

Qualcomm

Qualcomm® QCA6174A

Wi-Fi/Bluetooth SoC

High performance 2x2 dual-band 802.11ac Wi-Fi with MU-MIMO and Bluetooth® 4.2 radios in a single-chip solution.

Highly integrated and cost-effective Wi-Fi/Bluetooth combo solution for mobile and consumer electronics applications in a small form factor System-on-Chip (SoC).

Designed to deliver seamless integration of WLAN and Bluetooth Low Energy technology in a single-chip solution, the QCA6174A SoC offers one of the most cost-effective Wi-Fi/Bluetooth solution for mobile and consumer electronics applications.

QCA6174A supports high-speed Wi-Fi connectivity and enriched media experiences. It is optimized for energy efficiency, which is critical to extending the battery life of portable devices.

QCA6174A has integrated RF front-end and single-ended design for simpler and low-cost design.

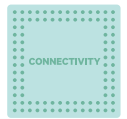
There are three variants available for QCA6174A:

- QCA6174A-1: supports low power PCIe 2.1 (w/L1 substate) interface for WLAN and UART/PCM interface for Bluetooth.
- QCA6174A-3: supports low-power SDIO 3.0 interface for WLAN and UART/PCM interface for Bluetooth
- QCA6174A-5: supports low power PCIe 2.1 (w/L1 substate) for WLAN and USB 1.1 interface for Bluetooth.

Solution Highlights

Advanced 802.11ac combo SoC

Advanced 802.11ac features such as MU-MIMO and TX Beamformee to increase network capacity, as well as maximal likelihood (ML) decoding, low-density parity check (LDPC), maximum ratio combining (MRC) for robust link connection.



Supports dual-mode Bluetooth v4.2

QCA6174A supports Classic Bluetooth as well as Bluetooth Low Energy hub and peripheral devices.



Integrated RF front-end single-ended design

QCA6174A supports single-ended RF port design for a simpler and low-cost design making it a cost-effective solution for mobile and consumer electronics applications.



Power saving techniques for low power consumption

Both WLAN and Bluetooth power management use advanced power saving techniques such as: gating clocks to idle or inactive blocks, voltage scaling to specific blocks in certain states, fast start and settling circuits to reduce Tx, active duty cycles, processor frequency scaling, and other techniques to optimize power consumption across all operating states.





QCA6174A Target IoT Applications

- Consumer Electronics
- OTT/Media Streaming
- Mobile
- Smart Assistant/Speaker
- Home Automation
- Tablets

Features

- 2x2 802.11ac + Bluetooth 4.2 in a single SoC
- Supports Bluetooth 4.2, Bluetooth low energy and is backward compatible with Bluetooth 2.x
- Integrated RF Front End and single-ended design
- Operates on a single 3.3 V power supply and an I/O supply of 1.8 V or 3.3 V
- Advanced 11ac features: MU-MIMO, Transmit Beamformee
- Both WLAN and Bluetooth power management with advanced power saving techniques
- Maximal Likelihood (ML) decoding, low-density parity check (LDPC), maximum ratio combining (MRC) for robust link connection
- 256-QAM in 2.4GHz
- 1216KB RAM and 448KB ROM for Wi-Fi
- 192KB RAM and 672KB ROM for Bluetooth

QCA6174A Block Diagram



QCA6174A Specifications

Package	172B WLNSP 4.89 x 6.02 x 0.57 mm 172B WLFC 4.89 x 6.02 x 0.40 mm (QCA617A-1 only)
WLAN Technology	802.11ac 2x2
Bluetooth Technology	Bluetooth Low Energy v4.2
Process Node	40nm
Power Management	Clock Gating, Voltage scaling
Interfaces	WLAN: SDIO 3.0 or PCIe 2.1 Bluetooth: HS-UART or USB 1.0
Antenna Configuration	2-antenna configuration
WLAN Channel Bandwidths	2.4GHz: 20/40 MHz 5GHz: 20/40/80 MHz
WLAN TCP/IP Throughput	620Mbps/600Mbps TCP DL/UL (PCIe2.1) 410Mbps/330Mbps TCP DL/UL (SDIO3.0)
Bluetooth RX Sensitivity	BER: -96dBm, 8-DPSK: -89 dBm
Power Supply	3.3V power supply and 1.8V or 3.3V I/O supply

Ordering Information

Product	Part Number
QCA6174A-1 WLNSP	QCA-6174A-1-172BWLNSP
QCA6174A-1 WLFC	QCA-6174A-1-172WLFC
QCA6174A-3 WLNSP	QCA-6174A-3-172BWLNSP
QCA-6174A-5 WLNSP	QCA-6174A-5-172BWLNSP

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