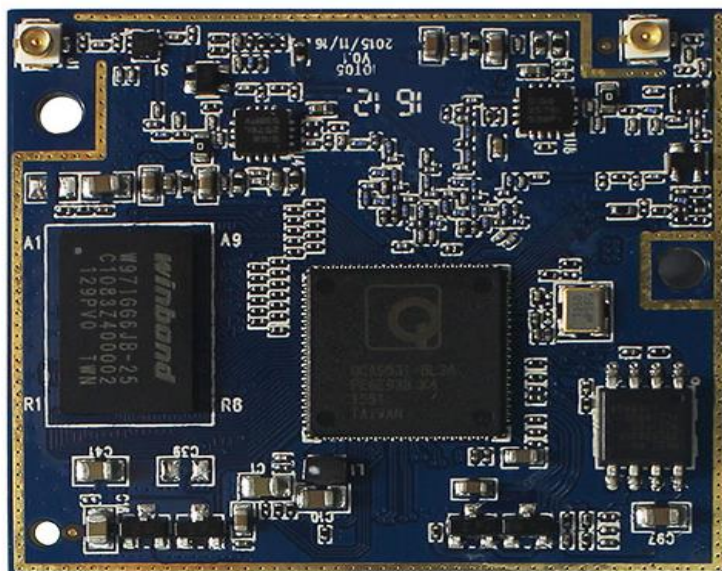


ComIoT 05

High Power 802.11b/g/n WIFI Router Core Module

Product Specifications



- Based on Qualcomm QCA9531 Chipset
- 802.11b/g/n 2.4GHz WI-FI 2T2R
- High Power Radio Transmit Power
- 300Mbps WIFI Data Rate
- Coverage Distance up to 800 Meter
- Support OpenWRT Solution

1. Product Description

The module ComIoT-05 is a complete, small form factor 802.11 b/g/n Wi-Fi solution optimized for low-cost and highly integrated with high power for consumer electronic devices and products. The module integrated Wi-Fi functions in a single and small form factor which is friendly to low-cost PCB design that requiring only a few external 3.3V & 5V power supply and connection to antenna.

The module based on the single chip QCA9531 which integrated with an 802.11n 2x2 MAC/BB/radio with external PA and LNA. It supports 802.11n operations up to 144 Mbps for 20 MHz and 300 Mbps for 40 MHz channel respectively, and IEEE 802.11b/g data rates.

The module support AP mode and client mode at the same time. The performance of the module allows to support multiple types of service application and software which can help to reduce a research and design work of a customer. The block diagram of the hardware architecture is shown as below

