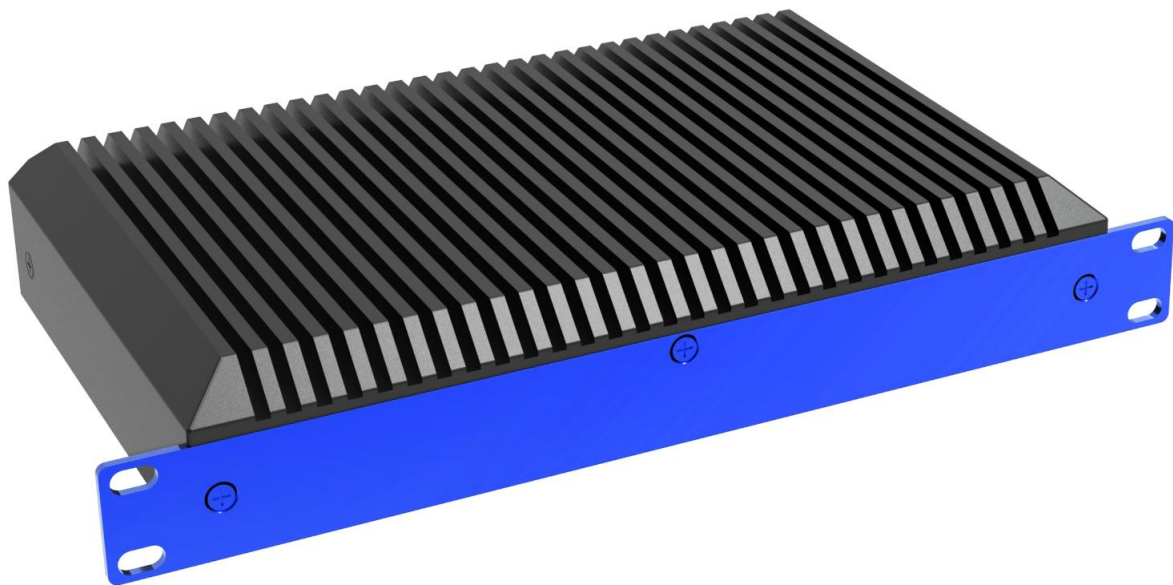


Shenzhen Geniatech Co.,Ltd.

# **i.MX 8M Plus High-Performance AI Computing Power PC Specification**

**MODEL: APC880**



## Revision History

| VERSION | DATE      | PAGE | DESCRIPTION             | AUTHOR |
|---------|-----------|------|-------------------------|--------|
| V1.0    | 2025-2-13 | 8    | Initial version         |        |
| V1.01   | 2025-3-12 | 8    | Update product pictures |        |
|         |           |      |                         |        |

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# 1. General Description

The i.MX 8M Plus AI Edge Computing PC is based on the high-performance i.MX 8M Plus SoC, Is the first NXP integrated transmission nerve processing unit (NPU) product, Running rates of up to 2.3 TOPS, Focus on machine learning and vision, multimedia, and industrial automation with high reliability, Also paired with the Kinara Ara-2 40 TOPS computing chip, Rapid prototyping of edge AI application scenarios, It can be widely used in machine learning and artificial intelligence, NPU vision system, advanced multimedia and industrial automation.

## -- i.MX 8M Plus SoC

- i.MX 8M Plus SoC with 14nm FET process technology
- Quad-core 64-bit ARM Cortex A53 processor + Cortex-M7
- Integrated Neural Network Processing Unit (NPU) with 2.3 TOPS performance
- Highly efficient H.265/H.264/VP9 video decoding capability, supports up to 4K resolution

## -- Kinara Ara-2 SoC

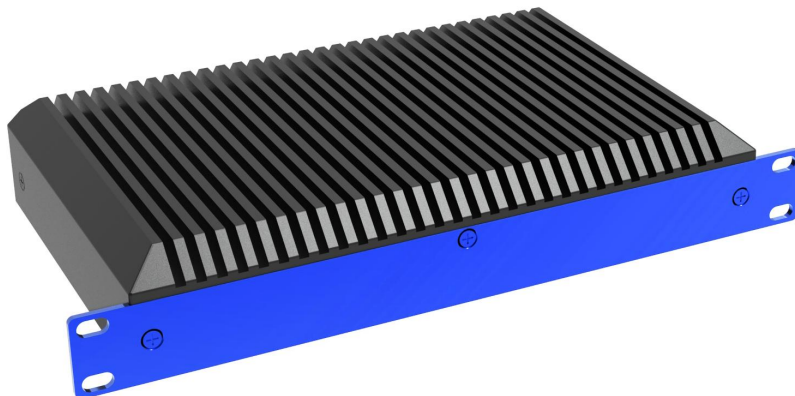
- 8 second-generation neural cores
- 16GB LPDDR4X memory
- 40 TOPS of high-performance computing power
- Supports TensorFlow, PyTorch, ONNX AI models

## -- I/O interface

- 2\*Gigabit Ethernet RJ 45 interfaces
- 2\*USB3.0 and 2\*USB2.0 interfaces
- 2\*CAN, 1\*RS232, and 1\*RS485
- MIPI DSI、MIPI CSI、LVDS、HDMI and other display and camera interfaces
- Multi-channel M.2 interface can extend 4G / 5G
- Micro SD card slot, Micro SIM card slot
- DC IN

# 2. Product Overview

Below picture is for reference only, please prevails in kind.





