

AVIC

802.11 b/g/n Standalone Wi-Fi + BLE 4.1 Module with Integrated Antenna

Description

AVIC is a highly integrated low power single-stream (1x1) IEEE 802.11 b/g/n standalone Wi-Fi + BLE 4.1 Module. This highly tuned certified Module integrates crystals, flash and antenna for easy hardware design. This feature-rich Module using Qualcomm QCA4010 and CSR 8811 SoCs are specially designed for various verticals of Internet of Things (IoT) like Smart Home, Industrial IoT, Smart Retail and Smart City. The AVIC Module includes a suite of communication protocols including HTTP, IPv4v6, TCP, SSL 3.0, TLS1.0, TLS1.1, TLS1.2, DHCP, ICMP, IGMP, MQTT, mDNS and DNS, as well as support for multiple cloud agents like AWS and Azure.



Size: 16 mm x 20 mm x 2.1 mm

AVIC with integrated low power MCU, it is designed to answer manufacturer demand for easy integration, low power with advanced features while minimizing size, cost and power consumption. This low power highly secure Module with its integrated security engine is suitable for battery powered portable wireless applications.

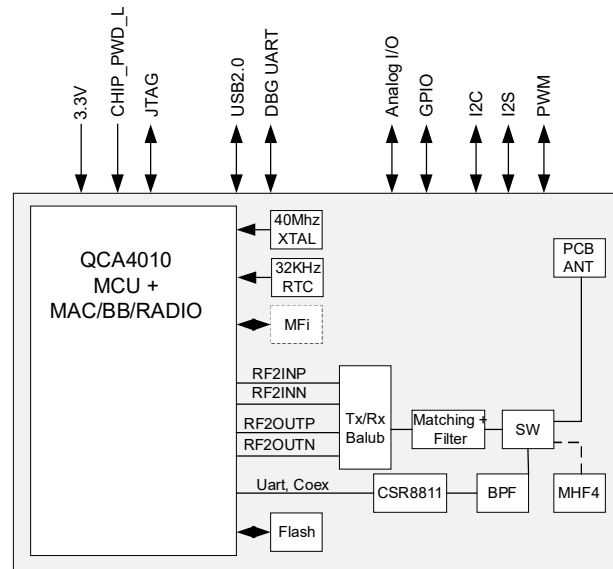
Features

- ❖ Industry-leading single stream IEEE 802.11bgn Wi-Fi and Bluetooth Low Energy (BLE) v4.1 connectivity solution
- ❖ Integrated on-chip application processor and user memory (800 KB)
- ❖ Data rate up to 72.2 Mbps MCS7 HT20
- ❖ UART, SPI, I2C, I2S, PWM, ADC, JTAG and GPIO interfaces
- ❖ Throughputs up to 35Mbps
- ❖ Integrated IPv4/v6 networking stack
- ❖ SSL TLS 1.2 Support
- ❖ 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
- ❖ Network and security: TCP/IP, IPv4/IPv6, HTTP, SSL 3.0, TLS1.0, TLS1.1, TLS1.2, MQTT, DNS, mDNS
- ❖ Supports BLE 4.1 profiles like ANP, ANS, BAS, CTS, DIS, FMP, HTP, HIDS, HOGP, TIP, TPS, HRP, HRS, PXP
- ❖ Software support for AWS IoT
- ❖ Embedded ThreadX® Real-Time-Operating-System (RTOS)
- ❖ Tool Chain for Applications development
- ❖ API Binary and Documentation for development of applications

Applications

- ❖ Smart Home sensor networks
- ❖ Smart city sensor networks
- ❖ High performance HID controllers
- ❖ Internet of Things (IoT) sensor networks
- ❖ Smart door locks
- ❖ Smart lighting networks
- ❖ Connected white goods

Block Diagram



Specifications

WLAN Technology	802.11 b/g/n
Bluetooth	BLE 4.1
Frequency Bands	2.412 – 2.472 GHz
Wi-Fi Data Rates	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: MCS 0 to 7
Wi-Fi Security Features	WEP, WPA/WPA2-PSK, WPS2.0 with CCMP (AES) encryption SSL – application level security Integrated crypto accelerator
BLE 4.1 Profiles	ANP, ANS, BAS, CTS, DIS, FMP, HTP, HIDS, HOGP, TIP, TPS, HRP, HRS, PXP
Wi-Fi Operating Channels	North America: Channels 1 – 11 Europe: Channels 1 – 13
Wi-Fi Modulation Schemes	802.11b: CCK, DQPSK, DBPSK 802.11g: 64QAM, 16QAM, QPSK, BPSK 802.11n: BPSK, QPSK, 16QAM, 64QAM
Antenna Design Options	PCB printed antenna or u.FL
Interfaces	SPI Master x 1, Debug UART x 1, I2C master x 1, I2C Slave x 1, I2S x 1, PWM x 6, ADC x 4, JTAG x 1, GPIOs
Wi-Fi Operating Modes	Station, AP, Wi-Fi Direct, Concurrent (MCC)
Wi-Fi Active Power Save	Green Tx & Low Power Listen (LPL)
Current Consumption	Standby: 13 uA (Suspend), 450 uA (DTIM3) Rx: 76 mA (TCP downlink) Tx: 124 mA (TCP uplink)
Wi-Fi Transmit Power	802.11b: 17 dBm (US) 14 dBm (EU) (1-11Mbps) 802.11g: 17 dBm (US) 14 dBm (EU) (6 Mbps) 802.11g: 13 dBm (US, EU) (54 Mbps) 802.11n: 17 dBm (US) 14 dBm (EU) (MCS0, HT20) 802.11n: 15 dBm (US) 14 dBm (EU) (MCS4, HT20) 802.11n: 12 dBm (US) 12 dBm (EU) (MCS7, HT20)
Wi-Fi Receive Sensitivity	802.11b: -95 dBm (1 Mbps) 802.11g: -89 dBm (6 Mbps) 802.11n: -89 dBm (MCS0, HT20)
Network Throughput	up to 35Mbps
OS Supported	ThreadX RTOS
Operating Voltage	3.3V +/- 10% I/O Supply Voltage
Temperature	Standard: 0° to 85°C Extended: -40° to 115°C
Humidity	Operating: 5 – 90% (Non-condensing) Storage: 5 – 95% (Non-condensing)
Package	16 x 20 x 2.1mm QFN Dual-Row 116-pin, 0.5mm pitch, RoHS Compliant

Certifications and approvals

- ❖ Module certifications - FCC, IC, CE

AVIC Module Part Ordering

I960MB00-C2LT	AVIC module with PCB Antenna, Tray packing
I960MB00-C2LR	AVIC module with PCB Antenna, Tape and Reel packing
I960MB00-C3LT	AVIC module with MHF4 Antenna connector, Tray packing
I960MB00-C3LR	AVIC module with MHF4 Antenna connector, Tape and Reel packing

AVIC DVK Part Ordering

I960MB00-2DVK	AVIC DVK kit PCB antenna
I960MB00-3DVK	AVIC DVK kit MHF4 connector

Development Kit

EVK comes with the following:

- ❖ AVIC EVK
- ❖ Micro-USB cable
- ❖ FTDI JTAG Cable

Additional Information:

For the latest collaterals, please visit <http://www.ivativ.com>