PikeOS is the backbone of the platform, as it naturally fulfils the substantial requirements of determinism and real-time, Security, Safety and virtualization. As a Type 1 hypervisor, it directly runs on the embedded hardware and makes the overall system as performant as possible. Another performance boost comes through the multi-core support, which has proven its maturity in recent Railway projects. PikeOS is the first operating system that has been certified according to SIL 4 in a multi-core project.

The virtualization environment of PikeOS allows to separate and isolate application from each other by means of strict static time- and resource partitioning. This offers the opportunity to run mixed-criticality configurations, such as black-channel communication where a low-critical Linux partition provides a complex (TCP/IP) network stack. At the same time the high-critical application (that provides the functional safety) runs in a separate partition and cannot be influenced by the Linux partition.

Learn more: www.sysgo.com/pikeos
**SAFe-VX - Modular Hardware with safe & secure OS**

**SAFETY LIBRARY**

The Safety library makes use of the three computing boards by employing two redundant channel and one voter. Together with comprehensive continuous built-in tests / monitoring, a 1oo2D Safety architecture (one-out-of-two-with-Diagnosis) is employed.

For projects with a demand to Safety level SIL 4, two parallel computing platforms are switched together.

**HARDWARE**

The hardware comes from Kontron and bases on the VPX (Vital) standard. Computing modules for network and digital I/O can be plugged-in based on project needs. The reference implementation consists of three x86 computing boards and one network switch hosted in a rack with 4U height. The network connections are routed on the rack's backplane. SAFe-VX does not present any single point of failure.

**CERTIFICATION KITS**

Certification kits for hardware and software are available, covering Safety levels up to SIL 4.

**CUSTOMER BENEFITS**

Jointly with our hardware partner Kontron we offer:

- Flexible and modular VPX-based architecture, state-of-the-art with modern processors
- A development platform for Safety-critical applications using PikeOS as RTOS & Hypervisor
- Ideal to accommodate Safety and Non-Safety tasks, without compromising segregation and partitioning
- Fast transition from development to deployment, reducing time-to-market and total cost of ownership
- Wayside or rolling stock applications: Large operating T Range, shock & vibrations, EMC/EMI environments
- Long term support for program operations up to 30 years
- Reliable and future-proof European solution

Learn more: [www.sysgo.com/codeo](http://www.sysgo.com/codeo)

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/sacop](http://www.sysgo.com/sacop)