

AIB-2541M | AIB-2541M/S1

Edge AI controller, Metal Case

Features

- Compatible with 13 TOPS Hailo 8 Lite AI Accelerator(Equipped with AIB-2541M/S1)
- Built-in multiple communication interfaces (Ethernet x 2, USB x 4, RS-485 x 2)
- 2-CH isolated DI and 2-CH isolated DO
- Support HDMI output 4k display
- I/O Expansion Bus
- M.2 Key M: PCIe interface for AI accelerator modules (Optional)

Introduction

The AIB-2541M series controller is a fanless, secure, compact, low-power edge AI computing device powered by an ARM-based Cortex-A76 processor. Equipped with peripherals such as GbE LAN, HDMI, USB 3.1, DIO and 4G wireless connectivity. Through the AI accelerator module, AI computing capabilities can be expanded, and AI and edge computing can be introduced into industrial applications. A wide range of I/O expansion boards can be used for expansion. Rugged stainless steel housing and heat dissipation make it suitable for operation in -20 to +70 °C environments.

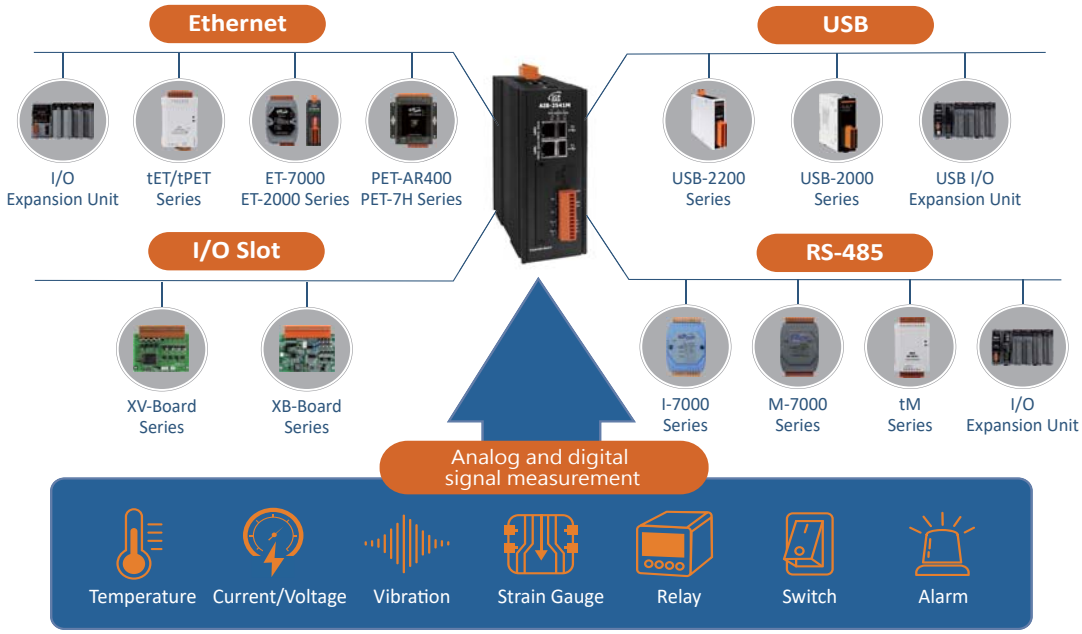
Ubuntu OS

Ubuntu is an easy-to-use operating system that is well-suited for both beginners and experienced users. It features an intuitive interface and a wealth of functionalities, making it versatile for various purposes and one of the most widely used Linux distributions.

Running Ubuntu on the AIB-2541M enables users to fully leverage its capabilities and performance.

- Exceptional User Experience
- Rich Community Support
- Comprehensive Software Support and Development Tools: Offers dedicated SDKs, Perl, Java, GUI software, and more.
- Ease of Use, Versatility, and Security
- Embedded Services: Includes Web Server, FTP Server, Telnet Server, SSH Server.

