

NVIDIA and Global Industrial Software Giants Bring Design, Engineering and Manufacturing Into the AI Era

News Summary:

- Cadence, Dassault Systèmes, Siemens and Synopsys are building NVIDIA-powered AI agents to plan, optimize and verify complex chip and system workflows.
- FANUC, HD Hyundai, Honda, JLR, KION, Mercedes-Benz, MediaTek, PepsiCo, Samsung, SK hynix and TSMC are using NVIDIA CUDA-X and GPU-accelerated industrial software and tools to accelerate industrial design, engineering and manufacturing.
- Amazon Web Services (AWS), Google Cloud, Microsoft Azure and Oracle Cloud Infrastructure (OCI) are delivering NVIDIA GPU-accelerated software for running computational design and engineering at production scale, while leading manufacturers Dell Technologies, HPE and Supermicro ship NVIDIA-accelerated systems for on-premises and hybrid deployments.

GTC—NVIDIA today announced it is working with global industrial software leaders Cadence, Dassault Systèmes, PTC, Siemens and Synopsys to bring NVIDIA CUDA-X™, NVIDIA Omniverse™ and GPU-accelerated industrial software and tools to FANUC, HD Hyundai, Honda, JLR, KION, Mercedes-Benz, MediaTek, PepsiCo, Samsung, SK hynix and TSMC to accelerate design, engineering and manufacturing. These software leaders are also introducing NVIDIA-powered agentic solutions to prepare their customers for the next phase of the AI era.

These solutions are running on NVIDIA AI infrastructure across leading cloud service providers Amazon Web Services (AWS), Google Cloud, Microsoft Azure and Oracle Cloud Infrastructure (OCI) and original equipment manufacturers Dell, HPE and Supermicro for accelerated design and simulation.

“The dawn of a new industrial revolution has arrived, where physical AI and autonomous AI agents are fundamentally reinventing how the world designs, engineers and manufactures,” said Jensen Huang, founder and CEO of NVIDIA. “Uniting our global ecosystem of software giants, cloud providers and OEMs, NVIDIA is delivering a full-stack accelerated computing platform that empowers every industry to turn this vision into reality at a scale and speed never before possible.”

Leading Industrial Software Giants Build Agents to Accelerate Design and Engineering

Industrial engineering is entering an agentic inflection point, as long-running AI agents can now streamline and orchestrate complex industrial design, engineering and manufacturing workflows.

Cadence, Dassault Systèmes, Siemens and Synopsys are accelerating these workflows by bringing agentic AI into their platforms, using the NVIDIA NeMo™ platform, NVIDIA Nemotron™ open models, NVIDIA CUDA-X libraries and NVIDIA accelerated computing to power autonomous design agents for complex chip and system workflows:

- [Cadence](#)’s ChipStack AI SuperAgent combines accelerated electronic design automation (EDA) software with agentic orchestration for the design and verification of semiconductors, including design and testbench coding, test-plan creation and debugging.
- [Dassault Systèmes](#) is building role-based AI agents called Virtual Companions on its 3DEXPERIENCE agentic platform to manage workflows across its entire portfolio of industrial software
- Siemens’ [Fuse EDA AI Agent](#) autonomously orchestrates multiple agents across the entire semiconductor and printed circuit board workflow, from design conception to manufacturing sign-off.
- [Synopsys](#) is building its AgentEngineer multi-agent framework for semiconductor and systems design.

Accelerating Automotive Innovation With GPU-Powered Simulation

To accelerate next-generation vehicle design, NVIDIA is partnering with Siemens and Synopsys to deliver GPU-accelerated tools for computational fluid dynamics (CFD) and electromagnetics. These solutions replace weekslong CPU simulations with high-fidelity virtual testing, enabling faster iteration and reduced time to market.

Honda is using Synopsys’ Ansys Fluent, accelerated by the NVIDIA Grace Blackwell platform, to run aerodynamic simulations 34x faster than using CPUs, contributing to shorter development cycles.

JLR and Mercedes-Benz are harnessing Siemens’ Simcenter STAR-CCM+ software on NVIDIA-accelerated infrastructure to transform engineering workflows. JLR runs the platform on AWS to enhance vehicle aerodynamics.

Dassault Systèmes’ SIMULIA Abaqus and PowerFlow, accelerated by NVIDIA AI infrastructure, are used to support Rivian’s vehicle simulation testing.

