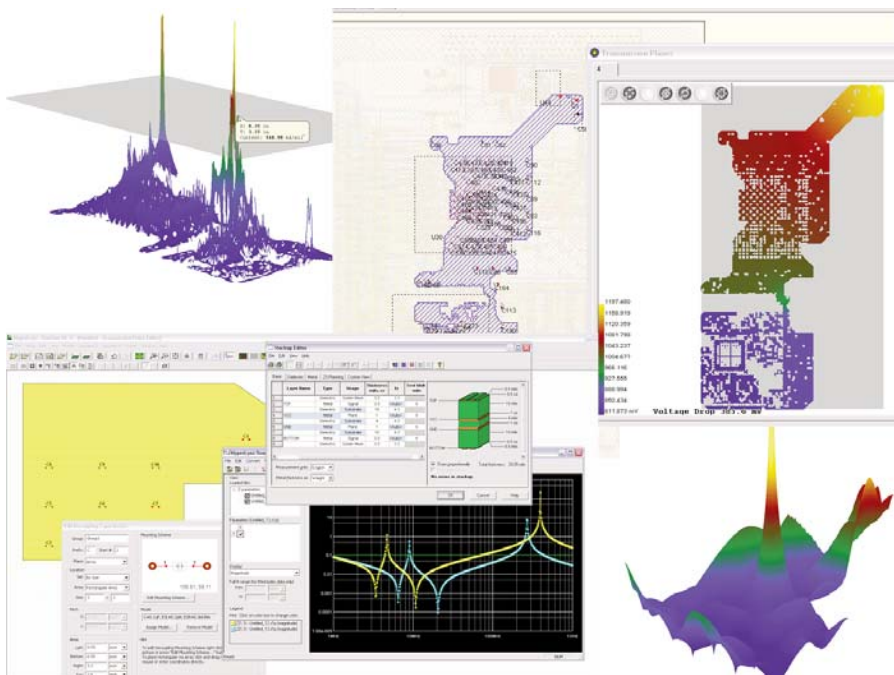


HyperLynx PI

Advanced Power Integrity Analysis

High Speed Design

D A T A S H E E T



HyperLynx PI includes pre- and post-layout power integrity analysis, such as DC drop analysis, AC decoupling analysis, plane noise analysis, and model extraction.

Major product benefits

- Industry-renowned ease of use, enabling shorter time to results
- Accurate modeling of plane structures as power delivery and noise propagation mechanisms
- Analyze voltage drop of power supply rails due to copper losses
- Identify areas of excessive current density in your layout
- Analyze power distribution impedance at multiple board locations
- Explore different capacitor selections, placements, mounting schemes, and stack-ups
- Simulate propagation of noise throughout the planes from IC supply pins and vias
- Extract models of the power distribution network
- Create highly accurate via models which include effects of all bypassing and plane resonances
- Works with all major PCB layout and routing applications

Overview

Power integrity (PI) analysis is an essential part of modern electronic design. The ever-increasing number of voltages being used by ICs, in addition to dramatic increases in power consumption, make proper power delivery an exceedingly difficult task. Compounding these issues are reduced layer counts, smaller noise margins, and increasing operating frequencies. With inadequate power delivery, designs exhibit signal integrity errors, which can cause the logic on the board to fail.

Hardware engineers, PCB designers, and signal integrity specialists alike will find HyperLynx® PI easy to use; getting simulation results without requiring weeks of software training. You can identify power distribution problems early in the design, even prior to layout. You can also identify problems with your design that would be difficult to identify in the lab, and investigate solutions in an easy-to-use what-if environment. Once the layout is complete, you can validate the results to ensure that your design guidelines were followed. This will ultimately help you reduce prototype spins and get to market faster, while creating more reliable products.

Analyze IR Drop

HyperLynx PI can identify potential DC power delivery issues such as excessive voltage drop, which can lead to IC malfunction. Other issues such as high current densities or excessive via currents, which can lead to damage to the board and/or disconnected power, can also be identified. All simulation results can be viewed in graphical and report format, allowing for quick and easy to identification of DC power delivery problems.

Pre-layout

- Set up voltage plane shapes, powers sources and loads before the board goes to CAD

Post-layout

- Read board data into HyperLynx layout analysis environment
- Analyze DC behavior per net or across entire PCB
- Export to pre-layout environment for what-if analysis

Optimize PDN

HyperLynx lets you optimize the impedance of your power distribution network (PDN). Analysis helps make effective decisions on how many capacitors are really needed to make your PDN work, and then where to place those caps and how to mount them. Investigate the benefits of new technologies on your PDN, and how the impedance affects the propagation of noise on the planes.

Pre-layout

- Transmission plane editor
- Complete what-if analysis
- Create board outlines, plane voids, add copper
- Place and move caps, change models and parasitics, modify mounting
- Change stack-up, dielectric
- Add power pins, stitching and bypass vias
- Decoupling and noise analysis

Visit our website at www.mentor.com/pcb

Post-layout

- Read board data into HyperLynx layout analysis environment
- Analyze impedance profile of PDN
- Export to pre-layout environment to do what-if analysis on adding/removing caps, changing values, changing mounting, changing stack-up
- Perform a noise analysis to visualize the decoupling strategy

Model Extraction

The need to properly characterize vias in the multi-gigabit domain is essential for SERDES busses. With HyperLynx PI, you can create highly-accurate models of vias that include the entire bypassing network of the board, all stitching capacitors and vias, and the effect of energy radiated into the planes and plane resonances.

HyperLynx PI also allows for extraction of PDN models. These can be extracted as S-parameters, Z-parameters, or Y-parameters and are portable among simulators.

Supported PCB Layout Systems:

- Mentor Graphics PADS® Layout, Expedition™ PCB and Board Station®
- Cadence Allegro, SPECCTRA and OrCAD Layout
- Altium Protel and P-CAD
- Intercept Pantheon
- Zuken CADStar, Visula and CR3000/5000 PWS or Board Designer

Platforms Supported

- Windows 2000/XP/Server2003, Linux RHEL 3/4/5 and SLES 9/10

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