



SIEMENS

Ingenuity for life

PADS Standard Plus

Advanced Engineering and Design

Benefits

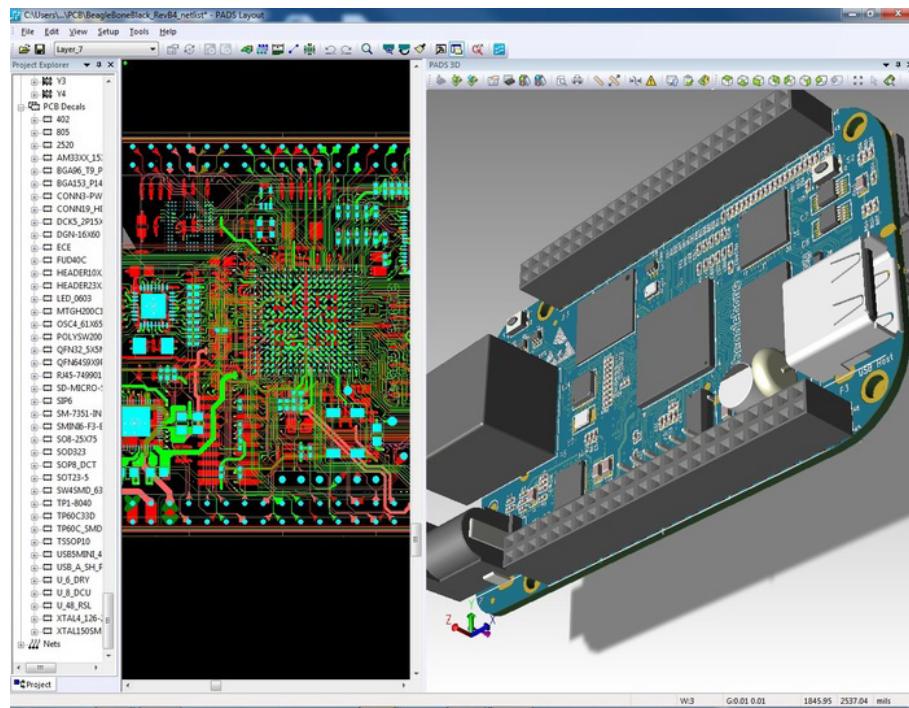
- Easy to learn and use
- Proven technology for PCB design, analysis, and verification
- Accurately handles your tough design problems
- Reduces design time
- Full 3D visualization, placement, and clearance check
- Enables collaboration with MCAD environment

Overview

PADS® Personal Automated Design Solutions provide an easy-to-use environment that helps solve the PCB design challenges you meet every day. Using PADS, you will get your job done faster and better, while saving costs.

Targeted toward the independent engineer who requires a more complete design flow that includes advanced toolsets, PADS Standard Plus is equipped with enhanced layout and integrated analysis and verification, supplying all you need to produce quality PCBs, fast.

Easy-to-use schematic and layout translators help import libraries and designs from your current toolset, whether it's Allegro®, Altium® Designer, CADSTAR®, OrCAD®, P-CAD®, or Protel®.



PADS Standard Plus is an easy-to-use, complete desktop design flow for PCB hardware engineers and layout designers requiring higher productivity.

PADS Standard Plus

“As an intuitive and compact yet powerful CAD tool, the PADS suite is an engineering cornerstone that has helped grow our business from the bottom up quickly and efficiently. By leveraging PADS features congruent to our low-volume, high-mix business model, we have increased the number of SKUs offered to our customers by an order of magnitude by developing design reuse modules deployed at multiple design levels. This combination of CAD flexibility, as it applies to our technology requirements, customer markets, and delivered successes, has helped us grow our business to be one of the leading suppliers of our services in our area.”

