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INDUSTRIAL PRODUCT DATASHEET

reComputer Industrial R2045-12 - The Most Reliable and Powerful Raspberry Pi Edge AI/IOT Controller

Industrial-grade edge AI/IOT controller powered by Raspberry Pi CM5 with optional Hailo-8 AI acceleration (26 TOPS).

SKU

100080766

UPDATED

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PRICE

\$659.00(Excl. VAT)



Overview



Industrial-grade edge AI/IOT controller powered by Raspberry Pi CM5 with optional Hailo-8 AI acceleration (26 TOPS). Features 16GB RAM, 32GB eMMC, extensive industrial interfaces, versatile wireless options, fanless cooling, wide temperature range (-20°C to 65°C), and long-term production support. Engineered for dependable AI performance and seamless connectivity in demanding environments.

Key Features

01 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.

02 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.

03 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.

04 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.

05 Rich Industrial Connectivity

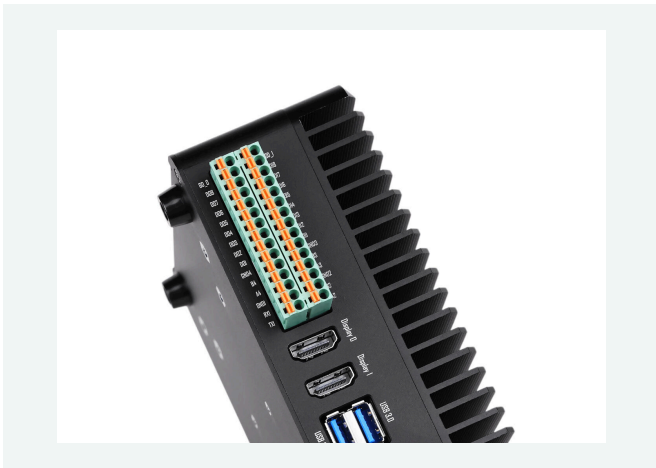
3x RS485, 1x RS232, 8x DI, 8x DO, all isolated. 1x 10M/100M/1000M Ethernet (PoE), 1x 10M/100M Ethernet. 2x HDMI 2.0. 3x Type-A USB3.0, 1x Type-A USB2.0, 1x Type-C USB2.0 (for OS update). 1x Nano SIM card slot.

06 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.

