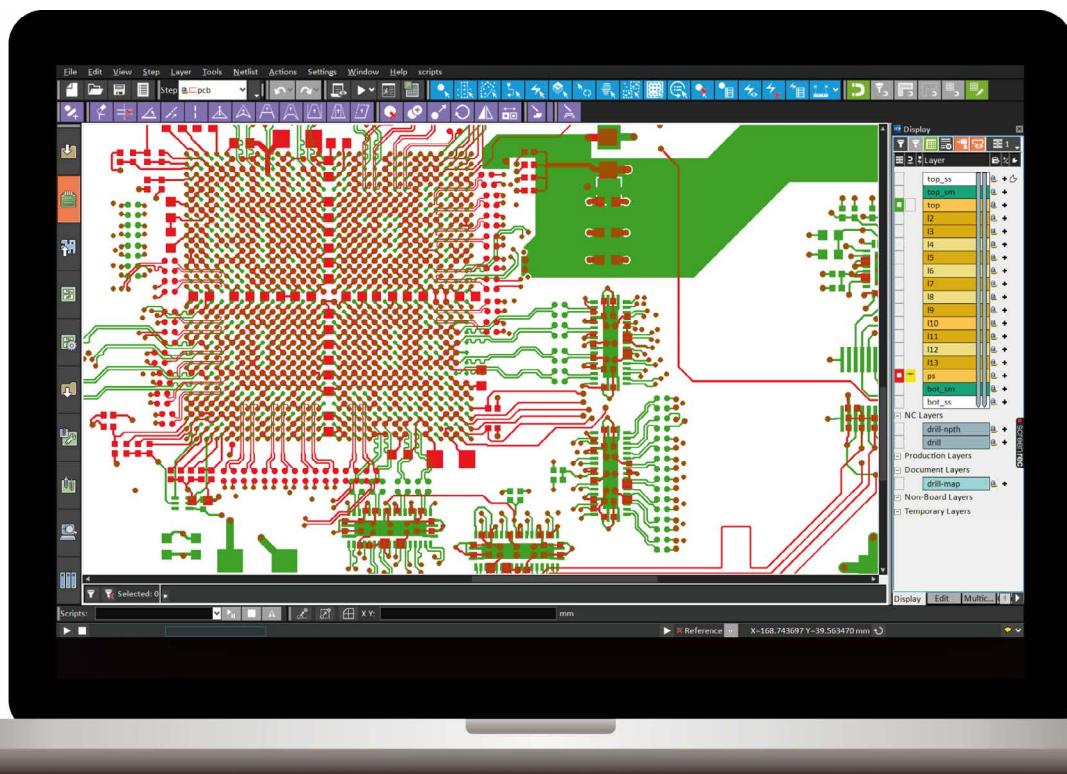


Frontline InCAM[®] Pro

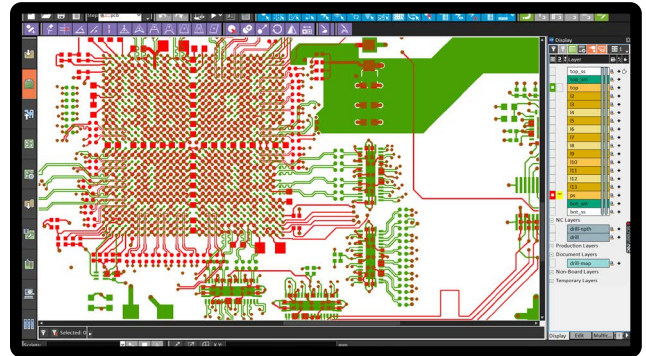
It's a new CAM era



Make the most of your process

Frontline InCAM Pro is a new CAM system for PCB manufacturers, housing some of the most sophisticated technology we've ever developed. Intuitive and blazingly fast, Frontline's new flagship product redefines what's possible in the CAM we use every day.

- The fastest CAM we've ever made.
- The most intuitive UI we've ever made.
- More responsive to evolving needs.



