

iEP-6010E Series

Industrial IoT Controller

ASRock
— Industrial —

Preliminary



Basic SKU



POE SKU



5G SKU

KEY FEATURES

- NVIDIA Jetson Orin NX SOM support, up to 100 SPARSE (50 DENSE) INT8 TOPS
- NVIDIA Jetson Orin Nano SOM support, up to 40 SPARSE (20 DENSE) INT8 TOPS
- Wide range operating temperature (-25 ~ 60°C)
- 12V ~ 36V wide range DC input
- 2nd DC IN Interface for USB Type-C power adaptor
- Ultra Compact Size
- Carrier board reserved 2pcs Dual Lane MIPI-CSI2 connectors****

SPECIFICATIONS

Processor System

System on Module	- NVIDIA Jetson Orin NX SOM 16GB support (Basic SKU iEP-6010E-000, PoE SKU iEP-6010E-001, 5G SKU iEP-6010E-003) - NVIDIA Jetson Orin NX SOM 8GB support (Basic SKU iEP-6011E-000) - NVIDIA Jetson Orin Nano SOM 8GB support (Basic SKU iEP-6012E-000, PoE SKU iEP-6012E-001, 5G SKU iEP-6012E-003) - NVIDIA Jetson Orin Nano SOM 4GB support (Basic sku iEP-6013E-000)
Video	1 x HDMI 2.0 (Orin NX)/ 1.4 (Orin Nano)
Memory	16GB 128-bit LPDDR5 (Jetson Orin NX 16GB) 8GB 128-bit LPDDR5 (Jetson Orin NX 8GB) 8GB 128-bit LPDDR5 (Jetson Orin Nano 8GB) 4GB 64-bit LPDDR5 (Jetson Orin Nano 4GB)
TPM	TPM2.0

I/O Interface

Ethernet	2 x Gigabit LAN
PoE (Option)	2x Intel I210AT ports, each port supports IEEE 802.3AF PoE (Orin NX SOM 16GB PoE SKU iEP-6010E-001, Orin Nano SOM 8GB PoE SKU iEP-6012E-001)
Serial Port	1 x RS-232, 1 x RS-232/422/485 (Pin9 default is N/A, +5V or +12V/1A software programmable.)
USB	2 x USB 3.2 Gen 2x1 (one with Locking) 2 x USB 2.0, 1 x Micro USB 2.0 (Device mode only, for OS Flash)
Proprietary IO	DPR connector: 1 x DB15 for 4*DI, 4*DO, GND, Power Pin (Default is N/A, +5V/1A software programmable), PowerOn, LED+, LED-, GND, Reset ISC connector: 1 x DB15 for Power Pin(Default is N/A, +3V/1A software programmable), 5 x GND, 1 x I2C, 1 x SPI, 1 x CANBUS (GND Pins)

Expansion

SIM	1 x Nano SIM Card slot
RF& Antenna (Option)	up to 4 x 5G/4G LTE antenna + 2 x Wi-Fi antenna for 5G SKU
M.2 Socket	1 x M.2 (Key B, 3042/3052/2280) -For PCIe Gen3 x1 / USB3.2 Gen2x1 5G module (Option) (5G SKU Only, Orin NX SOM 16GB 5G SKU iEP-6010E-003, Orin Nano SOM 8GB 5G SKU iEP-6012E-003) -For PCIe Gen3 x1 / USB3.2 Gen2x1 4G LTE module (Option) (5G SKU Only, Orin NX SOM 16GB 5G SKU iEP-6010E-003, Orin Nano SOM 8GB 5G SKU iEP-6012E-003) -For PCIe Gen3 x1 M.2 B Key 2280 SSD module (Option, Basic SKU Only) 1 x M.2 (Key E, 2230) for PCIe Gen3 x1 Wi-Fi and USB2.0 Bluetooth module**

Power Requirements

DC Input	1 st DC IN source: 12V~36V DC input, 80V Surge Protection, OVP, UVP, OCP, Reverse Protection, Phoenix type connector 2 nd DC IN source: PD3.0 20V USB Type-C power adaptor interface (Locking feature), It can be backup DC input when 1 st DC IN is 21V~36V
AC to DC Adaptor (Option)	For Basic SKU: 120W Adaptor (latch type), AC input 100-240Vac, 1.8A 50-60Hz, DC output 19V, 6.32A For POE/5G SKU: 330W Adaptor, AC input 100-240Vac, 4.2A 50-60Hz, DC output 24V, 13.75A

Storage Device

M.2 Socket	1 x M.2 (Key M, 2280) for wide temperature PCIe Gen3 x4 NVMe SSD module (System Operating temperature -25° C~60° C) 1 x M.2 (Key M, 2280) for wide temperature PCIe Gen4 x4 NVMe SSD module (System Operating temperature -25° C~55° C) PCIe Gen4 x4 SSD only supported by Orin NX SOM
Micro SD Card slot	1 x Micro SD Card Slot (UHS-I/SDR-50)

Mechanical

Dimensions	Basic SKU : 55(W) x 170(H) x 134(D) mm POE/5G SKU : 68(W) x 170(H) x 134(D) mm
Indicator	1 x Storage LED 1 x 2 nd DC-IN LED
Function	Power on button with LED, OS Flash Button, Reset Tact Switch Enable/Disable Auto power on Switch
Net Weight	Basic SKU: 1.3kg, 5G/POE SKU: 1.6kg
Mounting (Option)	Wall mounting or VESA mounting bracket (horizontal mounting for Basic SKU only) Wall mounting or Din Rail mounting bracket (vertical mounting for all SKU)

Environmental

Operating Temperature	-25~60° C (-13~140°F) for Basic sku, PoE sku, or 5G sku w/ 4G LTE Module when installed with WT SSD Gen3 x4 -25~55° C (-13~131°F) for Basic sku, PoE sku, or 5G sku w/ 4G LTE Module when installed with WT SSD Gen4 x4 -25~55° C (-13~131°F) for 5G sku w/ 5G Module when installed with WT SSD Gen4 x4 or WT SSD Gen3 x4 (w/ air flow 0.5~0.8m/s)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Humidity	~90% @ 45°C (non-condensing)
EMC	CE, FCC Class A (EN61000-6-4/-2) *(e)
Safety	LVD*(e)

Add-on Feature / OS Support

2 nd DC IN Interface	PD3.0 20V USB Type-C power adaptor interface (Locking feature), It can be backup DC input when 1 st DC IN is 21V~36V
Carrier board feature	Carrier board reserved 2pcs Dual Lane MIPI-CSI2 connectors****
OS Support	NVIDIA JetPack 5.1.1 *(e)

*(e) means estimation.

***Boot, shutdown or resume from suspend may fail randomly. It is current NVIDIA JetPack 5.1.1 limitation.

****Bluetooth function is disable and it is current NVIDIA JetPack 5.1.1 limitation for Intel AX210 Industrial SKU.

*****MIPI-CSI2 camera need to be turned off before system going to sleep mode.

It is current NVIDIA JetPack 5.1.1 limitation.

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