



DeviceEdge (Compact In-Vehicle Edge AI System)

Orin NX/NANO Series

AIE-VN34/VN44-128-A1

AIE-VO24/VO34-128-S1

USER MANUAL

Document Change History

Version	Date	Description
V1.0	2026/08/07	Initial Release.

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Version 1.0

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- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

Visit the Aetina website at <https://www.Aetina.com/support-warranty-policy.php> where you can find the latest information about the product.

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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Aetina, or which have been subject to misuse, abuse, accident or improper installation. Aetina assumes no liability under the terms of this warranty as a consequence of such events.

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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

ESD Warning

This product, like all electronic products, uses the product that can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged. Damage due to inappropriate handling is not covered by the warranty. The following precautions must be taken:

- Do not open the protective conductive packaging until you have read the following and are at an approved anti-static workstation.
- If working on a prototyping board, use a soldering iron or station that is marked as ESD-safe.
- Always disconnect the product from the prototyping board when it is being worked on.
- Always discharge yourself by touching a grounded bare metal surface or approved anti-static mat before picking up an ESD - sensitive electronic component.
- Use an approved anti-static mat to cover your work surface.

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 equipment 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. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
6. Always completely disconnect the power before working on the system's hardware.
7. Keep this equipment away from humidity.
8. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
9. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
10. Be sure that the room in which you choose to operate your system has adequate air circulation. Ensure that the chassis cover is secure.
11. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If any of the following situations arises, please the contact our service personnel:
 - Damaged power cord or plug
 - Liquid intrusion to the device
 - Exposure to moisture
 - Device is not working as expected or in a manner as described in this manual
 - The device is dropped or damaged
 - Any obvious signs of damage displayed on the device

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1. Introduction

AIE-VN34/VN44-128-A1 and AIE-VO24/VO34-128-S1 support NVIDIA Jetson Orin NX and Nano series modules, and you can quickly emulate the functionality of your desired end product for software development and hardware verification.



1.1 Features

- Supports NVIDIA® Jetson Orin™ NX/ Orin Nano™ with Super Mode
- 4 x GMSL cameras
- Wide power input range 9 to 36 VDC
- 1 x RJ-45 1GbE port
- Supports M.2 M-Key, M.2 E-Key
- -25°C ~ +55°C (-13°F ~ +131°F) operating temperature
- E-Mark compliance

1.2 Specifications

■ System configuration

Model Number	AIE-VO24-128-S1	AIE-VO34-128-S1	AIE-VN34-128-A1	AIE-VN44-128-A1
Module Compatibility	NVIDIA Jetson Orin Nano Super 4GB	NVIDIA Jetson Orin Nano Super 8GB	NVIDIA Jetson Orin NX 8GB	NVIDIA Jetson Orin NX 16GB
AI Performance	34 TOPS	67 TOPS	70 TOPS	100 TOPS
GMSL	4 x GMSL2 via FAKRA Z			
GPU	512 Core NVIDIA Ampere, with 16 Tensor Cores	1024 Core NVIDIA Ampere, with 32 Tensor Cores	1024 Core NVIDIA Ampere, with 32 Tensor Cores	1024 Core NVIDIA Ampere, with 32 Tensor Cores
CPU	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	8-core Arm® Cortex®-A78AE v8.2 64-bit 1.5MB L2 + 4MB L3	8-core Arm® Cortex®-A78AE v8.2 64-bit 2MB L2 + 4MB L3
Memory	4GB 64-bit LPDDR5 34 GB/s	8GB 128-bit LPDDR5 68 GB/s	8GB 128-bit LPDDR5 102.4 GB/s	16GB 128-bit LPDDR5 102.4 GB/s
Storage	1 x M.2 M-Key 2242 (128GB build-in)			
Display	1 x HDMI 2.0b Type-A			
RTC	With super capacitor (RTC battery CR2032, optional)			
LAN	1 x RJ-45, 1GbE			
USB	2 x USB 3.2 Gen 2, Type-A (supports up to 10Gbps shared) 1 x OTG, USB 2.0, Type-C			
I/O Interfaces	1 x DB9, GPIO (2 x Digital Input, 3 x Digital Output, default) / RS-232 (*by request) 1 x DB9, isolated CAN (supports CAN FD) 2 x Wi-Fi antenna hole			
Expansion	1 x M.2 M-Key 2242 slot (supports NVMe, PCIe Gen3 x4, 128GB build-in) 1 x M.2 E-Key 2230 slot (supports Wi-Fi/Bluetooth, PCIe Gen3 x1, USB 2.0) 1 x microSD card socket (occupy M.2 E-Key slot, optional)		1 x M.2 M-Key 2242 slot (supports NVMe, PCIe Gen4 x4, 128GB build-in) 1 x M.2 E-Key 2230 slot (supports Wi-Fi/Bluetooth, PCIe Gen4 x1, USB 2.0) 1 x microSD card socket (occupy M.2 E-Key slot, optional)	

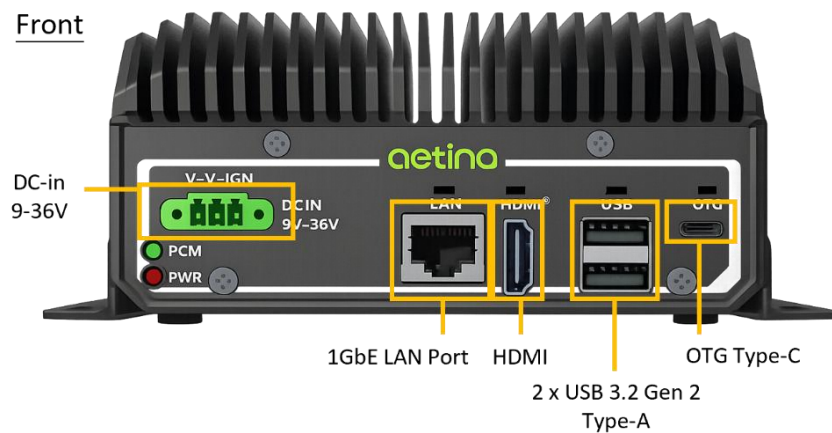
MISC. Function	1 x Recovery button, 1 x Reset button	
Power Input / Connector	DC-in 9 - 36 VDC, 3-Pin (V+/V-/IGN) Terminal Block NOTES: Voltage below 9V may cause the device to shut down or function abnormally.	
LED Indicator	1 x PWR (w/ IGN), 1 x PGM (software-controlled On/Off)	
Power consumption	Idle: 9.34 W Full Loading: 51.6 W	Idle: 9.7 W Full Loading: 51.6 W
	*For more test condition information, please refer to user manual	
Dimension (W x D x H)	136.3 x 132 x 63 mm (5.37 × 5.20 × 2.48 in)	
Mounting	Wall Mount / DIN Rail (optional)	
Net / Gross Weight	1.36 kg (2.99 lb) / 2.07 kg (4.56 lb)	
Vibration	Operating, MIL-STD-810H, Method 514.8, Category 4	
Shock	Operating, MIL-STD-810H, Method 516.8, Procedure I, 20G / 11 ms	
Temperature	Operating Temp.: -25°C ~ +55°C (-13°F ~ +131°F) with 0.5 m/s air flow Storage Temp.: -40°C ~ +85°C (-40°F ~ +185°F)	
Humidity	95% @ 40°C (104°F) (non-condensing)	
OS Support	Linux (supports NVIDIA JetPack™ 6.2 and above)	
Certification	CE, FCC Class A, E-Mark (E24), UKCA	

*by request: By default, the DB9 port is configured as GPIO. RS-232 is available by request and must be specified before placing an order. The requested interface will be configured during product assembly before shipment. Certification by request.

