Parallel Systems

Cadence Next Generation Solutions

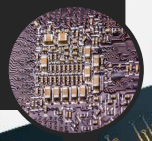
DF3

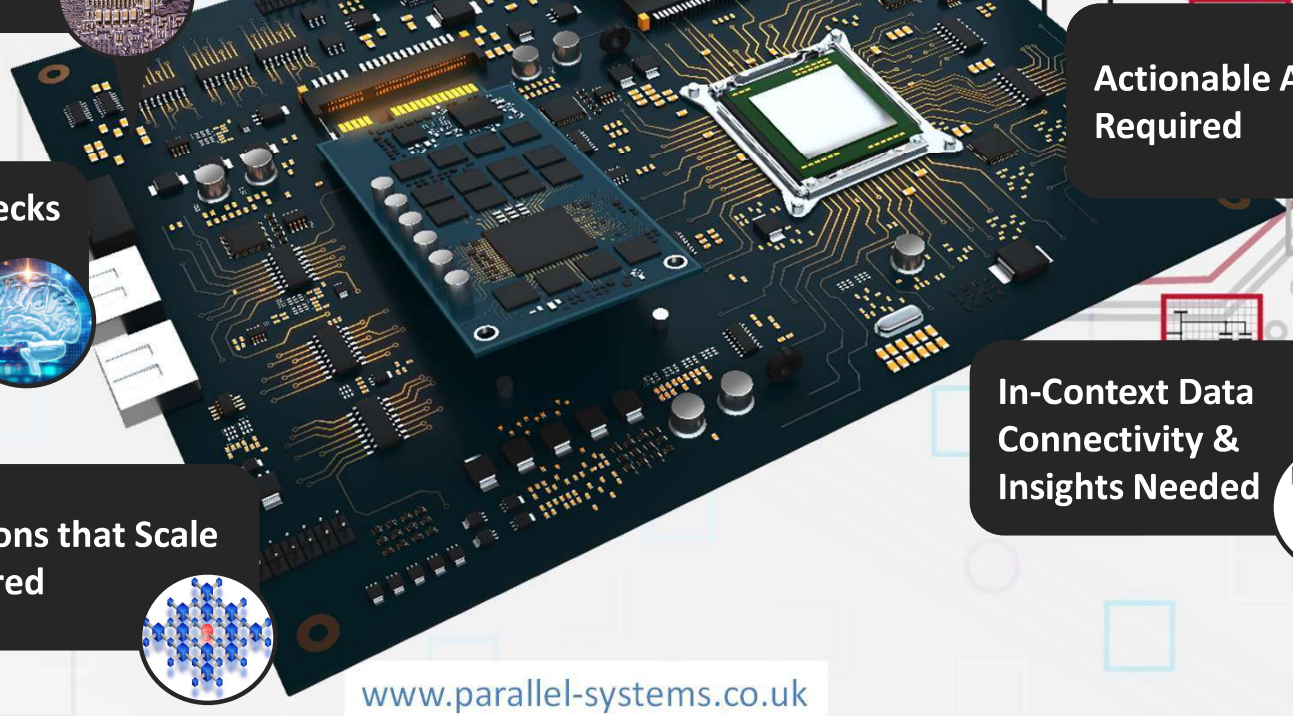
System Design Must Advance with Industry Demands

Parallel Systems

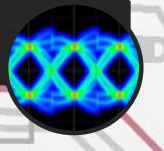
More Work Fewer Resources

Smaller, Faster, Cheaper





Actionable Analysis Required



Remove Bottlenecks & Increase Throughput

In-Context Data Connectivity & Insights Needed

Solutions that Scale Required

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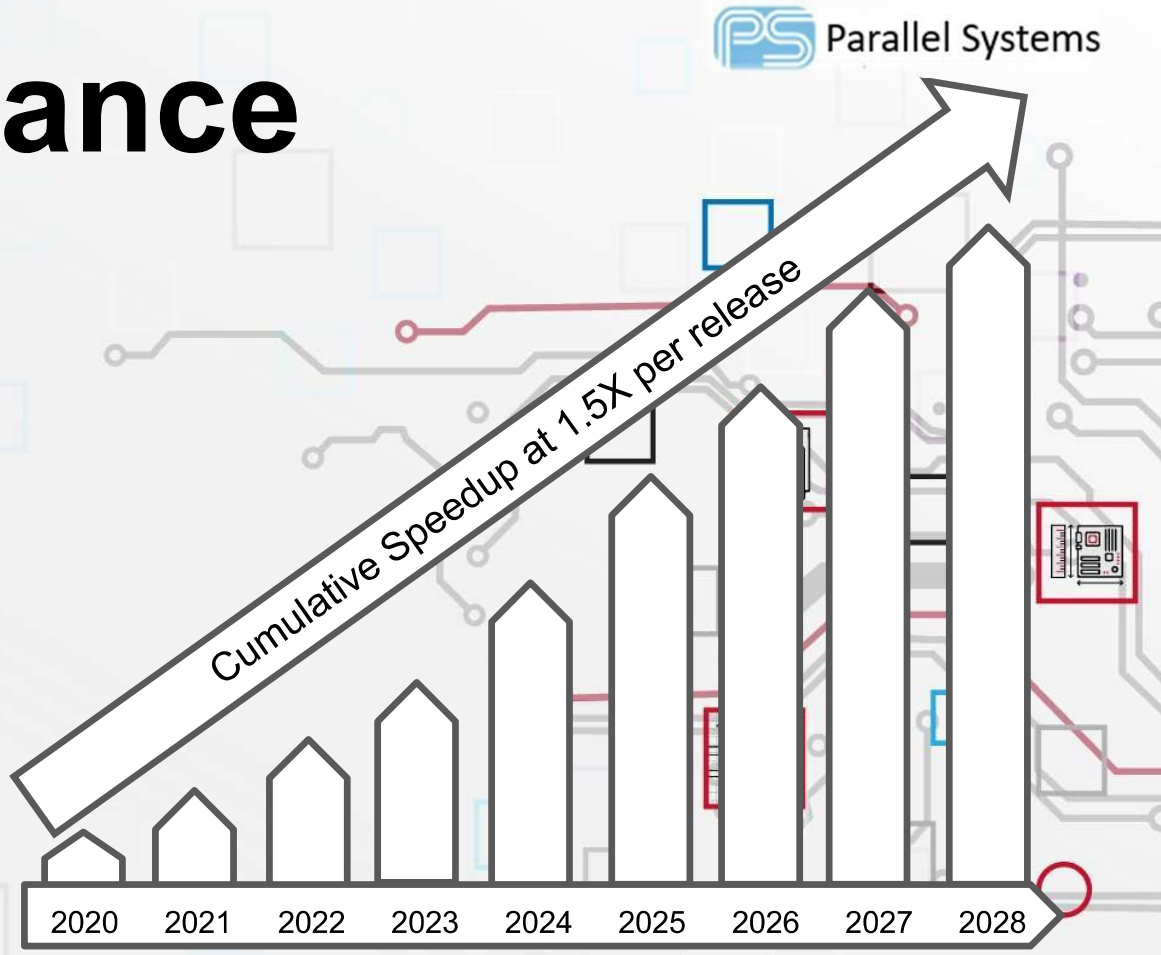
Pure Performance

- Allegro® X performance acceleration
  - 10X+ faster interactive shapes
  - General GPU - 20X+ faster rendering
  - PSpice 5X faster
- 40X+ faster 3D engine; Up to 20X reduction in process memory
- Smaller memory footprint



Creating Leading Performance and Capacity
→ Compounding is 8th Wonder of the World

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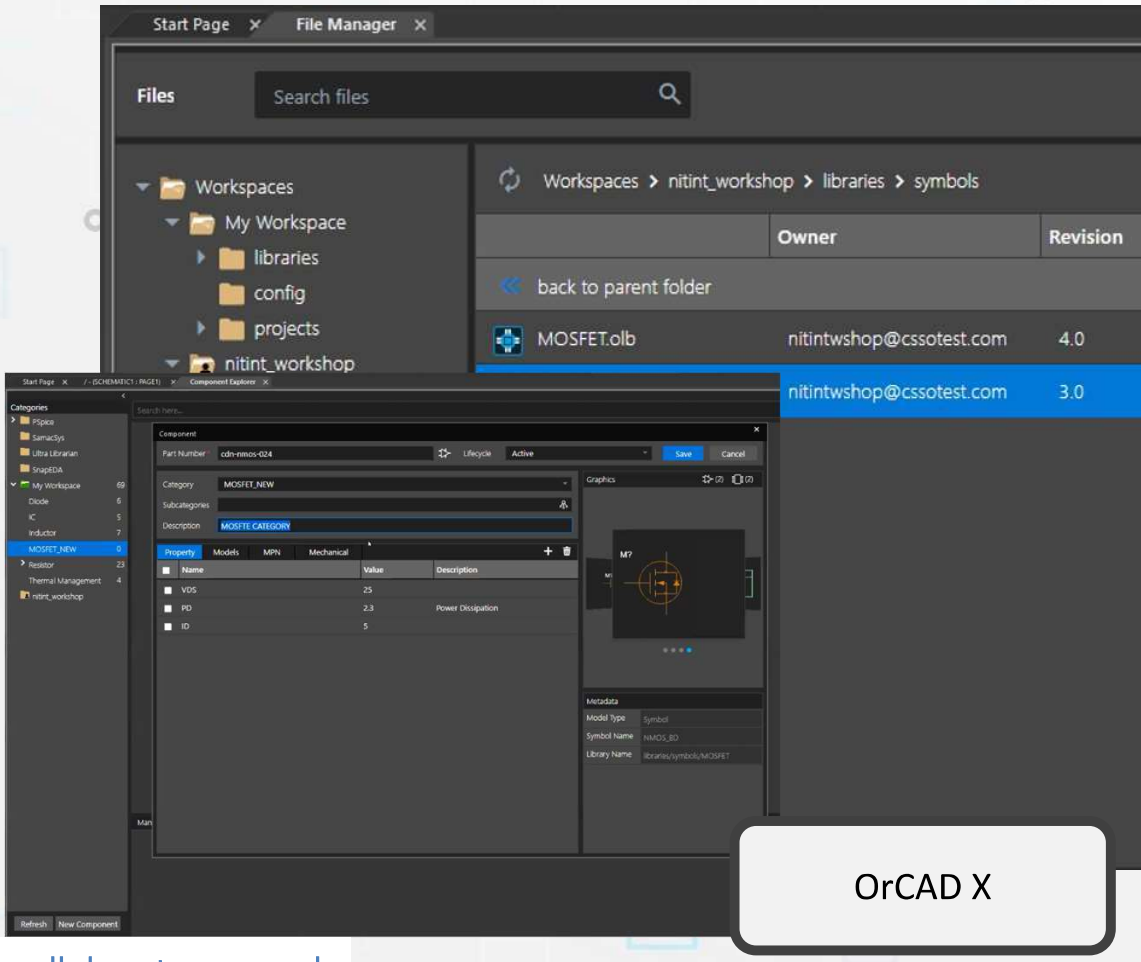
Cloud Workspaces

