BCO SERIES

SEMI-RUGGED FANLESS INDUSTRIAL COMPUTERS

premio

UBIQUITOUS CONNECTIVITY AND RELIABILITY AT THE EDGE

The BCO Series is a line of semi-rugged x86 industrial computers designed to be more durable and reliable than traditional computers. Built with industrial grade quality, the BCO series features four form factors that offer scalable performance to meet the demands of Industry 4.0 applications.

Industrial-Grade Reliability

Real-time Edge AI Performance

IIoT-Centric Connectivity

World-Class Certifications
(CE, FCC, UL Listed)

Scalable Performance for Versatile Reliability
Wide Range of Models for Deployment Ease

	BCO-500 Series	BCO-1000 Series	BCO-3000 Series	BCO-6000 Series
Processor	Intel® Alder Lake N97/ i3-N305, Rockchip RK3568J	Intel Alder Lake-N N97 or Atom x7835RE	12th/13th Gen Intel Core Processor	12th/13th Gen Intel Core Processor
TDP	Intel: 12-15W Rockchip: 5-6W	12W	35W	35W
Dimensions (W) x (D) x (H)	225 mm (about 8.85 in) x 130 mm (about 5.11 in) x 41 mm (about 1.61 in)	192 mm (about 7.56 in) x 140 mm (about 5.51 in) x 68 mm (about 2.68 in)	192 mm (about 7.56 in) x 240 mm (about 9.45 in) x 69 mm (about 2.72 in)	330 mm (about 12.96 in) x 240 mm (about 9.45 in) x 69 mm (about 2.72 in)

225 mm

41 mm

BCO-500 Series

68 mm

BCO-1000 Series

69 mm

BCO-3000 Series

192 mm

330 mm

69 mm

BCO-6000 Series

Key Markets Applications

Designed to meet the demanding needs of various industrial applications with durability and reliability, these robust solutions provide the performance and versatility necessary for complex operational systems. Key market verticals that benefit from these powerful boards include industrial automation, smart retail and kiosks, digital signage, medical imaging, and more.

Industrial Automation

Embedded Computing

Smart Retail & Kiosks

IIoT& Robotics

Intelligent Healthcare

Smart Building

BCO-500 Series

The BCO-500 Series is a fanless mini embedded computer that brings robust performance and connectivity to the most space-constrained applications. Powered by 12th Gen Intel® Alder Lake-N and Rockchip RK3568J, the BCO-500 provides an industrial alternative to consumer-grade Intel NUCs and ARM-based devices. Its mini form factor allows the computer to seamlessly retrofit into space-constrained applications and integrate with IoT devices and sensors.

- BCO-500-ADL: Intel Alder Lake N97
  BCO-500-ROK: Rockchip RK3568J
- Ultra Compact Form Factor

- Support 2x RJ25 LAN
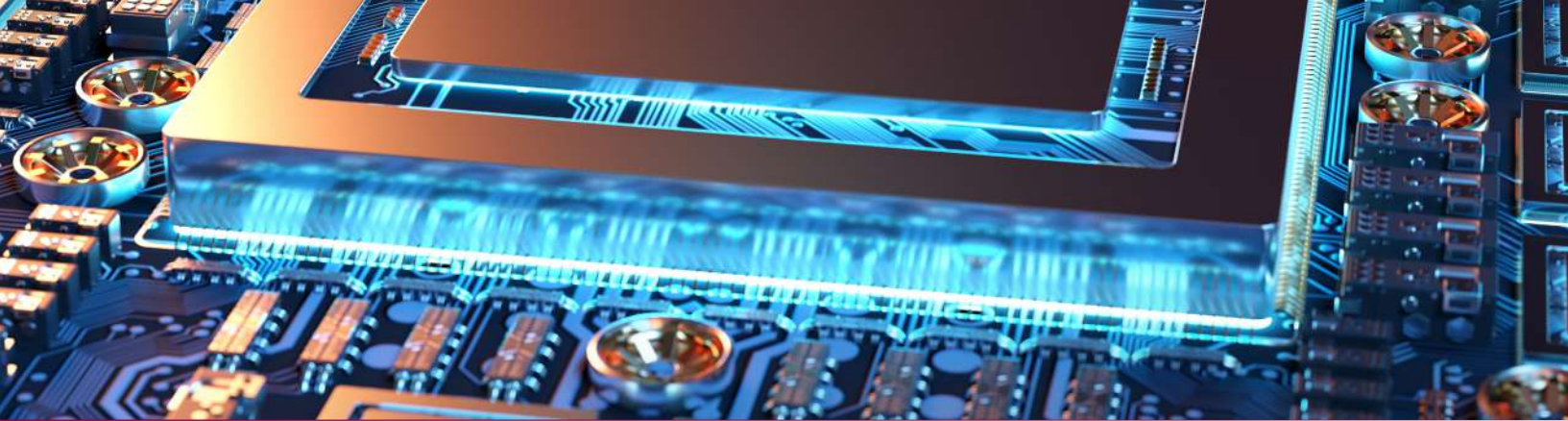- Support Wi-Fi, Bluetooth, and 4G/LTE

BCO-500-ADL

BCO-500-ROK

BCO-1000-ADLN

A compact fanless industrial computer, the BCO-1000-ADLN brings performance, connectivity, and low-power efficiency. Supported by the 12th generation Intel Alder Lake N97 Processor, this solution provides an alternative to an Intel NUC, offering a more industrial and reliable solution for embedded longevity. Despite its small size, the BCO-1000-ADLN boasts extensive rich I/O for seamless integration with IoT devices and sensors and even wireless connectivity for data low-latency data telemetry.

- 12th Gen Intel Alder Lake N
- DDR5 Memory
- 1x 2.5" SATA Drive
- Supports 2x or 3x RJ45 LAN
- Supports 4G/LTE, Wi-Fi, Bluetooth

DDR5

BCO-1000-ADLN_2L

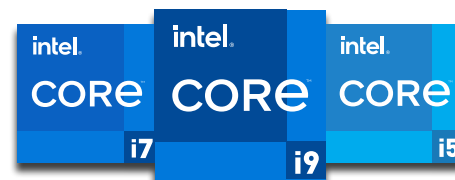BCO-1000-ADLN-B_3L

BCO-3000-RPL

The BCO-3000-RPL is a small form factor industrial computer that enables high-performance edge processing in space-constrained applications. The BCO-3000-RPL offers a balanced architecture, delivering socket-type performance with plentiful IoT connectivity to reliably process real-time workloads.

- 12th/13th Generation Intel Core
- Expandable M.2 Slots: B-Key & M-Key
- Edge AI Ready with HAILO-8
- Triple Independent Display
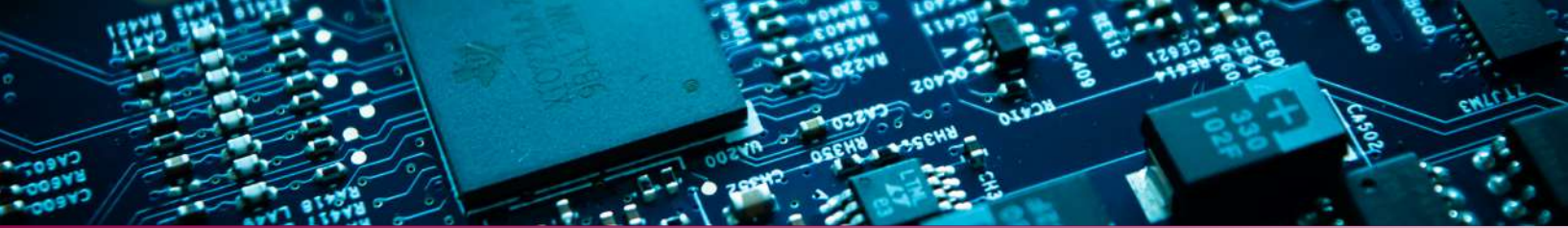- Supports 4G/LTE, 5G, Wi-Fi, Bluetooth connectivity
- 8 In/8 Out Isolated DIO

