



## Document Revision History

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## Statement

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# Catalog / 目录

<b>Chapter 1 Product Overview .....</b>	<b>4</b>
1.1 Industry Application .....	4
1.2 Appearance and Interface Schematic Diagram .....	4
<b>Chapter 2 Product Specification .....</b>	<b>6</b>
2.1 Specification Sheet .....	6
2.2 Product Dimensional Drawing (Unit: MM) .....	8
<b>Chapter 3 Non-standard Interface Instructions .....</b>	<b>9</b>
3.1 Interface Definition of Non - standard Multifunctional Connectors .....	9
<b>Chapter 4 Precautions .....</b>	<b>10</b>
<b>Chapter 5 Common Fault Troubleshooting .....</b>	<b>11</b>

# Chapter 1 Product Overview

## 1.1 Industry Application

This product is an AI industrial control box based on the RK3588 platform. It has a built-in AI accelerator NPU with a computing power of up to 6 TOPS and runs the Android 12.0 operating system. It also supports the Linux operating system. It can support intelligent analysis of multiple-channel videos and pictures. With industrial-grade configuration, it is dust-proof, shock-resistant, and heat-resistant, and can easily adapt to harsh deployment environments. It is compact in size and can be equipped with more than 30 behavior-recognition algorithms. It provides ShiMeta edge algorithms and video structuring analysis for scenarios such as commercial communities and basic public facilities.

