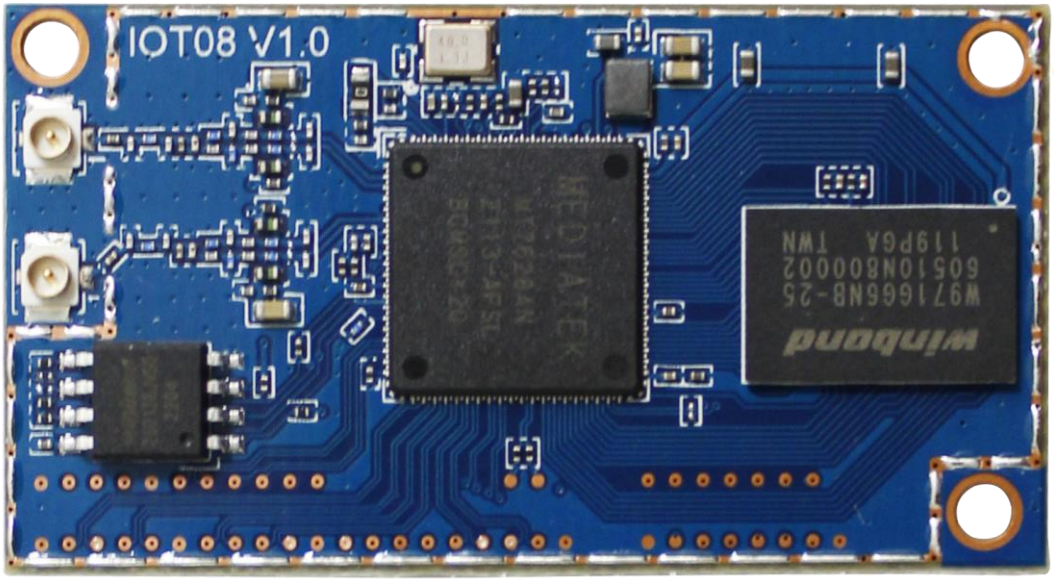
MovingComm
Ease Your Networking

ComIoT 08

802.11b/g/n WIFI Router Core Module

Product Specifications



- Lower Power Consumption
- Open Development Material
- MESH Support
- 300Mbps WIFI Data Rate
- Support OpenWRT Solution

1. Product Description

The ComIoT 08 module is a wireless router core module developed and produced by Shenzhen Movingcomm Technology Co., Ltd. It is a highly integrated small 802.11 b/g/n Wi-Fi gateway module. The Com IoT 07 module integrates Wi-Fi function, network port, serial port, USB and routing system in a low-cost package, and the module can be perfectly applied with only a few simple external circuits.

The ComIoT 08 is based on MTK's MT7628 solution, this module integrates 802.11n 2x2 MAC/BB/radio and internal PA and LNA. It supports 802.11n, 20 MHz & 40 MHz channels up to 150 Mbps and 300 Mbps, respectively, and IEEE 802.11b/g protocol data rates. The module supports OpenWRT operating system, supports AP mode and client mode at the same time, and includes various application software to reduce the development and design work of customers.

