



# BCO SERIES

## X86 SEMI-RUGGED FANLESS INDUSTRIAL COMPUTERS



## 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 five 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**

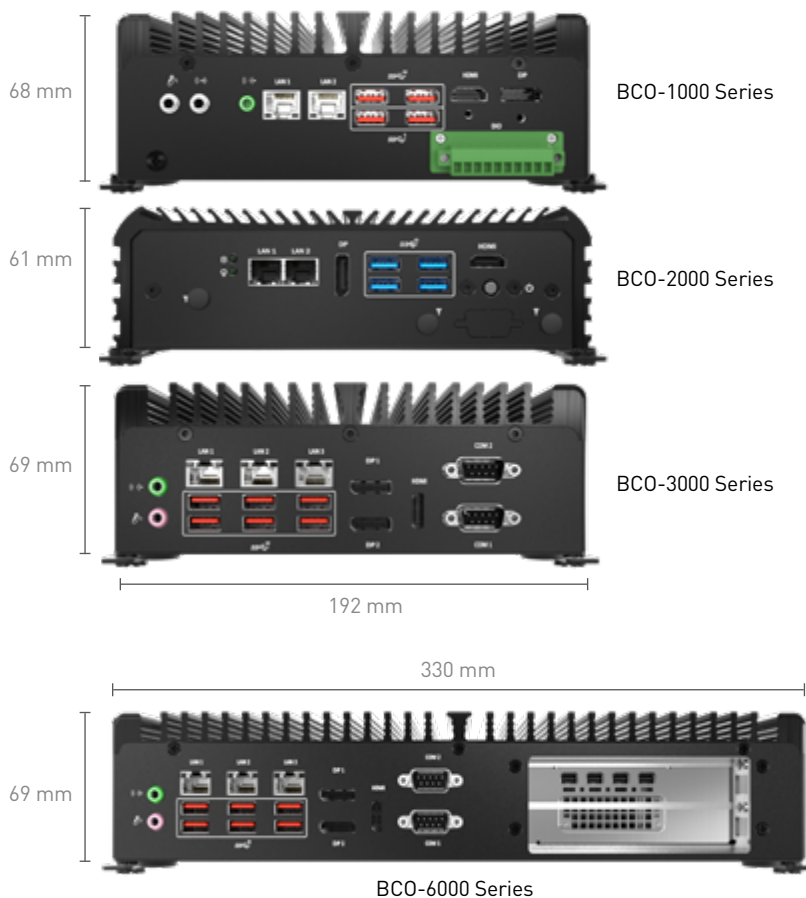


**World-Class  
Certifications**  
(CE, FCC, UL Listed)



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

	BCO-1000 Series	BCO-2000 Series	BCO-3000 Series	BCO-6000 Series
<b>Processor</b>	Intel Alder Lake-N N97	Intel Whiskey Lake or AMD Ryzen Embedded	12 <sup>th</sup> /13 <sup>th</sup> Gen Intel Core Processor	12 <sup>th</sup> /13 <sup>th</sup> Gen Intel Core Processor
<b>TDP</b>	12W	15W	35W	35W
<b>Dimensions (W) x (D) x (H)</b>	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 140 mm (about 5.51 in) x 61 mm (about 2.4 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)



### 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



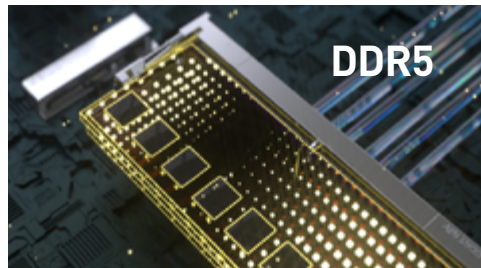
Smart Building



## I BCO-1000-ADLN

An ultra-compact fanless mini computer, the BCO-1000-ADLN brings performance, connectivity, and low-power efficiency. Supported by the 12<sup>th</sup> 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 compact 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.

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



BCO-1000-ADLN-A



BCO-1000-ADLN-B



## I BCO-2000-RYZ/BCO-2000-WHL-U

The BCO-2000 Series delivers essential IoT connectivity with seamless expandability with dual I/O expansion brackets. Powered by either Intel or AMD Embedded processors, the BCO-2000 maximizes data processing within a compact fanless design.

