IOT2S Wi-Fi Module Specification

V1.0.1

Winner Micro

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Document History

Version	Complete Date	Revision Record	Author	Auditor
V1.0.0	2018-11-07	Initial Release	Kanghb	Ray
V1.0.1	2019-02-28	1.Modify power consumption with new version SDK; 2.Add IO definition.	Kevin	Ray

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1 Introduction

IOT2S is the Wi-Fi module based on IoT Wi-Fi SoC W600. It integrates PCB antenna and gold finger interface. This Wi-Fi module can be used for smart appliance, smart home, smart toy and industry field.

2 Product Features

2.1 Interface:

- Gold finger interface with 2mm spacing
- 2 x UART ports, band rate range 1200bps~2Mbps
- Integrate PWM controller, max output frequency is 20MHz, max input frequency is 20MHz
- Integrate I²C
- Integrate GPIO
- Integrate I²S

2.2 Wireless

- Support GB15629.11-2006, IEEE802.11 b/g/n standard
- Frequency range: 2.4~2.4835 GHz
- Support Wi-Fi WMM/WMM-PS/WPA/WPA2/WPS
- Support Wi-Fi Direct
- Support EDCA channel access
- Support 20/40M bandwidth
- Support STBC, GreenField, Short-GI and reverse transmission
- Support RIFS interframe space
- Support AMPDU, AMSDU
- Support IEEE802.11n MCS 0~7, MCS32 transmission rate is up to 150Mbps
- Support Short Preamble in 2/5.5/11Mbps
- Support HT-immediate Compressed Block Ack, Normal Ack, No Ack
- Support CTS to self
- Support STA/AP/AP+STA function
- Support up to 32 multicast networks with different encryption methods in BSS
- As AP in BSS, the sum of sites and groups is up to 32 and in IBSS is up to 16

2.3 Others

- Support programmabel GPIO control

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- Support AT+command protocol based on ASCII code with UART interface
- Support multiple network protocols: TCP/UDP/ICMP/DHCP/DNS/HTTP
- Support DHCP Server, DNS Server
- Support extensible WEB server
- Support firmware online update

3 Product Specification

Table 3-1 Specification List

	Item	Parameter	Note
Wi-Fi	Wi-Fi Mode	IEEE802.11b/g/n	
	RF impedance	50Ω	
	SWR	<-10dB	
	Frequency Range	2.4~2.4835 GHz	
	Reception Sensitivity	20MHz MCS7@-71dBm; 40MHz MCS7@-68dBm; 54Mbps@-73dBm; 11Mbps@-87dBm; 1Mbps@-95dBm;	
	Data rate in PHY	802.11n MCS 0~7 150Mbps	
	Modulation Mode	DSSS, OFDM, DBPSK, DQPSK, CCK, QAM16/64	
	Output Power	IEEE802.11b, DSSS 1Mbps, POUT = +17dBm; IEEE802.11g, OFDM 54Mbps, POUT = +12dBm; IEEE802.11n, OFDM MCS7, POUT = +10dBm;	
Hardware	Interface	UART, GPIO, PWM, I²C	
	Data Rate	2Mbps@UART (Max)	
	Working Voltage	3.0V ~ 3.6V	
	Working Current	20mA ~ 110mA	
	Working Humidity	5%~90%（无凝结）	
	Storage Temperature	-40~+125 ℃	
	Working Temperature	-40~+85℃	
	Size	15.0mm×17.3mm	
Software	Network Type	STA/AP/AP+STA/Wi-Fi Direct	
	Authentication	WEP/WPA-PSK/WPA2-PSK	
	Encryption	WEP64/WEP128/TKIP/CCMP(AES)	
	WPS	WPS	

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	Energy Conservation	PS-POLL/Standby	
	Network Protocol	TCP/UDP/ARP/ICMP/DHCP/DNS/HTTP	
	Interface Protocol	AT+Command	

