

AUTOSAR

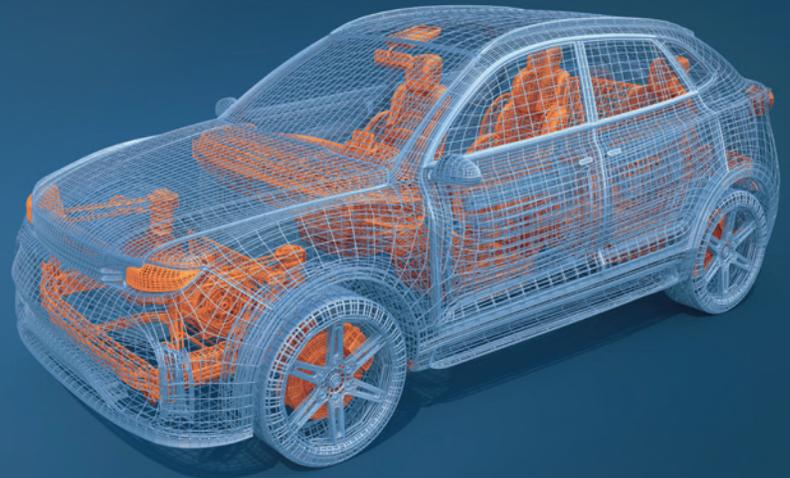
Global Time Synchronisation

Secure Onboard
Communication

End-to-End Protection

ISO 26262

PDU Container



AUTOSAR Adaptive Platform

Strong Separation for Applications

PikeOS RTOS & Hypervisor

Connection needs Safety & Security



Execution Platform
for adaptive
Applications



Safe
Hypervisor



Flexible and
extendible

CHALLENGE

AUTOSAR Adaptive is the next standard runtime environment that is getting more and more attraction for Automotive ECUs. The aim of this standard is to provide a flexible run-time environment enabling to bridge the gap between AUTOSAR Classic (hard real-time but limited in features) and rich OS such as Linux (rich feature set but not real-time). AUTOSAR Adaptive is designed to run on high-end ECUs with real-time requirements but not as demanding as AUTOSAR Classic from a deterministic point of view.

AUTOSAR Adaptive opens a lot of opportunities. However, one of the key points regarding future use cases will be the capabilities to run on the same ECU next to AUTOSAR Adaptive and other applications with different Safety and/or real-time requirements. This will facilitate the design of next generation ECUs such as domain controllers by offering additional flexibility.

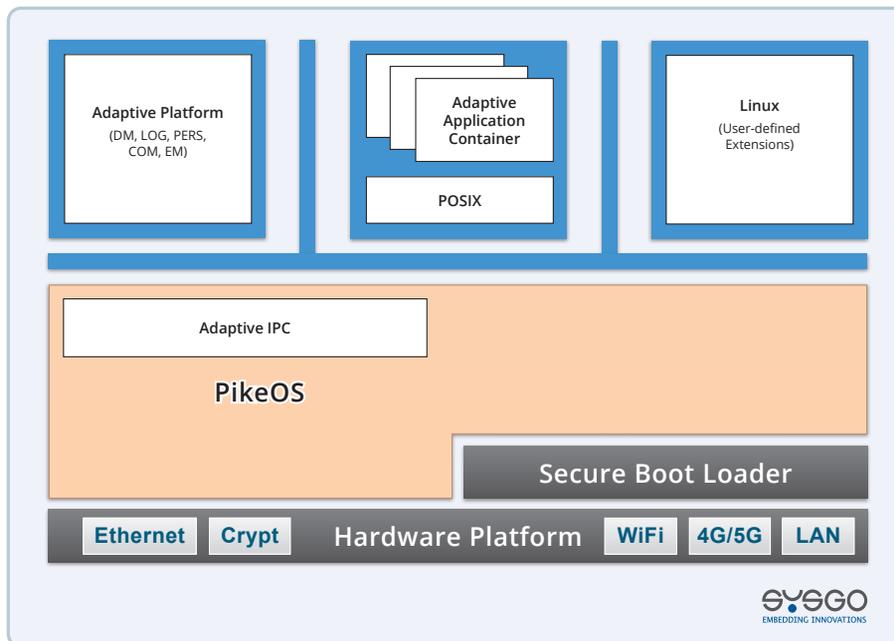
SOLUTION

To ensure the safe and secure co-existence of different tasks with various criticality and with different real-time requirements, the chosen software platform needs to be certified and supporting virtualization technologies. This guarantees the co-existence of different run-time environments and/or entire operating systems side-by-side.

- SYSGO and Vector are collaborating in a Joint Venture to optimize AUTOSAR Adaptive implementation on top of PikeOS hypervisor to ensure real-time behaviour and certifiability.

- The PikeOS RTOS/Hypervisor’s secure separation is certified as a Safety Element out of Context (SEooC) according to ISO 26262.
- PikeOS has been designed to support mixed-criticality certification, ensuring application from different Safety level running on the same platform without interferences.
- PikeOS supports hardware virtualization (if available on the SoC) allowing the execution of multiple unmodified guest operating systems.

PIKEOS SOFTWARE ARCHITECTURE



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. More information at www.sysgo.com/automotive