QN-ORNX16GH-A1 (QN-ORNXC-SI)

QBiX-Jetson Industrial Embedded System
Quick Start Guide

Copyright Notice

Acknowledgement

Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
System kit	1
Power Cord: Optional (by region)	1
Screw for 2.5HDD/SSD, M3x4L	4

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the GIGAIPC.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.

13. Watch out for high temperatures when the system is running.

14. Do not touch the heat sink or heat spreader when the system is running

15. Never pour any liquid into the openings. This could cause fire or electric shock.

16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:
    i. Damaged power cord or plug
    ii. Liquid intrusion to the device
    iii. Exposure to moisture
    iv. Device is not working as expected or in a manner as described in this manual
    v. The device is dropped or damaged
    vi. Any obvious signs of damage displayed on the device

18. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

FCC Statement

This device complies with Part 15 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.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.
Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

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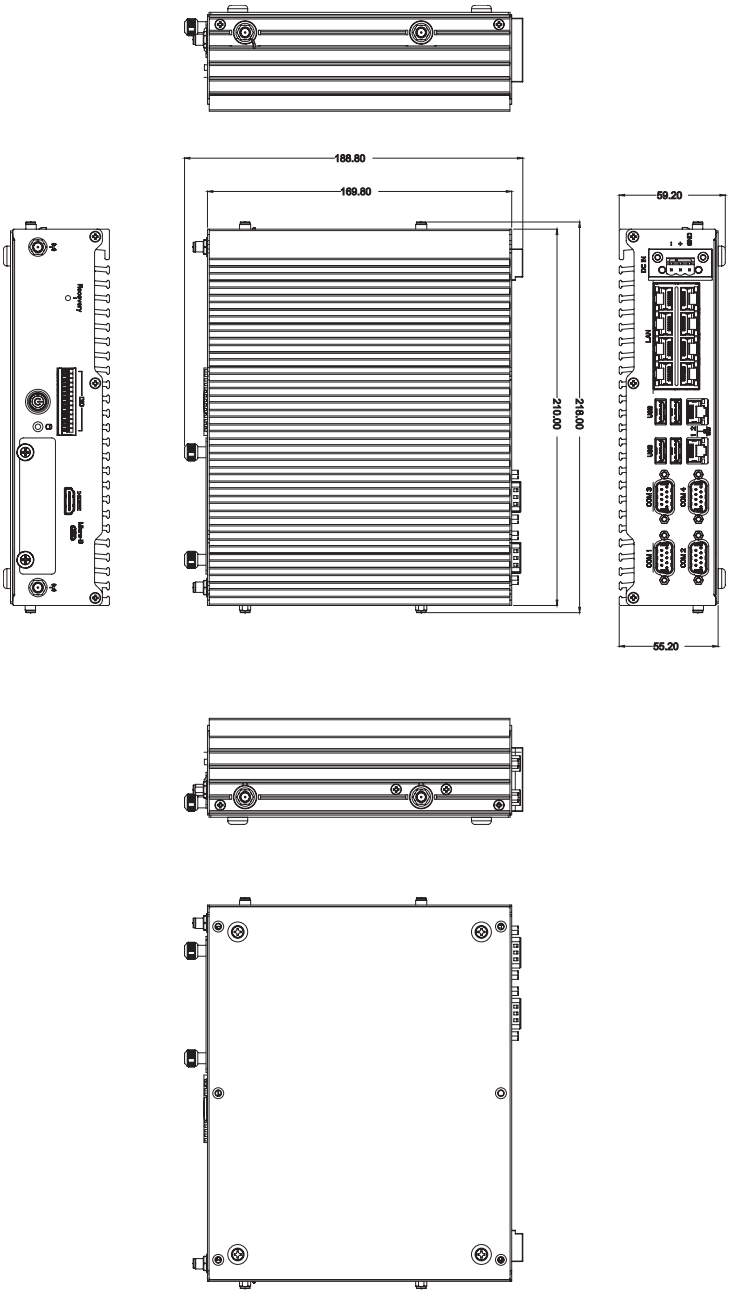
Chapter 1 - Product Specifications


