



DX-AIBOX-M1-N97

User Manual

DX-AIPlayer N97

Revision v1.1

Apr. 2026



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Packing List

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

| Item | Quantity |
|-------------------------|----------|
| DX-AIBOX-M1-N97-08064-A | 1 |

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

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About This Document

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

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Chapter 1

Product Specification

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1.1. Specifications

| System | |
|---------------------------|--|
| CPU | Intel® Processor N97 Intel® Processor N100 |
| Memory | Up to 16GB LPDDR5 |
| Graphics | Intel® UHD Graphics for 12th Gen Intel® Processors |
| Storage | Up to 128GB eMMC |
| Ethernet | GbE RJ-45 x 2 |
| Wi-Fi/BT | Optional via M.2 2230 E-Key x 1 |
| Expansion Slot | M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0) M.2 2280 M-Key x 1 (PCIe Gen 3 [x2]) |
| AI Accelerator (DX-M1) | AI Perf: 25 TOPS / 5W Form Factor: M.2 M Key (22 x 80 mm) Interface: PCIe Gen.3 x 4 Memory: 4GB LPDDR5, QSPI 1Gbit NAND |
| Security | Onboard TPM 2.0 |
| OS Support | Microsoft® Windows 10/11 Ubuntu 22.04 LTS Yocto 5.1 |

| I/O | |
|--------------|---|
| USB | USB 2.0 x 2 (via 10 Pin Header x 1) USB 3.2 Gen 2 (Type-A) x 3 |
| Display Port | HDMI 2.0b x 1 DP 1.2 x 1 |
| Ethernet | GbE RJ-45 x 2 |
| COM | RS-232/422/485 x 2 |
| Audio | Line-out x 1, Mic-in x 1 |
| GPIO | -- |

Power Supply

| | |
|-----------------------------|---------------|
| Power Requirement | 12V DC-in, 5A |
| Power Supply Type | AT/ATX |
| Power Consumption (Typical) | 15W~37W |

Mechanical

| | |
|------------------------|--|
| Mounting | VESA Mounting |
| Dimensions (W x H x D) | 3.74" x 3.74" x 2.16" (95mm x 95mm x 55mm) |
| Net Weight | 0.99 lb. (4.5Kg) |
| Gross Weight | 1.32 lb. (6Kg) |

