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SECTION 1 INTRODUCTION



This chapter contains general information and detailed specifications of the . The Chapter 1 includes the following sections:

- General Description
- System Specifications
- Dimensions
- I/O Outlets
- Packing List
- Model List

1.1 General Description

The is an embedded system with NVIDIA® Jetson Xavier™ NX Series supercomputer on a module to support Linux Ubuntu 18.04, suitable for the most enduring operation.

It features fanless design with full feature I/O, one 8 GB 128-bit LPDDR4x memory, and enhanced system dependability by built-in Watchdog Timer.

● Features

1. NVIDIA® Jetson Xavier™ NX with Volta™, 384 CUDA cores GPU
2. High AI computing performance for GPU-accelerated processing
3. Ideal for various edge AI applications at smart city and smart retail
4. Optional IP42 rating cover kit for semi-outdoor applications
5. Supports 1 USB 2.0, 1 USB 3.1 Gen2, 1 GbE LAN and 1 GbE PoE
6. JetPack supported

- **Reliable and Stable Design**

The [redacted] adopts the advanced fanless system and supporting the PCIe4 NVMe through M.2 interface, which makes it especially suitable for AI computing environments, best for smart city, GPU-accelerated processing, edge computing and smart retail applications.

- **JetPack Supported**

The [redacted] supports JetPack 4.4 or later. NVIDIA JetPack SDK is the most comprehensive solution for building AI applications.

JetPack supports Jetson AGX Xavier™, Jetson Xavier™ NX, Jetson™ TX2 NX, Jetson™ Nano and Jetson TX2 series. It bundles all the Jetson platform software, including TensorRT, cuDNN, CUDA Toolkit, VisionWorks, GStreamer, and OpenCV, all built on top of L4T with LTS Linux kernel.

- **O.S. Supported**

The [redacted] supports Linux Ubuntu 18.04.

- **Various Storage devices supported**

For storage device, the [redacted] supports one M.2 2280 Key M with PCI-Express 2.0 x4 interface, an onboard 16GB eMMC 5.1 and one Micro SD interface.

1.2 System Specifications

1.2.1 Product Specification

- **NVIDIA Jetson SoM**

- NVIDIA® Jetson Xavier™ NX SoM

- **CPU**

- 6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6 MB L2 + 4 MB L3

- **GPU**

- 384-core NVIDIA Volta™ GPU with 48 Tensor Cores

- **Storage**

- 16GB eMMC 5.1 onboard
- One M.2 2280 M Key with PCI-Express 2.0 x4 NVMe SSD slot
- One Micro SD slot to support optional Micro SD card (UHS-I compatible)

- **System Memory**

- One 8 GB 128-bit LPDDR4x onboard

- **WLAN & WWAN**

- One PCI Express Mini Card modules slot to support Wi-Fi or 3G/4G/LTE modules

1.2.2 I/O System

- One HDMI 2.0 for display (HDMI 2.0 Resolution: up to 4096 x 2160@60Hz)
- One RJ-45 connector for 10/100/1000 Base-T Ethernet port
- One RJ-45 connector for 10/100/1000 Base-T PoE (IEEE 802.3af; PSE), max. up to 15.4 Watts



Note: is a power supply device. Two PSE devices should not be connected together, which may cause the risk of power conflict. Correctly connect PD Device or switch without PoE. If you need PoE switch, please find the switch with uplink port.

- One USB 2.0 and one USB 3.1 Gen2 connectors
- Front-access design for ease of updating NVIDIA Jetpack
 - One Micro USB connector for image flash only
 - One Recovery switch
- One Micro SD slot for extra storage (UHS-I compatible)
- One M.2 2280 Key M with PCI-Express 2.0 x4 SSD slot for extra storage
- One full-size PCI Express Mini Card slot (USB + PCI Express signal)
- One Power button and one Reset button
- Two Indicators LEDs (System Power, M.2 Storage)
- Two SMA type connector openings for Antenna
- One 12VDC Power Jack connector

1.2.3 System Specification

- **Watchdog Timer**
 - Built-in NVIDIA® Jetson Xavier™ NX Series SoM
- **Power Supply**
 - Input : 12VDC
- **Operation Temperature**
 - -30°C to +50°C (-22°F to +122°F)
- **Humidity**
 - 10% ~ 95% (non-condensation)
- **Vibration Endurance**
 - 3Grms w/ M.2 SSD Storage (5-500Hz, X, Y, Z directions)
- **Weight**
 - 1 kg(2.20lb) without package
 - 1.6 kg(3.52lb) with package
- **Dimensions**
 - 148.6 mm (5.85") (W) x 129.8 mm (5.11") (D) x 34.6 mm (1.36") (H)

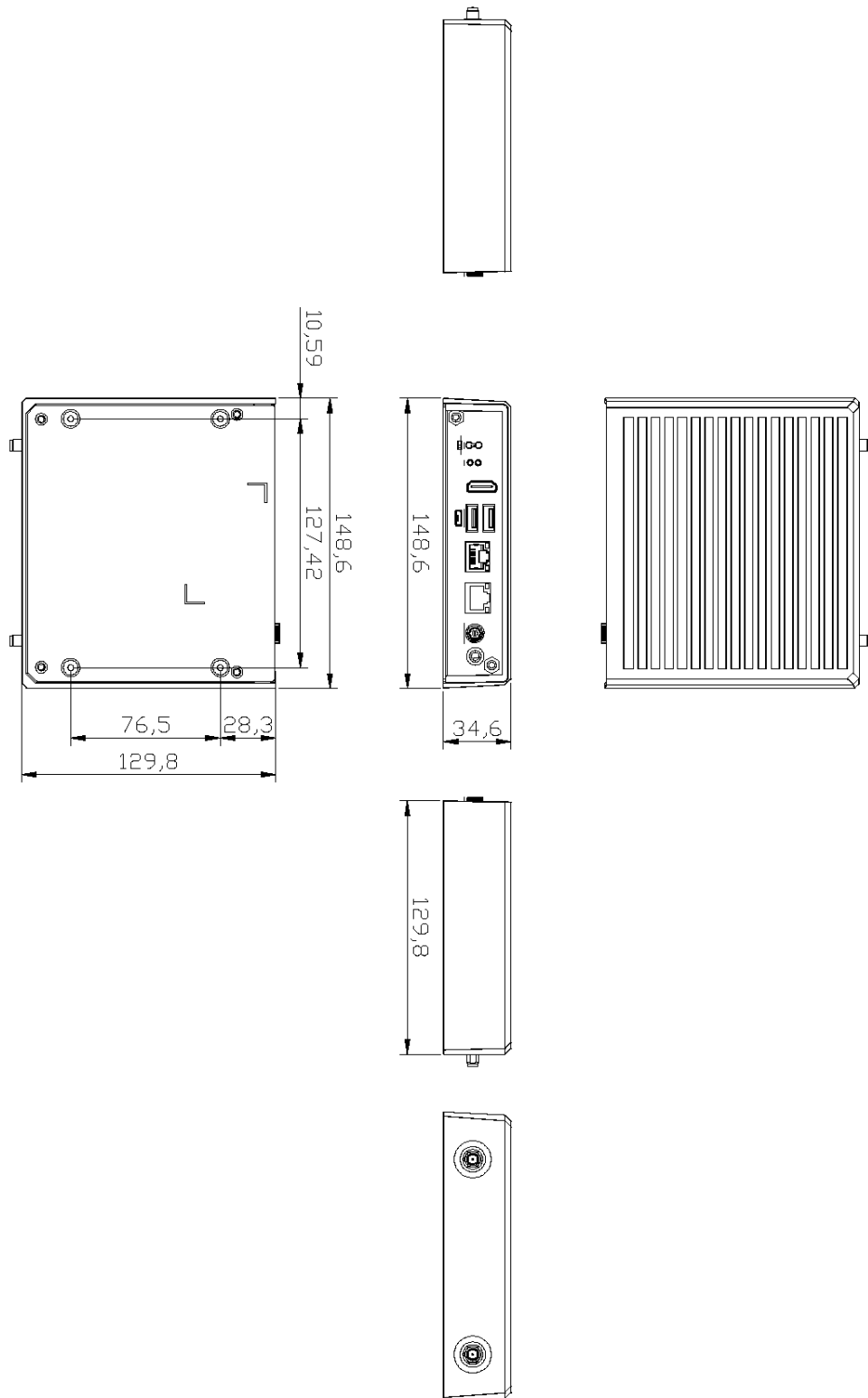


Note: All specifications and images are subject to change without notice.

