VxWorks

- **What is VxWorks**

  - A real-time operating system (RTOS) developed as proprietary software by Wind River Systems
  - VxWorks is designed for use in embedded systems requiring real-time, deterministic performance, safety and security certification.
  - Used in industries, such as aerospace and defence, medical devices, industrial equipment, robotics, energy, transportation, network infrastructure, automotive, and consumer electronics.

- **VxWorks History**

-VxWorks started in the late 1980s as a set of enhancements to a simple RTOS called VRTX.
-VxWorks key milestones are:

  - 1980s: VxWorks adds support for 32-bit processors.
  - 1990s: VxWorks 5 becomes the first RTOS with a networking stack.
  - 2000s: VxWorks 6 supports SMP and adds derivative industry-specific platforms.
  - 2010s: VxWorks adds support for 64-bit processing and introduces VxWorks 7 for IoT in 2016.
  - 2020s: VxWorks continues to update and add support, including power the Mars 2020 lander.

- **Platform Overview**

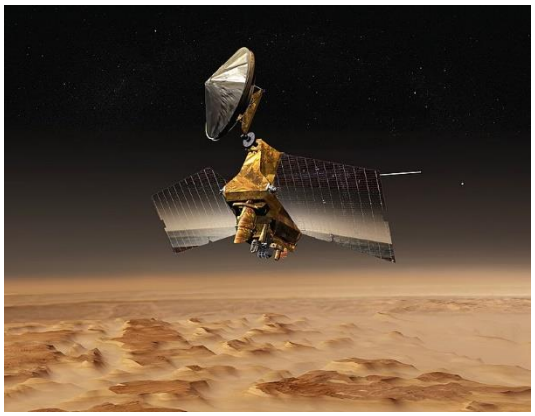
  - VxWorks supports Intel architecture, Power architecture, and ARM architectures.
  - The RTOS can be used in multi-core asymmetric multiprocessing (AMP), symmetric multiprocessing (SMP), and mixed modes and multi-OS (via Type 1 hypervisor) designs on 32- and 64-bit processors.
  - The platform is a modular, vendor-neutral, open system that supports a range of third-party software and hardware.

- **Features**

A list of some of the features of the OS are:

  - Multitasking kernel with pre-emptive and round-robin scheduling and fast interrupt response
  - SMP, AMP and mixed mode multiprocessing support
  - Error handling framework
  - Bluetooth, USB, CAN protocols, Firewire IEEE 1394, BLE, L2CAP, Continua stack, health device profile
  - Binary, counting, and mutual exclusion semaphores with priority inheritance
  - Local and distributed message queues
  - Dual-mode IPv6 networking stack with IPv6 Ready Logo certification

- Notable Uses
  - Mars Reconnaissance Orbiter



  - Mars Science Laboratory Curiosity rover

- AgustaWestland Project Zero

- Honda ASIMO Robot