Environmental

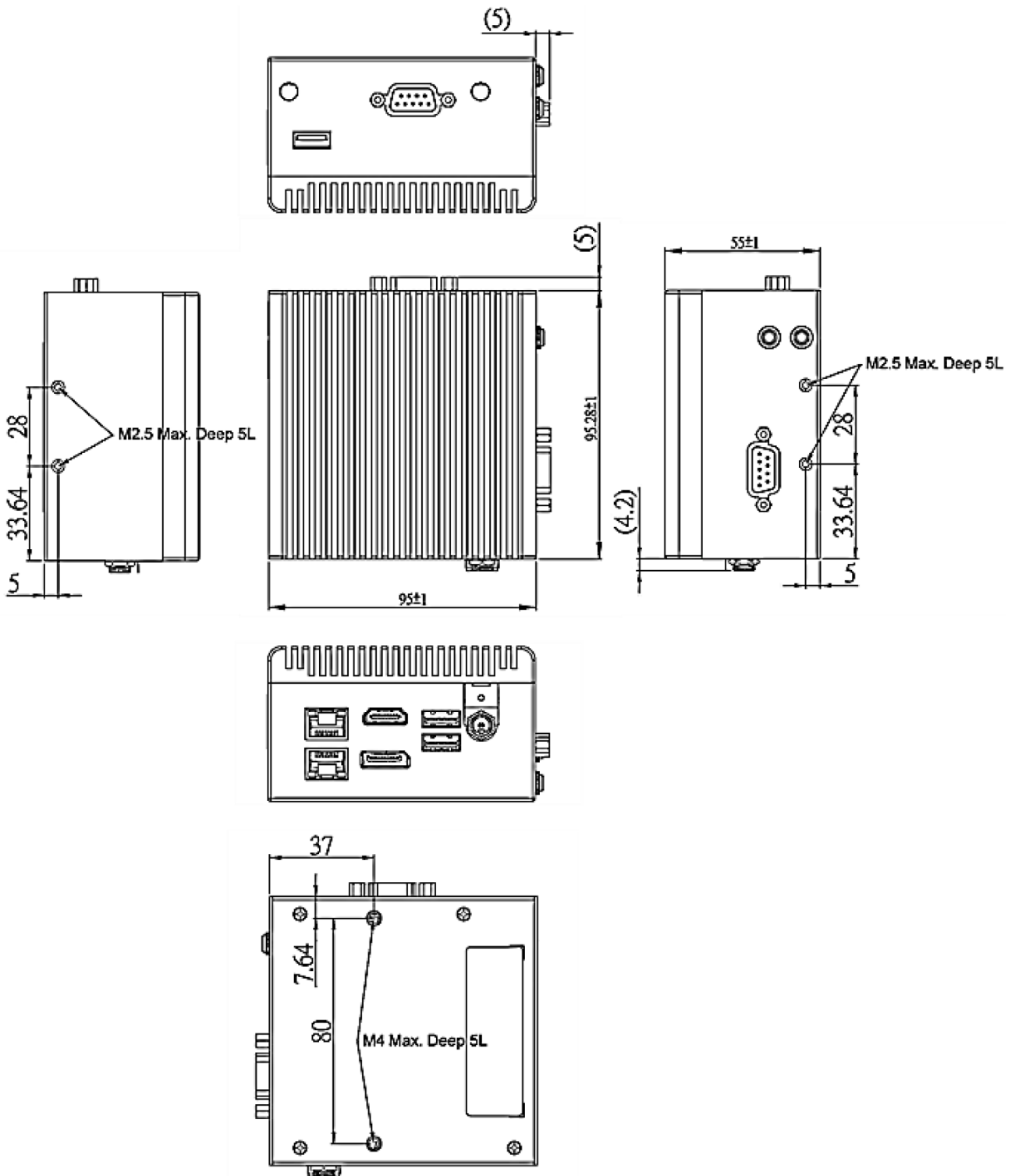
| | |
|-----------------------|--|
| Operating Temperature | 32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow |
| Storage Temperature | -4°F ~ 158°F (-20°C ~ 70°C) |
| Operating Humidity | 0% ~ 90% relative humidity, non-condensing |
| MTBF | 1,224,238 |
| Certification | CE/FCC Class A, RoHS Compliant, REACH |

