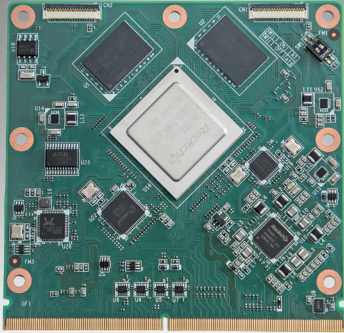


ROM-6881

Rockchip RK3588 Cortex®-A76 and A55 SMARC 2.1 Computer-on-Module

Preliminary



Features

- Rockchip RK3588 Arm quad Cortex-A76 2.4GHz and quad Cortex-A55 1.8GHz
- Onboard 4/8GB LPDDR4 memory and 32/64GB eMMC
- Support 8K@60fps H.265/VP9 video decoding and 8K@30fps H.265/H.264 video encoding
- Support HDMI, DP, Dual channel LVDS/DSI
- 4 x PCIe3.0, Dual Gigabit LAN, 2 x USB3.0, SATA3.0, 2 x CAN, 3 x MIPI-CSI, UART
- Support Linux and Android



Introduction

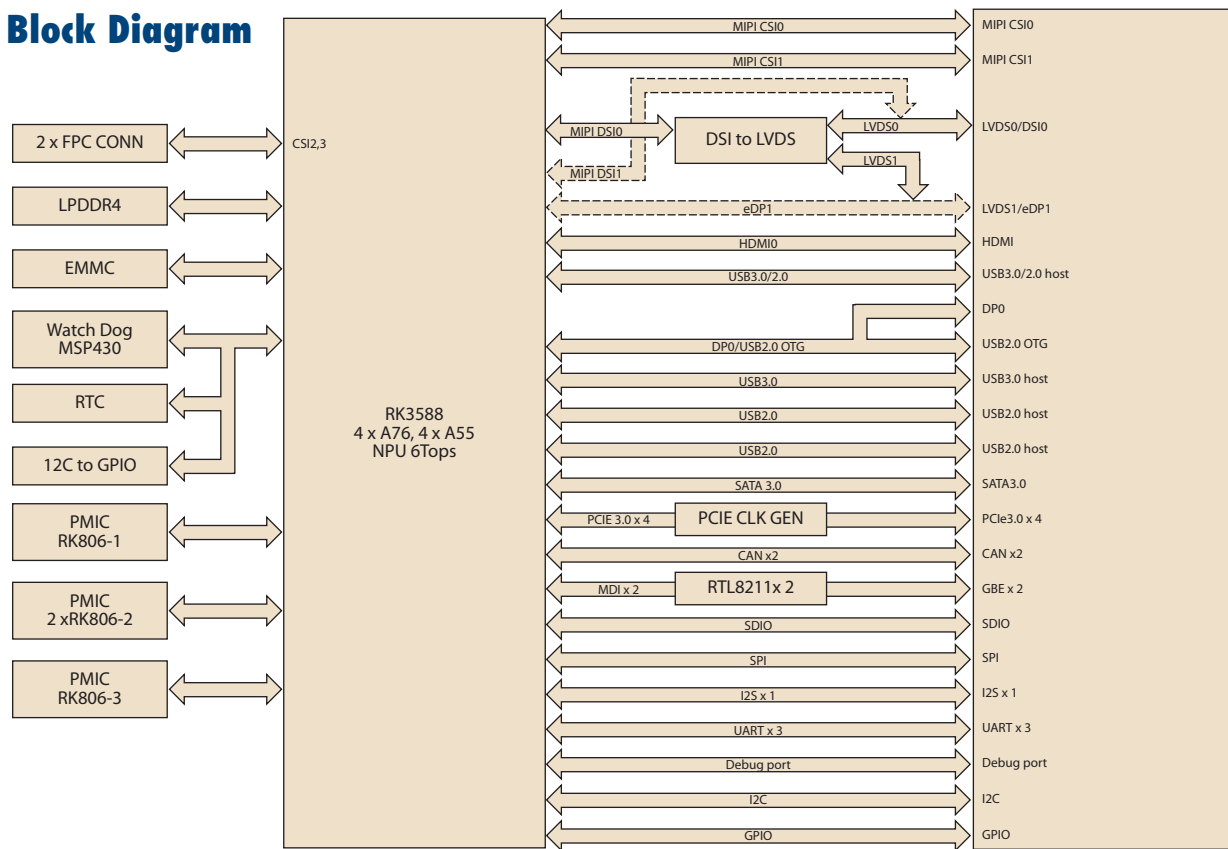
Advantech ROM-6881 SMARC 2.1 Computer-on-Module is powered by Rockchip RK3588 SOC which includes quad Arm Cortex-A76 and quad Cortex-A55 processors, 6Tops NPU and high performance Arm Mali-G610 3D graphics engine. ROM-6881 supports 8K@60fps H.265/VP9 video decoding, 8K@30fps H.265/H.264 video encoding. It also provides rich display interface: HDMI, DP, Dual channel LVDS, DSI to meet different display requirement. ROM-6881 offers various high speed interface, including 2 USB 3.0, 4 PCIe 3.0, SATA3.0, Gigabit Ethernet, CAN and MIPI-CSI. These interfaces can meet a variety of high-rate transmission applications, wifi6 and 5G wireless connectivity, targeted at big data and other industrial applications.