Rittenhouse Engineering, LLC

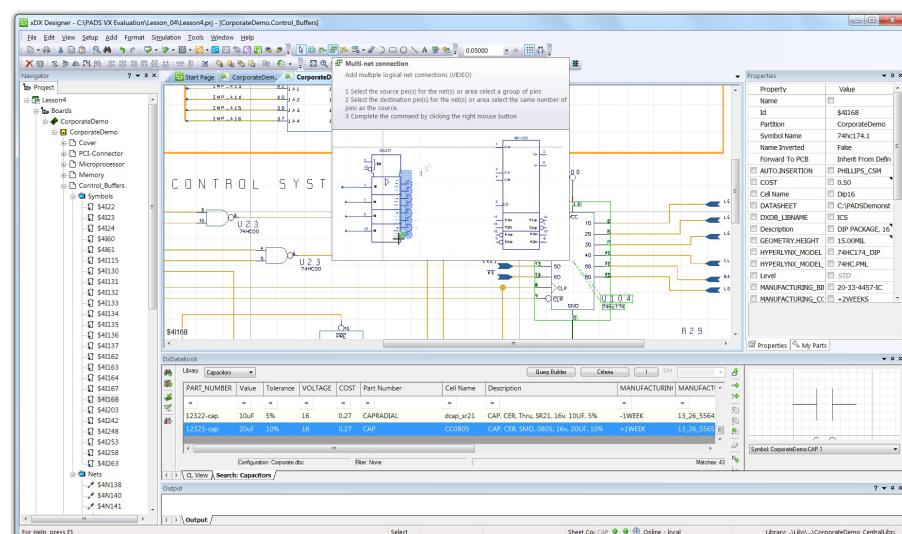
Schematic Design

PADS includes broad capabilities for system design capture and definition. Intuitive project and design navigation, complete hierarchical support, a starter library, and advanced design attribute and design rules management make it easy to capture and define your schematic. Achieve efficiency and productivity with full forward and backward annotation to layout and routing and a direct link to signal integrity analysis.

PADS central database includes all design rules and constraints with online DRC. The multi-level hierarchy guides you through the process of capturing rules in an easy-to-view spreadsheet user interface, automatically updating the layout as you go. Default, class, net, group, pin pair, layer, conditional, and component rules are included. High-speed rules include differential pairs, matched lengths, maximum and minimum length, and support of DDR topology (virtual pins and associated nets).

Component Management

With PADS component management, you have access to all component information from a single spreadsheet, without concern for data redundancy, multiple libraries, or time-consuming tool overhead. PADS easily integrates with corporate component and MRP databases through Access® and Excel®, enabling geographically dispersed design teams to access central component information.



Included in all PADS configurations are intuitive project and design navigation, complete hierarchical support, and advanced tools for design rules and attribute management. Video tooltips ease the learning curve.

With PADS component management, databases are kept in sync and up-to-date, thus avoiding costly redesigns and quality problems that otherwise might be undetected until late in the design cycle.

PartQuest™

Use PartQuest, <https://partquest.com>, to research, identify, and purchase the right parts for your design. Then download the schematic symbol, footprint, 3D STEP model, and parametric information directly into your PADS library. All part models not readily available through search can be built for free and added to your library within 24 hours.

Archive Management

With PADS, you can create multiple backups of your project data and easily retrieve that data later for review and modifications. You don't have to worry about losing design data while performing different scenarios (e.g., constraint management, simulation and analyses, different placement options), as PADS automatically creates archives of each scenario, saving you time and costs.

View and search the vaults to see contents quickly and easily with graphical preview. Use the vault to restore backups, create a new project from existing archives, and compare versions.

Improve team collaboration with archive searching, report generation, and comparison.

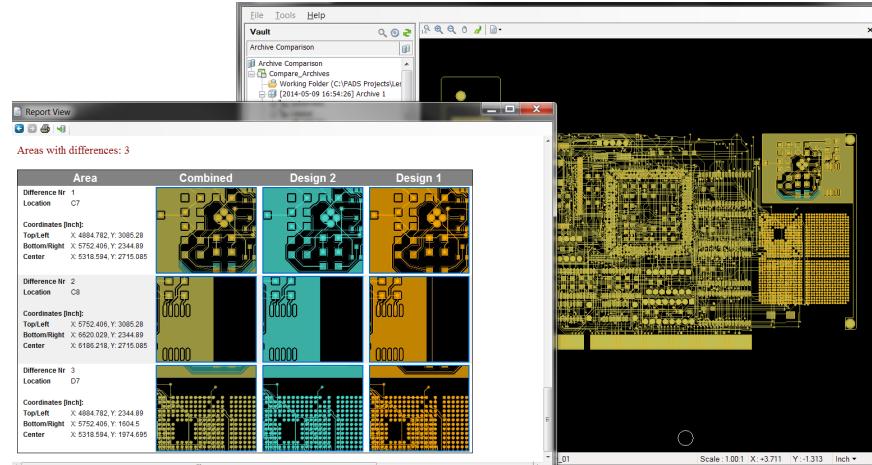
Add comments and information easily with intelligent red-lining that associates specific design objects and organizes comments logically by issue or topic.