## 3. Features

|                 |                             |                                                                                                 |                                                                      |
|-----------------|-----------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| CHIPSET         | NXP iMX8M Plus+Kinara Ara-2 |                                                                                                 |                                                                      |
| MARKET AREA     | Global                      |                                                                                                 |                                                                      |
| Core parameters | OS                          | Yocto(Linux)                                                                                    |                                                                      |
|                 | SoC                         | 4 x Cortex-A53, up to 1.8GHz&1 x Cortex-M7, up to 800MHz                                        |                                                                      |
|                 | GPU                         | GC7000UL with OpenCL and Vulkan support<br>Supports OpenGL ES 1.1, 2.0, 3.0, OpenCL 1.2, Vulkan |                                                                      |
|                 | NPU                         | iMX8M Plus                                                                                      | 2.3 TOPS Neural Network performanc                                   |
|                 |                             | Kinara Ara-2                                                                                    | 40TOPS Neural Network performanc<br>TensorFlow,PyTorch,ONNX AI Model |
|                 | Memory                      | iMX8M Plus                                                                                      | 4GB (1G-8G optional)                                                 |
|                 |                             | Kinara Ara-2                                                                                    | 16GB                                                                 |
|                 | Storage                     | 32GB eMMC5.1(8-128GB optional)                                                                  |                                                                      |

|               |                         |                                                                                                                                                                                                                                                                                                                                  |
|---------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I/O interface | Network Interface       | 2 x Giga Ethernet                                                                                                                                                                                                                                                                                                                |
|               |                         | Wifi2.4G+5G +BT 5.0                                                                                                                                                                                                                                                                                                              |
|               | Video Interface         | 1 x HDMI output<br>1 x LVDS Screen Connector 2x15P (J24)<br>1 x MIPI DSI connector for MIPI Panel (J33)<br>1 x MIPI CSI connector for MIPI Camera 2 lanes (J3)<br>1 x MIPI CSI connector for MIPI Camera 4 lanes (J1)                                                                                                            |
|               | USB interface           | 2 x USB 2.0 Type A (J21 J23)<br>2 x USB 3.0 Type A (J21 J23)<br>1 x USB Type C (J18)<br>2 x USB2.0 4P Header (J13 J14)                                                                                                                                                                                                           |
|               | PCIe interface          | 1 x B2B Connector for AI module 60Pin (J9)<br>1 x B2B Connector for AI module power supply 30Pin (J5)<br>1 x M.2 Key M for M.2 AI module(J7)                                                                                                                                                                                     |
|               | SD Card                 | 1 x Micro SD card slot                                                                                                                                                                                                                                                                                                           |
|               | SIM Card                | 1 x Micro SIM card slot(J34)                                                                                                                                                                                                                                                                                                     |
|               | Extended interface      | 1 x M.2 Key B for 4G/5G (J26)<br>1 x Mini PCIe for 4G (J27)                                                                                                                                                                                                                                                                      |
|               | Audio interface         | 1 x Speaker (Left/Right Channel) 4P Header (J2)<br>1 x 3.5 Headphone seat(J6)<br>1 x Mic 2P Header (MIC1)                                                                                                                                                                                                                        |
|               | Communication interface | 1 x RS232 4P Header (J11)<br>1 x RS485 4P Header (J12)<br>2 x CAN 4P Header (J31 & J32)<br>1 x A53 Core Debug connector (UART) (J4)                                                                                                                                                                                              |
|               | Other interfaces        | 1 x I2C Touch Screen connector (J30)<br>1 x RTC-Battery (JBAT1)<br>1 x Expended Connector 2x20 P Header (J20)<br>1 x FAN 4P Header with FAN PWM (J16)<br>1 x LCD Backlight 6P Header (J28)<br>1 x LVDS Panel Power Switch (J22)<br>1 x SW1 for System boot mode switch<br>1 x System upgrade key<br>1 x Reset Key<br>1 x DC Jack |
|               | Power supply input      | DC 12V /3A                                                                                                                                                                                                                                                                                                                       |
| Size          | 238*130*40mm            |                                                                                                                                                                                                                                                                                                                                  |
| Weight        | 1300g                   |                                                                                                                                                                                                                                                                                                                                  |

## 4. Interface Function Description



| No. | Function                            | Note |
|-----|-------------------------------------|------|
| 1   | Antenna interface                   |      |
| 2   | 3.5-inch headset Sound output port  |      |
| 3   | Giga Ethernet 1                     |      |
| 4   | Giga Ethernet 2                     |      |
| 5   | Micro SD card slot                  |      |
| 6   | Antenna interface                   |      |
| 7   | USB Type C OTG                      |      |
| 8   | USB3.0+USB2.0                       |      |
| 9   | USB3.0+USB2.0                       |      |
| 10  | Reset button                        |      |
| 11  | HDMI Out                            |      |
| 12  | Recovery button                     |      |
| 13  | DC 12V Power supply input interface |      |

