

ECU-150 V2

Compact Industrial IoT Gateway with NXP i.MX8M Plus Cortex A53

Preliminary



Features

- NXP i.MX8M Plus Quad-core Cortex A53 CPU up to 1.6GHz
- LPDDR4 2/4GB up to 8GB, eMMC 16/32GB up to 128GB for system storage
- 2x isolated serial ports, configurable for RS232/485
- 2x 10/100/1000 Ethernet ports
- 2x M.2 expansion available
- Add-on modules available for CAN FD expansion
- Slim, robust, and fanless
- Supports SD cards and OTA firmware updates

Introduction

The ECU-150 V2 is a compact IoT gateway built on the i.MX8M Plus platform, featuring a high-performance quad-core processor. With its open platform design, it offers exceptional simplicity. The gateway includes two RS-232/485 isolated serial ports, two 10/100/1000 Ethernet ports, and a USB 3.0 port, ensuring seamless connectivity. It operates reliably in extreme temperatures ranging from -40°C to 70°C. Equipped 2x M.2 slots, the ECU-150 V2 allows easy integration of Wi-Fi/4G/5G modules, as well as storage and AI expansion. The gateway supports Linux operating system and is bundled with the user-friendly EdgeLink configuration tool, empowering system integrators to develop precise applications for solar and electricity generation, and factory automation, which often demand extensive data collection, cloud-based solutions.

Specifications

General

- **Certification** CE, FCC, BSMI
- **Dimensions (W x D x H)** 38 x 93 x 100 mm (1.5 x 3.7 x 3.94 in.)
- **Enclosure** Aluminum Housing
- **Mounting** Wall-Mount, DIN-rail Mount
- **Power Requirement** 10 ~ 36 V_{DC}
- **Power Connector** 1 x 2-Pin Terminal Block

System

- **CPU** NXP i.MX8M Plus, Quad-Core ARM Cortex A53, up to 1.6GHz
- **Memory** 2/4GB (Up to 8GB) LPDDR4*
- **Storage** 16/32GB (up to 128GB) eMMC*
- **Real Time Clock** Yes
- **Watchdog Timer** Yes
- **Display** 1 x HDMI*
- **FRAM/MRAM** Optional
- **LED** 4 x LED (1 x Power, 3 x programmable)
- **Button** 1 x Reset & Recovery
- **TPM** Yes*

I/O Interfaces

- **Serial** 2 x Isolated RS-485/232, see detail in Serial Ports
- **Console** 1 x USB Type-C (USB-to-UART@115,200 bps)
- **LAN** 2 x 1,000Mbps Ethernet (RJ-45)
- **USB** 1 x USB3.0
- **SD Card** 1 x Micro SD card slot
- **SIM Card** 1 x Nano SIM card slot
- **CAN FD*** 2 x optional CAN FD ports, see detail in CAN FD

Expansion

- **Expansion Slot** 1 x M.2 B-key 3052 (Signal: USB3.0) for LTE/iDoor modules
1 x M.2 E-key 2230 (Signal: USB2.0/PCIe) for WIFI/Storage AI Module
1 x I/O expansion slot

Serial Ports

- **Ports** 2
- **Supported Mode** RS-232 or RS-485, software configurable
- **Baud rate** 115,200 bps max.
- **Isolation protection** 2,500 V_{DC}

CAN FD (Optional Expansion)

- **Ports** 2
- **Protocol** CAN 2.0 A/B, CAN FD

- **CAN 2.0 bit-rate** 1 Mbps max.
- **CAN FD bit-rate** Arbitration phase: 1 Mbps max.
Data phase: 5 Mbps max.
- **Isolation Protection** 2,500 V_{DC}

Software

- **Operating System** Yocto with EdgeLink or Ubuntu*

Environment

- **Operating temperature** -40 ~ 70 °C (-40 ~158 °F), without M.2 modules
-40 ~ 55 °C (-40 ~131 °F), with M.2 modules
- **Storage temperature** -40 °C to 85 °C (-40 °F to 185 °F)
- **Operating humidity** Up to 95% RH, non-condensing
- **Ingress Protection** IP30
- **Vibration** 1Grms @ 5~150Hz, 1hr/axis
- **Shock** 15G, half sine, 11ms

EdgeLink**

- **Supported Protocol**

South Bound	North Bound
IEC 60870-5-101	Modbus Server
IEC 60870-5-103	IEC 60870-104 Server
IEC 60870-5-104	WASCADA (WebAccess)
DL/T 645-2007	BACnet Server
DL/T 645-1997	OPC UA Server
IEC 62056-21	Data Transfer
ODBC	
JDBC	
OPCUA Client	
BACnet IP	
BACnet MS/TP	
SNMP	
Modbus Client	

- **PLC driver support** ABB/Advantech/Allen-Bradley/BECKHOFF/ DELTA/ FATEK/GE/ Honeywell/Keyence/Mitsubishi/Omron/ Panasonic/Schneider/ Sharp/Siemens/Topopuc/ Wago 750/Yaskawa/Yokogawa
- **Programming** Linux C, Python
- **Configuration Tool** EdgeLink Studio
- **Data Monitoring** 20,000 Tags MAX.
- **Cloud Connectivity(MQTT)** Edge365, WISE-PaaS, Azure, AWS, Google Cloud IoT Core and more
- **Database Transmission** SQL Server, MySQL, ORACLE, FTP Server
- **VPN** Open VPN

