



RCO SERIES

X86 SUPER-RUGGED INDUSTRIAL COMPUTERS

PERFORMANCE, EXPANDABILITY, AND DURABILITY AT THE RUGGED EDGE



X86 SUPER RUGGED INDUSTRIAL COMPUTERS

The RCO Series is a line of extremely durable industrial computers powered by Intel x86 processors, purpose-built to deliver real-time edge computing performance in rugged environments. This series consists of three distinct models: an ultra-compact NUC alternative, a small form factor computer, and a high-performance edge AI inferencing computer. Each model is particularly engineered to provide IoT-centric connectivity, cutting-edge performance, and scalability to address specific needs of various industrial sectors.



**Super-Rugged
Durability**



**Modular
EDGEBoost I/O**



**Rich IoT
Connectivity**



**Edge AI
Performance**



**Automation
Ready**



3 Scalable Models for Deployment Ease



I RCO-1000 Series

Fanless Mini Computer

Serving as an industrial alternative to the popularly known NUC, the RCO-1000 Series is an ultra-compact industrial computer designed to merge IoT capabilities and deliver real-time data telematics all while withstanding the rigors of confined deployments. It features essential on-board IoT connectivity and scalable EDGEBoost I/O (EBIO) technology for configurable deployment optimization. The RCO-1000 Series is commonly utilized as an IoT gateway in both factory automation and smart retail environments.

Key Features :

- Ultra-Compact Form Factor
- M.2 Acceleration
- Industrial NUC Alternative
- Modular EDGEBoost I/O

Super-Rugged Durability :

- Wide Operating Temperature (-40°C to 70°C)
- MIL-STD-810G Complaint (50Grms Vibration & 5G Shock)
- Wide Power Input (9-48 VDC)
- Power Protection (OVP, OCP, RPP)





I RCO-3000 Series

Small Form Factor Computer

The RCO-3000 Series balances socket-type CPU performance and extensive connectivity while maintaining a minimal design footprint. It provides rich IoT connectivity, real-time data telematics, industrial-grade durability, M.2 expandability, and scalable EBIO customization. The RCO-3000 Series is a key component in intelligent security and surveillance, factory automation, and disaster management deployments.

Key Features :

- Socket-Type Performance in SFF
- M.2 Acceleration
- Rich IoT Connectivity
- Hot-swappable SSD Bay
- Modular EDGEBoost I/O

Super-Rugged Durability :

- Wide Operating Temperature (-25°C to 70°C)
- MIL-STD-810G Complaint (5Grms Vibration & 50G Shock)
- Wide Power Input (9-48 VDC)
- Power Protection (OVP, OCP, RPP)



I RCO-6000 Series

High-Performance Industrial Computer

Optimize performance, scalability, and reliability to effectively manage edge AI workloads, even in the most challenging environments. The RCO-6000 Series is designed for fully optimized deployment, offering extensive IoT connectivity on-board, flexible EBIO for expanded interface options, and EDGEBoost Node (EBND) for enhanced performance. It has been successfully implemented in AGV/AMR systems, intelligent security and surveillance, and smart manufacturing solutions.

Key Features :

- High-Performance Edge AI Processing
- Rich IoT Connectivity
- Dual Hot-swappable SSD Bays
- Dual Modular EDGEBoost I/O
- EDGEBoost Node Performance Acceleration

Super-Rugged Durability :

- Wide Operating Temperature (-25°C to 70°C)
- MIL-STD-810G Complaint (5Grms Vibration & 50G Shock)
- Wide Power Input (9-48 VDC)
- Power Protection (OVP, OCP, RPP)



Super-Rugged Durability At The Edge

The RCO Series is engineered for operational reliability in harsh industrial conditions and environments. These rugged edge computers are designed for deployment in mission-critical, remote or in-vehicle applications. With a fanless and cableless design, the RCO Series eliminates a major point of failure and prevents the ingress of dust and debris. This design enables critical features such as:

- Wide Operating Temperature (-40°C to 70°C)
- Shock and Vibration Resistance (MIL-STD-810G Compliant)
- Wide Power Input (9-48 VDC)
- Power Protection (OCP, OVP, RPP)

Modular EDGEBoost Technologies

A major feature of the RCO Series is support for modular EDGEBoost technologies to meet various deployment requirements. Customize-to-optimize with EDGEBoost technologies enable the flexibility to configure I/O and performance acceleration for the most optimized solution.

