Zephyr®

Renesas Ready Ecosystem Partner Solution

Zephyr RTOS

RENESAS PARTNER NETWORK READY

Solution Summary

The Zephyr Project is a Linux Foundation hosted Collaboration Project. It's an open-source collaborative effort uniting developers and users in building a best-in-class small, scalable, real-time operating system (RTOS) optimized for resource-constrained devices, across multiple architectures. Renesas is a member of the Zephyr project with support for the RZ/T2M Starter Kit+ and expanding to the RA MCU and RZ MPU families.

Features/Benefits

- Open-source real time operating system, with vibrant community participation
- Comprehensive, lightweight, kernel & supporting services, inherently portable & secure
- Complete, fully integrated, highly configurable, modular for flexibility
- Fully connected with Bluetooth 5.0 & BLE, Wi-Fi, Ethernet, CANbus, IoT protocols like CoAP, LwM2M, MQTT, OpenThread and USB & USB-C
- Developer-friendly, logging, tracing, debugging, built-in shell, Windows/Linux/macOS support
- Product development ready using LTS that includes security updates
- Permissively licensed - Apache 2.0 with vendor neutral governance, broad SoC, board and sensor support

Diagrams/Graphics

Target Markets and Applications

- Industrial IoT
- Asset tracking
- Wearables & Healthcare
- Worker Safety

Build secure, connected, future-proof devices with Zephyr®

2024.02

Zephyr®

Open Source

- Available through the Apache 2.0 open source license
- Free to use in commercial and non-commercial solutions

Product Ready

- Long Term Support (LTS) with security updates
- Certification ready with Auditable code base for goal of safety certification

Connected

- Supports 802.15.4, Bluetooth® Low Energy, CAN, Cellular, Ethernet, LoRaWAN®, Thread®, USB and Wi-Fi®
- Supports standards like 6LoWPAN, CoAP, HTTP, IPv4, IPv6, LwM2M, Modbus®, MQTT, SNTP and WebSocket

Secure

- Developed with security in mind
- Includes CAN with PSIRT response team

A PROVEN RTOS ECOSYSTEM, BY DEVELOPERS, FOR DEVELOPERS

- **Open source** RTOS
- **Support** for multiple architectures, SoCs and boards
- **Highly configurable & modular**
- **Optimized** for memory constrained devices
- **Thread-level memory protection**
- **Native IPv4/IPv6** protocol stack
- **Bluetooth® 5.0** support includes Bluetooth Low Energy mesh
- **Over the air update** via LwM2M or GATT
- OpenThread, LVGL, OpenAMP, FatFs, and LittleFS integrations
- **Secure boot** and update support
- **Scalable**, runs on systems as small as 8KB

DEVELOP YOUR PRODUCTS ON OVER 500 SUPPORTED BOARDS

- **Based on a small footprint kernel;** targeting devices from simple embedded environmental sensors or wearables to IoT wireless gateways and industrial machines.
- **Supports multiple architectures,** including Arm (Cortex-A, Cortex-R,
- Cortex-M), Intel x86, ARC, Nios II, Tensilica Xtensa, RISC-V, SPARC, and MIPS
- **Royalty-free,** under an Apache 2.0 license.

Getting Started Guide: docs.zephyrproject.org/latest/getting_started/index.html
Supported Boards: docs.zephyrproject.org/latest/boards/index.html
View the Code: github.com/zephyrproject-rtos/zephyr

CONNECT

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