

## Release Highlights for CAM350 Product Version 8.5

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### **Introduction to CAM350 Version 8.5**

Version 8.5 is a support CAM350 release, following the major release of Version 8.0. CAM350 Version 8.5 delivers important Panel Editor enhancements that give fabrication users more control over both stepped image definitions and panel fabrication. CAM350 Version 8.5 also includes important customer requested enhancements and critical customer reported defect resolutions.

CAM350 Version 8.0 delivered significant usability and performance updates for the mainstream CAM marketplace. Version 8.0 updates included a new Graphical User Interface (GUI) with many customizable features, enhanced error verification and identification, negative plane verification updates, and performance improvements.

CAM350 Version 8.5 updates include the following.

**Panel Editor - Merge Panel Data** – The Panel Editor for Version 8.5 incorporates commands that permit import and merging of data into the Panelized database. Gerber data, drill data and mill data can be imported directly into an existing Panelized database. The Panel Editor for Version 8.5 also incorporates a file merge capability that allows previously defined panelization definitions to be merged with new image definitions. Merging panelized data allows base panel templates to be defined and then reused for successive panel designs.

**Panel Editor - Stepped Image Manipulation** - The Panel Editor for Version 8.5 incorporates edit commands that permit rotation, mirroring and copying of panel elements, independent of the Panelization setup process. Stepped images and panel symbols, including coupons, title blocks, pinning holes and fiducials, can be independently rotated, mirrored, and copied and in the Panelized database. In addition, the entire Panel definition can be rotated at multiples of 90 degrees.

**Panel Editor - Extended origin definition** - The Panel Editor for Version 8.5 incorporates commands that permit in specification of new data origins. Data origins can now be independently specified in Version 8.5 for the Panel Space, the Filmbox and the Panel NC data. The Panel Space origin affects Gerber data export from the panelized database. The NC origin affects Drill and Mill data export from the panelized database. You can specify whether the Filmbox origin is specified independent from the Panel Space origin or not.

**PADS Export enhancements** – The CAD Export interface for Version 8.5 is enhanced for PADS PowerPCB ASCII file export. For Version 8.5, you can now export PADS PowerPCB ASCII version 3.0 and version 4.0. Support for PowerPCB version 4.0 includes support for increased layer counts, including a maximum of 64 electrical layers and 250 total layers.

**New DFF commands for Gaps and Feature Sizes** – CAM350 Version 8.5 delivers new DFF commands to find Minimum Gaps and Minimum Widths for features on artwork layers. The Minimum Gap command detects all possible gaps smaller than the threshold, including gaps created by pads, traces and/or polygons. Further, violations are detected for gaps created by a polygon or trace against itself, and in polygon void regions. The Minimum Width command detects feature sizes smaller than the threshold, including feature sizes for pads, traces and/or polygons.

**Fire 9xxx Export Enhancements** – CAM350 Version 8.5 delivers Fire 9xxx export enhancements. The Gerber Export command for Version 8.5 gives you advanced control over the plotter commands in the Fire 9XXX. For Fire 9XXX headers for Gerber output, the Gerber Export command allows you to fully specify general mirror settings, emulsion side and axis swap settings.

**Add Polygon Stencil Enhancements** – CAM350 Version 8.5 delivers new advanced controls for adding polygons based on existing artwork. For Version 8.5, Add Polygon permits you to create customized outlines of all artwork features for a given layer. These advanced controls support stencil generation and other applications that require outline rather than filled polygon representation.

**Usability Updates** – CAM350 Version 8.5 delivers control for composite conversion and netlist comparison. Gerber import optionally supports convert composite to a single layer. The Convert Composite command is optimized for speed and retention of draws and flashes. Netlist Compare errors provide additional capabilities for viewing errors.

Short and open errors highlight nets in different colors. The Find Net command will find external nets in imported IPC netlists. A new user preference is added for precise arc approximation for arc and circle conversion.

