Synopsys' New DesignWare Medium Density NVM IP Family Reduces Die Cost by Up to 25 Percent

An Alternative to Embedded Flash Memory, NVM IP Eliminates Need for Extra Masks or Processing Steps for Analog ICs

MOUNTAIN VIEW, Calif., Jan. 29, 2015 /PRNewswire/ --

Highlights:

- Reprogrammable DesignWare Medium Density NVM IP delivers flash-like functionality without additional masks or processing steps, reducing die cost by up to 25 percent
- Provides up to 64 Kbytes of on-chip memory with more than 5X the density compared to lower bit-count NVM solutions
- Enables microcontroller integration with on-chip reprogrammable NVM in 180-nm 5V CMOS and BCD processes, where embedded flash capabilities are unavailable
- Provides integrated Error Checking and Correction (ECC) functionality for additional system reliability

Synopsys, Inc. (Nasdaq:SNPS), a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced the availability of the new DesignWare® Medium Density Non-Volatile Memory (NVM) IP family. The Medium Density NVM IP fills the gap between lower bit count NVM and flash memory, without requiring additional masks or processing steps, reducing die cost by up to 25 percent. The Medium Density NVM IP provides up to 64 Kbytes of on-chip memory and eliminates the need for external EEPROM or flash memory when integrating microcontrollers in analog IC designs for smart sensors, power management and touchscreen controller applications.

"Today, developers who are looking to embed microcontrollers in their ICs are forced to pay for expensive wafers to support embedded flash memory or otherwise use discrete memory, which are both costly alternatives," said Richard Wawrzyniak, senior market analyst at Semico Research Corp. "Synopsys' DesignWare Medium Density NVM IP fills the gap between smaller non-volatile memory and embedded flash memory, making it an ideal choice for developers looking to add kilobytes of non-volatile memory without the added cost."

The DesignWare Medium Density NVM IP products bring flash functionality to 5V CMOS and BCD process technologies, where embedded reprogrammable NVM is needed. Error checking and correction functionality provides additional system reliability and reduces implementation efforts. The NVM IP delivers more than 5X the density compared to lower bit-count NVM solutions and offers 40 nanoseconds access time, providing fast read times and real-time computing. Validated through rigorous characterization, qualification and reliability testing in Synopsys labs, the NVM IP supports temperature ranges from -40°C to 125°C with 10 years of data retention.

"With the increasing amount of memory needed to integrate microcontrollers into analog ICs, designers require cost-effective memory solutions that do not sacrifice functionality," said John Koeter, vice president of marketing for IP and prototyping at Synopsys. "Synopsys' DesignWare Medium Density NVM IP provides designers with a lower cost alternative to flash memory, while delivering all the necessary features that help them incorporate the desired functionality into their system-on-chips (SoCs) with less risk."

Availability

The DesignWare Medium Density NVM IP is available now to early adopters in TSMC 180-nanometer (nm) 5V CMOS and BCD process technologies.

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, complete interface IP solutions consisting of controller, PHY and next-generation verification 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 https://www.synopsys.com/designware.

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 https://www.synopsys.com.

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