## 1.2 Appearance and Interface Schematic Diagram

### Appearance Pictures:



**Interface Schematic Diagram:**



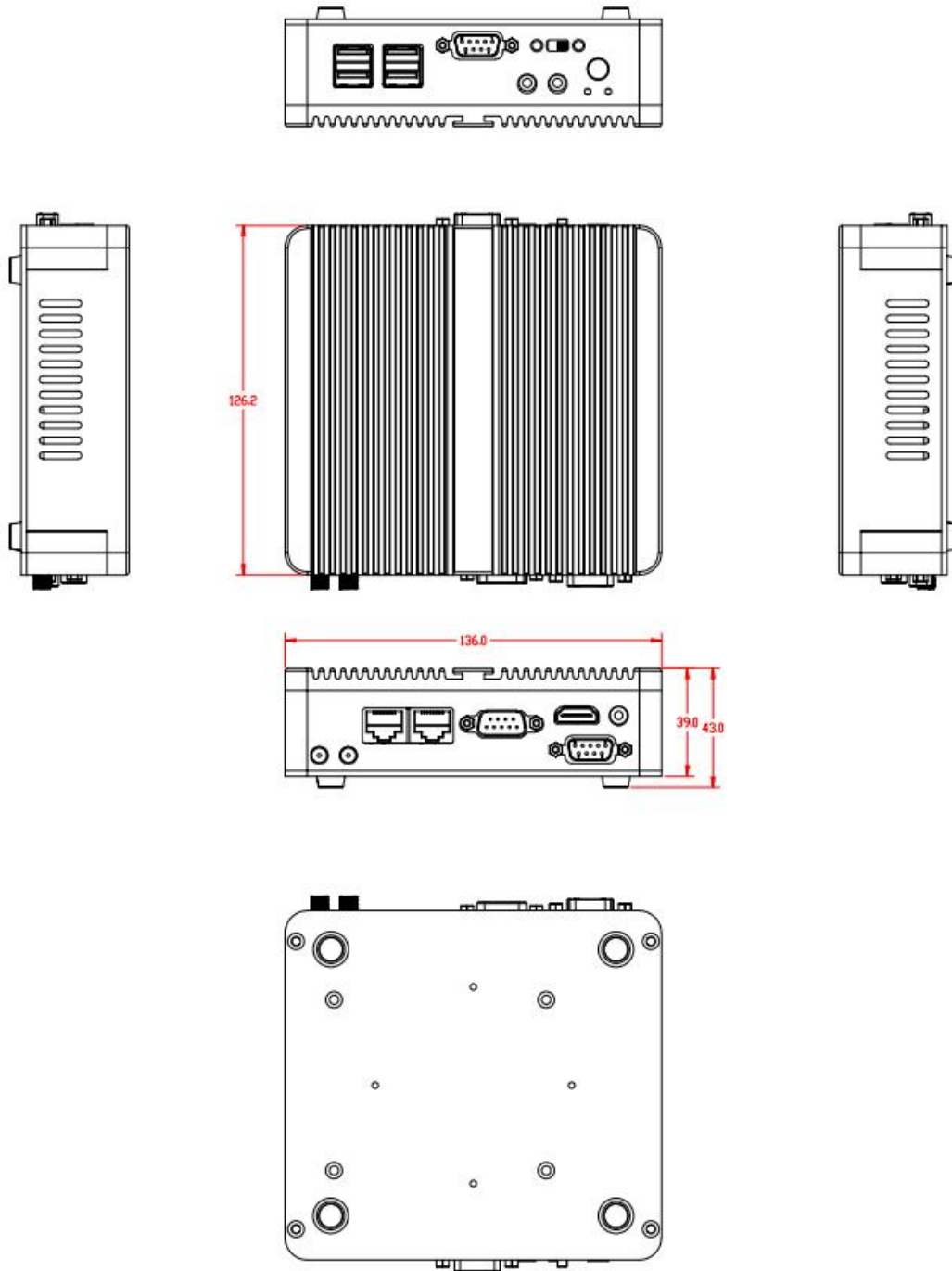
# Chapter 2 Product Specification

## 2.1 Specification Sheet

Product Specification Sheet		
Core Parameters	CPU	RK3588, octa - core, with a maximum main frequency of 2.4GHz
	GPU	Quad - core Mali - G610 MP4 GPU, supporting up to 8K@60fps H.265/VP9 video decoding and 8K@30fps H.265/H.264 video encoding, with support for simultaneous encoding and decoding. It can achieve up to 32 - channel 1080P@30fps decoding and 16 - channel 1080P@30fps encoding
	Storage	64GB (other specifications are available upon request)
	DDR Memory	8GB (other specifications are available upon request)
Internet	WiFi	Support WiFi6
	Bluetooth	BT5.0
	4G	Supports 4G module for Internet access
	Ethernet	2 - way 10M/100M/1000M adaptive Ethernet
	Antenna	2 SMA antenna interfaces: 2 * WiFi antennas
Display Interface	HDMI OUT	Supports 2 - way HDMI output, with a maximum support of 8K@60Hz output, and only 1 - way can output 8K@60Hz at the same time
	HDMI IN	Supports 1 - way HDMI input, with a maximum support of 1080p@60Hz
External Ports	USB 3.0	1 * USB3.0 (current - limited to 1.5A)
	USB 2.0	2 * USB2.0 (current - limited to 1A)
	USB-OTG	1 * USB3.0 (default OTG, current - limited to 1.5A)
	Audio Interface	1 * LINE IN, 1 * LINE OUT, using a 3.5mm, three - segment headphone jack
	RS232	1 * RS232 interface, using a DB9 interface
	RS485	1 * RS485 interface, built - in the DB9 (COM1) interface
	I/O	2 - way GPIO, with 1 - way input and 1 - way output by default, built - in the DB9 (COM1) interface (Optional) The SW switch position can be customized for interfaces
	SIM Card	1 * Nano - SIM card interface, supporting various standards (depending on the 3G/4G module) Nano SIM card size specification: 12mm x 9mm Execution standard: ETSI TS 102 221 V11.0.0
Internal Ports	USB 2.0	1 * USB2.0 (current - limited to 1A)

	Mini PCI-e	Built - in PCI - E 4G module interface. Supports various PCI - E 4G modules such as Huawei, ZTE, and Longshang, and supports Internet access
	M.2 SSD	(Optional) Supports built - in M.2 SSD
	SATA	(Optional) Supports 1 - way standard SATA interface, following the SATA3.0 interface specification. It supports multiple SATA hard drives with a maximum transmission rate of 6Gbps/s (750MB/s) SATA power supports 12V/5V input and does not support 3.3V power supply
Power Supply	Input Voltage	DC 12~24V (±10%)
	Static Power Consumption	20W (TYP.)
	Fan	/
Environmental Parameters	Operating Temperature	0°C~60°C
	Operating Humidity	8% - 90%RH, no condensation
	Storage Temperature	- 20°C - 70°C, recommended to store at room temperature
	Storage Humidity	10%~95%RH
Reliability	Vibration Protection	IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis
	Shock Protection	IEC 60068 - 2 - 27, half - sine wave, lasting 11ms
	EMS Electrostatic Immunity	GB17626.2 - 2018 IEC61000 - 4 - 2 Level 4 standard Contact discharge 4KV/Air discharge 8KV
	EMS Lightning Surge	GB17626.5-2019 ±2KV
	Certification	/
	Waterproof	/
Appearance Information	Size	136(H)*126.2(W)*43(D)mm
	Appearance Color	Black matte shell
	Supported Installation Methods	Horizontal placement or wall - mounted installation
Packing List		1 * Box, 1 * Instruction Manual, 1 * Certificate of Conformity (subject to actual delivery)

