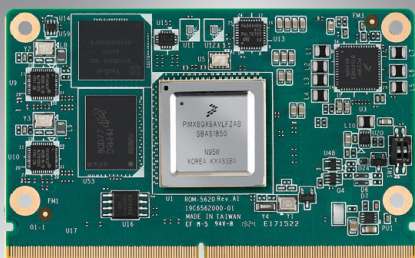


# ROM-5620

## NXP i.MX8X Cortex®-A35 SMARC 2.0/2.1 Computer-on-Module

NEW



### Introduction

Advantech ROM-5620 SMARC2.0/2.1 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-5620 is paired with Advantech ROM-DB5901 Evaluation Carrier Board for faster end product peripheral integration and time-to-market. The reference schematics and layout checklists documentations for carrier board development will be provided along with the open-sourced Linux BSP, test utilities, hardware design utilities and reference drivers.



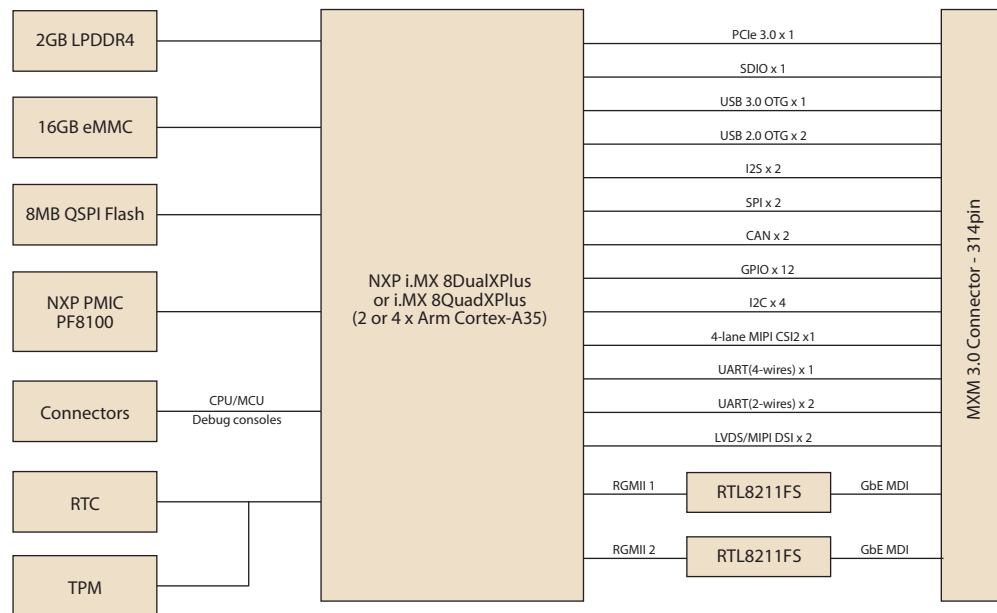
### Features

- NXP i.MX 8X processor with 2-4 x Arm Cortex-A35 cores
- 1 x Arm Cortex-M4F core and 1x Tensilica® HiFi 4 DSP
- Onboard 2GB LPDDR4 memory and eMMC 16GB
- 2 x single channel LVDS or 2 x 4-LANE MIPI DSI
- 1 x USB 3.0, 1 x USB 2.0 Host, 1 x USB2.0 OTG, 2 x CAN, 3 x UART, 4 x I2C, 12 x GPIO, 1 x PCIe 3.0, 1 x 4-lane MIPI CSI camera input and 2 x Gigabit LAN
- Supports OpenGL 3.0/2.1 ; OpenGL ES 3.1/3.0/2.0/1.1 and OpenCL 2.0 hardware accelerators
- Supports 4K hardware decode engine
- Low power consumption design
- Supports Linux and Android BSP

