



# Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4

## RW612

Last Updated: Dec 23, 2025

The RW612 is a highly integrated, low-power tri-radio wireless MCU with an integrated MCU and Wi-Fi® 6 + Bluetooth® Low Energy (LE) 5.4 / 802.15.4 radios designed for a broad array of applications, including connected smart home devices, enterprise and industrial automation, smart accessories and smart energy.

The RW612 MCU subsystem includes a 260 MHz Arm® Cortex®-M33 core with Trustzone™-M, 1.2 MB on-chip SRAM and a high-bandwidth Quad SPI interface with an on-the-fly decryption engine for securely accessing off-chip XIP flash.

The RW612 includes a full-featured 1x1 dual-band (2.4 GHz/5 GHz) 20 MHz Wi-Fi 6 (802.11ax) subsystem bringing higher throughput, better network efficiency, lower latency and improved range over previous generation Wi-Fi standards. The Bluetooth LE radio supports 2 Mbit/s high-speed data rate, long range and extended advertising. The on-chip 802.15.4 radio can support the latest Thread mesh networking protocol. In addition, the RW612 can support Matter over Wi-Fi or Matter over Thread offering a common, interoperable application layer across ecosystems and products.

The integrated EdgeLock® Secure Enclave (Core Profile) offers secure boot, secure debug, secure firmware updates and secure life cycle management as well as hardware cryptography and physically unclonable function (PUF) for secure key management.

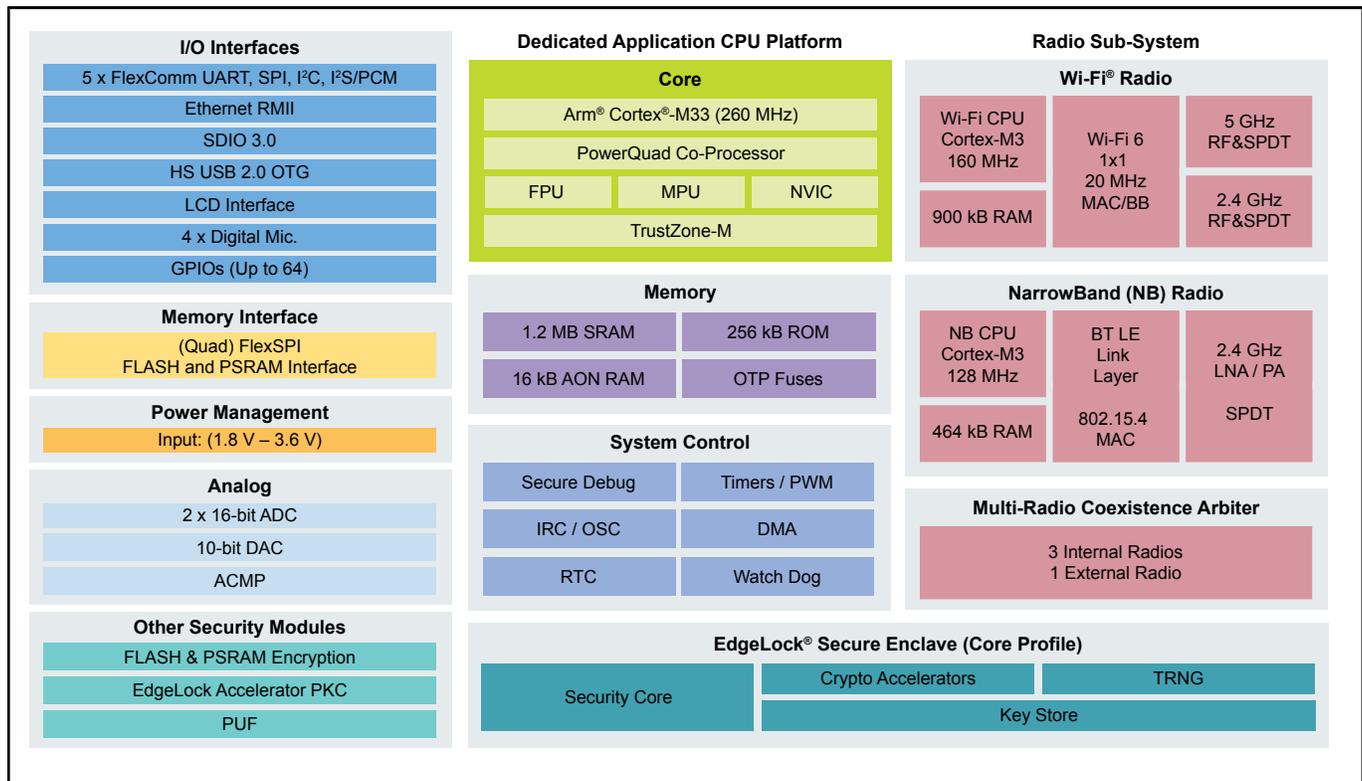
The advanced design of the RW612 delivers tight integration, low power and highly secure operation in a space- and cost-efficient wireless MCU requiring only a single 3.3#V power supply.

