MovingComm
Ease Your Networking

ComIoT 19

High Performance 802.11ax WiFi6 Dual Band Wireless Routing Core Module

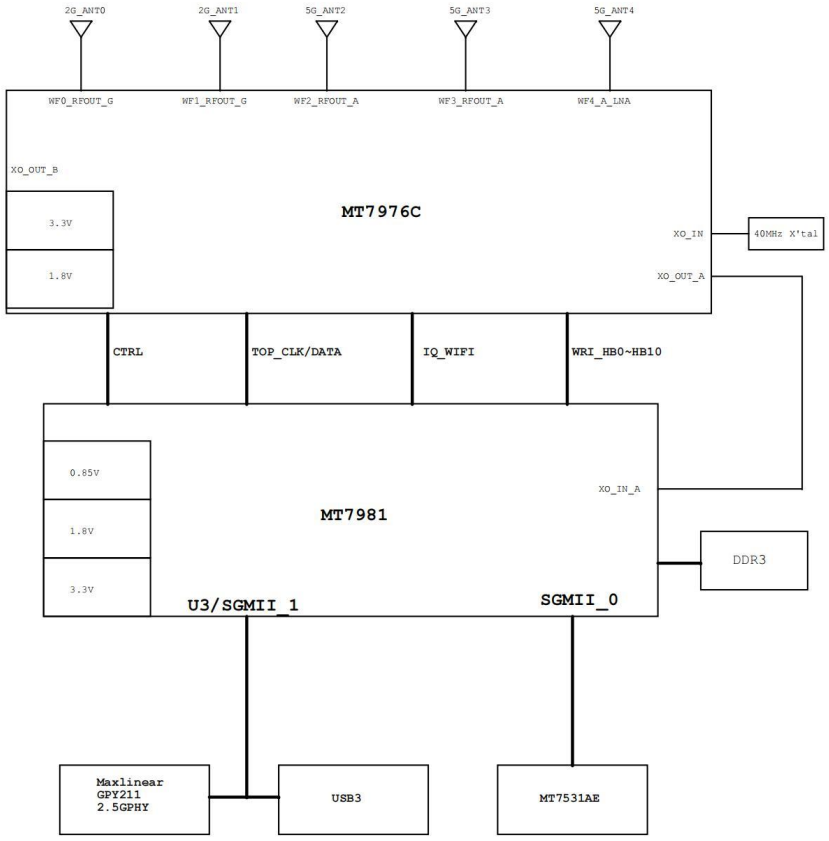
- MTK MT7981 Main Chipset Solution
- Supports Dual Band 802.11ax
- 3000Mb Wireless Bandwidth
- Support 5 x Gigabit Ethernet Port
- Professional High-speed B2B Interface

Product Description

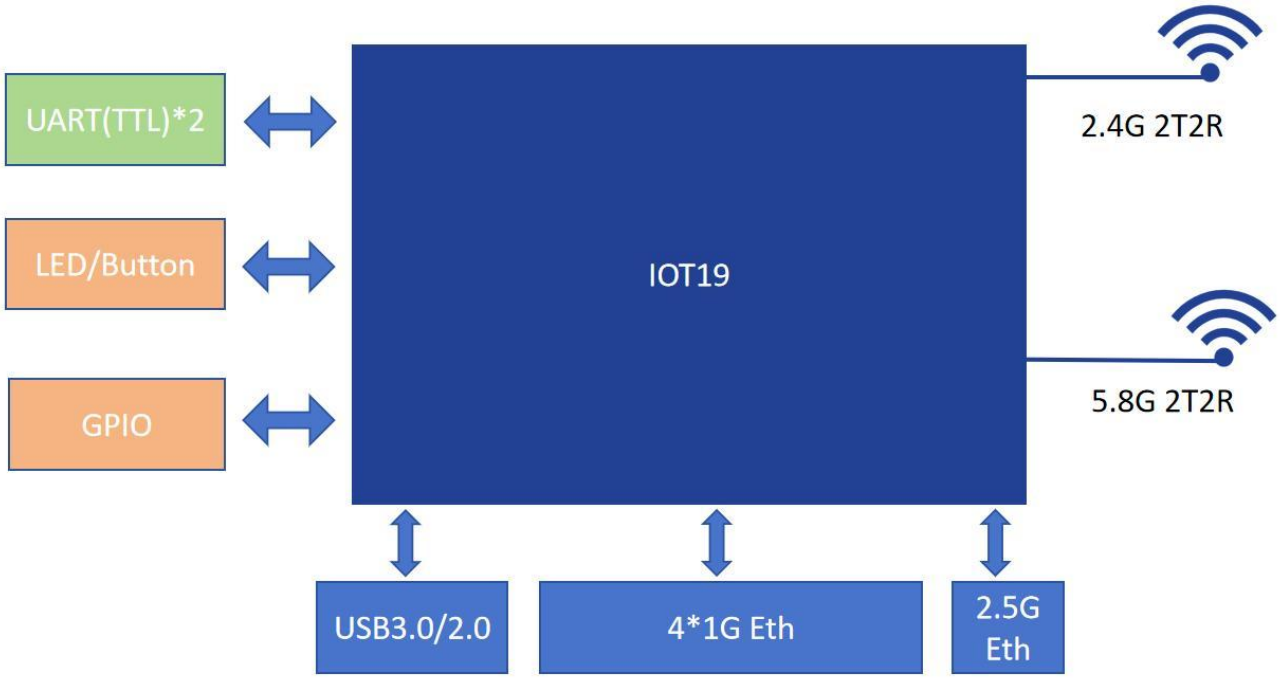
ComIoT 19 module is a complete routing core module developed and produced by Shenzhen Movingcomm Technology Co., Ltd. It integrates a 2.5G network port and four 1G network ports, supports 802.11 a/b/g/n/ac/ax protocols, and can provide WiFi 6 solutions for various scenarios. It is optimized for low-power, highly integrated WIFI6 AP and routing devices, requiring only simple external interface design for use.

