Freescale and eSOL to collaborate on software solutions for Vybrid automotive devices
Software platform to interconnect automotive infotainment and control applications

SAN JOSE, Calif. and Tokyo, Japan. Oct. 18, 2012 – Freescale Semiconductor (NYSE: FSL) and eSOL, a leading developer of real-time embedded software solutions, announced today that they would collaborate to provide software solutions for Freescale's automotive Vybrid devices. Asymmetric dual-core Vybrid devices can simultaneously run both a real-time application and a multimedia application. eSOL has developed a software platform for automotive Vybrid devices, enabling customers to effectively develop both AUTOSAR-compatible real-time applications that communicate with electronic control units (ECUs) and infotainment applications that use a separate OS, for example, ITRON. The platform also provides the function of linking the two domains safely and efficiently. These unique features make the solution ideal for driver information systems, including instrument clusters, automotive connected radio platforms, car navigation systems and rear view cameras, enabling various advanced functions and services, such as driving assistance using the ECU vehicle information and linkage with smartphones or automotive equipment.

Freescale and eSOL will exhibit the software solution in the eSOL booth (booth number: AT-14) at the Freescale Technology Forum Japan 2012 (FTF Japan 2012) on October 22-23, 2012, at the Prince Park Tower Tokyo (Minato-ku, Tokyo).

Freescale's Vybrid controller solutions are built on a unique asymmetrical-multiprocessing-architecture platform that leverages the company's heritage as a leader in microcontroller (MCU) development and multicore design. The Vybrid platform integrates the ARM® Cortex™-A and Cortex-M cores, reducing complexity and cost while increasing system security for automotive applications. Vybrid controller solutions, along with i.MX applications processors, give Freescale an unparalleled breadth of scalable solutions based on the ARM architecture for automotive driver information systems. Vybrid controller solutions are designed to bring connected radios, infotainment systems and reconfigurable instrument clusters to mainstream automobiles and provide reference software that accelerates the time to market.

eSOL has ported to the Cortex-M4 core the AUTOSAR basic software (BSW) of the AUTOSAR methodology support tool "eSOL ECUSAR," and in a sample application, implemented the feature of retrieving the vehicle information from the ECU via the CAN communication. In the future, eSOL ECUSAR, which can automatically generate AUTOSAR BSW, will be optimized to fully support the Vybrid devices and made commercially available according to market needs. As for multimedia applications on the ARM Cortex-A5 core, eSOL T-Kernel-based software platform "eCROS" has been implemented, which integrates various middleware and development tools on the real-time OS "eT-Kernel" – a successor of TRON architecture. eCROS has been adopted in a wide range of automotive information systems, including car navigation systems, car audio devices, drive recorders and around-vehicle monitors, and it supports a linkage technology for car navigations systems and smartphones. Moreover, the sample application helps establish communication between an ARM Cortex-A5 core and an ARM Cortex-M4 core; therefore, the vehicle information retrieved in one application can be shared with the other (see Figure 1). In the future, features necessary for driver information systems, such as a sophisticated graphics capability, will be added to further evolve the software platform.

In addition to the software platform, eSOL provides professional services based on its track record and experience in vehicle information systems, including AUTOSAR and functional safety, and in control systems. Through this support, Freescale and eSOL help customers develop automotive software based on Vybrid automotive solutions.
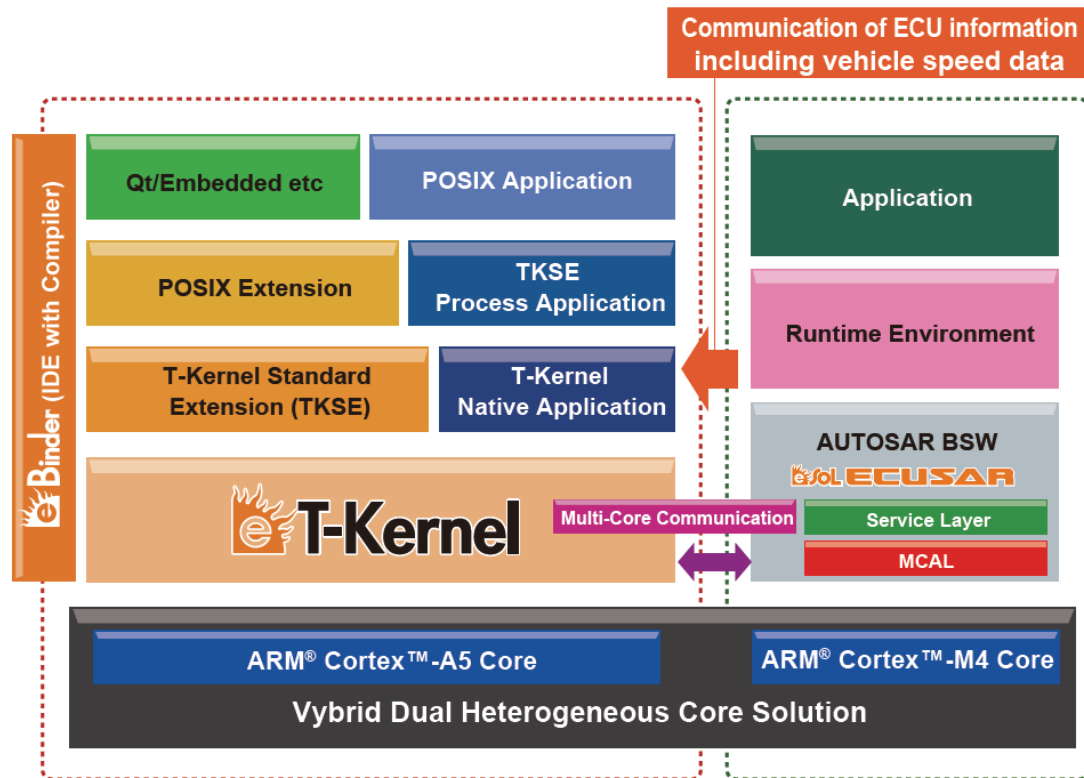
Figure 1. Block Diagram of Software Platform

