USER CONFERENCE Graser 2014 Oct 31 Taipei

OrCAD New Option Feature

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Graser®

Topics

- OrCAD Library Builder
- Engineering Data Management
- OrCAD Documentation Editor

OrCAD Library Builder

Questions and Concerns

- Describe your part building process
  - Librarian, engineering
- Are your engineers / designers responsible for creating their own new parts?
- Have your librarian resources kept up with your engineering and designer resources?
- How easy is it for your librarians or engineers / designers to build parts? Adhere to corporate or industry standards?
- Have you ever encountered a project or schedule delay because of a part error? What was the cost?
- Bandwidth issues for peak demand?

OrCAD Library Builder

- OrCAD® Library Builder is an advanced, automated part generation solution for schematic symbols and PCB footprints. It provides intelligent and highly automated capabilities for quickly creating part symbols and footprints for OrCAD PCB schematics and layouts. It substantially reduces the time needed and virtually eliminates errors associated with traditional manual processes; creating accurate component libraries in a fraction of the time.

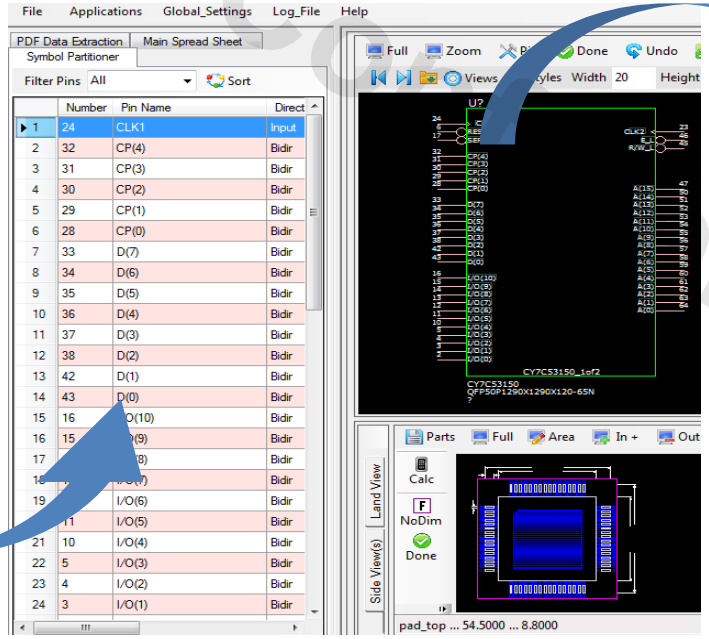
Part Datasheet

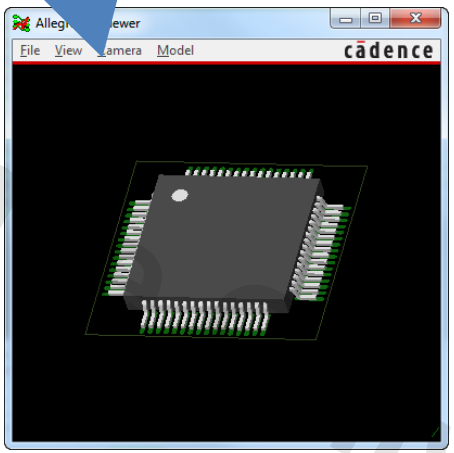
Pin Descriptions

Pin Name	I/O	Pin Function	CY7C53150 TQFP-64 Pin No.	CY7C53120xx SOIC-32 Pin No.	CY7C53120xx TQFP-44 Pin No.
CLK1	Input	**Oscillator connection or external clock input.**	24	15	15
CLK2	Output	**Oscillator connection.** Leave open when external clock is input to CLK1. Maximum of one external load.	23	14	14
RESET	I/O (Built-In Pull up)	**Reset pin (active LOW). Note** The allowable external capacitance connected to the RESET pin is 100–1000 pF.	6	1	40
SERVICE	I/O (Built-In Configurable Pull up)	**Service pin (active LOW).** Alternates between input and output at a 76-Hz rate.	17	8	5
I/O0–I/O3	I/O	**Large current-sink capacity (20 mA).** General I/O port. The output of timer/ counter 1 may be routed to I/O0. The output of Timer/Counter 2 may be routed to I/O1.	2, 3, 4, 5	7, 6, 5, 4	4, 3, 2, 43
I/O4–I/O7	I/O (Built-In Configurable Pull ups)	**General I/O port.** The input to Timer/Counter 1 may be derived from one of I/O4–I/O7. The input to Timer/Counter 2 may be derived from I/O4.	10, 11, 12, 13	3, 30, 29, 28	42, 36, 35, 32
I/O8–I/O1 0	I/O	**General I/O port.** May be used for serial communication under firmware control.	14, 15, 16	27, 26, 24	31, 30, 27
D0–D7	I/O	**Bidirectional memory data bus.**	43, 42, 38, 37	N/A	N/A

Extraction

Create





3D-Setp

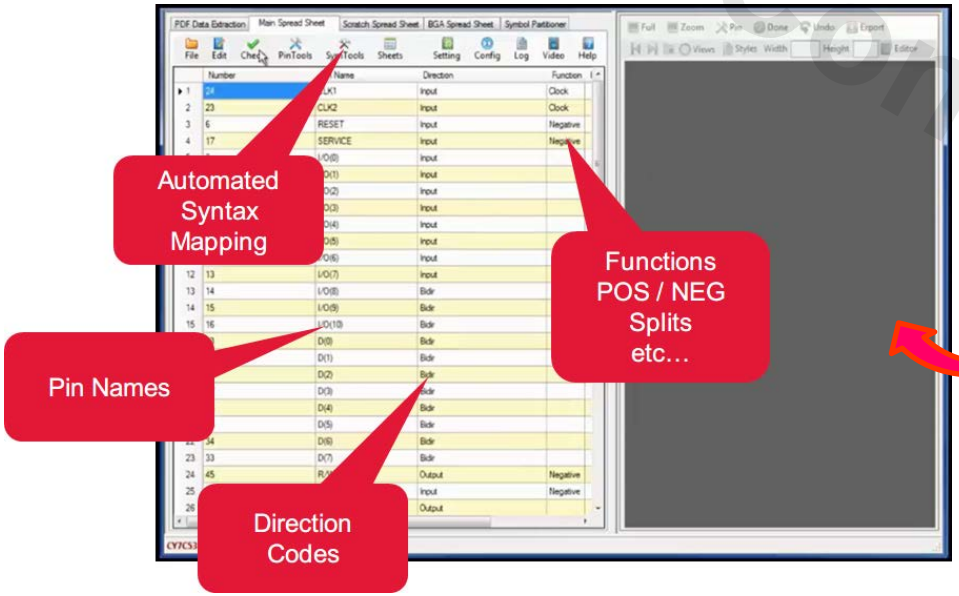
Symbol / Footprint Builder

Why is Any of This Important?

- Libraries are the building blocks for every PCB design; everyone needs them and they are never finished.
- Part complexities are increasing, higher pin-count devices are more common, and corporate / industry standards are more critical than ever.
- In many parts of the world, the number of formal Librarians is not keeping pace with the number of electrical engineers and PCB designers.
- Since parts and libraries are the basis for every PCB design, errors can be extremely costly and time consuming.
- Optimizing part and library creation boosts productivity, saves time, and enables reuse opportunities.

