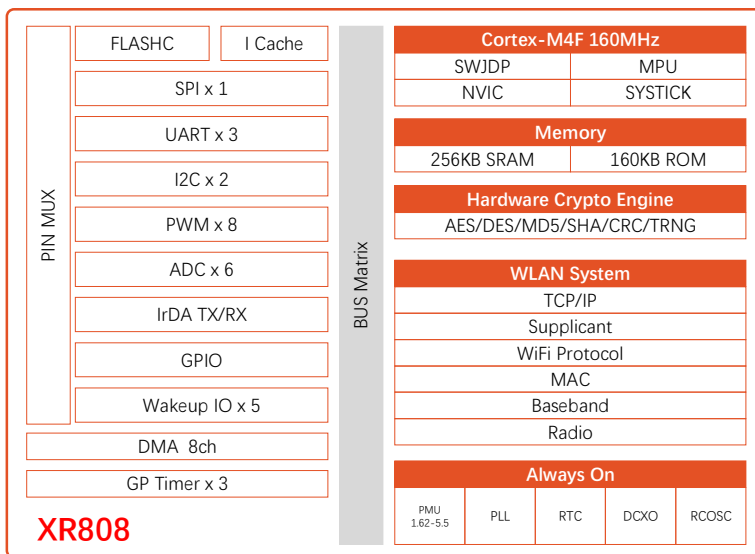**XRAD TECH**

Single-Chip Wireless MCU

for Internet of Things Applications

The XR808 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 abundant of smart devices in product categories such as Internet of Things (IoT), Machine-to-Machine(M2M), Smart Home, Cloud Connectivity applications.

XR808 block diagram: PIN MUX connecting to FLASHC, I Cache, SPI x 1, UART x 3, I2C x 2, PWM x 8, ADC x 6, IrDA TX/RX, GPIO, Wakeup IO x 5, DMA 8ch, GP Timer x 3 via BUS Matrix. Cortex-M4F 160MHz (SWJDP, MPU, NVIC, SYSTICK). Memory: 256KB SRAM, 160KB ROM. Hardware Crypto Engine: AES/DES/MD5/SHA/CRC/TRNG. WLAN System: TCP/IP, Supplicant, WiFi Protocol, MAC, Baseband, Radio. Always On: PMU 1.62-5.5, PLL, RTC, DCXO, RCOSC.

Highlight

- High performance and highly integrated MCU, which enables software to perform more complex tasks.

- Various peripherals support allows customers to develop a wide variety of different products.

- 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.

- Hardware crypto engine makes data transmission more secure and faster.

Feature

Platform

- ARM Cortex M4F, up to 160MHz
- 256KB SRAM and 160KB Code ROM
- Supports external Flash with QPI and eXecute In Place(XIP) mode
- 8 shared universal DMA channels
- 1024 bits eFuse

Crypto Engine

- AES ECB/CBC/CTR, 128/192/256-bit key
- DES/3DES
- MD5/SHA/SHA256, CRC16/32, TRNG

Package

- XR808ST/XR808CT: 4mm x 4mm 40-pin QFN

WLAN System

- Compatible with 802.11b/g/n standard
- Single-band 2.4G 1T1R WLAN
- WPA/WPA2 personal, WPS2.0
- Integrated LNA, PA and T/R switch
- STA, AP and STA/AP

Software

- Supports Secure Boot
- Smart-Config technology for Autonomous and Fast WiFi connections
- Industry-Standard BSD socket application programming interfaces
- Comprehensive AT command set

Power Management

- 1.62V ~ 5.5V single input power supply
- Shutdown: 0.5uA
- Hibernation: 4uA RTC only
- Standby: 26.5uA (32KB SRAM retention)
- RX Active(MCU active, DC-DC mode): 31mA
- TX Active(MCU active, DC-DC mode): 164mA@11n MCS7 14dBm 192mA@11b CCK 19dBm
- DTIM interval with stable 32KHz RCOSC and 32KB SRAM retention DTIM1: 840uA DTIM3: 298uA DTIM10: 108uA