
Radxa Wireless Module A8

an M.2 Module supporting WiFi6 and BT5.2

Revision 1.5

2024-11-28



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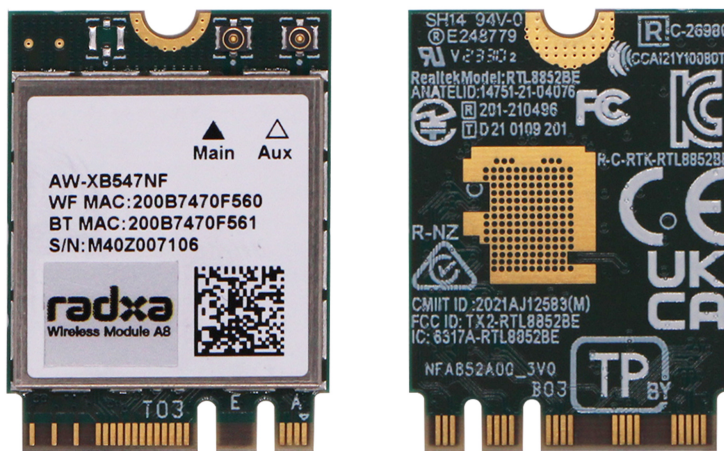
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1 Revision Control Table

Version	Date	Changes from previous version
1.0	10/05/2023	First Version
1.1	29/08/2023	Update information
1.2	04/12/2023	Update information
1.3	03/08/2024	Add WLAN specification and operation conditions
1.4	15/07/2024	Updated V2 Version
1.5	28/11/2024	Updated Pin Definition

2 Introduction

The Radxa Wireless Module A8 is a standard M.2 2230 wireless module that utilizes Realtek RTL8852BE technology, supporting WiFi 6 and Bluetooth 5.2. Additionally, it features dual antennas specifically designed for the Radxa Wireless Module A8, constructed with high-quality FPC and coaxial materials, ensuring outstanding performance and reliability.

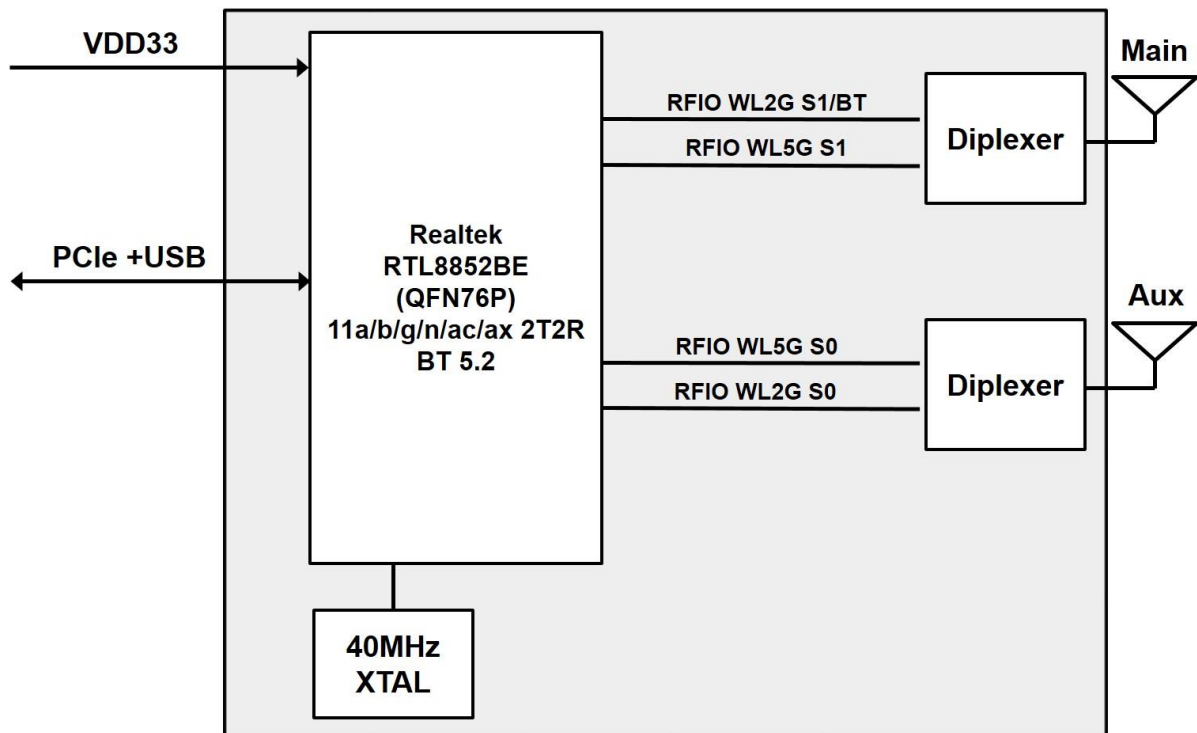


3 Features

- IEEE 802.11 a/b/g/n/ac /ax 2T2R and Bluetooth 5.2 Combo Module (M.2 2230)
- Chipset: Realtek RTL8852BE
- WLAN Frequency Range
 - 2.4GHz 2.412 ~ 2.484GHz
 - 5GHz 4.915 ~ 5.925GHz
- BT Frequency Range: 2402~2480MHz
- Host Interface: Wi-Fi: PCIe BT: USB
- Dimension: 22mm x 30mm x 2.25mm
- Form Factor: M.2 2230 E Key
- Antenna: IPEX MHF4 Connector