Product Gallery





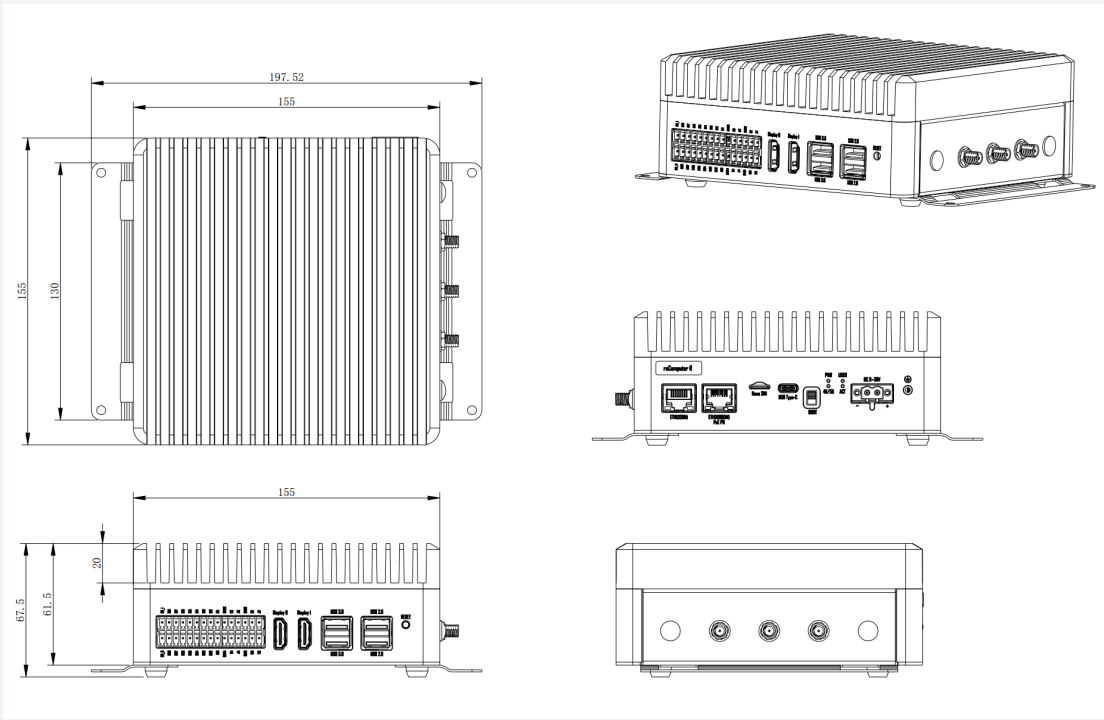
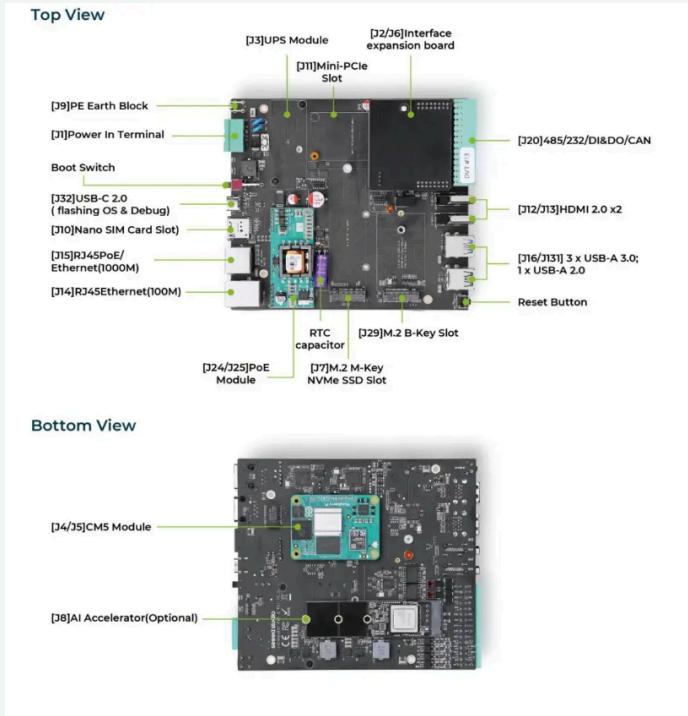
Specification

Hardware Specification		
Product Series	R20xx-12	R20xx-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	3x RS485(Isolated); 1x RS232(Isolated)	
	8x DI Ports(Isolated), input Voltage: 5~24V DC; 8x 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; 1x M.2 M-key 2280 Slot for AI Accelerator (pre-installed Hailo-8 M.2 AI Acceleration 26TOPS); 1x M.2 B-key 3042/3052 Slot for 5G/4G LTE	1x M.2 M-key 2280 Slot for NVMe SSD ; 1x M.2 M-key 2280 Slot for AI Accelerator; 1x M.2 B-key 3042/3052 Slot for 5G/4G LTE
Mini-PCle	1x Mini-PCle 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 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 3x RS485(Isolated) 8 x Isolated DI Ports
1x RS232(Isolated) 8 x Isolated DO Ports
- 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:** The controller integrates with sensors, PLCs, and machinery for process monitoring and control. It supports multiple communication protocols for real-time data acquisition and remote equipment management.
- **AI-Powered Video Analytics & Surveillance:** Integrated into NVR systems for real-time video analytics, including anomaly detection, object detection, crowd monitoring and behavior analysis.
- **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.
- **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.
- **Smart Retail:** Uses AI-driven features such as real-time visual product recognition, personalized shopping experiences, and customer behavior analytics for optimized store operations.

Part List

reComputer Industrial R2045-12	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	CHINA

Resource Links

- <https://www.seeedstudio.com/reComputer-Industrial-R2045-12-p-6544.html>
- [Seeed Raspberry Pi Flyer](#)
- [reComputer_Industrial_R2000_User_Manual](#)
- [reComputer_industrial_R2000_Schematic](#)
- [reComputer_Industrial_R2000/2100_3D_File](#)
- [Seeed Raspberry Pi Flyer-CN](#)
- [Seeed reComputer Industrial R Series Flyer](#)

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