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.

EDGEBoost I/O
Support

Rich I/O
Configuration

World-Class
Certification

Ruggedized
Fanless Solution

Next-Gen Performance
AI Edge Industrial Computer

Powered by NVIDIA Jetson AGX Orin 32GB/64GB system-on-module (SOM), The JCO-6000 Series comprises an Ampere GPU with up to 2048 CUDA cores, 64 Tensor cores that delivers up to 275 TOPS of AI performance with power modes configurable between 40W and 60W. This rugged edge AI computer uses the latest semiconductor acceleration technologies to address the demands for powerful performance acceleration, data intensive storage, and modular I/O configurability in the harshest conditions at the edge. Nvidia's AGX Orin Module provides powerful processing capabilities suitable for applications that require real-time AI inference, sensor fusion, and high-performance computing. The JCO-6000 Series is designed for demanding AI applications in areas such as autonomous vehicles, security and surveillance, robotics, industrial automation, and smart cities.

Key Features

- Built Rugged. Built Ready Fanless Design
- Powerful Edge AI Computer with Nvidia Jetson Orin AGX Modules (275 TOPS)
- EDGEBoost I/O Modules for USB3, PoE and GigE Vision Cameras
- 8x Mini-Fakra connectors for GMSL Cameras
- Out-of-Band Port for remote management

- CAN Bus and Power ignition Management
- World-Class Certification: UL-Listed, FCC, CE, EN50155:EN5121-3-2

Key Markets and Applications

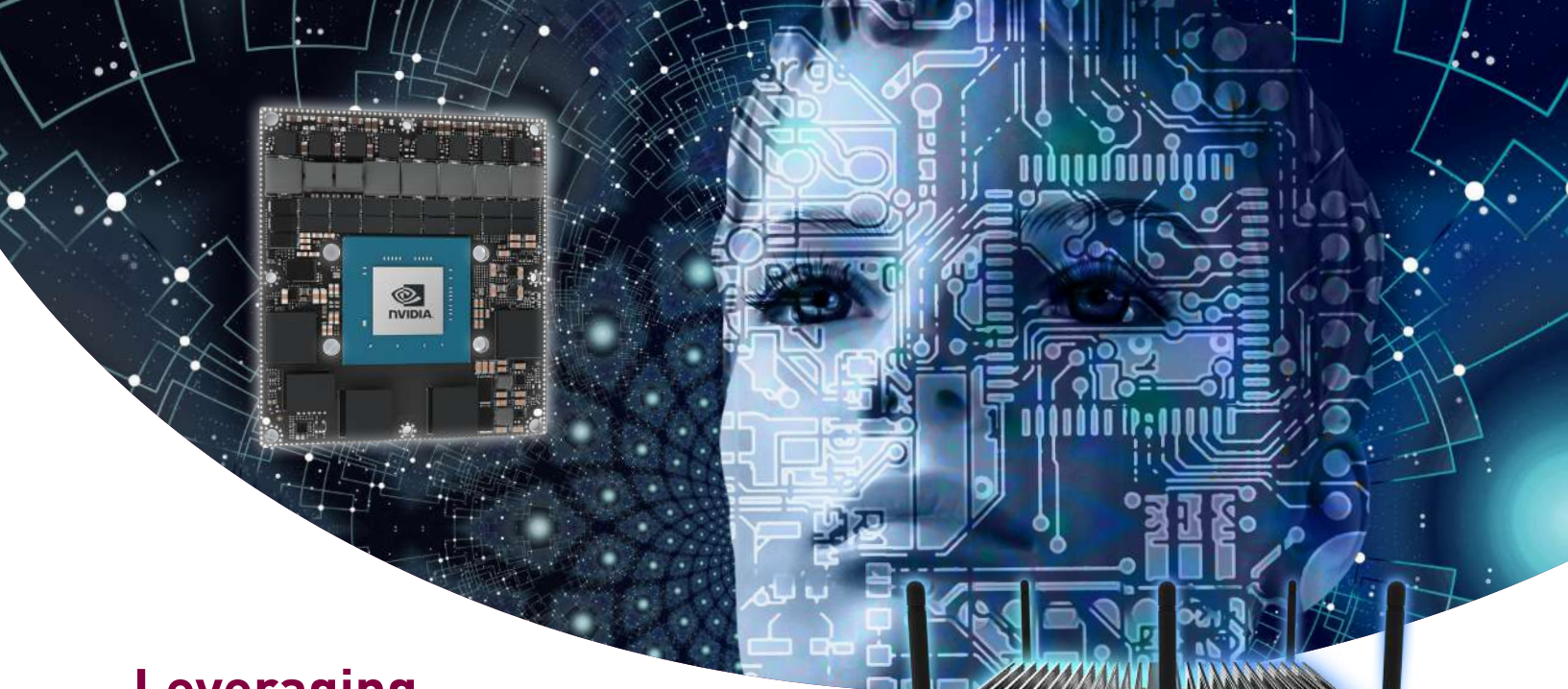| Industrial Automation | Transportation & Logistics | Smart Retail | Agriculture | Smart City | Healthcare & Life Science | Environment |

