Synopsys Expands embARC Initiative to Include Additional ARC Processors and Open Source Projects to Accelerate Development of Embedded Systems

Online Access to Comprehensive Suite of Free and Open Source Software and Tools Provides One-Stop Shop for Software Developers Programming ARC Processor-based Devices

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

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Highlights:

- Comprehensive suite of free and open source software and tools for ARC processors cataloged and accessible from embARC.org provides developers with access to drivers, middleware and open source operating systems including FreeRTOS, Zephyr Project and Linux
- New release of the embARC Open Software Platform adds support for the latest ARC SEM and ARC HS processors, and an OpenThread protocol implementation for the development of digital home applications
- New support for ARC Software Development Platforms as well as expanded support for the ARC EM Starter Kit enables robust software development, debugging and profiling on hardware-based systems

Synopsys, Inc. (Nasdaq: SNPS) today announced the expansion of theembARC open source initiative to include a more comprehensive set of open source projects that help accelerate software development for DesignWare® ARC® processors. In addition, Synopsys has released a new version of the embARC Open Software Platform (OSP) that extends support to ARC HS processors as well as to the latest ARC SecureShield™ technology for the development of trusted execution environments implemented on ARC EM and ARC SEM processors. The comprehensive suite of free and open source software, including leading operating systems (OSes) such as FreeRTOS, the Zephyr™ Project and Linux, are available through theembARC.org website. The website gives software developers a central online location to download software, access upstream content, get documentation and join mailing lists for each open source project, simplifying the development of applications for ARC processor-based IoT and other embedded systems.

"Synopsys was one of the founding members of the Zephyr Project and has contributed to the Linux kernel for many years," said Kate Stewart, senior director of strategic programs at The Linux Foundation. "Now, Synopsys is taking that support a step further by making the Zephyr Project and other open source projects easier to access for developers looking to get started quickly creating software for ARC-based IoT devices such as connected sensors, LED wearables, modems and wireless gateways."

Easy Access to All Open Source Projects from embARC.org

embARC.org is a dedicated website that provides developers centralized access to free and open source software, drivers, operating systems and middleware supporting ARC processors. Additionally, it provides access to GitHub repositories containing software maintained by Synopsys to enable developers to use and contribute to those open source projects. embARC.org supports leading operating systems, including FreeRTOS, Linux and the Zephyr Project, giving developers a choice of industry-standard software environments and the ability to select the OS that best fits their needs for their ARC-based systems.

Additional RTOSes, including Contiki, LiteOS and RIoT, which have been specifically developed for IoT edge devices have been ported to ARC EM processors. They are available from embARC.org and run on the ARC EM Starter Kit.

Latest Version of embARC Open Software Platform (OSP)

The embARC OSP includes the major protocols used in IoT devices today, networking stacks such as lwip, and commonly used security protocols including MatrixSSL, WolfSSL and TinyDTLS. The latest version of embARC OSP includes the OpenThread protocol, an open source implementation of the Thread networking protocol released by Nest Labs, Inc. The Thread specification is defined by the Thread Group and describes an IPv6-based protocol designed to be reliable, secure and low-power for wireless device-to-device communications for digital home applications. The embARC OSP also adds support for the ARC HS processors and includes an update to the SecureShield libraries that allow creation of a trusted execution environment on ARC EM and ARC SEM processors.

ARC Software Development Tools and Systems

Free and open source tools are available for use with the software accessible throughembARC.org. The GNU Toolchain for ARC Processors offers all the benefits of open source tools, including complete source code and a large installed base. The tools include the GCC compiler and GDB debugger as well as several utilities and libraries that make up a complete software toolchain. The latest release of GNU GCC 7 supports ARC EM and ARC HS processors. Because source code for the GNU toolchain is always available, the ARC GNU Toolchain is configurable, allowing tailoring, customization and expansion of the tools, libraries, debugger and board support to meet user-specific requirements. Synopsys also offers commercial tools for use with ARC processors, including the ARC MetaWare Development Toolkit, an Eclipse-based solution that enables users to seamlessly integrate the creation, management and debugging of embedded applications in a single cockpit.

The ARC EM Starter Kit is a low-cost solution that enables rapid software development, debugging and profiling for ARC EM processors. The ARC EM Starter Kit development board supports a variety of hardware extensions using six 2x6 connectors with a total of 48 user I/O pins (plus power and ground pins) that can be used to connect components such as sensors, actuators, memories, displays, buttons, switches and communication devices. A Digilent Pmod™ Compatible extension board containing a 4-channel 12-bit A/D converter with an I^2C interface and an AC power adapter is included in the package.

The ARC AXS103 Software Development Platform supports the ARC HS34, HS36 and HS38 processors, including 256 kByte of on-chip SRAM and 1 GByte of DDR3-SDRAM. It also contains a variety of peripheral interfaces including a USB 2.0 Host, HDMI, Ethernet, audio and several serial protocols. It features an SD card reader and includes multiple memories for storing boot code, application code, operating systems and data.

"Developers of IoT and embedded devices need fast and easy access to a broad ecosystem of tools, hardware, RTOSes and middleware to help them efficiently develop code for their ARC-based designs," said John Koeter, vice president of marketing for IP at Synopsys. "By continuing to invest in open source software and embARC, Synopsys is providing designers with access to well-known open source software and tools that help them get their products to market faster while lowering their development cost."

Availability and Resources

The embARC website, which provides a catalog of links for easy access to all the open source projects supporting ARC processors, and embARC OSP 2017.03 are available now at www.embarc.org.

The ARC EM Starter Kit and the AXS103 Software Development Platform are available now:

- ARC EM Starter Kit
- ARC AXS103 Software Development Platform

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 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 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 https://www.synopsys.com/.

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