

JCO SERIES

EDGE AI INDUSTRIAL COMPUTERS

CUSTOMIZABLE FANLESS
COMPUTER WITH NVIDIA JETSON
ORIN SERIES



NEXT-GENERATION EDGE AI COMPUTING SOLUTION

The JCO Series industrial computer, powered by the advanced NVIDIA Jetson platform, is a standout in AI and industrial computing. This series offers exceptional AI computing capabilities, making it perfect for sophisticated robotics, autonomous machinery, and high-end embedded AI tasks. Designed to withstand harsh industrial conditions, the JCO Series ensures consistent performance even in extreme environments.



Support PoE and
OOB Management



Rich I/O
Configuration



World-Class
Certification



Ruggedized
Fanless Solution



Accelerate Edge AI and Robotics with JCO-3000 Series

The JCO-3000 Series, powered by NVIDIA Jetson Orin NX and Orin Nano modules, is engineered for versatile industrial AI applications. The JCO computer is a fanless industrial-grade computer that can withstand harsh environments from wide temperature to tough shock and vibration. This series offers configurations ranging from 40 to 100 TOPS of AI performance, adaptable between 7W and 25W, to ensure efficiency and power in applications like autonomous vehicles, security, robotics, and industrial automation. Leveraging advanced Ampere architecture with up to 2048 CUDA and 64 Tensor cores, the JCO-3000 Series meets the high demands of real-time AI inference and high-performance computing in harsh environments, providing up to 80X the performance of previous generations, all within the smallest Jetson form factor.

Key Features

- Power Efficient Edge AI Computer with Nvidia Jetson Orin NX and Nano Modules
- Support up to 4x PoE Camera
- Multiple DIO Ports with 8x/16x DIO
- Out-of-Band Module for Remote Management
- CAN Bus
- Built Rugged. Built Ready Fanless Design
- World-Class Certification: CE, FCC, UL-Listed, CB Scheme

Key Markets and Applications



Autonomous Vehicle



Security Surveillance



Industrial Automation



Smart Cities



AGV/AMR



Retail and Inventory Management



Powerful AI Processing with Energy Efficient Processing Modules

The NVIDIA Jetson Orin NX and Orin Nano modules are pivotal in enhancing edge AI capabilities, providing substantial AI performance with efficient power consumption. The Orin NX, offering up to 100 TOPS of AI performance with power configurations between 10W and 25W, is tailored for demanding edge applications requiring intense computational power in compact environments. On the other hand, the Orin Nano provides up to 40 TOPS and is designed for efficiency, with power options from 7W to 15W, making it ideal for smaller-scale, yet still AI-intensive applications. Both modules support diverse AI-driven tasks in industries ranging from autonomous vehicles to smart infrastructure, equipped with memory options to suit various needs—16GB and 8GB for the Orin NX, and 8GB and 4GB for the Orin Nano—thereby enhancing the deployment and performance of edge AI solutions.

| | Jetson Orin NX Series | | Jetson Orin Nano Series | |
|----------------|---|--|--|--|
| | Jetson Orin NX 16GB | Jetson Orin NX 8GB | Jetson Orin Nano 8GB | Jetson Orin Nano 4GB |
| AI Performance | 100 TOPS | 70 TOPS | 40 TOPS | 20 TOPS |
| GPU | 1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores | | 1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores | 512-core NVIDIA Ampere architecture GPU with 16 Tensor Cores |
| CPU | 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3 | 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3 | 6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3 | |
| Power | 10W - 25W | 10W - 20W | 7W - 15W | 7W - 10W |



Leverage PoE for Machine Vision

The JCO-3000 Series is designed to support flexible network configurations to meet diverse operational needs, offering two distinct versions: one equipped with 2x Gigabit Ethernet (GbE) LAN ports and the other with 4x GbE LAN ports. The first configuration is tailored for standard connectivity requirements, providing reliable, high-speed data transmission. The second configuration, on the other hand, not only doubles the available Ethernet connections but also includes optional Power over Ethernet (PoE) support.



JCO-3000-ORN-A: 2x RJ45 GbE



JCO-3000-ORN-B: 4x RJ45 GbE/Optional PoE+



NVMe Storage Expandability

Delivering high-speed storage expansion through M Key, 2242/2280 slot with NVMe capabilities, providing high-speed storage options that enhance data transfer and system performance. This feature allows for the integration of state-of-the-art NVMe SSDs, ensuring quick data access and efficient storage solutions suited for intensive edge computing applications.



High-Speed 5G & Wireless Connectivity

The JCO-3000 Series offers advanced connectivity options to cater to diverse operational requirements. It is equipped with a 1x SIM Card slot and an M.2 B Key interface, specifically designed for 5G cellular connections, enabling high-speed, low-latency communication ideal for remote and mobile edge computing scenarios. Additionally, it features an M.2 E Key slot for Wi-Fi and Bluetooth modules, facilitating local network connections and peripheral device communication. This combination ensures versatile connectivity, supporting both wide-area cellular networks and local Wi-Fi communications.



