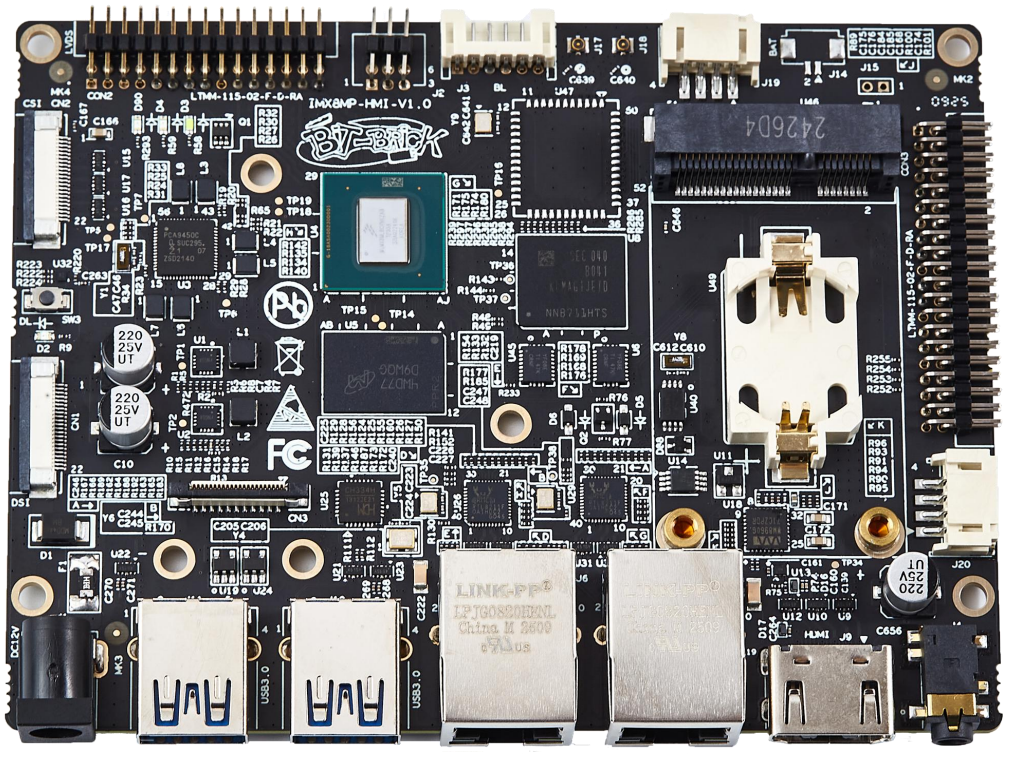
Bit-Brick IMX8MP-HMI datasheet



Provisional version

V 1.0

Bit Brick Technology Corporation

May 19, 2025

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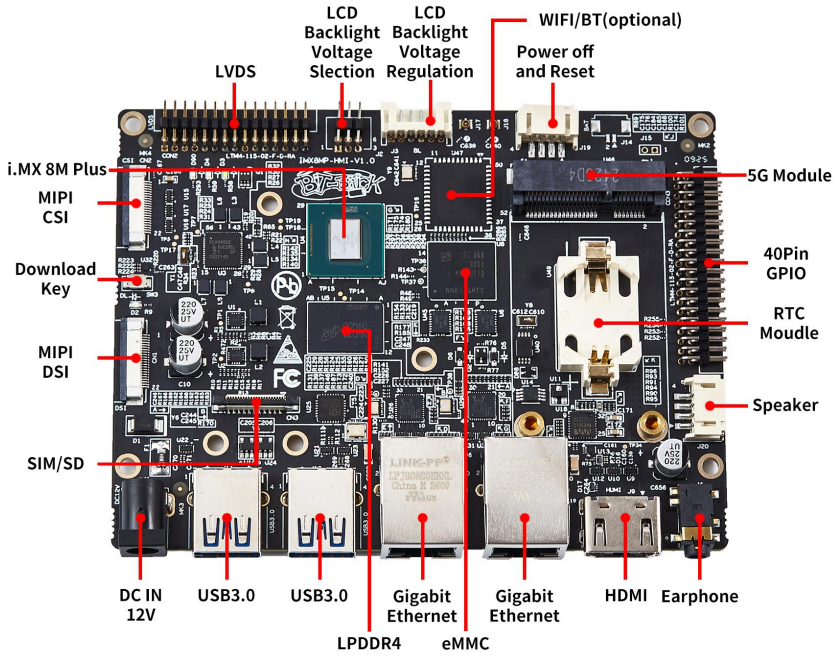
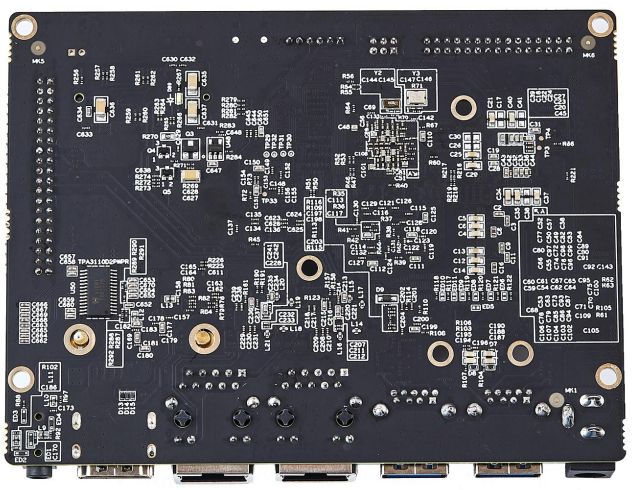
1. Product Introduction

Bit-Brick IMX8MP-HMI is a high-performance development board based on the NXP i.MX 8M Plus processor. It features a heterogeneous multi-core architecture combining a quad-core ARM Cortex-A53 and a single-core ARM Cortex-M7, with a clock speed of up to 1.8 GHz. Integrated with a 2.3 TOPS Neural Processing Unit, dual Image Signal Processors, and a dual-core GPU engine, the platform supports HDMI, MIPI-DSI, and LVDS display outputs, along with 1080p@60fps video encoding and decoding capabilities. This makes it well-suited for a wide range of applications, including industrial automation, smart devices, multimedia processing, and edge computing, etc.

The IMX8MP-HMI offers a rich set of interfaces—such as USB 3.0, PCIe, HDMI 2.0a, MIPI-CSI, MIPI-DSI, LVDS, 5G module support, RTC, and Gigabit Ethernet—meeting diverse connectivity and expansion requirements. It provides developers with a flexible and efficient platform for rapid prototyping, system evaluation, and early-stage technology verification.

