IFC-BOX-NS71

industrial computer

product specification

In order to protect your personal safety and avoid property damage, you must pay attention to the tips in this manual. Tips related to property damage do not carry warning triangles. Warning tips are shown below according to the risk level from high to low.

⚠warn

Indicates that failure to take appropriate action may result in irreparable damage to the machine.

⚠pay attention to

Indicates that failure to pay attention to the corresponding prompt may result in undesirable results or states.

The products/systems covered by this document are only allowed to be operated by qualified personnel who meet the requirements of the work.

Its operation must be in accordance with the accompanying documents, especially the safety and warning instructions. Qualified personnel can detect the risks of this product/system and avoid possible hazards due to relevant training and experience.

⚠warn

IFC products are only permitted for use as specified in the catalog and related technical documents. If other company products and components are to be used, approval and permission from IFC are required. Proper transportation, storage, assembly, fitting, installation, commissioning, operation, and maintenance are prerequisites for product safety and proper functioning. The required environmental conditions must be ensured. Attention should be paid to the instructions provided in the relevant documents.

Disclaimer

The company reserves the right to change this manual, and will not give further notice when the product is subsequently changed. The company shall not be responsible for any direct, indirect, intentional or unintentional damage and hidden dangers caused by improper installation and use.

Before ordering products, please ask the dealer to understand in detail whether the product performance meets your needs.

Warranty Terms:

The product warranty period is three years. If the user has other requirements, the contract signed by both parties shall prevail.

Catalogue

I. Product Introduction

1.1 Product Overview

IFC-BOX-NS71 is a high-performance industrial computer. The whole machine uses Intel's 12th generation independent Core i5/i7 processor, which supports Windows 10, Windows 11, Linux and other operating systems, and is very convenient to use.

The whole machine adopts all-aluminum alloy structure, no fan heat dissipation design, simple structure, good dustproof, heat dissipation, anti-vibration and EMC performance, high system reliability, strong environmental adaptability.

1.2 Product specifications

Machine model	IFC-BOX-NS71
Case color	Dark grey (color customizable)
Case material	All aluminum
processor	Intel Core i3-12300T (four-core, eight-thread, maximum frequency 4.4 GHz)
	Intel Core i5-12500T (six-core, twelve-thread, maximum turbo frequency 4.4 GHz)
	Intel Core i7-12700T (twelve cores and twenty threads, maximum turbo frequency 4.4 GHz)
chip set	H610
internal storage	Supports 2 DDR4 3200MHz SODIMM memory slots up to 64 GB
BIOS	AMI UEFI BIOS
Display the chip	Integrated Intel® UHD Graphics core graphics card
Display interface	2 HDMI display interface, 1 VGA display interface
Front panel I/O ports	1 power switch, 4 USB2.0 ports
Back panel I/O ports	1 DC interface, 2 HDMI display interface, 1 VGA display interface, 2 USB3.0 interface, 2 gigabit network port, 4
	RS485 COM Port, 1 Line-out interface, 1 MIC-in interface
Scalable interface	Supports 1 Mini PCIE (supports PCIE and USB2.0 signals, optional 4G/WIFI/ Bluetooth), with SIM card socket

network interface	2 Realtek RTL8111H Gigabit network ports
Storage interface	Supports 1 M.2 slot (supports PCIE3.0 x4 NVME protocol)
	Supports 1 SATA3.0 slot (supports 12.5-inch hard disk position)
Power Supply Voltage	DC 12~19V wide voltage input
product size	215 * 210 * 75 mm
Overall weight	3.27 kg (quasi-system)
application area	Industrial automation, medical care, logistics and transportation, warehousing, electronic education and other fields

2. Application planning

2.1 Transportation

The packaged product can be transported by any means of transport to any place. During long-distance transportation, it must not be loaded in open cargo holds or carriages. At intermediate transfer points, it must not be stored in open warehouses. During transportation, it must not be loaded with flammable, explosive, or corrosive materials on the same vehicle (or other means of transport). The product must not be exposed to rain, snow, or liquid substances, nor should it suffer mechanical damage.

