncertainties and other factors, including those described in the Company's most recent Quarterly Report on Form 10-Q and other filings with the Securities and Exchange Commission. These factors may cause actual results to differ materially from those expressed or implied by forward-looking statements. The Company undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise, except as required by law.

Media Contacts

Investor Relations:

investors@silvaco.com

Media Relations:

press@silvaco.com