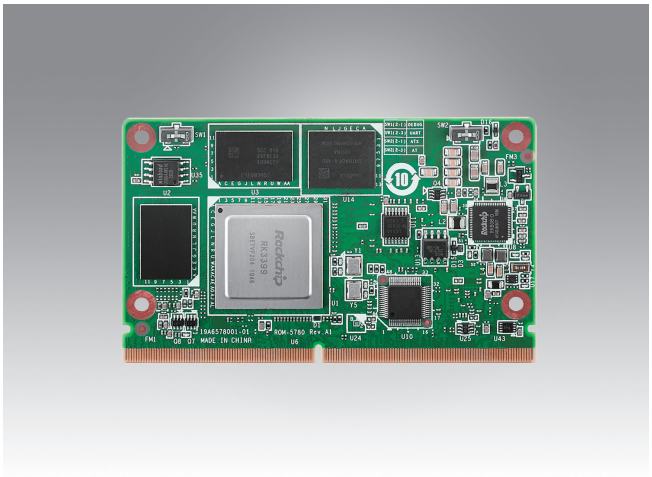
ROM-5780

Rockchip RK3399 Cortex®-A72+A53 SMARC 2.1 Computer-on-Module



Features

- Rockchip RK3399 Arm dual Cortex-A72 and quad Cortex-A53 1.8 GHz
- Onboard 2/4GB LPDDR4 memory and 16/32GB eMMC
- Support HDMI2.0 4K, 1 x eDP, 1 x LVDS
- Support 4K H.264/H.265 Video decoder
- 2 x USB3.0, 3 x USB2.0,1 x USB2,0 OTG, 3 x UART, 12 x GPIO
- 1 x PCIe2.0, 1 x SATA, 2 x MIPI CSI, Gigabit LAN
- Support Linux Debian and Android

Introduction

Advantech ROM-5780 SMARC 2.1 Computer-on-Module is powered by Rockchip RK3399 SOC which includes dual-core Arm Cortex-A72 and quad-core Arm Cortex-A53 processors and Arm Mali-T860MP4 3D graphics engine. It provides rich display interface: HDMI 4K@60Hz, eDP and LVDS to meet different requirement. It also features USB3.0, PCIe 2.0, SATA, Gigabit Ethernet, MIPI-CSI for embedded applications. It is the ideal solution for POS, vending, infotainment, Medical.

ROM-5780 is paired with the Advantech ROM-DB5901 SMARC2.0 development board for faster end product peripheral integration and time-to-market. The reference schematics and layout checklist documentations for carrier board development will be provided along with the open-sourced Linux BSP, test utilities, hardware design utilities and reference drivers.

Specifications

Form Factor		SMARC 2.1
Processor System	CPU	Rockchip RK3399 Arm dual-core Cortex-A72 and quad-core Cortex-A53, up to 1.8 GHz
Memory	Technology	LPDDR4- 3732 MT/s
	Capacity	Onboard 2/4GB LPDDR4
	Flash	16/32 GB eMMC NAND Flash for O.S. and boot loader; 8 MB SPI NOR Flash
Graphics	LVDS	1 x Single Channel 24-bits LVDS(Default) or 1 x Dual Channel 24-bits LVDS(Shared with eDP, by BOM Option)
	HDMI	1 x HDMI2.0, up to 4096 x 2160
	eDP	1 x eDP 1.3
	Graphics Engine	Arm Mali-T860MP4 GPU, support OpenGL ES1.1/2.0/3.0, OpenCL1.2, DirectX11.1 etc.
	H/W Video Codec	Decoder:H.265 up to 4Kx2K @ 60fps, H.264, H.263, VC-1, VP9, VP8, MVC ,MPEG-1/2/4 Encoder:H.264 UP to HP@level4.1, MVC and VP8
Ethernet	Chipset	1 x RTL8211FSI
	Speed	1 x 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer		1~6553s, default 60s, power on/off 1s
Security		TPM2.0 (Optional)
I/O	PCIe	1 x PCIe 2.0 x 1
	SATA	1
	USB	2 USB3.0, 3 USB2.0,1 USB2.0 OTG
	Audio	2 x I²S
	SPDIF	-
	SDIO	1
	Serial Port	1 x 2-wire UART/Debug by switch selection 1 x 2-wire UART 1 x 4-wire UART
	SPI	1
	CAN	-
	GPIO	12
	I²C	5
	Camera Input	1 x 4-lane MIPI CSI, 1 x 2-lane MIPI CSI
	System Bus	-
	Touch	-
	Keypad	-
Power	Power Supply Voltage	4.75~5.25V DC source
	Power Consumption	8.52W @ 5V (Max) 4.13W @ 5V (Idle)
Environment	Operating Temperature	0 ~ 60 °C/ -20 ~ 85 °C
	Operating Humidity	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	82 x 50 mm
Operation System		Linux Debian 9/10 and Android 7.1/10.0
Certifications		CE/FCC Class B

