

Agenda

- ☐ Environment
- ☐ Placement / Planning
- ☐ Routing Automation
- ☐ 3D



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xPCB Environment - Toolbars

- ❑ Refreshed Interface with Personalization
- ❑ Enhanced Display control
- ❑ Select Mode
- ❑ Context Sensitive menus
- ❑ Hover Highlight



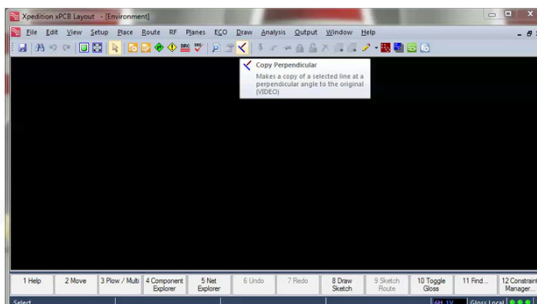
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xPCB Environment – Toolbars

Many of the toolbar icons contain tooltips to help understand usage

- ❑ Animations provide a brief video showing how to use the command.
- ❑ Quick-key commands are also display within the tooltip.



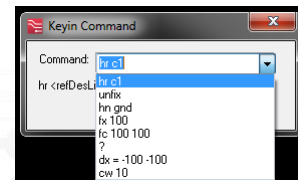
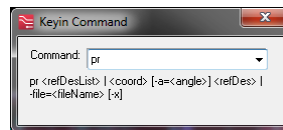
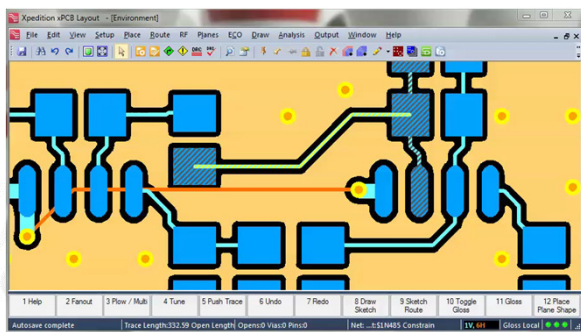
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xPCB Environment – Keyin Commands

The Key-in command editor window will now appear when any command is typed-in using the keyboard.

- ❑ Entering any letter will bring a list of potential commands up.
- ❑ <Backspace> to bring dialog up



xpeditioN

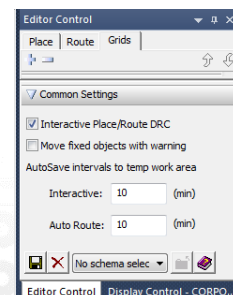
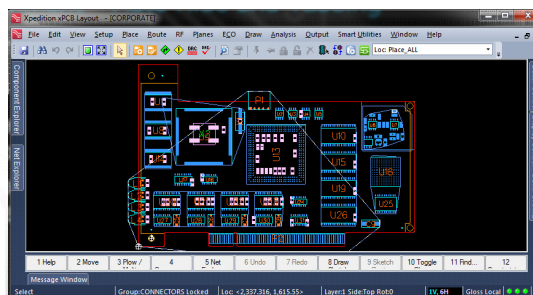
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xPCB Environment – Auto Hide and Tabbing

Auto hide and Tabbing of dialogs has been enhanced to help optimize the layout workspace.

- ❑ Auto hide allows the user to dock a dialog and have it close by simply repositioning the mouse cursor in layout.
- ❑ Dialog tabbing allows for the combination of dialogs within the same space.



xpeditioN

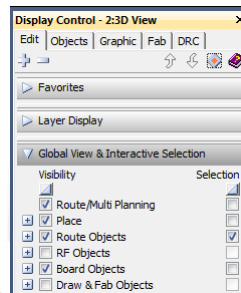
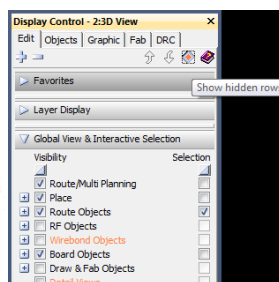
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xPCB Environment – Display Control

Intuitive, personalized, productive

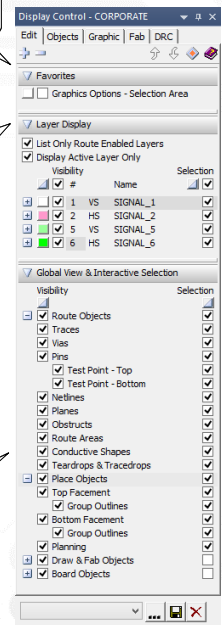
- ❑ Redesigned to take advantage of the new user configurable environment (Select Mode)
- ❑ Schemes may now be saved including toolbars.
- ❑ Favorites added for ease of use.
- ❑ Objects may be hidden from view.



Favorites

Improved layer control

Global view and selection control



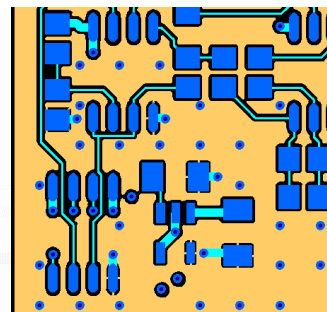
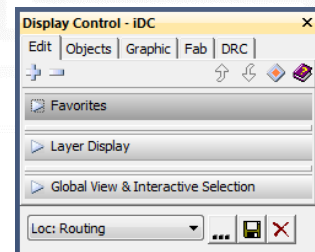
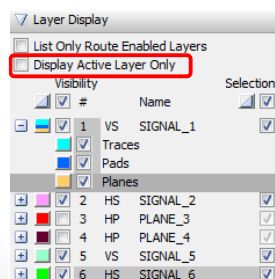
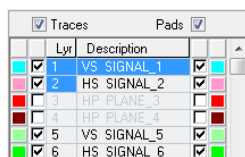
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xPCB Environment – Display Control

- ❑ New modified 'cleaner' look
- ❑ Re-organization of relevant display features
- ❑ Design and Graphic controls have been re-organized to more intuitive locations



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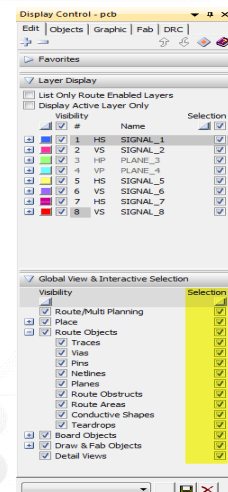
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xPCB Environment – Select Mode



Selection Mode allows the designer to Place, Route and Draw without having to change modes

- ❑ Select Mode is driven by the Global View and Select section in the new Display Control dialog.
- ❑ Visibility and selectivity may now be user controlled.