- Freescale Technology Forum Japan 2012: http://www.freescale.co.jp/event/ftfj/2012/index.php?r=2PRNADD

Comment from Koji Muto, general manager of Product Marketing Division, Automotive & Industrial Solutions Group, Freescale Semiconductor Japan.

"eSOL is an important strategic partner in our Vybrid product ecosystem. By implementing AUTOSAR on the ARM Cortex-M4 core in Freescale's Vybrid asymmetrical-multiprocessing architecture, eSOL addresses the needs of automobile manufacturers who require AUTOSAR based standardization in automotive networks. In addition, the Cortex-A5 and Cortex-M4 core interconnection satisfies automotive developers' demand for the linkage between infotainment and control applications in a safe and efficient way. We hope that by using the new platform, our customers can make the best use of Vybrid automotive solutions' unique features."

Comment from Nobuyuki Ueyama, Executive Vice President, eSOL

"Recent automotive information system are required to operate in close connection with the automotive control system, in addition to providing navigation and entertainment capabilities," said Nobuyuki Ueyama, Executive Vice President of eSOL. "We consider ourselves as one of the very few software vendors who has deep skills and knowledge both in automotive information and control systems. We have achieved this expertise through many experiences over the years. We are currently working on functional safety which is essential in the reliable automotive systems. While working closely with Freescale, we will meet a variety of needs for automotive systems developers by offering our proven real-time OS-based software platform for Vybrid automotive solutions and professional services."

>> For Reference

About the eCROS Integrated Platform

The eCROS integrated platform is built upon eSOL's scalable eT-Kernel and PrKERNELv4 RTOSes, which are tightly integrated with the eBinder IDE and a wide selection of middleware components. eCROS helps OEMs and ODMs to quickly create flexible development platforms for their software product lines and enables them to improve time to market, cost, productivity, quality and other business drivers. Our eT-Kernel RTOSes --- based on the T-Kernel open source real-time operating system --- have been highly enhanced and optimized by eSOL and are available in multiple profiles ranging from basic eT-Kernel/Compact to enhanced eT-Kernel/Extended and eT-Kernel/POSIX, and even multi-core capable eT-Kernel Multi-Core Edition and, most recently, with Memory Partitioning Option to support various application requirements.

About eT-Kernel

The eT-Kernel real-time OS is designed for embedded systems that require high performance and reliability. eT-Kernel is scalable with multiple profiles to fit any system size and purpose. These profiles include POSIX-compliant eT-Kernel/POSIX, enhanced eT-Kernel/Extended supporting memory protection and process model, and basic eT-Kernel/Compact. eT-Kernel Multi-Core Edition is available for multi-core processors featuring its unique Blended Scheduling(R) that enables the coexistence of both symmetrical (SMP) and asymmetrical (AMP) multi-core processing, in a single system. eT-Kernel has proved its value in a wide range of embedded systems such as car navigation systems, aerospace, consumer electronics, and more.

For more information, please visit http://www.esol.com/embedded/et-kernel.html

About Freescale Semiconductor

Freescale Semiconductor (NYSE:FSL) is a global leader in embedded processing solutions, providing industry leading products that are advancing the automotive, consumer, industrial and networking markets. From microprocessors and microcontrollers to sensors, analog integrated circuits and connectivity – our technologies are the foundation for the innovations that make our world greener, safer, healthier and more connected. Some of our key applications and end-markets include automotive safety, hybrid and all-electric vehicles, next generation wireless infrastructure, smart energy management, portable medical devices, consumer appliances and smart mobile devices. The company is based in Austin, Texas, and has design, research and development, manufacturing and sales operations around the world. www.freescale.com

About eSOL Co., Ltd.

eSOL is a leading embedded software developer that enables customers to accelerate development of applications based on high-end embedded processors including multi-core. Our advanced, scalable, 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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