The fastest CAM we've ever made

Increase revenues and accelerate time to market

Frontline InCAM Pro enables faster turnaround for MLB and all job types, and excels at speeding up simple data and automated flows, courtesy of clever algorithms and infrastructure, simultaneous processing, and extended RAM usage. Feel the difference, from the step-up in response time to the satisfying way the software reacts to user input.

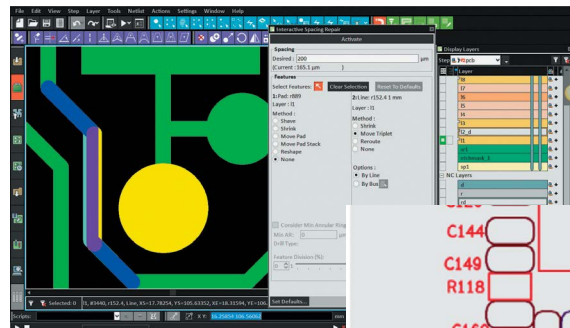
Faster time-consuming processes

- Shapelist Pro – Fast shape-related calculations speed up DFMs and analysis.
- Memory Plus – Boosted memory drives faster algorithms and DFMs.
- Netlist Prober – Cuts troubleshooting time.
- Multilayer PCB Optimization – In Signal Layer Repair, Signal Layer Checks and Solder Mask Checks.
- Silk Screen Classifier – Enables mass resize and edit of similar silk screen frames.

New interactive tools

Save Interactive Spacing Repair (ISR) settings

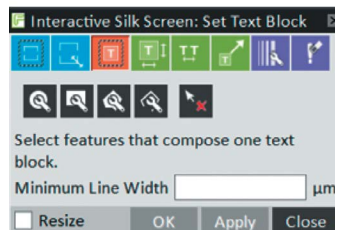
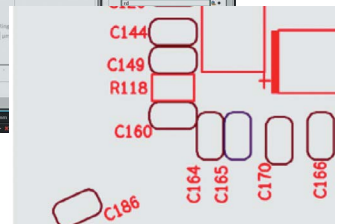
Quickly solve spacing challenges and get alerts if spacing cannot be achieved. The trace modification tool lets you maintain minimum annular ring and, using predefined settings per feature pair, enables fast handling of spacing problems, without needing to reset the parameters every time.



Interactive Spacing Repair

Fast Interactive Silkscreen Repair (ISSR)

Shorten cycle time using ISSR tools for silkscreen handling – identify, resize and edit similar frames and texts, including any rotations and scale.



Interactive Silkscreen Repair

Snap between layers

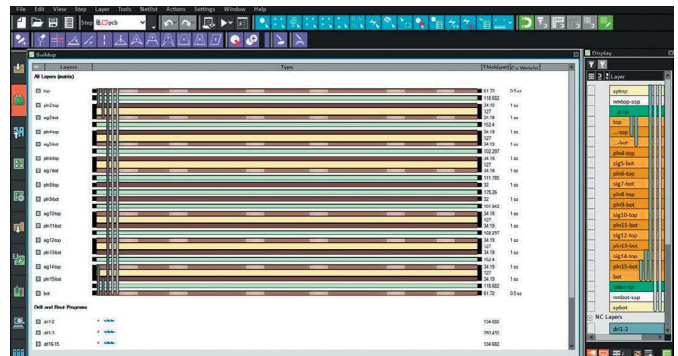
A revolution in usability, Smart Snap lets you snap to all displayed layers using several snap modes at once – so there's no need to switch modes or layers.

Smart selection

For fast editing, select multiple elements at once, using one or more selection methods.

Stackup collaboration

Frontline InCAM Pro enables stackup integration from InPlan to save time and ensure consistency and reliability.



Collaboration with InPlan

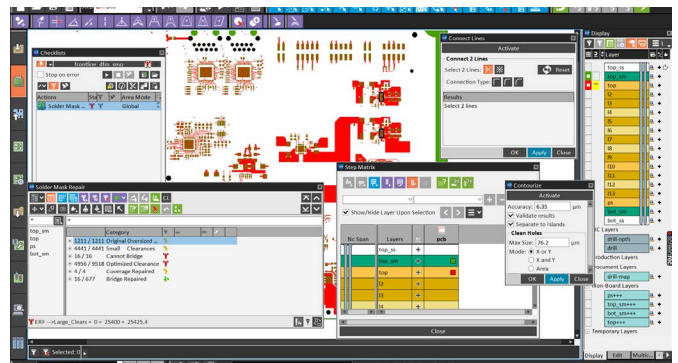
The most intuitive user interface we've ever made

More complex jobs in less time, shorter training

Designed for the change-makers of the future, Frontline InCAM Pro is astonishingly easy to learn. With its clean design and intuitive feel, Frontline InCAM Pro enables the fastest and most efficient human-machine interactions with minimum training, helping CAM operators achieve more in less time.