Leveraging NVIDIA's SOM Architecture for Unprecedented AI Performance

Jetson AGX Orin modules deliver up to 275 TOPS of AI performance with power configurable between 40W and 60W. This is the flagship model within the Jetson Orin lineup, offering the highest performance and capabilities. It is designed for demanding AI applications in areas such as autonomous vehicles, robotics, industrial automation, and video surveillance. The AGX Orin Module provides powerful processing capabilities suitable for applications that require real-time AI inference, sensor fusion, and high-performance computing.

	Jetson AGX Orin series	
	Jetson AGX Orin 64GB	Jetson AGX Orin 32GB
AI Performance	275 TOPS	200 TOPS
GPU	2048-core NVIDIA Ampere architecture GPU with 64 Tensor Cores	1792-core NVIDIA Ampere architecture GPU with 56 Tensor Cores
CPU	12-core Arm® Cortex®-A78AE v8.2 64-bit CPU 3MB L2 + 6MB L3	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3
Power	15W - 60W	15W - 40W

Mix & Match
EDGEBoost I/O

Support EDGEBoost I/O Modules

	Front Panel	Rear Panel
JCO-6000-ORN-A (2EBIO) Up to 2x EDGEBoost I/O Support		
JCO-6000-ORN-B (4EBIO) Up to 4x EDGEBoost I/O Support		

| Available EDGEBoost I/O	4x GbE with Intel® I350 Chipset, RJ-45 connector	4x GbE with Intel® I350 Chipset, RJ-45 (PoE) connector	4x GbE with Intel® I350 Chipset, M12 connector	4x GbE with Intel® I350 Chipset, M12 (PoE) connector	4x USB 3.2 Gen 1 (Locking Ports)
JCO-6000-ORN-A (2EBIO)	2x	1x	2x	1x	2x
JCO-6000-ORN-B (4EBIO)	4x	3x	4x	3x	2x

Available EDGEBoost I/O	1x M.2 M-Key, PCIe x4 Lane, 2242/2260 for NVMe	2x RJ45 10GbE with Intel X710 Chipset	4x USB 3.0	110V Power Module	1x OOB Module
JCO-6000-ORN-A (2EBIO)	2x	1x	2x	1x	1x
JCO-6000-ORN-B (4EBIO)	4x	1x	4x	1x	1x

Blazing Fast Connectivity x8 Lockable 5Gbps USB Ports

The JCO-6000-ORN Series has 1 USB 3.2 Gen 2 onboard carrying a transfer speed of 10 Gbps and is equipped with up to 8 USB 3 Vision ports with locking screws supported by EDGEBoost I/O, each having a transfer speed of 5 Gbps. These ports not only offer exceptional speed but also represent the highest bandwidth capacity available among competitors in the market. The JCO-6000-ORN solution sets a new standard for data throughput and efficiency. Whether it's transferring large files, connecting multiple peripheral devices, or facilitating high-speed data exchange in edge AI and video surveillance applications, this remarkable feature empowers users with unprecedented flexibility and scalability, enabling them to harness the full potential of edge computing workflows with unmatched speed and reliability.