PDF Extraction

- Intelligent PDF datasheets extraction
  - Direct datasheet extraction
  - Spreadsheet import / manipulation
  - Checks and verification



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I/O4–I/O7	I/O (Built-In Configurable Pull ups)	**General I/O port**. The Timer/Counter 1 may b of I/O4–I/O7. The input may be derived from I/			
I/O8–I/O10	I/O	**General I/O port**. May communication under f			
D0–D7	I/O	**Bidirectional memory**			
R/$\overline{W}$	Output	**Read/write control ou memory.**			
$\overline{E}$	Output	**Enable clock control memory.**			
A0–A15	Output	**Memory address outp**			
V_{DD}	Input	**Power input (5 V nom)** be connected together			
V_{SS}	Input	**Power input (0 V, GND** be connected together			
Vpp	Input	**In-circuit test mode oc** when RESET is asserte and data buses becom			
CP0–CP4	Communication Network Interface	**Bidirectional port sup cations in three mode**			
NC	—	**No connect**. Must not b user's PC board, since connected internal to t			

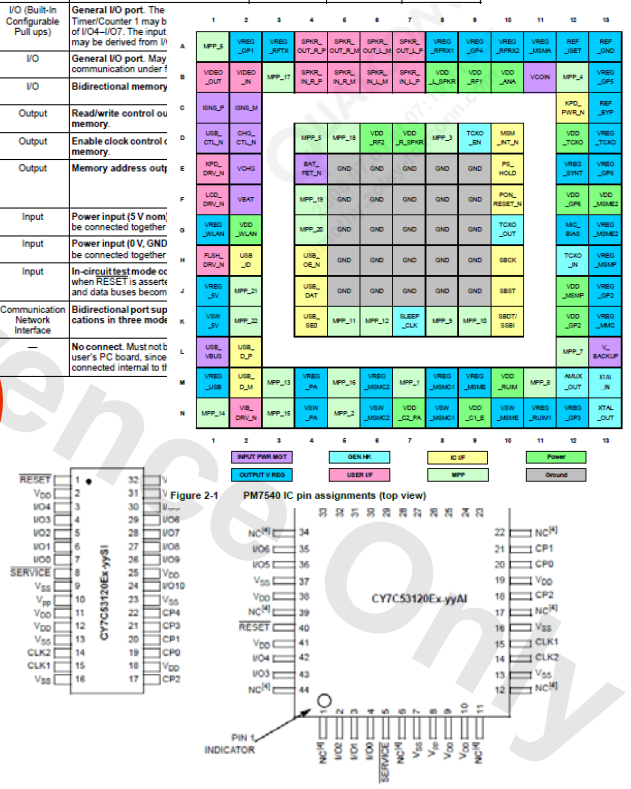
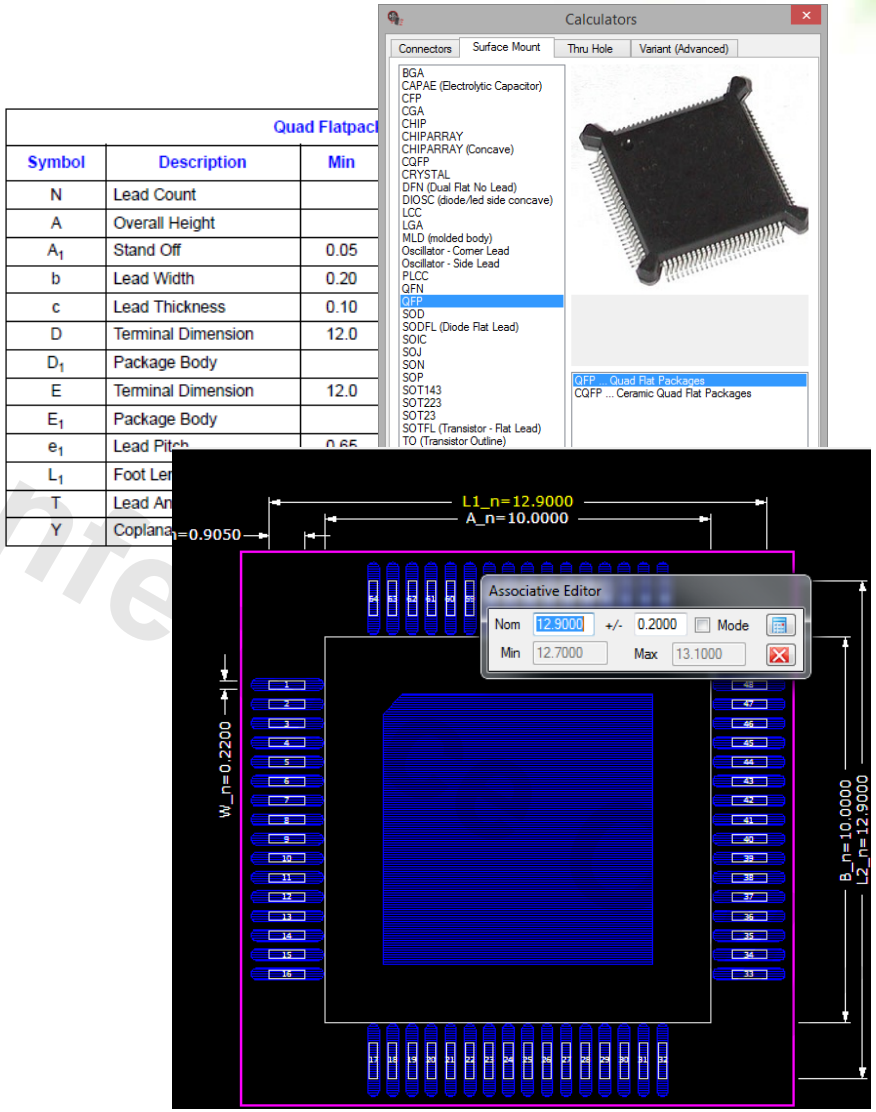


Figure 2-1 PM7540 IC pin assignments (top view)

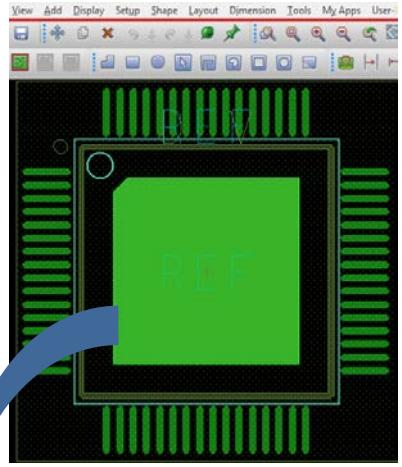
Accurate Footprints

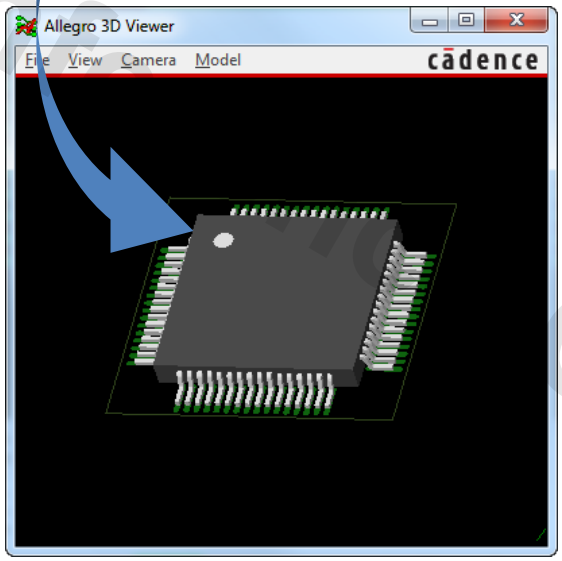
- Calculator-style interface for complex PCB footprint creation
  - Comprehensive library of footprints
  - Simple calculator-based interface
  - Associative editing enables quick on the fly adjustments
  - Extensive pad support



3D Model Creation

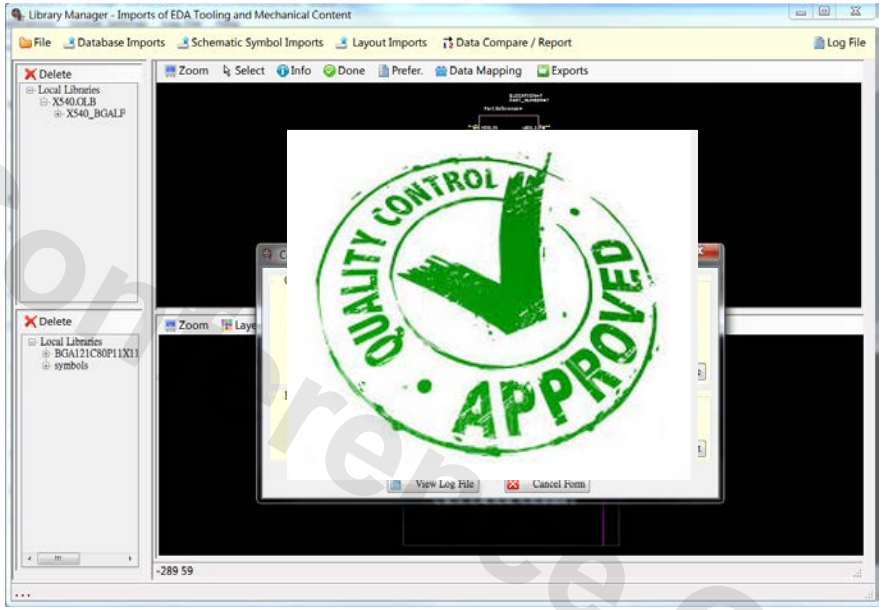
- STEP models
  - Accurate 3D STEP models
  - Derived directly from the footprint data
  - Three click process



