Yokogawa Achieves 5X Faster Programmable Logic Controller Performance With Synopsys' Processor Designer

Processor Designer Tool Automates High Performance Custom Processor Development

Highlights:

- As part of Synopsys' System-Level Design portfolio, Processor Designer automates the design of custom processors giving IP block designers an easy-to-use, high performance alternative to creating fixed processing hardware or application-specific processors in-house.
- Processor Designer's profiling feature enabled Yokogawa to explore and optimize their processor to achieve ladder program processing performance that is 5X faster than previous versions.
- Using Processor Designer, Yokogawa saved significant development and verification time by automatically generating software development tools.
- Yokogawa started software design months before they completed processor development because Processor Designer automatically produced the required instruction set simulator.

MOUNTAIN VIEW, Calif., March 7, 2011 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS), a world leader in software and IP for semiconductor design, verification and manufacturing, today announced that Yokogawa Electric Corporation used Synopsys Processor Designer to achieve ultrafast ladder program processing performance for their latest FA-M3V programmable logic controller (PLC). Yokogawa also saved significant development and verification effort with Processor Designer since the tool automatically generates software development tools such as C-compiler, assembler/linker, debugger and the instruction set simulator (ISS) needed for early software development prior to processor availability.

"Our new PLC FA-M3V has achieved the fastest performance we've ever seen with our latest 'Vitesse Engine' core customized for ladder language program processing," said Hirofumi Okamoto, group leader of the PLC Development Division, Yokogawa Electric Corporation. "With Processor Designer, we were able to develop this ultra-high performance processor using significantly less time and effort than we originally planned."

Yokogawa achieved their improvements in performance and time savings by leveraging Processor Designer's profiling capability to explore and optimize the processor's architecture. These optimizations enabled Yokogawa to meet their target ladder program processing performance goal of 3.75nSec/instruction – 5X faster than previous versions. By optimizing the LISA language input specification and hence the resulting RTL code, the design team also reduced power, gate count and total system development time en route to a successful tape-out.

Processor Designer dramatically accelerates the design of both application-specific processors and configurable accelerators through automated software development tools, RTL and ISS generation from a single, high-level specification. These application-specific processors and configurable accelerators are increasingly essential to support the convergence of multiple functionalities all on a single system-on-chip (SoC). Processor Designer is used to develop a wide range of processor architectures, including architectures with DSP and RISC-specific features as well as single instruction multiple data (SIMD) and very long instruction word (VLIW) processors.

"Customers like Yokogawa are finding they can save significant development effort and achieve better quality of results by automating the application-specific instruction-set processor (ASIP) design process," said John Koeter, vice president of marketing for IP and systems at Synopsys. "With Processor Designer, companies developing ASIP or fixed processing hardware in-house gain broad architectural flexibility to deal with evolving requirements without compromising performance, power or area."

About Synopsys

Synopsys, Inc. (Nasdaq:SNPS) is a world leader in electronic design automation (EDA), supplying the global electronics market with the software, intellectual property (IP) and services used in semiconductor design, verification and manufacturing. Synopsys' comprehensive, integrated portfolio of implementation, verification, IP, manufacturing and field-programmable gate array (FPGA) solutions helps address the key challenges designers and manufacturers face today, such as power and yield management, system-to-silicon verification and time-to-results. These technology-leading solutions help give Synopsys customers a competitive edge in bringing the best products to market quickly while reducing costs and schedule risk. Synopsys is headquartered in Mountain View, California, and has approximately 70 offices located throughout North America, Europe, Japan, Asia and India. Visit Synopsys online at https://www.synopsys.com/.

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