RCO-1000-ASL

Fanless Mini PC for Industrial Edge IoT

Built Ready for Industrial Edge IoT

Built Ready for Industrial Edge IoT

The RCO-1000-ASL Series is an industrial grade, fanless mini computer powered by Intel® Atom® x7433RE/x7835RE that deliver unmatched durability and edge computing performance, specifically for industrial IoT applications.

Industrial Longevity

Hygienic, Sealed Design

High-Performance Computing

Flexible Industrial Integration

Fanless Mini PC for Industrial Edge IoT
RCO-1000-ASL Series with Intel® Atom® x7433RE/x7835RE Processors

Industrial edge environments are no longer simple endpoints. They are intelligent, distributed systems that must collect, process, and respond to data in real time. From factory automation to smart transportation and remote infrastructure, organizations need compact computing platforms that can grow alongside expanding connectivity and performance requirements. Edge devices today must consolidate networking, control, and analytics into a single rugged solution without compromising reliability or efficiency.

As higher bandwidth networking, 5G connectivity, and DDR5 memory become standard in modern deployments, hardware must deliver both responsive multi-core performance and adaptable I/O scalability. Secure boot, TPM 2.0, wide-range power input, and optional out-of-band management are essential for maintaining uptime across dispersed installations. The ability to expand and reconfigure systems through modular I/O ensures long-term flexibility as application demands evolve.

The RCO-1000-ASL Series is Premio's answer to these next-generation edge challenges. Powered by Intel® Atom® x7433RE and x7835RE processors and equipped with dual 2.5GbE connectivity and modular EDGEBoost I/O expansion across three chassis heights, it brings together performance, scalability, and rugged durability in a refined fanless design. Built for industrial IoT gateways, automation control, and mission-critical edge deployments, the RCO-1000-ASL Series is designed to integrate seamlessly today and scale confidently for tomorrow.

Key Markets and Applications

| Industrial Automation | Robotics and Motion Control | Kiosk and Retail | Remote Monitoring | Fleet Management | Smart Agriculture |

Built Ready for Industrial Edge IoT

The RCO-1000-ASL Series is powered by Intel® Atom® x7433RE and x7835RE processors from the Amston Lake family, engineered for efficient multi-core performance in low-power industrial systems. With up to 8 cores and improved efficiency per watt, the x7000RE processors are optimized for parallel workloads and sustained edge processing. Built on an integrated system-on-chip architecture with DDR5 support, this platform enhances throughput, responsiveness, and long-term embedded stability in a compact, fanless rugged design.


RCO-1000-ASL Supported Processors:

- **Intel® Atom® x7433RE and x7835RE** (Embedded Series)

Processor	Cores	Max TDP	CPU Burst (Turbo) Mode	GPU Name	Graphics Max Dynamic Frequency	GPU Execution Units
Intel® Atom® x7433RE	4	9W	3.4 GHz	Intel® UHD Graphic	1.0 GHz	32
Intel® Atom® x7835RE	8	12W	3.6 GHz	Intel® UHD Graphic	1.2 GHz	32

High-Speed I/O Ports and Expansions

The RCO-1000-ASL supports 2x 2.5Gb Ethernet, 3x USB 3.2 Gen 2 (10Gbps), 2x COM (RS-232/422/485), and dual independent display outputs via DisplayPort and HDMI, delivering high-bandwidth connectivity for modern industrial edge applications. In addition, it enables flexible storage and wireless expansion through its 1x M.2 B-Key (2242/3042/3052) for storage or 4G/5G modules and 1x 2.5" SATA SSD/HDD bay, while scalable EDGEBoost I/O brackets provide modular expansion across multiple chassis configurations to support evolving IIoT deployments.
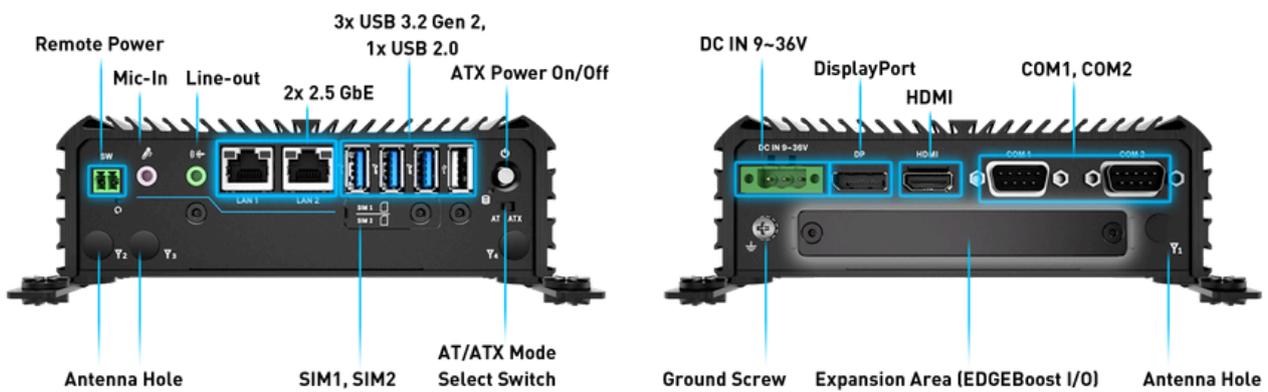
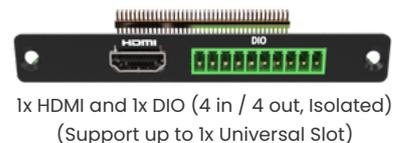# Scalable and Customizable I/O