This module is designed based on MT7981, which is a dual core ARM Cortex-A53 CPU with a main frequency of 1.3GHz. The WIFI chip uses MT7976CN and supports dual band 802.11a/b/g/n/ac/ax 2x2 MIMO, with a maximum bandwidth of up to 3000Mbps. The module supports both AP mode and client mode, including a large number of business application software, reducing customer research and design work.

Design Block Diagram:



The hardware architecture is shown in the following diagram:



Product Features

- Solution Based on MTK MT7981B+MT7976C+MT7531AE+GPY211
- 2.4GHz Supports WiFi6 with a Maximum Speed of 573Mbps
- 5GHz Supports WiFi6 with a Maximum Speed of 2402Mbps
- Support Dynamic Frequency Selection (DFS)
- Memory with DDR3 256MB
- Support 32 MB SPI NOR Flash
- Support Expansion 256MB NAND Flash
- Ethernet Port Support 2.5Gbps
- Support USB 2.0 & USB 3.0
- Support for Serial and Multiple GPIO

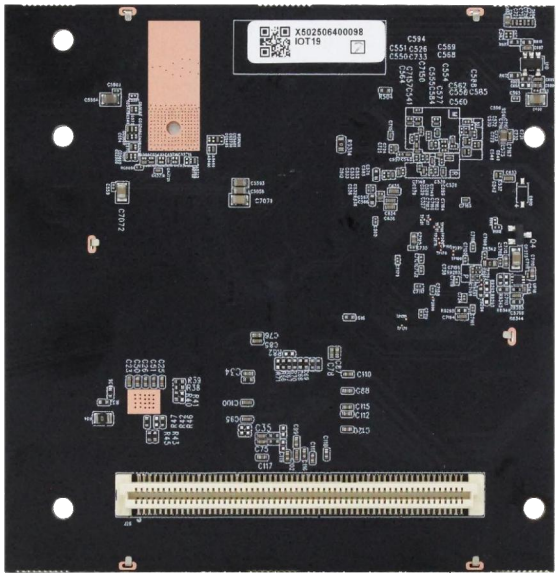
Hardware Specifications

Main Chipset	MTK MT7981B+MT7976C+MT7531AE+GPY211
Flash	SPI NOR Flash 32MB （Optional Max NAND Flash 128MB）
Memory	256MB（Optional Max 1GB）
RF Frequency	2.40~2.4835GHz & 5.725~5.850GHz
WiFi Standards	802.11a/b/g/n/ac/ax(2X2)
Modulation	11b: DBPSK, DQPSK and CCK and DSSS 11g: BPSK, QPSK, 16QAM, 64QAM and OFDM 11n: MCS0~15 OFDM 11a:BPSK, QPSK, 16QAM, 64QAM 11ac:BPSK, QPSK, 16QAM, 64QAM, 256QAM,OFDM 11ax:BPSK, QPSK, 16QAM, 64QAM, 256QAM，1024QAM，OFDMA
Theoretical Bandwidth	11b:1, 2, 5.5 and 11Mbps 11g:6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~15,MIMO up to 300Mbps 11a:6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11ac:wave2,MU-MIMO,up to 867Mbps 11ax:2.4Ghz up to 573Mbps,5.8GHz up to 2402Mbps
Board to Board Connector	120Pin Connector
Main Interfaces	Ethernet*5 UART*2 USB2.0*1 or USB3.0*1
PCB	4 Layer
Size / Weight	82mm x 80mm x 12mm / 105g （Including heat sink）
Antenna	Standard IPEX
Operating Temperature	-20°C to +70°C

