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TSMC Certifies Ansys Multiphysics Solutions for TSMC's N2 Silicon Process

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Ansys is certified for TSMC's N2 process, including thermal self-heat effects for greater chip reliability and more optimized designs

/ Key Highlights

- Ansys® Redhawk-SC™and Ansys® Totem™power integrity platforms are certified for TSMC's N2 process
- The certification includes self-heat calculation for devices and wires and a heatsink-aware electromigration flow

PITTSBURGH, April 27, 2023 /PRNewswire/ -- Ansys (NASDAQ: ANSS) and TSMC continue their long-standing technology collaboration to announce the certification of Ansys' power integrity software for TSMC's N2 process technology. The TSMC N2 process, which adopts nanosheet transistor structure, represents a major advancement in semiconductor technology with significant speed and power advantages for high performance computing (HPC), mobile chips, and 3D-IC chiplets. Both Ansys RedHawk-SC and Ansys Totem are certified for power integrity signoff on N2, including the effects of self-heat on long-term reliability of wires and transistors. This latest collaboration builds on the recent certification of the Ansys platform for TSMC's N4 and N3E FinFLEX processes.
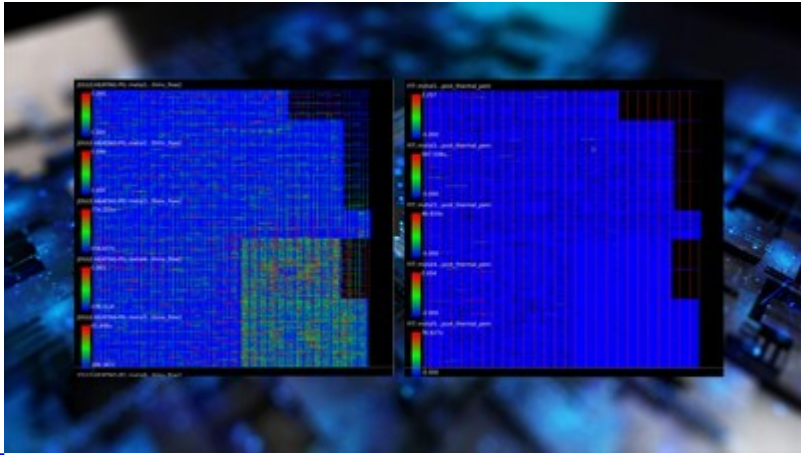
"TSMC works closely with our Open Innovation Platform® (OIP) ecosystem partners to help our mutual customers achieve the best design results with the full stack of design solutions on TSMC's most advanced N2 process," said Dan Kochpatcharin, head of the Design Infrastructure Management Division at TSMC. "Our latest collaboration with Ansys RedHawk-SC and Totem analysis tools allows our customers to benefit from the significant power and performance improvements of our N2 technology while ensuring predictively accurate power and thermal signoff for the long-term reliability of their designs."

As technology scaling continues, the self-heating effect from switching devices and current conduction in interconnects can affect circuit reliability. Ansys and TSMC have collaborated to correctly model this with a heatsink-aware flow that increases thermal predictive accuracy by taking into consideration the heat conduction to neighboring wires that may cool a local hot spot. These calculations allow designers to assess margins with predictive accuracy and increase circuit performance by avoiding wasteful over-design.

"Ansys has developed a comprehensive thermal management flow for the entire semiconductor to system design flow," said John Lee, vice president and general manager of the electronics, semiconductor, and optics business unit at Ansys. "Our ongoing collaboration with TSMC extends our multiphysics analysis to the latest, most advanced process technologies where we have jointly developed novel solutions to manage heat and thermal dissipation in high-speed applications."

/ About Ansys

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. Take a leap of certainty … with Ansys.

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