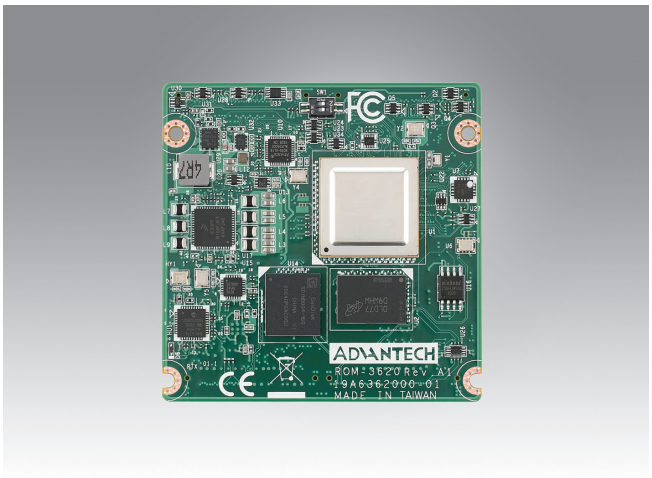
ROM-3620

NXP i.MX 8X Cortex®-A35 RTX v2.1 module



Features

- NXP i.MX 8X processor with 2-4 x Arm Cortex-A35 cores
- Onbard LPDDR4 memory and eMMC 16GB
- Supports wide range power input 5V~24V
- Supports Vivante GC7000 Lite hardware accelerators
- Supports Ultra HD 4K/ full HD 1080p video decode and HD 1080p video encode hardware engine
- Supports 1 PCIe, 1 USB 3.0, 1 USB 2.0, 1 USB OTG2.0, 5 I2C, 1 I2S, 1 Camera in, 2 CANbus, 10 GPIO
- Low power consumption, fanless desgin
- Supports Linux and Android BSP

Introduction

Advantech ROM-3620 RTX2.1 Computer-on-Module is powered by NXP i.MX 8X SoC which includes two to four Arm Cortex-A35 cores for mid-range automotive and industrial market segments, one Cortex-M4F core for real-time processing, and one Tensilica Hi-Fi 4 DSP for efficient audio and voice codec execution. It also escalates its graphic performance by Vivante GC7000 Lite, 4K H.265 capable decoder, and dual 1080P60 display controller.

ROM-3620 RTX2.1 module offers an Advantech ROM-DB3900 evaluation carrier board for easy integration and hardware design reference, and also provides a Linux BSP utility and reference codes for application development and device integration.

Specifications

Form Factor		RTX v2.1
Processor System	CPU	NXP i.MX 8X DualXPlus/QuadXPlus; 2/4 x Arm Cortex-A35 1.2GHz; Cortex M4F
Memory	Technology	LPDDR4
	Capacity	On-board 2GB/4GB
	Flash	16 GB eMMC NAND Flash and 8MB QSPI NOR FLASH
Graphics	LVDS/MIPI DSI	2 x 24-bit single channel LVDS 1080p or 2 x 4-LANE MIPI DSI
	Graphics Engine	Vivante GC7000 Lite
	H/W Video Codec	Decoder: H.265 / H.264 Encoder: H. 264
Ethernet	Chipset	2 x NXP i.MX8X integrated RGMII (with AR8035)
	Speed	2 x 10/100/1000 Mbps
PMIC	PMIC	NXP PF8100
RTC	RTC	Yes
WatchDog Timer		256-level timer interval, from 0 ~ 128 sec
I/O	PCIe	1 x PCIe 3.0
	USB	1 USB 3.0, 1 USB 2.0 1 USB 2.0 OTG
	Audio	I^2S
	SPDIF	-
	SDIO	1
	Serial Port	3 UART (1 x 4 wire/ 2 x 2 wire)
	SPI	2
	CAN	2 CAN/ CAN-FD
	GPIO	10
	I^2C	5
	Camera Input	1 x 4-lane MIPI CSI
	System Bus	-
	Touch	-
	Keypad	-
Power	Power Supply Voltage	5 ~ 24 V
	Power Consumption	-
Environment	Operating Temperature	0 ~ 60 °C/ -40 ~ 85 °C
	Operating Humidity	5% ~ 95% relative humidity
Mechanical	Dimensions (W x D)	68 x 68 mm
Operation system		Linux & Android
Certifications		CE/FCC Class B

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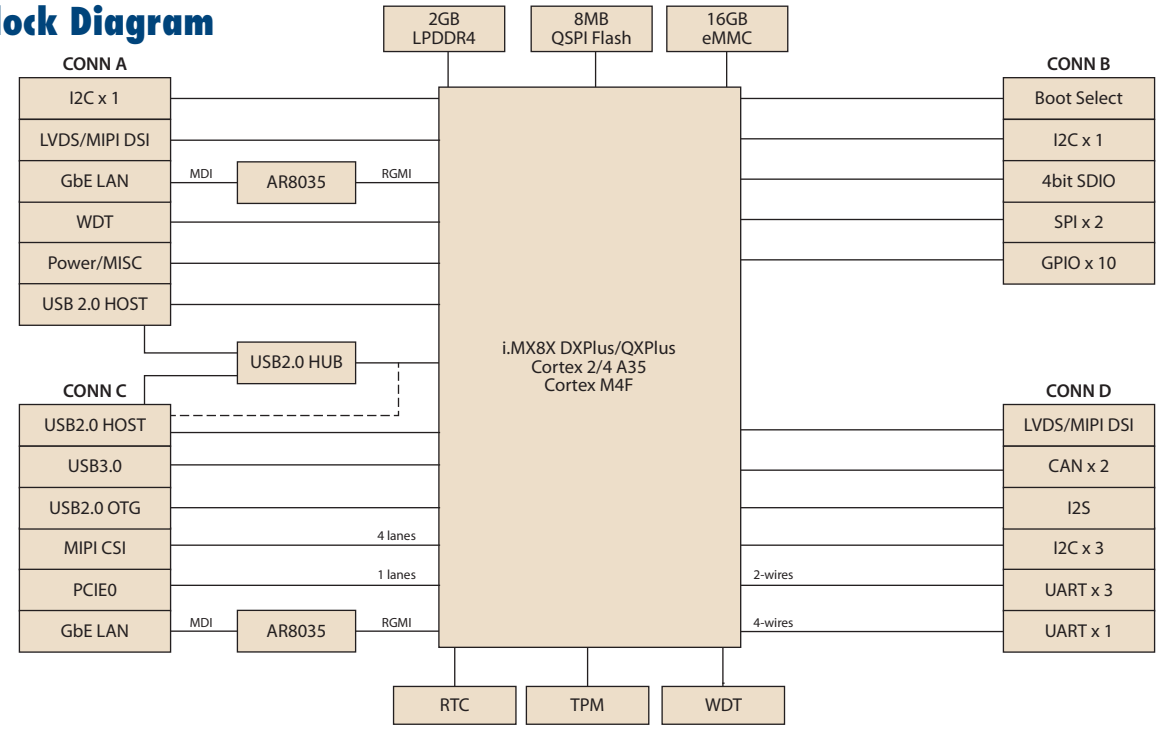
Block Diagram



Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	USB OTG	Display	PCIe	SD	CANbus	I²C	SPI	Size	Power input	Operating Temperature
ROM-3620CE-0EA1E	i.MX8X DualXPlus 1.2GHz	2GB	16GB	4	1	2	1	2 x single channel LVDS or 2 x 4-lane MIPI DSI	1	1	2	5	2	68 x 68 x 7 mm	5V-24V	0 ~ 60 °C
ROM-3620WE-0EA1E	i.MX8X DualXPlus 1.2GH	2GB	16GB	4	1	2	1	2 x single channel LVDS or 2 x 4-lane MIPI DSI	1	1	2	5	2	68 x 68 x 7 mm	5V-24V	-40 ~ 85 °C
ROM-3620CU-0EA1E	i.MX8X QuadXPlus 1.2GHz	2GB	16 GB	4	1	2	1	2 x single channel LVDS or 2 x 4-lane MIPI DSI	1	1	2	5	2	68 x 68 x 7 mm	5 V ~ 24 V	0 ~ 60 °C
ROM-3620WU-0EA1E	i.MX8X QuadXPlus 1.2GHz	2GB	16 GB	4	1	2	1	2 x single channel LVDS or 2 x 4-lane MIPI DSI	1	1	2	5	2	68 x 68 x 7 mm	5 V ~ 24 V	-40 ~ 85 °C

Development Board

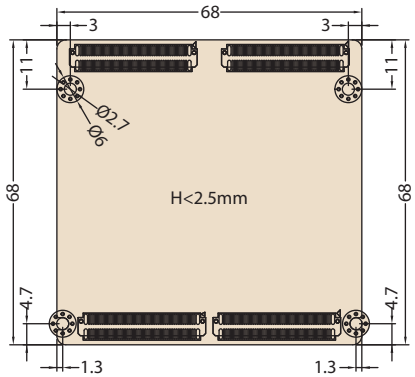
Part No.	Description
ROM-DB3900-SWA2E	Development board for RTX2.1module
ROM-DK3620-F0A1E	ROM-3620 EVK Kit (RTX v2.1)

Optional Accessories

Part No.	Description
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
1700019146	Power Cord CCC 3P 10A 250V 183cm
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
EWM-C117FL06E*	LTE 4G,3G WCDMA/DC-HSPA+, 2G module, MPCI-L280H
1750008303-01	Antenna AN0727-64SP6BSM
1750006009	Antenna Cable SMA (F) to MHF 1.32 25cm

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	Licensed Services	Numerous AI and Edge Resources	Local Partner Alliance
• Platform compatibility tests • Preloaded functional driver and software stacks	• 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 Caffe, TensorFlow, and mxnet	• 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