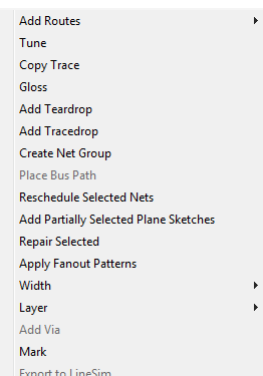
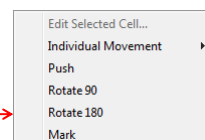
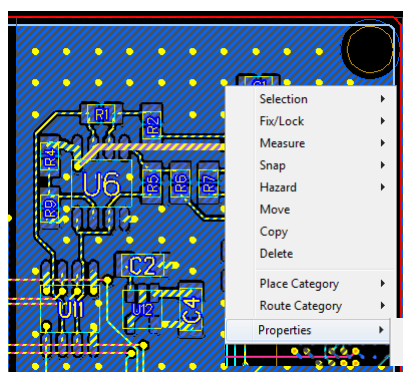


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xPCB Layout Environment – Select Mode

- ❑ Selection Mode provides the ability to select multiple object types in a single selection
- ❑ The RMB context menus have been updated to be context sensitive depending on the object types you have selected.

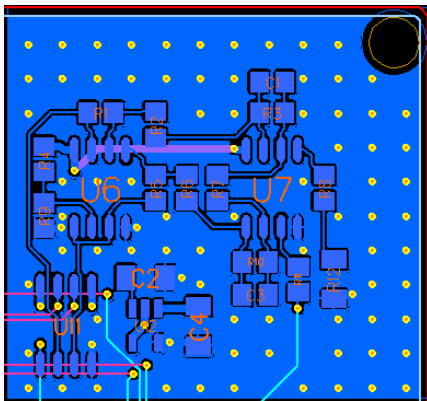


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xPCB Environment – Select Mode

- ❑ The Selection List provides the user with the ability to manage the selected design objects



Object	Name	Description	Net Name	Net Class	Layer	Length (th)	Width (th)
Part	R12	102-RES - CC1206	\$10N6, GND	PWR_020_MIL 1		70.866	165.354
Part	U6	519-AD8639_IC - SO8	\$1N468, \$1N514, \$1N51	PWR_020_MIL 1		190	300
Part	U7	519-AD8639_IC - SO8	\$1N479, \$1N481, \$1N46	PWR_020_MIL 1		190	300
Part	U11	521-5V_IC - SO8NB	AD_CS1, Amp_Out, CKE	CLOCKS, PWR 1		190	300
Part	U12	520-LP2385_IC - SOT1	GND, LP2385, BYPASS	PWR_020_MIL 1		125	150
Trace		<3.917, 42, 2.199, 689>	SDA0	(Default)	2	1,097.891	5
Trace		<3.924, 669, 2.217, 189>	CKE0	CLOCKS	2	1,023.142	6
Trace		<4.597, 5, 2.275>	<5.0> D<MEM	(Default)	2	472.5	5
Trace		<4.677, 31, 2.045>	<5.1> STRB<MEM	(Default)	2	467.69	5
Trace		<4.708, 688, 2.070>	<5 D1<MEM	(Default)	2	476.312	5
Trace		<4.875, 1, 745>	<4.875 AD_CS1	(Default)	5	385	5
Trace		<4.875, 2, 072>	<4.875 AD_CS1	(Default)	1	50	5

Total Items: 177. Selected: 1

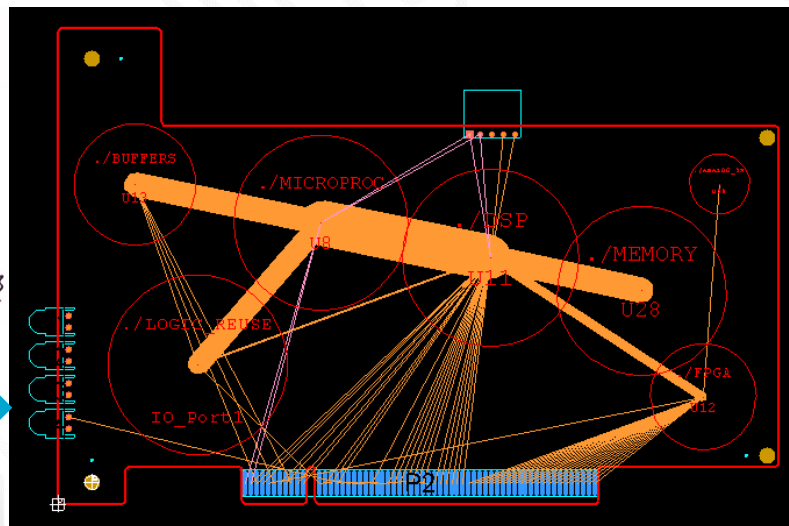
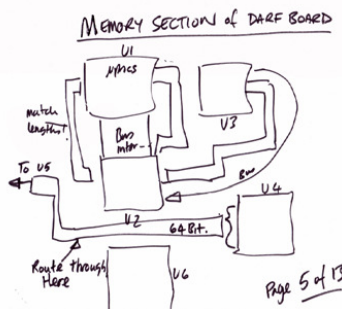
Fit View Blink It Define Sort Order Remove from Selection

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Planning and Placement - Improved Methodology



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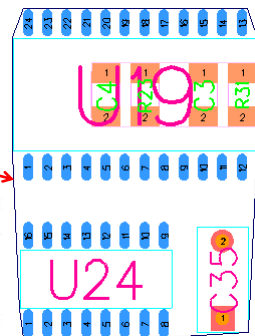
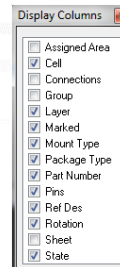
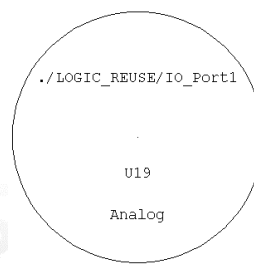
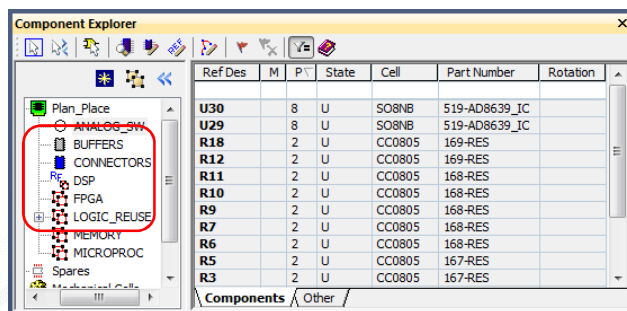
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Planning & Placement – Component Explorer