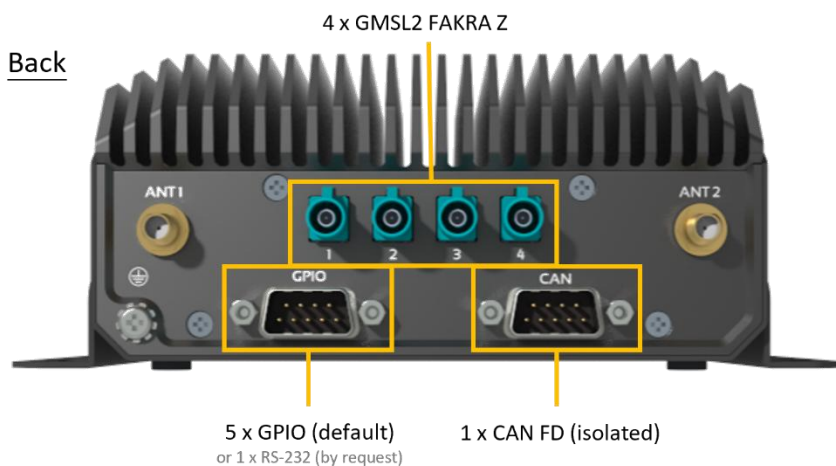
2. Hardware Information

2.1 I/O Interface

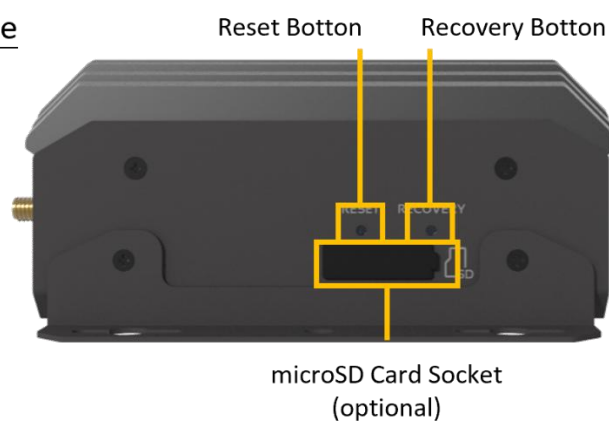
Front



Back



Side

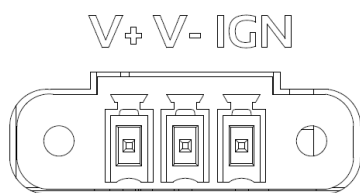


2.2 External Connector Summary

Location	External Connector	Description
Front	DC IN	Power connector 9V to 36V
	LAN	RJ-45, 1 GbE
	HDMI	HDMI 2.0b, Type-A female connector
	USB	Dual USB 3.2 Gen 1, Type-A connector
	OTG	OTG, USB 2.0, Type-C connector
Back	DB9	GPIO (2 x DI, 3 x DO, default) / RS-232 (*by request)
	DB9	Isolated CAN (supports CAN FD)
	GMSL Camera	GMSL2, FAKRA Z connector
Side	Recovery	Recovery pushbutton
	Reset	Reset pushbutton
	microSD	microSD card socket (optional)

2.3 Connector Interface

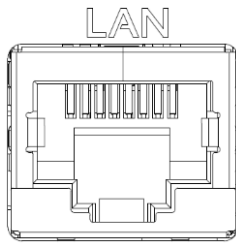
■ Power input connector



Property	Specification
Location	Front
Type	DC-in 9 - 36 VDC, 3-Pin terminal block
Notes	Voltage below 9V may cause the device to shut down or function abnormally.

Pin #	Signal
1	V+
2	V-
3	IGN

■ RJ-45, 1GbE



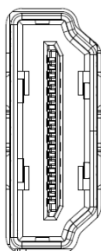
Property	Specification
Connector	RJ-45 connector
Pinout	Please refer to Ethernet standard
LAN Source	Intel Ethernet controller

LAN LED Indicators

LAN	Function	Color	Status	Description
L (Left)	Link Status	Green	Blinking	Link established
		Green	Blinking	Data activity
		-	OFF	No link
R (Right)	Link Speed	Orange	ON	1 Gbps
		-	OFF	100 Mbps
		-	OFF	10 Mbps

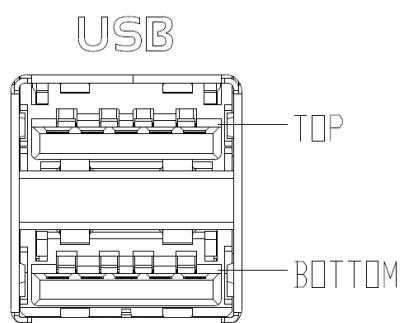
■ HDMI 2.0b Type-A connector

HDMI®



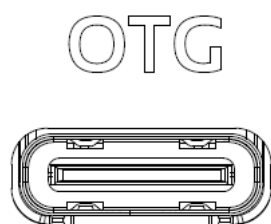
Property	Specification
Connector	HDMI Type-A female connector
Pinout	Pin definition follows the HDMI specification
Notes	Resolution up to 4K@60Hz

■ Dual USB 3.2 Gen 2 Type-A connector



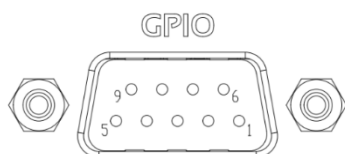
Property	Specification
Connector	Dual USB Type-A connector
Pinout	Pin definition follows the USB specification
Notes	Supports up to 10Gbps per port. When multiple devices are connected, bandwidth is shared and actual data rates may vary.

■ OTG, USB 2.0, Type-C connector



Item	Description
Location	Front
Type	Type-C USB connector
Pin	Refer to USB standard

■ DB9 female connector (GPIO / RS232 ^{*by request})

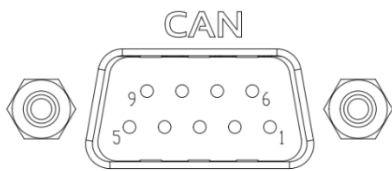


Item	Description
Location	Rear
Type	DB9 female connector (GPIO / RS232 ^{*by request})
Default	Default GPIO configuration: 2 x Digital Inputs and 3 x Digital Outputs.
Notes	By default, the DB9 port is configured as GPIO. RS-232 is available by request and must be specified before placing an order. The requested interface will be configured during product assembly before shipment.

■ GPIO

Pin #	Definition	Notes	Pin #	Definition	Notes
1	NC		6	GPIO_3_DOUT (GPIO12 / PN.01, 433)	OUTPUT
2	GPIO_1_DIN (GPIO01 / PQ.05, 453)	INPUT	7	GPIO_4_DOUT (GPIO13 / PH.00, 391)	OUTPUT
3	GPIO_2_DIN (GPIO11 / PQ.06, 454)	INPUT	8	GPIO_5_DOUT (GPIO_05 / PZ.07, 485)	OUTPUT
4	NC		9	NC	
5	GPIO_GND				

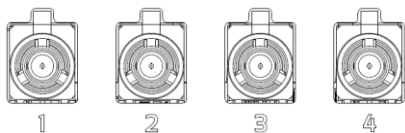
■ DB9 male connector (CAN)



Item	Description
Location	Rear
Type	DB9 male connector

Pin #	Definition	Pin #	Definition
1	NC	6	NC
2	CAN0_L	7	CAN0_H
3	CAN0_GND	8	NC
4	NC	9	CAN0_5V
5	NC		

■ GMSL2 connector



Item	Description
Location	Rear
Type	GMSL2 connector
Notes	Power over coax (12V)

■ Reset & Recovery button

RESET

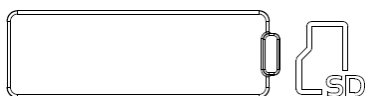


RECOVERY



Item	Description
Location	Side
Type	Pushbutton

■ micorSD card socket



Item	Description
Location	Side
Type	Performed socket
Notes	occupy M.2 E-Key slot, optional

2.4 Power Consumption

The power consumption shown as below is the theoretical value with Orin NX module installed on AIE-VN34/VN44-128-A1

Specification	Theoretical Maximum System power
Idle	9.34W (Connect with keyboard, mouse, and HDMI display)
Full loading	51.6W (Connect with keyboard, mouse and HDMI display with CPU and GPU 100% loading)

The power consumption shown as below is the theoretical value with Orin Nano Super mode module installed on AIE-VO24/VO34-128-S1.

