



Radxa CM3I

A Feature Rich Industrial Embedded SoM

Revision 1.2

2023-09-27



Contents

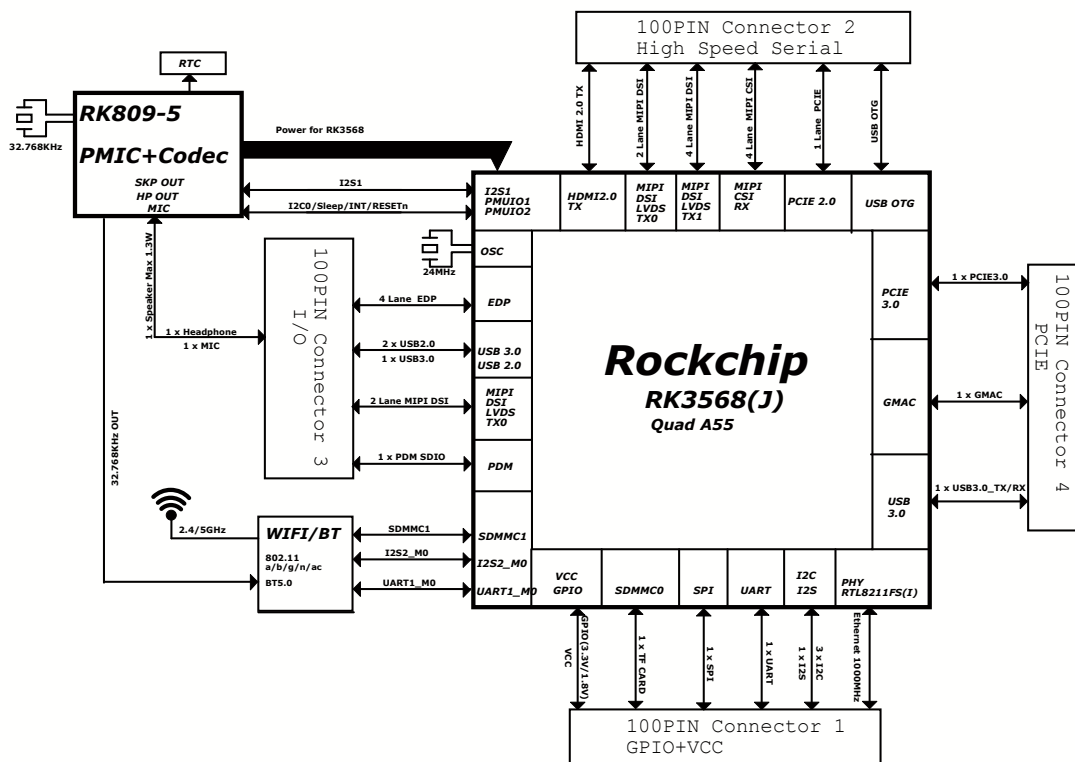
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1 Revision Control Table

Version	Date	Changes from previous version
1.0	24/07/2022	First version
1.1	20/09/2022	Update Images and SKU
1.2	27/09/2023	Update Specification

2 Introduction

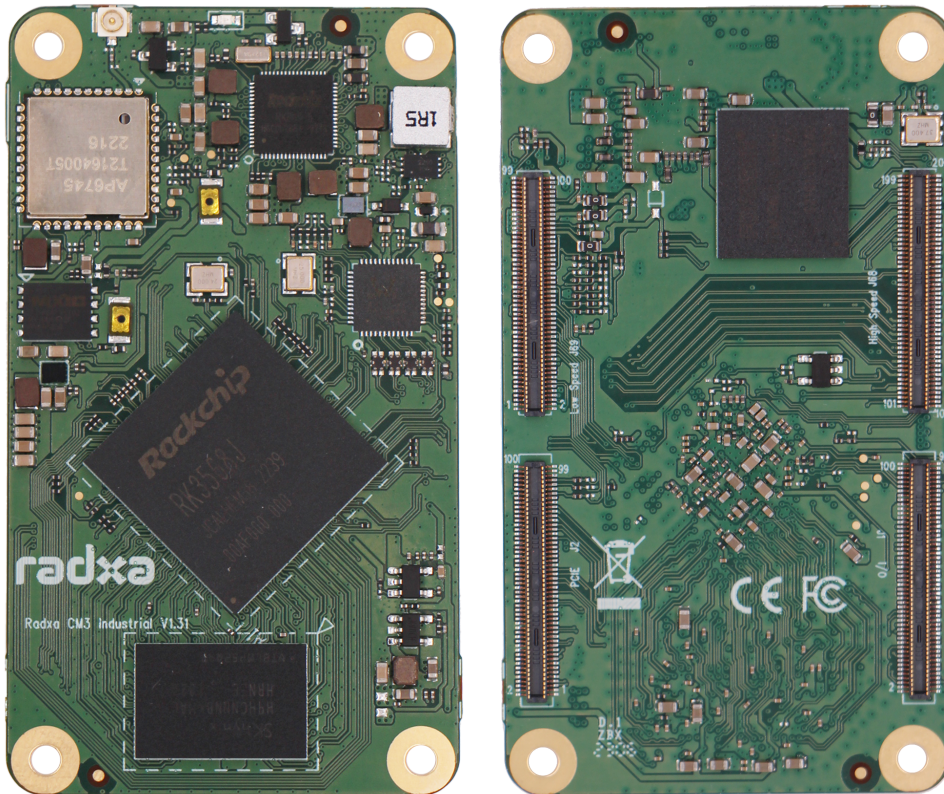
The Radxa CM3I is a System on Module (SoM) based on a the Rockchip RK3568(J) System on Chip (SoC). The Radxa CM3I integrates the Central Process Unit (CPU), Power Management Unit (PMU), DRAM memory, flash storage and wireless connectivity (WiFi 5 and BT 5.0) in a small form factor of just 70mm x 40mm. The Radxa CM3I offers a cost-efficient solution out of the box for many different applications. The figure below shows the CM3I block diagram.



The Radxa CM3I is available in various LPDDR4 RAM and eMMC size configurations, check the Model and SKU section for the specific models.

The Radxa CM3I 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 CM3I IO board to help customers to quickly show a basic use of the SoM.



3 Specification

Specification

Form factor:	70 mm × 40 mm
Processor:	Rockchip RK3568(J), 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 1TOPs@INT8
Memory:	1GB, 2GB, 4GB or 8GB LPDDR4 (depending on variant)
Storage:	Optional 4GB / 8GB / 16GB / 32GB, up to 256GB Onboard eMMC Compatible with eMMC 5.1 1x SPI Flash 1x SDMMC0

