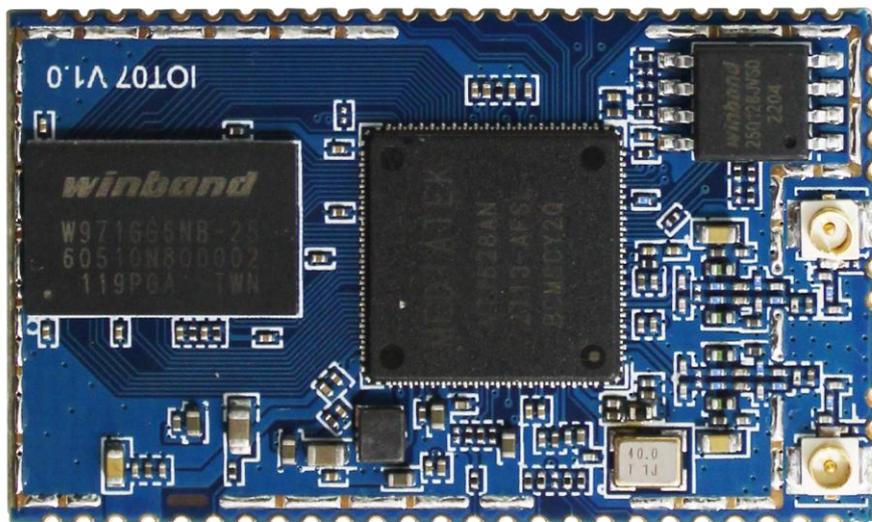


ComIoT 07

802.11b/g/n WIFI Router Core Module

Product Specifications



- Lower Power Consumption
- Half-Vias, Edge-Plating, Leadless Chip Carrier (LCC) Module
- MESH Support
- 300Mbps WIFI Data Rate
- Support OpenWRT Solution

1. Product Description

The ComIoT 07 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 07 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

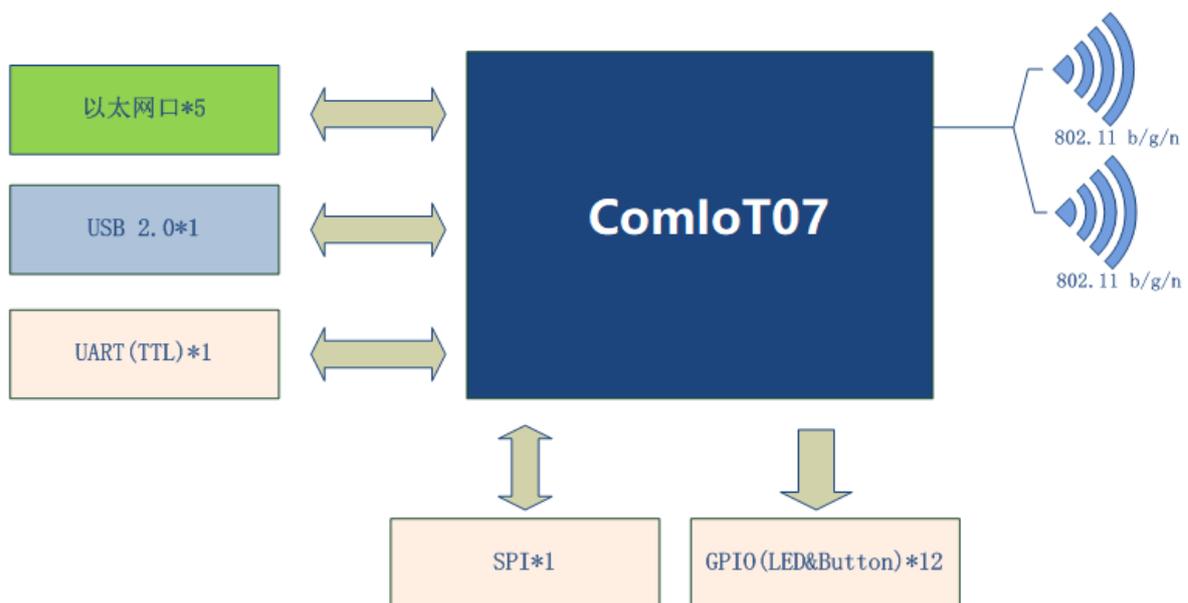


Figure 1. ComIoT 07 Block Diagram

3. Product Specification

3.1 Protocol Specification

The module supports the following protocol standards:

