

# 2.4/5 GHZ DUAL-BAND 1 x 1 WI-FI® 5 (802.11ac) AND BLUETOOTH® 5.0 SOLUTION

## PRODUCT OVERVIEW

The 88W8987 system-on-chip (SoC) is a highly integrated Wi-Fi (2.4/5 GHz) and Bluetooth single-chip solution. This SoC is specifically designed to support the speed, reliability and quality requirements of very-high-throughput (VHT) products.

The SoC provides simultaneous and independent operation of the following features:

- IEEE® 802.11ac (Wave 2), 1 x 1 with data rates up to MCS9 (433 Mbit/s)
- Bluetooth 5.0 (includes Bluetooth Low Energy (LE))

The SoC also provides:

- Bluetooth Classic and Bluetooth LE dual (Smart Ready) operation
- Wi-Fi indoor location positioning (802.11mc)

For security, the device supports high-performance 802.11i security standards through implementation of the Advanced Encryption Standard (AES)/Counter Mode CBCMAC Protocol (CCMP), AES/Galois/Counter Mode Protocol (GCMP), Wired Equivalent Privacy (WEP) with Temporal Key Integrity Protocol (TKIP), AES/Cipher-Based Message Authentication Code (CMAC), and WLAN Authentication and Privacy Infrastructure (WAPI) security mechanisms.

For video, voice, and multimedia applications, 802.11e quality of service (QoS) is supported. The device also supports 802.11h dynamic frequency selection (DFS) for detecting radar pulses when operating in the 5 GHz range.

Host interfaces include SDIO 3.0 and high-speed UART interfaces for connecting Wi-Fi and Bluetooth technologies to the host processor.

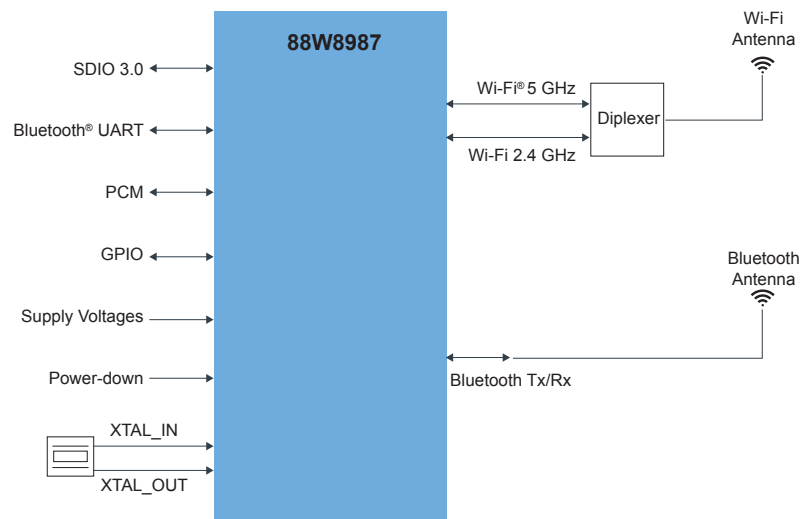
The device is designed with two front end configurations:

- 2-antenna configuration—1 x 1 Wi-Fi and Bluetooth on separate paths (QFN package)
- 1-antenna configuration—1 x 1 Wi-Fi and Bluetooth on shared paths (eWLP package, QFN package with external FEM)

## APPLICATIONS

- Wireless home audio and video entertainment systems
- Mobile routers and Internet of Things (IoT) gateways

**88W8987 APPLICATION DIAGRAM (QFN PACKAGE)**



## Wi-Fi KEY FEATURES

- Supports 802.11ac/n/a/g/b
- Dual band: 2.4 GHz and 5 GHz
- Up to MCS9 data rates
- 20/40/80 MHz channel bandwidth  
Security: TKIP, AES, WAPI

