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Inventec NX-H3003A Smart Edge Server System

Inventec NX-H3003A Smart Edge Server System User Manual

Contents

Inventec

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Manufacturers of this product may have the right to change specifications and product descriptions at any time without notice.

Warning!
Before opening the chassis cover, remove all power cords to completely disconnect power from the system.

About This Manual

Conventions

- To make sure that you perform certain tasks properly, take note of the following symbols used throughout this

manual.

	Warning:	Information to prevent injury to yourself when trying to complete a task.
	Caution:	Information to prevent damage to the components when trying to complete a task.
	Important:	Information that you must follow to complete a task.
	Note:	Tips and information to aid in completing a task.

Safety Symbols

- Before troubleshooting, you must be familiar with the safety information listed below. To avoid any potential hazards, the following symbols may be placed on some components of the product.
- The shape and colour of the symbols shown below are mainly for your reference. Please take the actual shipment as standard.

	Indicates the potential hazard of energy circuits or electric shock. To reduce the risk of injury from electric hazards, do not open this enclosure. **Warning:** Any surface or area of the equipment marked with this symbol indicates the presence of electric shock hazards. The enclosed area contains no operator serviceable parts.
	Indicates the potential hazard of electric shock. The enclosed area contains no user or field serviceable parts. Do not open for any reason. **Warning:** To reduce the risk of injury from electric shock hazards, do not open this enclosure.
	Indicates the presence of a hot surface or hot component. **Warning:** To reduce the risk of injury from a hot component, allow the surface to cool before touching it.
	Any RJ45 receptacle marked with this symbol indicates a network interface connection. **Warning:** To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.
	This symbol, on power supplies or systems, indicates that the equipment is supplied by multiple sources of power. **Warning:** To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.
  Weight in kg. Weight in lb.	This symbol indicates that the component exceeds the recommended weight for one individual to handle safely. Warning: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

Safety Precautions

- Observe the following safety precautions when you are connecting or disconnecting any device.
- The product is a non-consumer product and for professional technical persons only.

Operation Safety

- Any operation on this product must be conducted by certified or experienced engineers.
- Before operating the product, carefully read all the manuals included in the product package.
- Before using the product, make sure that all cables are correctly connected and power cords are not damaged.
  If any damage is detected, contact your dealer as soon as possible.

- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and extreme temperatures; place the product on a stable surface.
- It is recommended that you wear gloves when assembling or disassembling the product to protect it from cuts and scrapes.
- When the product is powered on, heat sinks may be hot. Do not touch them.

Electrical Safety

- Before installing or removing signal cables, ensure that the power cords for the product and all attached devices are unplugged.
- To prevent electric shock hazards, disconnect the power cable from the electrical outlet before relocating the product.
- When adding or removing any additional device to or from the product, ensure that the power cords for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cords from the existing product before you add a device.
- Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

Intended Application Uses

This product was evaluated as Information Technology Equipment (ITE), which may be installed in server rooms or computer rooms. The suitability of this product for other product categories and environments (such as medical, industrial, residential, alarm systems, and test equipment), other than an ITE application, may require further evaluation.

Site Selection

Restricted Access Location: The location for equipment is intended for installation only in a Server Room or Computer Room where both of the following apply:

- Access can only be gained by SERVICE PERSONS about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- Access is through the use of a TOOL lock and key, or other means of security, and is controlled by the authority responsible for the location.
- This equipment is not suitable for use in locations where children are likely to be present.

The system is designed to operate in a typical office environment. Choose a site that is:

- Clean, dry, and free of airborne particles (other than normal room dust).
- Well-ventilated and away from sources of heat including direct sunlight and radiators.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppressor and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cord(s), because they serve as the product's main

power.

Tools Required

- A Phillips head screwdriver or a flat screwdriver is needed to install or remove the components in the server.

Introduction

Audience Assumptions
This document is for the person who installs, administers, and troubleshoots devices and systems. Inventec assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

	Warning:	This product is a telecommunications terminal equipment that must be installed and set up by professional engineers before it can be set up and used, and may not be s old directly to general consumers.

Instructions for Use

	Warning:	This product is Class A equipment. To avoid electromagnetic interference, it should n ot be installed or used in residential environments. To reduce the impact of electroma gnetic waves, please use this product properly.