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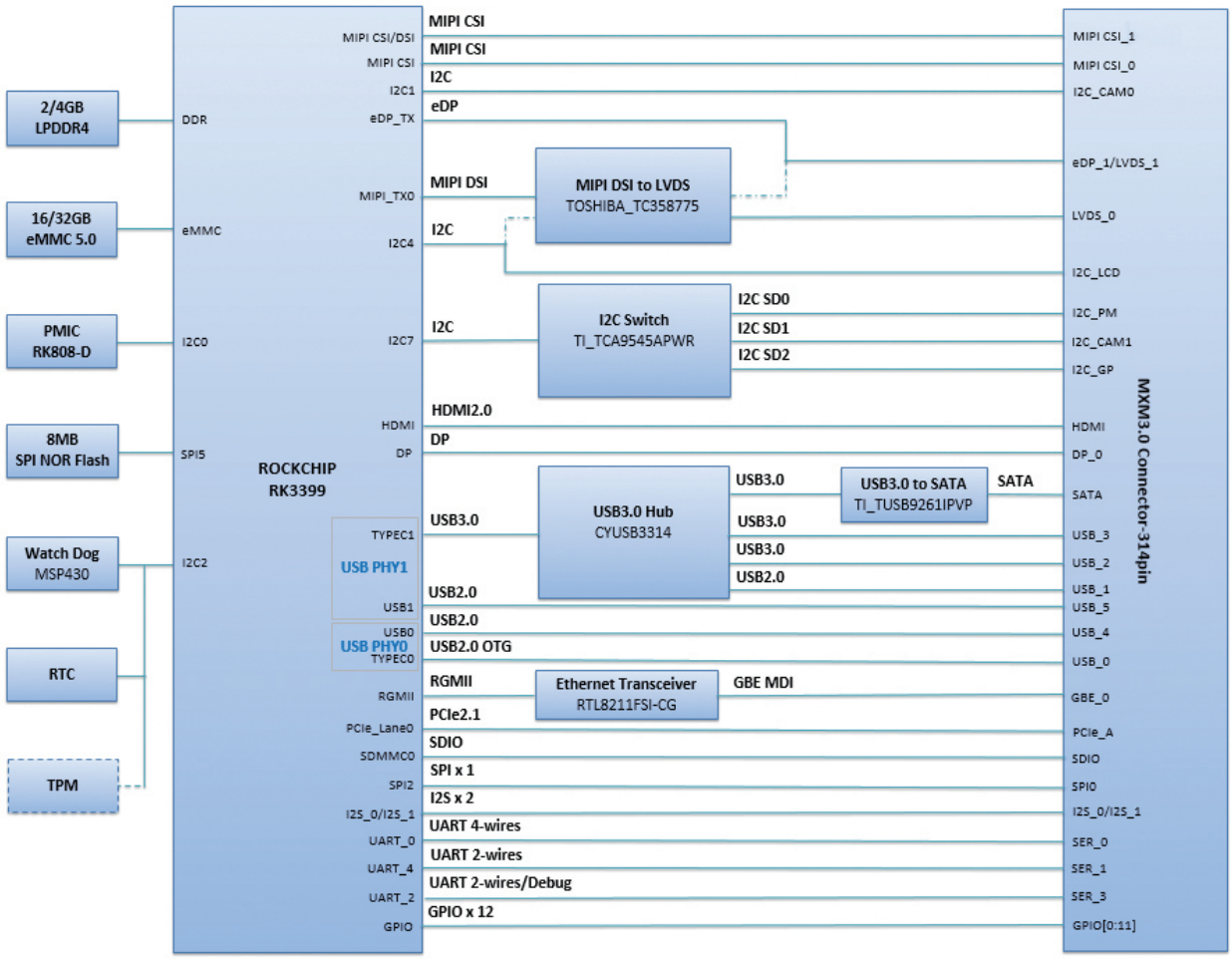
All product specifications are subject to change without notice.

