cadence®

Cadence PCB Design Solutions

Industry-leading PCB design solutions

Unlike other PCB design solutions, Cadence® OrCAD® and Allegro® PCB design suites can grow with future design needs and technology challenges. They provide a feature-rich, fully scalable solution that can be expanded and upgraded as the level of design sophistication grows.

Feature	OrCAD PCB Designer Standard	OrCAD PCB Designer Professional	Allegro PCB Designer	Allegro PCB Venture
Unlimited Database and Layers	✓	✓	✓	✓
Crossprobing and Cross Placement with schematic	✓	✓	✓	✓
Real-Time Design Sync between Schematic and PCB	✓	✓	✓	✓
Real-Time access to millions of schematic symbols, PCB footprints and 3D models	✓	✓	✓	✓
Padstack and Footprint Editor	✓	✓	✓	✓
SKILL (programming language, Runtime, Macro and Scripting Support)	✓	✓	✓	✓
Snap Functions (precise drafting of lines/shapes)	✓	✓	✓	✓
Multiple UNDO/REDO	✓	✓	✓	✓
Place by room/by schematic page	✓	✓	✓	✓
Floorplanning, Quick Place	✓	✓	✓	✓
Automatic Silkscreen Generation	✓	✓	✓	✓
Cross Section Support and Editor	✓	✓	✓	✓
Splitplane Support	✓	✓	✓	✓
Dynamic Shapes with Real-Time Plowing and Healing	✓	✓	✓	✓
Dynamic pad suppression/unused pad removal	✓	✓	✓	✓
2D Drafting and Dimensioning	✓	✓	✓	✓
Gerber 274X, 274D Artwork Output Generation	✓	✓	✓	✓
Customizable, Automated Drill Legend/ NC Output	✓	✓	✓	✓
HTML-Based Reports	✓	✓	✓	✓
IPC-2581 Export	✓	✓	✓	✓
Intelligent PDF output from board design	✓	✓	✓	✓

Feature	OrCAD PCB Designer Standard	OrCAD PCB Designer Professional	Allegro PCB Designer	Allegro PCB Venture
Translations: PADS, P-CAD, Altium, Eagle	✓	✓	✓	✓
Route Nets by pick	✓	✓	✓	✓
Differential Pair Routing	✓	✓	✓	✓
Interactive Routing with Hug, Push and Shove	✓	✓	✓	✓
Scribble Route	✓	✓	✓	✓
Snake Routing (Hex Pitch BGA)	✓	✓	✓	✓
Multi-line Routing	✓	✓	✓	✓
Fanout Generators	✓	✓	✓	✓
Stacked Via Edit and Move	✓	✓	✓	✓
Blind and Buried Via Support	✓	✓	✓	✓
Physical and Spacing Rules	✓	✓	✓	✓
Same-Net Rules	✓	✓	✓	✓
Class to Class Net Spacing Rules	✓	✓	✓	✓
Soldermask and Solderpaste checks	✓	✓	✓	✓
Via-in Pad Rules	✓	✓	✓	✓
Pad Entry/Exit Rules	✓	✓	✓	✓
Differential Pair Rules (Static Phase, Uncoupled Length, Dynamic Phase, Coupling Parameters)	✓	✓	✓	✓
Real-time Active DRC Checks	✓	✓	✓	✓
Same-Net Clearance DRC Support	✓	✓	✓	✓
PCB Design True DFM Wizard (auto-generated manufacturing rules)	✓	✓	✓	✓
Design for Fabrication (DFF) Checks (exposed copper, slivers, annular ring)	✓	✓	✓	✓
Acute Angle Detection	✓	✓	✓	✓
DFM Partner Portal Access for integrated specifications directly from your manufacturer	✓	✓	✓	✓
Design for Testing (DFT) Checks (minimum pad size, spacing)	✓	✓	✓	✓
Testpoint under component checks	✓	✓	✓	✓
DFT: Manual Test Prep (test point generation and reuse)	✓	✓	✓	✓
Design for Assembly (DFA) Checks (pastemask, spacing)	✓	✓	✓	✓
Embed Assembly Notes and IPC-2581 Specs within PCB	✓	✓	✓	✓
Variant Assembly Drawing	✓	✓	✓	✓
3D Visualization	✓	✓	✓	✓
Component Height Checks and Collision Detection	✓	✓	✓	✓
MCAD/ECAD Incremental Design Data Exchange (EDMD)	✓	✓	✓	✓
X, Y and Z axis Cutting Planes	✓	✓	✓	✓
3D Bending Capabilities (FLEX)	✓	✓	✓	✓
Interactive 2D/3D crossprobing and cross placement	✓	✓	✓	✓
Mechanical CAD Interface (IDF 3.0, IDX, DXF, STEP)	✓	✓	✓	✓
Transient, DC, AC, Bias Point PSpice Analysis	✓	✓	✓	✓
PSpice Modeling Applications	✓	✓	✓	✓

