I-DEAS® Data Translator, PCB.xchange and PCB.modeler

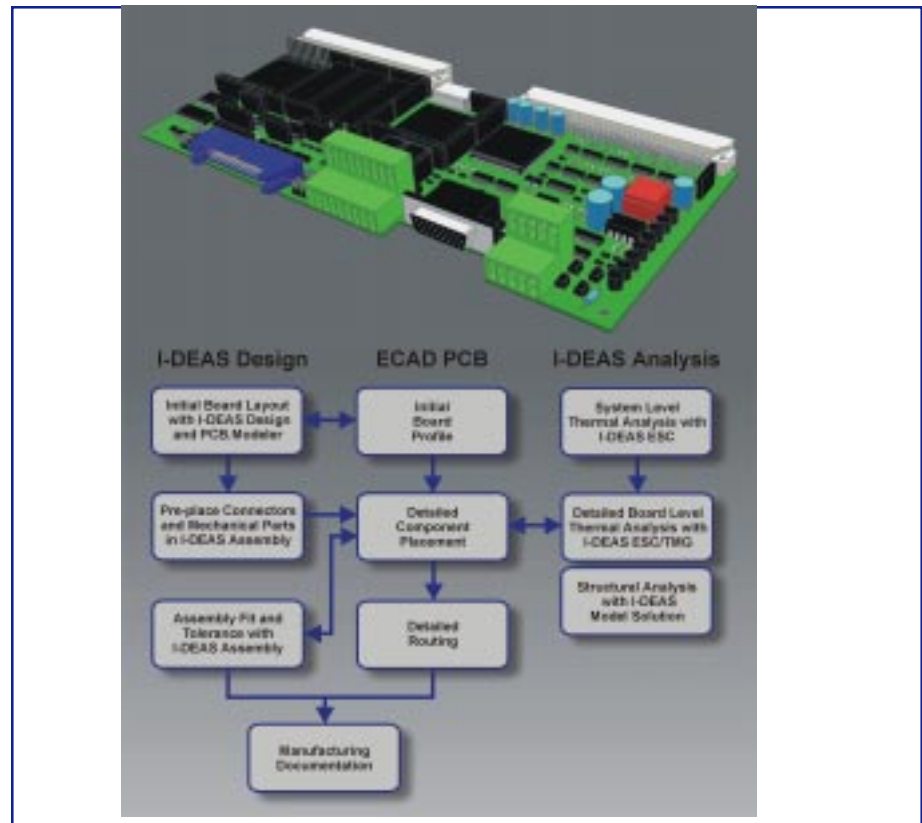*for modeling PC Boards in I-DEAS® and exchanging data with ECAD PCB design systems*

I-DEAS® and ECAD PCB Data Exchange Process

PCB.xchange provides direct data exchange between ECAD printed circuit board (PCB) layout software and I-DEAS applications. PCB.xchange works with most ECAD PCB layout software and can be used to directly generate I-DEAS 3D assembly models of the PC board and components. Once an I-DEAS assembly has been created, it is accessible by all I-DEAS applications for design review, assembly and tolerance analysis as well as supporting structural and thermal simulation. PCB.xchange uses the IDF file format standard to exchange PCB data.

You can also start your PCB design process in I-DEAS using the PCB.modeler application within I-DEAS assembly modeling. You can then export the PCB outline, component locations as well as holes and restriction areas to your ECAD PCB layout package.

Because this translator directly uses existing PCB layout data, the task of interpreting and re-entering information is eliminated. The result is fewer errors, faster turnaround time, and elimination of tedious work for mechanical designers. Whether you start your PCB design process within your ECAD system or within I-DEAS, the PCB.xchange application can help your design team work together by sharing engineering design data.