Block Diagram



Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB3.0/2.0	Display	PCIe 2.0	SD	SATA	I²C	SPI	Size	Power input	Operating Temperature
ROM-5780CO-REA1E	RK3399	2 GB	16 GB	3	1	2 USB3.0, 3 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x eDP 1 x LVDS	1	1	1	5	1	82 x 50 x 5 mm	5V	0 ~ 60 °C
ROM-5780WO-REA1E	RK3399K	2 GB	16 GB	3	1	2 USB3.0, 3 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x eDP 1 x LVDS	1	1	1	5	1	82 x 50 x 5 mm	5V	-20 ~ 85 °C
ROM-5780CO-RFA1E	RK3399	4 GB	32 GB	3	1	2 USB3.0, 3 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x eDP 1 x LVDS	1	1	1	5	1	82 x 50 x 5 mm	5V	0 ~ 60 °C
ROM-5780CO-RLA1E	RK3399	2 GB	16 GB	3	1	2 USB3.0, 3 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x eDP	1	1	-	5	1	82 x 50 x 5 mm	5V	0 ~ 60 °C

Development Board

Part No.	Description
ROM-DB5901-SWA2	Development board for SMARC v2.0 RISC Module series

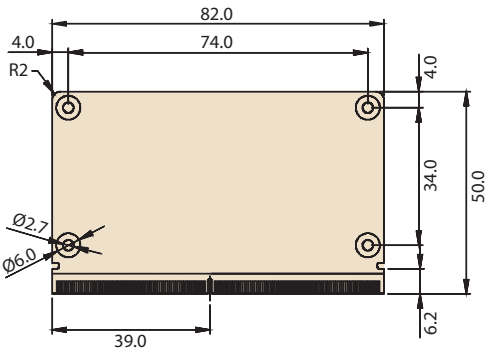
Optional Accessories

Part No.	Description
1701100300	Debug port cable for ROM-5780
1970004750T001	Heat spreader
1970004755T001	Semi Heat sink for 0 ~ 60°C
1970004690T001	Semi Heat sink for -20 ~ 85°C
1930004835	Screws for heat spreader and semi heat sink
96PSA-A36W12R1-3	ADAPTER 100-240V 36W 12V 3A
1700001524	Power cord 3P UL 10A 125V 180cm
170203183C	Power cord 3P Europe (WS-010+WS-083)183cm
1700008921	Power cord 3P PSE 183cm
170203180A	Power cord 3P UK 2.5A/3A 250V 1.83M
SQF-ISDM1-16G-21C	SQ Flash SD card UHS-I MLC 16GB (0 ~ 70 °C)
SQF-ISDM1-16G-21E	SQ Flash SD card UHS-I MLC 16GB (-40 ~ 85 °C)
EWM-W188M201E	WiFi 802.11ac/abgn 2T2R and BT4.2
1750008671-01	Dipole Ant.SMA/M-R 2.4/5G 2.5/4dBi BLK 109mm
1750007965-01	Antenna cable, SMA (M) to MHF4, 300mm
968AD00479*	4G module LTE Cat 4 for China
1750007990-01	Antenna 4G/LTE full band L=11 cm 50 Ohm
1750006009	Antenna Cable SMA (F) to MHF 1.32 25cm

*Please contact us to get suitable cellular module for your region.

Dimensions

Unit: mm



Embedded Linux Support and Design-in Services

Hardware Certified Ubuntu and Yocto with Eco Partner Services

Linux is the most popular embedded OS for transportation, outdoor services, factory automation, and mission critical applications. Its open source and kernel reliability features ease security updates, and make it particularly adaptable to new AI and Edge computing technology. Advantech has cooperated with Canonical and other software partners to provide hardware certified Ubuntu image and Yocto BSP as Linux offerings. The Advantech, Embedded Linux, and Android Alliance (ELAA) delivers local software services and consultation.

Features

Certified OS and BSP

- Platform compatibility tests
- Preloaded functional driver and software stacks

Licensed Services

- License authorized Canonical delivers 10-years of bug fixes and security updates
- In-house bundled service

Numerous AI and Edge Resources

- Containerized technology for service provision and deployment
- AI resources from Caffe, TensorFlow, and mxnet

Local Partner Alliance

- Embedded Linux and Android Alliance (ELAA)

WISE-DeviceOn

Massive IoT Device Management Utility

IoT deployment and management typically involves numerous disparate devices installed on multiple sites. These devices require effective monitoring, managing, and tracking. Advantech's easy-to-use WISE-DeviceOn interface enables users to remotely monitor device health, troubleshoot problems, and send software/firmware updates over-the-air (OTA). In sum, DeviceOn empowers quick real-time responsiveness to emerging problems.

Features

Comprehensive Management	Remote Access	Efficient Operations
• Devices status • Peripherals/firmware • Open for extension	• Real-time monitoring • Remote controls • Troubleshooting	• Zero-touch on-boarding • OTA updates • Batch control

Product Highlights

SOM-6883
High-performance 11th Gen Intel® COMe Type 6 Module

MIO-5375
Compact 11th Gen Intel® Outdoor Focused 3.5" SBC

EPC-B5587
10th Gen Intel® Xeon® based Edge server

EPC-R3220
Arm based IoT Edge Gateway