Feature	OrCAD PCB Designer Standard	OrCAD PCB Designer Professional	Allegro PCB Designer	Allegro PCB Venture
PSpice Simulation up to 250 nodes	✓	✓	✓	✓
Digital Devices Library	✓	✓	✓	✓
Basic Analog Device Library (MOSFETS, Opamps, BJTs, and Diodes)	✓	✓	✓	✓
Waveform Analysis (excludes Performance)	✓	✓	✓	✓
Pre-Layout SI Analysis	✓	✓	✓	✓
Graphical Topology definition and exploration	✓	✓	✓	✓
IBIS Model Support	✓	✓	✓	✓
Extended Net (XNET) Creation	✓	✓	✓	✓
Extended Net (XNET) Rules	✓	✓	✓	✓
Placement Replication		✓	✓	✓
Real-Time Electrically Aware Placement Vision to Optimize PCB Layout		✓	✓	✓
Real-Time Visual Optimization of traces: parallel gap less than preferred, uncoupled diff pair segments, non-optimized segments		✓	✓	✓
Real-Time Visual Identification of common trace issues: non-ideal pad entry, 90 degree corners, minimum miter/corner size		✓	✓	✓
Real-Time Visual Identification for Arced trace issues: Minimum Arc Radius, Non Arc Corners, Min segment/arc length		✓	✓	✓
Multi-Cross Section Support (FLEX)		✓	✓	✓
Dynamic Zone Placement (FLEX)		✓	✓	✓
Dynamic Cross Hatch and Solid Planes (FLEX)		✓	✓	✓
Zone Table Chart (FLEX)		✓	✓	✓
Autorouting, 6 Layer		✓	✓	✓
Real-Time Impedance Analysis		✓	✓	✓
Real-Time Coupling Analysis		✓	✓	✓
Interactive Delay Tuning		✓	✓	✓
Dynamic Heads-up Display for Real-Time Constraint driven Routing		✓	✓	✓
Group Route Via Pattern		✓	✓	✓
Via Array/Shielding		✓	✓	✓
Placement Density Analysis		✓	✓	✓
Hug Contour Routing (FLEX)		✓	✓	✓
Electrical Rules (Impedance, Wiring, Total Etch Length)		✓	✓	✓
Layer Set Rules		✓	✓	✓
Matched Group Rules		✓	✓	✓
Propagation Delay Rules (Min/Max, Relative)		✓	✓	✓
Region-Based Rules (FLEX, BGAs)		✓	✓	✓
Inter-Layer DRC Checks (FLEX)		✓	✓	✓
Constraint Adherence Feedback (Red, Green, Yellow)		✓	✓	✓

Feature	OrCAD PCB Designer Standard	OrCAD PCB Designer Professional	Allegro PCB Designer	Allegro PCB Venture
Pin Delay Inclusion (propagation delay and differential pair phase checks)		✓	✓	✓
Z-Axis Delay Support (propagation delay and differential pair phase checks)		✓	✓	✓
Dynamic Differential Pair Phase Control Rules		✓	✓	✓
PCB Panelization		✓	✓	✓
Line Fattening and Trace Filleting		✓	✓	✓
Backdrilling		✓	✓	✓
Dynamic Shaped-Based Fillet Support		✓	✓	✓
DFT: Automatic Test Prep		✓	✓	✓
Test Point Rules		✓	✓	✓
Pin Pair Rules for Highspeed and XNets		✓	✓	✓
Package Pin Delay (for die-to-die rules)		✓	✓	✓
Post-Layout SI Analysis		✓	✓	✓
Net extraction from PCB Editor		✓	✓	✓
Schematic-Based Module Reuse			✓	✓
Design Planning: Create and Assign Flow Bundles			✓	✓
Enhanced Curve Routing			✓	✓
Spread Lines Between Anti-Pads			✓	✓
High-Speed, Rules Based Autorouting			✓	✓
Differential Pair Autorouting, Automatic Net Shielding			✓	✓
Min/Max, matched length rules based autorouting			✓	✓
Pin-Pair rules, Area rules based autorouting			✓	✓
Crosstalk controls, parallelism rules based autorouting			✓	✓
Estimated Crosstalk Rules			✓	✓
Max Via Count Rules			✓	✓
Relative Propagation Delay Rules (ECS Sets)			✓	✓
Dynamic DFA Rules Based Interactive Placement			✓	✓
Offset Routing			✓	✓
Design Link (Multi-board constraints)			✓	✓
Dynamic Shapes and Tear Drops			✓	✓
Chip on Board			✓	✓
Additional DesignTrue DFF Checks (exposed etch, fiducials, aspect ratio, vias, thermal etc.)				✓
Additional DesignTrue DFT Checks (missing probe type, testpoint on large pin hole)				✓
Additional DesignTrue DFA Checks (high pin count component to edge, tall component to edge, component leads)				✓

