

Product Specification Sheet

Model number: PORTPI CM3

Effective Date: September 22, 2024



The PortPi CM3 highly integrates the functions of the Rockchip RK3566 quad-core processor on a compact board. The RK3566 features a quad-core A55 CPU, a dual-core ARM G52 GPU, a VPU, and an NPU. It supports video output, PCIe, CSI, and other interfaces, making it very suitable for embedded applications. Different RAM, eMMC flash memory specifications, and wireless module specifications are also available.

Key Features

SOC	Rockchip RK3566 SoC
CPU	Rockchip RK3566, Quad-core Cortex-A55 (ARM v8) 64-bit SoC running at 1.8GHz
GPU	Arm Mali-G52 EE
NPU	0.8 TOPS NPU
RAM	2GB LPDDR4 (Optional: 4GB / 8GB)
ROM	32GB EMMC (Optional: 64GB / 128GB)
Dimension	55mm× 40mm× 4.7mm
Video Support	- H.265 (HEVC) up to 4K @ 60fps decode - H.264 up to 1080p @ 60fps decode, 1080p @ 30fps encode
Graphics Support	- OpenGL ES 1.1/2.0/3.2 - OpenCL 2.0 - Vulkan 1.1
WIFI	2.4 GHz, IEEE 802.11 b/g/n (Optional: 5.0 GHz IEEE 802.11 b/g/n/ac)
Bluetooth	Bluetooth 5.2, BLE
Networking	Gigabit Ethernet PHY supporting IEEE 802.3
Peripheral Interfaces	- 1 × PCIe 1-lane Host, Gen 2 - 1 × USB 2.0 port (high speed) - 28 × GPIO supporting either 1.8V or 3.3V signaling with peripheral options: - Up to 5 × UART - Up to 2 × I2C - Up to 2 × SPI - Up to 6 × PWM channels

Display Interfaces	- 1 × HDMI 2.0 port (up to 4K @ 60fps supported) - MIPI DSI: - 1 × 2-lane MIPI DSI display port - 1 × 4-lane MIPI DSI display port - MIPI CSI: - 2 × 2-lane MIPI CSI display port (Optional: 1 × 4-lane MIPI CSI display port)
Power Supply	Single +5V PSU input

System&Software

- Debian/Ubuntu Linux support
- Android 11/13 support
- Hardware access/control library for Linux/Android

Connector 1

Pin No.	Function CM3 IO Board	Function 0	Function 1	Function 2	Function 3	Function 4	Function 5
1	GND						
2	GND						
3	PHY1_MDI3+						
4	PHY1_MDI1+						
5	PHY1_MDI3-						
6	PHY1_MDI1-						
7	GND						
8	GND						
9	PHY1_MDI2-						
10	PHY1_MDI0-						
11	PHY1_MDI2+						
12	PHY1_MDI0+						
13	GND						
14	GND						
15	PHY1_LED2_Y						
16	NC						
17	PHY1_LED1_G						
18	NC						
19	PHY1_LED0_Y1						
20	EEPROM_NWP						
21	PI_NLED_ACTIVITY	GPIO4_A4	CIF_D14	EBC_SDDO14	GMAC1_TXD0_M1	UART9_TX_M2	I2S2_LRCK_TX_M1
22	GND						
23	GND						

