



Radxa CM5

A High Performance Embedded System-on-Module

Revision 1.1

2023-09-26



Contents

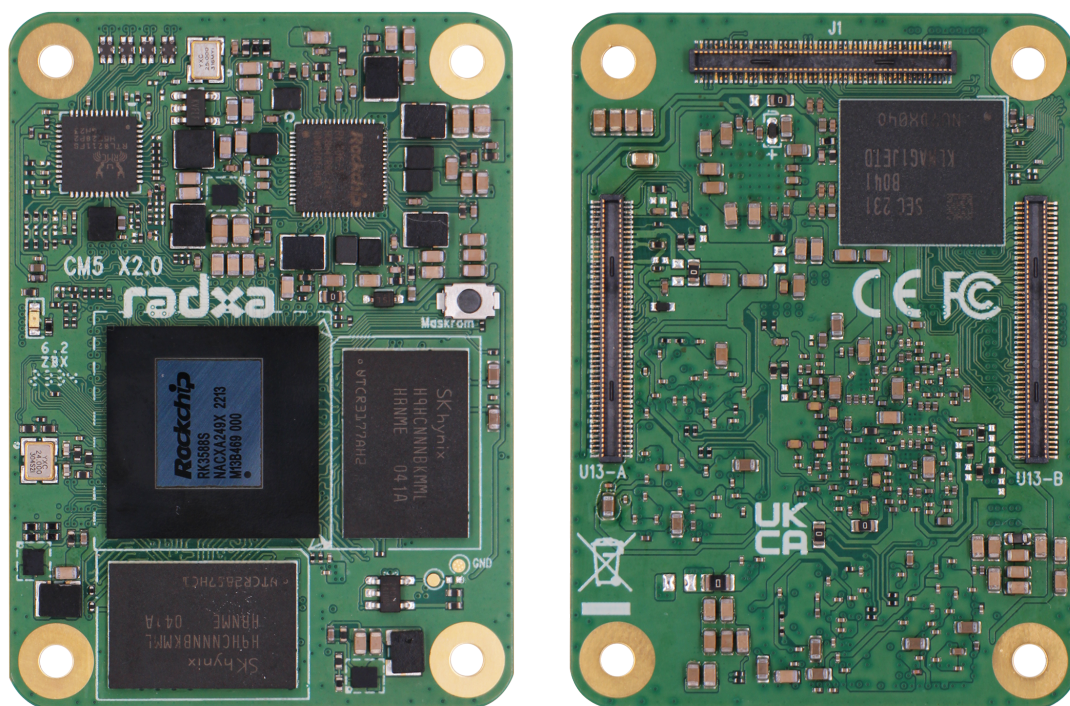
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1 Revision Control Table

Version	Date	Changes from previous version
1.0	06/07/2023	First version
1.1	26/09/2023	Add Specific Information

2 Introduction

The Radxa CM5 is a System on Module (SoM) based on a the Rockchip RK3588S System on Chip (SoC). The Radxa CM5 integrates the Central Process Unit (CPU), Graphics Processing Unit (GPU), Neural Processing Unit (NPU), Power Management Unit (PMU), LPDDR4X DRAM Memory, and Onboard eMMC Storage in a small form factor of just 55mm x 40mm. Radxa CM5 offers out of box high performance solution for multiple purpose applications, accelerates customer' s product development.



The Radxa CM5 is available in various LPDDR4X RAM and Onboard eMMC size configurations, check the Model and SKU section for the specific models.

Notice that the carrier board reference design files are provided at [Radxa Github](#). In addition, Radxa offers the Radxa CM5 IO board to help customers to quickly show a basic use of the SoM.

Note:

The components on the Compute Module may be different on specific SKU such as the SKU without eMMC doesn' t have the onboard eMMC mounted.

3 Specification

Features	Description
Form factor:	55 mm × 40 mm
SoC:	Rockchip RK3588S
CPU:	Quad Cortex [®] -A76 @ 2.2~2.4GHz and a quad Cortex [®] -A55 @ 1.8GHz based on Arm [®] DynamIQ™ configuration
GPU:	Arm Mali™ G610MP4 GPU - OpenGL [®] ES1.1, ES2.0, and ES3.2 - OpenCL [®] 1.1, 1.2 and 2.2 - Vulkan [®] 1.1 and 1.2 - Embedded high performance 2D image acceleration module
NPU:	NPU supporting INT4 / INT8 / INT16 / FP16 / BF16 and TF32 acceleration and computing power is up to 6TOPs
Memory:	1GB, 2GB, 4GB, 8GB or 16GB LPDDR4X (depending on variant)
Storage:	<ul style="list-style-type: none"> • Optional 4GB / 8GB / 16GB / 32GB, up to 512GB Onboard eMMC Compatible with eMMC 5.1 • Supports SDMMC interface for data storage and OS booting using SD cards
Multimedia:	<ul style="list-style-type: none"> • VP9 / H.265 / AVS2 decode 8K@60fps • H.264 / H.265 encode 8K@30fps
Ethernet:	<ul style="list-style-type: none"> • 1 x Onboard Gigabit Ethernet PHY
Display:	<ul style="list-style-type: none"> • 1x HDMI TX up to 8K@60hz • 1x eDP TX up to 4K@60Hz • 1x DP TX (and USB3.0 Combo) up to 8K@30Hz • 1x 2-lane MIPI D/C PHY TX • 1x 4-lane MIPI D/C PHY TX
Camera:	<ul style="list-style-type: none"> • 1x 2-lane MIPI DPHY CSI RX • 1x 4-lane MIPI_D/C PHY RX
Audio:	<ul style="list-style-type: none"> • Up to 2x I2S • Up to 2x PDM • Up to 2x SPDIF TX