Chapter 2

Hardware Information

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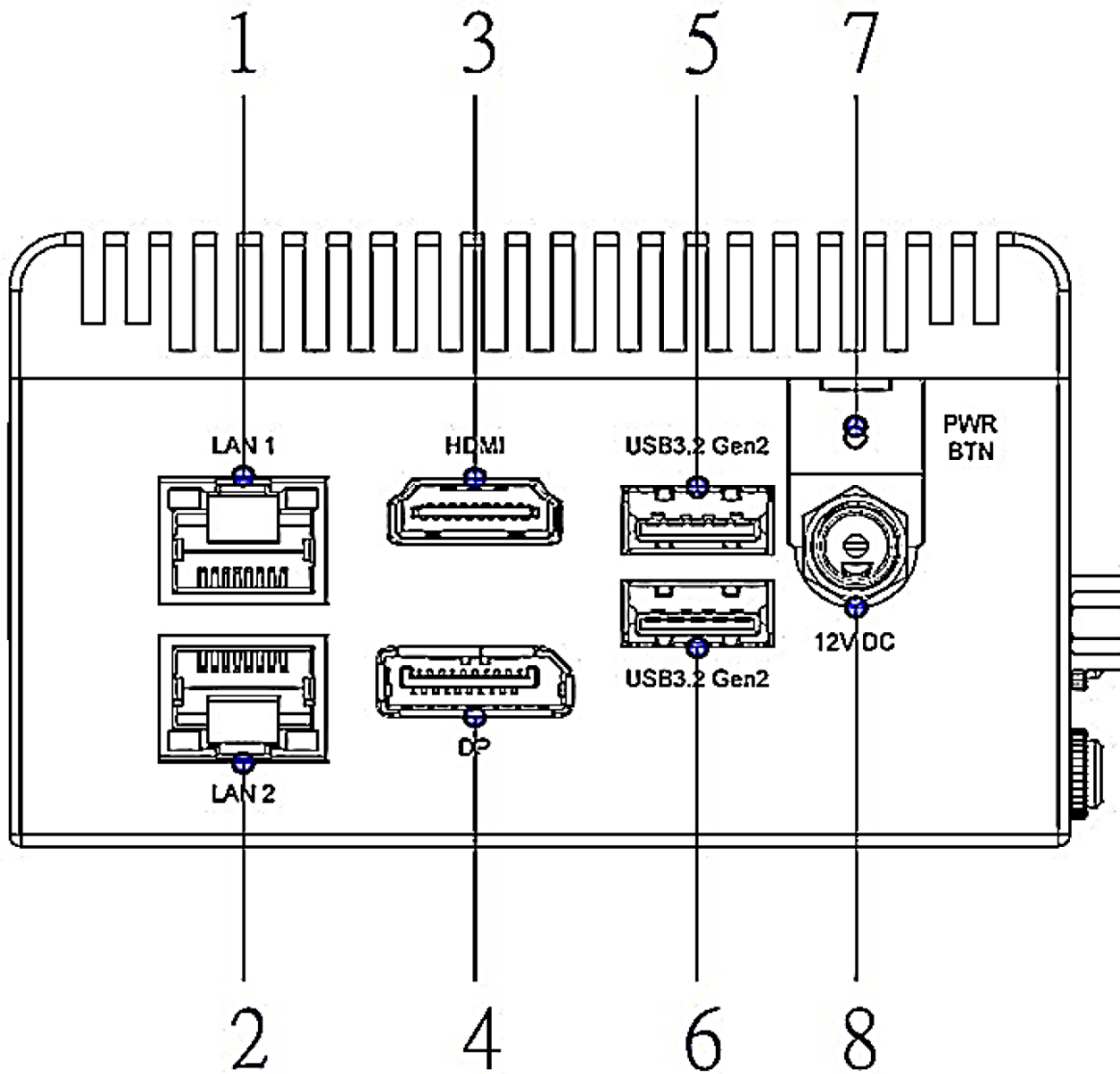
2.1. Dimensions



