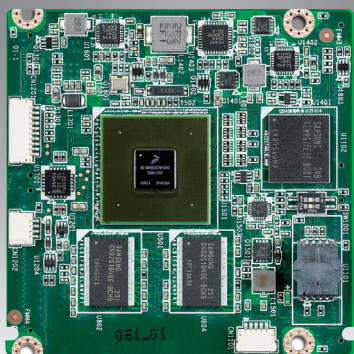


# ROM-3420

## NXP ARM® Cortex®-A9 i.MX6 RTX v2.0 module



## Introduction

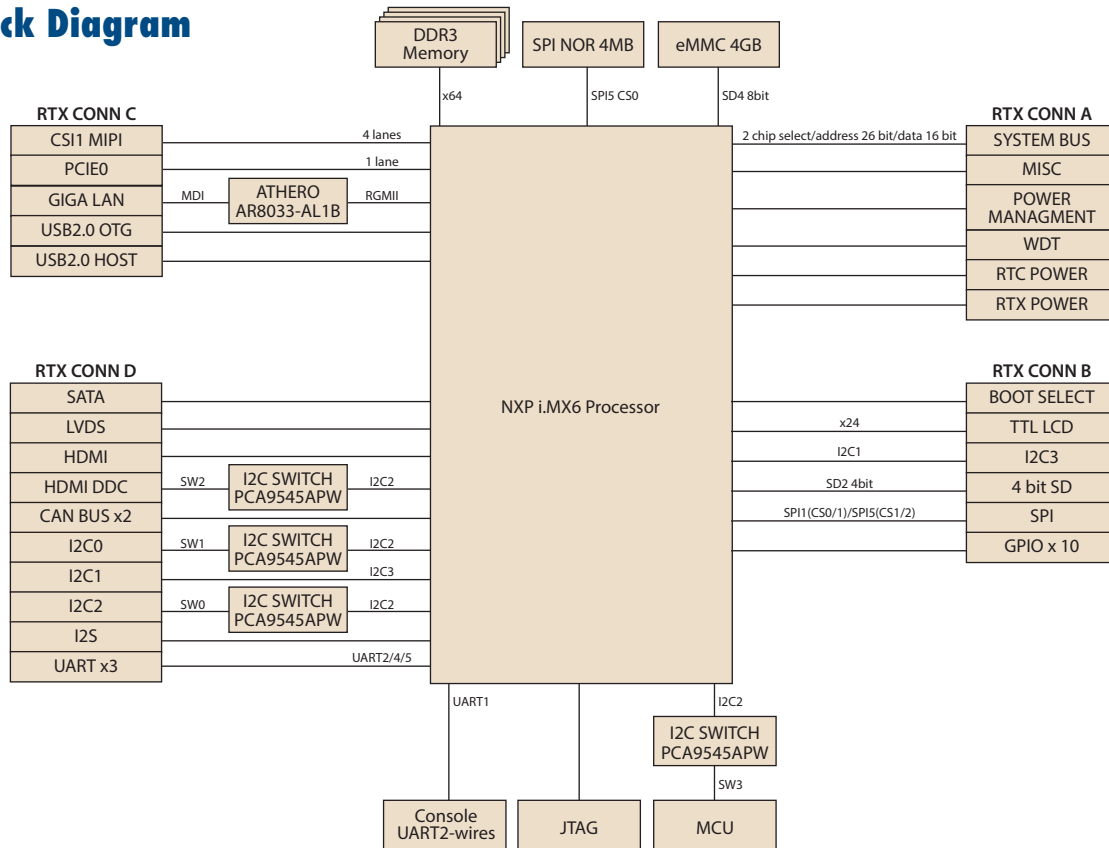
ROM-3420 RTX2.0 module integrates an ARM Cortex A9 Dual 1 GHz NXP i.MX6 series ultra low power SoC and I/O solution with Linux. NXP i.MX6 supports 2D, 3D graphics acceleration, and a full HD 1080P video decoding encoding hardware engine. ROM-3420 supports 5V~24V wide range power inputs and a wide temperature design for industrial applications.