Connectivity:	<ul style="list-style-type: none">• 2 × USB 2.0 Host Port (HighSpeed)• 1 x USB 3.0 Host Port (SuperSpeed)• 1 x USB 3.0 OTG Port• 2 x PCIe2.0 1-lane, one shared with USB3 and SATA, one shared with SATA• 2 x SATA ports, one shared with USB3 and PCIe2.0, one shared with PCIe2.0• Up to 10x UART• Up to 5x SPI• Up to 3x CAN• Up to 7x I2C• Up to 15x PWM
Power Input:	5V DC, Max 5.2V
Connector	<ul style="list-style-type: none">• Pin Configuration: B2B Form Factor• Number of Pins: 3x 100-Pin

4 Software

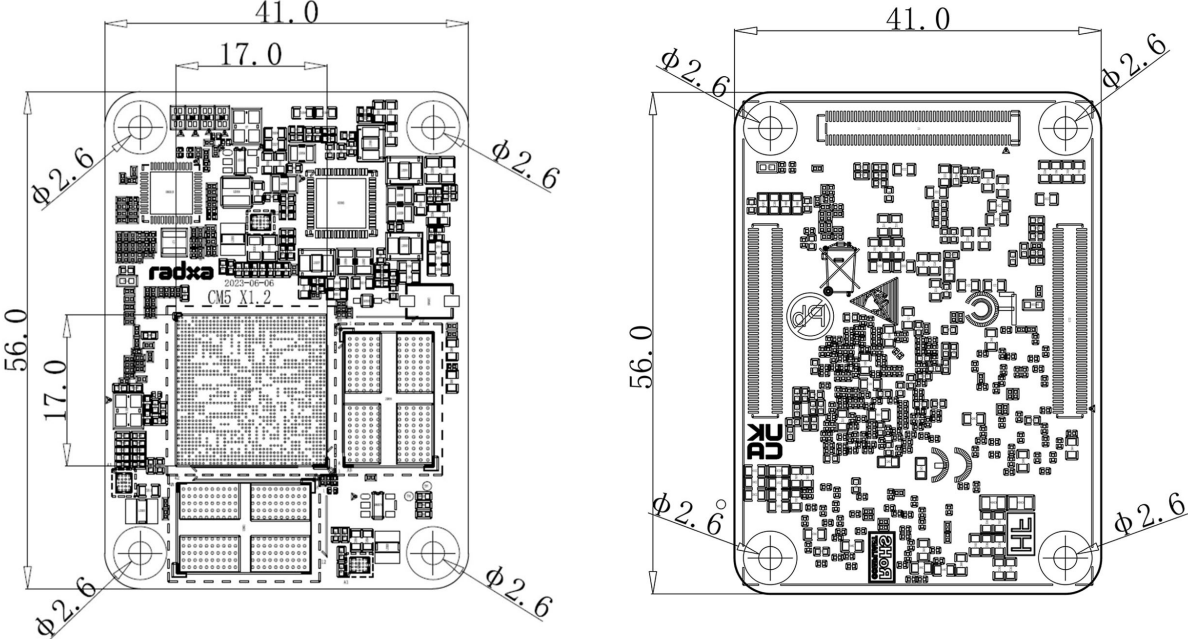
- Debian/Ubuntu Linux support
- Android 11/12 support

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

5 Pinout

The Pinout document for Radxa CM5 offers a detailed explanation of pin assignments and connectivity. You are welcome to visit [Radxa CM5 Pinout](#) to access this valuable resource. Download it for comprehensive information.

6 Mechanical Specification



7 Model and SKU

RAM	Onboard eMMC	SKU
1G	N/A	RM120-D1E0
	8G	RM120-D1E8
2G	N/A	RM120-D2E0
	8G	RM120-D2E8
	16G	RM120-D2E16
4G	N/A	RM120-D4E0
	8G	RM120-D4E2
	16G	RM120-D4E16
	32G	RM120-D4E32
8G	N/A	RM120-D8E0
	8G	RM120-D8E8
	16G	RM120-D8E16
	32G	RM120-D8E32

8 Availability

Radxa guarantees availability Radxa CM5 until at least September 2032.

9 Support

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