NSITEXE Successfully Develops Multiple Custom Processors for Automotive Applications in Half the Time with Synopsys ASIP Designer Tool

ASIP Designer Tool Provides Rapid Architectural Exploration and Automatic Generation of Software Development Kits to Accelerate Design Time

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- NSITEXE used ASIP Designer to develop five specialized custom processors for compute-intensive signal processing functions
- Automatic generation of software development kit enabled NSITEXE to complete the design with limited resources and on a tight schedule
- Rapid setup of a virtual prototype of NSITEXE's multicore DFP enabled by the ASIP Designer Tool's ability to export the processor's simulation model with SystemC interfaces

Synopsys, Inc. (Nasdaq: SNPS) today announced that **NSITEXE**, a group company of **DENSO** Corporation that develops and sells high-performance semiconductor IP, used the Synopsys ASIP Designer Tool in the development of five specialized custom processors, including dedicated vector-processing engines, for its automotive data flow processor (DFP) platform. With ASIP Designer, NSITEXE was able to optimize the processors' multicore architecture and automatically generate software development kits (SDKs), enabling the company to design the custom processors in half the time compared to designing them from scratch.

"We were on an extremely tight deadline to complete development of multiple complex custom processors for our customer's automotive application," said Sadahiro Kimura, Manager, Semiconductor IP R&D Unit, Advanced Technology Development Section at NSITEXE, Inc. "Synopsys' ASIP Designer Tool provided us with ready-to-use processor examples that could be extended to implement our custom ISA, allowing us to rapidly develop our custom vector extensions that satisfied our functionality and performance requirements. ASIP Designer enabled us to develop the data flow processor model in record time and deliver it to the customer on schedule."

NSITEXE established an innovative design flow for its custom processor IP development, aiming for agility and efficiency. Synopsys' ASIP Designer allowed NSITEXE to specify the desired processor architecture in a high-level language at the abstraction level of a programmer's manual. Based on this high-level description, ASIP Designer automatically configured the SDK containing a cycle-accurate instruction-set simulator, assembler, linker, debugger and C/C++ compiler including support for OpenCL C. NSITEXE started from the rich set of processor examples provided with ASIP Designer to accelerate the development of their highly-specialized vector processors. The immediate availability of the SDK allowed NSITEXE to rapidly profile and modify the architecture to improve PPA in an iterative way. In addition, ASIP Designer's ability to export the processor's simulation model with SystemC interfaces enabled a rapid setup of a virtual prototype of NSITEXE's multicore DFP.

"Innovative companies like NSITEXE have adopted ASIP Designer to speed the development of their custom processors," said John Koeter, senior vice president of marketing and strategy for IP at Synopsys. "Synopsys' ASIP Designer Tool provided NSITEXE with a starting point for their processor design, along with the ability to explore and optimize the processor architecture for their unique design requirements, giving them a distinct advantage in creating a highly differentiated product."

Availability and Resources

- The ASIP Designer tool is available now
- Hear NSITEXE present at the Synopsys ASIP Seminar – Japan on Sept 25
- Learn more about Synopsys' ASIP design tools at http://www.synopsys.com/ASIP

About DesignWare IP

Synopsys is a leading provider of high-quality, silicon-proven IP solutions for SoC designs. The broad DesignWare IP portfolio includes logic libraries, embedded memories, embedded test, analog IP, wired and wireless interface IP, security IP, embedded processors and subsystems. To accelerate prototyping, software development and integration of IP into SoCs, Synopsys IP Accelerated initiative offers IP prototyping kits, IP software development kits and IP subsystems. Synopsys extensive investment in IP quality, comprehensive technical support and robust IP development methodology enables designers to reduce integration risk and accelerate time-to-market. For more information on DesignWare IP, visit www.synopsys.com/designware.

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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