# Data Processing for the Rugged Edge

Industry 4.0 is transforming business, improving efficiency and productivity. Purpose-built ruggedized computing hardware brings powerful computing intelligence into challenging, dynamic environments. The hardened IoT solutions provide real-time insights, ultra-low latency responsiveness, workload consolidation, and nimble automation capabilities close to the source of data generation.

The RCO-3700 Series bringing powerful compute power to harsh industrial settings. At the heart of the RCO-3700 Series is Intel's 9th Generation advanced processors (codename: Coffee Lake Refresh) and Q370 Chipset, enabling advanced processing in volatile, demanding, and mobile deployments.

The RCO-3700 Series supports rich processing, future-ready storage technology, and rapid connectivity for more reliable and efficient processing at the rugged edge.

Key Applications

Industrial Automation and Control	IoT and Edge Compute	Intelligent Transportaion Telematics	Surveillance	Kiosk Machines
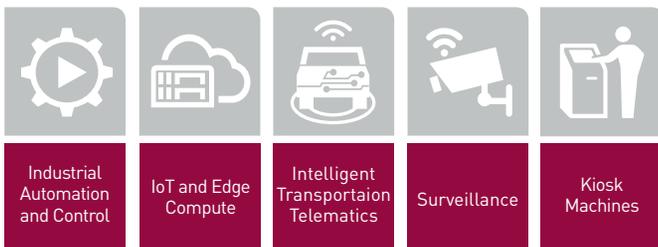
Computing for the Evolving Edge

9th Generation Intel Processor & Q370 Chipset

The RCO-3700 Series is a small form factor industrial computer that leverages rich performance enhancement supplied by 9th Gen. Intel CFL-R S Processors and Q370 Chipset Support. Intel Hyperthreading Technology enables 16-way multitasking through hyperthreading all 8 powerful CPU cores in the i7 model. The processor supports DDR4 RAM for up to 64GB of memory and 2666 MT/s transfer speed, while UHD graphics offer rich visual output for many applications using optical data.

We've combined the LGA1151 socket design with Intel's Q370 chipset to deliver augmented peripheral performance for low-latency edge responsiveness. Gigabit wireless speeds, PCIe 3.0 lanes, SATA ports, and ultra-fast USB 3.2 Gen 2 provide the RCO-3700 Series of Industrial PCs with excellent I/O integration options for transmitting data to and from the device.

Improved IoT Data Storage Adaptability

The RCO-3700 Industrial Computer Series supports storage technologies accommodating all rugged edge and automation applications. The system offers support for a single internal 2.5" SATA SSD or HDD in 9mm height and one hot-swappable, tool-less 2.5" SATA SSD or HDD in 7mm height, enabling the system to feed volumes of complex data to the CPU for more reflexive inference analysis at the edge. The ability to hot-swap drives allow users to replace SATA drives, simplifying service and capacity upgrades quickly directly in the field.

Systems can be configured with either 2.5" HDDs (hard disk drives) or SSDs (solid-state drives). SSDs offer significantly better data transfer speed than HDDs, topping out at a theoretical data transfer speed of up to 600 MB/s. This makes SSDs an excellent option for applications that require high speed data transfer and low-latency processing. Additionally, configuring the RCO-3700 Series with SSDs instead of HDDs provides better shock and vibration resistance. SSDs provide better shock and vibration resistance because they store data on silicon NAND chips vs. the spinning metal platters that HDDs use to store data.

Additionally, the RCO-3700 Series offers support for RAID 0, 1, and 5, allowing users to sustain a loss of one or more drives without losing any data. RAID also reduces the amount of downtime you'll experience as you replace a failed or failing drive.

Connecting from the Rugged Edge

Steady Wireless Connectivity

The RCO-3700 Series enables seamless wireless connectivity for remote and mobile edge deployments. Wireless connectivity is possible thanks to the inclusion of Wi-Fi 6 and Bluetooth 5.0 technologies, allowing the device to reliably connect to sensors and network systems throughout a wireless IoT Enterprise. Systems are also equipped with Dual External SIM Sockets, providing 4G/LTE connectivity at remote, mobile edge deployments.

10GbE I/O Ready

The RCO-3700 Series of Rugged Edge Computers supports two 10GbE ports (Intel x710-AT2 Chipset) through its universal I/O bracket. The high-speed connections enable low-latency data transmission for advanced industrial inference applications.

Additional LAN

The RCO-3700 Series can be configured with four additional LAN ports for standard IoT network connectivity. Optional locking M12 connectors ensure secure coupling in moving, volatile deployments.

High Speed Gbps USB Integration

The RCO-3700 boats several generations of USB connection to accommodate the data traffic needs of a variety of peripheral technologies. The RCO-3700 Series is equipped with four USB 3.2 Gen 2 Type-A ports offering data transfer speeds of up to 10Gbps, and four USB 2.0 Ports providing data transfer speeds of up to 480 Mbps.

Serial COM Ports

The RCO-3700 Series supports five Serial COM ports (3 external RS-232/422/485 & x2 internal 2x RS-232/422/485), allowing users to connect devices to modern factory peripherals and legacy equipment that still utilizes the analog COM for reliable and simple communication.

