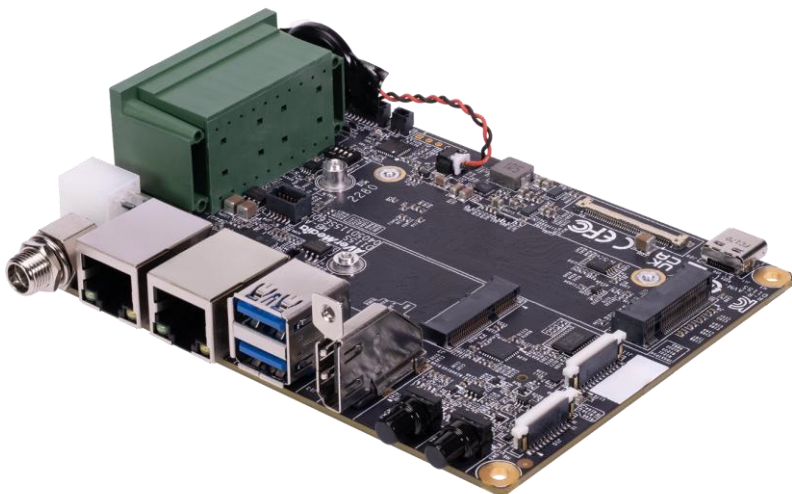


## AVerMedia D115S

Applies to NVIDIA® Jetson Orin™ NX/ Orin™ NANO Module



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## **Preface**

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**Revision History**

| Revision | Date          | Updates                                                                 |
|----------|---------------|-------------------------------------------------------------------------|
| V0.1     | July 04, 2025 | 1 <sup>st</sup> Released                                                |
| V0.2     | July 28, 2025 | Update 3.19                                                             |
| V0.3     | Sep. 15, 2025 | Modify Product warranty                                                 |
| V0.4     | Aug.26, 2026  | Update Dimension Drawings (the mounting pitch and screw hole diameter ) |
|          |               |                                                                         |
|          |               |                                                                         |
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## ESD Warning

Electronic components and circuits are sensitive to Electrostatic Discharge (ESD). When handling any circuit board assemblies including AVerMedia AVerMedia products, it is highly recommended that ESD safety precautions can be observed. ESD safe best practices can include, but are not limited to the following ones.

1. Leave the circuit board in the antistatic package until it is ready to be installed.
2. Use a grounded wrist strap when handling the circuit board. At a minimum, you need to touch a grounded metal object to dissipate any static charge, which may be present on you.
3. Avoid handling the circuit board in the carpeted areas.
4. Handle the board by the edges and avoid the contact <sup>TOP</sup><sub>SEP</sub> with the components.
5. Only handle the circuit boards in ESD safe areas, which may include ESD floor and/or table mats, wrist strap stations, and ESD safe lab coats.

## Safety Precaution:

1. All cautions and warnings on the device should be noted.
2. For safety consideration, do NOT open the device if not a qualified service stuff.
3. Place the device on a solid surface during installation to prevent falls.
4. Keep the device away from humidity.
5. Do NOT leave this device in an un-controlled environment with temperatures beyond the device's permitted storage temperature to avoid damage.
6. All adaptors and cables supplied by AVerMedia are verified. Do NOT use any others not supplied by AVerMedia to avoid any malfunction or fires.
7. Make sure the power source matches the power rating of the device.
8. Place the power cord where people cannot step on it. Do not put anything on the power cord.
9. Always completely disconnect the power while the device is not usage or idle for a long time.

10. Disconnect the device from any AC supply before cleaning. While cleaning, use a damp cloth instead of liquid or spray detergents.
11. Make sure the device is installed near a power outlet and easy for accessible.
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out the heatsink or heat spreader of the device when the system is running.
14. Never pour any liquid into the openings. This could cause fire or electric shock.
15. The static electricity should be noted while installing any internal components. Consider to use a grounding wrist strap and put all electronic parts in static-shielded containers.

If the following situations occur, please contact our service personnel:

- (1) The device is dropped or damaged
- (2) Damaged power cord or plug
- (3) Exposure to moisture
- (4) Liquid intrusion into the device
- (5) Any obvious signs of damage displayed on the device
- (6) Device is not working as expected or in a manner as described in this manual



## **1.0 Introduction**

AVerMedia D115S/D115SOXP/D115SONP is a fully featured carrier board/box PC designed for NVIDIA® Jetson Orin NX/Orin Nano modules. AVerMedia provides access to a wide range of latest interfaces on NVIDIA® Jetson Orin NX/Orin Nano modules.

D115S/D115SOXP/D115SONP provide HDMI video output, two USB 3.2 ports, two GbE RJ-45 ports (Option PoE x1), 20-pin expansion header, and one USB 2.0 type C port for recovery.

Operating with NVIDIA® Jetson Orin NX/Orin Nano modules and the rich I/O functions, AVerMedia D115S/D115SOXP/D115SONP is the perfect choice in building a compact, high performance AI edge computing platform for the intelligent video analytics applications.

## 1.1 Product Specifications

|                                            |                                                                                                                     |                              |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>Model</b>                               | <b>D115S</b>                                                                                                        |                              |
| <b>Type</b>                                | Carrier board                                                                                                       |                              |
| <b>NVIDIA GPU SoC Module Compatibility</b> | NVIDIA® Jetson Orin NX module<br>NVIDIA® Jetson Orin NANO module                                                    |                              |
| <b>Networking</b>                          | 2x GbE RJ-45 (Option PoE x1)<br>1xM.2. key E 2230 for Wi-Fi                                                         |                              |
| <b>Display Output</b>                      | 1x HDMI 4Kp60 for Orin NX<br>1x HDMI 4Kp30 for Orin Nano                                                            |                              |
| <b>Temperature</b>                         | Operating temperature: -40°C~85°C<br>Storage temperature -40°C~85°C<br>Relative humidity 40°C @ 95%, Non-Condensing |                              |
| <b>MIPI Camera Inputs</b>                  | 2x 4 lane MIPI CSI-2, 22 pin FPC 0.5mm Pitch Connector                                                              |                              |
| <b>USB</b>                                 | 2x USB 3.2 Type-A<br>1x USB 2.0 type C for recovery                                                                 |                              |
| <b>Storage</b>                             | 1x M.2 key M 2280 for SSD                                                                                           |                              |
| <b>Misc</b>                                | 20 pins: 2x I2C, 2x UART, 4x GPIOs, 1xCAN<br>TPM2.0                                                                 |                              |
| <b>Expansion</b>                           | 802.3AF PSE board(optional)<br>OOB board(optional)<br>5G Daughter Board(optional)                                   |                              |
| <b>Power requirement</b>                   | Voltage                                                                                                             | DC 12~24V                    |
|                                            | Current                                                                                                             | DC IN Jack on board: 10A Max |
|                                            |                                                                                                                     | ATX 4pin: 10A Max            |
| <b>Power Cord</b>                          | US/JP/EU/UK/TW/AU/CN power cord (optional)                                                                          |                              |
| <b>Fan Module</b>                          | Heat sink with fan (optional)                                                                                       |                              |
| <b>Buttons</b>                             | Power and Recovery                                                                                                  |                              |
| <b>RTC Battery</b>                         | Support RTC battery and Battery Life Monitoring by MCU                                                              |                              |
| <b>Dimensions</b>                          | W:120mm x L:90mm; Weight: 125 g                                                                                     |                              |
| <b>Certifications</b>                      | CE, FCC, VCCI, KC (TBD)                                                                                             |                              |

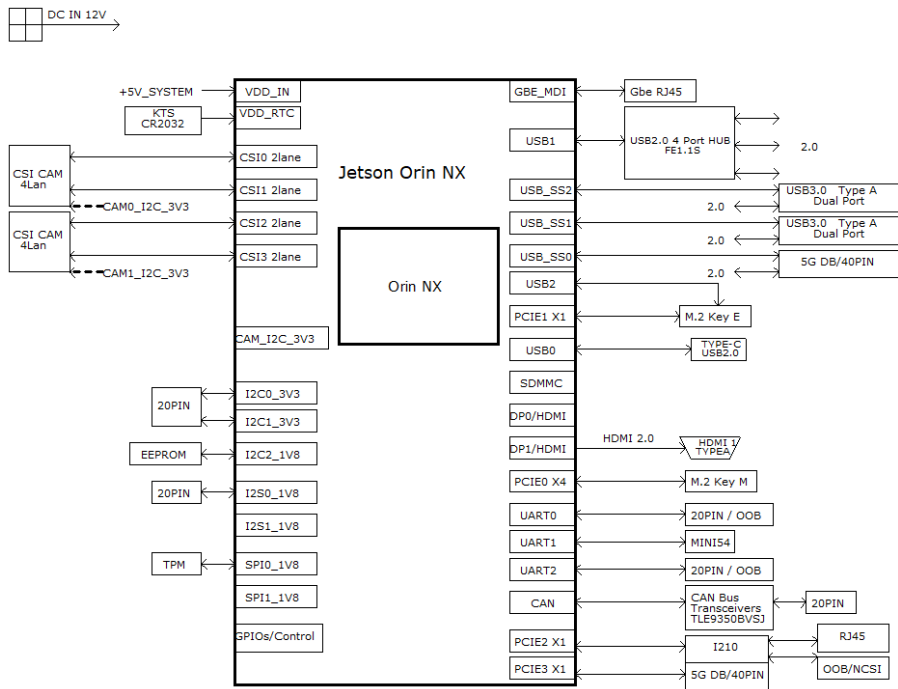
|                                            |                                                                                                                                                                                                                            |                                                   |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| <b>Model</b>                               | <b>D115SOXP/D115SONP</b>                                                                                                                                                                                                   |                                                   |
| <b>Type</b>                                | BOX PC                                                                                                                                                                                                                     |                                                   |
| <b>NVIDIA GPU SoC Module Compatibility</b> | NVIDIA® Jetson Orin NX module<br>NVIDIA® Jetson Orin NANO module                                                                                                                                                           |                                                   |
| <b>Networking</b>                          | 2x GbE RJ-45 (Option PoE x1)<br>1x M.2, key E 2230 for Wi-Fi                                                                                                                                                               |                                                   |
| <b>Display Output</b>                      | 1x HDMI 4Kp60 for Orin NX<br>1x HDMI 4Kp30 for Orin Nano                                                                                                                                                                   |                                                   |
| <b>Temperature</b>                         | Operating temperature: -25°C~40°C (Orin NX super mode)<br>Operating temperature: -25°C~60°C (Orin NX normal/Nano normal/Nano super mode)<br>Storage temperature -40°C~85°C<br>Relative humidity 40°C @ 95%, Non-Condensing |                                                   |
| <b>MIPI Camera Inputs</b>                  | 2x 4 lane MIPI CSI-2, 22 pin FPC 0.5mm Pitch Connector                                                                                                                                                                     |                                                   |
| <b>USB</b>                                 | 2x USB 3.2 Type-A<br>1x USB 2.0 type C for recovery                                                                                                                                                                        |                                                   |
| <b>Storage</b>                             | 1x M.2 key M 2280 for SSD                                                                                                                                                                                                  |                                                   |
| <b>Misc</b>                                | 20 pins: 2x I2C, 2x UART, 4x GPIOs, 1xCAN<br>TPM2.0                                                                                                                                                                        |                                                   |
| <b>Expansion</b>                           | 802.3AF PSE board(optional)<br>OOB board(optional)<br>5G Daughter Board(optional)                                                                                                                                          |                                                   |
| <b>Power requirement</b>                   | Voltage                                                                                                                                                                                                                    | DC 12~24V                                         |
|                                            | Current                                                                                                                                                                                                                    | DC IN Jack on board: 10A Max<br>ATX 4pin: 10A Max |
| <b>Power adapter/Power Cord</b>            | 19V/4.73A adapter and US/JP/EU/UK/TW/AU/CN power cord (optional)                                                                                                                                                           |                                                   |
| <b>Fan Module</b>                          | Fanless solution                                                                                                                                                                                                           |                                                   |
| <b>Buttons</b>                             | Power and Recovery                                                                                                                                                                                                         |                                                   |
| <b>RTC Battery</b>                         | Support RTC battery and Battery Life Monitoring by MCU                                                                                                                                                                     |                                                   |
| <b>Dimensions</b>                          | W:126mm x L:96mm x H:73.9mm (W:162mm with mounting ears); Weight: 1kg (TBD) (Normal mode)<br>W:190mm x L:175mm x H:80mm (W:226mm with mounting ears)(by request)<br>Weight: 4 Kg (TBD) (Super mode)                        |                                                   |
| <b>Certifications</b>                      | CE, FCC, VCCI, KC (TBD)                                                                                                                                                                                                    |                                                   |