2. Product Block Diagram

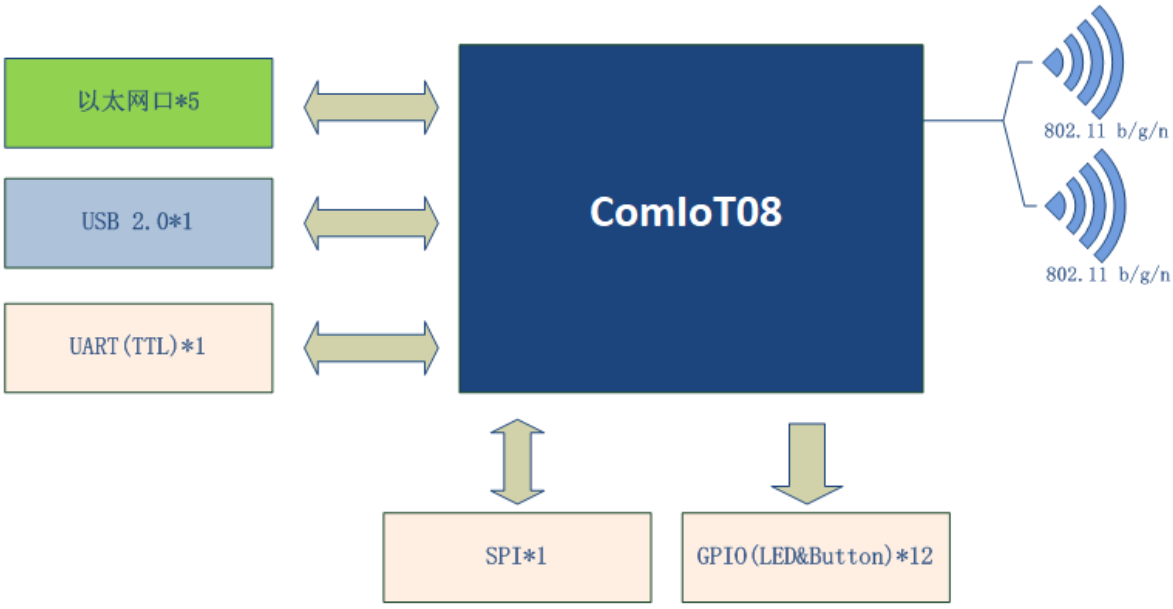


Figure 1. ComIoT 08 Block Diagram

3. Product Specification

3.1 Protocol Specification

The module supports the following protocol standards:

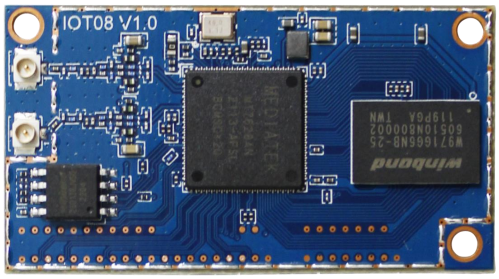
- IEEE 802.11b
- IEEE 802.11g
- IEEE 802.11n

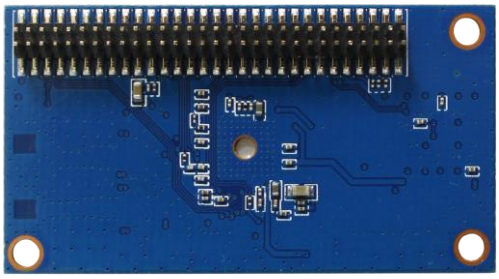
3.2 Core Module Specification

Main Chipset	MTK MT7628DAN (Optional Support MT7628NN)
Flash	8MB (Optional Max 32MB)
RAM	64MB (Optional Max. 128MB)
WIFI Frequency	2.40 ~ 2.4835GHz
WIFI Protocol	IEEE 802.11b/g/n (2X2)
Modulations	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
PIN Connector	60Pin CONN, 1.27mm Pitch
Interfaces	Ethernet, UART, USB
PCB	4 Layer
Size	49mm x 26mm (W x L)
Weight	15g
Antenna	Standard IPEX Connector
Operation Temperature	-30°C to 70°C
Storage Temperature	-40°C to 150°C
Operation Voltage	3.3V +/- 10%
Power Consumption	1.5W (Average)
GPIO Output Voltage	2.5V +/- 10%