### ***Customer Reported Software Corrections***

Some of the customer reported issues were addressed in CAM350 8.5 include:

#### **IMPORT**

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- 12733,13201,13632 – For certain DXF files, DXF import fails to complete.
- 12536,13013,13276,13346 – For certain DXF files, DXF import results in incorrect fills or mirroring.
- 10250,12927,10644,13293 - For certain Mentor BoardStation files, the Mentor import command results in incorrect data.
- 10834,11602,12616,12617,12661,12662,12779, 13136, 13256 – For certain GenCAD files, GenCAD import fails to complete.
- 12978 – For certain Mill data, the import operation fails to complete.
- 13531,14404 – For certain ODB++ files, ODB++ import operation fails to complete.
- 13569 – For certain ODB++ files, ODB++ import results in incorrect SMT pad generation.
- 14308 – For certain ODB++ files, ODB++ import results in incorrect pad flashes.
- 13634 – Sectorize angles less than tenth degree cause incorrect Gerber import
- 13841 – Version 6.0 file will not load into later versions
- 14062 – For certain PowerPCB ASCII files, the PADS import does not result in SMT vias that are recognized as endpoints for a netlist.
- 13398 – For certain Gerber files with complex outline polygons, Gerber import may fail
- 12954 – For certain PCAD files, PCAD import operation fails to complete.

#### **EXPORT**

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- 12592,12595,12596,12597 – Fire 9xxx Gerber Export does not support controls for plotter commands
- 13630 – Netlist export fails for certain Blind and Buried designs.
- 13409 – Mill export adds extra “F1” command for certain designs.
- 13518 – Gerber export fails for certain custom aperture shapes.
- 14132 – Gerber export fails for certain small arcs.
- 14374 – For certain CAM files, ODB++ export fails to output some flattened panel data.
- 14228 – For certain CAM database files with long net names, the exported netlist syntax will not match the IPC specification.

#### **INFO**

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- 13624 – Query Line reports negative length for certain long lines.
- 14016 - Netlist compare report truncates list of nets for opens and shorts.

#### **ADD**

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- 13197 – Add Polygon should be able to create outlines with border only.

#### **EDIT**

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- 10881 – Customers request better mirroring options in the panel editor.
- 13532 – Mirror custom thermal apertures do not mirror correctly.

#### **UTILITIES**

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- 10787 – For certain designs, Composite to Layer fails for polygons with small arcs.
- 13623,13247,13380,13441,13472,13488 – For certain designs, Netlist Extract fails for complex polygons.

- 13070,13212 – For certain designs, Draws to Flash Any Angle fails to complete.  
13117,14196 – For certain CAM database files, the Polygon Conversion command for raster to vector results in incorrect data.  
13169,13437 – For certain CAM database files, the Clear Silkscreen command does not clear all silkscreen away from solder mask openings.  
13935 – For certain CAM database files, the Netlist Extract command will not recognize through hole drill layers if other drill layers appear earlier in the layer table.

#### ANALYSIS

- 13157 – For certain designs, Net Check fails to complete.  
13506 – For certain designs, Netlist Compare generates false errors.  
13487 - Netlist Compare fails to complete for certain designs.

#### PANEL EDITOR

- 14214 – For a defined panel, the load PAN file operation incorrectly lists and displays redundant coupons on create operation.

#### TABLES

- 14224 – Compressing the Aperture Table removes apertures used by panel editor symbols.

#### MACRO

- 12980 – Customer requests database query for rotation of dcodes. New “querystring!” macro implemented.  
13427,13566 – Certain Add Symbol operations are not recorded for playback.  
14219 – CAM350 050 recorded commands for NC Tool Table will not play back.

#### GRAPHICS

- 14019 – When the CAM350 window frame (system "X") is used to close the application, the CAM350 process may hang in the background.

#### LICENSING

- 13526 – Customer requests ability to copy host ID from File->Setup->Licensing dialog.

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