BCO-3000-RPL

BCO-6000-RPL

The BCO-6000-RPL is a high-performance industrial edge computer that supports real-time edge AI workloads and IoT consolidation. It maintains a slim, low-profile design while offering rich IoT-centric connectivity and robust PCIe expandability. Through this PCIe expansion, the BCO-6000-RPL can support a dedicated GPU integration for edge AI inferencing or other high-speed expansion add-on cards.

- 12th/13th Generation Intel Core
- PCIe 4.0 Slots for GPU expansion or add-on Cards
- Triple Independent Display
- Supports 4G/LTE, 5G, Wi-Fi, Bluetooth connectivity
- 8 In/8 Out Isolated DIO

BCO-6000-RPL
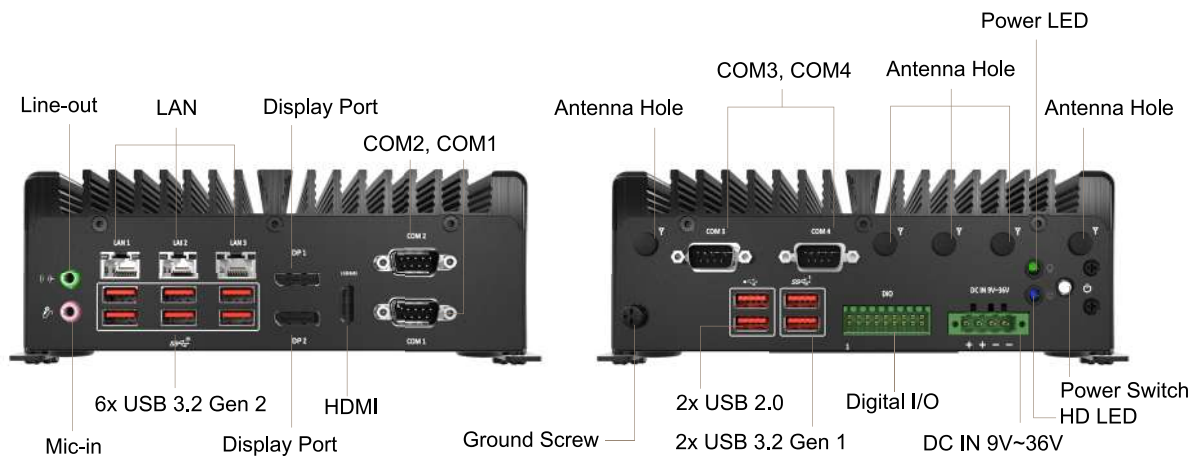
Platform Support: X86 and ARM®

Power-Efficient Embedded Processors

The BCO Series is powered by the latest x86 and ARM®-based processors for real-time performance at the rugged edge. Configurations include 12th Gen Intel® Alder Lake-N for x86 and Rockchip RK3568J for ARM-based solutions. Edge-specific processors align with embedded lifecycle roadmaps, ensuring 10–15 years of availability. This long-term support provides deployment consistency and proven reliability. It also minimizes costly system redesigns that could disrupt compatibility.

	BCO-500-ROK	BCO-500-ADL	BCO-1000-ADLN	BCO-3000/6000-RPL
Processor	Rockchip (FCBGA SoC)	Intel Alder Lake (BGA Soc)	Intel Alder Lake/Amston Lake (BGA SoC)	Intel Core (LGA Socket)
CPU Class	Mobile/Embedded	Mobile/Embedded	Mobile/Embedded	Mobile/Embedded
TDP	5W/6W	12W/15W	12W	35W
Cores	Quad core	Up to 4/8 (Threads: 4/8)	Up to 4 (Threads: 4)	Up to 24 (Threads: 32)

Rich IIoT Connectivity

The BCO Series offers rich and essential amounts of I/O such as high-speed LAN, USB ports, and legacy COM ports to bring unmatched connectivity to the rugged edge, without the need for further expansion. With additional support for automation through integrated DIO, the BCO Series ensures rich IoT connectivity readily available on-board.