Portpi CM3



24	PWM3_IR	GPIO0_C2	PWM3_IR	EDP_HPDI_N_M1	MCU_JTAG_TMS		
25	I2S1_SDO0_M1	GPIO3_D1	CIF_D3	EBC_SDDO3	SDMMC2_D3_M0	I2S1_SDO0_M1	VOP_BT656_D3_M1
26	I2S1_LRCK_TX_M1	GPIO3_D0	CIF_D2	EBC_SDDO2	SDMMC2_D2_M0	I2S1_LRCK_TX_M1	VOP_BT656_D2_M1
27	I2S1_SDI0_M1	GPIO3_D2	CIF_D4	EBC_SDDO4	SDMMC2_CMD_M0	I2S1_SDI0_M1	VOP_BT656_D4_M1
28	SPI0_CS0_M0	GPIO0_C6	PWM7_IR	SPI0_CS0_M0			
29	I2S1_LRCK_RX_M1	GPIO4_A7	CAM_CLKOUT0	EBC_SDCE1	GMAC1_RXD0_M1	SPI3_CS1_M0	I2S1_LRCK_RX_M1
30	SPI0_MISO_M0	GPIO0_C5	PWM6	SPI0_MISO_M0			
31	PWM11	GPIO4_C0	CIF_CLKOUT	EBC_GDCLK	PWM11_IR_M1		
32	GND						
33	GND						
34	I2S1_SDO2_M1	GPIO4_B1	ISP_PRELIGHT_TRIG	EBC_SDCE3	GMAC1_RXDV_CR5_M1	I2S1_SDO2_M1	
35	I2C2_SCL_M1	GPIO4_B5	I2C2_SCL_M1	EBC_SDSHR		I2S1_SDO3_M1	
36	I2C2_SDA_M1	GPIO4_B4	I2C2_SDA_M1	EBC_GDSP		ISP_FLASH_TRIGIN	VOP_BT656_CLK_M1
37	SARADC_IN3	SARADC_VIN3					
38	SPI3_CLK_M0	GPIO4_B3	I2C4_SCL_M0	EBC_GDOE	ETH1_REFCLKO_25M_M1	SPI3_CLK_M0	I2S2_SDO_M1
39	SPI3_CS0_M0	GPIO4_A6	ISP_FLASHTRIGOUT	EBC_SDCE0	GMAC1_TXEN_M1	SPI3_CS0_M0	I2S1_SCLK_RX_M1
40	SPI3_MISO_M0	GPIO4_B0	CAM_CLKOUT1	EBC_SDCE2	GMAC1_RXD1_M1	SPI3_MISO_M0	I2S1_SDO1_M1
41	I2S1_MCLK_M1	GPIO3_C6	CIF_D0	EBC_SDDO0	SDMMC2_D0_M0	I2S1_MCLK_M1	VOP_BT656_D0_M1
42	GND						
43	GND						
44	SPI3_MOSI_M0	GPIO4_B2	I2C4_SDA_M0	EBC_VCOM	GMAC1_RXER_M1	SPI3_MOSI_M0	I2S2_SDI_M1
45	I2S1_SDI1_M1	GPIO3_D3	CIF_D5	EBC_SDDO5	SDMMC2_CLK_M0	I2S1_SDI1_M1	VOP_BT656_D5_M1
46	PMW4	GPIO0_C3	PWM4	VOP_PWM_M0	MCU_JTAG_TRSTn		
47	I2S1_SDI2_M1	GPIO3_D4	CIF_D6	EBC_SDDO6	SDMMC2_DET_M0	I2S1_SDI2_M1	VOP_BT656_D6_M1
48	PMW0_M0	GPIO0_B7	PWM0_M0	CPUAVS			
49	I2S1_SCLK_TX_M1	GPIO3_C7	CIF_D1	EBC_SDDO1	SDMMC2_D1_M0	I2S1_SCLK_TX_M1	VOP_BT656_D1_M1
50	PMW0_M1	GPIO0_C7	HDMITX_CEC_M1	PWM0_M1	UART0_CTSn		
51	UART2_RX	GPIO0_D0	UART2_RX_M0				
52	GND						
53	GND						
54	I2S1_SDI3_M1	GPIO3_D5	CIF_D7	EBC_SDDO7	SDMMC2_PWREN_M0	I2S1_SDI3_M1	VOP_BT656_D7_M1
55	UART2_TX	GPIO0_D1	UART2_TX_M0				
56	I2C2_SCL_M0	GPIO0_B5	I2C2_SCL_M0	SPI0_CLK_M0	PCIE20_WAKEn_M0	PWM1_M1	
57	SDMMC0_CLK	GPIO2_A2	SDMMC0_CLK	TEST_CLKOUT	UART5_TX_M0		
58	I2C2_SDA_M0	GPIO0_B6	I2C2_SDA_M0	SPI0_MOSI_M0	PCIE20_PERSTn_M0	PWM2_M1	
59	GND						
60	GND						
61	SDMMC0_D3	GPIO2_A0	SDMMC0_D3	ARM_JTAG_TMS	UART5_RTSn_M0		
62	SDMMC0_CMD	GPIO2_A1	SDMMC0_CMD	PWM10_M1	UART5_RX_M0		
63	SDMMC0_D0	GPIO1_D5	SDMMC0_D0	UART2_TX_M1	UART6_TX_M1	PWM8_M1	
64	NC						
65	GND						
66	GND						
67	SDMMC0_D1	GPIO1_D6	SDMMC0_D1	UART2_RX_M1	UART6_RX_M1	PWM9_M1	
68	NC						