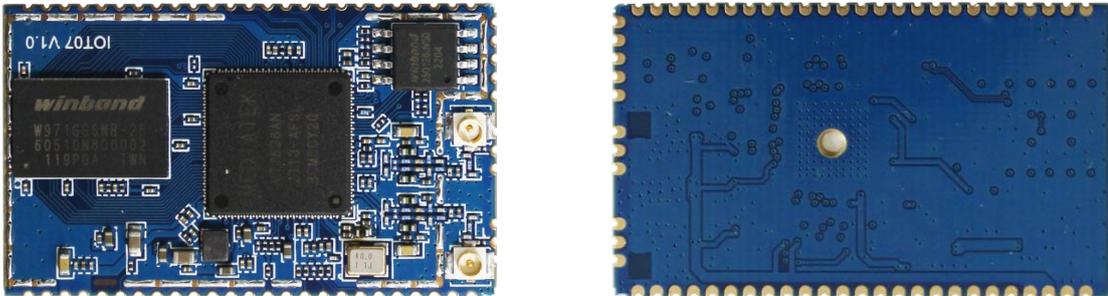
- IEEE 802.11b
- IEEE 802.11g
- IEEE 802.11n

3.2 Core Module Specification

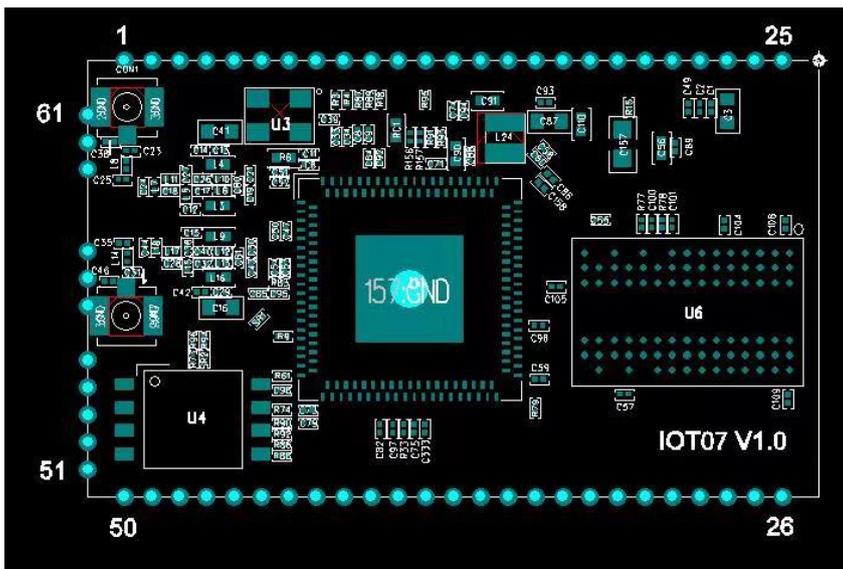
Main Chipset	MTK MT7628DAN (Optional Support MT7628NN)
Flash	8MB (Optional Max 32MB)
RAM	64MB (Optional Max. 128MB)
WIFI Frequency	2.40 ~ 2.4835GHz
WIFI Protocol	IEEE 802.11b/g/n (2X2)
Modulations	11b: DBPSK, DQPSK and CCK and DSSS 11g: BPSK, QPSK, 16QAM, 64QAM and OFDM 11n: MCS0~15 OFDM
Data Rates	11b:1, 2, 5.5 and 11Mbps 11g:6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~5, up to 300Mbps
Number of Pin	61Pin
Interfaces	Ethernet, UART, USB
PCB	4 Layer
Size	40mm x 20mm x 2.3mm (W x L x H)
Weight	4g
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	3.3V +/- 10%

4. Mechanical Specification

4.1 Module Physical Appearance



4.2 Pin Position



4.3 PIN Definition

PIN	Name	Description
1	GND	
2	GND	
3	I2S_DO_GPIO#1	Configurable as I2S interface or GPIO
4	I2S_CLK_GPIO#3	Configurable as I2S interface or GPIO
5	I2S_DI_GPIO#0	Configurable as I2S interface or GPIO

6	I2S_WS_GPIO#2	Configurable as I2S interface or GPIO
7	I2S_SCLK_GPIO#4	Configurable as I2S interface or GPIO
8	I2S_SD_GPIO#5	Configurable as I2S interface or GPIO
9	UART0_TX	Serial Port 0 (debug port)
10	UART0_RX	Serial Port 0 (debug port)
11	UART1_RX	Serial Port 1
12	UART1_TX	Serial Port 1
13	WLAN_LED_GPIO#44	Indicator GPIO
14	LINK0_LED_GPIO#43	Indicator GPIO
15	LINK1_LED_GPIO#42	Indicator GPIO
16	LINK2_LED_GPIO#41	Indicator GPIO
17	LINK3_LED_GPIO#40	Indicator GPIO
18	LINK4_LED_GPIO#39	Indicator GPIO
19	RESET_GPIO#36	(PORST_N) Reset Button, Active Low
20	WPS_GPIO#38	WDT_RST_N WPS Button, Active Low
21	GPIO#37	GPIO37
22	3.3V Input	3.3V input, requiring a maximum supply current of 1000mA
23	3.3V Input	3.3V input, requiring a maximum supply current of 1000mA
24	GND	
25	GND	
26	GND	
27	USB_DM	USB Data
28	USB_DP	USB Data
29	GND	
30	ETH_LINK4_TXON	Ethernet Interface_Port4
31	ETH_LINK4_TXOP	Ethernet Interface_Port4
32	ETH_LINK4_RXIN	Ethernet Interface_Port4
33	ETH_LINK4_RXIP	Ethernet Interface_Port4
34	ETH_LINK3_RXIN	Ethernet Interface_Port3
35	ETH_LINK3_RXIP	Ethernet Interface_Port3
36	ETH_LINK3_TXON	Ethernet Interface_Port3
37	ETH_LINK3_TXOP	Ethernet Interface_Port3