GPU Integration for Enhanced Processing
(BCO-6000-RPL Exclusive)

Optimized for high demand workloads, the BCO-6000-RPL features compatibility for a dedicated GPU to enable real-time edge AI inferencing. This PCIe expansion also gives the ability to support various add-on cards such as high-speed networking and capture cards.
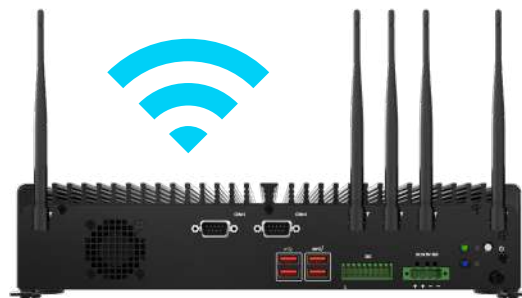
- 1 PCIe x16 Gen4 or 2x PCIe x8 Gen4
- Supports GPU Expansion (A2000, RTX 2000 ADA, and RTX 4000 ADA)

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Wireless Communications & Networking

The BCO Series facilitates real-time telecommunications and machine-to-machine communication by supporting a range of wireless networking modules. Configure wireless connectivity for remote out-of-band deployments or enable private networking for optimized in-band deployments.

• Industrial 5G   • Bluetooth   • 4G/LTE   • Wi-Fi 6E

Industrial Grade Design

The BCO Series is engineered to meet rigorous industrial standards to ensure exceptional durability and longevity in harsh industrial environments. Built with durability and reliability in mind, these rugged-ready solutions ensure optimal performance even in extreme conditions.

• Wide Operating Temperature (0°C ~ 50°C/-10°C ~ 50°C/-40°C ~ 70°C)
• Shock and Vibration Resistance (MIL-STD-810G)
• Wide Power Input (9-36VDC/12-36VDC/12-24VDC)

Enhanced Security with Discrete TPM 2.0 Support

Premio's BCO Series integrate Trusted Platform Module (TPM) 2.0 support, providing enhanced security for sensitive data. With TPM 2.0, it ensures heightened security and data integrity for 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.

World Class Certifications

With UL listed, FCC, and CE certifications, the BCO Series meets the highest industry standards for ultimate safety and reliability. These certifications provide peace of mind throughout deployment, reinforcing the BCO Series as a reliable edge computing solution.

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BCO-500-ADL SERIES

BCO-500-ROK SERIES

intel.
Alder Lake N

Rockchip

Model	BCO-500-ADL
CPU Support	12th Gen Intel® IoTG Alder Lake-N N97 Processor Intel® Core™ i3-N305 Processor
Memory	1x 262-Pin DDR5 4800MT/s SODIMM. Max. up to 16GB (Default 8GB)
Display	1x 4K HDMI 1.4b 1x 4K DisplayPort 1.4a
LAN	2x RJ45 GbE (Support Wake-on-LAN and PXE)
Storage	1x M.2 B Key (2242/2280/3042, SATA/PCIe x1, support SATA)
Expansion	1x M.2 E Key (2230, PCIe x1, USB 2.0, support Wifi/Bluetooth)
I/O	2x RJ45 (2.5GbE) 1x RS-232/422/485 1x RS-232 4x USB 3.2 Gen 2 (10 Gbps)
Power	3-pin, AT/ATX 12~36V
Operating Temp	N97 CPU: -10°C to 50°C (12W) i3-N305 CPU: -10°C to 45°C (15W)
Certification	UL 61010-2-201, CE, FCC Class A, VCCI, RCM
Dimensions (WxDxH)	225 x 130 x 41 (mm)