User interface drives all planning and placement

- ❑ Collaboration between schematic and layout
- ❑ Spreadsheet personalization
- ❑ Drag and Drop management of individual parts or groups



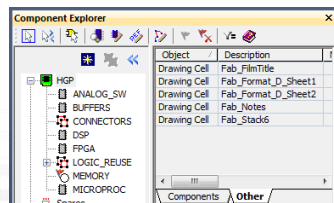
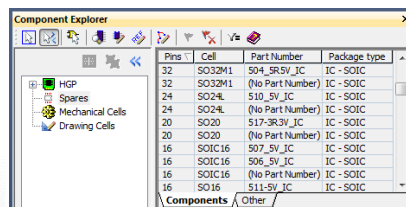
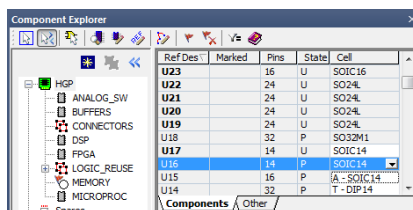
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Planning & Placement – Component Explorer

- ❑ Alternate footprints
- ❑ Access spares, mechanical parts and drawings



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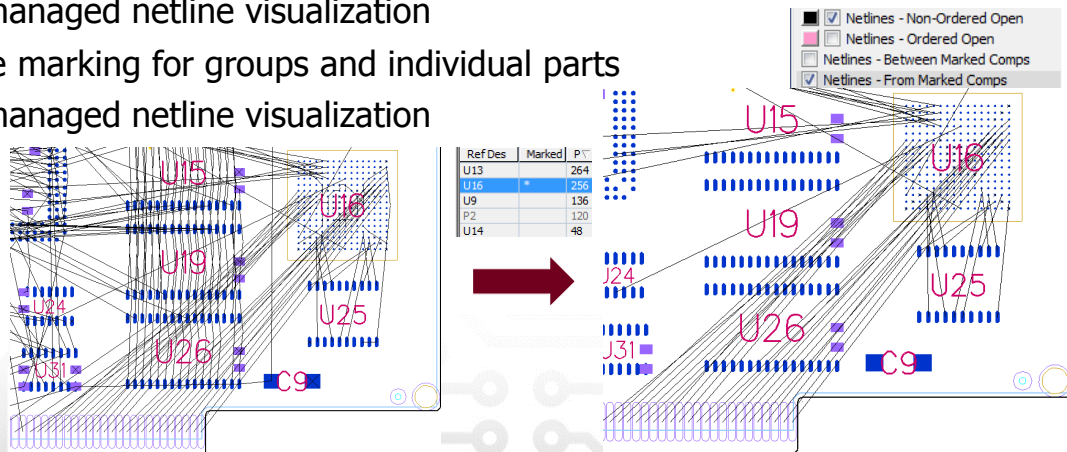
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Netline Visibility – Component Explorer

Enhanced visibility control to speed the placement process

- ❑ User managed netline visualization
- ❑ Netline marking for groups and individual parts
- ❑ User managed netline visualization



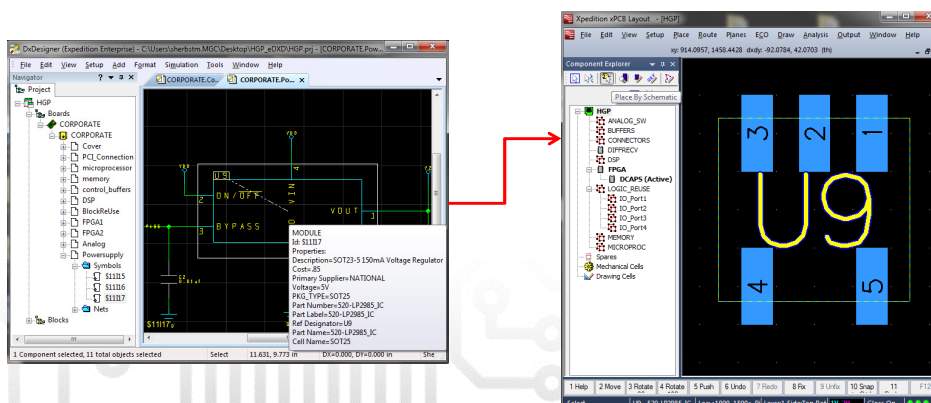
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Crossprobing - Component Explorer

- ❑ Place by Schematic and Cross probing
- ❑ Options from within the Explorer interface
- ❑ From schematic or embedded view



