

Release Highlights for CAM350 Product Version 9.5

Release, April, 2007
Copyright 1994-2007, DownStream Technologies, LLC

Introduction to CAM350 Version 9.5

CAM350 Version 9.5 is a support release for CAM350. The File AutoImport command is enhanced to use AutoImport Templates that define patterns of file import mapping to layer types, layer order and layer colors. The PADS Import interface is enhanced to support the new release of PADS 2007. The ODB++ Interface is enhanced to support import and export of the CAD Netlist. The DXF Export Interface is update for ease of use. New commands are supported for converting One-Up Border to Layer and Panel Border to Layer. License borrowing is added to CAM350 network licensing capabilities.

Feature Highlights:

AutoImport Command

- ***AutoImport Templates***
 - Automatic mapping for Layer Type, Layer Order, and Layer Colors
 - File pattern specifications
 - Save and Load AutoImport Templates as External Files

PADS Import Interface

- Support for PADS Layout release: PADS 2007
- Support for seamless drill layer creation after successful PADS Import
- Improved conformance to PADS Layout fonts versus PADS Gerber output

ODB++ Interface

- Support of ODB++ CAD Netlist during ODB++ Import into the CAM350 External Netlist
- Support of CAM350 External Netlist during ODB++ Export as ODB++ CAD Netlist

Vista support

- Support for installation and execution on Microsoft Vista Operating system
- Updated FLEXlm Version 11.4 and Sentinel Driver 7.3.2 for Vista

Border To Layer Command

- New CAM Editor command One-Up Border To Layer converts border to graphics
- New Panel Editor command Panel Border To Layer converts border to graphics

License Borrowing

- Check out (borrow) licenses from network license server in support of offline execution
- Support time limit (expiration) of borrowed licenses
- Support for early return of borrowed licenses

Usability Updates

- Netlist Extract algorithm updates support faster performance for large files
- DXF Export Interface updated to support intuitive selection of layers to export
- AutoImport command: support saving default NC Data format specifications

Defect Fixes – Over 35 software corrections have been made to previously existing functionality, further improving upon CAM350's quality and reliability. Please see the Read.me file or the list included below for a list of corrections.

CAM350 Version 9.1 was a support release for CAM350. The Streams Rule Check was first introduced in CAM350 Version 9.0; for CAM350 Version 9.1, Streams Rules Check is now included in what was the CAM350-265 bundle. Previously only available as add on feature, or only in the higher end packages, Streams Rule Check is now part of the Mid-level CAM 270 package for PCB Designers and CAM Engineers. Additional enhancements have been made to the interfaces with major CAD systems including Mentor, Cadence, PCAD and AutoCAD. PDF output has been updated to the latest release as well.

CAM350 Version 9.0 was a major release for CAM350. CAM350 9.0 introduced Streams Rule Check, a new method of doing Design Analysis in CAM350. Run Design Rule (DRC), Design for Manufacturing (DFF,DFM), and Netlist Comparison together in one checklist. Create, save and recall multiple "Streams" based on design technology, and/or manufacturing capabilities. Run differing analysis in High Technology areas such as BGA or Wire Bond, and run standard analysis on the rest of the design, all from one "Stream". Users can define as many analysis areas as desired. Errors can be quickly verified by charting the results.

CAM350 Version 8.7 made "optional" functionality "standard" in the entry-level Gerber analysis and editing configurations. Now included in those systems are the Fast Array module and the ODB++ Import module. In addition, all mid-range and high-end configurations - for both PCB Designers and CAM Engineers - include the ODB++ Export module. CAM350 Version 8.7 also includes support for Altium's PCAD 2004 and the next product update of Mentor's PADS PCB layout software, as well as a number of other software corrections.