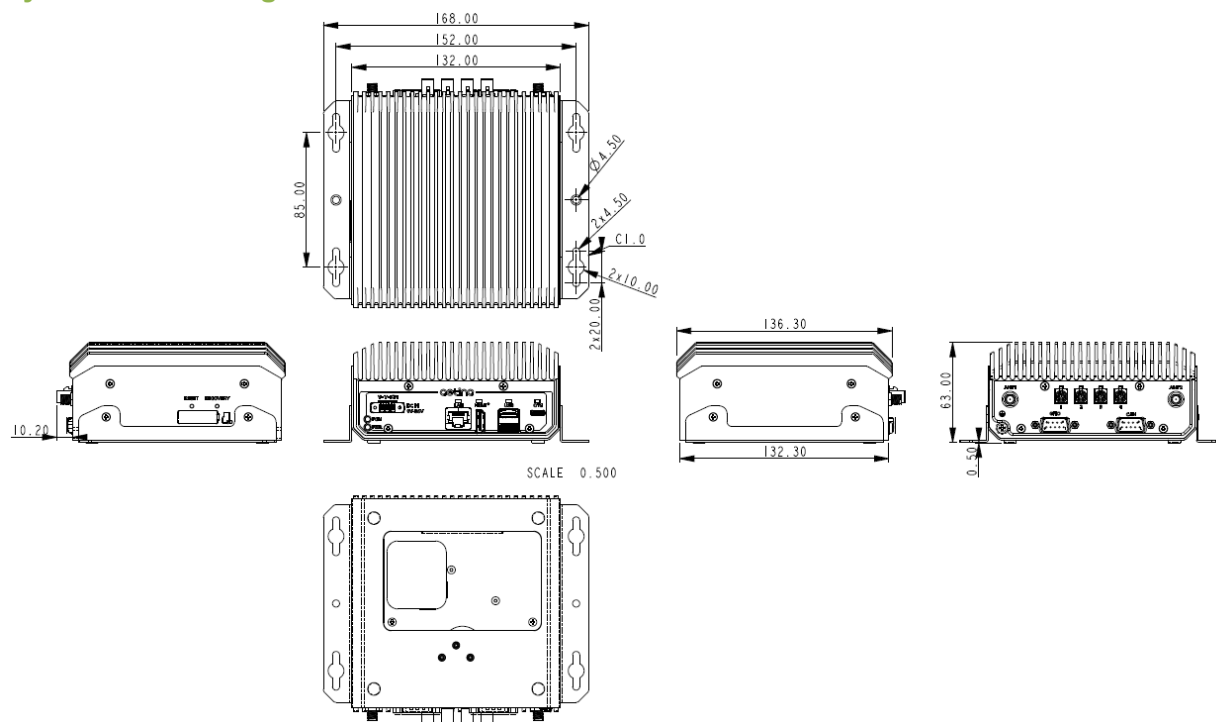
Specification	Theoretical Maximum System power
Idle	9.7W (Connect with keyboard, mouse, and HDMI display)
Full loading	51.6W (Connect with keyboard, mouse and HDMI display with CPU and GPU 100% loading)

Please refer to the following power consumption of individual I/O interface according to your use case.

Type	Theoretical Maximum System power
USB 3.2 Gen1 Type A (2 ports)	9 W
HDMI	0.25 W
M.2 E-KEY	2 W
M.2 M-KEY	7 W
CAN BUS	1 W
GPIO	1W
SD Card	0.72 W
RJ45(1G)	0.83 W

2.5 Mechanical Dimensions

■ System & Mounting Dimensions



3. Software Installation

Aetina NVIDIA Jetson products have built-in BSP so the users don't have to install it after getting the products. Since we develop our own BSP, the users may need to follow the BSP installation SOP to re-install/upgrade/downgrade the BSP. Please visit the Aetina website or contact with Aetina FAE at Tech_support@aetina.com for installation guides, BSPs and technical tips.

4. Recovery Mode

The USB 2.0 Type-C (supports OTG) port of AIE-VN34/VN44-128-A1, AIE-VO24/VO34-128-S1 can be connected to another host device (Linux PC running NVIDIA Jetpack™) to run recovery process for re-flashing BSP.

Note: Please backup user personal files before flashing process

Step 1: Connect the OTG USB port to another host device which supplying updated BSP file.

Step 2: Press and hold the Reset button, then press and hold the Recovery button continually.

Step 3: After one second (1 sec.) release the Reset button first, then release the Recovery button.

Step 4: The Orin Nano/NX will show up as a new NVIDIA device on USB list (Terminal console) at the host device.

Step 5: Running re-flashing BSP process can be executed by the host device now.

5. Initial Setup

Before using AIE-VN34/VN44-128-A1, AIE-VO24/VO34-128-S1, please follow the steps below to have initial setup.

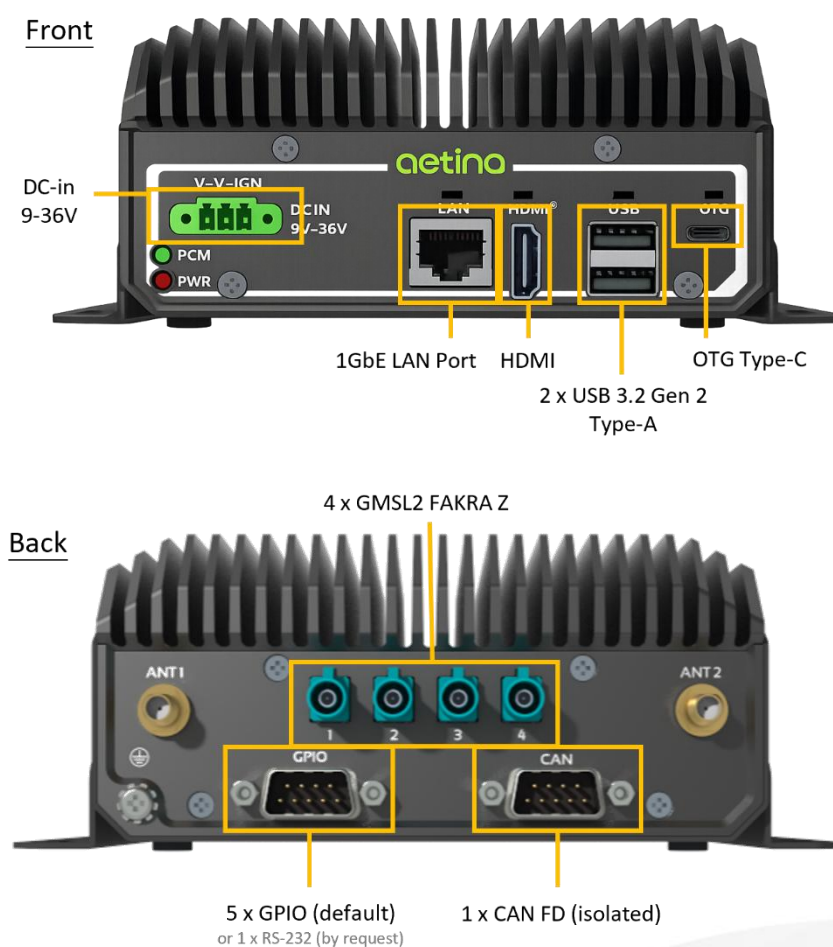
5.1 Prepare the Materials

Please prepare the materials list below.

- A monitor with HDMI and respective cables
- USB keyboard and mouse
- Ethernet cable

5.2 Hardware Connection

Here is the AIE-VN34/VN44-128-A1, AIE-VO24/VO34-128-S1 below and for the initial setup, users will need to connect LAN port, keyboard and mouse via USB interface, HDMI interface, and power connector.



5.3 Setup Details

1. Connect to the monitor while powering off
2. Power on and automatically enter the OS
3. Log in to the Ubuntu OS via credentials below

Username: nvidia

Password: nvidia

For more information on how to use Ubuntu and NVIDIA Jetson modules, please visit [Ubuntu](#) and [NVIDIA](#) website.

6. MCU Tool Terminal

6.1. Introduction

Use the MCU Tool in the Linux terminal to configure the Operation Mode (Ignition), and control the PCM LED.

6.2. Operating the MCU Tool

Press Ctrl + Alt + T on the keyboard to open the Linux terminal, as shown below.

```
nvidia@localhost:~$
```

Display the command help:

```
mcu_tool -h
```

```
nvidia@localhost:~$ mcu_tool -h
Usage
  mcu_tool [-V] [-s] [-e [mode]] [-l [G0|G1]] [-v] [-h]

Arguments
  -V      print version of MCU firmware
  -s      print all status
  -e [mode]
          set host operation mode 1-16.
          Use -e [mode] [power-on] [unit] [power-off] [unit] [hard-off] [unit] to update an editable mode before sending it.
          Timing values use uint32 and units use ms, sec, min, hr; unit may be separated or attached.
          Example: -e 14
          Example: -e 14 10 sec 10 sec 10 min
          Example: -e 14 10sec 10sec 10min

Operation mode timing table
  Mode   Name           Power-on   Power-off   Hard-off   Editable
  ---    ---
  1      preset_160ms_160ms  160 ms    160 ms     10 min    no
  2      preset_10s_10s   10 sec    10 sec     10 min    no
  3      preset_10s_1m    10 sec    1 min      10 min    no
  4      preset_10s_5m    10 sec    5 min      10 min    no
  5      preset_30s_1m   30 sec    1 min      10 min    no
  6      preset_30s_5m   30 sec    5 min      10 min    no
  7      preset_30s_10m  30 sec    10 min     10 min    no
  8      preset_3m_1m    3 min     1 min      10 min    no
  9      preset_3m_10m   3 min     10 min     10 min    no
  10     preset_3m_30m     3 min     30 min     10 min    no
  11     preset_10m_10m  10 min    30 min     10 min    no
  12     preset_30s_2h  30 sec    2 hr       10 min    no
  13     preset_3m_2h   3 min     2 hr       10 min    no
  14     user1          5 sec     5 sec      10 min    yes
  15     user2          8 sec     8 sec      10 min    yes
  16     user3          12 sec    12 sec     10 min    yes

  -l [G0|G1]
          set green LED status
          G0: turn off Green LED
          G1: turn on Green LED
  -v      print version of this tool
  -h      print help (this message)
nvidia@localhost:~$
```

6.3. Common Commands

6.3.1. Display the MCU Tool version

Note: Linux commands are case-sensitive. Be sure to use uppercase and lowercase letters exactly as shown in the examples.

```
mcu_tool -v
```

Displays the MCU Tool version, for example: MCU Tool 2.1 (2026.04.20)

6.3.2. Display the MCU firmware version

```
mcu_tool -V
```

6.3.3. Display system status

```
mcu_tool -s
```

Displays the current system status, including:

- Operation Mode (Ignition)
- OS status
- Current operation timing
- LED status

6.4. Configuring the Operation Mode (Ignition)

6.4.1. Mode list

Users can configure the Operation Mode (Ignition) through the Linux terminal.