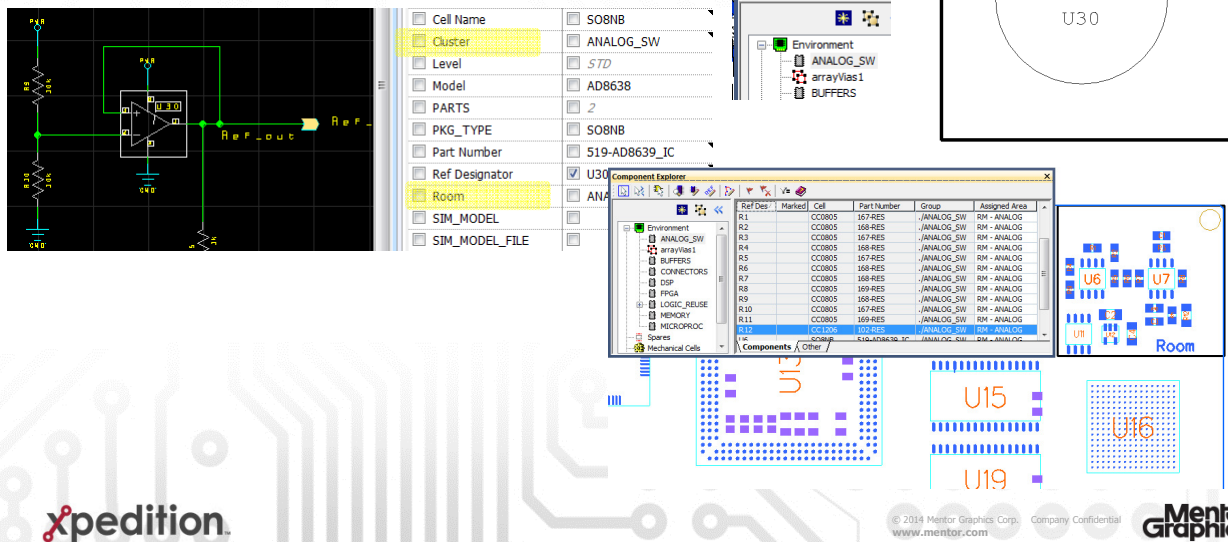
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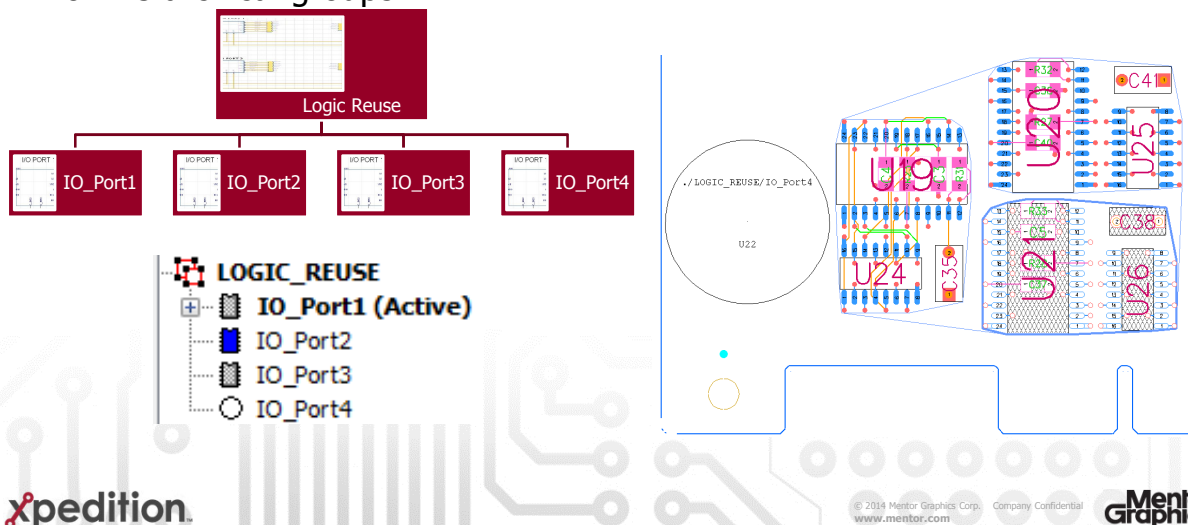
Engineering Intent – Component Explorer

Clusters and Rooms



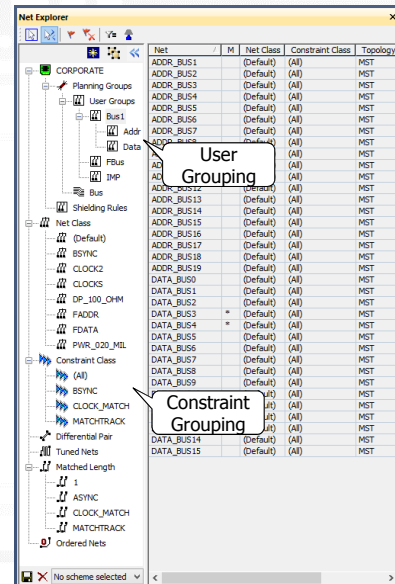
Hierarchical Group Placement – Component Explorer

Full Copy, Move circuit capability for hierarchical groups



Net Explorer

- ❑ **Net Explorer** allows a designer to get quick access to the engineer's intent via constraint grouping as well as designer based *Groupings* of nets to help organize planning strategies
 - **Navigator** view allows the creation and management of user groups as well as showing nets organized by constraints
 - **List** view displays all nets based on selected user or constraint grouping
 - Full cross probing between GUI and/or graphics



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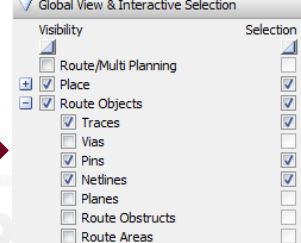
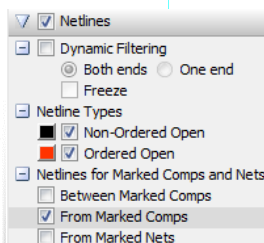
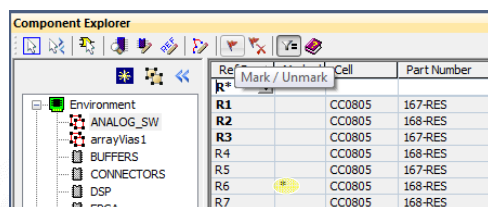
Support for Net and Group

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Netline Visibility – Net Explorer

- ❑ Netlines are now selectable design objects.
- ❑ Visibility and Selection are controlled through the GV&S tab in the new display control dialog.



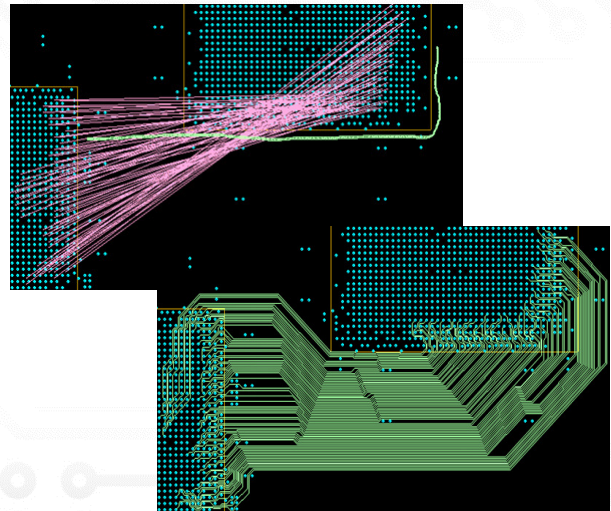
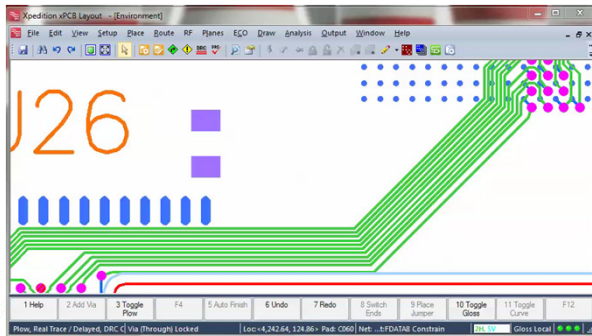
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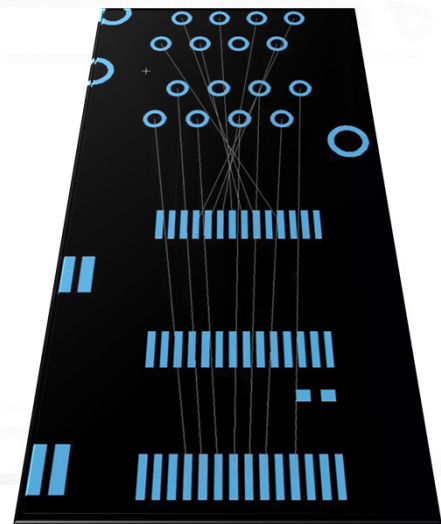
Xpedition Routing Automation

