/MAAXBOARD RT

MaaXBoard RT is a dual-purpose SBC board based on NXP's i.MX RT1176 processor. Optimized for use as low-cost development board and to embed in OEM products, it provides advanced security, high-performance low-latency real-time operation, with a versatile set of peripheral interfaces ideal for implementation of eg. industrial automation and power-efficient audio/visual AI-enabled applications.

i.MX RT1170 series cross-over processors are based on Arm® Cortex®-M7 and Cortex-M4 cores for real-time industrial performance and microcontroller usability at a cost-effective price.

Software enablement includes a comprehensive NXP RT1170 SDK that accelerates application development with drivers, middleware, code snippets and FreeRTOS based examples (AzureRTOS support will follow soon). Out-of-box Avnet example reference designs are also provided to jump-start development.

Hardware components include SDRAM and HyperFlash high-speed 256 Mb memories, two Ethernet ports, USB 2.0 host and device ports, MIPI-DSI display interface and MIPI-CSI camera interface, Wi-Fi 5 and Bluetooth 5.1 wireless, an audio subsystem that supports Bluetooth PCM audio, onboard PDM microphones (4) plus amplified stereo audio jack output. Expansion 40 pin (Pi HAT-compatible) and 20 pin headers pin-out peripheral interfaces such as UART, SPI, I2C, CAN bus and GPIO for further system expansion, making this versatile platform ideal for prototyping and deployment of realtime AI and industrial applications.

MaaXBoard RT also has advanced security features to protect your application. (eg. Crypto engine, key protection, random number generation, secure storage, bus encryption, tamper protection, secure boot and more) to secure mission critical applications (eg. electrical grid control and medical applications)

MaaXBoard RT ships with a quick start guide to ensure that hardware and software application development can commence efficiently. The user is responsible for providing an SWD/JTAG debug probe (inexpensive NXP MCU-LINK or equivalent) as well as a suitable 5V/3A USB power adapter with USB-C connector.

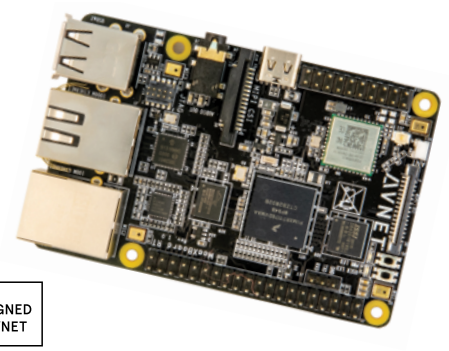
Kit includes

- MaaXBoard RT
- IPEX Antenna
- Quick start guide

Target apps

- Smart home
- Consumer audio
- Emerging consumer & retail
- Factory automation
- Power and energy

To purchase this kit, visit Avnet.me/MaaXBoard-RT



DESIGNED BY AVNET

Features

- NXP i.MX RT1176 Processor
- Arm Cortex-M7 @1GHz, 32KB/32KB L1 Cache
- Arm Cortex-M4F @400MHz, 16KB/16KB L1 Cache
- Fast Real-time, low-latency response (12ns)
- 2D GPU and Graphics Accelerator
- Advanced Security (on RT1176 plus TO136 Device)
- 2MB of Fast On-Chip SRAM (includes 512KB of A7 TCM and 256KB M4 TCM)
- 256 Mb Onboard SDRAM
- 256 Mb Onboard HyperFlash