The system provides 16 operation modes (Mode 1–16). Each mode defines a different combination of power-on delay and power-off delay settings

Mode descriptions

- Mode 1 – Mode 13: Provide predefined combinations of power-on delay and power-off delay. The hard-off timeout is fixed at 10 minutes and cannot be modified.
- Mode 14 – Mode 16: Provide user-configurable power-on delay and power-off delay settings. The hard-off timeout is 10 minutes by default and can be customized.

Note: The timing values for Mode 1–Mode 13 are predefined and cannot be modified. Mode 14–Mode 16 allow users to customize the Power-on Delay, Power-off Delay, and Hard-off Timeout. The values shown in the table are the default settings.

Mode	Power-on Delay	Power-off Delay	Hard-off Timeout	Type
1	160 ms	160 ms	10 min	Preset
2	10 sec	10 sec	10 min	Preset
3	10 sec	1 min	10 min	Preset
4	10 sec	5 min	10 min	Preset
5	30 sec	1 min	10 min	Preset
6	30 sec	5 min	10 min	Preset
7	30 sec	10 min	10 min	Preset
8	3 min	1 min	10 min	Preset
9	3 min	10 min	10 min	Preset
10	3 min	30 min	10 min	Preset
11	10 min	30 min	10 min	Preset
12	30 sec	2 hr	10 min	Preset
13	3 min	2 hr	10 min	Preset
14	5 sec (Default)	5 sec (Default)	10 min (Default)	User-defined
15	8 sec (Default)	8 sec (Default)	10 min (Default)	User-defined
16	12 sec (Default)	12 sec (Default)	10 min (Default)	User-defined

6.4.2. Select an operation mode

The `mcu_tool -e` command is used to select an operation mode. For user-defined modes (Mode 14–Mode 16), the same command can also be used to configure the timing parameters.

Select an operation mode by specifying the mode number.

This example selects Mode 5:

```
mcu_tool -e 5
```

To verify the current configuration, run:

```
mcu_tool -s
```

6.4.3. Configure a user-defined mode

Only Mode 14–Mode 16 support user-defined timing configurations.

The command syntax is:

```
mcu_tool -e <mode> <power-on> <unit> <power-off> <unit> <hard-off> <unit>
```

Example:

```
mcu_tool -e 14 10 sec 30 sec 10 min
```

This command updates the timing values for Mode 14 and immediately applies the new configuration.

The value and unit may also be entered without a space.

```
mcu_tool -e 14 10sec 30sec 10min
```

Supported time units:

Time Unit	Accepted Formats
Millisecond	ms
Second	sec, s
Minute	min, m
Hour	hr, hour, h

6.5. Control the PCM LED

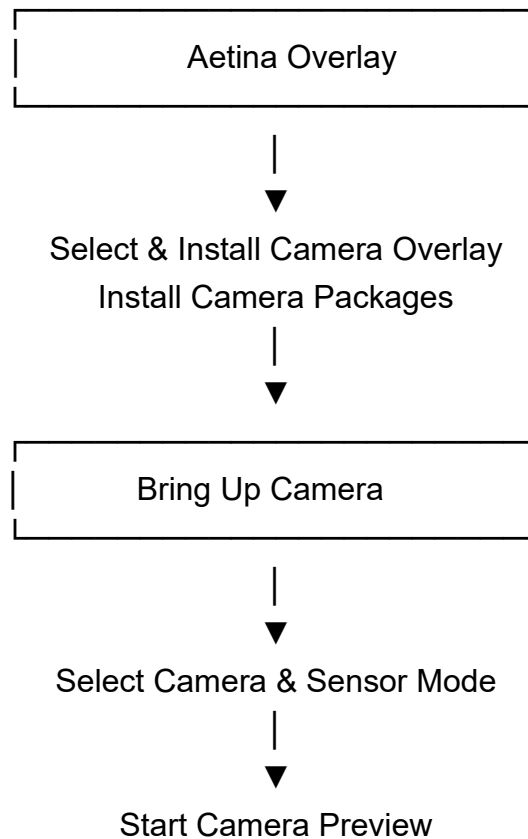
The system provides one LED, labeled "PCM" on the chassis. Use the following commands to turn the PCM LED on or off.

Action	Command
Turn on the green PCM LED	<code>mcu_tool -l G1</code>
Turn off the green PCM LED	<code>mcu_tool -l G0</code>

7. Camera Setup and Startup

Allows users to select a camera, choose a sensor mode, and start the camera preview. Available video devices and supported sensor modes are displayed based on the installed overlay.

7.1. Camera Bring-up Workflow



7.2. Utility Overview

Icon	Application	Description
	Aetina Overlay	Lists all supported camera overlay files (*aetina.dtbo) available in the /boot directory. Users can select and install the appropriate camera overlay.
	Bring Up Camera	Allows users to select a camera, choose a sensor mode, and start the camera preview. The available cameras and sensor modes depend on the installed camera overlay.

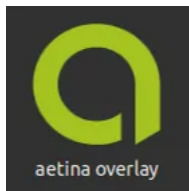
Prerequisite: Install the appropriate camera overlay using **Aetina Overlay** before launching **Bring Up Camera**.

7.3. Select and Install a Camera Overlay

Before bringing up a camera, configure the appropriate camera overlay using **Aetina Overlay**. Otherwise, the camera may fail to start.

Step 1

Launch **Aetina Overlay** from **Applications**.



When prompted, enter the system password.

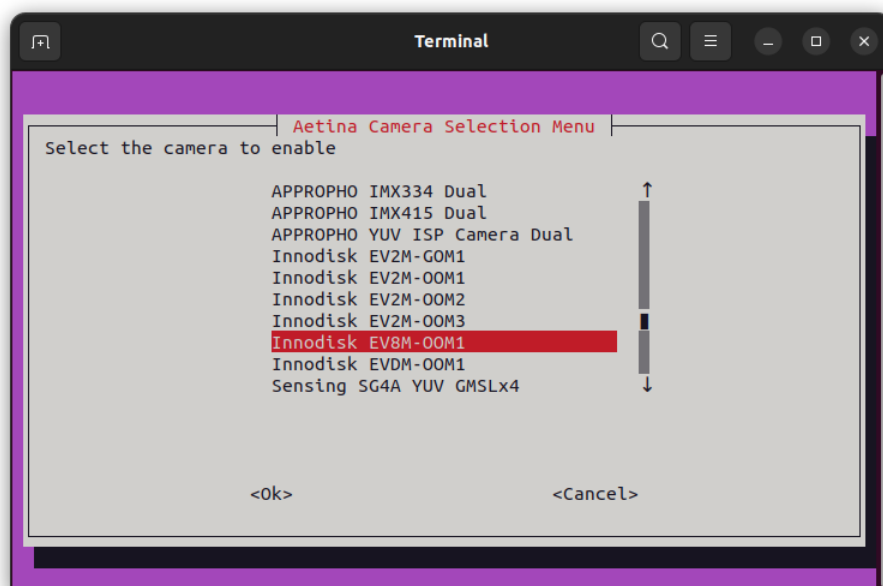
Note: If the system password has not been changed, the default password is **nvidia**.

Step 2

After logging in, a list of supported camera overlays is displayed.

