POLYHEX

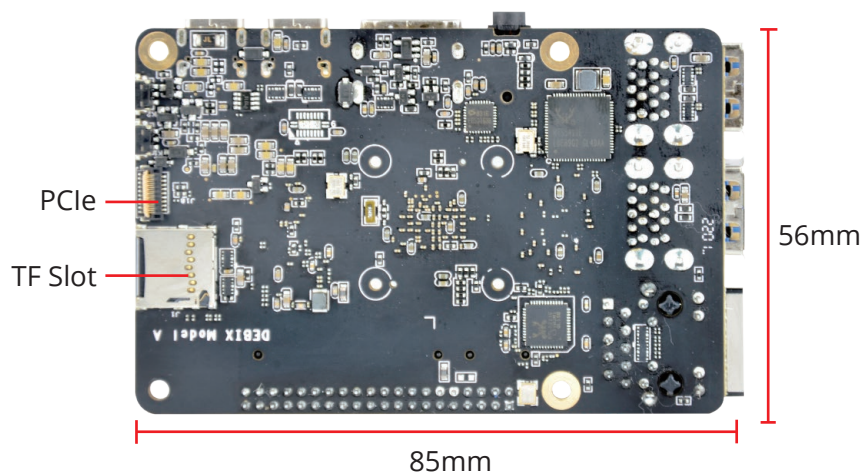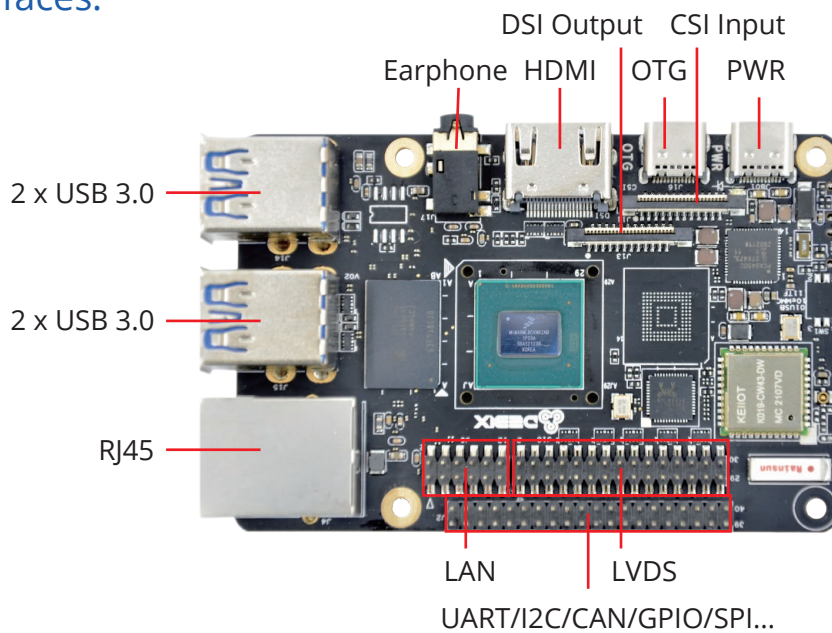# DEBIX Model A: Industrial Grade Single Board Computer Based on NXP i.MX 8M Plus
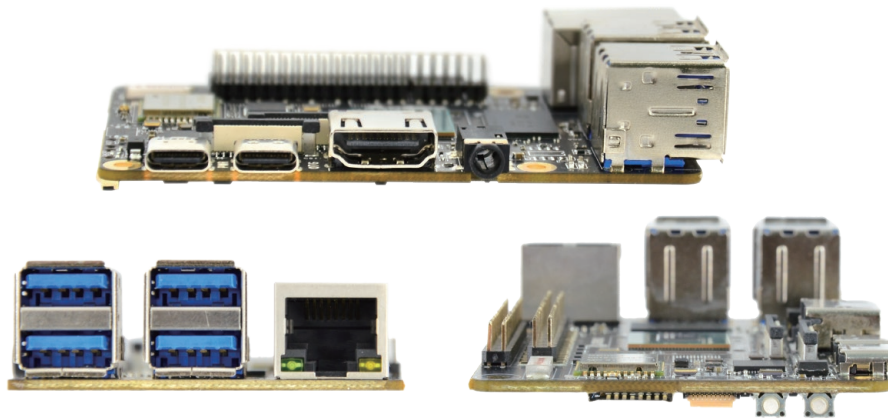
Main Features:

(1) Powerful quad core CPU with 2.3 TOPS NPU

(2) -40℃~105℃ CPU temperature for both industrial and commercial contexts such as industry 4.0, IoTs, multimedia and smart cities

(3) Gigabit network, 2.4GHz & 5GHz Wifi, BT5.0 to monitor and control networked industrial equipment