- Cadence Cloud Repository
- Store and share design files and libraries
- No setup ad config required



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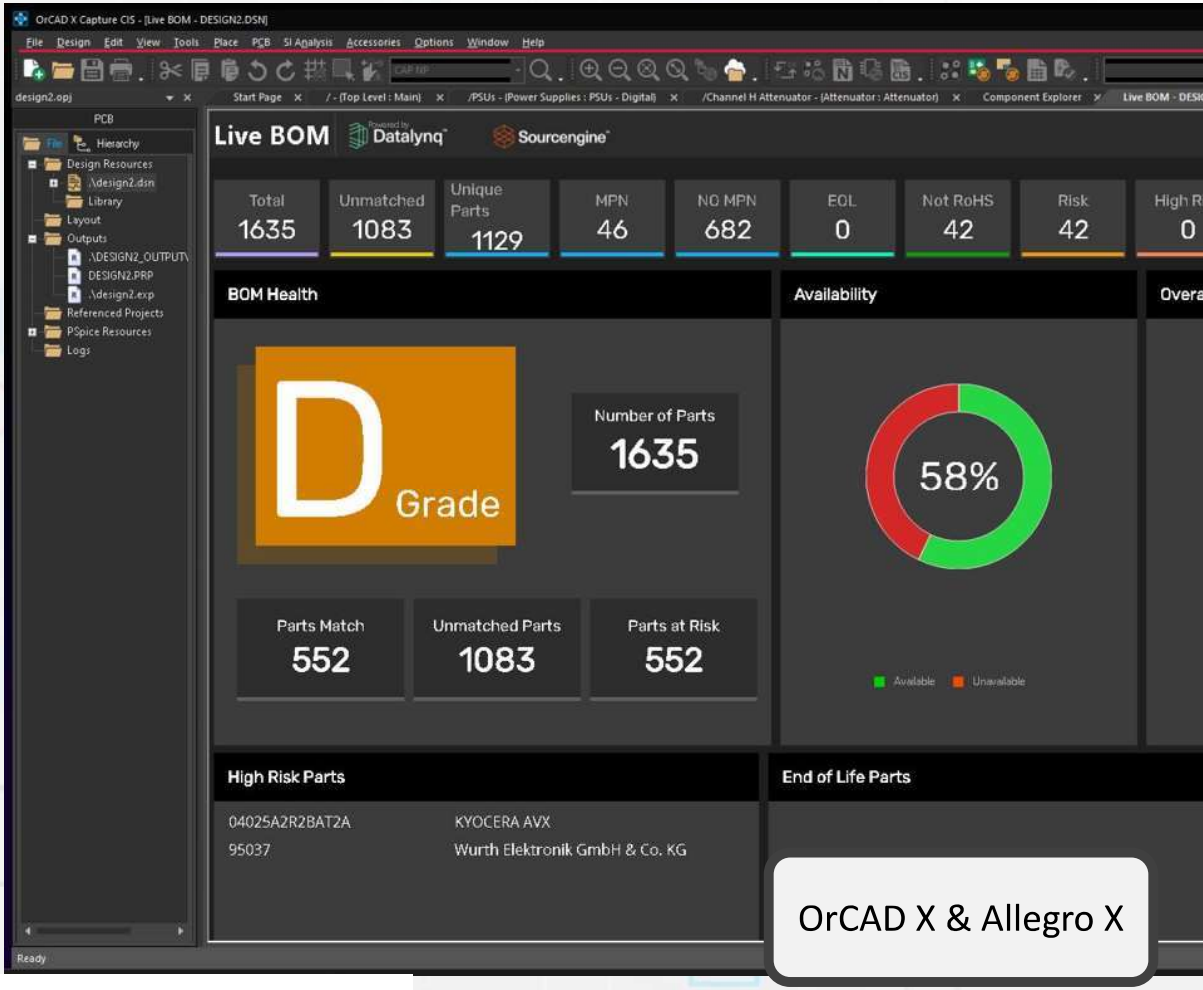
LiveBOM

- On-demand supply chain intelligence
- Reviews active design and provides a grade
- Swap and update parts quickly as needed
- Ensure a compliant and orderable BOM
- Powered by SourceEngine

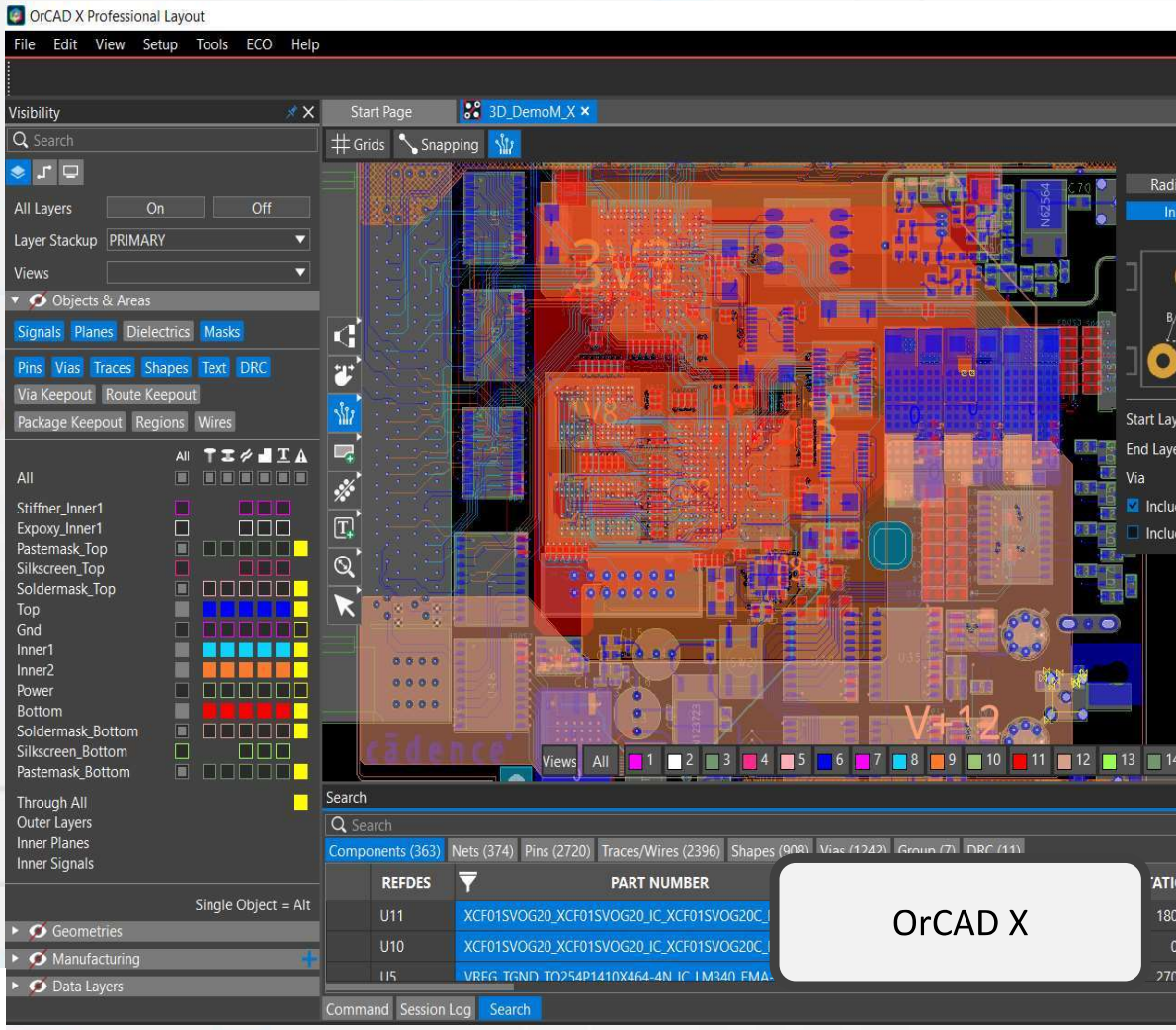


OrCAD X & Allegro X

Parallel Systems

Presto

- New PCB Layout UX
- Focused on productivity & ease of use combined with powerful layout and routing engines of Allegro
- Great for new and occasional designers
- Fully compatible with OrCAD & Allegro PCB Editor (same .brd)
- Optional. Evaluate and leverage at your pace