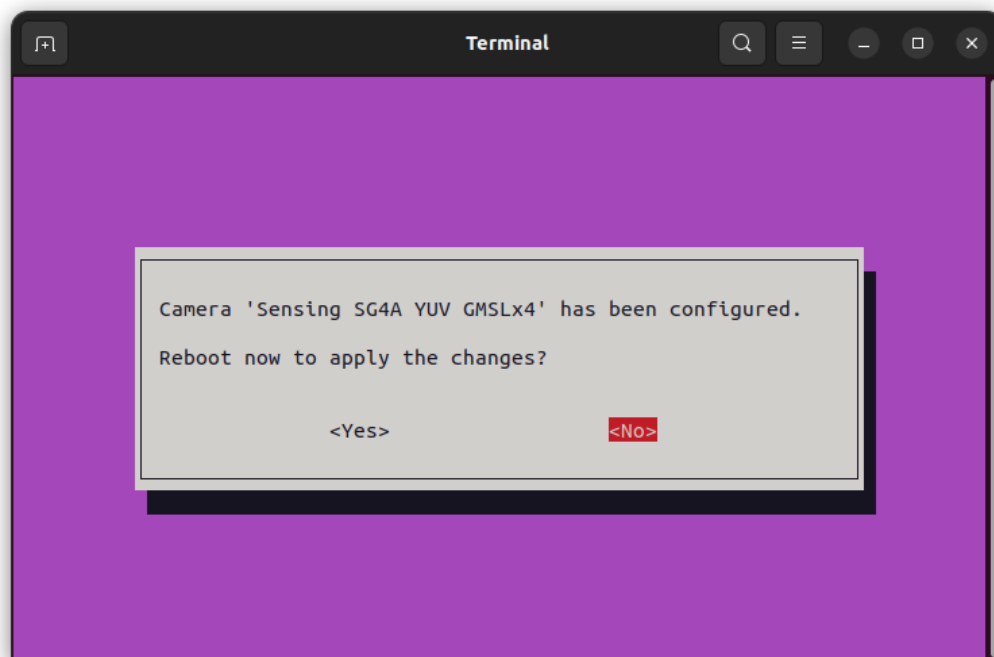
Use the **Up** and **Down** arrow keys to select the desired camera overlay, then press **Enter** to select **OK**.

Note: Only supported camera overlay files (***aetina.dtbo**) are displayed.



Step 3

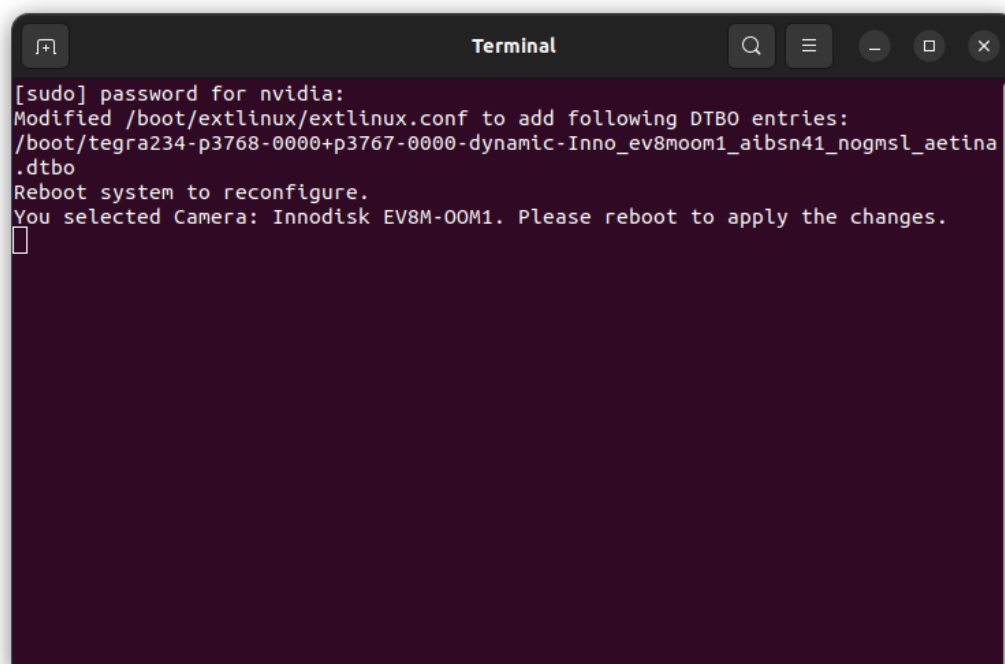
Press **Enter** to confirm the selected camera overlay.



A confirmation dialog is displayed.

- Select **Yes** to reboot the system immediately and apply the new camera overlay.
- Select **No** to continue using the system without rebooting. A reminder message will be displayed indicating that a reboot is required before the new camera overlay can take effect.

The Terminal window closes automatically after **5 seconds**. If it remains open, click **X** in the upper-right corner to close it manually.

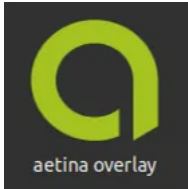


7.4. Restore the default camera overlay

Restore the camera overlay settings to the default configuration without applying any camera overlay.

Step 1

Launch **Aetina Overlay** from **Applications**.

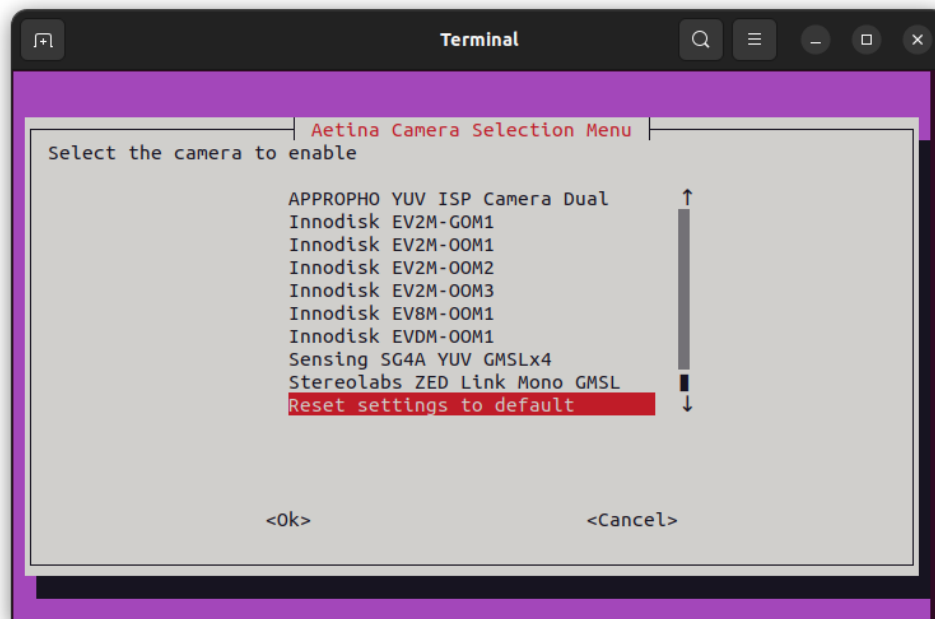


When prompted, enter the system password.

Note: If the system password has not been changed, the default password is **nvidia**.

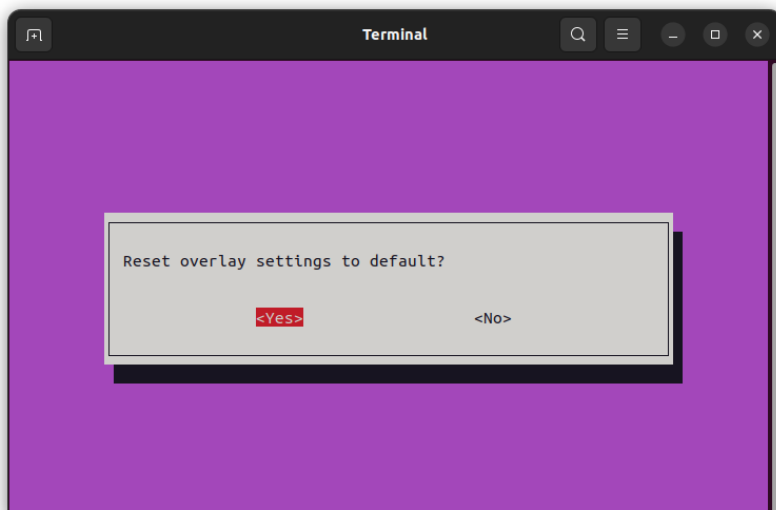
Step 2

Select **Reset settings to default**, then press **Enter** to select **OK**.

