Qualcomm®
Wi-Fi Solutions for the IoT

QCA9377

High performance, ultra low power single-stream 11ac MU-MIMO and *Bluetooth*® 4.2 in a single-chip solution

QCA9377 includes both dual-band 1x1 802.11ac and Bluetooth 4.2 features

QCA9377 combines advanced 1x1 dual-band 802.11ac MU-MIMO Wi-Fi + Bluetooth 4.2 in a high performance, ultra low power, small form factor System-on-Chip (SoC).

Designed to deliver superior integration of WLAN and Bluetooth low energy technology in a single-chip solution, the QCA9377 SoC offers both low power dual-band (2.4 & 5GHz), 1-stream (1x1), 802.11ac MU-MIMO and Bluetooth 4.2 technologies.

QCA9377 supports high-speed Wi-Fi connectivity and enriched media experiences for virtually all connected devices. It is optimized for energy efficiency, which is critical to extending the battery life of portable devices. The software stack offers quality, stability and performance with an open source option and the architecture allows for virtually seamless evolution.

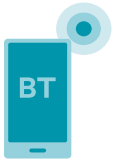
QCA9377 allows for superior rate-over-range throughput and low-latency performance in real-world operating conditions by incorporating Bluetooth coexistence, a special periodic switching of the antenna designed to enable both Wi-Fi and Bluetooth to operate in the same module effectively at the same time.

The two variants available for QCA9377 are QCA9377-3, which supports a low-power SDIO 3.0 interface for WLAN and a UART/PCM interface for Bluetooth and QCA9377-7, which supports a low-power USB 2.0 interface for WLAN and a USB 1.1 interface for Bluetooth.

Solution Highlights

Advanced 802.11ac combo SoC

Advanced 802.11ac features such as MU-MIMO, Host wake-on-wireless and ARP (Address Resolution Protocol) offloading enable the WLAN link to remain associated for extended periods for additional power savings.



Supports dual-mode Bluetooth version 4.2

QCA9377 supports Bluetooth for Class-1 and Class-2 transmissions without requiring an external power amplifier.

Advanced Bluetooth/WLAN coexistence and concurrent RX

WLAN/Bluetooth coexistence allows for superior rate-over-range throughput and low-latency performance in real-world operating conditions.

Power saving techniques for ultra low power consumption

Both WLAN and Bluetooth power management utilize advanced power saving techniques such as:

- gating clocks to idle or inactive blocks
- voltage scaling
- fast start and settling circuits
- active duty cycles
- processor frequency scaling

87-YB797-1 Rev A

Applications


IoT


Smart Appliances


Wireless Gaming


Home Automation


Industrial Automation


Infotainment

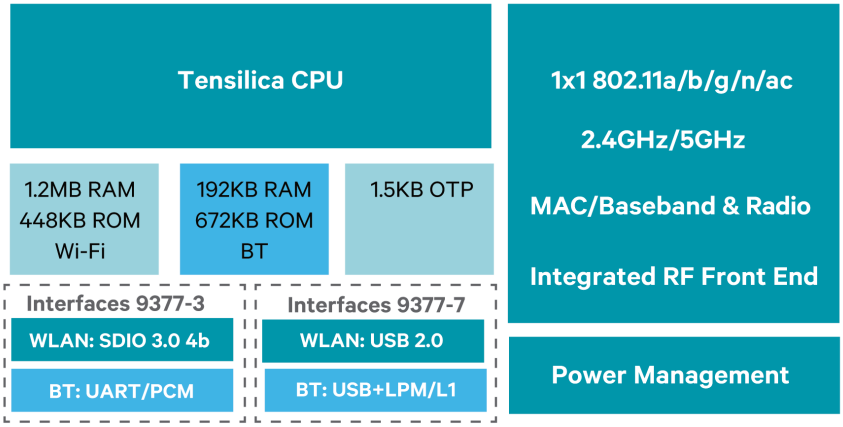
Features

- 1x1 802.11ac + Bluetooth 4.2 in a single SoC
- Supports Bluetooth 4.2 + HS, Bluetooth low energy and is backward compatible with Bluetooth 1.x and 2.x
- Single regulated 3.3V supply operation
- Integrated RF Front End, single ended design
- Offloading for minimal host utilization
- Low-density parity check (LDPC) encoding/decoding
- STBC, MU-MIMO, Transmit Beam-forming
- 1.5KB OTP to eliminate an external flash
- 256-QAM in 2.4GHz
- Enhanced Coexistence Bluetooth and LTE; concurrent operation
- PCB friendly: WLP to go on 4-L FR4 non-HDI PCB
- Provides a 48MHz reference clock
- 1216KB RAM and 448KB ROM for Wi-Fi
- 192KB RAM and 672KB ROM for Bluetooth

Ordering Information

Product	Part Number
QCA9377-3 SOC	QCA9377-3-115WLNSP-03
QCA9377-7 SOC	QCA9377-7-115WLNSP

QCA9377 Block Diagram



QCA9377 Specifications

Package	4.32 x 5.46mm, 115-pin WLNSP, 0.566mm pitch
WLAN Technology	1x1 802.11 a/b/g/n/ac with advanced features
Bluetooth Technology	Bluetooth v4.2 + HS
PCB Footprint (unshielded)	Die size: 23.25 mm2; PCB <110 mm2
Interfaces	WLAN: SDIO 3.0 4b | Bluetooth: UART/PCM *(QCA9377-3)* WLAN: USB 2.0 | Bluetooth: USB+LPM/L1 *(QCA9377-7)*
Antenna Configuration	Single Wi-Fi/Bluetooth antenna
WLAN Channel Bandwidths	20/40/80MHz
WLAN TCP/IP Throughput 80MHz 11ac	USB2.0: up to 260 Mbps SDIO3.0 4b SDR104: up to 330 Mbps
Bluetooth RX Sensitivity	-96dBm GFSK
Power Supply	Regulated 3.3V

For additional product information and updates go to: developer.qualcomm.com/hardware/qca9377

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