SIEMENS
Ingenuity for life

Valor NPI

Optimizing new product introductions with design for manufacturability

Benefits

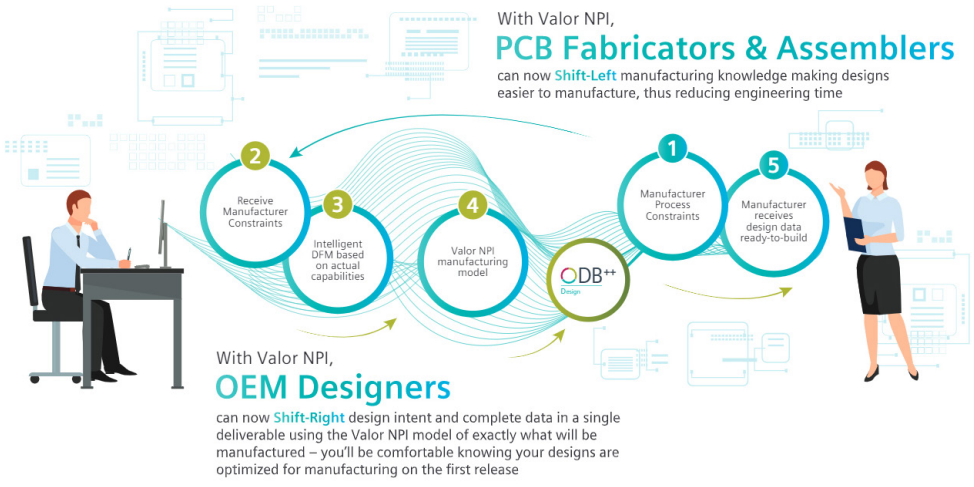
- Save time and money by identifying and correcting issues early on
- Mitigate risk by helping you to stay on schedule and budget
- Direct access to Siemens PCBflow lets you collaborate with manufacturers for fewer interactions and higher quality products
- Quickly create panels to optimize material use and reduce costs
- Accelerate fabrication and assembly and reduce cost with final validation of PCB data
- Support major PCB EDA flows, enabling you to benefit from DFM with any PCB design tool

Why is it that printed circuit board (PCB) design re-spins are expected rather than the exception? According to historical data, schedules and budgets typically include several re-spins. It has been proven that Valor™ NPI software can reduce the number of re-spins by an average of 57 percent using design for manufacturability (DFM) technology. That means manufacturing issues can be identified and corrected early in the process, saving money and time.

Valor NPI also works with any major PCB design software. Valor NPI incorporates expert knowledge about fabrication and assembly processes and makes it accessible to anyone in the new product design flow, shifting the knowledge as far left as possible. As a result, leading electronic design companies have found that incorporating Valor NPI technology into their PCB design process saves expensive re-spins and improves product quality. It is part of the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software, Xcelerator™ portfolio.

Concurrent DFM

At each successive step of the new product introduction (NPI) process, the cost of rectifying a problem increases tenfold. You certainly would not want to find that your product has an unacceptable first-pass yield after you have handed it off to manufacturing. Nor would you want to discover the location of DFM problems after you have fully placed and routed a PCB and outputted manufacturing data.



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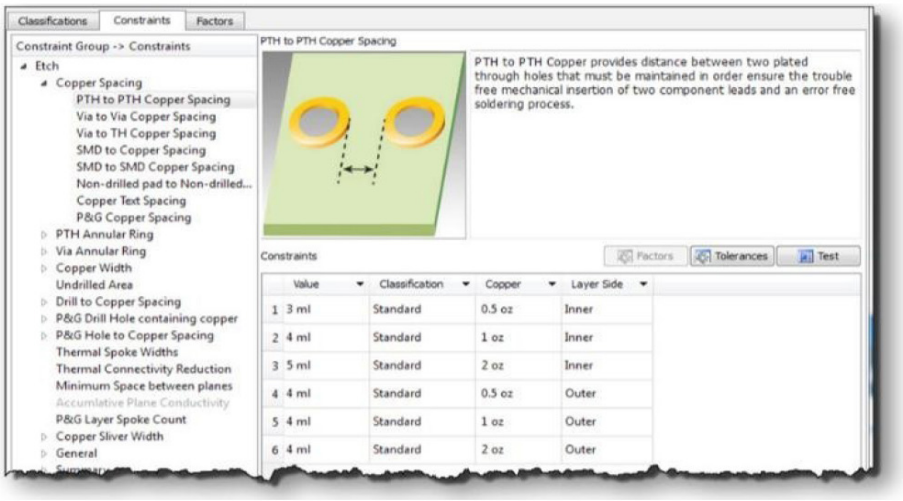


Creating DFM rules is simple using Valor NPI.

