Radxa ROCK Pi S Product Brief

Small in size, full in features

Revision 1.2

2023-12-19

Radxa Computer

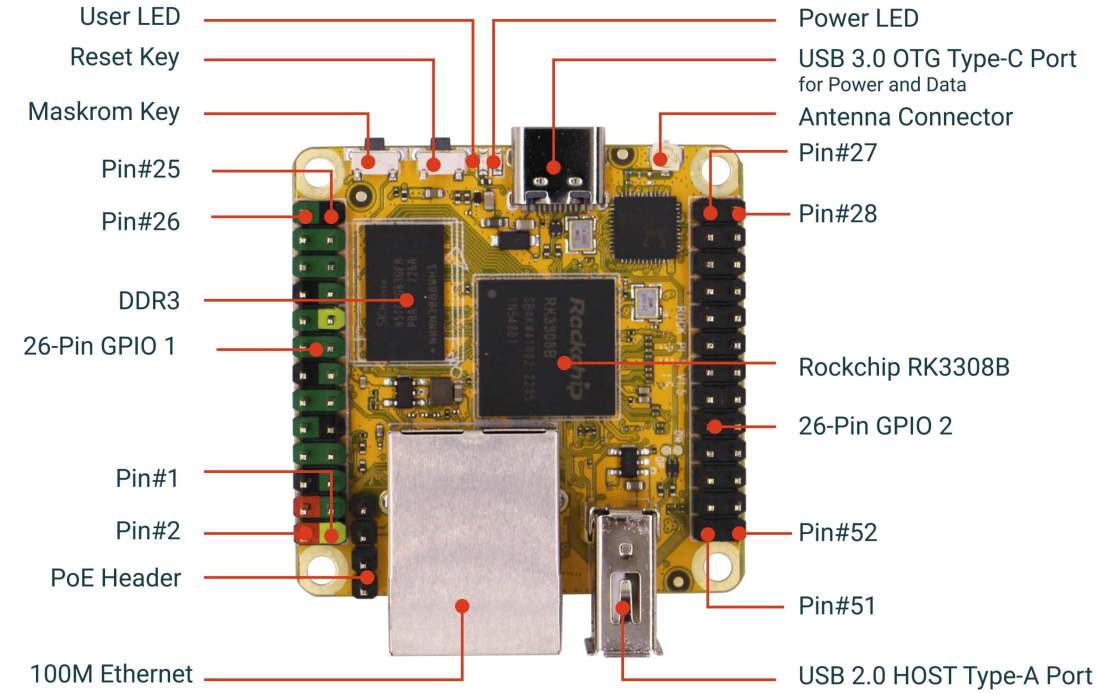
Contents

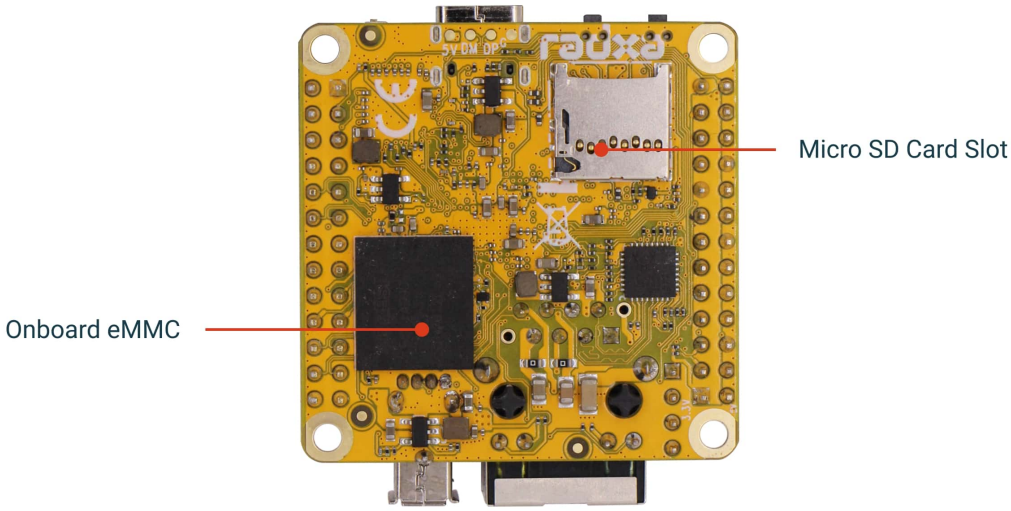
1 Revision Control Table

Version	Date	Changes from previous version
1.0	19/07/2023	First version
1.1	06/09/2023	Updated product information and add mechanical specification
1.2	19/12/2023	Updated product information

2 Introduction

Radxa ROCK Pi S is a tiny Rockchip RK3308B based SBC (Single Board Computer) by Radxa. It is equipped with a 64-bit quad-core processor, USB 2.0, 100MB Ethernet port, and wireless connectivity at only 1.7 x 1.7 inch size, making it perfect for IoT and network applications. ROCK Pi S supports 256MB / 512MB DDR3 and uses a uSD card or eMMC for OS and storage. Optionally, ROCK Pi S supports PoE with an additional PoE HAT.





