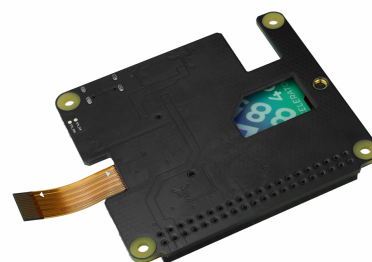
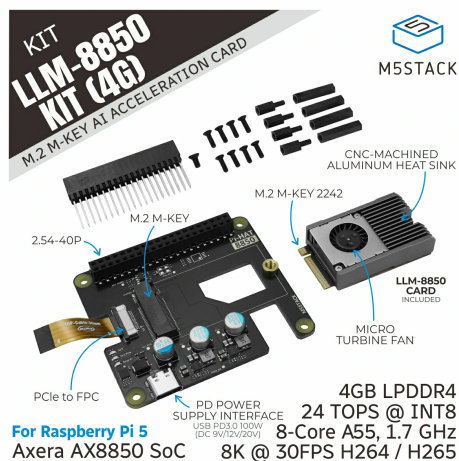
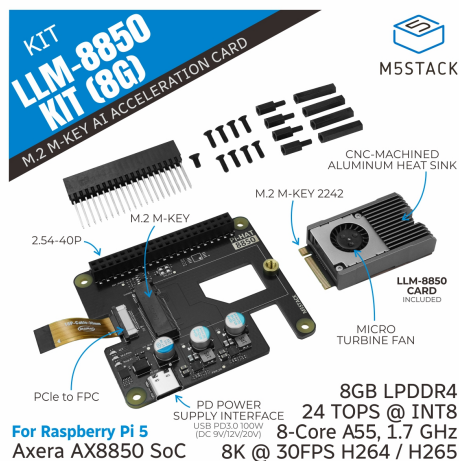
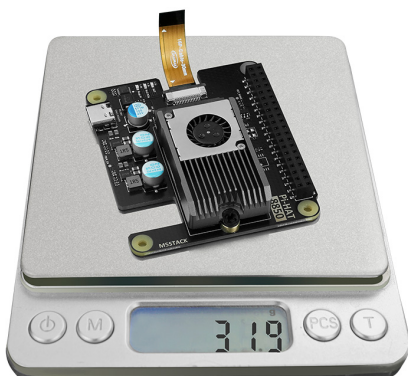
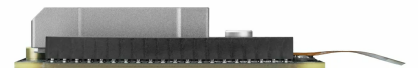
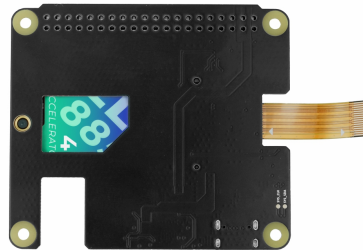
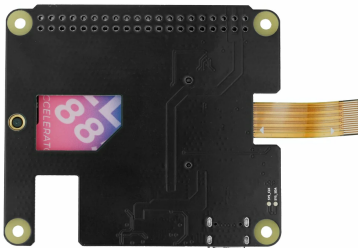
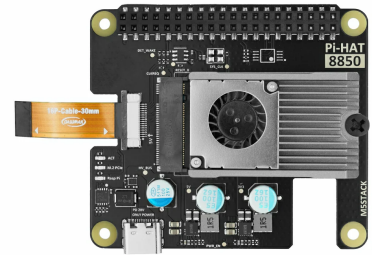
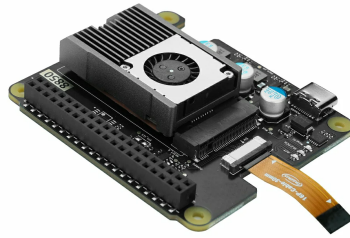
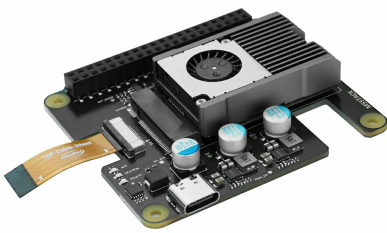


