seeed studio

INDUSTRIAL PRODUCT DATASHEET

reComputer Industrial R22 & Optional Accessories - The Most Reliable and Powerful Raspberry Pi Edge AI/IOT NVR with 26 Tops

The most reliable and powerful Raspberry Pi CM5-based edge AI NVR with 26 TOPS for industrial video analytics and IoT connectivity.

SKU	UPDATED
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Overview



Powered by Raspberry Pi CM5 with up to 16GB RAM and a Hailo-8 AI accelerator delivering 26 TOPS, the reComputer Industrial R22 supports real-time video analytics on up to 4× 1080p streams at 30 FPS. It features industrial-grade reliability with fanless cooling, wide temperature range, isolated I/O, PoE Ethernet, and multiple wireless expansion options.

Key Features

Note:

1. Options marked with * require additional purchase according to the bundle.
2. For 4G functionality, both a 4G module and a 4G antenna must be selected.
3. For GPS functionality, both a 4G module and a GPS antenna must be selected.
4. For LoRaWAN® functionality, LoRaWAN® module must be selected.
5. **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 Driven by Raspberry Pi CM5:** Broadcom BCM2711 quad-core Cortex-A72 (ARM v8) 64-bit SoC running at 1.5GHz, supports up to 16GB RAM, ensuring smooth multitasking and efficient data processing for AI and NVR workloads.
- **advanced Video Analytics:** Powerful video analytics capability supporting up to 4× 1080p video streams at 30 FPS in real time. Designed to handle complex and compute-intensive Vision AI workloads
- **Robust Heat Dissipation:** High-performance fanless cooling, engineered to handle the intense heat of AI workloads and ensure stable operation from -20°C to 50°C.
- **Industrial-Grade Reliability:** Integrated with high-accuracy RTC and hardware watchdog; supports optional UPS supercapacitor, TPM/ATECC608A security module. IP40-rated aluminum alloy enclosure for enhanced protection against dust and mechanical damage. Compatible with DIN-rail and wall mounting for flexible installation. Guaranteed production support until at least January 2036.
- **On-Device AI Computing:** Features a Hailo-8 AI accelerator delivering up to 26 TOPS, enabling low-latency, high-performance real-time AI vision processing on the edge across multiple camera channels.
- **Rich Industrial Connectivity:** 2x RS485, 1x RS232, 4x DI/4x DO (all isolated), 1x CAN FD;4x 1000M Ethernet ports (supporting PoE PSE, 12W max per port) + 1x additional 1000M Ethernet port, ideal for multi-camera NVR deployment with direct power supply;2x HDMI 2.0, 4x Type-A USB3.0, 1x 3.5mm Audio Jack;1x Nano SIM card slot for cellular network access.
- **Versatile Wireless Connectivity:** On-chip Wi-Fi and BLE for basic wireless communication;Mini-PCIe slot for expansion of LTE, LoRa®, Zigbee modules;M.2 B-Key slot for 4G/5G modules to meet diverse wireless connectivity needs.

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 a focus on using an AI kit to perform computer 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