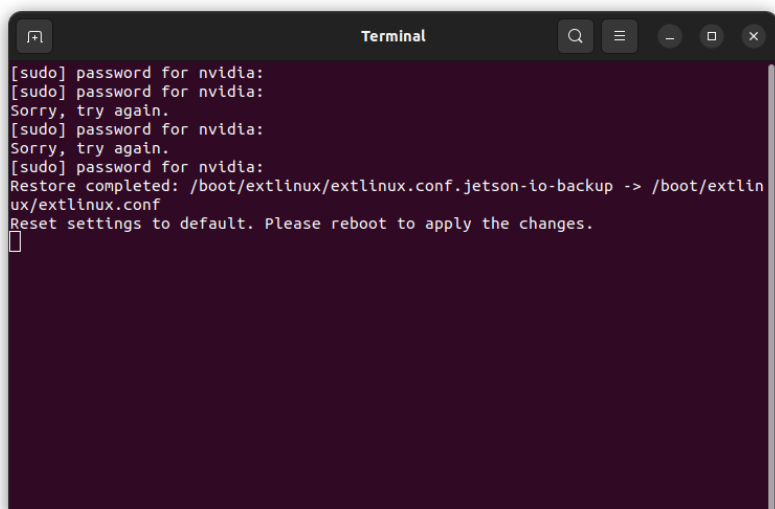


Step 3

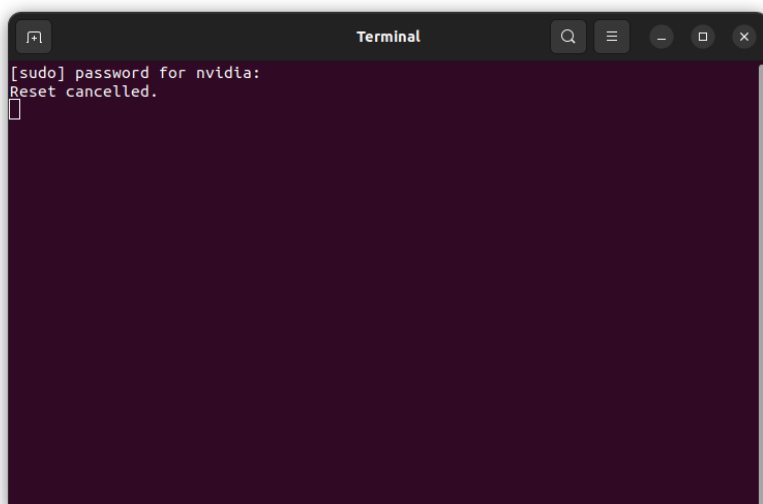
A confirmation dialog is displayed.



- Select **Yes** to reboot the system immediately and apply the changes



- Select **No** to reboot later. Cancels the restore operation. The Terminal window closes automatically after **5 seconds**.



7.5. Install Camera Packages

Some camera modules require additional software packages before they can be brought up successfully.

Prerequisite: Configure and install the appropriate camera overlay before installing the required camera packages.

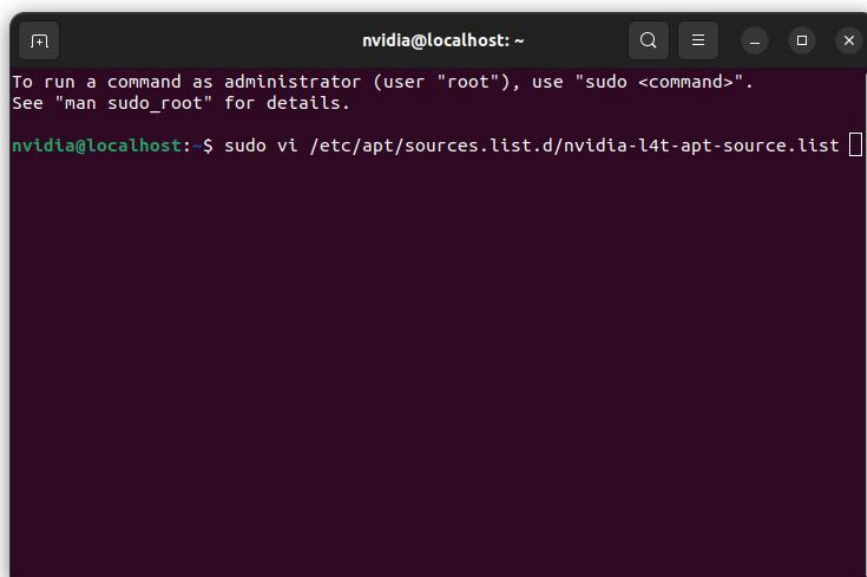
Note: Some camera modules require additional packages before they can be brought up. If the required packages are not installed, the camera may fail to start.

Connect the system to the Internet before installing the packages.

Step 1 Enable the NVIDIA Package Repository

Open a Terminal and edit the NVIDIA package source.

```
sudo vi /etc/apt/sources.list.d/nvidia-l4t-apt-source.list
```



Remove the leading # characters to enable the repository.

[illegible]

Save the file and exit **vi**.

1. Press **Esc**.
2. Type :wq.
3. Press **Enter**.

```
nvidia@localhost: ~  
# SPDX-FileCopyrightText: Copyright (c) 2019-2024 NVIDIA CORPORATION & AFFILIATE  
S. All rights reserved.  
# SPDX-License-Identifier: LicenseRef-NvidiaProprietary  
#  
# NVIDIA CORPORATION, its affiliates and licensors retain all intellectual  
# property and proprietary rights in and to this material, related  
# documentation and any modifications thereto. Any use, reproduction,  
# disclosure or distribution of this material and related documentation  
# without an express license agreement from NVIDIA CORPORATION or  
# its affiliates is strictly prohibited.  
  
deb https://repo.download.nvidia.com/jetson/common r36.4 main  
deb https://repo.download.nvidia.com/jetson/t234 r36.4 main  
deb https://repo.download.nvidia.com/jetson/ffmpeg r36.4 main  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~
```

Update the package list.

```
sudo apt-get update
```

```
nvidia@localhost: ~  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
nvidia@localhost:~$ sudo vi /etc/apt/sources.list.d/nvidia-l4t-apt-source.list  
[sudo] password for nvidia:  
nvidia@localhost:~$ sudo apt update
```

Step 2

Install the Required Packages

Install the following packages:

```
sudo apt-get install -y nvidia-l4t-gstreamer
```

```
sudo apt-get install -y \  
libgstreamer1.0-0 \  
gstreamer1.0-plugins-base \  
gstreamer1.0-plugins-good \  
gstreamer1.0-plugins-bad \  
gstreamer1.0-plugins-ugly \  
gstreamer1.0-libav \  
gstreamer1.0-tools
```

```
sudo apt-get install -y v4l-utils
```

After the installation is complete, proceed to **Bring Up Camera**.

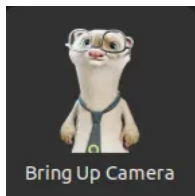
7.6. Bring up a camera

Use **Bring Up Camera** to start a camera using the installed camera overlay.

Prerequisite: Before launching **Bring Up Camera**, install the appropriate camera overlay using **Aetina Overlay** and reboot the system. Otherwise, the camera may not be detected.

Step 1

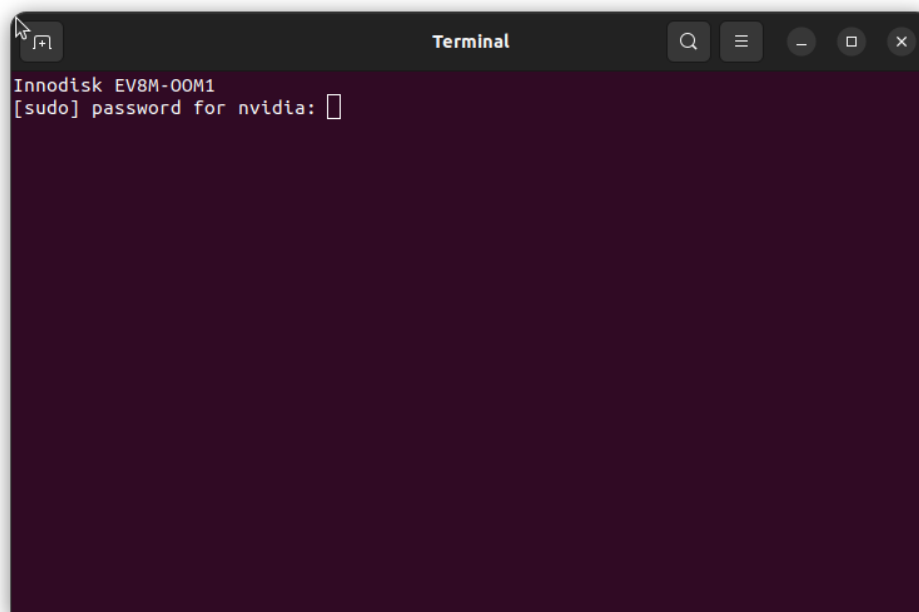
Launch **Bring Up Camera** from **Applications**.



Step 2

When prompted, enter the system password.

Note: If the system password has not been changed, the default password is **nvidia**.

