# Pulsonix Version 7.0

PULSONIX

STEP Mechanical Interface

Pulsonix V7.0 now supports the STEP format; STEP is becoming an industry standard for 3D mechanical CAD (MCAD) interfaces. Pulsonix STEP is designed to import from, and export to, mechanical CAD systems supporting STEP, for example Solidworks, Pro-E and Autodesk Inventor. You can import STEP mechanical design files containing the board outline. External STEP models can also be imported and used within the Pulsonix environment. Once the CAD data is imported into Pulsonix you are immediately ready to commence the board layout process.

Using STEP, the finished board with populated components can be exported to the mechanical CAD system. This STEP data from Pulsonix produces an accurate 3D representation of the completed PCB within your mechanical CAD system. The board design can then be integrated within a 3D mechanical enclosure thereby enabling you to determine clearances and potential clash conditions. A STEP Previewer is also provided within the Pulsonix environment to verify the contents of the file before exporting.
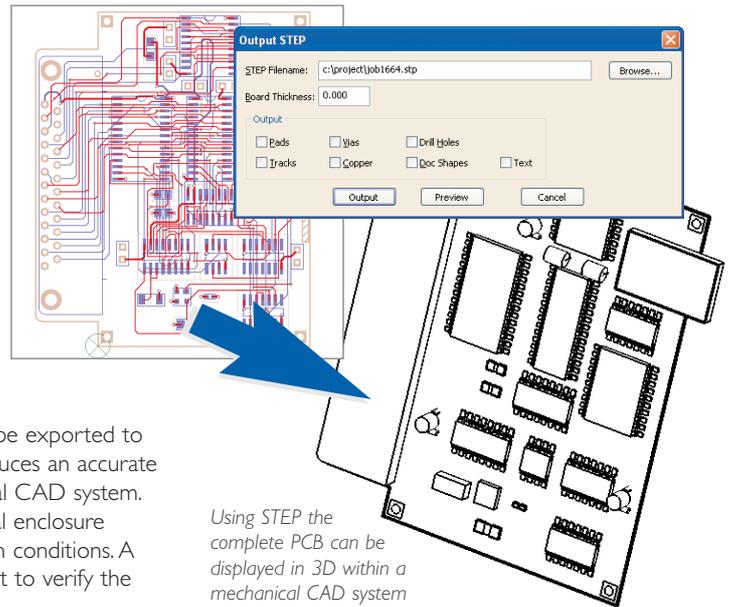
Using STEP the complete PCB can be displayed in 3D within a mechanical CAD system

Active-X Scripting Support

Pulsonix supports scripting using VBscript, JavaScript, PythonScript, and in fact just about any scripting language that can be installed as an Active-X scripting engine. The script can be run from within the Pulsonix environment or externally from a command line. The Pulsonix scripting support is packaged into an easy-to-use interface mechanism with the actual run-time interface presented as a dialog. The command language used is defined in a well structured 'programmer' style HTML reference for easy access. Scripting could be used for example, to produce a user-defined net-list or to produce a custom pick-and-place output with extra information added to particular components based on their type.
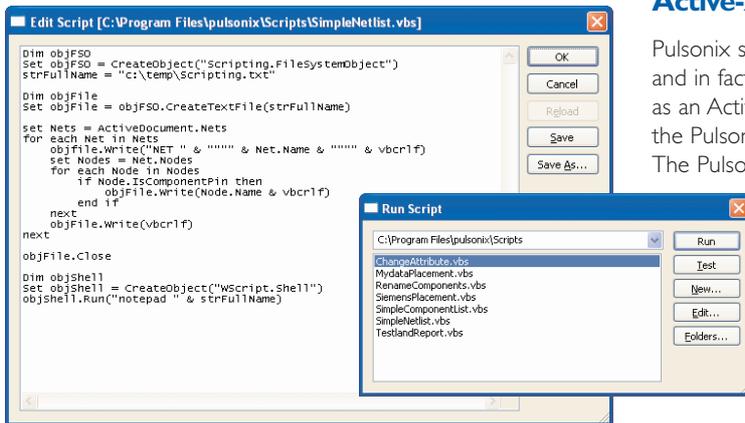
Macros

The introduction of Macros to Version 7.0 saves you time by enabling multiple and repetitive tasks to be recorded and replayed at any time with any design. Where repetition is required, a saved macro can be run in absolute or relative mode to apply the same pattern or sequence of keystrokes as before. Macros can be used in Schematics, PCB and within the Library management system.

High Speed Routing Rules

For users of the Interactive High Speed Routing option, there are three significant changes. With the display of interactive track lengths, it now shows pin to pin rules and total track length. During Differential Pair routing, the length differences are shown on-the-fly as you use them. Also for Differential Pair routing, you can now add Serpentine routing to optimally extend the track length.
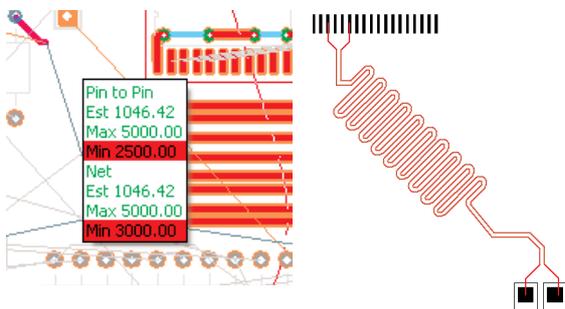
Laser/Micro Vias - Start/Stop pads

By defining a Layer Span between two same facing layers, vias using this span are defined as Micro-vias and will therefore be processed differently. In Version 7.0, there are now two special pad style exceptions 'Micro-via Entry Pad' and 'Micro-via Stop Pad'. These are style exceptions used on the entry and stop layers only when the style is used as a Micro-via. This technology is used in the Advanced Technology option. Each set of drill 'spans' can be written as a separate file for processing using the appropriate mechanism. Composite stacks are shown in the Layer Stack Preview, and in the 3D viewer so you have full visual confirmation of their presence.

