CADSTAR

CADSTAR 3D

DATASHEET

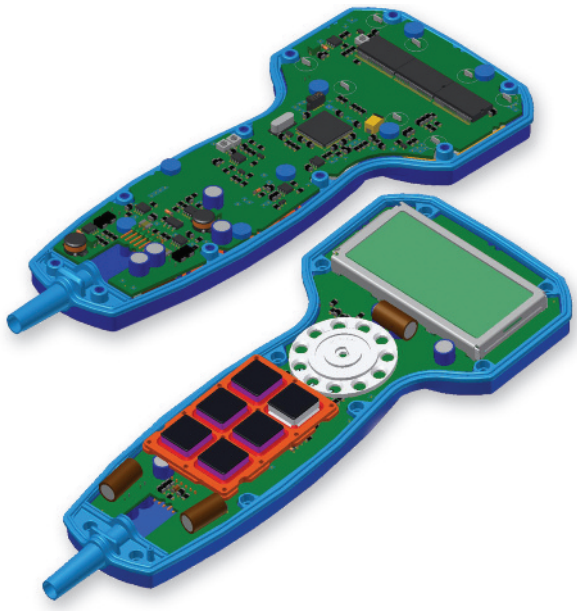
CADSTAR 3D provides an optimized environment for the verification of the PCB layout in its mechanical environment. Visualization, measurement and design rule checking capabilities allow the electrical design to be checked against the system requirements, and any component placement changes made within CADSTAR 3D are automatically back annotated into the PCB design. New board outlines can be imported and back annotated to CADSTAR. The tool is fully integrated in the CADSTAR Design Suite, and loads 3D information generated by mechanical CAD systems via the STEP AP203 format.

Process Optimization

CADSTAR 3D removes the iterations that take place between the PCB and mechanical design groups when verifying a PCB in its environment. Instead, enclosure and obstacle information is passed from the MCAD to the ECAD team, and the placement of components to mechanical constraints can take place within the PCB design team itself. This makes the two design teams more independent of one another, easing the scheduling and coordination activities between them. Design iterations between the MCAD and ECAD teams are also substantially reduced, and the capability of designing to mechanical rules within the PCB department improves significantly. As a result, resources can be used more effectively within the organization by the adoption of CADSTAR 3D.

BENEFITS

- true 3D analysis of the PCB, enclosures, substrates and other obstacles
- eliminates iterations between PCB and mechanical design groups
- improves time to market
- automatic back-annotation of changes made within CADSTAR 3D into the PCB Design
- eliminates loss of data, and changes in the data model and re-entry of information are not necessary



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Time to market

Time to market improvements result from the reduction in design iterations and the decreased interdependence between the mechanical and PCB design teams. The impact of component placement changes in PCB design is very significant to the overall design, and by enabling the 3D verification of component placement to take place in the PCB team, the mechanical issues can be resolved as early as possible in the design cycle. The investment in tools to improve the design process is easily recovered through the reduction of errors early in the design process, the optimal use of both the mechanical and PCB designers' time, and the overall reduction in design time. In addition, it becomes easier to adopt new technologies and tighter system design constraints in the future.

Integration with PCB Design Flow

CADSTAR 3D uses the full PCB design representation from PCB Layout. This ensures that there is no loss of data, no changes in the data model and no re-entry of information between one domain and the other. CADSTAR 3D models, board outlines, components, pads, tracks, vias, layers and all the relevant library information for parts and design technologies. Component placement and board outline changes made in the 3D environment are automatically transferred back to the PCB layout.

Design Rule Checks

CADSTAR 3D can run individual or batch checks of components, tracks and vias to keepout shapes, such as enclosures, mechanical fixtures and 3D clearance shapes. Because the tool has a complete model of the PCB, it is able to recognize all the data types and run the batch checks with a very low level of user intervention. In addition to the mechanical checks, there are also electrical checks, such as pad-to-pad checks, which can also be executed after design changes have been made to the layout. Results of DRC violations are shown as a list, from which items can be selected and highlighted on screen.

3D Visualization & Measurement

CADSTAR 3D provides a full 3D viewing capability to allow for complete visual verification of the PCB in its environment. The assembly can be viewed in wireframe, shaded or hidden-line-removal modes. A visual clipping capability provides cutaway views of the design, so that the inside of the assembly can be viewed and verified, either visually, or by making specific measurements. A measurement tool is able to provide calculations of the minimum distance between two 3D objects, to allow critical clearances to be checked.

Component Placement

Any errors arising from the visual, DRC or measurement checks can be rectified by interactively moving the components. The checks can be run again to ensure design rule adherence before these changes are then back-annotated to the PCB layout.

3D Package Definitions

When transferring a design from PCB Layout, no additional work is required to produce basic 3D component representations within CADSTAR 3D. The 2D package shapes are extruded by the package height, defined in the CADSTAR library, to generate the initial 3D models. In the case of more accurate package models being required, these may be generated in the CADSTAR 3D Library Editor. Any 3D package shapes stored in the library will be used in preference to the default generated models.

Mechanical CAD Integration

Enclosures, mechanical parts and other 3D obstacles are imported from the MCAD domain through the industry standard format STEP AP203. If required, 3D objects may also be transferred using the STL or ACIS format descriptions.

Design Efficiency

The use of full 3D models provides true 3D analysis of the PCB, enclosures, substrates and other obstacles. 2D approximations inevitably result in over-design, and in the case of compact electronics devices, this results in wasted space in the final product. Verification in 3D increases confidence in the design, by providing not only efficient DRC and measurement functions, but also the visual confirmation of the circuit in its final assembly.

More

CADSTAR is a fully featured PCB Design System renown for its excellent price-performance ratio. From simple single-sided through-hole designs to multi-layer, surface mount, high-speed digital and analogue designs, CADSTAR is capable of designing today's most demanding Printed Circuit Boards. From schematics, board- and FPGA level system design, PCB layout, high-speed and signal integrity, analysis, 3D, creation of manufacturing output, to complete data management capabilities and extensive internet-accessible libraries containing over 200,000 components, CADSTAR provides you with all technologies necessary for a complete electronic development process in one environment.

For more information on all the tools and solutions available with CADSTAR, please visit www.zuken.com/CADSTAR