

Embrace Edge AI,

Empower Industrial Digitalization

# EC954 Series High-Performance AI Edge Computer



• Scalable AI computing power

• High security

• Rich interfaces

• Cloud-Managed

The EC954 is a high-performance multi-interface edge computer with AI extensions that can scale up to 26 TOPS AI computing power and supports the TensorRT/cuDNN/ VisionWorks/OpenCV AI framework. Powered by the ARM Cortex-A55@2.0GHz quad-core processor, it provides a powerful computing platform. The product uses the Linux distribution system to provide users with flexible and diverse secondary development environment. Security features such as Secure Boot and TPM2.0 are supported to ensure software and data security. Built-in DeviceSupervisor™ Agent (DSA) service, easy to achieve data collection, processing and cloud, support DeviceLive cloud management.



### Smart Energy

Focusing on energy efficiency and sustainable development



### Smart City

Improving urban management and public services



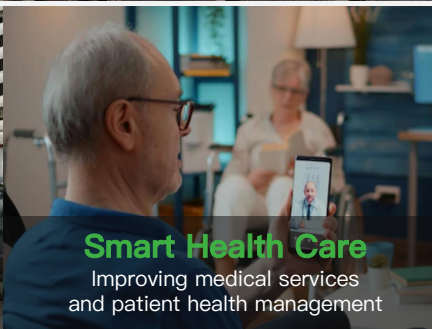
### Smart Manufacturing

Real-time monitoring and controlling



### Smart Water Utilities

Solutions for the management of water resources and supplies



### Smart Health Care

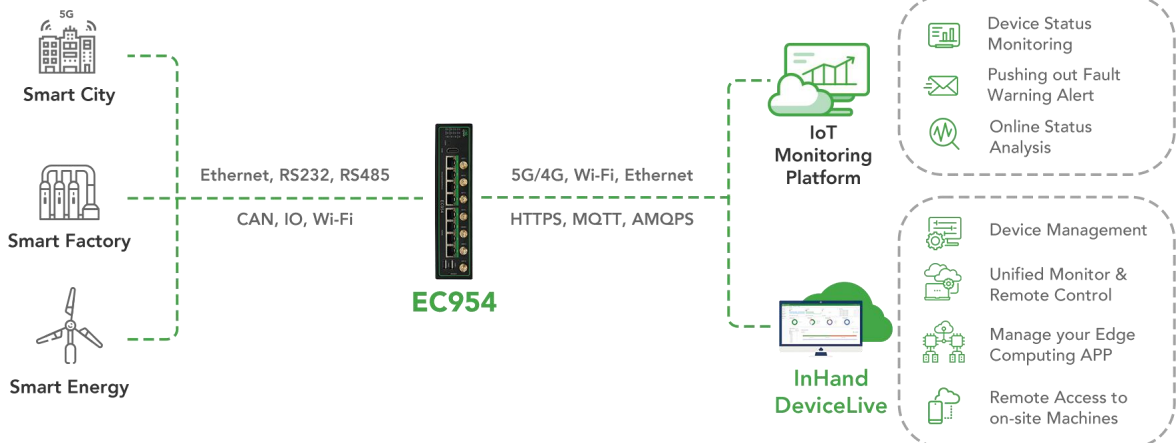
Improving medical services and patient health management



### Public Utility

Improving the efficiency and convenience of public services

## Solution



## Feature and Advantage

### Performance and Platform

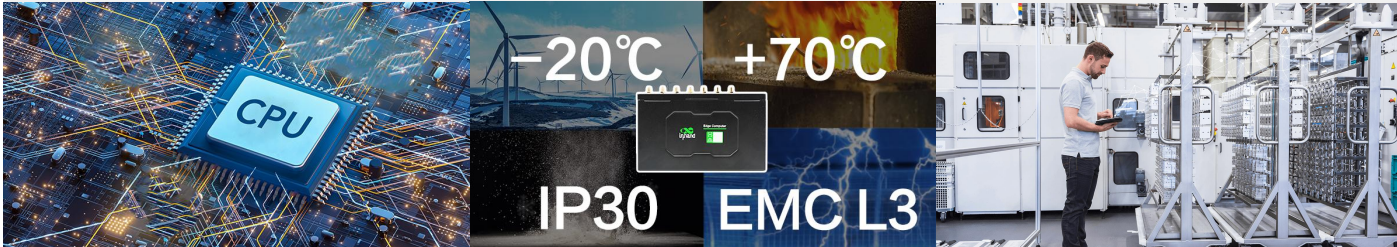
- CPU: ARM Quad Cortex-A55@2.0GHz
- GPU: Mali-G52 2EE
- NPU: RKNN, integrated 1.0 TOPS computing power, expansion up to 26TOPS
- TensorRT/cuDNN/ VisionWorks/OpenCV AI framework supported
- \*IEOS

### Rich Interfaces

- 4x 10/100/1000Mbps Ethernet interface
- 2x CAN 2.0A/B
- 2x USB2.0
- 1x mSATA
- 1x MicroSD
- 4x RS-232 / RS-485 / RS-422 + 8x RS-485
- I/O, GPS, WIFI/Bluetooth

