WizFi630S Datasheet

(Version 1.0.0)

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Document Revision History

Date	Revision	Changes
2019-09-09	1.0	Release

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1. Overview

WizFi630S is a gateway module that integrates 1T1R 802.11 Wi-Fi, a 580MHz CPU, Ethernet PHY, USB2.0 host, SD-XC, I2S, I2C and more GPIOs.

WizFi630S enables a device with serial interface to connect to LAN or WLAN for remote control, measuring, and administration. WizFi630S can also work as an IP router because of its internal embedded switch.

WizFi630S supports interfaces like Serial (UART), LAN, and Wi-Fi(WLAN). Functions such as Serial(UART)-To-Wi-Fi, Serial-To-Ethernet and Ethernet-To-Wi-Fi are supported by scripts and/or commands in **OpenWRT**. Users can connect to WizFi630S's internal web server or use the serial commands for simple Wi-Fi settings - not only for serial devices but also 8/16/32 bit micro controllers can use UART for simple Wi-Fi settings.

WizFi630S can significantly reduce the procedures for wireless module design, testing, and certification; WizFi630S can be an ideal solution for users who lack wireless network experience. WizFi630S follows the 802.11b/g/n standard and supports up to 150Mbps speed in wireless interface.
WizFi630S can be tested with an evaluation board and all documents are available online.

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Features

- ◆ WizFi630A Pin compatible
- ◆ 580MHz Clock
- ◆ 16-bit DDR2 128Mbytes SRAM, 32Mbytes SPI Flash
- ◆ Complies with IEEE802.11b/g/n.
- ◆ Gateway/AP(Bridge)/AP-Client/Client(Station)/Ad-hoc Mode , WDS/Repeater supports
- ◆ 1T1R RF Interface (2.4G only)
- ◆ Physical link rate up to 150Mpbs
- ◆ Built-in 3 Ethernet Ports
- ◆ 2 Serial Ports supports
- ◆ Working as Wi-Fi Router
- ◆ WEP 64/128bit, WPA/WPA2-PSK TKIP, AES
- ◆ Router and Firewall function supports
- ◆ Operating temperature range: -25° C ~ 80° C
- ◆ CE, FCC, KC, RoHS certification

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2. Specification

2.1 Wireless Specifications

Type	Description
Wireless Standard	IEEE802.11b/g/n
Frequency Range	802.11b: 2412 ~2462 MHz 802.11g: 2412 ~2462 MHz 802.11n HT20: 2412 ~2462 MHz 802.11n HT40: 2422 ~2452 MHz
Operating Channels	802.11b: 13 Channels 802.11g: 13 Channels 802.11n HT20: 13 Channels 802.11n HT40: 9 Channels
Output Power (Tolerance(+/-1dBm))	802.11b: 11dBm@1Mbps 802.11g: 10dBm@6Mbps 802.11n HT20: 9.5dBm@MCS0 802.11n HT40: 7dBm@MCS0
Receive Sensitivity	802.11b: -48dBm@4% PER
Data Rates	802.11b: 1,2,5.5,11Mbps 802.11g: 6,9,12,18,24,36,48,54Mbps 802.11n: 29.5,86.5,115,130,144,150Mbps
Modulation Type	802.11b: DSS(CCK, QPSK, BPSK) 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) 802.11n HT20: OFDM(64QAM, 16QAM, QPSK, BPSK) 802.11n HT40: OFDM(64QAM, 16QAM, QPSK, BPSK)
Antenna	u.FL (EVB : 1T1R 2dBi)
Encryption	64/128Bit WEP, WPA, WPA2, TKIP, AES, WAPI

Table 1 WizFi630S Wi-Fi Specification

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2.2 Hardware Specifications

Type	Description
Interface	**Serial port** : 2 EA (optional 3EA) **LAN port** : 3 EA **USB 2.0 Host** : 1 EA **I2S** : 1EA **I2C** : 1EA **PWM** : 4EA
	U.FL(wireless)
Temperature	Operating: -25℃~+80℃
Humidity	TBD
Serial	Baud Rate : 115200(default)
	Stop bits: 1, 2
	Parity: None, Odd, Even
	Flow Control: Not supported
Input Power	DC 3.3V / 1A
Power Consumption	TBD
Dimension	33mm X 43mm X 3mm
Weight	

Table 2 WiZFi630S Hardware Specification

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2.3 Software Specifications

All functions in the below table are supported by OpenWRT software.