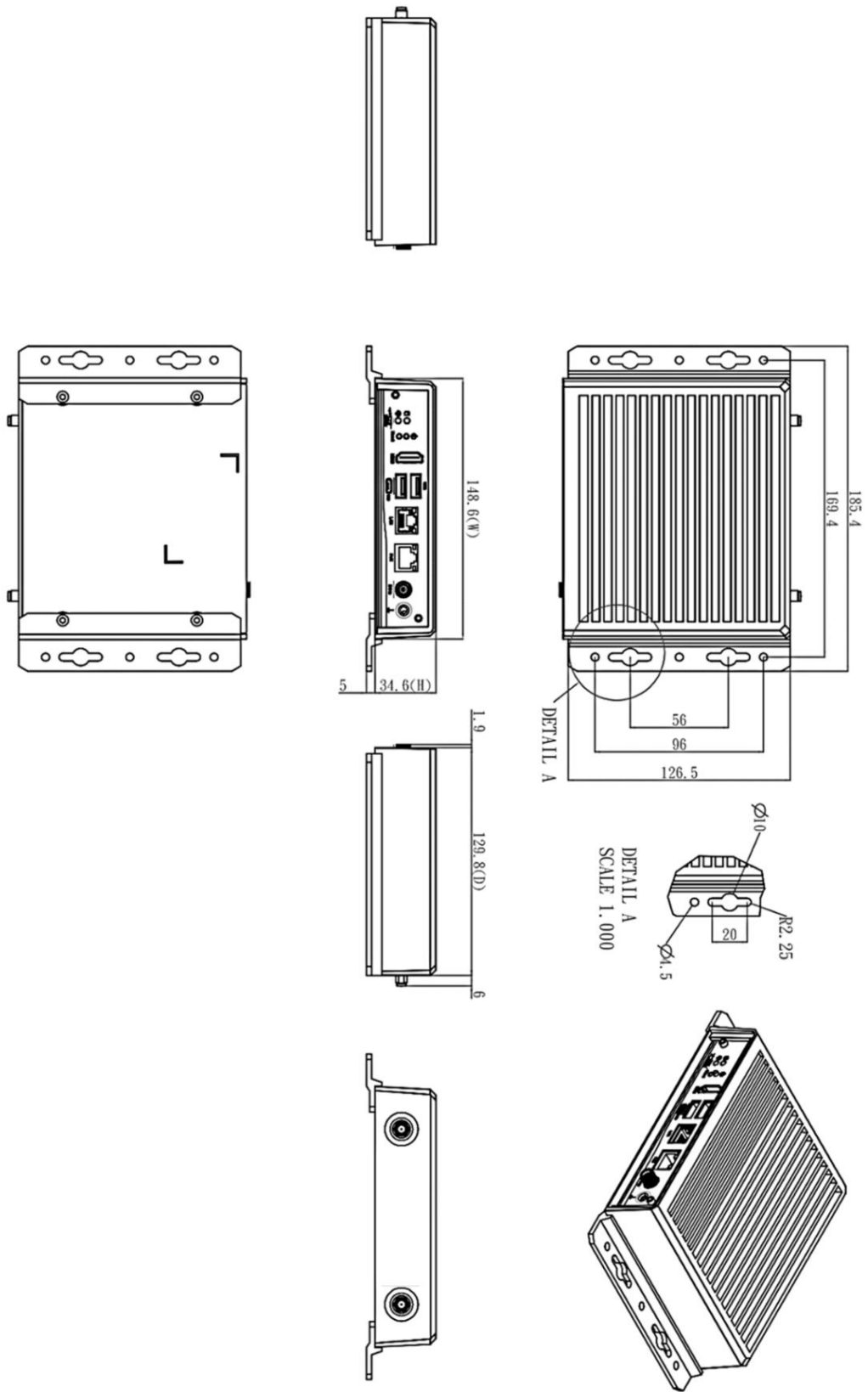
1.3 Dimensions

The following diagrams show you dimensions and outlines of the

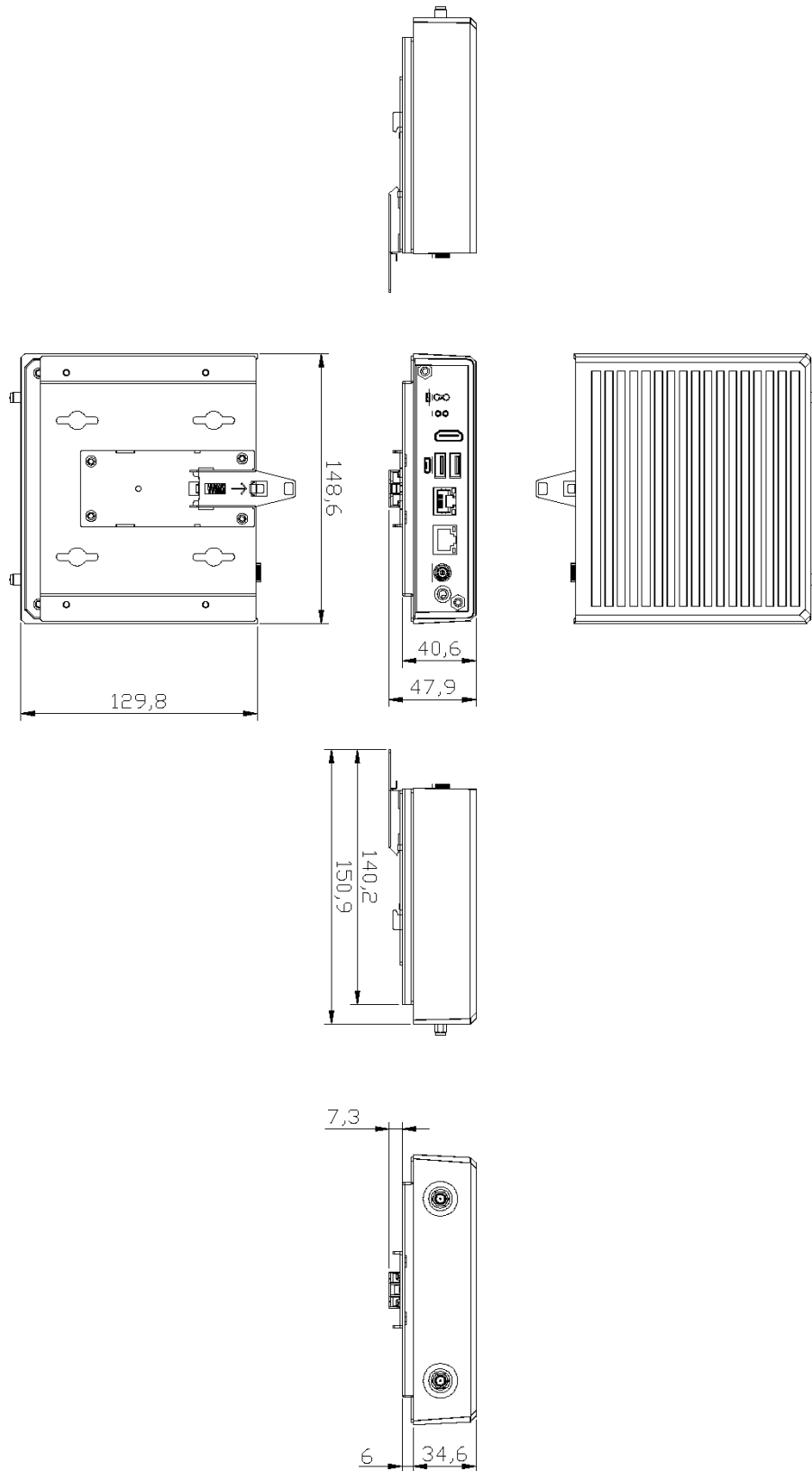
1.3.1 System Dimension



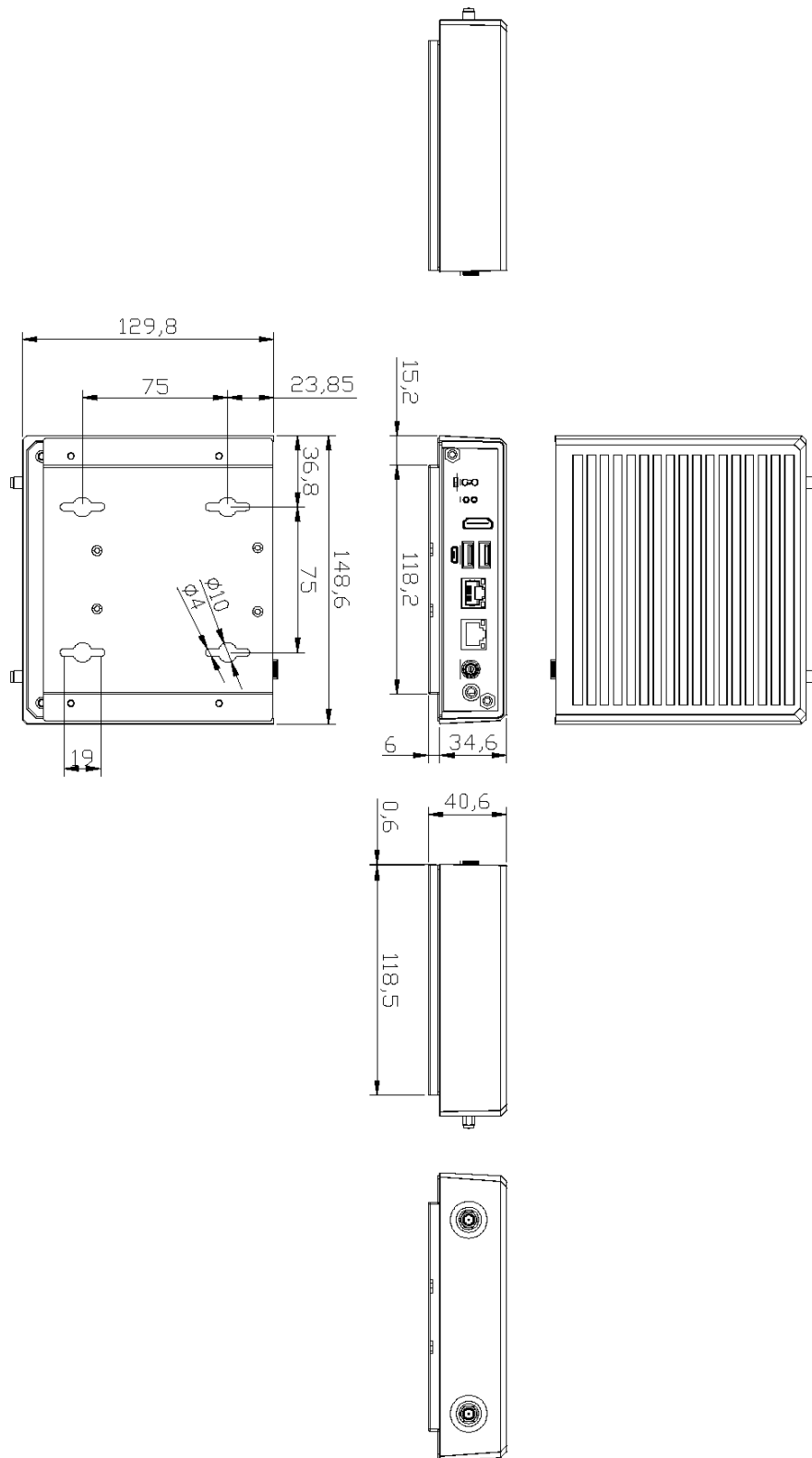
1.3.2 Wall mount Bracket Dimension (Screw: M3 *4L 4pcs)



1.3.3 Din-rail mount Bracket Dimension (Screw: M3 *4L 8pcs)



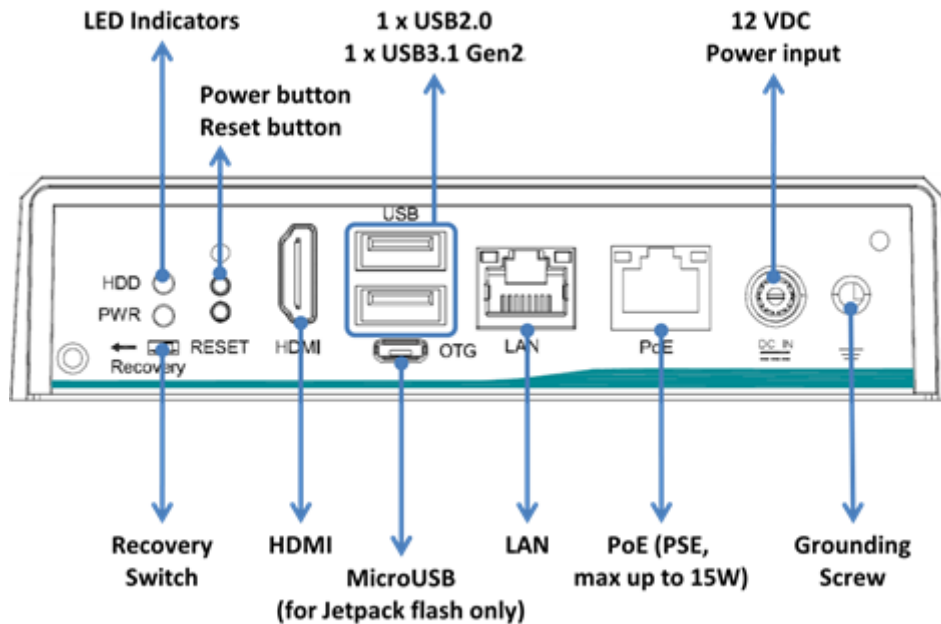
1.3.4 VESA arm mount Bracket Dimension (Screw: M3 *4L 4pcs)



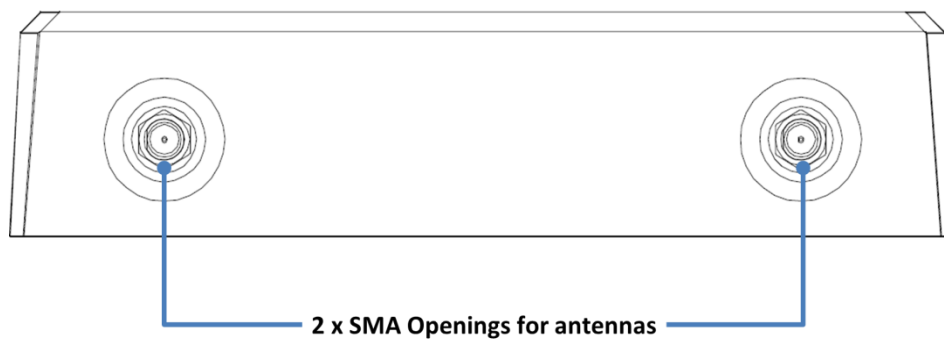
1.4 I/O Outlets

The following figures show you I/O outlets on front view of the

- Front View drawing



- Rear View drawing



1.5 Packing List

The package bundled with your

should contain the following items:


- **System Unit x 1**
- **Foot pad x 4**
- **Screws Pack x 1**
- **Thermal pad x 3 (for M.2 M-Key SSD)**

1.6 Model List

	Fanless Edge AI System with NVIDIA® Jetson Xavier™ NX SoM, 1 HDMI, 1 GbE LAN, 1 GbE PoE and 2 USB
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SECTION 2 HARDWARE INSTALLATION

The is convenient for your various hardware configurations, such as SSD (Solid State Drive), Micro SD card, and PCI Express Mini Card modules. The chapter 2 will show you how to install the hardware.