Appications



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Specifications

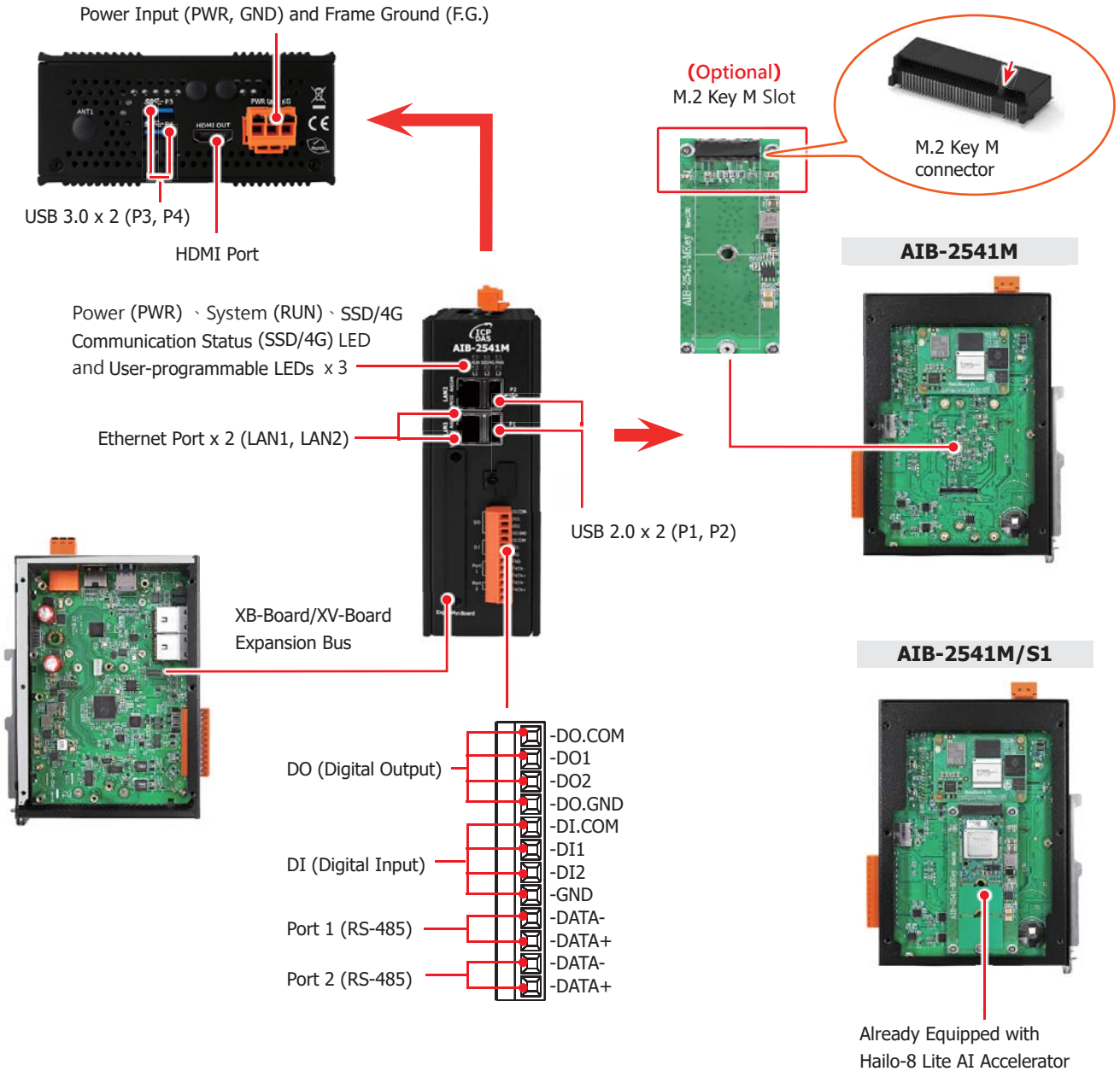
Software	
OS	Ubuntu OS
SDK Provided	C / Python library
Multilanguage Support	English, Simplified Chinese, Traditional Chinese
CPU Module	
CPU	Quad core Cotex-A76 (ARMv8) 64-bit SoC @ 2.4GHz
64-bit Hardware Serial Number	Yes
System Memory	4GB LPDDR4 SDRAM
Storage	On-board 64 GB eMMC
Non-Volatile Memory	128 KB FRAM
Real Time Clock	Provide second, minute, hour, date, day of week, month, year
Watchdog Timer	Yes
Display	
GPU	OpenGL ES 3.1 graphics, Vulkan 1.2, 4K 60fps HEVC decode
Signal	HDMI port x 1 (4K 60fps with Audio)
LED Status	1 x Power LED Indicator (PWR), 1 x System Running LED Indicator (RUN), 1 x SSD Access / 4G Communication Status LED Indicator (SSD/4G), and 3 x User-programmable LED Indicators (L1, L2, L3)
Communication Ports	
Ethernet	2 x RJ-45, 10/100/1000 Based-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)
USB Port	2 x USB 2.0 (host), 2 x USB 3.0 (host)
COM Port	RS-485 x 2, (Data+, Data-); 2500 VDC Isolated
Digital Input	
Channels	2
Type	Wet Contact
Sink/Source (NPN/PNP)	Sink/Source
ON Voltage Level	+19 VDC ~ +24 VDC
OFF Voltage Level	+11 VDC Max.
Digital Output	
Channels	2
Type	Isolated Open Collector
Load Voltage	+24 VDC
Load Current	100 mA/Channel
Overvoltage Protection	60 VDC
Overload Protection	1.1 A
Short-circuit Protection	Yes
Audio	
Jack	Microphone-In x 1 and Earphone-Out x 1 (Optional)
Mechanical	
Casing	Metal
Cooling Type	CPU Heat Sink / Fanless
Dimension (W x L x H)	56 mm x 177 mm x 128 mm
Installation	DIN-Rail, Wall mounting (Optional)
Environmental	
Operating Temperature	-20 ~ +70 °C
Storage Temperature	-40 ~ +80 °C
Humidity	10 ~ 90 % RH, Non-condensing
Power	
Input Range	+12 ~ 48 VDC
Consumption	4.8 W (0.2 A @ 24 VDC)