Analog/Mixed-Signal Simulation

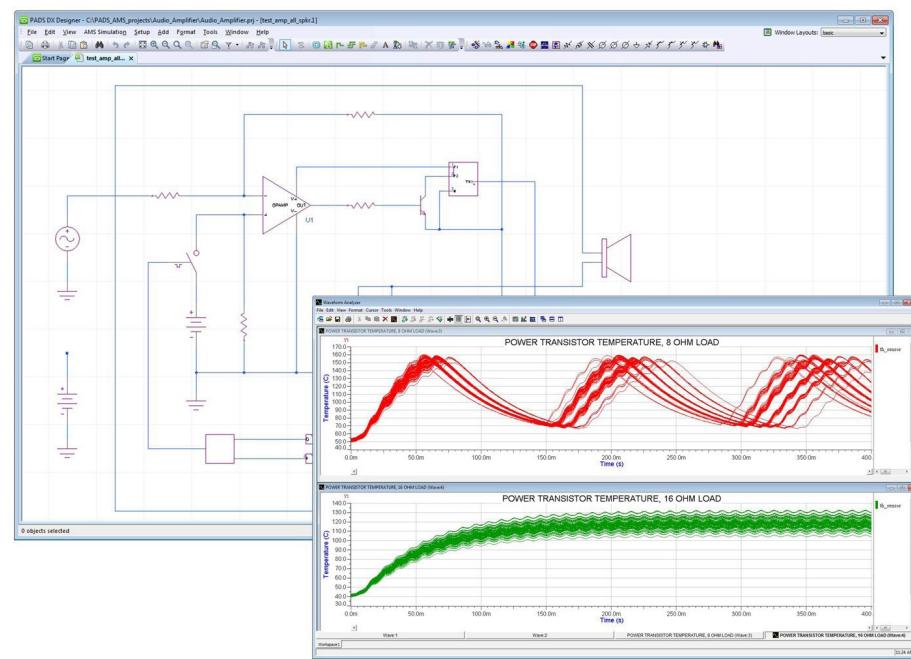
PADS Standard Plus includes advanced circuit simulation with comprehensive analysis for analog, mixed-signal, and mixed-technology PCB circuits. Bring circuits in from PADS AMS Cloud to drive simulation and PCB, then use powerful SPICE and VHDL-based technologies to help understand and verify circuit behavior.

With PADS Standard Plus you can also optimize for real-world variability by exploring various scenarios to determine which parameters or conditions most affect circuit performance.

PADS contains thousands of popular proven models, access to extensive external vendor libraries, the ability to import and convert existing PSpice libraries, and drag-and-drop symbol generation for automatic symbol creation using commonly found SPICE models.



View reports graphically to compare differences, easily generate reports, and add red-lining and markups for future reference.



PADS Standard Plus schematic includes an integrated analog simulation environment that makes it easy to drive simulation and PCB layout and shorten overall design time.

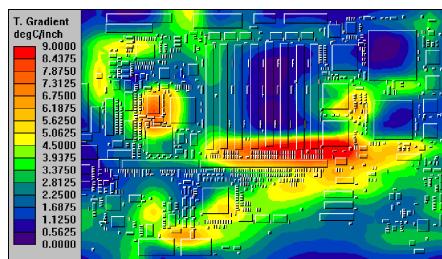
Signal Integrity Analysis

Signal integrity (SI) analysis is essential for today's designs. Fast edge rates in today's integrated circuits cause detrimental high-speed effects. Issues such as signal degradation ranging from over/undershoot, ringing, crosstalk, and timing problems, occur even in PCB designs running at low frequencies. PADS SI analysis is fully integrated with the schematic, letting you run pre-layout analysis early in the design to identify critical problems. After layout you can analyze signal integrity and timing at three important stages: following part placement, after critical net routing, and after detailed routing of the entire board.

PADS signal integrity analysis is powerful and easy enough for anyone to use. You don't need to be an SI engineer to define routing constraints, verify your routed board, and ensure your design goals are met.

Thermal Analysis

PADS is unique in enabling early thermal analysis of your board. As soon as placement is complete, you can analyze board-level thermal problems on placed, partially routed, or fully routed PCB designs. Temperature profiles, gradients, and isothermal maps enable you to resolve the board and component overheating early in the design process. PADS thermal analysis takes conduction, convection, and radiation cooling effects into account, helping you identify and take appropriate action on any potential "hot spots."



Thermal analysis is available directly from within PADS Standard Plus.