Revolutionizing Aerospace Design Through High-Fidelity Virtual Testing

Aerospace engineering demands some of the most complex CFD simulations, such as simulating aircrafts during takeoff. With NVIDIA-accelerated solvers from [Cadence](#), organizations can run high-fidelity simulations at scale, enabling previously impractical workflows and unlocking new designs for space exploration.

Ascendancy is using Cadence Fidelity on NVIDIA GPUs on Oracle Cloud to simulate hybrid electric propulsion and vertical takeoff and landing aircraft scenarios, enabling same-day full aerodynamic simulation campaigns that are not possible with large CPU-based high-performance computing.

Accelerating the Global Energy Transition

Energy leaders are adopting GPU-accelerated CFD workflows on NVIDIA AI infrastructure across cloud and on-premises environments to cut simulation turnaround times, boost throughput and overcome the limits of CPU-only computing — accelerating gas turbine innovation for cleaner energy solutions.

Solar Turbines is harnessing Cadence Fidelity on Dell infrastructure to complete 360-degree, billion-cell combustor simulations in just 14 hours.

Argonne uses Cadence Fidelity on the Polaris supercomputer, built by HPE and accelerated by NVIDIA A100 GPUs, to enable high-fidelity combustion simulations for advanced energy and propulsion research.

Accelerated Computing Fuels the Next Era of Semiconductor Innovation

As semiconductor design enters the trillion-transistor era beyond Moore's law, CPU-based workflows can no longer keep pace — driving industry leaders to adopt NVIDIA-accelerated tools from Cadence, Siemens and Synopsys to advance electronic design automation.

Samsung and SK hynix are using Cadence Pegasus, Synopsys PrimeSim and Siemens' Calibre software on NVIDIA-accelerated Dell PowerEdge servers and HPE systems to streamline high-volume computational lithography and physical verification, accelerating DRAM and flash memory production.

Astera Labs uses Synopsys PrimeSim B200 GPU-accelerated EC2 on AWS to speed chip design by 3.5x over CPU-only systems, accelerating validation and time to market for next-generation connectivity solutions. MediaTek is accelerating Cadence Spectre by 6x, with the power of NVIDIA H100 GPUs, to build its AI future with an on-premises AI factory powered by NVIDIA.

TSMC is using Synopsys tools on HPE and Supermicro systems to accelerate critical workloads for advanced manufacturing.

Micron is accelerating next-generation high-bandwidth memory development by expanding its collaboration with Cadence, adopting NVIDIA GPU-accelerated design tools and integrating agentic AI to boost efficiency across its complex memory design workflows.

Transforming Manufacturing and Logistics Through Industrial Digital Twins

NVIDIA and its industrial ecosystem partners are accelerating the digitalization of product lines, factories, warehouses and shipyards, using high-fidelity industrial digital twins to connect virtual planning with real-world execution.

[Siemens'](#) newly launched Digital Twin Composer leverages NVIDIA Omniverse libraries to enable companies like Foxconn, HD Hyundai, PepsiCo and KION to build industrial metaverse environments at scale, empowering organizations to apply industrial AI, simulation and real-time physical data to make decisions virtually, at speed and at scale.

Krones is using Ansys Fluent on Microsoft Azure to power physics-accurate, AI-driven digital twins with NVIDIA Omniverse, CUDA-X and GPU-accelerated simulation to cut bottling-line simulation times from hours to minutes.

[PTC](#) is [announcing a new robotics design-to-simulation workflow](#) from its cloud-native [Onshape](#) computer-aided design (CAD) and product data management platform to NVIDIA Isaac Sim™, creating a seamless CAD-to-OpenUSD bridge that will enable engineering teams like FANUC America Corporation and Fauna Robotics to design and validate their robotic systems within physically accurate digital twins.

KION is working with Siemens, NVIDIA and Accenture to advance autonomous warehouse solutions. Using NVIDIA Omniverse and a physical AI-powered digital twin and systems architecture pioneered by Accenture, KION engineers create large-scale, physics-accurate warehouse digital twins to train and test fleets of NVIDIA Jetson™-based autonomous forklifts for GXO, the world's largest pure-play contract logistics provider.

Watch the [GTC keynote](#) from Huang and explore [sessions](#).

Featured image courtesy of Siemens, KION, Accenture, GXO (top left), Synopsys, Honda (top right), Cadence, Honda R&D (bottom left) and PTC, FANUC (bottom right).

About NVIDIA

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

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