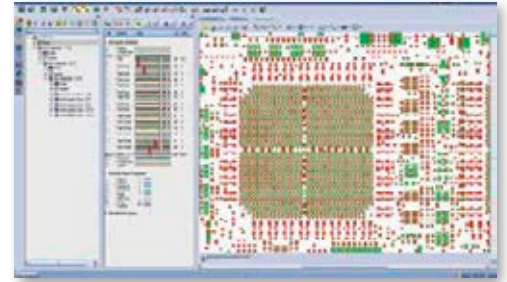




Engineering/InPlan®
**Automatic
Engineering
System**

InPlan® - Automatic Engineering System



InPlan is a comprehensive PCB automatic engineering system that synergizes sophisticated engineering know-how with state-of-the-art preproduction planning tools to design the optimal manufacturing process.

Using InPlan's rules engine, electronic specs, and dedicated wizards, planners generate processes with the right sequence of operations, create a bill of materials (BOM), and issue tooling instructions.

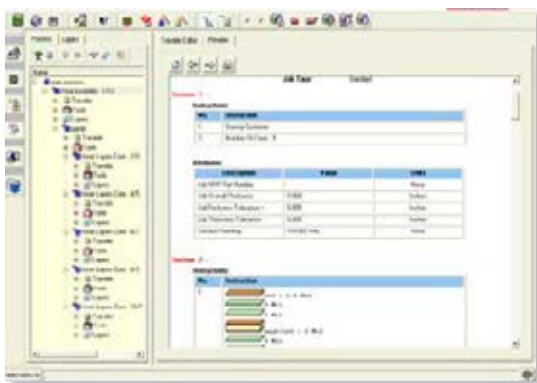
InPlan leverages your engineering expertise to lower costs, accelerate time to market and provide a reliable solution to PCB delivery bottlenecks.

Significantly reduce cycle time

InPlan's focus on automation reduces process planning time and eases front-end bottlenecks. Cut manual data entry and increase throughput to meet the tightest deadlines with automated stackup and panel design, traveler creation, NC tool assignment, CAM instruction creation and BOM generation.

Traveler

Reduce cycle time by automatically generating travelers - sets of rules-driven manufacturing work instructions - that list all the procedures in a PCB fabrication process, fully integrated with your ERP system.



NC Tools

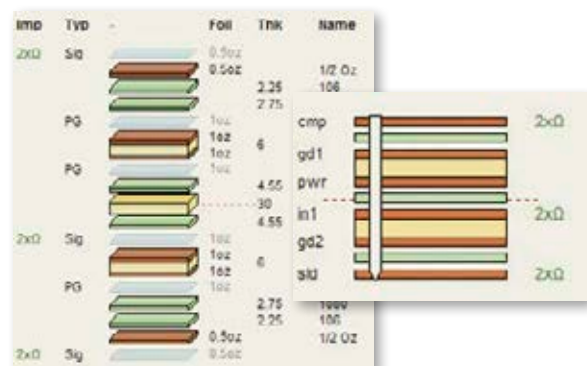
Automatically define NC bits and tooling methods and automatically add drill bits to the BOM to calculate board costs and help plan the work process.

Cut material costs through optimized stackup and panel design

Minimize material costs by automatically generating cost-optimized stackups and running dedicated wizards to generate array, panel, and material cut design options that guarantee cost-efficient material utilization.

Create cost-optimized, impedance-controlled stackups

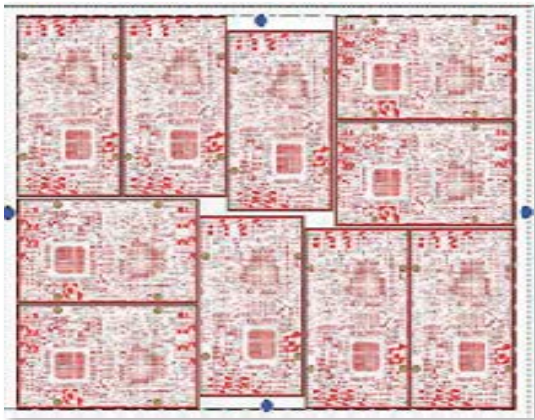
Produce the optimal stackup for your board in minutes. Drive down costs and reduce impedance-related scrap with accurate modeling of multiple PCB structures, while solving impedance constraints.



