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Vantron IBOX3588 Edge AI Embedded Industrial Computer Instruction Manual

Contents

Vantron

Vantron IBOX3588 Edge AI Embedded Industrial Computer

Product Information

Product Name: IBOX3588 Edge AI Embedded Industrial Computer
Manufacturer: Vantron
Website: www.vantrontech.com

Description:
The IBOX3588 is an industrial-grade computer that offers high computing power and deep learning acceleration. It features a RK3588 Quad-core Cortex-A76 + Quad-core Cortex-A55 processor, 8K video decoding and encoding capabilities, and supports 2.4GHz/5GHz Wi-Fi 6 and Bluetooth 5.0. It also provides an M.2 slot for 4G/5G expansion, two Gigabit Ethernet ports, and a wide range of interfaces for peripheral connectivity.

Features

- Quad-core Cortex-A76 + Quad-core Cortex-A55 processor
- High-quality video output
- Rich interface for expansion
- Wi-Fi 6 and Bluetooth 5.0
- 4G/5G expansion support
- Two Gigabit Ethernet ports
- Industrial-grade wide temperature design
- High computing power
- Deep learning acceleration
- Industrial longevity

System Specifications:

- CPU: RK3588 Quad-core Cortex-A76 + Quad-core Cortex-A55 processor
- GPU: N/A
- NPU: N/A
- Memory: Various options available (8GB, 16GB, 32GB)
- Storage: Various options available (32GB eMMC, 64GB eMMC, 128GB eMMC)
- Communication: Ethernet, 4G/5G, Wi-Fi & Bluetooth
- Display: Supports 8K video decoding and encoding
- USB: Multiple USB ports available
- Serial port: Yes
- I/Os: GPIO, CAN
- Fan: N/A
- SIM card slot: Yes
- Micro SD card slot: Yes
- RTC: Yes
- Watchdog: Yes
- Expansion: M.2 slot available
- System Control: N/A
- Software: Supports different operating systems (Debian OS, Android OS)
- Power: N/A
- Dimensions: N/A
- Mechanical Enclosure: N/A
- Weight: N/A
- Shock test: N/A

- Water and dust resistance: N/A

- Environment Condition: N/A

- Temperature: N/A

- Humidity: N/A

- Certification: N/A

Product Usage Instructions

To use the IBOX3588 Edge AI Embedded Industrial Computer, follow these steps:

1. Connect the power cable to the IBOX3588.
2. Connect the 12V power adapter to the power source.
3. If using Wi-Fi or Bluetooth, attach the Wi-Fi/Bluetooth antennas to the designated ports.
4. If using 4G/5G connectivity, attach the 4G/5G antennas to the designated ports (optional).
5. Connect any desired peripherals to the available interfaces (USB, Ethernet, serial port, etc.) for extended applications.
6. Insert a SIM card into the SIM card slot if using cellular connectivity.
7. If additional storage is required, insert a micro SD card into the micro SD card slot.
8. Power on the IBOX3588 using the ON/OFF button.
9. Once powered on, configure the operating system according to your needs.
10. Utilize the device management platform and OTA tool for efficient management and updates.

Note: For specific configurations and options, refer to the order information provided in the user manual.

Product Brief Introduction

Vantron IBOX3588 Edge AI Embedded Industrial Computer is powered by Rockchip latest flagship RK3588 AIoT chipset that is equipped with an 8-core 64-bit CPU, an ARM Mali-G610 MP4 quad-core GPU, and a built-in AI acceleration NPU, capable of providing 6 TOPS computing power and supporting mainstream deep learning frameworks. With the development of the technology, there definitely will be a rising demand for AI-based products from the industrial control market, including but not limited to industrial robots, automated control, drones, etc. The industrial computer offers two Gigabit Ethernet ports, supports 2.4GHz/5GHz Wi-Fi 6 and Bluetooth 5.0, and provides an M.2 slot for 4G/5G expansion to keep communication uninterrupted. It also supports 8K video decoding and encoding to deliver optimized display performance. Since the industrial computer provides rich interfaces, a wide range of peripherals can be connected for extended applications like ARM PC, edge computing, cloud server, smart NVR, and other fields. Moreover, the different operating systems provide a stable and secure system environment for users.

