

Synopsys Announces Availability of the First Wave of Multiphysics Fusion Solutions

*Market Leaders Including Cisco, MediaTek, NVIDIA, and Samsung Foundry
Demonstrate Measurable Impact, Advancing the Shift from Overdesign to Co-design*

Key Highlights

- Integrates golden signoff multiphysics analysis directly into timing signoff, design closure, multi-die, and analog workflows, enabling earlier, more accurate design decisions
- Enables SPICE-accurate multiphysics timing analysis with up to 3x faster runtimes
- Delivers up to 10x faster design closure with higher ECO success rates and improved PPA
- Provides concurrent power integrity, electromagnetic, and thermal analysis across dies and packaging, enabling early system-level insights from exploration to signoff

SUNNYVALE, Calif., June 17, 2026 /PRNewswire/ -- [Synopsys, Inc.](#) (NASDAQ: SNPS) today announced availability of its first Multiphysics Fusion™ solutions for customer deployment. As chip complexity increases, physics-related challenges including signal integrity, power integrity, thermal integrity, electromagnetic effects, and co-packaged optics are becoming critical constraints at advanced nodes and in multi-die architectures, requiring a unified EDA and multiphysics approach. The Multiphysics Fusion portfolio combines Synopsys' AI-powered EDA solutions with Ansys golden signoff analysis across timing signoff, design closure, multi-die design, and analog workflows. Validated by market leaders, these solutions improve predictability and accelerate convergence for AI and high-performance computing systems.

"Multiphysics is fundamentally reshaping how advanced semiconductor designs are engineered, driving a shift from costly overdesign to integrated, system-aware co-design," said Sanjay Bali, Senior Vice President of EDA Product Management and Strategy at Synopsys. "Our Multiphysics Fusion portfolio unifies Synopsys and Ansys technologies to embed physics directly into digital and analog workflows, enabling engineering teams to design across domains with fewer iterations, improved productivity and more optimized silicon for next-generation systems."

Enabling Multiphysics-Aware Co-Design Across the Chip Design Flow

Building on the [vision introduced at Synopsys Converge 2026](#), the first Multiphysics Fusion solutions include targeted GPU-accelerated flows powered by NVIDIA CUDA-X libraries such as cuDSS:

- **Multiphysics Fusion for Timing Signoff:** Enables up to 3x faster runtimes, SPICE-accurate multiphysics timing analysis. Integrates Synopsys PrimeTime® with RedHawk-SC™ and RedHawk-SC Electrothermal™, along with unified full-spectrum RC extraction using Synopsys StarRC™ and multiphysics HFSS-IC, to incorporate IR, thermal, and stress effects, improving margins and reducing IR-induced timing escapes.
- **Multiphysics Fusion for Design Closure:** Delivers up to 10x faster design closure with higher engineering change order (ECO) success rates and improved power, performance and area (PPA). Combines Synopsys PrimeClosure™ with RedHawk-SC to embed power integrity into golden signoff optimization, accelerating convergence with fewer iterations.
- **Multiphysics Fusion for Multi-die Designs:** Unified Synopsys 3DIC Compiler platform with RedHawk-SC, RedHawk-SC Electrothermal and multiphysics HFSS-IC for concurrent power integrity, thermal, and electromagnetic analysis, providing early system insights from exploration to golden signoff with correct-by-construction design.
- **Multiphysics Fusion for Analog & Photonic Design:** Integrates Synopsys Custom Compiler™ with multiphysics HFSS-IC for on-chip, high accuracy electromagnetic analysis into the analog design flow, and Synopsys OptoCompiler with Lumerical enabling end-to-end photonic IC and co-packaged optics systems.

Demonstrating Real-World Impact with Market Leaders

Early engagements with leading semiconductor and systems companies validate the value of Multiphysics Fusion solutions:

"As multi-die integration becomes increasingly important for high performance compute platforms, it's critical we make the right system-level design decisions early in the development process," said **Harrison Hsieh, vice president at MediaTek**. "By unifying multiphysics analysis and timing signoff across digital, analog, photonic and multi-die designs, Synopsys Multiphysics Fusion technology gives us earlier insight into cross-domain interactions across silicon, advanced packaging and optical domains, which makes it possible for us to improve predictability, reduce late-stage rework, and achieve a runtime that's 10 times faster than before."

"Advanced AI and high-performance computing platforms are pushing chip design beyond traditional workflows, and to deliver greater performance, efficiency and reliability at scale, multiphysics-aware co-design is essential," **said Tim Costa, vice president and general manager of computational engineering at NVIDIA.** "Synopsys is using NVIDIA accelerated computing and CUDA-X libraries, including cuDSS, which delivers up to 13x GPU acceleration, to scale increasingly complex SPICE simulations, electromagnetics, and power-integrity workloads. In addition, Synopsys Multiphysics Fusion solutions enable up to 5x faster design closure and up to 86% IR fix rates in selected pilot designs."

"Accurate timing signoff at advanced nodes requires a unified approach that accounts for IR drop, thermal, and stress effects directly within timing analysis," **said Hyung-Ock Kim, vice president and head of the Foundry Design Technology Team at Samsung Electronics.** "Synopsys' Multiphysics Fusion technology provides a unified, all-aware timing signoff platform by integrating PrimeTime with multiphysics insight, delivering SPICE-accurate correlation and enabling margin recovery. This is increasingly important as we pursue higher levels of integration, performance, and reliability across advanced process and multi-die technologies."

In addition, the **Cisco Silicon One group** is leveraging Synopsys Multiphysics Fusion technology to unify IR drop effects within signoff design closure to gain earlier, more accurate visibility into real-world conditions. Combined with signoff-accurate, timing-aware IR fixing, this enables predictive optimization—helping Cisco Silicon One converge on power integrity issues faster, deliver better PPA, and achieve significantly faster runtime.

Availability

Multiphysics Fusion solutions for timing signoff, design closure, multi-die design, and analog and photonic design are available today. For more information, visit, <https://www.synopsys.com/solutions/multiphysics-fusion.html>.

Resources

- Blog: [From Overdesign to Co-Design: Confronting Multiphysics Challenges in Chips](#)
- Blog: [Timing-Aware Multiphysics ECO for Design Closure | Synopsys](#)
- Blog: [New Synopsys Multiphysics Fusion™ Technology Set to Transform Chip and Product Engineering](#)
- eBook: [Multiphysics Fusion Technology for Multi-Die Designs Explained](#)
- eBook: [Optimizing Analog Design with Multiphysics](#)
- News Release: [Synopsys Outlines Vision for Engineering the Future](#)

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.

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Forward-Looking Statements

This press release contains forward-looking statements, including, but not limited to, statements concerning our expectations regarding certain of our solutions, including their anticipated performance and benefits, and the development of additional solutions and enhancements. 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. Information on potential risks, uncertainties and other 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.

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