
Radxa E25 Product Brief

A Networking Single Board Computer

Revision 1.0

2024-03-26



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1 Revision Control Table

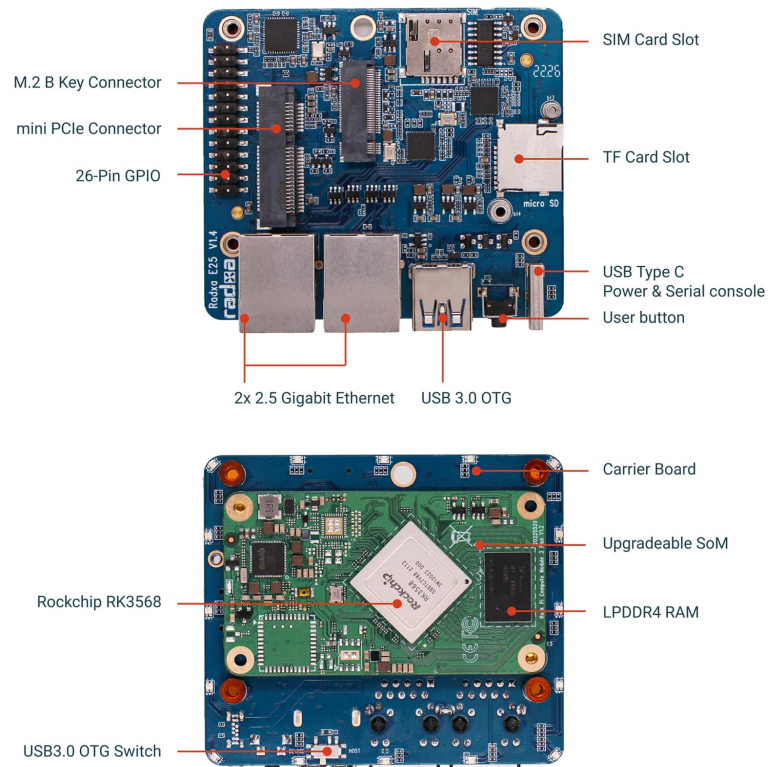
Version	Date	Changes from previous version
1.0	2024/03/26	First version

2 Introduction

Radxa E25 is a networking Single Board Computer (SBC) in an ultra-small form factor that offers a wide range of networking capabilities.

The Radxa E25 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 Features

3.1 Hardware

- Upgradeable SoM and carrier Board design with easy to assemble case and heatsink
- Rockchip RK3568 with Quad core Cortex-A55 (ARM v8) 64-bit SoC @ 2.0GHz
- Mali G52 GPU, supports OpenGL ES 3.2/OpenCL 2.0/Vulkan 1.1
- 1TOPs NPU with RKNN Toolkit support
- LPDDR4 RAM Up to 8GB
- Expansion via M.2 and mini PCIe interface for 4G / 5G mobile network

3.2 Interfaces

- 1x USB Type-C for power and serial console management
- 2x 2.5G Ethernet

- 1x M.2 B Key Connector for 4G LTE network network or M.2 SATA 2242
- 1x mini PCIe connector for AP WiFi or 5G cellular network
- 1x microSD Card for storage or OS
- 1x nano SIM card slot
- 1x USB 3.0 OTG / HOST Type-A port
- 1x User button
- 26x user GPIO supporting various interface options:
 - up to 3 x UART
 - up to 2 x SPI bus
 - 1 x I2C bus
 - 1 x PCM/I2S
 - 1 x CAN
 - up to 6 x PWM
 - 1 x ADC
 - up to 17 x GPIO
 - 2 x 5V DC power pin
 - 2 x 3.3V power pin

3.3 Software

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

4 Electrical Specification

4.1 Power Requirements

The Radxa E25 supports power from USB C with 5V voltage, the suggested power source capability is 5V/2A without peripherals and 5V/4A with all the peripherals connected.

Radxa E25 also supports external 5V Power from the GPIO PIN 2 & 4.

5 Peripherals

5.1 GPIO Interface

Radxa E25 offers 26P GPIO expansion which is compatible with common accessories on the market.

5.1.1 GPIO Alternate Functions

Function3	Function2	Function1	GPIO	PIN	PIN	GPIO	Function1	Function2	Function3
			+3.3V	1	2	+5V			
I2C3_SDA_M0	CAN1_RX_M0	UART3_RX_M0	GPIO1_A0	3	4	+5V			
I2C3_SCL_M0	CAN1_TX_M0	UART3_TX_M0	GPIO1_A1	5	6	GND			
	PWM12_M0	UART3_TX_M1	GPIO3_B7	7	8	GPIO3_C2	SPI1_MISO_M1	UART5_TX_M1	I2S1_SDO3_M2
			GND	9	10	GPIO3_C3	SPI1_CLK_M1	UART5_RX_M1	I2S1_SCLK_RX_M2
	PWM14_M0	UART7_TX_M1	GPIO3_C4	11	12	GPIO3_A3			I2S3_SCLK_M0
I2S1_LRCK_RX_M2	PWM15_IR_M0	UART7_RX_M1	GPIO3_C5	13	14	GND			
I2S1_SDO2_M2		SPI1_MOSI_M1	GPIO3_C1	15	16	GPIO2_D2	SPI0_CSO_M1		I2S1_LRCK_TX_M2
		SPI1_CSO_M1	GPIO3_A1	17	18	GPIO0_C6	SPI0_CSO_M0	PWM7_IR	
I2S1_SCLK_TX_M2		SPI0_MOSI_M1	GPIO2_D1	19	20	GND			
I2S1_MCLK_M2		SPI0_MISO_M1	GPIO2_D0	21	22	GPIO4_C6	SPI3_CSO_M1	PWM13_M1	I2S3_SDI_M1
I2S1_SDI0_M2		SPI0_CLK_M1	GPIO2_D3	23	24	SARADC_VIN5			
			GND	25	26	GPIO3_C0		PWM13_M0	UART3_RX_M1

5.2 eMMC

Radxa E25 offers an internal high speed eMMC for OS and data storage(on the SoM). This allows booting from SATA or USB drive.

5.3 USB

The Radxa has 1x USB3 OTG type-A sockets. Downstream USB current is limited to approximately 900mA. The USB OTG role(HOST or Device) can be configured by a hardware switch or by software.

5.4 M.2 B Key connector

The Radxa E25 offers a M.2 B Key connector with USB, SATA and SIM card interfaces, supporting 4G LTE module or M.2 2242 SATA SSD.

5.5 Mini PCIe connector

The Radxa E25 offers a mini PCIe connector with PCIe 2.0, USB and SIM card interfaces, supporting WiFi AP cards, 5G mobile network modules.

5.6 Temperature Range and Thermals

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

To reduce thermal output when idling or under light load, the Radxa E25 reduces the CPU clock speed and voltage. During heavier load the speed and voltage (and hence thermal output) are increased. The internal governor will throttle back both the CPU speed and voltage to make sure the CPU temperature never exceeds 85 degrees C.

6 Availability

Radxa guarantee availability Radxa E25 until at least September 2029.

7 Support

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