PikeOS 5.1

Certified RTOS with Hypervisor Functionality

PikeOS is a real-time operating system based on a separation kernel, designed for highest levels of Safety and Security. Its modular and future-proof architecture supports various industry certifications, helping reduce cost, risk, and system certification time. As fully European solution, PikeOS ensures reliability and compliance, with optional long-term support available.
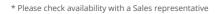
| ELinOS | Linux | PikeOS Native | Application |

PikeOS
RTOS & Hypervisor

Hardware

SYSGO
EMBEDDING INNOVATIONS

| Multi-Core | Graphics | Network | ... |

☑ Real-Time Performance ☑ Hardware Consolidation ☑ Use of COTS

☑ Certification Kit ☑ Application Separation ☑ ITAR-free

At a Glance

🔒 **DO-178C DAL A, ECSS Cat. A,
EN 50128 / EN 50657 SIL 4,
ISO 26262 ASIL D, IEC 61508 SIL 3**

Key Features

- **Separation Kernel-Based Architecture:** Ensures strict partitioning, allowing multiple applications and operating systems to run concurrently without interference
- **Versatile Guest OS Support:** Run operating systems such as ELinOS, Linux, Android, Windows, POSIX, each within its secure partition
- **Safety Certification:** Designed in accordance with industry-specific Safety standards, including DO-178C (Avionics), ECSS (Space), EN 50128 / EN 50657 (Railway), ISO 26262 (Automotive), and IEC 61508 (Industrial Automation)
- **Security Certification:** Highest level of Security assurance with Common Criteria EAL 5+, making it ideal for critical applications
- **Multi-Core Processor Support:** Optimized for modern multi-core architectures, ensuring efficient resource utilization and performance scalability.

Safe & Secure Real-Time Performance

In today's rapidly evolving embedded systems landscape, the convergence of Safety, Security, and real-time performance is paramount. PikeOS stands at the forefront, offering a robust solution that seamlessly integrates a real-time operating system with advanced hypervisor capabilities.

Customer Benefits

- **Streamlined Certification Processes:** PikeOS's adherence to rigorous Safety and Security standards simplifies the path to system certification, reducing time-to-market and costs
- **Enhanced System Reliability:** Robust partitioning ensures that faults in one application do not influence other partitions, maintaining overall system integrity
- **Future-Proof Scalability:** Its modular design and extensive hardware support provide flexibility for evolving project requirements and technological advancements.

Available for*

x86, ARM v7 v8, SPARC/LEON v8, PPC and RISC-V

* Please check availability with a Sales representative

Trusted Platform & Services

CODEO IDE for SYSGO Products
→ www.sysgo.com/codeo

More Product Features

- MILS-compliant (Multiple Independent Levels of Safety / Security)
- Robust time & resource partitioning
- Hardware virtualization enabling shared memory, graphics, and audio (BSP-dependent)
- Support of OpenGL and OpenCL
- Major Time Frame Synchronization: Crucial synchronization for Safety-critical applications
- Certifiable IP stack, Math Library and File System
- Large software and hardware ecosystem

Multi-Core Features

- **Inter-Core Interference Mitigation:** Shared cache partitioning, fine-grained locking, Bandwidth Access Monitoring (BAM)
- **Performance & Efficiency:** Enhanced multi-core performance & power efficiency, quick system calls, reduced driver access time
- **Kernel Driver Support:** Lock-free kernel drivers, pre-emptive kernel drivers
- **Hardware Virtualization (HW-Virt):** x86 / ARM architecture support, enhances isolation & resource utilization
- **Cache Coloring:** Optimizes cache allocation, reduces cross-core interference and boosts CPU efficiency

Enhanced Device Virtualization with VirtIO

- VirtIO integration for robust device virtualization
- Optimized performance & compatibility across virtual devices
- Seamless communication with PikeOS hypervisor
- Scalable & efficient in multi-guest environments

Industries & Applications

PikeOS is trusted across various domains where Safety and Security are paramount:

- **Aerospace & Defense:** Ensuring mission-critical operations with uncompromised reliability
- **Automotive:** Powering advanced driver assistance systems and autonomous driving
- **Railway & Transportation:** Enhancing Safety and efficiency of modern transit systems
- **Industrial Automation:** Driving the next generation of smart manufacturing and IoT
- **Medical Devices:** Providing a secure foundation for life-critical healthcare applications.

Secure Connectivity

Automotive Platform
→ www.sysgo.com/sacop

Railway Platform
→ www.sysgo.com/safe-vx

Support & Services

SYSGO is committed to ensuring the success of your projects by offering a range of support services:

- **Training & Consulting:** Expert guidance to harness the full potential of our products
- **Certification Assistance:** Access to certification kits and documentation to streamline compliance with industry standards
- **Long-Term Support:** Dedicated assistance throughout the entire product life cycle, ensuring sustained performance and reliability

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/pikeos**