Storage Temperature	-40°C to +90°C
Humidity	5% ~ 95%
Static Protection	Human Body Model: -2KV ~ +2KV
Static Protection	Machine Mode: -200V ~ +200V
Operating Voltage	12V +/-10%
Average Power Consumption	6W
Cooling Size (Recommended)	60*80*7mm **Note: the wifi6 chip operates and has high thermal temperature, the module temperature needed to be in control below ≤70°**
GPIO Output Voltage	3.3V +/-10%

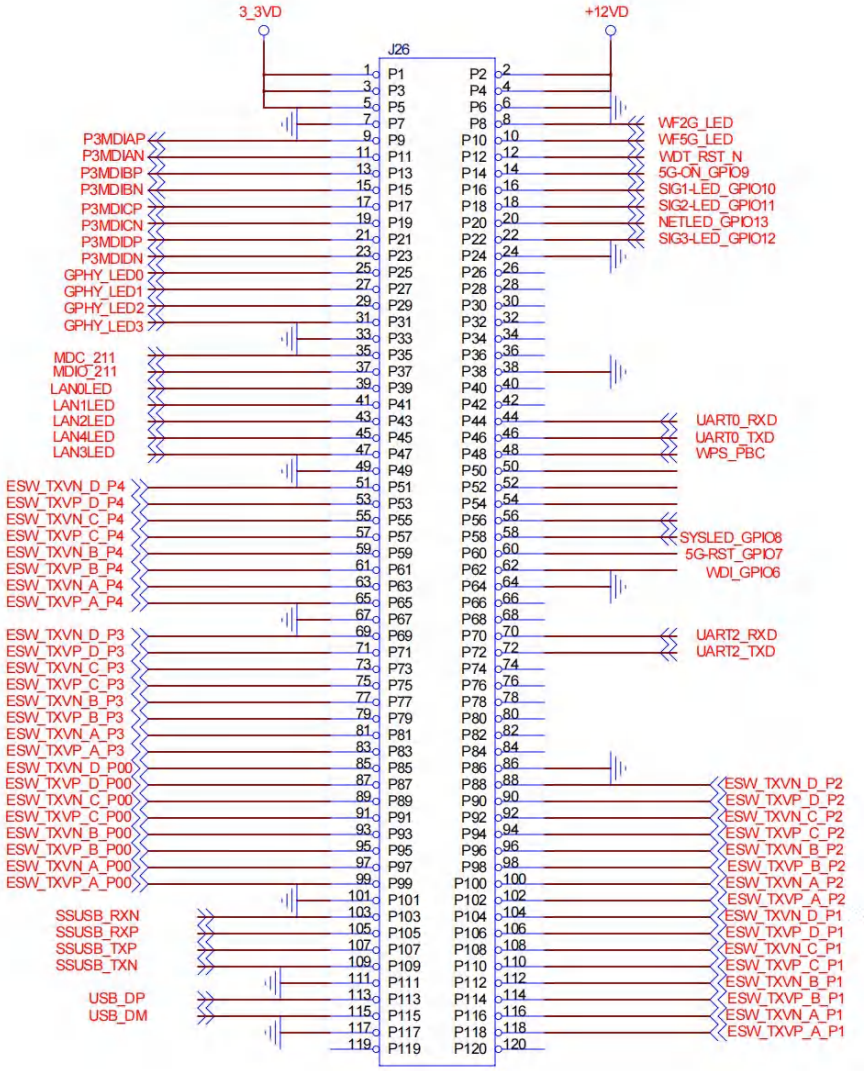
Product Views

Front View



Back View

Pin Definition



Pin	Name	Description
1	3.3VD	3.3V Power In (Max 3A)
2	VIN_12V	12V Power In
3	3.3VD	3.3V Power In (Max 3A)
4	VIN_12V	12V Power In
5	3.3VD	3.3V Power In (Max 3A)
6	GND	Ground