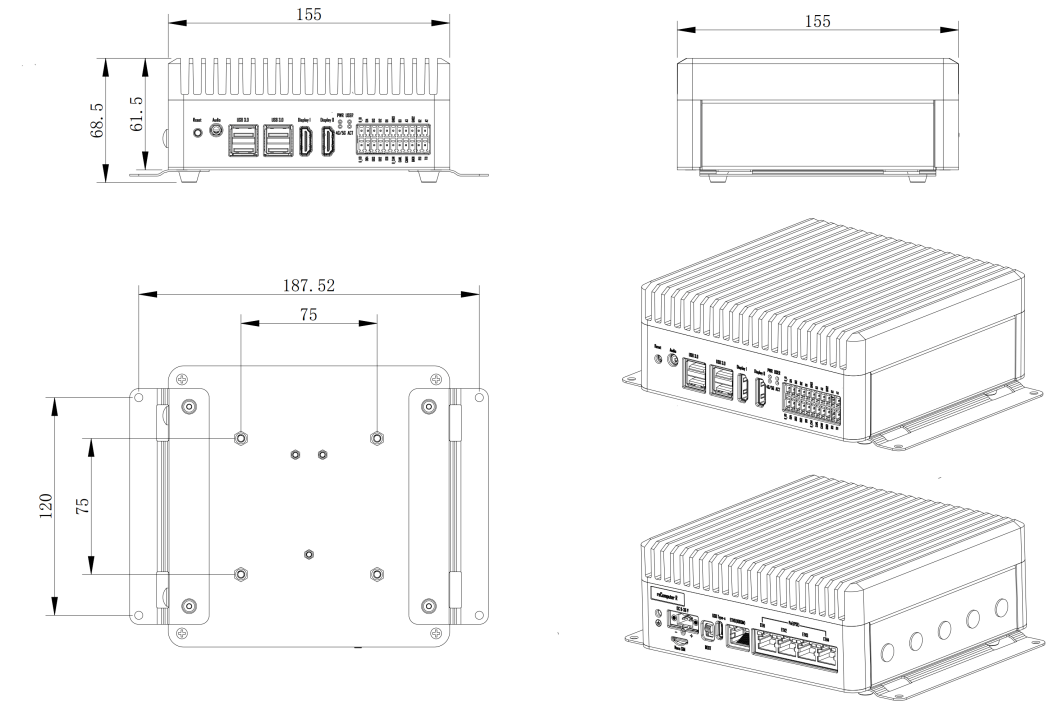
Parameter	Description
Hardware Specification	
Product Series	R22xx-12
CPU	Raspberry Pi Compute Module 5, 2.4GHz quad-core 64-bit Arm Cortex-A76
AI Processor	Pre-installed 1x Hailo-8 M.2 AI Acceleration 26TOPS
Operating System	Raspbian, Debian
RAM	8GB/16GB
eMMC	32GB
System Specification	
Power Input	DC 9V~36V, 2-pin Terminal Block
PoE	4 x PoE PSE
Power Switch	No
Reboot Switch	Yes
Interface	
Ethernet	4 x 10/100/1000 Mbps(supports PoE PSE)
	1 x 10/100/1000 Mbps IEEE 802.3/802.3u
USB	4 x USB-A 3.0 Host
	1 x USB-C 2.0 (For flashing OS & Debug)
RS485	2x RS485 (Isolated)
RS232	1x RS232 (Isolated)
CAN	1x CAN FD(Isolated)
DI	4 x Isolated DI Ports
	Input Voltage: 5~24V DC
DO	4 x Isolated DO Ports
	Output Voltage: <60V DC
SIM Card	1x Nano SIM Card Slot
M.2 Slot	2x M.2 M-key 2280 Slot for NVMe SSD； 1x M.2 M-key 2280 Slot for AI Accelerator (Pre-installed 1x Hailo-8 M.2 AI Acceleration 26TOPS); 1x M.2 B-key 3042/3052 Slot for 5G/4G LTE
Mini-PCIe	1x Mini-PCIe for LoRa module
LED	4 x LED indicators

Buzzer	1
Reset Button	1
Audio	1x 3.5mm Audio
HDMI	2 x HDMI 2.0
Wireless Communication	
Wi-Fi 2.4/5.0 GHz	On-chip Wi-Fi
BLE 5.0	On-chip BLE
LoRa®	USB LoRa®*/SPI LoRa®*
4G/5G Cellular	4G LTE/5G*
Zigbee	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
Ambient Conditions	
Ingress Protection	IP40
Operating Temperature	-20~50 °C
Operating Humidity	10~95% RH
Storage Temperature	-40~85 °C
Others	
Supercapacitor UPS	SuperCAP UPS LTC3350 Module*
Hardware Watchdog	1~255s
RTC	High Accuracy RTC
Security	Encryption Chip TPM 2.0*
	ATECC608A
Heat Dissipation	Fanless
Warranty	2 years
Production Lifetime	Until January 2036
Statement	Options marked with * require additional purchase according to the accessories list.

