



RCO-3000-RPL SERIES

X86 SUPER-RUGGED EDGE COMPUTER

SCALABLE REAL-TIME EDGE
PROCESSING FOR NEXT-GENERATION
PERFORMANCE



SMALL FORM FACTOR INDUSTRIAL COMPUTER

The RCO-3000-RPL Series is a super-rugged x86 small form factor computer that strikes a balance between real-time edge processing, extensive IoT connectivity, and scalable EDGEBoost I/O (EBIO) technology all within a minimal footprint. It is engineered with a fanless and cable-less design approach for utmost durability and reliability when deployed in challenging space-constrained deployments.



EDGEBoost I/O
Support



Rich I/O
Configuration



World-Class
Certification



Ruggedized
Fanless Solution



X86 Super-Rugged Small Form Factor Computer

The RCO-3000-RPL Series is a super-rugged x86 small form factor computer that strikes a balance between real-time edge processing, extensive IoT connectivity, and scalable EDGEBoost I/O (EBIO) technology all within a minimal footprint. Although limited in space, the RCO-3000 Series leverages a high-performance socket-type CPU to streamline resource-intensive workloads. It is engineered with a fanless and cableless design approach for utmost durability and reliability when deployed in challenging space-constrained deployments.

Key Features

- Intel® Core™ Processors 12th/13th Gen (ADL/RPL) and Series 2 (BTL)
- DDR5 Memory
- EDGEBoost I/O modules for AI, Storage, I/O and Connectivity
- Out-of-Band port for remote management
- CAN Bus and Power Ignition Management
- World-Class Certification: UL-Listed, FCC, CE, EN50155:EN50121-3-2



