The challenge for today's electronic product manufacturers is clear – send better products to market faster and more cost-effectively, before the competition. In order to meet that challenge, the entire product development process must be optimized. Specifically for PCB Designers and Fabricators, this means careful transitioning of engineering design data into the PCB fabrication process.

Introducing CAM350™ – a Complete PCB Fabrication Flow for Both PCB Designers and PCB Fabricators.

Built to meet the needs of both PCB Designers and PCB Fabricators, CAM350 is a complete PCB Fabrication Flow that provides a superior price/performance value in an easy-to-use product suite, delivering fast and accurate results.

CAM350 for Engineering can detect and correct PCB fabrication errors early in the design process with robust Design for Fabrication (DFF) verification to drastically reduce costly design re-spins and increase PCB manufacturability.

CAM350 for Fabrication is a powerful solution that integrates the entire CAM process to accurately prepare, optimize, and process design data. The result: increased productivity, faster turnarounds, and higher quality.

CAM350 — providing a complete fabrication flow to support both sides of the PCB design and manufacturing process.
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CAM350™ is a powerful, robust, and easy-to-use solution designed to dramatically reduce costly design and data re-spins and increase PCB manufacturability. CAM350 for Engineering can detect and correct PCB fabrication errors early in the design process with robust Design, for Fabrication (DFF) verification to drastically reduce costly design re-spins and increase PCB manufacturability. CAM350 for Fabrication is a powerful solution that integrates the entire CAM350 process to accurately prepare, optimize, and process design data. The results: increased productivity, faster turnarounds, and higher quality.

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Data Input and Output
CAM350 is a flexible, open system offering a wide variety of data input and output capabilities, including ODB++, Gerber, DirectCAM, IPC D-356 and many others. CAM350’s data input capability includes Reverse Engineering, Draw-to-Raster Polygon Conversion, and Composite-to-Layer.

Data Exchange
CAM350 is equipped with a comprehensive set of data exchange options to automate the data entry process, reducing errors and increasing productivity. Features include draw-to-flash, vector-to-raster, polygon conversion, silkscreen clipping, and isolated pad removal.

Automation and Scripting
CAM350 allows for Batch Processing for increased throughput, consistency, and accuracy of both the front-end sales analysis and back-end tooling analysis of PCB datasets.

Design Rule Checking
CAM350 is equipped with functionality fields for numerous types of spacing violations (e.g., track to track, track to pad, pad to pad, etc.) and includes the ability to apply different rules to different areas of the board. This allows for a comprehensive review of manufacturability and board analysis.

Panel Editor
The Panel Editor in CAM350 streamlines and optimizes the process of tooling a printed circuit board for bare-board test. It allows for panelization functionality, with parameters such as step and repeat spacing, panel border spacing, etc. The Panel Editor also allows for “Spreadsheet” mode, allowing multiple rotations of odd-shaped boards to be nested in order to achieve maximum copies on a panel.

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Several scripts, called Process Agents, which are designed to automate particular tasks such as quoting and rule checking, are included in CAM350. An experienced programmer can take advantage of CAM350’s macro scripting capabilities by using BASIC programming language and get additional performance and productivity by automating additional processes.

Scripting and Process Agents
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Sizing Algorithm
CAM350 allows for sizing algorithms, allowing for more efficient use of panel space. The sizing algorithm takes into account the size and shape of the individual boards, as well as the overall panel layout, to optimize the use of panel space.

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**Data Input and Output**

CAM350 is a flexible, open system offering a wide variety of data input and output capabilities, including ODB++, Gerber, DirectCAM, IPC D-356, and many others. CAM350 is also equipped with the option of inputting complex CAD databases including PowerPCB, Intellipad, and SuiteCad. CAM350 supports a wide range of different users and design environments, regardless of the number of different shapes to include rounded, rectangle, square thermal, ellipse, and bullet.

**Automation and Scripting**

CAM350 allows for Batch Processing, increasing throughput, consistency, and accuracy of both the front-end sales analysis and back-end tooling analysis of PCB datasets. Process Agents are user-configurable scripts and can be stored for repetitive jobs. CAM350 includes two Process Agents—Quote Agent and MRC Agent. The Quote Agent scans your entire design searching for critical pieces of information for quotation purposes while the MRC Agent groups together up to 80 different checks to be performed at any one time.

**Design Rule Checking**

CAM350 is also equipped with functionality for numerous types of spacing violations, including track-to-track, track-to-pad, track-to-power, and track-to-ground. CAM350 can be configured to alert the user to track-to-track, track-to-pad, and track-to-power violations.

**Data Exchange**

CAM350 is equipped with a comprehensive set of data exchange protocols to automate the data entry process, including DXF, AutoCAD, and other industry-standard data formats. CAM350 supports a comprehensive set of data exchange options to automate the data entry process, reducing data re-entry errors and increasing productivity.

**DFF Analysis**

DFF Analyzer performs over 80 essential bare-board analysis checks, including fabrication, silk screen, power and ground, signal layers, I/O, and others to ensure that the design does not contain manufacturing rule violations. DFF Analyzer identifies and automatically repairs any manufacturing rule violations that are found, delivering increased manufacturing efficiency and throughput.