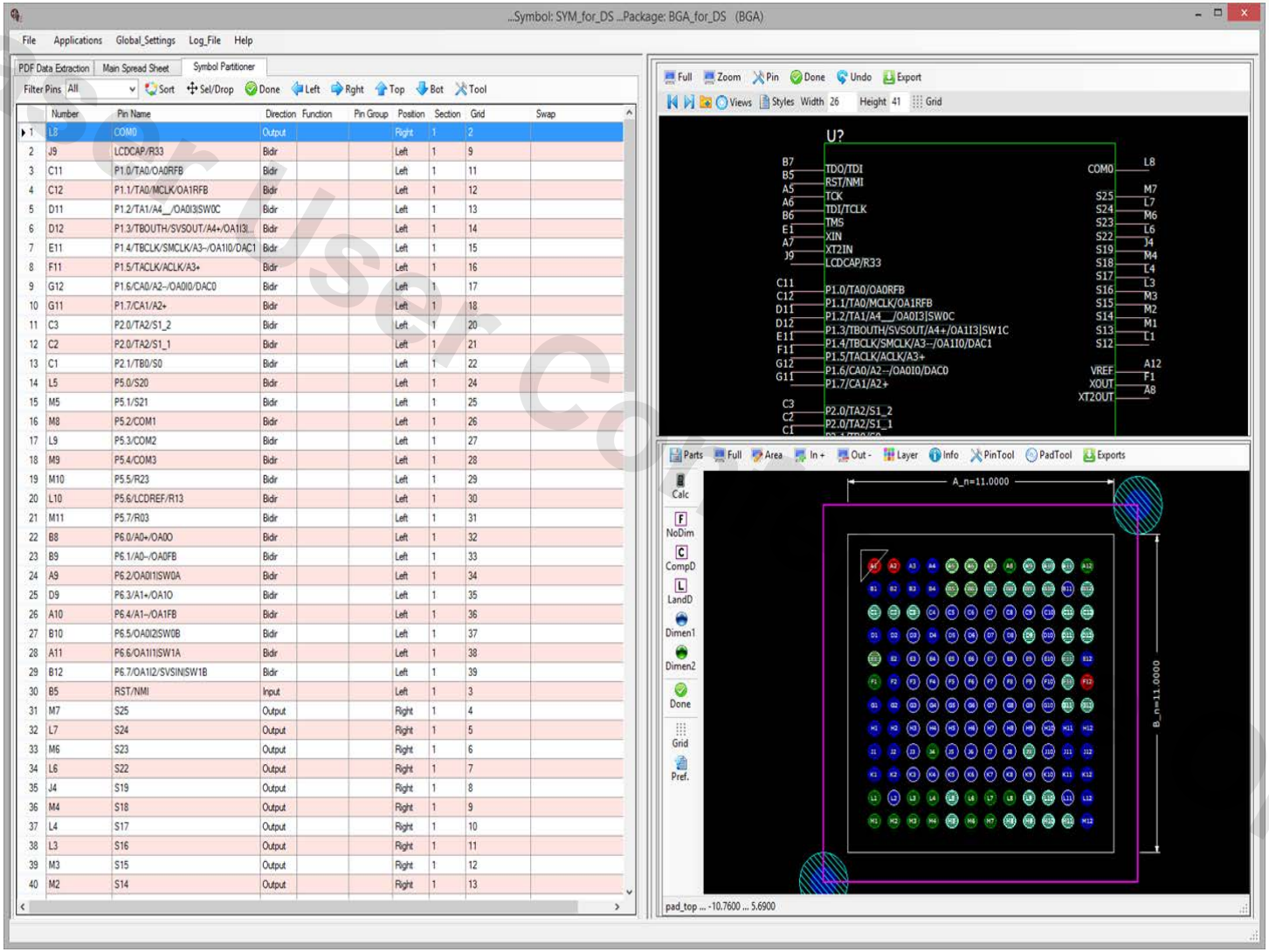


Automated Error Checking

- Comprehensive checks and
  - Checks done throughout creation process
  - Symbol and footprint DRCs
  - Symbol-footprint validation
- valuable
  - Ensure symbols and footprints are correct
    - Eliminate library part errors
    - Ensure symbol-footprint association