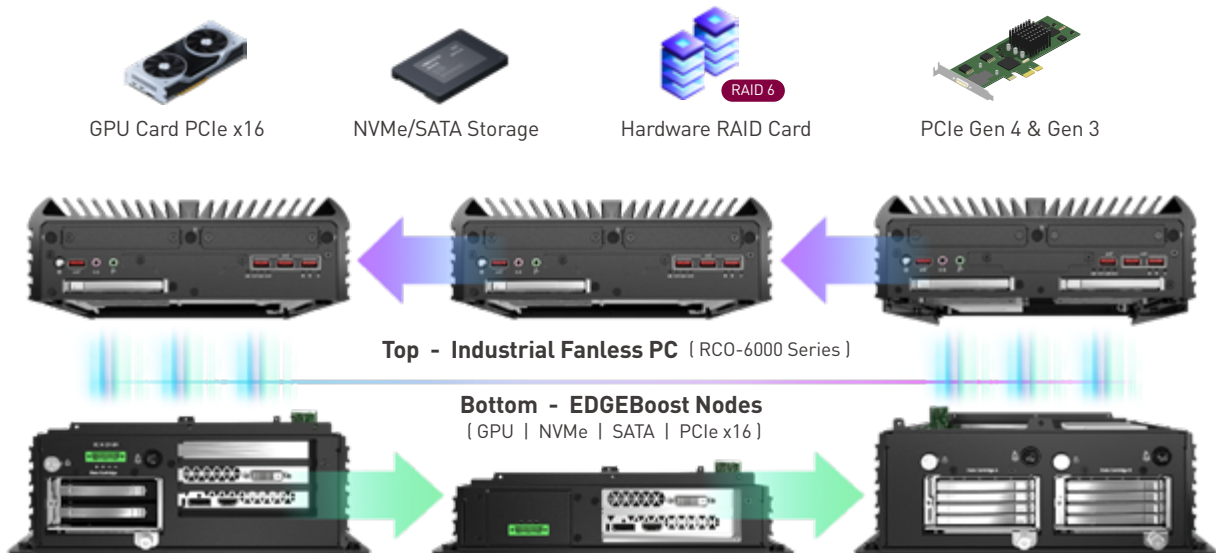
- **EDGEBoost I/O (EBIO)**

EDGEBoost I/O are modular daughterboards that provide the RCO Series with mix-and-match flexibility to meet certain IoT connectivity requirements with ease. Through the PCIe interface, these EBIO modules can provide scalable IoT connectivity, PoE support, M.2 acceleration, and even screw lock connection types. These modules allow OEMs and system integrators to configure the RCO Series to meet their deployment criteria seamlessly, without the need for a full system redesign.



- **EDGEBoost Node (EBND) *Exclusive to RCO-6000 Series**

Premio's EDGEBoost Nodes deliver tailored performance acceleration for the RCO-6000 Series, offering customized acceleration to meet specific deployment criteria. EBND are designed to optimize edge AI workloads, with support for low-profile GPUs, and/or to expand storage capacity with up to 8 hot-swappable NVMe U.2 SSDs. Each EBND provides the maximum performance boost needed to ensure the RCO-6000 Series meets and exceeds deployment demands.





Benefits of Intel x86 Architecture

The RCO Series is powered by the latest Intel processors, delivering real-time performance even in the harshest industrial environments. By integrating embedded-specific processors that fall under Intel's embedded product lifecycle roadmap, each RCO Series generation model is supported for up to 10 years. This extensive support longevity ensures prolonged deployment consistency and reliability, mitigating system redesigns that could conflict with deployment compatibility.

	RCO-1000 Series	RCO-3000/6000 Series
Processor Type	Intel Atom (BGA SoC)	Intel Core (LGA Socket)
CPU Class	Mobile/Embedded	Mobile/Embedded
TDP	< 12W	35W
Cores	Up to 4 (Threads: 4)	Up to 24 (Threads: 32)
Operating Temperature Range	-40°C to 70°C	-25°C to 70°C

Power-Efficient Embedded Processors

The RCO-1000 Series is powered by Intel Atom processors, which are engineered for SoC low-power efficiency. These processors are optimized for IoT applications, delivering advanced integrated graphics, essential IoT connectivity, and hardware-level security features, including Intel Platform Security Enclave (PSE).