Using Valor DFM technology provides you with a competitive edge by running fabrication and assembly analysis before handoff to your partner in NPI. The DFM rules prepared for you by the customer's NPI experts (DFM engineers) are applied during layout, enabling you to easily identify and fix fabrication-process problems without requiring manufacturing-process expertise.

Intelligent, integrated NPI product model

When fabricated, assembled and tested, your PCB will be only as good as the product-model data you deliver to the manufacturing process engineers. For a quality PCB, you need an effective DFM and a comprehensive, intelligent model of the desired product. With Valor NPI, all available data critical for manufacturing is extracted automatically from the PCB computer aided design (CAD), including material zones for rigid-flex circuits, and then entered into Valor NPI for streamlined DFM analysis.

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

Manufacturing process-driven, automated DFM analysis

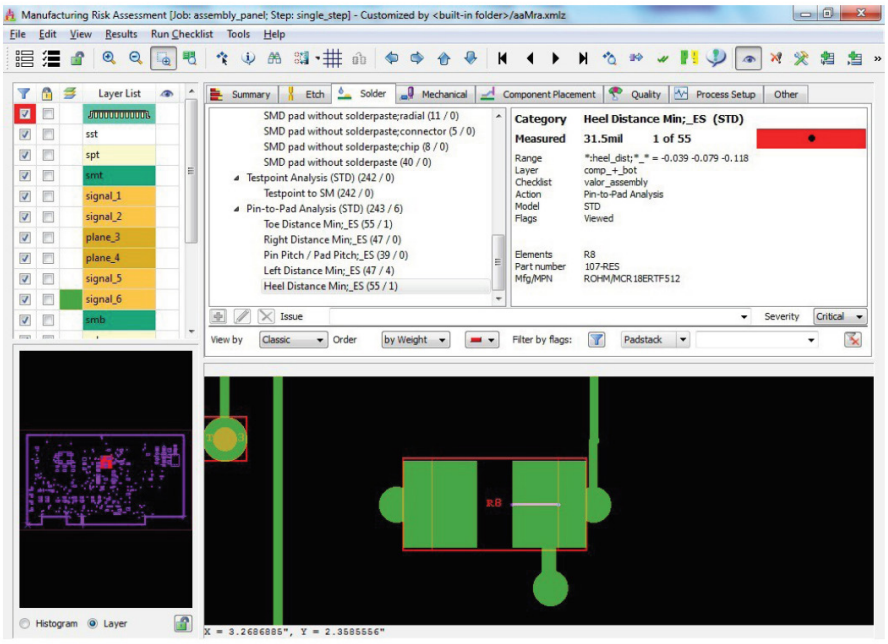
Every manufacturing partner has its own manufacturing process and process capabilities that require a unique set of DFM rules. Unlike traditional DFM systems, Valor NPI can capture the technology inherent in the PCB design. The VPL associates the PCB design with appropriate manufacturing processes to 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.

Synchronize with your supply chain using Siemens PCBflow

Valor NPI DFM technology was developed by the same people who created the DFM verification tools used by leading PCB fabricators and contract assembly companies worldwide. By collaborating with your manufacturing supply chain using Siemens PCBflow, you no longer need to create local rules based on documentation. With PCBflow, you will receive ready-made classification sets that describe the manufacturer's process capabilities so that you are always using the latest rules for DFM. This eliminates technical query holds from your suppliers due to DFM issues.

Comprehensive DFM analysis

How manufacturable is your design? Your NPI flow depends on the DFM tools you use. Miniaturized, high-layer count



Manufacturing risk assessment of yield, cost and reliability.