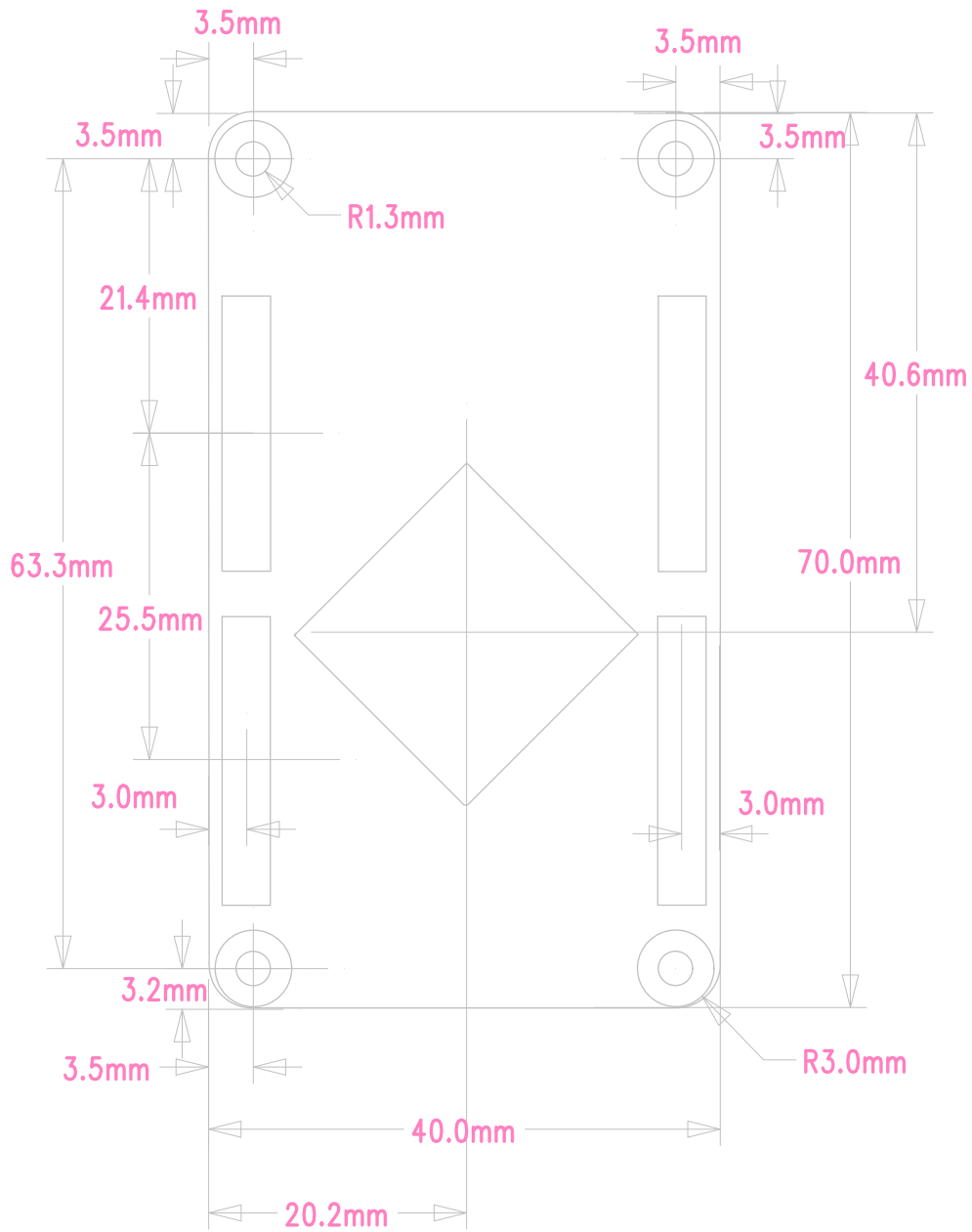
Multimedia:	<ul style="list-style-type: none"> • VP9 / H.265 / H.264 decode 4K@60fps • H.264 / H.265 encoder 1080pK@60fps
Camera:	<ul style="list-style-type: none"> • 1x 4-lane MIPI CSI RX or 2x 2-lane MIPI CSI RX • 1x 4-lane MIPI_D/C PHY RX
Display:	<ul style="list-style-type: none"> • 1x HDMI TX up to 4096X2160@60Hz • 1x eDP four lanes, 2.7Gps per lane • 2x MIPI DSI four lanes, 1.6Gbps per lane • 1x LVDS four lanes(muxed with MIPI DSI0)
Connectivity:	<ul style="list-style-type: none"> • Optional wireless LAN, 2.4GHz and 5.0GHz IEEE 802.11b/g/n/ac wireless, Bluetooth 5.0, BLE with external antenna support • 1x Onboard Gigabit Ethernet PHY, 1x Gigabit Ethernet MAC • 1x SDMMC2 • 2× USB 2.0 port (highspeed) • 1x USB 3.0 HOST port (5Gbps), 1 x USB 3.0 OTG port (5Gbps) • 1× PCIe2.0 1-lane Host, Gen 2 (5Gbps) • 1x PCIe3.0 2-lane(1x2, 1x1+1x1) Host, Gen 3 (16Gbps) • 3x SATA ports, one shared with USB 3 HOST, one shared with PCIe, one shared with USB 3 OTG • Up to 8x UART • Up to 4x SPI • Up to 2x CAN • Up to 4x I2C
Audio:	<ul style="list-style-type: none"> • I2S • PDM, support mic array • SPDIF_TX
Input power:	5V DC
Connector	4x 100P 0.4mm pitch B2B connector
Operation temperature	<ul style="list-style-type: none"> • J0 model(RK3568): 0° to 60° Celsius degree • J1 model(RK3568J): -40° to 85° Celsius degree

4 Software

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

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

5 Dimension



6 Availability

Radxa guarantees availability Radxa CM3I until at least September 2033.

