

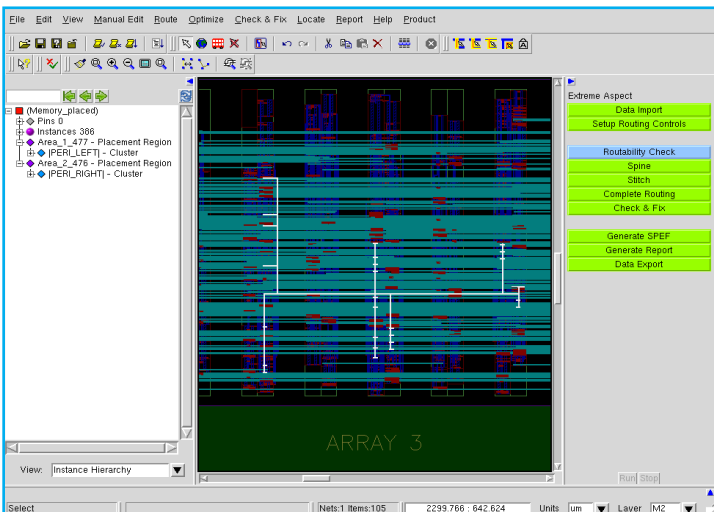
Unity™ Custom Digital Router

HANDCRAFTED-QUALITY AUTOMATED ROUTING FOR CUSTOM DIGITAL DESIGNS

In the past few years, the size and complexity of custom digital designs has grown exponentially. Custom designers want to improve their productivity as they route these complex designs, but cannot afford to compromise on quality. Traditional custom digital routers don't provide the quality of result that leading-edge custom design teams require. Unity Custom Digital Router from Pulsic gives custom designers a unique combination of patented routing technologies that enable a handcrafted, precise result to be achieved automatically.

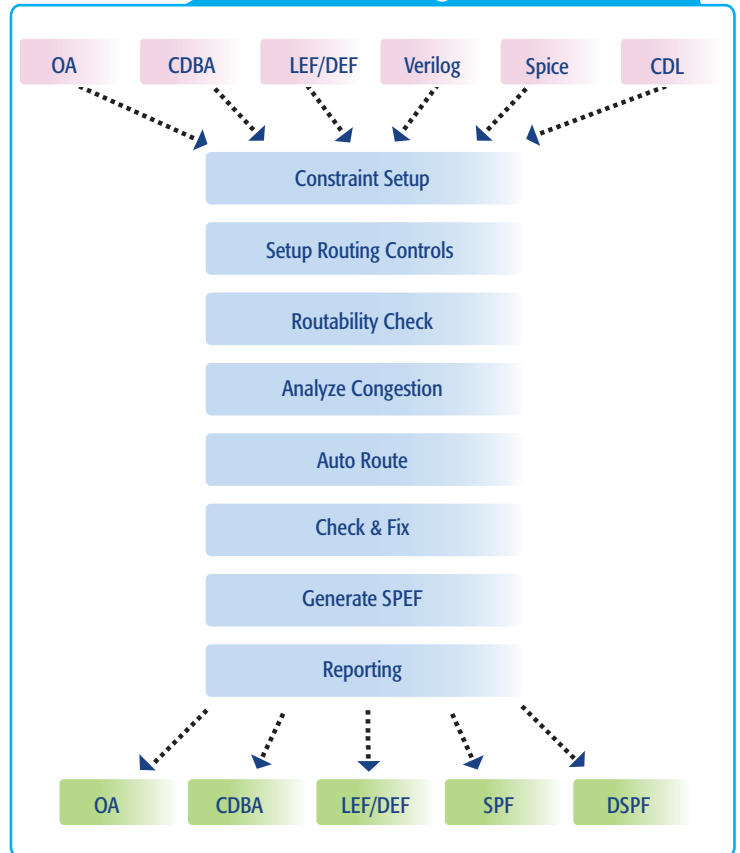
OLD SOLUTIONS CAUSE MORE PROBLEMS

Routing a leading-edge custom digital design has become a problem that is simply too large and too complex for manual routing approaches to be practical. Additionally, today's leading custom process technologies have increasingly complex rules and constraints, and include more unusual design shapes including extreme aspect ratios. Advanced custom designs have complex floorplans and require specific and precise routing topologies. Traditional approaches to automating custom digital routing often fail to produce a useable result under these conditions. Many design teams have found that they spend as much or more time correcting automated results than they would have expended routing the complete design manually.



The Unity Custom Digital Router with extreme aspect ratio guided flow

Custom Digital Router Flow



UNITY CUSTOM DIGITAL ROUTER: A SOLUTION THAT SOLVES THE PROBLEM

Unity Custom Digital Router offers custom digital design teams a real solution: a unique combination of patented routing technologies that enable a precise, handcrafted-quality result to be achieved automatically. An advanced shape-based model is the foundation for Unity Custom Digital Router, and enables the seamlessly integrated suite of routing technologies to achieve optimal results. The Unity Custom Digital Router has been designed to work with the latest complex process rules, and can handle extreme aspect ratios, minimal routing layers, and advanced floorplans. A comprehensive array of user-controlled routing constraints enables designers to obtain the precise results they require with automated speed.