- Intel or AMD Embedded Processor
- Supports 4G/LTE, 5G, Wi-Fi, Bluetooth connectivity
- 2x Universal I/O brackets
- PoE Connectivity (BCO-2000-WHL-U)

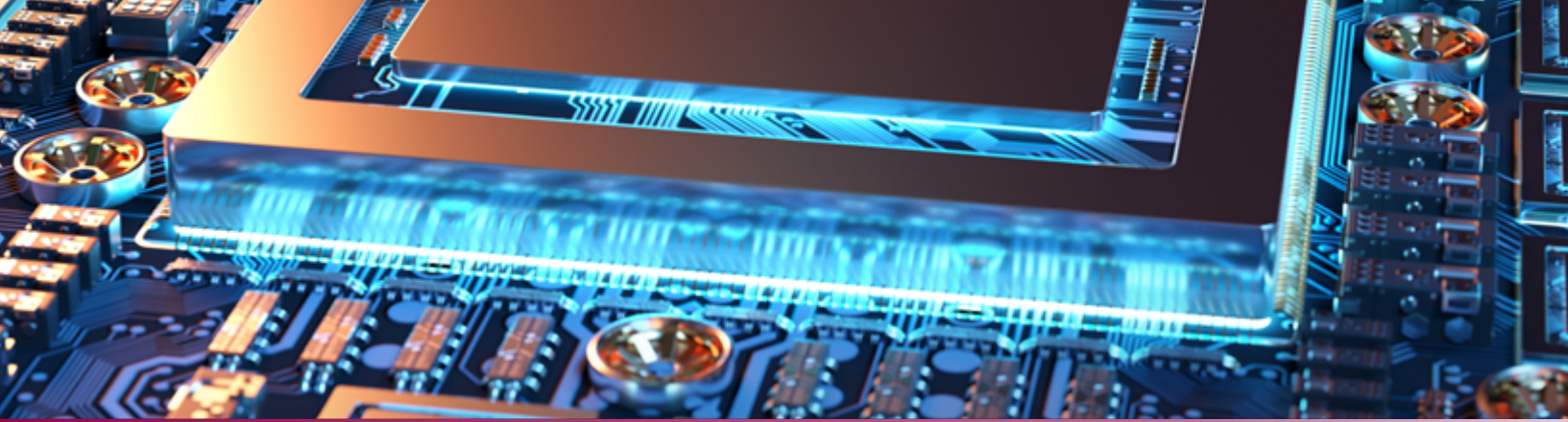
intel BCO-2000-WHL-U



AMD RYZEN EMBEDDED BCO-2000-RYZ



- Up to two 2x COM Modules (1x RS-232/422/485, 3x RS-232)
- Up to one 2x USB Modules (2x USB 2.0/3.0, Type A Port) (Support 1x Universal Slot Only)



## I 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.

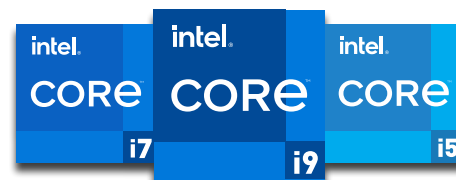
- 12<sup>th</sup>/13<sup>th</sup> Generation Intel Core
- Expandable M.2 Slots: B-Key & M-Key
- Edge AI Ready with HAILO-8
- Triple Independent Display
- Supports 4G/LTE, 5G, Wi-Fi, Bluetooth connectivity
- 8 In/8 Out Isolated DIO

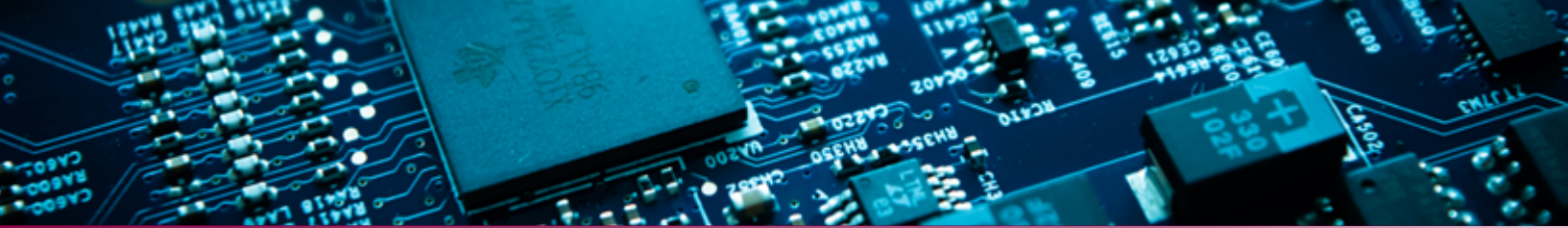


## I BCO-6000-RPL

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.