 **Note:** Waterproof capability of the IPX2 rating may be affected if a system is disassembled or improperly assembled; under such circumstances shall not be liable for any quality deterioration.

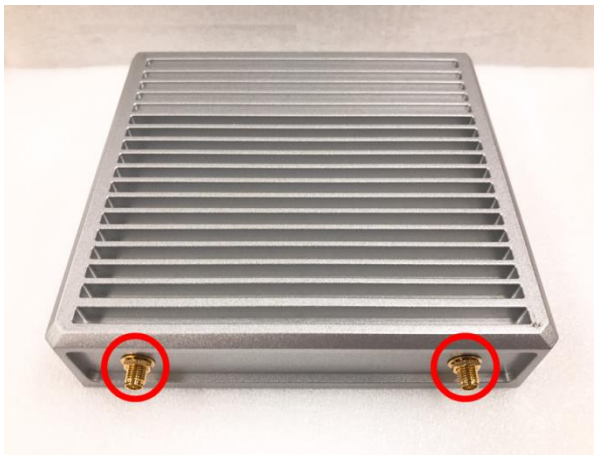
Besides assembling the optional IP42 rating cover kit, please refer to tightening torque below for all system screws and waterproof antenna connectors to ensure the waterproof capability:

⊙ Philips screws at bottom side: 6Kgf-cm



⊙ Waterproof antennas connector of SMA cables: 6Kgf-cm

 **Note:** To support the IP42 rating, must be installed with waterproof SMA cables.



2.1 Installing the PCI Express Mini Card

Step 1 Turn off the system, and unplug the power adaptor.

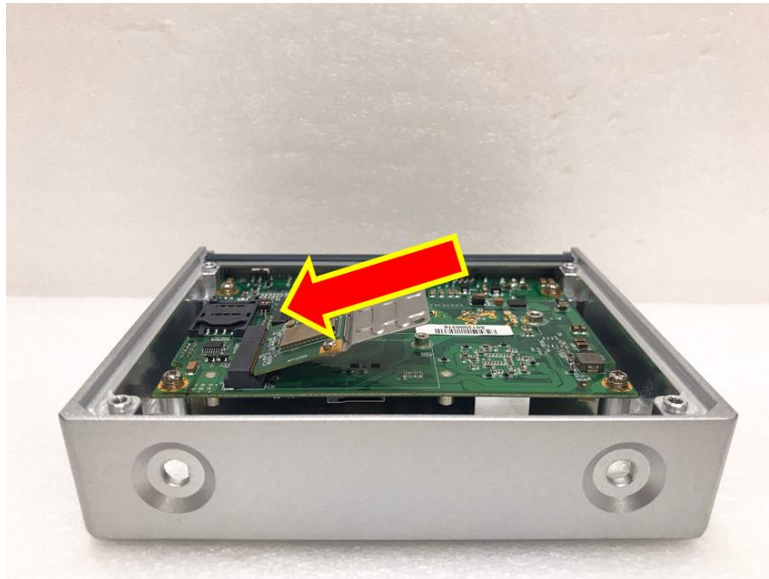
Step 2 Turn the system upside down to locate screws at the bottom side as red marked and loosen four screws.



Step 3 Remove the bottom cover, and locate PCI Express mini card slot on the board.



Step 4 Holding the PCI Express mini card at a 45 degree angle up from horizontal, slowly insert the golden fingers into the PCI Express slot until it is fully inserted in.



Step 5 Press it down gently, but firmly, and then secure the PCI Express mini card to the carrier by tightening up the one M2 Phillips screw to the marked position.




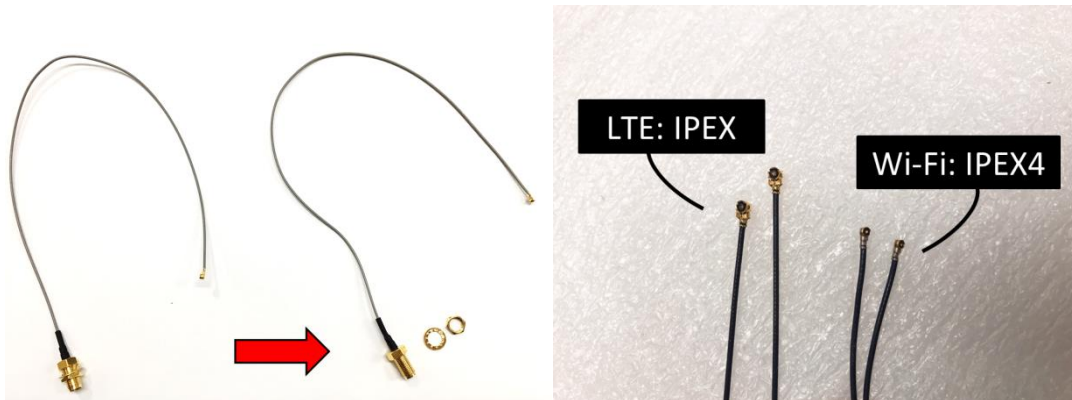
2.2 Installing LTE or Wi-Fi Antenna Cable

Step 1 Install the Mini PCIe card into the Mini PCIe slot and affix it with a screw. For more details, please refer to section 2.1: Installing the PCI Express Mini Card.



Step 2 Take the Antenna kit out of its box, and remove the hex nut and washer from the Antenna cable.

 **Note:** The LTE and Wi-Fi module comes with the different type of SMA cable, one is IPEX, and another one is IPEX4, please do not mix and match them.



Step 3 Install the antenna cable connector through the opening at the rear of the chassis.



Step 4 Put the washer and Hex nut into the antenna cable connector, and tighten it up.





Step 5 Connect the antenna cable to the PCI Express mini card.



2.3 Installing the M.2 2280 Key M SSD Drive

Step 1 Turn off the system, and unplug the power adaptor.

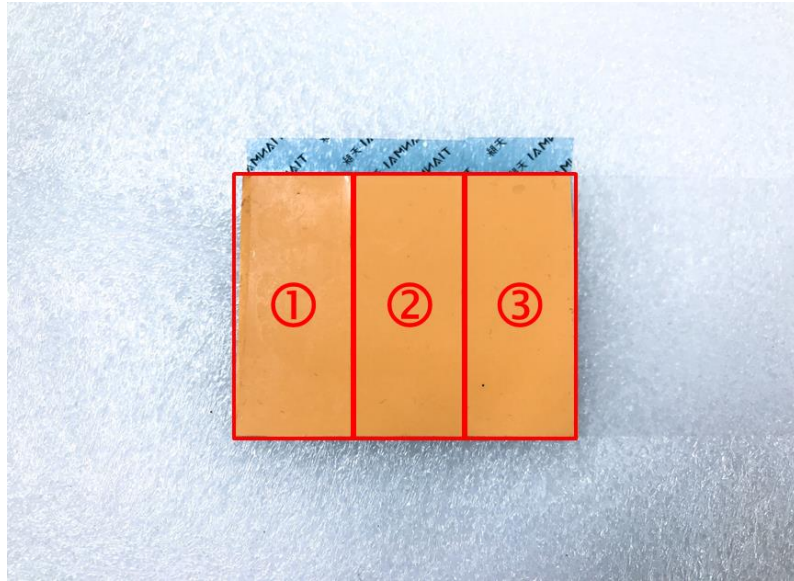
Step 2 Turn the system upside down to locate screws at the bottom side as red marked and loosen four screws.



Step 3 Remove the bottom cover, and locate the M.2 2280 Key M slot on the board.



Step 4 Take 3pcs thermal pads out of its box.



Step 5 Apply one thermal pad on the M.2 2280 Key M slot.



Step 6 Holding the M.2 2280 Key M SSD drive at a 30 degree angle up from horizontal, slowly insert the golden fingers into the M.2 2280 Key M slot until it is fully inserted in.



Step 7 Press it down gently, but firmly, and then secure the M.2 2280 Key M SSD drive to the carrier by tightening up the one M3 Phillips head screw to the marked position.



Step 8 Apply another two thermal pads on the M.2 2280 Key M SSD drive.