Lab



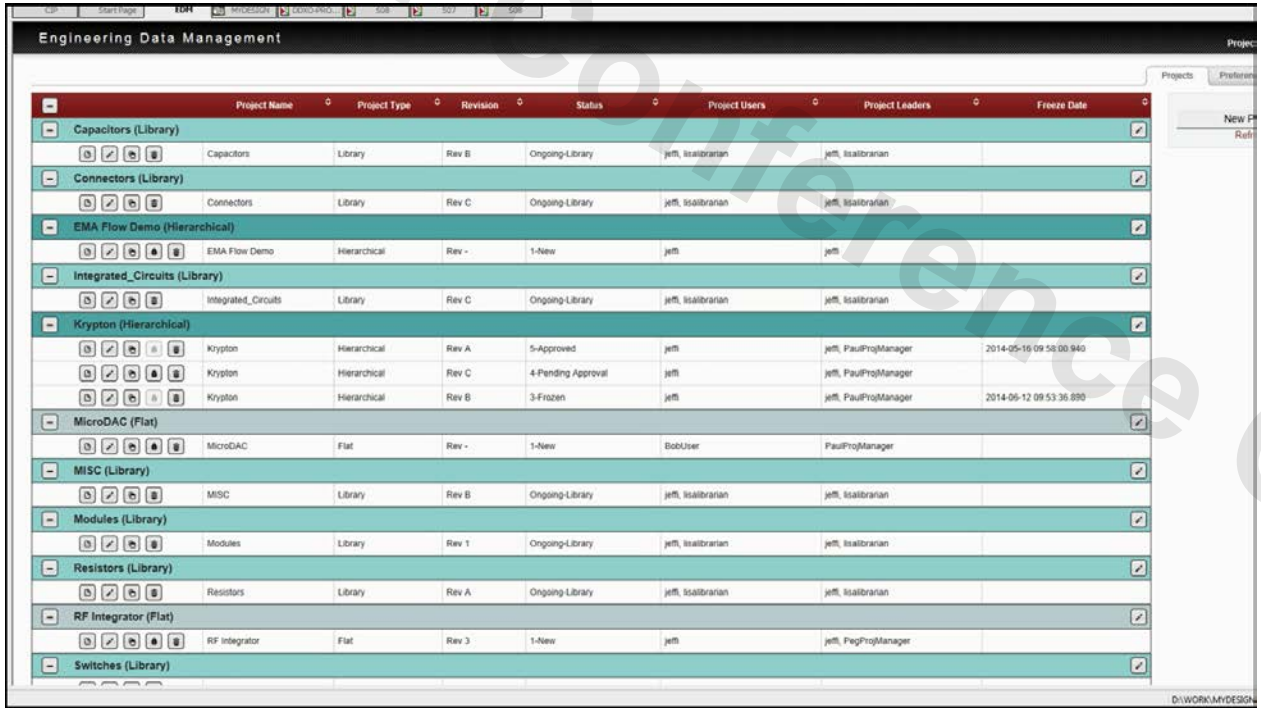
Engineering Data Management

Questions and Concerns

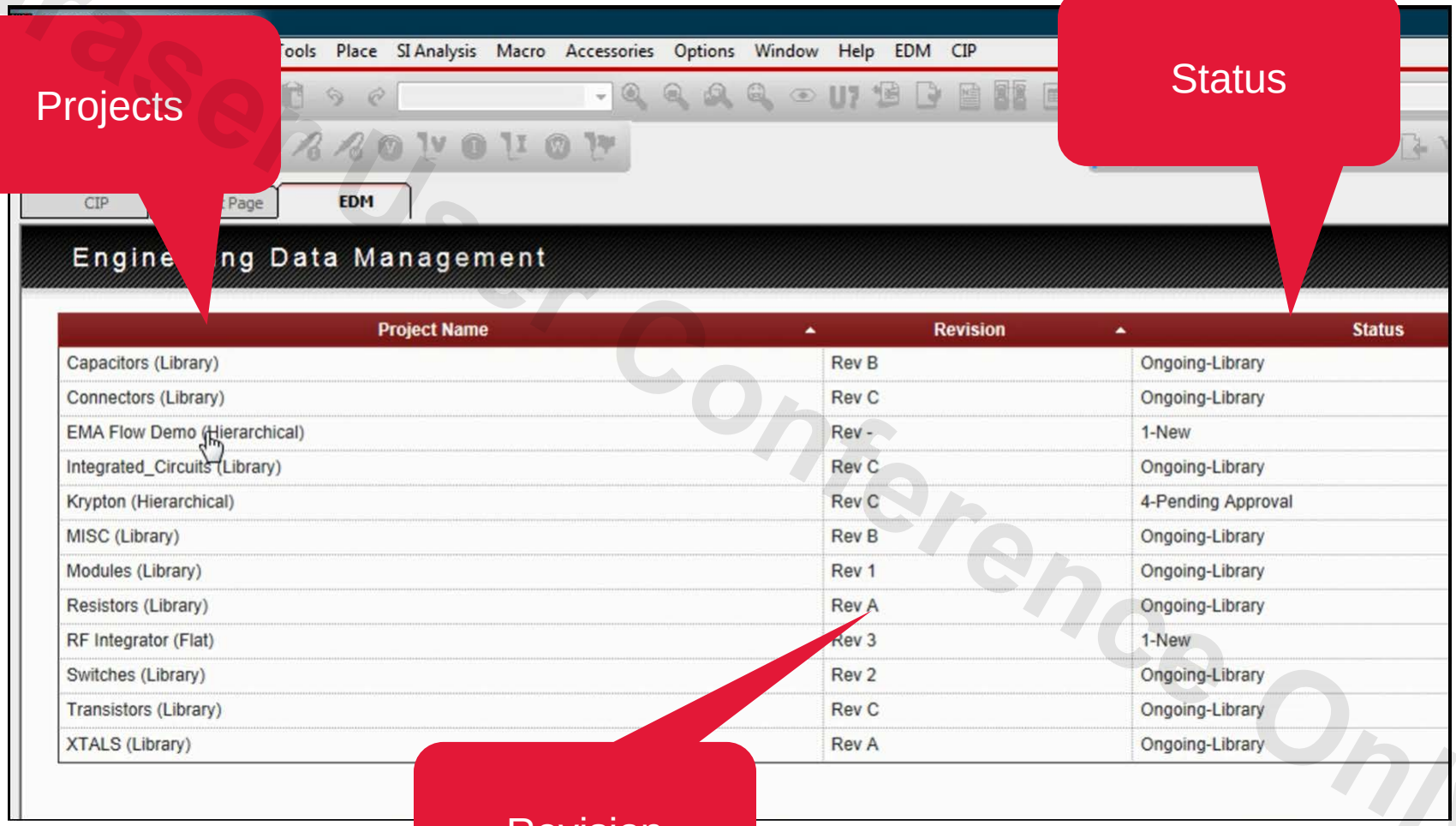
- Lost designers’ productivity and/or design process efficiency
- Design team's confusion, miscommunication, and errors
- Project or schedule is delayed due to design mismanagement

Engineering Data Management

- OrCAD® Engineering Data Management (EDM) is a comprehensive collaboration, design and data management environment for the OrCAD Capture PCB schematic solution. It is fully integrated within the OrCAD Capture environment and lets your engineering design team take advantage of benefits gained from effective collaboration and design data management.

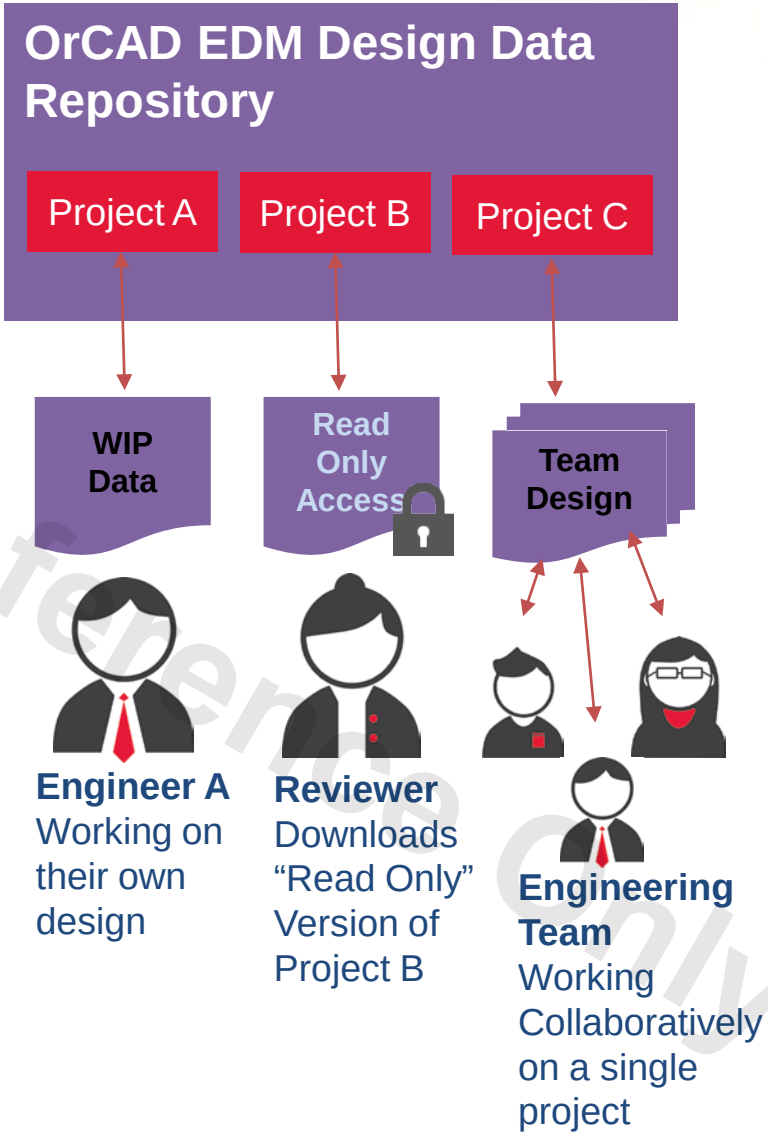


Project-level/Library Management



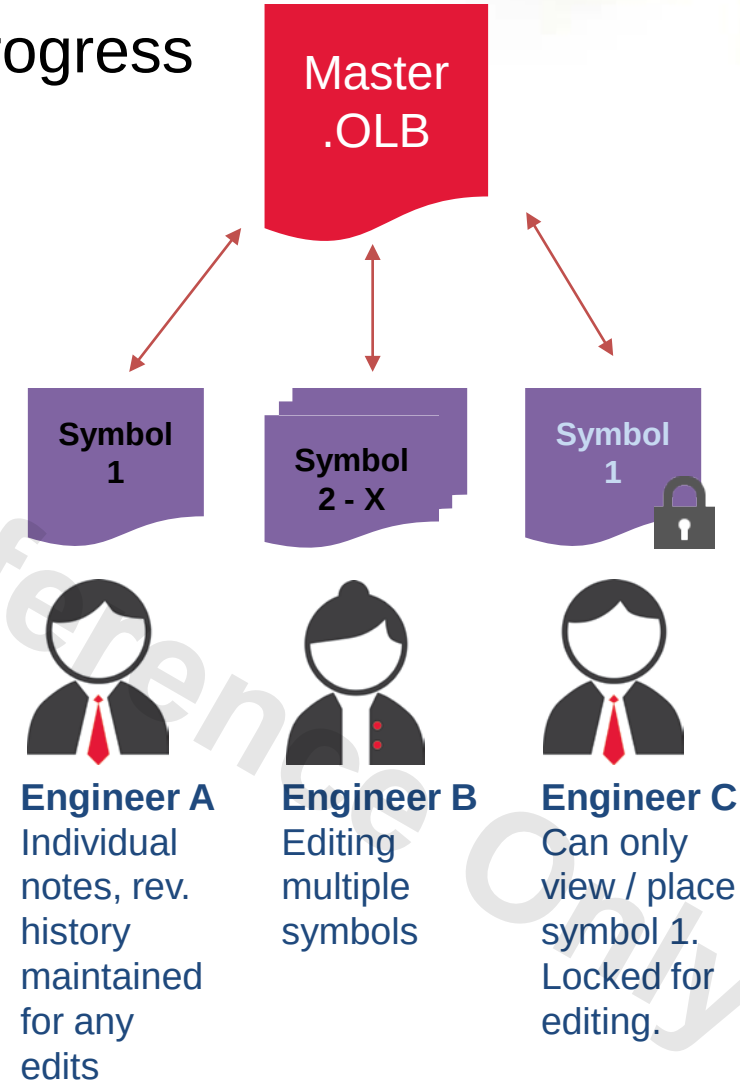
Project-level Management

- The ability to manage and track
  - Dashboard with real-time updates
  - Full revision history
  - Quick project access inside Capture



