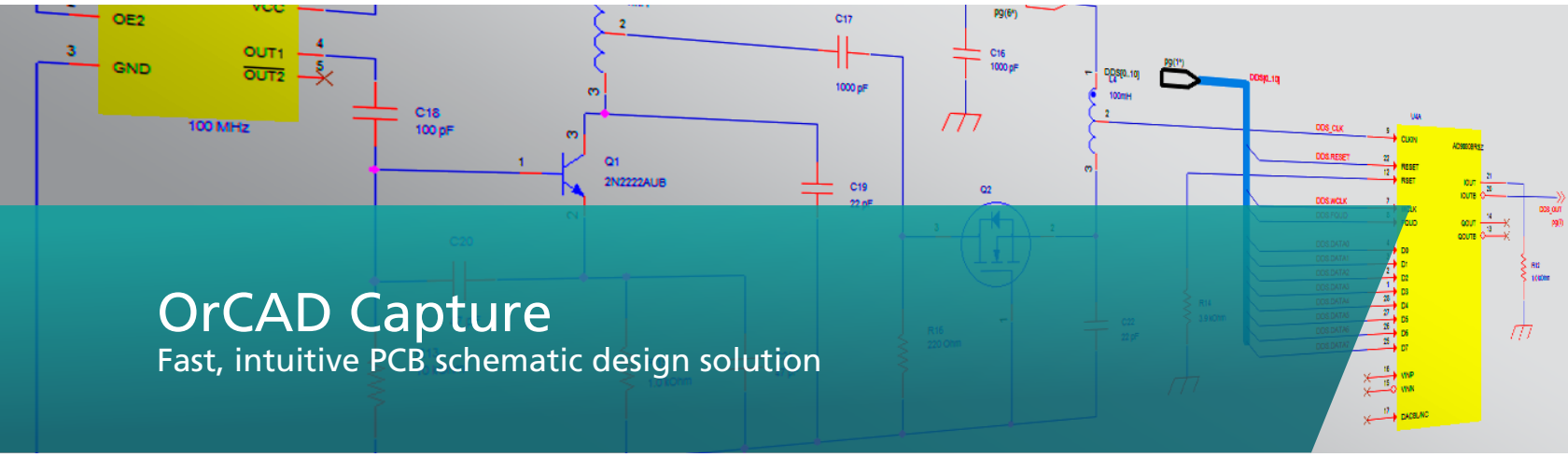
OrCAD™
CADENCE PCB SOLUTIONS



OrCAD Capture

Fast, intuitive PCB schematic design solution

OrCAD® Capture is one of the most widely used schematic design solutions for the creation and documentation of electrical circuits. Fast, easy, and intuitive circuit capture, along with highly integrated flows supporting the engineering process, make OrCAD Capture one of the most popular design environments for today's product creation.

Overview

Your design of today's electronic products involves more than simply capturing connectivity, building parts, netlisting to PCB… and hoping for the best. Component information, variant design and circuit reuse, hierarchal schematics, circuit and signal integrity simulation, and integration into corporate data systems all play a significant role in reducing your development time and project cost, improving product reliability and manufacturability, and helping you achieve first-pass success.

Whether you're designing a new analog circuit, revising digital schematics for an existing PCB, or implementing hierarchical block design, the OrCAD Capture solution and integrated flows provide everything you need for circuit design, analog/mixed-signal simulation, component optimization and selection, and signal integrity planning.

OrCAD Capture provides core schematic editing capabilities, but does not stop there. It is highly integrated with OrCAD PCB Editor for physical PCB design, OrCAD PSpice® for analog/mixed-signal circuit simulation, OrCAD PCB SI for signal integrity analysis and planning, and OrCAD CIS (Component Information System) for component optimization, selection, and variant design, greatly extending the schematic design process.

Highlights

- Extensive schematic entry capabilities and productivity features ensure easy, fast, intuitive design capture
- Hierarchical, reuse, and variant design capabilities streamline the creation of complex designs
- OrCAD CIS accelerates the design process and lowers project costs by promoting preferred parts and optimizing part selection
- Integrated signal integrity, analog/mixed-signal design, and simulation support enable circuit exploration, constraint development, and verification to help achieve first-pass success
- Bi-directional integration with the OrCAD PCB SI and the OrCAD PCB design products
- CAD vendor netlist interfaces for most PCB packages extends OrCAD Capture into multi-vendor flows

Schematic Entry Features

Schematic editor

The OrCAD Capture schematic editor builds on the legacy of OrCAD providing fast and easy schematic editing for the simplest to the most complex designs. It combines an intuitive interface with all the features and functionality you need to speed through design tasks and circuit creation.

