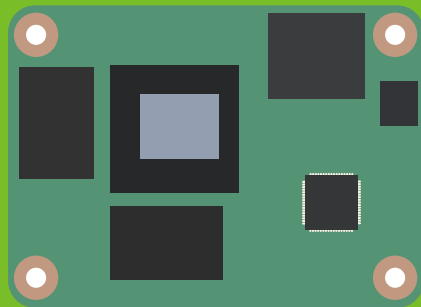

Radxa ROCK 5 Compute Module

A high performance embedded system-on-module

Draft v0.7



Radxa Computer

2022-08-15

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1 Introduction

Radxa ROCK 5 Compute Module(Radxa CM5) is an SoM(System on Module) by Radxa based on Rockchip RK3588S SoC in a small form factor at 55mm x 40mm size, integrating CPU/PMU/DRAM/S-TORAGE. Radxa CM5 offers out of box high performance solution for multiple purpose applications, accelerates customer's product development. It has the following features:

1.1 Oct core 64 bits High Performance Solution

Radxa CM5 is powered by Rockchip RK3588S SoC with Quad-core ARM Cortex-A76 MPCore processor and quad-core ARM Cortex-A55 MPCore processor, supports up to 16GB RAM and up to 128GB eMMC. With a simple carrier board(2 layer base board is possible with all functions), the customer can quickly put the prototype into production.

1.2 Rich interfaces

Support I2C, SPI, UART, ADC, PWM, GPIO, Ethernet, PDM, I2S, MIPI, SATA, eDP as well as PCIe 2.0, USB 3.0 high bandwidth buses.

1.3 Multiple display capability

Quad Video Output Process engine, support four display output to any of: HDMI, eDP, DP, 1x MIPI DSI, 2x MIPI DSI, resolution up to 1x 8K + 1x 4K + 1x 1080P or 3x 4K + 1080P.

1.4 Powerful multimedia utility

Support 8K VP9 and 8K 10bits H264/H265 video decoding, up to 60FPS

Support multiple 1080P video formats decoding including VC-1, MPEG-1/2/4, VP8

Support 4K encoding to H.264, VP8 formats

1.5 Small size and low power

3x 100PIN board to board connector in 55mm x 40mm size, provides industrial compatible form factor and pinout, saves board space.

1.6 Support multiple OS

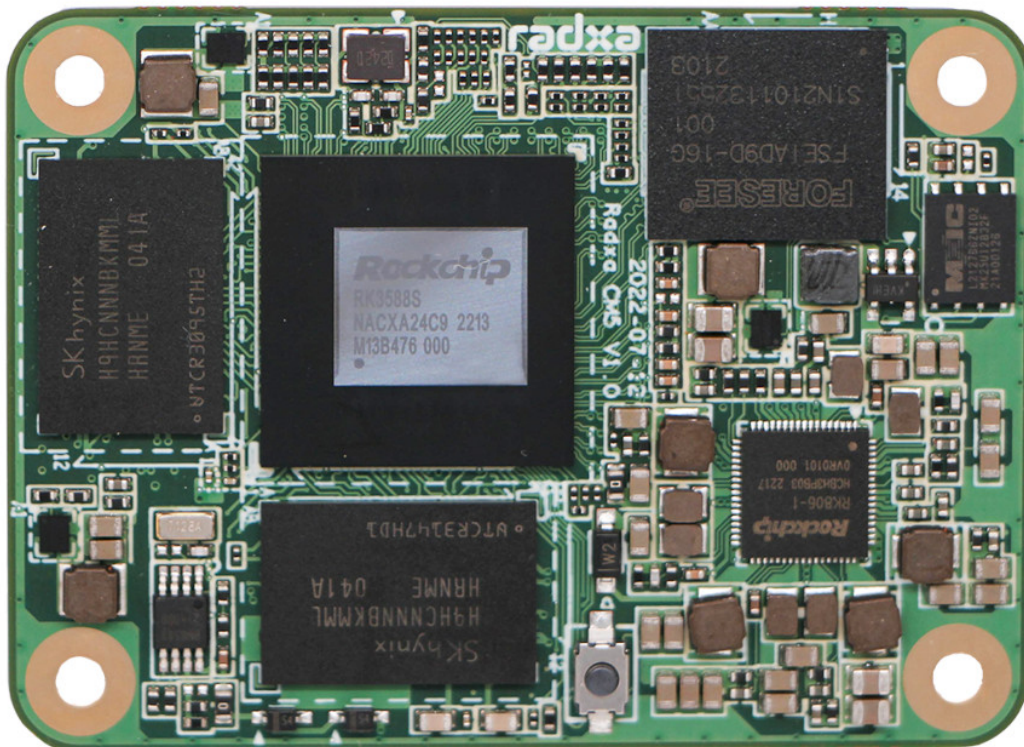
Support Ubuntu 20.04 / Debian 11 / Buildroot / Yocto / Android.