## 1.2 Option Accessory

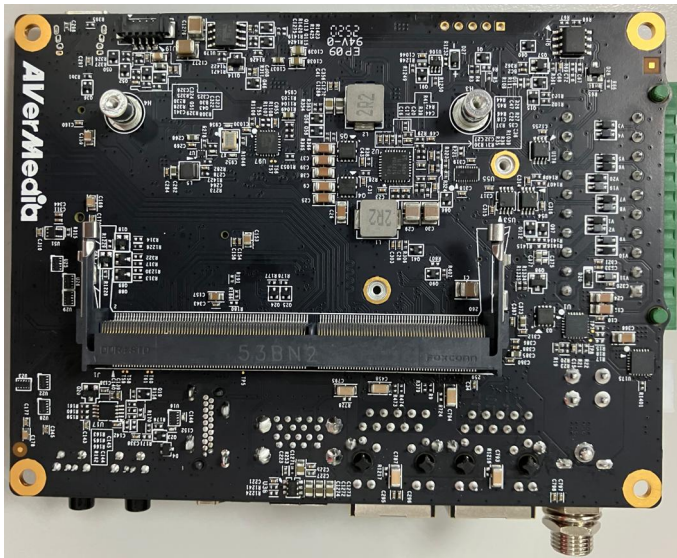
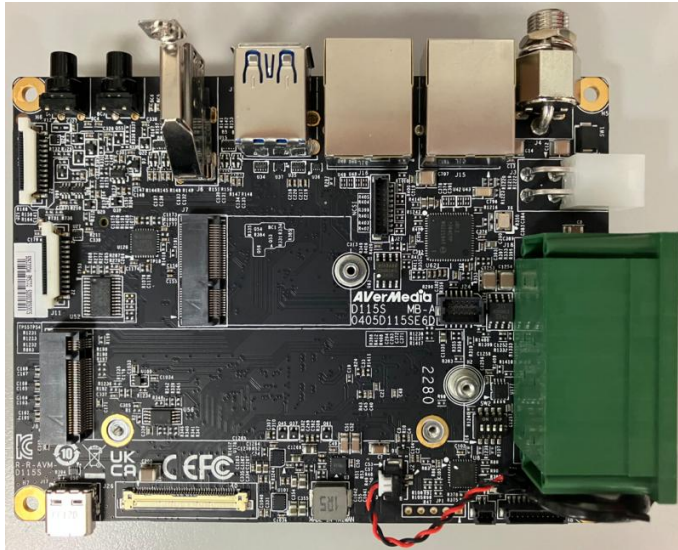
| Item                          | D115S                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NVIDIA® Jetson                | NVIDIA® Jetson Orin NX/Orin Nano                                                                                                                                                                                                                                                                                                                             |
| Power Cord                    | EU/JP/TW/US/CN/UK/AU                                                                                                                                                                                                                                                                                                                                         |
| MIPI Camera<br>(internal I/O) | <ul style="list-style-type: none"> <li>● For 22 pin MIPI connector</li> <li>1. raspberry pi imx219 &amp; imx477 (V2)</li> <li>2. Manufacturer: APPRO.PHO <ul style="list-style-type: none"> <li>• B-04: IMX179(8M)MIPI, 1080P(30fps)</li> <li>• C-04: IMX290(2M)MIPI, 1080P(30fps)</li> <li>• C-05: IMX290(2M)+ISP(YUV), 1080P(30fps)</li> </ul> </li> </ul> |

## 2.0 Product Overview

### 2.1 Block Diagram



## 2.2 Front View and Back View of Carrier board



## 2.3 Front View and Back View of BOX PC

Left view



Right view



Top view



Front view



Rear view



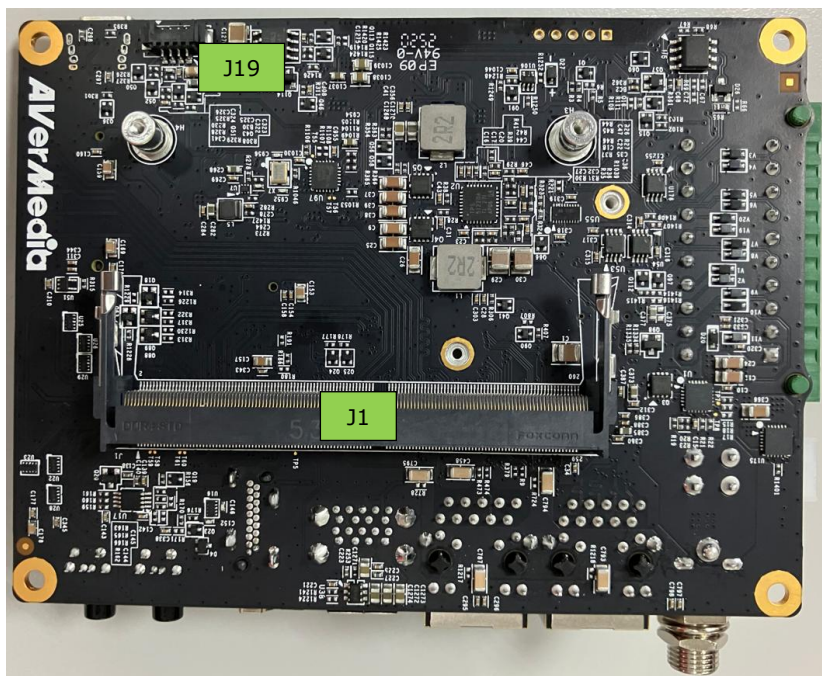
Bottom view



## 2.4 Connector Summary

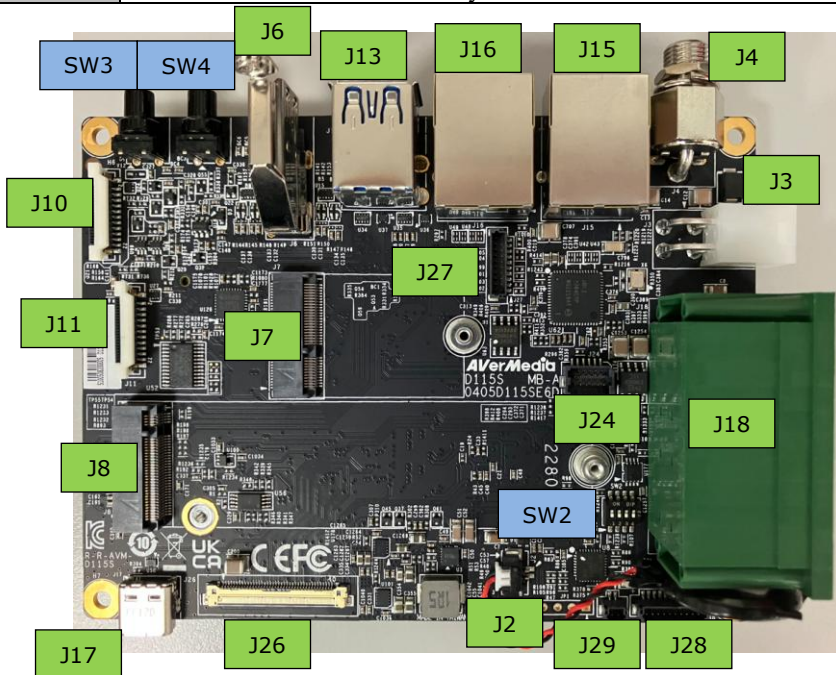
### Top View Interface

|     |                                         |
|-----|-----------------------------------------|
| J1  | SO-DIMM 260-pin 90° SMD Socket(H-9.2mm) |
| J19 | Fan Wafer                               |



## Bottom View Interface

|     |                                                     |
|-----|-----------------------------------------------------|
| J2  | External RTC Battery wafer                          |
| J3  | ATX 4pin (Molex Mini-Fit compatible)                |
| J4  | OD 5.5/2.5 DC Jack with Lock                        |
| J6  | HDMI output Type-A Vertical Side Connector (Female) |
| J7  | M.2 E-Key Socket                                    |
| J8  | M.2 M-Key Socket                                    |
| J10 | FPC connector for 4-lane MIPI CSI-2                 |
| J11 | FPC connector for 4-lane MIPI CSI-2                 |
| J13 | USB 3.2 Dual Port Type A Connector                  |
| J15 | Gigabit Ethernet Connector w/LEDs (OOB optional)    |
| J16 | Gigabit Ethernet Connector w/LEDs (PSE optional)    |
| J17 | USB type C connector                                |
| J18 | 20-pin Expansion Terminal Block                     |
| J24 | PSE Board Connector (Maximum 15W)                   |
| J26 | 0.5mm pitch I-PEX connector for optional 5G Board   |
| J27 | OOB Board Connector #1(OOB with NC-SI)              |
| J28 | OOB Board Connector #2(OOB for basic function)      |
| J29 | Expansion connector for external power button       |
| SW2 | DIP switch                                          |
| SW3 | Power Button w/LEDs                                 |
| SW4 | Recovery Button w/LEDs                              |



### 3.0 Feature Description

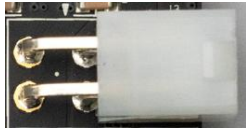
#### 3.1 Jetson module Connector

|                  |                                                                                                               |                                                                                    |
|------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Function         | Provide connection with NVIDIA® Jetson Orin™ NX module                                                        |  |
| Location         | J1                                                                                                            |                                                                                    |
| Description      | SOCKET_DDR4 SO-DIMM_260PIN_90°                                                                                |                                                                                    |
| Manufacturer     | Foxconn                                                                                                       |                                                                                    |
| Part number      | ASAA826-EASB0-7H                                                                                              |                                                                                    |
| Mating Connector | NVIDIA® Jetson Orin NX/Orin Nano                                                                              |                                                                                    |
| Pinout           | Please refer to NVIDIA Jetson System-on-Module datasheet for pinout details.                                  |                                                                                    |
| Remarks          | <a href="https://developer.nvidia.com/embedded/downloads">https://developer.nvidia.com/embedded/downloads</a> |                                                                                    |

