
Radxa CM3S

A Feature Rich Embedded System-on-Module

Revision 1.7

2023-08-21



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1 Revision Control Table

Version	Date	Changes from previous version
1.0	01/03/2022	First version
1.5	05/07/2023	Update Images
1.6	17/07/2023	Update Infos
1.7	21/08/2023	Update SKU Infos

2 Introduction

The Radxa CM3S is a System on Module (SoM) based on the Rockchip RK3566 System on Chip (SoC). The CM3S integrates the Central Process Unit (CPU), Power Management Unit (PMU), DRAM memory, eMMC storage and wireless connectivity (WiFi 4 and BT 4.2) in a small DDR2 SODIMM form factor of just 67.6mm x 32mm. The CM3S offers a cost-efficient solution out of the box for many different applications.

The CM3S is available in various LPDDR4 RAM and eMMC size configurations, check the Order Info section for the specific models.

The CM3S accelerates the customer's product development by providing a powerful SoM in a very small form factor. The customer can quickly put the prototype into production by developing a simple carrier board.

Notice that the carrier board reference design files are provided at [Radxa Github](#). In addition, Radxa offers a CM3S IO board to help customers to quickly show a basic use of the SoM.

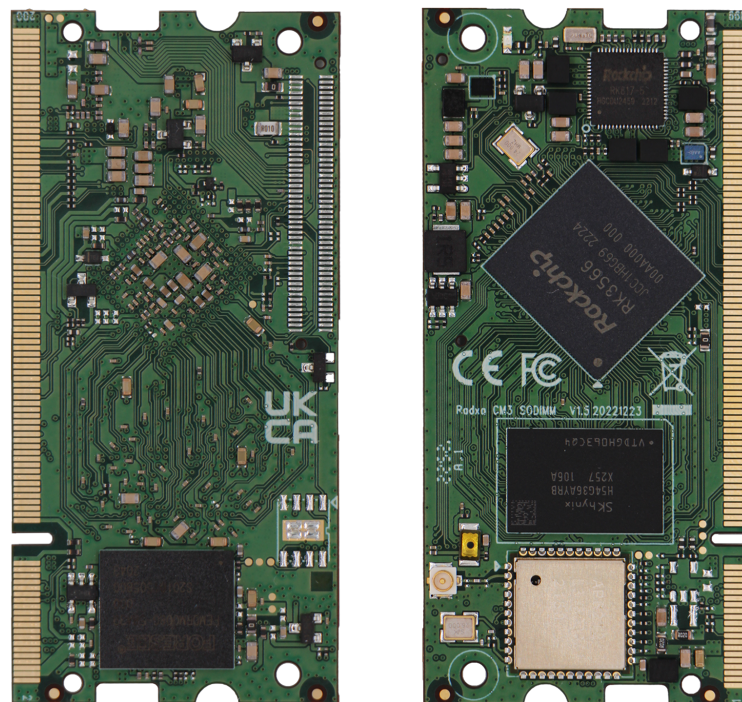


Figure 1: Radxa CM3S

Note:

The image above shows a CM3S specific model. This model has certain features like wireless communication capabilities or eMMC. Depending on the purchased SKU there might be variations to the populated components.

3 Features

3.1 Hardware

The CM3S is based on a Rockchip RK3566 SoC with 64-bit Quad Core low power cores up to 1.8GHz.

- CPU: Quad-core Arm® Cortex®-A55 (ARMv8) 64-bit @ 1.8GHz
- GPU: Arm Mali™-G52-2EE, OpenGL® ES1.1/2.0/3.0/3.1/3.2, Vulkan® 1.1, OpenCL™ 2.1
- NPU: 0.8 TOPs@INT8, support INT8, INT16, FP16, BFP16, support deep learning frameworks such as TensorFlow, Caffe, Tflite, Pytorch, Onnx, Android™ NN, etc
- Memory: 32bit LPDDR4 up to 8GB
- Storage: eMMC 5.1 up to 512GB
- Display: Single display engine, HDMI2.0, Dual MIPI-DSI
- Multi-Media: 4K H.265/H.264/VP9 video decoder and 1080p@60fps H.264/H.265 video encoder
- Video input: 8M Pixel ISP and 1 x 4 lanes or 2 x 2 lanes MIPI CSI-2 and DVP interface
- Audio interface: I2S0/I2S1 with 8 channels, IS2/I2S3 with 2 channels
- High Speed Interface: One SATA 3.0/PCIe 2.1 combo port, and one USB 2.0 OTG
- Security: Arm TrustZone® security extension, Secure Video Path, Secure JTAG to debug, Secure boot, OTP and Crypto (AES/TDES/SM4/SM3/SHA256/SHA512/RSA)

3.2 Interfaces

- 802.11 b/g/n Wireless LAN (Wi-Fi 4)
- BT 5 with BLE
- up to 5 x I2C
- up to 3 x SPI
- up to 8 x UART
- up to 12 x PWM
- up to 60x GPIO

- 1 x ADC
- 2 x I2S
- 1 x PCIe 2.0, 1 lane host (5Gbps)
- 1 x SATA 3.0(shared with PCIe)
- 1 x USB 2.0 OTG
- 1 x SDIO 3.0
- 1 x HDMI up to 4K x 2k@60Hz
- 2 x 2 lane or 1 x 4 lane MIPI CSI camera port
- 1 x MIPI DSI 2 lane @ 1.6Gbps per lane
- 1 x MIPI DSI 4 lane @ 1.6Gbps per lane
- Power input: 3.3~5V, rated voltage is 4.5V, recommended 5V power supply
- 200 pins SODIMM golden finger edge connector

3.3 Software

- Debian/Ubuntu Linux support
- Android 11/12 support

Please check [Radxa Download](#) for third party images support.

