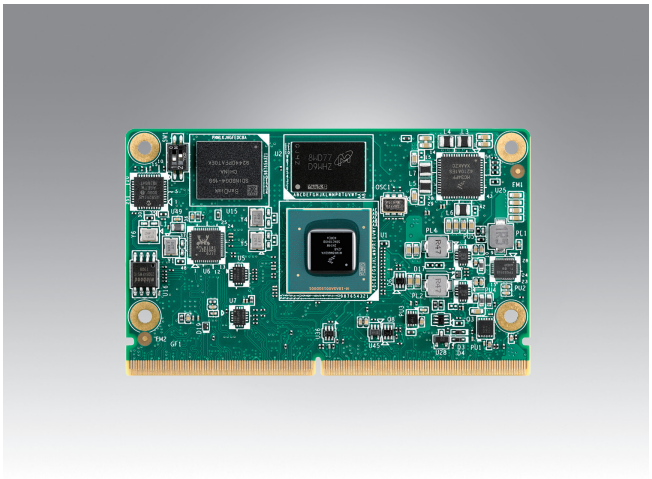
ROM-5720

NXP i.MX8M Cortex®-A53 SMARC 2.0/2.1 Computer-on-Module



Features

- NXP i.MX 8M processor with dual or quad Arm Cortex A53 cores
- 1 x Arm Cortex-M4 core
- Onboard 2GB LPDDR4 memory and eMMC 16GB
- 1 x HDMI2.0 up to 4096 x 2160, 1 x 4-Lane MIPI DSI
- 2 x USB3.0, 4 x USB2.0, 4 x UART, 4 x I2C, 12 x GPIO, 1 x PCIe2.0, 1 x 4-lane MIPI CSI camera input, 1 x 2-lane MIPI CSI camera input and 2 x Gigabit LAN
- Supports OpenGL ES 3.1/3.0/2.0/1.1, Open CL 1.2, and Vulkan hardware accelerators
- Supports 4Kp60 HEVC/H.265 decoding with HDR
- Low power consumption design
- Supports Linux and Android BSP

Introduction

Advantech ROM-5720 SMARC 2.0/2.1 Computer-on-Module is powered by NXP i.MX8M SOC which includes dual and quad-core Arm Cortex-A53 processors in combination with one Cortex-M4 real time processor and the Vivante GC7000 Lite 3D graphics engine. It provides USB3.0, two Gigabit Ethernet, two MIPI-CSI, PCI Express, and HDMI2.0 up to 4096 x 2160 at 60 Hz and MIPI-DSI for embedded applications. It's the ideal solution for transportation, infotainment, vending, Medical.

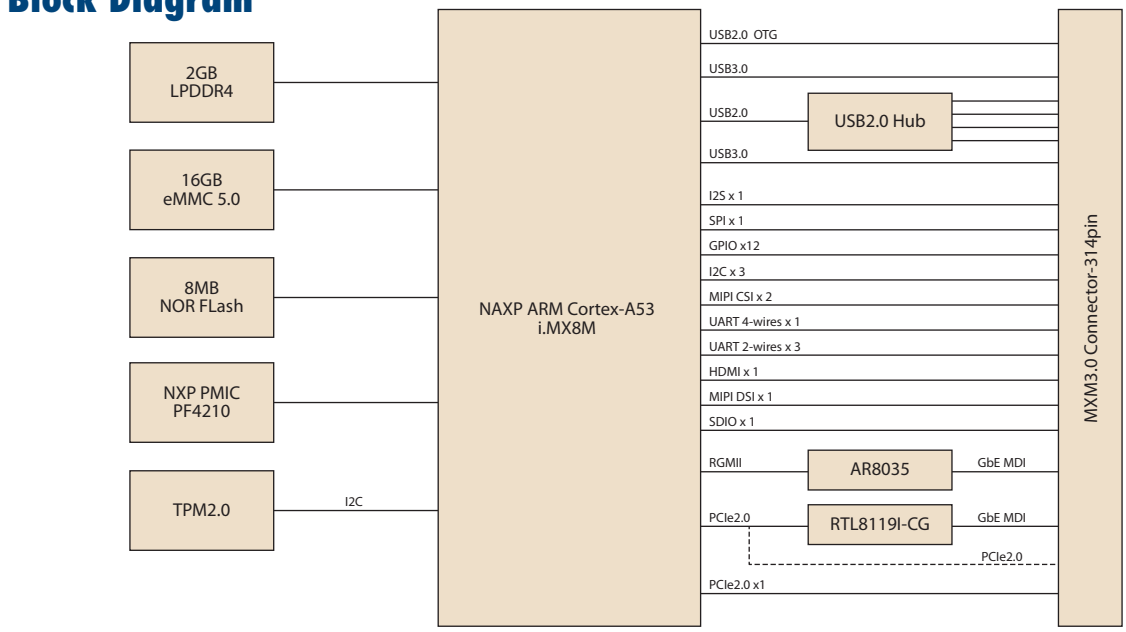
ROM-5720 is paired with the Advantech ROM-DB5901 SMARC2.0 development board for faster end product peripheral integration and time-to-market. The reference schematics and layout checklist documentations for carrier board development will be provided along with the open-sourced Linux BSP, test utilities, hardware design utilities and reference drivers.