#### 3.2 External RTC Battery wafer

|                  |                                                                                                                                                                                                                          |             |                                                                                   |           |      |             |             |           |   |     |   |        |   |         |     |           |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------|-----------|------|-------------|-------------|-----------|---|-----|---|--------|---|---------|-----|-----------|
| Function         | RTC battery for module                                                                                                                                                                                                   |             |  |           |      |             |             |           |   |     |   |        |   |         |     |           |
| Location         | J2                                                                                                                                                                                                                       |             |                                                                                   |           |      |             |             |           |   |     |   |        |   |         |     |           |
| Description      | WAFER_1*2PIN_1.25 mm_90°                                                                                                                                                                                                 |             |                                                                                   |           |      |             |             |           |   |     |   |        |   |         |     |           |
| Manufacturer     | ACES                                                                                                                                                                                                                     |             |                                                                                   |           |      |             |             |           |   |     |   |        |   |         |     |           |
| Part number      | 50271-00201-001                                                                                                                                                                                                          |             |                                                                                   |           |      |             |             |           |   |     |   |        |   |         |     |           |
| Mating Connector | ACES 50276-002H0H0-001<br>Molex 51021-8602                                                                                                                                                                               |             |                                                                                   |           |      |             |             |           |   |     |   |        |   |         |     |           |
| Pinout           | <table><tr><td>PIN#</td><td>Description</td><td>Module Pin#</td><td>Type/ Dir</td></tr><tr><td>1</td><td>GND</td><td>-</td><td>Ground</td></tr><tr><td>2</td><td>RTC_BAT</td><td>235</td><td>Power, 3V</td></tr></table> |             |                                                                                   |           | PIN# | Description | Module Pin# | Type/ Dir | 1 | GND | - | Ground | 2 | RTC_BAT | 235 | Power, 3V |
|                  | PIN#                                                                                                                                                                                                                     | Description | Module Pin#                                                                       | Type/ Dir |      |             |             |           |   |     |   |        |   |         |     |           |
|                  | 1                                                                                                                                                                                                                        | GND         | -                                                                                 | Ground    |      |             |             |           |   |     |   |        |   |         |     |           |
| 2                | RTC_BAT                                                                                                                                                                                                                  | 235         | Power, 3V                                                                         |           |      |             |             |           |   |     |   |        |   |         |     |           |
| Remarks          | RTC Battery: KTS, CR2032 3V                                                                                                                                                                                              |             |                                                                                   |           |      |             |             |           |   |     |   |        |   |         |     |           |

#### 3.3 ATX 4pin (Molex Mini-Fit compatible)

|                  |                                                                                            |             |                                                                                    |
|------------------|--------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|
| Function         | DC Power input                                                                             |             |   |
| Location         | J3                                                                                         |             |                                                                                    |
| Description      | WAFER_2*2PIN_4.2 mm_90°_DIP                                                                |             |                                                                                    |
| Manufacturer     | JOINT                                                                                      |             |                                                                                    |
| Part number      | C4255WR-2X02PN2NT1N00B                                                                     |             |                                                                                    |
| Mating Connector | Follow ATX 4pin plug or molex mini fit plug                                                |             |  |
| Pinout           |                                                                                            |             |                                                                                    |
|                  | PIN#                                                                                       | Description |                                                                                    |
|                  | 1                                                                                          | GND         |                                                                                    |
|                  | 2                                                                                          | GND         |                                                                                    |
|                  | 3                                                                                          | 9-24V Power |                                                                                    |
|                  | 4                                                                                          | 9-24V Power |                                                                                    |
| Remarks          | It can be changed to the 180° type for internal use, based on the customer's requirements. |             |                                                                                    |

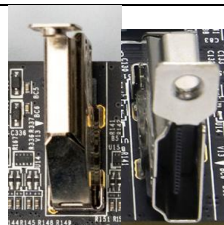
### 3.4 OD 5.5/2.5 DC Jack with Lock

|                  |                               |                                                                                                                                                                         |
|------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function         | DC Power input with lock      | <br> |
| Location         | J4                            |                                                                                                                                                                         |
| Description      | JACK_DC POWER_D2.5 mm_90°_DIP |                                                                                                                                                                         |
| Manufacturer     | JKCR                          |                                                                                                                                                                         |
| Part number      | DCD-020-105B                  |                                                                                                                                                                         |
| Mating Connector | Any OD 2.5mm power plug       |                                                                                                                                                                         |
| Pinout           | N/A                           |                                                                                                                                                                         |
| Remarks          | NA                            |                                                                                                                                                                         |

### 3.5 HDMI OUTPUT

|          |                       |  |
|----------|-----------------------|--|
| Function | HDMI output connector |  |
|----------|-----------------------|--|

|                  |                                                     |
|------------------|-----------------------------------------------------|
| Location         | J6                                                  |
| Description      | HDMI Type-A female connector                        |
| Manufacturer     | Compupack.                                          |
| Part number      | ACNHM210021-001                                     |
| Mating Connector | Any HDMI standard Type-A interface cable or device. |
| Pinout           | Please refer to HDMI standard.                      |
| Remarks          | None                                                |



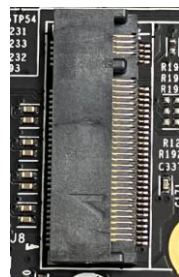
### 3.6 M.2 E-Key 2230

|                  |                                                                                                                                                                  |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function         | M.2 E key                                                                                                                                                        |
| Location         | J7                                                                                                                                                               |
| Type Description | SOCKET_M.2-KEY E_75PIN_90°_SMD                                                                                                                                   |
| Manufacturer     | ACES                                                                                                                                                             |
| Part number      | 51750-0750P-005_P0.5 mm-H3.05 mm                                                                                                                                 |
| Mating Connector | Any M.2 E key 2230 card standard interface device.                                                                                                               |
| Pinout           | Please refer to M.2 E key card standard for the pinout details.                                                                                                  |
| Remarks          | PCIe related@PCIe1(PCIe C1@0x14100000) & USB signal supported only<br>Support PCIe Gen4 x1 & USB 2.0 for Orin NX<br>Support PCIe Gen3 x1 & USB 2.0 for Orin Nano |



### 3.7 M.2 M-Key 2280

|                  |                                                                 |
|------------------|-----------------------------------------------------------------|
| Function         | M.2 M key                                                       |
| Location         | J8                                                              |
| Description      | SOCKET_M.2-KEY_M_75PIN_90°_SMD                                  |
| Manufacturer     | ACES                                                            |
| Part number      | 51757-0750C-012_P0.5 mm-H5.5 mm                                 |
| Mating Connector | Any M.2 M key 2280 card standard interface device.              |
| Pinout           | Please refer to M.2 M key card standard for the pinout details. |



|         |                                                                                                                                         |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Remarks | PCIe related signal supported only @PCIe0(PCIe C4@0x14160000)<br>Support PCIe Gen4 x4 for Orin NX<br>Support PCIe Gen3 x4 for Orin Nano |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------|

## 3.8 MIPI CSI-2 DPHY Lanes

|                          |                                        |              |             |                                                                                   |
|--------------------------|----------------------------------------|--------------|-------------|-----------------------------------------------------------------------------------|
| Function                 | MIPI camera module connector           |              |             |  |
| Location                 | J10 , J11                              |              |             |                                                                                   |
| Description              | ACES<br>ZIF FPC Conn. 22PIN 0.5 mm 90° |              |             |                                                                                   |
| Manufacturer Part number | ACES<br>50554-02241-003                |              |             |                                                                                   |
| Mating Connector         | FPC Cable(22Pin)                       |              |             |                                                                                   |
| Pinout                   | J10                                    |              |             |                                                                                   |
|                          | PIN#                                   | Description  | Module Pin# | Type/ Dir                                                                         |
|                          | 1                                      | +3V3_SYSTEM  | -           | Power, 3.3V                                                                       |
|                          | 2                                      | I2C_CAM0_SDA | 215         | Bidir, 3.3V                                                                       |
|                          | 3                                      | I2C_CAM0_SCL | 213         | Output, 3.3V                                                                      |
|                          | 4                                      | GND          | -           | Ground                                                                            |
|                          | 5                                      | CAM0_MCLK    | 116         | Output, 1.8V                                                                      |
|                          | 6                                      | CAM0_PWDN_LS | 114         | Output, 3.3V                                                                      |
|                          | 7                                      | GND          | -           | Ground                                                                            |
|                          | 8                                      | CSI1_D1_P    | 17          | Input, MIPI                                                                       |
|                          | 9                                      | CSI1_D1_N    | 15          | Input, MIPI                                                                       |
|                          | 10                                     | GND          | -           | Ground                                                                            |
|                          | 11                                     | CSI1_D0_P    | 5           | Input, MIPI                                                                       |
|                          | 12                                     | CSI1_D0_N    | 3           | Input, MIPI                                                                       |
|                          | 13                                     | GND          | -           | Ground                                                                            |
|                          | 14                                     | CSI0_CLK_P   | 12          | Input, MIPI                                                                       |
|                          | 15                                     | CSI0_CLK_N   | 10          | Input, MIPI                                                                       |
|                          | 16                                     | GND          | -           | Ground                                                                            |
|                          | 17                                     | CSI0_D1_P    | 18          | Input, MIPI                                                                       |
|                          | 18                                     | CSI0_D1_N    | 16          | Input, MIPI                                                                       |
|                          | 19                                     | GND          | -           | Ground                                                                            |
|                          | 20                                     | CSI0_D0_P    | 6           | Input, MIPI                                                                       |
|                          | 21                                     | CSI0_D0_N    | 4           | Input, MIPI                                                                       |

|         |                                                                           |              |             |              |
|---------|---------------------------------------------------------------------------|--------------|-------------|--------------|
|         | 22                                                                        | GND          | -           | Ground       |
|         | J11                                                                       |              |             |              |
|         | PIN#                                                                      | Description  | Module Pin# | Type/ Dir    |
|         | 1                                                                         | +3V3 SYSTEM  | -           | Power, 3.3V  |
|         | 2                                                                         | I2C CAM1 SDA | 215         | Bidir, 3.3V  |
|         | 3                                                                         | I2C CAM1 SCL | 213         | Output, 3.3V |
|         | 4                                                                         | GND          | -           | Ground       |
|         | 5                                                                         | CAM1 MCLK    | 122         | Output, 1.8V |
|         | 6                                                                         | CAM1 PWDN LS | 120         | Output, 3.3V |
|         | 7                                                                         | GND          | -           | Ground       |
|         | 8                                                                         | CSI3 D1 P    | 35          | Input, MIPI  |
|         | 9                                                                         | CSI3 D1 N    | 33          | Input, MIPI  |
|         | 10                                                                        | GND          | -           | Ground       |
|         | 11                                                                        | CSI3 D0 P    | 23          | Input, MIPI  |
|         | 12                                                                        | CSI3 D0 N    | 21          | Input, MIPI  |
|         | 13                                                                        | GND          | -           | Ground       |
|         | 14                                                                        | CSI2 CLK P   | 30          | Input, MIPI  |
|         | 15                                                                        | CSI2 CLK N   | 28          | Input, MIPI  |
|         | 16                                                                        | GND          | -           | Ground       |
|         | 17                                                                        | CSI2 D1 P    | 36          | Input, MIPI  |
|         | 18                                                                        | CSI2 D1 N    | 34          | Input, MIPI  |
|         | 19                                                                        | GND          | -           | Ground       |
|         | 20                                                                        | CSI2 D0 P    | 24          | Input, MIPI  |
|         | 21                                                                        | CSI2 D0 N    | 22          | Input, MIPI  |
|         | 22                                                                        | GND          | -           | Ground       |
| Remarks | I2C_CAM0 & I2C_CAM1 connect to an I2C mux controlled by CAM_I2C of module |              |             |              |

### 3.9 USB 3.2 Dual Port Type A Connector

|                          |                                                                                                                       |                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Function                 | USB 3.2 Dual Port Type A Connector                                                                                    |  |
| Location                 | J13                                                                                                                   |                                                                                     |
| Description              | Dual-port USB 3.2 Type-A female connector                                                                             |                                                                                     |
| Manufacturer Part number | Champway<br>CU3B-AFR15U-096H                                                                                          |                                                                                     |
| Mating Connector         | Any Standard Type-A interface cable or device.                                                                        |                                                                                     |
| Pinout                   | Please refer to USB 3.2 standard.                                                                                     |                                                                                     |
| Remarks                  | Dual port within same connector(J13) share currents up to 2A<br>Each port of J13 has full 10Gpbs bandwidth available. |                                                                                     |

## 3.10 Gigabit Ethernet Connector w/LEDs

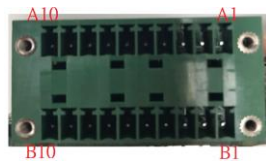
|                  |                                                                                                                                  |                                                |                        |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------|
| Function         | 1Gb single-port Ethernet connector, used to connect to the host system.                                                          |                                                |                        |
| Location         | J15, J16                                                                                                                         |                                                |                        |
| Description      | RJ45 with integrated magnetics (1G-LEFT(G)+RIGHT(Y)-DOWN)                                                                        |                                                |                        |
| Manufacturer     | Contact Technology                                                                                                               |                                                |                        |
| Part number      | MJ45-111QC4A-GY-S307                                                                                                             |                                                |                        |
| Mating Connector | Any standard 1Gb Ethernet mating connector can be applicable.                                                                    |                                                |                        |
| Pinout           | Comply with Ethernet standards.                                                                                                  |                                                |                        |
| LED indicator    | J15                                                                                                                              |                                                |                        |
|                  | Activity LED (Yellow)                                                                                                            |                                                | Link/Speed LED (Green) |
|                  | Status                                                                                                                           | Description                                    | Status Description     |
|                  | Yellow Blinking                                                                                                                  | Data transmission or receiving is occurring    | Solid Green 1000M      |
|                  | Off                                                                                                                              | No data transmission or receiving is occurring | Off 100M               |
|                  | J16                                                                                                                              |                                                |                        |
|                  | Activity LED (Yellow)                                                                                                            |                                                | Link/Speed LED (Green) |
|                  | Status                                                                                                                           | Description                                    | Status Description     |
|                  | Yellow Blinking                                                                                                                  | Data transmission or receiving is occurring    | Solid Green PSE Ready  |
|                  | Off                                                                                                                              | No data transmission or receiving is occurring | Off W/O PSE            |
| Remarks          | J15 is via I210 Ethernet controller with optional OOB function<br>J16 is directly from NVIDIA Jetson SOM.with optional PSE (15W) |                                                |                        |



## 3.11 USB type C connector

|                  |                                                |                                                                                    |
|------------------|------------------------------------------------|------------------------------------------------------------------------------------|
| Function         | BSP Installation as recovery mode              |  |
| Location         | J17                                            |                                                                                    |
| Description      | JACK_USB3.1_C TYPE(F)_90°_PIP-L1.45 mm         |                                                                                    |
| Manufacturer     | ACES                                           |                                                                                    |
| Part number      | 57988-0240D-001                                |                                                                                    |
| Mating Connector | Any Standard Type-C interface cable or device. |                                                                                    |
| Pinout           | Please refer to USB 3.2 type- C standard       |                                                                                    |
| Remarks          | USB2.0 Only(Device Mode)                       |                                                                                    |

## 3.12 20-pin Expansion Terminal Block

|                  |                                          |                                                                                   |
|------------------|------------------------------------------|-----------------------------------------------------------------------------------|
| Function         | General-purpose input/output             |  |
| Location         | J18                                      |                                                                                   |
| Description      | SOCKET TERMINAL<br>BLOCK 2*10PIN 90° DIP |                                                                                   |
| Manufacturer     | DECA                                     |                                                                                   |
| Part number      | ME252-35020-1                            |                                                                                   |
| Mating Connector | DECA<br>MC421-35010Z-1                   |                                                                                   |
| Remarks          | Refer to follow tables                   |                                                                                   |

| Pin# | Signal Name   | Module Pin # | Type/ Direction (Note.4) | Pin Drive or Power Pin Max Current | Power-on Default | Notes |
|------|---------------|--------------|--------------------------|------------------------------------|------------------|-------|
| A1   | +5V_SYSTEM    | -            | Power                    | 1A                                 | -                | 1     |
| A2   | GND           | -            | Ground                   | -                                  | -                | -     |
| A3   | UART2_TXD_3V3 | 236          | Output                   | ±24mA                              | pd               | 3     |
| A4   | UART2_RXD_3V3 | 238          | Input                    | ±24mA                              | pd               | 3     |
| A5   | GND           | -            | Ground                   | -                                  | -                | -     |
| A6   | UART0_TXD_3V3 | 99           | Output                   | ±24mA                              | pd               | 3     |
| A7   | UART0_RXD_3V3 | 101          | Input                    | ±24mA                              | pd               | 3     |
| A8   | CANL          | 143          | Bidir                    | -                                  | -                | 6     |
| A9   | CANH          | 145          | Bidir                    | -                                  | -                | 6     |
| A10  | -             | -            | -                        | -                                  | -                | -     |
| B1   | +3V3_SYSTEM   | -            | Power                    | 1A                                 | -                | 1     |
| B2   | GND           | -            | Ground                   | -                                  | -                | -     |

|     |                |     |          |       |    |   |
|-----|----------------|-----|----------|-------|----|---|
| B3  | I2C1_SDA       | 191 | Bidir OD | ±2mA  | z  | 2 |
| B4  | I2C1_SCL       | 189 | Bidir OD | ±2mA  | z  | 2 |
| B5  | I2C0_ID_SDA    | 187 | Bidir OD | ±2mA  | z  | 2 |
| B6  | I2C0_ID_SCL    | 185 | Bidir OD | ±2mA  | z  | 2 |
| B7  | I2S0_SCLK_LS   | 199 | Bidir    | ±24mA | pd | 7 |
| B8  | I2S0_SDOOUT_LS | 193 | Bidir    | ±24mA | pd | 7 |
| B9  | I2S0_SDIN_LS   | 195 | Bidir    | ±24mA | pd | 7 |
| B10 | I2S0_LRCK_LS   | 197 | Bidir    | ±24mA | pd | 7 |

## Notes:

1. This is current capability per power pin.
2. These pins are connected to the SoC directly. They are open-drain (either pulled up or driven low by the SoC when configured as outputs). The max drive that meets the data sheet VOL is ±2 mA.
3. These pins connect to TI SN74LVC2T45 with H/W direction-control. The direction is unidirectional if these are configured as GPIOs.
4. In the Type/Dir column, directions indicate H/W ability, Birdir mean direction is controlled by S/W setting signal function.
5. All signals except CAN are 3.3V levels.
6. CANH/CANL is from CAN\_RX/CAN\_TX of SOC through CAN Transceivers IC
7. These pins connect to TI SN74LVC2T45 and the default direction is input. If these are configured as GPIOs, the direction is controlled by S/W control through SOC. Please refer to follow tables

| Pin# | Signal Name    | Module Pin # | ModulePin #226 High level output | ModulePin #226) low level output |
|------|----------------|--------------|----------------------------------|----------------------------------|
| B7   | I2S0_SCLK_LS   | 199          | Output                           | Input(default)                   |
| B8   | I2S0_SDOOUT_LS | 193          |                                  |                                  |

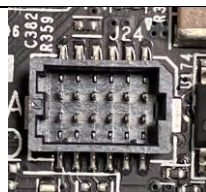
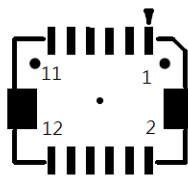
| Pin# | Signal Name  | Module Pin # | ModulePin #206 High level output | ModulePin #206) low level output |
|------|--------------|--------------|----------------------------------|----------------------------------|
| B9   | I2S0_SDIN_LS | 195          | Output                           | Input(default)                   |
| B10  | I2S0_LRCK_LS | 197          |                                  |                                  |

## 3.13 Fan connector

|              |                          |                                                                                      |
|--------------|--------------------------|--------------------------------------------------------------------------------------|
| Function     | Fan Connector            |  |
| Location     | J19                      |                                                                                      |
| Type         | WAFER_1*4PIN_1.25 mm_90° |                                                                                      |
| Description  |                          |                                                                                      |
| Manufacturer | ACES                     |                                                                                      |
| Part number  | 50271-0040N-001          |                                                                                      |

|                  |                                                                                                                                                                                                                                                                                                                                                               |             |             |            |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|------------|-------|-------------|-------------|-----------|---|-----|---|--------|---|-----------|---|-----------|---|----------|-----|-----------|---|---------|-----|------------|
| Mating Connector | ACES<br>ACES 50276-004H0H0-001                                                                                                                                                                                                                                                                                                                                |             |             |            |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |
| Pinout           | <table><tr><td>Pin #</td><td>Description</td><td>Module Pin#</td><td>Type/ Dir</td></tr><tr><td>1</td><td>GND</td><td>-</td><td>Ground</td></tr><tr><td>2</td><td>+5V Power</td><td>-</td><td>Power, 5V</td></tr><tr><td>3</td><td>FAN_TACH</td><td>208</td><td>Input, 5V</td></tr><tr><td>4</td><td>FAN_PWM</td><td>230</td><td>Output, 5V</td></tr></table> |             |             |            | Pin # | Description | Module Pin# | Type/ Dir | 1 | GND | - | Ground | 2 | +5V Power | - | Power, 5V | 3 | FAN_TACH | 208 | Input, 5V | 4 | FAN_PWM | 230 | Output, 5V |
|                  | Pin #                                                                                                                                                                                                                                                                                                                                                         | Description | Module Pin# | Type/ Dir  |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |
|                  | 1                                                                                                                                                                                                                                                                                                                                                             | GND         | -           | Ground     |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |
|                  | 2                                                                                                                                                                                                                                                                                                                                                             | +5V Power   | -           | Power, 5V  |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |
|                  | 3                                                                                                                                                                                                                                                                                                                                                             | FAN_TACH    | 208         | Input, 5V  |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |
|                  | 4                                                                                                                                                                                                                                                                                                                                                             | FAN_PWM     | 230         | Output, 5V |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |
| Remarks          | None                                                                                                                                                                                                                                                                                                                                                          |             |             |            |       |             |             |           |   |     |   |        |   |           |   |           |   |          |     |           |   |         |     |            |

### 3.14 PSE Board Connector (for optional PSE board)

| Function         | PSE Board Connector.                                                                                                                                                                                                                                                                                                                                                                                                  |             |                   |  |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------|------------------------------------------------------------------------------------|------|-------------|-------------|-----------|---|-----|---|-------------------|---|-----|---|--------|---|-----|---|-------------------|---|-----|---|--------|---|-----|---|----------------|
| Location         | J24                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                   |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| Description      | WAFER_2*6PIN_1 mm_180°_SMD                                                                                                                                                                                                                                                                                                                                                                                            |             |                   |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| Manufacturer     | ACES                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                   |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| Part number      | 50238-01241-001                                                                                                                                                                                                                                                                                                                                                                                                       |             |                   |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| Mating Connector | ACES<br>50247-012H0H1-001                                                                                                                                                                                                                                                                                                                                                                                             |             |                   |  |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| Pinout           | <table><tr><th>PIN#</th><th>Description</th><th>Module Pin#</th><th>Type/ Dir</th></tr><tr><td>1</td><td>VDD</td><td>-</td><td>Power Out, 12-24V</td></tr><tr><td>2</td><td>GND</td><td>-</td><td>Ground</td></tr><tr><td>3</td><td>VDD</td><td>-</td><td>Power Out, 12-24V</td></tr><tr><td>4</td><td>GND</td><td>-</td><td>Ground</td></tr><tr><td>5</td><td>54V</td><td>-</td><td>Power In, 54V+</td></tr></table> |             |                   |                                                                                    | PIN# | Description | Module Pin# | Type/ Dir | 1 | VDD | - | Power Out, 12-24V | 2 | GND | - | Ground | 3 | VDD | - | Power Out, 12-24V | 4 | GND | - | Ground | 5 | 54V | - | Power In, 54V+ |
| PIN#             | Description                                                                                                                                                                                                                                                                                                                                                                                                           | Module Pin# | Type/ Dir         |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| 1                | VDD                                                                                                                                                                                                                                                                                                                                                                                                                   | -           | Power Out, 12-24V |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| 2                | GND                                                                                                                                                                                                                                                                                                                                                                                                                   | -           | Ground            |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| 3                | VDD                                                                                                                                                                                                                                                                                                                                                                                                                   | -           | Power Out, 12-24V |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| 4                | GND                                                                                                                                                                                                                                                                                                                                                                                                                   | -           | Ground            |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |
| 5                | 54V                                                                                                                                                                                                                                                                                                                                                                                                                   | -           | Power In, 54V+    |                                                                                    |      |             |             |           |   |     |   |                   |   |     |   |        |   |     |   |                   |   |     |   |        |   |     |   |                |

|         |                                                                                  |              |     |                 |
|---------|----------------------------------------------------------------------------------|--------------|-----|-----------------|
|         | 6                                                                                | SYS_RST      | 239 | Bidir, 3.3V     |
|         | 7                                                                                | 54V          | -   | Power In, 54V+  |
|         | 8                                                                                | I2C1_SCL     | 189 | Output, 3.3V    |
|         | 9                                                                                | 54_N         | -   | Power In, 54V-  |
|         | 10                                                                               | I2C1_SDA     | 191 | Bidir, 3.3V     |
|         | 11                                                                               | LED_PSE      | -   | Input, 3.3V     |
|         | 12                                                                               | +3V3_STANDBY | -   | Power Out, 3.3V |
| Remarks | VDD is following DC_IN voltage<br>LED_PSE low active, indicate PSE link is ready |              |     |                 |