Note:

The images presented depict a particular configuration of the Radxa ROCK Pi S. Please note that the actual component layout and specifications may differ based on the selected Stock Keeping Unit (SKU).

3 Features

3.1 Hardware

- Rockchip RK3308B SoC
- Quad Cortex-A35 ARM 64bits processor，frequency up to 1.0GHz
- 256MB / 512MB DDR3 RAM options
- 4G / 8G / 16G onboard eMMC options
- 1x Micro SD Card slot
- 1x USB2.0 Host Type A Port
- 1x USB3.0 OTG Type C Port for power and data
- IEEE 802.11 b/g/n (WiFi 4) Wireless LAN with external antenna
- BT 4.0 with BLE
- 1x 100M Ethernet with PoE support(Additional PoE HAT Required)
- 2x 26 user GPIO supporting various interface options:
  - 4x I2C
  - 3x PWM
  - 2x SPI
  - 3x UART
  - 1x I2S0
  - 2x 5V DC power in
  - 2x 3.3V DC power in

3.2 Software

- ArmV8 Instruction Set
- Debian/Ubuntu Linux support
- Armbian/Openwrt support

3.3 GPIO Interface

The Rock Pi S offers 2x 26 pin GPIO expansion header which provides extensive compatibility with a wide range of accessories developed for the SBC market.

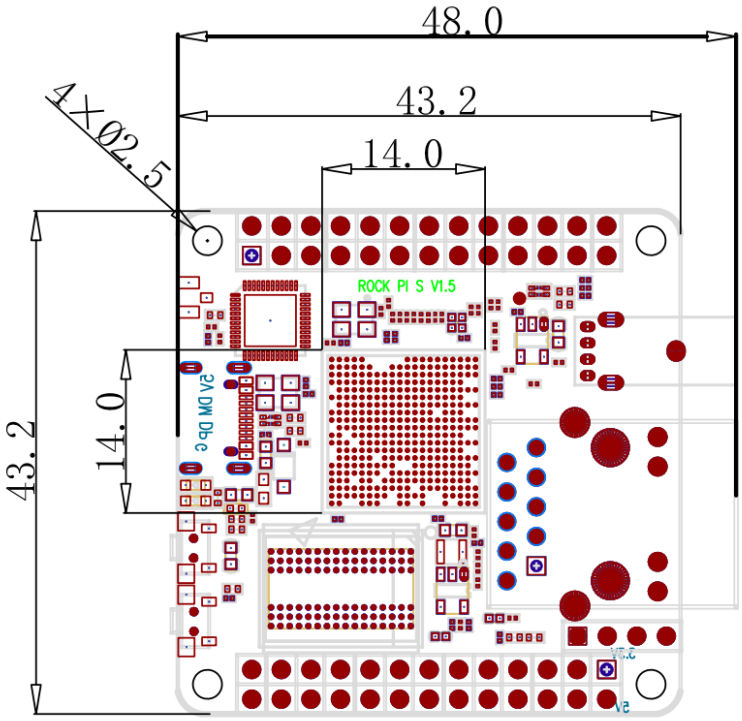
26-pin Header 1

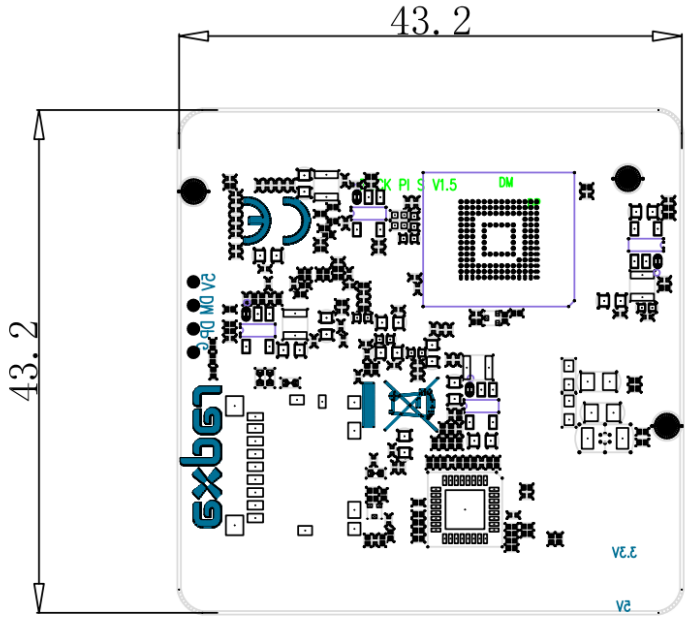
Func4	Func3	Func2	Func1	Pin#	Pin#	Func1	Func2	Func3	Func4
			+3.3V	1	2	+5.0V			
		I2C1_SDA	GPIO0_B3	3	4	+5.0V			
		I2C1_SCL	GPIO0_B4	5	6	GND			
	PDM_CLK_M_M2	I2S0_8CH_MCLK	GPIO2_A4	7	8	GPIO2_A1	UART0_TX	SPI0_MOSI	
			GND	9	10	GPIO2_A0	UART0_RX	SPI0_MISO	
	I2C3_SDA_M0	PWM2	GPIO0_B7	11	12	GPIO2_A5	I2S0_8CH_SCLK_TX		
	I2C3_SCL_M0	PWM3	GPIO0_C0	13	14	GND			
		SPDIF_TX	GPIO0_C1	15	16	GPIO2_B2	I2S0_8CH_SDO1		
			+3.3V	17	18	GPIO2_B1	I2S0_8CH_SDO0		
SPI2_MOSI	UART2_TX_M0	UART1_RTSN	GPIO1_C7	19	20	GND			
SPI2_MISO	UART2_RX_M0	UART1_CTSN	GPIO1_C6	21	22	GPIO2_A7	I2S0_8CH_LRCK_TX		
SPI2_CLK	I2C0_SDA	UART1_RX	GPIO1_D0	23	24	GPIO1_D1	UART1_TX	I2C0_SCL	SPI2_CSN0
			GND	25	26	ADC_IN0			