Within I-DEAS a mechanical designer can define board shape, specify important keep-in and keep-out areas, and pre-place critical components such as connectors, switches, displays and LEDs using I-DEAS assembly and PCB.modeler. The preliminary PCB design can then be transferred to your ECAD system for the PCB designer to use as the basis for the board design. After placing the remaining components in the ECAD system, the fully placed board assembly can be passed back to I-DEAS for the mechanical designer. The mechanical designer can ensure the board assembly fits into the final product package. Multiple iterations of this basic design data flow between ECAD and MCAD systems typically occur during the product design phase. PCB.xchange makes it easy to transfer complex PCB assembly data between I-DEAS and ECAD packages.

In addition, the PCB design in I-DEAS can be used to generate manufacturing and product documentation. The PCB assembly can also be used to perform detailed thermal and structural analysis of the board using I-DEAS Electronic System Cooling™ and I-DEAS Model Solution™. PCB.xchange provides design data to help you perform everyday engineering tasks:

• Online design reviews to verify manufacturability
• Tolerance analysis
• Sheet metal part design and flat pattern development
• Board and system-level structural and thermal analysis
• Vibration and impact analysis
• Numerical control toolpath creation
• Plastic part and mold analysis
• Drafting and technical documentation

PCB.xchange is invaluable for integrating your mechanical and electrical design processes. It provides bi-directional sharing of PCB designs between ECAD systems and I-DEAS applications.

PCB.xchange allows you to preview IDF files and visualize the data exchange process. It provides rules-based filtering of components and features. In addition, you can generate Web-HTML reports of the PCB assembly.

PCB.xchange is an invaluable tool to integrate your mechanical and electrical design processes.

Modeling PC Boards in I-DEAS

PCB.modeler and I-DEAS Master Assembly™ make it easy to model PCB assemblies. Boards and components are modeled using standard part modeling practices with I-DEAS. An assembly of the board and components is created within I-DEAS Master Assembly. The PCB.modeler icon panel within I-DEAS Master Assembly helps you identify additional board and component information for exchange with your ECAD system. PCB.modeler provides the tools to identify board and component coordinate systems, drilled holes, restriction (keep-in and keep-out) areas as well as check your PCB assembly and generate HTML Web reports.

Component Libraries

An essential part of the PCB data exchange process is coordinating component part information between I-DEAS and your ECAD system. PCB.xchange provides simple methods to help you match and filter component data between I-DEAS and your ECAD system. Component mapping allows you to maintain different component part name and numbers between I-DEAS and your ECAD software. Filtering allows you to remove small components or small board features such as pin holes for more efficient assembly modeling in I-DEAS. PCB.xchange allows you to interactively preview IDF files and visualize the data exchange process.

When IDF files are imported from ECAD, PCB.xchange will automatically create extruded component footprints to create 3D parts and correctly position instances of these parts on the board assembly. It can also use detailed components available in I-DEAS part libraries to create PCB assemblies.

Data Exchange Capabilities

PCB.xchange allows you to bi-directionally share PCB design data between your ECAD system and I-DEAS, including:

• Board layout with cut-outs and thickness
• Component footprint, height and layout including board side and offsets
• Automatically substitutes I-DEAS parts for the board assembly
• Drilled holes, and hole properties
• Restriction areas (keep-ins and keep-outs)
• Component reference designators
• Component or package name, number
• Rules-based filtering of component and board features
• Import and export previewing of data exchange
• Web (HTML) based reports of IDF contents and the PCB assembly

ECAD Vendor Support

PCB.xchange uses the IDF2 and IDF3 standard file format for data exchange. Most ECAD vendors support IDF2 or IDF3 for data exchange. Contact your ECAD vendor for availability of IDF (MCAD) translators. Both PCB.xchange and your ECAD vendors IDF translator are required to complete the bi-directional transfer of PCB data between systems. ECAD PCB layout systems that support IDF include Mentor Graphics, Cadence, Zuken-Redac, OrCAD, PADS, Accel-PCAD, and Incases.

PCB.xchange and PCB.modeler are supported on UNIX and Windows NT hardware platforms. Contact SDRC for up-to-date compatibility information.

Prerequisites

I-DEAS Master Assembly or MasterFEM
-and-
PCB IDF Translator from ECAD Vendor

For More Information

For more information, contact your local SDRC representative or call 1-800-848-7372.