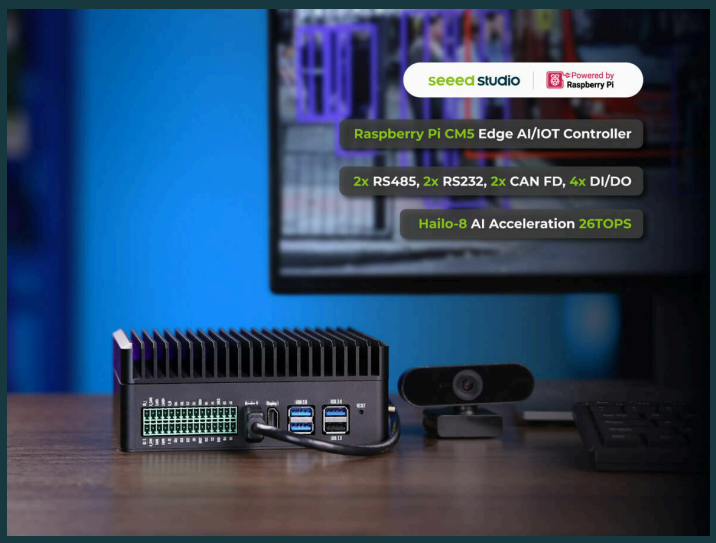
seeed studio

INDUSTRIAL PRODUCT DATASHEET

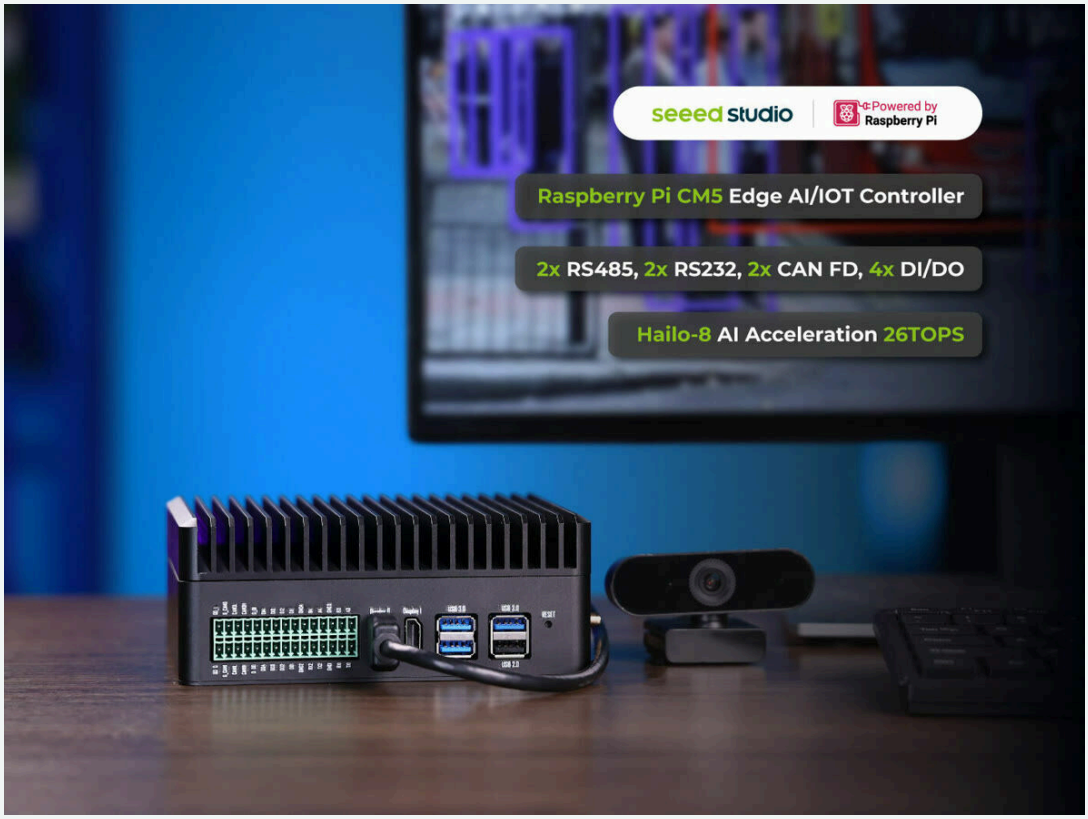
# reComputer Industrial R2136-12 - The Most Reliable and Powerful Raspberry Pi Edge AI/IOT Controller

