AIM-Edge ncox/ncon AI Computing Device

User Manual

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18 August 2023
Version 1.3

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Content

1. Introduction 1
2. System Architecture 2
3. Board Overview 3
4. Getting Started 4
   - 4.1. Power Up 4
   - 4.2. Enter Force USB Recovery Mode 4
   - 4.3. GPIO Pin Definition And Mapping 5
   - 4.4. Dimmer 6
   - 4.5. Use Serial Debug Console (Internal only) 6
5. Declaration of the Presence Condition of the Restricted Substances Marking 7

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Revision History

Date	Version	Modification
2023/6/27	1.0	Creation
2023/7/20	1.1	Update Enter Force USB Recovery Mode section
2023/8/15	1.2	Apply device photo for GPIO/Dimmer functions
2023/8/18	1.3	Add declaration of the presence condition of the restricted substances marking

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1. Introduction

AIM-Edge ncox/ncon is a Nvidia Jetson AI computing device running on Linux platform, it supports NVidia Orin NX/Orin Nano SOM.

AIM-Edge ncox/ncon SPEC	
SOM	NVIDIA Jetson Orin NX 16GB/8GB, Orin Nano 8GB/4GB
OS	Ubuntu 20.04/Linux 5.10
I/O	GBE x 1 10/100M Ethernet x 1 Micro HDMI x 1 USB 3.0 Type-A x 1 Micro USB 2.0 x 1 Digital Output (5V) x 2 Dimmer (0V~10V) x 1 PCIe SSD (internal M.2) x 1 Debug UART (internal) x 1 DC-in (19V)
Dimension	90(W) x 118(D) x 69(H) mm
Temperature	-20~60 °C (Operation)
Button/Key	1 x Power Button 1 x Recovery Button 1 x Reset Button

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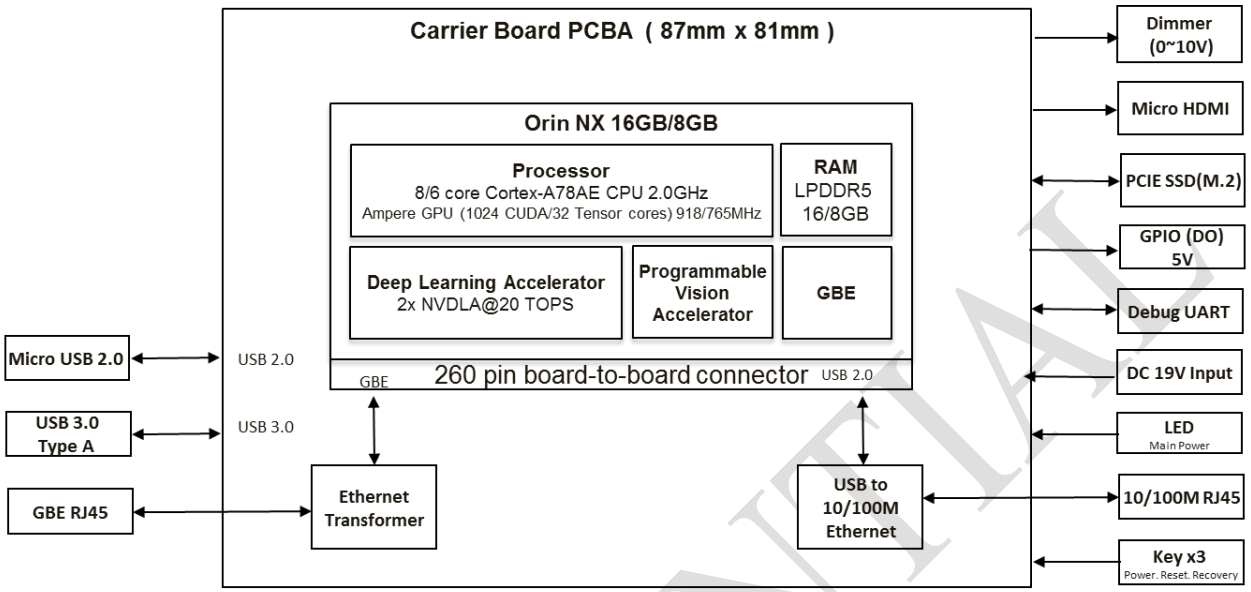
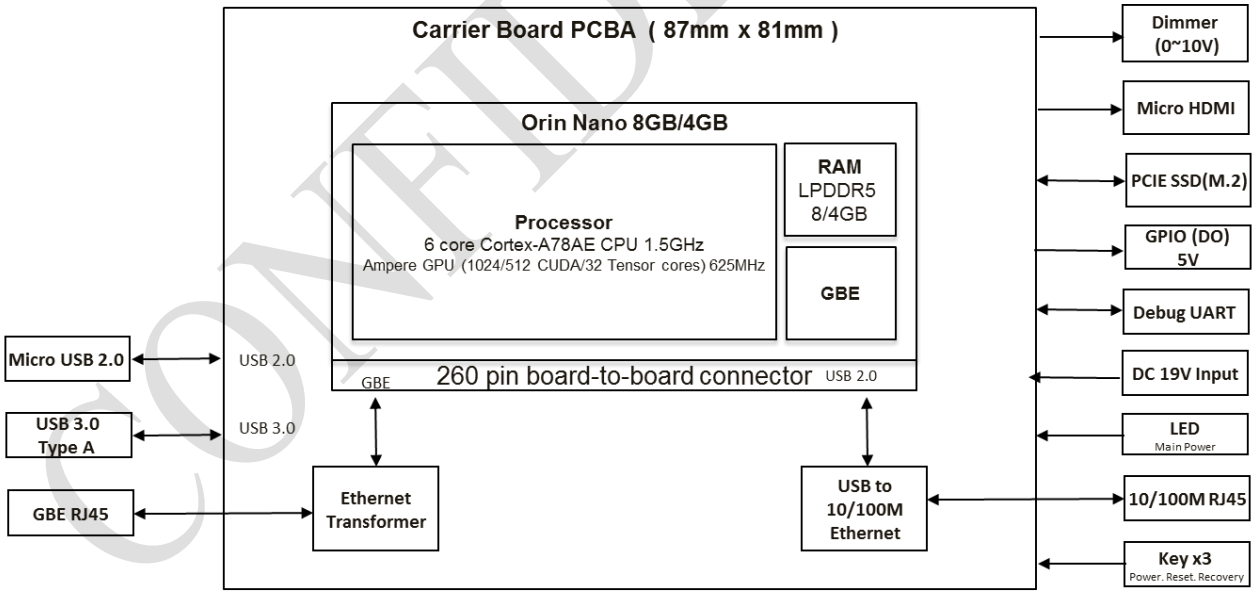
2. System Architecture