7	GND	Ground
8	LED_WLAN_2G	2.4GHz WIFI LED Indicator
9	P3MDIAP	GPIO
10	LED_WLAN_5G	5.8G WiFi LED Indicator
11	P3MDIAN	Gigabit Ethernet port (single Ethernet port)
12	WDT_RST_N	Reset button (low level effective)
13	P3MDIBP	Gigabit Ethernet port (single Ethernet port)
14	GPIO_9	GPIO INTERFACE
15	P3MDIBN	Gigabit Ethernet port (single Ethernet port)
16	GPIO_10	GPIO INTERFACE
17	P3MDICP	Gigabit Ethernet port (single Ethernet port)
18	GPIO_11	GPIO INTERFACE
19	P3MDICN	Gigabit Ethernet port (single Ethernet port)
20	GPIO_13	GPIO INTERFACE
21	P3MDIDP	Gigabit Ethernet port (single Ethernet port)
22	GPIO_12	GPIO INTERFACE
23	P3MDIDN	Gigabit Ethernet port (single Ethernet port)
24	GND	Ground
25	GPHY_LED0	GPIO
26	NA	
27	GPHY_LED1	GPIO
28	NA	
29	GPHY_LED2	GPIO
30	NA	
31	GPHY_LED3	GPIO
32	NA	
33	GND	Ground
34	NA	
35	MDC_211	2.5G network port debug
36	NA	
37	MDIO_211	2.5G network port debug

38	GND	Ground
39	LAN0_LED	Ethernet Port LED_P0
40	NA	
41	LAN1_LED	Ethernet Port LED_P1
42	NA	
43	LAN2_LED	Ethernet Port LED_P2
44	UART0_RXD	Serial (Default Debug)
45	LAN4_LED	Ethernet Port LED_P4
46	UART0_TXD	Serial (Default Debug)
47	LAN3_LED	Ethernet Port LED_P3
48	WPS	GPIO
49	GND	Ground
50		
51	ESW_TXVN_D_P4	Ethernet port P4
52		
53	ESW_TXVP_D_P4	Ethernet port P4
54		
55	ESW_TXVN_C_P4	Ethernet port P4
56		
57	ESW_TXVP_C_P4	Ethernet port P4
58	GPIO8	SYSLED
59	ESW_TXVN_B_P4	Ethernet port P4
60	GPIO7	Reset Button
61	ESW_TXVP_B_P4	Ethernet port P4
62	GPIO6	Watchdog IO
63	ESW_TXVN_A_P4	Ethernet port P4
64	GND	
65	ESW_TXVN_A_P4	Ethernet port P4
66		
67	GND	
68		

69	ESW_TXVN_D_P3	Ethernet port P3
70	UART2_RXD	
71	ESW_TXVP_D_P3	Ethernet port P3
72	UART2_TXD	
73	ESW_TXVN_C_P3	Ethernet port P3
74		
75	ESW_TXVP_C_P3	Ethernet port P3
76		
77	ESW_TXVN_B_P3	Ethernet port P3
78		
79	ESW_TXVP_B_P3	Ethernet port P3
80		
81	ESW_TXVN_A_P3	Ethernet port P3
82		
83	ESW_TXVN_A_P3	Ethernet port P3
84		
85	ESW_TXVN_D_P00	Ethernet port P0
86	GND	
87	ESW_TXVP_D_P00	Ethernet port P0(Available in 1G or 2.5G)
88	ESW_TXVN_D_P2	Ethernet port P2
89	ESW_TXVN_C_P00	Ethernet port P0(Available in 1G or 2.5G)
90	ESW_TXVP_D_P2	Ethernet port P2
91	ESW_TXVP_C_P00	Ethernet port P0(Available in 1G or 2.5G)
92	ESW_TXVN_C_P2	Ethernet port P2
93	ESW_TXVN_B_P00	Ethernet port P0(Available in 1G or 2.5G)
94	ESW_TXVP_C_P2	Ethernet port P2
95	ESW_TXVP_B_P00	Ethernet port P0(Available in 1G or 2.5G)
96	ESW_TXVN_B_P2	Ethernet port P2
97	ESW_TXVN_A_P00	Ethernet port P0(Available in 1G or 2.5G)
98	ESW_TXVP_B_P2	Ethernet port P2
99	ESW_TXVP_A_P00	Ethernet port P0(Available in 1G or 2.5G)

100	ESW_TXVN_A_P2	Ethernet port P2
101	GND	GND
102	ESW_TXVN_A_P2	Ethernet port P2
103	SSUSB_RXN	USB3.0
104	ESW_TXVN_D_P1	Ethernet port P1
105	SSUSB_RXP	USB3.0
106	ESW_TXVP_D_P1	Ethernet port P1
107	SSUSB_TXP	USB3.0
108	ESW_TXVN_C_P1	Ethernet port P1
109	SSUSB_TXN	USB3.0
110	ESW_TXVP_C_P1	Ethernet port P1
111	GND	Ground
112	ESW_TXVN_B_P1	Ethernet port P1
113	USB_DP	USB Data
114	ESW_TXVP_B_P1	Ethernet port P1
115	USB_DM	USB Data
116	ESW_TXVN_A_P1	Ethernet port P1
117	GND	Ground
118	ESW_TXVN_A_P1	Ethernet port P1