**DirectCAD Technology**

CAM350 includes a comprehensive set of data exchange options to automate the data entry process, reducing data re-entry errors and increasing productivity. CAM350 supports a comprehensive set of data exchange options to automate the data entry process, reducing data re-entry errors and increasing productivity.

**DXF Data**

The DXF interface inputs and outputs DXF data, allowing accurate artwork to be produced. The DXF methodology maintains fully intelligent text, including AutoCAD fonts, raster-filled polygons, tapered lines or arcs, line styles, and more.

**Design Rule Checking**

CAM350 includes a Manufacture Rules Check (MRC) feature to test for numerous types of spacing violations, including track-to-track, track-to-pad, track-to-power, and track-to-ground. CAM350 can be configured to alert the user to track-to-track, track-to-pad, and track-to-power violations.

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Data Input and Output
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Other input and output functionality includes:
- Reverse Engineering
- Draw-to-Raster Polygon Conversion
- Composite-to-Layer

Automation and Scripting
CAM350 allows for Batch Mode processing for increased throughput, consistency, and accuracy of both the front-end sales analysis and back-end tooling analysis of PCB datasets.

Process Agents are user-configurable scripts and can be stored for repetitive jobs. CAM350 includes two Process Agents—Quote Agent and MRC Agent.

The Quote Agent scans your entire design searching for critical pieces of information for quotation purposes while the MRC Agent groups together up to 80 different checks to be performed at any common locations.

Data Exchange
The Quote Agent is your on-line design searching and extraction tool for critical pieces of information for quotation purposes, where the MRC Agent groups together up to 80 different checks to be performed at any common locations.

DirectCAM Technology
CAM350's DirectCAM technology reads and writes the intelligent CAD database, automatically capturing the attributes of the design and other manufacturing considerations. This revolutionizes data input, output, and manufacturing. CAM350 includes intelligent tooling, holding, thermal, and component handling. The DSF interface is efficient, cost-effective, and improves overall productivity.

Design for Fabrication
The DSF interface is efficient, cost-effective, and improves overall productivity. CAM350 includes intelligent tooling, holding, thermal, and component handling. The DSF interface is efficient, cost-effective, and improves overall productivity.

Design Rule Checking
CAM350 is equipped with functionality fields for numerous types of design violations. In addition, CAM350 can compare to tool rules, manufacturing rules, pad/contact pads and pads without hill tips. In addition, CAM350 can compare to tool rules, manufacturing rules, pad/contact pads and pads without hill tips. The user can upload custom rules to check against the rules or pads with a hill tip. The DSF interface is efficient, cost-effective, and improves overall productivity.

DFF Analysis
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Design for Fabrication Analysis
CAM350 includes a comprehensive set of data exchange options to automate the data entry process, reducing errors. Features include draw-to-flash, vector-to-raster, polygon conversion, silk screen clipping, and isolated pad removal.

NC Data Preparation
CAM350 includes an NC Editor, eliminating the need for additional tasks and investment. The NC Editor speeds up in-house fabrication by allowing CAM350 to automatically generate NC files, allowing the user to pre-define multiple passes to check different layers with unique rule sets, then run them in Batch Mode.

Scripting and Process Agents
Several scripts, called Process Agents, which are designed to automate particular tasks such as quoting and rule checking, are included in CAM350. An experienced programmer can take advantage of CAM350’s macro scripting capabilities by using its BASIC programming language and get additional performance and productivity by automating additional processes.

Panel Editor
The Panel Editor in CAM350 provides panelization and optimization of data sets, allowing for maximum panel utilization and panel optimization.

The CAM Editor allows for “Spreadsheet” mode enabling multiple rotations of odd-shaped boards to be nested in order to achieve maximum copies on a panel.

Bare-board Test
CAM350 includes bare-board test editors that extract the data needed to drive the existing capabilities of bare-board test equipment. This important feature will significantly reduce the number of errors and increase productivity.

Optimize board real estate and machine performance with panelization functionality.

Symbol Editor
CAM350 allows for Panel Symbols to be stored in a central library, allowing them to be reused across multiple templates or designs. Symbols are intelligent and can be tailored to your stackup upon placement with unique attribute parameters.

The Symbol Editor can dramatically increase productivity by allowing multiple rotations of odd-shaped boards to be nested in order to achieve maximum copies on a panel.

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Built to meet the needs of both PCB Designers and PCB Fabricators, CAM350™ is a complete PCB fabrication flow that streamlines the transition of engineering design data into physical PCBs. This powerful solution provides faster, more efficient data preparation at an affordable price, delivering fast and accurate results.

CAM350 for Engineering provides a robust PCB fabrication workflow in the design process that enables designers to electronically design their PCBs and then accurately generate the PCB fabrication files.

CAM350 for Fabrication is a powerful solution that integrates the entire CAM350 process to accurately prepare, optimize, and process design data. The results: increased productivity, faster turnarounds, and higher quality.

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