Advanced Graphics and Compute
PikeOS and VkCore® SC

PikeOS has been designed for various applications, like IMA (Integrated Modular Avionics) systems, which are mostly driven by ARINC 653 or ADAS (Advanced Driver Assistance Systems) and ECU virtualization being ISO 26262 compliant. Today, almost every car is connected to some kind of wireless GSM standard (5G, 4G, and 3G) in order to protect the car components. Usually, an enhanced gateway is needed and also the number of ECU’s in a modern car needs to be reduced in order to have less wiring and weight.

VkCore® SC is CoreAVI’s next generation graphics and compute driver and is based on the Vulkan API. It works highly efficient, allows cross-platform access to modern GPUs. Vulkan allows access to both graphics and compute in one API. This opens massive parallel processing, AI and machine learning as well as enabling neural networks (for application such as driver fatigue monitoring).

CoreAVI sees market trends in embedded vision relying on cameras and sensors, even to enable windowless aircraft concepts in the future. To display relevant display information in cockpits, GPU shader cores are used to create “on the fly” effects, like outlining a target, object detection, blur, contrast, or „see through“.

CUSTOMER BENEFITS

• Critical and non-critical partitions can run at the same time without interference
• Critical partitions while using high-featured non-critical partitions can run on both cores at the same
• Safe rendering pipes use the Vulkan API running as a kernel driver
• Operation in GPU in virtualize mode
• A lower level application cannot disturb a DAL A application
• In tandem with CoreAVI’s VkCore SC Vulkan-based graphics and compute driver
• Ready for multi-core processors

About CoreAVI - CoreAVI architects safety critical graphics and compute solutions supporting safe autonomy, machine vision, AI and visualization applications in the automotive, unmanned vehicle and industrial IoT markets, as well as commercial and military avionics systems. We are people innovating a safe and secure autonomous world.

About SYSGO - Founded in 1991, SYSGO became a trusted advisor for Embedded Operating Systems and is the European leader in hypervisor-based OS technology offering worldwide product life cycle support. We are well positioned to meet customer needs in all industries and offer tailor-made solutions with highest expectations in Safety & Security.