2.2 Storage

The product should be stored in its original packaging box. The warehouse environment for storing the product should have a temperature of 0℃ to 40℃ and a relative humidity of 20% to 85%. The warehouse must not contain any harmful gases, flammable or explosive materials, or corrosive chemicals, and there should be no strong mechanical vibrations, impacts, or strong magnetic fields. The packaging box should be at least 10cm off the ground and at least 50cm away from walls, heat sources, cold sources, windows, or air intake points.

Risk of minor damage to equipment! When transporting machines in cold weather conditions, pay attention to extreme temperature changes. In this case, make sure there are no water droplets (condensation) on or inside the equipment. If condensation has formed on the equipment, wait at least 12 hours before turning it on.

2.3 Unbox and inspect the delivered equipment

Please pay attention to the following points when opening the equipment:

- It is recommended that you do not discard the original packaging materials. Please keep the original packaging materials for use when transporting equipment again.
- Please store the document in a safe place, which will be used when debugging the device for the first time.
- Inspect the delivered equipment to see if there is any obvious damage in transit.
- Verify that the shipment contains complete equipment and any accessories you ordered separately. If there is any discrepancy or damage in transit, contact customer service.

2.4 Installation method

■ Wall mount ■ Desktop □ Embedded □VESA standard

3. Equipment connection

3.1 Precautions before connection

⚠warn

Peripheral devices that are connected or built in shall not be connected to devices with opposite polarity.

⚠warn

This device can only be operated on a grounded power network. It is prohibited to operate on an ungrounded power network.

⚠warn

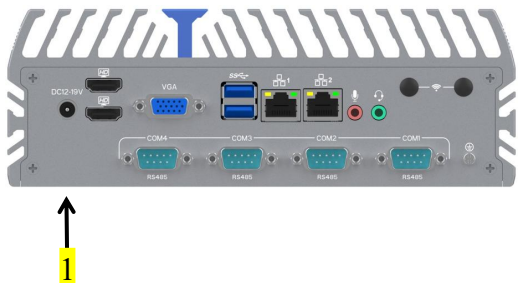
The rated voltage of the equipment used must conform to the power characteristics of this product.

⚠pay attention to

Only approved peripherals suitable for industrial applications can be connected. Hot plug I/O can be connected while the machine is running

Module (USB) An I/O device without hot-swapping capability can only be connected after the device is powered off.

3.2 Connect the device to the power supply

The steps to connect the device to the power supply	Diagrammatic sketch
Connect the DC 12V power adapter to the power input interface 1, and then press the power switch button on the front panel of the device to start the device and turn on the blue power light.	

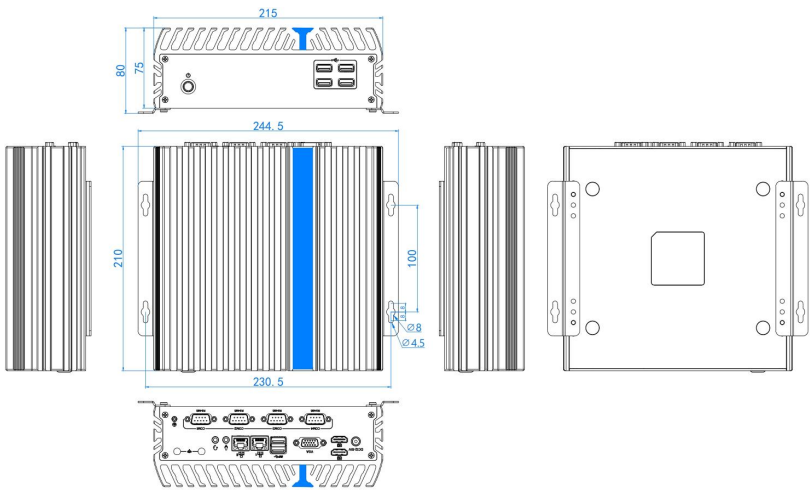
⚠warn

The on/off button signal will not cut off the power supply of the PC!

