



The Signal Integrity EDA Company

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## Optimal Corporation's New 3D Full-Wave Signal Integrity Toolset Speeds Cycle Times by 10X

SAN JOSE, Calif. – (BUSINESS WIRE) – Apr. 26, 2004 – Optimal Corporation™, a leading provider of signal integrity design simulation, extraction and analysis tools serving the semiconductor industry, today announced the release of O-Wave™, a series of products for 3D, full-wave signal integrity simulation, analysis and verification for high-speed IC, packaging and PCB. O-Wave's proprietary algorithms accelerate cycle times for high-speed electromagnetic simulation – such as S-parameter extraction of RF IC designs – by up to 10 times the speed of products currently on the market, while requiring only one third the memory capacity.

The full-wave parasitic extraction capabilities of the O-Wave series work best on high-speed, high-complexity designs, where on-chip and I/O speeds exceed 2Ghz. Quasi-static signal integrity tools do not provide enough accuracy for high-speed designs and other full-wave tools can not efficiently handle complex structures due to speed and computer capacity limitations.

“As more advanced SoC designs call for more layers, higher speeds, higher frequencies and mixed-signal integration, only the full-wave solutions will provide the accuracy required to adequately perform RLGC parasitic extraction or S-parameter analysis for IC-Package-PCB co-design,” said Len Perham, Chairman and CEO of Optimal. “We are pleased to offer our customers the unified full-wave signal integrity toolset that they need as designs move to 90nm,” Perham concluded.

O-Wave is the only full-wave parasitic extraction tool that combines a proprietary multi-grid finite element solution with the Krylov order-reduction algorithm. Instead of solving the Maxwell's equations directly with the finest meshes, O-Wave's multi-grid technique uses the electric field solution with coarse meshes as initial guess, and quickly finds a convergent, more accurate solution with finer meshes.

The Krylov order-reduction technique further improves CPU time by arriving at S-parameters for all frequencies based on solutions at only a few expansion points. Therefore, the user can solve nanometer electrical effects problems – composed of more complex designs, larger structures and more elements to analyze up to 10 times faster than 3D full-wave products currently on the market. The O-Wave series of products consumes only one-third of the memory currently required by competing products.

### Pricing and availability

O-Wave™ PKG, the first in the series, was released on April 15, 2004 and is currently available for Microsoft Windows. List price starts at \$60,000 per license. The next in the series, O-Wave™ PCB and O-Wave™ IC, will be available in coming months.

### About Optimal Corporation

Optimal is a leading provider of high signal integrity design tools. The company's breakthrough technology and engineering expertise have helped leading chip and system companies solve challenging high-speed design problems and bring industry-leading products to market. Additional information may be obtained online at [www.optimalcorp.com](http://www.optimalcorp.com) or by e-mailing [info@optimalcorp.com](mailto:info@optimalcorp.com).

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# Optimal

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