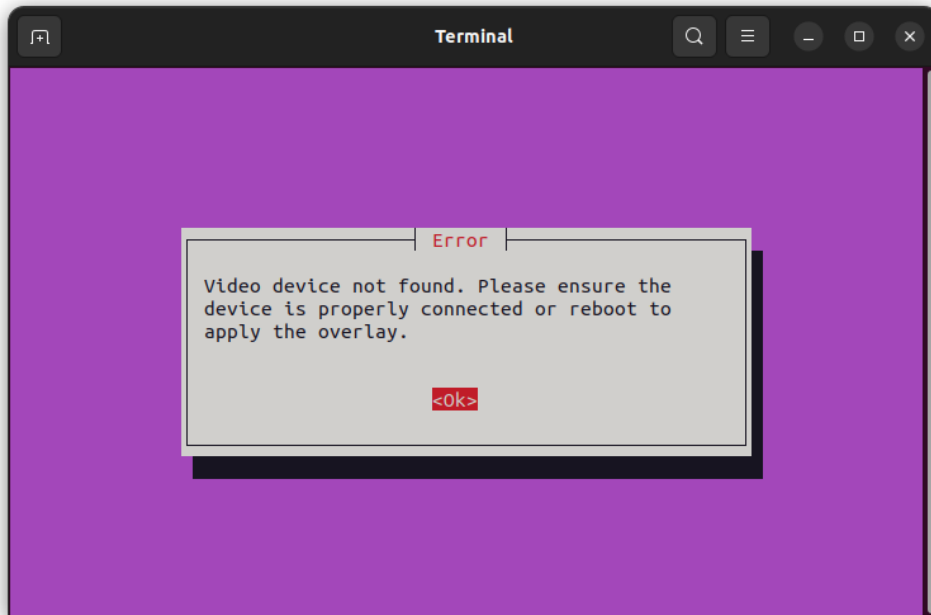


After logging in, **Bring Up Camera** displays only cameras that match the installed camera overlay and are successfully detected by the system.

If no camera is detected, the following message is displayed.

Check the following:

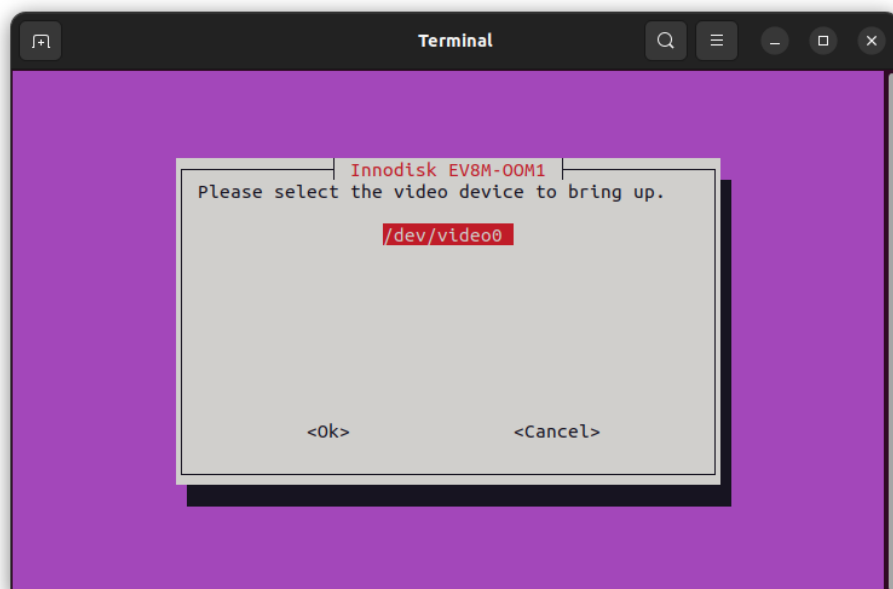
- The correct camera overlay is installed.
- The system has been rebooted after changing the camera overlay.
- The camera is properly connected.



7.6.1. Bring up a single camera

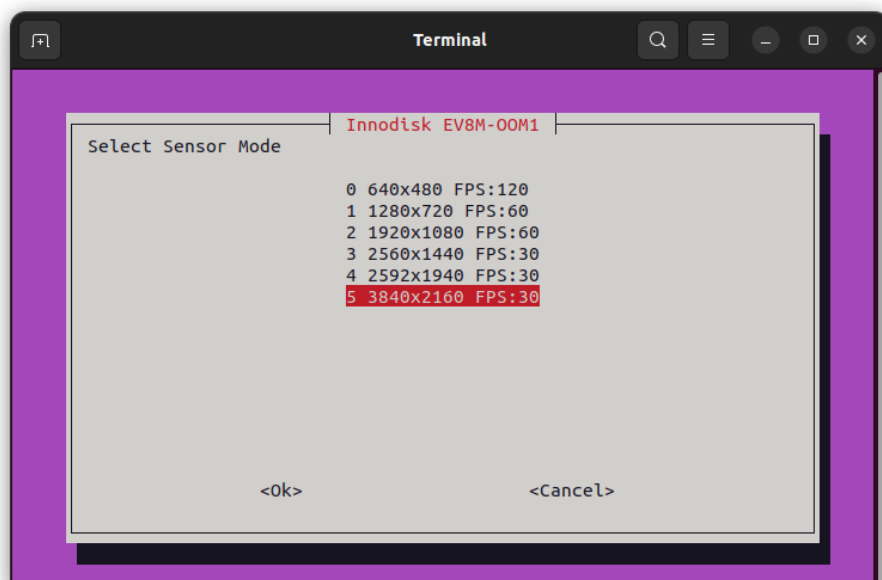
Step 1

Select the detected camera and click **OK**.



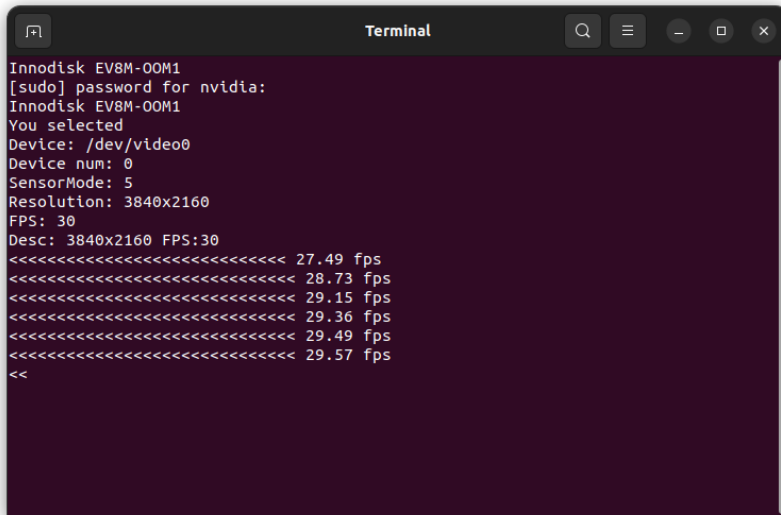
Step 2

Select the desired **Sensor Mode**, then click **OK**.



Step 3

The camera preview is displayed.



7.6.2. Bring up Multiple cameras

Launch multiple **Bring Up Camera** windows.

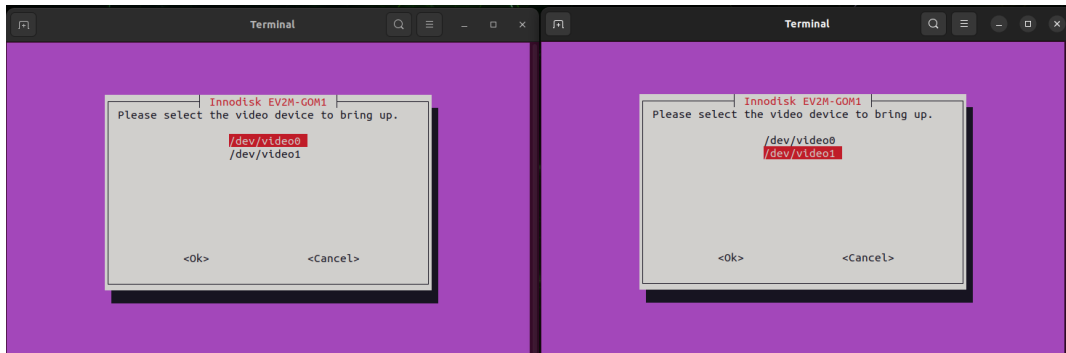
Each window can be used to configure one camera.

Tip: Pin **Bring Up Camera** to the taskbar for quick access.

