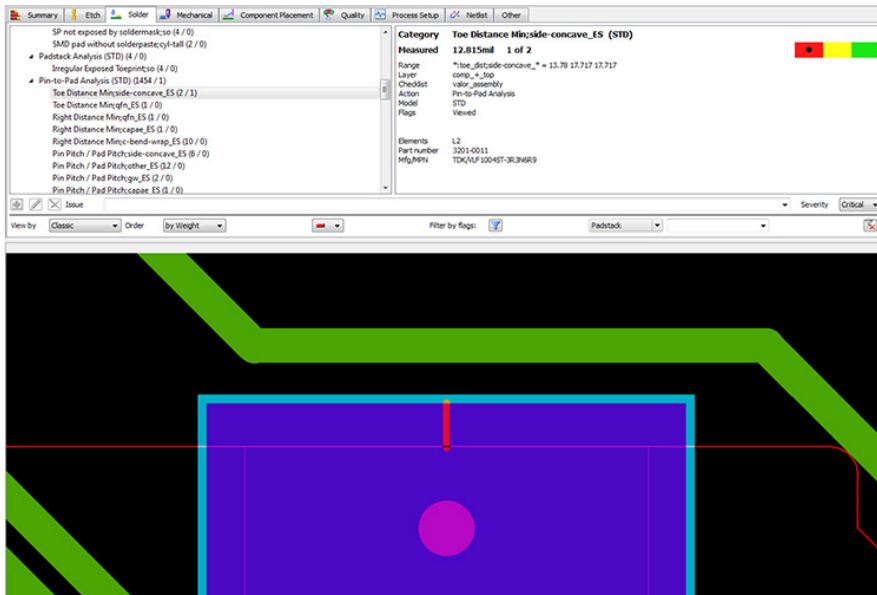


# Valor NPI

## Optimizing New Product Introductions

Design and Manufacturing  
D A T A S H E E T



Valor DFM technology allows you to optimize your PCB design for manufacturing during the initial release process.

### BENEFITS

- Design technology and process-driven, automated DFM analysis
- Maximum left-shifting value for fastest, highest-quality NPI
- Leading DFM technology for minimum design-revision spins in NPI and ramp-to-volume
- Easy and quick creation of optimized assembly and fabrication panel
- Final generation and validation of the PCB product model for manufacturing
- Supports all major PCB EDA flows

### Overview

Getting complex, modern PCBs to volume production and to market on time is the responsibility of not only the manufacturer but also the printed circuit board (PCB) layout designer and new product introduction (NPI) engineer. Many steps need to be coordinated in the NPI process, from optimizing designs for manufacturing to communicating the PCB product model completely and clearly.

Decisions made during PCB layout directly affect the success of your NPI process. Any problem found by your supply chain will cause a delay at minimum, or worse, costly scrap. And, if designs are reviewed differently by the PCB fabrication or assembly supplier than by the designer using EDA tools, yield, cost, and reliability risks remain high. As a result, leading electronic design companies have found that “left-shifting” Valor NPI technology concurrently into their PCB design process saves expensive revision spins and improves the quality of the final product.

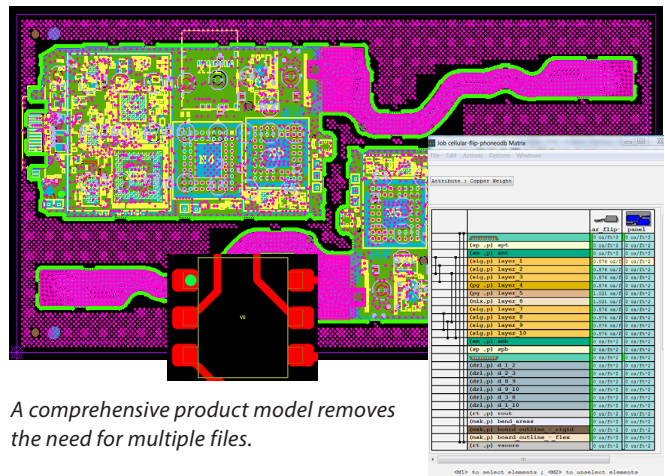
### Concurrent DFM

At each successive step of the NPI process, the cost of rectifying a problem increases tenfold. You certainly wouldn't want to find that your product has unacceptable first-pass yield after you have handed it off to manufacturing. Nor

would you really want to wait to find the location of DFM problems after you have completely placed and routed a PCB and output manufacturing data. It is better to find and fix DFM issues as part of the design phase.

### Intelligent, Integrated NPI Product Model

Your PCB, when fabricated, assembled, and tested, cannot be better than the product-model data you deliver to the manufacturing process engineers. Effective DFM and



A comprehensive product model removes the need for multiple files.

preparation of a comprehensive, intelligent model of exactly what you want manufactured go hand-in-hand.

All available data critical for manufacturing is extracted automatically from PCB CAD, including material zones for rigid-flex circuits, and read into Valor NPI for streamlined DFM analysis.