AIM-Edge ncox



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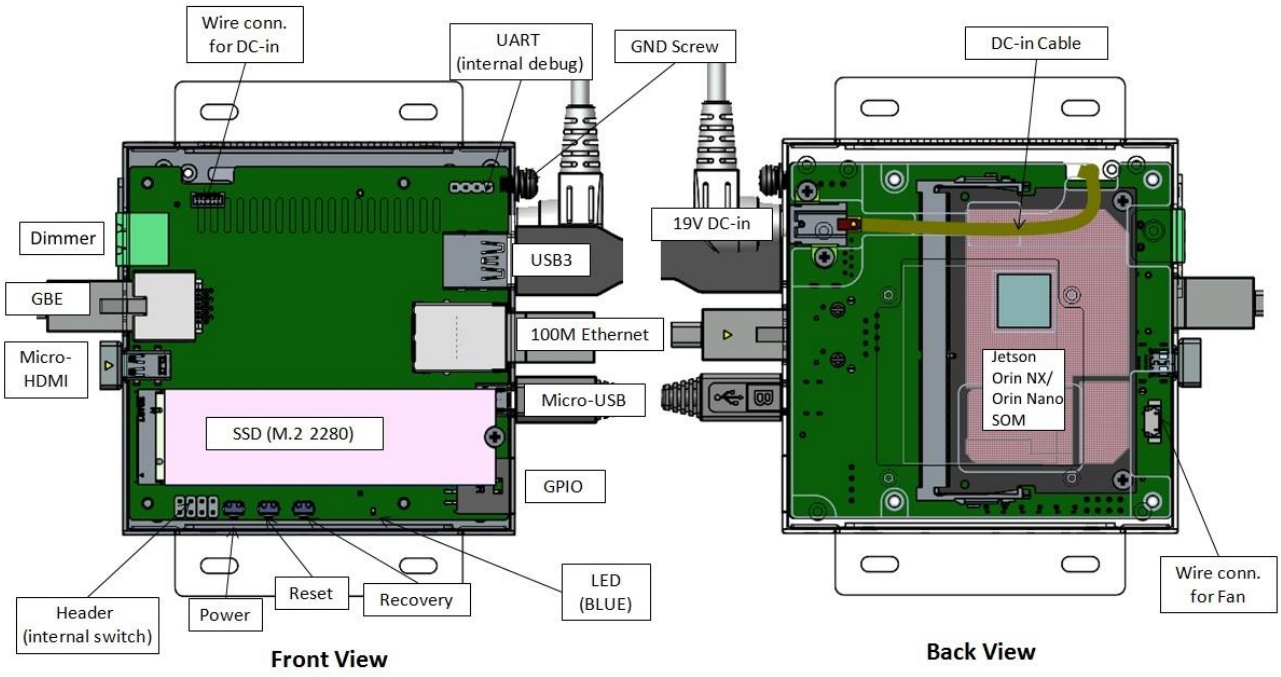
3. Board Overview



