Product Brief

Radxa ROCK Pi E Product Brief

A Compact Dual Ethernet Port SBC

Revision 1.0

2023-07-10

Radxa Computer

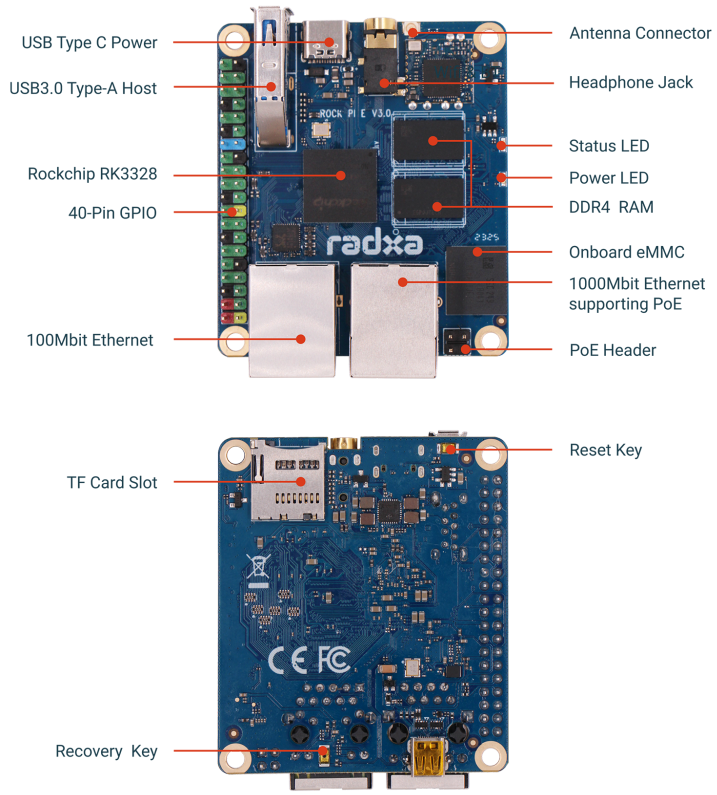
Contents

1 Revision Control Table

Version	Date	Changes from previous version
1.0	10/07/2023	First version

2 Introduction

Radxa ROCK Pi E is a Rockchip RK3328 based SBC(Single Board Computer) by Radxa. It equips a 64bits quad core processor, USB 3.0, dual ethernets, wireless connectivity at the size of 2.5x2.2 inch(56x65mm), making it perfect for IoT and network applications. ROCK Pi E comes in various ram sizes from 512MB to 2GB RAM, and uses uSD card for OS and storage as well as supporting on board eMMC. Optionally, ROCK Pi E supports PoE, additional HAT is required.



Note: The actual board layout or components' location may change during the time but the main connectors type and location will remain the same.

3 Features

3.1 Hardware

- Rockchip RK3328 SoC

- Quad Cortex-A53 ARM 64bits processor，frequency up to 1.3GHz
- Dual-Channel DDR4: 1 / 2GB optional
- Optional 8G / 16G / 32G /64G / 128G high performance eMMC
- MicroSD(TF) up to 512GB
- 1x USB3.0 Type-A HOST
- Optional WiFi 4 / BT 4 or WiFi 5 / BT 5 choices
- 1x 1000Mbit ethernet supporting PoE with add-on PoE HAT
- 1x 100Mbit ethernet
- 1x 4-ring 3.5mm headphone jack with AV out
- 40x user GPIO supporting various interface options:
  - 1x USB 2.0 OTG
  - 1x I2C
  - 1x SPI
  - 2x UART
  - 1x I2S
  - 2x 5V DC power in
  - 2x 3.3V DC power in