(4) Complete software development for direct application (Ubuntu, Yocto, Android 11 OS with basic software)
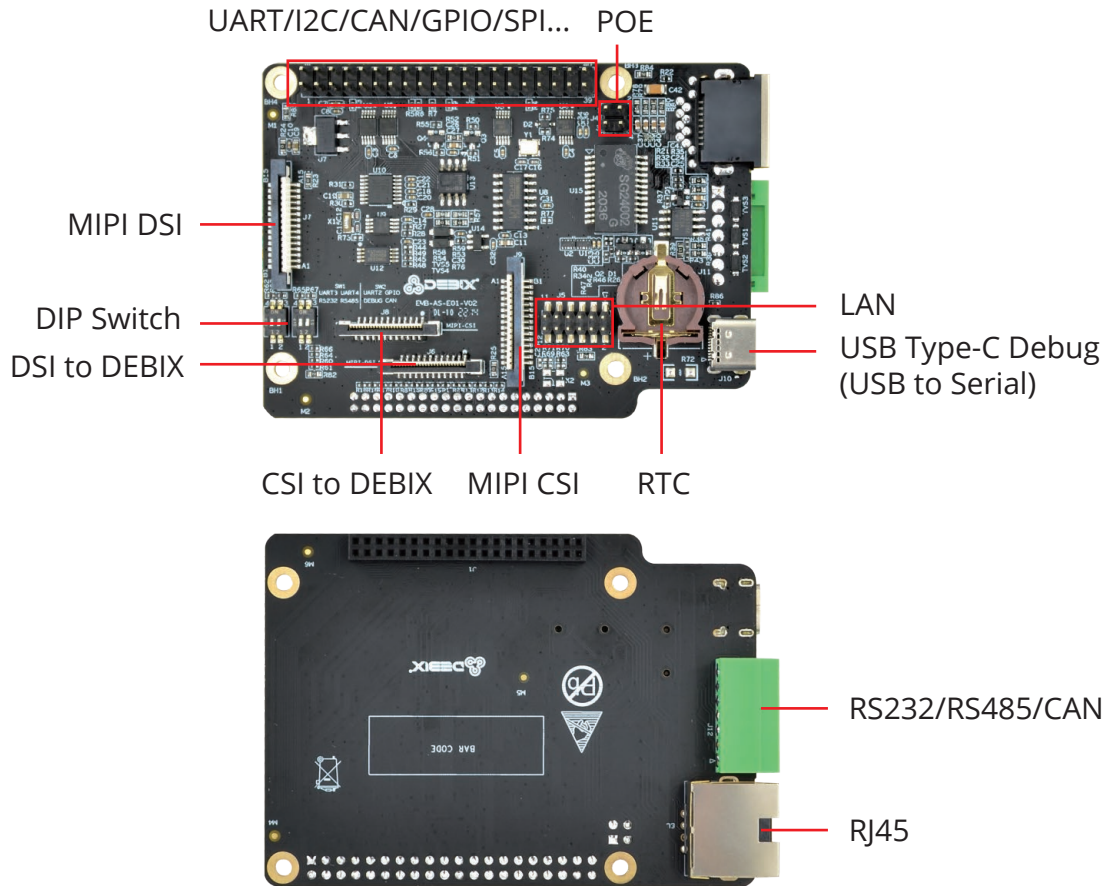

I/O Interfaces:

DSI Output   CSI Input

Earphone   HDMI   OTG   PWR

2 x USB 3.0

2 x USB 3.0

RJ45

LAN   LVDS

UART/I2C/CAN/GPIO/SPI...

PCIe

TF Slot

56mm

85mm

Certificates:

Specification:

System	
CPU	NXP i.MX 8M Plus (default), 4 x ARM Cortex-A53, comes with an integrated neural processing unit (NPU) that delivers up to 2.3 TOPS. Industrial grade CPU runs at 1.6GHz, and commercial grade CPU runs at up to 1.8GHz. (i.MX 8M Plus series CPU optional)
Memory	2GB LPDDR4 (4GB/6GB optional)
Storage	Default: TF card (Onboard 8GB/16GB/32GB/64GB/128GB eMMC optional)
Operating System	Android 11, Yocto, Ubuntu
I/O Interfaces	
Gigabit Ethernet	1 x RJ45 with POE power supply (need POE power device module) 1 x pin header (without network transformer)
WIFI & BT	2.4GHz & 5GHz WIFI, BT5.0
USB	4 x USB 3.0 Host Type-A, 1 x USB 2.0 OTG Type-C
Audio	1 x Headphone and Mic combo port
HDMI	1 x HDMI OUT
Expansion	
40-Pin Double-Row Headers	(1) 3 x UART, 2 x SPI, 2 x I2C, 2 x CAN, 1 x PWM, 2 x GPIO, dedicated interfaces can be reused as GPIO ports (2) 1 x SPDIF digital audio input/output (3) 5V power supply, system reset, ON/OFF
LVDS	1 x LVDS, single & dual channel 8bit, double-row pin headers
MIPI CSI	1 x MIPI CSI, support 4Lane FPC socket
MIPI DSI	1 x MIPI DSI, support 4Lane FPC socket
PCIe	1 x PCIe, support PCIe x1 FPC socket
Power Supply	
Power Supply	DC 5V/3A Type-C
Mechanical & Environmental	
Size	85.0 x 56.0mm
CPU Temperature	-40℃ to 105℃