Note: The thickness of the SSD drive may be different by the different manufacturers, to avoid system damaged by forced closing of the bottom cover and improperly installed. Please check M.2 thickness first to decide to apply how many pieces thermal pads on the M.2 SSD Drive, or please install the M.2 SSD Drive suggested by

Note: Thermal Pads dimension: 60mm (L) x 25mm (W) x 2mm (H)



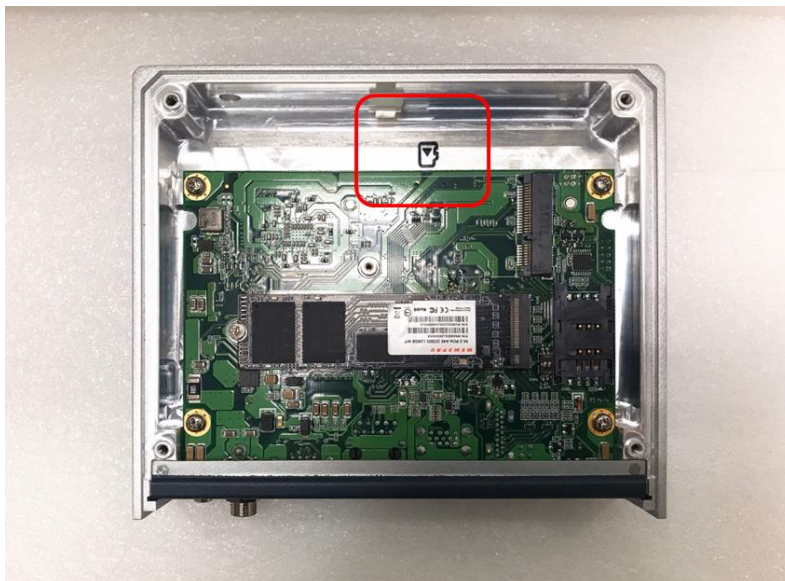
2.4 Installing the MicroSD Card

Step 1 Turn off the system, and unplug the power adaptor.

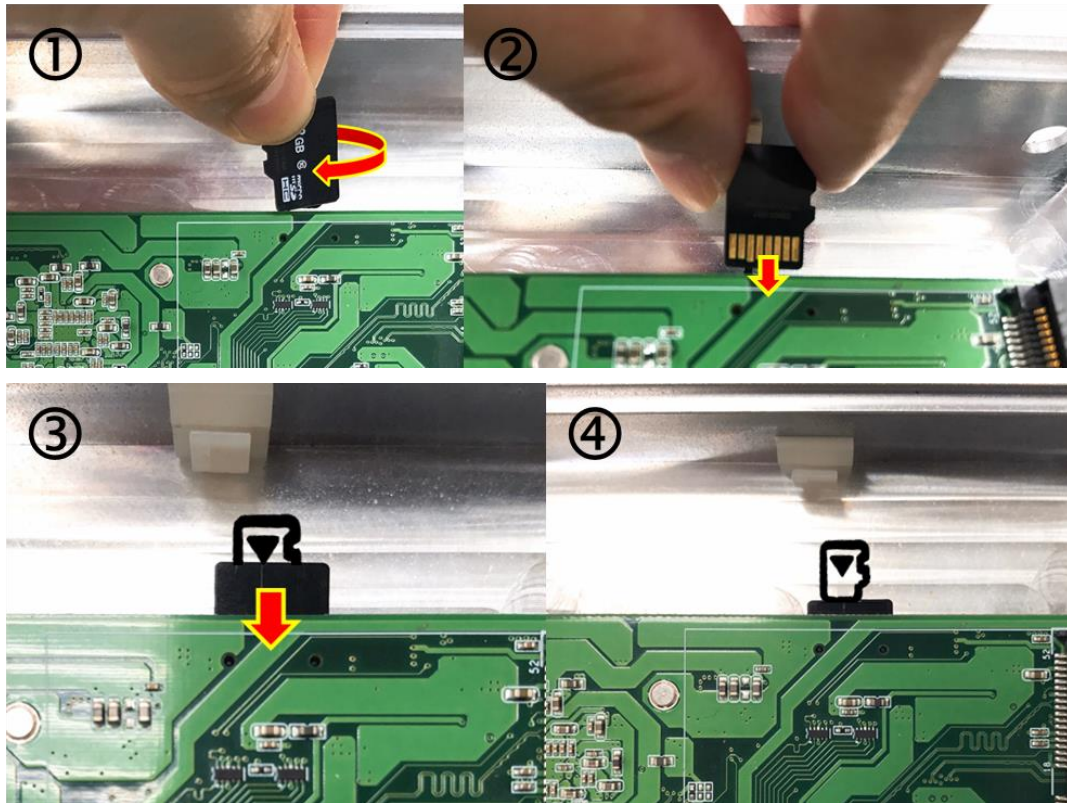
Step 2 Turn the system upside down to locate screws at the bottom side as red marked and loosen four screws.



Step 3 Remove the bottom cover, and locate MicroSD icon  on the board.



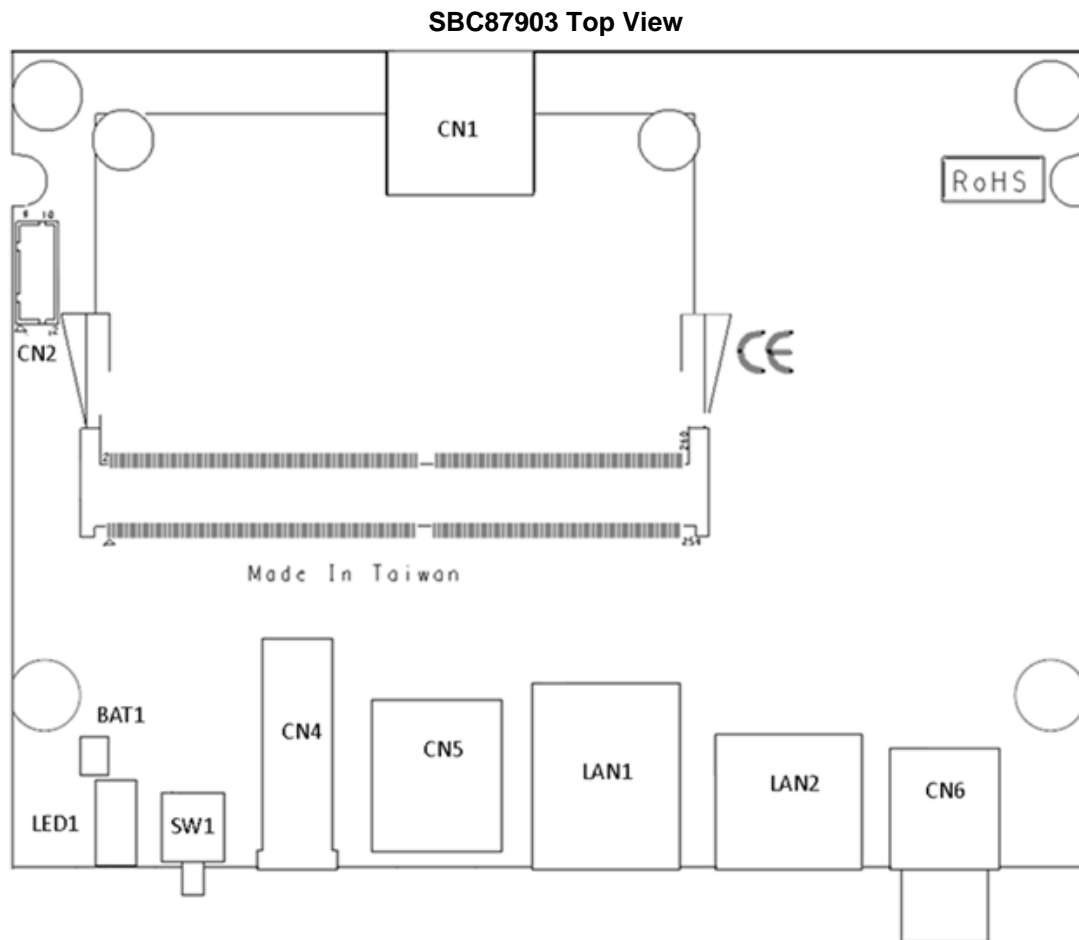
Step 4 Turn the MicroSD card upside down, and hold it with fingers at a 30 degree angle up from horizontal, and then insert and press it gently.