WiFi RF Specifications

RF Radio Frequency	Value
11ax HT20 RF Power (2.4GHz)	16±1dBm
11ax HT20 Receive Sensitivity (2.4GHz)	-62
11ax HT20 RF Power (5GHz)	16±1dBm
11ax HT20 Receive Sensitivity (5GHz)	-60
PPM	±20

Antenna/Frequency/Data Rate	RF Power (2.4G)
CH0/11b/11M	20±1dBm
CH0/11g/54M	19±1dBm
CH0/11n/HT20 MCS7	18±1dBm
CH0/11n/HT40 MCS7	17±1dBm
CH0/11AX/HT20 MCS11	16±1dBm
CH0/11AX/HT40 MCS11	15±1dBm
CH1/11b/11M	20±1dBm
CH1/11g/54M	19±1dBm
CH1/11n/HT20 MCS7	18±1dBm
CH1/11n/HT40 MCS7	17±1dBm
CH1/11AX/HT20 MCS11	16±1dBm
CH1/11AX/HT40 MCS11	15±1dBm
Antenna/Frequency/Data Rate	RF Power (5G)
CH0/11a/54M	19±1dBm
CH0/11n/HT20 MCS7	18±1dBm
CH0/11n/HT40 MCS7	17±1dBm
CH0/11AC/HT20 MCS9	17±1dBm
CH0/11AC/HT40 MCS9	16±1dBm
CH0/11AC/HT80 MCS9	15±1dBm
CH0/11AX/HT20 MCS11	16±1dBm
CH0/11AX/HT40 MCS11	15±1dBm
CH0/11AX/HT80 MCS11	14±1dBm
CH1/11a/54M	19±1dBm
CH1/11n/HT20 MCS7	18±1dBm
CH1/11n/HT40 MCS7	17±1dBm
CH1/11AC/HT20 MCS9	17±1dBm
CH1/11AC/HT40 MCS9	16±1dBm
CH1/11AC/HT80 MCS9	15±1dBm
CH1/11AX/HT20 MCS11	16±1dBm
CH1/11AX/HT40 MCS11	15±1dBm
CH1/11AX/HT80 MCS11	14±1dBm

Antenna/Frequency/Data Rate	Receive Sensitivity (2.4GHz)
CH0/11b/11M	-88
CH0/11g/54M	-75
CH0/11n/HT20 MCS7	-72
CH0/11n/HT40 MCS7	-70
CH0/11AX/HT20 MCS11	-62
CH0/11AX/HT40 MCS11	-60
CH1/11b/11M	-88
CH1/11g/54M	-75
CH1/11n/HT20 MCS7	-72
CH1/11n/HT40 MCS7	-70
CH1/11AX/HT20 MCS11	-62
CH1/11AX/HT40 MCS11	-60
Antenna/Frequency/Data Rate	Receive Sensitivity (5.8G)
CH0/11a/54M	-77
CH0/11n/HT20 MCS7	-74
CH0/11n/HT40 MCS7	-72
CH0/11AC/HT20 MCS9	-72
CH0/11AC/HT40 MCS9	-70
CH0/11AC/HT80 MCS9	-62
CH0/11AX/HT20 MCS11	-70
CH0/11AX/HT40 MCS11	-68
CH0/11AX/HT80 MCS11	-56
CH1/11a/54M	-77
CH1/11n/HT20 MCS7	-74
CH1/11n/HT40 MCS7	-72
CH1/11AC/HT20 MCS9	-72
CH1/11AC/HT40 MCS9	-70

CH1/11AC/HT80 MCS9	-62
CH1/11AX/HT20 MCS11	-70
CH1/11AX/HT40 MCS11	-68
CH1/11AX/HT80 MCS11	-56

Order Information

Model	NOR Flash	DDR3
ComIoT 19	32MB	256MB

To See More MovingComm Products,

Visit:-
Movingcomm official website http://www.movingcomm.com/en/
Movingcomm Alibaba global site: https://movingcomm.en.alibaba.com

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, Shi Yan, BaoAn District, 518108 ShenZhen, GuangDong, China

Tel: 86-755-23125215

Fax: 86-755-23125215-802

Email: sales@movingcomm.com