Library Management

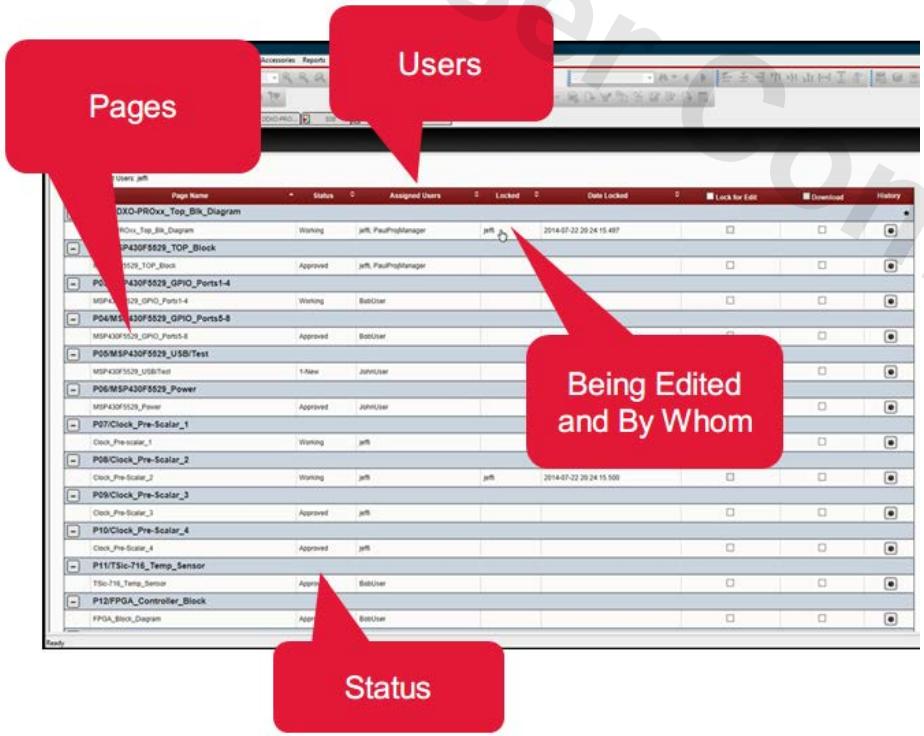
- The ability to manage and track progress
  - Create, edit, review, promote
  - Dashboard with real-time updates
  - Full revision history
  - Quick part(s) access inside Capture

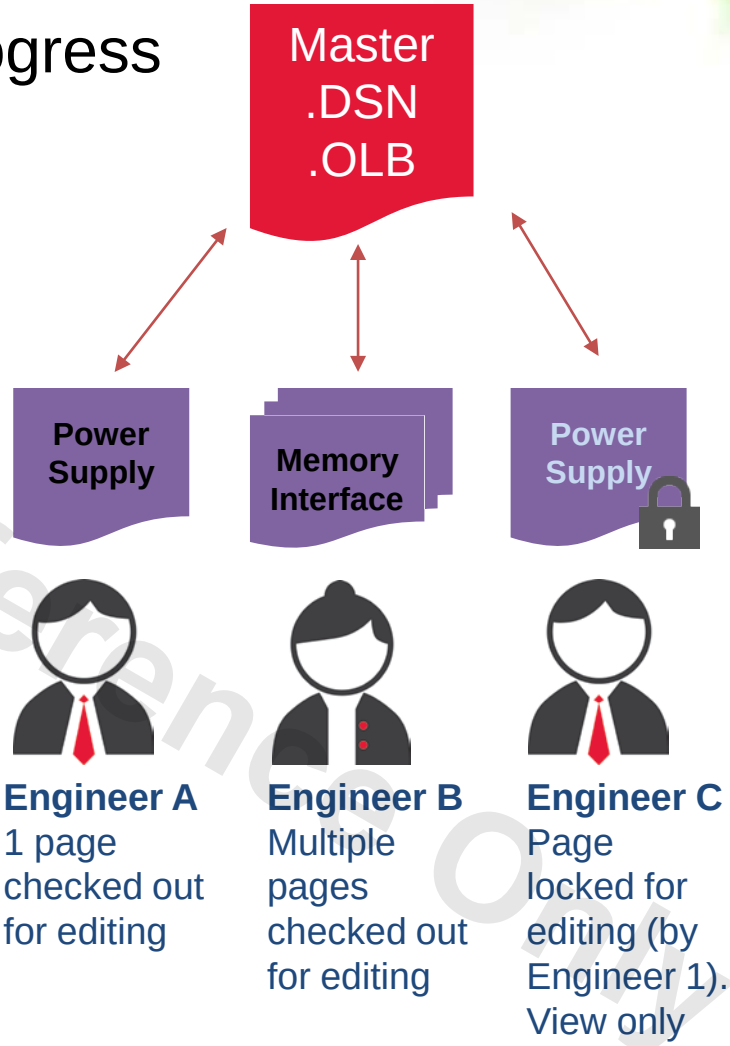


Page-level Management

Page-level/Library Management

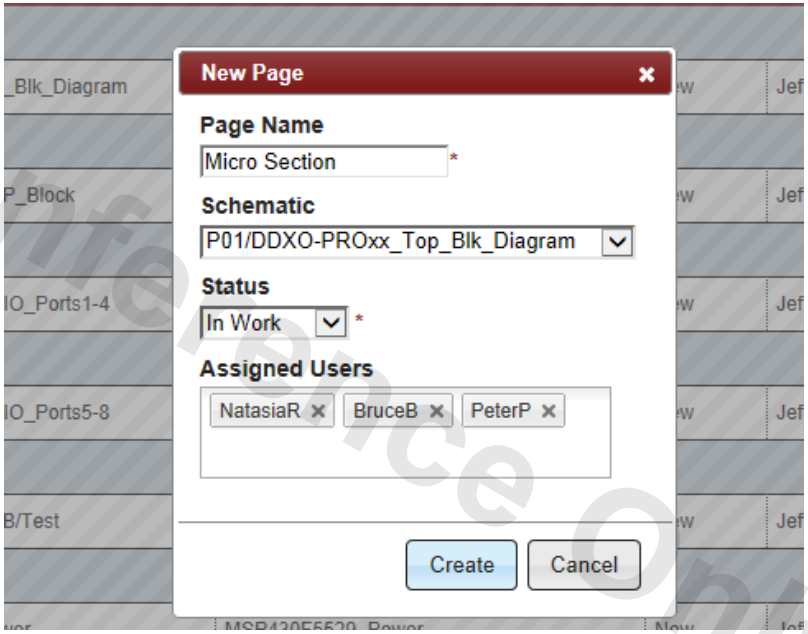
- The ability to manage and track progress
  - Dashboard with real-time updates
  - Full revision history
  - Quick page(s) access inside Capture



