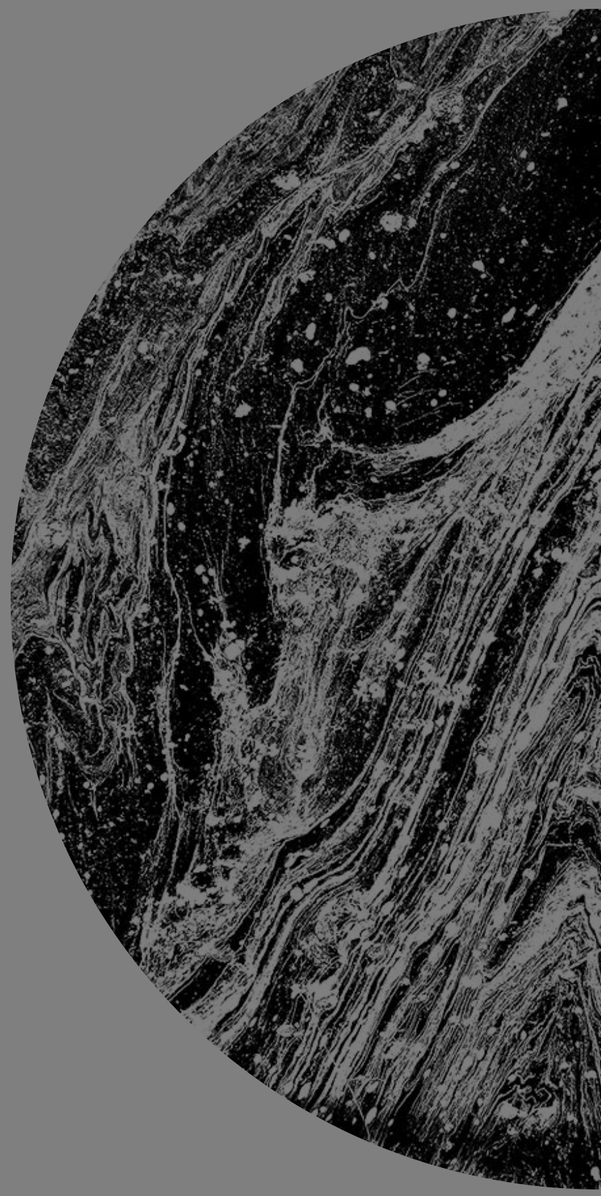
MCTE 4324 - Real-Time Systems

01

What is VxWorks ?



Source: What is VxWorks

What is VxWorks

VxWorks is the industry's most trusted and widely deployed real-time operating system (RTOS) for *mission-critical* embedded systems that must be secure and safe.

It delivers a *proven, real-time, and deterministic runtime* combined with a **modern approach to development**. Regardless of industry or device type, companies building intelligent edge systems rely on the VxWorks pedigree of:

- Security
- Safety
- High performance
- Reliability

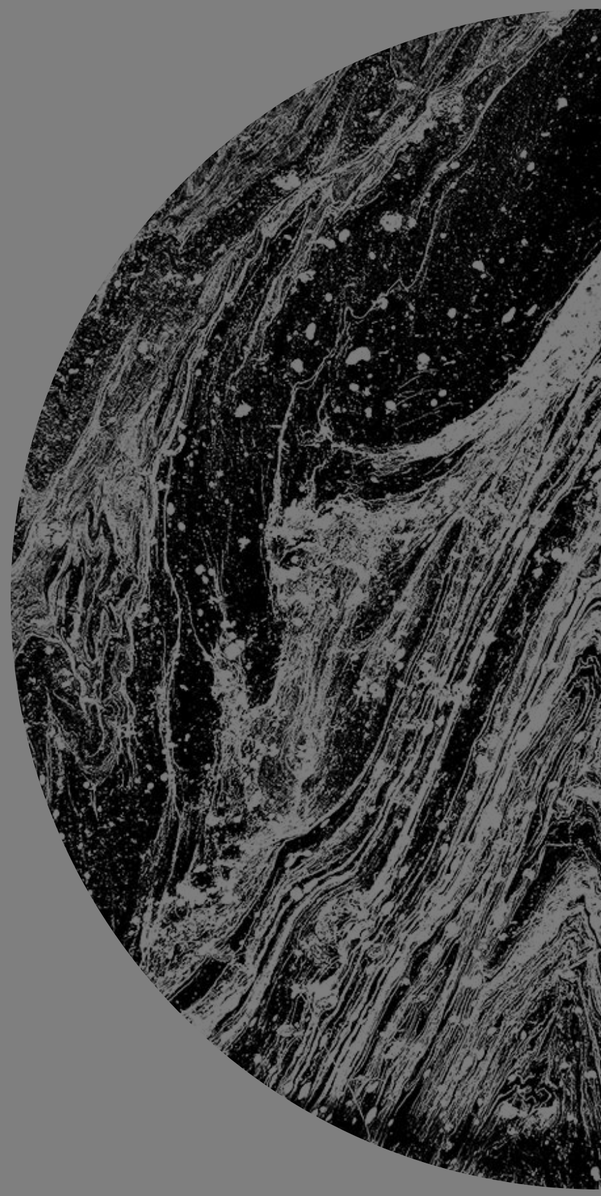
Industries that uses VxWorks

VxWorks is used in many industries and around the world in the aerospace and defense industry it is used in 70 aircraft and by over 185 customers including unmanned combat aircraft and in space exploration such as the Mars Curiosity rover.

VxWorks is also used in the latest cutting-edge self-driving cars critical medical equipment such as MRIs and in thousands of industrial manufacturing robots of all shapes and sizes the only real-time operating system that is used around the world and also in outer space where failure isn't an option and security is paramount Wind River.

02

Key features of VxWorks



Source: Overview of VxWorks

Key features of VxWorks

Extensive multi-core and multiprocessing support

VxWorks supports 32-bit and 64-bit multi-core processors based on Intel®, Arm®, Power, and RISC-V architectures

OCI containers

Deploy applications at the speed of IT. Package and deploy any and all applications using IT-like tools and methods.

Security

Start with a foundation that adapts the security response to the threat. VxWorks integrates an extensive and continuously evolving set of security capabilities that map to the CIA triad.

Certifiable

Meet regulatory requirements for your deployment. VxWorks has an extensive portfolio of safety certification history, including 600+ programs with more than 360 individual customers.

Key features of VxWorks

Rich connectivity and communications

Employ the broad range of communications necessary in a connected world. VxWorks supports IPv4 and IPv6 stacks, Routing Information Protocol (RIP), quality of service (QoS), and more.

Broad board support

Speed time-to-market by beginning from a solid starting point. Working with our ecosystem of partners, we have optimized VxWorks for the latest advanced processors and SOCs.

Customization and tuning

Enjoy immense flexibility in customizing your product. Tailor your design to your specific needs with access to full source code, and/or use all the various configuration options to include or exclude pre-defined components and/or parameters

Virtualization

Choose from a number of flexible deployment options, from native to cloud. VxWorks is available as a guest operating system for a variety of virtualization environments.

Key features of VxWorks

Fault-tolerant file system

Take advantage of integrated fault tolerance. VxWorks comes with a fault-tolerant file system that can be certified.

Multimedia

Benefit from out-of-the-box UI support. VxWorks offers support for many standard graphic libraries, such as OpenGL, OpenGL ES, OpenCV, and Vulkan, as well as libraries that handle JPEG and PNG images

AI/ML

Digital transformation and creation of added value/service are at your fingertips. Technologies such as pandas, Tensorflow Lite, and others are integrated to easily add AI/ML applications into the device.

Feedback loop

Enjoy digital transformation enablement. VxWorks comes with a variety of communication protocols allowing developers to collect device information and send it to the cloud for mining and analysis


Systems
Upgradable
Functionality
Reliability
Interface
Devices
Requirements
Deterministic
Foundation
Performance
Industries
costs
features
Tools
User
Multiple
Safety
Lowering
Innovation
Embedded
IoT Enabled
VxWorks
Advanced
Connected
Security