



Release Highlights for CAM350 Product Version 10.1

Introduction

CAM350 Version 10.1 is a support release for CAM350. CAM350 10.1 includes performance improvements and memory usage improvements over previous releases of CAM350. Areas of improved performance include Gerber import and ODB++ import. Optimization for memory usage is delivered in CAM350 10.1 for all polygon analysis, which means that larger more complex layers of polygons can now be processed for commands such as Netlist Extract and Gerber Import. CAM350 10.1 also delivers over 50 important customer reported defect resolutions.

CAM350 Version 10.0 introduced significant new functionality, including reading and writing Blueprint-PCB files, new graphics user interface, a project explorer bar, flip panel support, design compare, Expedition cross probing, and various enhancements.

New Functionality

The following functional enhancements are contained in CAM350 Version 10.1

- ✓ Gerber Import and Export Improvements
- ✓ ODB++ Import Improvements
- ✓ Netlist Extract Updates
- ✓ PADS Import Updates

Details

Gerber Import and Export Improvements – The File > Import > Gerber Data command has been updated for CAM350 V10.1 to include faster polygon processing. Certain CAD systems generate so-called cutline polygons that are used for efficient flooding and display. CAM350 reduces these complex shapes into simple outlines with circular or polygonal voids. The process to analyze the cutline polygons has been optimized. For certain Gerber designs, import times can improve by up to a factor of 20 times. This optimization will affect many Mentor Graphics designs.

The File > Import > Gerber Data and File > Export > Gerber Data commands have been updated to pass arcs in polygon outlines as true arcs, rather than as segmented chords. This update allows for more accurate Gerber data in CAM350 and allows for smaller Gerber files on export from CAM350.

ODB++ Import Improvements – The File > Import > ODB++ command has been updated for CAM350 V10.1. The ODB++ data transfer format is an important standard for the PCB fabrication industry. For CAM350 V10.1, the ODB++ import performance has been improved by up to a factor of 10 times for large designs. The ODB++ import command is also updated for CAM350 V10.1 to support stacked blind and buried vias.

Netlist Extract Updates – For CAM350 V10.1, the Utilities > Netlist Extract command has been updated to utilize memory more effectively. Specifically, for large designs, the analysis of complex layers in previous releases of CAM350 could exceed the standard 2 gigabyte limit for processes on Windows 32 bit operating systems. Parallel programming for layer analysis is now used in CAM350 V10.1 to break through the 2 gigabyte limit. For large designs, the connectivity analysis for complex layers is performed in separate 2 gigabytes memory pools, separate from the main CAM350 process. The parallel programming techniques are invoked based on the quantity of data being analyzed.

Additionally for CAM350 V10.1, the Utilities > Netlist Extract command has been updated to support complete connectivity analysis of plated drill slots, plated mill slots and all plated mill routes. The analysis of plated slots and mill routes now enables greater coverage of the final fabrication artwork.

PADS Import Updates – The File > Import > CAD Data command has been updated to support PADS Layout Version 9.0. New features include support for importing chamfered and rounded pads from PADS Layout decal definitions. These new pad definitions coincide with ODB++ intrinsic aperture definitions. The ODB++ standard names are used for these chamfered and rounded pads.

Defect Fixes – Over 50 software corrections have been made to previously existing functionality, further improving upon CAM350's quality and reliability:

Defect fixes for CAM350 V10.1

Software corrections and enhancements have been made to previously existing functionality, further improving upon CAM350's quality and reliability:

*** CAM350 BUILD 366 ****

FILE IMPORT

Areas affected: Import Gerber

Symptoms: The File Import Gerber Data command fails to complete for certain designs with complex polygons.

Reference number: 53450

Areas affected: Append DXF

Symptoms: The File Import Append DXF command fails to complete when cancelling the dialog for Append DXF.

Reference number: 53451

Areas affected: Import ODB++

Symptoms: The File Import ODB++ command imports rotated pads incorrectly for ODB++ version 8.0 file formats.

Reference number: 53448

Areas affected: Import IPC-D-356A

Symptoms: The File Import IPC-D-356A command does not report illegal net names with spaces and does not tolerate such nets on import, incorrectly parsing net names.

Reference number: 53483

FILE EXPORT

Areas affected: Export Gerber

Symptoms: The File Export Gerber Data command incorrectly exports panel editor vents with arcs that have been flattened.

Reference number: 53495

EDIT

Areas affected: Explode Custom

Symptoms: The Edit Change Explode Custom command fails to explode customs into raster polygons for certain designs.

