Innatera Selects Synopsys Simulation to Scale Brain-Inspired Processors for Edge Devices

Innatera adopts Synopsys simulation technology to help design neuromorphic chips that enable low-power AI for wearables, smart home devices, and digital twin industrial sensors

Key Highlights

- Synopsys helps Innatera design chips that enable real-time, energy-efficient AI processing at the edge, catalyzing the development of next-generation applications in physical AI
- Synopsys PathFinder-SC™ signoff solution delivers improved precision for more accurate layout-level outcomes, expertly manages design requirements, and enables early-phase analysis
- Synopsys Totem™ power integrity platform enables transistor-level analysis for reliable power delivery and performance optimization for ultra-low-power AI processors

SUNNYVALE, Calif., March 2, 2026 /PRNewswire/ -- Innatera, the leader in brain-like neuromorphic computing for ultra-low-power intelligence at the sensor edge, selected Synopsys, Inc. (NASDAQ: SNPS) for design and validation of its next-generation neuromorphic microcontrollers. Synopsys' reliable solutions for electrostatic discharge (ESD) and power integrity analysis will help Innatera scale its operations to meet the growing demand for edge processing in industrial sensors, robotics, wearables, and smart home technologies.

Neuromorphic microcontrollers process information through Spiking Neural Networks (SNNs) that mimic how biological neurons communicate, delivering brain-inspired intelligence at the sensor edge. This event-driven approach enables real-time, ultra-low-power operation in sensor-rich environments where responsiveness and energy efficiency are critical. Innatera's architecture combines mixed-signal analog computation, dense interconnects, and low-voltage design — key enablers of efficiency but potential sources of electrical noise and ESD sensitivity. To address these challenges and ensure robust performance across complex neuromorphic circuits, Innatera leverages PathFinder-SC and Totem to validate power integrity, manage noise coupling, and maintain reliability without compromising speed or efficiency.

PathFinder-SC simulates ESD events at scale, identifying vulnerabilities and root causes before the final design goes to manufacturing and ensuring chips are functioning optimally against real-world electrostatic occurrences. It also provides early, high-fidelity modeling of analog behavior, empowering designers to validate performance under diverse conditions.

Totem performs detailed power integrity analysis at the transistor level, ensuring reliable power delivery and optimal performance for highly efficient AI tasks. By pairing Totem's high-fidelity modeling of typical operating conditions with PathFinder-SC's capacity to identify and address ESD risks, the solution provides designers with a comprehensive reliability tool — one that protects against both expected and unexpected electrical challenges throughout the chip's life cycle and is backed by robust technical support.

"Innatera's mission to redefine edge AI through neuromorphic computing requires both technological innovation and reliable design collaboration," said Aditya Dalakoti, director of SoC and mixed-signal at Innatera. "Synopsys stood out for its leading technology and unwavering support for startups in the edge AI ecosystem. Its ESD analysis solution and collaborative approach enable us to scale into real-world, adaptive applications with enhanced speed, usability, and versatility."

For example, Innatera used Synopsys technology to validate the design of Pulsar, the world's first commercial neuromorphic microcrontroller. Pulsar optimizes AI workloads at the edge by combining flexible computing architecture, resulting in up to 100x lower latency and 500x lower energy consumption than conventional AI processors. Using SNNs, Pulsar only reacts to registered sensor changes, significantly improving data transfer speeds and battery power for "always-on" devices like wearables and smart sensors.

"By enabling Innatera to accelerate product development and scale confidently, Synopsys reinforces its role as a catalyst for cutting-edge technologies shaping the future of embedded AI," said Prith Banerjee, senior vice president at Ansys, part of Synopsys. "This collaboration underscores our commitment to empowering innovation across the semiconductor ecosystem, from global enterprises to emerging startups. As edge computing becomes increasingly central to real-time intelligence, Synopsys simulation is helping innovators bring efficient AI where it's most needed."

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) is the leader in engineering solutions from silicon to systems, enabling customers to rapidly innovate AI-powered products. We deliver industry-leading silicon design, IP, simulation and analysis solutions, and design

services. We partner closely with our 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.

Contacts

Media
Pete Smith
pete.smith@synopsys.com
corp-pr@synopsys.com

SOURCE Synopsys, Inc.

Additional assets available online: