Radxa CM3J Product Brief

A Feature Rich Industrial Compute Module

Revision 1.0

2025-03-07

Radxa Computer

Contents

1 Revision Control Table

| Version	Date	Changes from previous version
1.0	2025/01/15	First version

2 Introduction

The Radxa CM3J is a System on Module (SoM) based on the Rockchip RK3568J System on Chip (SoC). The CM3J integrates the Central Processing Unit (CPU), Power Management Unit (PMU), DRAM Memory, eMMC Storage and Wireless connectivity (WiFi 5 and BT 5.0) in a small form factor of just 55mm x 40mm. The CM3J offers a cost-efficient solution out of the box for many different industrial applications. The figure below shows the CM3J block diagram.
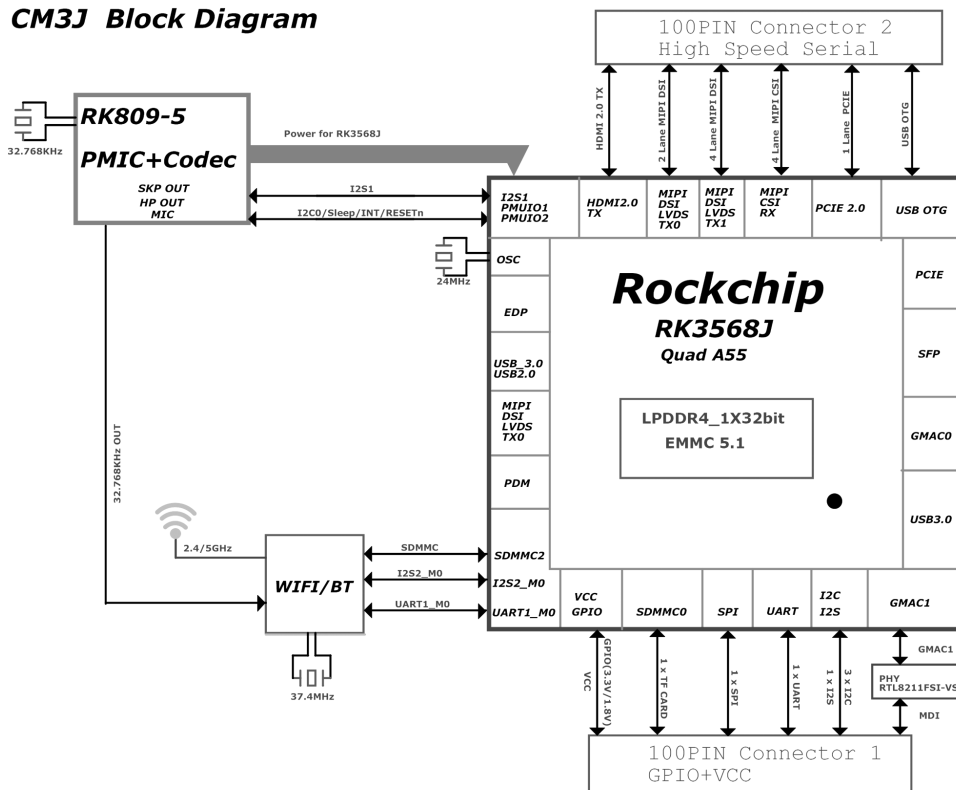
The CM3J is available in various LPDDR4x RAM and eMMC size configurations, check the Order Info section for the specific models.
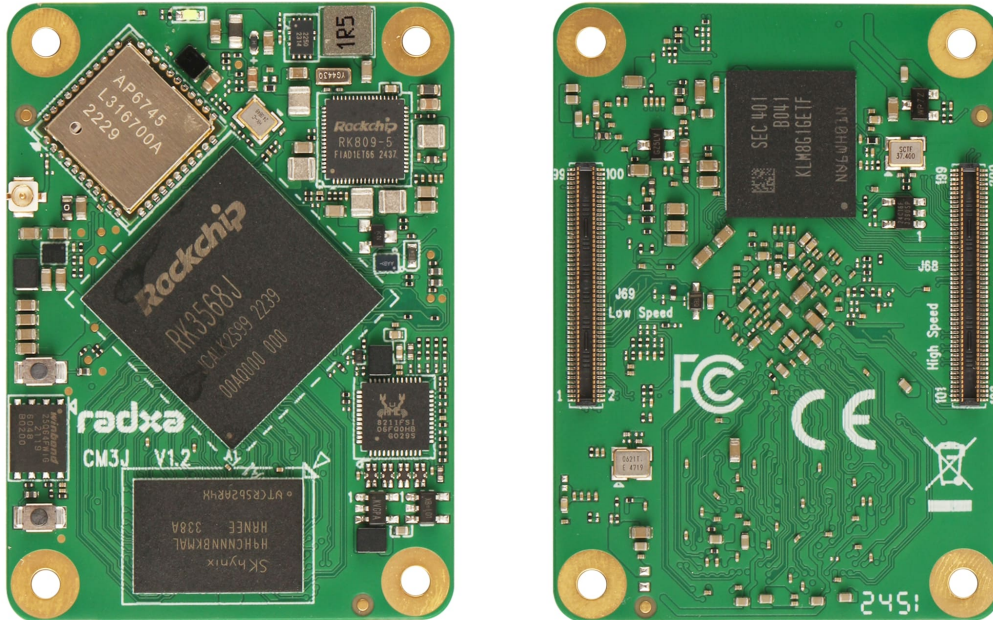
Note:

The image above shows a CM3J 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.

