WizFi360 Hardware Design Guide (Version 1.02)





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Document Revision History

Date	Revision	Changes	
2019-09-02	1.0	Initial Release	
2019-09-03	1.01	Edited "Figure 5. UART Level Shifter"	
2019-09-20	09-20 1.02	Added "4. PCB Footprint"	
		Edited "Figure 2. Reference Schematic"	



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1. Overview

This document is the WizFi360 hardware design guide. If you are designing hardware using the WizFi360 you must refer to this document. This document includes a reference circuit diagram and a PCB guide.

2. Pin Definitions



Figure 1. WizFi360 Pinout

Pin Name	Туре	Pin Function		
RST	1	Module Reset Pin (Active Low)		
NC	-	WizFi360-PA Reserved		
ANT	0	WizFi360-CON	ANT pin for external antenna	
PA0	I/O	BOOT Pin (Active low) When power on or reset is low, it operates in Boot mode. In the normal operating mode, this pin can be controlled by AT command.		
WP	I	WAKEUP Pin (Active High) If the wake-up pin is high in Standby mode, the WizFi360 is reset to the normal operating mode.		
PA1	I	Pull down over 3s for taking effect. UART1's current parameter changes to default value (please refer to the AT+UART_CUR command in WizFi360 AT command manual).		
PB6	I/O	This pin can be controlled by AT command.		
PB9	I	CTS Pin of UART1		



		If you don't use the CTS function, this pin can be controlled by AT command.
VCC	Р	Power Pin (Typical Value 3.3V)
PB15	I/O	This pin can be controlled by AT command.
PB18	I/O	This pin can be controlled by AT command.
PB13	I/O	This pin can be controlled by AT command.
PB14	I/O	This pin can be controlled by AT command.
PB17	I/O	This pin can be controlled by AT command.
PB16	I/O	This pin can be controlled by AT command.
GND	I/O	Ground Pin
PB10	0	RTS Pin of UART1 If you don't use the RTS function, this pin can be controlled by AT command.
TXD0	0	TXD Pin of UART0
RXD0	I	RXD Pin of UART0
PB7	0	LED Light output (Active low). Go to Low while each TX/RX packet and then back to high. Note: It has been connected to onboard LED for WizFi360-PA
PB8	I/O	This pin can be controlled by AT command.
RXD1	I	RXD Pin of UART1
TXD1	0	TXD Pin of UART1

Table	1.	Pin	Defi	nitions
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*Note: UART1 is used for AT command and data communication. UART0 is used for debugging and firmware upgrade.

2.1. Initial Value of GPIO Pins

This is the initial value of GPIO when using AT command to use GPIO on the WizFi360.

Pin Name	Туре	Value	Pull up / Pull down
PA0	I/O	High	Pull up
PB6	I/O	Low	Pull down
PB9	I/O	Low	Pull down
PB15	I/O	High	Pull down
PB18	I/O	High	Pull down
PB13	I/O	High	Pull down
PB14	I/O	High	Pull down
PB17	I/O	High	Pull down
PB16	I/O	High	Pull down
PB10	I/O	Low	Pull down
PB07	I/O	High	Pull down
PB08	I/O	High	Pull down

Table 2. Initial Value of GPIO Pins



3. Circuit

3.1. System

The WizFi360 has a very simple circuit. You can connect power to the WizFi360 and send and receive data through UART1. And you have to pay attention to the four pins.



Figure 2. Reference Schematic

Reset

Reset circuit offers to design with RC circuit. WizFi360 reset automatically by low level power. If RESET pin controlled by external circuit, the WizFi360 will reset when the level is below 2.0V. The low level needs to last more than 100μ s.

• PA0

PA0 circuit offers to design 10k pull-up. PA0 is used as a boot pin, but it's use unlikely for normal users. This pin is used at the factory stage. (Module production)

• PA1

PA1 circuit offers to design 10k pull-up. If PA1 is Low for 3 seconds, UART1's current parameter changes to default value (please refer to the AT+UART_CUR command in WizFi360 AT command manual).



• WP

WP circuit offers to design user configuration. You must control this pin if you are using standby mode. If this pin is high in Standby mode, the WizFi360 is reset to the normal operating mode.

3.2. Power

WizFi360 requires the use of a power supply capable of supplying 3.0V to 3.6V and more than 500mA. Because WizFi360 operates normally from 3.0V to 3.6V, it consumes up to 230mA of instantaneous current. The wiring width should not be less than 30mil.

The power stabilizing capacitor (100nF) should be placed close to the VCC pin.



3.3. UART

Figure 3. UART

• UART1

UART1 is the main communication UART. AT command communication is possible with UART1 and data communication is possible.

• UARTO

UART0 is not available to normal users. This UART is used at the factory stage (Module production) and intended for internal firmware developers of the WizFi360.



3.4. ETC

This session is an additional circuit guide for using the WizFi360. You don't have to keep this session. But if you need it, you design it.

UART Flow Control

If you want to use UART Flow Control, you need to design a circuit as shown in Figure 3. PB9 is CTS1, PB10 is RTS1.

RST 1 PA0 3 WP 4 PA1 5 6 CTS1 7 8 -100nF GND	WizFi360 RST TXD1 ANT RXD1 PA0 PB8 WP PB7 PA1 RXD0 PB6 TXD0 PB9 PB10 VCC GND ST ST ANT RXD0 PB6 TXD0 PB9 PB10 VCC GND ST ST ANT ANT ST ST PA0 PB7 PA1 RXD0 PB6 TXD0 PB9 PB10 VCC GND ST ST S	22 TXD1 21 RXD1 20 19 DATA_LED 18 17 16 RTS1 15 5 GND

Figure 4. UART Flow Control

• UART Level Shifter

The UART voltage on the WizFi360 is 3.3V. However, your MCU may not have a voltage of 3.3V. If so you need a Level Shifter to connect the WizFi360 to your MCU. You can design a Level Shifter circuit by referring to Figure 4. Connect your MCU's UART voltage to the VCCIO at Figure 4.





Figure 5. UART Level Shifter



4. PCB Footprint



Figure 6. Recommended PCB Land Pattern of WizFi360



5. PCB layout

- Power wiring width should not be less than 30mil.
- Except for the antenna portion of WizFi360, the bottom layer of the shield can must have a GND plane.



Figure 7. GND

• Figures. 6 and Figures. 7 are 2 antenna placement which can best performance of antenna. We suggest customers to choose one of these 2 modes to design the placement. For the second placement mode, PCB antenna should be at least 5.0mm from both sides of the bottom board.





Figure 8. Best Placement 1



Figure 9. Best Placement 2



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