

BCO-1000-ADLN SERIES

INDUSTRIAL FANLESS

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REAL-TIME DATA PROCESSING FOR RUGGED EDGE COMPUTING

COMPACT INDUSTRIAL COMPUTER

The BCO Series is designed and built to withstand deployment in challenging environments, managing workloads at the rugged edge for processing, storage, connectivity, and machine learning. This series is capable of accommodating various edge workloads, ranging from power-efficient computing to robust processing capabilities.



Deployment Ready Solution



High-Performance Efficiency



Fast Time To Market



Compact & Ruggedized Design

Industrial Fanless Mini Computer

Revolutionizing Industrial Edge IoT with **BCO-1000-ADLN Series**

The BCO-1000-ADLN series, powered by the 12th Gen Intel[®] Alder Lake-N97 or Intel[®] Atom[®] x7835RE processors, offers unmatched versatility and efficiency for industrial edge IoT applications. With its compact design and dual processor options, it balances high performance and ultra-low power consumption to cater to the diverse needs of industrial environments. The fanless mini computer features advanced architecture and robust construction, ensuring seamless integration into industrial setups while redefining the standards of industrial computing.

Utilizing these advanced processors, the BCO-1000-ADLN delivers faster performance, smoother operation, and accelerated data processing, enhancing overall efficiency. Its dual CPU compatibility makes it an optimal choice for demanding industrial-edge IoT applications, offering cost-effective, reliable, and deploymentready solutions where speed, flexibility, and integration are critical.





Industrial Automation

Autonomous

Robotics



Network

Gateways

Intel Alder Lake N97/Atom

x7835RE CPU

• Dual Display (4K)

V BCO-1000-ADLN Key Features

Industrial-Grade Fanless Design



Retail







DDR5 Memory

CE, FCC, UL



Wide Temperature Range

• World-class certifications:

Kiosks and Remote Monitoring

Smart Cities

Leveraging 12th Gen Intel Alder Lake & Intel Atom[®] Processor X for Industrial Edge IoT



The BCO-1000-ADLN Series is powered by the 12th Gen Intel[®] Alder Lake-N processor N97 and the Intel[®] Atom[®] x7835RE, offering versatile performance options for embedded industrial computing. These processors combine low power consumption with exceptional efficiency, making them ideal for compact, fanless mini PCs. With SoC integration, they streamline system design, while industrial-grade durability ensures reliable operation in demanding environments, minimizing downtime and maintenance costs.

Efficiency Meets Performance

DEGI

The BCO-1000-ADLN Series supports both the 12th Gen Intel[®] IoTG Alder Lake-N N97 and Intel[®] Atom[®] x7835RE processors, offering flexibility for diverse industrial applications:

• 12th Gen Intel[®] IoTG Alder Lake-N N97:

Built with efficiency cores (E-cores, Gracemont Architecture), this processor delivers exceptional multitasking capabilities while maintaining superior power efficiency. It's ideal for applications requiring a balance between high performance and energy savings.

• Intel[®] Atom[®] x7835RE:

Optimized for ultra-low power consumption and long-term reliability, this processor is designed for industrial environments, offering stability and energy efficiency even in harsh conditions.

With dual processor compatibility, the BCO-1000-ADLN Series is a versatile choice for applications demanding flexibility, energy efficiency, and reliable long-term performance.

High-Speed DDR5 Memory

The BCO-1000-ADLN series features DDR5 system memory, providing exceptional performance and responsiveness with a maximum capacity of 16 GB. The default configuration includes 8 GB of memory, validated by Premio for quick deploymentready solutions, ensuring seamless multitasking, faster data processing, and smoother system operation.