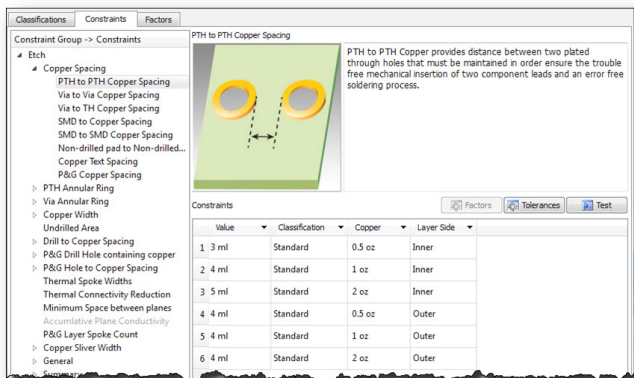
Additional content such as supply-chain-level parts data from the unique Valor Parts Library, data to define surface finishes, the exact assembly panel to be fabricated, and all data normally held in disconnected drawings and documentation is instead integrated into the single highly structured Valor NPI model of exactly what will be manufactured.

## Design Technology and Process-Driven, Automated DFM Analysis

Valor NPI captures the technology inherent in the PCB design and associates it with appropriate manufacturing processes to automatically select which DFM rules and values to apply. The result is an intelligent and automated analysis that provides an extremely efficient and effective DFM process.

## Comprehensive DFM Analysis

How manufacturable is your design? Your NPI flow is only as good as the DFM tools you use. Today's miniaturized, high-layer count designs cannot be reliably reviewed manually. Simple DFM tools do not check all manufacturing process factors. Valor NPI verification software analyzes all of your design technologies—FR4, rigid/flex, flex, and even packaging substrates—with more than 900 DFM checks. Each of these checks helps you to optimize your design for manufacturing during the initial design process.

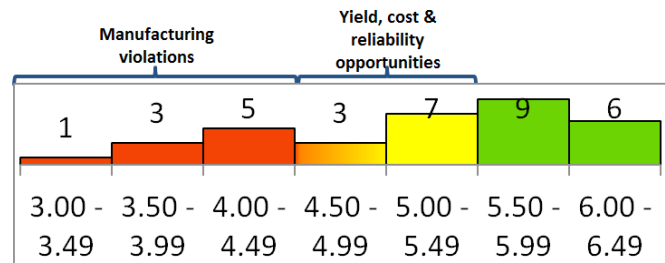


DFM rules setup has never been easier.

DFM validation further categorizes and prioritizes the design-change requirements so that you may easily resolve the most critical issues first by cross-probing between Valor NPI and PCB CAD. The weight assigned to

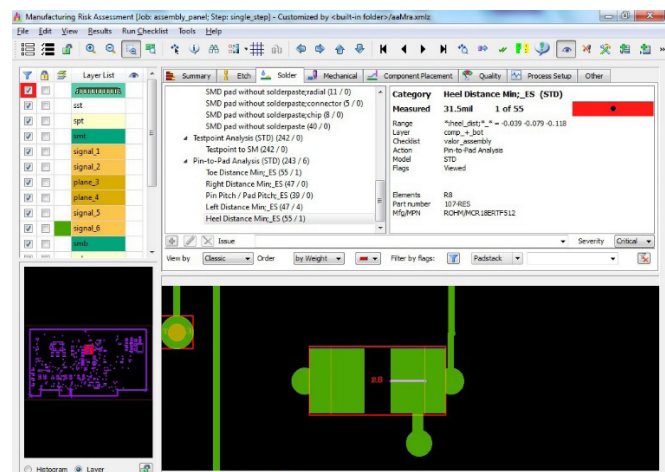
each check is definable, enabling you to decide how the results should be prioritized.

Beyond the DFM analysis, Valor NPI checks your design netlist against the manufacturing data to ensure there are no connectivity errors. The application even validates that your manufacturing BOM matches the design and that all components in your approved vendors list (AVL) are an acceptable physical match.



## Understand the Manufacturing Risk

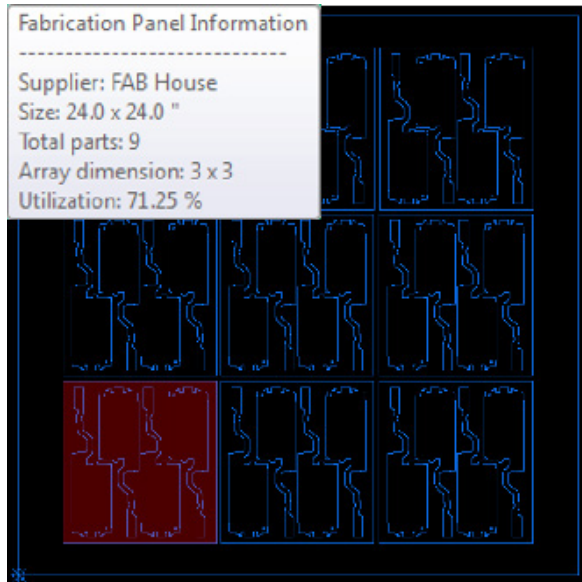
DFM validation not only identifies where your PCB design is beyond your supplier's manufacturing capabilities, it also shows where low yield or field failures may occur by using severity indicators of red, yellow, and green.