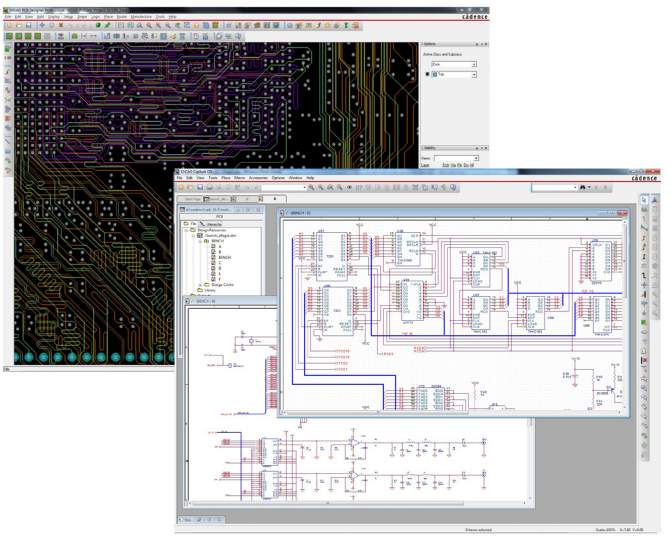


Figure 1: OrCAD Capture Editor

Productivity and ease of use

The schematic editor provides numerous features and functionality that enhance usability and speed for accomplishing design tasks and publishing design data. For example, the autowire capability automates the often tedious and time-consuming task of wiring signal pins by quickly and automatically adding connection wires for you. Context-sensitive menus, OLE support, custom colorization of wires, nets, and parts, and a tabbed and dockable interface all provide a better user experience.

For larger, more complex designs, OrCAD Capture supports circuit reuse and hierarchical circuit blocks. Such designs are easy to traverse with navigation aids and OrCAD Capture ensures that all connections are maintained accurately throughout the design.

Intelligent PDF

The Intelligent PDF export in OrCAD Capture enables you to create content-aware PDFs of your schematic design. More than just a .pdf file with searchable text, the content-aware PDF retains intelligent design information, allowing you to query signals, display properties, navigate hierarchical blocks, and more. These PDFs eliminate the need for other team members to have additional software licenses or specialized viewers for design reviews, increasing the ease of collaboration and communication.

Design reuse

The reuse of existing logical (and physical) circuits that you have already tested and proven is one of the best ways to reduce your design time and maximize quality. Having already been placed, routed, and validated on a previous design, the effort you put into the original design is leveraged through OrCAD Capture's design reuse capabilities. Typical reuse examples include power supply modules, RF circuit designs, multi-channel circuits (I/O, drivers, etc.), and memory.

FPGA design-in

If your designs call for FPGA devices, OrCAD Capture supports an FPGA co-design flow with OrCAD FPGA System Planner and extensive design-in capabilities. FPGA component data can be quickly be imported to create single- and multi-section symbols based on the device I/O pin files. Support for split parts, power pin visibility, pin shape, and pin group management provide flexibility to tailor symbol creation to your design's needs.

Schematic Design Solutions and Flows

Component information system

OrCAD CIS is a central part of the OrCAD Capture design solution. When added to OrCAD Capture, it automatically synchronizes and validates the externally sourced parametric component data with the schematic design database. CIS works with databases that comply with Microsoft's ODBC standard to directly access data in an MRP, ERP, or PLM system, or in an intermediate database dedicated to engineering component data.

With easy access to parametric component data and part information, you can quickly identify and design with preferred components, reducing the amount of time spent researching parts. Parts can be queried based on their electrical, physical, or corporate characteristics and automatically retrieved for use in your schematic.

FPGA co-design

OrCAD Capture, together with the OrCAD FPGA System Planner product, addresses the challenges you encounter when designing large-pin-count FPGAs for the PCB: creating the initial pin assignment, integration with the schematic, and ensuring that the device is routable on your PCB. Together, they deliver a complete, scalable solution for FPGA/PCB design-in and co-design that automates creation of optimum "device rules-accurate" pin assignment, symbol creation, and flow. By replacing manual, error-prone processes with automatic pin-assignment synthesis, this unique placement-aware solution helps eliminate unnecessary physical design iterations that shorten design time.

Design variants

With the design variants capability, included in OrCAD CIS, you can manage unlimited board assembly variations without having to maintain duplicate schematics or manually edit individual BOMs. This capability reduces the number of files by maintaining all design assembly variations within a single design and outputs. On the schematic canvas, substituted and/or unplaced components within each assembly are displayed through graphical indicators for easy reference.

PSpice simulation

The OrCAD PSpice analog/mixed-signal circuit simulator solution is seamlessly integrated within OrCAD Capture to boost productivity and allow you to use the same schematic for both simulation exploration and PCB layout, reducing rework and

errors. Even if you're not creating a circuit for use in the PCB flow, the integration allows for easy setup, model placement, circuit creation, and simulation, as well as cross-probing of simulation results.

Signal integrity

Tightly integrated to provide a bi-directional schematic entry and signal integrity flow, OrCAD Capture and the OrCAD PCB SI product allow you to perform circuit topology exploration, constraint development, and signal integrity analysis from the schematic during design entry. The associated Electrical Constraint set (Electrical CSet) as well as the complete topology file is embedded in the schematic database.

PCB Design

Seamless bi-directional integration with OrCAD PCB Editor in the OrCAD PCB Designer products enables synchronization and cross-probing/placing between the schematic and the board. The interface makes synchronizing connectivity and design rules easy and straightforward, and automates back-annotation of engineering change orders (ECOs) including layout changes, gate/pin swaps, and changes to component names or values.

Open Architecture Platform

Enabling an extensible and customizable design environment, the OrCAD open architecture platform incorporates a highly integrated Tcl/HTML5 programming infrastructure that allows the creation or enhancement of features, functionality, design capabilities, and flows. The Tcl programming interface provides programming access to the user interface, command structure, connectivity objects, and design database. Custom features that do not exist natively can be created, further enhancing and extending the OrCAD environment.

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