

## New Tools 'See' Both Sides of CAD Equation

Visualization software, once the domain of mechanical engineers, continues to move into the electrical space. Time was, such tools were used for simple text markups. The latest versions are sophisticated programs in which designers can create mockups of boards, parts and assemblies, view boards within their housings in 3D representations, conduct certain analyses and then communicate data and suggestions in real time back to the mechanical side. Some of today's tools even read mechanical and electrical data in their native formats and execute a variety of design rules checks.

The value, say tool vendors, is as simple as the difference between native and non-native viewing. Non-native format editors convert the schematic or board file into a neutral format. If a designer makes changes and the conversion is not maintained, what others look at will be out of date. Tools that work with the same format in which the document was created – i.e., view native EDA and MCAD data in a single application – forego any conversion process. Thus, the data are more accurate.

In a demo for PCD&M editors, one software vendor showed how users could easily shift between design, schematic and housing files. Via a Webcast, Cimmetry Systems showed how, with the push of a button, a user could see whether a board fits within the casing/housing as received in ECAD or MCAD. Boards could be aligned by defining constraints, such as tooling holes. The software, the soon-to-be-released Autovue 18, also identifies mismatched parts, for example, ones that are too big for a housing. Users can then launch a real-time collaboration session with mechanical designers, or alternatively can try to solve the problem themselves by selecting a different-sized component.

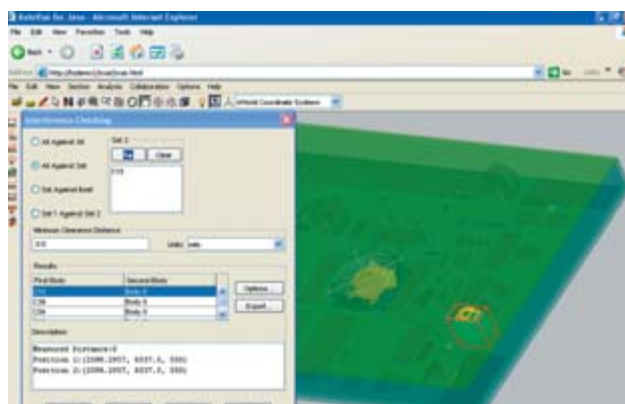
Collaboration takes one of two forms: asynchronous, in which a user marks up and saves a file and another user reviews and approves or deletes it, and real-time, in which engineering changes are made on the fly. While a PCB designer can use the native application, and thus won't have the same need for a viewer, everyone else will: purchasing, suppliers, customers, the manufacturing floor. Enabling true collaborative viewing is a feature known as "cross-viewing." In short, the desktop and thin-client versions (accessible via a Web browser) are virtually identical and interoperable. Files can be created in thin-client mode and viewed on a desktop, or vice versa.

One key question is, can users appropriately segregate the data? Say there are 1,000 nets on one layer; how well – and easily – could one look at them? According to vendors, the best in breed tools generate custom lists of nets. Using a browser,

netlists can be narrowed, filtered by attribute or value or name.

Of course, some EDA vendors give viewers away. So why would a company purchase one? For starters, state-of-the-art proprietary viewers are EDA-neutral and work with several vendors' tools. They also tie multiple systems together. Also, any large company (mechanical or electrical) will have in place a documentation system (ERP or PLM), which serves as a repository for data, making integration more and more necessary. The third-party viewers integrate with those systems. Marketing specialist Derek Gold says Cimmetry finds that free viewers are often not maintained. Having a single interface is also big benefit, as it cuts out the need to learn and use multiple applications.

A designer is a vital but single piece of the organizational



**DOES IT FIT?** New tools can check for DRCs and mechanical violations.

puzzle. These latest tools extend beyond the boundaries to the customer, assembler, sales and purchasing teams. If specs are unclear, the tools can generate and sort BoMs. Better, BoMs are accessible at any stage the design is at, and not dependent on the CAD designer to finish and generate. "This helps to collapse the design cycle," explains Cimmetry's Gold. "Not every purchasing manager will be intimately familiar with a design. And CEMs who use multiple EDA systems can jump back and forth."

Cimmetry also notes a trend toward managing data, even at the low- to mid-size level. "I think the small businesses will get to the point where they manage data," Gold says.

*This is an abridged version of the article as it appeared in PCD&M.*

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