The reComputer Industrial R2136-12 delivers reliable Raspberry Pi CM5 edge AI/IoT control with optional 26 TOPS Hailo-8 acceleration, industrial-grade fanless design, and isolated industrial interfaces for automation, AI vision, smart...

| SKU | UPDATED | PRICE |
|---|---|---|
| 100028566 | 2026-09-08 08:43:42 | $580.90(Excl. VAT) |



# Overview




The reComputer Industrial R2136-12 is a Raspberry Pi CM5-based edge AI/IoT controller powered by a Broadcom BCM2712 quad-core Arm Cortex-A76 64-bit SoC at 2.4 GHz with up to 16GB RAM and 32GB eMMC. It provides fanless industrial-grade reliability from -20°C to 65°C, optional Hailo-8 acceleration up to 26 TOPS, and rich isolated connectivity including RS485, RS232, CAN FD, DI/DO, GbE PoE, USB, HDMI, and Mini-PCIe/M.2 expansion for applications such as industrial automation, AI video analytics, smart transportation, smart building, and smart retail.

# Key Features

**Note: Options marked with * require additional purchase according to the bundle.**

- For 4G functionality, both a 4G module and a 4G antenna must be selected.
- For GPS functionality, both a 4G module and a GPS antenna must be selected.
- For LoRaWAN® functionality, LoRaWAN® module must be selected.
- **Price Increase Announcement**

Date: March 2, 2026

Due to increased demand for modules and SSDs, reComputer' pricing is expected to rise by approximately $20–$80 in the coming weeks. Please confirm your orders and requirements accordingly to help secure availability.

- **Powerful Performance with Raspberry Pi CM5:** Broadcom BCM2712 quad-core Arm Cortex-A76 64-bit SoC @ 2.4GHz. Features up to 16GB RAM and 32GB eMMC.
- **Robust Heat Dissipation:** High-performance fanless cooling, engineered to handle the intense heat of AI workloads and ensure stable operation from -20°C to 65°C.
- **Industrial-Grade Reliability:** High Accuracy RTC, hardware watchdog and optional UPS supercapacitor. Optional TPM/ATECC608A. IP40, aluminum alloy enclosure provides industrial-grade protection. Supports DIN-rail and wall mounting. Guaranteed production until at least December 2036.
- **AI-Optimized Computing:** With the optional Hailo-8 AI accelerator, it delivers up to 26 TOPS, enabling real-time, high-performance AI vision processing across multiple channels.
- **Rich Industrial Connectivity:** 2x RS485, 2x RS232, 2xCANFD,4x DI, 4x DO, all isolated. 1x 10M/100M/1000M Ethernet (PoE), 1x 10M/100M Ethernet. 2x HDMI 2.0. 3x Type-A USB3.0, 1x Type-A USB2.0, 1x Type-C USB2.0 (for OS update). 1x Nano SIM card slot.
- **Versatile Wireless Connectivity:** On chip Wi-Fi and BLE. Flexible expansion via Mini-PCIe for LTE, LoRa®, Zigbee. M.2 B-Key for 4G/5G.

## Seeed Studio Tutorial of AI Kit with Raspberry Pi: From Zero to Hero

This course is designed to teach you how to harness the power of AI on the Raspberry Pi, with afocus on using an AI kit to performcomputer vision tasks. You'll learn how to integrate AI into real-world IoT applications, from object detection and image classification to more complex visual recognition tasks.

We will guide you step-by-step through setting up your Raspberry Pi, using AI frameworks, and deploying these models in various practical scenarios.