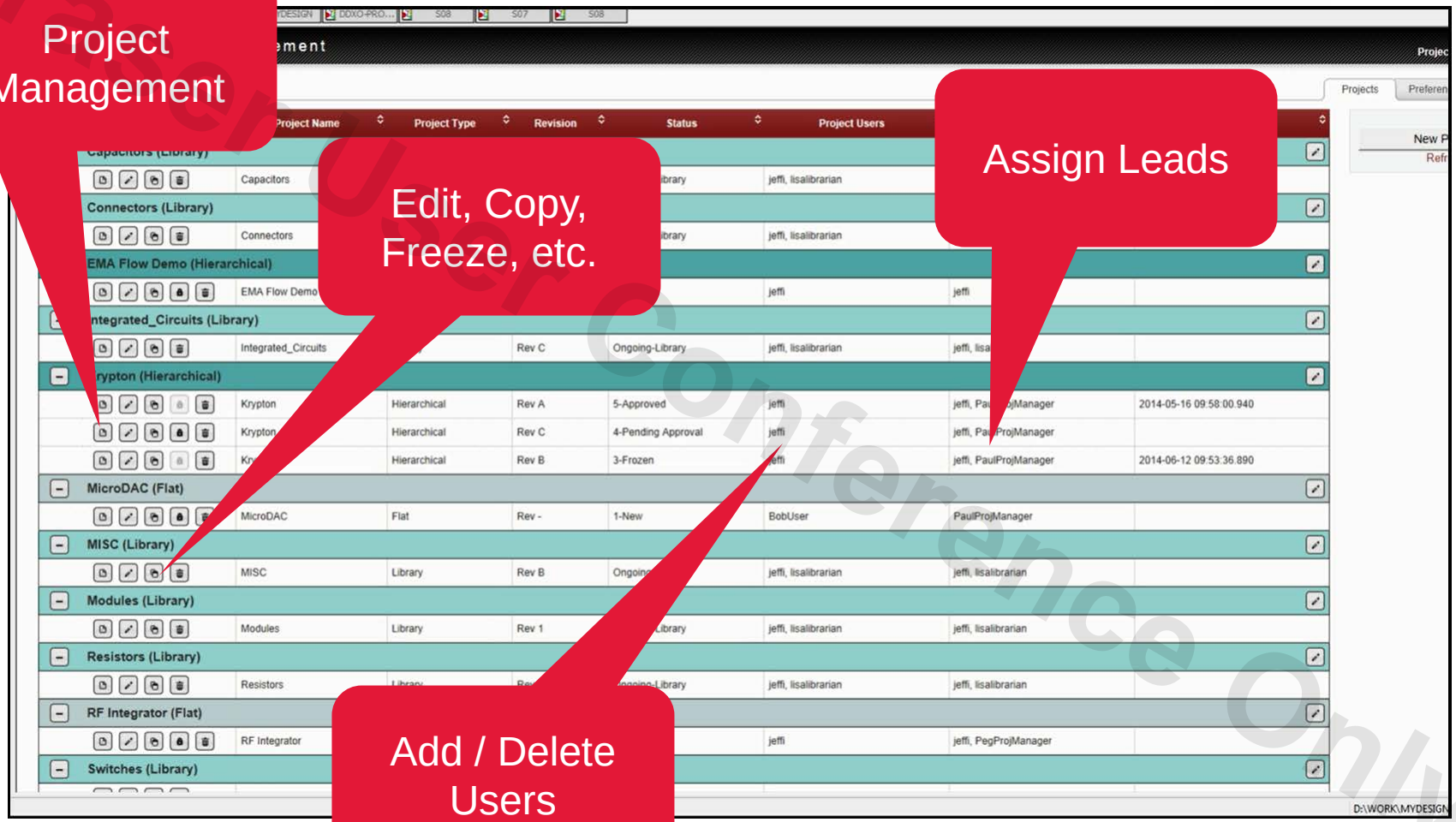


Administrative Control

- The ability to manage projects and project access for design teams
  - Provides ability to control project access and users roles
  - Create, edit, manage projects
  - Easily assign pages to users
    - Specific pages
    - Set of page numbers
  - Control user rights
    - What they can edit
    - What they can view

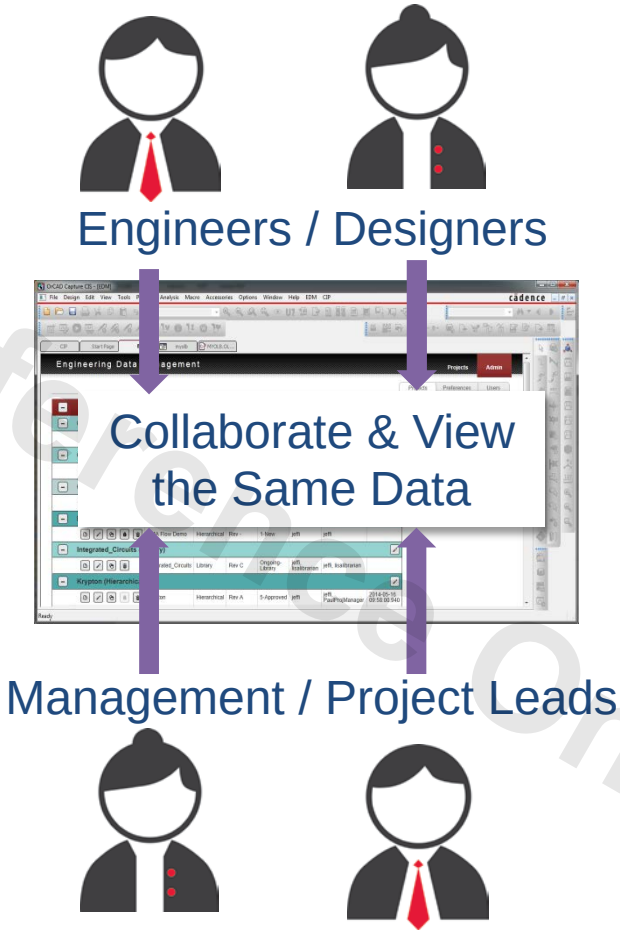


Administrative Control



Change Tracking / Reporting

- The ability to input and track change through a design management cockpit
  - Full audit trail is maintained
    - Why/What
    - Who
    - When
  - Real-time status
    - Individual project status
    - All project progress
    - User tasks / progress



Change Tracking / Reporting

Project

What & Why

Versions

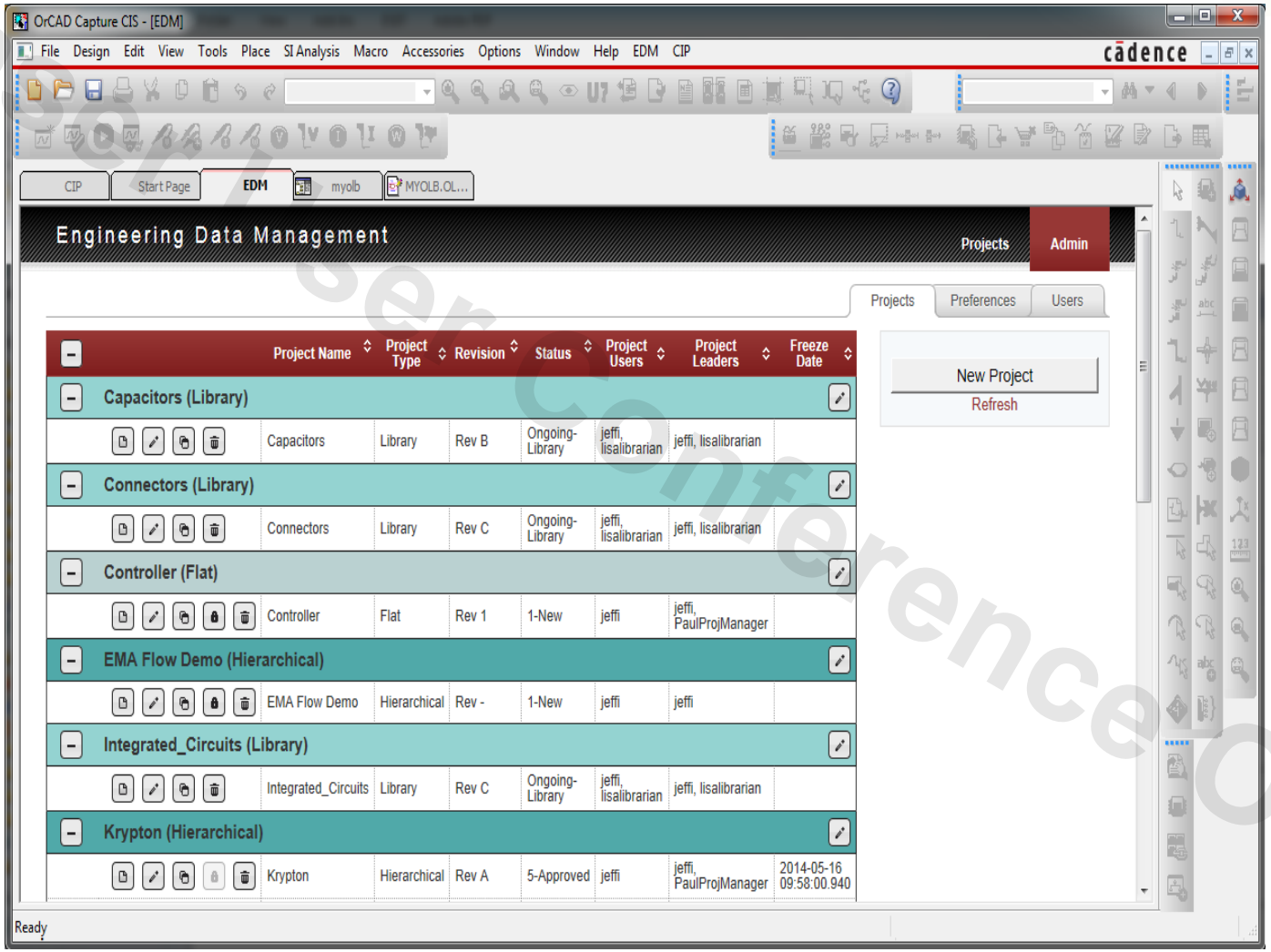
Projects > Krypton1_Rev0 > DDXO-PROxx_Top_Blk_Diagram - History