Key Markets & Applications



Industrial
Automation &
Robotics



Smart
Retail & Kiosks



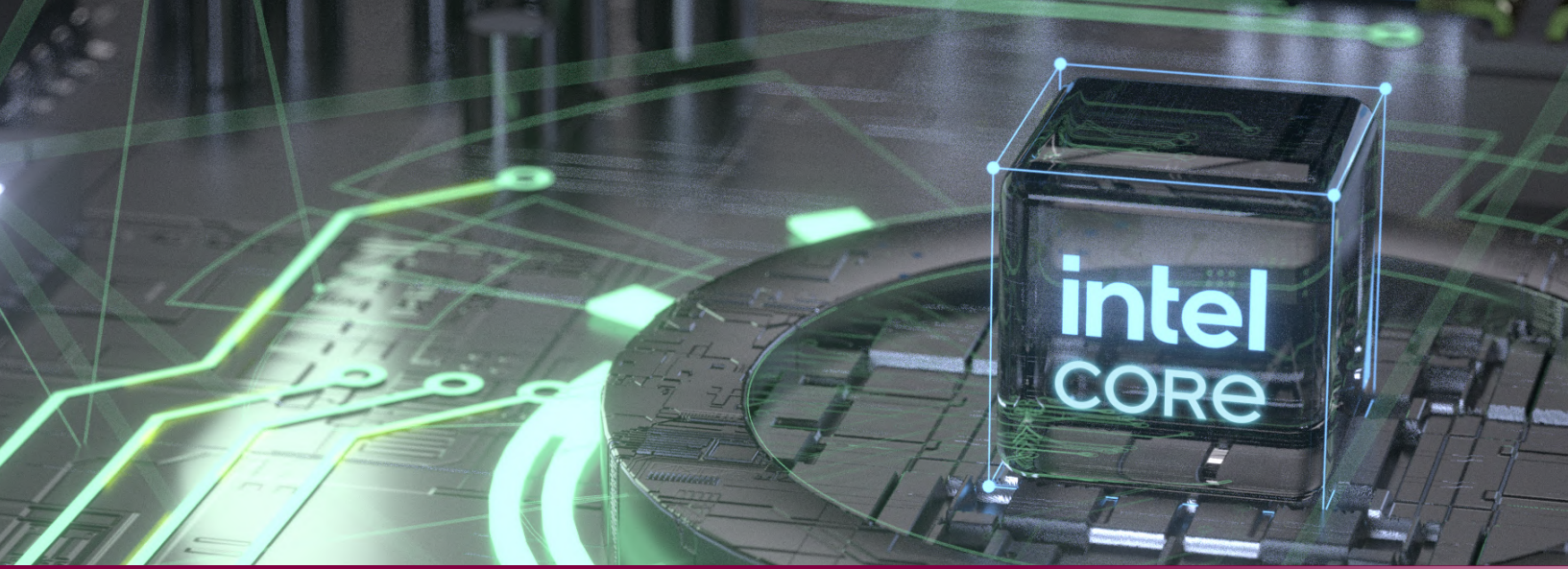
Security &
Surveillance



Smart
Agriculture

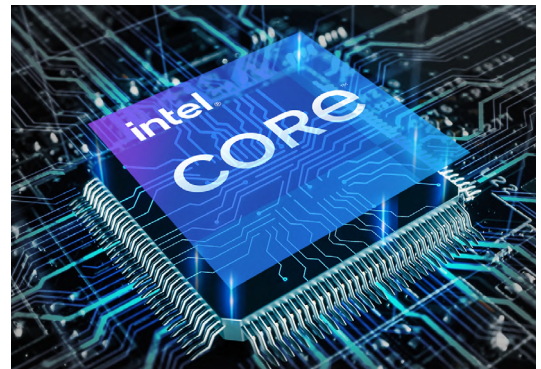


Intelligent
Transportation



Socket-Type Performance Within Small Form Factor

RCO-3000-RPL is powered by Intel® Core™ Processors (Series 2), designed to deliver strong multicore performance for demanding real-time edge workloads while maintaining pin-to-pin compatibility with Intel® 12th and 13th Gen Alder Lake and Raptor Lake processors. These processors leverage Intel's hybrid core architecture, combining Performance (P) cores for high-performance, single-threaded tasks with Efficiency (E) cores to handle multi-threaded background workloads, optimizing both performance and power efficiency. Hybrid architecture support varies by SKU.



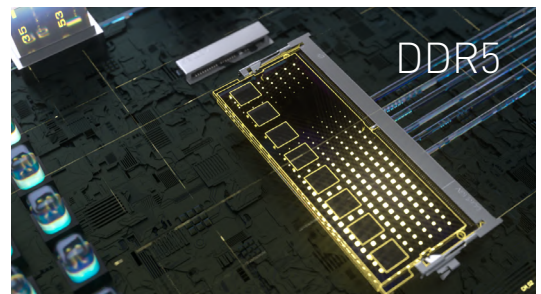
Intel® Core™ Processors (Series 2)



Additionally, Premio has exclusively selected Intel TE processors due to its embedded-specific features such as an extensive 10-year product support lifecycle and low-power optimization. These TE processors ensure that the RCO-3000-RPL provides deployment reliability and prolonged longevity.

Doubling Performance with DDR5 Memory

The RCO-3000-RPL Series leverages DDR5 memory to significantly boost performance over previous generations. With faster data transfer rates and increased bandwidth, DDR5 enables the rapid processing of large datasets, making it ideal for real-time analytics and decision-making at the edge. The integration of on-die ECC enhances data integrity and operational longevity, while an improved power efficiency ensures reliable deployment in power-constrained environments.



Flexible Storage Options

The RCO-3000-RPL features two SSD bays, one internal and one external hot-swappable, for enhanced storage flexibility and ease of maintenance. The SSD bays can be configured with RAID 0, 1, and 5 to safeguard data integrity and ensure data redundancy in mission-critical applications. The hot-swappable SSD bay allows for convenient data offloading and SSD replacement without interrupting system operations.