38	ETH_LINK2_TXON	Ethernet Interface_Port2
39	ETH_LINK2_TXOP	Ethernet Interface_Port2
40	ETH_LINK2_RXIN	Ethernet Interface_Port2
41	ETH_LINK2_RXIP	Ethernet Interface_Port2
42	ETH_LINK1_RXIN	Ethernet Interface_Port1
43	ETH_LINK1_RXIP	Ethernet Interface_Port1
44	ETH_LINK1_TXON	Ethernet Interface_Port1
45	ETH_LINK1_TXOP	Ethernet Interface_Port1
46	ETH_LINK0_TXON	Ethernet Interface_Port0
47	ETH_LINK0_TXOP	Ethernet Interface_Port0
48	ETH_LINK0_RXIN	Ethernet Interface_Port0
49	ETH_LINK0_RXIP	Ethernet Interface_Port0
50	SYS_LED_GPIO#11	System indicator (GPIO11)
51	SPI_MOSI	SPI interface
52	SPI_CLK	SPI interface
53	SPI_MISO	SPI interface
54	SPI_CS0	SPI interface
55	SPI_CS1	SPI interface
56	GND	
57	NC/ANT	Default is NC, Optional as Antenna Pin
58	GND	
59	GND	
60	NC/ANT	Default is NC, Optional as Antenna Pin
61	GND	

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 \leq 8%)	-	-92	-94	dBm
2) 2Mbps (FER \leq 8%)	-	-90	-92	dBm
3) 5.5Mbps (FER \leq 8%)	-	-88	-90	dBm
4) 11Mbps (FER \leq 8%)	-	-87	-89	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) 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 \leq 10%)	-	-88	-90	dBm
2) 9Mbps (PER \leq 10%)	-	-86	-88	dBm
3) 12Mbps (PER \leq 10%)	-	-84	-86	dBm
4) 18Mbps (PER \leq 10%)	-	-82	-84	dBm
5) 24Mbps (PER \leq 10%)	-	-80	-82	dBm
6) 36Mbps (PER \leq 10%)	-	-77	-79	dBm
7) 48Mbps (PER \leq 10%)	-	-75	-77	dBm
8) 54Mbps (PER \leq 10%)	-	-73	-75	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) 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 \leq 10%)	-	-83	-85	dBm
2) MCS1 (PER \leq 10%)	-	-80	-82	dBm
3) MCS2 (PER \leq 10%)	-	-79	-81	dBm
4) MCS3 (PER \leq 10%)	-	-77	-79	dBm
5) MCS4 (PER \leq 10%)	-	-75	-77	dBm
6) MCS5 (PER \leq 10%)	-	-73	-75	dBm
7) MCS6 (PER \leq 10%)	-	-71	-73	dBm
8) MCS7 (PER \leq 10%)	-	-69	-71	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) 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 \leq 10%)	-	-82	-84	dBm
2) MCS1 (PER \leq 10%)	-	-79	-81	dBm
3) MCS2 (PER \leq 10%)	-	-77	-79	dBm
4) MCS3 (PER \leq 10%)	-	-75	-77	dBm
5) MCS4 (PER \leq 10%)	-	-72	-74	dBm
6) MCS5 (PER \leq 10%)	-	-70	-72	dBm
7) MCS6 (PER \leq 10%)	-	-68	-70	dBm
8) MCS7 (PER \leq 10%)	-	-66	-68	dBm

7. Maximum Input Level (PER \leq 10%)	-20	-10	-	dBm
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6. Order Information

Model	Flash	RAM
ComIoT 07	8MB	64MB

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

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深圳星恒讯科技有限公司

SHENZHEN MOVINGCOMM TECHNOLOGY CO., LTD.

Addr: 4F, No. 5 Building, TongFuKang ShuiTian Industrial Zone,
ChangCheng Road, ShuiTian Community, ShiYan, BaoAn
District, 518108 ShenZhen, GuangDong, China

Tel: 86-755-23125215

Fax: 86-755-23125215-802

Email: sales@movingcomm.com