Type	Description
Operation Mode	Access Point(Bridge), Client(Station), AP-Client
Wireless	Radio Enable/Disable
	SSID Hidden
	Multi SSID
	Rate Control
	TX Power Control
	Beacon Interval
	DTIM Period
	Fragment Length
Protocol	TCP, UDP, ARP, ICMP, DHCP, PPPoE, HTTP
Security	WEP 64/128bit
	WPA/WPA2-PSK - with Radius Server or Pre-Shared Key - Unicast Encryption: AES/TKIP
	MAC Address Filtering / Limiting
Network	Port Forwading(UDP and/or TCP)
	DHCP Client / Server
	WDS(Wireless Distribution System) Support
	NAT
	VLAN
Management	Administrator ID / PWD
	Station & AP Association Information
	SSH(Secure Shell) Support
	Web based Configuration / Serial Command Configuration
	Upgrade through WEB UI

Table 3 WizFi630S SW Specification

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3. Evaluation Board

3.1 Contents

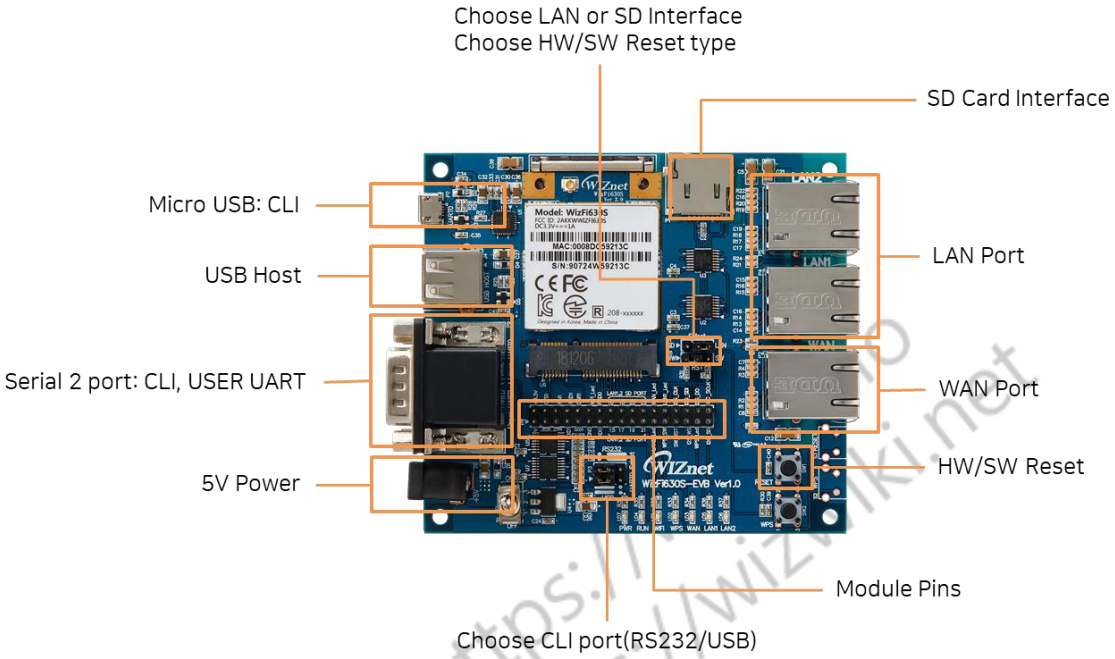


Table 4 WizFi630S-EVB Contents

User have to prepare below parts their own to use WizFi630S and WizFi630S-EVB.