Specifications

Form Factor		SMARC 2.0 & SMARC 2.1 compliance
Processor System	CPU	NXP i.MX 8M dual or quad Arm Cortex A53 cores, up to 1.5GHz
	MCU	1 x Arm Cortex-M4 core
Memory	Technology	LPDDR4-1866 MHz
	Capacity	Onboard 2GB LPDDR4
	Flash	16 GB eMMC NAND Flash for O.S. and 8 MB QSPI NOR Flash for Advantech boot loader
Graphics	LVDS/MIPI DSI	1 x 4-lane MIPI DSI, up to 1920 x 1080 @ 60Hz
	HDMI	1 x HDMI2.0, up to 4096 x 2160 at 60 Hz
	Parallel RGB	-
	VGA	-
	Graphics Engine	Vivante GC7000 Lite. supports OpenGL ES 1.1, 2.0, 3.0, 3.1, Open CL 1.2, and Vulkan
	H/W Video Codec	Decoder: HEVC/H.265(4Kp60), VP9(4Kp60), H.264(4Kp30), MPEG-2, MPEG-4p2, VC-1, VP8, RV9, AVS, MJPEG, H.263
Ethernet	Chipset	1 x NXP i.MX8M Integrated RGMII; 1 x RTL8119I-CG Giga LAN controller or 1 x PCIe x 1-lane(option)
	Speed	2 x 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer		1~6553s, default 60s, power on/off 1s
Security		TPM 2.0
I/O	PCIe	1 x PCIe 2.0
	SATA	-
	USB	2 USB3.0, 4 USB2.0,1 USB2.0 OTG
	Audio	1 x I²S
	SPDIF	-
	SDIO	1
	Serial Port	1 x 4-wire UART (H/W flow control) and 3 x 2-wire UART
	SPI	1
	CAN	-
	GPIO	12
	I²C	4 with interrupt
	Camera Input	1 x 4-lane MIPI CSI, 1 x 2-lane MIPI CSI
	System Bus	-
	Touch	-
	Keypad	-
Power	Power Supply Voltage	Fixed 5V ± 5% DC source
	Power Consumption	5.3W (Max)
Environment	Operating Temperature	0 ~ 60 °C/ -40 ~ 85 °C
	Operating Humidity	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	82 x 50 mm
Operation System		Linux & Android
Certifications		CE/FCC Class B

研佑科技 15323776600

Block Diagram



Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB3.0/2.0	Display	PCIe 2.0	SD	CANbus	I²C	SPI	Size	Power input	Operating Temperature
ROM-5720CD-PEA1E	i.MX 8M Dual	2 GB	16 GB	4	2	2 USB3.0, 4 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x 4-lane MIPI DSI	1	1	-	4	1	82 x 50 x 5 mm	3 ~ 5.25V	0 ~ 60 °C
ROM-5720WD-OEA1E	i.MX 8M Dual	2 GB	16 GB	4	2	2 USB3.0, 4 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x 4-lane MIPI DSI	1	1	-	4	1	82 x 50 x 5 mm	3 ~ 5.25V	-40 ~ 85 °C
ROM-5720CQ-PEA1E	i.MX 8M Quad	2 GB	16 GB	4	2	2 USB3.0, 4 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x 4-lane MIPI DSI	1	1	-	4	1	82 x 50 x 5 mm	3 ~ 5.25V	0 ~ 60 °C
ROM-5720WQ-OEA1E	i.MX 8M Quad	2 GB	16 GB	4	2	2 USB3.0, 4 USB2.0 1 USB2.0 OTG	1 x HDMI 2.0 1 x 4-lane MIPI DSI	1	1	-	4	1	82 x 50 x 5 mm	3 ~ 5.25V	-40 ~ 85 °C

Development Board

Part No.	Description
ROM-DB5901-SWA1	Development board for SMARC v2.0 RISC Module series

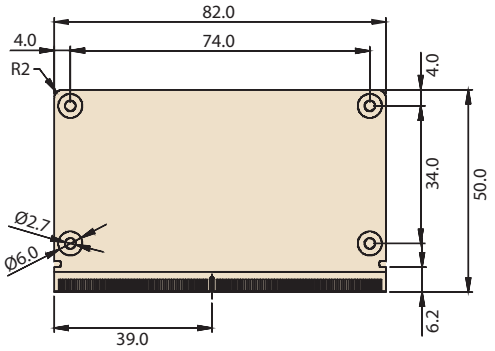
Optional Accessories

Part No.	Description
1701100300	Debug port cable for ROM-5720
1970004440T001	Heat spreader
1960063089N001	Semi heat sink
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
1700019146	Power Cord CCC 3P 10A 250V 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-W163M201E	802.11 a/b/g/n/ac, QCA6174A-5, 2T2R, with BT4.2, Full size Mini PCIe
1750008717-01	Dipole Ant. D.B 2.4/5G WIFI 3dBi SMA/M-R BLK
1750007965-01	Antenna cable, SMA (M) to MHF4, 300mm
EWM-C117FL06E*	LTE/HSPA+/GPRS module, w/ SIM Slot, for Taiwan
1750008303-01	Antenna AN0727-64SP6BSM
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

- Devices status
- Peripherals/firmware
- Open for extension

Remote Access

- Real-time monitoring
- Remote controls
- Troubleshooting

Efficient Operations

- 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