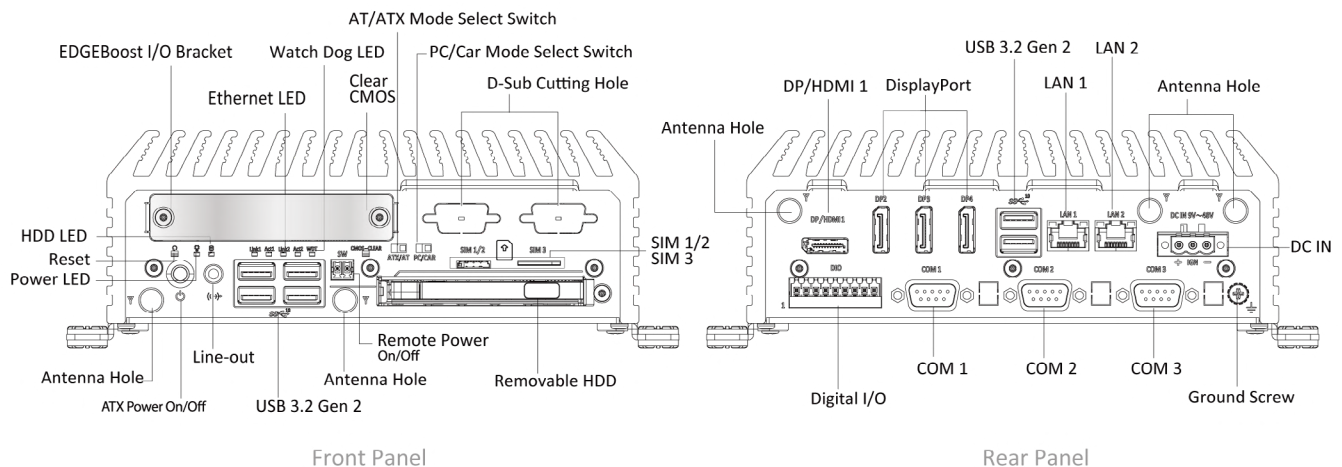
Immersive 4K Displays

The RCO-3000-RPL supports up to four 4K displays, significantly enhancing data visualization and content presentation across various applications. In factory floors or control centers, this multi-display capability provides clear, high-resolution views of real-time data telematics. In smart retail or gaming deployment applications, the RCO-3000-RPL delivers immersive, high-resolution content to elevate user experiences.



Comprehensive IoT Connectivity

Despite its compact size, the RCO-3000-RPL Series delivers an extensive range of on-board I/O options designed to readily meet diverse connectivity requirements. It offers high-speed connection types such as 2.5GbE LAN and USB Gen 3.2 (10Gbps) to support advanced vision cameras and sensors. Additionally, multiple COM ports are available for compatibility with legacy machinery and equipment.



Modular EDGEBoost I/O Technology

A unique feature of the RCO-3000-RPL is supporting modular EDGEBoost I/O (EBIO) technology for highly configurable IoT connectivity tailored to meet specific deployment requirements with ease. Premio's EBIO modules include an array of connectivity options including PoE support, M12 connectors, OOB management, M.2 acceleration and more.



Compatible EDGEBoost I/O Modules:

Edge AI / Storage



1x M.2 M-Key Module



2x M.2 B-Key
(with 1x SIM Slot) Module

I/O



4x USB 3.0, Type-A Ports

Connectivity



2x 10GbE LAN Ports



1x RJ45
Remote Management



4x RJ45 LAN/POE Ports



4x M12 LAN/POE Ports

PoE (Power Over Ethernet) delivers power and data transmission to an IoT device over a single ethernet cable. It allows for more versatile and flexible deployments and is commonly used in intelligent surveillance applications.

M12 connectors are a waterproof screw lock connection type that are proven reliable especially in extremely challenging environments. It ensures a secure connection and is resilient to shock/vibration, moisture, and so on.

Out-of-Band (OOB) management allows operators to monitor and manage devices remotely, even when the primary network connection is down, or the system is unresponsive. This mitigates the need for physical maintenance and significantly reduces downtime.