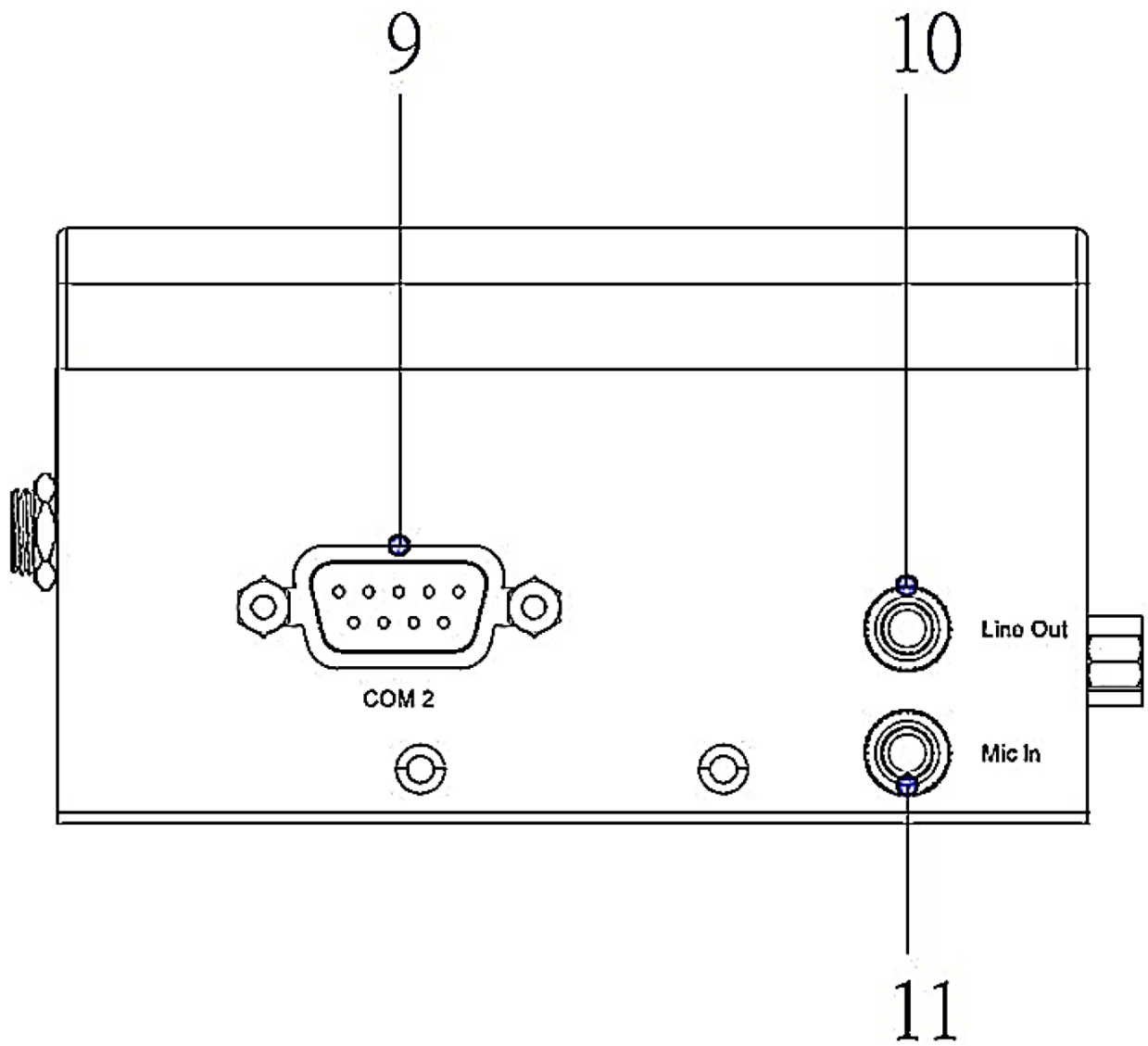
2.2. Jumpers and Connectors

2.2.1. System Level

Front I/O