### Specifications

|                  |                       |                                                                                                                        |
|------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------|
| Form Factor      |                       | SMARC2.0 & SMARC2.1 compliance                                                                                         |
| Processor System | CPU                   | NXP i.MX 8DualXPlus (2 x Arm Cortex-A35) or 8QuadXPlus (4 x Arm Cortex-A35) 1.2GHz                                     |
|                  | MCU                   | 1 x Arm Cortex-M4F core                                                                                                |
|                  | DSP                   | 1 x Tensilica® HiFi 4 DSP                                                                                              |
| Memory           | Technology            | LPDDR4 2400 MT/s                                                                                                       |
|                  | Capacity              | Onboard 2GB LPDDR4                                                                                                     |
|                  | Flash                 | 16 GB eMMC NAND Flash for O.S. and 8 MB QSPI NOR Flash for board information                                           |
| Graphics         | LVDS/MIPI DSI         | 2 x 24-bit single channel LVDS 1080p or 2 x 4-LANE MIPI DSI                                                            |
|                  | HDMI                  | -                                                                                                                      |
|                  | Parallel RGB          | -                                                                                                                      |
|                  | VGA                   | -                                                                                                                      |
|                  | Graphics Engine       | Vivante GC7000 Lite                                                                                                    |
|                  | H/W Video Codec       | Supports H.265/H.264(4Kp30), WMV9/VC-1 imple, MPEG-1, MPEG-2, AVS, MPEG4.2 ASP, H.263 decode and H.264(1080p30) encode |
| Ethernet         | Chipset               | 2 x NXP i.MX8X integrated RGMII                                                                                        |
|                  | 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 3.0                                                                                                           |
|                  | SATA                  | -                                                                                                                      |
|                  | USB                   | 1 x USB 3.0, 1 USB 2.0 Host, 1 USB 2.0 OTG                                                                             |
|                  | Audio                 | 2 x I²S                                                                                                                |
|                  | SPDIF                 | -                                                                                                                      |
|                  | SDIO                  | 1                                                                                                                      |
|                  | Serial Port           | 1 x 4-wire UART and 2 x 2-wire UART                                                                                    |
|                  | SPI                   | 2                                                                                                                      |
|                  | CAN                   | 2 x CAN bus 2.0 A/B                                                                                                    |
|                  | GPIO                  | 12                                                                                                                     |
|                  | I²C                   | 4 with interrupt                                                                                                       |
|                  | Camera Input          | 1 x 4-lane MIPI CSI-2                                                                                                  |
|                  | System Bus            | -                                                                                                                      |
|                  | Touch                 | -                                                                                                                      |
|                  | Keypad                | -                                                                                                                      |
| Power            | Power Supply Voltage  | 4.75~5.25V                                                                                                             |
|                  | Power Consumption     | 3.832W (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                                                                                                         |

## Block Diagram



## Ordering Information

| Part No.         | CPU             | Memory | Flash Memory | UART | LAN | USB 3.0 | USB 2.0 | Display                                               | PCIe 3.0 | SD | CANbus | I <sup>2</sup> C | SPI | Size       | Power input  | Operating Temperature |
|------------------|-----------------|--------|--------------|------|-----|---------|---------|-------------------------------------------------------|----------|----|--------|------------------|-----|------------|--------------|-----------------------|
| ROM-5620CE-OEA2E | i.MX 8DualXPlus | 2GB    | 16GB         | 3    | 2   | 1       | 2       | 2x single channel 24-bit, 1x dual channel 48-bit LVDS | 1        | 1  | 2      | 4                | 2   | 82 x 50 mm | 4.75 ~ 5.25V | 0 ~ 60 °C             |
| ROM-5620WE-OEA2E | i.MX 8DualXPlus | 2GB    | 16GB         | 3    | 2   | 1       | 2       | 1x dual channel 48-bit LVDS                           | 1        | 1  | 2      | 4                | 2   | 82 x 50 mm | 4.75 ~ 5.25V | -40 ~ 85 °C           |
| ROM-5620CU-OEA2E | i.MX 8QuadXPlus | 2GB    | 16GB         | 3    | 2   | 1       | 2       | or 2x 4-Lane MIPI-DSI by S/W Configuration            | 1        | 1  | 2      | 4                | 2   | 82 x 50 mm | 4.75 ~ 5.25V | 0 ~ 60 °C             |
| ROM-5620WU-OEA2E | i.MX 8QuadXPlus | 2GB    | 16GB         | 3    | 2   | 1       | 2       |                                                       | 1        | 1  | 2      | 4                | 2   | 82 x 50 mm | 4.75 ~ 5.25V | -40 ~ 85 °C           |

