

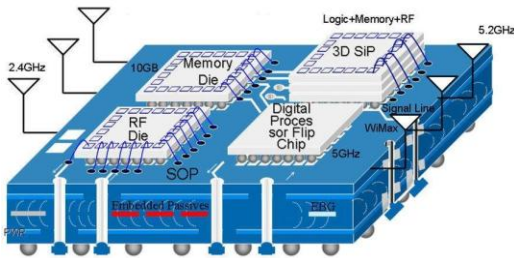
SPHINX

Signal and Power Integrity Co-Simulator

+

IDEM

The Art of Macromodeling



SPHINX
(f-domain solver)

S Z Y Parameters

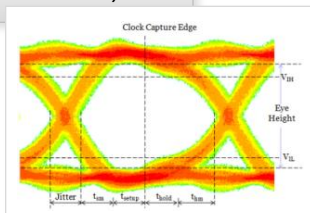


IdEM
(macromodel generator)

SPICE Netlist



SPICE
(t-domain simulator)



→ **Extremely accurate** - frequency-domain solver correctly computes gap fields, wrap around currents, aperture coupling and return path discontinuity

→ **Powerful** - fast and memory-efficient algorithms enable simulation of entire IC package and printed circuit board systems

→ **Based on M-FDM** - a proprietary patent pending method developed at the Georgia Institute of Technology

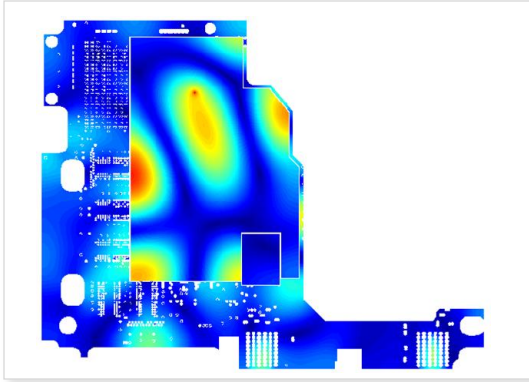
→ **CAD import** - enables push-button import of layout data, supports DXF interface

→ **Touchstone export** - computes, visualizes and exports S, Y or Z parameters

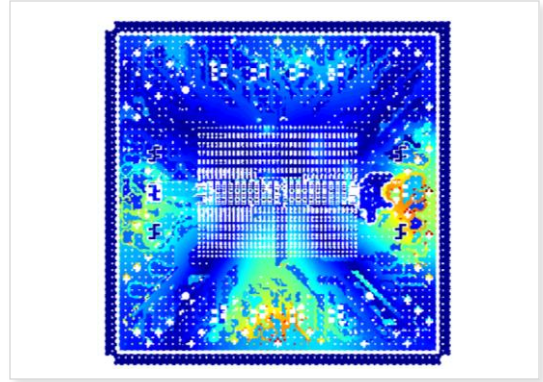
→ **Intuitive GUI** - supports 2D/3D visualization of voltage distribution in transmission lines and planes

→ **Best-in-class** - IdEM model extractor allows further analysis in time domain

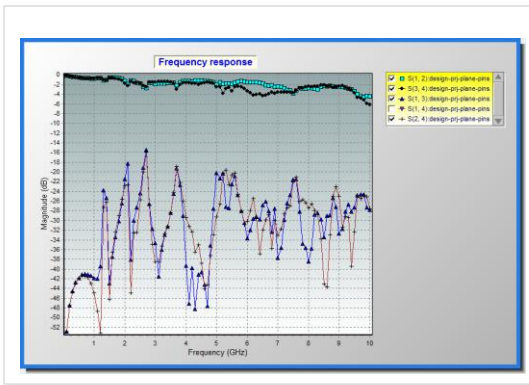
→ **Stable, passive, causal** - SPICE netlists are robust and physically consistent



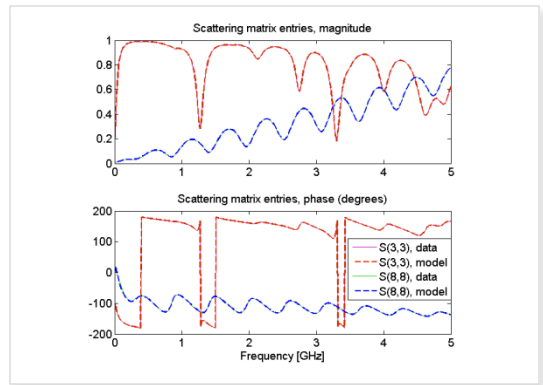
2D/3D voltage distribution on board planes



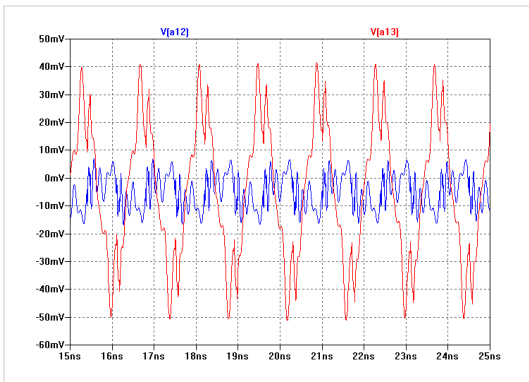
Substrate coupling in a flip chip package



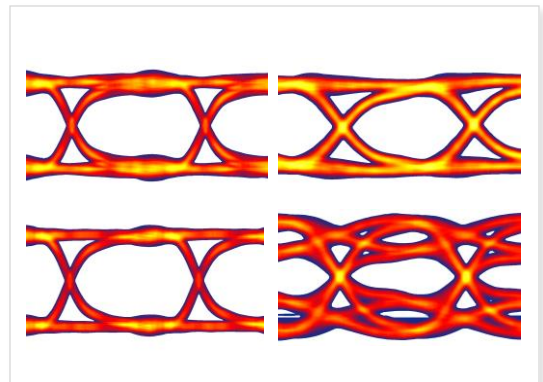
Coupling through slots in ground planes



Sphinx output S-parameter vs IdEM SPICE model



Time-domain simulation of signal-power coupling



Eye-diagram transient simulations

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