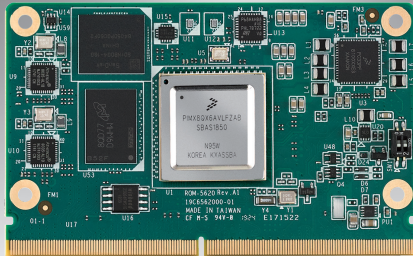


# ROM-5620

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

NEW



### Introduction

The 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 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.



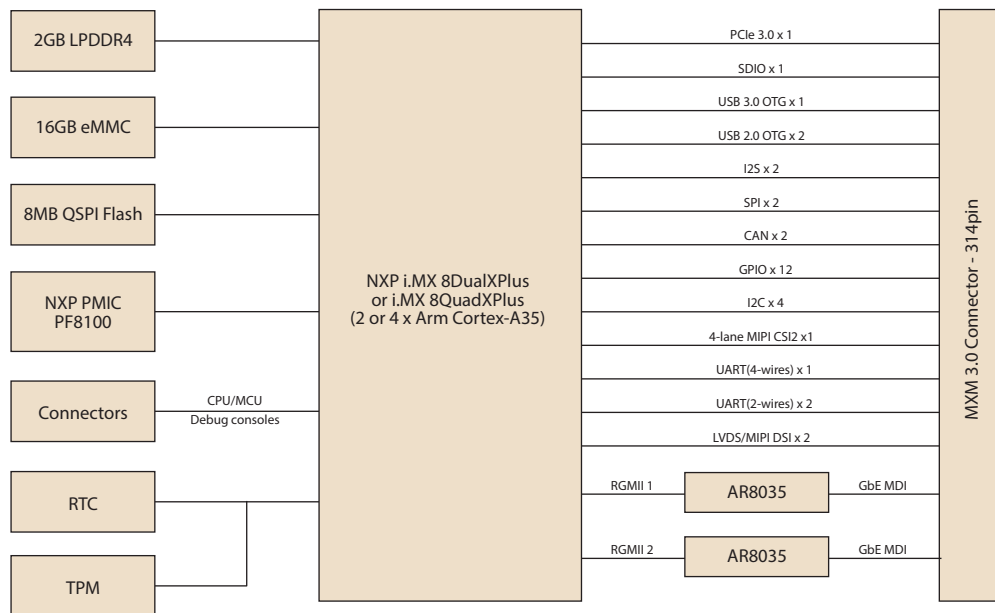
### Features

- 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 I <sup>2</sup> S   |
|                  | 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   |
|                  | I <sup>2</sup> C      | 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     | 4.45W (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-OEA1E | i.MX 8DualXPlus | 2 GB   | 16 GB        | 4    | 2   | 1       | 2       | 2 x single channel LVDS or 2 x 4-lane MIPI DSI | 1        | 1  | 2      | 5                | 4   | 82 x 50 x 5 mm | 3 - 5.25V   | 0 - 60 °C             |
| ROM-5620WE-OEA1E | i.MX 8DualXPlus | 2 GB   | 16 GB        | 4    | 2   | 1       | 2       | 2 x single channel LVDS or 2 x 4-lane MIPI DSI | 1        | 1  | 2      | 5                | 4   | 82 x 50 x 5 mm | 3 - 5.25V   | -40 - 85 °C           |
| ROM-5620CU-OEA1E | i.MX 8QuadXPlus | 2 GB   | 16 GB        | 4    | 2   | 1       | 2       | 2 x single channel LVDS or 2 x 4-lane MIPI DSI | 1        | 1  | 2      | 5                | 4   | 82 x 50 x 5 mm | 3 - 5.25V   | 0 - 60 °C             |
| ROM-5620WU-OEA1E | i.MX 8QuadXPlus | 2 GB   | 16 GB        | 4    | 2   | 1       | 2       | 2 x single channel LVDS or 2 x 4-lane MIPI DSI | 1        | 1  | 2      | 5                | 4   | 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 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, MPCH-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