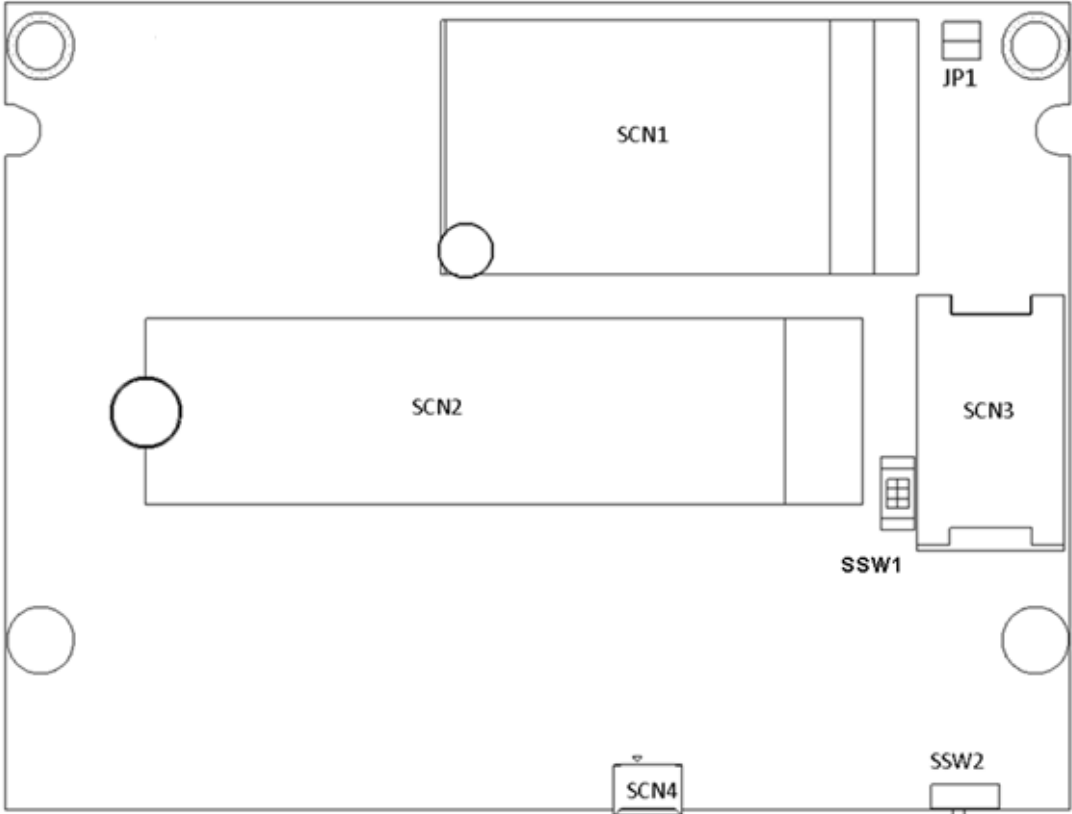
SECTION 3 JUMPER SETTING & CONNECTOR

Proper jumper settings configure the _____ to meet your application purpose. We are here with listing a summary table of all jumpers and default settings for onboard devices, respectively.

3.1 Jumper & Connector Location



SBC87903 Bottom View



3.2 Connectors

Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors and button on the Series.

External Connectors / Buttons	PCB Location	Section
MicroSD slot	CN1	3.2.1
Digital I/O Connector (Optional)	CN2	3.2.2
HDMI Connector	CN4	3.2.3
USB2.0 & USB3.1 Gen2 Connector	CN5	3.2.4
DC-in Connector	CN6	3.2.5
PCI-Express Mini Card slot	SCN1	3.2.6
M.2 2280 Key M PCIe x4 SSD slot	SCN2	3.2.7
SIM Card Slot	SCN3	3.2.8
Micro USB 2.0 Connector (For Jetpack flash only)	SCN4	3.2.9
Ethernet Ports	LAN1	3.2.10
PoE Ports	LAN2	3.2.10
Power Button & Reset Button	SW1	3.2.11
AT/ATX Switch	SSW1	3.2.12
Recovery Mode Switch	SSW2	3.2.13
Debug Port Connector	JP1	3.2.14
CMOS Battery Interface	BAT1	3.2.15
Power and Storage LED Indicator	LED1	3.2.16

3.2.1 Micro SD Slot (CN1)

The Micro Secure Digital (SD) is a flash memory card format used in portable device including notebook and digital camera.

Pin	Signal	Pin	Signal
1	DATA1	5	+3.3VS
2	DATA0	6	CMD
3	GND	7	DATA3
4	CLK	8	DATA2

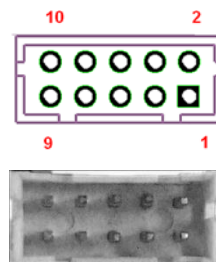


3.2.2 Digital I/O Connector (CN2) (Optional)

The supports one 8-Channel digital I/O connector by option.

The digital I/O is controlled via software programming.

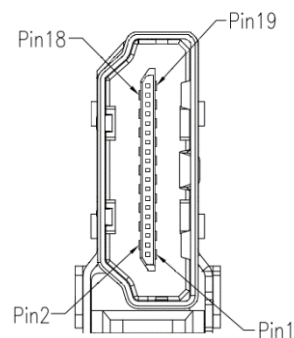
Pin	Signal	Pin	Signal
1	DIO1	2	DIO2
3	DIO3	4	DIO4
5	DIO5	6	DIO6
7	DIO7	8	DIO8
9	+5V_SBY	10	GND



3.2.3 HDMI Connector (CN4)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable.

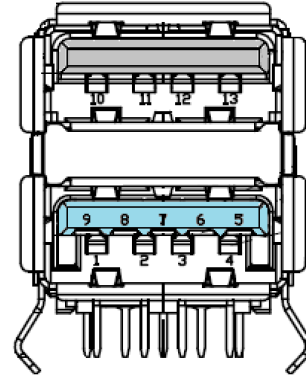
Pin	Signal	Pin	Signal
1	HDMI1_DATA2+	2	GND
3	HDMI1_DATA2-	4	HDMI1_DATA1+
5	GND	6	HDMI1_DATA1-
7	HDMI1_DATA0+	8	GND
9	HDMI1_DATA0-	10	HDMI1_CLK+
11	GND	12	HDMI1_CLK-
13	HDMI_CEC	14	NC
15	HDMI1_SCL	16	HDMI1_SDA
17	GND	18	+5V
19	HDMI_HTPLG		



3.2.4 USB2.0 & USB3.1 Gen2 Connector (CN5)

The Universal Serial Bus connectors are compliant with USB 2.0 (480Mbps) and USB 3.1 Gen2 (10Gbps), and ideally for installing USB peripherals such as keyboard, mouse, scanner, etc.

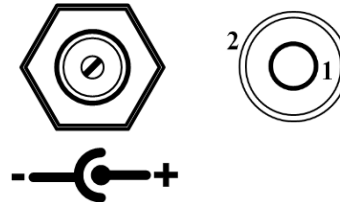
Pin	Signal	Pin	Signal
1	5V_USB1	7	GND
2	USB1_D-	8	USB_SS1_TX-
3	USB1_D+	9	USB_SS1_TX+
4	GND	10	5V_USB2
5	USB_SS1_RX-	11	USB2_D-
6	USB_SS1_RX+	12	USB2_D+
13	GND		



3.2.5 DC Power Jack w/ Screw (CN6)

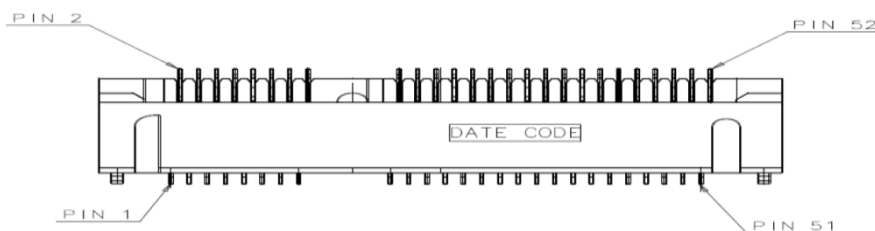
The CN6 is a DC jack with screw. Firmly insert at least 60W adapter into this connector. Loose connection may cause system instability and make sure all components/devices are properly installed before connecting.