Lower Latency, Bigger Bandwidth: up to x4 10 GbE Ethernet

EDGEBoost I/O modules offer up to x4 10 GbE ports, enabling the JCO-6000-ORN to support up to x5 10 GbE Ethernet in total with x1 10 GbE ethernet onboard. This feature maximizes network potential, facilitating lightning-fast data transfer and communication across diverse edge computing environments. With each port delivering blazing fast speeds of 10 Gigabits per second, our solution empowers users to handle massive volumes of data with ease, ensuring seamless connectivity and real-time throughput.
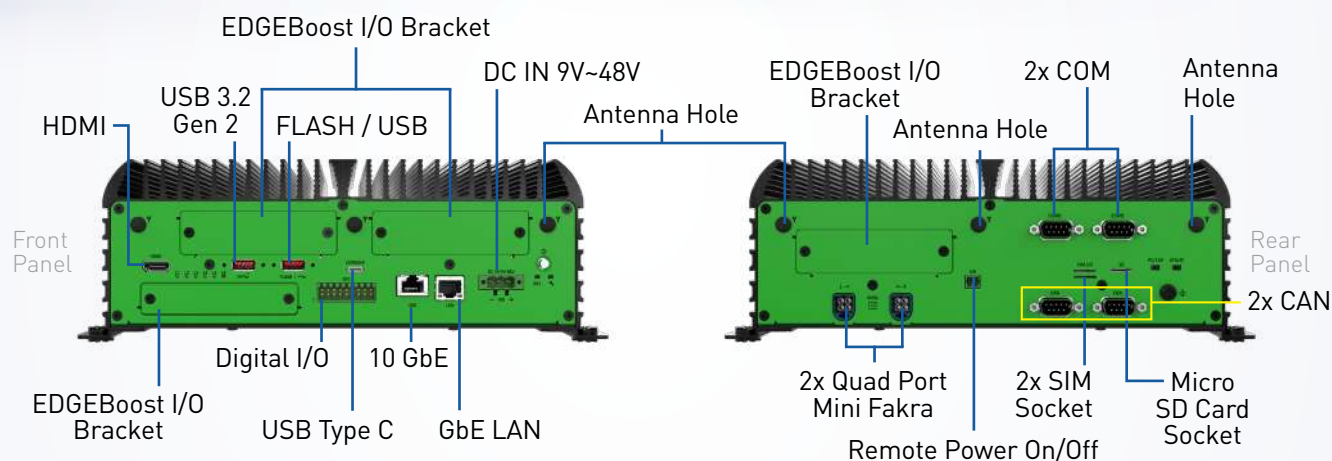
Hassle-free Power Efficiency with PoE+ Support

With optional Power over Ethernet Plus (PoE+) ports available through RJ45/ M12 connectors supported by EDGEBoost I/O modules, the JCO-6000-ORN offers hassle-free power reliability. JCO-6000-ORN-A (2EBIO) can support up to 4 PoE+ while JCO-6000-ORN-B (4EBIO) can support up to 12 PoE+ ports. Each PoE+ port delivers up to 25 watts of power, eliminating the need for extra power adapters. Cameras can be conveniently powered directly through the ethernet cable, simplifying installation and reducing clutter. This feature ensures streamlined deployment and maintenance, enhancing system reliability and making the JCO-6000-ORN an optimal choice for edge computing scenarios where efficient power delivery is essential.

Seamless Connectivity: x8 GbE Ethernet (RJ45 or M12)

The JCO-6000-ORN Series can support x8 GbE ports on ORN-A (2EBIO) models or x16 GbE ports on ORN-B (4EBIO) models, available in both RJ45 and M12 configurations. This versatile networking solution ensures reliable and high-speed data transfer essential for various edge computing applications. Whether in industrial automation, smart infrastructure, or video surveillance, these Ethernet ports facilitate efficient communication between devices and systems. With the flexibility to choose between RJ45 or M12 connectors, users can easily adapt to different networking standards and deployment environments.

Support GMSL 2 QUAD Port Mini Fakra, 8x Ports

High-speed Vision Camera support

The JCO-6000-ORN can support up to x8 GMSL Cameras through its on-board mini-FAKRA connectors for low-latency, long-distance data feed with 15m length cables. This harnesses the capability to connect multiple cameras simultaneously for advanced surveillance perception and imaging applications. Users can easily connect GMSL cameras for situational awareness, object detection, and computer vision-based applications. Additionally, with Power over Ethernet (PoE) support and USB Vision compatibility supported by EDGEBoost I/O modules, users can easily integrate various camera types, further expanding the system's versatility and suitability for a wide range of surveillance and imaging tasks.

