

iEP-6010E Series

Industrial IoT Controller

ASRock®
— Industrial —

Preliminary



Basic SKU

POE SKU

5G SKU

KEY FEATURES

- NVIDIA Jetson Orin NX 16GB SOM Super Mode support, up to 157 SPARSE (78 DENSE) INT8 TOPS
- NVIDIA Jetson Orin NX 8GB SOM Super Mode support, up to 117 SPARSE (58 DENSE) INT8 TOPS
- NVIDIA Jetson Orin Nano 8GB SOM Super Mode support, up to 67 SPARSE (33 DENSE) INT8 TOPS
- NVIDIA Jetson Orin Nano 4GB SOM Super Mode support, up to 34 SPARSE (17 DENSE) INT8 TOPS
- POE SKU integrates 2x POE ports. Each port supports IEEE 802.3AF
- Anti Shock and Vibration
- Wide Range Operating Temperature
- 12-36V Phoenix type DC IN support
- 2nd DC IN Interface (PD3.0 20V USB Type-C with Locking feature) for Mobile device application or Redundant power source
- Wall Mount or DIN-Rail for Vertical IPC Installation (All SKU)
- Wall Mount or VESA Mount for Horizontal IPC Installation (BASIC SKU only)
- Carrier board reserved 2pcs Four Lane MIPI-CSI2 connectors (Option for DSC-NV002-WT R1.02)**

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) Carrier Board DSC-NV002-WT R1.02 supports Jetson Nano 8G/4G SOM Super Mode, Carrier Board DSC-NV002-WT R1.03 supports Jetson Nano 8G/4G SOM Super Mode and Jetson NX 16G/8G SOM Super Mode
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	2x 1G LAN (LAN1 from SOM, LAN2 from Intel I210AT)
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

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 (Option)

Power Requirements

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

Storage Device

M.2 Socket	For Jetson Nano 8G/4G SOM Super Mode and Jetson NX 16G/8G SOM: 1 x M.2 (Key M, 2280) for wide temperature PCIe Gen3 x 4 NVMe SSD module (System Operating temperature -25° C~60° C) 1 x M.2 (Key M, 2280) for wide temperature PCIe Gen4 x 4 NVMe SSD module (System Operating temperature -25° C~55° C) For Jetson NX 16G/8G SOM Super Mode: TBD PCIe Gen4 x 4 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 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)	- Horizontal Wall mounting or VESA mounting bracket (Basic SKU only) - Vertical Wall mounting or Din Rail mounting bracket (All SKU)

Environmental

Operating Temperature	For Jetson Nano 8GB/4GB SOM Super Mode and Jetson NX 16GB/8GB SOM: -25~60° C (-13~140°F) for Basic sku, PoE sku, or 5G sku w/ 4G TLE Module when installed with WT SSD Gen3 x 4 -25~55° C (-13~131°F) for Basic sku, PoE sku, or 5G sku w/ 4G TLE Module when installed with WT SSD Gen4 x 4 -25~55° C (-13~131°F) for 5G sku w/ 5G Module when installed with WT SSD Gen4 x 4 or WT SSD Gen3 x 4 (w/ air flow 0.5~0.8m/s) For Jetson NX 16GB/8GB SOM Super Mode: TBD
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)
Safety	LVD
Shock	IEC 60068-2-27, Operating Shock 100G with 11 ms duration, half sine wave
Vibration	IEC 60068-2-64, Operating Random Vibration 5 Grms, 5-500 Hz, 3 axes, 30 min/axisaaaaa

Add-on Feature / OS Support

2nd DC IN Interface	PD3.0 20V USB Type-C power adaptor interface (Locking feature), It can be backup DC input when 1st DC IN is 21V~36V
Carrier board feature	Carrier board reserved 2pcs Four Lane MIPI-CSI2 connectors (Option for DSC-NV002-WT R1.02)*
OS Support	NVIDIA JetPack 5.1.2 for Jetson Nano 8GB/4GB SOM and NX 16GB/8GB SOM ready NVIDIA JetPack 6.2 for Jetson Nano 8GB/4GB SOM Super Mode coming soon NVIDIA JetPack 6.2 for Jetson NX 16GB/8GB SOM Super Mode coming soon with DSC-NV002-WT R1.03

*MIPI-CSI2 camera need to be turned off before system going to sleep mode.
It is current NVIDIA JetPack limitation.