4. Instructions for use

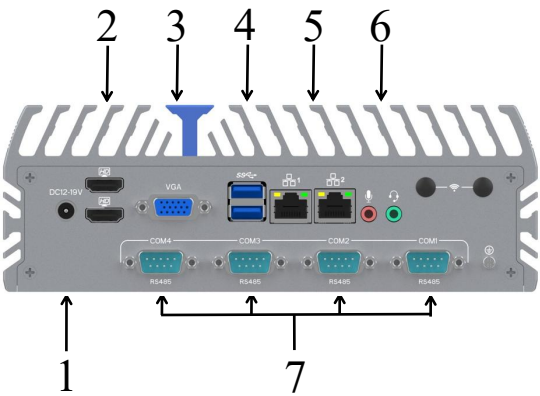
4.1 Product appearance diagram

4.2 Product size diagram



4.3 External interface

Machine frontal view	number	Interface name
	1	1 power switch
	2	4 USB2.0 ports

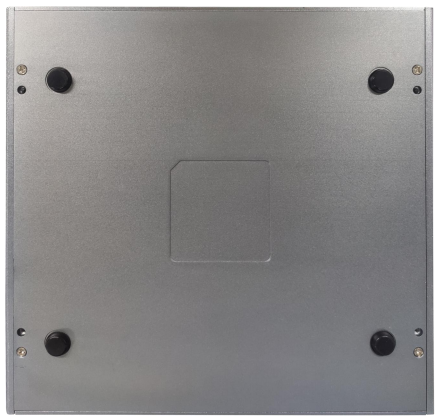
A front view of the machine	number	Interface name
	1	One DC interface
	2	2 HDMI display ports
	3	One VGA display interface
	4	2 USB3.0 ports
	5	Two gigabit network ports
	6	One Line out interface One MIC interface
	7	Four RS485 COM ports

4.4 Status indicator light

show	meaning	LED	description
POWER	Machine status display	It doesn't light up	The device is turned off or the power supply is disconnected
		Chang Liang	The machine is running

4.5 Install internal accessories

1. Remove the bottom cover and the motherboard, install the memory, hard disk, WIFI module and other accessories (as shown in the figure below), install the motherboard, cover the bottom cover, and lock four silver M3X6 cross head screws.



⚠warn

This operation is only suitable for customers who have purchased IFC-BOX-NS71 quasi-system. Customers who have installed internal accessories should not disassemble the chassis at will.

4.6 Pin definition:

JP/CN	pin#	Signal	pin#	Signal	Remark
FPANEL1	1	HDD LED+	2	PWR LED+	6-8: Switch 5-7: Restart
	3	HDD LED-	4	PWR LED-	
	5	GND	6	PWRSW	
	7	Reset	8	GND	
	9	NC	10		
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
COM1/COM2	1	DCD	2	RXD	
	3	TXD	4	DTR	
	5	GND	6	DSR	
	7	RTS	8	CTS	
	9	RI	10	NC	
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
JRS485A	1	TXD+(A1)-	2	TXD-(B1)	
	3	RXD+(A2)	4	RXD-(B2)	
	5	+5V	6	GND	
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
COM3-COM6	1	COM3_DCD	2	COM3_RXD	
	3	COM3_TXD	4	COM3_DTR	
	5	GND	6	COM3_DSR	
	7	COM3_RTS	8	COM3_CTS	
	9	COM3-RI	10	NC	
	11	COM4_DCD	12	COM4_RXD	
	13	COM4_TXD	14	COM4_DTR	
	15	GND	16	COM4_DSR	
	17	COM4_RTS	18	COM4_CTS	
	19	COM4-RI	20	NC	
	21	COM5_DCD	22	COM5_RXD	
	23	COM5_TXD	24	COM5_DTR	
	25	GND	26	COM5_DSR	
	27	COM5_RTS	28	COM5_CTS	
	29	COM5-RI	30	NC	
	31	COM6_DCD	32	COM6_RXD	
	33	COM6_TXD	34	COM6_DTR	
	35	GND	36	COM6_DSR	
	37	COM6_RTS	38	COM6_CTS	
	39	COM6-RI	40	NC	
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
JP4	1-2	give tacit	2-3	Power on	2-3 Power on and start