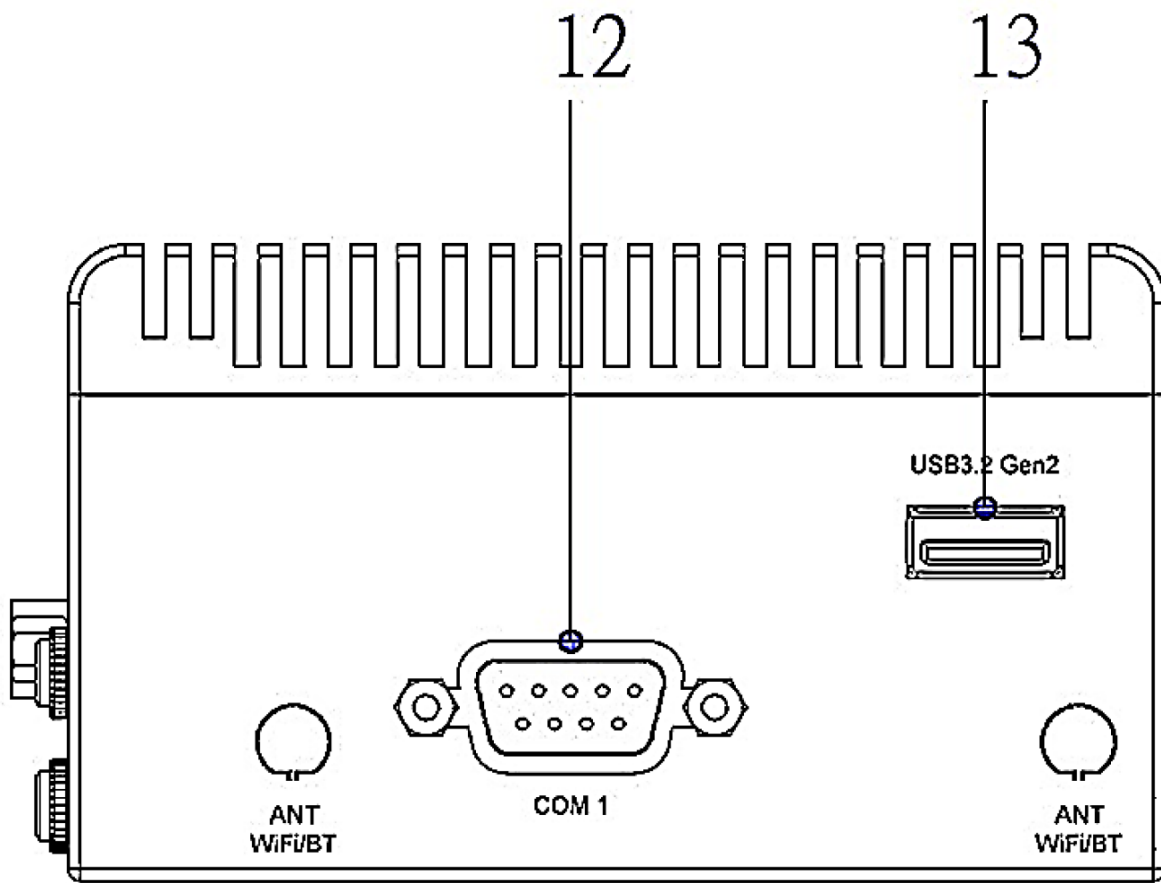


Right I/O



DEE

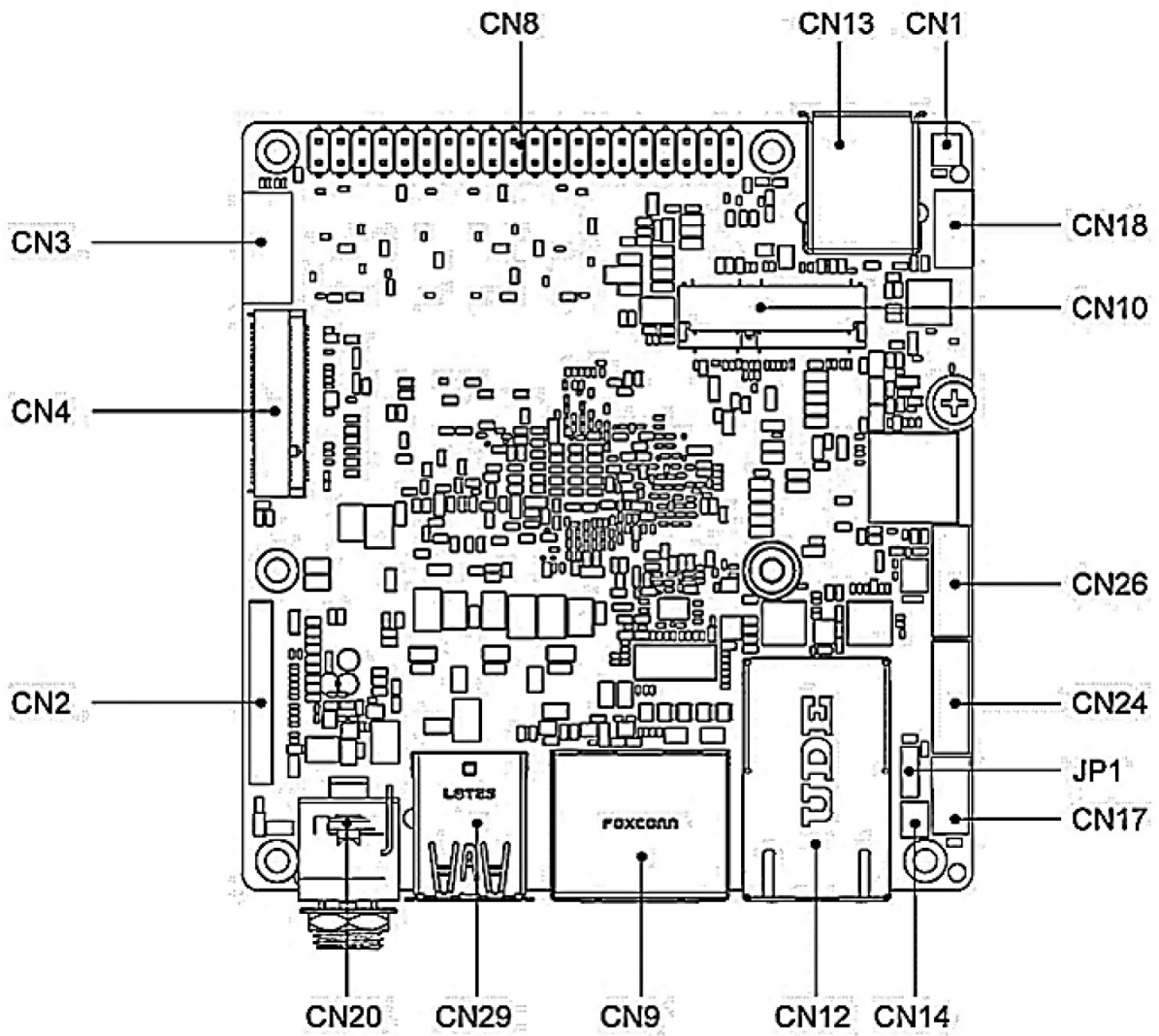
Left I/O



