

NXP i.MX8M ARM Quad-core Cortex-A53 Pico-ITX Embedded Board with Dual-core DSP for Voice Control, POE, MIPI and High Performance Audio



INTRODUCTION

The EMB-2238 is a Pico-ITX (100x 72mm) industrial motherboard based on NXP i.MX8M 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, noise suppression, and echo cancellation technology, extensive high-performance digital audio inputs/outputs and full set of I/Os including RS-232/485, and more.

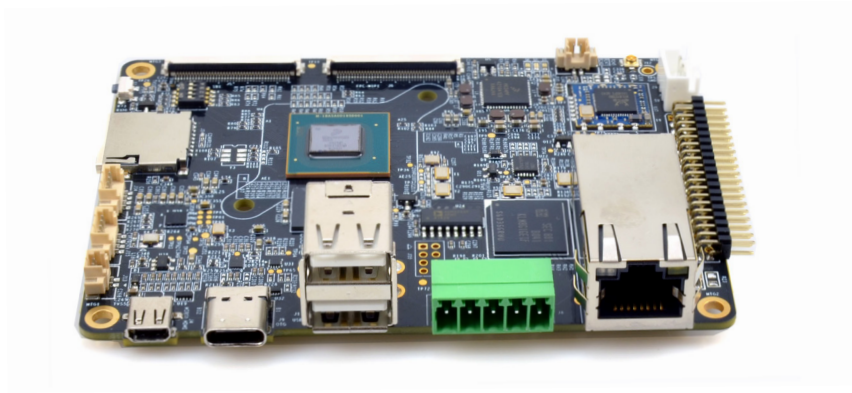
FEATURES

- NXP i.MX8M with up to four 1.5 GHz Cortex-A53 processors
- One Cortex-M4 for real time requirements
- Gigabit Ethernet with build-in POE (Power over Ethernet) option
- Smart codec with dual-core DSP for digital MICs and voice control
- MIPI CSI and DSI for LCD panel, built-in I2C touch panel support
- 20+ audio channel 32-bit @ 384KHz input and output interfaces
- Rich I/O with RS-232/485, I2C, GPIOs, USB 2.0 and 3.0 ports

SPECIFICATIONS

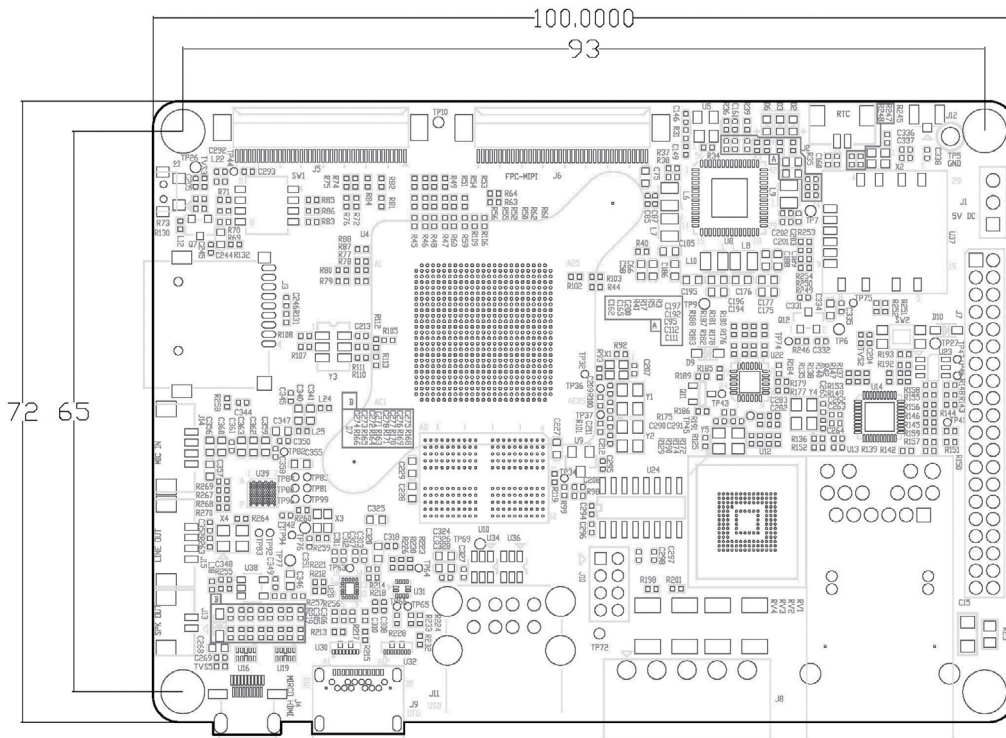
Model	EMB-2238
Platform	ARM Cortex-A53
Processor	NXP i.MX 8MQuad, 4x ARM Cortex-A53 @ 1.5GHz, 1x Arm Cortex-M4 @ 266MHz
System Memory	Onboard 2GB LPDDR4, up to 4GB
Ethernet	1 x 10/100/1000 Mbps GbE with POE option, second 10/100/1000 Mbps PCIe GbE (via PCIe add-on card)
Storage	Onboard iNAND flash (8GB default), 1x micro SD slot, 265K EEPROM with write protect control
Wireless	1x WiFi/Bluetooth USB module, 802.11 b/g/n + Bluetooth v4.0
Display Interface	1x micro HDMI
LCD Interface	1x MIPI 4-lane DSI for 7", 8", 10.1" and other size LCD panel
Display Resolution	HDMI - up to 4096x2160@60Hz, MIPI DSI - 1920x 1200
Graphic Controller	GC7000L/GC7000LVX, supports OpenGL/ES 3.1, OpenGL 3.0, Vulkan, OpenCL 1.2
Audio	1 x mono Class D speaker out, 2W(4Ω), 2 (R/L) x HP out header 1x 40-pin FPC expansion header: 8 channel digital audio input and 8 channel digital audio output (SAI1) interfaces with 32-bit @ 384 kHz fs and TDM support, 1x SPDIF, 1x QSPI
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) for MIC array via 40-pin expansion header
I/O	1x RS-232/RS-485 terminal block, 1x RS-232 header 2x USB2.0 Type A, 2x USB2.0 header, 1x USB Type C 3.0 OTG 4+ GPIO, 2x I2C (for TP and MIPI CSI) 1x MIPI 4-lane CSI
Expansion	1x 40-pin connector with PCIe x1, GPIO, front panel control, POE power input and 8 channel audio inputs
Watchdog timer	Programmable timer system reset
OS Support	Embedded Linux (kernel version 4.9, Qt and Wayland), Amazon AVS (Alexa Voice Service) Device SDK, Sensory TrulyHandsfree Wake Word Engine, Android 8.1.0
Power Input	5V DC header or POE
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
EMB-2238	NXP i.MX8M Quad-Core with single NIC
IOB-4210	Second NIC add-on module with DC in
POE-4210	POE add-on module
PPC-4710	10.1" touch panel PC development kit with EMB-2238