/ MAAXBOARD 8ULP

AVNET

MaaXBoard 8ULP features the NXP i.MX 8ULP processor to achieve ultra-low power, EdgeLock® secured intelligent edge applications.

The i.MX 8ULP device is architected with 3 separate processing domains: The application domain includes two Arm® Cortex®-A35 (1 GHz) cores plus 3D/2D GPUs for GUI-enabled Linux applications. The Real Time domain includes an Arm Cortex-M33 (216 MHz) core, plus Fusion DSP (200 MHz) core for low-power audio/voice use cases.

The LPAV domain (Low Power Audio Video) has a HiFi 4 DSP (600 MHz) core to support advanced audio, ML and sensor applications. The S400 Security Enclave and Power Manager also utilize RISC-V cores.

The 8ULP processor has on-chip shared RAM (768 KB), while the board is well resourced with power-efficient 32bit wide LPDDR4X DDR (2GB), Octal PSRAM (8 MB), plus eMMC 5.1 flash (32 GB) and Octal SPI NOR flash (4 MB) memory devices.

MaaXBoard 8ULP is engineered as two PCBs, a small SOM (43mm x 36mm) connected via 2x100-pin connectors to a baseboard (BB) in compact Raspberry Pi form-factor, which supports a versatile set of I/O interfaces. These include Gigabit Ethernet, two USB 2.0 host interfaces, plus separate USB 2.0 device interface, MIPI DSI display and MIPI CSI camera interfaces, a Pi-HAT compatible 40-pin header, MikroE Click 16-pin header plus ADC/DAC 6-pin header.

Audio applications are supported via onboard audio codec, digital microphone and stereo headphone jack I/O. Power is sourced via a USB-C connector and is managed via NXP's PCA9460B PMIC on the SOM plus three additional voltage regulators.

A unique aspect of this board is it's debug subsystem which supports remote USB access to three UARTs, 16bit I/O expander-based remote control and monitoring, plus integrated SWD/JTAG (or external header) debugger interface.

The back of the board has an M.2 module connector for easy addition of 801.11ac Wi-Fi and Bluetooth 5.1 wireless connectivity.

Kit includes

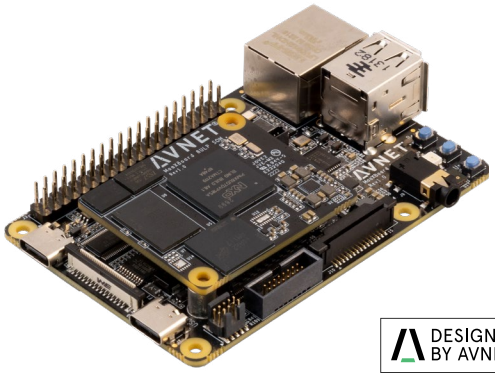
- MaaXBoard 8ULP Single Board Computer
- Quick Start Instruction Card

Accessory options

- 801.11ac Wi-Fi and Bluetooth 5.1 (M.2 module)
- MIPI DSI 7-inch touchscreen LCD display
- MIPI CSI 5MP camera
- 5V/3A USB Type C power supply

Target apps

- Edge-AI Applications
- Machine Learning
- Secure Entry Access-Control Systems
- Inventory and Asset Monitoring
- Surveillance Camera with Recognition
- Smart Home Appliances with AI
- Industrial Robotics



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Features

NXP i.MX 8ULP Processor

- 2x Arm Cortex A35 (1.0 GHz)
- 1x Arm Cortex M33 (216 MHz)
- 1x HiFi 4 DSP (600 MHz)
- 1x Fusion DSP (200 MHz)
- 1x 3D/2D-GPU (317 MHz)

Memory

- 768 KB shared RAM (8ULP on-chip)
- 2 GB LPDDR4X (32-bit)
- 32 GB eMMC memory
- 8 MB Octal SPI PSRAM
- 4 MB Octal SPI NOR Flash