Popup-oriented design

The popup-based interface enables at-a-glance access to multiple functions and multi-tasking on multiple screens, for faster interaction with the system.



Popup-oriented Design

Command Line Interface (CLI), auto-completion and keyboard operations

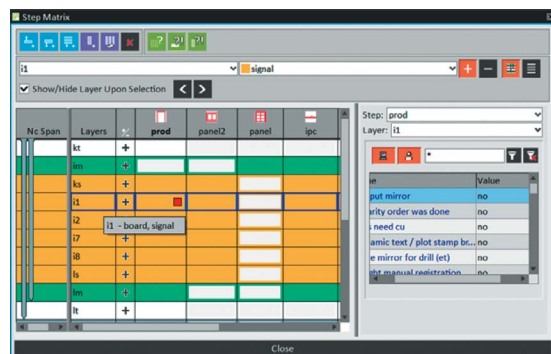
Type commands and use keyboard shortcuts for fast orientation and operation. Choose from built-in commands or create custom ones. The clever auto-completion feature means you only need to input the first few characters.

Easy, efficient and personalized

With an emphasis on customization and ergonomic GUI design, Frontline InCAM Pro features a bird's-eye view Layer Matrix for layer management and a Layer List that includes your chosen layers and hides those you'll need later.

```
<<cliShortcut name="Show Component Features Filter" shortcut="ff" description="Features Filter"/>
<cliShortcut name="BreakLineFtr" shortcut="bl" description="Break Line"/>
<cliShortcut name="queryNet" shortcut="qn" description="Query Net"/>
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<cliShortcut name="addTrace" shortcut="at" description="Add Trace"/>
<cliShortcut name="addTraceArc" shortcut="ata" description="Add Arc"/>
<cliShortcut name="addTracePolyline" shortcut="atp" description="Add Polyline"/>
<cliShortcut name="singleSelect" shortcut="se1" description="Select Single"/>
<cliShortcut name="ChangeLineFtrAngle" shortcut="ca" description="Change line angle mouse mod"/>
<cliShortcut name="contourizeResizeSelected" shortcut="co" description="Open Contourize popup"/>
<cliShortcut name="connections" shortcut="cc" description="Open connect popup"/>
<cliShortcut name="createProfileSelected" shortcut="prf" description="Open create profile popup"/>
<cliShortcut name="DeleteFtr" shortcut="df" description="Delete feature mouse mode"/>
<cliShortcut name="DeleteFtrInt" shortcut="di" description="Delete to intersection mouse mod"/>
<cliShortcut name="invertSelected" shortcut="ip" description="Invert polarity of selected features"/>
<cliShortcut name="moveTripFAngleSelected" shortcut="mt" description="Move triplet (fixed angle) m"/>
<cliShortcut name="offsetPolyline" shortcut="of" description="Open Offset polyline popup"/>
```

Command Line Interface

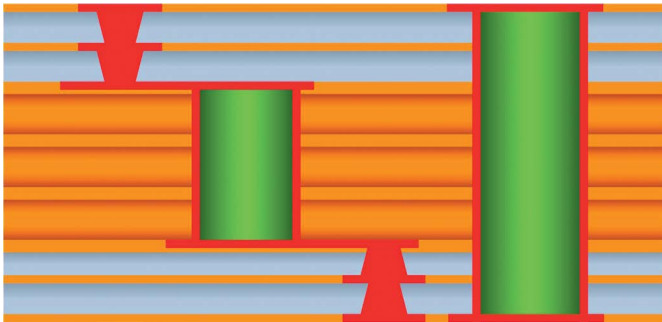


Layer Matrix

More responsive to evolving needs

Ready for emerging technologies

Designed to meet growing demand for smaller geometries and smarter electronic devices, Frontline InCAM Pro integrates support for the industry's most exciting emerging technologies and trends – 5G, substrate-like circuits, flex and Industry 4.0.