- 12<sup>th</sup>/13<sup>th</sup> 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





# Benefits of x86 Architecture

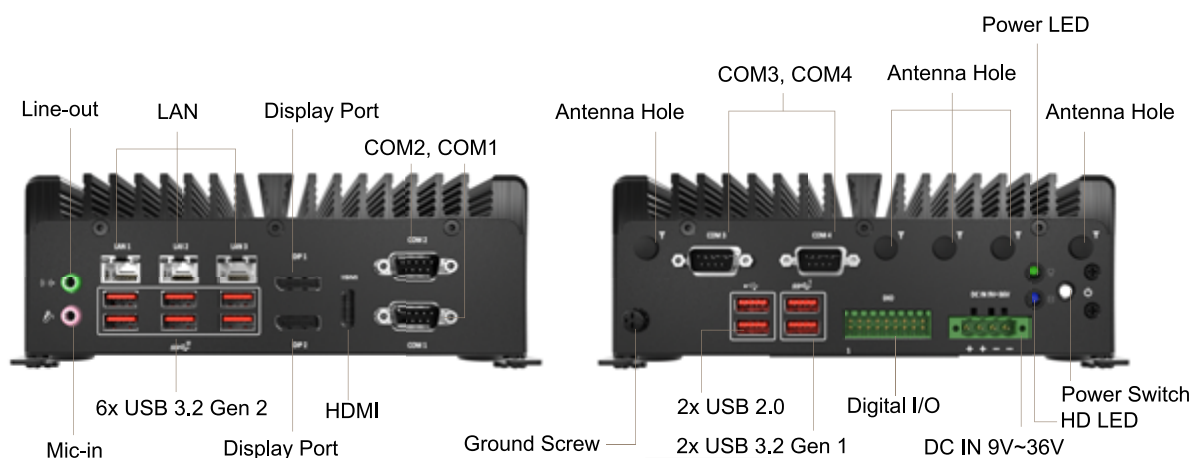
## Power-Efficient Embedded Processors

The BCO Series is powered by the latest x86 processors, delivering real-time performance at the rugged edge. By selecting edge-specific processors that align with embedded product lifecycle roadmap, the BCO Series ensures 10 to 15 years of support for long-term deployment consistency. This extensive support longevity ensures prolonged deployment consistency and reliability, mitigating system redesigns that could conflict with deployment compatibility.

	BCO-1000-ADLN	BCO-3000/BCO-6000	BCO-2000 Series
<b>Processor</b>	Intel Alder Lake/Amston Lake (BGA SoC)	Intel Core (LGA Socket)	AMD Ryzen Embedded SoC/ Intel SoC
<b>CPU Class</b>	Mobile/Embedded	Mobile/Embedded	Mobile/Embedded
<b>TDP</b>	12W	35W	15W
<b>Cores</b>	Up to 4 (Threads: 4)	Up to 24 (Threads: 32)	Up to 4 (Threads: 4/8)

## 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 (NVIDIA RTX A2000)



## 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 (0-50°C)
- Shock and Vibration Resistance (MIL-STD-810G)
- Wide Power Input (9-36VDC)



## 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-1000-ADLN SERIES

**intel**  
Alder Lake/Raptor Lake



Model	BCO-1000-ADLN_2L	BCO-1000-ADLN-B_3L
CPU Support	Support 12 <sup>th</sup> Gen Intel® IoTG Alder Lake-N Processor N97, QC, 12W	
Memory	DDR5 SODIMM. Max. up to 16GB (Default: 8GB)	
Graphic Output	Dual Independent Display by 1x Display Port, 1x HDMI	
I/O	2x Intel® I225-V 2.5GbE LAN, 2x COM, 2x USB 3.2 Gen2, 2x USB 3.2 Gen1, 2x USB 2.0	2x Intel® I225-V 2.5GbE LAN, 1x Intel® I225-V 2.5GbE LAN (Co-lay I226-LM Support TSN, not verified in NPI) 2x COM, 2x USB 3.2 Gen1, 2x USB 2.0
Storage	1x Internal 2.5" SATA SSD Bay 1x M.2 (B Key 2242/2280/3042) (Default: 128GB)	
Expansion	<b>1x M.2 E-Key (2230)</b> Support PCIe x1 & USB 2.0; Support CNVi Devices Supported: Intel® AX210 Wi-Fi 6E & BT-5.1 (vPro Supported)	<b>1x M.2 E-Key (2230)</b> Support PCIe x1 & USB 2.0; Support CNVi Devices Supported: Intel® AX210 Wi-Fi 6E & BT-5.1 (vPro Supported) <b>Optional Through M.2 B-Key:</b> Support B+M Key PCIe x1 Module for 4G/LTE 1x Dual SIM Socket (SIM1/SIM2 on the M.2 B Key slot)
Power	9-36VDC	12-36VDC
	Support AT/ATX Mode	
Certification	CE, FCC Class A	CE, FCC Class A, UL (Pending)
Operating Temperature	0 °C to 50 °C	
Dimensions (WxDxH)	192 x 140 x 68 mm	

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# BCO-2000-WHL-U & BCO-2000-RYZ SERIES