3.2 Software

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

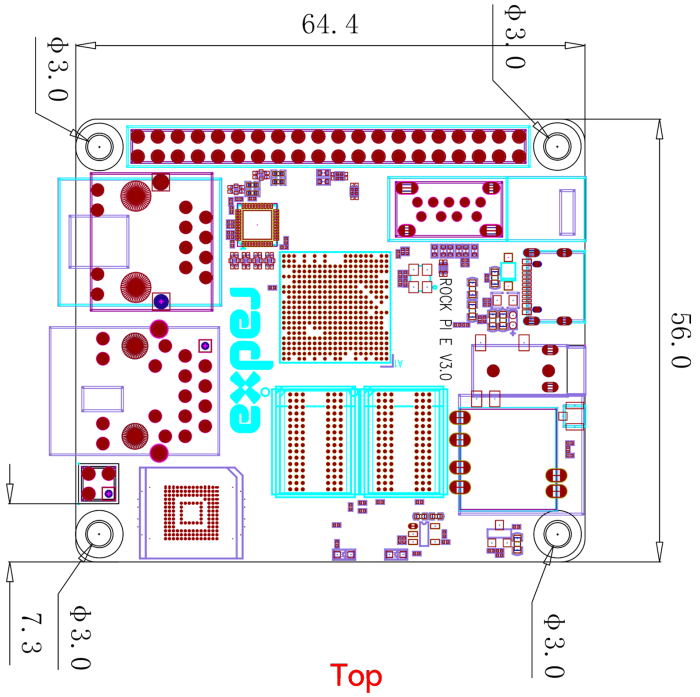
3.3 GPIO Interface

The Rock Pi E offers a 40 pin GPIO expansion header which provides extensive compatibility with a wide range of accessories developed for the SBC market.

Function3	Function2	Function1	Pin#	Pin#	Function1	Function2	Function3
		+3.3V	1	2	+5.0V		
	UART1_TX	GPIO3_A4	3	4	+5.0V		
	UART1_RX	GPIO3_A6	5	6	GND		
		GPIO1_D4	7	8	GPIO2_A0	UART2_TX	
		GND	9	10	GPIO2_A1	UART2_RX	
	PWM_IR	GPIO2_A2	11	12	GPIO2_C2	PDM_CLK	I2S1_SCLK
		GPIO2_A3	13	14	GND		
		GPIO0_D3	15	16	USB20DM		
		+3.3V	17	18	USB20DP		

Function3	Function2	Function1	Pin#	Pin#	Function1	Function2	Function3
	SPI0_TXD	GPIO3_A1	19	20	GND		
	SPI0_RXD	GPIO3_A2	21	22	ADC_IN1		
	SPI0_CLK	GPIO3_A0	23	24	GPIO3_B0	SPI0_CSN0	
		GND	25	26	GPIO2_B4		
	I2C1_SDA	GPIO2_A4	27	28	GPIO2_A5	I2C1_SCL	
I2S1_SDIO1	PDM_SDI1	GPIO2_C4	29	30	GND		
I2S1_SDIO2	PDM_SDI2	GPIO2_C5	31	32	GPIO2_C0	I2S1_LRCK_RX	
	PWM2	GPIO2_A6	33	34	GND		
	I2S1_LRCK_TX	GPIO2_C1	35	36	GPIO2_B7	I2S1_MCLK	
	PDM_SDI3	GPIO2_C6	37	38	GPIO2_C3	PDM_SDI0	I2S1_SDI
		GND	39	40	GPIO2_C7	PDM_FSYNC	I2S1_SDO

4 Mechanical Specification



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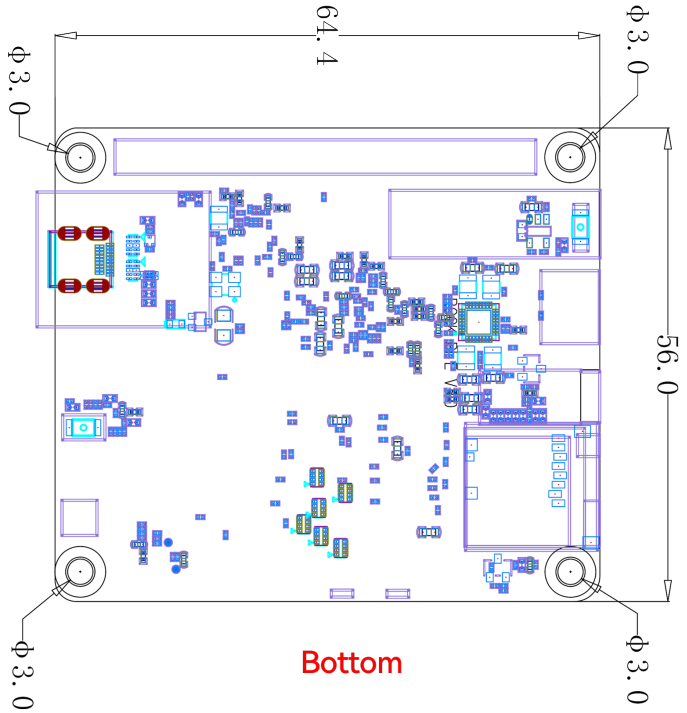

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5 Electrical Specification

5.1 Power Requirements

Rock Pi E can only be powered by +5V.
- USB Type-C® 5V@2A - 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 E has been designed to operate between 0°C to 50°C.

Radxa ROCK Pi E 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 E 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 Availability

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

8 Support

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