HyperLynx 3D EM

Overview: Full Package, PCB, and Circuit Solution

Today’s high-frequency IC, MMIC, package and PCB designs need full-wave electromagnetic (EM) accurate circuit models to confidently converge on a final physical implementation that will satisfy your target performance requirements. HyperLynx 3D EM is the industry’s leading full-wave 3D EM design and verification solution proven to meet the capacity & run-time performance demands of complete package, PCB or circuit-level simulation and modeling. The results are EM-accurate enabling design and signal integrity (SI) engineers to design and verify even their largest designs with the highest level of confidence. Automatic 3D geometry model creation features full support for modeling entire interconnect paths on package and board, including bond wires, solder balls & bumps, vias, and routing traces. Proprietary non-uniform mesh generation and adaptive curve fitting ensure fast and accurate simulation results for these broadband applications.

High Capacity

Using other commercial EM tools forces engineers to simplify and/or reduce the size of the structure to be modeled. In many cases, layer stack-up and adjacent metal structures must be trimmed away before the tool can attempt to complete the simulation. As a result, the engineer gives up too much accuracy with these approaches which are too limiting, very time-consuming, and totally inadequate towards capturing all the important parasitic coupling and electrical characteristics of the complete structure. Unfortunately, the designer is left with a poor choice to widen design margins, which leads to under achieving system performance goals and requiring more area or I/Os than necessary. Today, HyperLynx 3D EM introduces the distributed computing technology, which simulates the full structure with the optimal solution in a reasonable length of time.

MAJOR BENEFITS:

- Reliable simulation results that match measurement reduces your EM design costs by avoiding expensive design iterations
- More simulations-per-hour provides design convergence and improves overall design quality by verifying more design issues in less time
- Simulating even your largest structures in the smallest memory available reduces your EM design risks with precise geometry modeling without time-consuming error-prone design partitioning
Auto 3D Geometry Modeling & Meshing

One of the biggest challenges accompanying very large EM structure simulation is the ability for the user to quickly and accurately build a full 3D geometry model. Secondly, generating an EM mesh for such a structure that fits into allowed computer memory without overwhelming the EM engine has long been an unbroken design barrier. HyperLynx 3D EM has successfully shattered this design barrier with integration to a variety of popular layout design tools. Full 3D geometry models of bond wires, solder balls, bumps, vias, traces and dielectric layers are automatically extracted directly from the layout data and meshed to ensure proper handling by the 3D EM engine. Now, design and signal integrity engineers are granted easy access to an accurate EM solution to improve and verify a design’s final performance as part of their overall EM design practice.

HyperLynx 3D EM generates S-parameter models for time and frequency domain simulations.

EM Modeling & Time Domain Simulation

HyperLynx 3D EM delivers multiport S-parameter models (Touchstone Format) and broadband RCLK Spice subcircuit models ready to be plugged into time- or frequency-domain circuit simulators. These models can be directly read in to HyperLynx SI, the leading industry SI and PI analysis tool, for thorough and effective time domain simulations required in DDRx or SerDes designs.

Layout Tools Supported

- Mentor’s Expedition, Board Station, and PADS
- Cadence Allegro Package Designer and CDNSiP
- GDSII
- AutoCad DXF
- Gerber

System Requirements

- Windows 32-bit systems
- Windows 64-bit systems
- Linux 32-bit systems (3D engine only)
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