
Radxa ROCK Pi S0

A Tiny but Full-Featured SBC

Revision 1.1

2024-09-29



Contents

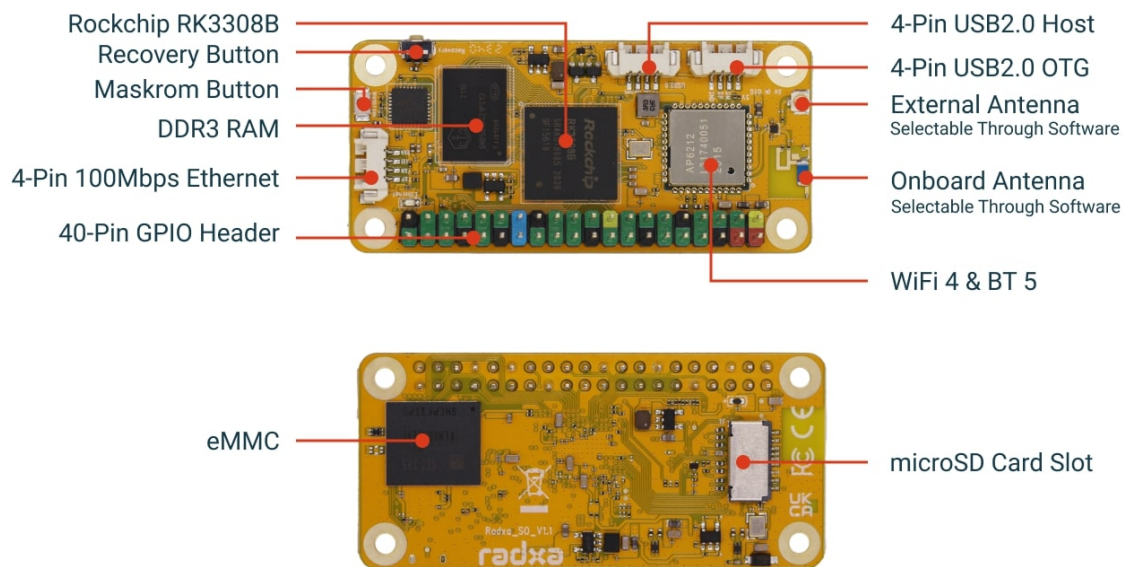
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1 Revision Control Table

Version	Date	Changes from previous version
1.0	2023/04/26	First version
1.1	2024/09/29	Updated Pictures and Info

2 Introduction

Radxa ROCK Pi S0 is a Single Board Computer (SBC) in an ultra-tiny form factor that offers class-leading performance while leveraging outstanding mechanical compatibility. The Radxa ROCK Pi S0 offers makers, IoT enthusiasts, hobbyists, PC DIY enthusiasts and others a reliable and extremely capable platform for building and tinkering their ideas into reality.



3 Specifications

3.1 Hardware

- Rockchip RK3308B SoC
- Quad Cortex-A35 ARM 64bits processor frequency up to 1.0GHz
- 256MB / 512MB DDR3
- 2GB / 4GB / 8GB onboard eMMC
- WiFi 4 / BT 5.0 with BLE
- Onboard or External Antenna Configured by Software