Ensure optimal material utilization

Solve panelization challenges and cut material costs with automatic shape interlocking, flipping, and gold connector consideration. Run automatic coupon placement, produce optimal cuts from

sheets and rolls, and adjust panel layouts with smart editing tools.

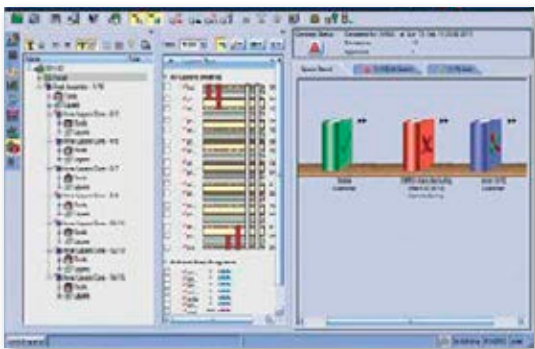


Guarantee quality by improving accuracy and consistency

Enhance accuracy and deliver standardized process planning with electronic specs and user-defined engineering rules. Ensure that all stages of the planning process are completed before transferring the job to the ERP system.

Ensure compliance with all relevant specifications

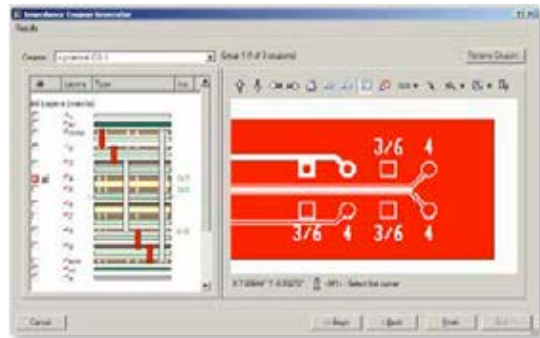
With manufacturing, customer, and order specs stored electronically, there is less room for error. Attach specs to jobs, automatically compare job data, and get results in seconds.



Automatically generate impedance coupons

Quickly generate quality impedance coupons for impedance-controlled boards and replace error-prone manual layouts with automatically computed coupon sizes, content, and quantities. Export coupons to Frontline CAM products. Automatic coupon generation is also available

as InCoupon, a standalone product within the InPlan suite.



Integrate your engineering process with CAM and MRP

Integrate data from CAM and the central InPlan database as well as your back-end server to ensure consistent, up-to-date job data.

Output planning data to your MRP system

Integrate InPlan data with your MRP system to prepare for production. Automatic data synchronization reduces replicated data entry, eliminating bottlenecks and errors.

Two-way integration with Frontline CAM systems

Synchronize layer and job data from Genesis 2000 and InCAM. View layers, drill programs, ODB++ checklists, and production panels for prompt decision-making.

CAM instructions

Generate rules-driven instructions to CAM operators for solving production issues, including editable snapshots created in InPlan's CAM Viewer.

Centralize data in a customized electronic knowledge-base

Enhance efficiency and reduce operating costs by storing all your company's knowledge and expertise in a central database, accessible to all authorized personnel.

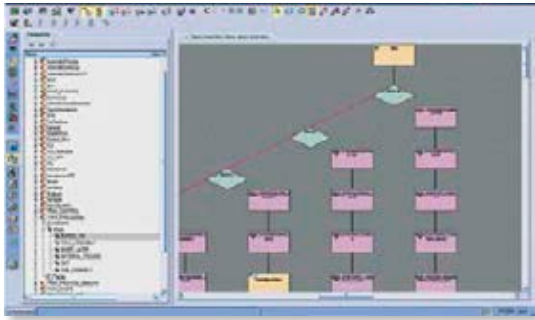
Powerful relational database

The central database integrates with all engineering applications to support archiving, revision control, and front-end operations to prevent data duplication.

Make the most of your process

Rules and flows

The Rules Editor lets you create rules that replace subjective planning decisions with systematic automated ones, branding your company's outputs with a uniform logic.



Material and Drill Bit Libraries

The Material Library is your electronic material warehouse with all the materials available at your manufacturing plant for the stackup and BOM. The Drill Bit Library contains all of your company's drill bits. Perform bulk drill bit imports during initial system implementation and easily manage inventory.