- ☐ Sketch Router / Hug Router
- ☐ Real Trace Plow



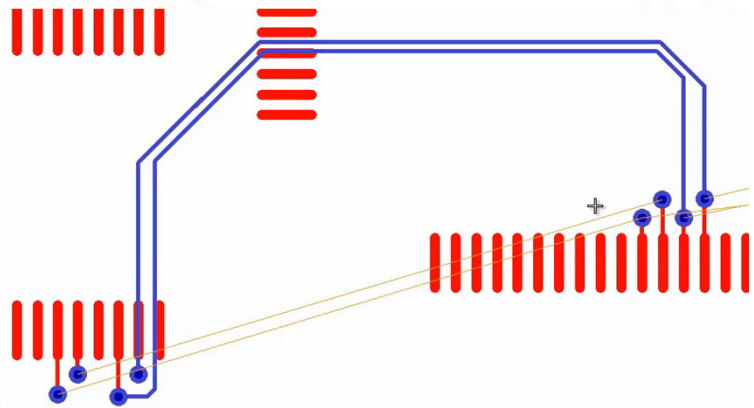
Xpedition Routing Automation - Sketch Router

- ☐ Select Netlines, Draw path, Route!
- ☐ Select Netlines, Route!
- ☐ Draw path, auto select netlines Route!
- ☐ Select netlines or pads or vias or traces
- ☐ Free form or Angled path options



Xpedition Routing Automation - Hug Router

- ❑ Supplements Sketch Router
- ❑ Hugs Existing routes
- ❑ Free to use any allowable layer and vias.



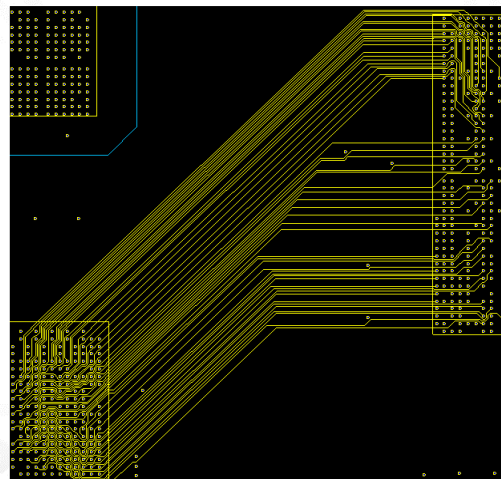
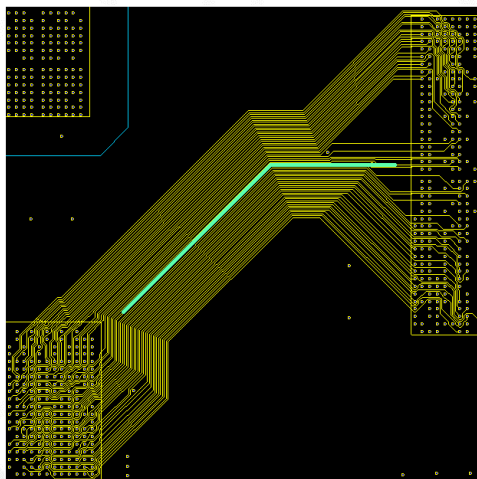
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Sketch - Packed / Unpacked



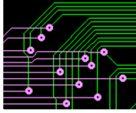
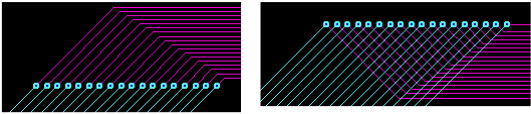

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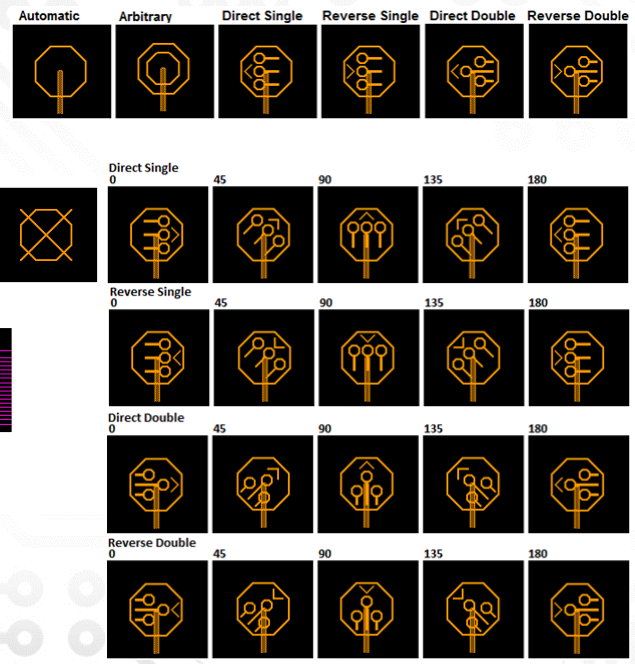
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Sketch - Via Patterns

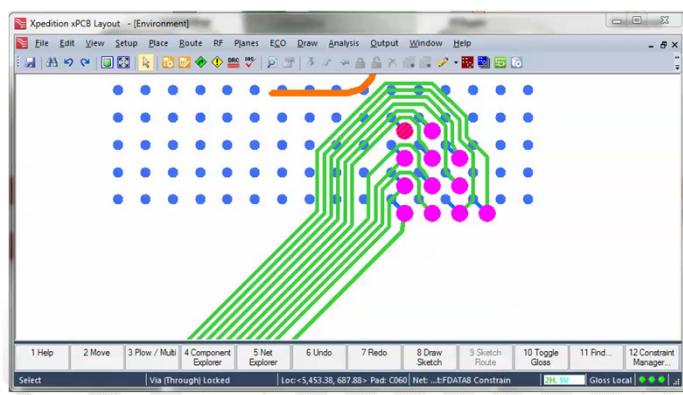
- Automatic – Software chooses
- Arbitrary 
- Direct / Reverse 
- Single / Double 





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Xpedition Routing Automation - Real Trace Plow