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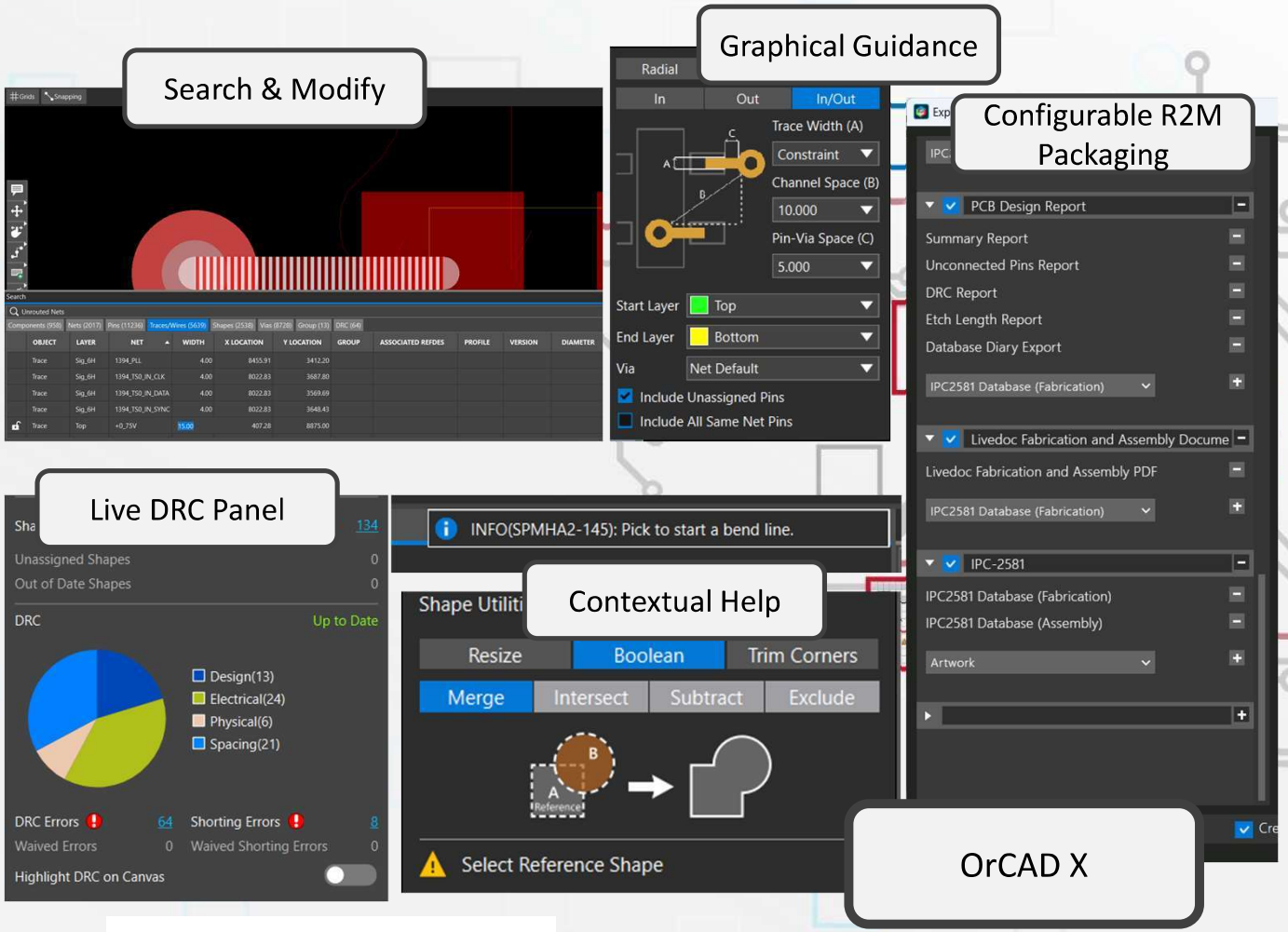
Presto

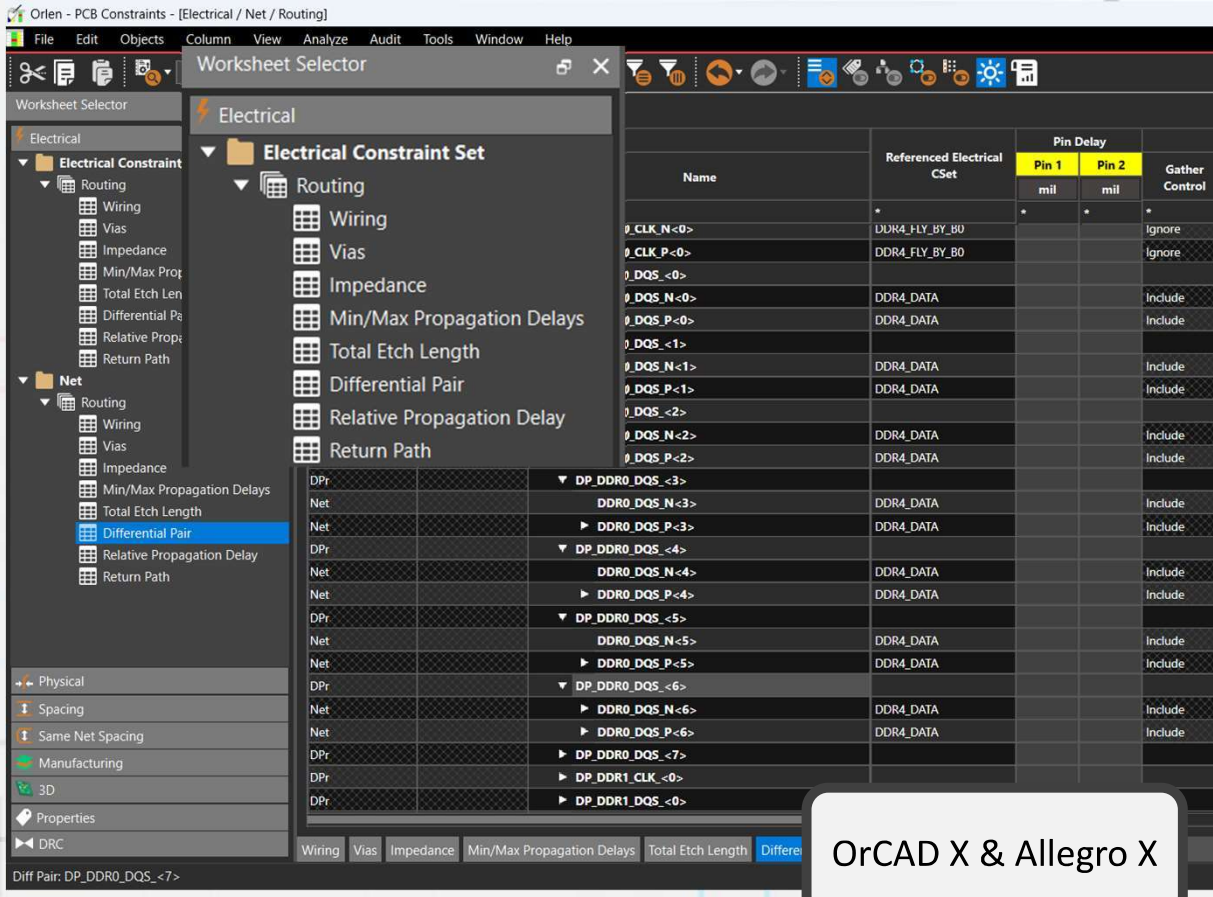
- Use model and UI overhaul
- Designed to make information discoverable, data presentation contextual
- Live links to drill into details where applicable
- Built-in search engine with live editing
- Visual help and guidance



Parallel Systems

Shift-Left: **Expanded Constraints**

- Full constraints at all levels
- View and set rules regardless of tier
- Ensure correct by construction design