- Operating Temperature: 0 to +70°C
- ANT1(Main): WiFi/Bluetooth -> TX/RX
- ANT2(AUX): WiFi -> TX/RX
- Weight: 3g

4 Block Diagram



5 Specification

5.1 WLAN

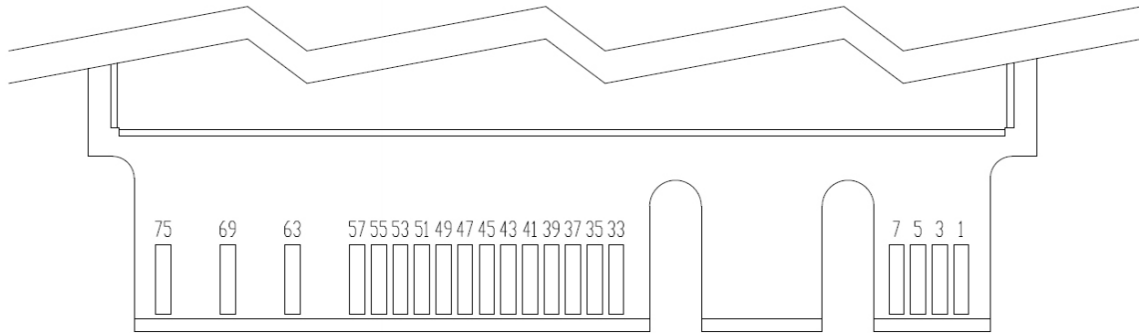
Item	Description
WLAN Standard	IEEE 802.11 a/b/g/n/ac/ax Wireless LAN 2T2R
WLAN VID/PID	10EC / B852
WLAN SVID/SPID	1A3B / 5470

Frequency Range	2.4 GHz: 2.412 ~ 2.484 GHz 5 GHz: 4.915 ~5.925GHz
Modulation	DSSS, OFDM, DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
Number of Channels	2.4GHz <ul style="list-style-type: none"> • USA, North America, Canada and Taiwan – 1 ~ 11 • China, Australia, Most European Countries – 1 ~ 13 • Japan, 1 ~ 14 (CH14 only for 802.11b) 5GHz <ul style="list-style-type: none"> • USA, Europe – 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165

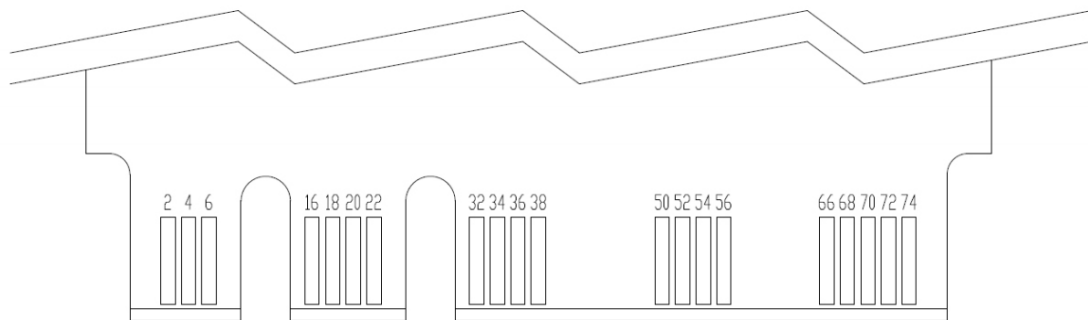
5.2 Bluetooth

Item	Description
Bluetooth Standard	Bluetooth 5.2
Bluetooth VID/PID	13D3 / 3570
Frequency Range	2402 ~ 2480MHz
Modulation	GFSK (1Mbps), $\pi/4$ DQPSK (2Mbps) and 8DPSK (3Mbps)

6 Pin Description



Pin Map (Top View)

