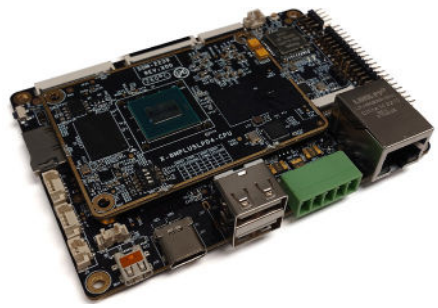
ESTONE TECHNOLOGY

EMB-2239

Pico-ITX POE Ready Embedded Board with NXP i.MX8M Plus ARM Processor, Dual MIPI CSI, LVDS, CAN and integrated AI/ML Neural Processing Unit



INTRODUCTION

The EMB-2239 embedded board is based on the NXP i.MX8M Plus ARM application processor. The board features a Power over Ethernet (PoE) ready Gigabit Ethernet port, on-board dual-core DSP that runs algorithms for voice control, a full set of I/Os including RS-232/485/CAN, dual MIPI CSI camera interfaces and expansion header slot for PCIe, GPIO and second ethernet port, integrated AI/ML Neural Processing Unit.

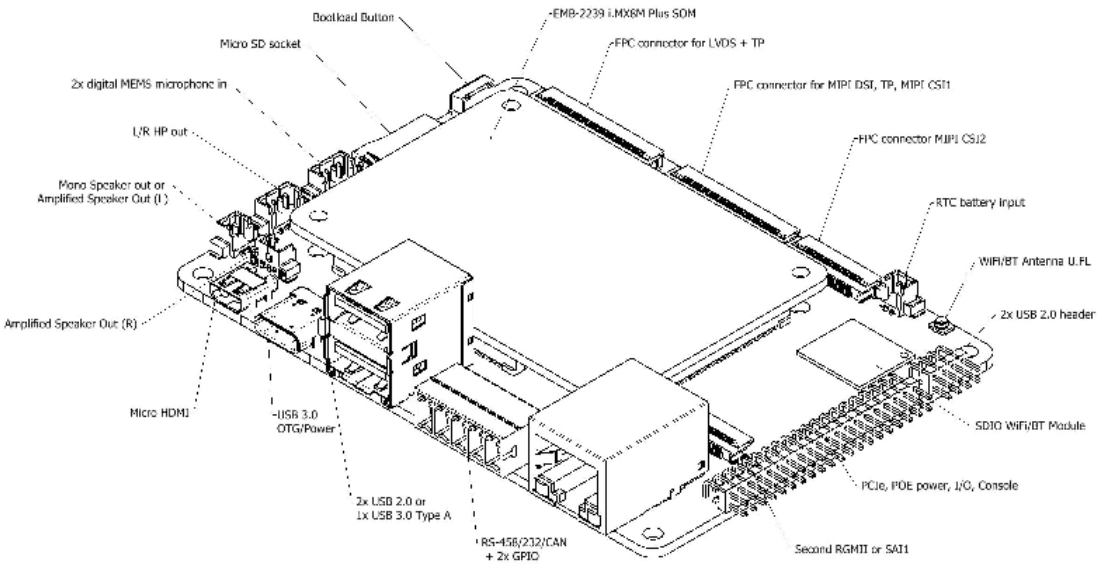
FEATURES

- NXP i.MX8M Plus with up to four 1.8 GHz Cortex-A53 processors
- One 800MHz Cortex-M7 for real time requirements
- Gigabit Ethernet with POE ready (with optioanl POE add-on board)
- Smart codec with dual-core DSP for digital MICs and voice control
- MIPI DSI, LVDS, I2C connectors for LCD and touch panel support
- Integrated AI/ML Neural Processing Unit accelerating ML inferencing
- Rich I/O with Dual MIPI CSI, RS-232/485/CAN, I2C, GPIOs, USB 3.0 ports