JP/CN	pin#	Signal	pin#	Signal	Remark
JBAT1	1-2	give tacit consent to	2-3	clean up CMOS	2-3 Remove CMOS
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
GPIO1	1	GND	2	+5V	8 GPIO (4 in, 4 out)
	3	GPO1	4	GPI1	
	5	GPO2	6	GPI2	
	7	GPO3	8	GPI3	
	9	GPO4	10	GPI4	
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
F_USB1/F_USB2/F_USB3	1	+5V	2	+5V	
	3	Data0-	4	Data1-	
	5	Data0+	6	Data1+	
	7	GND	8	GND	
	9		10	GND	
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
PWROUT1	1	+12V	2	GND	**Red SATA hard disk power interface**
	3	GND	4	+5V	
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
TPM2.0	1	SPI POWER	2	SPI CS#	
	3	SPI MISO	4	SPI MOSI	
	5	NC	6	SPI CLK	
	7	GND	8	SPI RESET	
	9	NC	10		
	11	NC	12	SPI IRQ	
JP/CN	**pin#**	**Signal**	**pin#**	**Signal**	**Remark**
CPU/SYS FAN1	1	GND	2	+12V	
	3	Speed detection	4	rotary speed control	

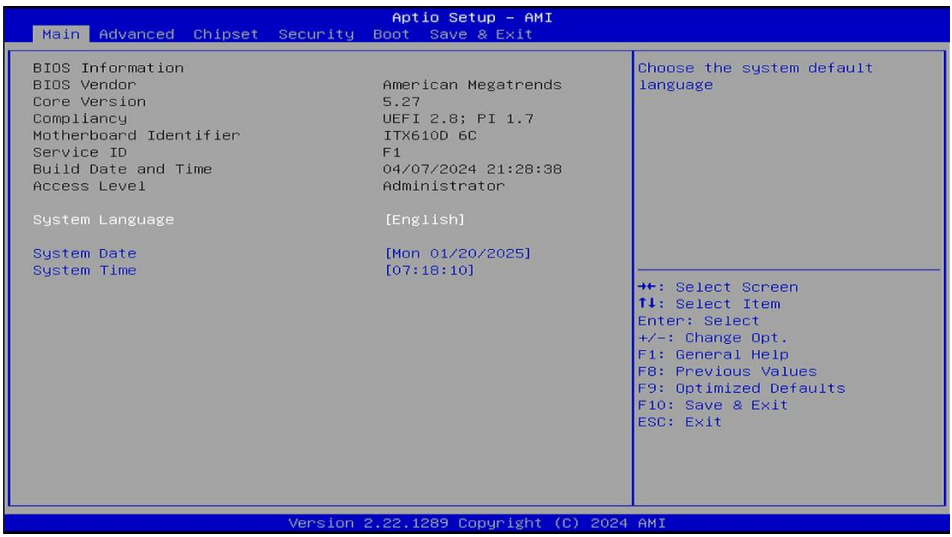
⚠Note The identification method of the first pin 1 on the motherboard is as follows:

1 There is a white bold silk print or arrow mark;

2 The pins seen on the back of the motherboard are square holes.

4.7 BIOS Settings

The BIOS Settings menu is divided into the following options:



Main: View BIOS information

Advanced: BIOS option Settings

Chipset: Display Settings and audio Settings

Security: Security Settings

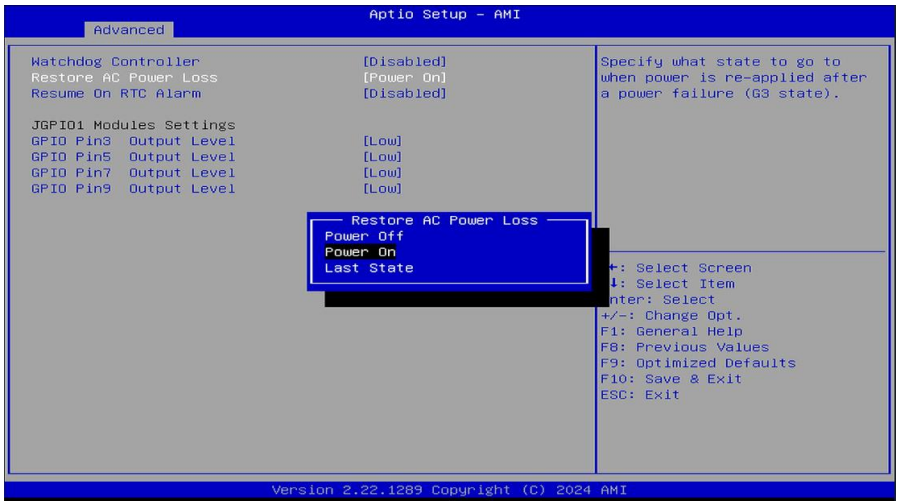
Boot: Boot options Settings

Save & Exit: Save and exit the BIOS Settings

⚠Warning Do not change the BIOS Settings at will, so as to avoid the machine can not be used normally.

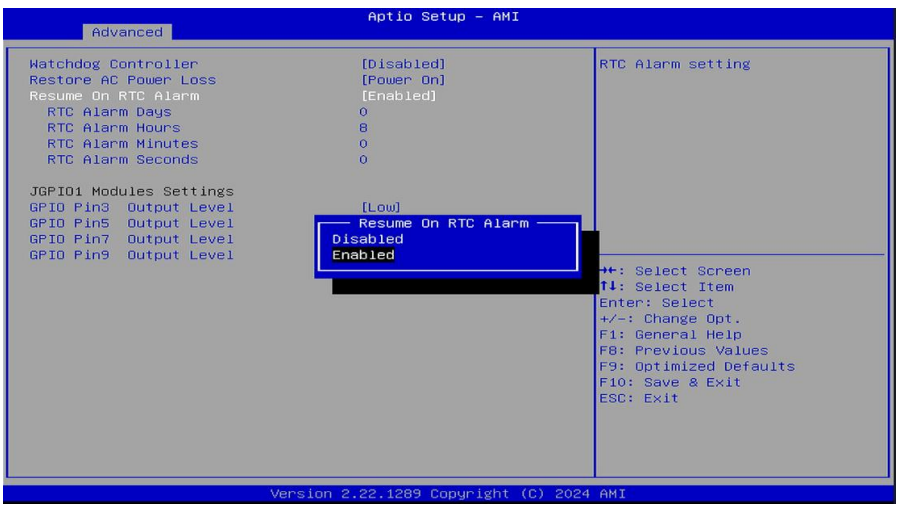
4.7.1 Power on self-start function setting

Enter the BIOS Settings interface, select <Advanced> →<OnBoard Misc. Features> →<Restore AC Power Loss>, set the options, select "Power ON" to start the call-on-power function, and change "Power Off" to turn off the call-on-power function.