## BLUETOOTH KEY FEATURES

- Bluetooth 5 features
- PCM audio interface
- Security: AES

## HOST INTERFACES

WI-FI	BLUETOOTH
SDIO 3.0	UART
SDIO 3.0	SDIO 3.0

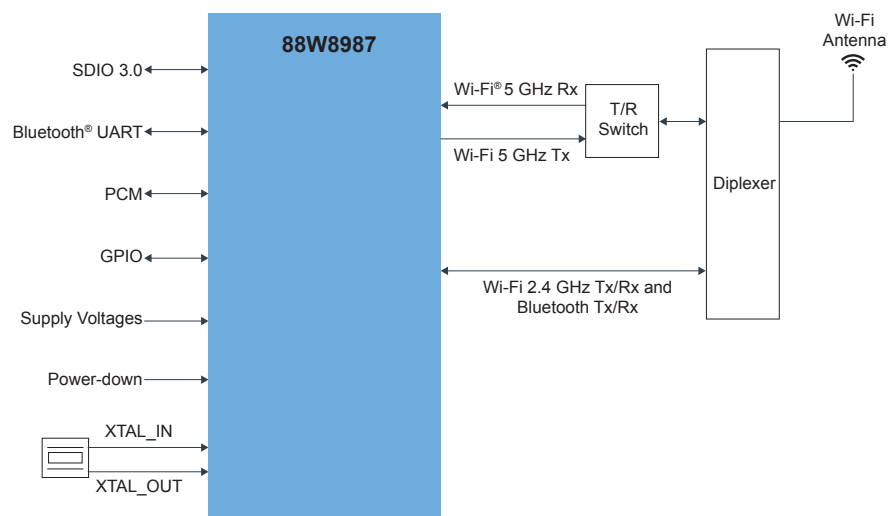
## OPERATING CHARACTERISTICS

- Supply voltage: 2.2 V, 1.8 V, and 1.1 V
- Operating temperature
  - Extended: -30 to 85 °C
  - Industrial: -40 to 85 °C

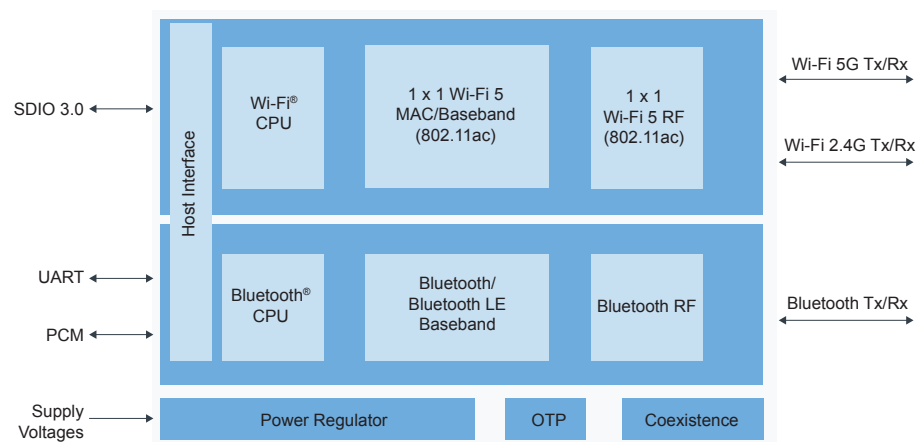
## GENERAL FEATURES

- Package options
  - 68-pin 8 x 8 mm QFN with wettable flanks
  - 83-bump 4.6 x 4.2 mm eWLP
- Power management
  - Low power dissipation
  - Optional lower power operation with external sleep clock
  - Sleep and standby modes for low-power operation
- Independent Arm-based Wi-Fi and Bluetooth CPUs
- Supports reference clock signal from external crystal or external crystal oscillator
- Memory
  - Internal SRAM
  - Boot ROM
  - One-time programmable (OTP) memory
- Peripheral interfaces
  - GPIO interface (up to 21)

## 88W8987 APPLICATION DIAGRAM (eWLP PACKAGE)



## INTERNAL DIAGRAM—QFN PACKAGE OPTION



## 88W8987 INTERNAL DIAGRAM—eWLP PACKAGE OPTION