### Stable communication

- 5G/4G/Wi-Fi/GbE, etc
- Wired, cellular, Wi-Fi mutual backup, dual SIM failover
- Independent hardware and software watchdog
- Multilevel link detection, communication self-healing
- Fanless



### High-level security

- Linux system security patches and vulnerability remediation services
- Firewall, VPN
- Secure Boot
- TPM 2.0
- TrustZone

### DeviceSupervisor™ Agent Service

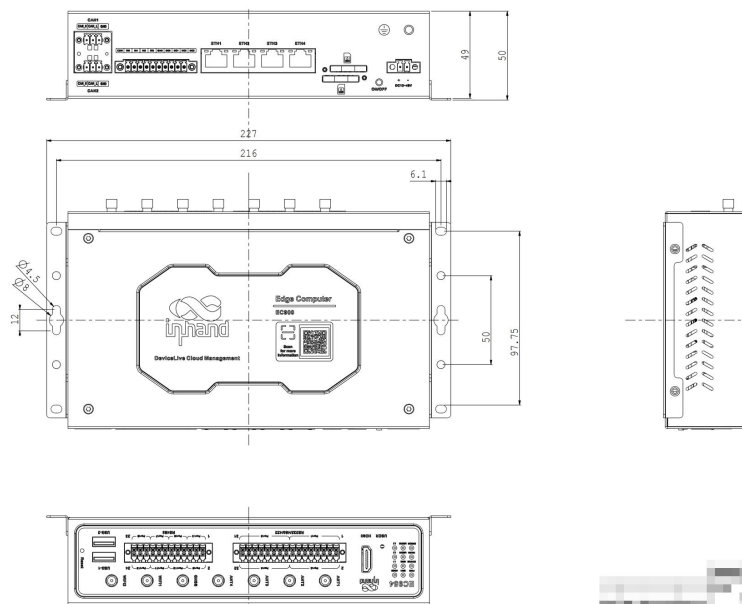
- "Zero code/Low code" easy to achieve data acquisition on the cloud
- Integrate 80+ mainstream data acquisition protocols
- Support data preprocessing
- Integrated data publishing services, public cloud, private cloud, local SCADA and other seamless access

### InHand DeviceLive Cloud Manager

- Remote device access
- Remote device batch management
- Remote batch management of edge AI applications
- Remote container management



## Dimensions (mm)



# Product Specifications

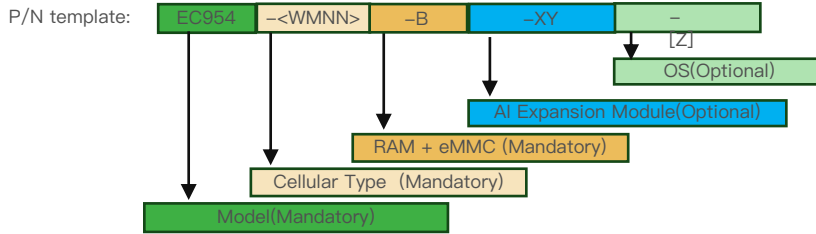
Hardware Specifications			
Item	EC954		
Hardware Platform			
CPU	Quad-core Cortex-A55@2.0GHz		
GPU	Mali G52 2EE		
NPU	1.0 TOPS, empowered by Hailo-8 M.2 AI module up to 26 TOPS		
RAM	4GB		
FLASH	16GB eMMC		
Interfaces			
EtherNet Port	4x 10/100/1000Mbps Ethernet port		
Serial Port	4x RS-232/485/422+8x RS485, Industrial Terminal Block		
I/O	4x DI, 4x DO		
CAN	2x CAN 2.0A/B		
Wi-Fi	STA, 802.11ac/a/b/g/n, 2.4G/5G dual band		
Bluetooth	BLE 5.0		
GNSS	Supports GPS, Beidou, and GLONASS positioning		
USB	USB 2.0, 2x TypeA, 1x TypeC		
HDMI	1x HDMI2.0		
Expansion Interface	1x mSATA, B key 3042 (Hailo AI)		
Reset Button	Pinhole reset button		
SIM Card	2x Standard SIM		
TF Card	Supports Micro SD		
Trusted Platform Module			
TPM	TPM 2.0		
Mechanical Feature			
Installation	DIN-rail, wall mounting	Protection Rating	IP30
Housing	Metal	Dimensions	203 x 122 x 49 mm
Power Supply			
Power Input	DC 12-48V, polarity reversal protection		
Power Interface	Industrial terminal block		
Power Consumption	4W(Typical, OS idle mode)		
	8W(Max. Full loading)		
Ambient Temperature and Humidity			
Working Temperature	-20~ 70°C	Storage Temperature	-40 ~ 85°C
Ambient Humidity	5 ~ 95% (non-condensing)		
Indicator			
LED	4G,SignalStrength(L1,L2,L3),SIM1,SIM2,User1,User2, PWR,STATUS,WARN,ERR,		
EMC Index			
Electrostatic Discharge	EN61000-4-2, level 3		
Radiation RFI Immunity	EN61000-4-3, level 3		
Electrical Fast Transients	EN61000-4-4, level 3		
Surge	EN61000-4-5, level 3		
Conducted RFI	EN61000-4-6 ,level 3		
Ring Wave Immunity	EN61000-4-12,level 3		
Physical Features			
Shock	IEC60068-2-27	Vibration	IEC60068-2-6
Free Fall	IEC60068-2-32		
Certification			
CE, FCC, PTCRB, Verizon Wireless, AT&T			

