Synopsys Enables STMicroelectronics to Achieve First-Silicon Success for 65-nm Dual High-Definition MPEG-4 Decoder

Comprehensive Implementation, System-Level and Verification Solutions Speed Time-to-Market for STi7200 Dual-Video-Stream Device

MOUNTAIN VIEW, Calif., March 27 /PRNewswire-FirstCall/ -- Synopsys, Inc. (NASDAQ: SNPS), a world leader in semiconductor design software, today announced that it has enabled STMicroelectronics to achieve first-silicon success for its new STi7200 dual-video-stream high-definition (HD) decoder, aiming to serve a broad range of digital consumer applications including set-top boxes, high-definition DVDs (dual-standard Blu-ray and HD-DVD) and digital TVs. Synopsys collaborated with STMicroelectronics on this highly integrated system-on-chip (SoC) throughout the flow and delivered a comprehensive solution including implementation, verification, intellectual property (IP) cores and services. At 25 million synthesized gates, the STi7200 is the first device of its kind manufactured using 65-nanometer (nm) technology and is a major step forward in providing full high-definition picture quality in a variety of affordable consumer devices.

"I am impressed by the strength of Synopsys' comprehensive technology portfolio and by the outstanding responsiveness and dedication of the Synopsys service and support organizations, who have truly become members of our design team," said Thierry Bauchon, R&D director, Home Entertainment & Displays Group, STMicroelectronics. "Synopsys helped us throughout the entire flow, and the combination of their technology leadership, high-quality IP and best-in-class service and support was instrumental in STMicroelectronics achieving first-silicon success for the STi7200 device."

At the system level, STMicroelectronics used the Synopsys coreAssembler™ SPIRIT-based IP assembly flow -- based on the SPIRIT Consortium's IP-XACT™ format -- to rapidly configure and assemble Synopsys DesignWare® IP cores -- including a PCI Express® Root Complex, USB 2.0 Host and SATA Host-and dozens of proprietary IP blocks, which had been pre-packaged with the help of Synopsys Professional Services consultants. STMicroelectronics achieved a 40 percent reduction in the time to perform top-level capture functions and integrate more than 40 pieces of IP and 30 custom register transfer level (RTL) blocks.

For functional verification, STMicroelectronics used the Synopsys VCS® verification solution with SystemVerilog native testbench and the VMM methodology, which enabled a 15X reduction in turnaround time over previous approaches for the validation of the on-chip bus after an RTL modification. STMicroelectronics also took advantage of the VCS solution's built-in support for SystemC simulation and debug of behavioral models.

At the implementation level, STMicroelectronics widely utilized the Synopsys Design Compiler synthesis solution, DFT MAX test compression and Formality® equivalence checking to manage the challenging size and aggressive performance targets of this highly complex decoder in a very short time. STMicroelectronics also utilized Synopsys' IC Compiler for placement and routing of one block of the STi7200, which accounted for almost one million synthesized instances in this device.

Synopsys' Hercules® Physical Verification Suite, Star-RCXT™ extraction and PrimeRail power network analysis solutions helped to significantly reduce turnaround time for assessing the power and ground network integrity by identifying and enabling the correction of a number of weaknesses without negatively impacting the tight tapeout schedule. This achievement is especially important given the complexity of the STi7200 chip.

"Synopsys has been attentively listening to STMicroelectronics' design community and broadening the scope of our ongoing collaboration to encompass the complete flow," said John Chilton, Synopsys senior vice president of Marketing and Business Development. "Having such a highly complex device achieve first-pass silicon success is a tremendous engineering achievement and further evidence of the value Synopsys' complete solution can provide our customers. Our unique combination of comprehensive implementation, verification and system-level solutions, proven IP cores and world-class services enables us to help our customers solve their toughest challenges and achieve predictable success."

About Synopsys

Synopsys, Inc. is a world leader in electronic design automation (EDA) software for semiconductor design. The company delivers technology-leading semiconductor design and verification platforms and IC manufacturing software products to the global electronics market, enabling the development and production of complex systems-on-chips (SoC's). Synopsys also provides intellectual property and design services to simplify the design process and accelerate time-to-market for its customers. Synopsys is headquartered in Mountain View, California, and has more than 60 offices located throughout North America, Europe, Japan and Asia. Visit Synopsys online at https://www.synopsys.com/ .

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