ROM-3420 RTX2.0 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 v2.0                                                                                                   |
| Processor System | CPU                   | NXP ARM Cortex-A9 i.MX6 1 GHz                                                                              |
|                  | Technology            | DDR3 1066 MHz                                                                                              |
| Memory           | Capacity              | On-board DDR3 1 GB                                                                                         |
|                  | Flash                 | 4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader                             |
| Graphics         | LVDS                  | 1 Single 24-bit LVDS, 1366 x 768 at 60Hz                                                                   |
|                  | HDMI                  | 1920 x 1080 at 60Hz                                                                                        |
|                  | Parallel RGB          | 1 24-bit TTL, 1920 x 1200 at 60Hz                                                                          |
|                  | VGA                   | -                                                                                                          |
|                  | Graphics Engine       | 2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1                                                 |
|                  | H/W Video Codec       | Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP<br>Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP |
| Ethernet         | Chipset               | NXP i.MX6 integrated RGMII                                                                                 |
|                  | Speed                 | 1 x 10/100/1000 Mbps                                                                                       |
| RTC              | RTC                   | Yes                                                                                                        |
| WatchDog Timer   |                       | 256-level timer interval, from 0 ~ 128 sec                                                                 |
| I/O              | PCIe                  | 1 PCIe x 1                                                                                                 |
|                  | SATA                  | 1 SATA II                                                                                                  |
|                  | USB                   | 1 USB 2.0,<br>1 USB 2.0 OTG                                                                                |
|                  | Audio                 | I <sup>2</sup> S                                                                                           |
|                  | SPDIF                 | -                                                                                                          |
|                  | SDIO                  | 1                                                                                                          |
|                  | Serial Port           | 3 UART (3 x 4 wire w / 3.3V)                                                                               |
|                  | SPI                   | 2                                                                                                          |
|                  | CAN                   | 2 CAN bus 2.0B                                                                                             |
|                  | GPIO                  | 10                                                                                                         |
|                  | I <sup>2</sup> C      | 4                                                                                                          |
|                  | Camera Input          | 1 MIPI v1.0, 4 x Lane                                                                                      |
|                  | System Bus            | Address: 26 bits, Data: 16 bits                                                                            |
|                  | Touch                 | -                                                                                                          |
|                  | Keypad                | -                                                                                                          |
| Power            | Power Supply Voltage  | 5 ~ 24 V                                                                                                   |
|                  | Power Consumption     | 6.25W (Max)                                                                                                |
| Environment      | Operating Temperature | 0 ~ 60 °C/ -40 ~ 85 °C                                                                                     |
|                  | Operating Humidity    | 0% ~ 90% relative humidity, non-condensing                                                                 |
| Mechanical       | Dimensions (W x D)    | 68 x 68 mm                                                                                                 |
| Operation system |                       | Linux & Android                                                                                            |
| Certifications   |                       | CE/FCC Class B                                                                                             |

## Block Diagram



## Ordering Information

| Part No.         | CPU             | Memory | Flash Memory | UART | LAN | USB Host | USB OTG | Display                                     | SATA | PCIe | HDMI | SD | CANbus | I <sup>2</sup> C | SPI | Size           | Power input | Operating Temperature |
|------------------|-----------------|--------|--------------|------|-----|----------|---------|---------------------------------------------|------|------|------|----|--------|------------------|-----|----------------|-------------|-----------------------|
| ROM-3420CD-MDA1E | i.MX6 Dual 1GHz | 1 GB   | 4 GB         | 3    | 1   | 1        | 1       | 1 x 24bit LVDS<br>1 x 24bit TTL<br>1 x HDMI | 1    | 1    | 1    | 1  | 2      | 4                | 2   | 68 x 68 x 7 mm | 5 V ~ 24 V  | 0 ~ 60 °C             |
| ROM-3420WD-MDA1E | i.MX6 Dual 1GHz | 1 GB   | 4 GB         | 3    | 1   | 1        | 1       | 1 x 24bit LVDS<br>1 x 24bit TTL<br>1 x HDMI | 1    | 1    | 1    | 1  | 2      | 4                | 2   | 68 x 68 x 7 mm | 5 V ~ 24 V  | -40 ~ 85 °C           |

## Development Board

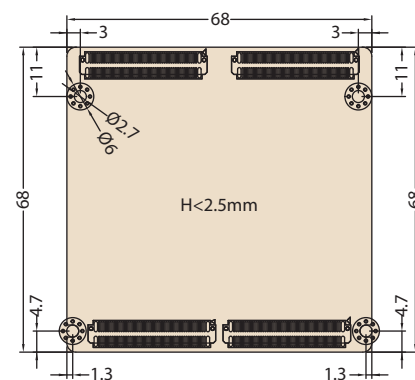
| Part No.         | Description                         |
|------------------|-------------------------------------|
| ROM-DB3900-SWA1E | Development board for RTX2.0 module |
| ROM-DK3420-FOA1E | ROM-3420 EVK Kit (RTX v2.0)         |

## Optional Accessories

| Part No.       | Description                        |
|----------------|------------------------------------|
| 1700022373-01  | Debug port cable for ROM-3420/5420 |
| 9696ED2000E    | Debug adapter board                |
| 1960065189N001 | Semi-Heatsink for ROM-3420         |
| 1930004835     | Screws for heatsink                |

## Dimensions

Unit: mm



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