

# UMC Adopts Synopsys IC Validator for Pattern Matching-Based Lithography Hot-Spot Verification at 28 nm

Successful Collaboration Simplifies Design Closure for Manufacturing, Helps Accelerate Time to Silicon

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## Highlights:

- UMC and Synopsys collaborate to address the challenge of design verification for manufacturability at advanced process nodes
- UMC adopts IC Validator pattern-matching technology to accelerate physical signoff at 28 nm
- Collaboration adds new benefits to In-Design physical verification with IC Compiler for UMC customers

Synopsys, Inc. (Nasdaq: SNPS), a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced that United Microelectronics Corporation (UMC) has selected Synopsys' IC Validator physical verification product for lithography hot-spot checking at the 28-nm process node. UMC standardized on IC Validator pattern matching, a patented technology enabling ultra-fast detection of manufacturing-limiting layouts, which can dramatically accelerate final design signoff. As part of Synopsys' Galaxy™ Implementation Platform, IC Validator is an ideal add-on to Synopsys' IC Compiler™ solution for In-Design physical verification, enabling place-and-route engineers to accelerate time to tapeout by preventing late-stage surprises and minimizing manual fixes. IC Validator pattern matching extends the In-Design flow with automatic repair of lithography violations, further optimizing design turnaround time.

"UMC is constantly implementing the latest design support resources to help our customers streamline their path to silicon success," said S.C. Chien, vice president of Advanced Technology Development division at UMC. "IC Validator's pattern-matching technology allows our customers to quickly screen for challenging layout features, eliminating the need for detailed process simulation. Furthermore, using IC Compiler and In-Design technology, this checking is available to IC designers earlier in the design process, helping to mitigate risk throughout the design cycle."

Achieving lithographic printability at 28 nm and below can impose significant restrictions on physical design, including large numbers of complex design rule checks (DRC) and compute-intensive detailed process model checking. IC Validator simplifies this task with innovative, patented pattern-matching technology, which augments traditional DRC with intuitive 2D multi-shape pattern-based analysis. Pattern matching enables foundry-quality accuracy and ultra-fast performance, helping to detect lithography hot-spots significantly faster and improve time-to-tapeout.

IC Validator pattern matching extends the benefits of In-Design physical verification with IC Compiler to eliminate late-stage surprises and manual fixes. With pattern matching, designers are now able to screen for lithography hotspots in a push-button manner, right within the implementation environment. Fast pattern-matching analysis utilizes the entire In-Design infrastructure, including intuitive error reporting, GDS merging, error categorization and more. Once detected, violations can be automatically repaired during routing, saving many hours in tedious and error-prone manual fixes. In-Design physical verification with pattern matching makes it possible for designers to reach and maintain a healthy design earlier, resulting in improved final layout quality and further eliminating accumulation of schedule risk.

"As complexity continues to grow, it is important that we handle manufacturability as part of design evolution; there is simply no room in tapeout schedules for post-design analysis and manual patching. Our collaboration with UMC on pattern matching is a significant step towards better integration between physical design and verification," said Antun Domic, senior vice president and general manager of Synopsys' Implementation Group. "This fully-qualified solution makes it possible for our mutual customers to gain improved visibility into foundry requirements and achieve early tapeouts."

## About Synopsys

Synopsys, Inc. (Nasdaq:SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, its software, IP and services help engineers address their design, verification, system and manufacturing challenges. Since 1986, engineers around the world have been using Synopsys technology to design and create billions of chips and systems. Learn more at [www.synopsys.com](http://www.synopsys.com).

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