Pin	Signal
1	12V
2	GND



3.2.6 PCI-Express Mini Card Connector (SCN1)

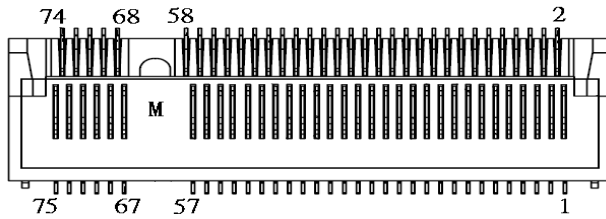
The **SCN1** supports a full-size PCI-Express Mini Card slots. SCN1 is applying to either PCI-Express or USB 2.0 signal, and complies with PCI-Express Mini Card Spec. V1.2.



Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3V	3	NC	4	GND
5	NC	6	+1.5V	7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA	11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_RESET	15	GND	16	UIM_VPP
17	NC	18	GND	19	NC	20	WLAN_DISABLE# / Xavier™ NX's GPIO05
21	GND	22	NC	23	PEX2_RX-	24	+3.3V
25	PEX2_RX+	26	GND	27	GND	28	+1.5V
29	GND	30	Xavier™ NX's I2C2_SCL	31	PEX2_TX-	32	Xavier™ NX's I2C2_SDA
33	PEX2_TX+	34	GND	35	GND	36	USB2.0_D-
37	GND	38	USB2.0_D+	39	+3.3V	40	GND
41	+3.3V	42	LED_WWAN#	43	GND	44	NC
45	NC	46	NC	47	NC	48	+1.5V
49	NC	50	GND	51	NC	52	+3.3V

3.2.7 M.2 2280 Key M PCIe x4 SSD slot (SCN2)

The _____ comes with one M.2 2280 Key M PCIe x4 NVMe SSD slot for storage.

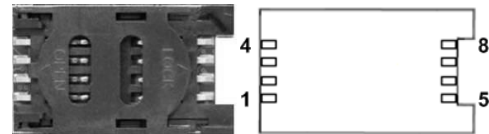


Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	+3.3V	3	GND	4	+3.3V
5	PEX3_RX-	6	NC	7	PEX3_RX+	8	NC
9	GND	10	LED_1#	11	PEX3_TX-	12	+3.3V
13	PEX3_TX+	14	+3.3V	15	GND	16	+3.3V
17	PEX2_RX-	18	+3.3V	19	PEX2_RX+	20	NC
21	GND	22	NC	23	PEX2_TX-	24	NC
25	PEX2_TX+	26	NC	27	GND	28	NC
29	PEX1_RX-	30	NC	31	PEX1_RX+	32	NC
33	GND	34	NC	35	PEX1_TX-	36	NC
37	PEX1_TX+	38	M.2_DEVSLP	39	GND	40	NC
41	PEX0_RX-	42	NC	43	PEX0_RX+	44	NC
45	GND	46	NC	47	PEX0_TX-	48	NC
49	PEX0_TX+	50	PERST#	51	GND	52	CLKREQ#
53	PEX0_REFCLKn	54	PEWAKE#	55	PEX0_REFCLKp	56	NC
57	GND	58	NC	59	CONNECTOR Key M	60	CONNECTOR Key M
61	CONNECTOR Key M	62	CONNECTOR Key M	63	CONNECTOR Key M	64	CONNECTOR Key M
65	CONNECTOR Key M	66	CONNECTOR Key M	67	NC	68	NC
69	NC	70	+3.3V	71	GND	72	+3.3V
73	GND	74	+3.3V	75	GND		

3.2.8 SIM Card Slot (SCN3)

comes with SIM Card Slot (SCN3) for inserting SIM Card. In order to work properly, the SIM Card must be used together with 3G/LTE module which would be inserted to PCI-Express Mini Card Connector (SCN1). It is mainly used for 3G/LTE wireless network application.

Pin	Signal	Pin	Signal
1	UIM PWR	5	GND
2	UIM RST	6	UIM VPP
3	UIM CLK	7	UIM DATA
4	NC	8	NC



3.2.9 Micro USB 2.0 Connector (OTG) (SCN4)

The SCN4 is specifically designed for image flashing only. To flash Jetpack, please switch SSW2 to ON before booting up the system, which would force the system to recovery mode.

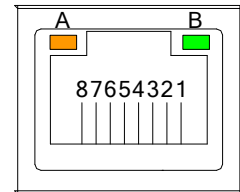
Pin	Signal
1	+5V
2	USB0 DN
3	USB0 DP
4	GND
5	GND



3.2.10 Ethernet Ports (LAN1, LAN2)

The comes with two RJ-45 connectors: LAN1 (NVIDIA® Jetson Xavier™ NX) and LAN2 (Intel® I210-IT). LAN1 is a GbE port, but LAN2 is the GbE PoE port (non-isolated), which is compliant IEEE 802.3af class 3, and the total power budget is 15Watts maximum.

LAN1		LAN2 (PoE)	
Pin	Signal	Pin	Signal
1	Tx+(Data transmission positive)	1	Tx+ (Data transmission positive)
2	Tx-(Data transmission negative)	2	Tx- (Data transmission negative)
3	Rx+(Data reception positive)	3	Rx+(Data reception positive)
4	RJ-1(For 1000 base T-Only)	4	RJ-1(For 1000 base T-Only)
5	RJ-1(For 1000 base T-Only)	5	RJ-1(For 1000 base T-Only)
6	Rx- (Data reception negative)	6	Rx- (Data reception negative)
7	RJ-1(For 1000 base T-Only)	7	RJ-1(For 1000 base T-Only)
8	RJ-1(For 1000 base T-Only)	8	RJ-1(For 1000 base T-Only)
A	Active LED	A	Active LED
B	Speed LED (1000M)	B	Speed LED (1000M / 100M)

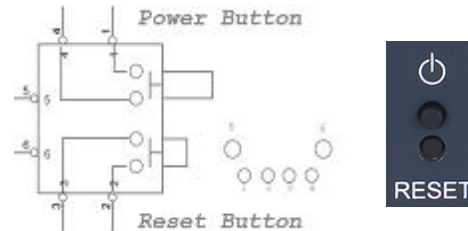


3.2.11 Power Button & Reset Button (SW1)

Power button can allow users to either turn on the the system, and the reset button can allow users to reset abnormal situation.

or forcibly shut down during system

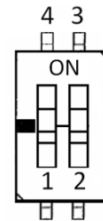
Pin	Signal
1	GND
2	GND
3	RST_BTN
4	PWR_BTN
5	GND
6	GND



3.2.12 AT/ATX Switch (SSW1)

If you turn OFF the Pin1 (AT mode) of SSW1, the system will be automatically power on without pressing soft power button during power input; we can use this switch to achieve auto power on demand.

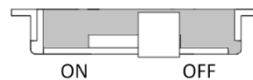
Pin	Description	ON (Default)	OFF
1	AT / ATX Mode	ATX	AT
2	NC	NC	NC



3.2.13 Recovery Mode Switch (SSW2)

It will make NVIDIA® Jetson Xavier™ NX force recovery mode when switching SSW2 to ON before booting up the system.

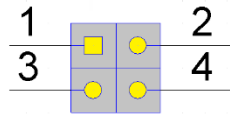
Pin	Signal
ON	Recovery Mode
OFF	Normal



3.2.14 Debug Port Connector (JP1)

The JP1 is the serial debug port (UART Port0) for debugging purposes at software development.