2. Product Block Diagram

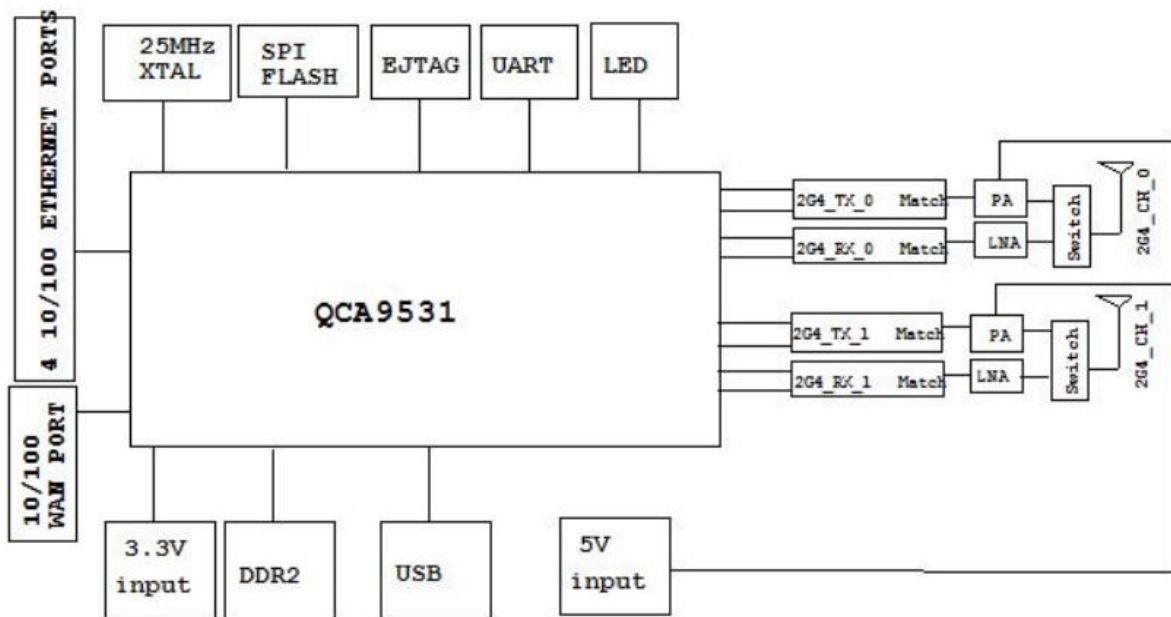


Figure 1. ComIoT 05 Block Diagram

3. Product Specification

3.1 Protocol Specification

The module supports the following protocol standards:

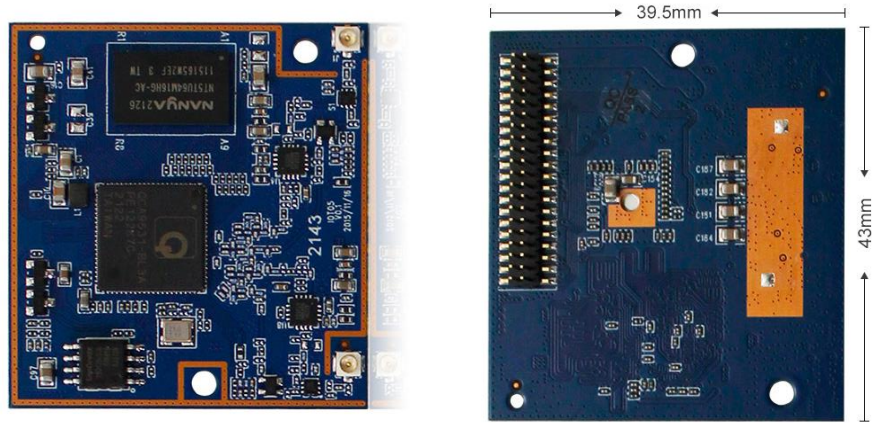
- IEEE Standard 802.11b
- IEEE Standard 802.11g
- IEEE Standard 802.11n

3.2 Core Module Specification

Main Chipset	QCA9531
Operating Frequency	2.40~2.4835GHz
WiFi Standard	802.11b/g/n (2X2)
Modulation	11b: DBPSK, DQPSK and CCK and DSSS 11g: BPSK, QPSK, 16QAM, 64QAM and OFDM 11n: MCS0~15 OFDM
Data rates	11b: 1, 2, 5.5 and 11Mbps 11g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~5, up to 300Mbps
Form factor	40pin CONN, 1.27mm pitch
Interface	Ethernet, UART, USB
PCB Stack	4-layers design
PCB Dimension	Typical, 43mm(W) x 39.5mm(L) x 1.0mm(T)
Antenna	Standard IPEX connector
Operation Temperature	-10°C to +70°C
Storage Temperature	-40°C to +150°C
Operation Voltage	3.3V +/-10%,5V+/-10%
GPIO Voltage	2.5 V +/-10%