7 Model and SKU

Operation temperature	Wireless	RAM	eMMC	SKU
0°C to 60°C	No	1G	-	RM118-D1E0J0W0
			8G	RM118-D1E8J0W0
			16G	RM118-D1E16J0W0
			32G	RM118-D1E32J0W0
		2G	-	RM118-D2E0J0W0
			8G	RM118-D2E8J0W0
			16G	RM118-D2E16J0W0
			32G	RM118-D2E32J0W0
		4G	-	RM118-D4E0J0W0
			8G	RM118-D4E8J0W0
			16G	RM118-D4E16J0W0
			32G	RM118-D4E32J0W0
		8G	64G	RM118-D4E64J0W0
			128G	RM118-D4E128J0W0
			-	RM118-D8E0J0W0
			8G	RM118-D8E8J0W0
	Yes	1G	16G	RM118-D8E16J0W0
			32G	RM118-D8E32J0W0
			64G	RM118-D8E64J0W0
			128G	RM118-D8E128J0W0
2G		-	RM118-D1E0J0W1	
		8G	RM118-D1E8J0W1	
		16G	RM118-D1E16J0W1	
		32G	RM118-D1E32J0W1	
4G		-	RM118-D2E0J0W1	
		8G	RM118-D2E8J0W1	
		16G	RM118-D2E16J0W1	
		32G	RM118-D2E32J0W1	
8G		-	RM118-D4E0J0W1	
		8G	RM118-D4E8J0W1	
		16G	RM118-D4E16J0W1	
		32G	RM118-D4E32J0W1	
8G	64G	RM118-D4E64J0W1		
	128G	RM118-D4E128J0W1		
	-	RM118-D8E0J0W1		
	8G	RM118-D8E8J0W1		
8G	16G	RM118-D8E16J0W1		
	32G	RM118-D8E32J0W1		
	64G	RM118-D8E64J0W1		
	128G	RM118-D8E128J0W1		

Operation temperature	Wireless	RAM	eMMC	SKU
-40°C to 85°C	No	1G	-	RM118-D1E0J1W0
			8G	RM118-D1E8J1W0
			16G	RM118-D1E16J1W0
			32G	RM118-D1E32J1W0
		2G	-	RM118-D2E0J1W0
			8G	RM118-D2E8J1W0
			16G	RM118-D2E16J1W0
			32G	RM118-D2E32J1W0
	4G	-	RM118-D4E0J1W0	
		8G	RM118-D4E8J1W0	
		16G	RM118-D4E16J1W0	
		32G	RM118-D4E32J1W0	
	8G	64G	RM118-D4E64J1W0	
		128G	RM118-D4E128J1W0	
		-	RM118-D8E0J1W0	
		8G	RM118-D8E8J1W0	
	Yes	1G	16G	RM118-D8E16J1W0
			32G	RM118-D8E32J1W0
			64G	RM118-D8E64J1W0
			128G	RM118-D8E128J1W0
		2G	-	RM118-D1E0J1W13
			8G	RM118-D1E8J1W13
			16G	RM118-D1E16J1W13
			32G	RM118-D1E32J1W13
	4G	-	RM118-D2E0J1W13	
		8G	RM118-D2E8J1W13	
		16G	RM118-D2E16J1W13	
		32G	RM118-D2E32J1W13	
	8G	-	RM118-D4E0J1W13	
		8G	RM118-D4E8J1W13	
		16G	RM118-D4E16J1W13	
		32G	RM118-D4E32J1W13	
	64G	RM118-D4E64J1W13		
	128G	RM118-D4E128J1W13		
	-	RM118-D8E0J1W13		
	8G	RM118-D8E8J1W13		
	16G	RM118-D8E16J1W13		
	32G	RM118-D8E32J1W13		
	64G	RM118-D8E64J1W13		
	128G	RM118-D8E128J1W13		

8 Support

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