Arbe Robotics Selects Synopsys' IP to Enable its High-Resolution Imaging Radar to Achieve the Highest Automotive Safety Level for Autonomous Vehicles

Automotive-Ready DesignWare ARC EM6 Safety Island, EV Vision Processor, Ethernet QoS Controller, and Embedded Memory Test and Repair IP Accelerate ISO 26262 Certification of Radar Chipset

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Highlights:

- ASIL D Ready DesignWare ARC EM6 Safety Island and EV62 Embedded Vision Processor support lockstep operation to enable the highest automotive safety level
- ASIL D Ready ARC MetaWare EV Development Toolkit for Safety accelerates development of ISO 26262-compliant software for autonomous vehicle radar chipset
- ASIL B Ready certified DesignWare Ethernet QoS Controller IP supports the latest IEEE specifications for audio video bridging (AVB) for real-time, multimedia networking
- ASIL D Ready certified STAR Memory System and STAR Hierarchical System ensure high test coverage and speed functional safety qualification of automotive applications

Synopsys, Inc. (Nasdaq: SNPS) today announced that Arbe Robotics selected Synopsys' DesignWare® ARC® EM Safety Island, EV6x Embedded Vision Processor with Safety Enhancement Package (SEP), Ethernet Quality-of-Service (QoS) Controller IP, STAR Memory System®, STAR Hierarchical System and STAR ECC Compiler for its new 4D high-resolution imaging radar system-on-chip (SoC). Arbe Robotics selected Synopsys' IP for its high performance and ASIL D Ready safety features that are well-suited for strict ADAS and autonomous vehicle application requirements. In addition, Synopsys' automotive-ready DesignWare IP is supported by comprehensive safety documentation, including failure modes, effects, and diagnostic analysis (FMEDA) reports that facilitate chip- and system-level ISO 26262 ASIL D and B compliance.

Arbe Robotics' patented imaging radar is a next-generation sensor specifically designed for advanced driver assistance systems (ADAS) and autonomous vehicles. The high-resolution imaging radar can sense the environment at a wide 100-degree field of view in high-resolution at the highest reliability in various weather and environment conditions, including fog, heavy rain, pitch darkness, and air pollution. It is able to create a detailed image of the road at a range of more than 300 meters (1,000 feet) and capture the size, location, and velocity data of objects surrounding the vehicle to enable safer driving and support level 4 and 5 autonomous operation. Arbe Robotics' custom radar chip utilizes an extensive portfolio of Synopsys' ASIL B and D Ready certified DesignWare IP.

"Radar chips for autonomous vehicles require both a high level of processing capabilities and integrated safety features to help detect and prevent system failures," said Kobi Marenko CEO at Arbe Robotics, "Synopsys' DesignWare ARC EM Safety Island and EV62 Processor deliver performance and safety features that are easily integrated into the complex operations necessary for Arbe's 4D imaging radar, along with the DesignWare Ethernet QoS IP and embedded test and repair solutions. Synopsys provides the broad IP portfolio we need to develop a differentiated automotive solution, and the safety features necessary for achieving SoC-level ISO 26262 certification."

Arbe Robotics selected the ARC EM6SI Safety Island because of its integrated self-checking safety monitor, error correcting code (ECC), and programmable watchdog timer. The EV62 Embedded Vision Processor with SEP provides a highly efficient 512-bit wide SIMD vector DSP, and required functional safety capabilities without sacrificing power, area, and performance. Both processors feature lockstep capabilities that enable rapid detection of system failures and runtime faults. The ARC MetaWare EV Development Toolkit for Safety enables software developers to generate highly-efficient, ISO 26262-compliant code for their automotive applications. For its real-time networking needs, Arbe Robotics selected Synopsys' configurable Ethernet QoS Controller IP with safety package, which supports Time Sensitive Networking (TSN) to reliably manage the data stream between connected devices. In addition, Arbe Robotics selected the DesignWare STAR Memory System and STAR Hierarchical System for comprehensive fault coverage and capability to control in-system test using APB interface. The DesignWare STAR ECC Compilers' advanced ECC circuitry detects and corrects single-bit and multi-bit upsets to improve reliability during in-field operation.

"Today's ADAS and autonomous vehicle technologies require the processing of massive amounts of data from camera, radar, and lidar systems," said John Koeter, vice president of marketing for IP at Synopsys. "By providing a comprehensive portfolio of ASIL Ready IP solutions, including ARC Processor and Interface IP, Synopsys enables companies like Arbe Robotics to accelerate the development and qualification of their

automotive SoCs."

Availability

The ASIL D Ready certified DesignWare ARC EM Safety Islands and ARC MetaWare Development Toolkit for Safety are available now.

The ASIL B, C and D Ready DesignWare ARC EV6x Embedded Vision Processors with Safety Enhancement Package are available now. The ARC MetaWare EV Development Toolkit is available now, with the ASIL D Ready certified version scheduled to be available in September 2018.

The ASIL B Ready certified DesignWare Ethernet QoS Controller IP is available now.

The ASIL D Ready certified STAR Memory System, STAR Hierarchical System, and STAR ECC Compiler 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 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.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, including statements regarding the expected release and benefits of the ASIL D Ready certified version of DesignWare ARC MetaWare EV Development Toolkit. Any statements that are not statements of historical fact may be deemed to be forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors that could cause actual results, time frames or achievements to differ materially from those expressed or implied in the forward-looking statements. Other risks and uncertainties that may apply are set forth in the "Risk Factors" section of Synopsys' most recently filed Quarterly Report on Form 10-Q. Synopsys undertakes no obligation to update publicly any forward-looking statements, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

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