

Wired/Wireless Multi-media interface

WiMi310

User Manual

Ver. 1.0

2017. 1. 16

Document Revision History

Revision	Date	Description
v1.0	January 16, 2017	Initial release of WiMi310 Product Datasheet v1.0

- The RF module limited to OEM installation ONLY.

The OEM integrator is responsible for the compliance to all the rules that apply to the product in to which this certified RF module is integrated.

- This module must be integrated into a device where the user cannot access the antenna connector and should not be able to remove or install the module.

Dipole antenna(Under 6.26 dBi) can be used with this module. The antenna gain must not exceed it.

- 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 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.

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

- **Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance

20cm between the radiator & your body.

- **This device is intended only for OEM integrators under the following conditions:**

The antenna must be installed such that 20 cm is maintained between the antenna and users, and The transmitter module may not be co-located with any other transmitter or antenna. As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

- **IMPORTANT NOTE:**

In the event that these conditions cannot be met (for example certain laptop configurations or colocation with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

- **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following:

"Contains FCC ID: ZD7-WIMI310".

The grantee's FCC ID can be used only when all FCC compliance requirements are met.

- **Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as shown in this manual.

Purpose of this Document

This document provides simple circuit description and detailed specifications of the WiMi310™ WiFi Module. The document is intended for Hardware designer wishing to implementation of WiMi310 module into their own systems.

Related Documents

Additional information related to this document can be found in the Following documents

: PCB Form Factor

PCI Express™ Card Electromechanical Specification Revision 1.1 (March 28, 2005)

Key Features

- 2x3 MIMO antenna configuration using two spatial streams
- IEEE Std. 802.11 n Network Standards
- Modulation modes: OFDM
- WPS Certified- Wireless Protected Setup for easy set up and security configuration
- Functions as a legacy endpoint device that conforms to the PCI Express Base Specification, Rev 1.1
- Optimal channel selection and connection management
- Seamless channel switch under interference
- Only 40 MHz channel bandwidth support.
- 300MHz PHY Rate Support and STBC Support for Extended Range
- Antenna: 3x IPex Connectors (2T/3R) - U.FL
- MAC Filtering - No Restriction Mode, White List Mode, Black List Mode; Up to 32 connections
- WDS Enables network management units to collect statistics and manage the device remotely
- Support Low Power Mode
- RoHS Compliance

Electrical Specifications

Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Supply Voltage	VDD 5.0V	-0.3		+6.0	V	
Input voltage to digital pins	Vin			+3.6	V	
Storage temperature	TSTG	-20		+50	°C	

Table 2. Absolute Maximum Ratings

Attention : Stress above the Max. values listed here may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Maximum ratings are absolute ratings : exceeding only one of these value may cause irreversible damage to the integrated circuit.

The Following Table is defined in typical conditions:Ta=25°C, unless otherwise specified.

Parameter	Symbol	Value			Unit	Note/Test Condition
		Min.	Typ.	Max.		
Supply Voltage	VDD 5.0V	3.9	5.0	5.5	V	
Input high voltage	VIH	2.0		5.5	V	
Input low voltage	VIL	-0.3		0.8	V	
Output high voltage	VOH	2.4			V	without DC load
Output low voltage	VOL			0.4	V	without DC load
Tri-State Output leakage current	IOZ			±10	uA	
Pull-up resistor	Rpu	26	38	59	KΩ	
Pull-down resistor	Rpd	33	47	81	KΩ	
I/O pins input capacitance	Cl		4		pF	
Total Power Consumption			5.5		W	

Table 3. DC Parameters Information

Pinout Description

PIN #	Name	Type	Description
1	WAKE#	In	Link reactivation
45,47,49,51	+5.0V	Power	+5.0V Power
3,5,8,10,12,14, 16,17,19,20, 45,47,49,51	Reseved	Reserve d	Leave unconnected
4,9,15,18,21, 26,27,29,34, 35,37,40,43,50	GND	Power	Ground
6,28,48	+1.5V (Reserved)	Reserve d	Not used until now, leave unconnected.
7	CLKREQ#	Out	Reference clock request
11	REFCLKn	In	Reference Clock, Differential Pair Negative
13	REFCLKp	In	Reference Clock, Differential Pair Positive
22	PERST#	In	Functional reset
23	PERn	In	PCI Express x1 data Input, negative
25	PERp	In	PCI Express x1 data Input, positive
30	SMB_CLK	In	SMBus Clock
32	SMB_DATA	In/Out	SMBus Data
31	PETn	Out	PCI Express x1 data Output, negative
33	PETp	Out	PCI Express x1 data Output, positive
36	USB_Dn	In/Out	USB Serial Data, negative
38	USB_Dp	In/Out	USB Serial Data, positive
42	LED_WWAN#	Out	Status Indication LED signal, active low
44	LED_WLAN#	Out	Status Indication LED signal, active low
46	LED_WPAN#	Out	Status Indication LED signal, active low

Table 4. Pinout Description

PCI Express Interface Description

- PCI Express Interface Unit(PCIE) functions as a PCI Express legacy endpoint device that conforms to the PCI Express Base Specification, Rev 1.1.
- As PCIe endpoint device, it can be configured to be either a master initiating PCIe operation or a target responding to a PCIe operation. The PCIe I/F is a 2.5GHz signaling, x1 differential link

Parameters	Description
Master transaction types	All memory transactions, except lock Supports PCIe master DMA IO and configuration transactions – not supported
Target transaction types	Supports two outstanding non-posted requests as a target (computer) All memory transactions – type 0 only
Message support	Supports interrupt and error messages
Configuration space	Extended 4KB PCIe Configuration Space Single function device
Interrupts	Support of both MSI and interrupt messages
Error reporting	Full support of PCIe baseline error reporting Full support of advanced error reporting capability Three error severity levels – correctable, non-fatal and fatal Header logging and pointer to first uncorrectable error Programmable error severity PCI error mapping – mapping errors to PCI error reporting mechanism
Address space	Two 32-bit memory BARs
Virtual channels	Support of baseline TC0-VC0 mapping Single VC0 HW resource

Table 5. WiMi310 PCIe Supported Features

Mechanical Description

PCB Form Factors are complied with "*PCI Express Mini Card Electromechanical Specification Rev.1.2*", (Oct 26, 2007)

- width : 30.0mm
- width : 50.95mm
- Thickness : 5.0mm