XR871

Single-Chip Wireless MCU

for Wi-Fi and Internet-of-Things Applications

Overview

The XR871 is a highly integrated single processor which features an ARM Cortex-M4F MCU, a low power 802.11b/g/n WLAN subsystem and a Power Management Unit(PMU). It is designed for a broad array of smart device in product categories such as Internet of Things (IoT), wearables, Machine-to-Machine (M2M) and home automation.

Highlights

- **High-performance MCU with 448KB SRAM, which enables software to perform more complex tasks.**
- **Various peripheral support allows customers to develop a wide variety of different products.**
- **Hardware crypto engine makes data transmission more secure and faster.**
- **A High level of integration effectively reduces the BOM cost and provides a faster time-to-market for new products.**
- **Industry leading power consumption and effective power management ensure excellent battery life.**

Features

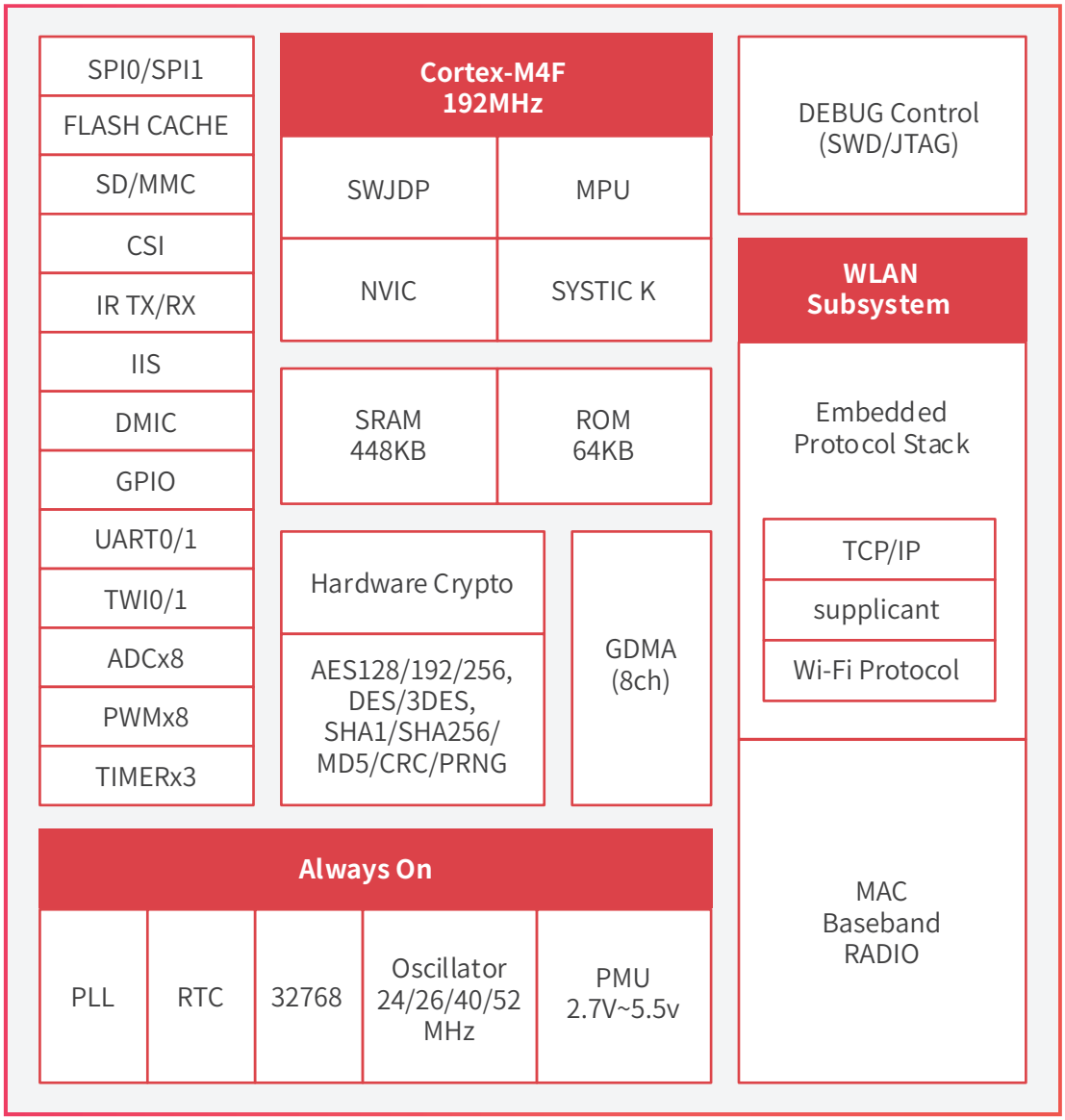
Platform	• ARM Cortex-M4 MCU with FPU, up to 192MHz • Embedded 448KB SRAM and 64KB boot ROM • Supports external serial flash with Quad Peripheral Interface(QPI) mode • Supports execute in place (XIP) on flash • 8 shared universal DMA channels • Low power RTC mode with 32KHz crystal support • 2Kbit eFuse

Crypto Engine	• AES ECB/CBC/CTR, 128/192/256-bit key • DES/3DES • MD5/SHA/SHA256, CRC16/32, PRNG
Peripherals	• SPIx2, UARTx3, I2Cx2, SDIO • I2S, DMIC, CSI, IrDA • PWMx8, ADCx8, GPIO
WLAN	• Compatible with IEEE 802.11b/g/n standards • Single-band 2.4G 1T1R WLAN with data rate up to 72Mbps • Security support for WPA/WPA2 personal, WPS2.0 • Integrated LNA, PA and T/R switch • STA, AP, and mixed mode support • Integrated Wi-Fi protocol, TCP/IP stack
Power Management Unit	• Single input power supply: 2.7V to 5.5V • Integrated 200mA 3.3V LDO for external peripheral device supply • Integrated DC-DC and LDOs for the internal power supply • System ON/OFF modes • Brownout Detection • Wakeup source management unit from system OFF/Deepsleep • Independent power switches for CPU, RAM and Peripherals
Package	• 6mm x 6mm 52-pin QFN package with/without SiP Flash

Applications

- **Home Appliances**
- **Home Automation**
- **Smart Gadgets**
- **IoT Bridge**
- **Cloud Connectivity**

Block Diagram



The application subsystem is powered by an ARM Cortex-M4F CPU that operates up to 192MHz. It supports 448KB of integrated SRAM, 64KB ROM and a QSPI interface to external Flash. An integrated Flash Cache enables eXecute In Place (XIP) support for firmware from flash. With a wide range of peripheral options such as UART, I2C, SPI, I2S, DMIC, PWM, IrDA (T/R), CSI, SDIO and auxiliary ADC the XR871 can be used in an extensive variety of situations.

The WLAN subsystem is a full-featured, single-band 802.11b/g/n solution. It includes a 2.4G RF transceiver (integration with an energy efficient on board power amplifier, LNA and TR switches), WLAN baseband and WLAN MAC. The WLAN subsystem is optimized for low system cost, and minimizes the number and cost of any external components required to achieve a reliable and stable Wi-Fi link. It is also provides the configuration tool to implements WPA and older wireless LAN security protocols.