Reference number: 53474

UTILITIES

Areas affected: Netlist Extract

Symptoms: The Netlist Extract command does not generate padstacks for slotted drills and does not connect the slotted drills to negative plane layers.

Reference number: 53473

Areas affected: Over/ Undersize

Symptoms: The Utilities Over/Undersize command does not support undersizing for features less than 1 mil in size.

Reference number: 53496

TOOLS

Areas affected: PADS Layout Cross Probing

Symptoms: The Tools Cross Probe PowerPCB command fails to synchronize layers for PADS Layout 2007 versions.

Reference number: 41904

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FILE IMPORT

Areas affected: Import Gerber

Symptoms: The File Import Gerber Data command may execute slowly for designs with large cutline polygons.

Reference number: 50258, 47635

Areas affected: Import Gerber

Symptoms: The File Import Gerber Data command may drop polygon voids for certain designs with cutline polygons.

Reference number: 52454

Areas affected: Auto Import

Symptoms: The File Auto Import command does not use the autoimport templates if you select the autoimport template radio button and then select the Finish button.

Reference number: 52479

Areas affected: Import Gerber

Symptoms: The File Import Gerber Data command may create incorrect polygon outlines with arcs for certain designs.

Reference number: 50115, 50523

Areas affected: Import Gerber

Symptoms: The File Import Gerber Data command does not support any angle rotation of dcodes for drawn lines. NOTE: CAM350 10.1 still does not support drawing lines with any angle dcodes, but now warning messages are displayed.

Reference number: 51006

Areas affected: Import Gerber

Symptoms: The File Import Gerber Data command may fail to complete for certain

designs with complex polygons.
Reference number: 43531

Areas affected: Import PADS ASCII
Symptoms: The File Import CAD Data command fails to properly import oblong
thermals or split mixed planes for PADS ASCII files.
Reference number: 53140

Areas affected: Import PADS ASCII
Symptoms: The File Import CAD Data command does not support PADS ASCII version
9.0 files.
Reference number: 53198

Areas affected: Import PADS ASCII
Symptoms: The File Import CAD Data command does not support the PADS CAM
document setting for oversizing and undersizing pads.
Reference number: 53371

Areas affected: Import PADS ASCII
Symptoms: The File Import CAD Data command may fail to complete for certain
PADS ASCII files with long net names.
Reference number: 53129

Areas affected: Import PADS ASCII
Symptoms: The File Import CAD Data command may create an incorrect through hole
drill layer for PADS ASCII files that have no through hole drills or vias.
Reference number: 50498

Areas affected: Import ODB++
Symptoms: The File Import ODB++ command may fail to complete for certain ODB++
files from Altium Designer.
Reference number: 53384

Areas affected: Import ODB++
Symptoms: The File Import ODB++ command may fail to correctly define the blind and
buried via layer table for certain ODB++ files.
Reference number: 53138

Areas affected: Import ODB++
Symptoms: The File Import ODB++ command may drops nets for pins for large designs.
Reference number: 53132

Areas affected: Import ODB++
Symptoms: The File Import ODB++ command may fail to import certain layers for

compressed ODB++ folders.
Reference number: 53365

Areas affected: Import ODB++
Symptoms: The File Import ODB++ command may incorrectly import extra pads for top mounted components that have SMT pads on the bottom layer.
Reference number: 44514

Areas affected: Import DXF
Symptoms: The File Import DXF command may incorrectly mirror data for certain designs.
Reference number: 49895

Areas affected: Import DXF
Symptoms: The File Import DXF command may incorrectly import polygon data with certain extended data format.
Reference number: 44089, 34127

Areas affected: Import DXF
Symptoms: The File Import DXF command may fail to complete for certain design files.
Reference number: 47591, 46671, 43752

Areas affected: Import DXF
Symptoms: The File Import DXF command may drop a number of interpolated edges or polygons after CAM file save and load.
Reference number: 43567

Areas affected: Import DXF
Symptoms: The File Import DXF command may drop pads for certain design files.
Reference number: 43262

FILE OPEN

Areas affected: File Open
Symptoms: The File Open *.CAM file may fail to complete for certain designs with Streams errors that refer to deleted nets.
Reference number: 52353, 47382

Areas affected: File Open
Symptoms: The File Open *.CAM file fails to load Tool Table CAP definitions for

*.CAM files that have database version 8.0 or older.
Reference number: 51970

Areas affected: File Merge
Symptoms: The File Merge command may fail to complete for designs that have long DFM error strings in stored error reports.
Reference number: 51588