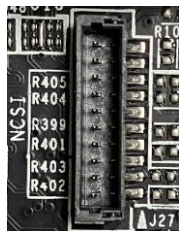
### 3.15 Expansion 5G Board Connector (for optional 5G Daughter Board)

|                  |                            |             |             |                                                                                    |
|------------------|----------------------------|-------------|-------------|------------------------------------------------------------------------------------|
| Function         | 5G Board Connector         |             |             |  |
| Location         | J26                        |             |             |                                                                                    |
| Description      | WAFER_40PIN_0.5 mm_90°_SMD |             |             |                                                                                    |
| Manufacturer     | I-PEX                      |             |             |                                                                                    |
| Part number      | 20455-040E-12              |             |             |                                                                                    |
| Mating Connector | I-PEX<br>20453-240T-03     |             |             |                                                                                    |
| Pinout           |                            |             |             |                                                                                    |
|                  | PIN#                       | Description | Module Pin# | Type/ Dir                                                                          |
|                  | 1                          | VDD         | -           | Power, 12-24V                                                                      |
|                  | 2                          |             |             |                                                                                    |
|                  | 3                          |             |             |                                                                                    |
|                  | 4                          |             |             |                                                                                    |
|                  | 5                          |             |             |                                                                                    |
|                  | 6                          |             |             |                                                                                    |
|                  | 7                          | GND         | -           | Ground                                                                             |
| 8                | GND                        | -           | Ground      |                                                                                    |

|  |    |               |     |                |
|--|----|---------------|-----|----------------|
|  | 9  | GNSS_CTRL     | 220 | Output, 1.8V   |
|  | 10 | AIRPLANE_CTRL | 228 | Output, 1.8V   |
|  | 11 | LTE_PWR       | 216 | Output, 3.3V   |
|  | 12 | PCIE_WAKEN    | 179 | Input, 3.3V    |
|  | 13 | PCIE3_CLKREQ  | 225 | Input, 3.3V    |
|  | 14 | PCIE3_RST     | 223 | Output, 3.3V   |
|  | 15 | GND           | -   | Ground         |
|  | 16 | USB3_SSTX_P   | 168 | Output, USB3.2 |
|  | 17 | USB3_SSTX_N   | 166 | Output, USB3.2 |
|  | 18 | GND           | -   | Ground         |
|  | 19 | USB3_SSRX_P   | 163 | Input, USB3.2  |
|  | 20 | USB3_SSRX_N   | 161 | Input, USB3.2  |
|  | 21 | GND           | -   | Ground         |
|  | 22 | USB3_DP       | 117 | Bidir, USB2.0  |
|  | 23 | USB3_DN       | 115 | Bidir, USB2.0  |
|  | 24 | GND           | -   | Ground         |
|  | 25 | -             | -   | -              |
|  | 26 | -             | -   | -              |
|  | 27 | GND           | -   | Ground         |
|  | 28 | PCIE3_TX0_P   | 66  | Output, PCIe   |
|  | 29 | PCIE3_TX0_N   | 64  | Output, PCIe   |
|  | 30 | GND           | -   | Ground         |
|  | 31 | -             | -   | -              |
|  | 32 | -             | -   | -              |
|  | 33 | GND           | -   | Ground         |
|  | 34 | PCIE3_RX0_P   | 60  | Input, PCIe    |
|  | 35 | PCIE3_RX0_N   | 58  | Input, PCIe    |
|  | 36 | GND           | -   | Ground         |
|  | 37 | PCIE3_CLK_P   | 229 | Output, PCIe   |
|  | 38 | PCIE3_CLK_N   | 227 | Output, PCIe   |

|         |                                                                                                                                                                    |        |     |              |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|--------------|
|         | 39                                                                                                                                                                 | GND    | -   | Ground       |
|         | 40                                                                                                                                                                 | 5G_RST | 218 | Output, 1.8V |
| Remarks | For 5G Board<br>VDD is following DC_IN voltage<br>PCIe related signal @PCIe3 (PCIe C9@0x140c0000)<br>Support PCIe Gen4 x1 for Orin NX & PCIe Gen3 x1 for Orin Nano |        |     |              |

### 3.16 OOB Board Connector #1 (for optional OOB board)

|                  |                                 |              |             |                                                                                    |
|------------------|---------------------------------|--------------|-------------|------------------------------------------------------------------------------------|
| Function         | OOB Board Connector (for NC-SI) |              |             |  |
| Location         | J27                             |              |             |                                                                                    |
| Description      | WAFER_1*10PIN_1 mm_180°_SMD     |              |             |                                                                                    |
| Manufacturer     | ACES                            |              |             |                                                                                    |
| Part number      | 50228-01071-001                 |              |             |                                                                                    |
| Mating Connector | ACES                            |              |             |                                                                                    |
| Connector        | 50233-010H0H0-001               |              |             |                                                                                    |
| Pinout           | PIN#                            | Description  | Module Pin# | Type/ Dir                                                                          |
|                  | 1                               | NC_SI_TXD0   | -           | Input, 3.3V                                                                        |
|                  | 2                               | NC_SI_TXD1   | -           | Input, 3.3V                                                                        |
|                  | 3                               | NC_SI_TX_EN  | -           | Input, 3.3V                                                                        |
|                  | 4                               | GND          | -           | Ground                                                                             |
|                  | 5                               | NC_SI_CLK_IN | -           | Input, 3.3V                                                                        |
|                  | 6                               | GND          | -           | Ground                                                                             |
|                  | 7                               | NC_SI_RXD0   | -           | Output, 3.3V                                                                       |
|                  | 8                               | NC_SI_RXD1   | -           | Output, 3.3V                                                                       |
|                  | 9                               | NC_SI_CRS_DV | -           | Output, 3.3V                                                                       |
|                  | 10                              | GND          | -           | Ground                                                                             |

|         |                                  |
|---------|----------------------------------|
| Remarks | For optional OOB with NCSI board |
|---------|----------------------------------|

### 3.17 OOB Board Connector #2 (for optional OOB board)

|                  |                                     |                       |             |                                                                                    |
|------------------|-------------------------------------|-----------------------|-------------|------------------------------------------------------------------------------------|
| Function         | OOB Board Connector(basic function) |                       |             |  |
| Location         | J28                                 |                       |             |                                                                                    |
| Description      | WAFER_1*10PIN_1 mm_180°_SMD         |                       |             |                                                                                    |
| Manufacturer     | ACES                                |                       |             |                                                                                    |
| Part number      | 50228-01071-001                     |                       |             |                                                                                    |
| Mating Connector | ACES<br>50233-010H0H0-001           |                       |             |                                                                                    |
| Pinout           | PIN#                                | Description           | Module Pin# | Type/ Dir                                                                          |
|                  | 1                                   | GND                   | -           | Ground                                                                             |
|                  | 2                                   | -                     | -           | -                                                                                  |
|                  | 3                                   | UART2_RX (Debug UART) | 238         | Input, 3.3V                                                                        |
|                  | 4                                   | UART2_TX (Debug UART) | 236         | Output, 3.3V                                                                       |
|                  | 5                                   | UART0_RX (Auto-link)  | 101         | Input, 3.3V                                                                        |
|                  | 6                                   | UART0_TX (Auto-link)  | 99          | Output, 3.3V                                                                       |
|                  | 7                                   | VDD_CVM_GP            | -           | Output, 3.3V                                                                       |
|                  | 8                                   | SYS_RST_AI            | 239         | Input, 3.3V                                                                        |
|                  | 9                                   | BUTTON_PWR_ON_MCU     | 240         | Input, 3.3V                                                                        |
|                  | 10                                  | +5V_STANDBY           | -           | Power, 5V                                                                          |
| Remarks          | For optional OOB board              |                       |             |                                                                                    |

### 3.18 Expansion connector for external power button

| Function         | External Power button                                                                                                                                                                                                         |             |             |  |      |             |             |           |   |            |     |             |   |     |   |        |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-----------------------------------------------------------------------------------|------|-------------|-------------|-----------|---|------------|-----|-------------|---|-----|---|--------|
| Location         | J29                                                                                                                                                                                                                           |             |             |                                                                                   |      |             |             |           |   |            |     |             |   |     |   |        |
| Description      | WAFER_1*2PIN_1 mm_180°_SMD                                                                                                                                                                                                    |             |             |                                                                                   |      |             |             |           |   |            |     |             |   |     |   |        |
| Manufacturer     | ACES                                                                                                                                                                                                                          |             |             |                                                                                   |      |             |             |           |   |            |     |             |   |     |   |        |
| Part number      | 50228-00271-001                                                                                                                                                                                                               |             |             |                                                                                   |      |             |             |           |   |            |     |             |   |     |   |        |
| Mating Connector | ACES<br>50233-002H0H0-001                                                                                                                                                                                                     |             |             |                                                                                   |      |             |             |           |   |            |     |             |   |     |   |        |
| Pinout           | <table><tr><th>PIN#</th><th>Description</th><th>Module Pin#</th><th>Type/ Dir</th></tr><tr><td>1</td><td>BUTTON_PWR</td><td>240</td><td>Input, 3.3V</td></tr><tr><td>2</td><td>GND</td><td>-</td><td>Ground</td></tr></table> |             |             |                                                                                   | PIN# | Description | Module Pin# | Type/ Dir | 1 | BUTTON_PWR | 240 | Input, 3.3V | 2 | GND | - | Ground |
|                  | PIN#                                                                                                                                                                                                                          | Description | Module Pin# | Type/ Dir                                                                         |      |             |             |           |   |            |     |             |   |     |   |        |
|                  | 1                                                                                                                                                                                                                             | BUTTON_PWR  | 240         | Input, 3.3V                                                                       |      |             |             |           |   |            |     |             |   |     |   |        |
| 2                | GND                                                                                                                                                                                                                           | -           | Ground      |                                                                                   |      |             |             |           |   |            |     |             |   |     |   |        |
| Remarks          | For optional external power button                                                                                                                                                                                            |             |             |                                                                                   |      |             |             |           |   |            |     |             |   |     |   |        |