Portpi CM3



69	SDMMC0_D2	GPIO1_D7	SDMMC0_D2	ARM_JTAG_TCK	UART5_CTSn_M0		
70	NC						
71	GND						
72	NC						
73	NC						
74	GND						
75	SDMMC_PWREN	GPIO0_A5	SDMMC0_PWREN	SATA_MP_SWITCH	PCIE20_CLKREQn_M0		
76	SDMMC0_DET_L	GPIO0_A4	SDMMC0_DET	SATA_CP_DET			
77	+5V_INPUT						
78	GPIO_VREF						
79	+5V_INPUT						
80	I2C0_SCL_PMIC	GPIO0_B1	I2C0_SCL				
81	+5V_INPUT						
82	I2C0_SDA_PMIC	GPIO0_B2	I2C0_SDA				
83	+5V_INPUT						
84	+3V3						
85	+5V_INPUT						
86	+3V3						
87	+5V_INPUT						
88	+1V8						
89	WL_NDIS	GPIO4_B6	CIF_HREF	EBC_SDLE	GMAC1_MDC_M1	UART1_RTSn_M1	I2S2_MCLK_M1
90	+1V8						
91	BT_NDIS	GPIO4_A5	CIF_D15	EBC_SDDO15	GMAC1_TXD1_M1	UART9_RX_M2	I2S2_LRCK_RX_M1
92	PMIC_SLEEP_H	GPIO0_A2	PMIC_SLEEP	TSADC_SHUT_M1			
93	NC						
94	NC						
95	NPWR_LED	GPIO4_B7	CIF_VSYNC	EBC_SDOE	GMAC1_MDIO_M1	I2S2_SCLK_TX_M1	
96	NC						
97	CAM_GPIO	GPIO4_C1	CIF_CLKIN	EBC_SDCLK	GMAC1_MCLKINOUT_M1	UART1_CTSn_M1	I2S2_SCLK_RX_M1
98	GND						
99	PWRON_KEY						
100	PMIC_RESET_KEY						

Connector 2

Pin							
Number	Function CM3 IO Board	Function 0	Function 1	Function 2	Function 3	Function 4	Function 5
101	USB_OTG0_ID	USB_OTG0_ID					
102	PCIE20_CLKREQn_M2	GPIO1_B0	I2S1_SDO1_M0	I2S1_SDI3_M0	PDM_SDI3_M0	PCIE20_CLKREQn_M2	
103	USB_OTG0_DM	USB_OTG0_DM					
104	NC						
105	USB_OTG0_DP	USB_OTG0_DP					
106	NC						
107	GND						
108	GND						
109	PCIE_NRST	GPIO1_B2	I2S1_SDO3_M0	I2S1_SDI1_M0	PDM_SDI1_M0	PCIE20_PERStn_M2	
110	PCIE20_REFCLKP	PCIE20_REFCLKP					