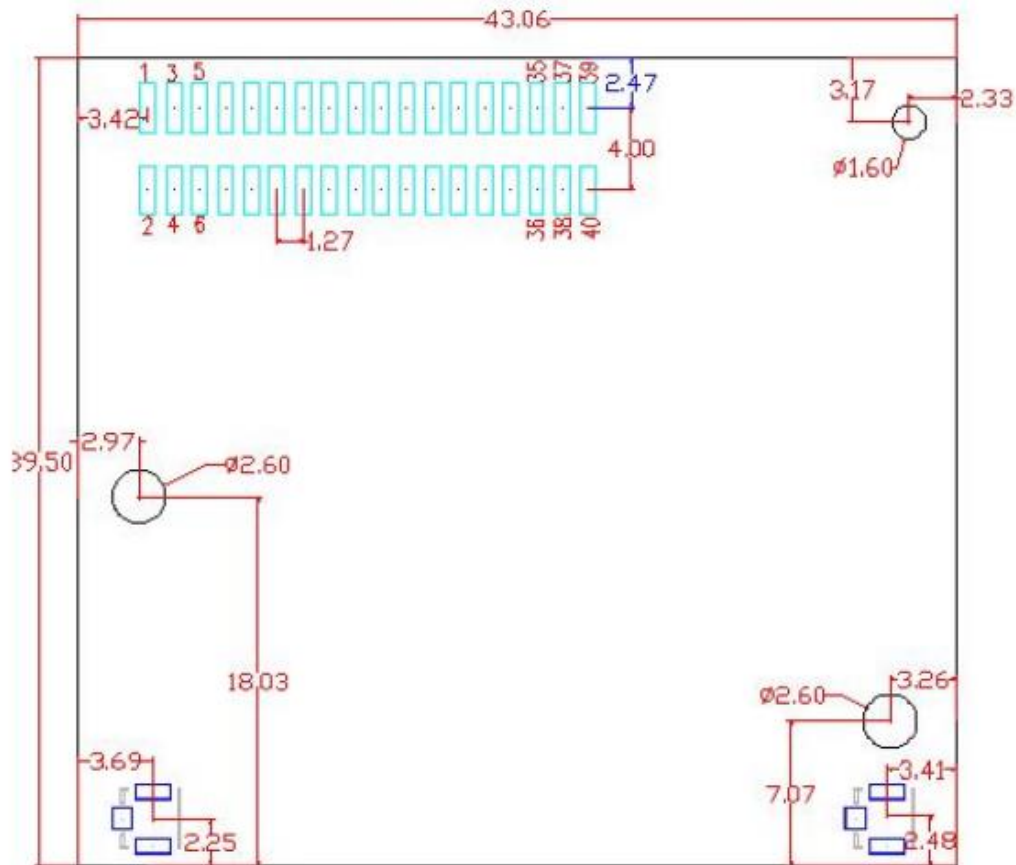
4. Mechanical Specification

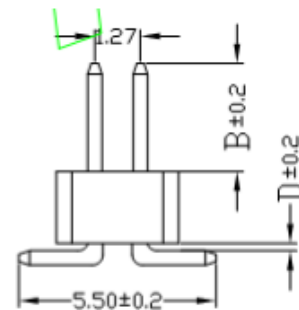
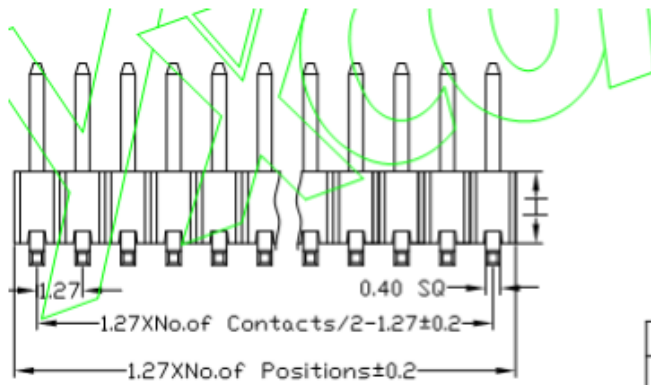
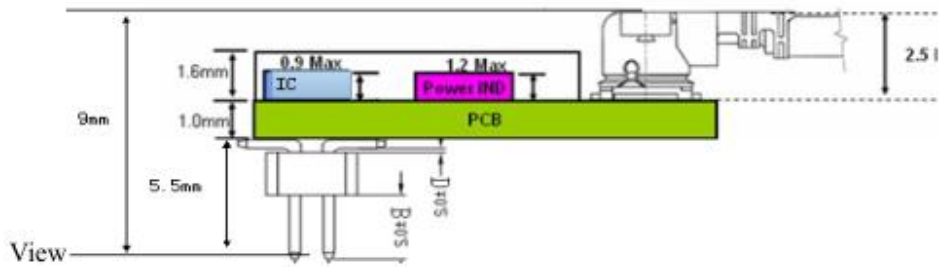
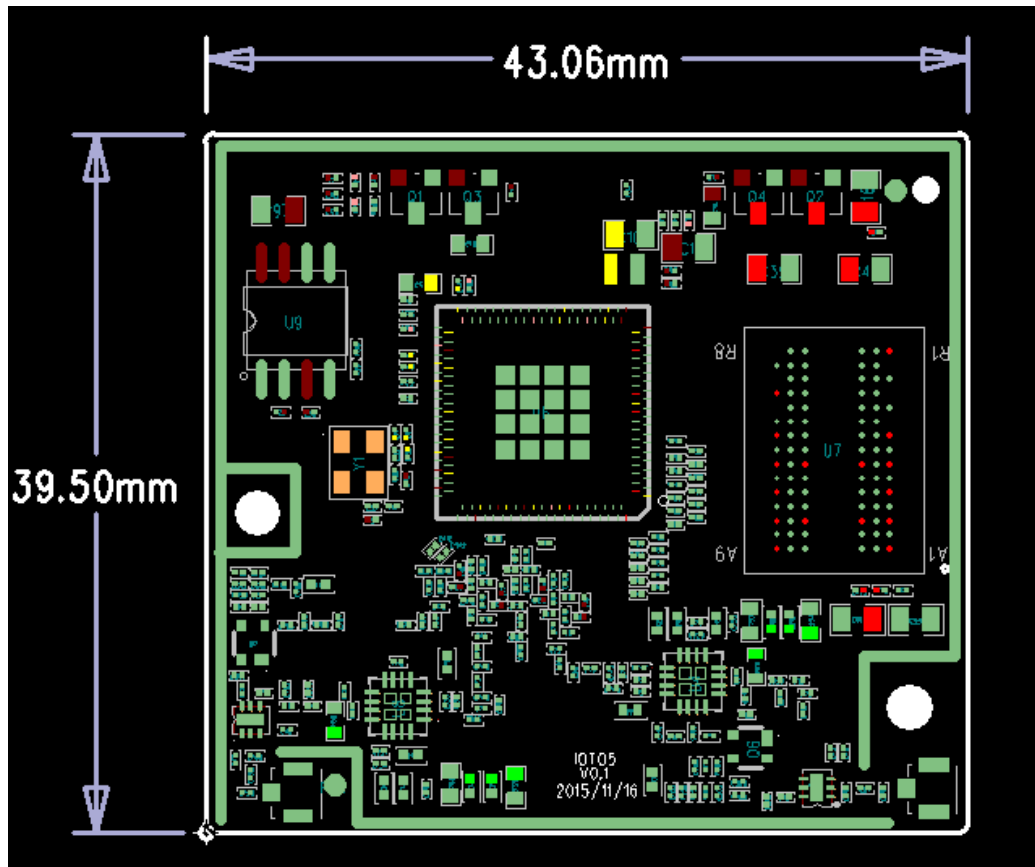
4.1 Module Physical Appearance



4.2 Mechanical Outline Drawing

Typical PCBA Dimension (W x L): 43mmx39.5mm, routing tolerance: +/-0.25mm.





Dimension antitheses list

ITEM	D	B	H
Standard	0 1.2 1.8 3.0 4.0	1.6 2.0 2.54	

4.3 PIN Definition

Pin	Name	Description
1	PA_5V	5V input 1000mA
2	PA_5V	5V input 1000mA
3	GND	GROUND
4	GND	GROUND
5	VDD_3.3V	3.3V input 1000mA, recommended voltage 3.3V+/-10%,
6	VDD_3.3V	3.3V input 1000mA, recommended voltage 3.3V+/-10%,
7	JUMPSTART (GPIO_17)	KEY_INPUT to start WPS function, it has an internal 10 K pull-up resistance, the external pull low effective.
8	LED_LINK_1 (GPIO_16)	LAN_PORT0_LED
9	WLAN_LED (GPIO_12)	Wireless LED
10	WAN_LED (GPIO_4)	WLAN LED
11	SYSTEM_LED(GPIO_13)	SYSTEM LED
12	RESET	External power on reset, it has an internal 10K pull up resistance, the external pull low effective.
13	USB +	USB signal
14	UART_TX	Serial data out
15	USB -	USB signal
16	UART_RX	Serial data in
17	GND	GROUND
18	GND	GROUND
19	VDD_2.0V OUTPUT	Power supply output for peripheral network transformer
20	VDD_2.5V OUTPUT	IO voltage output
21	GND	GROUND
22	GND	GROUND
23	WAN_PORT_TX-	Ethernet port
24	LAN_PORT0_RX-	Ethernet port
25	WAN_PORT_TX+	Ethernet port
26	LAN_PORT0_RX+	Ethernet port
27	WAN_PORT_RX-	Ethernet port