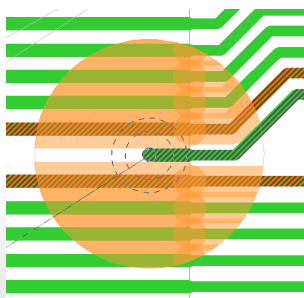
- Improved interactive routing
- Reduced mouse clicks
- Higher quality
- Delayed / Dynamic Push Shove



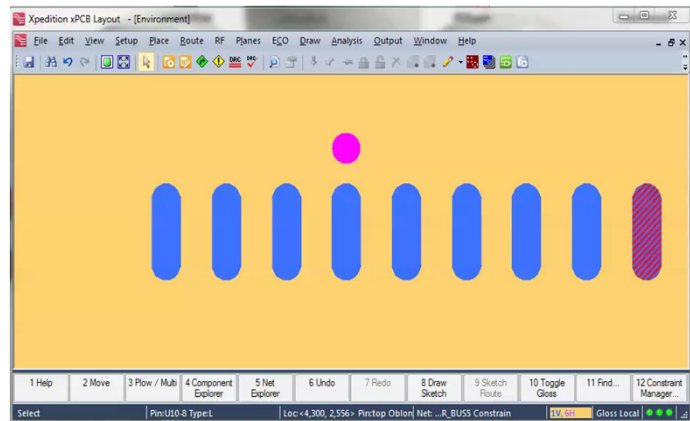
 

Xpedition Routing Automation – Active Clearances

- ☐ Displays clearance information in real time during plow
- ☐ Adjustable size and color
- ☐ Toggle on / off with RMB
- ☐ Delayed/Dynamic Push Shove



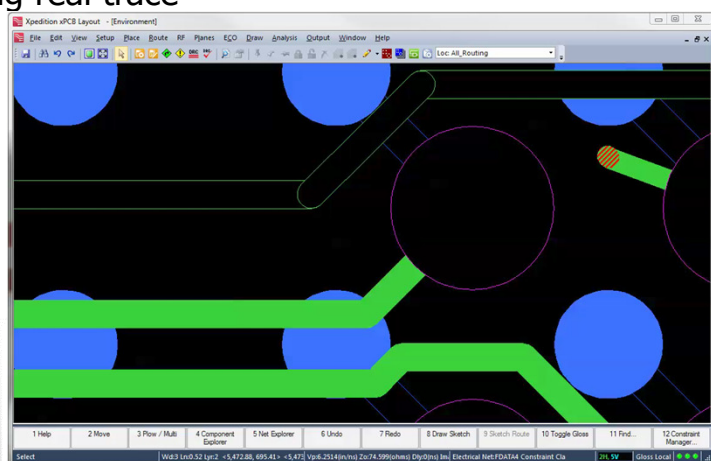
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Xpedition Routing Automation – Prohibit Violations

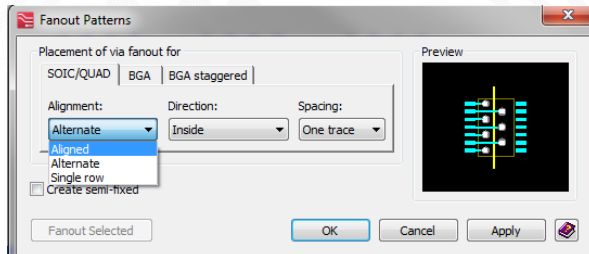
- ☐ Context Sensitive Online DRC
- ☐ Affects only the area surrounding real trace plow
- ☐ Toggle on / off with RMB



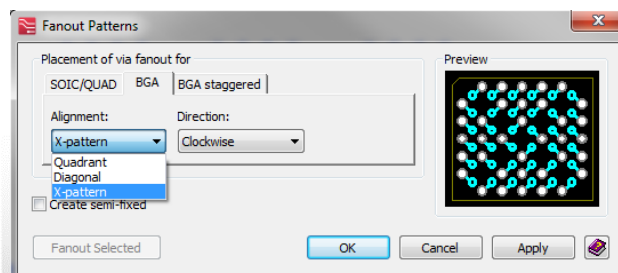
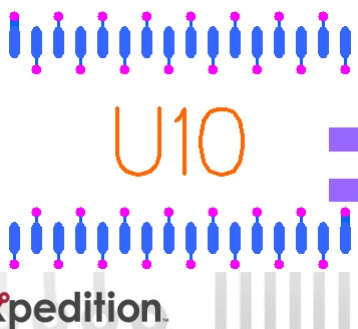


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Xpedition Routing Automation - Fanout Patterns



- ❑ Multiple Pattern Types
- ❑ Apply to selected footprints
- ❑ Follows Net Class rules



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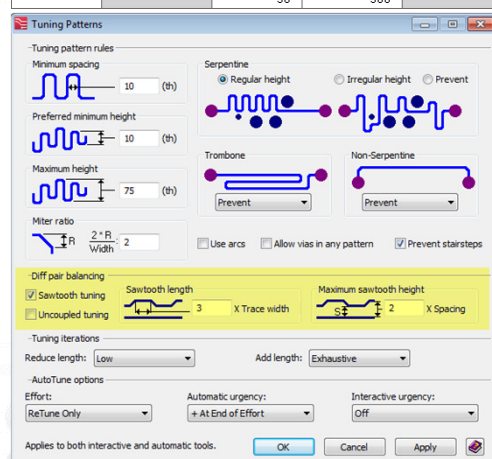
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Xpedition Routing Automation - Tuning Patterns

- ❑ New Sawtooth Tuning
- ❑ Handles Diff Pair Tolerance
- ❑ Automatic Phase matching



Differential Pair Tol		Differential Pair Phase Tol		
Max (th)(ns)	Actual (th)(ns)	Max (th)	Distance Max	Actual
50		50	500	
		50	500	



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Why 3D In PCB Design?