	Warning:	Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be i nstalled and operated with a minimum distance of 20cm between the radiator and yo ur body.

	Important:	This product is certified to the Technical Specification for Low Power Radio Frequen cy Equipment, version 3.8. Without approval, no company, firm or user may change the frequency, increase the power, or change the characteristics and functions of th e original design.

	Important:	In addition to complying with the Technical Specification for Low Power Radio Frequ ency Equipment, version 3.8, this product should avoid affecting the operation of ne arby radars.

	Important:	This product is a low-power radio frequency device and should not be used in a manner that affects flight safety or interferes with legitimate communications. If interference is found, stop using it immediately and make improvements until there is no interference before continuing to use it. The legal communications referred to in the preceding paragraph refer to radio communications operated under the provisions of the Telecommunications Management Act. Low-power RF equipment must be able to withstand interference from electromagnetic devices that radiate electromagnetic waves for legitimate communications or industrial, scientific, and medical purposes.

Manual Organization

This manual introduces the chassis along with the hardware information. This manual is generally organized as follows:

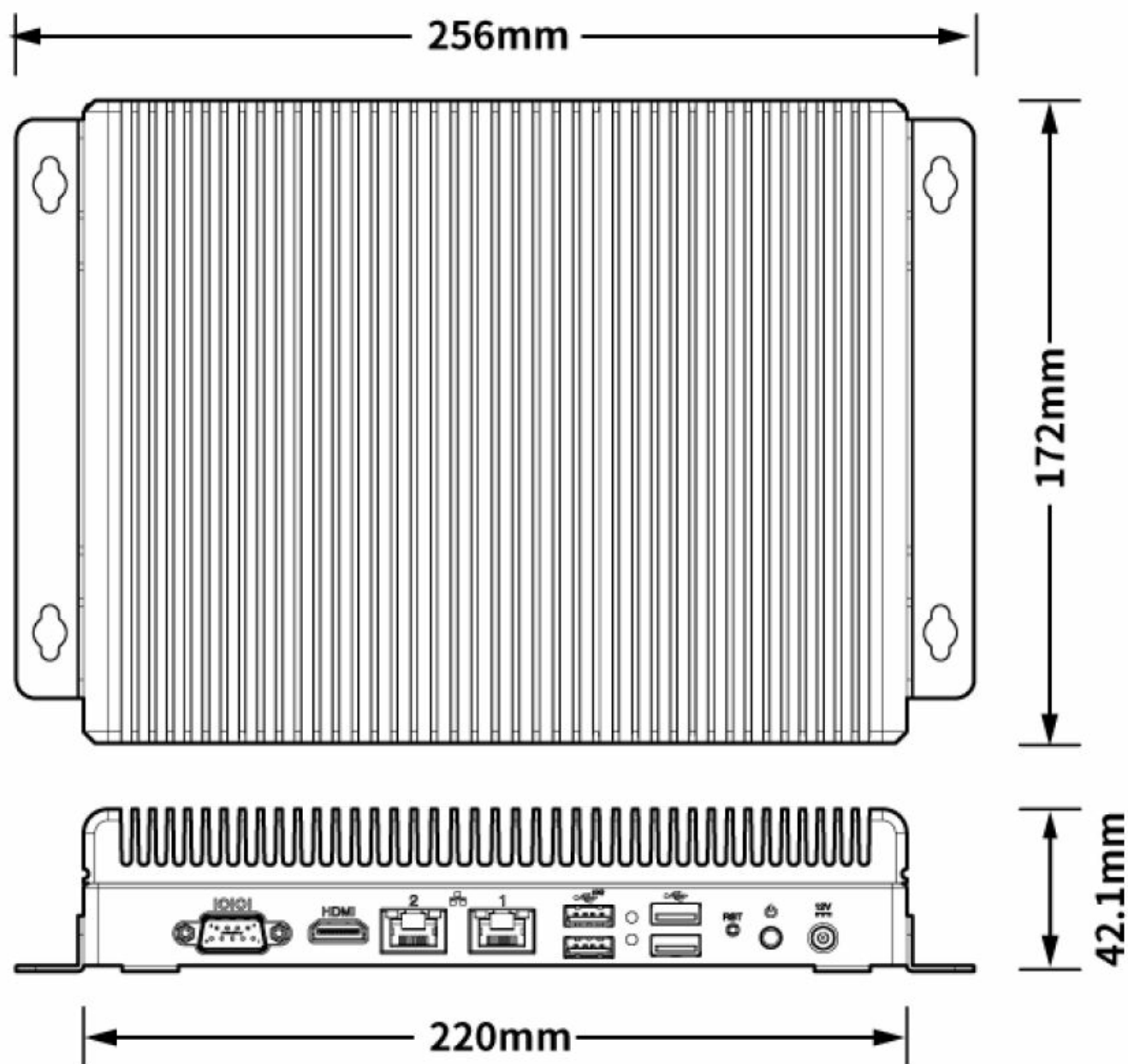|	
Introduction	General product introduction
Connectors	Information about connectors on the front side
Appendix	FCC Rules Notices

