

SYSGO extends PikeOS Support for NXP i.MX 8 Processors with CoreAVI's VkCore® SC GPU Acceleration Driver Implementation

Now, PikeOS also offers functional safety for NXP i.MX 8-based immersive driver and pilot cockpits

Klein-Winternheim, Germany, 29 Aug 2023 – SYSGO and CoreAVI are pleased to announce that PikeOS, the real-time operating system with integrated hypervisor, is now available with CoreAVI's VkCore® SC GPU acceleration driver support for NXP i.MX 8 Quad Max processors. Developers in the aerospace & defense sector benefit from an integrated solution platform for developing immersive human-machine interfaces (HMIs) and GPGPU-powered AI functionalities with certifiable safety. The solution set is aligned with the new Khronos Group Vulkan® SC™ API and certifiable up to RTCA DO-178C/EUROCAE ED-12C DAL A. It targets innovative HMIs that integrate the environment in which they operate and provide networked ancillary services hosted in virtual machines.

The immersive eCockpits and GUIs that are currently being integrated into military and commercial aircraft typically use functions such as 3D, gesture control, augmented reality, transparent screens, voice assistants and controls, and haptic feedback. They also process GPS as well as video, lidar, radar, ultrasound or infrared sensor data using artificial intelligence (AI) to create situational awareness. To do so, they need a highly capable low-power processor architecture that supports safety criticality, multiple displays and a GPGPU, and that features an operating system that not only fully supports the processor, but also the integrated safety-ready GPU.

The NXP i.MX 8 QuadMax provides a failover-ready 32-bit GPU subsystem to support up to 4x HD displays and a 4k H.265-ready VPU that also supports numerous other graphics codes for safety-critical immersive user experiences. The dual GPU architecture with 64 execution units enables two independent 8-Vec4 shader GPUs with 32 execution units each. It can also be used to develop mixed criticality systems that integrate not only safety-critical vehicle controls but also infotainment applications, which are completely separated and isolated thanks to the integrated hypervisor and PikeOS separation kernel. What is more, PikeOS separation kernel 5.1.3 is also certified to Common Criteria level EAL 5+, meeting the highest cybersecurity requirements for V2X communications in connected cars.

“CoreAVI is pleased to continue its long-standing partnership with SYSGO by providing driver support for PikeOS on i.MX 8,” said Dan Joncas, Chief Sales and Marketing Officer at CoreAVI. “We look forward to providing our customers in aerospace, defense, automotive and industrial sectors the latest in state-of-the-art safety critical software solutions for their modern applications.”

“Our strong partnership with CoreAVI results in exceptionally robust innovations that are proven and popular with our customers. We are therefore proud to add another piece of the mosaic to our portfolio with support for the i.MX 8 Quad Max,” said Franz Walkembach, Vice President Marketing & Alliances at SYSGO.

For further information and to learn more about the VkCore SC graphics and compute driver support for PikeOS and the demonstrator platform for this feature bundle, which is based on the Vulkan SC API and certifiable to DO-178B/C for the avionics industry, please visit the following link: www.sysgo.com

About CoreAVI

CoreAVI is the global leader in architecting and delivering safety critical graphics and compute software drivers and libraries, embedded ‘system on chip’ and discrete graphics processor components, and certifiable platform hardware IP. CoreAVI’s comprehensive software suite enables development and deployment of complete safety critical solutions for automotive, industrial and aerospace applications requiring certification to the highest integrity levels coupled with full lifecycle support. CoreAVI’s solutions support both graphics and compute applications including safe autonomy, machine vision and AI in the automotive, unmanned vehicle and industrial IoT markets, as well as commercial and military avionics systems. www.coreavi.com

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About SYSGO

SYSGO is the leading European manufacturer of embedded software solutions such as the real-time operating system and hypervisor PikeOS and the embedded industrial-grade Linux ELinOS. Since 1991, SYSGO has been supporting customers in the aerospace, automotive, railway and IIoT industries in the development of safety-critical applications. SYSGO was the first company worldwide to achieve the safety requirement level SIL 4 for its multi-core capable real-time operating system and hypervisor PikeOS. PikeOS version 5.1.3 meets Common Criteria level EAL 5+ for ARMv8, x86_64 and PPC, and is also certified according to the strictest safety standards such as IEC 61508, EN 50128, EN 50657 and ISO 26262, thus enabling application development according to the "Safe & Secure by Design" principle. For industrial embedded systems, SYSGO also offers ELinOS, a Linux distribution with real-time extensions for embedded systems. Furthermore, solutions such as the railway development platform (SAFe-VX) and the Secure Automotive Connectivity Platform (SACoP) for secure data transfer in, with and between automobiles are available.

SYSGO works closely with its customers throughout the entire product life cycle and supports them in the formal certification of software according to international standards for functional and IT security. SYSGO is headquartered in Klein-Winternheim near Frankfurt, has subsidiaries

in France and the Czech Republic, and maintains a worldwide sales network. The company is ISO 9001:2015 and IEC/ISO 27001:2017 certified and part of the European Thales Group.

For further information visit www.sysgo.com.

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