## 2.2 Product Dimensional Drawing (Unit: MM)




# Chapter 3 Non-standard Interface

## Instructions

### 3.1 Definition of Non - Standard Multi - Function Connector Interface

2、 This connector contains one RS232 and one RS485, corresponding to the nodes:

- 1) RS232: ttyS4 , 2) RS485: ttyS5

NO.	Definition	Attribute	Description	
1	COM1_BUS_DET	Input	Bus insertion detection, with built - in pull - up. The peripheral device needs to be grounded	
2	232-RX	Input	232_RX4	
3	232-TX	Output	232_TX4	
4	485-A	Input/Output	TX	
5	GND	Ground Wire	Ground Wire	
6	485-B	Input/Output	RX	
7	IO2_IN	Input	GPIO2_B1	
8	IO1_OUT	Output	GPIO2_A6	
9	VCC	Power Supplier	5V output	

## Chapter 4 Precautions

Please carefully read the instructions and safety precautions of this guide and strictly follow them during use. This will help prevent damage to the host, extend its service life, ensure your normal use and maintenance of the host, and guarantee your personal safety.

- Please first understand the relevant documents included with the product. If there are inserts, be sure to read them first.
- Comply with all safety warnings and signs on this product.
- Use the original power adapter or only use this product with the power type specified for this product.
- During thunderstorms, do not plug or unplug conductors that may be connected to the outside world, such as network cables and power cords.
- Unplug the power supply before cleaning this product. Do not use liquids, sprays, or wet rags for cleaning.
- Please do not disassemble the device privately or attempt to repair this product on your own. Such work should be carried out by authorized professionals.
- Do not place the host near a heat source.
- Pay attention to moisture prevention. Do not spill water or other liquids on the host. In case of the following situations, immediately unplug the power supply of the host.
- The following special situations require professional maintenance.
  - 1、 The power cord or plug is damaged.
  - 2、 Conductive liquid has splashed into this product.
  - 3、 The product has been dropped or its housing is severely damaged.
  - 4、 The product shows unexplained errors or significant performance changes, and the problem cannot be resolved even after following the regular troubleshooting guide.

### Declaration:

1. Technical specifications are subject to change without prior notice. Our company reserves the final right of interpretation for the instructions in this manual.
2. When the product is exposed to strong radio interference (such as electromagnetic fields, static electricity, or line noise), it may malfunction. Please ensure that the product is used in a normal environment.

# Chapter 5 Common Fault Troubleshooting

All products undergo strict testing before leaving the factory, making them durable. The problems encountered during use are likely due to settings and operations during your usage process, or issues such as device compatibility. This common troubleshooting information can help you promptly resolve some simple operation problems or identify the causes of malfunctions that require repair.

1	The host fails to enter the system after startup	1.Please confirm that the host and the monitor are properly powered, and check if the host adapter is energized. 2.Check if the status indicator lights are functioning correctly. 3.For some models of the host, you need to press a button to start it.
2	The host shuts down automatically without any reason.	1.Please check if the power supply is interrupted and if the power adapter is loose. 2.Check if the scheduled on/off function is enabled. 3.Check if the application has initiated the shutdown.
3	The host restarts automatically without any reason	Please check if the one - key restore button is toggled to the side closer to the outside of the board (normally it should be closer to the inside of the board).
4	When playing a video, the image is displayed, but there is no sound	Check if the audio output settings match (Codec/HDMI), and whether the volume is muted.
5	The network cannot be connected	Check if the network connection or the router is normal, and if the network parameter settings are correct.

**Note:**

1.If the host accidentally gets wet with water or conductive liquid, immediately cut off the power supply, dry the liquid with a tissue. Do not use a hot air blower to dry it. In case of severe damage, it is recommended to contact the after - sales service immediately for consultation or send it for repair.

2.If the host accidentally drops and causes damage such as deformed casing or damaged motherboard, please contact the after - sales service immediately for repair.