# CADENCE OrCAD PCB DESIGNER – 16.5 RELEASE

Cadence® OrCAD® PCB Designer suites combine industry-leading, production-proven, and highly scalable PCB design applications. They include OrCAD Capture for schematic design, various librarian tools, OrCAD PCB Editor for place and route, PSpice® A/D for circuit simulation, OrCAD PCB SI for signal integrity analysis, and SPECCTRA® for OrCAD for automatic routing. Easy to use and intuitive, these tools represent exceptional value and future-proof scalability to the Cadence Allegro® system interconnect design platform for complex PCB and IC Packaging designs to grow with future design demands.

## SCALABILITY

Unlike other PCB design solutions, OrCAD 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 PCB challenges and the level of design sophistication grows. OrCAD PCB design suites reflect the Cadence commitment to and investment in powerful, easy-to-use PCB design technology. Technology is shared across the OrCAD and Allegro product lines, so the design suites can easily be upgraded from the OrCAD line to the Allegro platform. This migration is done without the need to translate databases or libraries, learn new applications, or change use models.

### PCB Editor Place & Route Feature Summary

| | OrCAD PCB Designer Standard | OrCAD PCB Designer Professional | OrCAD PCB Designer Professional /w PSpice |
|---|---|---|---|
| Unlimited Database | x | x | x |
| Netlist / Crossplace / Crossprobe | x | x | x |
| Padstack & Footprint Editor | x | x | x |
| 3D Visualization / Flipboard | x | x | x |
| Customizable, Automated Drill Legend / NC Output | x | x | x |
| Via-in-Pad Rules, Blind / Buried Via Support | x | x | x |
| Autoplacement / Quickplace / Floorplanner | x | x | x |
| Dynamic Shapes with Real-Time Plowing & Healing | x | x | x |
| 2-D Drafting and Associative Dimensioning | x | x | x |
| Multiple UNDO / REDO | x | x | x |
| Gerber 274X, 274D Artwork Output Generation | x | x | x |
| Valor® ODB++, ODB++(X) & Universal Viewer | x | x | x |
| HTML-based Reports | x | x | x |
| DFM DRCs (exposed copper, slivers, pastemask, etc.) | x | x | x |
| Interactive Etch Editing (push-n-shove of traces) | x | x | x |
| Automatic Silkscreen Generation | x | x | x |
| Split Plane Support | x | x | x |
| SKILL (programming language) Runtime, Macro, & Scripting Support | x | x | x |
| Variant Assembly Drawing / Bill-of Material Creation | x | x | x |
| PCB / CAD Interfaces - DXF, IDF, IFF Import, PADS®, P-CAD® | x | x | x |
| Manual Testprep (testpoint generation & reuse) | x | x | x |
| Snap Functions (precise drafting of lines /shapes) | x | x | x |
| SameNet Clearance DRC Support | x | x | x |
| Stacked Via Edit, Move | x | x | x |
| Single-sided Design Jumper Support | x | x | x |
| Differential Pair Routing and Rules Support | | x | x |
| Placement / Circuit Replication | | x | x |
| Component Alignment Functions | | x | x |
| Blind / Buried Microvia Stacking, Split, & Merge Support | | x | x |
| Interactive Delay Tuning (single and differential signals) | | x | x |
| Automatic TestPrep (testpoint generation & reuse) | | x | x |
| Constraint Regions / Differential Pair Region Constraints | | x | x |
| Min / Max Length Rules Support | | x | x |

### PCB Router Autorouting Feature Summary

| | OrCAD PCB Designer Standard | OrCAD PCB Designer Professional | OrCAD PCB Designer Professional w/ PSpice |
|---|---|---|---|
| 6 Signal Layer Limit | | x | x |
| 256 Signal Layer Limit | | Auto/Interactive option | Auto/Interactive option |
| Shape-based or Gridded Autorouting | | x | x |
| SMD Fanout | | x | x |
| Trace Width by Net and Net Classes | | x | x |
| 45-degree / Memory Pattern Routing | | x | x |
| Interactive Routing with Shoving and Plowing | | x | x |
| Interactive Floorplanning | | x | x |
| Online Design Rule Checking | | x | x |
| Flip, Rotate, Align, Push, and Move Components | | x | x |
| Placement Density Analysis | | x | x |

