TSMC Recognizes Ansys for Excellence in Design Enablement for AI, HPC, and Photonics Silicon Systems

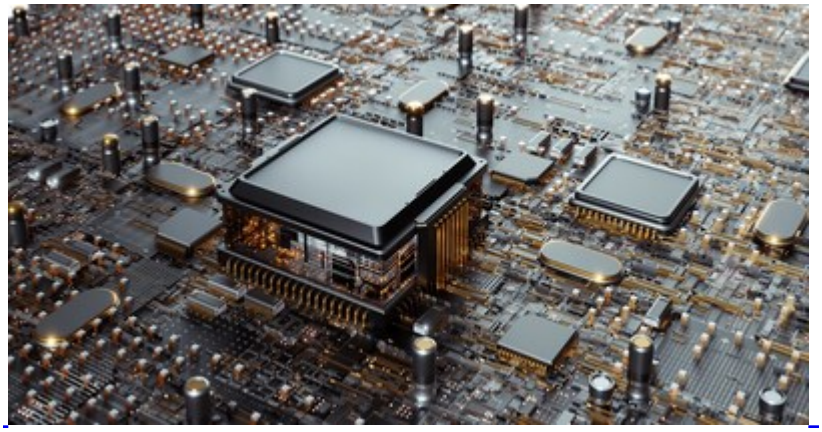
October 25, 2024

Ansys won four TSMC 2024 OIP Partner of the Year awards, highlighting excellence in multiphysics analysis solutions for system design using advanced silicon processes and the rapidly evolving 3D-IC and silicon photonics packaging technologies

/ Key Highlights

- Ansys multiphysics analysis solutions are critical to the successful integration and performance of advanced multi-chip packaging and electronic and photonic co-packaged optics in TSMC's compact universal photonics engine (COUPE)
- Ansys' joint development of design solutions for TSMC's N2P and A16™ advanced silicon processes ensure power integrity, electromigration reliability, and critical thermal management for compute-heavy applications like high-performance computing (HPC) and artificial intelligence (AI)
- Ansys collaborated on a new AI-assisted radio frequency (RF) process migration flow that automates circuit designs and improves product performance

PITTSBURGH, Oct. 25, 2024 /PRNewswire/ -- Ansys (NASDAQ: ANSS) was recognized at the TSMC 2024 Open Innovation Platform® (OIP) Partner of the Year awards for excellence in design enablement for AI, HPC, and photonics silicon systems. The awards honor TSMC OIP ecosystem partners and their contributions to innovation in next-generation 3D integrated circuit (3D-IC) design and enablement. Ansys received four awards for joint development of design solutions for multiphysics analysis, N2P and A16 power delivery, COUPE enablement, and RF design, optimization, and migration.



TSMC announced the award winners at its annual TSMC OIP Ecosystem Forum, which assembled semiconductor ecosystem partners and customers for a day of industry discussion around technological trends and design solutions. Ansys received the following Joint Development awards:

- **Multiphysics**: TSMC expanded the collaboration with Ansys RedHawk-SC Electrothermal™ thermal and multiphysics signoff platform, incorporating mechanical stress analysis solutions. In addition, TSMC, Ansys, and Synopsys developed an efficient flow to address multiphysics coupling challenges among timing, thermal, and power integrity. The flow seamlessly combines Synopsys' 3DIC Compiler™ exploration-to-signoff platform with Ansys multiphysics solutions RedHawk-SC Electrothermal and Ansys RedHawk-SC™ power integrity signoff platform for digital and 3D-IC.
- **N2P and A16**: Ansys collaborated with TSMC to develop power integrity analysis, electromigration reliability analysis, and critical thermal management solutions for TSMC's N2P and A16 advanced silicon processes. The flow includes RedHawk-SC, Ansys Totem™ power integrity signoff platform, and RedHawk-SC Electrothermal.
- **COUPE enablement**: Ansys and TSMC delivered a high-fidelity multiphysics solution to address design and reliability challenges for the TSMC COUPE integration system. This includes Ansys Zemax OpticStudio™ optical system design and analysis software, Ansys Lumerical™ FDTD advanced 3D electromagnetic FDTD simulation software, RedHawk-SC and Totem signoff platforms for multi-die power integrity signoff, Ansys RaptorX™ silicon optimized electromagnetic (EM) solver for design analysis and modeling for high-frequency EM analysis between dies, and RedHawk-SC Electrothermal for vital thermal management of the multi-die heterogenous system. Additionally, Lumerical allows custom Verilog-A models for electronic photonic circuit simulations, which work seamlessly with the TSMC Modeling Interface (TMI) and are co-designed with TSMC's Process Design Kit (PDK).
- **RF design migration:** Ansys collaborated with Synopsys and TSMC to combine the RaptorX electromagnetic modeling

engine with Ansys optiSLang® process integration and design optimization software and Synopsys Custom Compiler and ASO.ai solution to automate the migration and optimization of analog circuits from one silicon process to another — enhancing design efficiency, reliability, and scalability.

"Ansys is a key ecosystem partner that has worked relentlessly alongside TSMC to address our mutual customers' most complex design challenges," said Dan Kochpatcharin, head of the ecosystem and alliance management division at TSMC. "The awards celebrate OIP partners like Ansys who strive for excellence in design enablement, working closely with TSMC to accelerate advanced 3D IC design for the next generation of AI innovation."

"The Ansys multiphysics platform is integral to meeting designers' stringent design requirements for 3D-IC," said John Lee, vice president and general manager of electronics, semiconductor, and optics business unit at Ansys. "Without the Ansys multiphysics platform, the chips that are enabling the AI, HPC, and silicon systems growth would take demonstrably longer to develop and validate, and the associated costs would be much higher. Together, Ansys and TSMC push the industry forward by empowering our mutual customers to explore advanced packaging technologies, leverage the speed and power of AI, and enhance product performance and durability."

/ About Ansys

Our Mission: Powering Innovation that Drives Human Advancement™.

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality with Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push boundaries by using the predictive power of simulation. From sustainable transportation to advanced semiconductors, from satellite systems to life-saving medical devices, the next great leaps in human advancement will be powered by Ansys.

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