One of the advantages of the RCO-1000-ASL Series is its customizable and scalable universal I/O brackets through Premio's proprietary 50x-pin PCIe 3.0 pins design. The system can be configured with 4x USB 2.0 ports, 2x COM ports, 1x DisplayPort with isolated DIO (4-in, 4-out), or 1x HDMI with isolated DIO (4-in, 4-out) expansion modules. The scalable universal I/O brackets allow the RCO-1000-ASL Series to support more I/O ports than most of the competitors in the market, a true competitive advantage at the rugged edge.

Stackable I/O daughterboards through 50x-pin PCIe 3.0 for scalable designs.

Scalable I/O Advantages:

• Fast Delivery Time to Market
• Lower BOM
• Flexible and Scalable
• Long Product Lifecycle
• Quick Maintenance/Upgrades

1x DisplayPort and 1x DIO (4 in / 4 out, Isolated)
(Support up to 1x Universal Slot)

1x HDMI and 1x DIO (4 in / 4 out, Isolated)
(Support up to 1x Universal Slot)

4x USB 2.0 Ports
(Support up to 1x Universal Slot)

2x COM Ports
(Support up to 2x Universal Slot)

Out-of-Band Remote Management

The RCO-1000-ASL supports an optional Out-of-Band (OOB) management module that delivers advanced remote monitoring and control capabilities independent of the operating system. This allows administrators to securely access and manage devices from virtually any location, reducing the need for onsite service visits. Even if the primary OS becomes unresponsive, the OOB module maintains remote access for diagnostics and system recovery. IT teams can quickly identify and resolve issues, deploy updates, and perform maintenance remotely, minimizing downtime and improving operational efficiency across distributed edge deployments.

Robust Wireless Technology for Remote IoT

Industrial edge IoT applications often require deployments in mobile or remote locations. The RCO-1000-ASL Series' robust wireless technologies enable seamless wireless connectivity for mobile and remote IIoT solutions. The system features a Dual-SIM socket, providing 4G/LTE and even 5G cellular connectivity through a modular add-in card. The 5G module also supports the Global Navigation Satellite System (GNSS) and eSIM features for autonomous geo-spatial positioning and cellular redundancy. In addition, the RCO-1000-ASL also supports Wi-Fi 6E and Bluetooth 5 to connect to various wireless sensors and IoT devices.

Embedded CAN Bus for In-Vehicle Communication

The on-board embedded CAN bus (Controller Area Network) allows the RCO-1000-ASL to communicate directly with other machines and network devices, reducing the need for a host computer and simplifying cable routing. With a two-channel, two-pin Can Bus I/O and protocol built-in to the RCO-1000-ASL's motherboard, the system can leverage vehicle telematics data and provide real-time in-vehicle analytics. Most fanless mini PCs in the market don't have a built-in CAN bus. However, the built-in CAN bus provides the RCO-1000-ASL Series with a fully robust, efficient, and flexible feature for harsh environment applications.
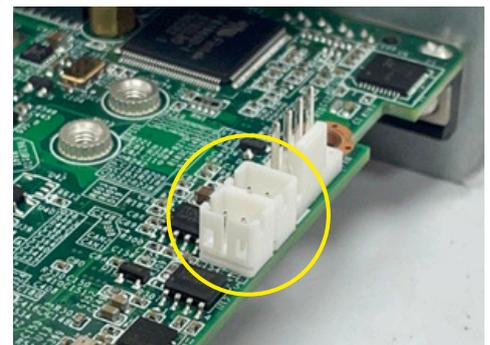
2x Built-In CAN Bus

Power Ignition Management

The RCO-1000-ASL Series has an optional power ignition module for ignition sensing and management. Power ignition management is a configurable component that sets a predetermined time interval for the RCO-1000-ASL to boot or shutdown. This system is programmable with six different configurations on how the computer should behave when the engine turns On/Off. Compatible for both 12V and 24V systems, this feature ensures that applications are saved and closed properly, avoiding data loss and corruption.