Packing Checklist

Make sure you have all the components shipped with your system. If any item contained in the package is damaged or missing, please contact your local dealer for replacement. In addition, keep the box and packing materials for possible future use. The device is shipped with the following:

Chassis	·	NX-H3003A smart edge server
Antenna	·	6x antenna, two types for LTE and Wifi
Cables	·	LTE (Main) to 5G module (M) cable
	·	Wi-Fi to Wi-Fi module (ANT2) cable
	·	LTE (M1) to 5G module (M1) cable
	·	LTE (M2) to 5G module (M2) cable
	·	Wi-Fi + BT to Wi-Fi module (ANT1) cable
	·	LTE (D/G) to 5G module (D/G) cable
Others	·	1x Power adapter
	·	1x power cord
	·	4x Footpads
	·	2x Wall hanging

Product Specifications

256mm

172mm

42.1mm

220mm

HDMI 2 1 RST 18V

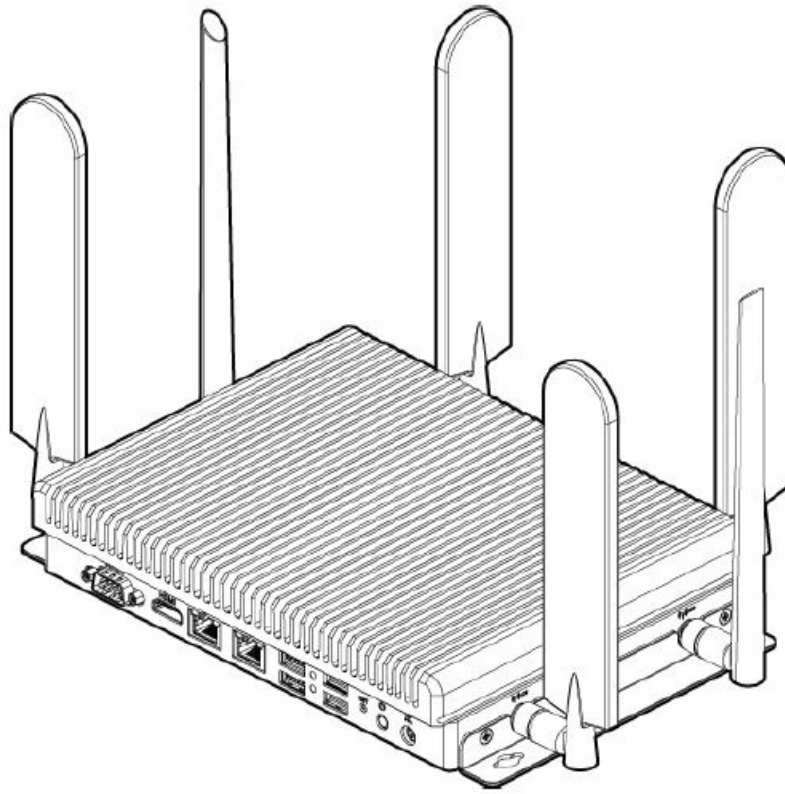|	
Dimensions	· Height: 42.1 mm · Width 220 mm (without Ear Mount) and 256 mm (with Ear Mount) · Length: 172 mm
Weight	· Max-weight: 1.95 kg
Power Supply	· Switching power adapter Support AC input 100-240V / DC output 12V 8A
Environmental and Certifications	· Operating Temperature: -20°C ~ 60°C with 0.7m/s air · Storage Temperature: -40°C ~ 85°C · Operating Humidity: +8% ~ 90% RH · Storage Humidity: 5% ~ 95% RH · Vibration During Operation: IEC 60068-2-64 · Shock During Operation: IEC 60068-2-27
Product Use Restriction Record	· In a no-wind environment, 50°C is the highest currently supported, if the wind speed is 0.7m/sec, it can reach 60°C. · Support IEC61000-6-2 Level 2 pass