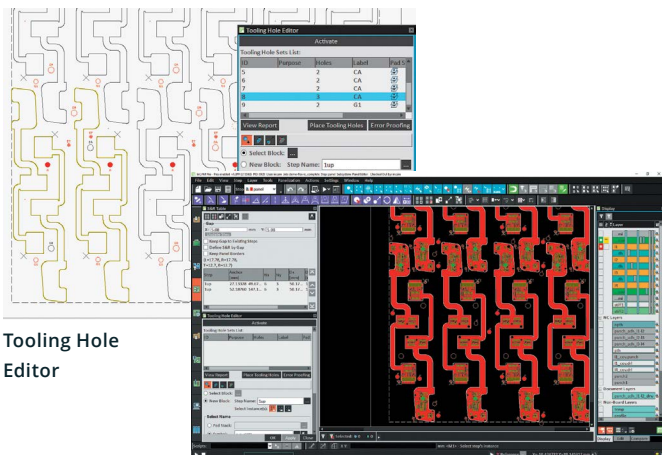


Substrate-like Circuits

Pro for flex

Frontline InCAM Pro understands the needs of flex manufacturers:

- Automatic flex and rigid-flex board panelization with any angle rotation and PCB alignment for strip creation.
- Automatic tooling hole placement for PCBs, arrays and panels with interactive editing.
- DFMs for coverlay layer optimization, converting optimized coverlay layer to NC tools.
- Analysis actions generate numerous flex and rigid-flex reports.

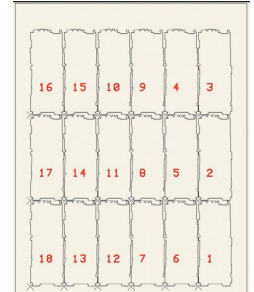


Tooling Hole Editor

Flex Board Checks

Join the Smart Manufacturing and Industry 4.0 revolution

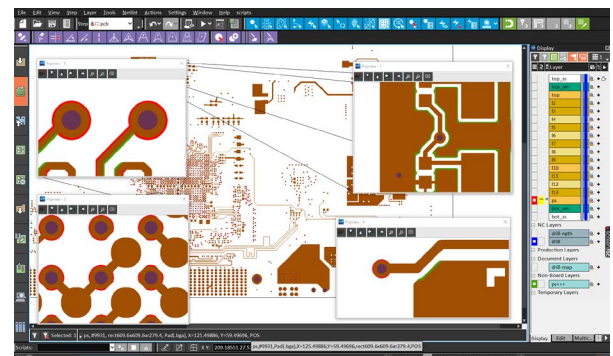
Frontline InCAM Pro supports automation and data exchange in manufacturing technologies via advanced traceability and PCB numbering.



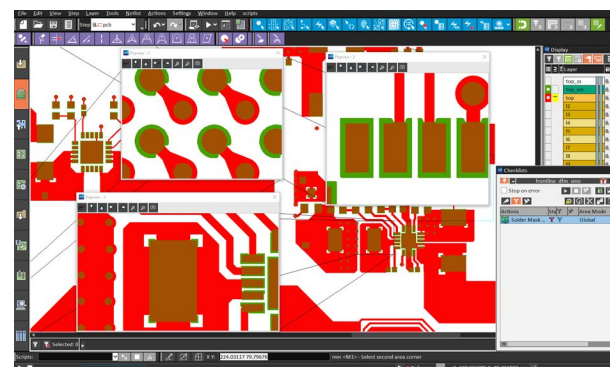
PCB Numbering

Efficiency-driving tools

Speed up time to market and eliminate errors with over 300 trusted DFMs that ensure manufacturability and quality. Automatically adjust silk screen, solder mask, copper layers, impedance lines and more. Simplify feature handling by automatically assigning attributes.



Signal Layer Optimizer



Solder Mask Repair