Stable and Reliable DIO Signal Transmission

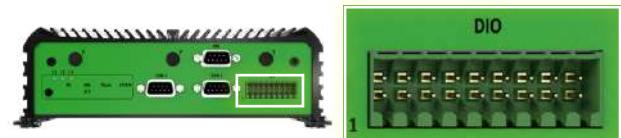
The JCO-3000 Series is designed to cater to different digital interface needs with two distinct configurations:

JCO-3000-ORN-A



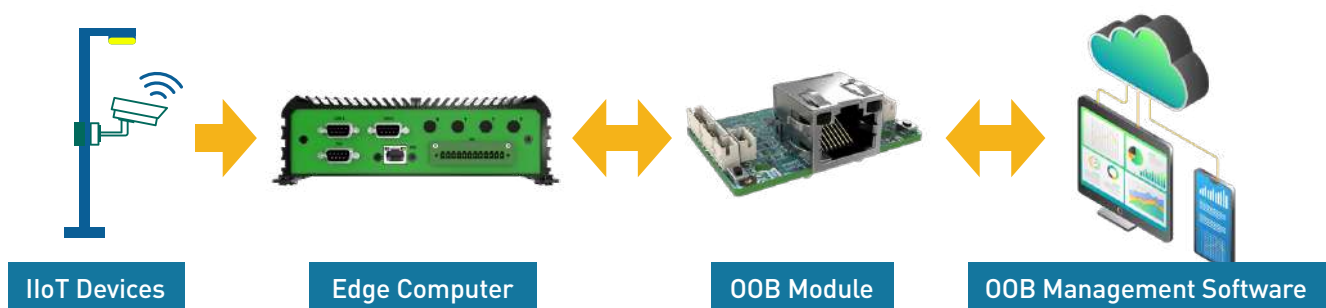
- 8x Digital Input/Output (Isolated)

JCO-3000-ORN-B



- 16x Digital Input/Output (Isolated)

The 8x DIO (isolated) configuration provides essential digital signaling capabilities suitable for basic control and monitoring tasks, in contrast, the 16x DIO (isolated) configuration provide additional channels. Both DIO configuration offer electrical isolation, protecting the device and connected equipment from electrical surges and noise, making it ideal for more complex or electrically noisy environments. This versatility ensures that the JCO-3000 Series can be tailored to a wide range of industrial applications, from simple device control to advanced automation systems requiring higher levels of protection and reliability.



Gain Remote Access by OOB Management Module

- The JCO-3000-ORN features an on-board Out-Of-Band (OOB) device management module accessed through 1x RJ45.
- OOB device management is a hardware-based technology that allows remote device management with 24/7 monitoring and management features.
- By integrating the OOB module in JCO-3000-ORN, it enables proactive monitoring and alerts, simplifies remote updates and configuration, and ultimately enables efficient, secure, and reliable management of Edge AI deployments.

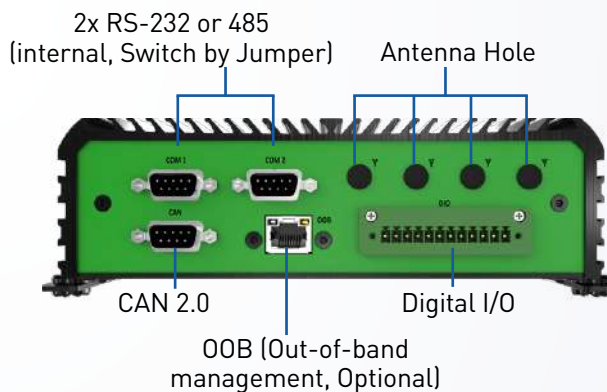
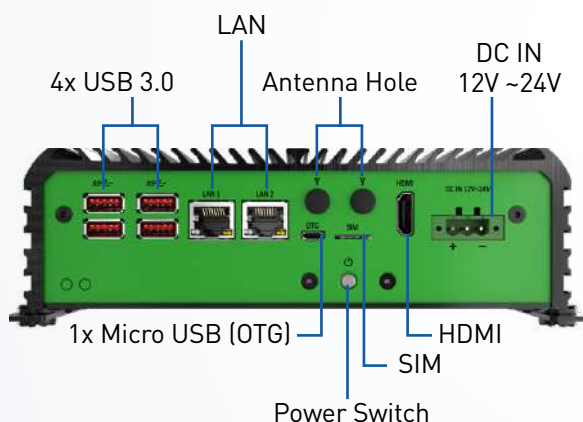
Balanced I/O Configurations

Built-In CAN Bus

The built-in CAN features electrical isolation to enhance system safety and signal integrity. This isolated CAN interface facilitates reliable communication in automotive and industrial environments, enabling devices to exchange data with robust error detection and correction mechanisms, making it particularly suitable for applications requiring secure and fault-tolerant vehicle network communications.