SPECIFICATIONS

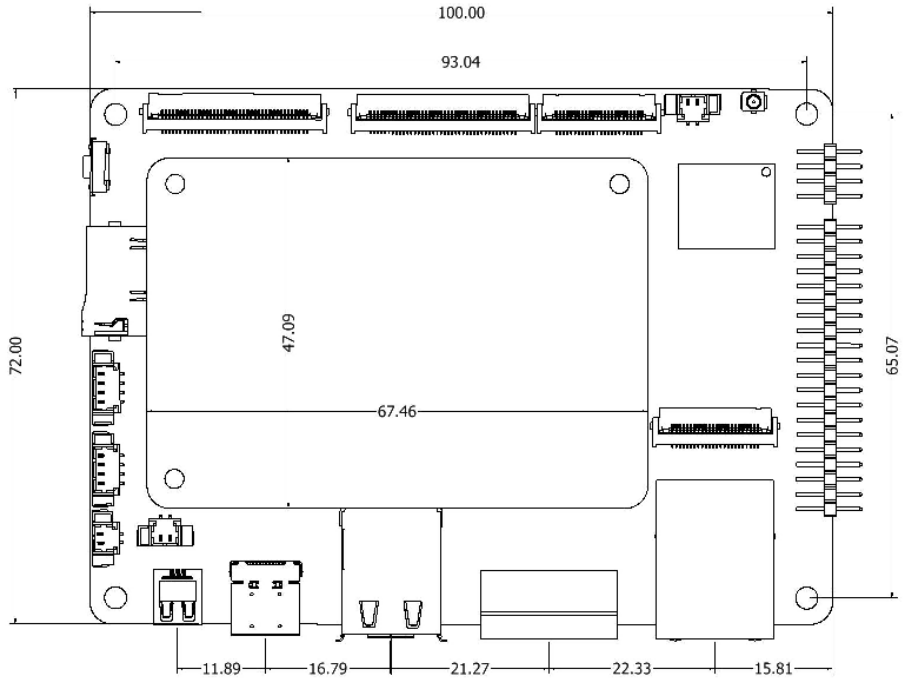
Model	EMB-2239 (SOM-2239 + IOB-2239)
Platform	ARM Cortex-A53
Processor	NXP i.MX 8M Plus, 4x ARM Cortex-A53 @ 1.8GHz, 1x Arm Cortex-M7 @ 800MHz
System Memory	On-board LPDDR4 @3200MT up to 4GB
Ethernet	1 x GbE with POE option, second RGMII via pin header
Storage	Onboard iNAND flash (16GB default), 1x micro SD slot, 265K EEPROM with write protect control
Wireless	1x WiFi/Bluetooth (AP6255/56) module, 802.11 b/g/n/ac + Bluetooth v5.0
AI/ML	Dedicated Neural Processing Unit (NPU): 2.3 TOPS; PCIe or USB expansion via pin headers
LCD Interface	1x MIPI 4-lane DSI, 1x Dual Channel LVDS for 5", 7", 8", 10.1" and other size LCD panels
Display Resolution	LVDS- up to 1920x1200p60, MIPI DSI - up to 1920x1200p60 or 2x 1080p60 + 1x 4kp30 on HDMI
Graphic Controller	GC7000UL supports OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2, Vulkan
Audio	1 x mono Class D speaker out @2W(4Ω), 2 (R/L) x HP out header, amplified speaker out (R/L) @ 3W(4Ω) 8 channel digital audio I/O (SAI1) via 24-pin expansion header
Voice Control	Dual digital MEMS microphone header via CS47L24 with dual DSP, support multi-mic noise suppression, acoustic echo cancellation (AEC), omni-directional spatial 8 channel digital audio/DMIC inputs (SAI5) via 40-pin expansion header
I/O	1x RS-232/RS-485/CAN and 2x GPIO via terminal block 2x USB2.0 or 1x USB3.0 Type A, 2x USB2.0 header, 1 x USB 3.0 Type C OTG 4+ GPIO, 2x I2C (for TP and MIPI CSI) 2x MIPI-CSI, one camera up to 12MP@30fps / 4kp45 or two up to 1080p80, 2x ISP supporting 375 Mpixel/s
Expansion	40 pin header with POE power, 2x USB 2.0, PCIe x 1, up to 8 channel digital audio inputs or GPIOs
Watchdog timer	Programmable timer system reset
OS Support	Yocto Embedded Linux (kernel version 5.10, Qt and Wayland), Amazon AVS (Alexa Voice Service) Device SDK, Sensory TrulyHandsfree Wake Word Engine, Android 10, Debian Linux
Power Input	5V DC via pin header or POE via RJ45 (POE add-on board not included)
Form Factor	Embedded Pico-ITX standard
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Storage Temperature	-40 ~ 85° C (-40 ~ 185° F)
Operating Humidity	5% ~ 95% @ 40°C (Non-Condensing)
Dimensions	100 x 72 mm (3.94" x 2.83")

LAYOUT



DIMENSIONS

Unit: mm



ORDER INFORMATION

Part No.	Description
SOM-2239	NXP i.MX8M Plus SOM with Smart Coded and Ethernet
IOB-2239	IOB-2239 Carrier Board for SOM-2239
EMB-2239	SOM-2239 i.MX8M Plus SOM + IOB-2239 Carrier Board
POE-4210	POE add-on module