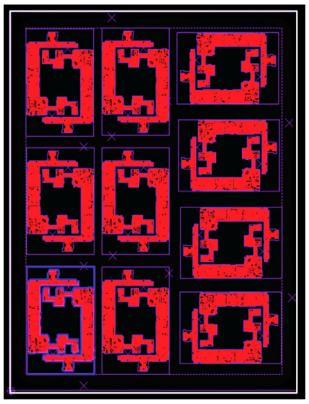
Valor NPI

designs cannot be reliably reviewed manually, and simple DFM tools do not check all manufacturing process factors.

Valor NPI verification software can be used to analyze all of your design technologies – FR4 material grade, rigid/flex, flex and even packaging substrates – with more than 1,000 DFM checks. Each of these checks helps you optimize your design for manufacturing during the initial process.

Using DFM validation further categorizes and prioritizes the design-change requirements so you can easily resolve the most critical issues by cross-probing between Valor NPI and the PCB CAD. The weight assigned to each check is definable, allowing you to decide how the results should be prioritized.

Beyond the DFM analysis, Valor NPI enables you to check your design netlist against the manufacturing data to ensure there are no connectivity errors. The netlist analysis even understands intentional shorts so no time is wasted reviewing false errors. Valor NPI even enables you to verify your manufacturing bill-of-materials (BOM) matches the design and all components on your approved vendors list (AVL) are an acceptable physical match.



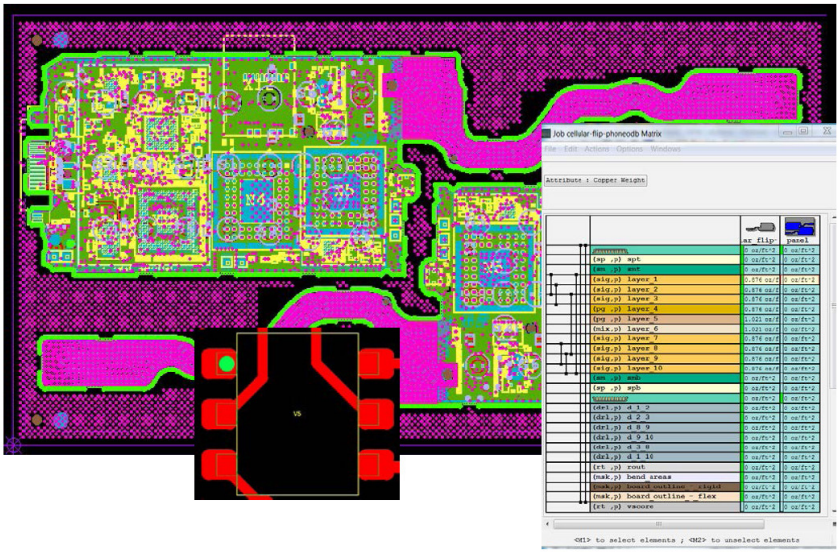
Panelization design can lower your PCB costs.

Understand the manufacturing risk
DFM validation not only identifies where your PCB design exceeds 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. With this visibility, designers can optimize their designs for manufacturing during the initial stage, accelerating their ramp-to-volume cycle.

Panel design and optimization
Using Valor NPI eliminates the need for additional software tools for creating and optimizing assembly panels regardless of PCB shape. It includes fiducials, tooling holes, breakaway tabs and v-score features to create a complete assembly panel model. With Valor NPI, you can automatically identify the lowest cost fabrication panel configuration and communicate the panel panel layout and send it back for approval. Leaving the design to your suppliers eliminates the opportunity to optimize your panels and take advantage of cost-saving opportunities.

Enhanced PCB product model handoff
Using Valor NPI enables you to consolidate all data and information to define the product to be fabricated, assembled and tested by the manufacturers. The PCB CAD is the original source for the data, 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. Process preparation can proceed quickly and efficiently because the resulting ODB++ Design data package has all necessary data for the fabrication, assembly and test software tools. Valor NPI also includes unlimited ODB++ viewing capabilities on your network so you can share and review PCB designs with your entire organization.

More Information
For more information about how Valor NPI can work in your PCB design flow, visit: https://eda.sw.siemens.com/en-US/pcb/valor/valor-npi/



A comprehensive product model removes the need for multiple files.

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