M.2 acceleration supports high-speed NVMe storage, TPU AI acceleration, and wireless connectivity. This EBIO module offers exceptional scalability, flexibility, and durability, making it ideal for meeting highly specific deployment requirements.

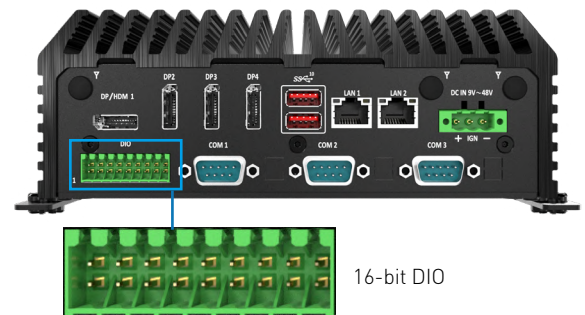


Redundant Wireless Connectivity

For remote access and wireless telecommunications, the RCO-3000-RPL supports cutting-edge wireless technologies such as industrial 5G, 4G/LTE, Bluetooth, and Wifi. Featuring dual nano SIM slots and a standard SIM slot, the RCO-3000-RPL supports up to three SIM cards, providing redundancy and failsafe mechanisms in case of coverage loss or SIM failure during deployment. This redundancy is critical for maintaining continuous connectivity in remote and mobile deployments, allowing control centers to access vital data insights and enabling robotics to leverage seamless wireless machine-to-machine communications, even in challenging environments.

In-Vehicle and Automation Ready

In addition to the rich I/O on-board the RCO-3000-RPL Series, it even includes additional features for automation and vehicular deployment applications such as CAN Bus, Power Ignition Management, and 16-bit DIO. These built-in features enable real-time vehicle telematics, configurable ignition power and shutdown controls, and customizable switches for robotics and machinery.



Versatile M.2 Acceleration

The RCO-3000-RPL features dual M.2 B-Key slots, offering exceptional flexibility for integrating a range of performance accelerators. These performance accelerators come in the form of NVMe storage for high-speed data aggregation, industrial 5G connectivity for robust communication, and/or edge AI acceleration with Hailo-8 AI Accelerators. This versatility with support for M.2 slots enhances the system's capabilities to meet demanding deployment requirements without compromising its compact, rugged, and fanless design.



nvm
EXPRESS

HAILO
Empowering Intelligence



TPM 2.0 Hardware-Level Encryption

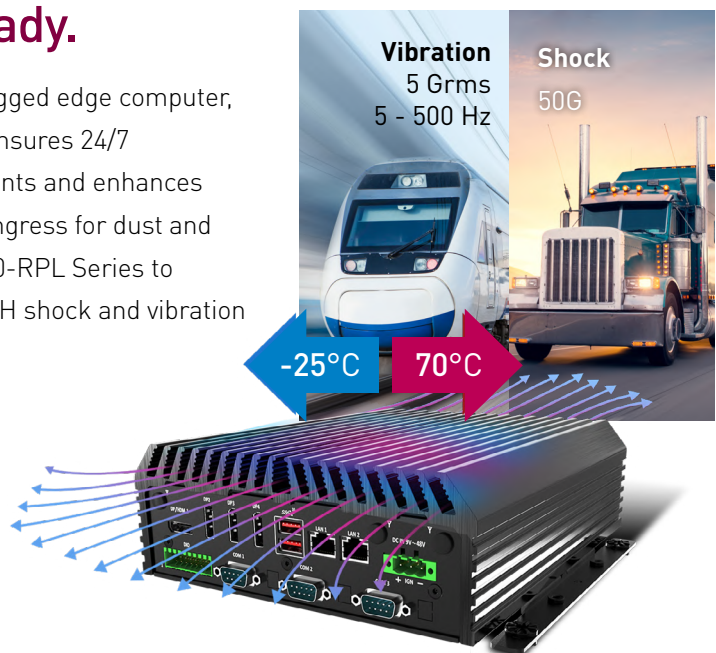
As systems increasingly move beyond the confines of secure data centers, the risk of cybersecurity threats becomes a critical concern. The RCO-3000-RPL Series implements a TPM 2.0 module to deliver advanced hardware-level encryption, safeguarding sensitive data from unauthorized access. This technology not only secures data through root-level encryption, but also identifies potential breaches and prevents system startup if physical tampering is detected.