Power source & serial command line	Wireless	Ethernet
		

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4. Hardware Information

4.1 Block Diagram

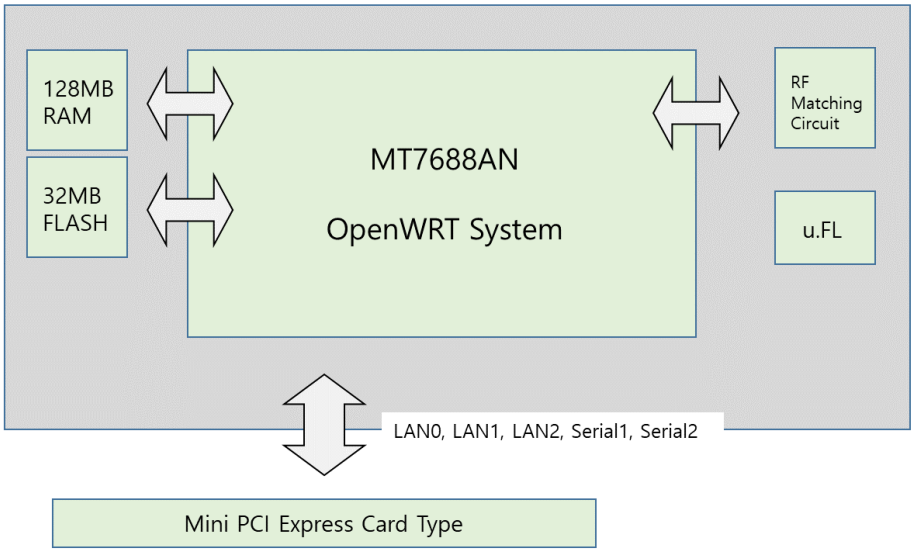


Figure 1. WizFi630S Block Diagram

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4.2 WizFi630S Pin Map

No	Type	Name	Shared	Description
1		GND		
2		3.3V		
3		GND		
4		3.3V		
5	I/O, IPD	REF_CLKO	GPIO#37	Will be provided as UART1 CTS-N
6	I/O, IPD	WDT_RST_N	GPIO#38	Will be provided as UART1 RTS-N
7	I/O, IPD	RXIP2	GPIO#18	Reserved
8	I/O, IPD	RXIM2	GPIO#19	Reserved
9	I/O, IPD	RxD1	GPIO#46	UART1 RXD
10	I/O, IPD	TxD1	GPIO#45	UART1 TXD
11	I/O, IPD	TXOP2	GPIO#20	Reserved
12	I/O, IPD	TXOM2	GPIO#21	Reserved
13	O	WLAN_LED	GPIO#44	Wireless Init On
14		NC		
15		NC(VBUS)		USB OTG VBUS pin in WizFi630
16		NC		
17	I/O	USB_PADP		USB OTG data pin Data+
18	I/O, IPD	UART_RX	GPIO#13	UART0 RxD
19	I/O	USB_PADM		USB OTG data pin Data-
20	I/O, IPD	UART_TX	GPIO#12	UART0 TxD

