Xilinx SDSoC Development Environment Integrates with eSOL Platform Based on eT-Kernel RTOS

Integration with SDSoC™ Software Acceleration Function Supports

Both Development Productivity and Real-Time Capability and Reliability

in Applications for the Zynq® All Programmable SoC and UltraScale+™ MPSoC

Tokyo, Japan. May 9, 2017 –eSOL, a leading developer of real-time embedded software solutions, today announced the integration of the SDSoC development environment for Xilinx's Zynq All Programmable SoC and Zynq Ultrascale+ MPSoC (Zynq SoC and MPSoC), both of which incorporate an FPGA and ARM® cores, with the eSOL software platform for real-time operating systems (RTOS) that includes eT-Kernel, a TRON-based RTOS, and the eBinder suite of development tools.

SDSoC is a revolutionary development environment that makes it easy for software engineers to use an FPGA as an accelerator for C/C++ algorithms that demand high-speed execution. The integration of the companies' respective platforms delivers the following benefits.

·   Projects output from SDSoC can be seamlessly imported into eBinder and the functions implemented in the FPGA by the eT-Kernel RTOS running on the target board are made available without the need to develop special libraries.

·   The ARM-supplied complier included with eBinder can be used to generate highly reliable and efficient code.

·   The ability to use the extensive debugging and system validation tools provided by eBinder (which is designed specifically for RTOS-based system development) to resolve issues specific to real-time systems and to test and tune the complex operation of multi-core systems helps make full use of the Zynq SoC and MPSoC.

·   Use of eT-Kernel Multi-Core Edition for multi-core processors delivers the high level of real-time capability and reliability demanded by applications such as advanced driver-assistance systems (ADAS) and motion control.

SDSoC includes the Eclipse integrated development environment (IDE) and a comprehensive suite of tools for the deployment of the heterogenous Zynq SoC and MPSoC. Complete systems can be developed using only C/C++ and OpenCL, without needing to distinguish between software for the ARM core and the hardware implemented in the FPGA. Meanwhile, a system-level profiling function can be used to look at which functions will benefit from FPGA acceleration, with software acceleration able to be added with the click of a mouse. This series of functions means that development can proceed efficiently and full use made of the Zynq SoC and MPSoC, even on projects with limited access to hardware engineers and the associated skills and knowledge.

Along with eBinder and an extensive range of middleware covering things like networking, file systems, USB, and graphics, all of it based around eT-Kernel, eSOL's eT-Kernel-based software platform also comprises professional services that include product support and contract development. As operational testing can proceed in advance, systems can be got up and running quickly without the need for tuning and customization. Existing users come from sectors such as automotive and industrial equipment, aeronautical and space applications, and consumer and commercial devices. eT-Kernel has received certification under the ISO 26262 ASIL D and IEC 61508 SIL 4 standards for functional safety in automobiles and industrial equipment, respectively. It was also developed using a development process that complied with IEC 62304:2006 "Medical device software-Software life cycle processes", a safety standard for the development and maintenance of software for medical devices.

"With demand from the automotive and industrial sectors in particular for features such as the functional safety certification provided by eT-Kernel and its high levels of reliability and real-time capability, I am delighted that we are now able to provide a development environment that integrates with eBinder. Given its strong track record and reputation in mission-critical applications especially, the ability to use eSOL's eT-Kernel in application developments that utilize SDSoC should provide major benefits to users," said Nick Ni, Senior Product Manager, SDSoC and Embedded Vision, at Xilinx, Inc.

"eSOL's RTOS-based software platform that is already widely proven in ARM-based multi-core systems in particular is an ideal platform for the Zynq SoC and MPSoC. Moreover, integration with the revolutionary SDSoC, with its ability to compile full systems using C/C++ and OpenCL only, facilitates even higher levels of software development efficiency for Zynq users," said Nobuyuki Ueyama, Executive Vice President of eSOL.