Model	BCO-2000	BCO-2000-RYZ-V1605B / BCO-2000-RYZ-R1606G
	Basic Fanless System ideal for space-constrained applications	Fanless Mini Computer with AMD Ryzen™ Embedded V1605B / R1606G, 2x LAN, 4x USB
CPU Onboard	Support 8 <sup>th</sup> Gen. Intel® WL-UE Processor (15W TDP) Intel® Core™ i5-8365UE Processor 6M Cache, up to 4.10 GHz Intel® Celeron® Processor 4305UE 2M Cache, 2.00 GHz	Support AMD Ryzen™ Embedded V1605B / R1606G Series AMD Ryzen™ Embedded V1605B with Radeon™ Vega 8 Graphics, 4M Cache, 4 Cores, 8 Threads, Up to 3.6 GHz AMD Ryzen™ Embedded R1606G with Radeon™ Vega 3 Graphics, 4M Cache, 2 Cores, 4 Threads, Up to 3.5 GHz (Optional)
Memory	1x 260-Pin DDR4 2400MHz SO-DIMM, up to 32GB	2x 260-Pin DDR4 2400 MHz SODIMM. Max 32 GB (ECC/non-ECC)
Graphic Output	1x DisplayPort, 1x HDMI (Optional)	Triple Display, 1x DisplayPort 1.4, DP++, 1x HDMI 2.0b, 1x 24-bit dual channel LVDS
LAN	2x RJ45 GbE (Support Wake-on-LAN and PXE)	2x RS-232/422/485, 2x RJ45, 4 in / 4 out (Isolated)
Storage	1x mSATA (shared by 1x Mini PCIe) & 1x Internal 2.5" SATA HDD Bay	1x M.2 B Key, 3042, Support SATA 1x Internal SIM socket 1x Internal 2.5" SATA HDD Bay (support H=9.5mm)
Internal Expansion Slot	2x Full-size Mini-PCIe (1x shared with mSATA)	1x Full-Size Mini PCIe for expansion modules
Power	AT/ATX 12V Select, 3-pin Terminal Block	AT, ATX 12VDC
Audio	Line-out / Mic-in Phone Jack	
Operating Temperature	-20°C to 60°C	-20°C to 55°C
Certification	UL, CE, FCC Class A	
Dimensions (WxDxH)	192 x 140 x 61 mm	192 x 140 x 57.6 mm
Weight	1.4 kg	1.5 kg



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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	Support Intel® IOTG Raptor Lake-S/ Alder Lake-S Processor Core i9/i7/i5/i3, Pentium, Celeron (35W only)	
Memory	DDR4 SODIMM. Max. up to 64GB (Default: 8GB)	
Graphic Output	Triple Independent Display by 2x Display Port, 1x HDMI	
I/O	6x Intel® I225-V/ I225LM/ I225LV 2.5GbE LAN 4x COM, 6x USB 3.2 Gen2, 2x USB 3.2 Gen1, 2x USB 2.0	
Storage	<b>1x M.2 M-key Type (2242/2280):</b> Support 1x PCIe x4 Gen 3 NVMe SSD From PCH (Default 128GB SSD) Support B+M Key, AI/Storage Module (Pending)	
Expansion	<b>1x M.2 B-key (3042)</b> Support 1x Nano SIM Holder Support 1x PCIe x1, 1x USB 3.2 Gen 2, 1x USB 2.0, 5G/4G/LTE Module Optional 5G/4G/LTE Module <b>1x M.2 E-key (2230)</b> Support 1x PCIe x1, 1x USB 2.0; Support CNVi Devices Supported: Intel® AX210 Wi-Fi 6E & BT-5.1 (vPro Supported)	
M.2	1x M.2 E Key slot (2230) (Support PCIe x1 & USB 2.0; Support CNVi), Devices Supported: Intel® AX210 Wi-Fi 6E & BT-5.1 (vPro Supported)	1 x M.2 (E key, 2230, USB 2.0, Support PCIe x1) 1 x M.2 (B key, 2242/3042/2280, Support PCIe x1/ SATA signal, Support B+M Key PCIe x1 Module, for 4G/LTE/AI/Storage, 1x Dual SIM Socket (SIM1/ SIM2 on the M.2 B Key slot)
PCIe	(none)	2x PCIe x8 Slot or 1x PCIe x16 Slot 1x Default Industrial Fan
Power	19 to 36VDC Wide Range Power Input Supporting AT/ATX Mode	19 to 36VDC Wide Range Power Input Supporting AT/ATX Mode (24~36VDC for add GPU Card)
Certification	CE, FCC, UL 62368 Ed. 3	
Operating Temperature	0 °C to 50 °C (35W CPU)	
Dimensions (WxDxH)	192 x 240 x 69mm	330 x 240 x 69mm