## Development Board

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

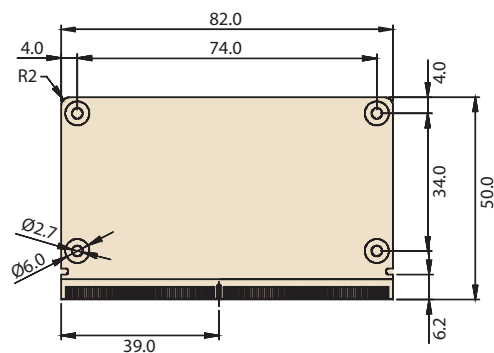
## Optional Accessories

| Part No.          | Description                                          |
|-------------------|------------------------------------------------------|
| 1701100300        | Debug port cable for ROM-5620                        |
| 1700019474        | D-SUB 9P(F)/D-SUB 9P(F) RS232/RS485 100c             |
| 1970004483T001    | Heat Spreader for -40~85°C                           |
| 1960063089N001    | Semi Heat Sink for -40~85°C                          |
| 193B021490        | Screw 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           |
| 170203180A        | Power Cord 3P UK 2.5A/3A 250V 1.83M                  |
| 1700008921        | 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, MPCI-L280H     |
| 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 for suggesting 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                                                                                                                 | Licensed Services                                                                                                                                                 | Numerous AI and Edge Resources                                                                                                                                       | Local Partner Alliance                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>Platform compatibility tests</li><li>Preloaded functional driver and software stacks</li></ul> | <ul style="list-style-type: none"><li>License authorized Canonical delivers 10-years of bug fixes and security updates</li><li>In-house bundled service</li></ul> | <ul style="list-style-type: none"><li>Containerized technology for service provision and deployment</li><li>AI resources from Caffe, TensorFlow, and mxnet</li></ul> | <ul style="list-style-type: none"><li>Embedded Linux and Android Alliance (ELAA)</li></ul> |

# 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                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Devices status</li><li>• Peripherals/firmware</li><li>• Open for extension</li></ul> | <ul style="list-style-type: none"><li>• Real-time monitoring</li><li>• Remote controls</li><li>• Troubleshooting</li></ul> | <ul style="list-style-type: none"><li>• Zero-touch on-boarding</li><li>• OTA updates</li><li>• Batch control</li></ul> |

### Product Highlights



**SOM-6883**

High-performance 11<sup>th</sup> Gen Intel®  
COMe Type 6 Module



**MIO-5375**

Compact 11<sup>th</sup> Gen Intel® Outdoor  
Focused 3.5" SBC



**EPC-B5587**

10<sup>th</sup> Gen Intel® Xeon® based Edge  
server



**EPC-R3220**

Arm based IoT Edge Gateway

# Tento produkt můžete zakoupit u společnosti AutoCont IPC a.s.



## AutoCont IPC a.s.

Váš dodavatel průmyslových počítačů, komponent a speciálních průmyslových IT systémů.

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 obchod@autocont-ipc.cz

 +420 552 301 002

 [www.autocont-ipc.cz](http://www.autocont-ipc.cz)



### PRŮMYSLOVÉ POČÍTAČE

*fanless embedded PC, do racku, ...*



### POČÍTAČE S DISPLEJEM

*panelové PC, terminály, do vozidel, ...*



### AUTOMATIZACE A SBĚR DAT

*převodníky, karty, moduly, switche, ...*



### PERIFERIE A KOMPONENTY

*monitory, klávesnice, desky, skříně, ...*



### NOTEBOOKY A TABLETY

*odolné, windows, android, IP65, ...*



### INFORMAČNÍ KIOSKY

*interiérové, venkovní, ...*



### MEDICÍNSKÁ TECHNIKA

*počítače, tablety, LCD, klávesnice, ...*



### SOFTWAREVÁ ŘEŠENÍ

*pro výrobu, zaměstnance, kiosky, ...*



### PŘEJÍT DO E-SHOPU

[eshop.autocont-ipc.cz](http://eshop.autocont-ipc.cz)



### DOPRAVA ZDARMA

Doprava zdarma v ČR a SR při objednávce nad 10 000 Kč bez DPH nebo nad 400 EUR.



### PRODLOUŽENÁ ZÁRUKA

Záruka 2 roky na vyráběné počítače s možností jejího prodloužení až na 5 let.



### ODMĚNA ZA VĚRNOST

Pravidelní zákazníci u nás nakupují za nižší ceny. Výše slevy se odvíjí od realizovaného obrátu.



### SERVIS ON-SITE A IN-TIME

K projektovým dodávkám nabízíme rozšířenou podporu a servis s garancí výměny zařízení do 48 hodin.