

Synopsys' Galaxy Design Platform Delivers Over 30% Leakage Power Reduction for Fujitsu Semiconductor's ARM-Powered Multi-Core

Power Savings Enabled by Unique Techniques and Design Flow Supported by Design Compiler Graphical, IC Compiler and PrimeTime Tools

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Highlights:

- MB86S70 processor designed with ARM® Mali™ -T624 GPUs, ARM Cortex® -A15 and Cortex-A7 processors utilizing ARM big.LITTLE™ processor configuration exceeds power-performance targets
- 60 million gate, 28-nm device implemented using hierarchical low power flow
- UPF enabled seamless use of advanced low power techniques

Synopsys, Inc. (Nasdaq: SNPS), a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced that Fujitsu Semiconductor Limited achieved over 30 percent reduction in leakage power consumption while maintaining industry-leading performance for its MB86S70 high performance application processor for imaging. Fujitsu Semiconductor's success in attaining the power-performance goal was enabled by the unique physical guidance flow and leakage-power recovery technologies built into Synopsys' Design Compiler® Graphical tool, IC Compiler™ place and route and PrimeTime® signoff tool. The 28-nanometer, 60 million-gate design uses four ARM Mali-T624 GPUs, two ARM Cortex-A15 CPUs and two Cortex-A7 CPUs in a big.LITTLE processing configuration. Fujitsu Semiconductor adopted the big.LITTLE approach to allow the combination of the Cortex-A15 and Cortex-A7 CPUs to deliver the best dynamic range of performance while maintaining the best for power-efficiency throughout.

"We set out with a very aggressive power-performance goal for this design," said Tom Miyake, corporate vice president and executive vice president of System LSI Company at Fujitsu Semiconductor. "We are pleased that we achieved the goals by the combination of our low power methodology and taking advantage of power-saving techniques and seamless UPF support in the Galaxy Design Platform."

"Fujitsu Semiconductor has achieved an impressive implementation for image processing using a big.LITTLE processor configuration to achieve both performance and efficiency in the same device," said Noel Hurley, general manager, CPU group, ARM. "Combining the inherent energy efficiency of ARM Cortex processors and ARM Mali GPUs with the advanced implementation tools, flow, and power-aware design from Synopsys delivers the power efficiency and leakage reduction that pioneering SoCs need."

Fujitsu Semiconductor deployed a UPF-based power intent methodology to enable advanced low power management techniques such as multiple voltage operation and selective shutdown of design blocks. The silicon-proven hierarchical design flow supported by the Galaxy™ Design Platform allowed the engineers to implement the large, multi-core design, efficiently.

"The specifications for Fujitsu Semiconductor's MB86S70 series are very demanding in terms of area, power, and performance," said Antun Domic, executive vice president and general manager of the Design Group at Synopsys. "We collaborated with Fujitsu Semiconductor to ensure the smooth deployment of the Galaxy Design Platform and utilization of its innovative techniques to exceed Fujitsu Semiconductor's stringent goals."

Noriyuki Ikuma, SoC Design Manager of System LSI Company at Fujitsu Semiconductor, will be sharing technical details about this low power tapeout success at ARM TechCon™ 2014. For more information, please visit the Synopsys booth #600 at ARM TechCon: <http://www.armtechcon.com>

About Synopsys

Synopsys, Inc. (Nasdaq:SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, Synopsys delivers software, IP and services to 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 <http://www.synopsys.com>.

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