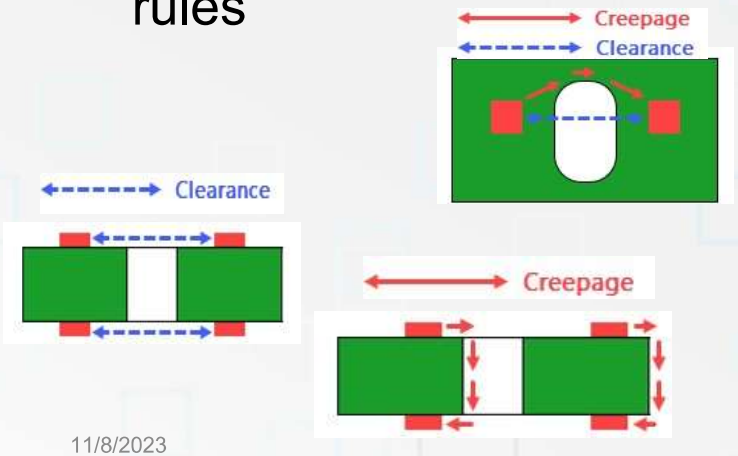


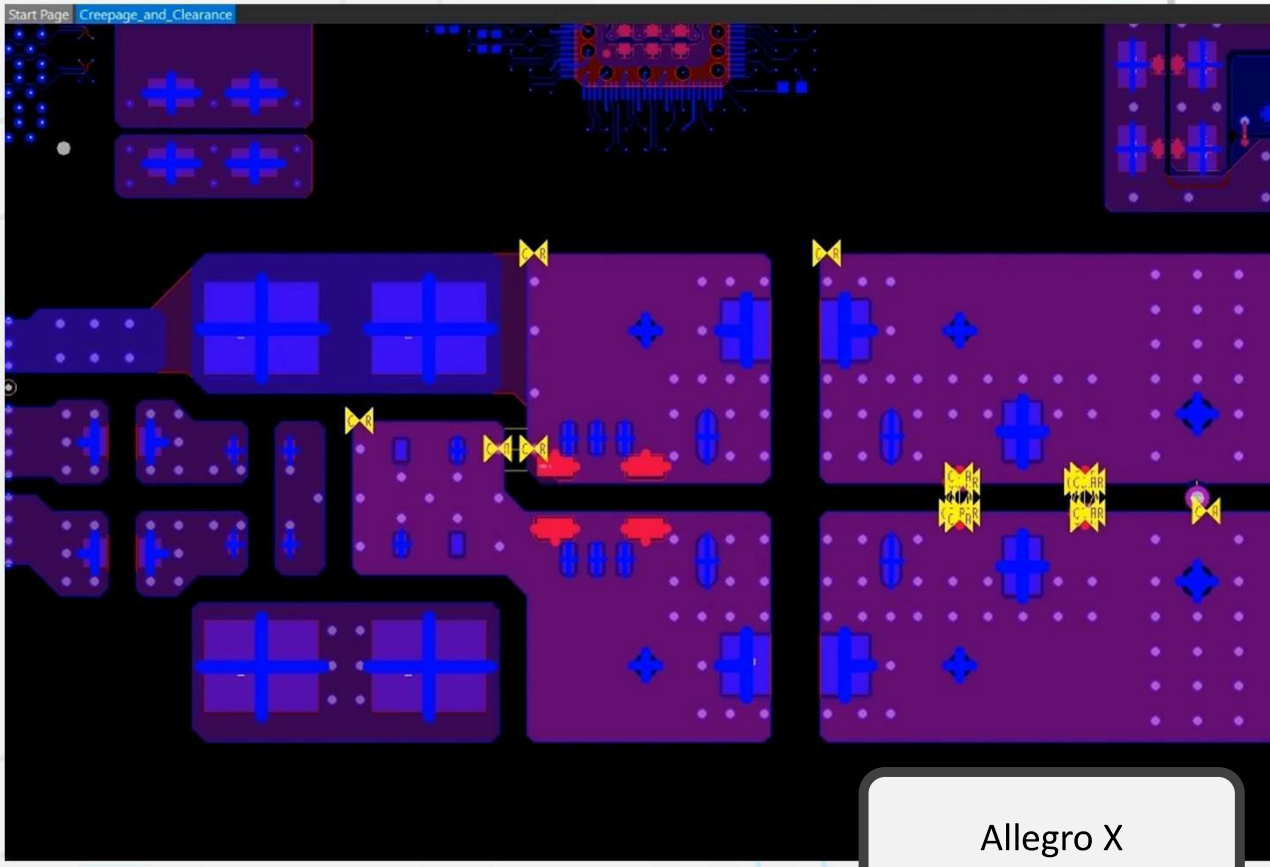
OrCAD X & Allegro X

Parallel Systems

Shift-Left:
Expanded Constraints

- New high-voltage constraint checks to verify Creepage and Clearance rules



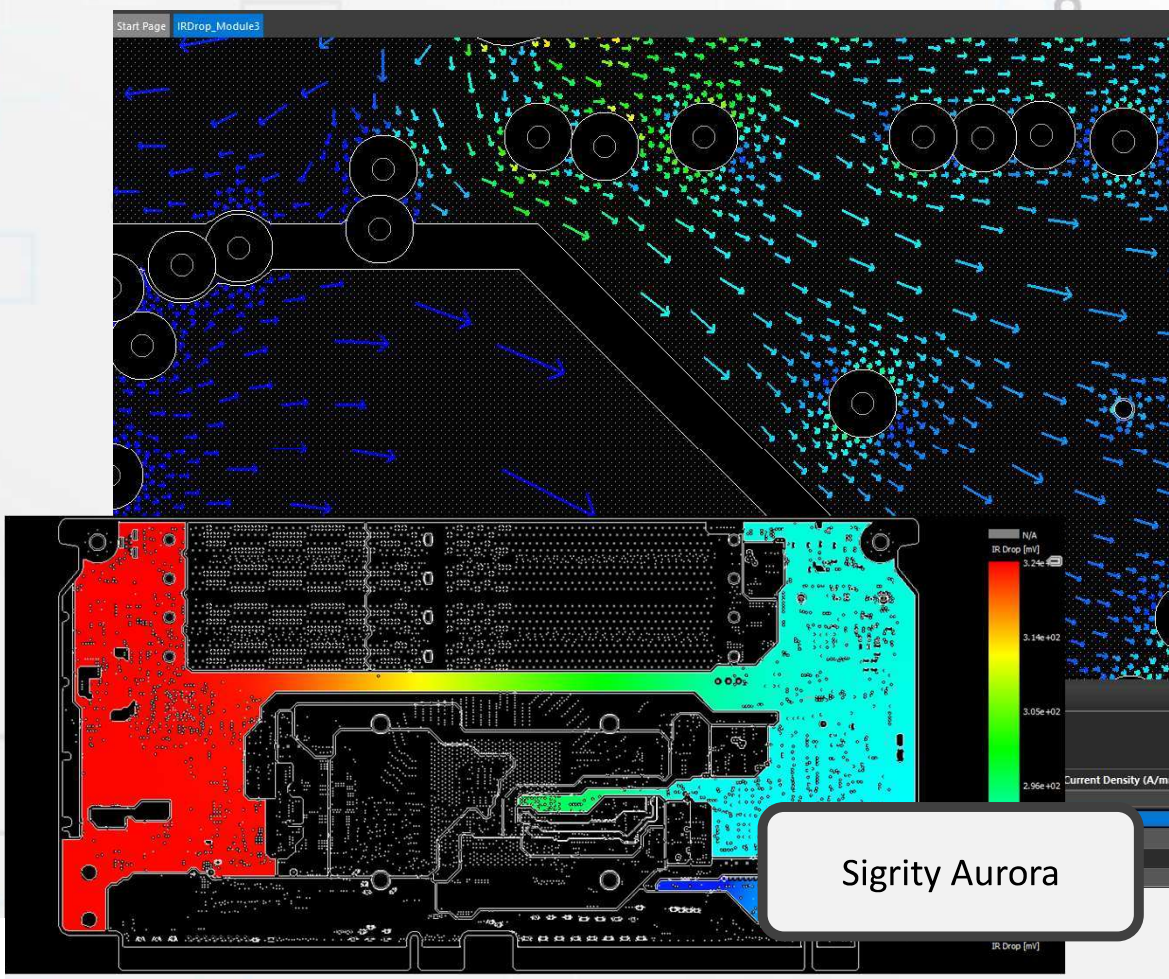


Allegro X

Parallel Systems

Shift-Left:
In-Design Analysis

- Perform electrical analysis inside the design canvas
- Visual overlays make finding and fixing issues quick & effective
- Analysis to cover:
  - Impedance
  - Coupling
  - IR Drop
  - Crosstalk
  - Return path
  - Thermal (coming soon)



Sigrity Aurora

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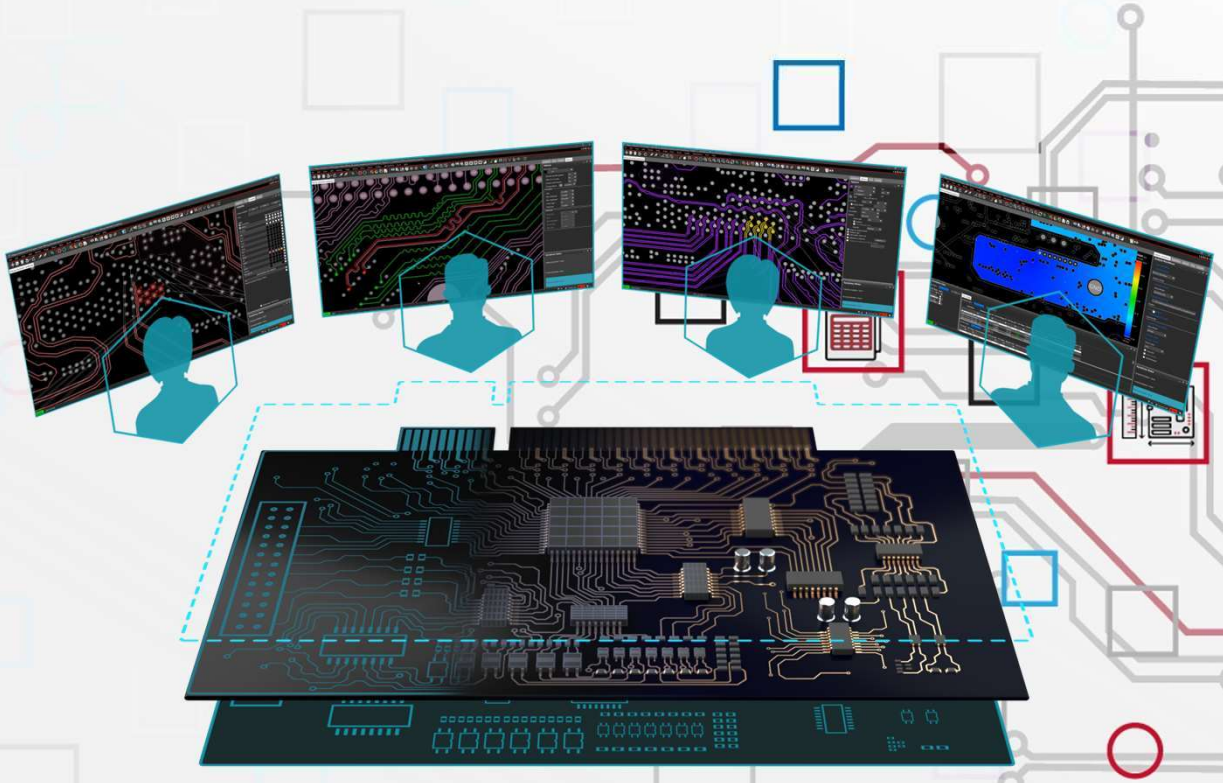
Symphony

- Concurrent PCB design
- Multiple models (cloud, adhoc, hosted server)
- 2 or more can design and edit at the same time
- Ability to include simulation with Aurora
- 2 person included in OrCAD X Pro