4 Dimension

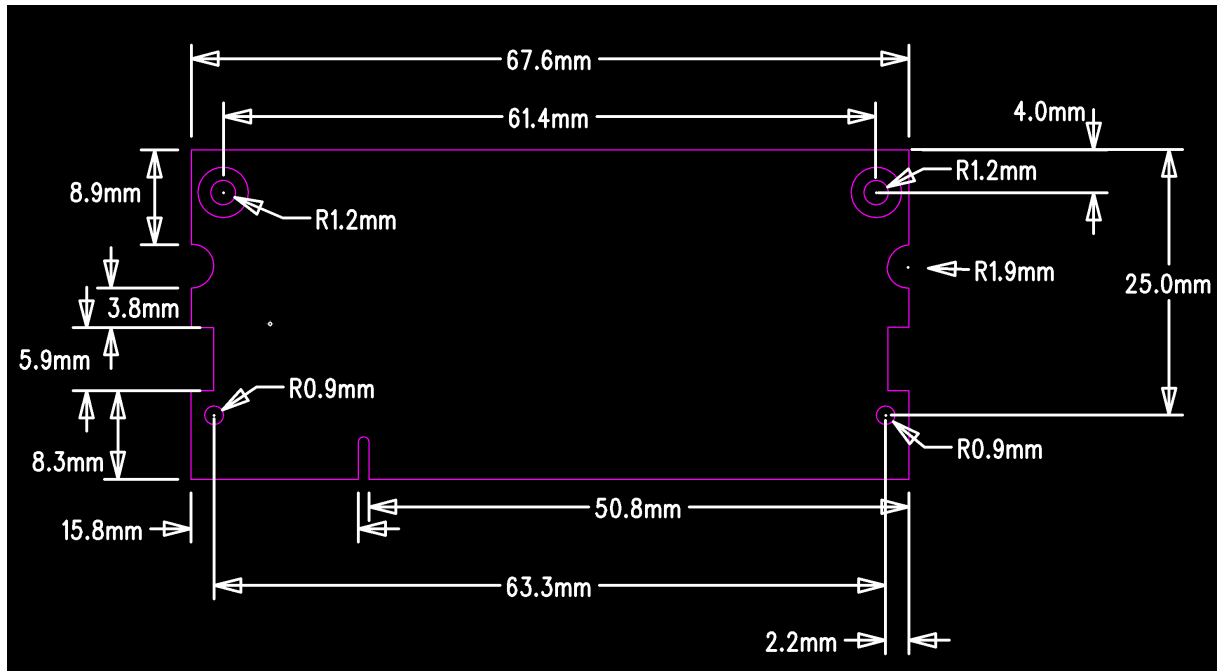


Figure 2: Radxa CM3S Dimension

5 Availability

Radxa guarantees availability of the Radxa CM3S until at least September 2032.

6 Order Info

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.

Wireless	RAM	eMMC	Model
Yes	1G	N/A	RM117-D1E0W3
		8G	RM117-D1E8W3
		16G	RM117-D1E16W3
		32G	RM117-D1E32W3
	2G	N/A	RM117-D2E0W3
		8G	RM117-D2E8W3
		16G	RM117-D2E16W3
		32G	RM117-D2E32W3
	4G	N/A	RM117-D4E0W3
		8G	RM117-D4E8W3
		16G	RM117-D4E16W3
		32G	RM117-D4E32W3
		64G	RM117-D4E64W3
		128G	RM117-D4E128W3
	8G	N/A	RM117-D8E0W3
		8G	RM117-D8E8W3
		16G	RM117-D8E16W3
		32G	RM117-D8E32W3
		64G	RM117-D8E64W3
		128G	RM117-D8E128W3

Wireless	RAM	eMMC	Model
No	1G	N/A	RM117-D1E0W0
		8G	RM117-D1E8W0
		16G	RM117-D1E16W0
		32G	RM117-D1E32W0
	2G	N/A	RM117-D2E0W0
		8G	RM117-D2E8W0
		16G	RM117-D2E16W0
		32G	RM117-D2E32W0
	4G	N/A	RM117-D4E0W0
		8G	RM117-D4E8W0
		16G	RM117-D4E16W0
		32G	RM117-D4E32W0
		64G	RM117-D4E64W0
		128G	RM117-D4E128W0
	8G	N/A	RM117-D8E0W0
		8G	RM117-D8E8W0
		16G	RM117-D8E16W0
		32G	RM117-D8E32W0
		64G	RM117-D8E64W0
		128G	RM117-D8E128W0

7 Support

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