PCB Layout

Save countless hours of design time with the advanced layout and routing capabilities in PADS. Advanced design rules with real-time design rule checking and bi-directional cross-probing ensure that boards adhere to your design specifications. With PADS, you can eliminate costly fixes after prototype and manufacturing. Dynamic copper planes are easy to create and edit for split and mixed planes as well as copper areas on signal layers.

RF capabilities include via-stitching for easy creation of co-planar wave guides and the ability to flood a region with vias according to your rules. Importing complex RF shapes and chamfered corners is also supported.

You can also achieve significant time savings with physical design reuse, in which you repeat placed and routed complex circuits in channel designs or duplicate the circuit for creating new designs.

Auto-dimensioning, direct DXF import into the board and part library editor, advanced fabrication verification tools, assembly variant functions, and 3D viewing and editing are also included.

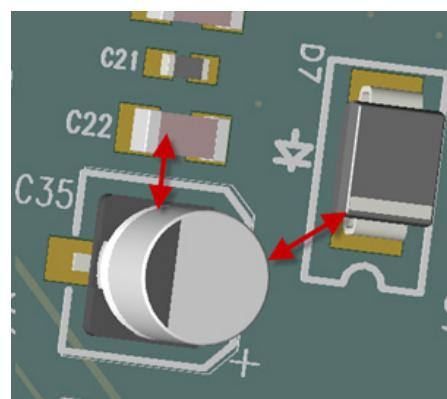
Optional capabilities include advanced packaging utilities for bare die design, test-coverage auditing, an IDF link to third-party CAD/CAM tools, and ECAD-MCAD collaboration.

3D Visualization and Editing

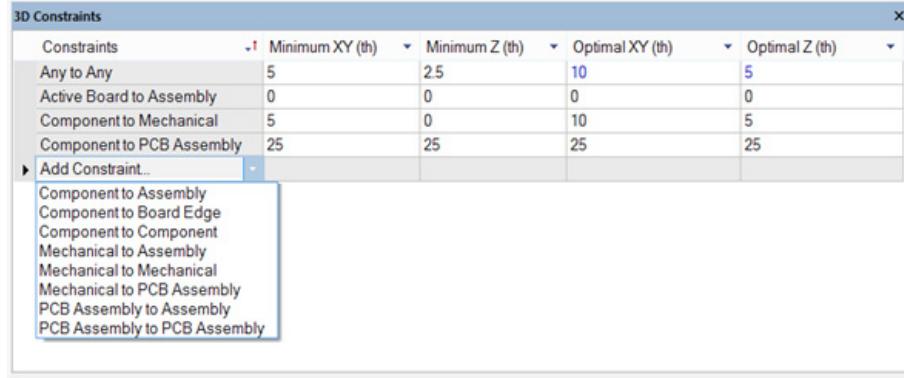
PADS Standard Plus adds quality 3D visualization and editing capabilities to your layout environment. With PADS you have photorealistic visualization of your PCB assembly, including components, pads, traces, silkscreen, solder mask, and more. It also provides dynamic object synchronization. Eliminate costly and time consuming errors by visualizing the PCB in 3D, and identifying conflicts with other devices or mechanical objects.

Easily place components in 3D, take measurements and run clearance checks based on your PCB design constraints. You can use online DRC during placement, and batch DRC for the entire, making your layout process quick and efficient.

You can add 3D models to your library by simply importing STEP files, making 3D components, enclosures, and board assemblies accessible and ready for use easily. You can also export your assembly at any time to STEP, 3D PDF, JPG, and more, making collaboration and documentation easy and effective.



Use PADS 3D to easily measure distance and object-to-object minimum distance. Measurements can be taken from axis, edge, face, and point.



PADS Standard Plus provides 3D design rule checks, based on your PCB design constraints and clearance definitions.

Collaboration with MCAD

Collaborate with your mechanical CAD system using IDX data exchange files to communicate design intent between electrical and mechanical CAD systems. You can preview and consider design proposals, then accept, reject, and counter-propose design proposals between disciplines at any time throughout the design process. PADS keeps you and the MCAD designer in your respective system's comfort zone, making collaboration effective and convenient.

With PADS you can easily collaborate within your own environment, consistently and iteratively, with an intuitive 3D visualization of both the PCB and enclosure. With fast and effective communication between you and the mechanical engineer, you can get products to market faster, while keeping development costs low.

Proven routing algorithms let you apply robust design rules and advanced design constraints between objects or groups of objects, such as components, layers, nets, and vias.