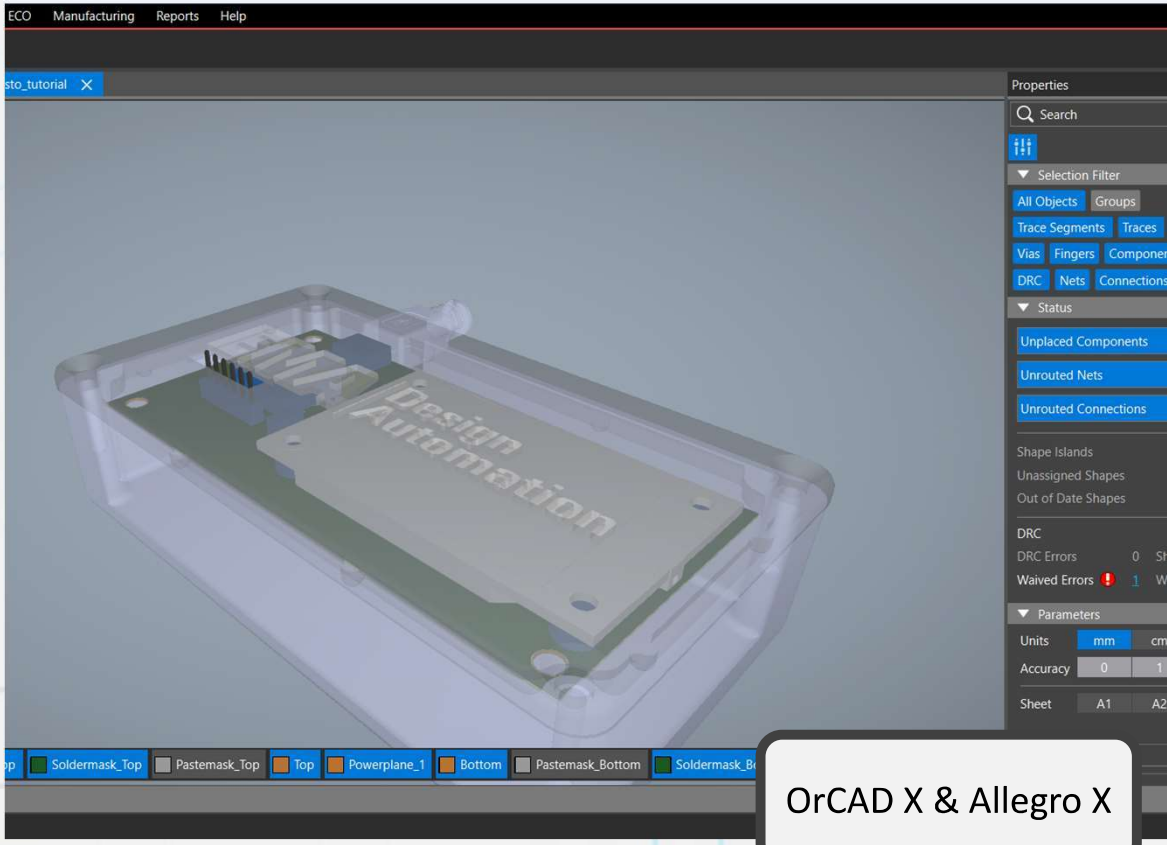


OrCAD X & Allegro X

Parallel Systems

New 3D Engine

- New 3D engine
- Built for performance
- Real-time 3D constraints
- Import mechanical elements – export design for mechanical integration

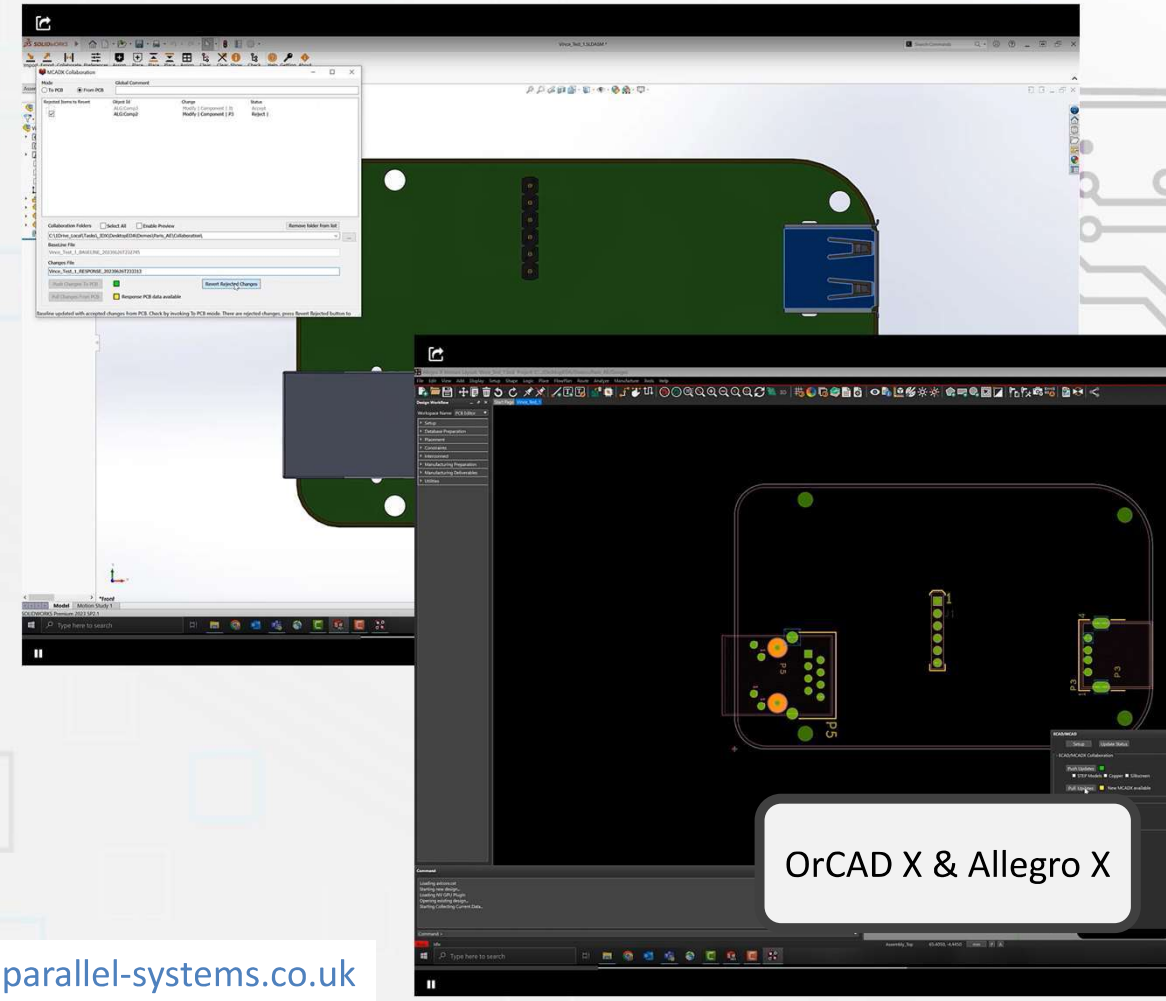


OrCAD X & Allegro X

Parallel Systems

MCADX

- ECAD/MCAD Collaboration
- Incremental updates with accept / reject, commenting, and history tracking
- For SOLIDWORKS first
- Make ECAD/MCAD easier to do and happen more often



