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Siemens PLM Software

Teamcenter integration for Mentor Graphics Expedition

Integrating Expedition PCB design into your Teamcenter PLM environment

Benefits

- Manages entire PCB product lifecycle
- Provides a single source of product and process data
- Fosters environmental compliance initiatives
- Facilitates collaboration and concurrent engineering initiatives
- Aligns ECAD design with product requirements

Summary

Teamcenter® software's integration for Mentor Graphics' Expedition printed circuit board (PCB) design enables users to capture and manage their part library, schematic, PCB layout, bill of material (BOM), fabrication, assembly and visualization data in Teamcenter – the world's most widely used product lifecycle management (PLM) platform.

Managing the electronics product lifecycle

Teamcenter's integration for Expedition provides a comprehensive solution for the entire electronics product lifecycle that extends from initial inception through creation, analysis, manufacturing, service and end-of-life disposition. The integration enables users to store, manage and find all of their part library, PCB design, collaboration and manufacturing data in Teamcenter – Siemens PLM Software's digital PLM platform.

Teamcenter menus, which are embedded in the Expedition user interface, allow the user to automatically log-in to Teamcenter and open, save, check-in and check-out design data. Adhering to the Teamcenter mechatronics data model, design teams are assured their ECAD data is accurately captured and consistently managed in the Teamcenter environment in synch with other product definition data.

Providing a single source of product and process knowledge

Teamcenter's Expedition integration enables users to access, manage and archive PCB design data, as well as import, export and manage their ECAD part library data in a single secure location. The Teamcenter-managed ECAD parts library data is easily synchronized with Mentor's Library Manager module. On an enterprise level, the Expedition integration allows widely dispersed PCB design teams to

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Business challenges

- Integrating ECAD process into product development process
- Managing ECAD data in the context of the overall product configuration
- Verifying environmental compliance
- Coordinating ECAD/MCAD collaboration
- Establishing communications within and across a multi-site supply chain
- Ensuring that ECAD design implementation meets customer requirements

Features

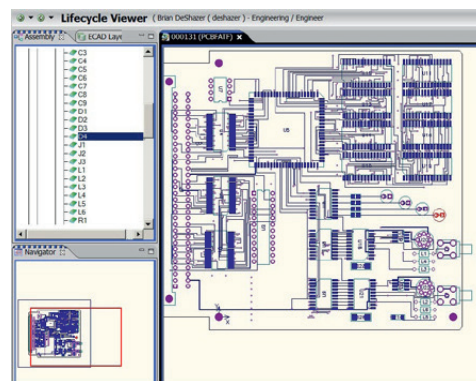
- Store, access and manage Expedition objects (such as parts, schematic, layout and BOM) as items in Teamcenter
- Create new product revisions or version updates for work in progress
- Establish security and data access control policies in Teamcenter
- Manage designer's selection and use of approved parts
- Establish relationships between Teamcenter objects and engineering BOMs
- Share PCB design data across engineering domains through open interchange formats
- View, annotate and mark up ECAD data in a collaborative environment
- Associate and trace product requirements to PCB designs

manage released design data, collaborate and fabrication and assembly data with suppliers and create BOMs containing both mechanical and electrical parts. To reduce interpretation errors, BOM data can be displayed as "packed" or "unpacked" while Teamcenter's compare capabilities can be used to quickly identify any differences between BOM revisions.

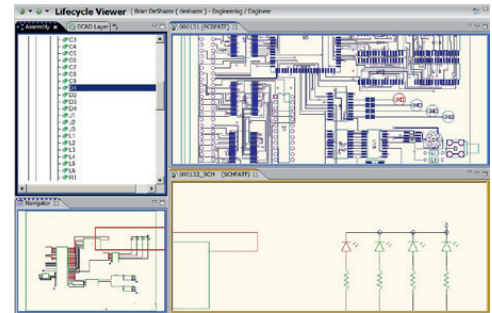
When ECAD design and part library management procedures are brought under Teamcenter control, they can be incorporated into structured workflows and effective change management processes. By managing part data in Teamcenter, product manufacturers can reduce part duplication, prevent use of obsolete or unapproved parts, assign compliance data and focus procurement from approved vendors.

Facilitating collaboration and concurrent engineering

To facilitate the flow of accurate design data across multiple domains, the Teamcenter integration enables collaborative design by leveraging IDF and IDX (EDMD) design data exchange formats. The formats enable the sharing of information relating to board outlines, component placements, keep-out areas and other placement restrictions. Managed in Teamcenter the IDX format supports the ability to pass incremental design data, as well as allow both the ECAD and MCAD designers to accept or reject changes, and incorporate change notes or comments into the information being shared.



Design teams and suppliers can easily visualize and mark-up design issues.



Electrical engineers and PCB designer can cross-probe between schematic and physical layout to zero in on objects of interest.

Electrical engineers can pass this information as 2.5D/3D elements to mechanical engineers to simulate and analyze various conditions, including interferences, thermal, vibration, shock, dust and humidity. Sharing data for this type of cross-domain analysis helps improve quality and increase product reliability.

To quickly diagnose and understand potential manufacturing errors, users can employ design-for-assembly analysis tools and powerful ECAD viewer technology. These capabilities allow users to investigate and identify potential issues early in the design process, thereby eliminating unnecessary scrap and rework.

The ECAD viewer's graphical navigation features enable design teams and suppliers to interactively view, cross-probe and annotate schematic and PCB layout data without the use of an expensive authoring tool. Many frequently used annotations are automatically translated and displayed using the language specified by the user's system.

Complete requirements management and traceability

Teamcenter's Expedition integration enables users to leverage Teamcenter's powerful requirements management capabilities. PCB hardware and software functions can be associated with specific design requirements, providing complete requirements traceability throughout the entire PCB lifecycle.

Supported objects

Teamcenter's integration with Mentor Graphics Expedition supports:

- Circuit card assembly (CCA) information
- Components on a CCA (BOM)
- Schematic design data
- Layout design data
- Secondary data (fabrication and assembly)
- MCAD and analysis interchange files
- Layout files in native tool ASCII file format
- Schematic files in native tool ASCII file format
- Neutral format files for PCB and schematic visualization

Supported functions

- Open, save, check-in and check-out objects to/from Teamcenter
- Extract components and attribute information
- Generate bill of material (BOM)
- Place Expedition objects under enterprise-wide revision control
- Manage Expedition objects in structured workflows
- Options
 - Facilitate enterprise-wide ECAD library management
 - Manage Expedition objects in change processes
 - Link Expedition objects to product/project requirements
 - Leverage ECAD viewer and markup capabilities with suppliers
 - Cross-probe between schematic and PCB layout
 - Analyze layouts against assembly rules

Contact

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