188.80
169.80
59.20
219.00
210.00
55.20
Recovery
DC 24
LAN
USB
USB
COM 3
COM 4
COM 1
COM 2

1.1 Specifications

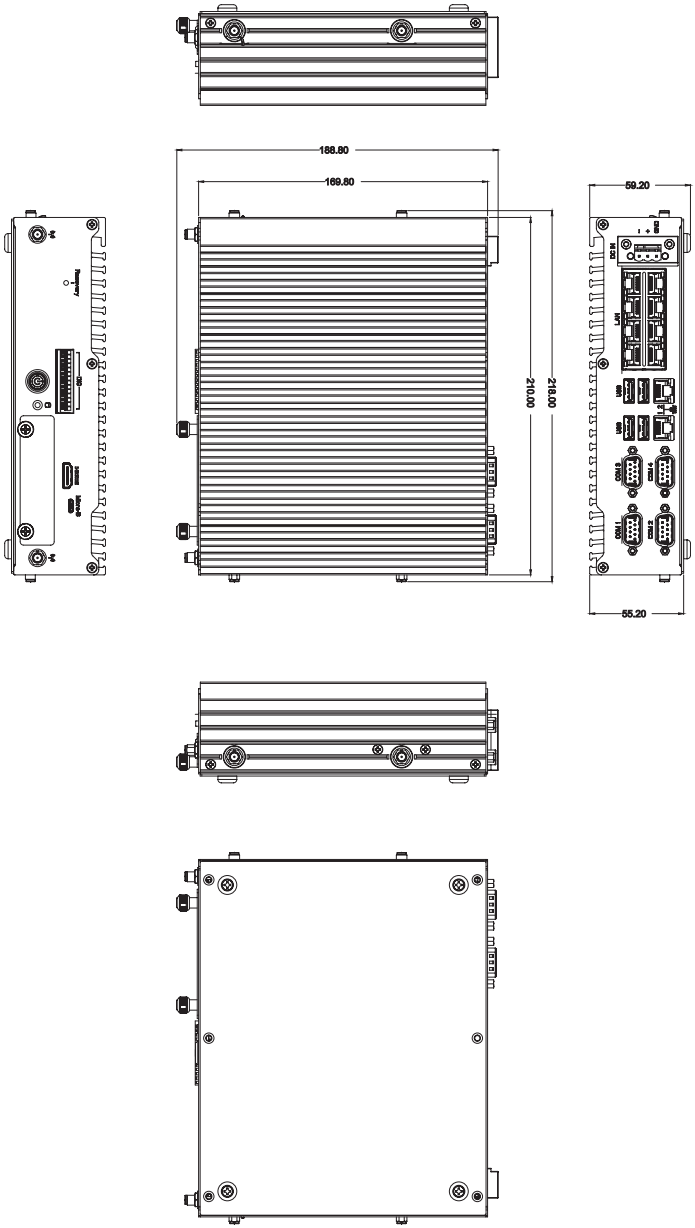
System	QN-ORNX16GH-A1 (QN-ORNXC-SI)
Dimension	System Size : 210W x 169.8D x 55.2H (mm)
AI Accelerator	NVIDIA® Jetson Orin™ NX Jetson Orin NX 16GB
AI Performance	Up to 100 TOPs
CPU	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3
GPU	NVIDIA® Ampere™ architecture with 1024 NVIDIA® CUDA® cores and 32 Tensor cores
Memory	16GB 128-bit LPDDR5 DRAM (Module)
Ethernet	8 x GbE LAN Ports with PoE 15W/Port, IEEE802.3af compliant, Total 120W 2 x GbE LAN Ports
Display output	1 x HDMI 2.0 port, supporting a maximum resolution of 4096x2160 @ 60Hz
Storage	1 x SATA 6Gb/s (Swappable 2.5” HDD/SSD)
Expansion Slots	1 x 2280 M.2 M-Key (PCIe Gen4x1) for SSD 1 x 3052 M.2 B-Key for 4G/5G card (USB3 only) 1 x 2230 M.2 E-Key 1 x Mini PCIe slot 1 x SIM slot
Front I/O	1 x Power button with LED 1 x HDD LED 1 x GPIO (12 bits) 1 x HDMI 1 x USB 2.0 Type Micro B 1 x Recovery button 2 x External Antenna Holes (Optional)
Rear I/O	4 x COM Ports (RS-232/422/485) 4 x USB 3.2 Gen 1 8 x GbE LAN ports with PoE 15W/port 2 x GbE LAN ports 1 x 3-pin Terminal Block
Side I/O	4 x External Antenna holes (Optional)
Power	+54VDC (PoE support)