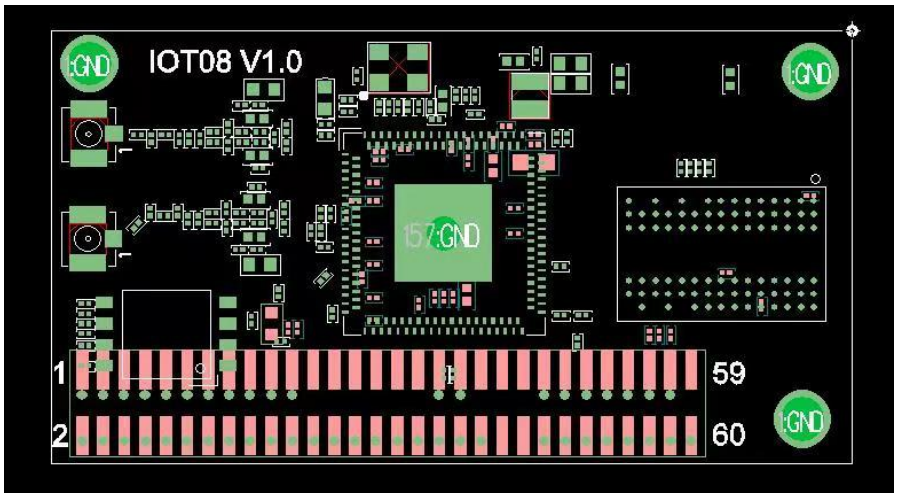
4. Mechanical Specification

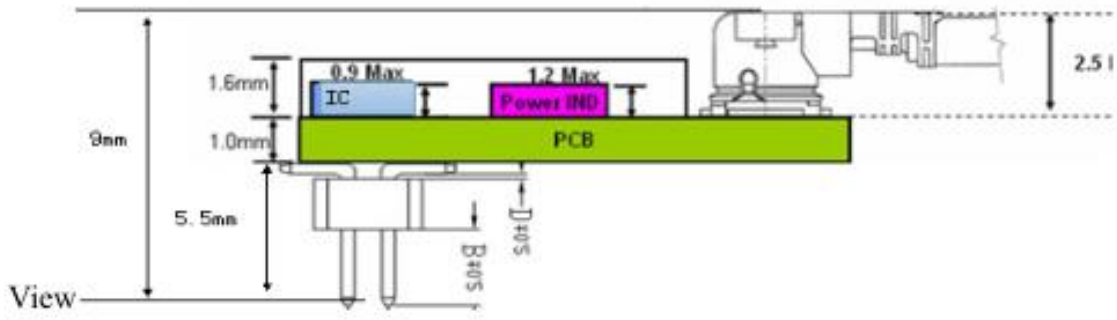
4.1 Module Physical Appearance

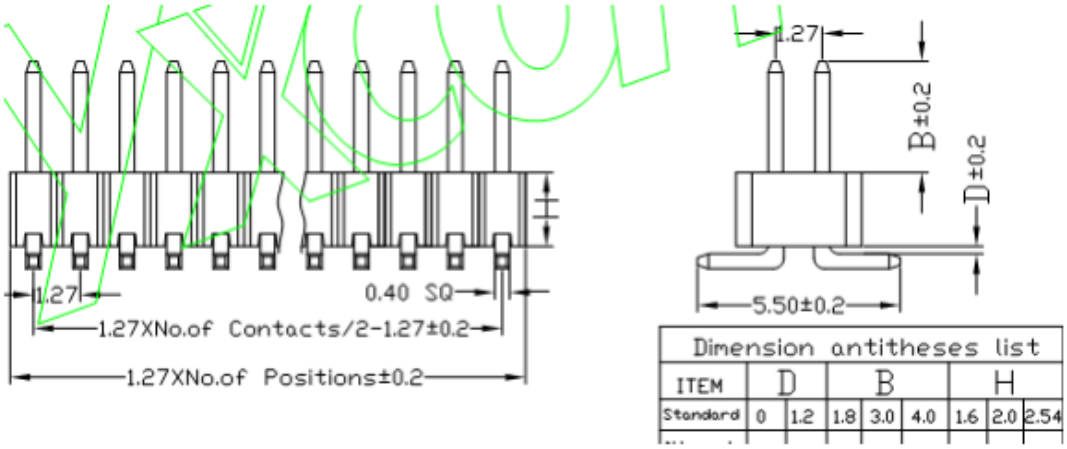




4.2 Pin Position







4.3 PIN Definition

PIN	Name	Description
1	GND	GROUND
2	GND	GROUND
3	LED_LINK_0(GPIO#11)	ETH_PORT0_LED
4	LAN_PORT1_RX+	Ethernet Port
5	LED_LINK_1 (GPIO#14)	ETH_PORT1_LED
6	LAN_PORT1_RX-	Ethernet Port
7	LED_LINK_2 (GPIO#15)	ETH_PORT2_LED
8	LAN_PORT1_TX+	Ethernet Port
9	GND	GROUND
10	LAN_PORT1_TX-	Ethernet Port
11	LAN_PORT0_TX+	Ethernet Port
12	GND	GROUND
13	LAN_PORT0_TX-	Ethernet Port
14	LAN_PORT2_TX+	Ethernet Port
15	LAN_PORT0_RX+	Ethernet Port
16	LAN_PORT2_TX-	Ethernet Port
17	LAN_PORT0_RX-	Ethernet Port
18	LAN_PORT2_RX+	Ethernet Port
19	VDD_3.3V	3.3V Input 1000mA, Recommended Voltage 3.3V
20	LAN_PORT2_RX-	Ethernet Port

21	VDD_3.3V	3.3V Input 1000mA, Recommended Voltage 3.3V
22	GND	GROUND
23	I2S_CLK_GPIO#3	Configurable as I2S interface or GPIO
24	WAN_PORT4_RX+	Ethernet Port
25	I2S_DO_GPIO#1	Configurable as I2S interface or GPIO
26	WAN_PORT4_RX-	Ethernet Port
27	I2S_DI_GPIO#0	Configurable as I2S interface or GPIO
28	WAN_PORT4_TX+	Ethernet Port
29	I2S_WS_GPIO#2	Configurable as I2S interface or GPIO
30	WAN_PORT4_TX-	Ethernet Port
31	UART1_RXD	UART1, TTL, Serial Data In
32	LAN_PORT3_RX+	Ethernet Port
33	UART1_TXD	UART1, TTL, Serial Data Out