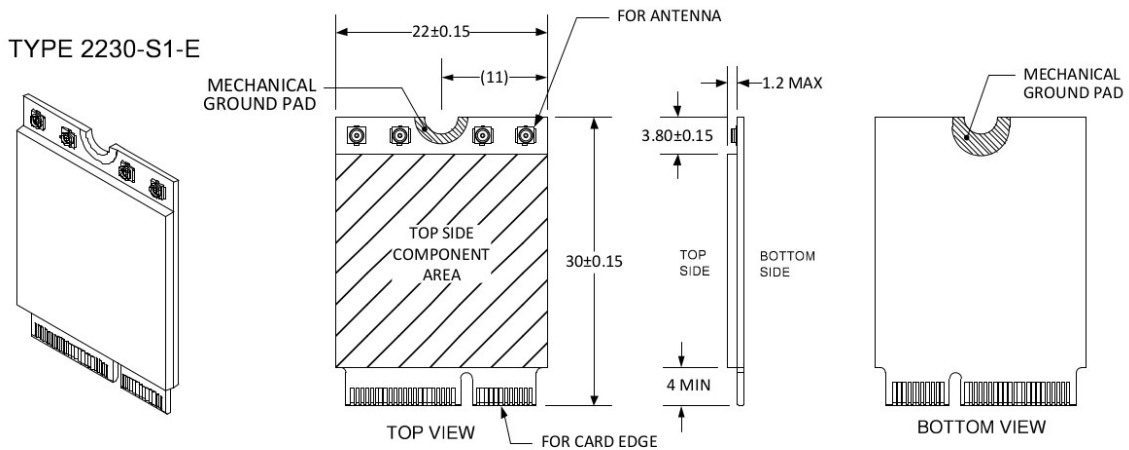


Pin Map (Bottom View)

Pin	Name	Description	Voltage	Type
1	GND	Ground	•	GND
2	3.3V	3.3V power supply	3.3V	VCC
3	USB_D_P	USB Differential signal	•	I/O
4	3.3V	3.3V power supply	3.3V	VCC
5	USB_D_N	USB Differential signal	•	I/O
6	LED_WLAN_L	Active low signal. The signal is used to provide status indicators via LED.	•	Output
7	GND	Ground	•	GND
16	LED_BT_L	Active low signal. The signal is used to provide status indicators via LED.	•	Output
18	GND	Ground	•	GND
33	GND	Ground	•	GND
35	PERp0	Differential receive.	•	Input
37	PERp0	Differential receive.	•	Input
38	BT_WAKE	Host wake BT No function, please don't connect to this pin. We suggest configuring the control pin in in platform side as open-drain.	•	N/A
39	GND	Ground	•	GND
41	PERp0	Differential transmit.	•	Output
43	PERp0	Differential transmit.	•	Output

44	NC	Floating Pin, No connect to anything.		•	Floating
45	GND	Ground		•	GND
46	NC	Floating Pin, No connect to anything.		•	Floating
47	REFCLKP	Differential reference clock.		•	Input
48	NC	Floating Pin, No connect to anything.		•	Floating
49	REFCLKN	Differential reference clock.		•	Input
50	SUSCLK	External 32K or RTC clock input.		•	Input
51	GND	Ground		•	GND
52	PERST0	PCI Express Reset Signal: active low. When the PERST# is asserted at power-on state, the RTL8852BE returns to a pre-defined reset state and is ready for initialization and configuration after the deassertion of the PERST#		•	Input
53	CLKREQ0	Reference clock request	3.3V		Output
54	BT_DISABLE	BT disable control.	3.3V		Input
55	PEWAKE#	Open Drain active Low signal. This signal is used to request that the system return from a sleep/suspended state to service a function initiated wake event.		•	Output
56	W_DISABLE1#	This pin can be defined as the WLAN Radio-off function with host interface remaining connected. When this pin is pulled low, WLAN function will be Radio-off. When this function is not required, external pull high is not required. We suggest configuring the control pin in in platform side as open-drain.		•	Input
57	GND	Ground		•	GND
63	GND	Ground		•	GND
66	NC	Floating Pin, No connect to anything.		•	Floating
68	NC	Floating Pin, No connect to anything.		•	Floating
69	GND	Ground		•	GND
70	NC	Floating Pin, No connect to anything.		•	Floating
72	3.3V	3.3V power supply	3.3V		VCC
74	3.3V	3.3V power supply	3.3V		VCC
75	GND	Ground		•	GND

7 Mechanical Specification



8 Compatible Single Board Computers

- Radxa ROCK 3A
- Radxa ROCK 3B
- Radxa ROCK 5A
- Radxa ROCK 5B
- Radxa ROCK 5 ITX
- Radxa X2L
- Radxa NX5 IO Board
- Radxa CM5 IO Board
- Radxa CM3I IO Board

9 Operating Conditions

Item	Description
Voltage	Power supply for host: 3.3V
Operating Temperature	0°C~70°C
Operating Humidity	less than 85% R.H.
Storage Temperature	-30°C~ 85°C
Storage Humidity	less than 60% R.H.

10 Availability

Radxa guarantees availability of the Radxa Wireless Module A8 until at least September 2029.

11 Support

For support, please see the support documentation section of the [Radxa website](#) website and post questions on the [Radxa Forum](#).