CAN Bus for Vehicle Insights

The RCO-3700 Series supports the CAN Bus Protocol to leverage vehicle telematics data for intelligent transportation systems, fleet management, process analytics, and systems optimization.
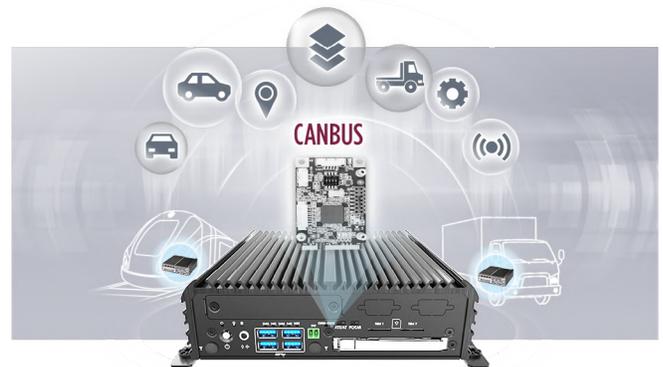
4 LAN Module

4 Port M12 Module

Dual 10G Module

Built Rugged. Built Ready.

The RCO Series of rugged industrial computers is hardened to integrate into connected industrial automation control systems smoothly. Fanless design and rich I/O compatibility present durable, scalable industrial IoT compute solutions for faster processing and connectivity at the rugged edge.

Small Form Factor (SFF)

The RCO-3700 is designed to be a compact and small form factor (SFF) industrial computer with high-performance socket type processor design. This SFF industrial computer measures in at 7.5" inches in width, 7.7" inches in depth, and only 2.3" inches in height, making it extremely compact for an industrial computer in its size. Although small in size, performance is not sacrificed with its socket type design that can support 35W & 65W high-performance Intel processors in the LGA1151 socket. IoT integrators and industrial automation operators can rely on the RCO-3700 Series SFF industrial computer to manage the most complex workloads in space-constrained deployments.

Fanless Architecture

The RCO-3700 Series is designed and built to perform continuously and reliably through its fanless design. By using passive cooling technology instead of susceptible, noisy fans, the rugged edge computer eliminates a notorious hardware failure point and prevents ventilation vulnerabilities, such as the ingress of dust and other small particles into the system.

Wide Operating Temperature Range

The RCO-3700 Series is equipped with a wide operating temperature range, ranging from -25 C to 60 C, accommodating a vast range of challenging thermal conditions. Blistering steel foundries and ice-encrusted arctic mine sites can easily dispatch the rugged edge computer for complex compute and automation at the rugged edge.

Wide Input Voltage

The Rugged Edge Industrial Computer is equipped with a wide power input voltage, ranging from 9 to 48VDC, accepting a wide range of available power voltages. Also, the system is equipped with a variety of power protection features, such as overvoltage protection, overcurrent protection, and reverse polarity protection, protecting the sensitive internal components from a variety of scenarios that could damage the system.

Shock and Vibration Resistance

The RCO-3700 Series is hardened to withstand environmental impacts and vibration characteristics of the rugged edge. The rugged edge computer can be safely deployed in a vehicle to instantly collect and process torrents of sensor data to effect efficient automation, leverage telematics for intelligent fleet management, or perform predictive analytics to alert of impending traffic hazards.

Power Ignition Management

Intelligent transportation deployment can harness the power of advanced computing and automation safely through the RCO-3700 Series' power ignition management feature. The rugged edge computer safely powers down after the engine shutoff following a configurable predetermined interval. The feature ensures applications close properly, ensuring that your data is not lost or corrupted due to a sudden shutdown.

TPM 2.0 Security

An integrated, trusted platform module applies TPM 2.0 standards to safeguard the RCO-3700 Series. The microprocessor's root keys enable password protection, device authentication, and future-ready cybersecurity. The TPM defends the device, data, and transmissions against malicious actors.

NEW

Small Form Factor Industrial Computer

	RCO-3700	RCO-3722
Processor	Support 8th/9th Gen Intel® CFL-R S Processor (LGA 1151, 65W/35W TDP)	
Memory	2x 260-Pin DDR4 2400/2666MHz SODIMM. Max. up to 64GB (Un-buffered and Non-ECC)	
Display	1x DVI-I, 2x DisplayPort, Triple Display	
SATA Storage	2x 2.5" SATA HDD bay with RAID 0, 1, 5 support (1x internal; 1x removable & hot-swappable), 1x mSATA (shared by 1x Mini PCIe)	
Internal Expansion Slot	2x Full-size mini-PCIe (1 shared by 1x mSATA), 1x M.2 E Key	
PCIe	0	2x PCIe x 16 (8-Lane)
I/O	4x USB 3.2 Gen 2 (10 Gbps), 4x USB2.0 (2x internal), 5x RS-232/422/485 (2x internal), 16x isolated digital I/O, 2x GbE RJ45 (Support Wake-on-LAN and PXE)	
Power	9-48 VDC, AT/ATX Select, 3-pin Terminal Block	
Operating Temperature	-25°C to 60°C (35W CPU) ;-25°C to 50°C (65W CPU)	
Dimension	192 (W) x 197 (D) x 60.3 (H) mm	192 (W) x 197 (D) x 107.8 (H) mm