Wireless modules based on the NXP RW612 are offered by leading [module manufacturers](#).

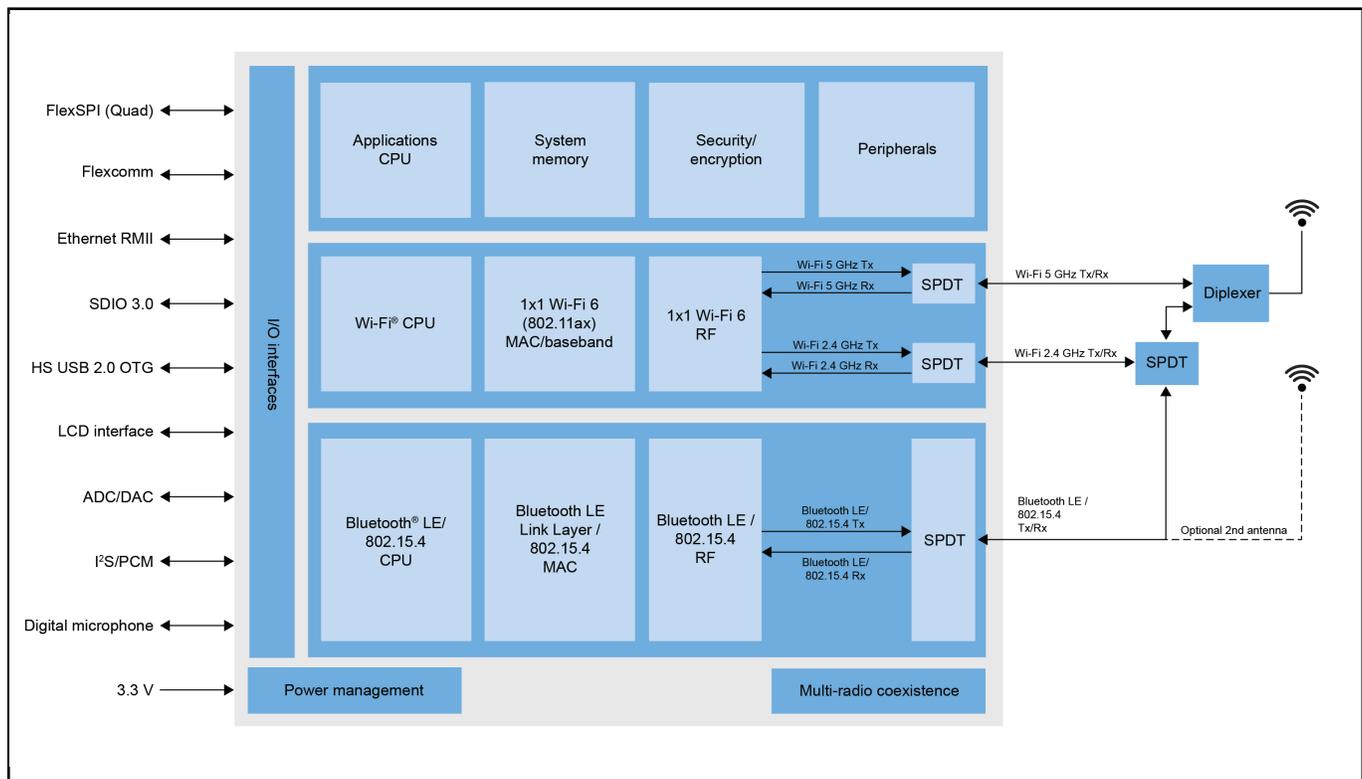
[Get started with the FRDM-RW612.](#)

Learn more about the [FRDM-RW612 Wi-Fi 6 Development Board](#) .

## RW612 Main Subsystems Block Diagram



## RW612 Block Diagram Block Diagram



View additional information for [Wireless MCU with Integrated Tri-radio: 1x1 Wi-Fi® 6 + Bluetooth® Low Energy 5.4 / 802.15.4](#).

**Note:** The information on this document is subject to change without notice.

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