



ESOL AND KALRAY EXTEND THEIR COOPERATION TO ADDRESS DEMANDING NEEDS OF AUTOMOTIVE, INDUSTRIAL AND MEDICAL APPLICATIONS

eSOL eMCOS distributed Real Time Operating System supporting full POSIX profile ported on Kalray's MPPA® Intelligent Processor and leveraging its unique manycore architecture.

Grenoble, July 11, 2019 - Kalray (Euronext Growth Paris: ALKAL), a pioneer in processors for new intelligent systems, and eSOL (Tokyo Stock Exchange Mothers: 4420), a leading developer of real-time embedded software solutions, announce today the availability of eSOL's eMCOS POSIX¹ Real Time Operating System (RTOS) on Kalray's MPPA® intelligent processor to address growing and demanding needs for performance, safety and security of Automotive, Industrial and Medical Markets. This support extends the already existing eMCOS Core profile that has been available for several years on the MPPA architecture.

eSOL is recognized as a key actor of embedded markets such as automotive, especially thanks to its contribution to AUTOSAR ("AUTomotive Open System Architecture"), the worldwide development partnership of automotive interested parties. Such a partnership enables the usage of a wide range of applications on Kalray MPPA® processor including advanced control frameworks like Robot Operating System for robot control, Autoware for autonomous driving, and other embedded software frameworks. Furthermore, eSOL has a strong presence and experience on medical and industrial markets.

"Massive system consolidation especially on the automotive domain, are now becoming realistic architecture option with the impressive amount of power available on the current and next-generation of Kalray's intelligent processor" said **Masaki Gondo, eSOL CTO**. "eSOL and Kalray will continue this fruitful cooperation to provide relevant optimized and integrated solutions to satisfy our joint customers' ever-growing needs for performance, safety and security."

"Disruptive technology such as Kalray's MPPA needs development environment such as eSOL's eMCOS to enable smooth adoption at customers for a wide and growing range of applications. eMCOS POSIX provides a full-featured RTOS ensuring POSIX compatibility to OEMs, with the capability to execute multiple applications in parallel" said **Stéphane Cordova, Vice-President of Embedded Business Unit at Kalray**, "Combining eMCOS with the high performance of MPPA® processors gives customers a unique solution for a fast ramp up."

¹ POSIX: The Portable Operating System Interface is a family of standards specified by the IEEE Computer Society for maintaining compatibility between operating systems.





The usage of MPPA® in industries like automotive is facilitated using development environments that ease the adoption by customers, both OEMs and Tier-1s. This is the case for eSOL POSIX multi-process RTOS that offers the capability to define complex systems such as autonomous vehicles.

Such rich OS and middleware takes advantage of all the benefits of Kalray's MPPA architecture and provides a consistent environment for customers to transition from MPPA® 2nd generation Bostan to 3rd generation Coolidge, reusing similar tools to develop applications.

eSOL's unique distributed microkernel architecture enables optimal use of manycore processors such as Kalray's MPPA®. While eMCOS Core provides a PSE51 single-context POSIX API for high-performance parallel computing, eMCOS POSIX adds PSE53 multi-process POSIX support for advanced software integration where more memory is available.

eSOL and Kalray are also cooperating to provide AUTOSAR-compliant software platforms, including both AUTOSAR Classic Platform and Adaptive Platform, to conform to modern automotive standards. This integration will help customers aggregate more functions on MPPA®-based systems, while still meeting the isolation and safety level requirements.

ABOUT ESOL CO., LTD.

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. For more information, please visit www.esol.com

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ABOUT KALRAY

Kalray (Euronext Growth Paris — FR0010722819 — ALKAL) is the pioneer in processors for new intelligent systems. As a real technological breakthrough, "intelligent" processors have the capability to analyze on the fly, and in an intelligent manner, a very large amount of information, and to make decisions and interact in real time with the outside world. These intelligent processors will be deployed extensively in fast-growing sectors, such as new-generation networks (intelligent data centers) and autonomous vehicles, as well as healthcare equipment, drones, and robots. Kalray's offering encompasses both processors and complete solutions (electronic boards and software). Created in 2008 as a spin-off of CEA ("Commissariat à l'énergie atomique et aux énergies alternatives", the French Alternative Energies and Atomic Energy Commission), Kalray serves customers such as server manufacturers, intelligent system integrators, and consumer product manufacturers, including car makers. For more information, visit www.kalrayinc.com.

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