Synopsys Introduces Industry's First ASIL D Ready Embedded Vision Processor IP for ADAS Applications and Self-Driving Vehicles

DesignWare EV6x Processors with Safety Enhancement Package Accelerate ISO 26262 SoC-level Functional Safety Certifications for AI-enabled Automotive SoCs

Disclaimer: GlobalFoundries acquired the Synopsys Processor Solutions business on June 1, 2026. Clickhere to learn more.

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Highlights

- ASIL B, C, and D Ready DesignWare EV6x Embedded Vision Processors with Safety Enhancement Package integrate safety-critical hardware features while maintaining high performance and minimizing area and power
- ASIL D Ready ARC MetaWare EV Development Toolkit for Safety provides a complete set of tools and runtime libraries to speed software development for AI applications
- Comprehensive safety documentation, including FMEDA reports and safety manuals, accelerates SoC-level functional safety assessments

Synopsys, Inc. (Nasdaq:SNPS) today announced its new automotive safety integrity level (ASIL) B, C, and D Ready DesignWare® EV6x Embedded Vision Processors with Safety Enhancement Package (SEP)to accelerate the development of automotive system-on-chips (SoCs). The EV6x Processors with SEP include differentiated hardware safety features, safety monitors, and lockstep capabilities for safety-critical designs. These features enable designers to achieve the ISO 26262 standard's most stringent level of functional safety and fault coverage without significant impact on performance, power, or area compared to the non-ASIL Ready EV6x processors. The ASIL Ready EV6x Processors with SEP integrate scalar, vector DSP, and convolutional neural network (CNN) processing units to help speed certification of automotive systems that require deep learning functionality.

To accelerate the development of ISO 26262-compliant code, the ASIL D ReadyDesignWare ARC® MetaWare EV Development Toolkit for Safety provides the necessary tools, runtime software, and libraries to develop embedded vision and artificial intelligence (AI) applications for the EV6x Processors with SEP. The tools support software development with C/C++ and OpenCL™ C programming languages as well as open vision standards such as OpenVX™ and OpenCV. The MetaWare EV Toolkit also includes a tool to automatically map neural network graphs trained on popular frameworks such as Caffe and TensorFlow™ to the EV6x's various processing resources for optimum execution.

The DesignWare EV6x Processors integrate scalar, vector DSP and CNN processing units for highly accurate and fast vision processing. With up to four vector DSPs that operate in parallel to the CNN engine, the EV6x Processors provide scalable performance that supports all vision algorithms and CNN graphs. An optional IEEE 754-compliant vector floating point unit, integrated into the vector DSP core, and its supporting software offer performance levels of up to 328 Gigaflops for single precision operations and 655 Gigaflops for half precision operations. The EV6x Processors with SEP option include state-of-the-art safety mechanisms and hardware safety features such as lockstep capabilities, ECC memories, error checking on core registers and safety-critical registers, a dedicated safety monitor, and a windowed watchdog timer for each core. An optional dedicated safety island monitors and executes safety escalations and diagnostics within the SoC and protects system bring-up.

"Safety-critical ADAS modules are the fastest growing segment of automotive electronics, with a corresponding increase in the use of deep learning," said Phil Amsrud, Sr. Principal Analyst for Automotive Systems at IHS Markit, a global business information provider. "Given the increasing importance of performance and power consumption, ASIL D Ready solutions that promise higher performance while consuming lower power, should be of interest to ADAS module designers."

"We are seeing a dramatic increase in design starts for ADAS SoCs that implement vision processing and AI for safety-critical systems," said John Koeter, vice president of marketing for IP at Synopsys. "The combination of the new DesignWare EV6x Embedded Vision Processors with SEP, integrated CNN, unique safety features, and comprehensive set of software development tools gives SoC designers everything they need to accelerate ISO 26262 certification of their automotive systems."

Availability & Resources

The ASIL B, ASIL C and ASIL D Ready DesignWare EV6x Vision Processors with Safety Enhancement Package option are

available now. The vector floating point unit and safety island options are available now. The DesignWare ARC MetaWare EV Development Toolkit is available now, and the ASIL D Ready certified DesignWare ARC MetaWare EV Development Toolkit for Safety is scheduled to be available in September 2018.

- Learn more at the Synopsys workshop and Embedded Vision Summit on May 22-24 in Santa Clara, CA
- Register for the webinar: Designing Smarter, Safer Cars with DesignWare EV6x Embedded Vision Processor IP
- Read the white paper: The Impact of AI on Autonomous Vehicles
- Watch the video: Addressing Automotive Safety Requirements with ASIL D Ready Vision Processor IP

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 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 DesignWare ARC MetaWare EV Development Toolkit for Safety. 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.

Editorial Contact:
Norma Sengstock
Synopsys, Inc.
650-584-4084
norma@synopsys.com

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