Performance Hybrid Core Processors

The RCO-3000 and RCO-6000 Series incorporate socket-type Intel Core processors that use Intel's latest hybrid core architecture. It provides a balance between high-performance P cores and power-efficient E cores, ideal for demanding rugged edge applications where both performance and efficiency is critical. By selecting Intel Core TE processor models, the RCO Series gain extended product support and can be incorporated into a fanless design with a 35W TDP.





Comprehensive IoT Connectivity

The RCO Series is designed with an essential set of I/O options readily available on-board. It provides a versatile platform for seamless connectivity with various industrial IoT devices such as vision cameras and LiDAR sensors. Additionally, these edge computers are integrated with automation and vehicular connectivity, including CAN Bus for in-vehicle telematics, Power Ignition Management for vehicle ignition controls, and Isolated DIO for automation switches. As for wireless connectivity, RCO Series supports the latest wireless technologies, including 5G, 4G/LTE, Bluetooth, and WiFi.

Edge AI Ready with Hailo-8™

Enable edge AI applications in space-limited deployments with Hailo-8™ M.2 AI Accelerators. These accelerators provide linear AI performance while maintaining a low-power efficiency within minimal footprint. Premio is a proud member of Hailo's hardware partner ecosystem to integrate domain-specific performance acceleration into its portfolio of edge computers, including the RCO Series. The RCO Series has been tested, validated, and benchmarked to support up to four Hailo-8™ accelerators for a total of 107 TOPS of AI performance.



World-Class Certifications

With UL Listed, FCC, and CE certifications, the RCO Series meets the highest safety compliance standards after stringent testing and validation procedures. These credentials reinforce the RCO Series as competent and reliable edge computing solutions that operate reliably in demanding industrial settings. It also provides deployment confidence and peace of mind knowing that the RCO Series is backed by world-class certifications.



Key Applications



Smart Kiosk



Factory Automation



NVR Surveillance



AGV/AMR






Autonomous Vehicle

WE DESIGN,
MANUFACTURE, AND
SERVICE CUSTOMERS
AROUND THE WORLD



RCO SERIES INDUSTRIAL COMPUTER SPECIFICATIONS



	 RCO-1000 Series	 RCO-3000 Series	 RCO-6000 Series
	Fanless Mini Computer	Small Form Factor Computer	AI Edge Inference Computer
Performance			
Processor	Intel Atom/Celeron	Intel Core i3/i5/i7/i9	Intel Core i3/i5/i7/i9
TDP	12W	35W	35W
Max Memory	32GB DDR4	64GB DDR4	64GB DDR5
Storage Options	M.2 B-Key mSATA 2.5" SSD (Internal)	M.2 B-Key mSATA 2.5" SSD (Hot-swappable)	M.2 B-Key mSATA 2.5" SSD (Hot-swappable) 2.5" SSD (Internal)
RAID Support	-	Support RAID 0, 1, 5	Support RAID 0, 1, 5
Expansion			
EDGEBoost I/O	USB COM DIO/DP HDMI	RJ45 LAN/PoE M12 LAN/PoE 10GbE LAN USB 3.2 M.2 Acceleration (5G/NVMe/Edge AI)	RJ45 LAN/PoE M12 LAN/PoE 10GbE LAN USB 3.2 M.2 Acceleration (5G/NVMe/Edge AI) NVMe/SATA
EDGEBoost Node	-	-	NVMe/SATA GPU PCIe Expansion
On-Board DIO Terminal	*Only available through EBIO 4 in / 4 out (Isolated)	8 in / 8 out (Isolated)	8 in / 8 out (Isolated)
Wireless Connectivity	5G 4G/LTE Bluetooth SIM slots	5G 4G/LTE Bluetooth SIM slots	5G 4G/LTE Bluetooth SIM slots
Environmental			
Thermal Management	Fanless	Fanless	Fanless (Fanned with GPU)
Cybersecurity	TPM 2.0	TPM 2.0	TPM 2.0
Certifications	UL, FCC, CE	UL, FCC, CE	UL, FCC, CE
Dimensions	150 (W) x 105 (D) x 49 (H) mm 5.91 (W) x 4.13 (D) x 1.93 (H) in	192 (W) x 227 (D) x 60.3 (H) mm 7.56 (W) x 8.94 (D) x 2.37 (H) in	240 (W) x 261 (D) x 79 (H) mm 9.45 (W) x 10.28 (D) x 3.11 (H) in