Model	BCO-500-ROK
Processor	Rockchip RK3568J ARM Quad Cortex-A55, up to 2.0 GHz
Memory	LPDDR4 2133MHz 4 GB
Display	1 x HDMI Max. resolution 4096 x 2160 @60Hz
LAN	2x GbE RJ45 (10/100/1000 Mbps)
Storage	eMMC 64GB
I/O	2x RS-232/422/485 2x USB 3.0 Type A 2x GbE RJ45 1x Line-out 1x CAN
Power	3-pin, AT/ATX 12~24V
Operating Temp	-40°C to 70°C
Certification	UL 61010-1, UL 61010-2-201 CE, FCC Class A, UKCA, IC
Dimensions (WxDxH)	225 x 130 x 41 (mm)

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BCO-1000-ADLN SERIES

intel
Alder Lake/ Raptor Lake

Model	BCO-1000-ADLN_2L	BCO-1000-ADLN-B_3L
CPU Support	12th Gen Intel® IoTG Alder Lake-N N97 Processor	12th 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	
I/O	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 GPIO 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 GPIO Line-in/Line-out/Mic-in
Storage	1x Internal 2.5" SATA SSD Bay (7mm or 9mm)	
Expansion	1x M.2 B Key (2242/2280/3042, SATA/PCIe x1, support NVMe/SATA) 1x M.2 E Key (2230, PCIe x1 & USB 2.0, support Wifi 6E & BT-5.1)	1x M.2 B Key (2242/2280/3042, SATA/PCIe x1/ USB3.0 support LTE/4G/5G/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)
Power	3-pin, AT, ATX 9~36V	3-pin, AT, ATX 12~36V
	Support AT/ATX Mode	
Certification	CE, FCC Class A	UL 62368 Ed.3, CE, FCC Class A
Operating Temp	0 °C to 50 °C	
Dimensions (WxDxH)	192 x 140 x 68 mm	

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BCO-3000-RPL & BCO-6000-RPL SERIES

intel ®
Alder Lake/ Raptor Lake

Model	BCO-3000-RPL	BCO-6000-RPL
CPU Support	12th/13th/14th Gen Intel® Core™ Processor i3/i5/i7/i9, Pentium, Celeron (35W only)	
Memory	2x DDR4 3200MT/s SODIMM. Max. up to 64GB (Default 8GB)	
Display	2x 4K Dual Mode DisplayPort 1.4a 1x 4K HDMI 1.4b	
I/O	2x RS232/422/485, 2x RS485 3x RJ45 (2.5GbE) 6x USB 3.2 Gen 2 (10 Gbps), 2x USB 3.2 Gen 1 (5 Gbps), 2x USB 2.0 Type-A	
Storage	1x M.2 M Key (2242/2280, PCIe x4 Gen 3, support Storage/AI Module, Default 128GB)	
Expansion	1x M.2 B Key (3042, PCIe +USB 3.2 Gen 2x1+ USB 2.0, support 5G/4G/LTE Module) 1x M.2 E Key (2230, PCIe x1 + USB 2.0, support Wi-Fi 6E & BT-5.1)	
PCIe	-	2x PCIe x8 or 1x PCIe x16 (PCIe 4.0, support A2000 GPU)
Power	4-pin, AT, ATX 9~36V	4-pin, AT, ATX 9~36V 24~36VDC for add GPU Card
Shock & Vibration	With SSD: 5 Grms (5 - 500 Hz, 0.5 hr/axis) With SSD: 50G half-sin 11ms	
Certification	UL 62368 Ed.3, CE, FCC Class A	
Operating Temp	0°C to 50°C	
Dimensions (WxDxH)	192 x 240 x 69mm	330 x 240 x 69mm