

8ULP SOM is a compact (43mm x 36mm), ultra-low power, peripheral-rich, compute module, designed for integration onto custom OEM hardware.

The NXP i.MX 8ULP device on this SOM is architected for optimal power efficiency, with separated processing domains, e.g.

Application domain with two Arm® Cortex®-A35 cores plus 3D/2D GPUs (plus comprehensive Linux enablement for rich GUI applications)

Real Time domain with Arm Cortex-M33F core for real-time performance, plus Tensilica Fusion F1 DSP core for low-power audio/voice use cases.

LPAV domain (Low Power Audio Video) with a Cadence Tensilica HiFi 4 DSP core for advanced audio, ML and sensor applications.

An EdgeLock Security Enclave and µPower Manager include RISC-V cores to manage advanced security features and govern over 20 different power mode configurations across the processing domains. Together with the onboard NXP PCA9460B PMIC, exceptional energy efficiency is achieved.

Memory resources include OCRAM (896 KB), x32bit LPDDR4X DDR (2 GB), 8bit PSRAM (8 MB), eMMC 5.1 flash (32GB) and 8bit SPI NOR flash (4 MB).

Board to board interface is via two 100pin (0.4 mm pitch) connectors that can accommodate different stacking heights and have mating connectors from both Samtec and TE Connectivity.

The compact SOM dimensions, energy-efficient multi-processor architecture, EdgeLock security, graphic capabilities and rich peripheral mix, all add-up to a versatile intelligent edge solution.

Kit includes

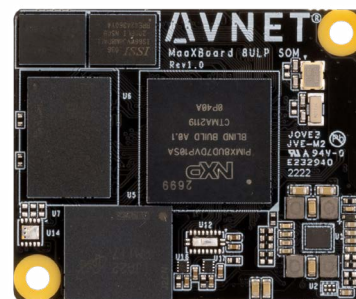
- 8ULP SOM (43mm x 36mm System on Module)

Related Boards and Accessory options

- MaaXBoard 8ULP Starter Kit
- 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-C Connector Power Supply

Target apps

- Edge-AI Applications
- Medical Devices, Portable Patient Monitors
- Handheld Printers and Scanners
- Food & Beverage POS Equipment
- Secure Entry Access-Control Systems
- Inventory and Asset Monitoring
- Surveillance Camera with Recognition
- Smart Utility Panels and Utility Meters
- Smart Home Appliances with AI
- Smart Building Control, HVAC
- Food & Beverage POS Equipment
- Smart City, Smart Camera



Features

NXP i.MX 8ULP Processor

- 2x Arm Cortex A35 (800 MHz)
- 1x Arm Cortex M33 (216 MHz)
- 1x HiFi 4 DSP (600 MHz)
- 1x Fusion DSP (200 MHz)
- 1x 3D/2D-GPU (317 MHz)
(OpenGL ES 3.1, Vulkan, OpenVG 1.1, OpenCL 2.x)

Memory

- 2 GB LPDDR4X (x32bit)
- 32 GB eMMC Flash Memory (x8bit)
- 896 KB OCRAM
- 8 MB Octal SPI PSRAM (x8bit)
- 4 MB Octal SPI NOR Flash (x8bit)

PHY interfaces on B2B Connectors

- 2x USB 2.0 OTG Ports Incl PHY
- 1x MIPI-DSI LCD Interface (4-lane)
- 1x MIPI-CSI Camera Interface (2-lane)