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21	O	TXOP0		10/100 PHY Port #0 TXP
22	I	RXIM0		10/100 PHY Port #0 RXN
23	O	TXOM0		10/100 PHY Port #0 TXN
24	I	RXIP0		10/100 PHY Port #0 RXP
25	I	RXIM3	GPIO#25	10/100 PHY Port #3 RXN
26	O	TXOP3	GPIO#22	10/100 PHY Port #3 TXP
27	I	RXIP3	GPIO#24	10/100 PHY Port #3 RXP
28	O	TXOM3	GPIO#23	10/100 PHY Port #3 TXN
29	I	RXIP4	GPIO#26	10/100 PHY Port #4 RXP
30	O	TXOM4	GPIO#27	10/100 PHY Port #4 TXN
31	I	RXIM4	GPIO#28	10/100 PHY Port #4 RXN
32	O	TXOP4	GPIO#29	10/100 PHY Port #4 TXP
33	O	LINK0_LED	GPIO#43	LAN port 0 Link LED
34	O	LINK4_LED	GPIO#39	LAN port 4 Link LED
35	O	LINK3_LED	GPIO#40	LAN port 3 Link LED
36	I/O, IPD	LINK2	GPIO#41	WPS Button Push
37	I, IPU	CPURST_N		
38	I/O, IPD	GPIO_0	GPIO#11	Reset Button Push
39	I/O, IPD	I2S_CLK	GPIO#3	General Purpose Output LED
40	I/O, IPD	I2S_WS	GPIO#2	General Purpose Input Switch SW1-1
41	I/O, IPD	I2S_SDI	GPIO#0	General Purpose Output LED
42	I/O, IPD	LINK1	GPIO#42	WPS LED(GPIO20)
43		I2S_DO	GPIO#1	GPIO

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44		NC		
45		NC		
46		NC		
47	I/O, IPD	I2C_SCLK	GPIO#4	General Purpose Input Switch SW1-2
48	I/O, IPD	I2C_SD	GPIO#5	RUN LED
49		GND		
50		3.3V		
51		GND		
52		3.3V		