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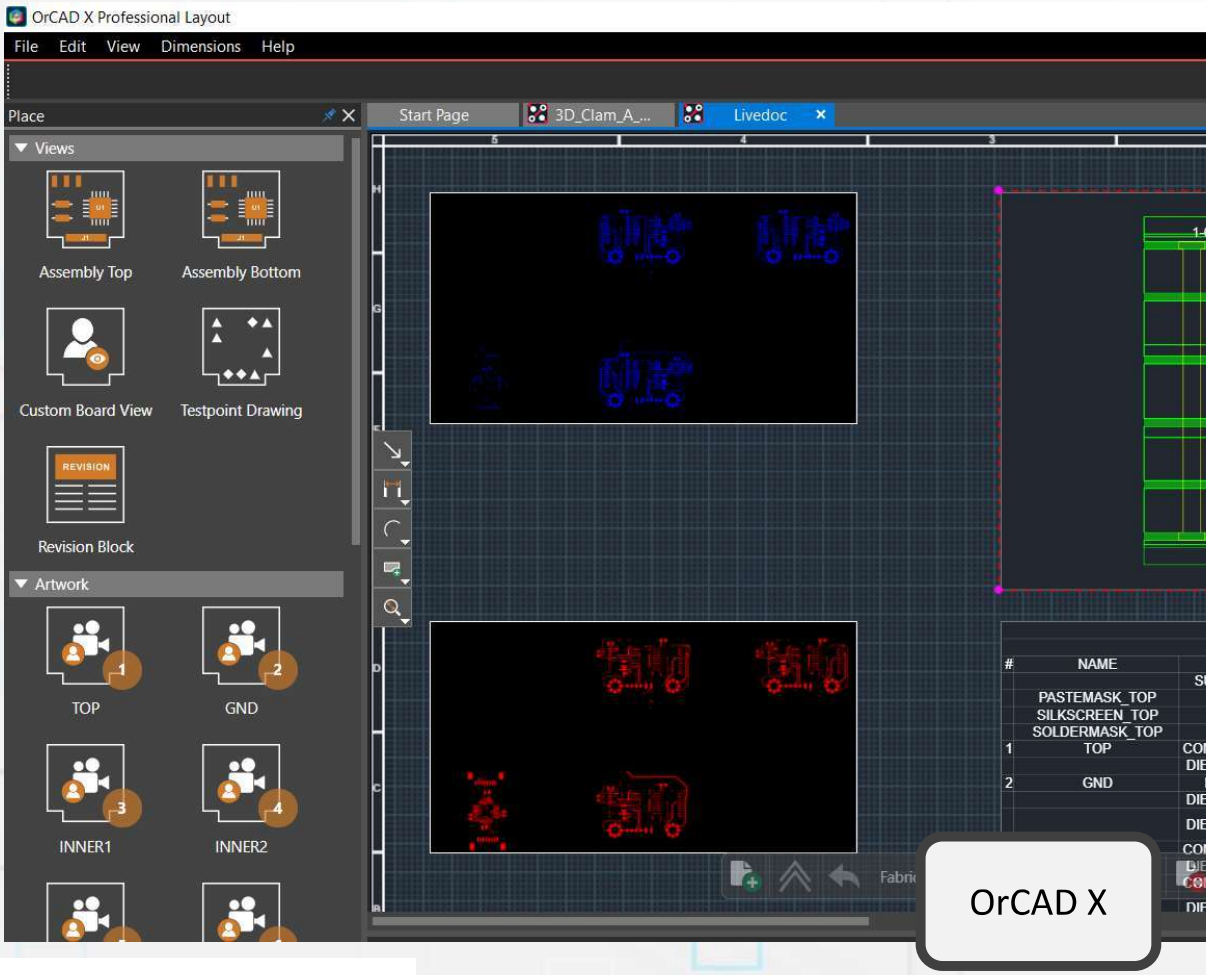
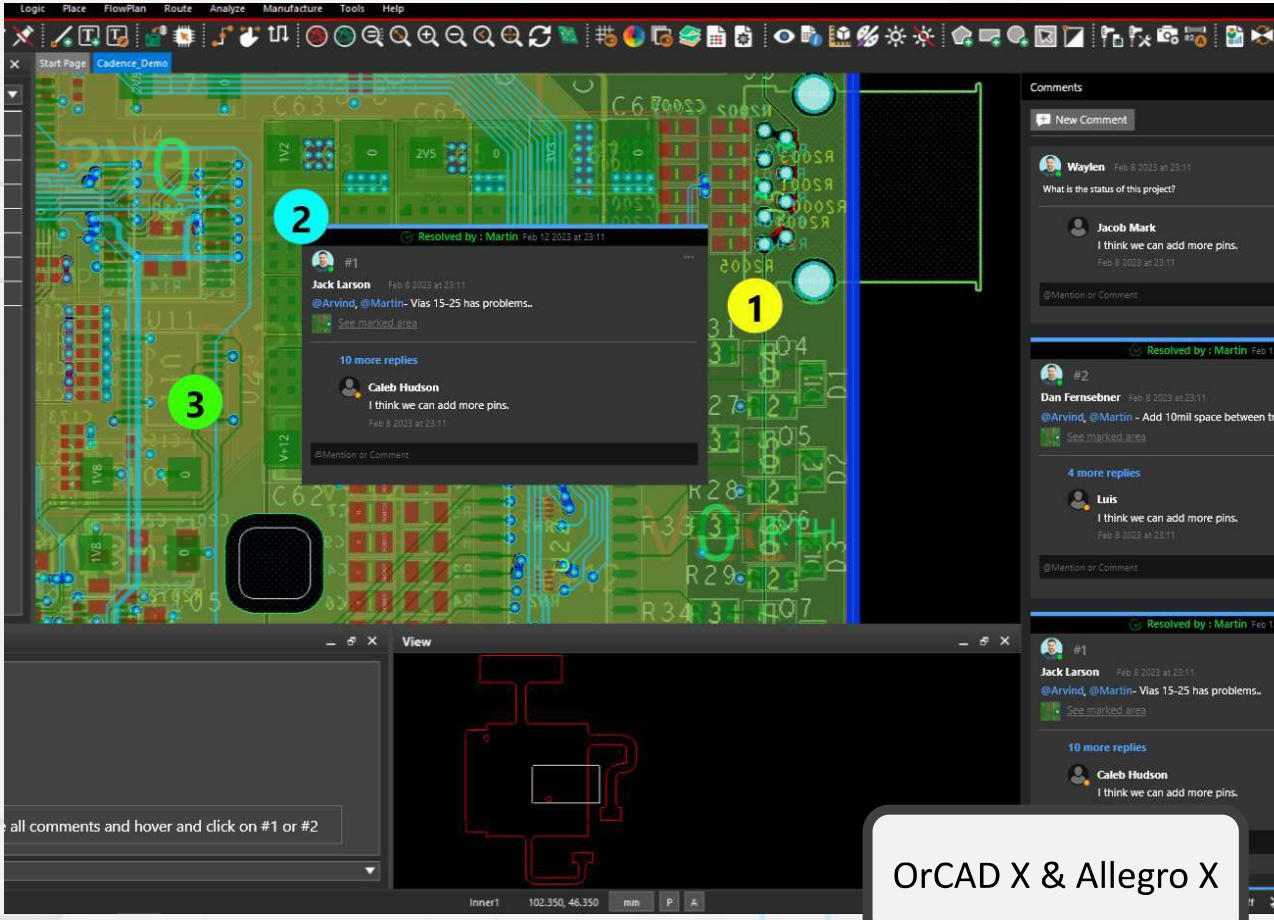
LiveDoc

- Automated PCB Documentation
- Live Updates
- Template Driven
- Ensure docs are complete, up to date and ready



Review & Markup

- Embedded Markup Layer
- Like GoogleDocs
- Stored in PCB database
- Commenting, Resolve, history tracking



Parallel Systems

X Platform Benefits

- Reduce late-stage errors – shift problem solving left
- Enable proactive problem solving
- Enable early analysis & optimization
- Increase engineer efficiency
- Increase schedule predictability & accuracy