HANDCRAFTED QUALITY WITH AUTOMATED SPEED

Custom digital designs require precision routing results for a number of reasons: signal performance, signal integrity, limited design area, restricted routing layers, extreme aspect ratios, and circuit reliability. Pulsic has worked with cutting-edge design teams for more than a decade to address these challenges using its shape-based routing technology. Over this period, Pulsic has developed a broad range of integrated, mature, industry-tested custom-routing technologies that work in unison to produce the quality of routing result demanded by leading design teams.

Unity Custom Digital Router is the only complete solution for precision routing of custom digital designs. It comprises a tightly integrated suite of shape-based routing technologies, including a maze-routing engine, a spine-and-stitch routing engine, a route-pattern optimization engine, a global routing engine, design rule check-and-fix technologies, and extensive constraint management. This unique product encompasses hundreds of specialized utilities that work together simply and seamlessly on the same shape-based data model.

More traditional approaches to automating routing for custom digital designs fail to deliver the handcrafted quality needed for today's advanced designs. Simple maze-routing algorithms alone are not sufficient and provide poor quality of results. Unity Custom Digital Router provides custom design teams with the sophisticated routing technology required to address their precision-routing challenges.

GUIDED FLOW FOR IMPROVED DESIGNER PRODUCTIVITY

The Unity Custom Digital Router includes step-by-step guided routing flows with a graphical user interface (GUI) showing each step and progress through the flow. Various flows are provided that are specific to commonly used routing methodologies. For example, the Extreme Aspect Ratio Routing Flow includes tasks normally undertaken to route the peripheral logic of a memory design, an LCD driver, or any design with a routing area with an extreme aspect ratio. The guided flow informs designers of their progress through the flow and the pre-requisites for each step. If the designer wants to leave the tool and return at a later time, the guided flow keeps track of the steps already completed. These guided flows can be customized by editing a template "Theme," or even by creating new sub-flows to a Theme.

The Unity Custom Digital Router also incorporates a powerful set of interactive and semi-automatic shape-based editing features, including an online design rule check (DRC) capability. This enables layout designers to complete manual routing operations error free and DRC-correct every time. Using the Push feature, designers can move wires during interactive routing, while maintaining the DRC-correctness of the layout. The Auto Finish capability enables designers to start routing manually, but then to allow the router to finish the route automatically if the optimal route is not easily visible due to congestion. Unlimited Undo/Redo features enable fast iterations of editing and routing.

BENEFITS

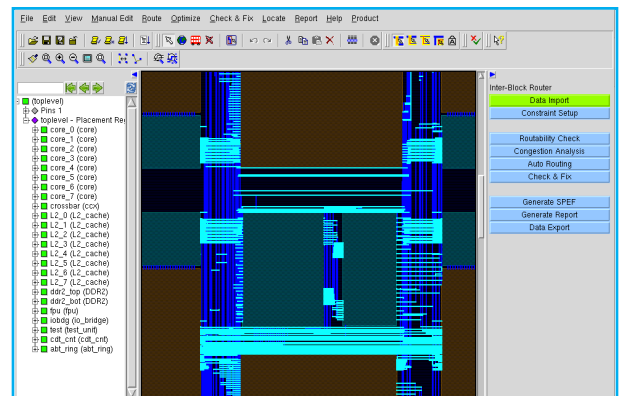
- Hand-crafted quality with automated speed
- Precise routing results
- Control over almost every aspect of the routing result
- Efficient use of available area, even for areas with extreme aspect ratios or highly congested areas
- Greater productivity through automation of routing functions
- Fast adoption and realization of benefits through guided flows

FEATURES

- Advanced process node design rule support, including width-based and parallel length-based spacing rules, via enclosures, stacked vias, min width, min step, dense line rules
- Inter-block routing flow
- Standard cell/custom digital routing flow
- Extreme aspect ratio routing flow:
 - Patented spine-and-stitch capability for optimal performance results
- Easy-to-use, intuitive guided flow and thematic GUI
- Extensive array of enhanced post-routing features for design for manufacturing (DFM), design for yield (DFY) and other process enhancements
- Utilities for completing metal density fill, auto abstraction, and extraction
- Extremely comprehensive rules and constraints system for user control of routing topologies, optimum widths and spacings, redundant vias, current density rules
- Full online DRC for all automatic and interactive routing tools
- Python API enables users to edit at the database level
- Interface to industry standard interfaces and library formats, including LEF/DEF, Open Access, DFII/CDBA, Verilog, SPICE

SPECIFICATIONS/SYSTEM REQUIREMENTS

- Linux: x86 and x86_64
- Solaris: Sparc 64 and x86_64



The Interblock routing flow is used to create the optimal routing pattern

for more information, please go to our website at www.pulsic.com or email us at sales@pulsic.com