Flexible Network Configuration

The BCO-1000-ADLN series provides adaptable networking solutions with two distinct configurations: one featuring 2x LAN ports, and the other boasting 3x LAN ports. These options cater to a spectrum of industrial needs, from standard networking tasks to more demanding applications requiring increased bandwidth and redundancy.

| | BCO-1000-ADLN_2L | BCO-1000-ADLN-B_3L |
|--------------|--------------------------|---|
| LAN Ports | 2x RJ45 2.5 GbE | 3x RJ45 2.5 GbE |
| Connectivity | Wi-Fi 6E & BT-5.1 | Wi-Fi 6E & BT-5.1 1x SIM Socket for 4G/LTE |
| USB Ports | 4x USB 3.2 2x USB 2.0 | 2x USB 3.2 2x USB 2.0 |

Scalable Storage Expansions



M.2 B Key

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The BCO-1000-ADLN provides flexible storage expansions tailored to diverse requirements. Its M.2 B Key slot supports high-speed PCIe SSDs and comes pre-installed with a 128GB SSD, while the SATA 2.5" Drive Bay offers additional storage expansion options. This versatility ensures seamless integration and optimal performance in industrial computing

Robust Cellular & Wireless Connectivity



Both series optimize its M.2 slots to provide robust cellular and wireless connectivity options. While the BCO-1000-ADLN utilizes its M.2 E Key slot for Wi-Fi and Bluetooth modules, offering Intel® AX210 Wi-Fi 6E & BT-5.1 for high-speed wireless connectivity, the BCO-1000-ADLN-B series employs its M.2 B Key slot for a dual SIM socket supporting 4G and LTE connectivity.



Balanced I/O Configurations

Dual 4K Independent Displays

The BCO-1000-ADLN series provides dual display support with 1x HDMI and 1x DisplayPort connections, both offering 4K resolutions (3840 x 2160 @30Hz and 4096 x 2304 @60Hz) respectively. These high-definition options ensure crisp visuals and smooth performance for various industrial and commercial applications.

Up to 4x USB 3.2

The BCO-1000-ADLN series offers up to 4x USB ports for seamless data transfer and efficient peripheral device usage. With 2x USB 3.2 Gen 2 and 2x USB Gen 1 ports, users can experience fast data transfer rates, enhancing productivity and versatility in industrial and commercial environments. Additionally, for applications requiring more wired connectivity, the BCO-1000-ADLN-B series provides support for 3x RJ45 LAN ports.







Dual COM Ports

The BCO-1000-ADLN features dual DB9 connectors, offering robust serial communication capabilities. COM1 supports RS232, RS422, and RS485 protocols, providing versatile connectivity for a wide range of industrial devices. Additionally, COM2 is dedicated to RS232 communication, ensuring compatibility with legacy equipment.

8-bit GPIO

Equipped with 1x 8 GPI0 (General Purpose Input/Output), the BCO-1000-ADLN provides versatile connectivity options for industrial applications. These GPI0 pins enable the system to interface with external devices, sensors, and control systems, allowing for seamless integration and communication within industrial environments.



Discrete Hardware Security with TPM 2.0

The integration of TPM 2.0 (Trusted Platform Module) in the BCO-1000-ADLN ensures heightened security and data integrity for edge IIoT environments. By facilitating secure boot processes, data encryption, device authentication, and remote attestation, TPM 2.0 effectively safeguards against unauthorized access, data breaches, and malware attacks, enhancing the trustworthiness and reliability of the BCO-1000-ADLN in industrial settings.





Small Form Factor

The BCO-1000-ADLN stands out as an ultra-compact solution tailored for edge IIoT applications. With dimensions measuring just 192mm x 140mm x 68mm, its compact form factor makes it ideal for deployment in space-constrained industrial environments. This small fanless computer allows for seamless integration into edge computing setups where space optimization is essential. Despite its compact size, the BCO-1000-ADLN delivers robust performance and reliability, ensuring uninterrupted operation of critical industrial processes in diverse IIoT applications.



Flexible Mounting

With flexible mounting options such as wall mounting and optional DIN-rail mounting, the BCO-1000-ADLN adapts effortlessly to diverse industrial environments. This versatility facilitates easy installation, accommodating specific space constraints and installation preferences. Whether mounted on a wall or a DIN-rail, this compact mini computer ensures secure placement and dependable operation, making it an ideal choice for various industrial applications.