2. Hardware Functional Block Diagram





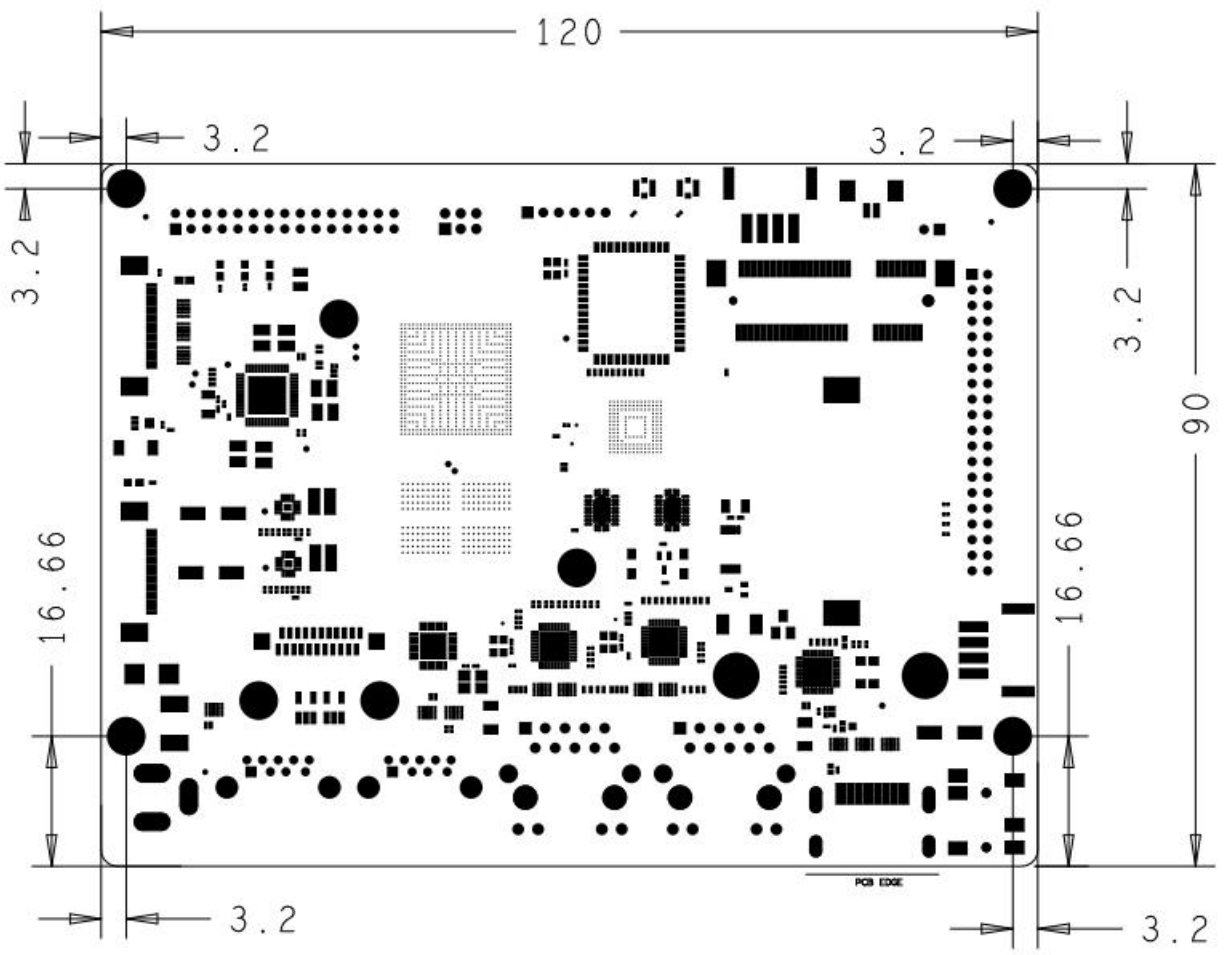
3. Specifications

Form factor	Specification	
Processor	CPU	NXP i.MX 8M Plus, Quad-core ARM Cortex-A53@1.8GHz + Cortex-M7@800MHz
	GPU	GC520L 2D and GC7000UL 3D GPU, support OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2, Vulkan
	NPU	2.3 TOPS
	VPU	Decoder: 1080p@60fps(H.265/H.264/VP9/VP8) Encoder: 1080p@60fps(H.265/H.264)
Memory	RAM	2GB/4GB LPDDR4 SDRAM(optional)
	Flash	16GB/32GB eMMC(optional)
Multimedia	Video	Output: 1x HDMI2.0a(up to 4K@30fps); 1x MIPI-DSI; 1x LVDS; Input: 2x ISP with HDR; 2x MIPI-CSI
	Audio	6x SAI; eARC; ASRC; SPDIF TX and RX; 1x 8-channel PDM