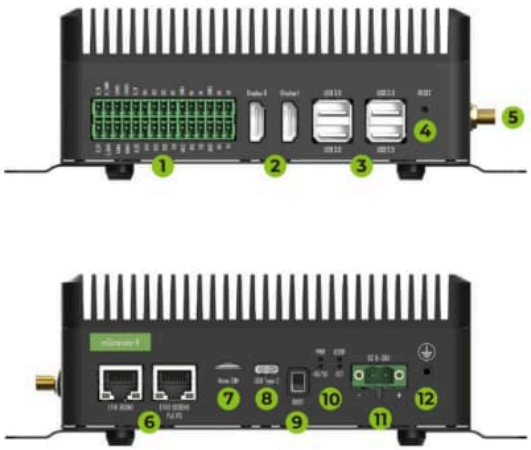
# Product Gallery

## Specification

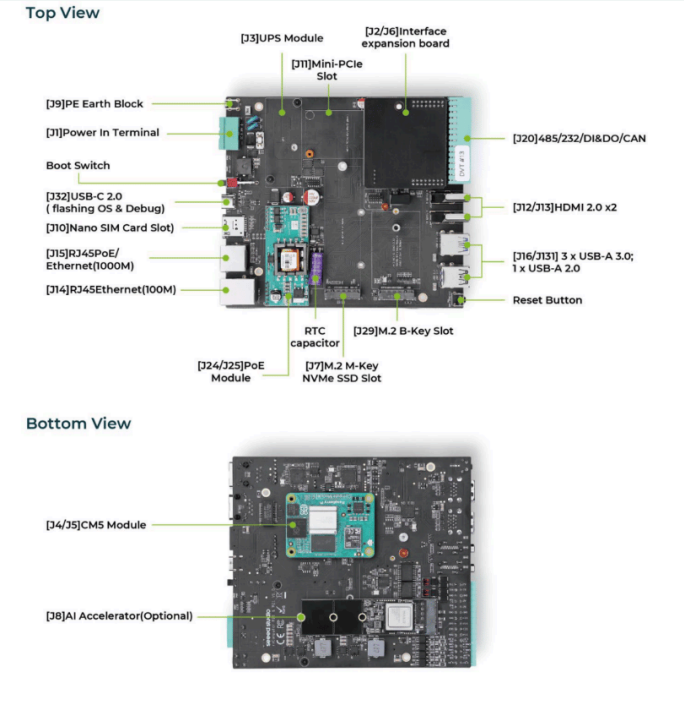
| | | |
|---|---|---|
| Hardware Specification | | |
| Product Series | R21xx-12 | R21xx-10 |
| CPU | Raspberry Pi Compute Module 5, 2.4GHz quad-core 64-bit Arm Cortex-A76 | |
| AI Processor | 1x Pre-installed Hailo-8 M.2 AI Acceleration, 26TOPS | * |
| Operating System | Raspbian, Debian | |
| Memory & Storage | 2GB/4GB/8GB/16GB RAM, 16GB/32GB/64GB eMMC | |
| System Specification | | |
| Power Input | DC 9V~36V, 2-pin Terminal Block | |
| PoE(as powered device) | IEEE 802.3 at Standard 25.5W PoE | |
| Power Switch | No | |
| Reboot Switch | Yes | |
| Interface | | |
| Ethernet & USB | 1x 10/100/1000 Mbps(supports PoE PD); 1x 10/100 Mbps IEEE 802.3/802.3u | |
| | 3x USB-A 3.0 Host; 1x USB-A 2.0 Host; 1x USB-C 2.0 (For flashing OS & Debug) | |
| COM and I/O | 2x RS485(Isolated); 2x RS232(Isolated); 2x CAN FD(Isolated) | |
| | 4x DI Ports(Isolated), input Voltage: 5~24V DC; 4x DO Ports(Isolated), output Voltage: <60V DC | |