Date	Action	Comments	Status	opy
2013-09-24 16:59:21.697	Jeffi upload and unlock	Change Res	New	
2013-09-24 16:55:22.117	Jeffi download with lock for edit	Page downloaded	New	
2013-09-24 14:22:00.383	Jeffi unlock	Page unlocked	New	
2013-09-24 14:20:28.017	Jeffi download with lock for edit	Page downloaded	New	
2013-09-24 12:21:18.410	Jeffi upload and unlock	Deleted R23	New	

When

Who

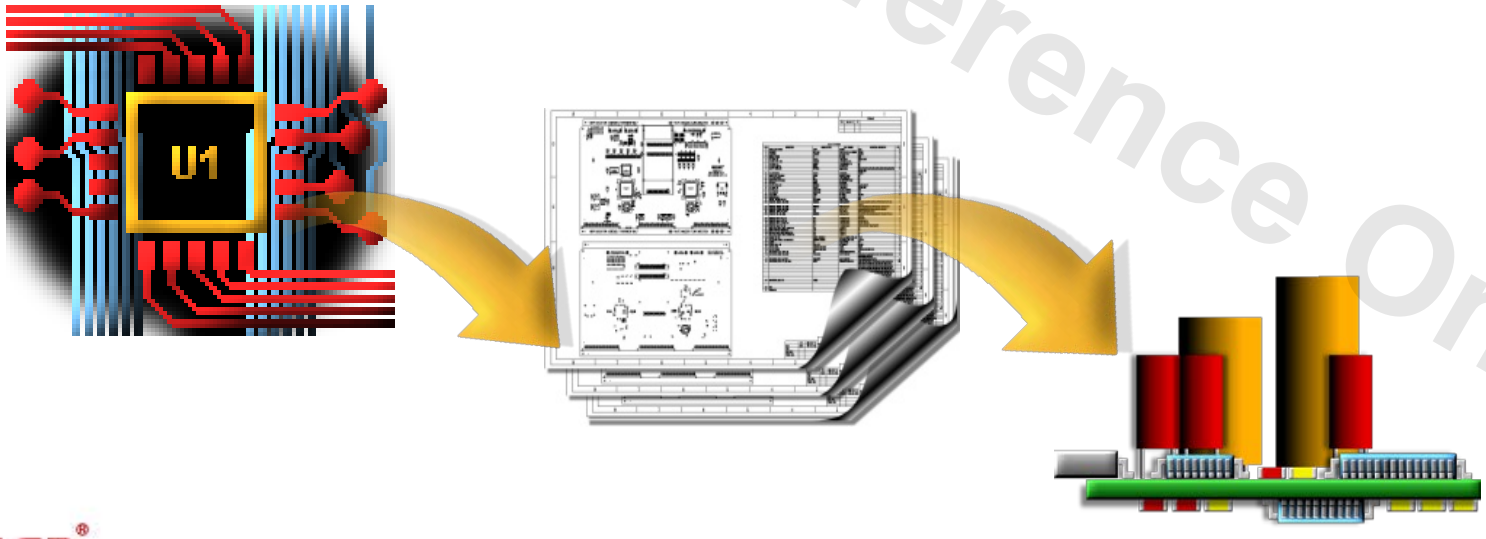
Lab



OrCAD Documentation Editor

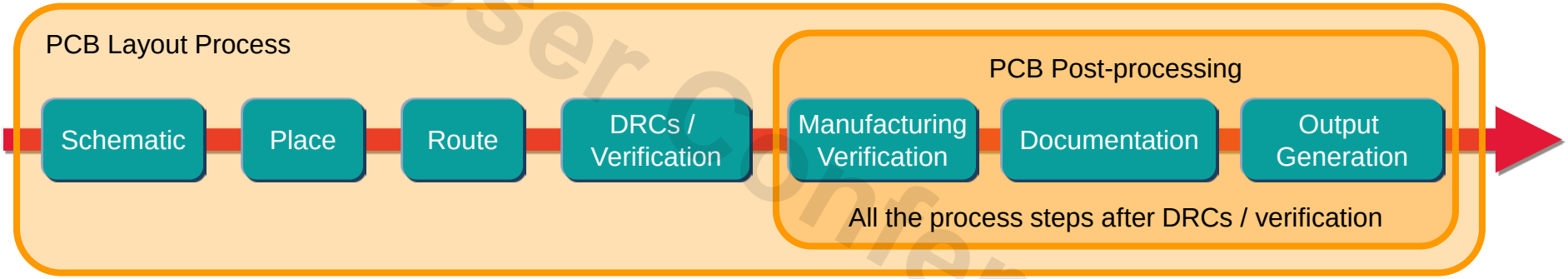
Questions and Concerns

- To go from design to an end product, it must be able to be fabricated and assembled with high-quality, at a profit, and in volume.
- Delays and re-spins can result in project impacts and missed schedule targets.
- Manufacturing issues can drive up project costs and impact profit.



PCB Post-processing

- Preparation of a PCB design for manufacturing along with all the data and documents for use by fabricators, assemblers, testers / inspectors, service technicians, etc.

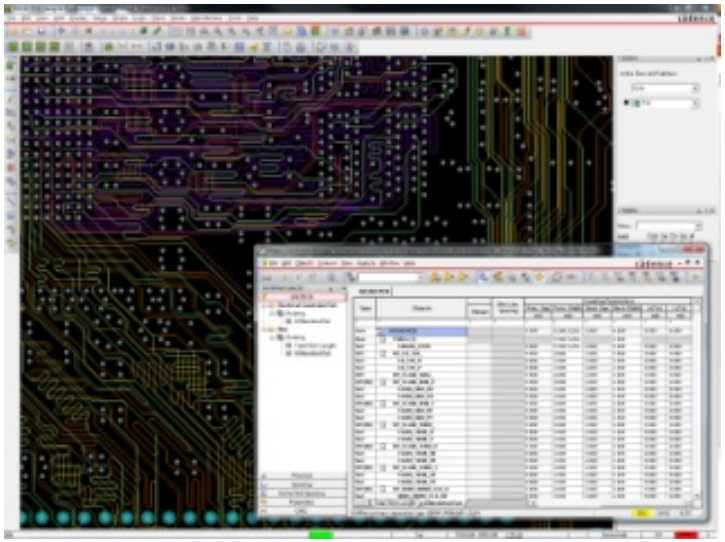


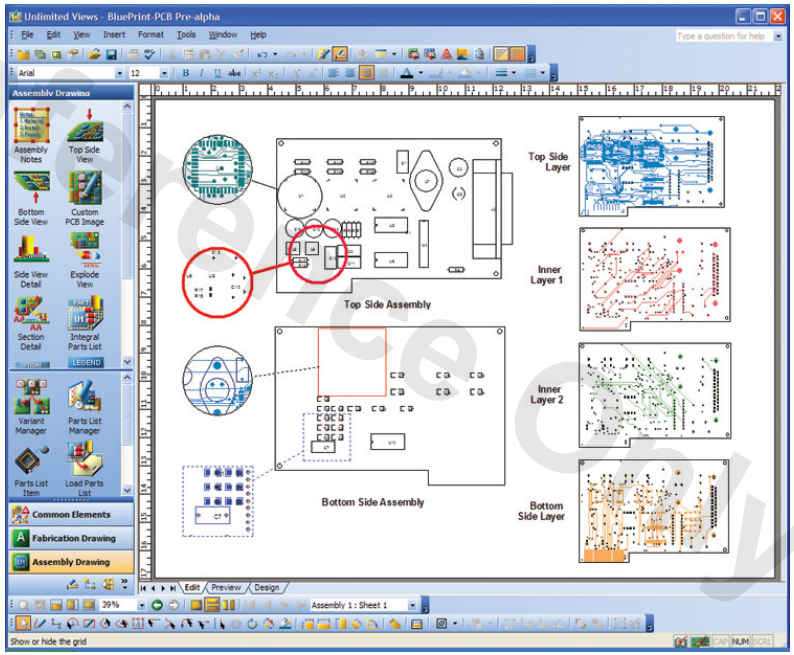
PCB Post-processing

- Gerber / netlist verification and drill optimization
- Panel creation
- Assembly and test verification
- Documentation (fabrication, assembly, etc.)
- Output generation (Gerber / 2581, drill, mill, pick and place, BOM, etc.)