System	QN-ORNX16GH-A1 (QN-ORNXC-SI)
Operation Temperature	Operating temperature: -20°C to 70°C Operating humidity: 70°C @ 20-95% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 70°C @ 95% (non-condensing) Use wide temperature range storage
Packaging Content	Carton size: 528 x 303 x 353 (mm) Packing Capacity: 4pcs Single Box size: 316 x 281 x 125 (mm) Including: Power Cord: Optional (by region) Screw for 2.5” HDD/SSD, M3x4L x 4 (P/N: 25984G-1C014-S00)
Order Information	System: 9BQNORNXCMR-SI

Chapter 2

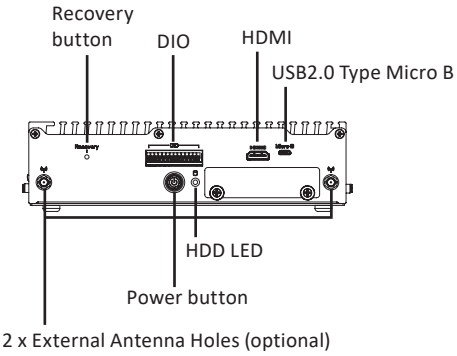
Chapter 2 – QN-ORNX16GH-A1
Industrial Embedded System Kit

2.1 Dimension

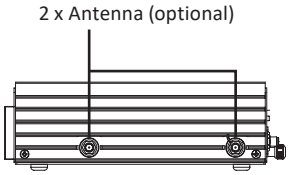


2.2 Getting Familiar with Your Unit

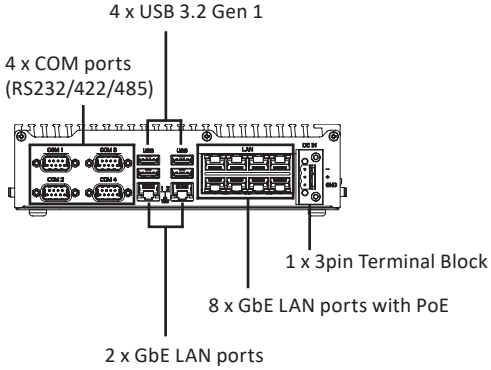
[Front I/O Side]



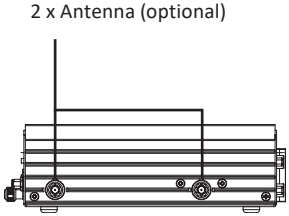
[Left Side]



[Rear I/O Side]



[Right Side]



2.3 2.5” HDD/SSD Installation

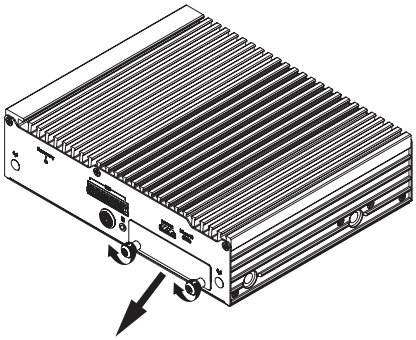
[Install]

* Before opening the case, make sure to unplug the power cord.

* Before Connecting the power, make sure to fasten the case securely.