LLM-8850 Kit

SKU:AI-002-8G/AI-002-4G





Description

LLM-8850 Kit is a high-performance AI accelerator kit designed for edge AI and embedded computing scenarios. It consists of the **LLM-8850 Card** AI accelerator card and the **LLM-8850 PiHat** adapter board. The core accelerator card **LLM-8850 Card** is based on the **Axera AX8850 SoC**, adopting the **M.2 M-Key 2242** form factor. In a compact size, it delivers up to **24 TOPS @ INT8** computing power, efficiently extending AI application capabilities such as multimodal large model inference and video analysis. The card integrates an active cooling system with a **micro turbine fan + aluminum alloy CNC finned heatsink**, intelligently controlled by an onboard EC based on a temperature-current curve. Even under long-term full load or in a sealed enclosure, it maintains a low temperature steady state, preventing performance degradation due to thermal throttling. The accompanying **LLM-8850 PiHat** adapter board provides a **2.54-40P bus** and a **USB Type-C PD power input**, and connects to the **Raspberry Pi 5** via a **PCIe expansion FPC adapter**, allowing the Raspberry Pi platform to easily integrate high-computing-power AI acceleration and quickly build a compact, efficient edge intelligent system.

Features

- Ultra-compact form factor: M.2 M-Key 2242 size
- High-performance NPU: 24 TOPS @ INT8, octa-core Cortex-A55 @ 1.7 GHz CPU
- Intelligent cooling/power: onboard turbine fan + CNC aluminum alloy integrated heatsink, EC monitors temperature-current-speed closed loop
- Hardware video engine: 8 K @ 30 fps H.264/H.265 encoding, 8 K @ 30 fps decoding, supports 16-channel 1080P parallel decoding
- Secure boot & encryption: AES/DES/3DES/SHA-256 hardware security module
- Native AXCL: one-click running of full-stack models including CNN, Transformer, CLIP, Whisper, Llama3.2, Qwen3, InternVL3, supports simultaneous H.264/H.265 encoding/decoding and transcoding
- Two memory options:
 - 8GB 64-bit LPDDR4x, 4266 Mbps (4+4)
 - 4GB 64-bit LPDDR4x, 4266 Mbps (2+2)
- USB Type-C PD power input:
 - USB PD3.0 100W protocol
 - DC 24V overvoltage protection
 - Power supply requirement > 9V@3A (27W)

Includes

LLM-8850 Kit(8G) (SKU:AI-002-8G)

- 1x LLM-8850 Card(8G)
- 1x LLM-8850 PiHat
- 1x 2.54-40P Female Header
- 1x Screw and Copper Standoff Kit

LLM-8850 Kit(4G) (SKU:AI-002-4G)

- 1x LLM-8850 Card(4G)
- 1x LLM-8850 PiHat
- 1x 2.54-40P Female Header
- 1x Screw and Copper Standoff Kit

| Applications

- Edge AI inference deployment
- Embedded video analysis
- Raspberry Pi AI computing power expansion
- Multimodal large model deployment

| Specifications

Specification	Parameter
SoC	Axera AX8850
CPU	Octa-core Cortex-A55 1.7 GHz
NPU	24 TOPS @ INT8
Video Encoder	8 K @ 30 fps H.264/H.265 encoding, supports scaling/cropping
Video Decoder	8 K @ 30 fps H.264/H.265 decoding, supports 16-channel 1080P parallel decoding, supports scaling/cropping
Memory	Optional: 8GB 64-bit LPDDR4x, 4266 Mbps (4+4) / 4GB 64-bit LPDDR4x, 4266 Mbps (2+2)
Storage	32Mbits QSPI NOR Flash (Bootloader only)
Form Factor	M.2 M-Key 2242, PCIe 2.0 x2
Cooling	Micro turbine fan + aluminum alloy CNC integrated heatsink, EC intelligent temperature control
Operating Ambient Temperature	0 ~ 60 °C
Full Load Temperature at Room Ambient	70 °C
Adapter Board PD Power Input	USB PD3.0 100W protocol (DC 9V/12V/20V)
Adapter Board Load Capability	Output to Raspberry Pi 5: DC 5V@4A, Output to M.2 accelerator card: DC 3.3V@6A
LLM-8850 Card Power Consumption	7W @ 3.3V
Power Supply Requirement	> 9V@3A (27W)
Product Size	LLM-8850 Card: 42.6 x 24.0 x 9.7mm LLM-8850 PiHat Adapter Board: 65.0 x 58.0 x 12.7mm (including LLM-8850 Card)
Product Weight	AI-002-8G: 31.9g AI-002-4G: 30.8g
Package Size	165.0 x 90.0 x 17.5mm
Gross Weight	AI-002-8G: 85.0g AI-002-4G: 81.7g