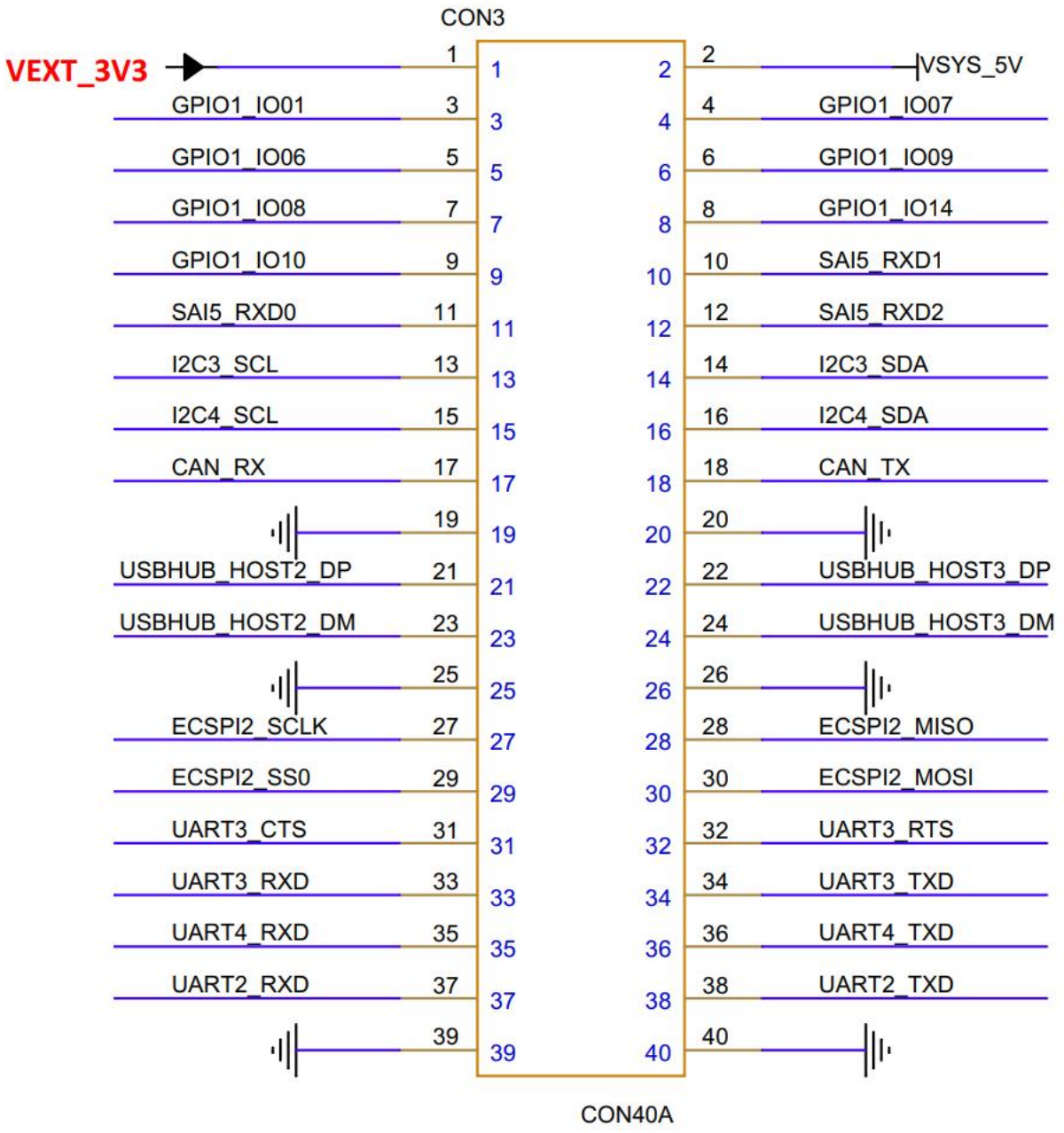
IO	PCIe	1x PCIe
	Ethernet	2x Gigabit Ethernet
	USB	2x USB3.0, 2xUSB2.0
	UART	3x
	I2C	2x
	SPI	2x
	CAN FD	2x
	PWM	4x
	MIPI DSI	1x
	MIPI CSI	1x
	HDMI	1x HDMI2.0a
	LVDS	1x
	RTC	1x
	5G Module	1x
	GPIO	10x
	Audio	1x 3.5mm Earphone interface; 1x Speaker header
Power supply	Power Supply Voltage	DC 12V
Environment	Operating Temperature	-20 ~ 7 5 °C
	Operating Humidity	95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	120 x 90mm
Operation System		Linux
Certifications		CE/FCC Class B

4. Dimension Specifications

Size： 120.0mm X 90.0mm



5. GPIO Pin definations



6. Ordering Information

Part No.	CPU	Memory	Flash	Operating Temperature
Bit-Brick-IMX8MP-HMI-0216	i.MX 8M Plus	2GB	16GB	-20~75°C
Bit-Brick-IMX8MP-HMI-0432	i.MX 8M Plus	4GB	32GB	-20~75°C

7. Update History

Version Revision	Update Date	Content
Provisional V 1.0	2025-5-16	Initial the first version