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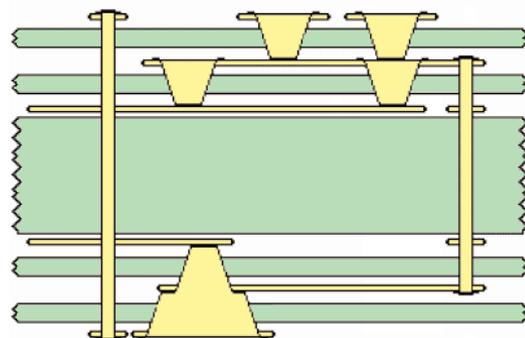
Pulsonix Version 7.0 (cont'd)

New Base Autorouter

Pulsonix is offering even more value for money with the introduction of a base autorouter with every variant of its product range. The base autorouter uses numerically stable mathematical topology which means it is capable of routing the finest pitched devices. With a predominantly 45-degree angle routing methodology the base autorouter produces eye-pleasing results, more akin to hand routed designs rather than the usual autorouted results. The existing Advanced Autorouter will still be available as a cost option for high density technology users.
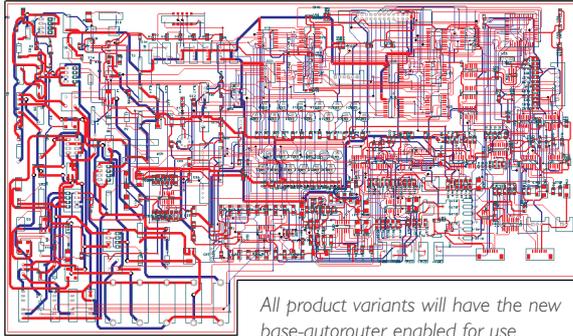
All product variants will have the new base-autorouter enabled for use

Net Class Rules

With a flexible dynamic datastructure already defined for the future of Pulsonix, the demand for additional and more complex Net Class rules means it is ready to add these enhancements. Version 7.0 introduces Net Class rules for min/max tracks for inner layers, additional thermal pour control over individual items and separate annular ring spacings for vias and pads.

Import Net Class Rules from CSV file

Create and import complex Net Class Spacing constraint rules in your spreadsheet and import them directly into the Pulsonix Technology manager using a CSV file. From a simple 2-dimensional rules matrix, to a complex 3-axis cross-rules matrix, the CSV import handles these rules sets. The use of a spreadsheet to map out these rules significantly reduces the errors prone to this type of definition. The spreadsheet also enables a visual aid to the Rules created.

Additional Features Summary

- Spice Netlist Exporters
- Advanced Find in Library Manager
- Drawing Dimmed in Uniform Colour of unused routing layers
- Type Coordinate - Get From Clipboard
- Save Copy As
- Variants Improvements - Filled Shapes with Dashed Line Styles
- Number of Drill Symbol Shapes Increased
- Find Via Spans
- Report Maker Command Additions
- Plus many more new additional features and enhancements

Polar Positioning

This new feature places components to polar coordinated grids when designing boards with curved edges or circular styles. The new positioning options can be used in conjunction with the existing Apply Layout Pattern feature to copy blocks of functionality, including track routing, and make repetitive arrays of design. These can be placed relative to the existing blocks where the offset is defined as an angle or offset value.
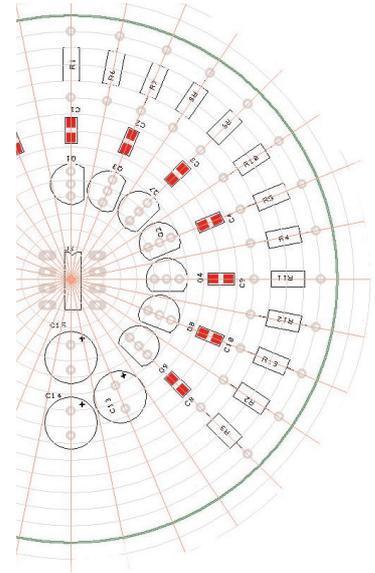
Advanced Technology Support

Layer spans

Using a combination of Micro-via and normal spans you can now define a Composite Layer Span. These are used to create laser-drilled via stacks. Composite via stacks can be added using Insert Via, or added automatically by changing layers of tracks.
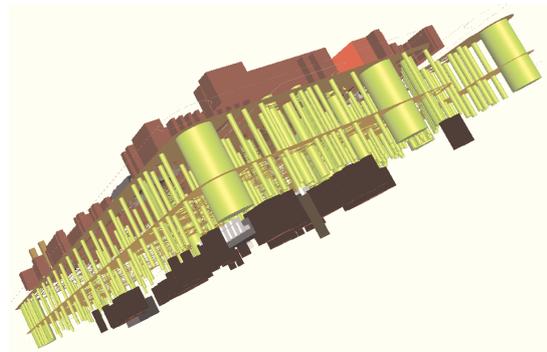
Flexi-rigid Component Support

Pulsonix 7.0 now supports components on all faces of the board: Top, Bottom, or Through-hole, Inner layers within the Advanced Technology option. Also, the introduction of components exposed, but actually mounted on an inner flexi-layer. You can now add a Board Outline, Board Cut-out or Area to a layer span. A Board on a layer span redefines the outline for that span. For example, it is possible to define a flexi-board on an inner span, which overhangs the outer board outline. It is possible to add normal components to the overhangs. You can also define holes and cavities using a Board Cutout Area, and components can be placed within these cavities.

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