26-pin Header 2

Func4	Func3	Func2	Func1	Pin#	Pin#	Func1	Func2	Func3
			GND	27	28	GPIO2_B5	I2S0_8CH_SDI0	PDM_SDI0_M2
			ADC_KEY_IN1	29	30	GPIO2_B6	I2S0_8CH_SDI1	PDM_SDI1_M2
			MICBIAS2	31	32	GPIO2_B7	I2S0_8CH_SDI2	PDM_SDI2_M2
			MICBIAS1	33	34	GPIO2_C0	I2S0_8CH_SDI3	PDM_SDI3_M2
			MICN8	35	36	MCIP8		
			MICN7	37	38	MCIP7		
UART3_TX	I2C3_SCL_M1	SPI1_CSN0	GPOI3_B5	39	40	GPOI3_B4	SPI1_MOSI	I2C3_SDA_M1
		SPI1_CLK	GPOI3_B3	41	42	GPOI3_B2	SPI1_MISO	
		I2S0_8CH_SDO3	GPIO2_B4	43	44	GPIO2_B3	I2S0_8CH_SDO2	
		I2S0_8CH_LRCK_RX	GPIO2_B0	45	46	GPIO2_A6	I2S0_8CH_SCLK_RX	PDM_CLK_S_M2
			MICN2	47	48	MCIP2		
			MICN1	49	50	MCIP1		
			LINEOUT_R	51	52	LINEOUT_L		

4 Mechanical Specification





5 Electrical Specification

5.1 Power Requirements

Rock Pi S can only be powered by +5V.
- USB Type-C® 5V@1A
- 5V Power from the GPIO PIN 2 & 4

5.2 GPIO Voltage

GPIO	Voltage Level	Tolerance
All GPIO	3.3V	3.63V

6 Operating Conditions

The ROCK Pi S has been designed to operate between 0°C to 50°C.

Radxa ROCK Pi S limits its SoC maximum internal temperature to 85°C before throttling the clock speeds to maintain reliability within the allowed temperature range. If the ROCK Pi S is intended to be used continuously in high performance applications, it may be necessary to use external cooling methods (for example, heat sink, fan, etc.) which will allow the SoC to continue running at maximum clock speed indefinitely below its predefined 85°C peak temperature limiter.

7 Models and SKU

The table features the standard SKUs. In the event of users possessing distinctive customization requirements, we are highly committed to setting up the appropriate SKU to cater to their specific needs. Feel free to contact us anytime via email at **sales@radxa.com**.

DRAM	Wi-Fi / BT	PoE Support	Storage	SKU
256MB	N/A	No	N/A	RS308-D2
			8GB eMMC	RS308-D2E8
		Yes	N/A	RS308-D2P1
			8GB eMMC	RS308-D2E8P1
	WiFi 4/BT 4	No	N/A	RS308-D2W10
			8GB eMMC	RS308-D2E8W10
		Yes	N/A	RS308-D2P1W10
			8GB eMMC	RS308-D2E8P1W10
512MB	N/A	No	N/A	RS308-D4
			8GB eMMC	RS308-D4E8
		Yes	N/A	RS308-D4P1
			8GB eMMC	RS308-D4E8P1
	WiFi 4/BT 4	N/A	N/A	RS308-D4W10
			8GB eMMC	RS308-D4E8W10
		Yes	N/A	RS308-D4P1W10
			8GB eMMC	RS308-D4E8P1W10

8 Availability

Radxa guarantees availability of the ROCK Pi S until at least September 2032.

9 Support

For support please see the hardware documentation section of the Radxa Wiki website and post questions to the Radxa forum.