The Right Way to Design Boards that Work
InStack® Design - The Right Way to Design Boards that Work

Fast stackup design optimization

InStack® is an industry-proven software solution that enables you to design the most challenging stackups in minutes, taking all mechanical and signal integrity (SI) constraints into account. Your fab house probably uses InStack to select your stackup. Now you can use your own custom version of InStack: InStack Design. Using standard industry materials or material libraries provided by PCB suppliers, you can model and verify thickness, impedance and losses quickly and accurately, even for the most complex multi-zone structures. Designing stackups with the right tradeoffs to meet your board requirements helps reduce PCB costs, improve product quality and shorten manufacturing lead-time by eliminating lengthy exchanges with fabricators.

Cut design time

InStack Design stackup and impedance designers can achieve in minutes what previously took experts hours of work. Whether using automatic or manual stackup design, InStack Design ensures that all zone thickness and impedance calculations are up to date. InStack Design delivers the most cost-effective stackup solutions while meeting all design rules.

Reduce revision spins

Reduce preproduction revision spins, shorten lead-time and improve quality by generating precise stackup designs that consider design rules, resin starvation checks and supplier process rules. Use your fabricator’s materials library to ensure that designs can be manufactured within allowed tolerances. Automatically apply pressing rules and copper etching factors to match your PCB supplier’s process rules.
Make the most of your process

Take control of your stackup, the foundation of your board

Only you can make the right tradeoffs between signal integrity, reliability, cost and complexity. Simulate your real stackup as you create it and make sure all your SI and layout needs are met. Then send the stackup to your fabricator for immediate manufacturing. Modify a stackup provided by your fab house to meet your needs or adapt it for use as a prototype for other fabricators, while maintaining the crucial properties of the board.

Tell your fabricator what you need, electronically

Exchange your stackup designs electronically with fabs. All details of the job including impedances, materials, and stackup properties are included as well as calculation sources and results. Receive electronic stackup proposals that include the same level of detail and have full visibility and understanding of the fab stackup proposal.

Export your stackups to Hyperlynx® and other simulation tools for end-to-end simulation

Use your real stackup in your IBIS- or HSPICE-based simulation and rest assured that your simulation is as accurate as possible.

Conquer flex and rigid-flex with multiple zones

Create complex designs with automatic multi-zone buildup creation and advanced buildup editing tools, including air gap formation between flex clads, adding stiffeners and other accessories, and placing rigid and flex materials side by side. Use the Flex Buildup Editor to define zones for copper layers, masks, drills and materials, and to add and define coverlays, stiffeners and other accessory materials. InStack Design also supports crosshatch layers and EMI shielding.

Design your stackup early on, your layout depends on it

Create manufacturable stackups early in the design process, even at the pre-layout phase. Use accurate spacing and pitch selection tools to precisely plan your routing resources and select the correct number of layers before you begin routing.

Ensure manufacturability

InStack is the leading tool your fabricators use to manufacture your boards. When you design with InStack Design you can be sure your stackup is manufacturable. InStack Design brings fabrication know-how to you.
Accurate impedance and SI simulation

Use InSolver®. InStack Design’s built-in impedance solver, to automatically calculate impedance. InStack Design’s easy-to-use interface lets you create multiple impedance constraints on each layer and select any layer or conductive material as reference layers per constraint. As stackup materials are selected, InStack Design automatically calculates copper and dielectric thicknesses and optimizes the trace widths to meet impedance requirements. In addition, InStack Design can accurately model dielectric, resistive and total attenuation for a range of frequencies, enabling you to select the most cost-effective material that meets your performance requirements.

Revision-controlled stackup database

All stackups are stored in InStack Design’s revision-controlled database enabling operators to track changes between revisions and compare revisions and/or jobs. Derivative stackup design becomes a simple task as you can quickly search for similar stackups, duplicate the existing stackup, and modify the stackup and impedance in just minutes.

InSolver® is powered by Mentor Graphics HyperLynx® technology

Get a full visualization of how your board will be built

InStack Design shows you a detailed visualization of how your board will be built that includes all sub-assemblies and processes.