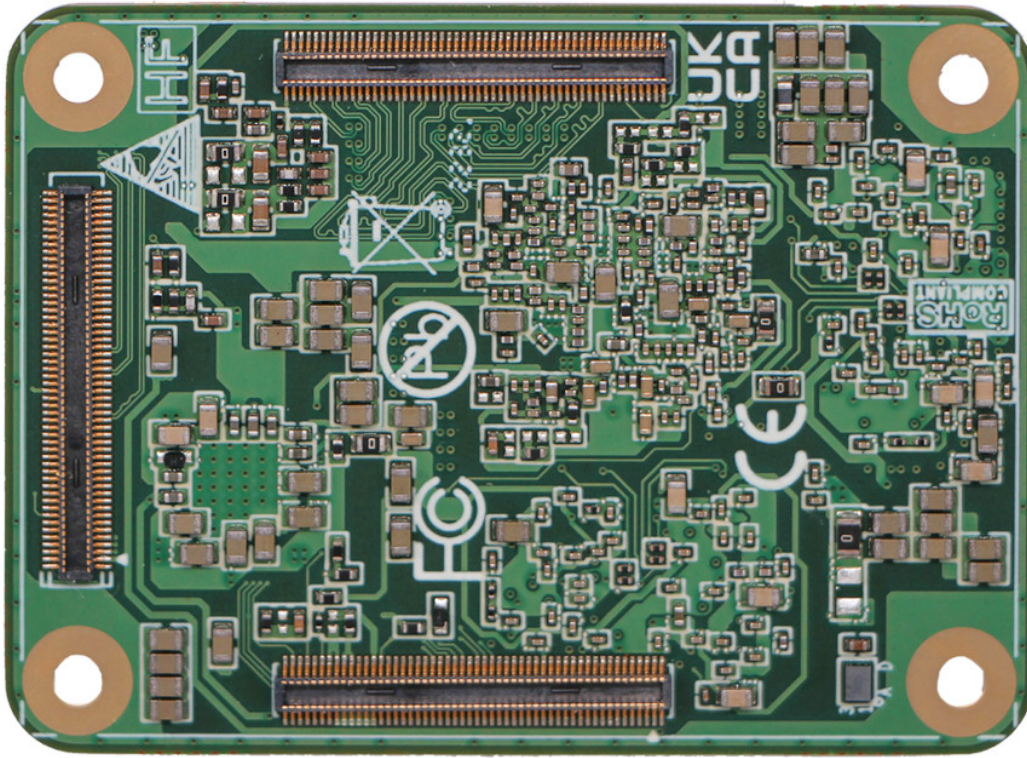
1.7 Open documents and source code

Source code, documents, tools and utilities are freely available, community and commercial support to help you put prototype into production.

1.8 Widely used in varies applications

Ideal SoM for Robotics, HMI, Vending Machines, Smart Home, IOT Gate Way, Industrial Controls, Medical Equipments etc.



**Note:**

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

2 Specification

Name	Radxa CM5
SoC	Rockchip RK3588S, Quad core Cortex-A76 (ARM v8) 64-bit SoC @ 2.4GHz + Quad core Cortex-A55 64-bit SoC @ 1.8GHz
Form factor	Small Footprint 55mm × 40mm × 3mm module
RAM	Options for 4GB or 8GB or 16GB LPDDR4x-4224 SDRAM

eMMC	Options for 0GB, 8GB, 16GB, 32GB, 64GB, 128GB eMMC Flash memory, Peak eMMC bandwidth 250MBytes/s
Ethernet	1x GMAC with RGMII interface
USB	1 x USB 2.0 port, 1 x USB C 3.1 port (5Gbps), 1x USB 3.0 host port
PCIe	2 x PCIe 1-lane host, Gen 2.1 (5Gbps)
SATA	2 x SATA ports, one shared with USB 3, one shared with PCIe
HDMI	1 x HDMI(up to 8K60)
MIPI DSI	2 × 4-lane MIPI DSI display port(MIPI DSI0, MIPI DSI1)
eDP	1 x eDP up to 8K60(shared with HDMI)
MIPI CSI	<ul style="list-style-type: none">• 1 × 2-lane MIPI CSI camera port• 1 × 4-lane MIPI CSI camera port
SDIO	1 x SDIO 3.0
GPIO	50 × GPIO supporting either 1.8v or 3.3v signalling and peripheral options: <ul style="list-style-type: none">• Up to 8 × UART• Up to 8 × I2C• Up to 4 × SPI• 1 × SDIO interface• 1 × PCM• Up to 8 × PWM channels• 2 x ADC
Power	Single +5v PSU input
Connector	3x 100P 0.4mm pitch B2B connector

3 Availability

Radxa guarantees availability Radxa CM5 until at least September 2032.

4 Support

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