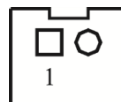
Pin	Signal
1	+5V
2	UART2_TXD_3.3V
3	GND
4	UART2_RXD_3.3V



3.2.15 CMOS Battery Interface (BAT1)

This connector is for CMOS battery interface.

Pin	Signal
1	+VBAT
2	GND



3.2.16 Power and Storage LED Indicator (LED1)

The Yellow LED is linked to Solid-state Drive (SSD) activity signal. LED flashes every time SSD is accessed. The power LED (Green) lights up and will remain steady while the system is powered on.

LED Color	Description
Yellow	Solid-state drive activity
Green	Power on/off



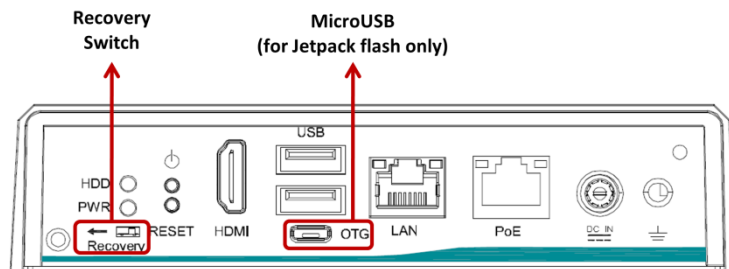
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SECTION 4 JETPACK BSP FLASH METHOD

This chapter provides users with a detailed description of how to flash NVIDIA Jetpack BSP for [Jetson Xavier NX](#), the user could follow the below instruction to install or reinstall Jetpack BSP by themselves.

4.1 Jetpack Flash Method

Please use the following instructions to flash the JetPack to the [Jetson Xavier NX](#).



Please contact our sales or FAE for the latest Jetpack SDK, and prepare a Linux host system running x86_64 Ubuntu v16.04

Note: If the Linux host system is running x86_64 Ubuntu v18.04, please follow the instructions below to install Python first.

- Step 1. Connect the Linux host system to internet
- Step 2. Install Python with the command below:

```
sudo apt-get update  
sudo apt-get install python
```

Step1. [Connect the Linux host system to the Jetson Xavier NX](#) connection as follows:

- Connect a USB cable from the Linux host system to the Micro USB port at [Jetson Xavier NX](#), and switch the recovery switch to ON. For more details, please refer to 3.2.13 Recovery Mode Switch (SSW2).
- Connect an HDMI monitor to [Jetson Xavier NX](#).

Step2. Open the terminal at the host system, and change the path to the image file directory, e.g., “~/Downloads”, and check image tarball data integrity with the following commands:

```
$ cd ~/Downloads  
$ md5sum -c <image_tarball_file_name>.tbz2.md5sum
```

Command Example:

```
$ md5sum -c mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0.tbz2.md5sum
```

```
axio@axio-B460MD3H: ~/Downloads  
axio@axio-B460MD3H:~/Downloads$ md5sum -c mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0.tbz2.md5sum  
mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0.tbz2: OK  
axio@axio-B460MD3H:~/Downloads$
```

Step3. If the check result returns OK, untar the image file with the command below:

```
$ tar jxvf <image_tarball_file_name>.tbz2
```



Command Example:

```
$ tar jxvf mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0.tbz2
```

```
axio@axio-B460MD3H: ~/Downloads
```

```
axio@axio-B460MD3H:~/Downloads$ tar jxvf mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0.tbz2
```

Step4. Change the directory to the image package folder with the command below:

```
$ cd <image_file_name>
```



Command Example:

```
$ cd mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0
```

```
axio@axio-B460MD3H: ~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0
```

```
axio@axio-B460MD3H:~/Downloads$ cd mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0
```

```
axio@axio-B460MD3H:~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0$
```

Step5. Make sure the recovery switch(SSW2) has been switched to ON, and run the command lsusb, then the command line "0955:7e19 Nvidia Corp." should be listed.

```
$ lsusb
```

```
axio@axio-B460MD3H: ~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0
```

```
axio@axio-B460MD3H:~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0$ lsusb
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 071: ID 1c4f:0002 SiGma Micro Keyboard TRACER Gamma Ivory
Bus 001 Device 105: ID 0955:7e19 NVidia Corp.
Bus 001 Device 005: ID 05e3:0608 Genesys Logic, Inc. Hub
Bus 001 Device 004: ID 1c4f:0034 SiGma Micro
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
axio@axio-B460MD3H:~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0$
```

Step6. Running the following command to flash the image.

```
$ sudo ./nvmflash.sh
```

```
axio@axio-B460MD3H: ~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0
axio@axio-B460MD3H:~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0$ sudo ./nvmflash.sh
Start flashing device: 1-7, PID: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
```

Step7. The flashing procedure takes approximately 20 minutes or more. Once finished, you should see “Flash complete (SUCCESS)” as shown below, and will automatically reboot, and please switch the recovery switch(SSW2) to OFF to return to standard mode.

```
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Ongoing processes: 19855
Flash complete (SUCCESS)
axio@axio-B460MD3H:~/Downloads/mfi_jetson-xavier-nx-JP4.6.2-SBC87903-V1.0.0$
```

THE DEFAULT LOGIN CREDENTIALS:

Username: nvidia Password: nvidia

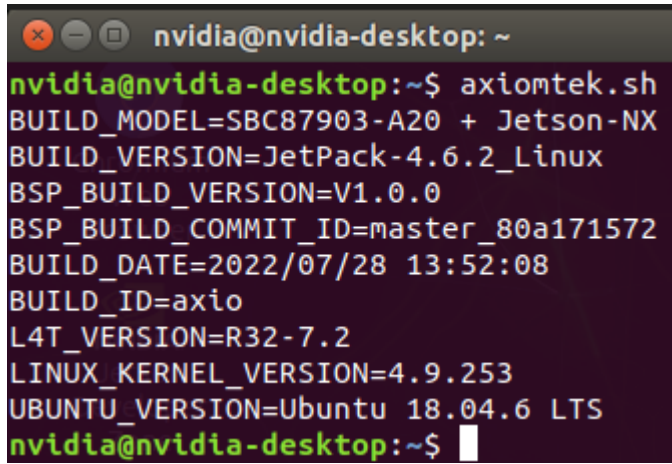
⚠CAUTION:



Running `$ sudo apt upgrade` command for NVIDIA JetPack OTA may overwrite the BSP of the series platform, which can cause unexpected results including losing I/O ports. For regular JetPack updates or reflashing, please contact our sales or FAE to get the latest Series JetPack image.

4.2 Image Information Inquiry Command

Running `axiomtek.sh` command to inquiry the current image information, image version, L4T version, Linux kernel version, and Ubuntu version.

A terminal window titled 'nvidia@nvidia-desktop: ~' showing the execution of the 'axiomtek.sh' command. The output lists various build parameters and versions.

```
nvidia@nvidia-desktop:~$ axiomtek.sh
BUILD_MODEL=SBC87903-A20 + Jetson-NX
BUILD_VERSION=JetPack-4.6.2_Linux
BSP_BUILD_VERSION=V1.0.0
BSP_BUILD_COMMIT_ID=master_80a171572
BUILD_DATE=2022/07/28 13:52:08
BUILD_ID=axio
L4T_VERSION=R32-7.2
LINUX_KERNEL_VERSION=4.9.253
UBUNTU_VERSION=Ubuntu 18.04.6 LTS
nvidia@nvidia-desktop:~$
```


4.3 JTOP — Third-party Jetson Platform Monitor Tool

JTOP is a third-party system monitoring utility that runs on the terminal and see and control realtime the status of the Series Platform. CPU, RAM, GPU status, power mode management, toolkits version and more.

Installation Guide:

Please connect to the internet and enter the following commands in the terminal to install JTOP.

```
$ sudo apt install python-pip python3-pip
$ sudo -H pip install -U jetson-stats
```

Once installation is completed, reboot the device and then type the below command in the terminal to launch JTOP:

```
$ sudo jtop
```

 **Note:** JTOP may require approximately 200 to 300 MB of storage space.