Discrete Hardware Security with TPM 2.0

Providing hardware-level data security is crucial for edge IoT applications. The RCO-1000-ASL has a discrete TPM 2.0 chip that safely encrypts essential data. In addition, the integrated trust platform module's root keys enable password protection, device authentication, and future ready cybersecurity, defending the device's data and transmission against malicious attacks.

Ultra-Compact. Ultra-Rugged.

Ultra-Compact
Palm-Sized Form Factor

Fanless
Passive Cooling

Rugged
Industrial-Grade Materials

-40°C to 70°C
(Intel Embedded Series)
Extreme Temperature

50G | 5Grms
Shock & Vibration Resistance

Flexible
VESA/Wall Mount/
Side Mount/Din-Rail

Ultra-Small Form Factor with Hardened Fanless Design

The ultra-compact form factor of the RCO-1000-ASL base model measures in at (WxDxH) 150mm x 105mm x 49mm for base model, one of the smallest industrial fanless mini computers on the market. This mini size is achieved

thanks to its fanless design that utilizes passive cooling instead of using air cooling fans. Furthermore, the system implements ultra-conductive materials such as aluminum and copper heat pipes as its heatsinks for optimal heat dissipation. Moreover, the computer's chassis is built and designed to protect the internal component while also working as a giant heatsink made of extruded aluminum and heavy metal.

Everything combined from fanless technology, scalable I/O ports, and various features built-in features on the motherboard level allows the RCO-1000-ASL Series to be the leader for powerful, industrial-grade mini computers on the market with around 30% smaller size compared to the industry average.

Robust Industrial Performance

The RCO-1000-ASL Series is tested and validated to its limit at Premio's in-house testing lab for best-in-class industrial durability. It has the durability to withstand extreme industrial environments while maintaining reliable performance at the rugged edge.

- Wide Temperature Range: -40ºC to 70ºC (Intel Embedded Series)
- 50G Shock & 5Grms Vibration (MIL-STD-810H Compliance)
- Wide Voltage Input: 9VDC-36VDC Input
- Over Current & Over Voltage Protection

Flexible Mounting

Deploy the RCO-1000-ASL anywhere through its flexible mounting options. The RCO-1000-ASL supports various mounting configurations, including side mount, VESA mount, wall mount, and an optional DIN-Rail mount. The ultra-rugged design, ultra-compact form factor, and flexible mounting options enable the latest RCO-1000-ASL Series to be ready for industrial IoT deployments anywhere.

Wall Mount

VESA Mount

Side Mount

DIN-Rail Mount

RCO-1000-ASL Series   Fanless Mini Computer

Model	RCO-1000-ASL-10	RCO-1000-ASL-20	RCO-1000-ASL-30
	With 1x Universal Expansion Slot	With 2x Universal Expansion Slots	With 3x Universal Expansion Slots
Processor	Support Intel® Atom® x7433RE/x7835RE Processors		
Memory	1x 262-Pin DDR5 4800/5600 MT/s SO-DIMM. Max. up to 32GB Non-ECC		
Display	Dual Display, 1x DisplayPort, 1x HDMI 1.4b		
Storage	1x M.2 (B Key, 2242 / 3042 / 3052) 2x External SIM socket 1x Internal 2.5" SATA HDD Bay (support H=9.5 mm)		
Internal Expansion Slot	1x M.2 E key Type: 2230 (Support PCIe x1 + USB 2.0 signal for WiFi and Bluetooth)		
I/O	3x USB 3.2 Gen 2 (10 Gbps), 1x USB 2.0, 2x RS-232/422/485, 2x RJ45 (2.5 GbE)		
Power	9 to 36 VDC, AT/ATX Select, 3-pin Terminal Block		
Operating Temperature	-40°C to 70°C		
Certification	UL, CE, FCC Class A		
Dimensions (W x D x H)	150 (W) x 105 (D) x 49 (H) mm	150 (W) x 105 (D) x 65 (H) mm	150 (W) x 105 (D) x 83 (H) mm