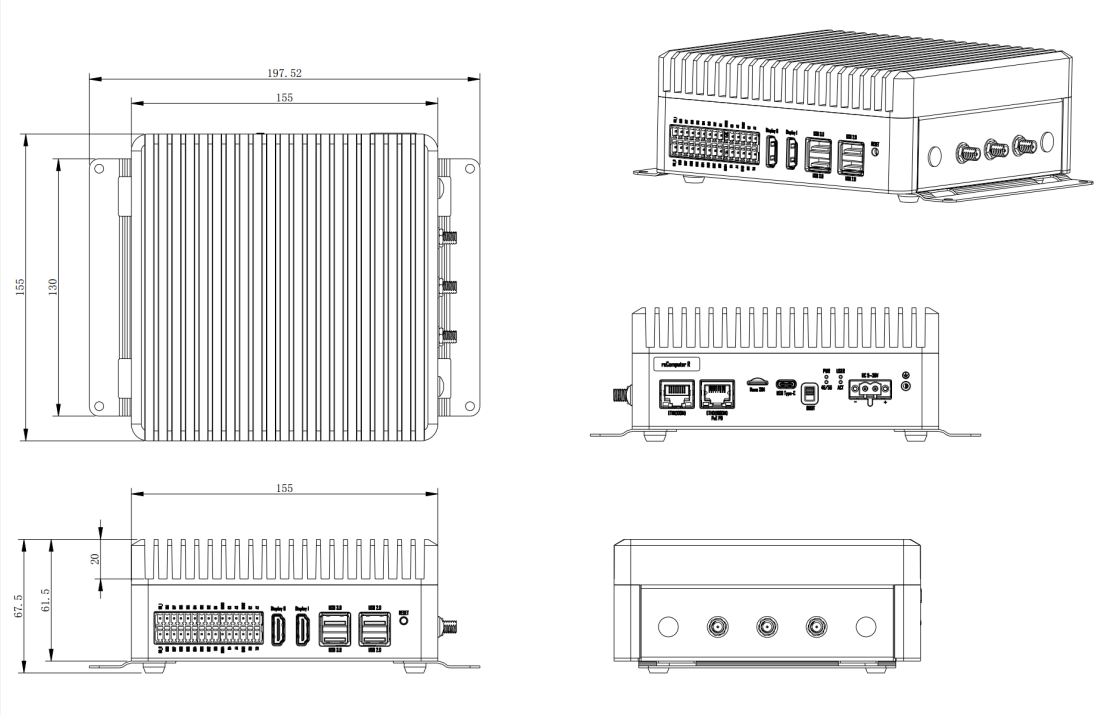
| | | |
|---|---|---|
| SIM Card | 1x Nano SIM Card Slot | |
| M.2 Slot | 1x M.2 M-key 2280 Slot for NVMe SSD;<br>1x M.2 M-key 2280 Slot for AI Accelerator (pre-installed Hailo-8 M.2 AI Acceleration 26TOPS);<br>1x M.2 B-key 3042/3052 Slot for 5G/4G LTE | 1x M.2 M-key 2280 Slot for NVMe SSD；<br>1x M.2 M-key 2280 Slot for AI Accelerator;<br>1x M.2 B-key 3042/3052 Slot for 5G/4G LTE |
| Mini-PCIe | 1x Mini-PCIe for LoRa module | |
| Control & Indication | 4x LEDs; 1x Buzzer; 1x Reset Button | |
| HDMI | 2 x HDMI 2.0 | |
| Wireless Communication | Wi-Fi 2.4/5.0 GHz(On-chip); BLE 5.0(On-chip); | |
| | USB LoRa®*/SPI LoRa®* | |
| | 4G LTE/5G* | |
| | USB Zigbee* | |
| Standards | | |
| EMC | ESD: EN61000-4-2, Level 3; EFT: EN61000-4-4, Level 2; Surge: EN61000-4-5, Level 2 | |
| Certification | CE, FCC, TELEC, RoHS, REACH | |
| Device Specification | | |
| Ingress Protection | IP40 | |
| Temperature | Operating Temperature -20~65°C<br>Storage Temperature -40~85°C | |
| Operating Humidity | 10~95% RH | |
| Reliability | SuperCAP UPS LTC3350 Module* | |
| | Hardware Watchdog: 1~255s | |
| | High Accuracy RTC | |
| Security | Encryption Chip TPM 2.0* | |
| | ATECC608A* | |
| Heat Dissipation | Fanless | |
| Warranty | 2 years | |
| Production Lifetime | Until December 2036 | |
| Dimension(W x H x D) & Weight(Net) | 197.5 mm x 155 mm x 67.5 mm, 1280g | |
| Enclosure | 6063 aluminum alloy heat sink, 5052 aluminum alloy enclosure | |
| Mounting | DIN-rail/Wall | |
| Statement | Options marked with * require additional purchase according to the bundle. | |

