



Qualcomm® Wi-Fi Solutions for the IoT

QCA401x

The premier intelligent connectivity platform for the Internet of Things

Models QCA4010 and QCA4012 Wi-Fi Modules

QCA401x is a highly integrated and feature-rich intelligent Wi-Fi platform for the IoT, designed to answer manufacturer demand for increased computing performance, memory and advanced features while minimizing size, cost and power consumption.

QCA401x is a one-stream (1x1) IEEE 802.11a/b/g/n single-band (QCA4010) or dual-band (QCA4012) System-on-Chip (SoC) or module solution for the Internet of Things (IoT). The QCA401x platform features a fully integrated micro-control unit (MCU) in a single-chip solution, and incorporates intelligence, security and advanced services for the devices and systems of the IoT— from appliances, smart lighting and remote controls, to sophisticated home automation, security, energy management systems and more.

The QCA401x platform includes a suite of communication protocols including HTTP, IPv4v6, TCP, SSL, DHCP, ICMP, IGMP, and DNS, as well as support for multiple cloud service providers. It also offers a built-in security engine. To help address fragmentation in the IoT, QCA401x is designed to support popular application layer interoperability standards, allowing products to connect across different brands and platforms. This helps achieve compatibility between products in the home, making them easier and more secure to use.

Solution Highlights



Low power Wi-Fi supports energy efficient applications

Integrated low-power CPU for embedded applications supports power saving modes and extends battery life for home device applications.



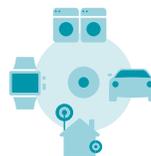
Large internal memory for greater flexibility

Allows for a hostless architecture with up to 800KB of on-chip memory available to customer applications and third party software.



Dual-band support for more robust Wi-Fi connections

QCA4012 with dual-band connectivity for both 2.4GHz and 5GHz is well-suited for applications in interference sensitive environments.



Expansive interfaces for innovative IoT solutions

Rich interfaces directly interconnect with IoT sensors, actuators, display, lighting and audio components for advanced, feature rich products providing OEMs a simple and accelerated path to commercialization.

IoT Applications



Wearables



Smart Appliances



Sensors



Remote Control



Home Security



Medical

Features

- Industry-leading 802.11n Wi-Fi solution
- Integrated on-chip application processor and memory (1.5MB)
- Advanced security features including anti-tampering, data integrity and root of trust
- Data rates up to 10Mbps TCP/IP throughput
- Integrated IPv4/v6 networking stack
- Low power CPU for embedded applications
- Low power modes:
 - IEEE Sleep with low power consumption and optimal state transition times
 - Power optimized listen, receive, transmit and associated operating modes
 - Store and recall
- HTTP and DNS services
- Manufacturing tools for configuration and test
- Cost optimized RBOM with integrated PA and LNA
- Software support for Apple HomeKit, Google Weave, Open Connectivity Foundation and AllJoyn® from the AllSeen Alliance

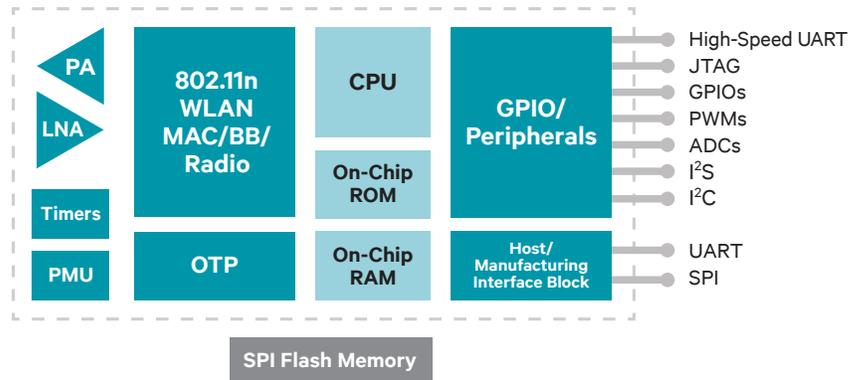
Product	Part Number
QCA4010 SOC	QCA-4010-0-116BDRQFN
QCA4012 SOC	QCA-4012-0-116BDRQFN

Related Products

Development kits, reference design platforms and production module information available at developer.qualcomm.com

For additional product information and updates go to: developer.qualcomm.com/get-started/internet-of-things

QCA401x Block Diagram



QCA401x Specifications

Package Type	9 x 9 x 0.9mm QFN Dual-Row 116-pin, 0.5mm pitch RoHS Compliant
PCB Footprint (solution area)	< 25 x 20mm SB, single sided + antenna + S-Flash
WLAN Technology	802.11a/b/g/n
Antenna Design Options	PCB printed or external antenna
Interfaces	SPI/SDIO, UART, HS-UART I2C, I2S, GPIOs, PWMs, ADCs
Frequency Bands	2.4GHz single-band (QCA4010) 2.4GHz/5GHz dual-band (QCA4012)
Active Power Save	Green Tx & Low Power Listen (LPL)
Security Features	WEP, WPA/WPA2-PSK, WPS2.0 with CCMP (AES) encryption SSL – application level security Integrated crypto accelerator
Analog Input	1.8V or 3.3V
Network Throughput	up to 10Mbps
Operating Temperature	Commercial: 0° to 85° C (C-Temp) Industrial: -40° to 115° C (E-Temp)

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