Feature	GMSL Cameras	PoE Cameras	USB Vision Cameras
Data Transmission	High-speed, real-time	Single cable for power and data	Plug-and-play, wide compatibility
Cable Length	Supports long distances (15m+)	Flexible placement, no power outlet needed	Versatile for various applications
Additional Capabilities	Daisy-chaining multiple cameras	Reliable with UPS, overload protection	Cost-effective with quality imaging

**IIoT Devices** → **Edge Computer** ↔ **OOB Module** ↔ **OOB Management Software**
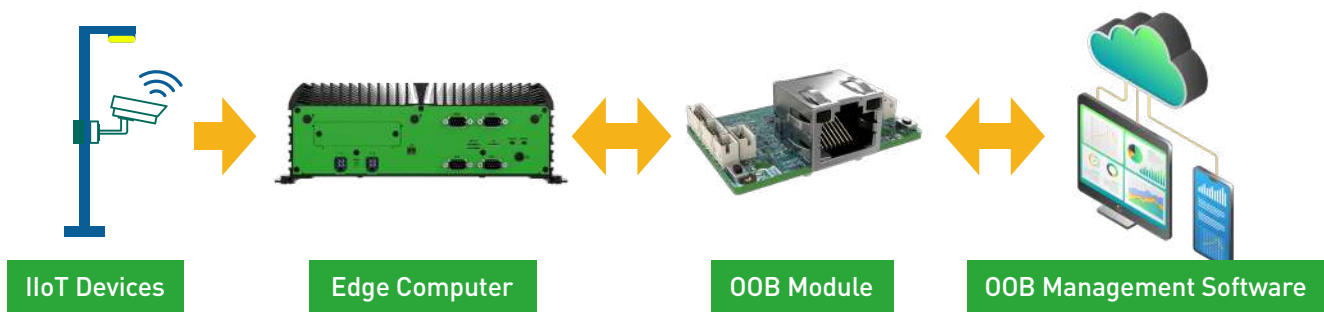
Gain Remote Access by OOB Management Module

- The JCO-6000-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-6000-ORN, it enables proactive monitoring and alerts, simplifies remote updates and configuration, and ultimately enables efficient, secure, and reliable management of Edge AI deployments.

Intelligent Automation Ready

Engineered for intelligent automation, the JCO-6000-ORN offers comprehensive functionality with isolated CAN FD, power ignition management, and DIO (8 Digital Input/ 8 Output) ports. The integration of isolated CAN FD ensures reliable communication in automotive and industrial environments, facilitating seamless connectivity with vehicle systems and industrial machinery. The power ignition management feature enables efficient power control, allowing the system to start up and shut down automatically in response to ignition signals, conserving energy and enhancing operational efficiency. Moreover, the DIO ports offer flexible control over external devices and sensors, enabling customized automation tailored to specific application requirements. Whether in automotive telematics, industrial automation, or smart infrastructure, the JCO-6000-ORN stands ready to streamline operations and drive innovation in intelligent automation applications.
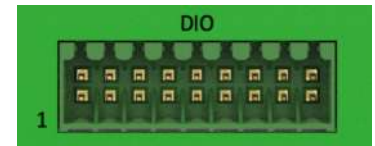
Mobile IoT Connectivity Ready

The JCO-6000-ORN is fully equipped for mobile IoT connectivity with support for Micro SIM, M.2 E Key for WiFi & Bluetooth, M.2 B Key for 4G/LTE, and 5G connectivity. The inclusion of a Micro SIM slot ensures seamless integration with mobile networks, enabling reliable data transmission in remote or mobile environments. The M.2 E Key with integrated antenna provides robust WiFi connectivity, ensuring high-speed wireless communication for a range of IoT applications. The M.2 B Key supports 5G/LTE connectivity, enabling ultra-fast and reliable mobile broadband access. With these features, JCO-6000-ORN empowers users to harness the full potential of mobile IoT technologies, facilitating real-time data exchange and remote monitoring in a variety of industries such as transportation, agriculture, and smart city deployments.

Intelligent Railway Ready

Designed to meet the rigorous demands of railway environments, the JCO-6000-ORN is Intelligent Railway Ready with E-Mark and EMC Conformity with EN50155 & EN50121-3-2 certifications, along with M12 connectors. The E-Mark certification ensures compliance with European Union regulations for automotive components, guaranteeing safety and reliability in transportation applications. The integration of M12 connectors further enhances reliability, providing robust and secure connections that withstand the rigors of railway operations.

E-Mark   EN50155 & EN50121-3-2

Built Rugged, Built Ready with World-Class Certifications

The JCO-6000-ORN is manufactured with an industrial-grade fanless design to ensure reliability in the harshest environments. With a wide operating temperature range, this Edge AI industrial computer is primed for extreme thermal settings at the rugged edge.