## 5. Video Parameter

### Video Decode

- 1080p60 HEVC/H.265 Main, Main 10 (up to level 5.1)
- 1080p60 VP9 Profile 0, 2
- 1080p60 VP8
- 1080p60 AVC/H.264 Baseline, Main, High decoder

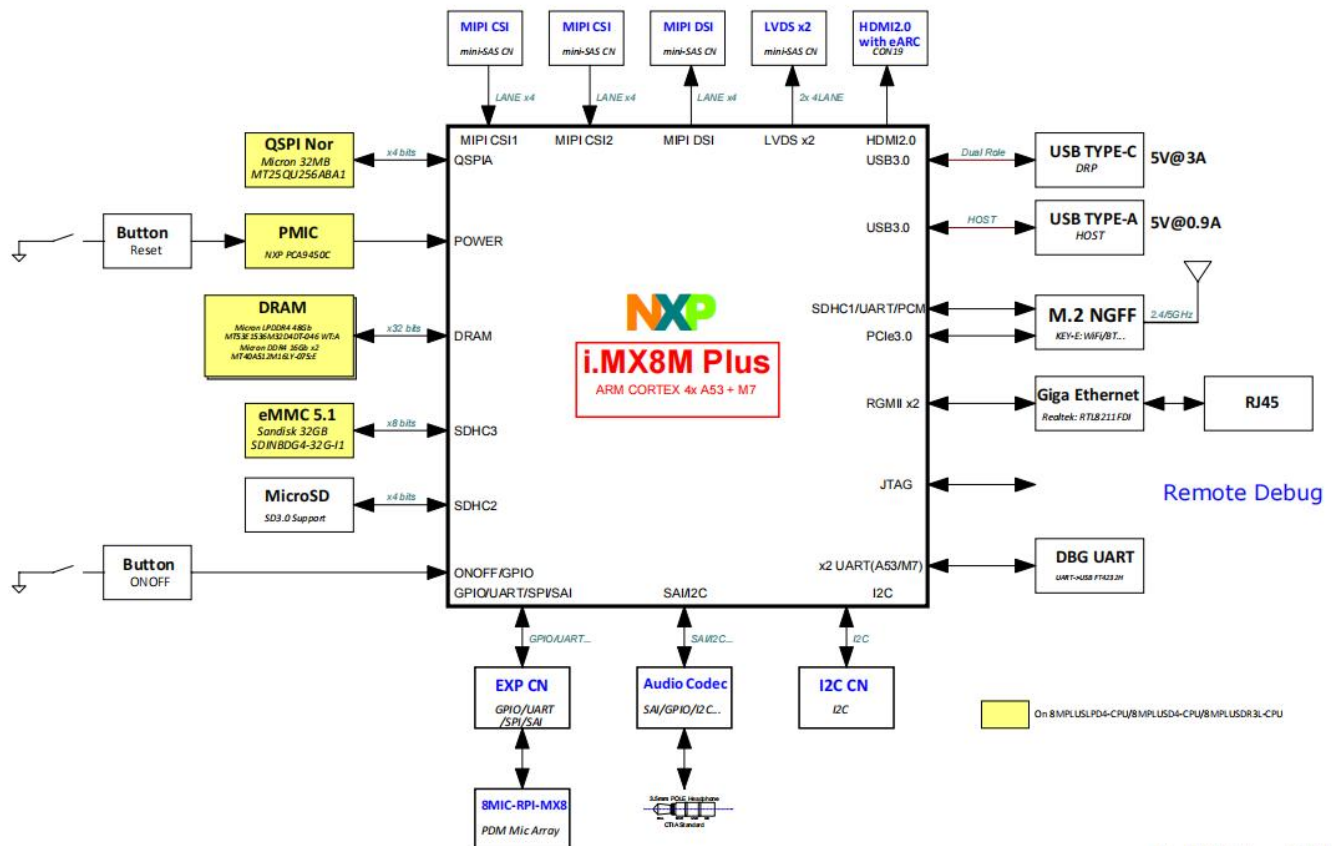
### Video Encode

- 1080p60 AVC/H.264 encoder
- 1080p60 HEVC/H.265 encoder

## Image Sensor Processor (ISP)

- 375 Mpixel/s HDR ISP supporting configurations, such as 12MP@30fps, 4kp45, or 2x 1080p80

## 6. System Block Diagram



## 7. Precautions For Use

- Relative humidity:  $\leq 80\%$ .
- Operation temperature: Commercial field:  $0^{\circ}\text{C} \sim 85^{\circ}\text{C}$ ; Industrial field:  $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ .
- Do not squeeze, bend or disassemble the product.
- Keep products away from static electricity.
- Do not allow water or other liquids to come into contact with the product.
- Clean the product with a soft dry towel or brush.

## More Help

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