- Reduces PCB ↔ MCAD design iterations
- Eliminates problems found late in a design cycle
- Improves collaboration via 3D visualization
- Enriches visualization for complicated structures

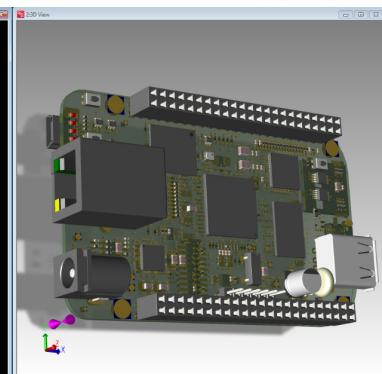
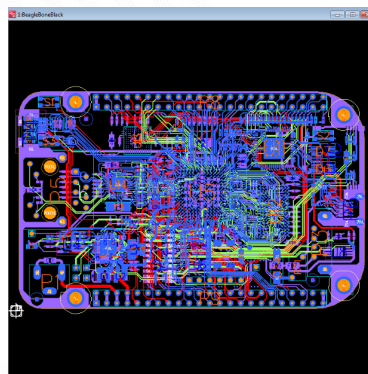


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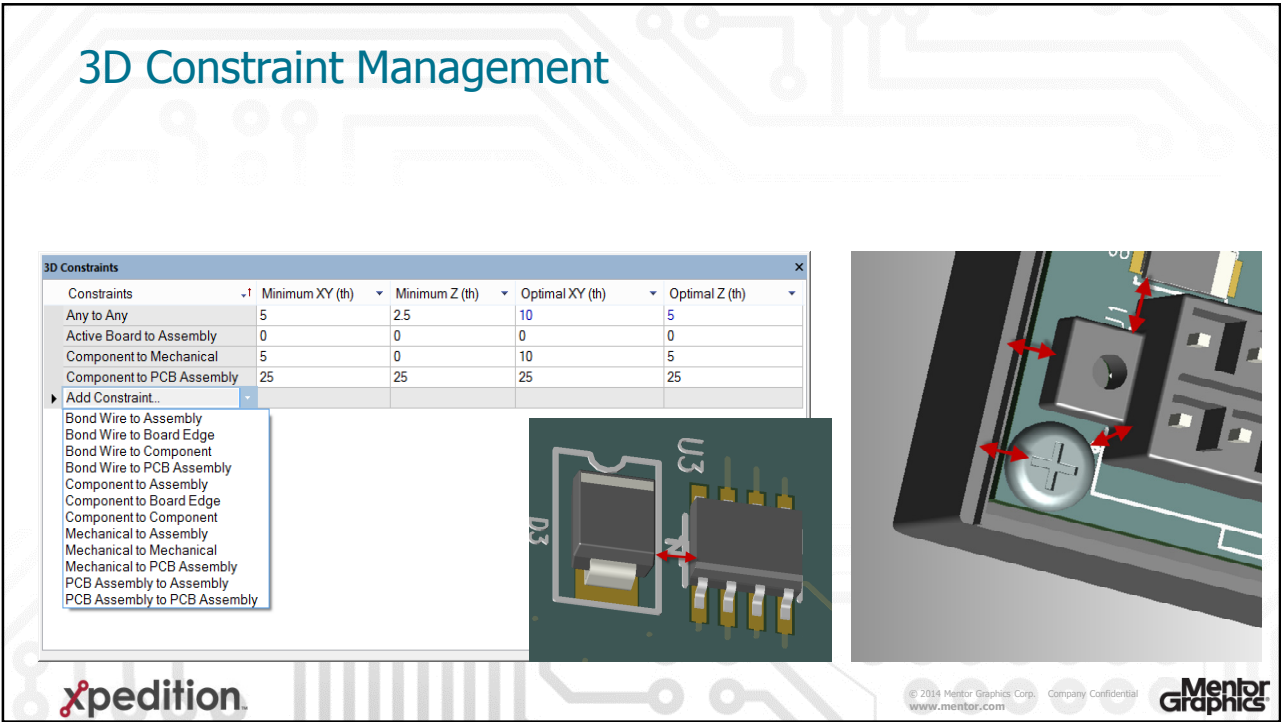
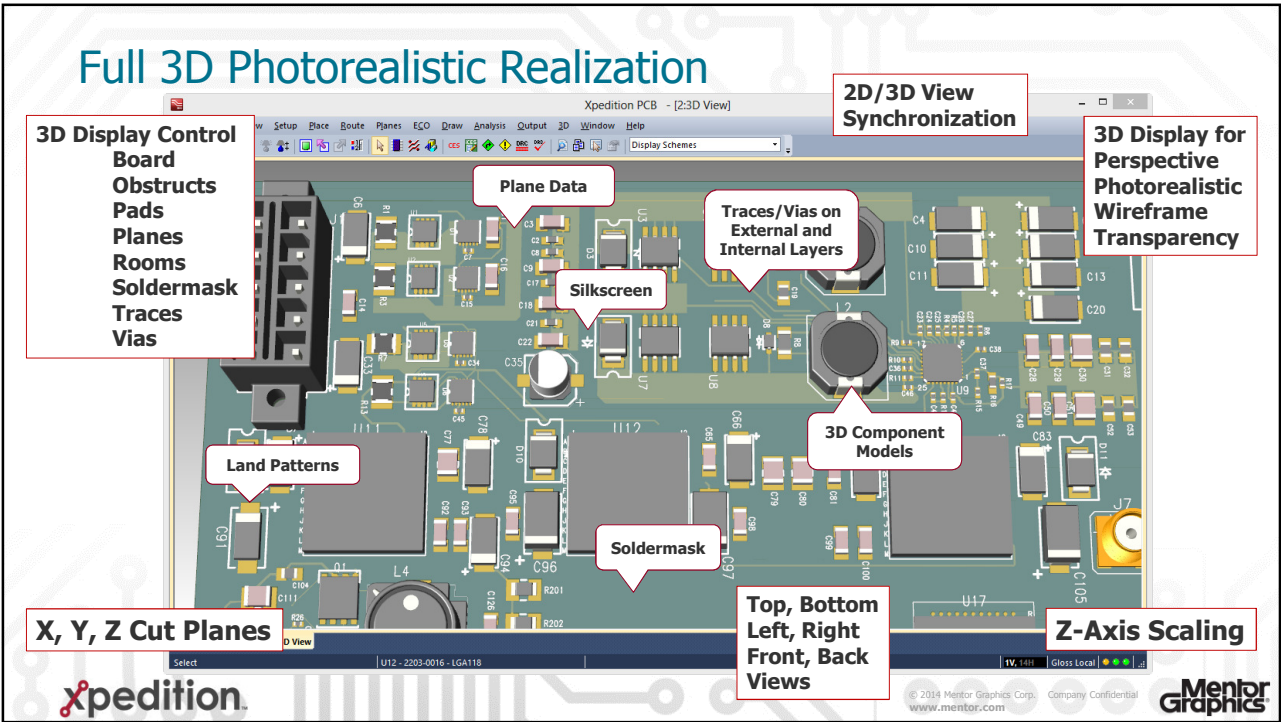
Introducing Xpedition 3D

- True parametric 3D mechanical kernel
- Enterprise library, design and mechanical support
- 3D model library with over 4.4M manufacturing parts
- Photorealistic visualization
- 3D constraints with dynamic validation