Communications and User Interfaces

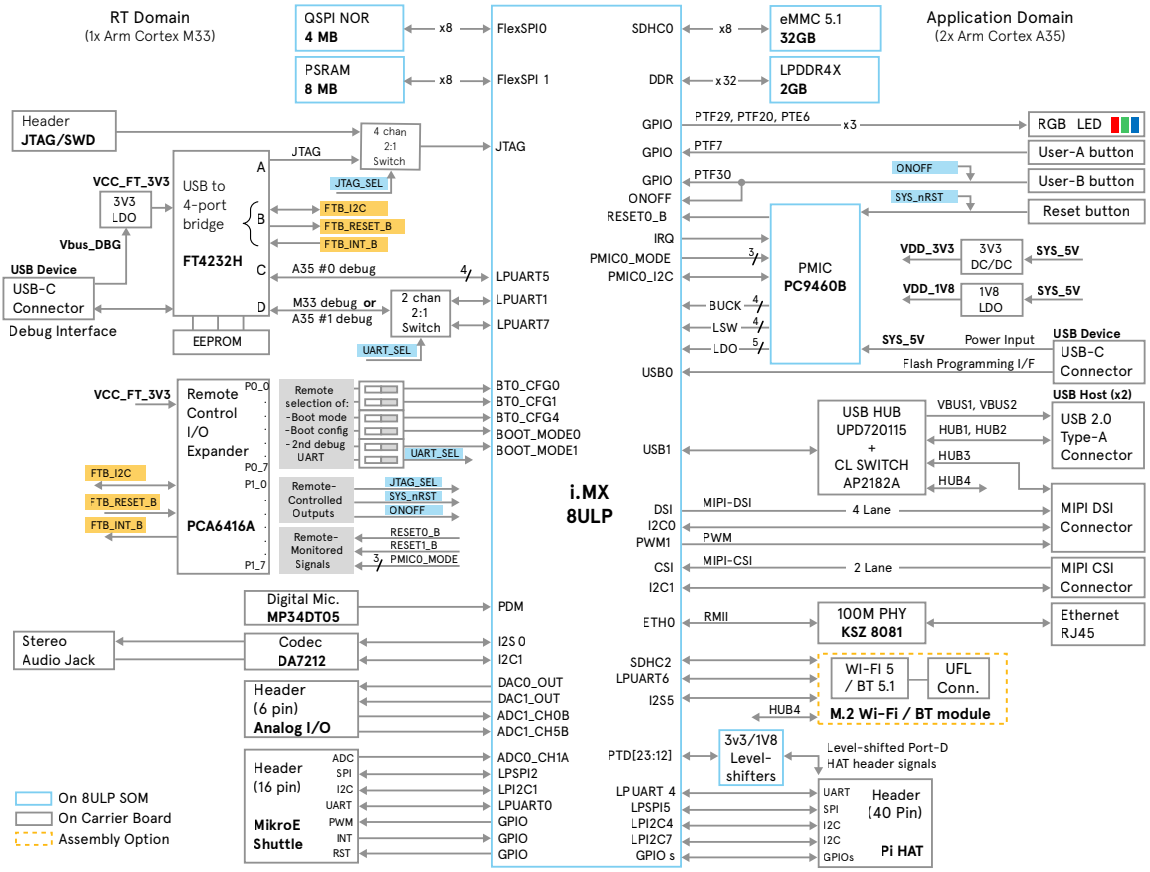
- 1G Ethernet port (RJ45)
- 801.11ac Wi-Fi and BT5 (optional)
- U.FL External Antenna (optional)
- 2x USB 2.0 Host and 1x USB 2.0 Device
- MIPI DSI LCD interface
- MIPI-CSI Camera Interface
- Audio Codec, DMIC and Stereo Jack I/O
- 1x User RGB LED and 3x Button Switches

Expansion, Power, Mechanical

- 40-pin Pi-HAT expansion header
- 16-pin MikroE Click Shuttle header
- 6-pin WTB Header (ADC in, DAC out)
- 10-pin JTAG/SWD debugger header
- USB-Type C connector 5V power input
- Operating Temperature: 0~70°C
- 85mm x 56mm form factor

For more information, visit: avnet.me/maaxboard-8ulp
To purchase this kit, visit: avnet.me/maaxboard-8ulp-pdp

Block diagram



Featured manufacturers

Parts

Part number	Description	Price and availability
AES-MAAXB-8ULP-SK-G	MaaXBoard 8ULP Starter Kit for NXP i.MX 8ULP	avnet.me/maaxboard-8ulp-pdp

Related parts

Part number	Description	Price and availability
AES-ACC-MAAX-DISP2	MIPI-DSI LCD Touch Display (800 x 1280)	avnet.me/maax-disp2-buy
AES-ACC-MAAX-CAM1	MIPI-CSI Camera (5 Mpixel OV5640 image sensor)	avnet.me/maax-cam1-buy
AES-ACC-MAAX-PWRUL	UL Certified 5V/3A USB Type-C Power Supply	avnet.me/maax-pwrul-buy
AES-MAAXB-8ULP-SOM-G	MaaXBoard 8ULP System-on-Module	avnet.me/maaxboard-8ulp-som
AW-CM358MA	AzureWave Wi-Fi/BT module	See price and availability

Countries available for purchase: Americas, EMEA

Contact information

North America
2211 S 47th Street
Phoenix, Arizona 85034
United States of America
1-800-585-1602

Europe (Silica)
Gruber Str. 60c
85586 Poing
Germany
+49-8121-77702

Europe (EBV)
Im Technologypark 2-8
85586 Poing
Germany
http://ebv.com/contact

Asia
151 Lorong Chuan
#06-03 New Tech Park
Singapore 556741
+65-6580-6000

aws Qualified Device AWS IoT Core

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