# Hardware Overview



1. 2x RS485(Isolated) 4 x Isolated DI Ports
   2x RS232(Isolated) 4 x Isolated DO Ports
   2x CAN FD(Isolated)
2. 2 x HDMI 2.0
3. 3 x USB-A 3.0 Host 1 x USB-A 2.0 Host
4. Reset Hole
5. 5 x Reserved Antenna Ports for Wireless
6. 1 x 10/100/1000 Mbps(supports PoE PD)
   1 x 10/100 Mbps IEEE 802.3/802.3u
7. Nano SIM Card Slot
8. USB-C 2.0 (For flashing OS & Debug)
9. Reboot Switch
10. 4 x LED indicators
11. DC 9V~36V, 2-pin Terminal Block
12. Grounding point






# Applications

- **Manufacturing & Industrial Automation:** With rich industrial interfaces, the controller integrates seamlessly with different sensors, PLCs, and machinery, enabling efficient process monitoring and control. It supports multiple communication protocols for real-time data acquisition and remote equipment management, fostering a smarter and more efficient factory.
- **AI-Powered Video Analytics & Surveillance:** Integrated into NVR systems for real-time video analytics, including anomaly detection, object detection, crowd monitoring and behavior analysis, enhancing situational awareness and security efficiency.
- **Smart Transportation:** Acts as an AI/IoT gateway for real-time processing of visual data from multiple sensors and camera feeds at the edge, enabling intelligent traffic flow analysis and smart parking management to enhance transportation monitoring management capabilities.
- **Smart Building:** Integrates sensors and IoT devices to monitor and optimize building systems such as lighting, HVAC, and security. Uses AI for energy efficiency, predictive maintenance, and occupant comfort, enhancing building management.
- **Smart Retail:** Create innovative smart retail solutions using AI-driven features like real-time visual product recognition, personalized shopping experiences, and advanced customer behavior analytics for optimized store operations.

## Part List

| | |
|---|---|
| reComputer Industrial R2136-12 | x 1 |
| Mounting Bracket | x 2 |
| Bracket Screw | x 4 |
| DIN-rail Clip | x 1 |
| DC Power Female Jack to Screw Terminal Adapter | x 1 |
| 12V/3A Power Adapter (with 4 interchangeable adapter plugs) | x 1 |
| 15*2-pin Terminal Block Connector (Male) | x 1 |
| 120Ω Resistor | x 5 |
| Wi-Fi/BLE Antenna | x 1 |
| User Manual | x 1 |

## Compliance & Logistics

| | |
|---|---|
| HSCODE | 8471504090 |
| USHSCODE | 8517180050 |
| UPC | |
| EUHSCODE | 8471707000 |
| COO | |

# Resource Links

- https://www.seeedstudio.com/reComputer-Industrial-R2136-12-p-6967.html
- Seeed Raspberry Pi Flyer
- reComputer_Industrial_R2100_User_Mannual
- reComputer_Industrial_R2100_Schematic
- reComputer_Industrial_R2000/2100_3D_File
- Seeed Raspberry Pi Flyer-CN
- Seeed reComputer Industrial R Series Flyer

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