### 3.19 Dip Switch button

|              |                                                  |                                                                                   |
|--------------|--------------------------------------------------|-----------------------------------------------------------------------------------|
| Function     | Fan PWM controller/Auto Power on                 |  |
| Location     | SW2                                              |                                                                                   |
| Description  | 4 SPST DIP switch                                |                                                                                   |
| Manufacturer | DIPTRONICS                                       |                                                                                   |
| Part number  | DHN-04F-T-Q-T/R<br>IN OFF-SWITCHING 0.025A/24VDC |                                                                                   |

| Pos. No | Description                    | Switch ON                                   | Switch Off                                |
|---------|--------------------------------|---------------------------------------------|-------------------------------------------|
| 1       | Power ON mode                  | Always Power Enable                         | Always Power Disable                      |
| 2       | CAN0_Terminal                  | W/ 120ΩTerminal                             | W/O 120ΩTerminal                          |
| 3       | Power-Up /<br>Start-up Control | "PWB Mode" - Power<br>Button Press Required | "AT Mode" - Automatic<br>Start-up Enabled |
| 4       | Fan Control                    | FAN Always ON<br>(full speed running)       | FAN PWM Enabled<br>(SW Controlled)        |

|        |                                                                                                                                                                                                                                                                                   |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remark | <ul style="list-style-type: none"> <li>Blue font is default setting</li> <li>When D115S is ON, if Power ON mode setting is "Always Power Enable", the system will restart automatically after shutdown.</li> <li>Power-Up / Start-up Control setting is for DC Plug In</li> </ul> |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 3.20 Power Control Button

|              |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                    |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Function     | Power control button                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| Location     | SW3                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                    |
| Description  | Button                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                    |
| Manufacturer | Champway                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                    |
| Part number  | LS67AK-NBR-A-R2KA9                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                    |
| Pinout       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                    |
| Remark       | <ul style="list-style-type: none"> <li>When D115S is in "PWB Mode," pressing the button will initiate the boot-up sequence.</li> <li>When D115S is ON, pressing the button will display the Power Off GUI. If no operation is performed, the system will automatically power off in 60 seconds.</li> <li>When D115S is ON, holding the button for more than 5 seconds will force a full system power down.</li> </ul> |                                                                                    |

## 3.21 Force Recovery Button

|                  |                                                                                                                                                                 |                                                                                    |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Function         | Force recovery                                                                                                                                                  |  |
| Location         | SW4                                                                                                                                                             |                                                                                    |
| Type Description | Button                                                                                                                                                          |                                                                                    |
| Manufacturer     | Champway                                                                                                                                                        |                                                                                    |
| Part number      | LS67AK-NBR-A-R2KA9                                                                                                                                              |                                                                                    |
| Pinout           | N/A                                                                                                                                                             |                                                                                    |
| Remark           | <ul style="list-style-type: none"> <li>No function during normal operation.</li> <li>The SOM will enter recovery mode when held down during power ON</li> </ul> |                                                                                    |

## Other Switches and Jumpers

Other switches and jumpers listed on the boards but not mentioned in this manual are reserved for internal use by AVerMedia. They are not open to the client application.

## 4.0 Installation

### 4.1 BSP Setup Instructions

BSP (board support package) file: AVERMEDIA\_JETPACK\_-R1.1.\*.6.\*.\*\_desktop.tar.gz for D115SOXP. If you want to get the BSP download link, please contact with AVerMedia FAE. Default login username/password of the BSP is nvidia/nvidia. If you have difficulties to access the BSP download link, please visit AVerMedia website at <https://www.avermedia.com/professional/download>, or contact technical support at [https://www.avermedia.com/professional/technical\\_support](https://www.avermedia.com/professional/technical_support) or e-mail us at [ateusupport@avermedia.com](mailto:ateusupport@avermedia.com) for further assistance. BSP Installation steps for NVIDIA Jetson board: (Important Note: Please backup your personal files before re-flashing BSP) After you download the BSP file and put the file in a Linux PC, please refer to the steps below to re-flash BSP.

### 4.2 Let the JETSON Orin NX/NANO initiate recovery mode

You have to keep pressing “Recovery” button and then power on the NVIDIA Jetson board to initiate recovery mode. When connecting a NVIDIA Jetson board to a Linux PC via a USB type-C to USB cable, you can check kernel messages with `dmesg` command in the Linux PC. Once you see these similar messages in the kernel messages, this means that the NVIDIA Jetson board is in the recovery mode.

```
[24685.229129] usb 1-7: Product: APX
```

```
[24685.229132] usb 1-7: Manufacturer: NVIDIA Corp
```

### 4.3 Using the commands below in the Linux PC to start re-flashing BSP

```
$ sudo tar zxvf <BSP_tarball_filename>.tar.gz
```

```
# where <BSP_tarball_filename> is the BSP tarball file name for your target device.
```

```
$ cd JetPack_xxx/Linux_for_Tegra
```

```
$ ./setup.sh
```

```
$ ./install.sh
```

Note: sudo is required to extract the BSP.

About how to Flash BSP for Orin NX/NANO, please refer to following link for more instructions

<https://www.avermedia.com/professional/support/faq/how-to-flash-bsp-for-orin-nano-nx>

## 5.0 Software

This section describes BSP's features for D115SOXP

1. Support optional M.2 Wi-Fi/Bluetooth modules (Intel® Wi-Fi 6E AX210), the manager UI of AX210 Wi-Fi/Bluetooth is located on the upper-right corner of Ubuntu desktop. It can be also controlled by nmcli/hcitol tool uncommand line.
2. Power Mode Power mode can be modified by the UI on the upper-right corner of Ubuntu or the following commands.

```
# get current power mode
$ sudo /usr/sbin/nvpmode -q
# setup power mode

# where <x> is power mode number, please refer to (>=
r36.x.x)

https://docs.nvidia.com/jetson/archives/r36.4.3/DeveloperGuide/
SD/PlatformPowerAndPerformance/JetsonOrinNanoSeriesJetson
OrinNxSeriesAndJetsonAgxOrinSeries.html#power-mode-contr
ols for more information
$ sudo nvpmode -m <x>
```

\* Current default power mode:  
D115SOXP: 15W (2)

3. RTC Battery

The following command can get RTC battery voltage.

```
$ sudo avt_tool -a | grep -oP "AIN5.*\[K[^\]]*"
```

4. Fan Speed

The following commands can get PWM fan information.

```
# get current speed setting of PWM Fan (0 ~ 255)
$ cat /sys/devices/platform/pwm-fan/hwmon/hwmon<x>/pwm1

# get Fan RPM value
$ cat /sys/devices/platform/bus@0/39c0000.tachometer/hwmon/hwmon<y>/rpm
```

\* Where <x> and <y> are dynamic hwmon indexes, with x = 1 and y = 3.

## 5. MIPI CSI Camera

There are 2x 2-lane and 1x 4-lane MIPI CSI camera supported on D115S, for current supported products type are listed as below:

- \* IMX219 (2-lane)
- \* IMX477 (2-lane)
- \* IMX179 (2-lane)
- \* IMX290 (2-lane)
- \* IMX290ISP (2-lane)

Test Command:

> Raspberry pi v2:

\* Please follow the settings below first:

1. Set the power mode to maximize at 25W.
2. Follow the settings in the Release Notes, and maximize the ISP & VI clock.

| No | width | height | framerate |
|----|-------|--------|-----------|
| 0  | 3264  | 2464   | 21        |
| 1  | 3264  | 1848   | 28        |
| 2  | 1920  | 1080   | 30        |
| 3  | 1640  | 1232   | 30        |
| 4  | 1280  | 720    | 60        |

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)3280, height=(int)2464, format=(string)NV12, framerate=(fraction)21/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)3280, height=(int)1848, format=(string)NV12, framerate=(fraction)28/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1920, height=(int)1080, format=(string)NV12, framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1640, height=(int)1232, format=(string)NV12, framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1280, height=(int)720, format=(string)NV12, framerate=(fraction)60/1' ! queue ! nvvidconv ! xvimagesink -e
```

Multiple:

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)3264, height=(int)2464, format=(string)NV12, framerate=(fraction)21/1' ! queue ! nvvidconv ! xvimagesink -e & gst-launch-1.0 nvarguscamerasrc sensor-id=1 sensor-mode=0 ! 'video/x-raw(memory:NVMM), width=(int)3264, height=(int)2464, format=(string)NV12, framerate=(fraction)21/1' ! nvvidconv ! xvimagesink -e &
```

> Raspberry pi v2 (imx477):

| No | width | height | framerate |
|----|-------|--------|-----------|
| 0  | 3840  | 2160   | 30        |
| 1  | 1920  | 1080   | 60        |

```
$ gst-launch-1.0 -e nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM),width=3840,height=2160,framerate=30/1' ! queue !
nvvidconv ! fpsdisplaysink video-sink='xvimagesink' sync=false
```

```
$ gst-launch-1.0 -e nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM),width=1920,height=1080,framerate=60/1' ! queue !
nvvidconv ! fpsdisplaysink video-sink='xvimagesink' sync=false
```

Multiple:

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! "video/x-raw(memory:NVMM),width=1920,height=1080,framerate=60/1" ! nvvidconv !
xvimagesink -e & gst-launch-1.0 nvarguscamerasrc sensor-id=1 ! "video/x-raw(memory:NVMM),width=1920,height=1080,framerate=60/1" ! nvvidconv !
xvimagesink -e &
```

> IMX179 :

| No | width | height | framerate |
|----|-------|--------|-----------|
| 0  | 3280  | 2464   | 15        |
| 1  | 1920  | 1080   | 30        |
| 2  | 3280  | 1698   | 30        |
| 3  | 2096  | 1084   | 30        |
| 4  | 1640  | 1232   | 30        |
| 5  | 820   | 616    | 30        |
| 6  | 820   | 616    | 60        |

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)3280, height=(int)2464, format=(string)NV12,
framerate=(fraction)15/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1920, height=(int)1080, format=(string)NV12,
framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)3280, height=(int)1698, format=(string)NV12,
framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)2096, height=(int)1084, format=(string)NV12,
framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1640, height=(int)1232, format=(string)NV12, framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)820, height=(int)616, format=(string)NV12, framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)820, height=(int)616, format=(string)NV12, framerate=(fraction)60/1' ! queue ! nvvidconv ! xvimagesink -e
```

> IMX290 :

| No | width | height | framerate |
|----|-------|--------|-----------|
| 0  | 1948  | 1096   | 30        |
| 1  | 1948  | 1096   | 60        |

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1948, height=(int)1096, format=(string)NV12, framerate=(fraction)30/1' ! queue ! nvvidconv ! xvimagesink -e
```

```
$ gst-launch-1.0 nvarguscamerasrc sensor-id=0 ! 'video/x-raw(memory:NVMM), width=(int)1948, height=(int)1096, format=(string)NV12, framerate=(fraction)60/1' ! queue ! nvvidconv ! xvimagesink -e
```

> IMX290ISP :

| No | width | height | framerate   |
|----|-------|--------|-------------|
| 0  | 1920  | 1080   | 25/30/50/60 |
| 1  | 1280  | 960    | 25/30/50/60 |
| 2  | 1280  | 720    | 25/30/50/60 |
| 0  | 800   | 600    | 25/30/50/60 |
| 1  | 640   | 480    | 25/30/50/60 |
| 2  | 640   | 360    | 25/30/50/60 |

```
$ gst-launch-1.0 v4l2src io-mode=4 device=/dev/video0 do-timestamp=true ! 'video/x-raw, width=1920, height=1080, framerate=60/1, format=UYVY' ! queue ! xvimagesink sync=false
```

```
$ gst-launch-1.0 v4l2src io-mode=4 device=/dev/video0 do-timestamp=true ! 'video/x-raw, width=1280, height=960, framerate=30/1, format=UYVY' ! queue ! xvimagesink sync=false
```

```
$ gst-launch-1.0 v4l2src io-mode=4 device=/dev/video0 do-timestamp=true !
```

```
'video/x-raw, width=1280, height=720, framerate=30/1, format=UYVY' ! queue !
xvimagesink sync=false
```

```
$ gst-launch-1.0 v4l2src io-mode=4 device=/dev/video0 do-timestamp=true !
'video/x-raw, width=800, height=600, framerate=30/1, format=UYVY' ! queue !
xvimagesink sync=false
```

```
$ gst-launch-1.0 v4l2src io-mode=4 device=/dev/video0 do-timestamp=true !
'video/x-raw, width=640, height=480, framerate=30/1, format=UYVY' ! queue !
xvimagesink sync=false
```

```
$ gst-launch-1.0 v4l2src io-mode=4 device=/dev/video0 do-timestamp=true !
'video/x-raw, width=640, height=360, framerate=30/1, format=UYVY' ! queue !
xvimagesink sync=false
```

## 6. CAN Bus

There is one CAN Bus for D115S, see the following command for usage.

### (1) Enable and set up CAN Bus

```
# 1. Enable CAN Bus
$ sudo modprobe can
$ sudo modprobe can-raw
$ sudo modprobe mttcan
# 2. Setup CAN Bus
$ sudo ip link set can0 type can bitrate 500000 dbitrate 2000000 berr-reporting on fd
on restart-ms 100
$ sudo ip link set can0 up
```

### (2) Receive and Send

```
# Receive
$ candump can0

# Send
$ cansend can0 <can_frame>
```

\* where:

<can\_frame> is CAN Bus frame message, see `cansend --help` for more detail.

## 7. GPIO usage

To control the GPIOs on the 20-pin I/O, you must first set their direction.

Chip.0 line.4 controls B7 and B8, while Chip.0 line.41 controls B9 and B10.

### (1) Output

Set B7 high for 10 seconds.

