Samsung Foundry Certifies Ansys Thermal Integrity and Power Integrity Solutions for Its Multi-Die Packaging Technologies

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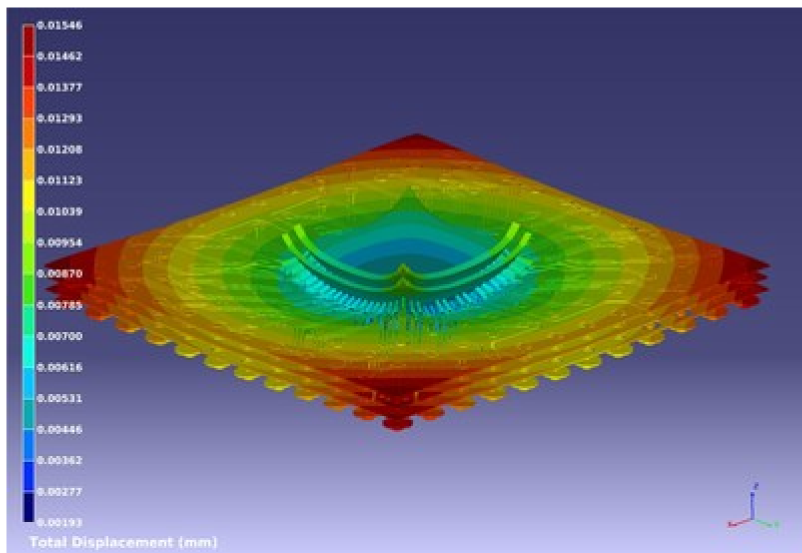
Ansys multiphysics platform provides proven solutions to address challenges in simulating and managing power and thermal effects for heterogeneous 2.5D/3D-IC multi-die systems

/ Key Highlights

- Ansys® Redhawk-SC™ and Ansys® Redhawk-SC Electrothermal™ multiphysics power integrity and 3D-IC thermal integrity platform are certified for use with Samsung Foundry's X-Cube technology for 3D packaging
- Ansys® Icepak™ used to validate the predictive accuracy of RedHawk-SC Electrothermal

PITTSBURGH, June 28, 2023 /PRNewswire/ -- Ansys (NASDAQ: ANSS) announces that Samsung Foundry has certified Ansys' RedHawk power integrity and thermal verification platform for Samsung's family of heterogeneous multi-die packaging technologies. Samsung's collaboration with Ansys recognizes the critical importance of power and thermal management on the reliability and performance of advanced side-by-side (2.5D) and 3D integrated circuit (3D-IC) systems.



Many leading semiconductor products for high-performance computing, smartphones, networking, artificial intelligence, and graphics processing are made possible by 3D-IC technologies, which can also help companies achieve competitive differentiation in their markets. Samsung offers a range of 2.5D packaging options (I-Cube and H-Cube) as well as 3D vertical stacking with X-Cube technology. The dense integration of multiple chips creates a major challenge in heat dissipation. A single die can draw well over 100W of power which must be routed through extremely fine microbump connections.

Samsung has collaborated with Ansys to certify RedHawk-SC Electrothermal for simulating temperature profiles with their packaging technology. Samsung also validated the predictive accuracy of RedHawk-SC Electrothermal with Ansys' Icepak solution for thermal analysis of electronic assemblies—including forced-air cooling and heat sinks. RedHawk-SC verifies the electromigration (EM) reliability and voltage drop (IR drop) correctness of the entire power distribution network connecting the chiplets and interposer.

"Samsung Foundry sees heterogeneous integration as a critical technology for the future of the semiconductor industry," said Sangyun Kim, vice president of Foundry Design Technology Team at Samsung Electronics. "But it also raises a number of new challenges and multiphysics concerns that need to be carefully analyzed for system success. Ansys is a valuable partner that offers us proven simulation technology that our customers can use for thermal management and power analysis for better performance and higher reliability."

"Ansys' deep expertise in the areas of power management and system analysis have allowed us to engage with our customers at the chip, package, and system level," said John Lee, vice president and general manager of the electronics, semiconductor, and optics business unit at Ansys. "Our continuing partnership with Samsung keeps us at the forefront of silicon processing technology and helps our customers take full advantage of Samsung's 3D-IC technology."

To learn more about Ansys and Samsung Foundry, visit Samsung SAFE Forum 2023 on June 28, 2023 where Ansys CEO Ajei Gopal will deliver a keynote address.

/ 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.

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