OrCAD Documentation Editor

- OrCAD® Documentation Editor is an intelligent, interactive PCB documentation environment that enhances and significantly simplifies the PCB documentation process. It does this by automating the creation of documentation elements and utilizing advanced technology that directly leverages PCB design data, synchronizes engineering change orders (ECOs), and enables dynamic content. OrCAD Documentation Editor streamlines the entire PCB design.



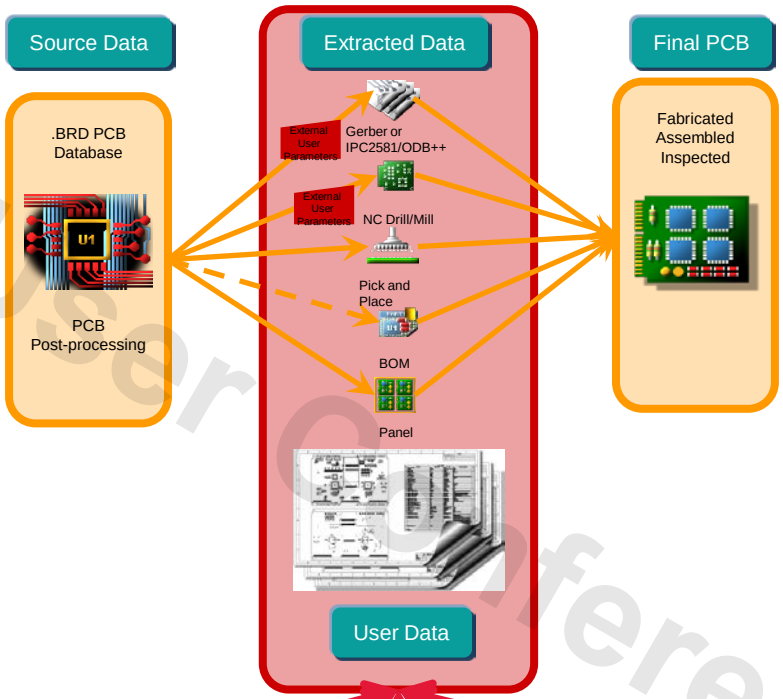


Why is Any of This Important?

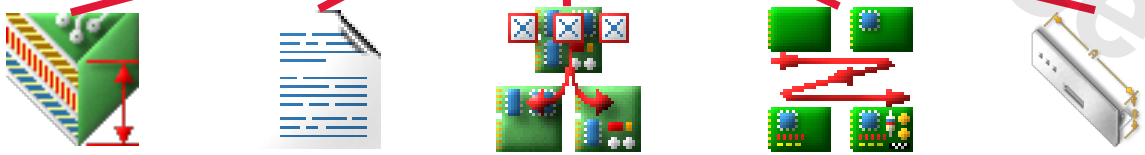
- Every PCB design must be documented(a little or a lot)
- CAD tools were not designed for drafting / documentation
- Even though documentation adds no value to the end product, it can impact a project just as a short on a board will scrap a batch of boards
- PCB designers and design teams face two, undesirable, choices when it comes to producing PCB documentation
  - An average the PCB design to produce adequate documentation for assembly and manufacturing that utilizes highly skilled, highly compensated PCB designers who could be off to the next project
  - Attempt to reduce the design cycle time by producing very cursory documentation that potentially increases the risk of project delays due to incomplete or inaccurate fabrication or assembly instructions and/or intent

Document Authoring

PCB documentation controls how all the various outputs are used together to create the final PCB, then used to verify that the final PCB was put together correctly



PCB documentation also specifies how external requirements are to be merged with outputs to create the final PCB



Bare board and assembly materials

Specifications and workmanship standards

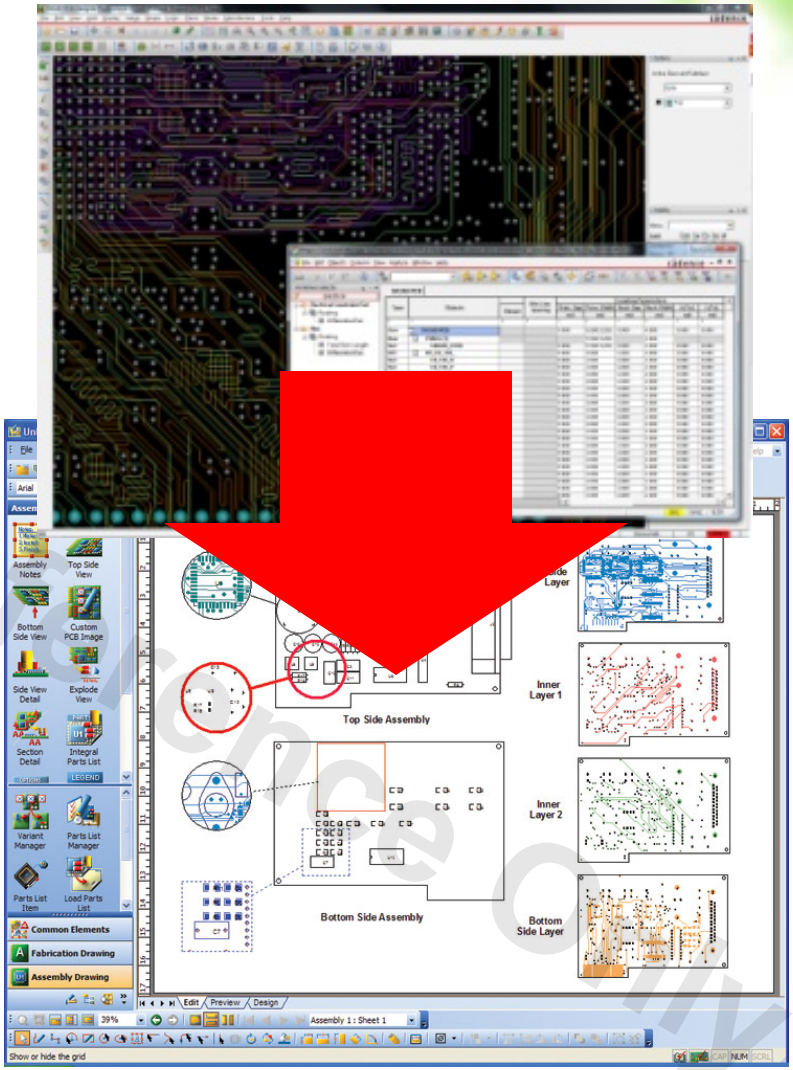
Assembly variant builds

Assembly process steps

Mechanical parts and associations

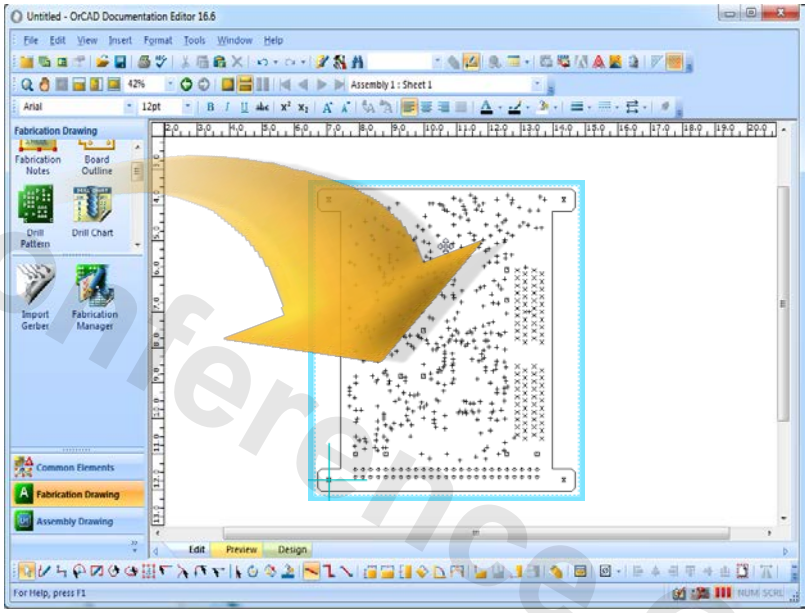
Design-driven Intelligence

- Entire PCB Editor database is imported and used to create documentation / elements
  - CAD database import
  - Templates
  - Elements



Drag…Drop…Draw

- Automatically creates fabrication and assembly elements intelligently and accurately
  - Views, details, and tables
  - Templates
  - Elements



Instant Documentation ECOs

- Automatic element update based on CAD data revisions / ECOs
  - Views, details, and tables
  - Templates
  - Elements