
Radxa CM3S

ROCK 3 Compute Module in SODIMM form factor

Revision 1.4

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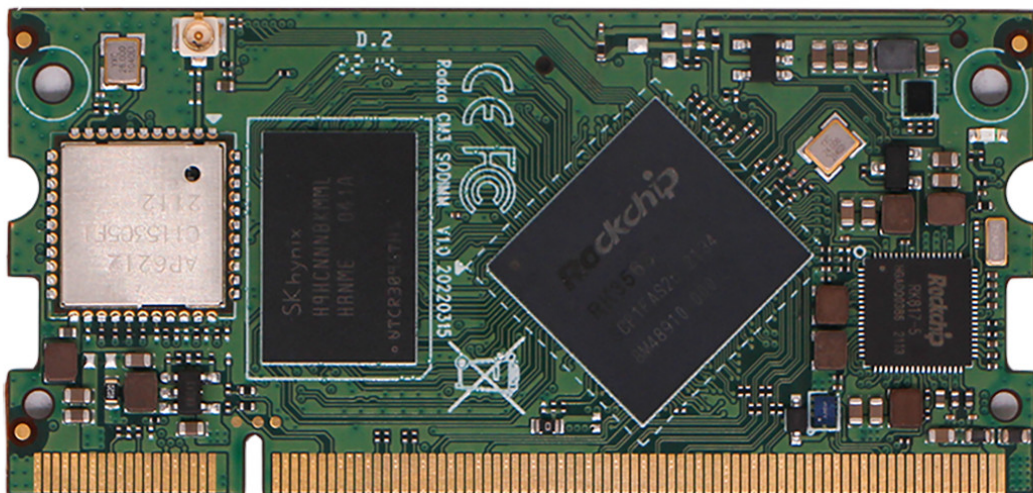
1 Introduction

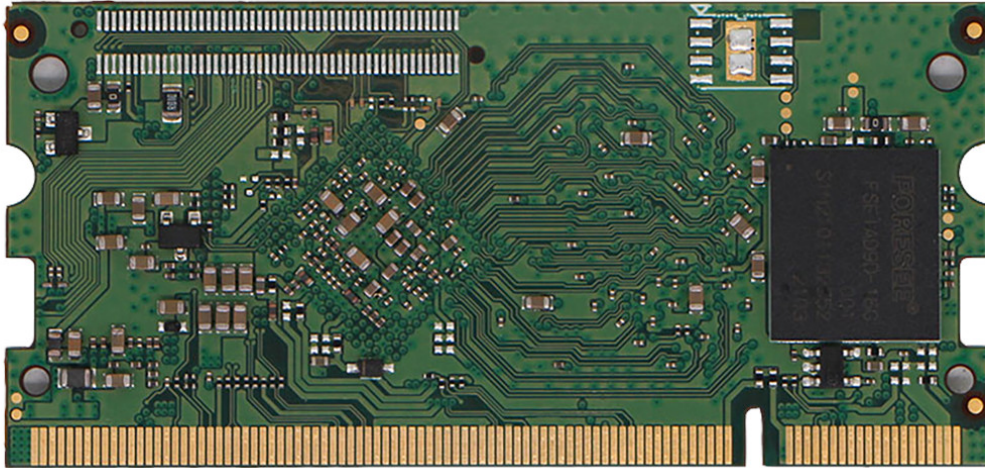
The Radxa ROCK 3 Compute Module SODIMM (CM3S) is a System on Module (SoM) based on the Rockchip RK3566 System on Chip (SoC). The CM3S integrates the Central Process Unit (CPU), Power Management Unit (PMU), DRAM memory, eMMC storage and wireless connectivity (WiFi 4 and BT 4.2) in a small DDR2 SODIMM 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.



**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.

2 Features

2.1 Hardware

The CM3S is based on a Rockchip RK3566 SoC with 64-bit Quad Core low power cores up to 1.6GHz.

- CPU: Quad-core Arm® Cortex®-A55 (ARMv8) 64-bit @ 1.6GHz
- 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 LPDDR4X 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)

2.2 Interfaces

- 802.11 b/g/n Wireless LAN (Wi-Fi 4)
- BT 4.2 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
- 3.3V ~ 5V power input
- 260 pins SODIMM golden finger edge connector

2.3 Software

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

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

3 Dimension

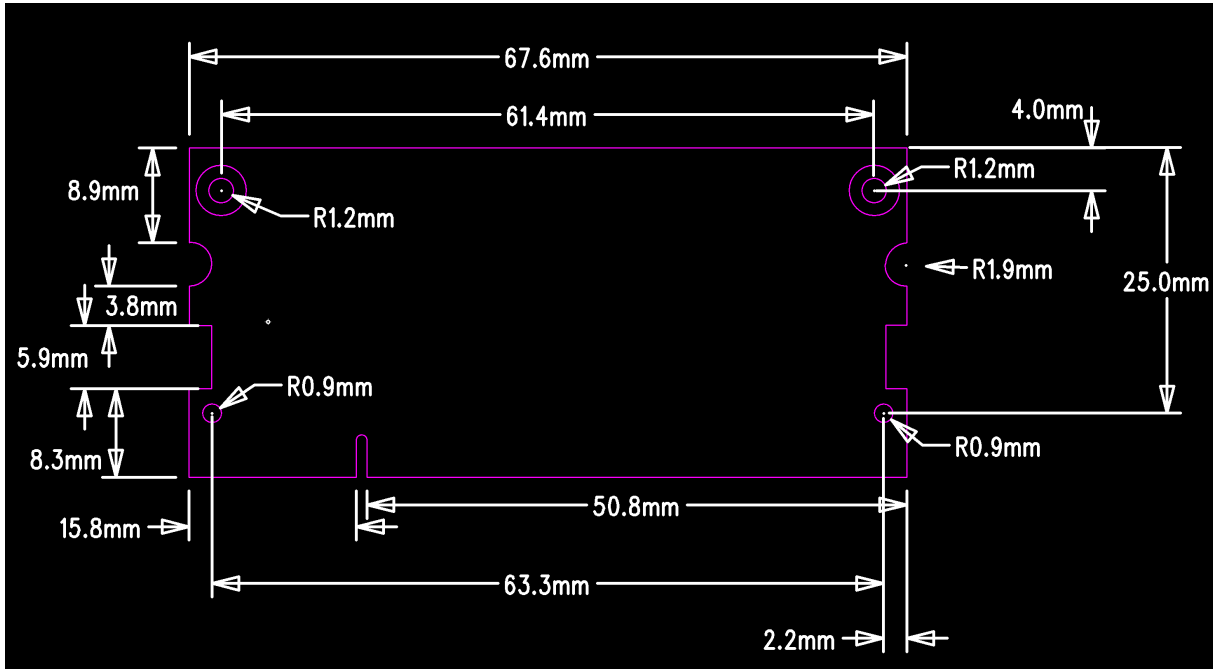


Figure 1: Radxa CM3S Dimension

4 Availability

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

5 Order Info

Wireless	RAM	eMMC
No	1G	- 8G 16G 32G
No	2G	- 8G 16G 32G
No	4G	- 8G 16G 32G 64G 128G
No	8G	- 8G 16G 32G 64G 128G

Wireless	RAM	eMMC
Yes	1G	- 8G 16G 32G
Yes	2G	- 8G 16G 32G
Yes	4G	- 8G 16G 32G 64G 128G
Yes	8G	- 8G 16G 32G 64G 128G

6 Support

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