Exterior and Features

Antenna GPIO CAN Serial port

2 x USB 3.0
ETH 2
SD card slot
ON/OFF
SIM card
USB 2.0
DC in
ETH 1
Video out USB Type-C

IBOX3588

- RK3588 Quad-core Cortex-A76 + Quad-core Cortex-A55 processor

- High-quality video output
- Rich interface for expansion
- Wi-Fi (6)/BT/4G/5G/ETH for communication
- Industrial-grade wide temperature design
- High computing power
- Deep learning acceleration
- Industrial longevity

IBOX3588 Edge AI Embedded Industrial Computer Datasheet

IBOX3588		
System	CPU	RK3588 Quad-core Cortex-A76 + Quad-core Cortex-A55, Max. 2.4GHz
	GPU	ARM Mali-G610 MP4, Max. 1GHz
	NPU	6 TOPS
	Memory	LPDDR4 8GB, up to 32GB
	Storage	eMMC 32GB, up to 128GB SSD supported by an M.2 M-Key/M.2 B-Key (256GB ~ 1TB)
Communication	Ethernet	2 x RJ45, 1000Mbps
	4G/5G	Supported (expansion by an M.2 B-Key)
	Wi-Fi & Bluetooth	Wi-Fi 802.11 a/b/g/n/ac/ax + BT 5.0
Media	Display	1 x HDMI (4096 x 2160 @60Hz)
I/Os	USB	2 x USB 3.0 Host, Type-A 1 x USB 2.0 Host, Type-A 1 x USB Type-C OTG
	Serial port	2 x RS232/RS485 on the Phoenix terminal
	Fan	1 x Built-in CPU fan connector
	SIM card slot	1 x SIM card slot
	Micro SD card slot	1 x Micro SD card slot
	RTC	Supported
	Watchdog	Supported
Expansion	M.2 slot	1 x M.2 M-Key 2260/2280, PCIe 3.0 x 4, for SSD 1 x M.2 B-Key 2242/3052, USB3.0/SATA3.0, for 4G/5G/SSD
	GPIO	4 x GPIO on the Phoenix terminal
	CAN	2 x CAN on the Phoenix terminal
	Button	1 x ON/OFF button (long press to reset)

System Control		
	LED	1 x LED indicator for power and system status
Software	OS	Debian, Android
	Language	English (default), Chinese
	Device management platform	BlueSphere MDM (Android devices only)
	OTA tool	BlueSphere OTA
Power	Input	1 x Power distribution block (12V/5A, 24V/3A)
Mechanical	Dimensions	161.9mm x 141mm x 45.9mm (enclosure only) 190mm x 141mm x 45.9mm (with brackets)
	Enclosure	Aluminum + metal plate, black
	Weight	750g
	Shock test	IEC 60068-2-27
	Water and dust resistance	IP40
Environment Condition	Temperature	Operating: -20℃ ~ +70℃ Storage: -40℃ ~ +85℃
	Humidity	RH 0~95% (non-condensing)
	Certification	FCC, CCC, UL