28	LAN_PORT0_TX-	Ethernet port
29	WAN_PORT_RX+	Ethernet port
30	LAN_PORT0_TX+	Ethernet port
31	GND	GROUND
32	GND	GROUND
33	GPIO_1	GPIO
34	GPIO_2	GPIO
35	GPIO_0	GPIO
36	GPIO_3	GPIO
37	SPI_CLK	SPI serial interface
38	GPIO_11	GPIO
39	SPI_MISO	SPI serial interface
40	SPI_MOSI	SPI serial interface

5. WIFI Specification

5.1 802.11b Mode

Protocol	IEEE 802.11b			
Modulation	DSSS / CCK			
Channel	CH1 to CH3			
Data Rate	1, 2, 5.5, 11Mbps			
TX Characteristics	Min.	Typ.	Max.	Unit
2. Power Levels (Calibrated)				
1) 27dBm Target	25	27	29	dBm
3. Spectrum Mask @ Target Power				
1) fc +/-11MHz to +/-22MHz	-	-	-30	dBr
2) fc > +/-22MHz	-	-	-50	dBr
4. Frequency Error	-25	0	+25	ppm
RX Characteristics	Min.	Typ.	Max.	Unit

5. Minimum Input Level Sensitivity				
1) 1Mbps (FER \leq 8%)	-	-	-83	dBm
2) 2Mbps (FER \leq 8%)	-	-	-80	dBm
3) 5.5Mbps (FER \leq 8%)	-	-	-79	dBm
4) 11Mbps (FER \leq 8%)	-	-94	-76	dBm
6. Maximum Input Level (FER \leq 8%)	-20	-10	-	dBm

5.2 802.11g Mode

Protocol	IEEE 802.11g			
Modulation	OFDM			
Channel	CH1 to CH3			
Data Rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
TX Characteristics	Min.	Typ.	Max.	Unit
2. Power Levels				
1) 25dBm Target @6Mbps	23	25	27	dBm
2) 23dBm Target @54Mbps	21	23	25	dBm
3. Spectrum Mask @ Target Power				
1) at fc +/- 11MHz	-	-	-20	dBr
2) at fc +/- 20MHz	-	-	-28	dBr
3) at fc > +/-30MHz	-	-	-40	dBr
4. Constellation Error (EVM)@ Target Power				
1) 6Mbps	-	-	-5	dB
2) 9Mbps	-	-	-8	dB
3) 12Mbps	-	-	-10	dB
4) 18Mbps	-	-	-13	dB
5) 24Mbps	-	-	-16	dB
6) 36Mbps	-	-	-19	dB
7) 48Mbps	-	-	-22	dB
8) 54Mbps	-	-31	-25	dB
5. Frequency Error	-25	0	+25	ppm

RX Characteristics	Min.	Typ.	Max.	Unit
6. Minimum Input Level Sensitivity				
1) 6Mbps (PER \leq 10%)	-	-	-85	dBm
2) 9Mbps (PER \leq 10%)	-	-	-84	dBm
3) 12Mbps (PER \leq 10%)	-	-	-82	dBm
4) 18Mbps (PER \leq 10%)	-	-	-80	dBm
5) 24Mbps (PER \leq 10%)	-	-	-77	dBm
6) 36Mbps (PER \leq 10%)	-	-	-73	dBm
7) 48Mbps (PER \leq 10%)	-	-	-69	dBm
8) 54Mbps (PER \leq 10%)	-	-77	-68	dBm
7. Maximum Input Level (PER \leq 10%)	-20	-10	-	dBm

