

Platform for Aerospace and Defense, VxWorks MILS Edition

High assurance systems to control the creation and flow of classified data are challenged by the demands to use Commercial-Off-The-Shelf (COTS) hardware and software to control costs and increase reliability and maintainability. Simply duplicating security domains on separate communications lines and systems is commercially disadvantageous for supporting multiple levels of secure data.

To enable broad device proliferation of secure data collection and transmission devices, multiple applications processing different levels of classified data, or from different partners, must be integrated onto one platform to save space, weight and power. The trend toward the use of smaller systems deployed widely on smaller platforms, like UAVs and micro devices, accelerates these changes.

To achieve this secure integration, devices must enable **Multiple Independent Levels of Security (MILS)** on a single instance of silicon. This trend to use MILS in high assurance systems is driven by a joint effort among the Air Force Research Laboratory Information Directorate, the NSA, the Open Systems Joint Task Force, Wind River, other COTS software suppliers, academia and many defense contractors including Boeing, General Dynamics, Lockheed Martin, Northrop Grumman, Raytheon, and Rockwell Collins.

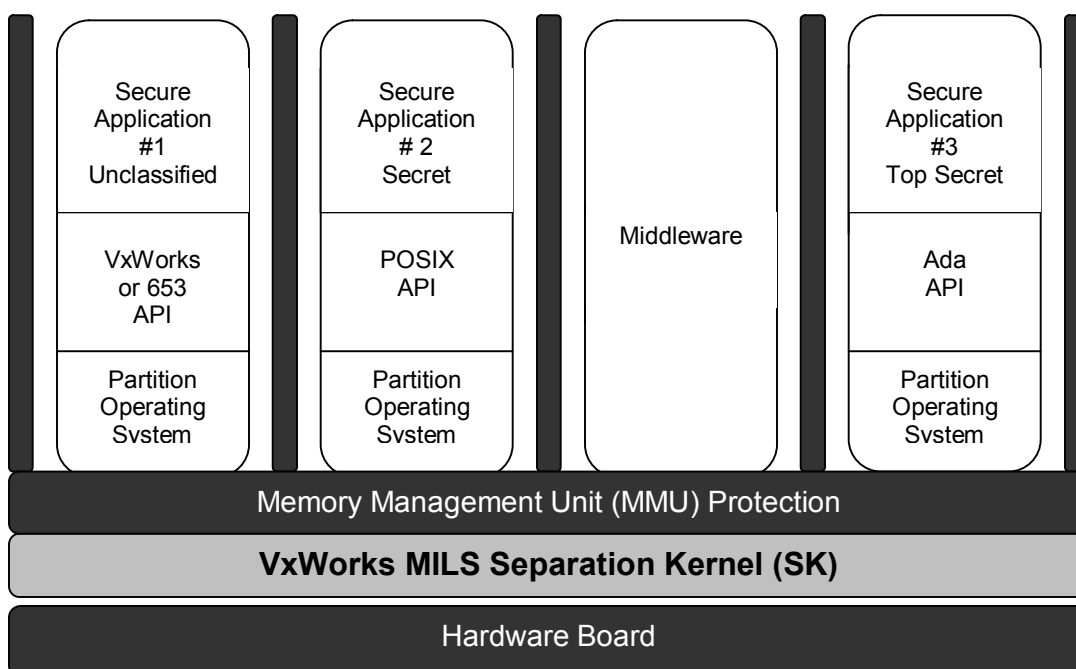
Although pioneered by the military and federal security agencies, MILS will transform the architecture of other systems in critical energy,

infrastructure, financial, medical, intelligent transportation, and consumer electronics applications that require secure, high assurance performance on smaller footprint, more cost-effective platforms.

MILS systems developers require a solution that is open, proven, and compatible with a broad range of hardware and software development tools. These tools must reduce cost and risk while providing a durable foundation for future application development from multiple security application suppliers.

