

Surveillance/ Video Analytics



NRU-52S+/ NRU-52S

Rugged NVIDIA® Jetson Orin™ NX/ Xavier™ NX Edge AI Computer with 4x PoE++ Ports for Intelligent Video Analytics



CE FC

Key Features

- Powered by NVIDIA® Jetson Orin™ NX or Xavier™ NX SOM bundled with JetPack 5.1.1
- Rugged -25°C to 70°C fanless operation
- 4x IEEE 802.3bt PoE++ GbE ports with screw-lock
- 2x mini-PCIe sockets for WIFI/GNSS/NVMe/CAN modules
- 1x M.2 3042/3052 B key socket for 4G/5G mobile communication
- 1x hardware configurable RS232/RS422/RS485 port
- 8V to 35V wide-range DC input with built-in ignition power control
- MIL-STD-810H and EN 50155 certified

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Introduction

NRU-52S series is a rugged, wide temperature, fanless edge AI computer delivering up to 100 TOPS for AI-based video analytics applications requiring H.264/H.265 video decoding and real-time inference. Power by an NVIDIA® Jetson Orin™ NX/ Xavier™ NX system on module (SoM), it comprises of NVIDIA® Ampere GPUs (Orin NX), CUDA cores, Tensor cores, and NVDLA (NVIDIA® Deep Learning Accelerator).

Benefiting from the power-efficiency of NVIDIA® Jetson Orin™ NX, which consumes only 25W of power, NRU-52S+ can decode up to 18 streams of 1080p video at 30 FPS, and also offer 100 TOPS inference performance. The high AI performance per watt makes NRU-52S+ ideal for applications with a limited power source, such as in a robot, vehicle, or rolling stock. Also, with Neosys' industrial-grade thermal design, NRU-52S+ is ideal for edge deployments that require fanless wide temperature operations, such as at roadside, wayside, construction site, agriculture, or in a dusty factory.

NRU-52S+ offers four IEEE 802.3bt PoE++ ports, each port can supply up to 90W to IP cameras or PTZ speed dome cameras for AI-based detection, tracking, and recognition applications. NRU-52S+ also offers flexible expansions with two mPCIe sockets for NVMe storage, WIFI, GNSS, or V2X module; one M.2 B key for 4G LTE or 5G NR module with dedicated passive thermal design, and a total of five antenna holes for mobile broadband. It also has one hardware configurable RS232/RS422/RS485, 1x GPS PPS input, 3-CH isolated DI, and 4-CH isolated DO for communication with external devices.

By integrating PoE++ connectivity, 100 TOPS inference performance, a vast of NVIDIA AI JetPack toolkits, NRU-52S+ can enable more possibilities for real-time video analytics such as autonomous machines, security alerts, law enforcement, and V2X applications. With its -25°C to 70°C fanless operation, wide-range DC input, ignition control, and 4G/ 5G connectivity, NRU-52S+ is not only for indoor/ stationary installations but also ideal for harsh edge deployments.

Specifications

| | NRU-52S+-JON8/ NRU-52S+-JON16 | NRU-52S-NX8/ NRU-52S-NX16 |
|----------------------------|--|---|
| System Core | | |
| Processor | NVIDIA® Jetson Orin™ NX system-on-module (SOM), comprising NVIDIA® Ampere GPU and ARM Cortex CPU | NVIDIA® Jetson Xavier™ NX system-on-module (SOM), comprising NVIDIA® Volta GPU and Carmel CPU |
| Memory | 8GB/ 16GB LPDDR5 @ 3200 MHz on SOM | 8GB/ 16GB LPDDR4x (Xavier NX 8GB/ 16GB) @ 1600/ 1866 MHz on SOM |
| eMMC | N/A | 16GB eMMC 5.1 on SOM |
| Bundled JetPack Version | JetPack 5.1.1 | JetPack 4.6.1 |
| Panel I/O Interface | | |
| Ethernet Port | 4x Gigabit ports with screw-lock, share 1 Gbps total bandwidth | |
| PoE Capability | In compliant with IEEE 802.3bt PoE++ Type 3 and Type 4 PSE, maximum 90W output on single PoE++ port Compatible with 802.3at (PoE+) and 802.3af (PoE) PD | |
| USB | 2x USB 3.1 Gen1 ports (total 5 Gbps shared with M.2 B key) 1x micro USB (OTG) | |
| Video Port | 1x DisplayPort, supporting 3840x2160 at 60Hz | |
| Serial Port | 1x hardware configurable RS-232/ 422/ 485 port | |
| CAN Bus | 1x isolated CAN 2.0 port | |
| Isolated DIO | 1x GPS PPS input, 3-CH isolated DI and 4-CH isolated DO | |
| Ground Terminal | 1x M4 ground terminal for chassis ESD shielding | |

