

ADVANTECH ROM-5721 NXP i.MX8M Mini Cortex-A53 ROM-5721 SMARC 2.0/2.1 Computer-on-Module Instructions

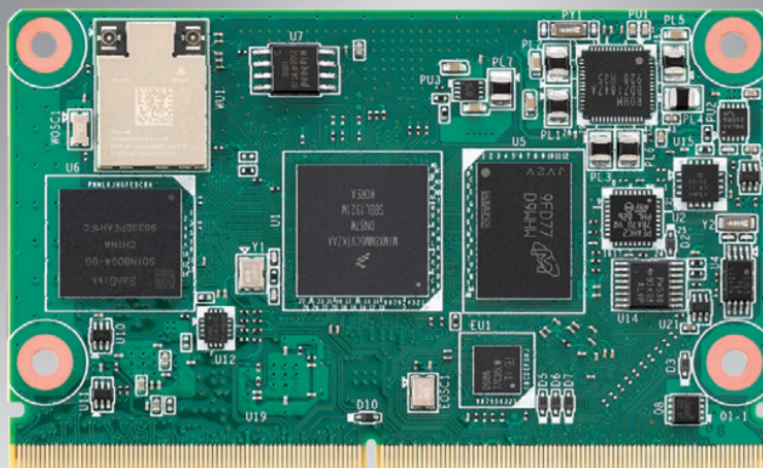
[Home](#) » [Advantech](#) » ADVANTECH ROM-5721 NXP i.MX8M Mini Cortex-A53 ROM-5721 SMARC 2.0/2.1 Computer-on-Module Instructions 

ADVANTECH

Enabling an Intelligent Planet

ROM-5721
NXP i.MX8M Mini Cortex®-A53
SMARC 2.0/2.1 Computer-on-Module

NEW





Contents

- [1 Introduction](#)
- [2 Features](#)
- [3 Specifications](#)
- [4 Block Diagram](#)
- [5 Ordering Information](#)
- [6 Development Board](#)
- [7 Optional Accessories](#)
- [8 OS Specification](#)
- [9 SW Specification](#)
- [10 Dimensions](#)
- [11 Embedded Linux Support and Design-in Services](#)
 - [11.1 Features](#)
- [12 WISE-DeviceOn](#)
 - [12.1 Features](#)
 - [12.2 Product Highlights](#)
- [13 Documents / Resources](#)
 - [13.1 References](#)
- [14 Related Posts](#)

Introduction

Advantech ROM-5721 SMARC 2.0/2.1 Computer-on-Module is powered by NXP i.MX8M Mini SOC which includes up to 4 Arm Cortex-A53 cores in combination with one Cortex-M4 real-time processor and Vivante GC320, GC NanoUltra 3D graphics engine. It provides USB2.0, Gigabit Ethernet, MIPI-CSI, PCI Express, Dual-channel LVDS shared with MIPI-DSI for embedded applications.

ROM-5721 is paired with Advantech ROM-DB5901 carrier board for faster end product peripheral integration and time-to-market. The reference schematics and layout checklists documentation for carrier board development will be provided along with the open-sourced Linux BSP, test utilities, hardware design utilities, and reference drivers.

Features

1. NXP i.MX 8M Mini processor with up to 4 Arm Cortex A53 cores
2. 1 x Arm Cortex-M4 cores
3. Onboard LPDDR4 memory and eMMC
4. 1 x 4 lane MIPI-CSI, 1 x Dual channel LVDS or 1 x Display Port
5. 4 x USB2.0, 1 x USB 2.0 OTG, 4 x UART, 4 x I2C, 12 x GPIO, 1 x PCIe2.0, 1x Gigabit LAN
6. Support OpenGL ES 2.0/1.1 by hardware accelerators
7. Low power consumption design
8. Support Linux and Android BSP

