FreeRTOS :: RTOS

This operating system variant is based on the FreeRTOS v11.0 kernel with a CMake build system and GCC toolchain support. It relies on an application and BSP configuration to set CPU and peripheral clock frequencies. It has been implemented on our generic, reusable operating system abstraction layer (OSAL), ensuring portability and reducing integration risks when transitioning between operating system variants. Multiple BSP peripherals—including FDCAN, DAC, I2C, NVM, PWM, SPI, and UART—provide thread-safe, resource-locked interfaces that leverage the OSAL framework and enable consistent, secure access across all tasks.

The software is architected with long-term maintainability, portability across MCU platforms, and adherence to high software quality standards as core design principles.

✅ Layered architecture with clear HAL abstraction
✅ Conforms to ISO C99 standard
✅ Portable across multiple MCU platforms
✅ Supports both RTOS and bare-metal environments
✅ CMake build system for scalable integration
✅ Seamless integration with GCC toolchain
✅ Statically analyzed for MISRA, CERT, and CWE compliance

BSP MCU	Supported?
NXP LPC845	Yes*
NXP LPC54114	Yes
ST STM32C011	Yes*
ST STM32G491	Yes
Microchip PIC32MK	Yes

* Limited RAM - only minimal features supported.