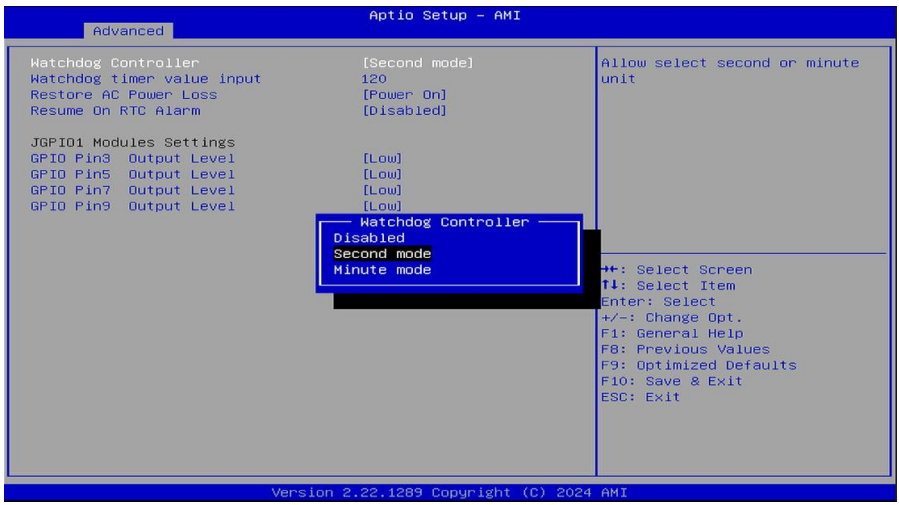
4.7.2 Setting of timing startup function

Enter the BIOS Settings interface, select <Advanced> → <OnBoard Misc. Features> → <Resume On RTC Alarm> options, select the Settings item in the pop-up box, as shown below:



4.7.3, watchdog Settings

Enter the BIOS Settings interface, select <Advanced> → <OnBoard Misc. Features> →<Watchdog Controller>, and select the Settings item in the pop-up box as shown below:



5. Daily use and maintenance

1. When the machine is in normal use, please ensure that the machine works in a non-vibration environment to avoid damage to the hard disk and internal accessories.
2. When using the machine, please pay attention to the ambient temperature between-20℃ and 50℃.
3. This machine uses shell heat dissipation. In order to ensure the heat dissipation effect of the machine, we strongly recommend that you clean the surface of the machine regularly every three months. In the environment with more dust, it is recommended to clean the surface of the machine once a month.
4. In order to ensure the efficient and reliable operation of the machine, we recommend that you do disk cleaning and disk fragmentation once every three months.
5. When using the internal slot of the machine, we strongly recommend that you do not plug and unplug the power to avoid Cause static damage. When the machine encounters a power failure for reasons other than human, in order to ensure If the machine works normally and reliably, we strongly recommend that you immediately power the machine Disconnect, confirm the stability of the power grid and then connect to the operation;
6. We suggest that the machine be dedicated to a specific machine and managed by a specific person.

6. Common hardware faults and troubleshooting methods

order number	fault phenomenon	analysis of causes	Maintenance method
1	The power switch is not turned on after being activated	The power adapter has no power supply	It is recommended to tighten the three-core power cord or replace the plug hole; Change the power adapter;
		The motherboard is damaged	Return to factory for maintenance;
2	The display has no image	It may be that the signal input is not properly connected	Check whether the computer starts normally; check whether the running light in front of the display is on; check whether the connection lines of the display part are correct;
		The display is in "power saving" mode	Press any key on the keyboard
4		The power cable or data cable of the disk is damaged	Check whether the power cable and data cable of the hard disk (the hard disk must be installed with a system that can be guided) are loose or fallen off.
		The file of the disk system is corrupted	Use a guided CD-ROM to enter the system (usually WINPE) and check whether the hard disk system is damaged. It is best to reinstall the system if necessary.

5	There is a continuous "beep beep" sound after the machine is turned on	No memory was detected	Open the case and unplug the memory;
warn When you need to open the case or enter the BIOS Settings, non-professionals should follow the steps under the guidance of technicians.			