

# iEP-6020E Series

Industrial IoT Controller



Basic SKU

POE SKU

5G SKU

4POE 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
- 4POE SKU integrates 4x POE ports. Each port supports IEEE 802.3AF
- Anti Shock and Vibration
- Wide Range Operating Temperature
- 12~36V Phoenix type DC IN support
- 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)\*

## SPECIFICATIONS

### Processor System

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System on Module | <ul style="list-style-type: none"><li>- NVIDIA Jetson Orin NX SOM 16GB support (Basic SKU iEP-6020E-000, PoE SKU iEP-6020E-001, 4PoE SKU iEP-6020E-002, 5G SKU iEP-6020E-003)</li><li>- NVIDIA Jetson Orin NX SOM 8GB support (Basic SKU iEP-6021E-000)</li><li>- NVIDIA Jetson Orin Nano SOM 8GB support (Basic SKU iEP-6022E-000, PoE SKU iEP-6022E-001, 4PoE SKU iEP-6022E-002, 5G SKU iEP-6022E-003)</li><li>- NVIDIA Jetson Orin Nano SOM 4GB support (Basic sku iEP-6023E-000)</li></ul> |
| Video            | 1 x HDMI 2.0 (Orin NX)/ 1.4 (Orin Nano)                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Memory           | 16GB 128-bit LPDDR5 (Jetson Orin NX 16GB)<br>8GB 128-bit LPDDR5 (Jetson Orin NX 8GB)<br>8GB 128-bit LPDDR5 (Jetson Orin Nano 8GB)<br>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-6020E-001, Orin Nano SOM 8GB PoE SKU iEP-6022E-001)<br>4x Intel I210IT ports, each port supports IEEE 802.3AF PoE (Orin NX SOM 16GB 4PoE SKU iEP-6020E-002, Orin Nano SOM 8GB 4PoE SKU iEP-6022E-002) |
| 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)<br>2 x USB 2.0, 1 x Micro USB 2.0 (Device mode only, for OS Flash)                                                                                                                                                                                      |
| Proprietary IO<br><small>(DPR connector is proprietary design of DIO, Power/GND, Remote Power Button signals and power/GND pins. ISC connector is proprietary design of I2C, SPI, CANBUS Interface and Power/GND Pins)</small> | 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<br>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)<br>-For PCIe Gen3 x1 / USB3.2 Gen2x1 5G module (Option) (5G SKU Only, Orin NX SOM 16GB 5G SKU iEP-6020E-003, Orin Nano SOM 8GB 5G SKU iEP-6022E-003)<br>-For PCIe Gen3 x1 / USB3.2 Gen2x1 4G LTE module (Option) (5G SKU Only, Orin NX SOM 16GB 5G SKU iEP-6020E-003, Orin Nano SOM 8GB 5G SKU iEP-6022E-003)<br>-For PCIe Gen3 x1 M.2 B Key 2280 SSD module (Option, Basic SKU Only, Orin NX SOM 16GB Basic SKU iEP-6020E-000, Orin NX SOM 8GB Basic SKU iEP-6021E-000, Orin Nano SOM 8GB Basic SKU iEP-6022E-000, Orin Nano SOM 4GB Basic SKU iEP-6023E-000)<br>1 x M.2 (Key E, 2230) for PCIe Gen3 x1 Wi-Fi and USB2.0 Bluetooth module (Option)<br>(For all SKU except 4POE SKU Orin NX SOM 16GB 4POE SKU iEP-6020E-002, Orin Nano SOM 8GB 4POE SKU iEP-6022E-002) |

### Power Requirements

|                           |                                                                                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DC Input                  | DC IN source:<br>12V~36V DC input, 80V Surge Protection. OVP, UVP, OCP, Reverse Protection, Phoenix type connector                                                                        |
| AC to DC Adaptor (Option) | For Basic SKU:<br>120W Adapter, AC input 100-240Vac, 1.8A 50~60Hz, DC output 19V, 6.32A<br>For POE/4POE/5G SKU:<br>330W Adapter, AC input 100-240Vac, 4.2A 50~60Hz, DC output 24V, 13.75A |

### Storage Device

|                    |                                                                                                                                                                                                                     |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M.2 Socket         | For Orin NX 16GB/8GB SOM Super Mode<br>1 x M.2(KeyM, 2280) for widetemperature PCIe Gen3 x 4 or PCIeGen4x4 SSD For Orin Nano 8GB/4GB SOM Super Mode<br>1 x M.2 (Key M, 2280) for wide temperature PCIe Gen3 x 4 SSD |
| Micro SD Card slot | 1 x Micro SD Card Slot (UHS-I/SDR-50)                                                                                                                                                                               |

### Mechanical

|                   |                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensions        | Basic SKU : 59(W) x 170(H) x 134(D) mm<br>POE/4POE/5G SKU : 72(W) x 170(H) x 134(D) mm                                                     |
| Indicator         | 1 x Storage LED                                                                                                                            |
| Function          | Power on button with LED, OS Flash Button, Reset Tact Switch<br>Enable/Disable Auto power on Switch                                        |
| Net Weight        | 1.7Kg                                                                                                                                      |
| Mounting (Option) | Horizontal Wall mounting or<br>- VESA mounting bracket (Basic SKU only)<br>- Vertical Wall mounting or Din Rail mounting bracket (All SKU) |

### Environmental

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature | For Orin NX 16GB/8GB SOM Super Mode<br>Operating temperature is -25° C~50° C (w/ air flow 0.5~0.8m/s) for Basic/PoE/4PoE/5G sku(with 4G LTE or 5G module), SSD PCIe Gen3x4 or PCIe Gen4x4.<br>For Orin Nano 8GB/4GB SOM Super Mode<br>Operating temperature is -25° C~60° C (w/ air flow 0.5~0.8m/s) for Basic/PoE/4PoE/5G sku(with 4G LTE module), SSD PCIe Gen3x4.<br>Operating temperature is -25° C~55° C (w/ air flow 0.5~0.8m/s) for 5G sku(with 5G module), SSD PCIe Gen3x4 |
| 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(TBD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 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/axis                                                                                                                                                                                                                                                                                                                                                                                                   |

### Add-on Feature / OS Support

|                       |                                                                         |
|-----------------------|-------------------------------------------------------------------------|
| Carrier board feature | Carrier board reserved 2pcs<br>Four Lane MIPI-CSI2 connectors (Option)* |
| OS Support            | NVIDIA JetPack 6.2                                                      |

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