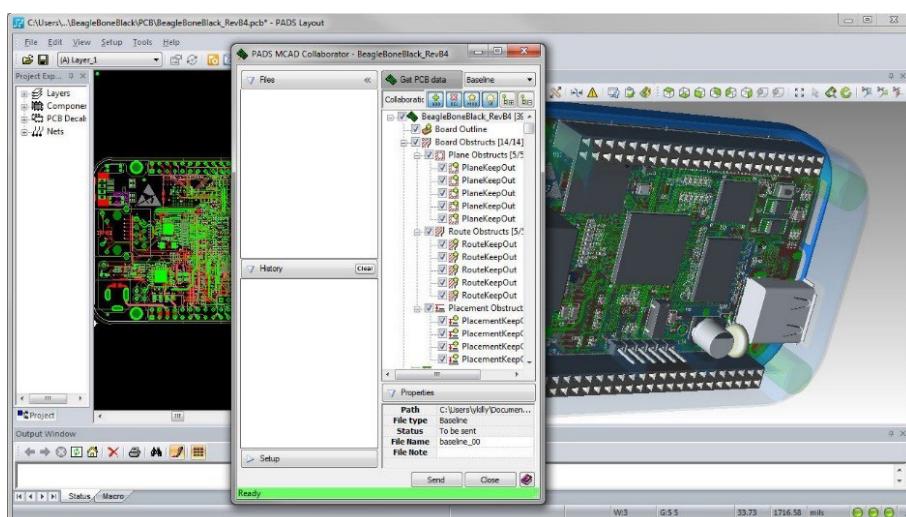
Operations best suited to an autorouter include fanout and routing by individual components or groups of components.

After routing your critical nets, use post-layout verification to analyze signal integrity and timing, and to ensure your design criteria are met before sending your board to manufacturing.

Routing

Easily and interactively route all your design elements, including analog, digital, and mixed-mode, with PADS. You have control over all routing aspects and can choose between orthogonal, diagonal, and any-angle styles.

Sophisticated design rules guide trace-length requirements and make it easy to interactively route differential pairs. Intuitive graphical monitoring tools provide real-time feedback for immediate visual validation.



Connect electrical and mechanical domains with PADS Standard Plus.

Optional: Advanced PCB Layout

To speed your time to completion and increase manufacturability, add the Advanced PCB Layout option for DFT, high-speed autorouting, and advanced packaging.

Design for Test

PADS can automatically insert test points as part of the normal routing phase, to optimize test points placement. You can set rules for component pad entry and via placement under SMD pads and then check them using post-route audits and design verification.

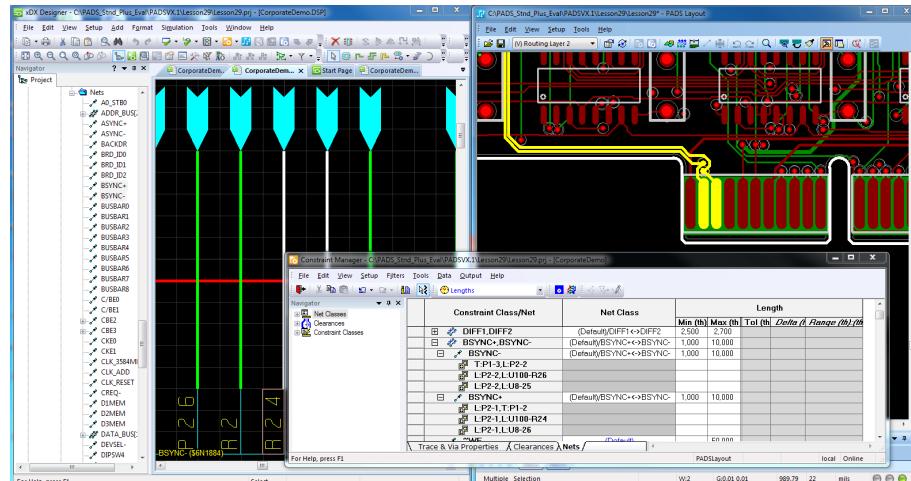
High-Speed Autorouting

Automatically route constrained nets with the high-speed autorouter. Differential pairs, maximum and minimum length nets, and matched-length nets can be completed quickly and verified to the defined constraint.