Wide Voltage Input

Whether deployed in factories, warehouses, or outdoor installations, the BCO-1000-ADLN series can reliably withstand fluctuations in power supply, ensuring uninterrupted operation and enhanced reliability for critical industrial applications. The BCO-1000-ADLN_2L model is equipped with a wide voltage input range of 9-36VDC, while the BCO-1000-ADLN-B_3L model supports a range of 12-36VDC, ensuring compatibility with various power sources commonly found in industrial settings.

Industrial-Grade Durability

The BCO-1000-ADLN is engineered for industrial-grade durability, boasting robust specifications to thrive in harsh operating conditions. With a wide operating temperature range of 0°C to 50°C, it maintains reliable performance even in environments with fluctuating temperatures. Additionally, its shock resistance of up to 50G and vibration resistance of up to 5Grms, in compliance with MIL-STD-810G, ensure resilience against physical stressors commonly encountered in industrial settings.



IEC60068-2-27:2008

With SSD: 50G half-sin 11ms Designed to comply with MIL-STD-810G Method 514.7 Procedure

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

World-Class Certification

Supported by essential certifications, including CE, FCC and RoHS 3.0, the BCO-1000-ADLN series ensures compliance with electromagnetic compatibility regulations and environmental standards. These certifications support the BCO-1000-ADLN series' reliability and safety in industrial deployments worldwide.

- CE

- FCC Class A (47 CFR part 15.109 and part 15.107)
- RoHS 3.0 (Directive 2015/863/EU)15.109 and part 15.107)
- UL 62368 Ed.3





WE DESIGN, MANUFACTURE, AND SERVICE CUSTOMERS AROUND THE WORLD



BCO-1000-ADLN SERIES





intel. Alder Lake

| Model | BCO-1000-ADLN_2L | BCO-1000-ADLN-B_3L |
|-----------------------|--|---|
| CPU Support | 12 th Gen Intel [®] IoTG Alder Lake-N Processor N97, QC, 12W | 12 th Gen Intel [®] IoTG Alder Lake-N N97 Processor Intel+ Atom [®] x7835RE Processor |
| Memory | DDR5 4800MT/s SODIMM. Max. up to 16GB (Default: 8GB) | |
| Display | 1x 4K DisplayPort 1.4a 1x 4K HDMI 1.4b | |
| Storage | 1x Internal 2.5" SATA SSD Bay (7mm or 9mm) 1x M.2 B Key (2242/3042, SATA/PCIe x1, support NVMe/SATA | 1x Internal 2.5" SATA SSD Bay (7mm or 9mm) |
| Expansion | 1x M.2 E Key (2230, PCIe x1 & USB 2.0, support Wifi 6E & BT-5.1) | 1x M.2 B Key (2242/3042, SATA/PCIe x1/USB3.0 support LTE/4G/Storage Module) 1x M.2 E Key (2230, PCIe x1 & USB 2.0, support Wifi 6E & BT-5.1) 1x Dual SIM Socket (SIM1/SIM2) |
| Ι/Ο | 2x RJ45 (2.5GbE) 1x RS-232/422/485, 1x RS-232 2x USB 3.2 Gen2 (10 Gbps), 2x USB 3.2 Gen1 (5 Gbps), 2x USB 2.0 8x GPI0 Line-in/Line-out/Mic-in | 3x RJ45 (2.5GbE) 1x RS-232/422/485, 1x RS-232 2x USB 3.2 Gen1 (5 Gbps), 2x USB 2.0 8x GPI0 Line-in/Line-out/Mic-in |
| Power | 3-pin, AT, ATX 9~36V | 3-pin, AT, ATX 12~36V |
| Certification | CE, FCC Class A | UL 62368 Ed.3, CE, FCC Class A |
| Operating Temperature | 0°C to 50°C | |
| Dimensions (WxDxH) | 192 x 140 x 68mm | |