Hardware Overview



1. Reset Hole
2. 1x 3.5mm Audio
3. 4x Type-A USB3.0
4. 2x HDMI2.0
5. 1x RS232(Isolated)
   2x RS485(Isolated)
   1x CAN FD(Isolated)
   4 x Isolated DI Ports
   4 x Isolated DO Ports
6. Grounding point
7. DC 9V~36V, 2-pin Terminal Block
8. Nano SIM Card Slot
9. Reboot Switch
10. USB-C 2.0 (For flashing OS & Debug)
11. 1 x 10/100/1000 Mbps IEEE 802.3/802.3u
12. 4 x 10/100/1000 Mbps(supports PoE PSE)
13. 5 x Reserved Antenna Ports for Wireless



Applications

- **Security Surveillance & AI Video Monitoring:** As an industrial-grade AI-powered NVR, the system supports advanced video analytics including object detection, recognition, tracking, OCR, and abnormal event detection. It is capable of processing up to 4× 1080p video streams at 30 FPS simultaneously at the edge. With 4× Gigabit Ethernet ports supporting PoE plus an additional Gigabit Ethernet port, the device directly connects and powers IP cameras, enabling reliable perimeter protection, intrusion detection, loitering analysis, and unattended-site monitoring with low latency and high data privacy.
- **Smart Factory & Industrial Safety:** Designed for industrial environments, this AI NVR enables real-time video-based safety monitoring across production floors, workshops, and restricted zones. Typical applications include personnel presence detection, unsafe behavior recognition, PPE compliance monitoring, and anomaly detection near critical equipment. Its fanless thermal design, wide operating temperature range (–20 °C to 65 °C), and industrial-grade hardware ensure stable 24/7 operation in harsh factory environments, making it well suited for long-term visual monitoring where reliability is critical.
- **Warehouse & Logistics Monitoring:** For warehouses and logistics centers, the system supports multi-camera deployment to analyze video streams from storage areas, loading docks, and transit corridors in real time. With multi-channel 1080p 30FPS video analytics, it enables intrusion detection, area occupancy monitoring, abnormal behavior recognition, and asset movement tracking. Edge-based AI processing reduces network bandwidth requirements and ensures fast response times, even in environments with limited or unstable connectivity.
- **Smart Retail & Commercial Spaces:** In retail and commercial scenarios, the AI NVR provides local, real-time video analytics such as customer flow statistics, crowd density analysis, dwell-time detection, and abnormal event alerts. The combination of edge AI acceleration (26 TOPS) and PoE-powered multi-camera support allows efficient deployment in small to mid-sized stores without reliance on cloud computing. Local processing improves data privacy while delivering actionable insights for store operations and layout optimization.
- **Smart Buildings & Facility Monitoring:** Serving as a centralized AI video analytics node, the system supports intelligent monitoring of entrances, corridors, parking areas, and shared spaces. Applications include access-area surveillance, occupancy analysis, and after-hours anomaly detection. Its compact industrial design, DIN-rail and wall-mount support, and fanless operation enable flexible installation in building control cabinets, ensuring stable, low-maintenance operation in smart building deployments.

Part List

reComputer Industrial R22xx	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
19V/4.7A Power Adapter (with 1x US AC plugs + 1x EU plugs) x1	x 1
11*2-pin Terminal Block Connector (Male) x1	x 1
120Ω Resistor	x 5
Wi-Fi/BLE Antenna	x 1
User Manual	x 1

Resource Links

- https://www.seeedstudio.com/reComputer-Industrial-R22-Optional-Accessories-The-Most-Reliable-and-Powerful-Raspberry-Pi-Edge-AI-IOT-NVR-with-26-Tops.html
- Seeed Raspberry Pi Flyer
- reComputer Industrial R20/R21/R22 Flyer
- reComputer Industrial R22XX 3D File
- reComputer Industrial R22XX Schematic

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