PCB Design for the Real World

Using OrCAD X with Solidworks to codesign your next electronic product

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Electrification of Everything

- Electronic and mechanical systems are highly interdependent
  - Challenges/Issues
    - Interference
    - Thermal Management
    - Manufacturing
    - Communication

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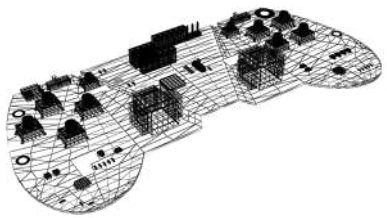
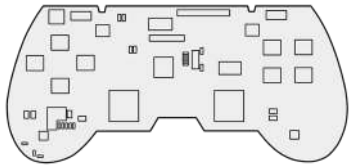
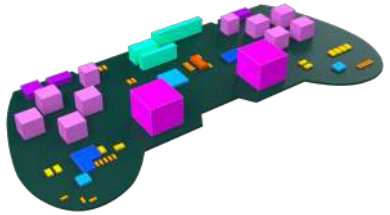
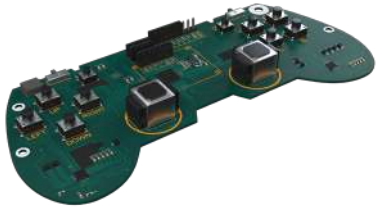
Migration & Limitations of MCAD/ECAD Exchange

Great at Capturing Mechanical Intent		Incorporation of Electronic Intent			
IGES	**DXF**	**IDF**	**STEP**	**IDX**	
• Surface model representation • Origin: USAF • Initial release: 1978 • Last update: 1996 • V 5.3 – last version	• 2D vectorized line format • Origin: Autodesk • Initial release: 1982 • Last update: 2007 • V u19.1.01	• 2D with 3rd dimension a property value • Origin: Mentor Graphics • Initial release: 1992 • Last update: 1998 • V 4.0 – continues to evolve	• Single solid model representation • Origin: ISO • Initial release: 1995 (AP203) • Last update: 2016 • V AP242	• Best of STEP & IDF with incremental change support • Origin: ProSTEP • Initial release: 2010 • Last update: 2022 • V 5.0	
1978	1982	1992	1995	2010	2024

No management of transactions or traceability

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Harmonizing MCAD/ECAD Data Exchange & Management

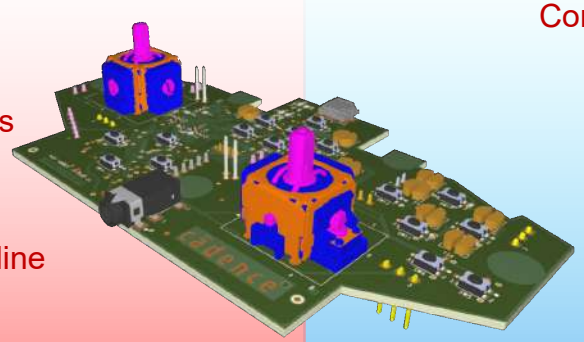
- Blue Text: Single direction transfer from ECAD to MCAD
- Red Text: Bi-directional transfer between ECAD & MCAD

Copper Traces & Shapes

Plated & Unplated Holes

Board Outline

Keep In, Keep Out Regions



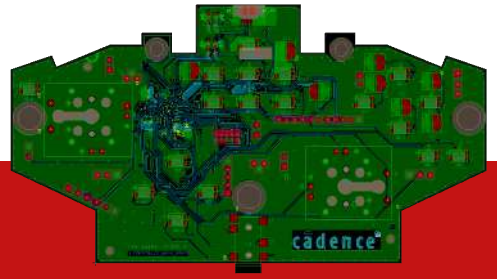
Component Name & Designator

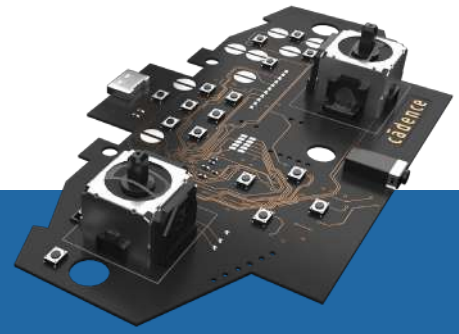
Board Thickness

Cutouts

Component Placement

Rooms





IDX

Accept, Reject, Revert

OrCAD X

3DEXPERIENCE

- Initial clearance checks
- Electrical integrity
- Functional verification
- PCB manufacturing
- Allegro X AI

- Final clearance checks
- Stress & thermal integrity
- Physical verification
- Mechanical manufacturing
- Design Assistant AI

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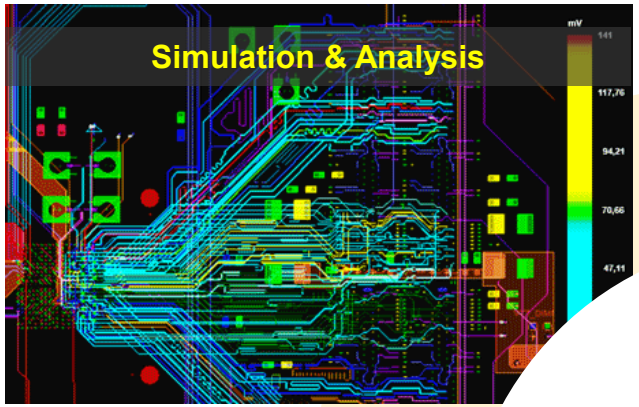
OrCAD X - Complete PCB Product Development Solution

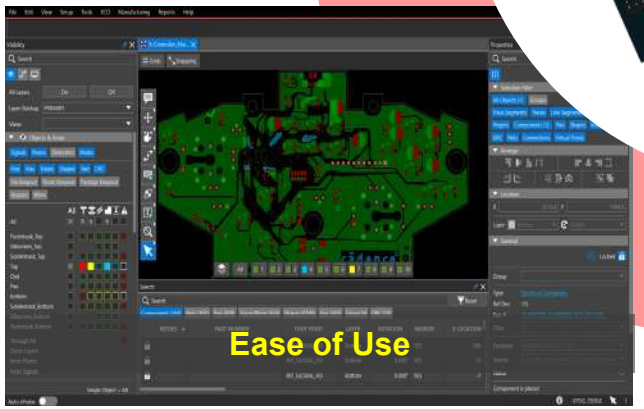


Sourcengine™

Supply Chain

Mechanical Design

SOLIDWORKS



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