Built Super-Rugged. Built Ready.

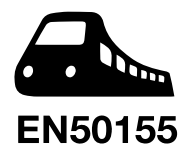
The RCO-3000-RPL Series is categorized as a super-rugged edge computer, due to its fanless and cableless design architecture. It ensures 24/7 operational reliability in the most demanding environments and enhances its durability by eliminating major points of failure and ingress for dust and debris. This uniquely robust design allows the RCO-3000-RPL Series to incorporate wide operating temperatures, MIL-STD-810H shock and vibration compliance, wide power input ranges, and advanced power protection protocols.

- Wide Operating Temperature Range: -25°C to 70°C
- MIL-STD-810H Shock & Vibration: 50G/5Grms
- Wide Power Input: 9~48 VDC
- Power Protection: OCP, OVP, RPP



World-Class Safety Certifications

Certified with UL Listed, FCC, and CE, the RCO-3000-RPL demonstrates a dedicated commitment for quality and safety standards compliance. Additionally, this rugged edge computer can be utilized on railway rolling stock due to its EMC conformity with EN50155 & EN50121-3-2 standards. These certifications and marks guarantee RCO-3000-RPL Series has been thoroughly tested and validated to adhere to globally recognized benchmarks, providing customers with a high level of deployment confidence and peace of mind.



We Design,
Manufacture, and
Service customers
around the world



NEW

RCO-3000-RPL Series

SMALL FORM FACTOR INDUSTRIAL COMPUTER



Processor	Intel® Core™ Processors 12 th /13 th Gen (ADL/RPL) and Series 2 (BTL)	
Memory	1x DDR5 4800/5600 MT/s SO-DIMM. Max. up to 48GB	
Display	4x DisplayPort, support resolution 4096 x 2304, Up to 7680 x 4320 (1x DP Port Co-layout HDMI Connector)	
System Chipset	Intel® Q670 Express Chipset	
LAN Chipset	2.5 GbE1: Intel I226 (Support Wake-on-LAN and PXE, Support TSN) 2.5 GbE2: Intel I226 (Support Wake-on-LAN and PXE, Support TSN)	
TPM	TPM 2.0	
Storage	1x 9mm 2.5" SATA SSD Bay (Internal) 1x 7mm 2.5" SATA SSD Bay (Hot-swappable) Support RAID 0, 1, 5	
Expansion	1x M.2 B key Type: 2242/3042/3052 • Support PCIe x2/PCIe x1 & USB 3.2 Gen1 • Support NVMe Storage/AI Module/4G/5G 1x M.2 B key Type: 2242/3042/3052 • Support PCIe x2/SATA signal • Support NVMe/SATA Storage/4G	1x M.2 E key slot (2230) • Support PCIe x1 & USB 2.0; Support CNVi • Support Wifi Module
I/O	6x USB 3.2 Gen 2 (10Gbps), 3x RS-232/422/485 (Optional Isolation), 8 in / 8 out (Isolated), 2x 2.5GbE RJ45, 1x Line-out	
Power	Optional AC/DC 24V/9.2A, 220W Optional AC/DC 24V/11.67A, 280W	
Certification	UL 62368 Ed. 3, CE, FCC Class A, EMC Conformity with EN50155 & EN50121-3-2	
Operating Temperature	-25°C to 70°C (35W/45W CPU)	
Dimension	192 (W) x 227 (D) x 69.5 (H) mm	