Table 5 WizFi630S Pin Map

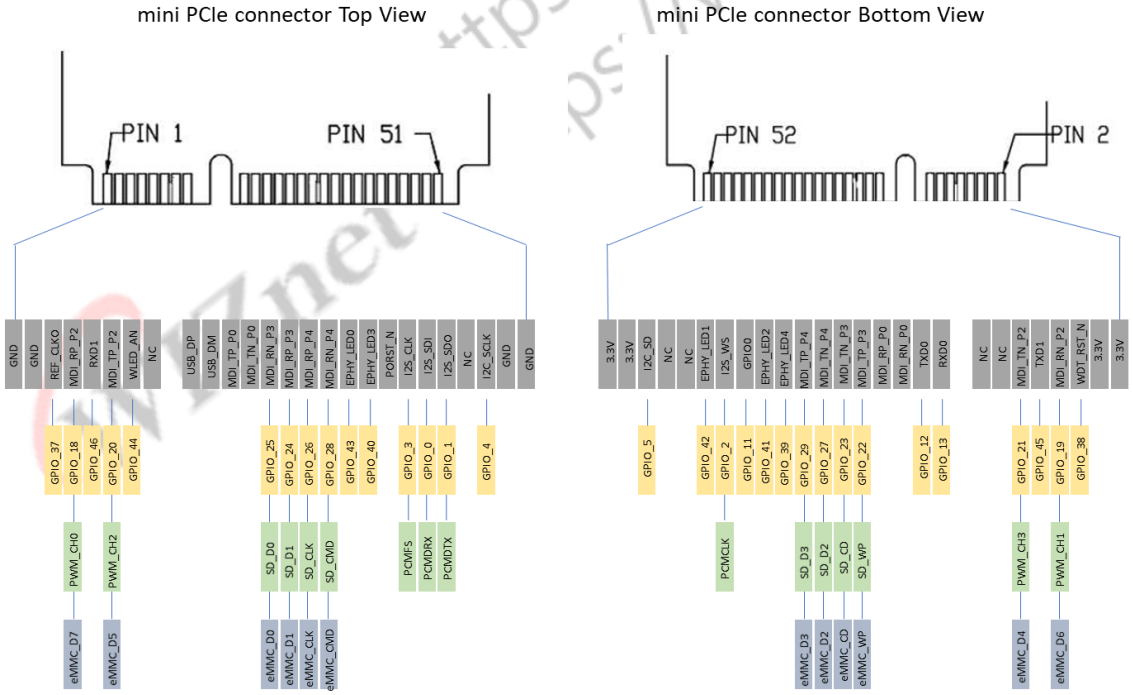


Figure 2 pin map on mini PCI connector

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4.3 WizFi630S Pin-Out

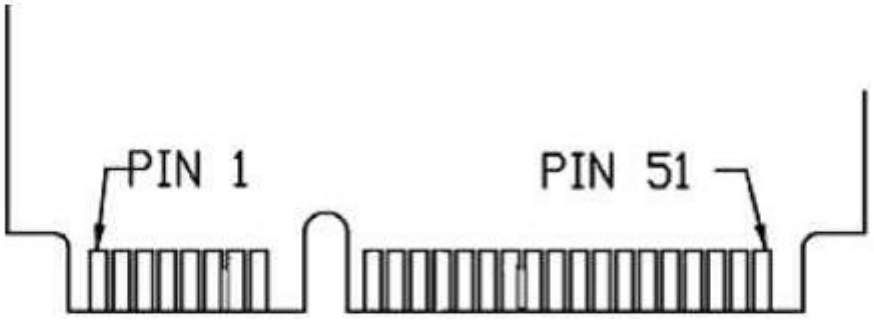


Figure 3 mini PCI connector Top View

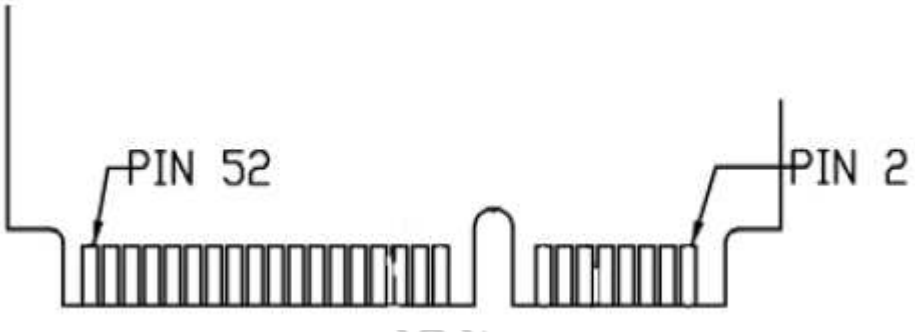


Figure 4 min PCI connector Bottom View

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4.4 Dimensions

Dimensions (mm)	Length	Width	Height	Hole Width	HOLE Height	HOLE Φ	PCB Thickness
	43	33	3	24.2	40	2.5	1.1
	Tolerance +/- 0.2mm						