Feature	OrCAD PCB Designer Standard	OrCAD PCB Designer Professional	Allegro PCB Designer	Allegro PCB Venture
Advanced Constraints (Relational)			HIGH-SPEED OPTION	✓
Automatic Delay Tuning			HIGH-SPEED OPTION	✓
Automatic Phase Tuning			HIGH-SPEED OPTION	✓
Fiberweave routing			HIGH-SPEED OPTION	✓
Tabbed Routing			HIGH-SPEED OPTION	✓
Differential Pair Return Path Vias			HIGH-SPEED OPTION	✓
Return Path Via Templates			HIGH-SPEED OPTION	✓
Electrical Constraint Rule Set/ Topology Apply			HIGH-SPEED OPTION	✓
Advanced Electrical Rules (Reflection, Timing, Crosstalk)			HIGH-SPEED OPTION	✓
Constraint Compiler			HIGH-SPEED OPTION	✓
Constraint Formulas			HIGH-SPEED OPTION	✓
High-Speed Return Path DRC			HIGH-SPEED OPTION	✓
High-Speed Via Structures			HIGH-SPEED OPTION	✓
256 Layer Autorouting			ROUTING OPTION	✓
DFM Rules-based autorouting			ROUTING OPTION	✓
Automatic Trace Spreading			ROUTING OPTION	✓
Layer-specific rules-based autorouting			ROUTING OPTION	✓
Automatic Test Point Generation			ROUTING OPTION	✓
HDI Microvia (spacing and stacking) rules			MINIATURIZATION OPTION	✓
HDI Microvia Inset (via-in-pad) rules			MINIATURIZATION OPTION	✓
HDI Microvia stack editing			MINIATURIZATION OPTION	✓
Single click multiple microvia instantiation			MINIATURIZATION OPTION	✓
Embedded package components			MINIATURIZATION OPTION	✓
Support for cavities on inner layers			MINIATURIZATION OPTION	✓
Unused Micro-Via Removal			MINIATURIZATION OPTION	✓
Plan Spatial Feasibility analysis and feedback			DESIGN PLANNING OPTION	✓
Generate Topological Plan			DESIGN PLANNING OPTION	✓
Auto-interactive Breakout technology (BGAs)			DESIGN PLANNING OPTION	✓
Convert Topological plan to traces			DESIGN PLANNING OPTION	✓
Auto-interactive adjust spacing			DESIGN PLANNING OPTION	✓

Feature	OrCAD PCB Designer Standard	OrCAD PCB Designer Professional	Allegro PCB Designer	Allegro PCB Venture
Concurrent real-time Team design access to common database			SYMPHONY	SYMPHONY
Multiple users designing and editing in a shared canvas			SYMPHONY	SYMPHONY
Easy setup with Ad-hoc mode, enabling shared environment from any design			SYMPHONY	SYMPHONY
Network Setup to manage design centrally without user intervention			SYMPHONY	SYMPHONY
Objects locked ONLY during editing (color coded)			SYMPHONY	SYMPHONY
Real-Time Analysis in shared environment			SYMPHONY	SYMPHONY
Embedded communication			SYMPHONY	SYMPHONY
Asymmetrical Clearances			ANALOG/RF OPTION	ANALOG/RF OPTION
RF Etch element editing			ANALOG/RF OPTION	ANALOG/RF OPTION
Bidirectional interface with Agilent ADS			ANALOG/RF OPTION	ANALOG/RF OPTION
Layout-Driven RF Design Creation			ANALOG/RF OPTION	ANALOG/RF OPTION
Flexible Shape Editor			ANALOG/RF OPTION	ANALOG/RF OPTION
Via Array placement on traces and shapes			ANALOG/RF OPTION	ANALOG/RF OPTION

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