# Synopsys ASIP Designer Tool Speeds Development of Application-Specific Instruction-Set Processors for STMicroelectronics

ASIP Designer Enables Rapid Architectural Exploration to Optimize Custom Processors for Power, Performance, and Area

**Disclaimer: GlobalFoundries acquired the Synopsys Processor Solutions business on June 1, 2026. Clickhere to learn more.**

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**Highlights:**

- Synopsys' ASIP Designer tool automates the design of application-specific instruction set processors (ASIPs) and programmable accelerators
- Unique "compiler-in-the-loop" feature enables use of application code to optimize ASIP architectures for performance, power, and area
- ASIPs replace fixed-function hardware accelerators for compute-intensive signal processing functions, increasing flexibility and reusability

Synopsys, Inc. (Nasdaq: SNPS) today announced that STMicroelectronics' Microcontroller and Digital IC Groups have chosen Synopsys' ASIP Designer Tool for its key product designs. ASIP Designer accelerates the design and programming of highly differentiated ASIPs and programmable accelerators for a broad range of applications including wireless base stations, mobile handsets, audio processing, image processing, and cloud computing.

"To meet our customer-specific requirements, we are developing specialized processors and programmable accelerators that are fully optimized for performance, power, area, and code size, while offering the required flexibility," said Thierry Brouste, manager, Embedded Computing Solutions, STMicroelectronics. "Using ASIP Designer as our tool of choice gives us a significant competitive advantage, because it enables us to quickly develop complex and highly differentiated application-specific processors, while maximizing our design team's efficiency through design automation and architecture exploration."

Synopsys' ASIP Designer allows ST to use a high-level specification of the processor to quickly model and analyze multiple processor architectures. Using this single input specification written in the nML processor description language, ASIP Designer automatically configures the software development kit (SDK) containing an instruction-set simulator (ISS), assembler, linker, debugger, and C/C++ compiler, and also generates the synthesizable RTL design. Immediate availability of the compiler enables C application code to be run on the automatically-generated ISS. This unique "compiler-in the-loop" approach, as well as the extensive profiling capabilities of the debugger, support rapid analysis and exploration of ASIP architectures and instruction sets to find the optimal power and performance design points for the target application.

"Leading companies such as STMicroelectronics have adopted ASIP Designer to speed the development of their custom processors for hundreds of products across a wide range of applications," said John Koeter, vice president of marketing for IP at Synopsys. "The ability to explore and optimize processor architectures for the best power, performance, and area enables designers to introduce more differentiated products to the market faster."

**Availability and Resources**

- The ASIP Designer tool is available now
- Learn more about Synopsys' ASIP design tools athttps://www.synopsys.com/ASIP

**About Synopsys**

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

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