Reduced risk produces better products

Wind River Platform for Aerospace and Defense, VxWorks MILS Edition, delivers the open foundation for developing robust multi-level security applications on a proven MILS environment. Targeted for EAL7 Common Criteria certification, the VxWorks MILS platform immediately enables MILS application and systems developers to create secure applications with the world's most proven environment for both development and operating systems – Workbench / Eclipse and VxWorks.



An optimized, integrated development suite works across the enterprise

Platform for Aerospace and Defense, VxWorks MILS Edition integrates an Eclipse-based development suite, including tools created specifically for developers of secure applications for rapidly deploying mixed security software without compromising the security of existing platform software.

Unique to this platform are three high-performance tools to aid in the deployment of certified applications in partitioned operating system environments. These tools enable users to measure CPU use by individual applications or all applications; report memory usage of various areas of the operating system, including heaps, stacks, ports, and health monitoring data; and monitor traffic across sampling and queuing ports in individual partitions. The interfaces to these tools are robustly tested and qualified along with the operating system, enabling the testing of the exact deployment environment.

An intelligent licensing model simplifies budgets

Wind River Platform for Aerospace and Defense, VxWorks MILS Edition is available to companies under an Enterprise License Agreement: subscription-based licensing that gives businesses unprecedented flexibility in project budgeting and ease in license management across the enterprise. Two modes of licensing (production license or production-license-free) offer the option of capturing license fees in R&D or manufacturing.

A proven and reliable partner enables success

The right technology partner can greatly increase your odds of succeeding in a highly competitive marketplace. As the industry leader in Device Software Optimization, Wind River has met and exceeded the requirements of our customers and their markets for over 25 years. More than 4,000 businesses have leveraged our skills, experience, and expertise to deploy and support more than 350 billion devices successfully. A vibrant, publicly traded company, Wind River is positioned to provide leading products and services throughout the product lifecycle to both established device manufacturers and new companies alike.

Commercial-grade services and support speed time-to-market

Platform for Aerospace and Defense, VxWorks MILS Edition includes full access to Wind River's worldwide Customer Support organization, with 24/7 product support available through multiple channels. Customers can leverage the education credits included with the platform to bring engineering teams up to speed on the latest Device Software Optimization (DSO) technologies and tools. Wind River also offers a specialized Aerospace & Defense Services Practice—our team of engineers has extensive experience delivering design, integration, and optimization services tailored to the needs of your industry, is ITAR-capable, and set up for US Government accounting.

Features

- Complete Implementation of Secure Real Time Operating System (SRTOS)
 - Secure Kernel based on Separation Kernel Protection Profile
 - Security Policy Database
 - Secure Audit Log
 - Secure Boot, Secure Delivery (developed with customers)
 - High-performance Middleware Layer for Device Drivers, File System, Network Stack
 - Robust Time and Space Partitioning
- Built upon years of experience with proven VxWorks ARINC 653 Platform
- Reviews of Security Target with National Security Agency (NSA)
- Powerful Rapid Configuration Tool
 - Enables private and secure insertion and re-config of new applications and security policies
- SRTOS supports Ada, ARINC 653, POSIX, and VxWorks applications simultaneously
- Core OS Interface Library (COIL) for support of custom/proprietary OS APIs
- Extensible, powerful, Eclipse-based development environment
- Additional built-in tools support testing for secure applications

Benefits

- Each application at any security level is protected by the MILS security kernel (SK)
- Multiple APIs adds flexibility for customers, reduced need to rewrite legacy applications
- Reduced effort: Static configuration allows for minor changes without rebuilding or retesting previously certified components
- Reduced risk: Legacy applications can retain current operating system interface with minimal changes
- High-performance kernel minimizes overhead
- True “what you test is what you deploy” debugging support—no need to rebuild applications for flight or other certification testing
- Support for integration of in-house, proprietary operating systems
- Ability to dynamically change the run-time environment to support unique testing and application requirements
- Long-term support and product upgrades