



## ANSYS Debuts New Electromagnetic Simulation Suite For Printed Circuit Board Design

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PITTSBURGH and SANTA CLARA, Calif., Jan. 29, 2014 /PRNewswire/ -- Designing and optimizing complex high-speed electronic devices from end-to-end is faster, easier and more accurate thanks to an expanded suite and new functionality for ANSYS® (NASDAQ: ANSS) SIwave™. ANSYS' electromagnetic (EM) simulation suite for the design of high-speed printed circuit boards (PCB) and integrated circuit (IC) packages is now available via three targeted products, SIwave-DC, SIwave-PI, and SIwave. Users can quickly identify potential power and signal integrity problems with increased flexibility and easier access to a complete set of analysis capabilities that can be leveraged throughout the PCB design flow.

(Logo: <http://photos.prnewswire.com/prnh/20130430/NE03388LOGO>)

Powered by its hybrid, full-wave finite element EM solver engine, the new SIwave suite delivers a complete signal integrity analysis solution in a single user interface. SIwave-DC targets the DC analysis of low-voltage, high-current PCB and IC packages, enabling the assessment of critical end-to-end voltage margins for reliable power delivery. SIwave-PI includes all SIwave-DC features and adds alternating current (AC) analysis to accurately model power delivery networks and noise propagation on PCBs. SIwave combines all SIwave-DC and SIwave-PI functionality and adds a robust time-domain circuit simulation engine for end-to-end signal integrity design and compliance.

"It's becoming increasingly important for our customers to be able to quickly recognize potential pre- and post-layout power and signal integrity problems for today's high-speed digital designs," said Steven Pytel, product manager at ANSYS. "In consultation with our customers, we identified demand for targeted analysis for DC, power integrity, and full systems. The new SIwave technology and workflow provides a complete set of analysis software based on the highest fidelity electromagnetic numerical analyses to address all aspects of PCB and IC package design."

ANSYS SIwave highlights include:

- New Application-Specific Product Offerings
  - SIwave-DC allows users to perform pre- and post-layout DC voltage drop, DC current density and DC power density analyses. This will ensure that power distribution networks (PDNs) can source the proper power to integrated circuits by checking that the PDN has the proper bump, ball and pin sizes as well as proper copper weighting to minimize losses and identify areas of excess current resulting in thermal hot spots to reduce risk of field failure.
  - Using sophisticated genetic algorithms, SIwave-PI allows the specification of various constraints (capacitor price, total number of capacitors, desired network impedance, etc.) for consideration in its cost function. Accurate frequency-dependent S-parameter capacitor models are utilized during simulation. In addition, the impact of capacitor physical location and mounting technique is captured by the full-wave electromagnetic extraction engine. SIwave-PI significantly improves engineering productivity by automating decoupling capacitor selection, placement and optimization for printed circuit boards and IC packages.
  - With SIwave, signal integrity engineers can easily import electrical CAD geometry, extract GHz-accurate interconnect models for the IC, package and PCB, include transistor level models of drivers and receivers and run signal sign off analysis, impedance matching and power delivery system optimization. This solution includes common Input/Output Buffer Information Specification (IBIS) analyses such as "Power-Aware IBIS" and "IBIS-AMI" to provide virtual compliance to design engineers.

Other key features in SIwave include virtual compliance, advanced simulation performance and high-performance computing (HPC) acceleration and bi-directional links to ANSYS® Icepak® and ANSYS® Mechanical™ to predict temperature rise, thermal induced stress and structural integrity.

The new release will ship in March 2014. To learn more about the new SIwave, please visit: <http://www.ansys.com/Products/Simulation+Technology/Electromagnetics/Signal+Integrity/ANSYS+SIwave>.

### About ANSYS, Inc.

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ANSYS also has a strong presence on the major social channels. To join the simulation conversation, please visit: [www.ansys.com/Social@ANSYS](http://www.ansys.com/Social@ANSYS)

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