## Constraint Manager Feature Summary

| | OrCAD PCB Designer Standard | OrCAD PCB Designer Professional | OrCAD PCB Designer Professional w/ PSpice |
|---|---|---|---|
| Physical Rules | x | x | x |
| Spacing Rules | x | x | x |
| SameNet Rules | x | x | x |
| Properties & DRC | x | x | x |
| Differential Pair Rules | | x | x |
| Region Rules | | x | x |

## Capture Front-end / Data Management Feature Summary

| | OrCAD PCB Designer Standard | OrCAD PCB Designer Professional | OrCAD PCB Designer Professional w/ PSpice |
|---|---|---|---|
| Graphical, flat, and hierarchical page editor | x | x | x |
| Tcl scripting support | x | x | x |
| Online design rule check | x | x | x |
| Forward- and back-annotation of properties / pin-and-gate swaps | x | x | x |
| Graphical schematic part and library editor | x | x | x |
| Cross-probing and cross-placing OrCAD PCB Editor | x | x | x |
| FPGA design-in / pin import & export | x | x | x |
| Multiple PCB netlist interfaces | x | x | x |
| Property editor for pins, components, nets | x | x | x |
| Component Information Management system | CIS option | CIS option | CIS option |
| ODBC-compliant component database | CIS option | CIS option | CIS option |
| Interface to relational database and management systems | CIS option | CIS option | CIS option |
| Centralized part number and information management system | CIS option | CIS option | CIS option |
| Database query for part selection and parametric properties | CIS option | CIS option | CIS option |
| Assembly variations on a fabricated PCB | CIS option | CIS option | CIS option |
| Part substitutions and part "not present" definable per variation | CIS option | CIS option | CIS option |

## PCB SI Signal Integrity Feature Summary

| | OrCAD PCB Designer Standard | OrCAD PCB Designer Professional | OrCAD PCB Designer Professional w/ PSpice |
|---|---|---|---|
| Pre- & Post-route signal integrity analysis | | x | x |
| Graphical topology definition and exploration | | x | x |
| Interactive waveform viewer | | x | x |
| Macro modeling support (DML) | | x | x |
| IBIS 5.0 support | | x | x |
| IBIS ICM model support | | x | x |
| Spectre-to-DML | | x | x |
| HSPICE-to-IBIS | | x | x |
| Lossy transmission lines | | x | x |
| Coupled (3 net) simulation | | x | x |
| Differential pair exploration and simulation | | x | x |

## PSpice Circuit Simulation Feature Summary

| | OrCAD PCB Designer Standard | OrCAD PCB Designer Professional | OrCAD PCB Designer Professional w/ PSpice |
|---|---|---|---|
| DC sweep, AC sweep, & transient analysis | PSpice A/D | PSpice A/D | x |
| Analog behavioral modeling | PSpice A/D | PSpice A/D | x |
| Stimulus editor | PSpice A/D | PSpice A/D | x |
| Model Editor for device characterization | PSpice A/D | PSpice A/D | x |
| Interactive waveform viewer & analyzer | PSpice A/D | PSpice A/D | x |
| Sensitivity: Identifies critical circuit components | Advanced Analysis | Advanced Analysis | Advanced Analysis |
| Optimizer: Optimizes key circuit components | Advanced Analysis | Advanced Analysis | Advanced Analysis |
| Monte Carlo: Analyzes statistical circuit behavior and yield | Advanced Analysis | Advanced Analysis | Advanced Analysis |
| Smoke: Detects component stress | Advanced Analysis | Advanced Analysis | Advanced Analysis |
| Parametric Plotter: Solution exploration through nested sweeps | Advanced Analysis | Advanced Analysis | Advanced Analysis |
| Mathlab-Simulink Co-Simulation w/ PSpice | PSpice A/D + SLPS | PSpice A/D + SLPS | SLPS option |

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