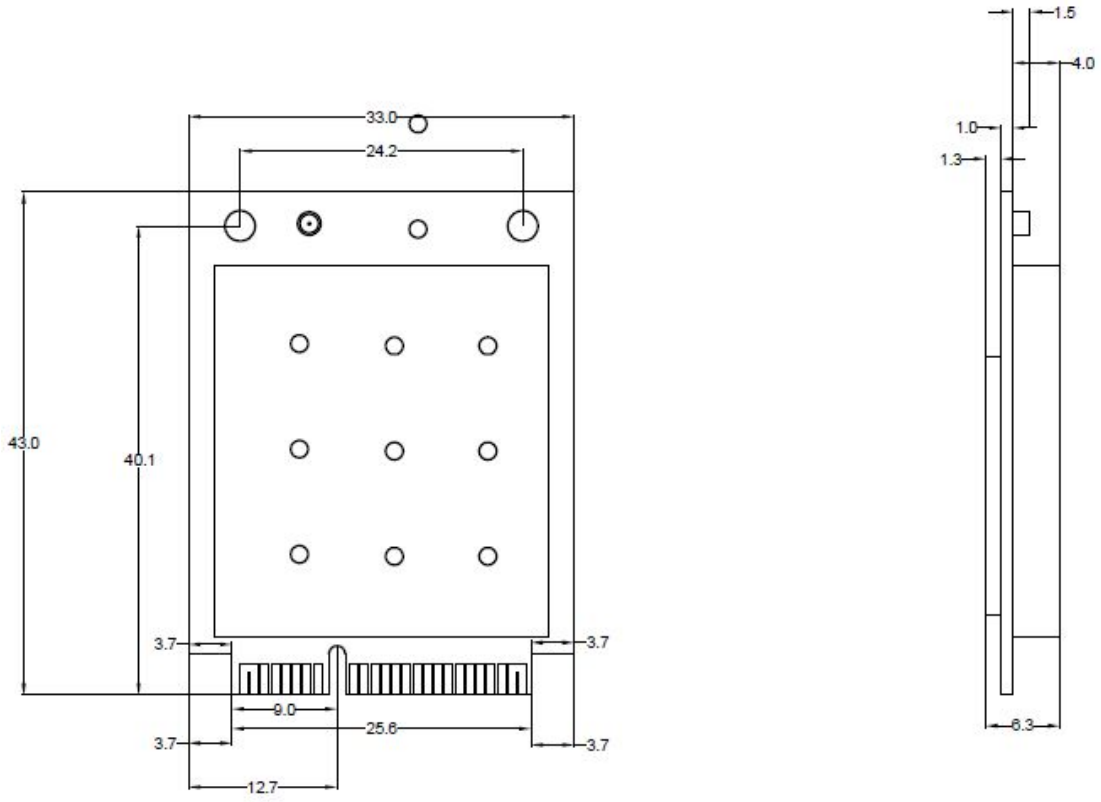


Figure 3 Dimensions of the module

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5. Electrical Characteristics

5.1 Absolute Maximum Rating

I/O Supply Voltage	3.63V
Input, Output, or I/O Voltage	GND -0.3V to VCC +0.3V

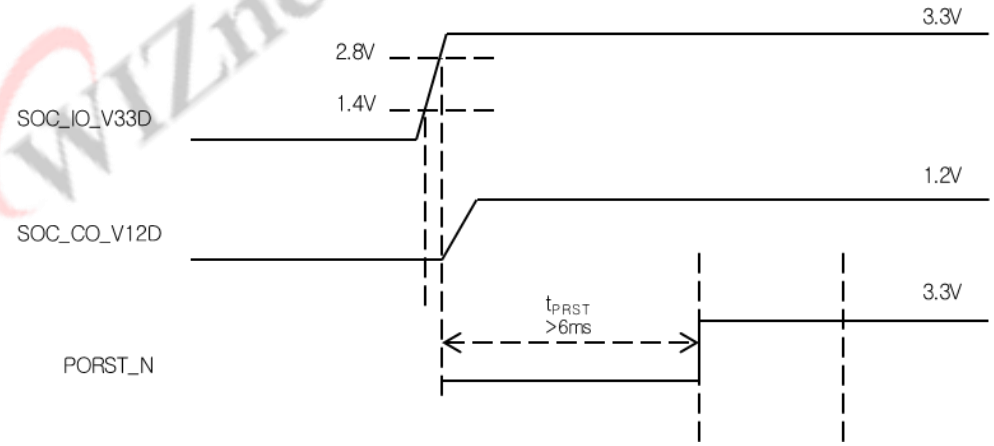
5.2 Operating Conditions

I/O Supply Voltage	3.3V +/- 10%
Input, Output, or I/O Voltage	GND -0.3V to VCC +0.3V

5.3 Power consumption

Supply Voltage	Conditions	Typical	Max	Unit
3.3V	Steady State(WiFi off)			mA
	Steady State(WiFi on)			
	TX peak			
	Connect to AP			
	booting			

5.4 Power On Sequence



Symbol	Description	Min	Unit
t_{PRST}	External Power on Reset Period	6.0	ms

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