Cadence Leadership in AI

Targeting the Next 10X in Productivity Improvement

Parallel Systems

Xcelium™ ML
Regression Simulation

Optimality™
In-Design Optimization

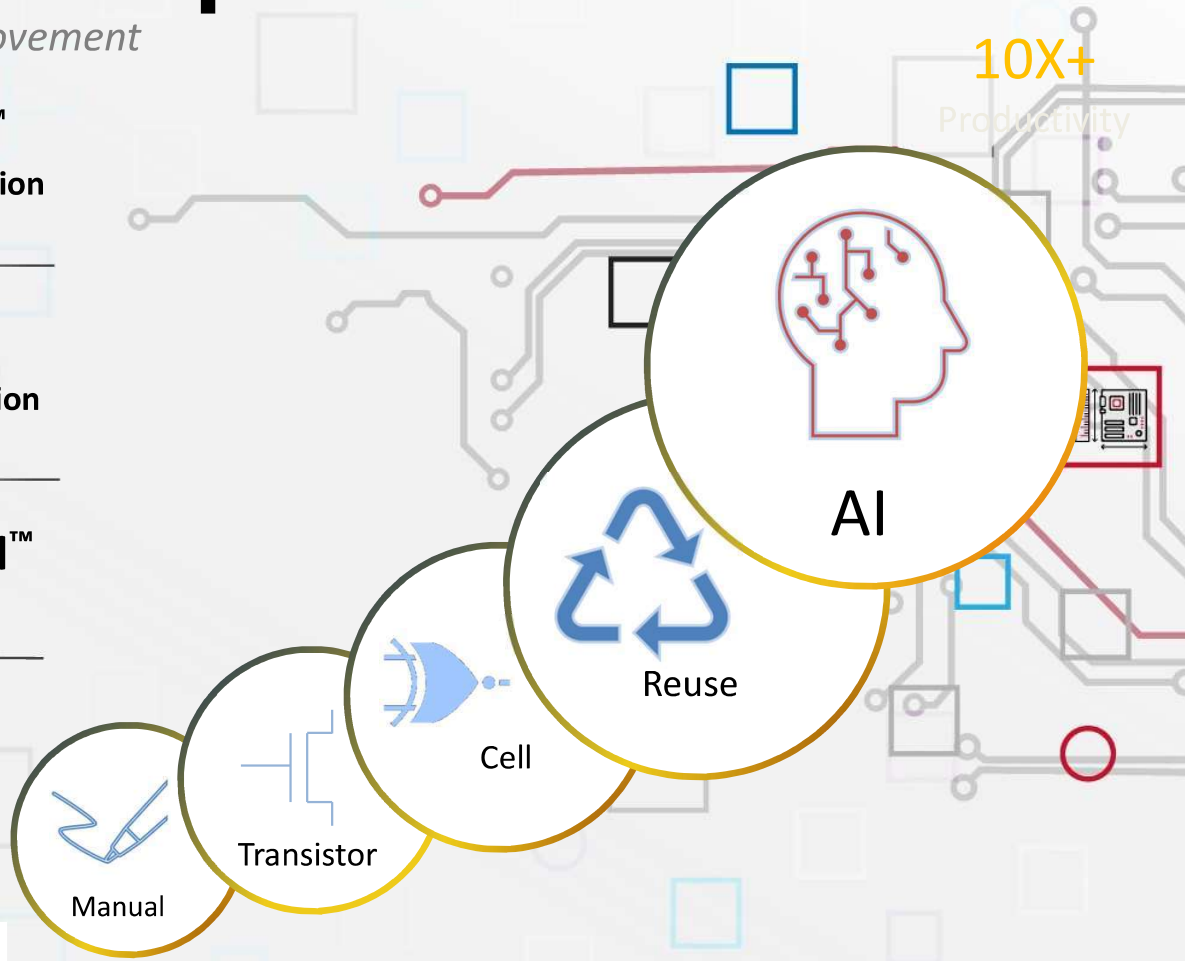
Verisium™
Verification

Cerebrus™
Digital Implementation

Virtuoso Studio™
Custom and Analog Design

Allegro X AI™
PCB

JedAI
Joint Enterprise Data AI Platform



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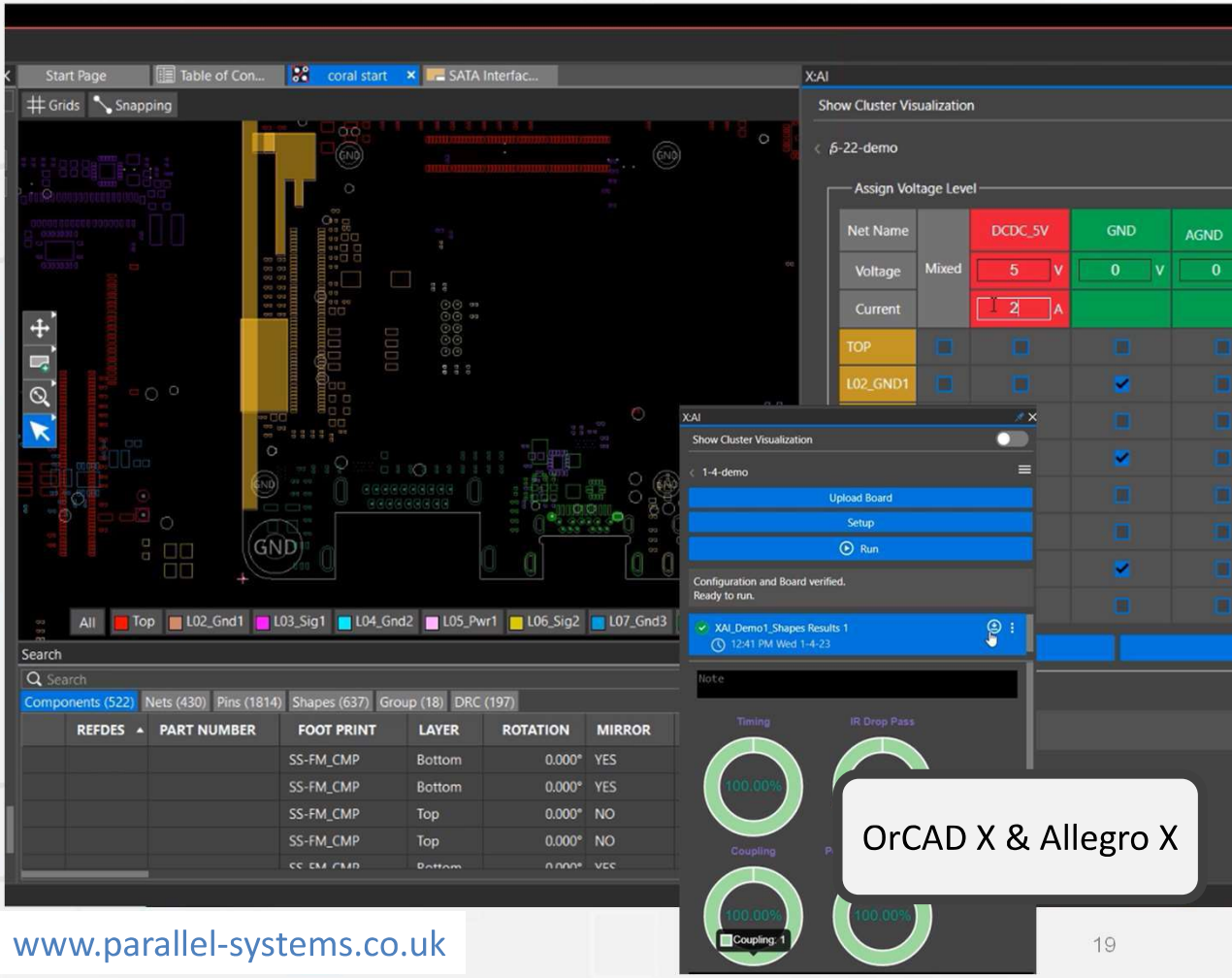
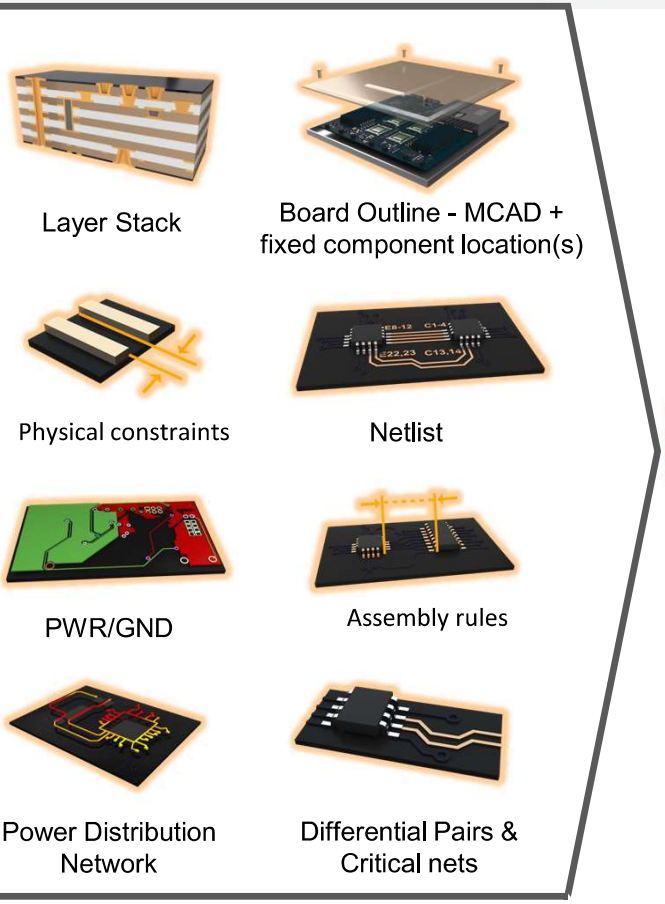
X AI

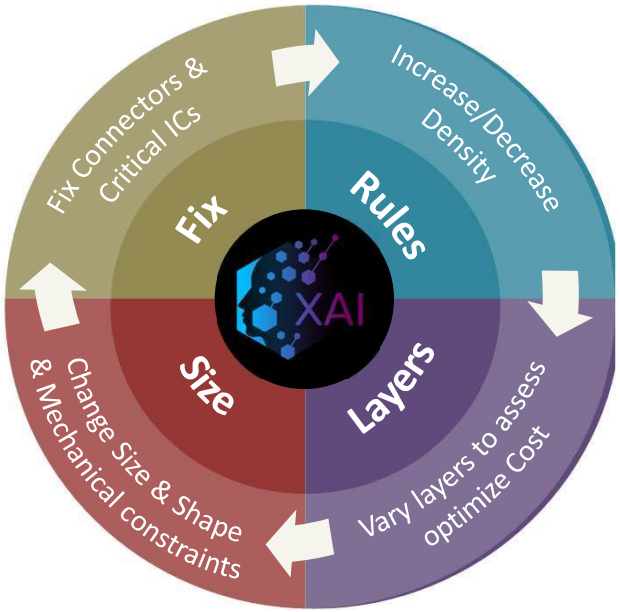
- Generative AI Assistant
- Built to perform multiple tasks (placement, routing, plane generation, partial, full)
- Integrated directly inside OrCAD X & Allegro X



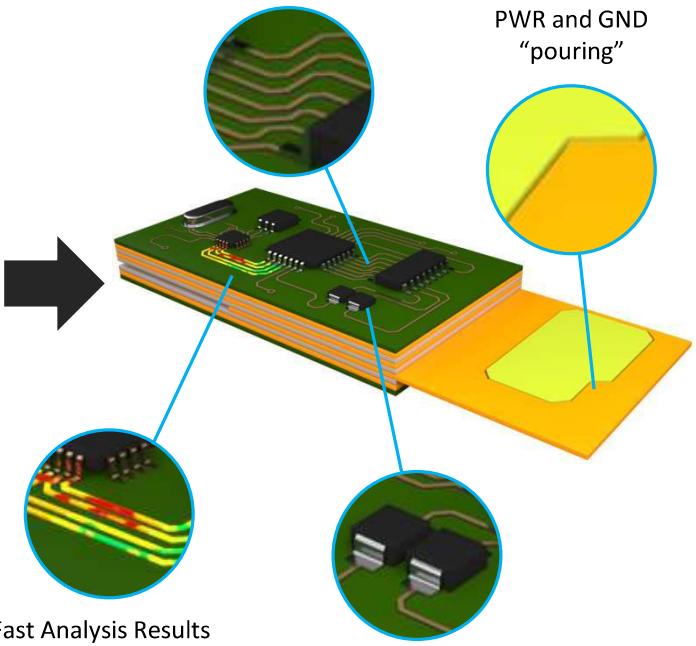
X AI™ Methodology



Rapid Solution Space Exploration



Critical Routing (Now)
Full routing (2024)



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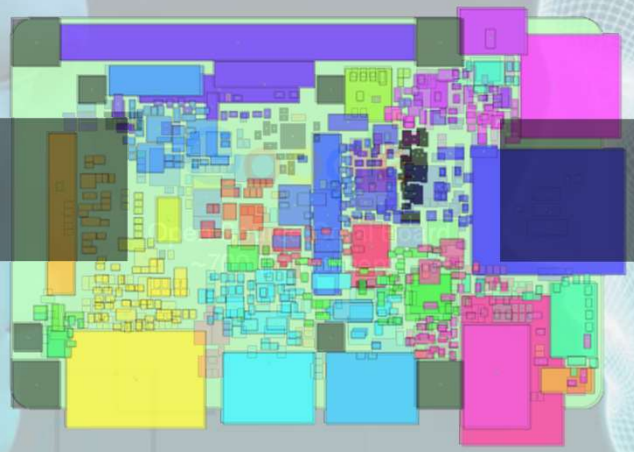
X AI Results

EMA Design Automation

PLACEMENT	WIRELENGTH	MANUFACTURING	ELECTRICAL ANALYSIS
3 days to 75 Minutes	12% Improved	100% Compliant	Optimized



Human Alone

w/ X AI

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Leverages Cadence OnCloud to evaluate 1000s of alternatives

X AI™ Value to PCB Stakeholders

Parallel Systems

Your AI Assistant

Engineering Manager

- Increase PCB organization output and efficiency
- Reduce Design TAT

Electrical Engineer

- Expand EE Contribution to PCB Layout
- Experiment with Different Solutions – Explore Design Space

PCB Designer

- Frees PCB designer to focus on complex PCB problems and multiplies productivity
- X AI provides insights, new ideas, and ability to optimize

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Optimality Intelligent System Explorer

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Optimality™
Intelligent System Explorer

System Criteria

- Return loss
- Insertion loss
- Cross-talk
- Isolation

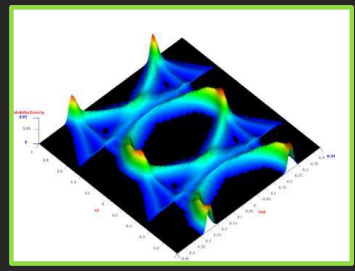
Electromagnetic and Electrothermal Analysis