1x 2K HDMI Port

The JCO-3000 Series supports 1x HDMI with 2K resolution (2560x1440) at 60Hz, providing high-definition video output for clear, crisp visual presentations and real-time data displays, suitable for applications requiring detailed graphical interfaces or video streaming.



4x USB 3.0 and 1x Micro USB

The series is equipped with four USB 3.0 ports and one Micro USB port supporting OTG (On-The-Go) and Flash capabilities, providing high-speed data transfer and versatile connectivity options. This array of USB interfaces allows for the connection of multiple peripherals such as external storage, sensors, and human-machine interfaces, enhancing expandability and flexibility in system design and deployment, particularly beneficial for data-intensive applications.

Dual Serial Ports

Featuring dual RS-232/485 serial ports, the JCO-3000 Series offers versatile communication capabilities, allowing for easy integration with a wide range of industrial devices such as sensors, actuators, and modems. These serial connections support a variety of communication protocols, catering to both legacy and modern industrial systems, and are ideal for applications requiring reliable long-distance and noise-immune data transmission, such as in automation, telemetry, and process control.

Industrial-Grade Durability

The JCO-3000 series is engineered for industrial-grade durability, ensuring reliable performance under harsh conditions. It boasts a wide operating temperature range from -20°C up to 60°C with the Jetson Orin Nano module and -20°C up to 55°C for Jetson Orin NX module, accommodating extreme environmental variations without compromising functionality. Additionally, the device is designed to withstand tough conditions, featuring shock resistance of up to 50G and vibration resistance of 5 Grms, in compliance with MIL-STD-810G standards. This rugged resilience makes the JCO-3000 ideally suited for demanding industrial applications where reliability is critical, including automotive, manufacturing, and field operations.

Wide Operating Temperature



IEC60068-2-64:2008

With SSD: 5 Grms (5 - 500 Hz, 0.5 hr/axis)
Designed to comply with MIL-STD-810G Method 514.7 Procedure I

IEC60068-2-27:2008

With SSD: 50G half-sin 11ms
Designed to comply with MIL-STD-810G Method 516.7 Procedure I



World-Class Certification

Further enhancing its industrial applicability, the JCO-3000 series holds key certifications, including CE and FCC, which ensure that the device meets the necessary regulatory requirements for electromagnetic compatibility. It also adheres to UL Safety and the CB Scheme IEC 62368-1:2018 standards, confirming that it meets the latest safety requirements for electronic equipment. These certifications support the JCO-3000 series' reliability and safety in industrial deployments worldwide.

- CE, FCC
- UL 62368-1 Ed. 3
- CB Scheme IEC 62368-1:2018



We Create World-Class Edge Computers For Your Industry-Leading Solutions

NEW

JCO-3000-ORN SERIES Mid-Range AI Computer



JCO-3000-ORN-A



JCO-3000-ORN-B

| | | |
|-----------------------|--|--|
| Processor | NVIDIA® Jetson Orin™ NX 16GB/8GB NVIDIA® Jetson Orin™ Nano 8GB/4GB | |
| Display | 1x HDMI 2K (2560*1440) 60Hz | |
| Storage | 1x M.2 (M Key, 2242/2280, PCIe 4, Support NVMe) [Default 128GB] | |
| Expansion Slot | 1x M.2 (B Key, 3042/3052, USB 3.2 Gen 1, Support 4G/5G, 1x SIM Slot) 1x M.2 (E Key, 2230, PCIe x1, USB 2.0, Support Wi-Fi/Bluetooth) | 1x M.2 (B Key, 3042/3052, Support 4G/5G/Storage, 1x Dual Nano SIM socket) 1x M.2 (E Key, 2230, PCIe x1, USB 2.0, Support Wi-Fi/Bluetooth) |
| I/O | CAN 2.0 A, 2x RS-232/485 (Internal, switch by Jumper), 4 in / 4 out (Isolated), 2x RJ45, 4x USB 3.0 (Shared with USB 3.2 Gen 2 Hub) 1x Micro USB (OTG) | CAN 2.0 A, 2x RS-232/485 (Internal, switch by Jumper), 8 in / 8 out (Isolated), 4x RJ45 LAN (Optional PoE+ 25.5W/port) 4x USB 3.0 (Shared with USB 3.2 Gen 2 Hub) 1x USB Type-C (Flash) |
| OoB | 1x RJ45 (Optional OoB Management Module) | |
| Power | 12~24V, AT Select 3-pin Terminal Block | 9~36V, AT/ATX Select 3-pin Terminal Block |
| Operating Temperature | -20°C to 55°C (25W, NX Module) -20°C to 60°C (15W, Nano Module) | |
| Shock & Vibration | With SSD: 5 Grms, 5 - 500 Hz, 0.5 hr/axis With SSD: 50G, half sine, 11ms | |
| Certification | CE/FCC/UL (TBD) | CE/FCC/EN50155:EN50121-3-2/UL (TBD) |
| Dimensions | 192 (W) x 140 (D) x 58 (H) mm | |