Power Supply Warning

Use the USB Type-C PD input on the adapter board to power the entire system. The power supply requirement is 9V@3A (27W) or higher. Do not power from the Raspberry Pi 5 side to avoid device damage.

Reminder

The device will heat up during operation. Do not touch to avoid burns.

Device Requirement

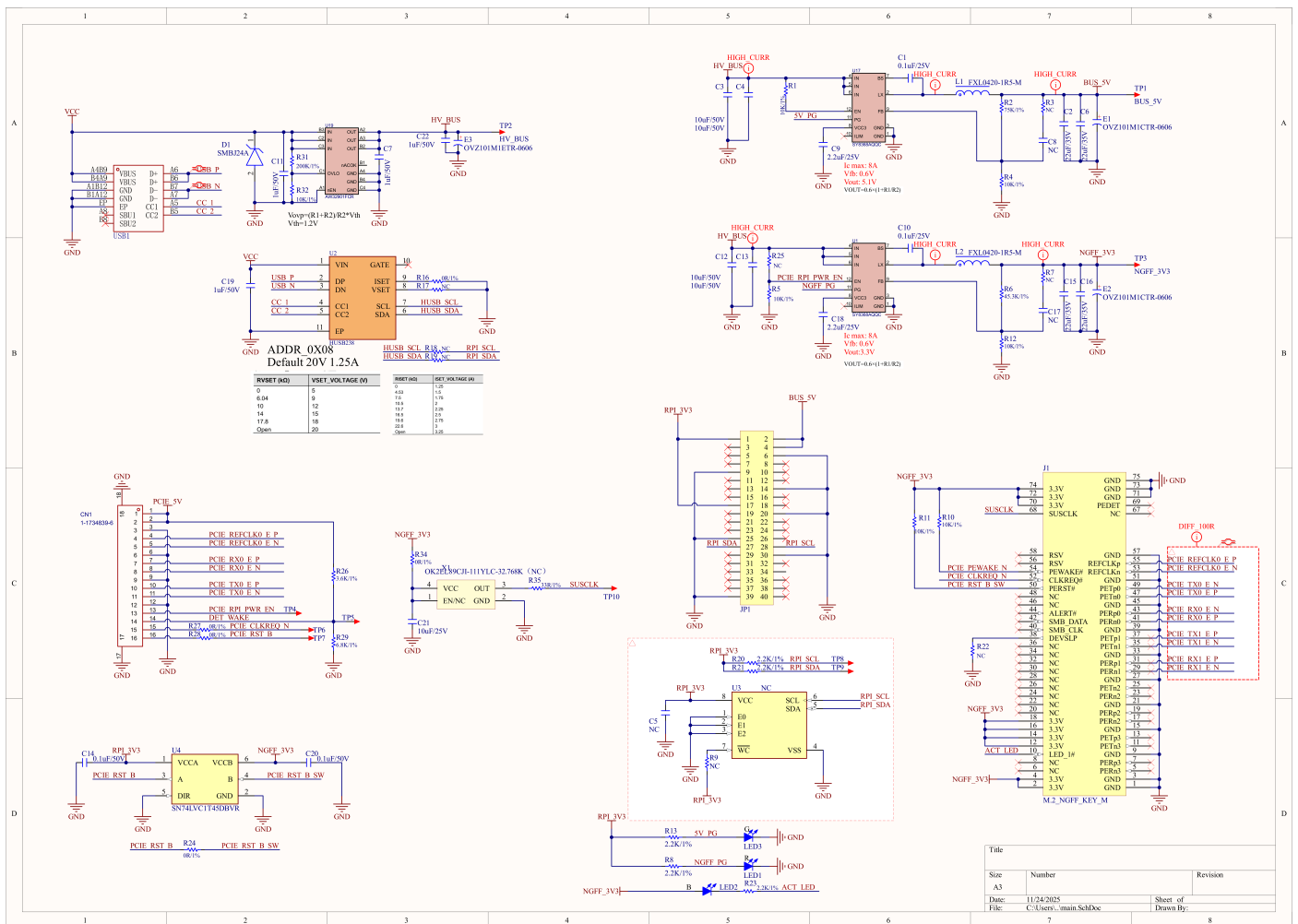
Due to insufficient internal interrupt resources on the Raspberry Pi, when using PCIe to 4-lane M.2, the M.2 SSD and LLM-8850 cannot be used together.