In-Design Analysis

System Design Optimization

AI-driven In-design optimization

Optimized Performance



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Optimality™ Intelligent System Explorer

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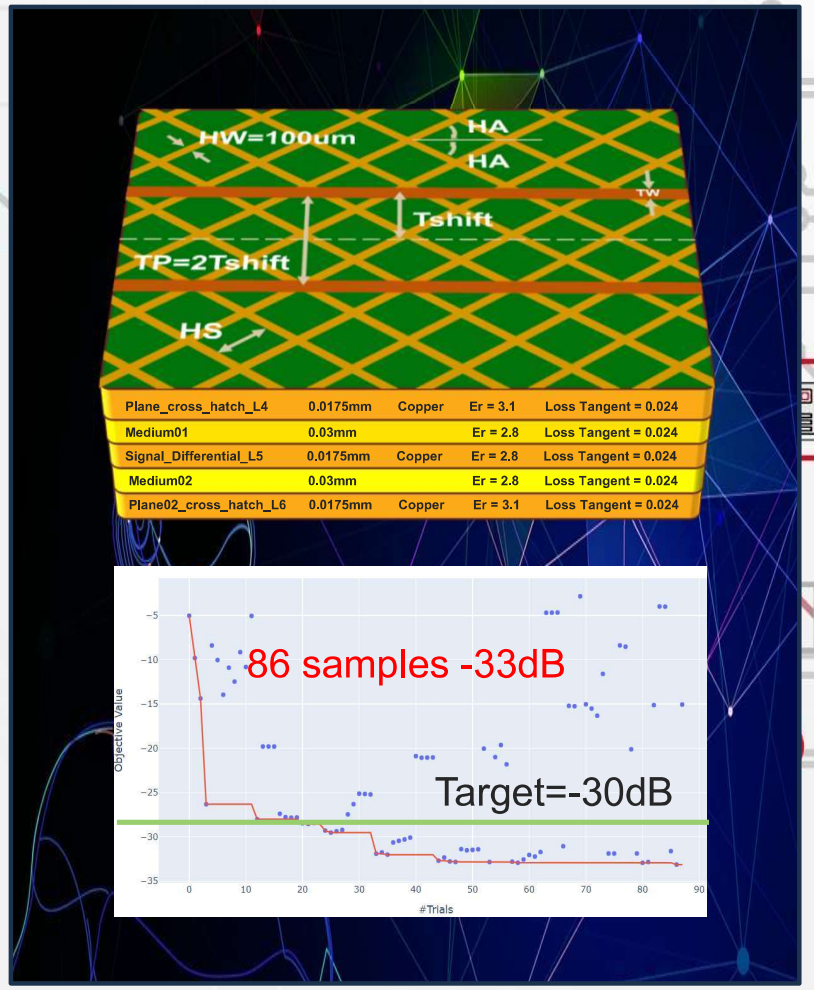
Example:

- Minimize transmission line return loss:
- -30dB target in the frequency band [0GHz-15GHz]
- 5 physical variables: HW, HS, HA, TW, TP
- Brute-force sweeping requires 2,880,000 evaluations (20x20x18x20x20)



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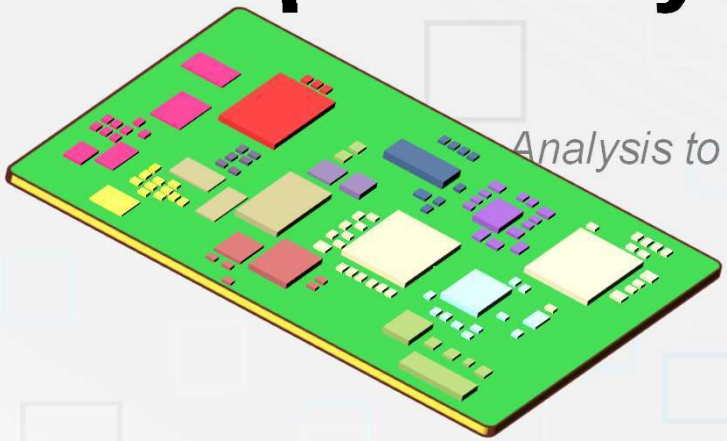
Allegro X AI™ and Optimality™ Vision



Analysis to In-Design Optimization

Continuous improvement
to placement & routing

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Allegro X AI™ and Optimality™ Vision

From In-Design Analysis to In-Design Optimization

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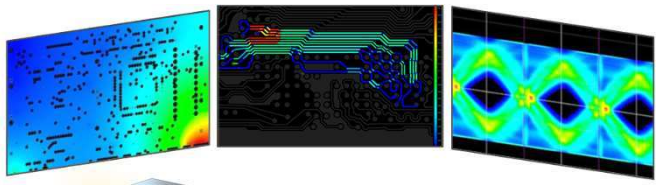
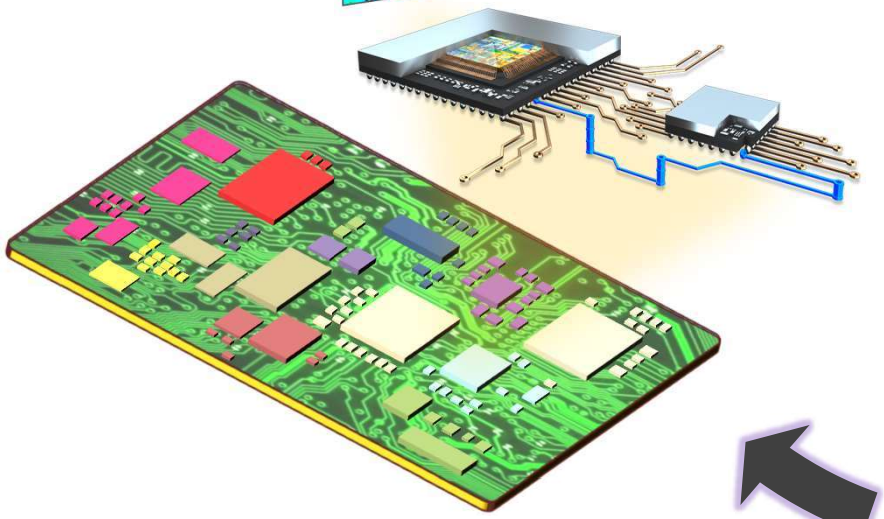
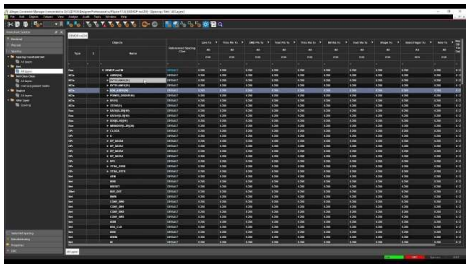
Tighter integration with analysis - IDA





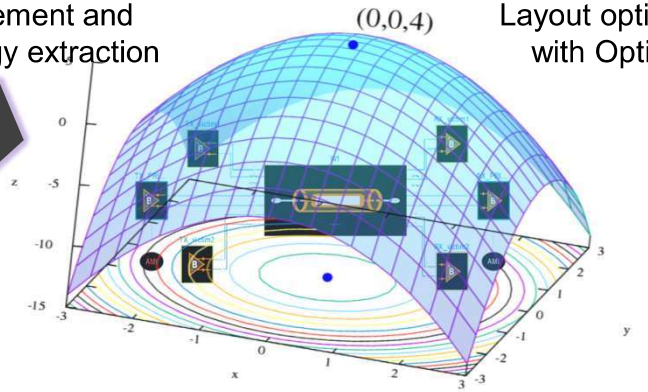
Continuous improvement to placement & routing

Feed constraints back into Allegro X AI



Auto generation of constraints

Placement and topology extraction



Layout optimization with Optimality

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OrCAD X & Allegro X

Next Generation PCB Implementation Platform

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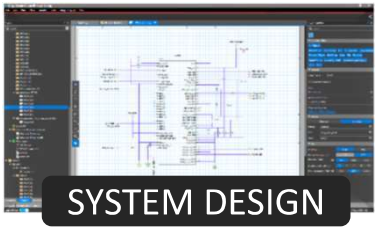

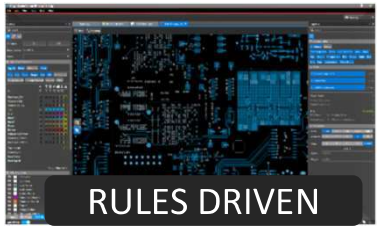

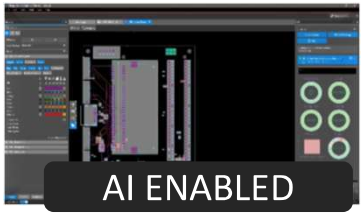

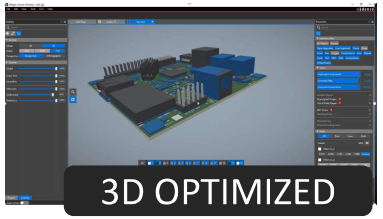

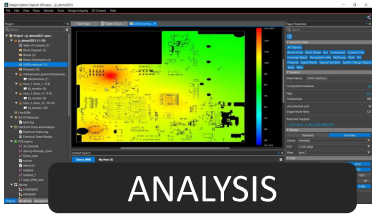

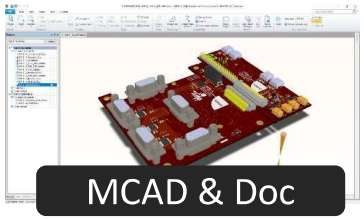

PERFORMANCE
- 10x Faster Shapes
- GPU & Parallelization Accelerated

CAPACITY
- High-Capacity 3D Engine
- High-Capacity PCB Engine

CONNECTIVITY
- Supply Chain Intelligence Built In
- DFM & Simulation Aware Design
- MCAD Integration

PRODUCTIVITY
- Next Gen UI/UX for Schematic & Layout
- AI Enabled Generative PCB Design
- Shift-Left Enabled