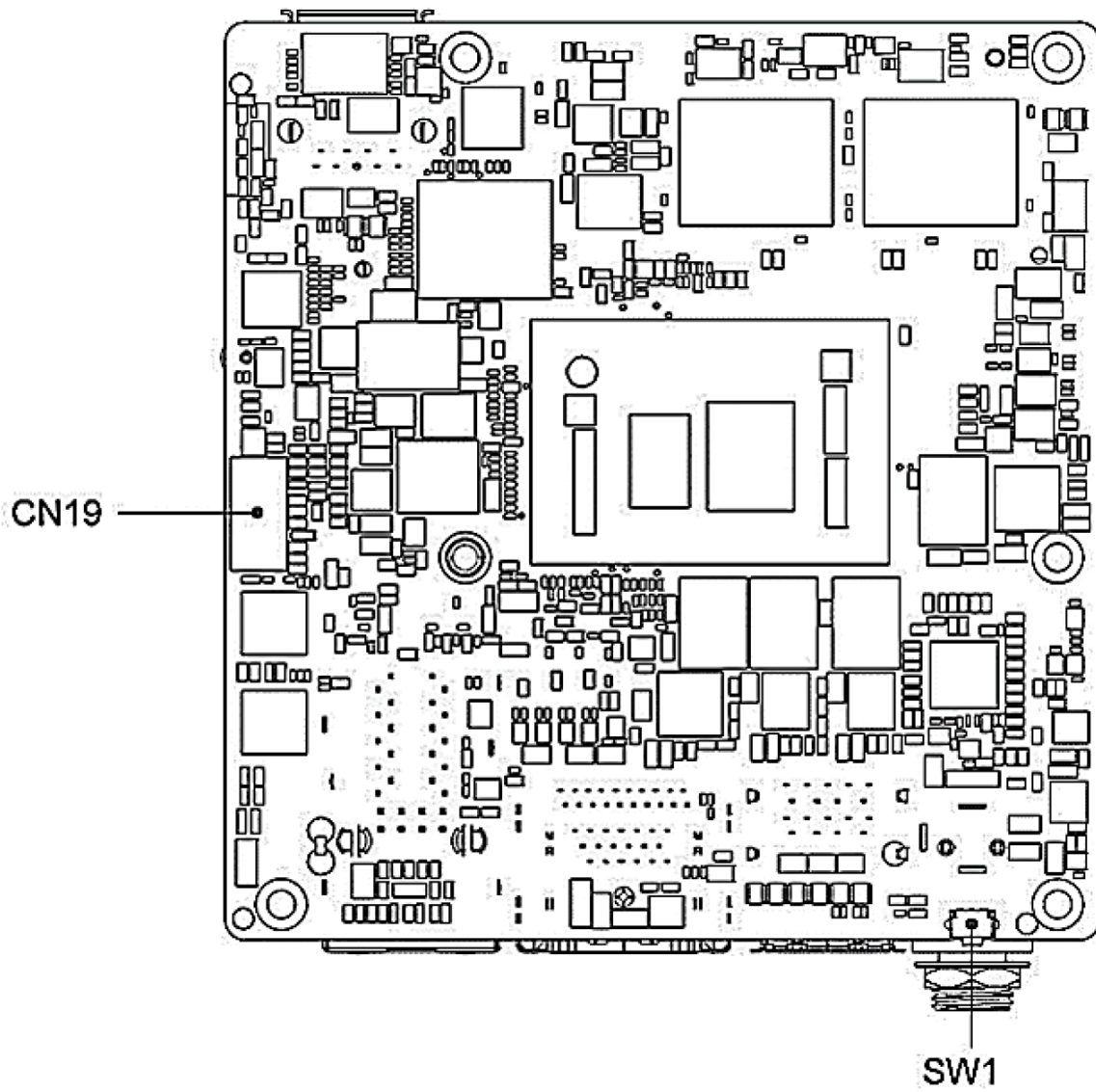
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2.2.2. Board Level

