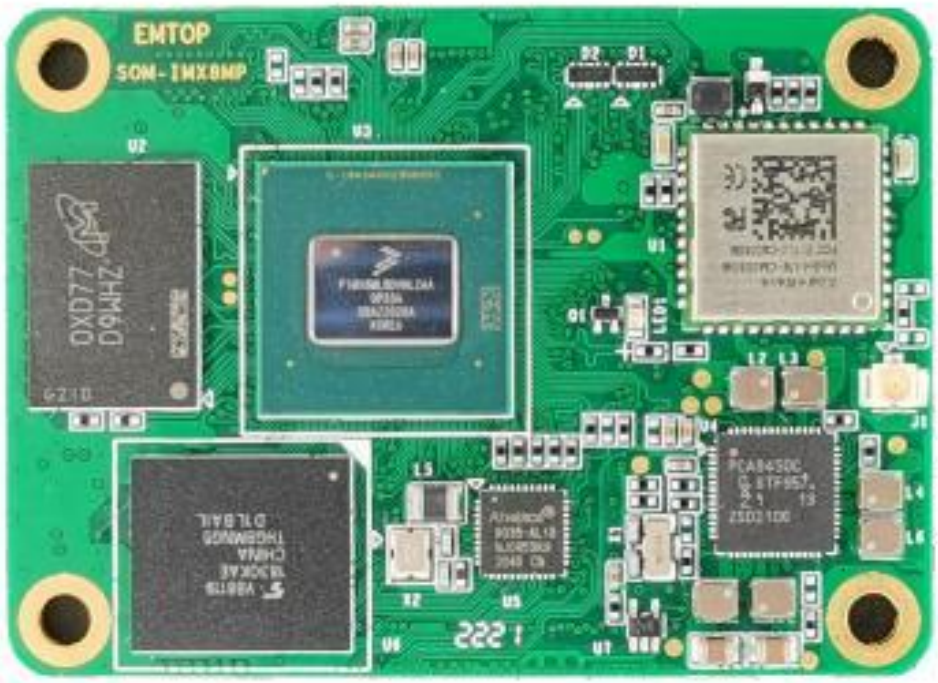
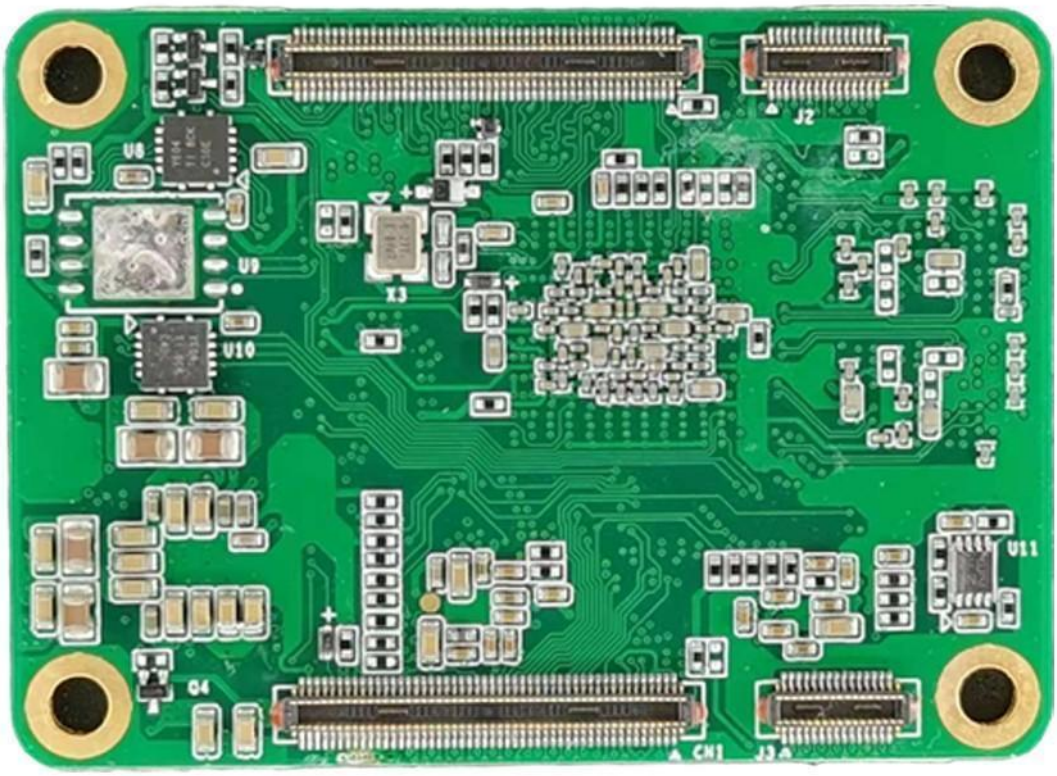
SOM-IMX8MP Specification




J2
U8
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X3
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Q4
CN1
J3

Revision History

Date	Version	Description
2023/5/31	V1.0	First Released
2023/7/1	V1.1	Update Chapter6 Price

1 Overview:

- The SOM-IMX8MP is a System on Module (SoM) containing processor, memory, eMMC Flash, WIFI module, Ethernet PHY and supporting power circuitry.
- The SoM is based on NXP i.MX8M Plus series processors, and can be easily used by a designer in their own products and systems, help customers to bring their products into market quickly.
- The electrical interface of SoM is via two 100-pin high density BTB connectors and two 30-pin high density BTB connectors, and the signal definition of two 100-pin connectors is compatible with CM4 of Raspberry, so it could be an high performance alternative of CM4 for some products embedded in CM4.