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Specifications

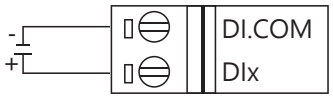
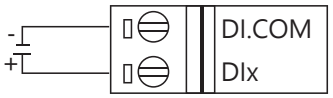
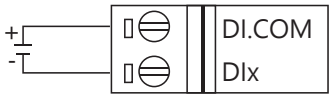
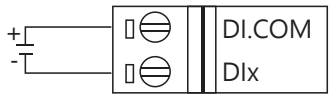
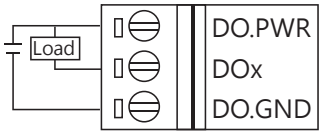
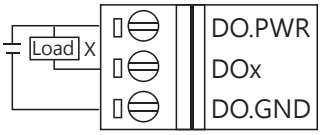
Model	AIB-2541M	AIB-2541M/S1
AI Accelerator (Optional)		
Model Number	-	Hailo 8 Lite
AI frameworks	-	TensorFlow, TensorFlow Lite, Keras, PyTorch & ONNX
TOPS	-	13
Runtime	-	Hailo RT Rev. 4.23, pre-installed
Power Consumption	-	1.5 W
I/O Expansion (Optional)		
Slots	1x XV-Board/XB-Board/eXV-Board 1x M.2 key M	1x XV-Board/XB-Board/eXV-Board

Appearances



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Wire Connection

Digital Input	ON State Readback as 1	OFF State Readback as 0
Sink	+19 ~ 24 VDC	+11 VDC
		
Source	+19 ~ 24 VDC	+11 VDC
		
Digital Output	**ON State Readback as 1**	**OFF State Readback as 0**
Sink	+19 ~ 24 VDC	+11 VDC
		

Accessories

XB-Board/XV-Board

I/O Expansion Board for expanding I/O channels, COM Ports or hardware functions.

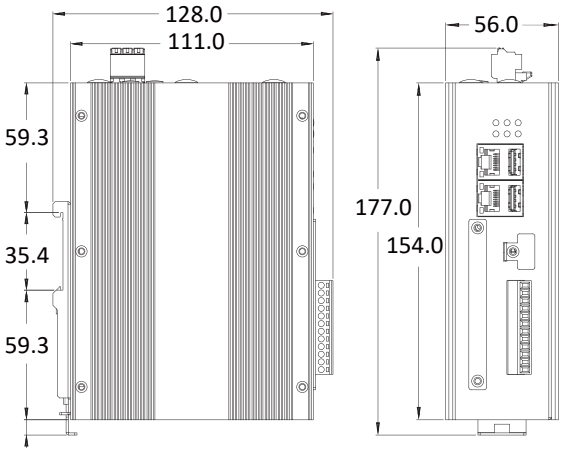


M.2 Key M



M.2 Key M slot is used to expand the AI acceleration module.

Dimensions (Units: mm)



Side View Front View

Ordering Information

AIB-2541M CR	Edge AI controller, expandable AI accelerator module (RoHS)
AIB-2541M/S1 CR	Edge AI controller, includes AI accelerator (Hailo 8 Lite, TOPS=13) (RoHS)

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