CAM350-110 - Now with Fast Array Module and ODB++ Import modules.
CAM350-260 and 460 - Now with ODB++ Import and Export CAM350-260 and 460 now supports a bidirectional ODB++ interface

CAM350 Version 8.6 delivered cross probing functionality to Mentor Graphic's PADS PowerPCB® and Cadence's Allegro® PCB design solutions. Design errors can be highlighted in CAM350 and its location will also be shown in the CAD software allowing the designer to quickly and easily correct the problem. CAM350 can also be used to view intelligent data in the CAD software (components, pins, nets) while at the same time, viewing the corresponding locations as Gerber data in CAM350. Key features include:

- Bi-directional zoom/view window location between CAM350 and PowerPCB and Allegro databases
- Window/View synchronization
- Automatic layer displaying and synchronization
- Bi-directional selection of components, pins and nets
- DRC/DFF error identification contained in CAM350 is identified in PCB layout system
- Cross Probing between intelligent CAD file and unintelligent Gerber data

CAM350 Version 8.5 delivered 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.

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.

Customer Reported Software Corrections

Some of the customer reported issues were addressed in CAM350 9.5 include:

IMPORT

- 35315 - For certain ODB++ files with flashes on top of SMT apertures, Import ODB++ may drop flashes.
- 35164 - For certain ODB++ files with incorrect attributes for Symbols, Import ODB++ may fail to complete.
- 37472, 37398, 37114, 36820, 35952 - For certain ODB++ files for the Pulsonix PCB Design CAD system, Import ODB++ may fail to complete.
- 27696, 37457 - Import ODB++ command does not support Metric units as default.
- 34383, 34411 - For certain GENCAD files with custom apertures, Import CAD Data for GENCAD does not support custom apertures.
- 35302, 36065 - For certain PADS ASCII files with decals that define generic layers for copper shapes, PADS Import will fail to complete.
- 35596, 35728, 36739 - For certain PADS ASCII files with teardrops on component pads, PADS Import may fail to complete.
- 36053 - For certain PADS ASCII files with pads that overlap a split plane area but has not thermal spokes, the pad may be dropped for PADS Import.
- 35950 - For certain PADS ASCII files True Type Font and stroke font with varying justification and orientations, the resultant imported text may not align with the Gerber output from PADS Layout.
- 36636 - For certain Gerber files that have PADS Layout teardrops, zero length draws are converted to flashes. This is undesirable for DRC Checks. A new INI file setting is created to control this behavior.
- 37168 - The option for Converting Composite to single layers should be enabled by default for the File Import Gerber data command.
- 37608 - For Gerber files with imprecise arc definitions, warning messages cause performance degradation
- 36650 - Zuken resource file for Zuken interface is installed in the incorrect directory.
- 36622 - For certain PCAD 2004 files with custom apertures, Import CAD Data may fail to complete.

EXPORT

- 34383 - For certain CAM350 files with custom apertures, Export CAD Data for GENCAD files does not support custom apertures.
- 35882 - For certain CAM350 files with mill route data, the CAMtek interface does not support mill data in the drill file or the bitmap output. The CAMtek command also does not support NC data output for negative polarity layer output.
- 35385,35447,35468 - For certain CAM350 files with that have aligned SMD pads of the same net on the top and bottom side of the design, the test point side indication may be wrong in the exported IPC-D356A netlist.

UTILITIES

- 35729 - For certain designs with complex copper areas, Netlist Extract may fail to complete.
- 35509 - For certain designs with complex copper areas, Netlist extract may fail to correctly merge pads to copper areas.
- 35450 - For Streams Rules Check, Netlist Extract ignores the one-up border when run only on the board profile.
- 35449 - For Streams Rules Check, Netlist Extract reports false errors for shorted pads.
- 36568,36542 - For certain designs, Netlist Extract may not properly handle complex poured geometry.

ANALYSIS

- 36775 - For certain designs, the Streams Minimum Width check may produce false errors.
- 36588 - For certain designs, the Streams Track to Track check may result in false errors when performing an area check.
- 36581 - For certain designs, the Streams Track to Track check may result slower performance than the CAM Editor DRC Analysis command.
- 36670 - For certain designs, the Streams Netlist Extract command may not properly handle padstack connectivity.

USER INTERFACE

- 36753 - When reinstalling CAM350 or installing a CAM350 update, the CAM350 INI file and default startup file CAM350.CAM are not retained.

FLEXIm is a registered trademark of Macrovision Corporation.