Manufacturing risk assessment of yield, cost, and reliability.

## Panel Design and Optimization

Eliminate the need for other software tools to be used for the creation and optimization of your assembly panels, regardless of PCB shape. Include fiducials, tooling holes, breakaway tabs, and v-score features to create a complete assembly panel configuration as well, all in a matter of minutes. Communicate the panel design as data to your suppliers, eliminating cycles for them to recreate and send back to you for approval.



## Enhanced PCB Product Model Hand-Off

Valor NPI consolidates all data and information, defining exactly what is to be fabricated, assembled, and tested—what you expect to come back from the manufacturers. The original source for the data is PCB CAD, but as part of the NPI flow, all other information from your manufacturing documentation team can be directly integrated and verified as structured data, eliminating the need for legacy drawings and documents to be created and validated by your team.

The resulting ODB++ data package contains everything the fabrication, assembly, and test software tools need to know about your product to proceed efficiently and promptly with their process preparation. You also have unlimited ODB++ viewing capabilities on your Valor

Product Summary section -> Attribute	Value	Units
Board Requirements		
Board Thickness	0.089200	Inch
Additional Requirements		
Board Outline Tolerance Plus	5.000000	Mil
Board Outline Tolerance Minus	5.000000	Mil
Board Thickness Tol Plus	3.000000	Mil
Board Thickness Tol Minus	3.000000	Mil
Board Thickness Type	over mask on plated copper	
Bottom Legend Color	white	
Bottom Soldermask Color	yellow	
Flammability Rating Standard	UL94V-0	
General PCB Standard	IPC 6012A	
Glass Transition Temperature (Tg)	110.000000	
Legend Sides	Both	
PCB Acceptability Standard	IPC 6012A	
Peelable Mask Side	none	
Plated Edge	Yes	
Plated Slots	No	
Qualification and Performance Standard		
Soldermask Sides	Both	
Top Legend Color	white	
Top Soldermask Color	green	



NPI network, for sharing and reviewing PCB designs with your team.

## Synchronized with Your Supply Chain

The Valor NPI DFM technology was developed by the same people that created the DFM verification tools used by more PCB fabricators and contract assembly companies than any other system. Collaborating with the DFM experts in your manufacturing supply chain, you can truly left-shift the manufacturing process constraint-rules into your design and NPI operations.

By using the same rules and even the same settings to simulate how your suppliers will review your design, you will minimize call-backs and engineering-change requests from your manufacturers, taking cost and time out of the full NPI cycle.

## OS Support

- RedHat 5 and 6 x86/x64
- Linux SUSE 11 x86
- Windows x86/x64

Visit <http://go.mentor.com/valor-npi-vlab> to test drive Valor NPI. See how easy it is to compile and verify your product-model data before handing-off to manufacturing.

For the latest product information, call us or visit: [www.mentor.com/valor](http://www.mentor.com/valor)

©2017 Mentor Graphics Corporation, all rights reserved. This document contains information that is proprietary to Mentor Graphics Corporation and may be duplicated in whole or in part by the original recipient for internal business purposes only, provided that this entire notice appears in all copies. In accepting this document, the recipient agrees to make every reasonable effort to prevent unauthorized use of this information. All trademarks mentioned in this document are the trademarks of their respective owners.

**Corporate Headquarters**  
Mentor Graphics Corporation  
8005 S.W. Boeckman Road  
Wilsonville, Oregon  
97070-7777  
Phone: 503-685-7000  
Fax: 503-685-1204

**Silicon Valley**  
Mentor Graphics Corporation  
46871 Bayside Parkway  
Fremont California 94538 USA  
Phone: 510-354-7400  
Fax: 510-354-7467

**Europe**  
Mentor Graphics Deutschland GmbH  
Arnulfstrasse 201  
80634 Munich  
Germany  
Phone: +49.89.57096.0  
Fax: +49.89.57096.400

**Pacific Rim**  
Mentor Graphics Taiwan  
Room 1001, 10F,  
International Trade Building  
No. 333, Section 1, Keelung Road  
Taipei, Taiwan, ROC  
Phone: 886-2-87252000  
Fax: 886-2-27576027

**Japan**  
Mentor Graphics Japan Co., Ltd.  
Gotenyama Garden  
7-35, Kita-Shinagawa 4-chome  
Shinagawa-Ku, Tokyo 140-0001  
Japan  
Phone: 81-3-5488-3033  
Fax: 81-3-5488-3004

**Sales and Product Information**  
Phone: 800-547-3000

**North American Support Center**  
Phone: 800-547-4303

MGC 06-17v10.1

1032440b