2 Highlight Features

- NXP i.MX 8M Plus Quad/Dual Core ARM Cortex-A53@1.8GHZ Or 1.6GHZ
  - 2D/3D GPU
  - 1080p VPU
  - Audio DSP
  - Integrated 2.3Top/S AI/ML Neural Processing Unit
  - Real-time ARM Cortex-M7@800Mhz
- Support Up to 8GB LPDDR4 and 64GB eMMC
- Certified 802.11ac WiFi/BT 5.0
- 2x GbE/RGMII, 1x PCIe3.0, 2x USB3.0, 2x CANFD, 4x UART, etc...
- Wide temperature range of -40C to 85C
- Compatible with Raspberry PI CM4 PIN with Additional 2X30 PIN
- Yocto Linux Kernel5.15, UBoot 2022.04
- Support OEM/ODM Design

3 Hardware Specification

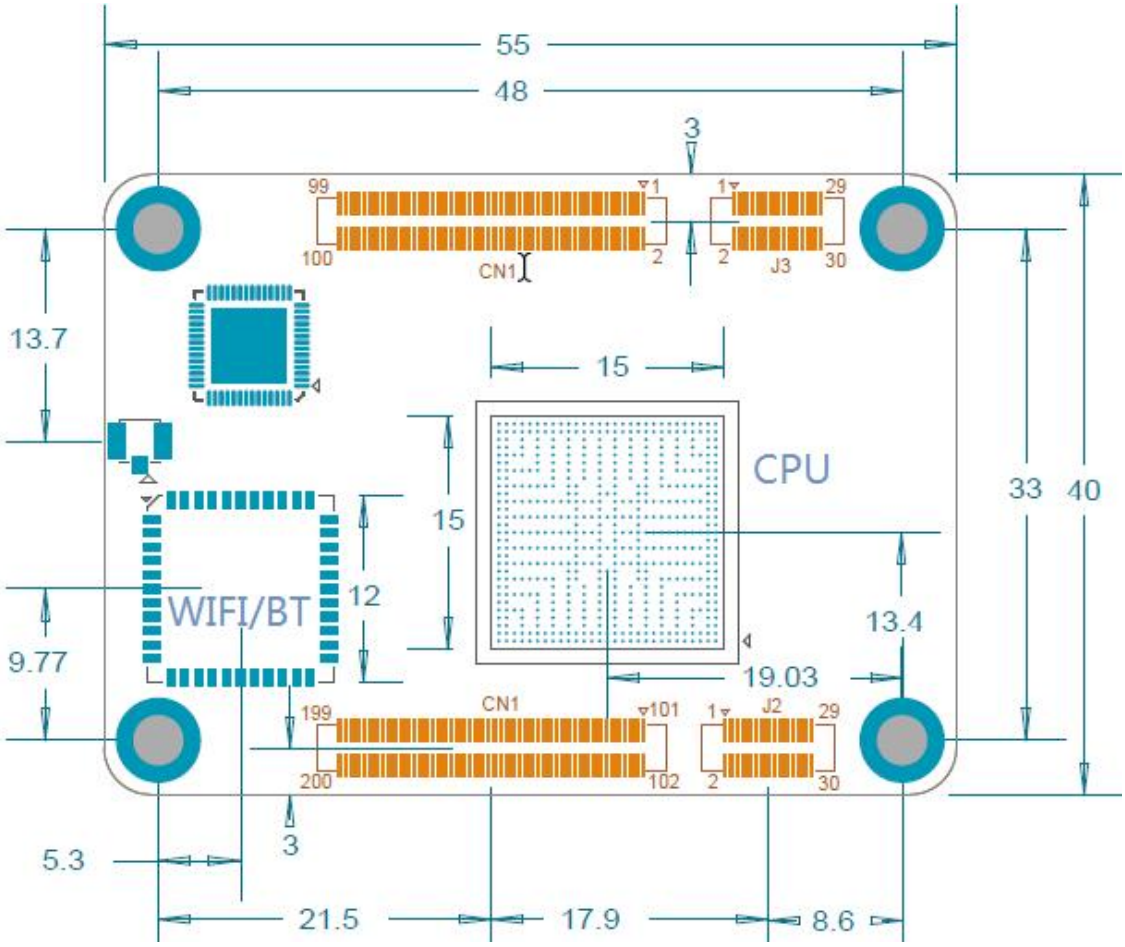
Form Factor	✓ 50mm x 40mm x 7.3 mm
Processor Unit	● NXP Quad core Cortex-A53 (ARM v8) 64-bit SoC ■ @ 1.8GHz for Commercial ■ @1.6GHz for Industry ● 2.3 TOP/s Neural Network performance available for user applications ● ARM Cortex-M7 Core CPU operating up to 800 MHz ● 375 Mpixel/s HDR Image Sensor Processor ISP ● Hifi4 Audio DSP, operating up to 800 MHz ● H.265 / H.264 (up to 1080p60 encode and decode), ● OpenGL ES 3.0 graphics, OpenCL 1.2
Graphics/GPU	● 3D Graphics: GC7000L ● 2D Graphics: GC520L
Video Codec/VPU	● 1080p60 VP9 ● 1080p60 HEVC/H.265 decoder ● 1080p60 AVC/H.264 Baseline, Main, High decoder ● 1080p60 VP8 ● 1080p60 AVC/H.264 encoder ● 1080p60 VP8 ● TrustZone support
Memory	● 2GB LPDDR4 on board (Support Up to 8GB Max)
Storage	● 16GB eMMC on board (Support Up to 64GB Max) ● 64Mb SPI Nor Flash
Ethernet/Wireless	● Onboard certified radio module with: ■ 2.4 GHz, 5.0 GHz IEEE 802.11 b/g/n/ac wireless ■ Bluetooth 5.1, BLE ● 2x Gigabit Ethernet controller ■ One Gigabit Ethernet controller with PHY on-board supporting IEEE 1588 ■ One Gigabit Ethernet controller supporting IEEE 1588, PHY is needed on baseboard