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4. Getting Started

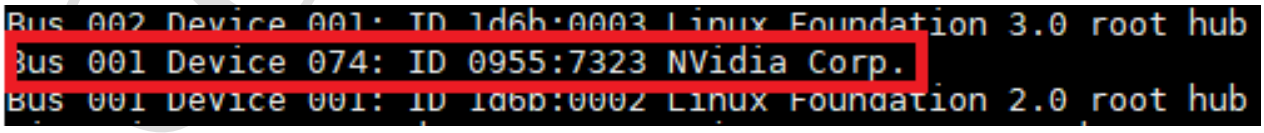
4.1. Power Up

1. Connect a USB keyboard to the USB Type A connector of your device.
2. Connect an HDMI-compatible display to the micro HDMI connector on your device.
3. Connect the 19V DC-in to the power connector of your device.
4. Plug the power adapter into an appropriately rated electrical outlet. The system should power on directly. If not, press and release the power button in the device by paperclip.
5. When prompted, enter username and password (Username: aim /Password: aim12345).

4.2. Enter Force USB Recovery Mode

To update your device, you must be in Force USB Recovery Mode so that you can transfer system image to the Jetson device. To place device in Force USB Recovery Mode,

1. Power down the device. If connected, remove the DC power from the device. The device must be powered OFF, and not in a suspend or sleep state.
2. Connect the Micro-B plug on the USB cable to the Recovery (USB Micro-B) Port on the device and the other end to an available USB port on the host PC.
3. Connect the power adapter to the device.
4. With the system powered on:
   - Press and hold the RECOVERY button with paperclip.
   - While pressing the RECOVERY button, press and release the RESET button with paperclip.
   - Wait 2 seconds and release the RECOVERY button.
5. After ncox/ncon enter Force USB Recovery Mode, if it connected to Linux Host PC/NB already, execute “lsusb” command on Host PC/NB, a “0955:7323 NVidia Corp.” device will appear. If not, perform Step 4 above again.



Jetson SoM	USB ID
Orin NX 16GB	0955:7323
Orin NX 8GB	0955:7423
Orin Nano 8GB	0955:7523
Orin Nano 4GB	0955:7623

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4.3. GPIO Pin Definition And Mapping

The GPIO pin definition and mapping as below.

Pin mapping

GPIO1	PQ.05
GPIO2	PQ.06

Please use linux kernel sysfs to control gpio

Example :

```
echo PQ.05 > /sys/class/gpio/export

echo out > /sys/class/gpio/PQ.05/direction

echo 1 > /sys/class/gpio/PQ.05/value

echo 0 > /sys/class/gpio/PQ.05/value

echo PQ.05 > /sys/class/gpio/unexport
```

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4.4. Dimmer

Please use linux kernel sysfs to control dimmer
Target_level : 0V ~ 10V
Example :

```
echo 10 > /sys/devices/platform/pwm-dimmer/target_level

echo 0 > /sys/devices/platform/pwm-dimmer/target_level
```

4.5. Use Serial Debug Console (Internal only)

Any serial port console program should work as a debug console. Examples are PuTTY, gtkTerm, and minicom. Connection speed is 115200, with 8 bits, no parity, and 1 stop bit (115200 8N1). Flow control will be RTS/CTS.

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5. Declaration of the Presence Condition of the Restricted Substances Marking

限用物質含有情況標示聲明書

Declaration of the Presence Condition of the Restricted Substances Marking

設備名稱：　視頻編碼器 Equipment name: AI analytics decoder				型號（型式）： Type designation (Type)	AIM-Edge ncox AIM-Edge ncon	
單元Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
電路板	—	○	○	○	○	○
內外殼(外殼、內部框架…等)	—	○	○	○	○	○
主機板	—	○	○	○	○	○
記憶體	—	○	○	○	○	○

備考1.〝超出0.1 wt %〞及〝超出0.01 wt %〞係指限用物質之百分比含量超出百分比含量基準值。

Note 1: "Exceeding 0.1 wt %" and "exceeding 0.01 wt %" indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.

備考2.〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。

Note 2: "○" indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考3.〝—〞係指該項限用物質為排除項目。

Note 3: The "—" indicates that the restricted substance corresponds to the exemption.

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