Specifications

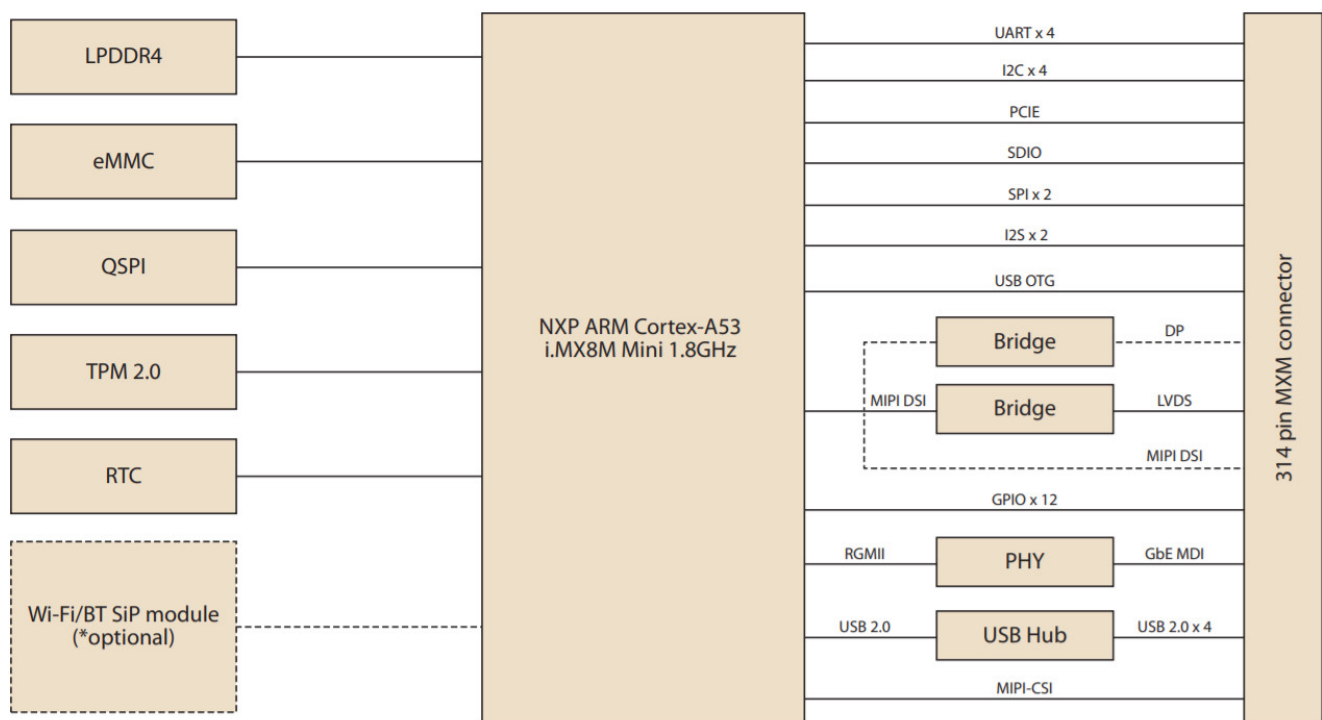
Form Factor	SMARC2.0 & SMARC2.1 compliance
-------------	--------------------------------

Processor System	CPU	NXP i.MX 8M Mini up to 4 Arm Cortex A53 cores, up to 1.8GHz
	MCU	1 x Arm Cortex-M4 core
Memory	Technology	LPDDR4-1866
	Capacity	Onboard 1GB/2GB LPDDR4
	Flash	8/16 GB eMMC NAND Flash for O.S. and 8 MB QSPI NOR Flash for board information
Graphics	LVDS/MIPI DSI	1 x 4 lane MIPI-CSI, 1 x Dual channel LVDS or 1 x Display Port up to 1080P
	HDMI	—
	Parallel RGB	—
	VGA	—
	Graphics Engine	Vivante GC320, GC NanoUltra 3D GPU Support OpenGL ES 2.0, VG 1.1
	H/W Video Codec	Decoder: H.265, H.264, VP8/9 1080p Encoder: H.264, VP8 1080p
Ethernet	Chipset	1 x NXP i.MX8M Mini GbE controller
	Speed	10/100/1000 Mbps
RTC	RTC	Yes

WatchDog Timer		Yes
Security		TPM 2.0
I/O	PCIe	1 x PCIe 2.0
	SATA	–
	USB	4 USB 2.0 1 USB 2.0 OTG
	Audio	2 x I ² S
	SPDIF	–
	SDIO	1
	Serial Port	2 x 4-wire UART and 2 x 2-wire UART
	SPI	2
	CAN	–
	GPIO	12
	I ² C	4
	Camera Input	1 x 4-lane MIPI CSI
	System Bus	–

	Touch	—
	Keypad	—
Power	Power Supply Voltage	Fixed 5V DC source and allow 3.3 V ~ 5.25 V to operate directly from single level Lithium-Ion cells
	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 50 mm
Operation System		Linux & Android
Certifications		CE/FCC Class B