Software Specifications	
Item	EC954
Operation System	
Operation System	Yocto/Linux(Debian 11,Kernel 5.10)
File System	Debian Core root filesystem
Package Manager	Debian Package Manager
Network Interconnection	
Network Type	LTE Cat4
Network Access	APN, VPDN
Access Authentication	CHAP/PAP
LAN Protocol	ARP, Ethernet
WAN Protocol	Static IP, DHCP
Security	
Secure Boot	Support
Reliability	
Backup	Dual SIM
Link Detection	Multi-Level link detection, auto-redials once disconnected
Embedded Watchdog	Device self-diagnosing, auto-recovers from operation faults
Data Acquisition Protocol(*DSA)	
Industrial Protocol	Modbus RTU Master/Slave, Modbus TCP Master/Slave, EtherNet/IP, ISO on TCP, OPC UA Client/Server, Mitsubishi MC 3C/3E/3C OverTCP, Mitsubishi CPU Port, FINSUDP, HostLink, PPI
Electricity Protocol	DLT645-2007, IEC101/104, DNP3.0
Other Protocol	BACnet, CNC
Maintenance and Management	
Upgrade Method	Supports patent upgrade mechanism, local or remote firmware upgrade
Configuration Mode	WEB
Log	Support local system logs, remote logs, and important log power-off preservation
Remote Management	InHand DeviceLive, HTTP, HTTPS, SSH,etc.
DeviceLive Cloud	Supports cloud-based parameter configuration, container management, application and firmware management

\*DSA: The DeviceSupervisor Agent (DSA), developed by InHand Networks, is a cutting-edge intelligence software designed to operate on Edge Computer products. It enables clients to quickly implement data collection, processing, protocol conversion, and cloud connectivity through a "zero code/low code" approach. If you need the DSA application on the EdgeComputer product, please contact us to obtain the DSA software package.

# Ordering Guide

## Description of selection



## Mandatory Model

Model	Cellular Type & Frequency Band: <<WMNN>	Memory	Storage	Ethernet Port	Serial Port	Wi-Fi/BT/GPS /CAN/TPM	I/O
EC954-LQA8-B	China LTE CAT4 LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8 TD-SCDMA: B34/B39 CDMA: BCO GSM: 900/1800MHz	4 GB	16 GB	4x 1000Mbps	4x RS232/RS485/RS422+8x RS485, Industrial Terminal Block	YES	YES
EC954-NRQ1-B	China 5G NR 5G NR NSA: n78/n79 5G NR SA: n1/3/5/8/28/41/77/78/79 LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8	4 GB	16 GB	4x 1000Mbps	4x RS232/RS485/RS422+8x RS485, Industrial Terminal Block	YES	YES
EC954-FQ58-B	EMEA LTE CAT4 LTE-FDD: Band1/3/7/8/20/28A LTE-TDD: Band38/40/41 WCDMA: Band1/8 GSM: Band3/8	4 GB	16 GB	4x 1000Mbps	4x RS232/RS485/RS422+8x RS485, Industrial Terminal Block	YES	YES
EC954-FQ38-B	North America LTE CAT4 LTE-FDD: Band2/4/5/12/13/14/66/71 WCDMA: Band 2/4/5	4 GB	16 GB	4x 1000Mbps	4x RS232/RS485/RS422+8x RS485, Industrial Terminal Block	YES	YES
EC954-EN00-B	Global No Cellular	4 GB	16 GB	4x 1000Mbps	4x RS232/RS485/RS422+8x RS485, Industrial Terminal Block	YES	YES

## Hailo AI Module(Optional)

[XY]	
P/N Code	Feature
—	None
H8	Hailo-8, M.2 Key B+M 2280

## OS(Optional)

[Z]	
P/N Code	Feature
—	*IEOS
D	*Debian Linux OS

- IEOS(InHand Edge Operating System)** is InHand Networks' operating system based on distribution Linux for IoT ARM platform edge computers, helping customers achieve safe and stable industrial edge intelligent applications. IEOS contains InHand applications such as web configuration, dialing, routing, firewall, VPN, cloud management etc.
- Debian Linux OS:** Debian OS without InHand application.

## About Us

InHand Networks is a leading IoT solutions provider founded in 2001, dedicated to driving digital transformation across industries and empowering customers to unlock their full potential and achieve accelerated growth.

We specialize in delivering industrial-grade connectivity solutions for diverse sectors, such as enterprise networks, industrial and building IoT, digital energy, smart commerce, and mobility. Our comprehensive product portfolio and services cater to various applications worldwide, including smart manufacturing, smart grid, intelligent transportation, smart retail, etc. With a global footprint spanning over 60 countries, we serve customers in China, the United States, France, Germany, the United Kingdom, Italy, and beyond.



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