System Compatibility

Operating System	Supported
Ubuntu20.04	✓
Ubuntu22.04	✓
Ubuntu24.04	✓
Debian12	✓
Debian13	✓
Windows10	✓
Windows11	✓
macOS	✗
WSL	✗
VMware	✗
VBox	✗

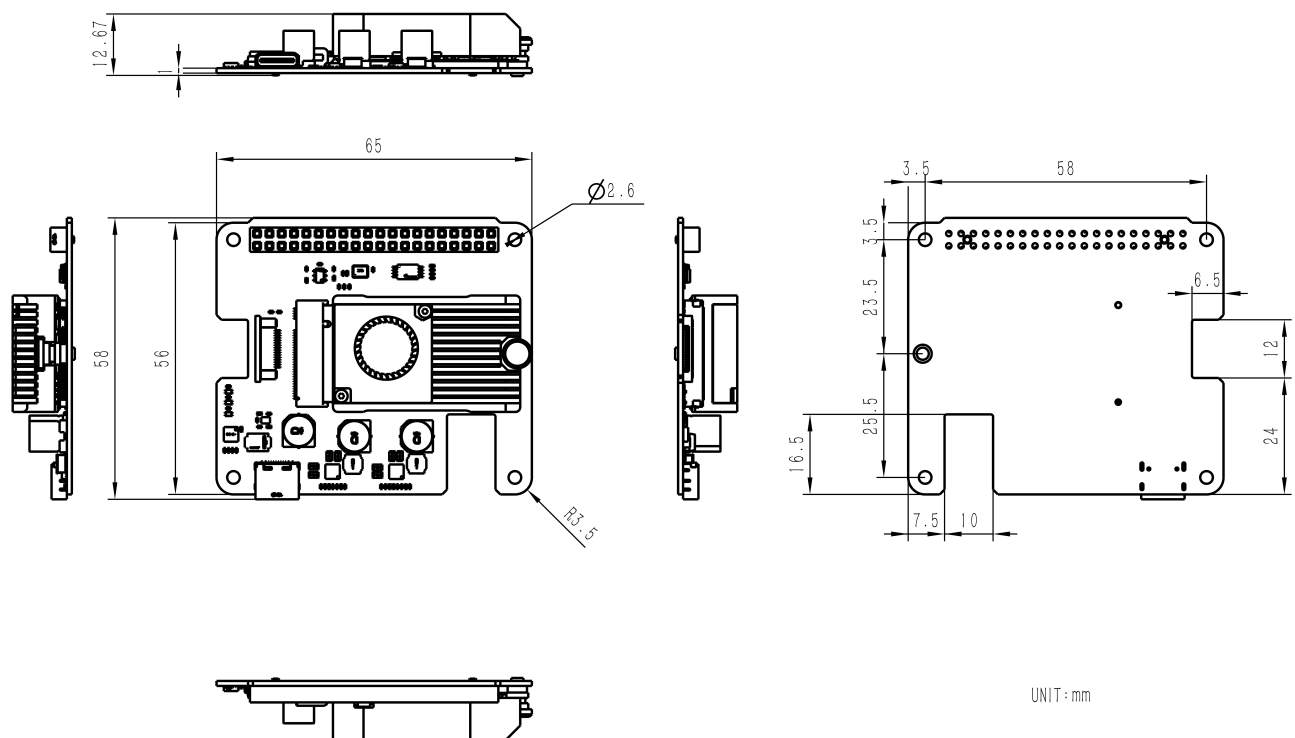
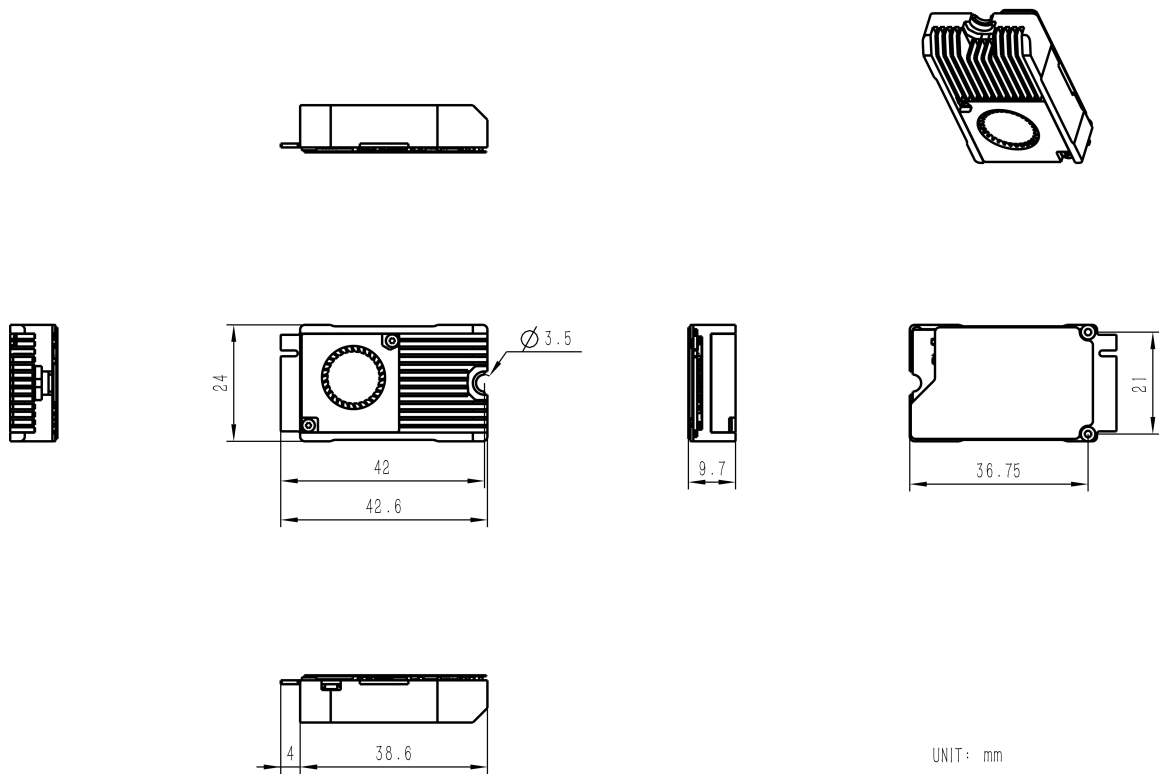
Schematics

- [LLM-8850 Kit Schematic PDF](#)



Model Size

- [LLM-8850 Card Model Size PDF](#)
- [LLM-8850 PiHat Adapter Board Model Size PDF](#)



| Datasheets

- [Axera AX8850 Product Brief](#)

| Softwares

| Quick Start

- [LLM-8850 Card User Guide](#)

| Video

- LLM-8850 Kit Product Introduction and Feature Demonstration

[AI-002-8G-LLM-8850-Kit-ZH.mp4](#)