The Radxa CM3J is compatible with the Raspberry Pi CM4 IO Board as well as the WaveShare CM4-POE-UPS-BASE, WaveShare CM4-IO-BASE-B and WaveShare CM4-NANO-B.

3 Specification

Specification

Form factor:	55 mm × 40 mm
Processor:	Rockchip RK3568J, Quad core Cortex-A55 (ARM v8) 64-bit SoC @ **2.0GHz**
GPU:	ARM G52-2EE GPU - OpenGL® ES1.1 / 2.0 / 3.0 / 3.1 / 3.2 - OpenCL® 2.1 - Vulkan® 1.1

NPU:	NPU supporting INT8 / INT16 / FP16 / BFP16, computing power is up to 1 TOPS@INT8
Memory:	LPDDR4x up to 8GB(depending on variant)
Storage:	· Optional onboard eMMC storage, compatible with eMMC 5.1 · Supports SDMMC interface for data storage and OS booting using SD cards · SPI Flash for bootloader
Multimedia:	· VP9 / H.265 / H.264 decode 4K@60fps | · H.264 / H.265 encoder 1080p@60fps |
Wireless:	· IEEE 802.11 b/g/n/ac Wireless LAN (Wi-Fi 5) with external antenna connector · BT 5.0 with BLE
Ethernet:	· 1x Onboard Gigabit Ethernet PHY
Video Input:	· 1x 4-lane MIPI CSI RX or 2x 2-lane MIPI CSI RX
Video Output:	· 1x HDMI TX up to 4096x2160@60Hz · 1x 2-lane MIPI DSI for MIPI LCD · 1x 4-lane MIPI DSI for MIPI LCD · 1x LVDS four lanes(muxed with MIPI DSI0)
USB:	· 1x USB 2.0 OTG / HOST Interface
PCIe:	· 1x PCIe 2.0 1-lane Interface
Connectivity:	· UART · SPI · CAN · I2C
Audio:	· I2S · PDM, support mic array
Connector	2x 100P 0.4mm pitch B2B connector
Operation temperature	-40° to 85° Celsius |

## 3.1 Software

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

4 Operating Conditions

The CM3J has been designed to operate between -40°C to 85°C. If the CM3J 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 below its recommended 85°C.

5 Dimension

Note:

This data is in **millimeters (mm)**. If you plan to design a baseboard for Radxa CM3J and engage in further development, please refer to the Datasheet of Rpi CM4 IO Board
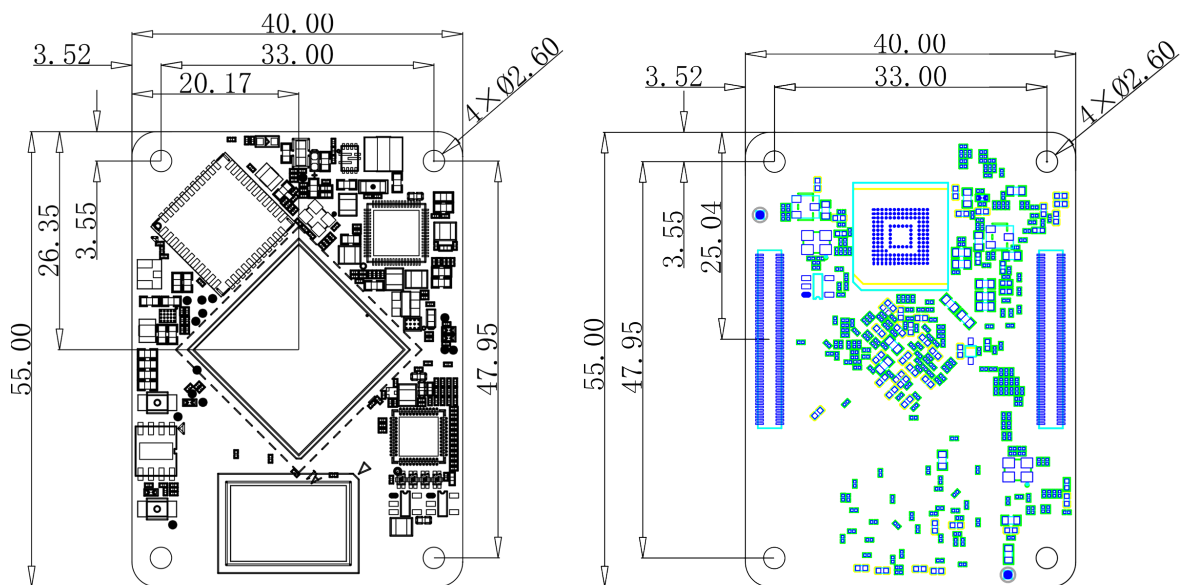
6 Model and SKU

Operation temperature	Wi-Fi	RAM	eMMC	SPI Flash	SKU
-40° to 85°	AP6745	2GB	N/A	16MB	RM128-D2E0J1S16W13
			8GB	N/A	RM128-D2E8J1S0W13
		4GB	N/A	16MB	RM128-D4E0J1S16W13
			16GB	N/A	RM128-D4E16J1S0W13
		8GB	N/A	16MB	RM128-D8E0J1S16W13
			32GB	N/A	RM128-D8E32J1S0W13

7 PinOut

Please refer to radxa_cm3j_pinout_v1.2

8 Availability

Radxa guarantees availability of the CM3J until at least September 2033.

9 Support

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

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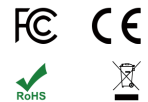
Note:

FCC, CE, and other certifications may be in progress at the time of publication. For the latest certification status and documentation, please refer to Radxa's official communication channels.