

E-System Design Unveils Integrated Signal and Power Integrity Co-Simulator for IC Packaging, Printed Circuit Board and System Design

New Breakthrough Product “Sphinx” Provides Visibility into Complete IC Package and PCB Designs, Including 3D SiP, Complex PCB and System Signoff

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E-System Design, Inc., today unveiled a breakthrough solution that provides design engineers with superior visibility and predictability when simulating IC packaging and printed circuit board performance by allowing designers to accurately simulate critical paths up to complete designs for signoff before they are released to manufacturing. By using a unique methodology (M-FDM) and IP exclusively licensed from the Georgia Institute of Technology, Sphinx is able to more accurately predict the coupling effects and return path discontinuities commonly seen in new IC packaging and PCB designs today. This is especially critical for designers who would like for their new designs to consistently achieve first pass success and quick ramp-up to production.

Traditionally, IC package and printed circuit board designers have relied on full wave simulators to perform signal and power integrity simulations of their designs. However, full wave simulators only allow the designers to see small portions of their design and not all of the coupling effects in a complete design. Existing Fast EM solvers on the other hand estimate performance and suffer from reduced accuracy versus full wave simulators. By utilizing the Multi-layered Finite Difference Method (M-FDM), and accurately modeling return path discontinuities, interlayer coupling effects, including through gaps and apertures commonly found in most simple to full 3D SiP and PCB designs today, Sphinx is able to provide excellent accuracy, and can very quickly and efficiently simulate critical paths up to complete designs before they go to manufacturing.

“Most new IC package and printed circuit board designs today contain gaps such as package cavities, voltage islands, split planes, apertures between layers, and multiple reference planes leading to return path discontinuities,” said Madhavan Swaminathan, CTO, founder of E-System Design, and principal author of the book “Power Integrity Modeling and Design for Semiconductors and Systems (Prentice Hall)”. “The interlayer coupling effects through these apertures can be very significant and if not considered, can lead to having to re-spin your design. Sphinx was designed to accurately simulate these effects, including gap fields, wrap around currents, and return path discontinuities (RPD’s). Sphinx was also designed to be very efficient and to allow the designer to simulate their complete design for sign-off before manufacturing.”

“We have evaluated “Sphinx” as a signal and power integrity design tool and have found it to be superior to industry available tools in the market, providing increased productivity with its easy to use features for performing pre- and post-layout analysis,” said Moises Cases, Retired Distinguished Engineer, IBM Corp., President and CEO, The Cases Group, LLC. “Sphinx’s modeling and simulation capabilities provide at least 10X faster simulation time in specific design applications with results correlating well with hardware measurements. This tool will be an asset to our existing design tool suite.”

“Considering how rapidly geometries are shrinking, frequencies are increasing, and diverse technologies are being combined onto SoC’s, SiP’s and PCB systems today, designers are faced with very significant challenges. At the same time, product design cycles are shrinking and time to market is critical for new product success and profitability. Designers need a tool which they can use to accurately simulate their designs and confidently release those designs to manufacturing,” said Gene Jakubowski, CEO and co-founder of E-System Design. “Sphinx is that tool, because of its accuracy and ability to simulate complete designs, it is the only viable sign off tool for IC packaging and printed circuit boards in the industry today.”

Availability

Sphinx is available now from E-System Design. For more information, please visit us at the Design Automation Conference in San Francisco on July 27th through July 30th, Booth# 508, or contact your E-System Design salesperson or contact sales@e-systemdesign.com.

About E-System Design

E-System Design is an industry leading provider of electronic design automation (EDA) tools for advanced electronic systems. Our focus is on System Integrity through the accurate modeling of highly integrated IC packages, printed circuit boards and systems, so our customers can achieve optimal performance and first pass manufacturing success. The company is headquartered in the metro Atlanta, GA area with direct and third party sales and support services available throughout the world, to better serve the global electronics industry. Additional information about E-System Design, our products, and our technology is available at www.e-systemdesign.com.

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