Produce high-quality documentation

Produce customizable engineering process planning reports in seconds and view, print, or save them as PDF or Word documents.

Technical queries

Automatically send technical queries to your customers in a configurable document with easy-to-understand graphic snapshots and notes.

Bill of Materials

Generate a comprehensive BOM – a list of all the materials required for each PCB fabrication process, such as copper foils or drill bits.

InPlan Flex® - Automatic Engineering for Flex and Rigid-Flex PCBs

Meet the unique challenges of flex and rigid-flex PCB engineering with InPlan Flex. InPlan Flex brings together all the power of InPlan, and adds the ability to generate multi-zone buildups

and stackups, solve panelization challenges, and define special processes for accessory materials like coverlays and stiffeners.

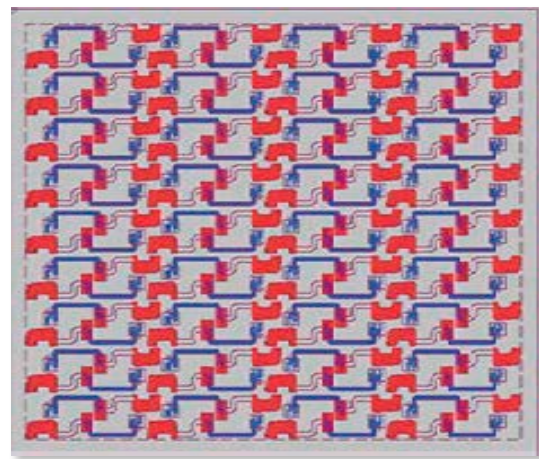
Multi-zone buildups and stackups

Simulate challenging designs with automatic multi-zone buildups and sophisticated buildup editing tools, including adding stiffeners and other accessories, and placing rigid and flex materials side by side.

Create all required zones automatically when syncing CAM jobs for faster, more accurate buildup definition, and accurately calculate the thickness specific to the topography of each zone.

Ensure optimal flex panel design

Solve panelization challenges and cut material costs with complex shape interlocking at any angle of rotation, accessory panel support, die shape creation, and smart editing tools. Automatically identify optimal roll material cutting length, assembly panel size, and punch block size.



Material tooling processes

Define prefab tooling processes and related materials with a dedicated tooling process manager by assigning the materials to rout or punch tools for automatic cutting process creation.

InStack® - Automatic Stackup Designer

InPlan's stackup capabilities are also available as a standalone product for precise stackup design and simulation. InStack offers automatic and manual stackup and impedance design, automatic extraction of job information from CAM, and high-quality stackup documentation to vastly reduce stackup planning time and minimize material costs. InStack is also scalable to full InPlan.



InSolver® - Impedance Field Solver

Access the power of Frontline's impedance field solver as a standalone product and embedded into the InPlan product suite. InSolver provides fast and accurate impedance calculation for multiple PCB structures, accelerating InPlan's automatic stackup design.

InSolver also delivers calculation of frequency dependent losses and RLGC parameters for high-speed designs, and true field solving for crosshatch reference layers, common in flex circuit boards. Improve collaboration by using the same proven solver engine as board designers.



Frontline PCB Solutions is the world leader in PCB CAM and Engineering software solutions, offering the only end-to-end preproduction solution in the industry, from design to manufacturing.

A joint venture of two industry leaders, Orbotech and Mentor Graphics, Frontline has the unique expertise to offer customers smart, innovative solutions for transforming complex designs into outstanding end products.

Frontline has a strong track record of success, with more than 20 years' experience, thousands of projects and over 10,000 installations worldwide. Frontline's comprehensive range of products and services seamlessly integrate enabling our customers to implement efficient, straightforward workflows and achieve their fullest potential. We build long-term partnerships and are deeply committed to our customers' success.

www.frontline-pcb.com
info@frontline-pcb.com

- **Orbotech America** Tel: (617)-480-8208
- **Orbotech Europe** Tel: (32)-2-727-4863
- **Orbotech China & Taiwan** Tel: (852)-2827-6688
- **Orbotech South East Asia** Tel: (65)-6567-5657
- **Orbotech Korea** Tel: (82)-31-410-3939
- **Orbotech Japan** Tel: (81)-3-6367-2505
- **Frontline Headquarters** Tel: (972)-8-932-2183