ROM-6881 is paired with the Advantech SOM-DB2510 SMARC2.1 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 RK3588 Arm quad Cortex-A76 2.4GHz and quad Cortex-A55 1.8GHz	
	Technology	LPDDR4- 3733 MT/s	
Memory	Capacity	Onboard 4/8GB LPDDR4, The maximum can support 32GB	
	Flash	32/64 GB eMMC NAND Flash for O.S. and boot loader	
Graphics	LVDS	1 x dual channel LVDS, up to 1920*1200 or 1 x single channel LVDS	
	HDMI	1 x HDMI2.1	
	DP	1 x DP1.4	
	eDP	1 x eDP (BOM Option, share with LVDS1)	
	MIPI-DSI	1 x MIPI-DSI (BOM Option, shared with LVDS0)	
	Graphics Engine	Arm Mali-G610 MP4 GPU, High performance OpenGL ES 1.1, 2.0 and 3.2, OpenCL 2.2, Vulkan1.2 etc..	
	H/W Video Codec	Decoder: H.265/VP9 8K@60fps, H.264 8K@30fps, H.263,VC-1,VP8,MVC,AV1, MPEG-4/2/1 Encoder: H.265/H.264 8K@30fps, Multi-channel encoder in parallel for less resolution	
Ethernet	Chipsset	2 x RTL8211FS	
	Speed	2 x 10/100/1000 Mbps	
RTC	RTC	Yes	
WatchDog Timer		1-6553s, default 60s, power on/off 1s	
I/O	PCIe	4 x PCIe 3.0 1lane	
	SATA	1 x SATA3.0	
	USB	2 x USB 3.0 signal, 3 x USB2.0, 1 x USB2.0 OTG	
	Audio	1 x I ² S	
	SPDIF	-	
	SDIO	1	
	Serial Port		1 x 2-wire UART for Debug
			1 x 2-wire UART
			2 x 4-wire UART
	SPI		1
	CAN		2 x CAN2.0
	GPIO		12
	I ² C		5
	Camera Input		2 x MIPI CSI (1 x 2Lane, 1 x 4Lane)
		2 x MIPI CSI by FCC CONN on board (4 Lane)	
System Bus		-	
Touch		-	
Keypad		-	
Power	Power Supply Voltage	4.75-5.25V DC source	
	Power Consumption	TBD	
Environment	Operating Temperature	0 ~ 60 °C/ -40 ~ 85 °C	
	Operating Humidity	5 ~ 95% relative humidity, non-condensing	
Mechanical	Dimensions (W x D)	82 x 80 mm	
Operation System		Linux & Android	
Certifications		CE/FCC Class B	

Block Diagram



Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB3.0/2.0	Display	PCie 3.0	SD	SATA 3.0	I ² C	SPI	CAN	Operating Temperature
TBD	RK3588	4 GB	32 GB	1 x Debug 3 x UART (1 x 2 wire, 2 x 4 wire)	2	2 USB 3.0 signal 3 USB2.0 1 USB2.0 OTG	1 x HDMI 1 x DP 1 x Dual channel LVDS	4	1	1	5	1	2	0 ~ 60 °C
TBD	RK3588J	4 GB	32 GB	1 x Debug 3 x UART (1 x 2 wire, 2 x 4 wire)	2	2 USB 3.0 signal 3 USB2.0 1 USB2.0 OTG	1 x HDMI 1 x DP 1 x Dual channel LVDS	4	1	1	5	1	2	-40 ~ 85 °C

Development Board

Part No.	Description
SOM-DB2510-R0A1	Development board for SMARC v2.1 RISC Module series

Optional Accessories

Part No.	Description
1701200220	Debug port cable
TBD	Heat spreader
TBD	Semi Heat sink for 0 ~ 60 °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)
TBD	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.