```
$ sudo su
$ avt_tool -G 0 4 1
$ sudo gpioset --mode=time --sec=10 0 50=1
```

Note: When PH.07 is set as output, PI.01 can only be used as an output.

## (2) Input

Get B7 value.

```
$ sudo su
$ avt_tool -G 0 4 0
$ sudo gpioget 0 50
# 1: HIGH, 0: LOW
```

## (3) Disable

```
$ sudo kill_avt_gpio
```

For L4T (Linux for Tegra) BSP support and the other software support associated with NVIDIA® Jetson Orin NX/Nano, please visit AVerMedia website to contact our technical support function. (<https://www.avermedia.com/tw/support/contact>)

## 5.1 Force Recovery Mode

USB 3.1 / Jetson platform port of D115SOXP can be used to re-program NVIDIA® Jetson Orin NX by using the other host system running NVIDIA Jetpack, as the procedure described below.

1. Power off the system. Ensure the system power must be completely OFF, instead of staying in suspend mode or the sleep mode.
2. Connect a USB cable from Jetson platform USB port to the other host system which will be used to re-program the new system file into NVIDIA® Jetson Orin NX
3. Press and hold down Force Recovery Button and then power on the carrier board.
4. After three seconds, release the Force Recovery Button.
5. NVIDIA® Orin NX will show up on the USB list of the host system as a new NVIDIA target device.

After the system software is updated successfully, please ensure to power off the system. A clean power-on will then revert Jetson platform port back to the host mode.

## 5.2 OOB Software Settings

Please refer to Getting Started with Allxon Remote Management Service

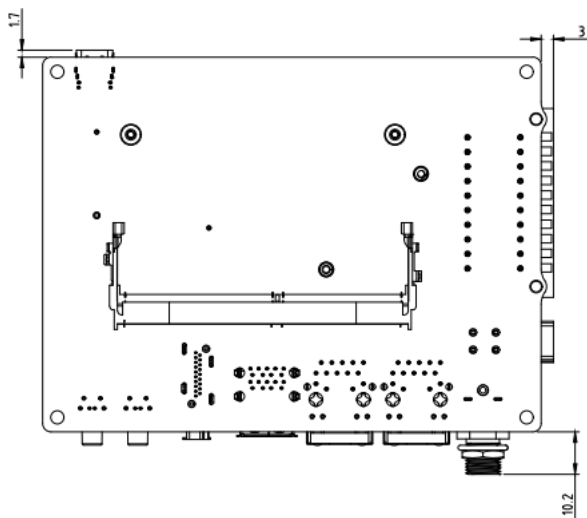
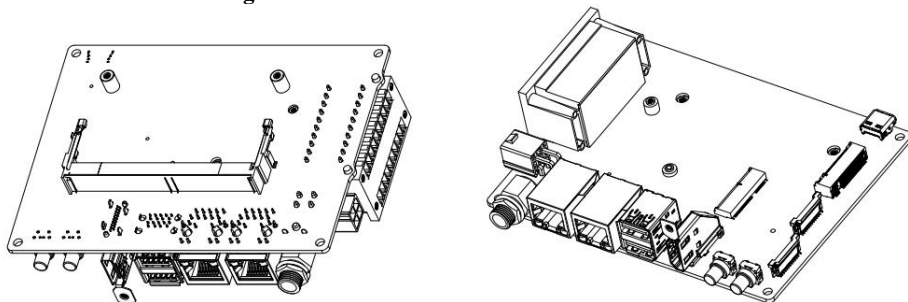
For more Allxon support, see <https://www.allxon.com> or contact them at [service@allxon.com](mailto:service@allxon.com).

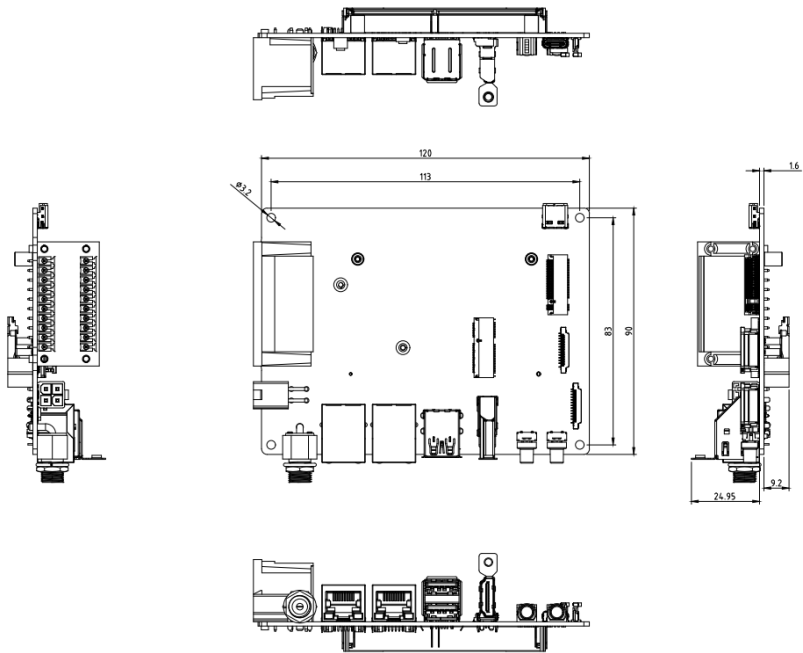
## 5.3 Power Consumption

| Item Description                             | Power Consumption                                                                                                                                                                                                                                       |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Theoretical Maximum System Power Consumption | D115SOXP Power Consumption: 4.8W(standby) to 48W (full loading). The condition is connected to USB3.2 device*2, LAN *1, SSD 256G*1, WIFI AX210*1, HDMI*1, with CPU/ GPU super mode full loading. (maximum power consumption up to 90W based on adapter) |
| Typical System Power Consumption             | The power consumption under the normal operating mode is depending on the application software running with NVIDIA® Jetson Orin NX                                                                                                                      |

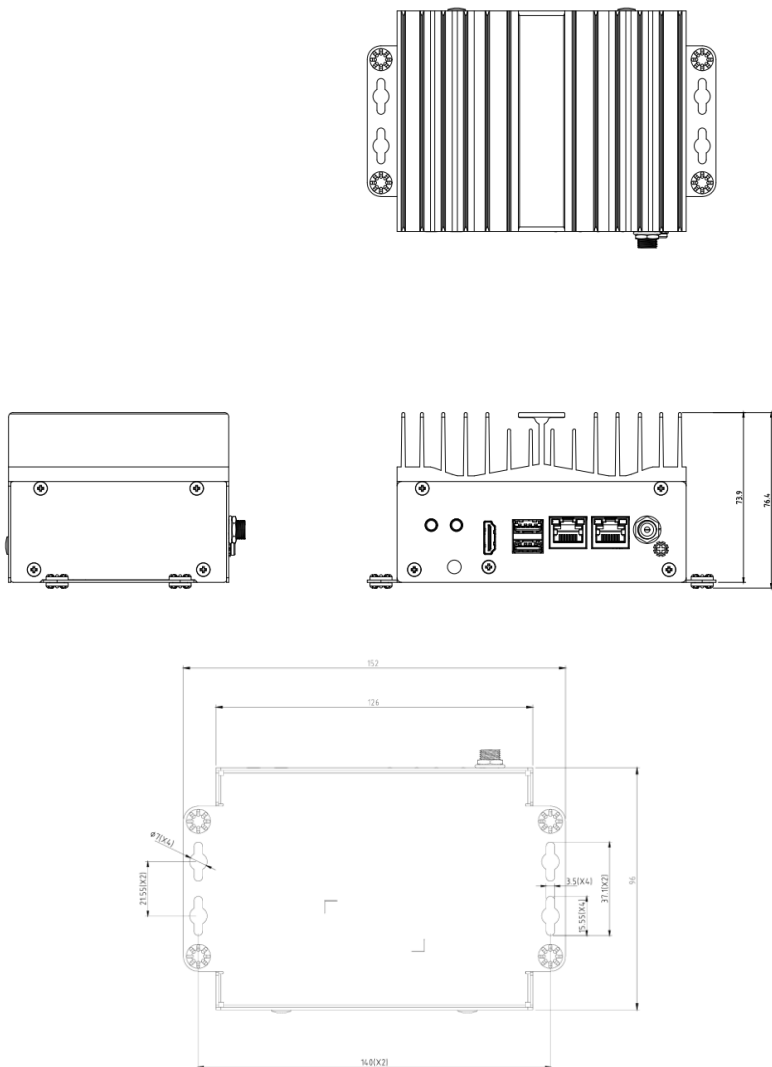
## 6.0 Dimension Drawings

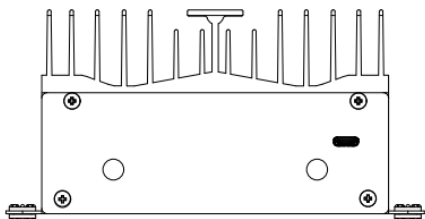
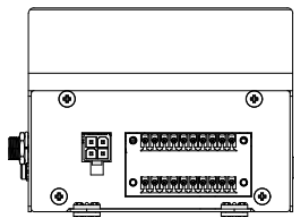