4 Interface

IOT2S module is shown in Figure 4-1

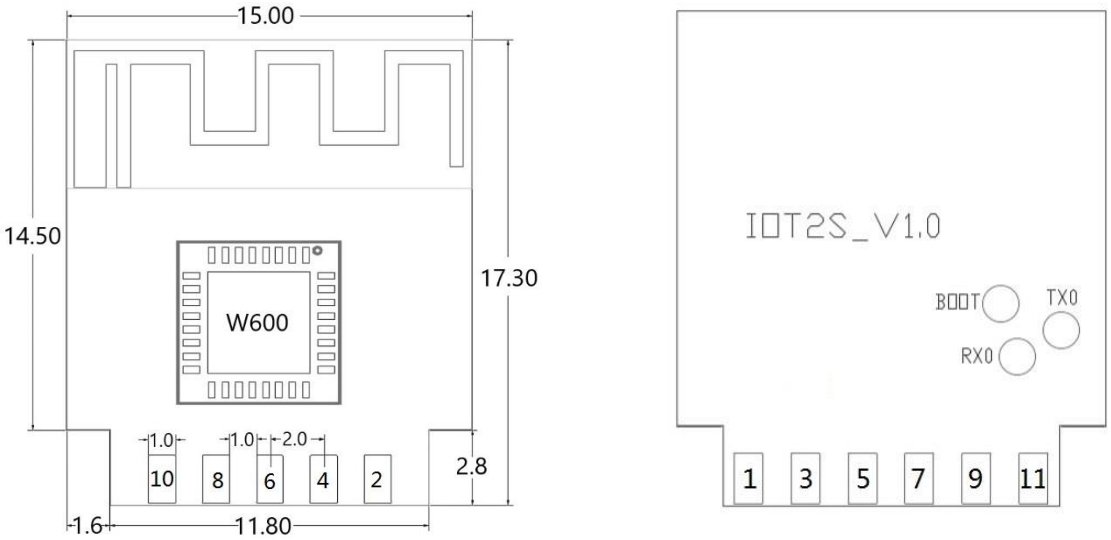

Figure 4-1 IOT2S

Table 4-1 PIN Description

No.	Name	Type	Default Function	Note
1	3V3	P	Power Pin	
2	PB17	I/O	GPIO_B17	PWM_2
3	GND	P	GND	
4	PB16	I/O	GPIO_B16	PWM_3
5	RX1	I/O	UART1_RX	
6	PB15	I/O	GPIO_B15	PWM_4
7	TX1	I/O	UART1_TX	
8			NC	
9	PB14	I/O	GPIO_B14	
10	RST	I/O	Hardware Reset	
11	PB13	I/O	GPIO_B13	

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5 Reference Circuit Design

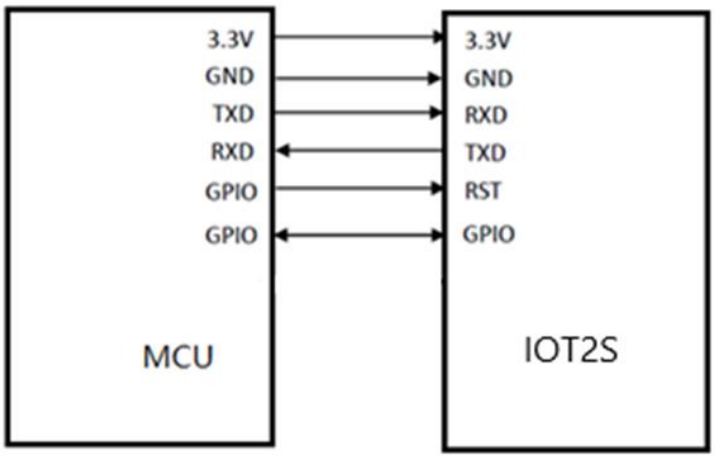

Figure 6-1 IOT2S Reference Design

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FCC WARNING

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

15.105 Information to the user.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination.

The firmware setting is not accessible by the end user.

The final end product must be labelled in a visible area with the following:

“Contains Transmitter Module 2AGQ7-IOT2S”