Synopsys Delivers Complete DesignWare Bluetooth Low Energy IP Solution with Link Layer and PHY on TSMC 40ULP Process for IoT SoCs

Compact Link Layer and PHY Supporting Bluetooth 5 Enable Efficient Wireless Connectivity with Secure Connections and Extended Reach

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Highlights:

- DesignWare Bluetooth Link Layer integrates data encryption and random number generation for authenticated secure wireless connections
- PHY IP on TSMC 40ULP process supports Bluetooth 5 with data rates up to 2 Mbps and the IEEE 802.15.4 standard
- Complete Bluetooth IP solution integrates power-saving features including clock gating capabilities, standby, sleep and deep sleep modes to extend battery life

Synopsys, Inc. (Nasdaq:SNPS), today announced the immediate availability of its complete DesignWare® Bluetooth® Low Energy IP solution consisting of the Link Layer and PHY on TSMC's 40-nanometer (nm) ultra-low-power (ULP) process. The DesignWare Bluetooth Link Layer IP is compliant with the latest Bluetooth specification featuring low energy technology (v4.2) and incorporates advanced data encryption and random number generators for an authenticated, secure wireless connection. The Bluetooth PHY will support Bluetooth 5, delivering up to five decibel-milliwatts (dBm) of transmit power for extended range. The PHY also supports the IEEE 802.15.4 standard for connectivity over wireless networks such as Zigbee or Thread. The complete Bluetooth low energy IP solution is a part of Synopsys' broad DesignWare IP portfolio for IoT SoCs and enables designers to quickly integrate wireless connectivity for a range of applications such as wearables and smart homes.

"Incorporating energy-efficient wireless connectivity into our customer's IoT SoC required a reliable, small and low power Bluetooth IP solution," said Slug Zhang, Director of CA SBU at Sino Wealth Electronics, Inc. "We selected Synopsys' silicon-proven DesignWare Bluetooth PHY IP because it met our key design requirements and quality standards. Our existing Bluetooth low energy products have been put into production because of Synopsys' great support during the development stage. We strongly believe that the new DesignWare Bluetooth PHY IP offers better performance, lower power consumption, and is easy to integrate into customers' SoCs, enabling them to deliver a differentiated product to market ahead of the competition."

"Bluetooth low energy is seen as the standard of choice for wireless connectivity in wearable and smart home IoT applications," said Suk Lee, TSMC Senior Director, Design Infrastructure Marketing Division. "We continue to collaborate with Synopsys to address design challenges and enable IoT designs with DesignWare Bluetooth Low Energy PHY IP on multiple TSMC ultra-low-power process technologies."

"As an active member of the Bluetooth Special Interest Group, Synopsys is a contributor to our core mission of developing the technical innovations necessary to make next-level IoT products possible," said Marriot Winquist, Vice President of Member Development and Services at Bluetooth SIG. "By integrating Bluetooth specification with low energy technology with forward-looking support for Bluetooth 5 into one solution, designers are able to leverage the latest advancements of our specification and easily incorporate the Bluetooth functionality into their IoT devices."

Synopsys' DesignWare Bluetooth Low Energy IP solution is qualified by the Bluetooth Special Interest Group (SIG). With more than 15 years of analog and radio frequency (RF) design experience and a broad portfolio of silicon-proven IP shipping in volume, Synopsys provides a robust wireless IP solution for integration into SoCs:

- DesignWare Bluetooth Low Energy Link Layer IP
  - Allows up to eight simultaneous connections in a single instantiation

    - Distributed functions delivered as RTL and firmware enable designers to achieve an optimal power, area and memory footprint
    - Validated interoperability with third-party software stacks via a standard ARM® AMBA® 3 AHB-Lite™ interface reduces integration risk
- DesignWare Bluetooth Low Energy PHY IP
    - Optional direct current (DC)-to-DC down-converter optimizes power
    - Operation below one-volt supply extends battery life
    - Integrated on-chip transceiver matching network reduces BOM cost
    - Single pin-to-antenna interface simplifies board design

"Wireless connectivity is essential for low-power IoT applications such as wearables and smart homes, requiring designers to incorporate new functionality into their SoCs," said John Koeter, vice president of marketing for IP and prototyping at Synopsys. "Synopsys' DesignWare Bluetooth Low Energy Link Layer and PHY IP on TSMC's 40-nm process deliver the latest features that designers need to meet the specific range, speed, power and security requirements for wireless connectivity in their IoT SoCs."

Availability

Synopsys' DesignWare Bluetooth Low Energy Link Layer IP and PHY IP on TSMC 40ULP and 55ULP process technologies are available now.

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 enable designers to reduce integration risk and accelerate time-to-market. For more information on DesignWare IP, visit http://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 quality and security solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest quality and security, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

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