Product Outlines
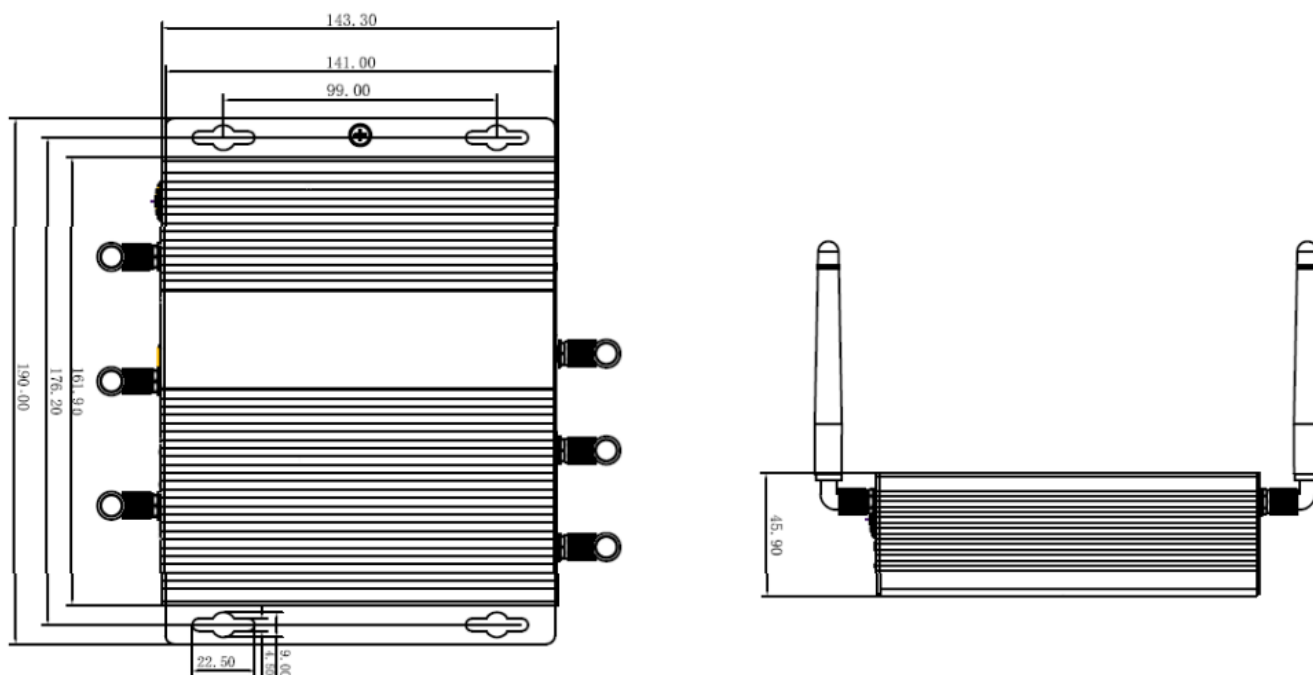
Accessories and Order Information

Accessories		
IBOX3588	Power cable	1 pc
	12V Power adapter	1 pc
	Wi-Fi/Bluetooth antenna	2 pcs
	4G/5G antenna (Optional)	4 pcs

Order Info	IBOX3588
-x	-1: 8GB memory / -2: 16GB memory / -3: 32GB memory
-xx	-x1: 32GB eMMC / -x2: 64GB eMMC / -x3: 128GB eMMC
-xxx	-xx1: 4G / -xx2: 5G / -xx3: cellular connectivity not supported
-xxxx	-xxx1: Debian OS / -xxx2: Android OS
Example	IBOX3588-2121: 16GB memory, 32GB eMMC, 5G supported, Debian operating system

Company Profile

Since 2002 established by two Silicon Valley entrepreneurs, Vantron Technology has been a pioneer in connected IoT devices and IoT platform solutions. Today, Vantron serves countless customers all over the world, some of them are Fortune 500 companies. Products lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud device management platform. Vantron has 20 years of experience in R&D of embedded edge intelligent hardware like SOM board and motherboard, and provided users with various embedded solutions with ARM and X86 architecture. From Linux to Windows, from embedded to desktop level, from gateway to server. At the same time, we provide our users with system clipping, driver transplantation and other services. Vantron IoT communication devices support multi-protocol connection of industrial equipment, edge computing of local data. Abundant wired and wireless connectivity make remote operations and maintenance possible. From electricity and transportation to smart retail, medical and warehousing, Vantron IoT communication device can be deployed anywhere in any business section. Vantron believes its IoT solution to help many companies finish their digital transformation, efficiency of manufacturing and productivities have been improved significantly. Vantron industrial display systems, ARM and X86 series, are equipped with Rockchip, NXP, MediaTek, Intel and other high-performance processors. It supports various operating systems such as Windows, Linux, and Android. Diverse wireless communications keep your device online all the time. Multiple installation methods make it suitable for a variety of application scenarios. Features like waterproof, dustproof, shatter resistant guarantee the best performance in any environment. Vantron BlueSphere device management platform, a software product, is playing a big role in Vantron overall IoT solution. Today, Vantron puts more focus on offering complete cost effective, leading-edge yet reliable solutions to help customers carry out their visions.

Documents / Resources

Vantron IBOX3588 Edge AI Embedded Industrial Computer [pdf] Instruction Manual
IBOX3588, IBOX3588 Edge AI Embedded Industrial Computer, Edge AI Embedded Industrial Computer, Embedded Industrial Computer, Industrial Computer, Computer

References

- Vantron **Vantron Technology**
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