1

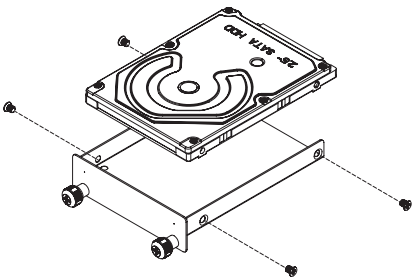
Remove the screws and pull-out the HDD Tray.



2

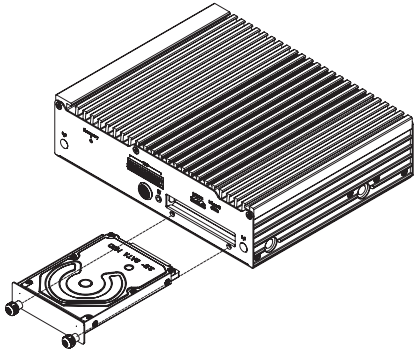
Put 2.5” HDD/SSD on the Tray, and tighten up the screws which was provided in the accessory kit to secure the HDD.

* please make sure the side with HDD brand logo is face-up.



3

Put the HDD tray back into the chassis, and tighten up the screws.



2.4 Recovery button

Following instructions will help you to re-program NVIDIA® Jetson Orin module.

1. Please make sure to power off QN-ORNX16GH-A1 system.

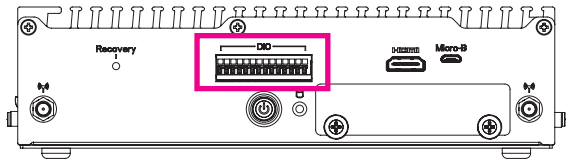
2. Prepare a USB cable to connect between your host system and QN-ORNX16GH-A1 system.
For the host system : plug into any USB port
For QN-ORNX16GH-A1 system : plug into USB Micro B 2.0 port

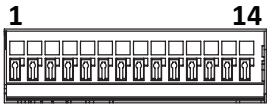
3. Power on QN-ORNX16GH-A1 system, then press Recovery button for 3 seconds, and back to the host system clicks "flash" to start re-program process on QN-ORNX16GH-A1 system. After installation is complete, follow the instructions to install BSP.

4. Back to QN-ORNX16GH-A1 System, complete the informations which the system requires you to fill-in.

5. After filling in all the information, the system will reboot automatically, your re-program process is complete.

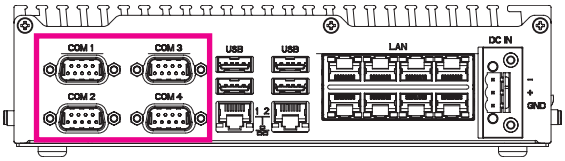
2.5 DIO (GPIO) Pin Define

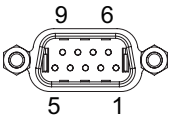


DIO (GPIO)	
	
Pin No.	Pin Define
1	GPIO-output_1
2	GPIO-output_2
3	GPIO-output_3
4	GPIO-output_4
5	GPIO-output_5
6	GPIO-output_6
7	GPIO-input_1
8	GPIO-input_2
9	GPIO-input_3
10	GPIO-input_4
11	GPIO-input_5
12	GPIO-input_6
13	GND
14	Isolation Power

Caution: The GPIO 8 bits, SMBUS and Renote control (+5V) on the terminal does not meet limited power source (LPS) requirements.
This port is limited to only 5V for the specific end products and are provided with a molded plastic Fire Enclosure. Rated minimum 94V-1 or Metal enclosure.

2.6 DB9 COM Pin Define



DB9 COM port	
	
Pin No.	Pin Define
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

2.7 Safety and Regulatory Information

Risk of explosion if the battery is replaced with an incorrect type. Batteries should be recycled where possible.
Disposal of used Batteries must be in accordance with local environmental regulations.
Failure to use the included Power Adapter may violate regulatory compliance and may expose the user to safety hazards.

HIGH DEFINITION MULTIMEDIA INTERFACE

At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.