34	LAN_PORT3_RX-	Ethernet Port
35	USB_DP	USB Signal
36	LAN_PORT3_TX+	Ethernet Port
37	USB_DM	USB signal
38	LAN_PORT3_TX-	Ethernet Port
39	SYSTEM_LED(GPIO#11)	SYSTEM LED
40	GND	GROUND
41	VDD_3.3V	3.3V Input 1000ma, Recommended Voltage 3.3V
42	NC	NC
43	Reset_GPIO#36	External Power On Reset, It Has an Internal 10K Pull Up Resistance, The External Pull Low Effective.
44	NC	NC
45	WPS_RST_PBC_GPIO#38	KEY_INPUT To Start WPS Function, It Has an Internal 10K Pull-Up Resistance, The External Pull Low Effective.
46	GND	GROUND
47	GND	GROUND
48	SPI_MISO	SPI Serial Interface
49	VDD_3.3V	3.3V Input 1000ma, Recommended Voltage 3.3V
50	SPI_CLK	SPI Serial Interface
51	VDD_3.3V	3.3V Input 1000ma, Recommended Voltage 3.3V

52	SPI_MOSI	SPI Serial Interface
53	LED_LINK4_GPIO#39	ETH_PORT4_LED
54	LED_LINK3_GPIO#40	ETH_PORT3_LED
55	SPI_CS1	
56	WLAN_LED (GPIO#44)	Wireless LED
57	UART0_RX	UART1, TTL, Serial Data In
58	UART0_TX	UART1, TTL, Serial Data Out
59	GND	GROUND
60	GND	GROUND

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) 16dBm Target	18	20	22	dBm
3. Spectrum Mask @ Target Power				
1) fc +/-11MHz to +/-22MHz	-	-	-30	dBr
2) fc > +/-22MHz	-	-	-50	dBr
4. Frequency Error	-20	0	+20	ppm
RX Characteristics	Min.	Typ.	Max.	Unit
5. Minimum Input Level Sensitivity				
1) 1Mbps (FER≦8%)	-	-92	-94	dBm
2) 2Mbps (FER≦8%)	-	-90	-92	dBm
3) 5.5Mbps (FER≦8%)	-	-88	-90	dBm