-20°C   55°C
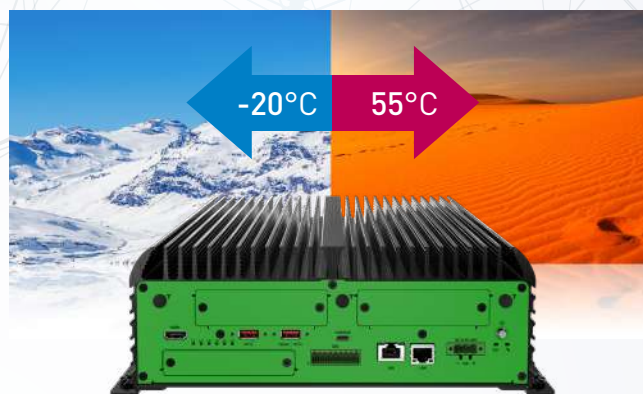
Shock & Vibration Resistance and Wide Voltage Input

The JCO-6000-ORN efficiently operates across a wide input voltage (9 – 48 VDC), with over voltage and current protection against power fluctuations, and is shock/vibration resistant with MIL-STD-810G compliance.

- Shock: 50G, half sine, 11ms
- Vibration: 5 Grms, 5 - 500 Hz, 0.5 hr/axis (1 Grms, 5 - 500 Hz, 0.5 hr/axis with HDD)

DC IN 9 ~ 48 VDC
(Optional 48 – 110V)

World-Class Certifications

Certified with UL-Listing, CE, FCC Class A, EMC Conformity with EN50155 and E-Mark, the JCO-6000-ORN is deployment-ready in the harshest applications including security & surveillance, robotics, industrial automation, and more.

UL CERTIFIED
SAFETY US.CA
E357184

FC CE

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NEW

JCO-6000-ORN SERIES HIGH-PERFORMANCE AI COMPUTER

NVIDIA.

	JCO-6000-ORN-A (2EBIO)	JCO-6000-ORN-B (4EBIO)
Processor	NVDIA Jetson AGX Orin™ AI Computer with 8-core/12-core Arm® Cortex®-A78AE v8.2 64-bit CPU	
Memory	AGX Orin 32 GB/64 GB LPDDR5 @ 3200 MHz on SOM	
Display	1x HDMI, 3840 x 2160 @ 60Hz	
Storage	1x eMMC 5.1, 64 GB, 1x M.2 (M Key, 2242/2260/2280, PCIe x4, Support NVMe) (Default 128GB), 1x Micro SD Socket, 2x Micro SIM Sockets	
Expansion Slot	1x M.2 (B Key, 3042/3052, USB 3.2 Gen 2, Support 4G/5G Module) 1x M.2 (E Key, 2230, PCIe x1, USB 2.0, Support Wi-Fi/Bluetooth)	
I/O	2x CAN, 2x RS-232/422/485, 2x RJ45, 1x USB 3.2 Gen 2, 1x USB 2.0 (Flash) 1x USB Type C (Console)	2x CAN (Optional, internal), 2x RS-232/422/485 (Optional, internal), 2x RJ45, 1x USB 3.2 Gen 2, 1x USB 2.0 (Flash) 1x USB Type C (Console)
GMSL Camera	GMSL 2 Camera Support by 2x Quad Port Mini Fakra, supporting 8x 1280x720 @ 30 FPS (Optional)	
EDGEBoost I/O Bracket	2x EDGEBoost I/O Bracket (Front Panel)	4x EDGEBoost I/O Bracket (3x Front Panel, 1x Back Panel)
OOB	1x RJ45 (OOB Management Module, Optional, Occupied 1x EBIO Bracket and 1x COM)	
Power	DC IN 9~48V, DC IN 48~110V, Optional (occupied 1x EBIO Bracket), AT/ATX Select, 3-pin Terminal Block	
Operating Temperature	-20°C to 55°C (AGX 64G, MaxN Mode at 68 Watt, Non-Throttling) -20°C to 50°C (AGX 64G, MaxN Mode at 68 Watt, Non-Throttling, With PoE/10G/4U3V Module, full CPU+GPU stressing) with 0.6 m/s airflow	
Shock & Vibration	With SSD: 50G, half sine, 11ms With SSD: 5 Grms, 5 - 500 Hz, 0.5 hr/axis	
Certification	CE, FCC Class A, UL, E-Mark, EMC Conformity with EN50155 & EN50121-3-2 (TBD)	
Dimensions	270 (W) x 190 (D) x 95 (H) mm	