Antenna Specifications

This product uses a detachable antenna, which is limited to the following antennas:

Brand	Model	Antenna Type	Frequency Range (MHz)	Gain (dBi)
INPQ	DAM-D7-B2-N0- 000 -58-13	Dipole	1710 – 1785	3.3
			2500 – 2570	2.8
			703 – 748	1.29
			2570 – 2620	2.84
			2500 – 2690	2.84
			3300 – 3570	3.09
			4700 – 4900	1.52

Product Features and Summary

Improved performance and higher efficiency

- Paired with Intel® Core™ processor U series–Tiger Lake Up to achieve high-speed processing, computer vision and low-latency deterministic computing.

Flexible network configuration

- Supports IoT applications through 4GLTE or 5GNR (Sub 6G) and WiFi-6 modules, with high-bandwidth network communication capabilities to meet the needs of different applications.

Satisfactory stability and ease of maintenance

- Adopting a highly modular design structure and ultra-thin appearance, it is easy to repair and maintain.
- It is ideal for applications such as smart image monitoring, big data analysis, Industry 4.0, and smart medical industries.

High-performance 5G fixed wireless access

- Supports fixed wireless access (FWA) technology and provides 5G/LTE broadband services for rapid and efficient deployment.
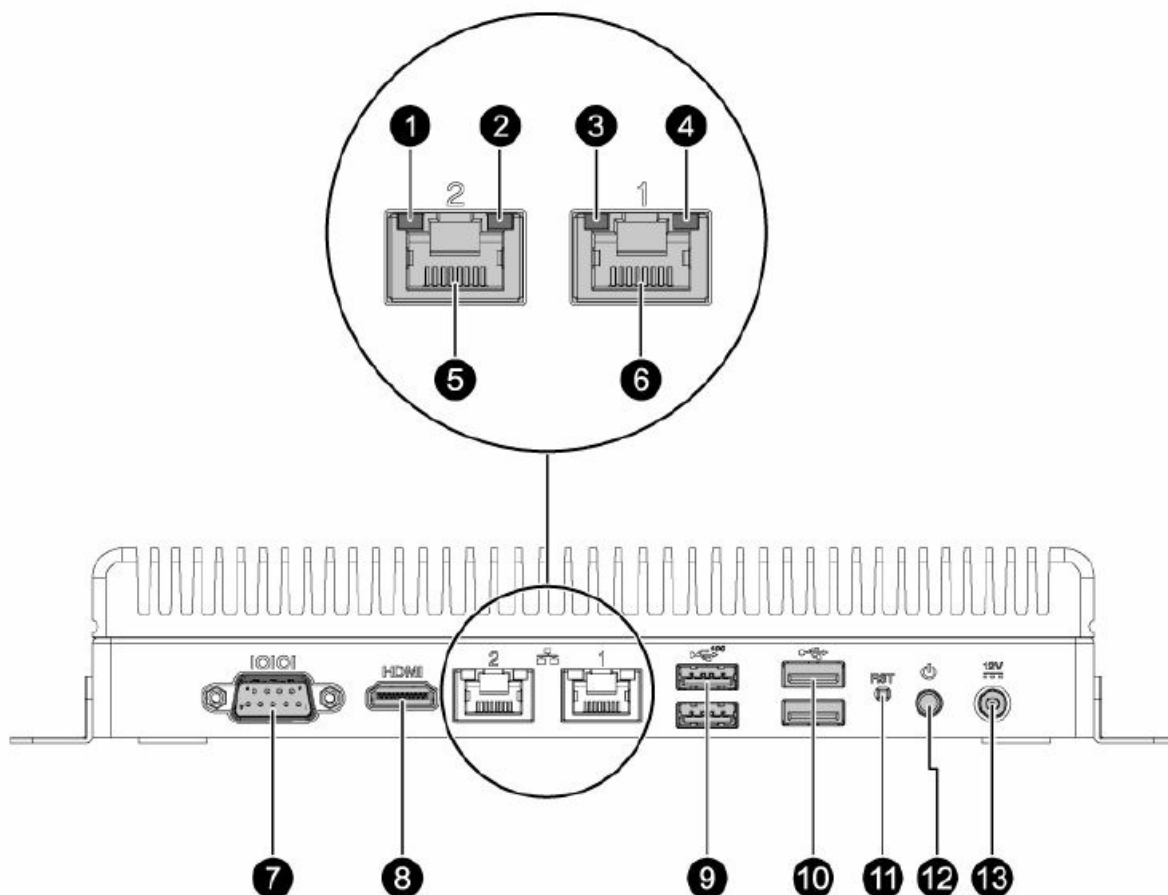
New software driver platform