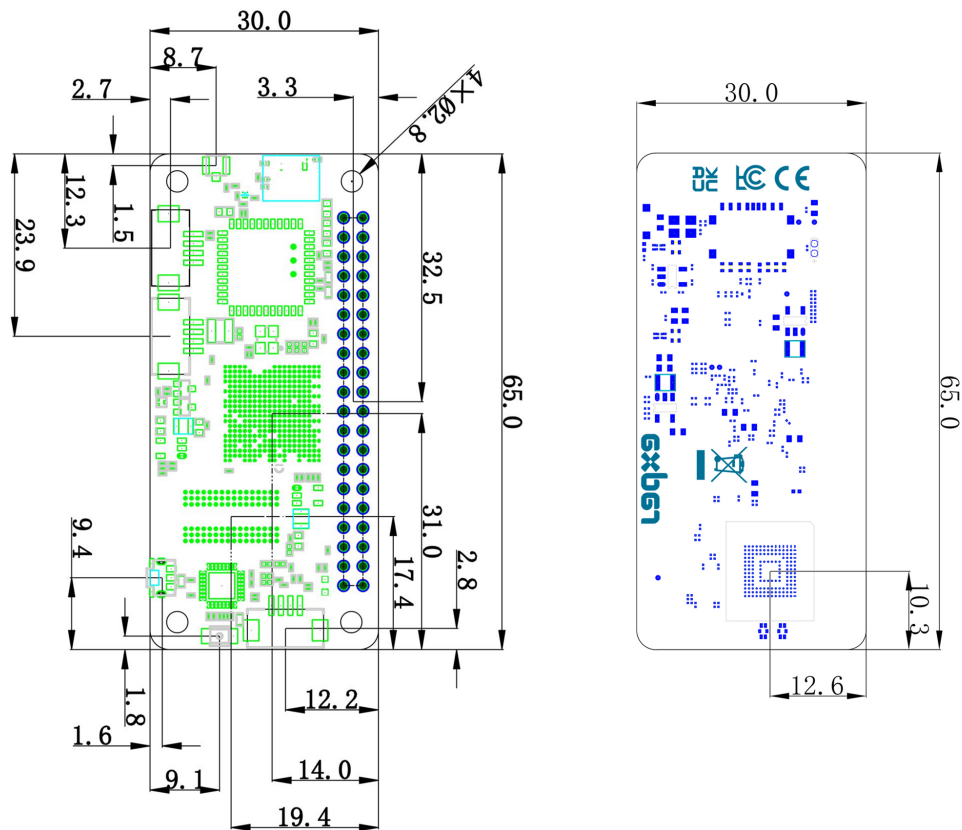
3.2 Interfaces

- 1x USB2.0 OTG via 4-Pin MX 1.25mm connector
- 1x USB2.0 HOST via 4-Pin MX 1.25mm connector
- 1x Maskrom key
- 1x Reset key
- 1x 100Mbps Ethernet RJ45 via 4Pin MX 1.25mm connector
- 1x TF Card Slot
- 40p GPIO with the signal available:
 - I2C x4
 - PWM x3
 - SPI x2
 - UART x3
 - I2S0 x1
 - 5V DC power in x2
 - 3.3V DC power in x2

3.3 Software

- ARMv8 Instruction Set
- Debian/Ubuntu Linux support
- Hardware access/control library for Linux

4 Mechanical Specification



5 Electrical Specification

5.1 Power Requirements

The Radxa ROCK Pi S0 supports DC +5V voltage:

- Power adapter with 5V/1A on the USB OTG connector
- +5V input from GPIO header

6 Peripherals

6.1 GPIO Interface

Radxa ROCK Pi S0 offers 40P GPIO expansion which is compatible with most accessories on the market.

6.1.1 GPIO Alternate Functions

Function5	Function4	Function3	Function2	Function1	Pin#	Pin#	Function1	Function2	Function3	Function4
				+3.3V	1	2	+5V			
			I2C1_SDA	GPIO0_B3	3	4	+5V			
			I2C1_SCL	GPIO0_B4	5	6	GND			
		PDM_8CH_SDI0_M2	I2S0_8CH_SDI0	GPIO2_B5	7	8	GPIO2_A1	SPI0_MOSI	UART0_TX	
				GND	9	10	GPIO2_A0	I2C3_SDA_M2	SPI0_MISO	UART0_RX
		PDM_8CH_SDI1_M2	I2S0_8CH_SDI1	GPIO2_B6	11	12	GPIO2_B1	SPI1_CSN0_M1	I2S0_8CH_SDO0	
	UART0_RTSN	SPI0_CSN0	I2C2_SCL	GPIO2_A3	13	14	GND			
	SPDIF_TX	UART3_RX_M1	PWM5	GPIO0_C1	15	16	GPIO0_A1	PWM4		
				+3.3V	17	18	GPIO2_B7	I2S0_8CH_SDI2	PDM_8CH_SDI2_M2	
	UART1_RTSN	UART2_TX_M0	SPI2_MOSI	GPIO1_C7	19	20	GND			
OWIRE_M1	UART1_CTSN	UART2_RX_M0	SPI2_MISO	GPIO1_C6	21	22	GPIO2_B3	PWM9	I2S0_8CH_SDO2	
	UART1_RX	SPI2_CLK	I2C0_SDA	GPIO1_D0	23	24	GPIO1_D1	I2C0_SCL	SPI2_CSN0	UART1_TX
				GND	25	26	GPIO2_B0	PWM7	I2S0_8CH_LRCK_RX	
		PWM2	I2C3_SDA_M0	GPIO0_B7	27	28	GPIO0_C0	I2C3_SCL_M0	PWM3	
		PDM_8CH_SDI3_M2	I2S0_8CH_SDI3	PWM11	GPIO2_C0	29	30	GND		
		I2S0_8CH_SDO1	PWM8	GPIO2_B2	31	32	GPIO2_B4	PWM10	I2S0_8CH_SDO3	
	SPDIF_RX	UART3_TX_M1	PWM6	GPIO0_C2	33	34	GND			
	PDM_8CH_CLK_M2	I2S0_8CH_MCLK	SPI1_MISO_M1	GPIO2_A4	35	36	GPIO2_A6	I2S0_8CH_SCLK_RX	PDM_8CH_CLK_S_M2	
	UART0_CTSN	SPI0_CLK	I2C2_SDA	GPIO2_A2	37	38	GPIO2_A5	SPI1_MOSI_M1	I2S0_8CH_SCLK_TX	
				GND	39	40	GPIO2_A7	SPI1_CLK_M1	I2S0_8CH_LRCK_TX	

6.2 USB

The Radxa ROCK Pi S0 features a 1x USB2 HOST in a 4P MX connector, with downstream USB current limited to approximately 500mA.

The Radxa ROCK Pi S0 is equipped with 1x USB2 OTG port within a 4P MX connector, offering versatile power options through a 5V PSU or a PC/Laptop USB port, while also providing data access.

6.3 Network

Radxa ROCK Pi S0' s onboard wireless module delivers 802.11 b/g/n Wireless LAN (WiFi4) and BT5 with BLE capabilities.

Radxa ROCK Pi S0 provides a 10/100 Mbit Ethernet connection through a 4P MX connector for reliable wired networking.

6.4 Temperature Range and Thermals

The recommended ambient operating temperature range is 0 to 50 degrees Celcius.

The Radxa ROCK S0 will operate perfectly well without any extra cooling and is designed for sprint performance - expecting a light use case on average and ramping up the CPU speed when needed. If a user wishes to load the system continually or operate it at a high temperature at full performance, further cooling may be needed.

7 Availability

Radxa guarantees availability of the Radxa ROCK Pi S0 until at least September 2029.

8 Support

For support please see the hardware documentation section of the [Radxa Wiki](#) website and post questions to the [Radxa forum](#).