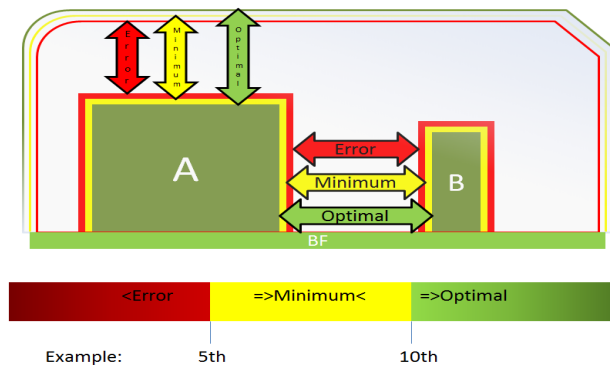
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3D Constraint Validation

- Xpedition 3D includes dynamic, online, and batch DRC
 - Dynamic collision detection
 - Full batch 3D DRC
 - Minimum and optimal constraint ranges
 - Independent XY & Z rules
 - 3D instance rule over-ride

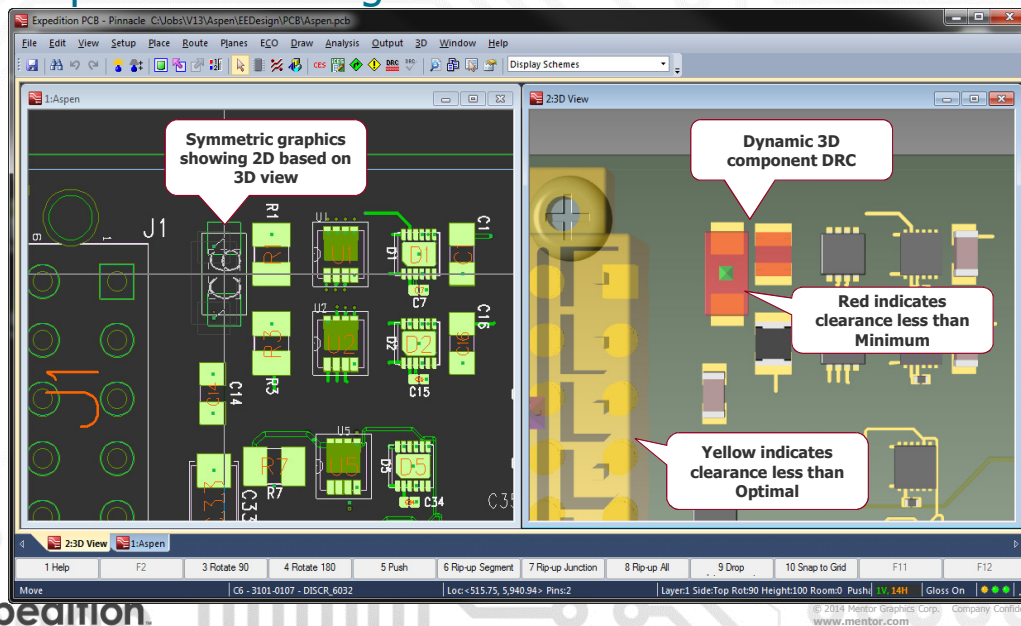


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Component Planning And Placement

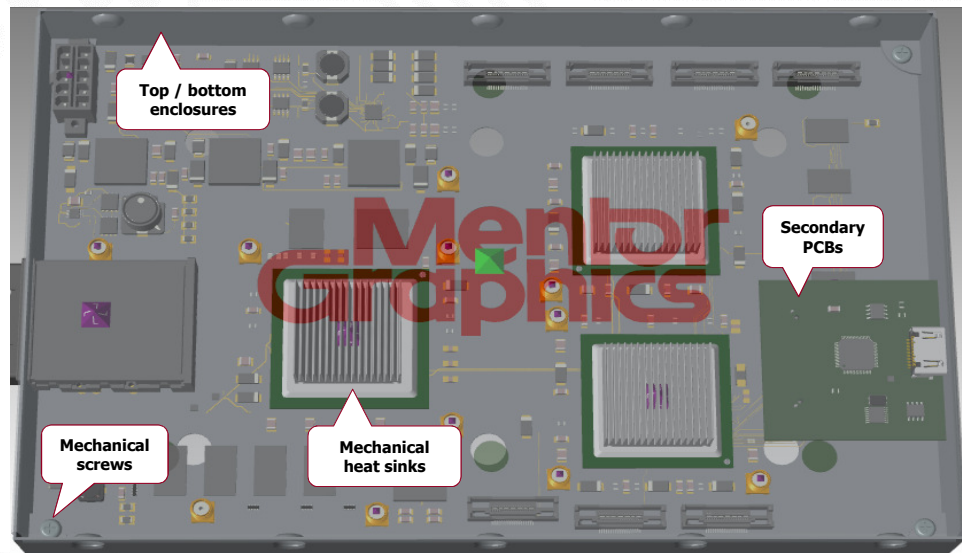


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Import Of MCAD STEP / SAT Solid Models



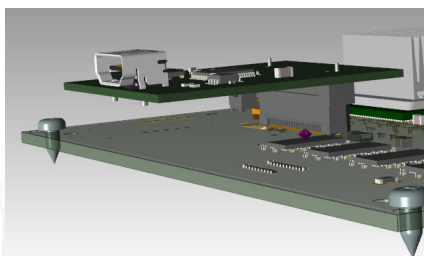
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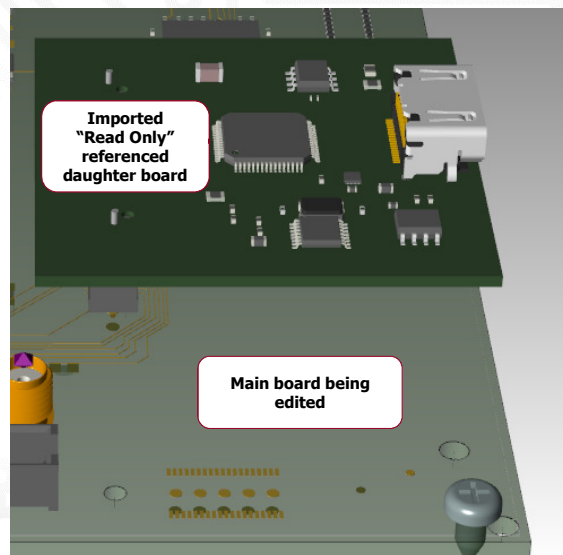
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Multi-Board 3D Modeling

- Import other Xpediton PCBs into edited design
 - DRC checking
 - Full measurement



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Presentation Title

