Synopsys Launches High-Performance Embedded Vision Processor IP

DesignWare EV Processor Family Delivers Faster Object Detection with Significantly Lower Power Consumption

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

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Highlights:

- New DesignWare EV Processor Family dramatically increases accuracy and performance for embedded vision applications such as video surveillance, gesture recognition and object detection
- Multicore architecture optimized for vision applications delivers over 1000 GOPS/Watt with 5X better power efficiency than other available vision processors
- Comprehensive programming environment based on emerging embedded vision standards such as OpenCV and OpenVX simplifies application software development

Synopsys, Inc. (Nasdaq: SNPS), today announced the availability of the first products in the newDesignWare® EV Family of vision processors. The EV52 and EV54 vision processors are fully programmable and configurable vision processor IP cores that combine the flexibility of software solutions with the low cost and low power consumption of dedicated hardware. The EV Processors implement a convolutional neural network (CNN) that can operate at more than 1000 GOPS/W, enabling fast and accurate detection of a wide range of objects such as faces, pedestrians and hand gestures at a fraction of the power consumption of competing vision solutions. To speed application software development, the EV Processor Family is supported by a comprehensive software programming environment based on existing and emerging embedded vision standards including OpenCV and OpenVX, as well as Synopsys' MetaWare Development Toolkit. The combination of high-performance hardware optimized for vision data processing and high productivity programming tools make the EV Processors an ideal solution for a broad range of embedded vision applications including video surveillance, gesture recognition and object detection.

"The ability of embedded systems to extract meaning from visual inputs is becoming increasingly important in a broad range of products including security equipment, gaming devices and automobiles. This is driving demand for more performance- and power-efficient vision processing capabilities," said Jeff Bier, founder of the Embedded Vision Alliance. "Specialized processors like the Synopsys' DesignWare EV Processors help designers attain the performance they need for their vision applications at levels of power consumption suitable for portable devices."

High-Performance Multicore Hardware

The EV Processors include multiple high-performance processing cores that can operate at up to 1 GHz in typical 28-nanometer process technologies. The EV Processors also implement a feed-forward CNN structure that supports a programmable point-to-point streaming interconnect for fast and accurate object detection, a critical task in vision processing. The processors' configurable number of execution units enable developers to exploit the task- and data-level parallelism common in vision applications, executing complex image and video recognition algorithms with as little as one-fifth the power consumption of other vision processors available on the market.

High Productivity Programming Tools

A complete software programming environment, including OpenVX and OpenCV libraries, and Synopsys' MetaWare Development Toolkit, simplifies the development of application software for the Synopsys EV Processor Family. The OpenCV source libraries available for EV Processors provide more than 2500 functions for real-time computer vision. The processors are programmable and can be trained to support any object detection graph. The OpenVX framework includes 43 standard computer vision kernels that have been optimized to run on the EV Processors, such as edge detection, image pyramid creation and optical flow estimation. Users can also define new OpenVX kernels, giving them flexibility for their current vision applications and the ability to address future object detection requirements. The OpenVX runtime distributes tiled kernel execution over the EV Processors' multiple execution units, simplifying the programming of the processor. The full suite of tools and libraries, along with available reference designs, enable designers to efficiently build, debug, profile and optimize their embedded vision systems.

Easing SoC Integration

The EV Processors are designed to integrate seamlessly into an SoC. They can be used with any host processors and operate

in parallel with the host. The EV Family includes support for synchronization with the host through message passing and interrupts. In addition, the EV Processor memory map is accessible to the host. These features enable the host to maintain control while allowing all vision processing to be offloaded to the EV Processor, reducing power and accelerating results. The EV Processors can access image data stored in a memory mapped area of the SoC or from off-chip sources independently from the host through the ARM® AMBA® AXI ™ standard system interface if required.

"Embedded vision is driving innovation in a broad spectrum of applications, from surveillance to consumer and gaming devices," said John Koeter, vice president of marketing for IP and prototyping at Synopsys. "Synopsys' new DesignWare EV Processor Family delivers state-of-the-art object detection accuracy with 5X better power efficiency, along with comprehensive vision libraries and a robust software programming environment. This combination enables design teams to integrate embedded vision functionality into more systems faster with much lower power consumption than existing solutions."

Availability

The DesignWare EV52 and EV54 Processors are scheduled to be available inMay 2015.

Learn more about Synopsys' Embedded Vision Processors:https://www.synopsys.com/dw/ipdir.php?ds=ev52-ev54

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) 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 a leader in software quality and security testing with its Coverity® 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.

Forward-looking Statements

This press release contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934 regarding the expected release and benefits of DesignWare EV52 and EV54 Processors. 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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