News Release

Amkor Delivers Industry's First Package Assembly Design Kit to Support Mentor's High-Density Advanced Packaging Tools

Amkor SmartPackage™ Speeds Accurate Design and Verification of Heterogeneous Integration Package Solutions

TEMPE, Ariz., July 18, 2018 — Amkor Technology, Inc. (Nasdaq: AMKR), a leading provider of outsourced semiconductor packaging and test (OSAT) services, today announced it has partnered with Mentor to release Amkor's SmartPackage™ Package Assembly Design Kit (PADK), the first in the industry to support Mentor's High-Density Advanced Packaging (HDAP) design process and tools. Amkor's award-winning High-Density Fan Out (HDFO) process can now be used in conjunction with Mentor's software to deliver early, rapid and accurate verification results of advanced packages required for Internet-of-Things, automotive, high-speed communications, computing and artificial intelligence applications.

"Amkor leads the way in HDFO technology for OSAT companies, and with the rise of complex ICs with multi-die packages, we prioritized the creation of Mentor-based PADKs to significantly reduce cycle time," said Ron Huemoeller, corporate vice president, Research & Development, Amkor Technology. "Since the Mentor flow includes Calibre, the golden sign-off tool for the fabless ecosystem, our customers can easily close any physical verification issues for their entire solution."

The complex and compact design of devices for today's smart applications is driving the need for sophisticated packaging techniques such as heterogeneous integration and Advanced System-in-Package. These solutions combine one or more ICs of different functionality with increased I/O and circuit density in 2.5D (side-by-side) and 3D constructions. With Amkor's SmartPackage PADK and Mentor's proven HDAP tool flow, mutual customers of Amkor and Mentor have the ability to create and review multiple assemblies and LVS (layout vs. schematic), connectivity, geometry and component spacing scenarios using Amkor's HDFO process. The graphic environment features robust data and is straightforward to use before and during the implementation of physical design, resulting in faster sign-off and fewer verification cycles.

"Amkor was the first OSAT company to join the Mentor OSAT Alliance program, and now the first to build and make available a PADK for its customers," said AJ Incorvaia, vice president and general manager of Mentor's BSD division. "By providing a fully validated PADK for Amkor's HDFO process for Mentor's proven HDAP tool flow, customers can more easily transition from classic chip design to 2.5 and 3D solutions."

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The OSAT Alliance program helps promote the adoption, implementation and growth of HDAP throughout the semiconductor ecosystem and design chain, enabling system and fabless semiconductor companies to have a friction-free path for emerging packaging technologies.

About Amkor Technology, Inc.

Amkor Technology, Inc. is one of the world's largest providers of outsourced semiconductor packaging and test services. Founded in 1968, Amkor pioneered the outsourcing of IC packaging and test, and is now a strategic manufacturing partner for more than 250 of the world's leading semiconductor companies, foundries and electronics OEMs. Amkor's operating base includes 10 million square feet of floor space with production facilities, product development centers, and sales and support offices located in key electronics manufacturing regions in Asia, Europe and the U.S. For more information, visit www.amkor.com.

About Mentor Graphics

Mentor Graphics Corporation, a Siemens business, is a world leader in electronic hardware and software design solutions, providing products, consulting services, and award-winning support for the world's most successful electronic, semiconductor, and systems companies. For more information, visit www.mentor.com.

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