4) 11Mbps (FER≦8%)	-	-87	-89	dBm
6. Maximum Input Level (FER≦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) 16dBm Target @6Mbps	16	18	20	dBm
2) 14dBm Target @54Mbps	15	17	19	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	-	-25	-5	dB
2) 9Mbps	-	-28	-8	dB
3) 12Mbps	-	-28	-10	dB
4) 18Mbps	-	-28	-13	dB
5) 24Mbps	-	-31	-16	dB
6) 36Mbps	-	-31	-19	dB
7) 48Mbps	-	-32	-22	dB
8) 54Mbps	-	-32	-25	dB
5. Frequency Error	-20	0	+20	ppm
RX Characteristics	Min.	Typ.	Max.	Unit
6. Minimum Input Level Sensitivity				
1) 6Mbps (PER ≦ 10%)	-	-88	-90	dBm
2) 9Mbps (PER ≦ 10%)	-	-86	-88	dBm

3) 12Mbps (PER ≦ 10%)	-	-84	-86	dBm
4) 18Mbps (PER ≦ 10%)	-	-82	-84	dBm
5) 24Mbps (PER ≦ 10%)	-	-80	-82	dBm
6) 36Mbps (PER ≦ 10%)	-	-77	-79	dBm
7) 48Mbps (PER ≦ 10%)	-	-75	-77	dBm
8) 54Mbps (PER≦ 10%)	-	-73	-75	dBm
7. Maximum Input Level (PER ≦ 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) 17dBm Target@MCS0	16	18	20	dBm
2) 13dBm Target@MCS7	14	16	18	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	-	-25	-5	dB
2) MCS1	-	-25	-10	dB
3) MCS2	-	-28	-13	dB
4) MCS3	-	-28	-16	dB
5) MCS4	-	-31	-19	dB
6) MCS5	-	-31	-22	dB
7) MCS6	-	-32	-25	dB
8) MCS7	-	-32	-28	dB
5. Frequency Error	-20	0	+20	ppm

RX Characteristics	Min.	Typ.	Max.	Unit
6. Minimum Input Level Sensitivity				
1) MCS0 (PER ≦ 10%)	-	-83	-85	dBm
2) MCS1 (PER ≦ 10%)	-	-80	-82	dBm
3) MCS2 (PER ≦ 10%)	-	-79	-81	dBm
4) MCS3 (PER ≦ 10%)	-	-77	-79	dBm
5) MCS4 (PER ≦ 10%)	-	-75	-77	dBm
6) MCS5 (PER ≦ 10%)	-	-73	-75	dBm
7) MCS6 (PER ≦ 10%)	-	-71	-73	dBm
8) MCS7 (PER ≦ 10%)	-	-69	-71	dBm
7. Maximum Input Level (PER ≦ 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) 16dBm Target @MCS0	15	17	19	dBm
2) 13dBm Target@MCS7	13	15	17	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	-	-25	-5	dB
2) MCS1	-	-25	-10	dB
3) MCS2	-	-28	-13	dB
4) MCS3	-	-28	-16	dB

5) MCS4	-	-30	-19	dB
6) MCS5	-	-30	-22	dB
7) MCS6	-	-32	-25	dB
8) MCS7	-	-32	-28	dB
5. Frequency Error	-20	0	+20	ppm
RX Characteristics	Min.	Typ.	Max.	Unit
6. Minimum Input Level Sensitivity				
1) MCS0 (PER ≦ 10%)	-	-82	-84	dBm
2) MCS1 (PER ≦ 10%)	-	-79	-81	dBm
3) MCS2 (PER ≦ 10%)	-	-77	-79	dBm
4) MCS3 (PER ≦ 10%)	-	-75	-77	dBm
5) MCS4 (PER ≦ 10%)	-	-72	-74	dBm
6) MCS5 (PER ≦ 10%)	-	-70	-72	dBm
7) MCS6 (PER ≦ 10%)	-	-68	-70	dBm
8) MCS7 (PER ≦ 10%)	-	-66	-68	dBm
7. Maximum Input Level (PER ≦ 10%)	-20	-10	-	dBm

6. Order Information

Model	**Flash**	**RAM**
ComIoT 08	8MB	64MB

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

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