Block Diagram



Ordering Information

Part No.	CP U	Me mor y	Flas h Me mor y	UA RT	LAN	US B 2.0	Disp lay	PCI e	SD	I2S	I2C	SPI	WiFi /	Size	Pow er input	Ope rating Tem pera ture
RO M-5 721 CQ-RE A1E	i.M X8 M M ini Qua d	2GB	16GB	4	1	5	1 x Dual ch L VDS	1	1	2	4	2	BT	82 x 50 x 5 mm	3 ~ 5.25 V	0 ~ 60 ° C
RO M-5 721 CD-RD A1E	i.M X8 M M ini Dua l	1GB	8GB	4	1	5	1 x MIPI DSI	1	1	2	4	2	—	82 x 50 x 5 mm	3 ~ 5.25 V	0 ~ 60 ° C
RO M-5 721 CS-RD A1E	i.M X8 M M ini S olo	1GB	N/A	4	1	1	1 x MIPI DSI	1	1	2	4	2	—	82 x 50 x 5 mm	3 ~ 5.25 V	0 ~ 60 ° C

Development Board

Part No.	Description
ROM-DB5901-SWA1	Development Board for SMARC 2.0 Module

Optional Accessories

Part No.	Description
1.7E+09	Debug port cable for ROM-5721
1.7E+09	D-SUB 9P(F)/D-SUB 9P(F) RS232/RS485 100c
1970004648T001	Heat Spreader
1960063089N001	Semi Heat Sink
193B021490	Screw for Heat Spreader and Semi Heat Sink
96PSA-A36W12R1-3	ADAPTER 100-240V 36W 12V 3A
1.7E+09	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Cord 3P Europe (WS-010+WS-083) 183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1.7E+09	Power Cord 3P PSE 183cm
SQF-ISDM1-16G-21C	SQF SD Card I-SD UHS-I MLC 16G (0~70°C)
SQF-ISDM1-16G-21E	SQF I-SD UHS-I MLC 16G (-40~85°C)
EWM-W163M201E	802.11 a/b/g/n/ac,QCA6174A,2T2R,w/BT4.1,M.2 2230
1750008717-01	Dipole Ant. D.B 2.4/5G WIFI 3dBi SMA/M-R BLK
1750007965-01	Antenna Cable R/P SMA (M) to MHF4, 300mm
EWM-C117FL06E*	LTE 4G,3G WCDMA/DC-HSPA+, 2G module, MPC1-L280H
1750007990-01	Antenna 4G/LTE full band L=11 cm 50 Ohm
1.75E+09	Antenna Cable SMA (F) to MHF 1.32 25cm

OS Specification

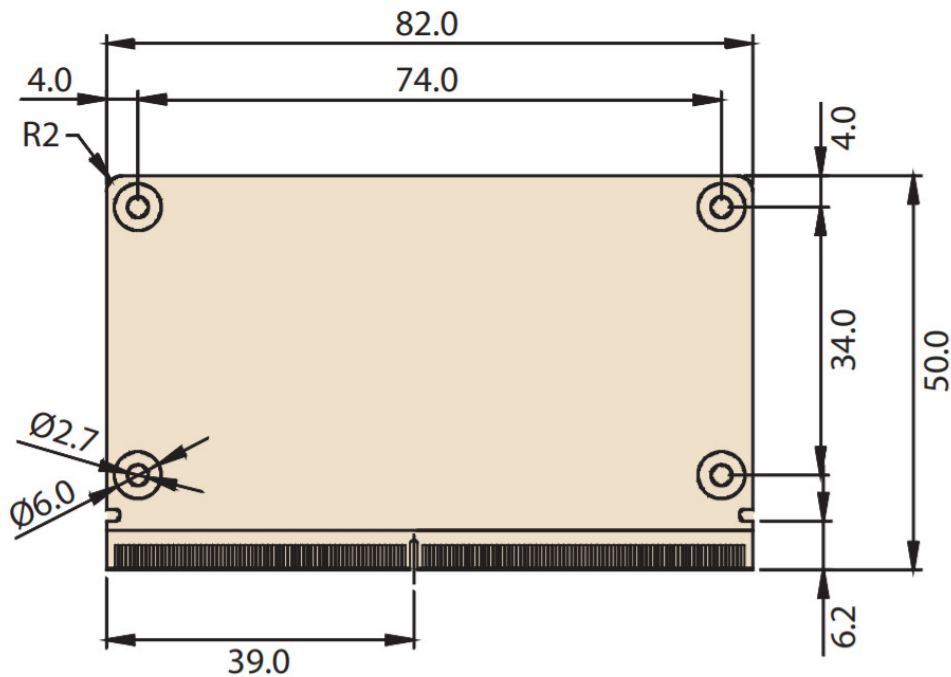
Operating System	Version Support
Linux	Yocto 2.5
Android	Android 9.0

