The Frontline Product Suite

The Frontline product suite delivers comprehensive and scalable support for preproduction operations, opening a vertical data channel to the PCB Design and Assembly industries and integrating horizontally with fabrication equipment and machinery on the production floor. Frontline provides a unified data format for all preproduction stages, a true open system approach and seamless data integrity.

Frontline’s product line comprises integrated software products that automate the entire preproduction process for PCB manufacturing, from preparing a quote, to process planning and CAM, all the way to the production floor.

Accessory Tool Creation
- Automatically create punch shapes from designer-defined outlines.
- Define repeatable sets of punch tools or accessory materials (such as coverlay and stiffeners) that can be combined for different PCBs in the panel, each with its own tooling hole set.
- Automatically panelize stiffeners added after lamination.
- Create dimensioned drawings based on predefined templates for the production documentation set.

Rigid-Flex Production
- Define different outlines for rigid and flex layer sets for use in different analysis, editing and DFM functions.
- Run rigid-flex checks that combine flex analysis tools with checks on the interface area between the rigid and flex parts of the board.

Tooling Hole Placement
GenFlex's Tooling Hole Placement algorithm and interactive Tooling Holes Editor enable operators to add dedicated tooling hole sets to groups of steps according to production requirements. Operators can verify the accuracy of results by running Tooling Hole Checks.

Minimal System Requirements
For minimal system requirements please visit our website at http://www.frontline-pcb.com/category/GenFlex_Features

About Frontline PCB Solutions
Frontline PCB Solutions is the world leader in preproduction CAM and engineering software solutions for the PCB industry. Frontline draws on proven technologies from Orbotech and Mentor Graphics to create new standards in vertical and horizontal integration for the PCB industry. Frontline builds on the strategic vision, knowledge base and hands-on track record of two market leaders, as well as over three decades of experience and the largest installed base of front-end solutions in the world, of over 8500 seats.

- State-of-the-art analysis and editing for flex and rigid-flex circuit boards
- Fast global revision through dedicated flex DFM tools
- Advanced flex CAD tools improve yield and reduce job cycle time
- Automatic panelization for flex boards, with interlocking and any angle rotation
- ODB++ for seamless integration with design and assembly
- From the world’s leading CAM and engineering software vendor
The Flexibility you Need. The Ingenuity you Want.

GenFlex, the world’s first CAM solution for flex and rigid-flex printed circuit board manufacturers, streamlines design analysis, editing, tooling and workflow management to maximize preproduction speed and quality.

Using highly sophisticated algorithms, GenFlex supports your most complex and time-consuming layout editing tasks, ensuring the highest quality and the manufacturability of your production tools.

GenFlex easily integrates into your production environment with its modular design and user-friendly GUI, increasing yields and lowering production costs.

The Dedicated CAM Solution for Flex and Rigid-Flex PCB Makers

GenFlex gives you all the advantages of CAM with dedicated solutions to meet your specialized flex PCB production needs.

Analysis
The GenFlex Design Analyzer gives engineers the freedom to review designs before, during and after tooling. Its intuitive, interactive layout facilitates preproduction reviews and manufacturability analysis.

- **flex analysis** checks construction restraints for flex boards and reports problems related to stiffeners, air gaps in adhesives, pre-bend areas in flex boards, l-beam trace overlaps, sharp trace joints, and conductive silver masks.
- **Panel gold plating checks** check that all gold-plated tabs are correctly connected to the appropriate gold plating bars in the production panel.
- **Tie down generation** – Automatically optimized coverlay, covercoat and conductive silver masks.
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Design for Manufacturability of Flex PCB boards
GenFlex’s powerful DFM (design for manufacturing) tools fully automate manual editing sessions, reducing errors and cycle time. In addition, GenFlex’s dedicated flex PCB preproduction tools simplify data and optimize production while significantly increasing yields.

- **Smooth joints and surfaces** – Automatic curving or smoothing of signal layer data, as needed.
- **Coverlay optimization** – Fully automated coverlay, covercoat and solder mask optimization, slashing hours of work to minutes.
- **Tiedown creation** – Automatic tie-down creation by increasing pad size, adding vector extensions or extending the SMD length.
- **Coverlay tool creation** – Automatically optimized coverlay tooling includes automatic tweaks to meet punch, drill or rout specifications.

Ensured Editing Safety
GenFlex’s easy-to-use Graphic Editor eliminates operator-introduced design errors. Based on an online netlist and DRC technology, its highly intuitive interface reduces training time, increases productivity, and displays all affected layers in a process at once. CAD-style functionality contributes to optimum yield growth. Graphic Editor tools include rounding busses, moving complete pad stacks with their related connections, connecting line bundles, offset polyline and an interactive spacing repair tool.

Automatic Panelization
GenFlex’s Automatic Panelization package consists of two parts:

- **The Automatic Panelization Layout Optimizer** finds the optimum position for flex PCBs on the panel in just seconds by combining automatic complex shape interlocking with the best rotation angle to achieve optimum material usage.
- **The Panelization Wizard** helps operators automatically apply a panelization scheme to the PCB and create a panel. The Wizard places dynamic text, tooling and registration targets, and plot stamps according to user-defined rules. An index number for each array or PCB can be automatically printed on the panel layer for easy part identification and tracking.

What can GenFlex® do for your Production Line?
GenFlex is expertly designed to meet the special challenges of flex board production – better, faster and more efficiently than ever.

GenFlex gives you:

- **Uncompromising design integrity**
- **Optimum operator efficiency and speed**
- **Minimum revisions**
- **Maximal yields**

GenFlex’s top-of-the-line CAM delivers highest quality flex PCB production in a fraction of the time.
The complete CAM solution for flex and rigid-flex manufacturing

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- Tooling holes checks analyze defined tooling hole sets and ensure that they do not interfere with the production process.

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Intelligent & manufacturable data

InCAM  Genesia2000  GenFlex  InPlan  InPlanFlex  InStack  InCoupon  InSightPCB  InSolver  World’s Leading CAM Solutions

World’s Leading CAM Solutions

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