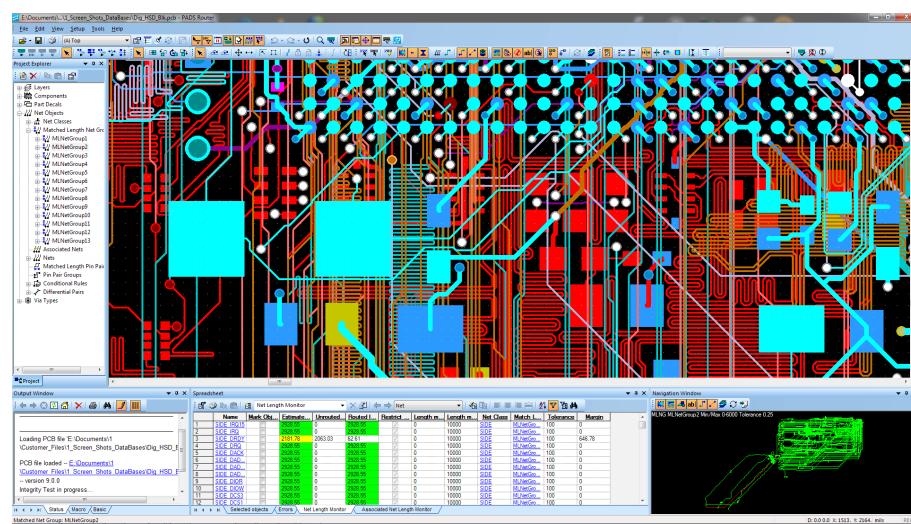
Advanced Packaging

Significantly reduce package design time and improve your PCB design quality with PADS advanced packaging tools. PADS automates key aspects of the package design process, such as die capture, rules-based wire bond design, flip-chip definition, and report generation, to improve the quality of your final design.

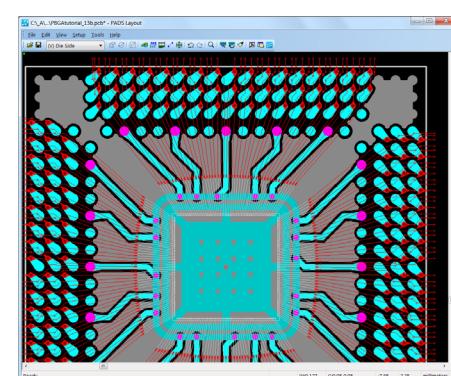
With PADS you can easily design and place bare-die components on chip-on-board (COB) and multi-chip modules (MCM), ball grid arrays (BGAs), and chip-scale packages (CSPs). A variety of die, die flag, and route wizards make it easy to route single-chip packages and define die flags.



Set design constraints from either the schematic or layout in a spreadsheet-based editor.



The Advanced PCB Option allows automatic routing of high-speed constraints.



Advanced packaging tools reduce design time when designing with bare-die components.

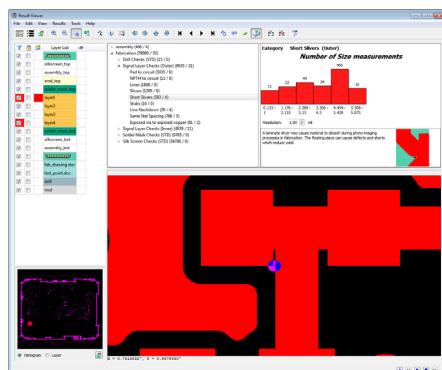
Optional: Design for Manufacturing Analysis (DFMA)

With DFM analysis in the PADS flow, you can minimize production issues, achieve fewer revision spins per design, and save time in your release schedule.

Ensuring that your design is prepared correctly for manufacturing is critical because PCB manufacturers value fast throughput more than quality, meaning design changes made to expedite production may not be communicated back to you.

To retain control over your design, it's essential to find and resolve problems such as resist slivers, unintended copper exposed by soldermasks, and improper testpoint-to-testpoint spacing during layout. By validating your PCB layout for fabrication and assembly before manufacturing, you'll save money and get your product to market more quickly.

PADS DFMA includes more than 100 of the most commonly used fabrication and assembly analyses, making it easy to identify issues that cause production delays. After performing critical net routing, use post-layout signal integrity analysis to analyze signal integrity and timing and ensure that all design criteria are met before sending your board out for manufacturing.



Adding DFM analysis lets you identify assembly and test issues before they cause production problems.

Customizable User Interface

If you like to modify your tools to the way you work, PADS permits on-the-fly customization of menu items, toolbars, and hotkeys. Simply drag and drop new icons onto new or existing toolbars. The customizable user interface also supports savable workspaces, allowing easy storage and recall of screen layout preferences when multiple designers share the same computer. There is even an editing environment for creating custom macro applications using Visual Basic (VB) or C++.

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