



Automotive ROS Safety

PikeOS and Apex.Grace

Apex.AI is an international developer of Safety-certified base software, enabling a faster transition to software-defined vehicles and software-defined mobility. The company's software products are based on proven open-source software, such as Robot Operation System (ROS) or Eclipse iceoryx. Through a proprietary process, we add what is necessary to support commercial and Safety-critical applications such as functional Safety, real-time determinism and flawless performance. The company's flagship product is Apex.Grace, an Automotive-grade, real-time, reliable software development kit.

OUR JOINT SOLUTION

Together, SYSGO and Apex.AI bring the benefits of their respective technologies to the autonomous vehicle industry. By combining Apex.Grace with PikeOS, we provide a comprehensive solution for building safe and secure autonomous systems. Apex.Grace provides a high-level software framework that enables developers to build complex autonomous systems, while PikeOS provides the real-time and Safety-critical capabilities necessary to ensure the system operates reliably and securely.

The solution use cases in Automotive are mobility applications including Advanced Driver Assistance Systems

(ADAS) and, autonomous driving, powertrain or telematics. The joint solution can also be used in other industries e.g. in Railway for Automatic Train Operation (OTA), communication between trackside systems and onboard systems or other industries such as marine or agriculture applications.

The partners can help in the adoption of software-centric E/E architectures, efficient software architectures and modern software development processes. Certification artefacts for Safety and Cybersecurity are available.

Watch the Webcast: www.sysgo.com/ros-webcast

CUSTOMER ADDED VALUE

Unique solution with high value for autonomous driving:

- Software development kit for autonomous driving software and other safety-critical mobility applications
- Functional Safety certification according to the highest level of ISO 26262
- Combined expertise in software development, certifiable PikeOS RTOS, and development of advanced algorithms (such as LiDAR perception)
- Mixed criticality and multiple partitions with real-time capabilities

Increase flexibility:

- Flexibility by using a unique combination of open source and closed source software
- Adaptation to other hardware architectures

Reducing time-to-market by:

- ROS 2-based development environment and workflow
 - Access to a huge developer base of millions of ROS 2 developers
 - Reuse all already developed ROS2-based functions in a series production environment up to ASIL D / SIL 4
 - Reuse the existing Apex.AI application code ecosystem for series AD development
 - Integrated IDE

Provide certification evidences:

- Enable SIL 4 cloud-based Railway infrastructure
- ASIL D for ADAS solutions in automotive or off highway solutions
- Protect against external Security threats using PikeOS 5.1.3 separation kernel achieving CC EAL5+

About Apex.AI - Apex.AI is a global company headquartered in Palo Alto, CA developing breakthrough safe, certified, developer-friendly, and scalable software for mobility systems. The company's flagship product is Apex.OS, a robust and reliable meta-operating system that enables faster and easier software development for mobility, smart machines and IoT. Contact us at info@apex.ai

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. Contact us at sales@sysgo.com