



# QCA4010

The premier intelligent connectivity platform for the Internet of Things

QCA4010 is a product of Qualcomm Atheros, Inc.



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for the Internet of Things

## Qualcomm® Wi-Fi Platforms for the IoT

Delivering Wi-Fi connectivity, integrated intelligence, security and advanced services for the devices and systems of the IoT – from appliances, smart lighting, home automation, home security, and energy management and more.

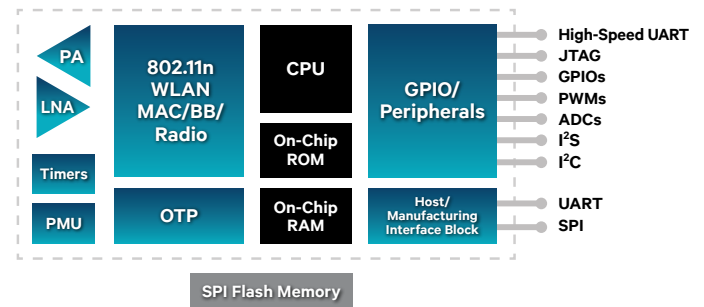


### Solution Highlights

The QCA4010 is a 1-stream (1x1) IEEE 802.11b/g/n single-band system-on-a-chip (SoC) or module solution for the Internet of Things. Features include:

- Qualcomm's industry-leading 802.11n Wi-Fi solution
- Large internal memory
  - Up to 800KB of on-chip memory available to customer application
  - Enables hostless architecture with no external MCU required
- Low power profile
  - Power saving modes
  - Fast wake-up times
  - Green Tx, low power Rx listen
- Integrated low-power CPU for embedded applications
- Integrated security hardware – crypto accelerator
- Advanced security features
  - Anti-tampering
  - Data integrity
  - Root of trust
- Expansive hardware interfaces
  - I<sup>2</sup>C/I<sup>2</sup>S
  - PWM for motor control and lighting
  - UART
  - SPI/SDIO – high throughput up to 10 Mbps
  - HS-UART
  - GPIOs
  - ADCs
- Integrated communications protocols
  - AllJoyn® from the AllSeen Alliance

### QCA4010 System Architecture



The QCA4010 is an integrated and feature-rich intelligent Wi-Fi solution for the IoT. The QCA4010 is designed to answer manufacturer demand for increased computing, memory and advanced features while minimizing size, cost and power consumption. It supports the AllJoyn connectivity frameworks and services, allowing devices to discover, connect and communicate directly with one another across multiple smart home ecosystems.

The QCA4010 features a fully integrated processor with up to 800KB of on-chip memory available for customer applications and third party software. The QCA4010 combines design flexibility, a low price point, and rich development capabilities with an expansive set of hardware interfaces that allow a direct interconnect with sensors, display and actuators, to provide OEMs a simple and accelerated path to market for mature, feature rich products. The QCA4010 includes a suite of communication protocols including Wi-Fi, IPv4/v6, HTTP and other cloud enablers, and an advanced security engine designed to maximize security in the smallest IoT devices.



## IoT Applications



### Hardware Features

- IEEE 802.11b/g/n (1x1) 1-stream solution
- Single-band 2.4GHz support
- Integrated on-chip processor and memory
- Green Tx power savings
- Low power Rx listen
- 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
- Data rates up to 20Mbps TCP/IP throughput
- Full security support: WPS, WPA2, WEP
- SPI host interface
  - Allows for simplified connection to local host microcontroller
  - Host driver source code and programming API is available
- UART host interface
  - Allow simple interfacing to microcontrollers
  - With an AT style command set
- Integrated IPv4/IPv6 networking stack
- SSL security
- HTTP, DNS services
- Manufacturing tools for configuration and test

### Ecosystem Features

- Supports the AllJoyn connectivity frameworks and services, allowing devices to discover, connect and communicate directly with one another across multiple smart home ecosystems.
- Rich development solutions available
  - MP1 development board
  - IoTing development environment
  - Certified development kits, reference design platforms and production modules available at [developer.qualcomm.com](http://developer.qualcomm.com)
- QCA4010 is currently supported with the SP240/SP241 development board
- Reference module platforms are available for QCA4010
  - SP240 is the microcontroller base board
  - SP241 is the solder on to SP240 QCA4010 Single-Band (SB) module
  - SP242 is the solder on to SP240 QCA4012 Dual-Band (DB) module
  - Multiple module and distribution partners

### QCA4010 Specifications

Technology	802.11b/g/n
Interfaces	SPI/SDIO, UART, HS-UART, I <sup>2</sup> C, I <sup>2</sup> S, GPIOs, PWMs, ADCs
Antenna Design Options	PCB printed or external antenna
Frequency Band	2.4GHz
Package Type	QCA4010 9 x 9mm BGA
PCB Footprint (solution area)	< 25 x 20mm SB, single sided + antenna + S-Flash
Temperature	Commercial: 0 to 115° C (case) Industrial: -40 to 85° C (ambient)
Power Source	1.8V and 3.3V
Network Throughput	10Mbps

Cost optimized RBOM with integrated PA and LNA

Qualcomm Atheros is a wholly owned subsidiary of Qualcomm Technologies, Inc. and a leading provider of wireless and wired technologies for the mobile, networking, computing and consumer electronics markets. We're focused on inventing technologies that connect and empower people in ways that are elegant and accessible to all.

For more information, please visit us online @ [qualcomm.com](http://qualcomm.com) and [qca.qualcomm.com](http://qca.qualcomm.com)

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