Daughter Board EMB-AS-E01:

UART/I2C/CAN/GPIO/SPI... POE

MIPI DSI

DIP Switch
DSI to DEBIX

CSI to DEBIX   MIPI CSI   RTC

LAN
USB Type-C Debug
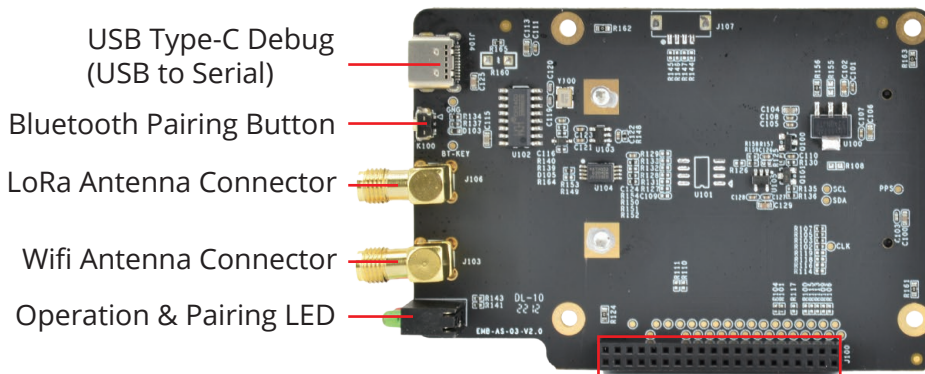(USB to Serial)

RS232/RS485/CAN

RJ45

EMB-AS-E01 Specification:

I/O Interfaces	
Network	1 x RJ45 Gigabit Network POE Supported (Compatible with POE power device module)
USB	1 x USB Type-C Debug (USB to Serial)
RTC	1 x RTC
Serial Ports	1 x RS232 1 x RS485
CAN	1 x CAN Transceiver
DIP Switch	2 x 2bit DIP Switch (used for selecting USB-Debug, RS232, RS485 and CAN)
Expansion	
40-Pin Double-Row Headers	1) 3 x TTL UART, 2 x SPI, 2 x I2C, 2 x PWM, 2 x CLKO, 2 x CAN, 1 x I2S (Dedicated interfaces can be reused as GPIO ports) 2) 1 x SPDIF Digital Audio Input/Output
MIPI CSI	1 x MIPI CSI
MIPI DSI	1 x MIPI DSI
E2PROM	1 x 2-Kbit E2PROM
Accessories	
Cables	2 x Flexible flat cable for DSI & CSI 1 x Female to female jumper wires for Ethernet

Daughter Board EMB-AS-03:

Mini PCIe LoRa Module

USB Type-C Debug (USB to Serial)
Bluetooth Pairing Button
LoRa Antenna Connector
Wifi Antenna Connector
Operation & Pairing LED
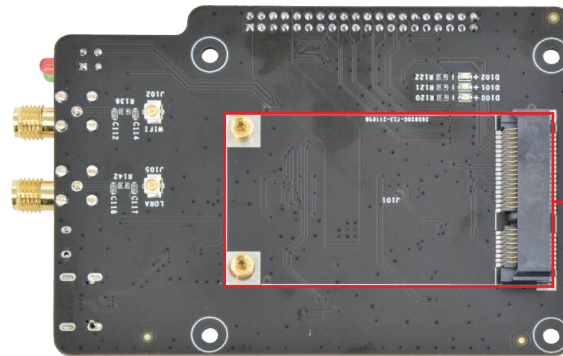
Connection Interface with DEBIX Model A

EMB-AS-03 Specification:

I/O Interfaces	
USB	1 x USB Type-C Debug (USB to Serial)
Mini PCIe	1 x Mini PCIe (LoRa Module)
Buttons	1 x Bluetooth Pairing Button
LED	1 x Operation Indicator, 1 x Pairing Indicator
External Antenna	1 x LoRa Antenna Connector, 1 x Wifi Antenna Connector
EEPROM	1 x 2-Kbit EEPROM
Clipper Chip	1 x Secure Element, eg.ATECC608