| | NRU-52S+-JON8/ NRU-52S+-JON16 | NRU-52S-NX8/ NRU-52S-NX16 |
|------------------------|--|---|
| Internal I/O Interface | | |
| Mini PCI Express | With Orin NX 1x full-size mini PCI Express socket (PCIe + USB 2.0) for M.2 M 2242 NVMe with adapter for storage 1x full-size mini PCI Express socket (PCIe + USB 2.0) for GNSS, V2X, or CAN | With Xavier NX 1x full-size mini PCI Express socket (PCIe + USB 2.0) for WiFi, NVMe storage 1x full-size mini PCI Express socket (USB 2.0) for GNSS, V2X, or CAN |
| M.2 | 1x M.2 3042/ 3052 B key (USB 3.1 Gen 1 + USB 2.0) for 4G/5G module with dual SIM support (1x front-accessible, 1x internal) | |
| Power Supply | | |
| DC Input | 1x 3-pin pluggable terminal block for 8V to 35V DC input and ignition power control (V+/ GND/ IGN) | |
| Mechanical | | |
| Dimension | 173 mm (W) x 144 mm (D) x 60 mm (H) | |
| Weight | 1.4kg | |
| Mounting | Wall-mount bracket (optional) | |
| Environmental | | |
| Operating Temperature | -25°C ~ 70°C with passive cooling (15W TDP mode with 50W PoE++ power supply) -25°C ~ 70°C with optional fan kit (15W TDP mode with 144W PoE++ power supply) | |
| Storage Temperature | -40°C to 85°C | |
| Humidity | 10% to 90%, non-condensing | |
| Vibration | Operating, MIL-STD-810H, Method 516.8, Procedure I | |
| Shock | Operating, MIL-STD-810H, Method 514.8, Category 4 | |
| EMC | CE/FCC Class A, according to EN 55032 & EN 55035 EN 50121-3 (EN 50155:2017, Clause 13.4.8) | |

* For sub-zero and over 60°C operating temperature, a wide temperature SD card / NVMe is required.

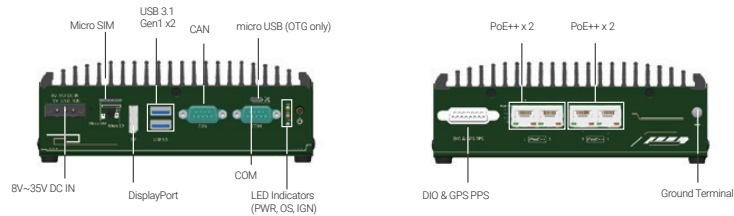
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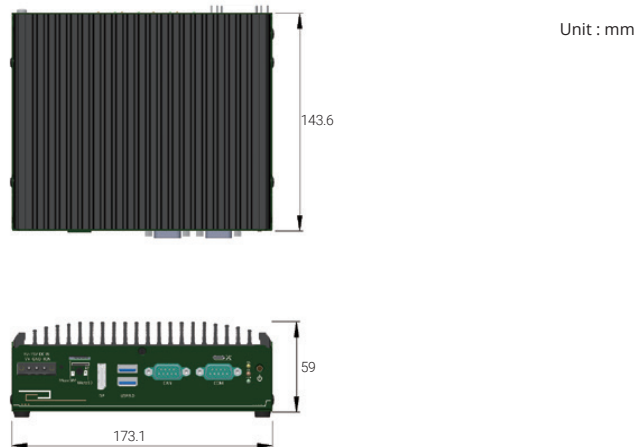


NRU-52S+/ NRU-52S

Appearance



Dimensions



Ordering Information

| Model No. | Product Description |
|------------------|---|
| NRU-52S+-JON8 | Rugged NVIDIA® Jetson Orin™ NX(8GB) Edge AI Computer with 4x PoE++ Ports for Intelligent Video Analytics with 128GB M.2 2242 M NVMe |
| NRU-52S+-JON16 | Rugged NVIDIA® Jetson Orin™ NX(16GB) Edge AI Computer with 4x PoE++ Ports for Intelligent Video Analytics with 128GB M.2 2242 M NVMe |
| NRU-52S+-JONANO8 | Rugged NVIDIA® Jetson Orin™ Nano(8GB) Edge AI Computer with 4x PoE++ Ports for Intelligent Video Analytics with 128GB M.2 2242 M NVMe |
| NRU-52S+-JONANO4 | Rugged NVIDIA® Jetson Orin™ Nano(4GB) Edge AI Computer with 4x PoE++ Ports for Intelligent Video Analytics with 128GB M.2 2242 M NVMe |
| NRU-52S-NX8 | Rugged NVIDIA® Jetson Xavier™ NX(8GB) Edge AI Computer with 4x PoE++ Ports for Intelligent Video Analytics |
| NRU-52S-NX16 | Rugged NVIDIA® Jetson Xavier™ NX(16GB) Edge AI Computer with 4x PoE++ Ports for Intelligent Video Analytics |

Optional Accessories

| | |
|--------------------|--|
| PA-160W-OW | 160W AC-DC power adapter, 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70°C. |
| PA-120W-OW | 120W AC/DC power adapter, 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70°C. |
| Wmkit-NRU-50 | Wall mounting kit for NRU-50 series, including wall mounting brackets and screws |
| AccsyBx-FAN-NRU-50 | Fan kit for NRU-50 series, including 92x92mm fan, fan frame, fan cable cover, and screws |
| Tpkit-NRU-50 | 3 pcs of 30x30x2 mm thermal pad for mPCIe modules with the max component height between 1.3 mm and 2.4 mm, and M.2 B key modules with the max component height between 0.7 mm and 2.0 mm |

All specifications and photos are subject to change without prior notice

Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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