- Adopts Ubuntu Linux operating system and supports iGWS software platform to provide users with safe and reliable services

Chassis	· NX-H3003A smart edge server
Processor (CPU)	· Intel® Core™ Processor U-Series Mobile – Tiger Lake Up3 Up to 4 Processor Cores, TDP 15W
System Memory (DIMM)	· Support 2 DDR4 memory channels, one SODIMM per channel Max. 3200MT/s, capacity up to 64GB
Chipset	· Integrated SoC
Expansion Slot	· 2x M.2 Key M slot supports 2280 / 22110 form factors (CPU PCIe Gen 4 x2) AI module NVMe SSD module · 1x M.2 Key B slot supports 2280 / 22110 form factors NVMe SSD module LoRa module · 1x M.2 Key E slot supports 2230 form factor (support Intel CNVio / CRF modules) WiFi / BT module · 1x M.2 Key B slot supports 3052 / 2280 form factors 5G module NVMe SSD module · 1x SIM card slot (Nano SIM card form fact)
Network	· 2x RJ-45 2.5G with TSN (Intel I225)
Management	· Microchip MEC1428 (Embedded Controller)
Security	· TPM 2.0 (SPI interface)
Display Interface	· 1x HDMI 2.0 port
I / O Interface	· Front I / O 1x DB9 COM port 1x P12V input DC jack 1x Power Button / LED (Green / Amber) 1x Reset button 2x USB 3.2 Gen 2 port (10G) 2x USB 2.0 port 1x HDMI 2.0 port 2x RJ45 (2.5G TSN support) port · Internal I / O

	1x COM port header (optional) 1x GPIO port (optional) 1x USB 3.2 Gen 2 port (10G)
Thermal Design	· Fan-less with case fin design
Antenna Design	· Two types of antennas for LTE and WiFi support Gen 5 mobile phones and Gen 6 WiFi standards respectively

System Overview

Front View

1. Link / Active LED of RJ45 Port 2
2. Speed LED of RJ45 Port 2
3. Link / Active LED of RJ45 Port 1
4. Speed LED of RJ45 Port 1
5. RJ45 Port 2
6. RJ45 Port 1
7. COM Port
8. HDMI Port
9. Dual USB 2.0 Port
10. Dual USB 3.0 Port
11. Reset Button
12. Power Button / LED

13. DC Input Port

System LED and Button Information

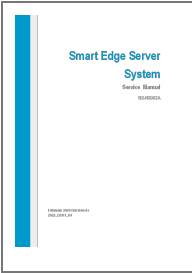| LED			
LED Type	**Colour**	**LED Status**	**System Status**
Power LED	Green	On	DC power on
	Amber	On	Stand by status
		Blinking	The system is running on DC power.
	–	Off	AC power off
Onboard RJ-45 Link / Active LED	Green	On	Link-Up
		Blinking	Traffic
	–	Off	Link-Down
Onboard RJ-45 Speed LED	Green	On	2500 Mbps
	Yellow	On	1000 Mbps
		Off	100/10 Mbps
	–	Off	No Link
Button			
Button Type	**Behaviour**	**System Status**	
Power Button	Short press	DC power on Shutdown OS normally	
		DC power off: Power on system	
	Long press ≥ 3s	DC power off	
Reset Button	Short press	Running normally	

FCC STATEMENT

Appendix A FCC Rules Notices

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Documents / Resources

Inventec NX-H3003A Smart Edge Server System [pdf] User Manual
NX-H3003A Smart Edge Server System, NX-H3003A, Smart Edge Server System, Edge Server
System, Server System

References

- **User Manual**