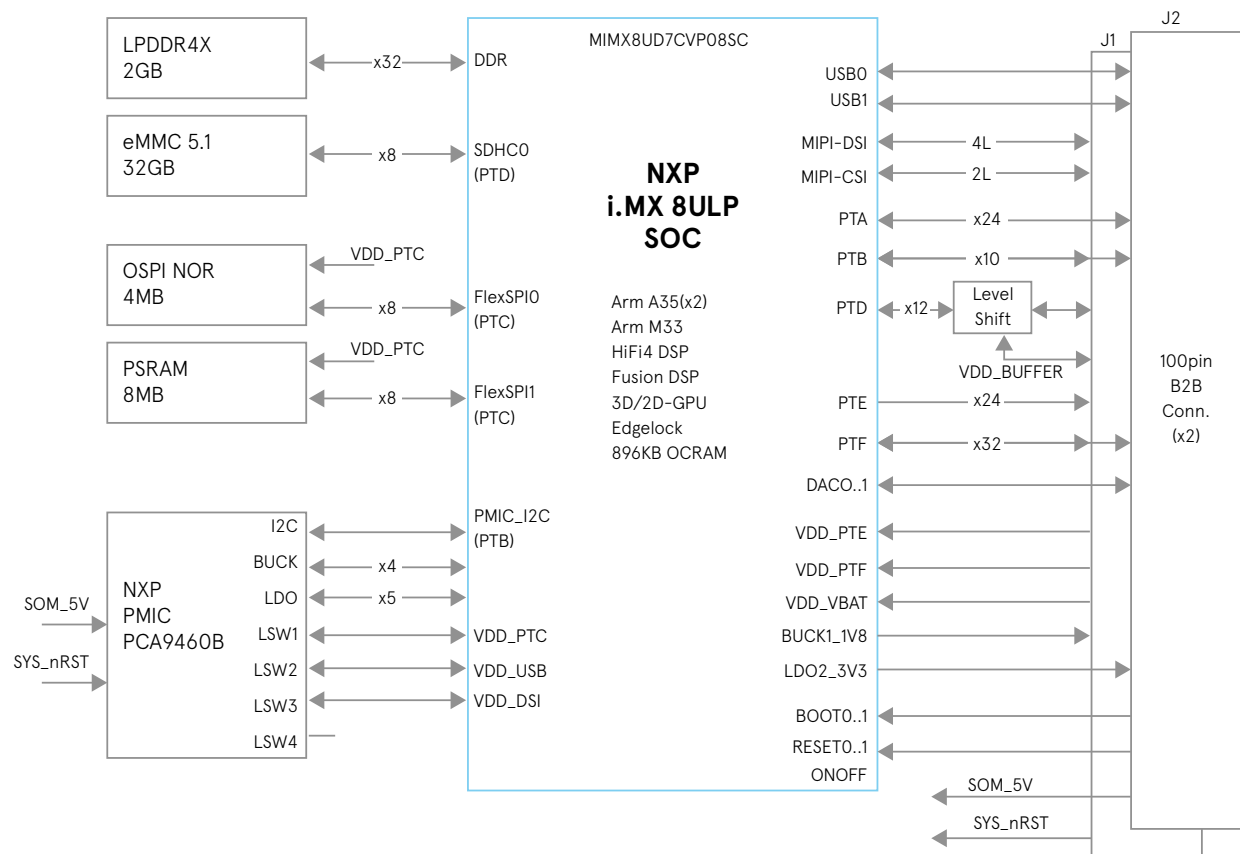
Peripheral Interfaces on B2B Connectors

- 2x SDHC
- 1x 10/100 Ethernet (with IEEE1588)
- 8x LPUART, 5x LPSPi, 7x LPI2C
- 1x CAN/CAN-FD
- 4x I2S, 4x DMIC/SPDIF
- 2x DAC (12bit), 2x ADC (12bit)
- 2x Analog Comparators

Expansion, Power, Mechanical

- 2x 100-pin (0.4mm pitch) B2B Connectors Samtec ST4, Requires SS4 on OEM Board
- SOM DC Supply in : 5V
- VDD_Buffer Port D : 2.5V / 3.3V / 5.0V
- VDD Ports E and F : 1.8V / 2.5V / 3.3V
- Operating Temperature: -40C~+85°C
- 43mm x 36mm Form Factor

Block diagram



Featured manufacturers



Parts

Part number	Description	For more information
AES-MAAXB-8ULP-SOM-G	8ULP System-on-Module	avnet.me/8ulp-som

Related parts

Part number	Description	For more information
AES-MAAXB-8ULP-SK-G	MaaXBoard 8ULP Starter Kit for NXP i.MX 8ULP	avnet.me/maaxboard-8ulp
AES-ACC-MAAX-PWRUL	UL Certified 5V/3A USB Type-C Power Supply	avnet.me/maax-pwrul
Arducam B0470	MIPI-CSI Camera (5 MP OV5640 Image Sensor)	Call for availability
ENWF9408AMEF	Panasonic PAN9028 Wi-Fi 5/BT5.1 M.2 Module	Call for availability
M2-JODY-W263-00C	u-blox Wi-F 5/BT5.1 M.2 module	Call for availability

Regions available for purchase: Americas, EMEA, Japan



Global Headquarters

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Online sales: **Farnell**

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FY25_1574_Tria_8ULP_SOM_Product_Brief_vp