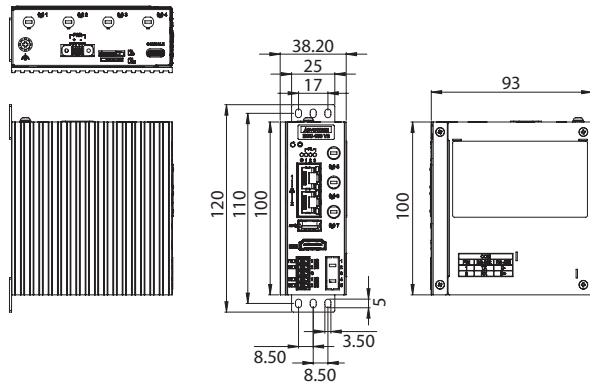
* Subject to change per different SKUs/optional accessory

** EdgeLink is bundled with Yocto Linux version. Please refer to EdgeLink specification for more details.

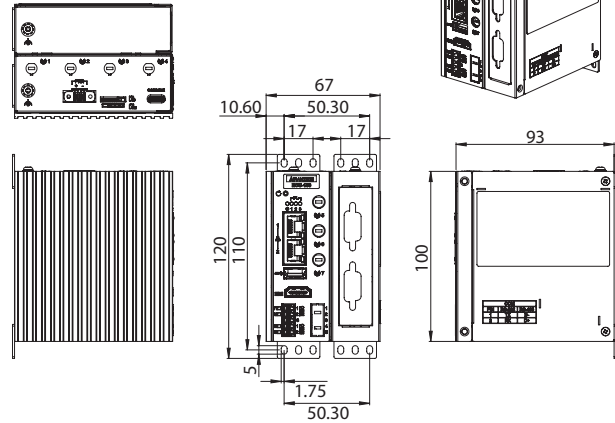
Dimensions

Unit: mm

Single Stack



Double Stack



Ordering Information

Part Number	RAM	eMMC	OS	IoT Software	HDMI	FRAM	TPM 2.0	LAN	COM	USB	CAN2.0 FD	Country of Origin
ECU-150-531A	2G	16G	Yocto Linux	EdgeLink	NA	Optional	Optional	2	2	1	Optional (ECU-150P-CA1A)	China
ECU-150-532A	4G	32G	Ubuntu	N/A	Yes	Optional	Yes	2	2	1	Optional (ECU-150P-CA1A)	China
ECU-150-532AU	4G	32G	Ubuntu	N/A	Yes	Optional	Yes	2	2	1	Optional (ECU-150P-CA1A)	Taiwan

Optional Accessories

Wireless Modules

Function	Slot	PN	Description	Antenna	Cable
LTE Cat. 4	M.2 B-key	968DD00420	Module Cat. 4, M.2 for Global	1751000532-01	1750006264
		968DD00443	Module Cat. 4, M.2 for CN, Thailand, India		
		968DD00205	Module Cat. 4, M.2 for EU, AU, NZ		
WiFi 6E	M.2 E-key	AIW-170BQ-001	Qualcomm WiFi6E M.2 2230 E key	1751000651-01	1751000622-01
WiFi 6		AIW-162BS-G11	Industrial grade Wi-Fi 6 M.2 solution		

Storage

Slot	PN	Description	Capacity
M.2 E-key	SQF-C3AV1-128GDEDE	SQF M.2 2230 720-D 128G 3D TLC BiCS5 (-40~85°C)	128GB
	SQF-C3AV1-256GDEDE	SQF M.2 2230 720-D 256G 3D TLC BiCS5 (-40~85°C)	256GB
	SQF-C3AV1-512GDEDE	SQF M.2 2230 720-D 512G 3D TLC BiCS5 (-40~85°C)	512GB

Power Adapter

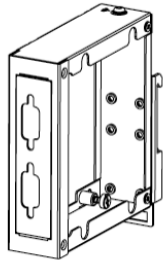
- **PSD-A40W12** A/D 100-240V 40W 12V (DIN Rail)
- **PSD-A40W24** A/D 100-240V 40W 24V (DIN Rail)
- **96PSA-A60W24T2-3** ADP A/D 100-240V 60W 24V C14 CORD END 2PIN 62368

Expansion Modules

Slot	PN	Description
I/O Expansion	ECU-150P-CA1A	2x CAN FD Expansion for ECU-150 V2
M.2 E-key	EAI-1200-00B1U	Hailo-8™ M.2 AI Acceleration Module

ECU-150P-D2A

2nd Stack Expansion frame support 1 x iDoor



Ordering Information

Part Number	Description
ECU-150P-D2A	2 nd Stack Expansion frame support 1 x iDoor
PCM-34D2R4-AE	Isolated RS-422/485, DB9 x2, M.2 Bkey(2242, USB)
PCM-34D2R2-AE	Isolated RS-232, DB9 x2, M.2 Bkey (2242, USB)
PCM-34D4R4-AE	Non-Isolated RS-422/485, DB37x1, M.2 Bkey 2242, USB
PCM-34D4R2-AE	Non-Isolated RS-232, DB37x1, M.2 Bkey (2242, USB)
PCM-37D24DI-AE	24ch Isolation Digital I/O, 16DI/ 8DO, DB37 x1

Accessories***

Part Number	Description
PCL-10137-1E	DB-37 Shielded Cable, 1m
PCL-10137-2E	DB-37 Shielded Cable, 2m
PCL-10137-3E	DB-37 Shielded Cable, 3m
ADAM-3937-BE	DB-37 Wiring Terminal, DIN-rail Mount

*** The accessories for PCM-37D24DI-AE only. The cables for 4-port serial ports (PCM-34D4R4-AE & PCM-34D4R2-AE) are packed inside the individual product package

Dimension: 100 x 93 x 28.6 mm (3.94 x 3.7 x 1.13 in.)

