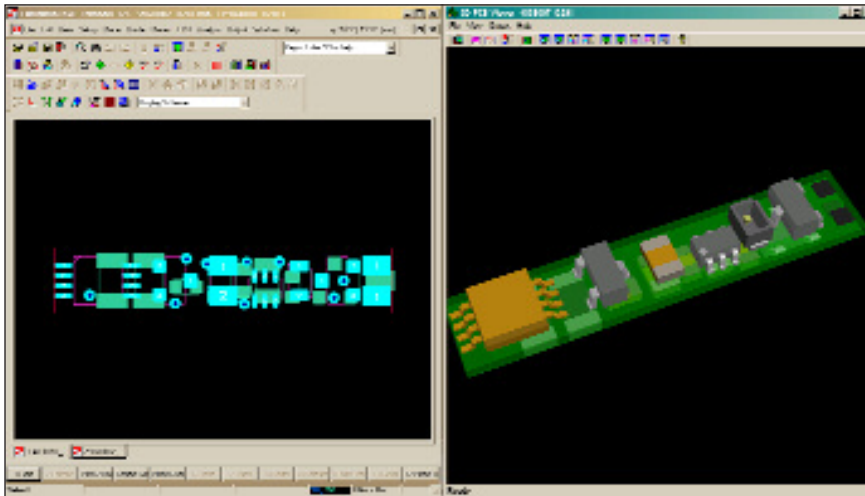


3D PCB Viewer



3D PCB Viewer launched from Expedition

Introduction

The cost of correcting mistakes or performing rework is higher the later in the product introduction life cycle errors are discovered. These costs can be either hard costs, like incorrect tooling or scrap materials; or soft costs like schedule slippages. By presenting both the electrical and mechanical design data together in a flexible viewing environment, the 3D PCB Viewer can eliminate mistakes early in the process, saving both time and money.

The 3D PCB Viewer is a revolutionary way to view and analyze your Mentor PCB designs in a full three-dimensional environment. The 3D PCB Viewer has scalable functionality to address your specific needs:

- The free, downloadable version allows the user to view the PCB in 3D and rotate it in space either dynamically or interactively with the mouse. Display settings allow the user to display only the elements they wish to see, in either solid or transparent mode. This version is compatible with Expedition and BoardStation XE.
- The fully-featured version is also available for Expedition and BoardStation XE. The features of this licensed version provide a much more valuable insight into the viability of the PCB design, from a 3D point of view. The remainder of this document describes those features in detail.

Major product features

- The 3D PCB Viewer is tightly integrated with the design system. It follows the Design System view for easy real-time visualization of design changes.
- In addition, the PCB can be freely adjusted in the Viewer to any zoom, angle, or view
- Reviewing and resolving DRC/DFE hazards is greatly enhanced by the 3D PCB manipulation capabilities, including the ability to make individual PCB objects transparent for further drill-down.
- Visual proximity checks and part-to-pad alignment validation assure a valid layout by overlaying accurate 3D component models.
- Imported mechanical graphics enable the user to visualize the PCB in its ultimate surroundings early in the process and make necessary changes

Integration with the design process

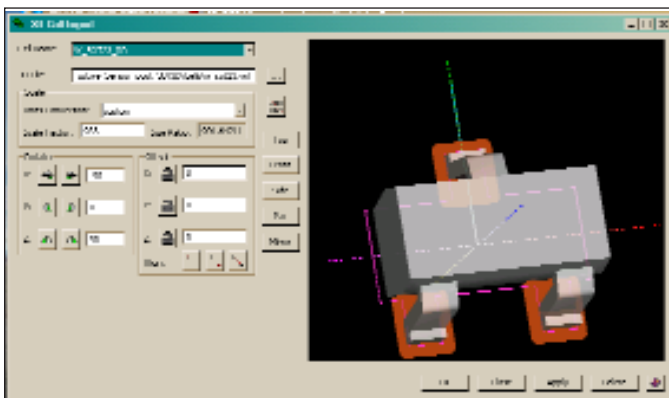
The full-featured 3D PCB Viewer has a useful option to follow the CAD system view. That is, if the user zooms in on the CAD view, the 3D View automatically zooms in as well.

This capability can be very useful when examining the results of DFF or DRC. In the CAD system, when DRC/DFE rules are executed and the view is zoomed onto a resulting hazard, the user “sees” both the CAD view and the associated 3D view of the infraction.

Component Representation

The initial 3D view of the parts on the board is created by the attributes of the parts themselves, including the component outline from the CAD library, and its height.

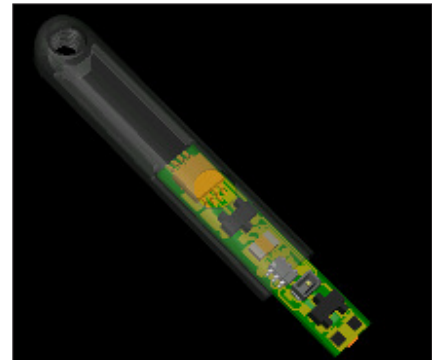
In addition, true 3D part shapes can be imported from mechanical CAD data in a variety of formats. Using an easy alignment process, the 3D shape can be mapped, or registered, to the pin pads on the PCB. In addition to being able to better visualize how all of the parts will actually look when placed on the board together, this assists the designer in being sure that the part will sit on the pin pads correctly and that clearances defined for it are visually correct. This is especially useful for odd shaped or asymmetrical parts.



Merging in a 3D component model.

The Mechanical Environment

Ultimately, every PCB is physically attached to some type of mechanical fixture or encased in an enclosure. A powerful feature of the 3D PCB Viewer is the capability to visualize, in 3D, the attachment of the PCB to whatever type of mounting system or adjacent mechanical objects.



View of a PCB inside its enclosure.

As shown in this image, a small PCB has been aligned within its enclosure. Now, the user can look at the assembly from all angles to confirm the fit. As shown here, the features of the enclosure can be rendered semi-transparent so the Engineer can better visualize the relationship of the enclosure and PCB, and check for an unwanted interference.

Advantages

The advantages to the designer of using the 3D Viewer are many. Starting with the ability to easily view the PCB directly in 3D using only the data available within the design, the user is able to more fully evaluate the design, and have a superior representation of any faults uncovered in DRC analysis. The evaluation of the PCB is greatly enhanced with the ability to import 3D parts, fixtures, or enclosures, then view how the PCB interacts within that environment. These unique 3D viewing capabilities directly improve the ability to improve time to market and introduce more competitive products to market.

Software Prerequisites:

Expedition Enterprise version 2007.1 or greater
BoardStationXE 2007 or greater

Availability::

Windows[®] XP, Redhat Linux, Solaris Sparc and x86

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