Please visit <https://advt.ch/aim-linux-download> to know our latest software update

SW Specification

Software Application	Function Support
SUSI API	I2C, GPIO, SPI, WDT, RTC, Backlight Control
WISE-PaaS/DeviceOn	Built-in

Dimensions

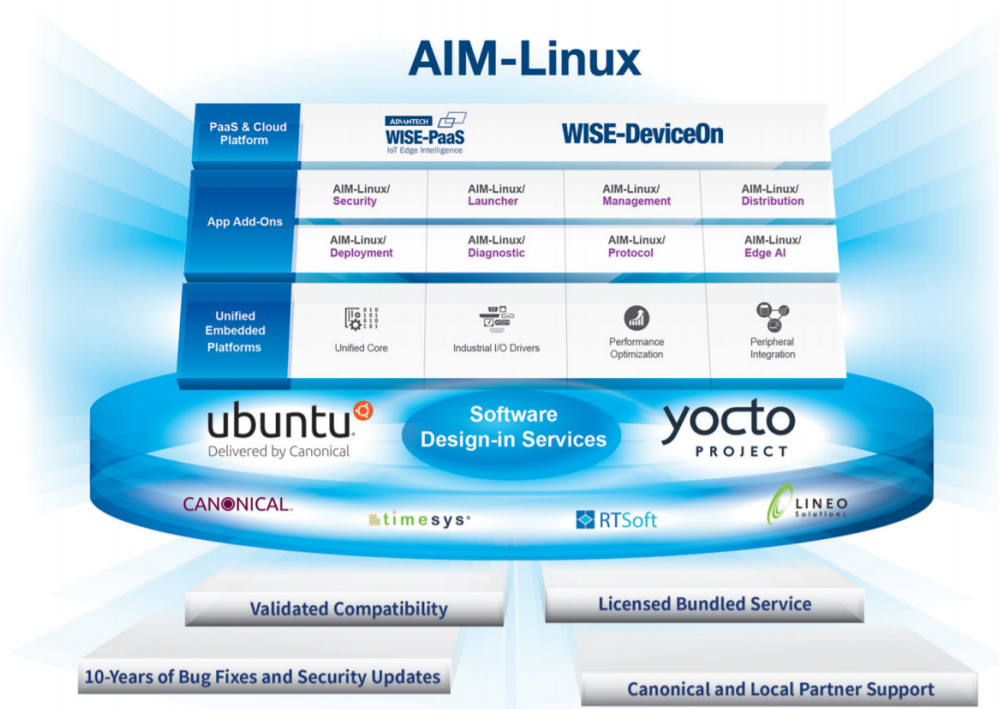


Embedded Linux Support and Design-in Services

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	Licensed Services	Numerous AI and Edge Resources	Local Partner Alliance
- Platform compatibility tests - Preloaded functional driver and software stacks	- The license authorized Canonical delivers 10-years of bug fixes and security updates - In-house bundled service	- Containerized technology for service provision and deployment - AI resources from We. TensorFlow, and mxnet	Embedded Linux and Android Alliance (ELM)

WISE-DeviceOn

Massive IoT Device Management Utility

IoT deployment and management typically involve 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 onboarding - 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

ADVANTECH

Enabling an Intelligent Planet

RISC Computing Platforms

All product specifications are subject to change without notice.

Online Download

www.advantech.com/products

Documents / Resources



[ADVANTECH ROM-5721 NXP i.MX8M Mini Cortex-A53 ROM-5721 SMARC 2.0/2.1 Computer-on-Module](#) [pdf] Instructions

ROM-5721, NXP i.MX8M Mini Cortex-A53 ROM-5721 SMARC 2.0 2.1 Computer-on-Module

References

- [A Advantech Co-Creating the Future of the IoT World](#)
- [I/O - Advantech](#)

Manuals+