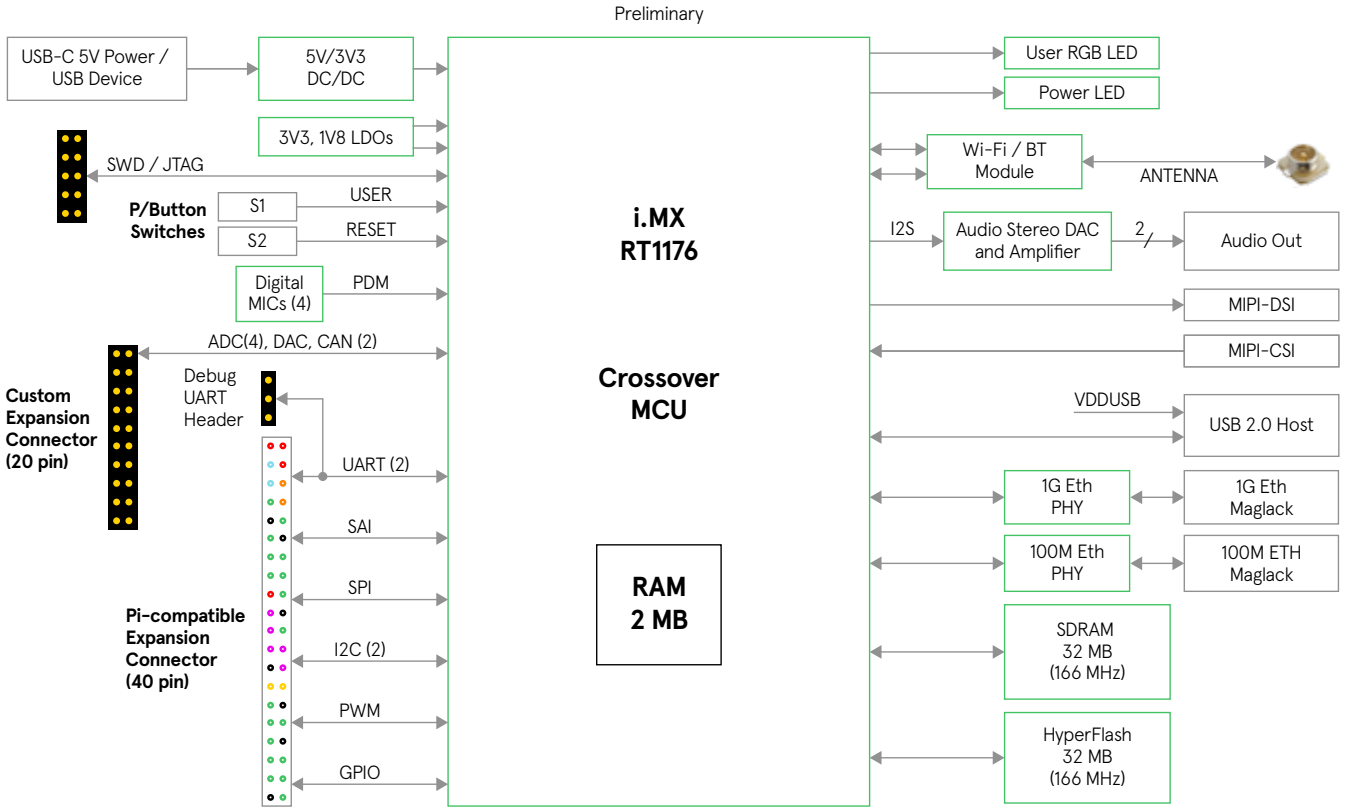
Interfaces and Connectivity

- 10/100 Mbps Ethernet (IEEE 1588 Time Sync.)
- 10/100/1000 Mbps Ethernet (TSN Time Sync.)
- USB 2.0 Host (type-A connector)
- USB 2.0 Device (type-C connector)
- MIPI-DSI Display (2-Lane, 1280x800, 60fps)
- MIPI-CSI Camera (2-Lane)
- Wi-Fi 5 (802.11 b/g/n/ac)
- Bluetooth 5
- Onboard Dual-Band Ceramic Antenna
- Ext. Antenna Option (U.FL connector)
- Four Onboard Digital Microphones
- Stereo Output Audio Jack
- 10 Pin SWD/JTAG Debugger Header

Expansion, Power and Mechanical

- 40 Pin Pi HAT Compatible Header
- 20 Pin Custom Expansion Header
- User Button and RGB LED
- Efficient DC/DC Voltage Regulator
- USB Type-C Power Input (Rated for 5V/3A)
- Operating Temperature: 0~70°C
- Raspberry-Pi Form-Factor (85mm x 56mm)

Block diagram



Featured manufacturers

NXP, Marvell, Microchip, Infineon, MPS Monolithic Power Systems, ISSI, Everlight, ON Semiconductor, molex, AzureWave, Renesas, TDK, YAGEO, muRata, Samsung, Diodes Incorporated

Parts

Part Number	Description	Price
AES-MC-SBC-IMXRT1176-G	The MaaXBoard RT is a low-cost, NXP i.MX RT1176 based single board computer	$99.00 USD

Related parts

Part Number	Description	Price
MCU-LINK	JTAG/SWD Debug Probe	$10.99 USD
AES-ACC-MAAX-DISP1	MIPI-DSI LCD Touch Display (800 x 1280)	$78.95 USD
AES-ACC-MAAX-CAM1	MIPI-CSI Camera (5 Mpixel OV5640 image sensor)	$26.95 USD
AES-ACC-MAAX-PWRUL	UL Certified 5V/3A USB Type-C Power Supply	$6.12 USD

Countries available for purchase: AMER, EMEA

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LIT# 5403-PB-AES-MC-SBC-IMXRT1176-G-V1