Portpi CM3



111	NC						
112	PCIE20_REFCLKN	PCIE20_REFCLKN					
113	GND						
114	GND						
115	MIPI_CSI_RX_D0N	MIPI_CSI_RX_D0N					
116	PCIE20_RXP	PCIE20_RXP	SATA2_RXP				
117	MIPI_CSI_RX_D0P	MIPI_CSI_RX_D0P					
118	PCIE20_RXN	PCIE20_RXN	SATA2_RXN				
119	GND						
120	GND						
121	MIPI_CSI_RX_D1N	MIPI_CSI_RX_D1N	--				
122	PCIE20_TXP	PCIE20_TXP	SATA2_TXP				
123	MIPI_CSI_RX_D1P	MIPI_CSI_RX_D1P	--				
124	PCIE20_TXN	PCIE20_TXN	SATA2_TXN				
125	GND						
126	GND						
127	MIPI_CSI_RX_CLK0N	MIPI_CSI_RX_CLK0N					
128	MIPI_CSI_RX_D2N	MIPI_CSI_RX_D2N					
129	MIPI_CSI_RX_CLK0P	MIPI_CSI_RX_CLK0P					
130	MIPI_CSI_RX_D2P	MIPI_CSI_RX_D2P					
131	GND						
132	GND						
133	NC						
134	MIPI_CSI_RX_D3N	MIPI_CSI_RX_D3N					
135	NC						
136	MIPI_CSI_RX_D3P	MIPI_CSI_RX_D3P					
137	GND						
138	GND						
139	NC						
140	MIPI_CSI_RX_CLK1N	MIPI_CSI_RX_CLK1N					
141	NC						
142	MIPI_CSI_RX_CLK1P	MIPI_CSI_RX_CLK1P					
143	NC						
144	GND						
145	NC						
146	NC						
147	NC						
148	NC						
149	NC						
150	GND						
151	HDMI_TX_CEC_PORT	GPIO4_D1	HDMITX_CEC_M0	SPI3_CS1_M1			
152	NC						
153	HDMI_TX_HPD_PORT	HDMI_TX_HPDIN					
154	NC						
155	GND						

Portpi CM3



156	GND					
157	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	MIPI_DSI_TX0_D0N	LVDS_TX0_D0N			
158	NC					
159	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	MIPI_DSI_TX0_D0P	LVDS_TX0_D0P			
160	NC					
161	GND					
162	GND					
163	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	MIPI_DSI_TX0_D1N	LVDS_TX0_D1N			
164	NC					
165	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	MIPI_DSI_TX0_D1P	LVDS_TX0_D1P			
166	NC					
167	GND					
168	GND					
169	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	MIPI_DSI_TX0_CLKN	LVDS_TX0_CLKN			
170	HDMI_TX2P_PORT	HDMI_TX_D2P				
171	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	MIPI_DSI_TX0_CLKP	LVDS_TX0_CLKP			
172	HDMI_TX2N_PORT	HDMI_TX_D2N				
173	GND					
174	GND					
175	MIPI_DSI_TX1_D0N	MIPI_DSI_TX1_D0N				
176	HDMI_TX1P_PORT	HDMI_TX_D1P				
177	MIPI_DSI_TX1_D0P	MIPI_DSI_TX1_D0P				
178	HDMI_TX1N_PORT	HDMI_TX_D1N				
179	GND					
180	GND					
181	MIPI_DSI_TX1_D1N	MIPI_DSI_TX1_D1N				
182	HDMI_TX0P_PORT	HDMI_TX_D0P				
183	MIPI_DSI_TX1_D1P	MIPI_DSI_TX1_D1P				
184	HDMI_TX0N_PORT	HDMI_TX_D0N				
185	GND					
186	GND					
187	MIPI_DSI_TX1_CLKN	MIPI_DSI_TX1_CLKN				
188	HDMI_TXCLKP_PORT	HDMI_TX_CLKP				
189	MIPI_DSI_TX1_CLKP	MIPI_DSI_TX1_CLKP				
190	HDMI_TXCLKN_PORT	HDMI_TX_CLKN				
191	GND					
192	GND					
193	MIPI_DSI_TX1_D2N	MIPI_DSI_TX1_D2N				
194	MIPI_DSI_TX1_D3N	MIPI_DSI_TX1_D3N				
195	MIPI_DSI_TX1_D2P	MIPI_DSI_TX1_D2P				
196	MIPI_DSI_TX1_D3P	MIPI_DSI_TX1_D3P				
197	GND					
198	GND					
199	HDMI_TXDDC_SDA_PORT	GPIO4_D0	HDMITX_SDA	I2C5_SDA_M1		
200	HDMI_TXDDC_SCL_PORT	GPIO4_C7	HDMITX_SCL	I2C5_SCL_M1		