SYSGO Partner Solution

Modernizing Safety-Critical Development

INDUSTRY CHALLENGE

Embedded systems must meet unprecedented demands for Safety, Cybersecurity, and reliability, while development timelines shrink. Traditional, manual verification can no longer keep up.

Parasoft + SYSGO change the Equation

- A single, integrated development and verification flow for PikeOS-based systems
- Automated, standards-aware testing guided by AI
- Continuous compliance integrated directly into CI/CD pipelines
- Evidence generation aligned with PikeOS's time- and space-partitioned architecture
- Faster certification cycles with significantly reduced manual effort

Intelligent Automation for Safety & Security

Parasoft's MCP server introduces autonomous test automation designed explicitly for Safety- and Security-critical development.

AI agents:

- Generate Safety- and Security-focused test cases automatically
- Drive MC/DC and structural coverage required for Avionics (DO-178C) and Automotive (ISO 26262)
- Provide rule-aware static analysis recommendations and fixes
- Maintain continuous audit readiness
- Re-validate every code change across PikeOS partitions and profiles

This is structured, standards-aware AI, not generic LLM behavior, purpose-built for the most demanding embedded applications.

Designed for PikeOS. Built for Certification.

The joint workflow aligns naturally with PikeOS's deterministic separation kernel architecture, ensuring predictable execution and trustworthy verification.

The planned CODEO integration will provide:

- One-click access to static analysis, unit testing, and coverage
- End-to-end traceability from requirements to PikeOS-targeted test results
- A unified Eclipse-based development, verification, and compliance environment

Extended Support for ELinOS Linux Development

While the core focus is PikeOS, Parasoft also fully supports software developed on SYSGO's ELinOS embedded Linux distribution. This enables teams to maintain a consistent verification toolchain across both:

- Safety-critical PikeOS partitions
- Non-critical or mixed-criticality Linux components

Capabilities on ELinOS include:

- Static analysis for security and coding standard enforcement
- Unit testing of Linux-based components
- Coverage analysis for functional verification
- CI/CD integration for ELinOS-based pipelines

This companion support makes the solution ideal for hybrid Safety + Linux architectures, commonly found in Automotive, Rail, Industrial, and Defense programs.

JOINT CUSTOMER VALUE

- Automatically generated evidence aligned to PikeOS's partitioned architecture
- Workflows that reduce audit effort and eliminate late-stage surprises
- AI-powered continuous compliance, every build is audit-ready
- Unified Safety + Security verification without redundant testing
- Documentation, traceability, and verification artifacts required by the highest integrity levels

Transform Your Path to Certification

The Parasoft and SYSGO partnership delivers a future-ready verification ecosystem. From AI-assisted test generation to PikeOS-aligned evidence creation, this unified solution enables engineering teams to build safer, more secure, and more reliable embedded systems, faster and with greater confidence.

www.parasoft.com

www.sysgo.com

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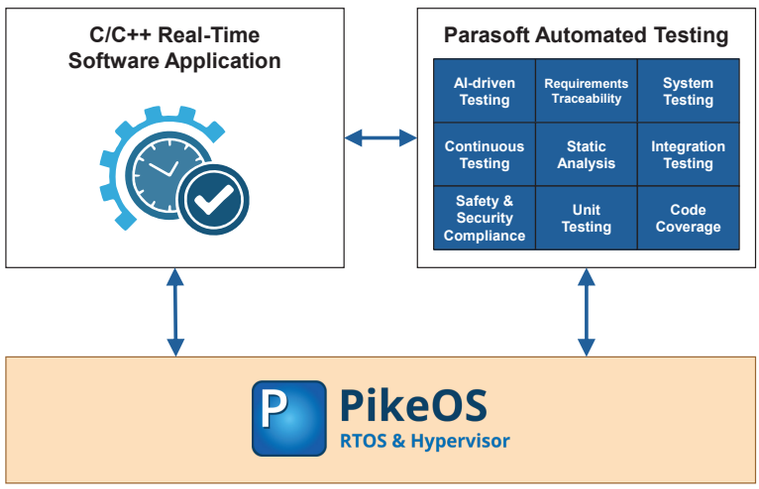

INDUSTRY-PROVEN USE CASES

Aerospace & Defense
- Accelerate DO-178C DAL A/B certification with automated coverage and AI-generated tests
- Validate mixed-criticality architectures with combined Safety + Security workflows
- Strengthen Cybersecurity resilience for mission-critical systems

Automotive
- Achieve ISO 26262 ASIL D objectives faster for ADAS and autonomous systems
- Support SDV transitions with PikeOS isolation and automated verification
- Reduce Cybersecurity exposure through ISO 21434 evidence automation

Railway
- Streamline EN 50128 / EN 50716 verification with deterministic PikeOS execution
- Validate signaling, braking, and train-control systems with automated test coverage
- Enable continuous compliance as Rail systems adopt digitalization and OTA updates

Medical Devices
- Ensure IEC 62304 compliance with automated testing, coverage, and traceability
- Strengthen FDA Cybersecurity readiness with early defect detection
- Support class B/C device verification through AI-driven evidence regeneration

Industrial Automation
- Accelerate IEC 61508 SIL 2 – SIL 4 verification for PLCs, robotics, and controllers
- Prevent hazardous failures via standards-tuned static analysis
- Maintain continuous compliance with CI/CD-driven reporting

Parasoft - Parasoft provides comprehensive automated C and C++ testing solutions for Safety-critical embedded software. We help organizations in industries like Automotive, Aerospace, Industrial Automation, Rail, and Medical deliver safe, secure, and reliable software by automating essential testing techniques. These techniques include static analysis, unit testing, code coverage, and requirements traceability, enabling embedded teams to efficiently meet rigorous compliance standards and accelerate their development cycles.

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.

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