FILE SAVE

Areas affected: File Save As
Symptoms: The File Save As *.CAM file will not save correctly to earlier CAM350 file versions when first invoking CAM350.
Reference number: 53155

FILE PRINT

Areas affected: File Print
Symptoms: The File Print command will not output correct colors when more than 16 (sixteen) colors are used in a plot output.
Reference number: 53199, 53114

Areas affected: File Print
Symptoms: The File Print command will print black graphics and text as red when the background color is set to white.
Reference number: 53012

EDIT

Areas affected: Edit Flip
Symptoms: The Panel Editor Edit Flip command does not support flipping the stepped image in place without specifying the exact flip axis.
Reference number: 52284

Areas affected: UNDO

Symptoms: The UNDO command does not work for the Edit Flip command in the Panel Editor.

Reference number: 53347

Areas affected: Align

Symptoms: The Edit Layers Align command will select data on invisible (OFF) layers if those layers are turned off during the execution of the Align command.

Reference number: 52061

INFO

Areas affected: Report Dcode

Symptoms: The Info Report Dcode command may fail for custom apertures that are created with raster polygons and that have been exploded.

Reference number: 53192

Areas affected: Query

Symptoms: The Query All command will select data on invisible (OFF) layers if those layers are turned off during the execution of the Query command.

Reference number: 52790

ANALYSIS

Areas affected: Compare Netlist

Symptoms: The Analysis Compare Netlist command may fail to complete after importing certain ODB++ files with incorrect CAD Netlist data.

Reference number: 53137

Areas affected: Compare Netlist

Symptoms: The Analysis Compare Netlist command may fail to complete for certain designs with component pads that are annular rings.

Reference number: 47637, 53194

Areas affected: Copper Area

Symptoms: The Analysis Copper Area command may fail to calculate accuracy copper areas for small IC Packaging designs.

Reference number: 53364

Areas affected: Gerber to Mill

Symptoms: In the NC Editor, the Utilities Gerber to Mill command does not properly use Mill Circle parameters when the user chooses to use the same circle parameters for all circles on the layer.

Reference number: 52355

UTILITIES

Areas affected: Netlist Extract

Symptoms: The Utilities Netlist Extract Compare command does not analyze plated drill slots and plated mill slots for proper connectivity.

Reference number: 53209, 53196

PANEL EDITOR

Areas affected: Tool > Panel Editor

Symptoms: The Tool Panel Editor command will fail to complete for certain symbol libraries migrated from earlier versions of CAM350.

Reference number: 50753

Areas affected: Setup

Symptoms: The Setup Load dialog for loading and saving Panel Setup files (*.pan) does not use the general Windows file open and save dialogs.

Reference number: 52536

MACROS

Areas affected: Layer Macro

Symptoms: The layertype! should allow support for NC_PRIMARY and NC_SECONDARY output. (NOTE: The new macro layerncrank! retrieves NC_PRIMARY or NC_SECONDARY for layers of NC_DATA type.)

Reference number: 47372

GUI

Areas affected: Panel Editor Edit Menu

Symptoms: In the Panel Editor Edit menu, The Spin Image command should be positioned next to the Flip command for ease of use.

Reference number: 51330

Areas affected: Navigation Bar

Symptoms: The Navigation Bar does not allow the user to change the layer type to NC_SECONDARY.

Reference number: 51289

Areas affected: Copper Sliver Fix Button

Symptoms: The Analysis Copper Sliver dialog has a nonfunctional "Fix" button.

Reference number: 44923

INSTALLATION

Areas affected: Installation sequence

Symptoms: When installing DownStream software, if you choose to install CAM350 first then the installation asks if you want to install BluePrint-PCB. However, if you choose to install BluePrint-PCB first, the installation does not ask if you want to install CAM350.

Reference number: 51817

LICENSING

Areas affected: Multiple Key License File

Symptoms: If multiple nodelocked license files are concatenated into a single file and the resultant license file is used to open CAM350, the Floating License Product Choice dialog unnecessarily appears.

Reference number: 51457

HELP

Areas affected: Macro Key Assignment

Symptoms: The help file for assigning keys refers to assigning CAM350 commands to

function keys. This is wrong. Only CAM350 macros can be assigned to function keys.
Reference number: 53158

Areas affected: File Merge Macros

Symptoms: The help file for macro `external_map_layer2new@` describes only two macro arguments, when there are in fact three.

Reference number: 51776