5.3 802.11n HT20 Mode

Protocol	IEEE 802.11n HT20 @ 2.4GHz			
Modulation	OFDM			
Channel	CH1 to CH3			
Data Rate	MCS0 ~ 15			
TX Characteristics	Min.	Typ.	Max.	Unit
2. Power Levels				
1) 24dBm Target@MCS0	22	24	26	dBm
2) 22dBm Target@MCS7	20	22	24	dBm
3. Spectrum Mask @Target Power				
1) at fc +/- 11MHz	-	-	-20	dBr
2) at fc +/- 20MHz	-	-	-28	dBr
3) at fc > +/-30MHz	-	-	-45	dBr
4. Constellation Error (EVM)@ Target Power				
1) MCS0	-	-	-5	dB
2) MCS1	-	-	-10	dB
3) MCS2	-	-	-13	dB
4) MCS3	-	-	-16	dB
5) MCS4	-	-	-19	dB

6) MCS5	-	-	-22	dB
7) MCS6	-	-	-25	dB
8) MCS7	-	-31	-28	dB
5. Frequency Error	-25	0	+25	ppm
RX Characteristics				
	Min.	Typ.	Max.	Unit
6. Minimum Input Level Sensitivity				
1) MCS0 (PER \leq 10%)	-	-	-85	dBm
2) MCS1 (PER \leq 10%)	-	-	-82	dBm
3) MCS2 (PER \leq 10%)	-	-	-80	dBm
4) MCS3 (PER \leq 10%)	-	-	-77	dBm
5) MCS4 (PER \leq 10%)	-	-	-73	dBm
6) MCS5 (PER \leq 10%)	-	-	-69	dBm
7) MCS6 (PER \leq 10%)	-	-	-68	dBm
8) MCS7 (PER \leq 10%)	-	-74	-67	dBm
7. Maximum Input Level (PER \leq 10%)	-20	-10	-	dBm

5.4 802.11n HT40 Mode

Protocol	IEEE 802.11n HT40 @ 2.4GHz			
Modulation	OFDM			
Channel	CH3 to CH11			
Data Rate	MCS0 ~ 15			
TX Characteristics	Min.	Typ.	Max.	Unit
2. Power Levels (Calibrated)				
1) 24dBm Target @MCS0	22	24	26	dBm
2) 22dBm Target@MCS7	20	22	24	dBm
3. Spectrum Mask @14dBm				
1) at fc +/- 22MHz	-	-	-20	dBr
2) at fc +/- 40MHz	-	-	-28	dBr
3) at fc > +/-60MHz	-	-	-45	dBr
4. Constellation Error (EVM)@Target Power				

1) MCS0	-	-	-5	dB
2) MCS1	-	-	-10	dB
3) MCS2	-	-	-13	dB
4) MCS3	-	-	-16	dB
5) MCS4	-	-	-19	dB
6) MCS5	-	-	-22	dB
7) MCS6	-	-	-25	dB
8) MCS7	-	-30	-28	dB
5. Frequency Error	-25	0	+25	ppm
RX Characteristics				
	Min.	Typ.	Max.	Unit
6. Minimum Input Level Sensitivity				
1) MCS0 (PER \leq 10%)	-	-	-82	dBm
2) MCS1 (PER \leq 10%)	-	-	-79	dBm
3) MCS2 (PER \leq 10%)	-	-	-77	dBm
4) MCS3 (PER \leq 10%)	-	-	-74	dBm
5) MCS4 (PER \leq 10%)	-	-	-70	dBm
6) MCS5 (PER \leq 10%)	-	-	-66	dBm
7) MCS6 (PER \leq 10%)	-	-	-65	dBm
8) MCS7 (PER \leq 10%)	-	-70	-62	dBm
7. Maximum Input Level (PER \leq 10%)	-20	-10	-	dBm

6. Order Information

Model	Flash	RAM
ComIoT 05	8MB	64MB

We support custom optional Flash and RAM capacity. Terms and conditions applied.

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