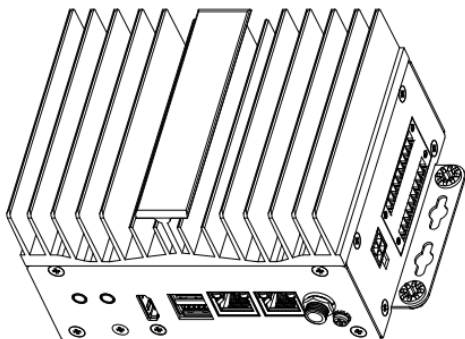
### 6.1 Dimension Drawings of carrier board



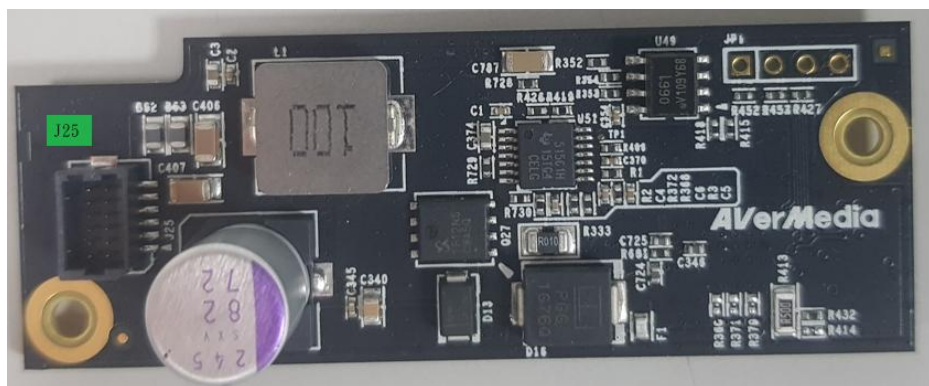
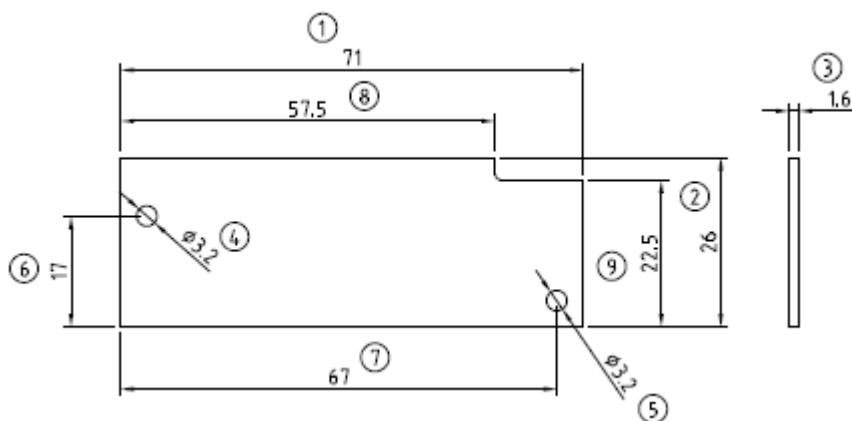


## 6.2 Dimension Drawing of D115S BOX PC





## 6.3 Dimension Drawing of PSE Board

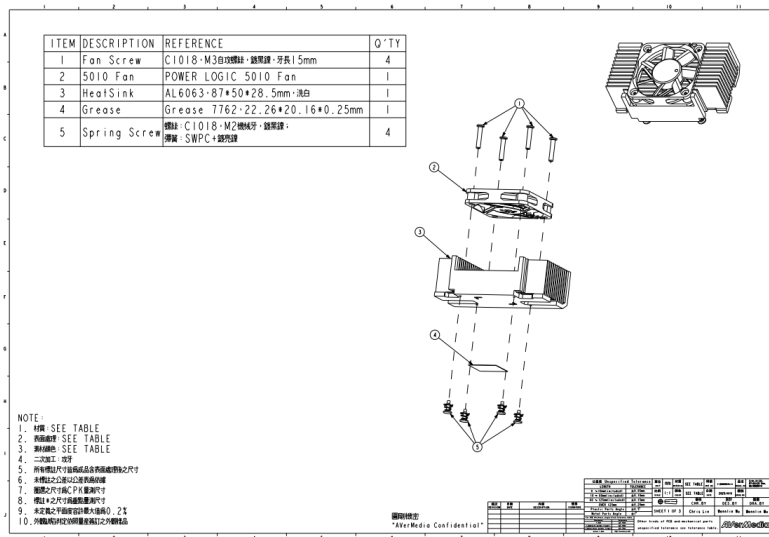


## 7.0 Accessory Drawings

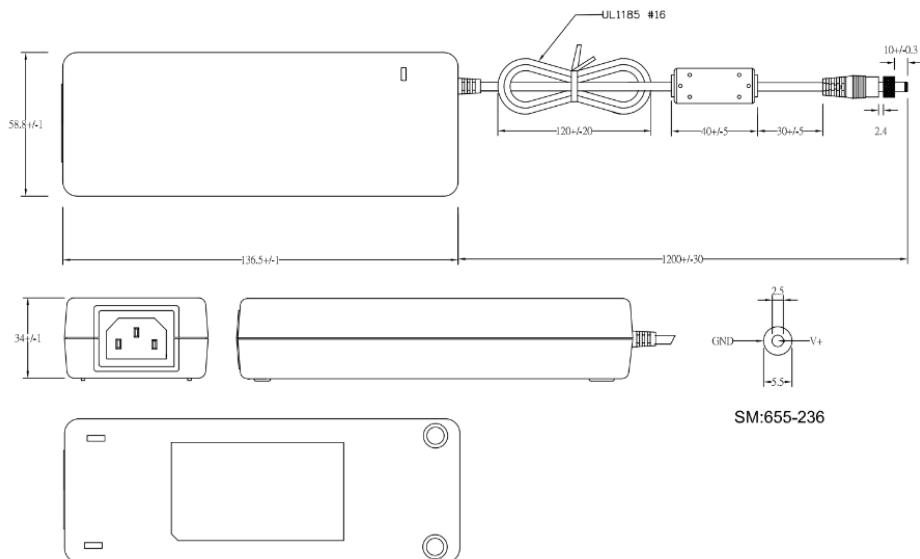
### 7.1 Fan Module/Adapter/ Power Cord

Fan Module for Orin NX/Orin Nano

- Rated Voltage: 5V
- Operating Voltage Range: 3.5V~5.5V
- Rated Speed: 6000RPM±10%  
(Testing Speed After Continuous 3 Minute Operation at Ambient Temperature Of 25°C)
- Life Expectancy: 70,000hours at 40°C (WITH 15~65% RH)
- Bearing Type: Two Ball



## Power Adapter 041312GOYANW (for Super Mode)



Technical drawing of a 3G VCTF cable assembly. The drawing includes the following elements:

- Dimensions:**
  - Overall length: 1830±50
  - Cable length: 180±20
- Labels and Text:**
  - 台規線材合格供應商 (Available BSMI safety approve cable supplier)
  - VCTF 3G 0.75mm²
- Labels:**
  - 1: Cable jacket
  - 2: Plug housing
  - 3: Plug pins
  - 4: Plug housing
  - 5: Plug pins
  - 6: Plug housing
  - 7: Plug pins
  - 8: Cable jacket
- Diagram:**
  - A small diagram on the right shows the internal wiring of the plug, with labels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782,

1830±50

美規合格線材供應商  
Available UL safety approve cable supplier

SVT 18AWG 3C 60°C

P1

P2

1 2 3 4 5 6 7

180±30

1830±50

歐規線材合格供應商  
Available European safety approve cable supplier  
H05VV-F 3G 0.75mm²

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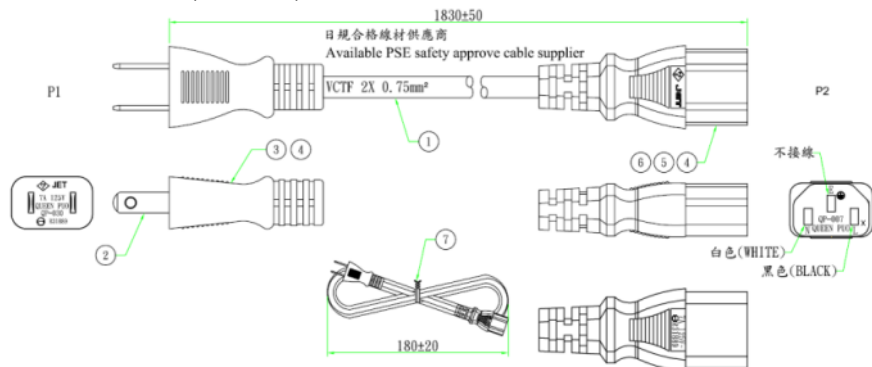
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445

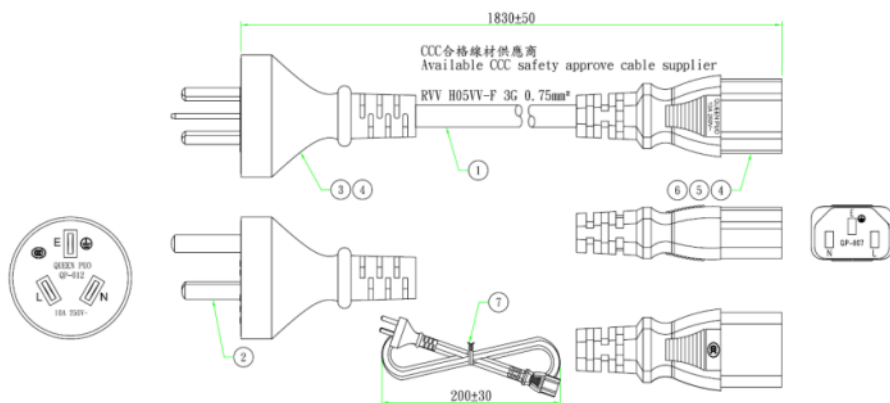
Technical drawing of a cable assembly with dimensions and labels:

- Overall length: 1830±50
- Available European+KC safety approve cable supplier
- Cable specification: H05VV-F 3G 0.75mm²
- Labels: 1, 2, 3, 4, 5, 6
- Dimensions: 180±20
- CE mark and QR code on the cable jacket

## 064APOWERSL (JP version)



## 064APOWERSL4-IPD (CN version)



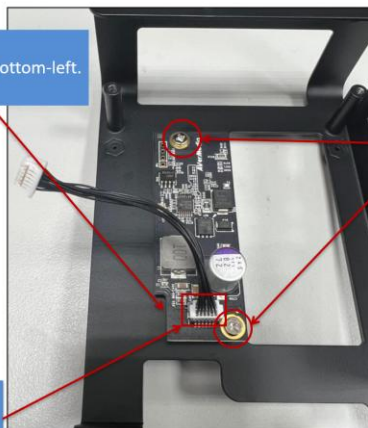
## 8.0 Accessory Assembly SOP

### 8.1 PSE board

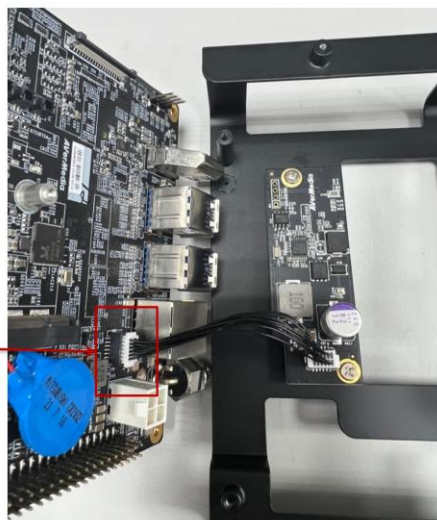
Step 1.  
Place the PCB with the notch facing bottom-left.  
PCB缺口朝左下

Step 2.  
Lock 2 silver screws  
鎖附2個螺絲

Step 3.  
Connect the wire to the connector  
插上CABLE接頭



Step 4.  
Insert the cable connector into the motherboard.  
插上CABLE接頭到主板





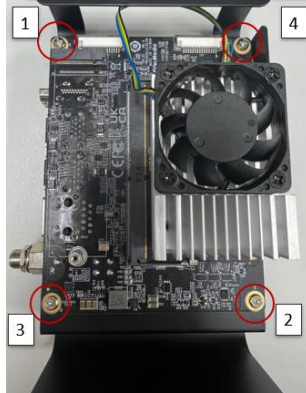
## Step 5.

Store the wires within the space between the large capacitor and the external connectors, ensuring they do not extend beyond the red box to avoid damaging the wires.

將線材收納在大電容與外部連接器間的空間，勿超出紅框範圍以免壓傷線材

## Step 6.

Lock the four silver screws in order.  
依序鎖附4個螺絲



## Step 7.

Assembly complete. PoE functionality can be used directly after installing the BSP.

組裝完成，安裝完BSP後可直接使用PoE功能