Connectivity	● 1× PCIe 1-lane Host, Gen 3 (5Gbps) ● 2× USB 3.0 port (high speed) ● 1x SDIO, eMMC 5.1 ● 66× GPIO supporting: ■ Up to 3× UART ■ Up to 4× I2C ■ Up to 2x SPI ■ 1x SDIO interface ■ 2x CANFD ■ 1x PCM ■ Up to 4 x PWM channels
Display	● 1x HDMI 2.0a ports (up to 1920 x 1080p60 supported) ● 1x 4-lane MIPI DSI (4-lane up to 1920 x 1080 at 60Hz) ● 1x 4-lane LVDS (up to approximately 1366x768p60)
Image Capture	● 2x 4-lane MIPI CSI-2
Audio Interface	● SPDIF input and output ● Five external synchronous audio interface (SAI) modules ● 8-channel PDM microphone input ● SPDIF input and output
Dimensions	● 50mm x 40mm x 7.3 mm
Operating Temperature	● Commercial Version: **0°C-70°C** ● Industrial Version: **-45°C-85°C**
Power	● Single +5V Power supply input.

4 Software Specification

Names		Note	Formats
BOOTLOADER	U-BOOT	MMC/SD	Source Code
		FAT	Source Code
		NET	Source Code
KERNEL	LINUX-5.15.32	Support JFFS2/EXT4/FAT/NFS various of file system	Source Code
DEVICE DRIVER	PMIC	PCA9450CHN driver	Source Code
	SERIAL	Serials driver	Source Code
	RTC	Hardware RTC driver	Source Code
	NET	10/100M/1Gbps Ethernet driver	Source Code
	CAN	CAN bus driver	Source Code
	SPI	SPI driver	Source Code
	MIPI-DSI	MIPI-DSI driver	Source Code
	HDMI	HDMI driver	Source Code
	I2C	I2C driver	Source Code
	LVDS	LCD driver	Source Code
	TOUCH SCREEN	I2C and TSC touch panel driver	Source Code
	MMC/SD	MMC/SD controller driver	Source Code
	USB HOST	USB HOST driver	Source Code
	AUDIO	WM8904 Audio driver(supports recording & playback)	Source Code
	BUTTON	GPIO button driver	Source Code
	LED	LED driver	Source Code
	BUZZER	Buzzer driver	Source Code
	CAMERA	CSI Camera driver	Source Code
	PCIe	PCIe interface driver	Source Code
ROOTFS	YOCTO	Wayland with Qt 6.3.1	Image

5 Size Information



6 Order Information

Item Name	LPDDR4	EMMC	WIFI/BT	Price@1k	Temp
SOM-IMX8MP-L216CW	2GB	16GB	Yes	USD67	0°C-70°C
SOM-IMX8MP-L216CW-I	2GB	16GB	Yes	USD77	-45°C-85°C

7 Contact Information

sales@emtop-tech.com
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Github Link:
https://github.com/EMTOP-TECH/SOM-IMX8MP

Product Link:
https://www.emtop-tech.com/product/som-imx8mp/