Step 1

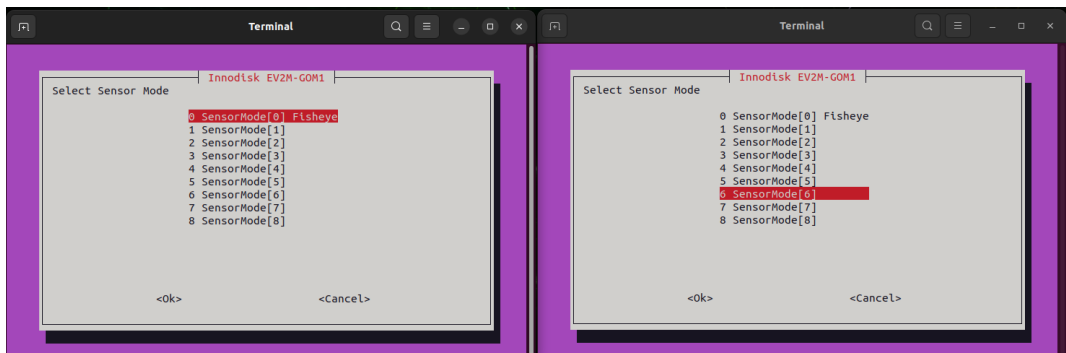
Select the desired camera.

Note: Each **Bring Up Camera** window can configure only one camera.



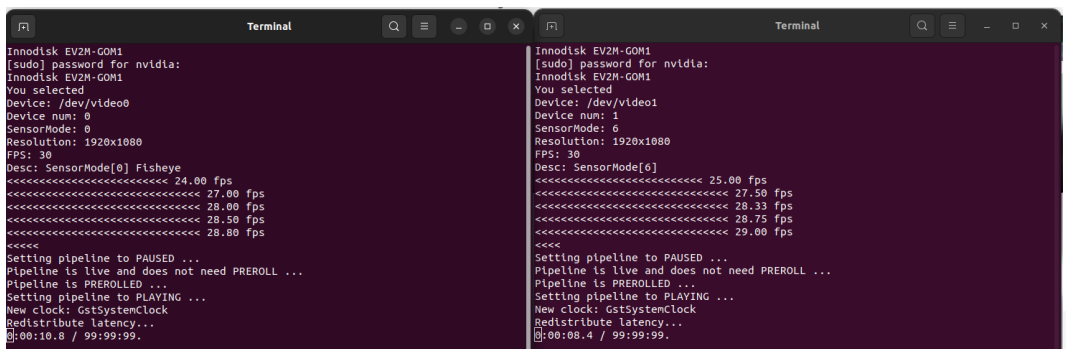
Step 2

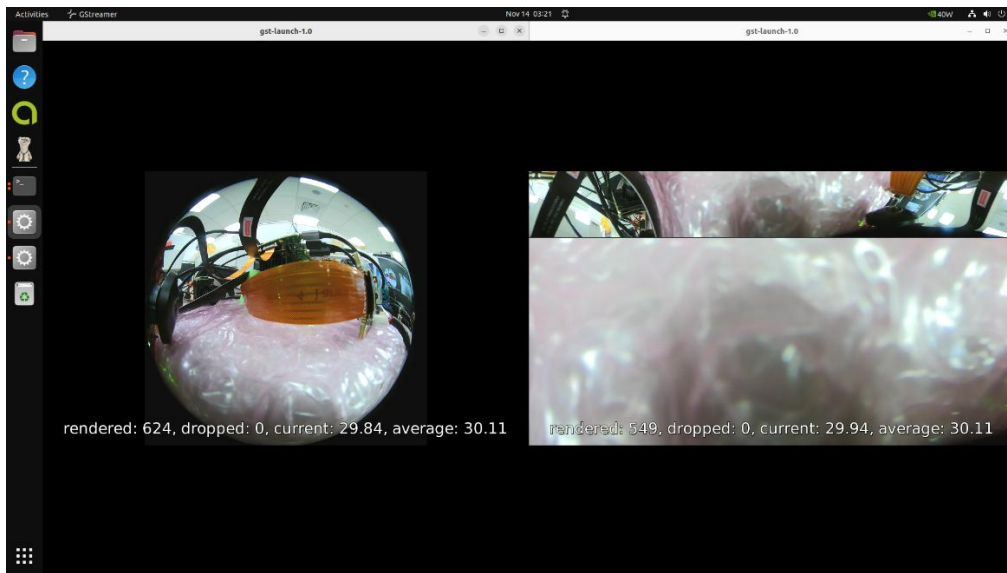
Select the desired **Sensor Mode**.



Step 3

The camera preview is displayed.





Troubleshooting

If the **Sensor Mode** selection window is displayed but no camera preview appears, verify the following:

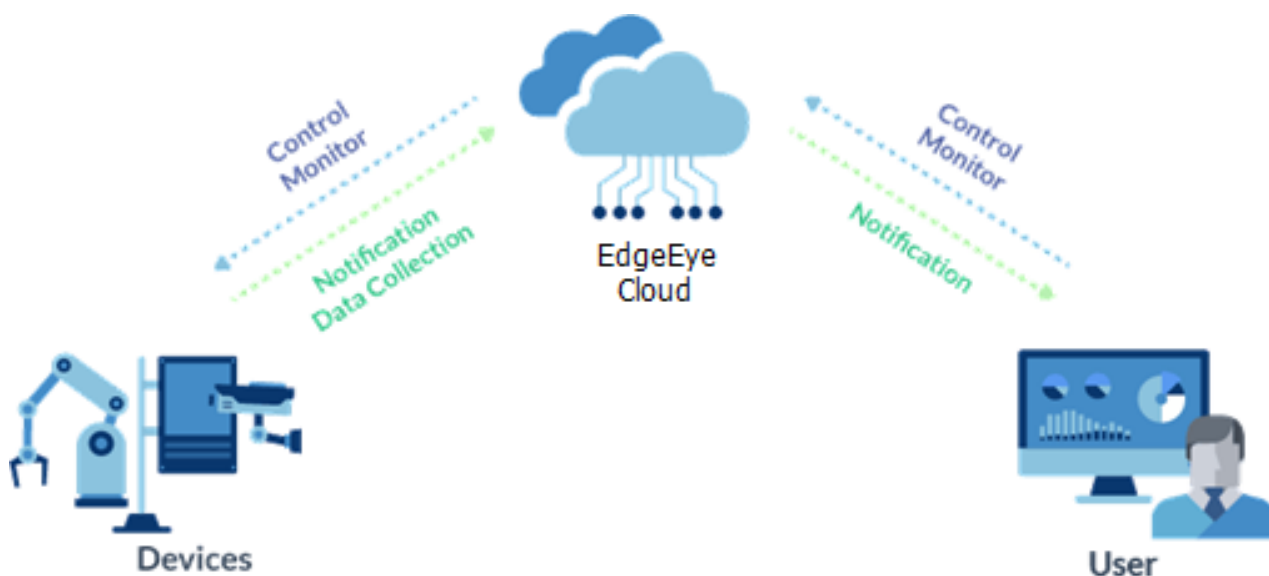
- The correct camera overlay is installed.
- The system has been rebooted after changing the camera overlay.
- The camera is properly connected.

8. Edge Device Management

8.1. Aetina 360 Edge Administration Platform

Introduction

To help clients efficiently and systematically manage edge devices deployed in different locations, Aetina offers several cloud management platforms. For example, EdgeEye, an Aetina browser-accessed management platform, allows clients to conveniently manage edge devices via intranet-connected cell phones, tablets, or laptops, no matter where the devices are deployed. It shows diversified status of devices with user-friendly interfaces to help clients check if user-defined values are in the normal range, including CPU/GPU loading and temperature, memory loading, storage status, deployment sites, and unsolved events setting. In addition, EdgeEye supports functions of reboot, shutdown, backup, and recovery via out-of-band management modules, especially when clients are intuitively aware of abnormal charts on the dashboard.



8.2. Feature

Edge Device Management

Monitor edge devices' hardware status, such as CPU, GPU, Memory's utilization and capacity.

Alert Notification

Customized alert threshold and when getting abnormal data from edge devices, send warning notification immediately.

Remote Controlling

Reboot and shut down edge device through the operating system's command from server when needs.

User-Friendly Operation Interface

User can set and arrange monitoring data format by their needs.

Group devices control and Scheduler

8.3. System Requirements

Web Service

Web browsers support HTML5, CSS3, JavaScript:

Microsoft Edge 103.0+

Google Chrome: 9.0+

Firefox:15.0+

Safari: 5.1+

Server

Hardware Minimum Requirements:

Intel Core™ i5 2.3 Ghz CPU or above

32GB RAM

200GB root partition for the system

Operating System:

Linux Ubuntu 18.04+

Browser

Google Chrome 9.0+

Client

Supports all Aetina products

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