eSOL Contributes Open Source Software to Accelerate the Software Development for Multi-core/Many-core Processors

SHIM Specification Compliant Authoring Tools for Describing Hardware Architecture/Performance Jointly Developed with Nagoya University

Tokyo, Japan, February 24, 2015 – eSOL, a leading developer of real-time embedded software solutions, announced today that it developed Software-Hardware Interface for Multi-many-core (SHIM) specification compliant authoring tools jointly with Nagoya University that describe the hardware architecture and performance of multi-core/many-core processors, and started to provide them as open source software. The tools reduce the time and cost it takes for existing software development tools and runtime software to support various types of multi-core/many-core processors. They also facilitate and accelerate the development of new innovative tools, and promote multi-core/many-core technologies.

The SHIM is a description standard to abstract the hardware properties of various multi-core/many-core processors, and has become publicly available by the Multicore Association™ on February 17, 2015. The standardization of SHIM is an international spin-off effort of the Japanese multi-core/many-core platform project, funded by Japan's New Energy and Industrial Technology Development Organization (NEDO) in November 2012. SHIM contains the information on hardware architecture and performance which is necessary for software design and development. The information includes processor cores, accelerators, memory/caches and the inter-core communication channels, and is described in XML files. SHIM XML files are used to adapt parallelizing tools such as

performance analysis tools and auto-parallelizing compiler, and configurator for runtime software - including operating systems and middleware components - to much more processors within a shorter period of time. eSOL chairs the SHIM working group in the Multicore Association® (MCA) that developed the SHIM specification.

eSOL has developed and opened the SHIM Editor and the SHIM Performance Measurement Plugin tools as open source software. While the SHIM Editor creates the SHIM XML files, the SHIM Performance Measurement Plugin tool measures the performance of hardware using values in the SHIM XML files, and merges the measurement result back to the XML. They are distributed under the MIT license at GitHub (https://github.com/openshim/shim). In addition to facilitating the creation of SHIM XML files, these tools can be utilized to evaluate SHIM itself, and to refer as SHIM compliant tools.

With its expertise in developing highly reliable RTOS, eSOL has been actively carrying out research and development regarding multi-core/many-core software. eSOL develops RTOS and development tools for different multi-core/many-core processors, including the world's first commercial many-core RTOS, eSOL eMCOS, the eSOL eMCOS IDE Plug-in tools and the eT-Kernel Multi-Core Edition RTOS. These products are expected to support the SHIM. In addition to research and development of its own products, eSOL actively works with both academic institutions plus international industry groups such as the Multicore Association and the Embedded Multicore Consortium that Nagoya University serves as President and eSOL takes the position of Vice-President.

"With its wealth of knowledge and excellent skills in the multi-core/many-core arena, eSOL exercised strong leadership to develop an open SHIM implementation and as a chair of the SHIM working group in the Multicore Association," said Mr. Markus Levy, President, Multicore Association. "In collaboration with Embedded Multicore Consortium in which eSOL participates, we expect that eSOL will continue to contribute to the further development and dissemination of multi-core/many-core technologies."

"We expect that SHIM Editor and SHIM Performance Measurement Plugin, jointly developed with eSOL, will accelerate the introduction of SHIM which fosters the dissemination of many-core technology," said Mr. Masato Edahiro, Professor, Department of Information Engineering, Graduate School of Information Science, Nagoya University/ President of the Embedded Multicore Consortium. "In addition to the SHIM XML authoring tools, Embedded Multicore Consortium, together with the Multicore Association, will develop design support tools for multi-core processors using SHIM and make it open to the members. It can contribute to further promotion and dissemination of multi-core/many-core technologies within Japan."

"Taking advantage of a leading role in SHIM working group of Multicore Association and Embedded Multicore Consortium, eSOL has made a contribution to the standardization of Japan-led SHIM and the launch of tools which promote SHIM," said Masaki Gondo, Software CTO and GM of Technology at eSOL. "We continue to be committed to expand the use of SHIM and introduction of multi-core/many-core technologies such by making our products including eMCOS support SHIM."

About eSOL

eSOL is a leading embedded software developer that enables customers to accelerate the development of applications based on high-end embedded processors, including multi-core. eSOL's advanced, scalable, and multi-profiled real-time operating systems are tightly integrated with development tools and middleware components to create flexible development platforms used by OEMs and ODMs worldwide in competitive vertical markets such as automotive, consumer electronics, industrial and medical equipment, and aerospace. Founded in 1975, eSOL is based in Tokyo, Japan.

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