Powering Safe, Reliable, and Secure Space Missions

Space used to be beyond reach to all but the richest governments and a handful of ill-fated private enterprises. Today, opportunities in space look different. Advances in the reduction of size, weight and power consumption of on-board electronic systems, allied to faster development cycles, and reduced launch costs have enabled new business models and made it possible for venture-capital-backed companies to enter the commercial space market. Yet these advances have also brought new challenges, including greater system complexity and growing security risks.

SECURE, RELIABLE SYSTEM DESIGN FOR SPACE DEVELOPMENT

Modern, powerful microprocessors allied to advanced foundational software, enable the development of high-performance applications for embedded systems. High reliability stems from development process - the use of a trusted, proven operating system upon which to write the applications, rigorous testing, and efficient deployment and update mechanisms. This provides the element of mission critical assurance - for operational lifetimes that can span decades.

Technological advances have improved the success rate of launches and operations. However, new security risks affect every stage, from ground to space. In addition, satellites and space craft are in the 'simply cannot fail' category. Long development cycles, distributed teams, and human error can lead to failures.

WIND RIVER BRINGS DEPENDABILITY TO SPACE DEVELOPMENT AND OPERATIONS

Wind River has supported numerous space missions since 1994. By providing the foundational software elements — the real-time operating system and virtualization software — we enable secure and reliable space systems design. Our space solutions cover the entire development phase, from the lab, to the ground station, to Mars, and can be deployed as individual products or as integrated solutions. Wind River supports the acceleration of development, the enhancement of safety, and the security of next-generation space development with proven technological capabilities.

VxWorks® from Wind River is integrated with NASA's Core Flight System (CFS) and F Prime (F') flight system. Wind River is also actively supporting risk reduction and maturation efforts on the High Performance Space Computer (HPSC), the RISC-V-based next generation mission systems platform, utilizing VxWorks. Wind River is a major contributor to help define Space Grade Linux, a high-performance, highly available Linux distribution tailored to the rigorous demands of space.

WIND RIVER PRODUCT PORTFOLIO

Wind River offers the highest levels of safety, security, and reliability. Our portfolio delivers development, deployment, and support solutions for all space needs, from LEO smallsats to manned missions to distant planets.

OPERATIONAL TECHNOLOGY (OT)
Edge / Embedded / Specialist / Legacy Applications

WHEN IT MATTERS,
IT RUNS ON WIND RIVER

(IT) INFORMATION TECHNOLOGY
Cloud / Enterprise / Commodity / Artificial Intelligence

STUDIO TOOLS

Develop	Test			Manage		Monitor	
Diab	Test Automation	Virtual Lab	Intel® Simics®	OTA Updates	Conductor	Digital Feedback Loop	Analytics

PLATFORMS

- VxWorks
- Wind River Linux
- eLxr Pro
- Wind River Cloud Platform
- Wind River Helix Virtualization Platform

Design and Consulting · Engineering · Security · Safety and Certification · Managed Services · Education · Success Management · Customer Support

PLATFORMS

VxWorks

The de facto gold standard for real-time operating systems; extensive track record of adoption in the space and defense domains

Wind River® Linux

Commercial embedded Linux with long-term support, achieving the robustness, portability, and security required for space development

eLxr Pro™

Enterprise Linux based on the open source eLxr Project, a highly reliable platform for distributed space systems

Wind River Helix™ Virtualization Platform

High-performance hypervisor that enables integration of different operating systems and applications on a single platform, efficiently handling multiple functions simultaneously.

Wind River Cloud Platform

Infrastructure solutions for distributed cloud environments, providing high availability and centralized management, ideal for mission operations and ground station systems

STUDIO TOOLS

Wind River Studio

Cloud-native DevSecOps platform for embedded centralizing development, testing deployment and updates to power the entire software lifecycle of space missions

SERVICES

We support our customers' space-related projects through specialized professional services and technical training.

ABOUT US

Wind River is a leading global provider of software for mission-critical intelligent systems that never fail.

Founded: 1981
Location: California, USA
Number of customers: 1,700
Number of employees: 1,600
Business presence: 20 countries

HISTORY

- **1987** Real-time OS VxWorks released
- **1993** Listed on NASDAQ
- **2004** Entered the embedded Linux market
- **2009** Became a subsidiary of Intel Corporation
- **2018** Acquired by TPG
- **2021** Launched Wind River Studio
- **2022** Became a subsidiary of APTIV

WIND RIVER LEADS THE EDGE OS FIELD

Wind River has long held the top global market share* in sales in the categories of Real-Time OS, Commercial Embedded Linux, and OS for IoT and Embedded, and it continues to lead the industry.

* Source: 2025 VDC report, The Global Market for IoT & Embedded Operating Systems

CUSTOMER SUCCESS STORIES

NASA

Wind River has been providing real-time operating systems and full-system simulators to support important space missions since 1994. www.windriver.com/inspace

Astroscale

End-of-Life Service Line (ELSA-M) uses VxWorks to solve satellite operators' debris removal challenges and promote sustainable space systems. www.windriver.com/success-stories/astroscale

Wind River

www.windriver.com

Wind River is the world's leading provider of software for the intelligent edge. Since 1981, its technology has been used in billions of the world's most safe and secure devices. Wind River's software and expertise accelerate the digital transformation of mission-critical intelligent systems that demand better computing and AI capabilities while delivering the highest levels of security, safety, and reliability.