Component Side



Solder Side



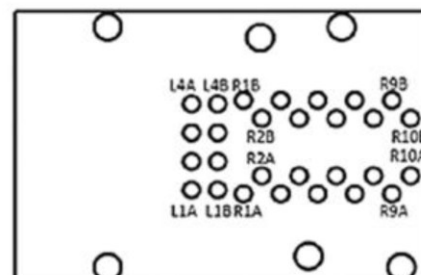
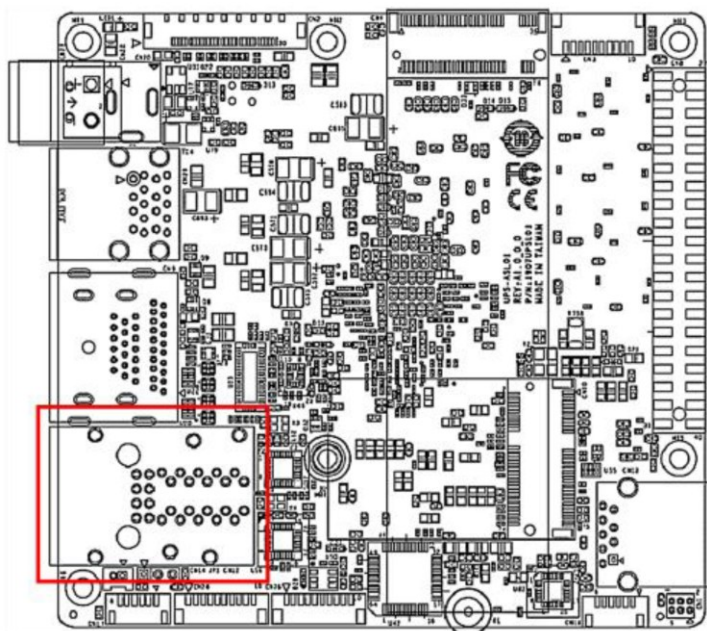
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2.3. List of Jumpers, Connectors, & Physical Interfaces

Please refer to the table below for all of the system's physical ports and interfaces. Each function is described in the following section.

| Label | Function |
|-------|------------------------|
| 1 | LAN 1 (GbE) |
| 2 | LAN 2 (GbE) |
| 3 | HDMI 2.0b Port |
| 4 | Display Port 1.2 |
| 5 | USB 3.2 Gen 2 (Type-A) |
| 6 | USB 3.2 Gen 2 (Type-A) |
| 7 | Power Button |
| 8 | 12V DC-in |
| 9 | COM 2 |
| 10 | Audio Jack (Line-out) |
| 11 | Audio Jack (Mic-in) |
| 12 | COM 1 |
| 13 | USB 3.2 Gen 2 (Type-A) |

2.3.1. Dual GbE LAN (1&2)



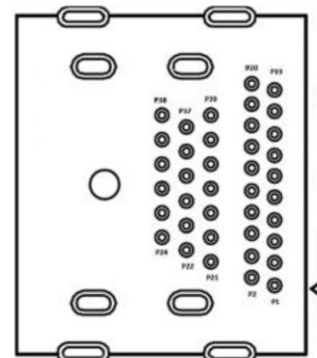
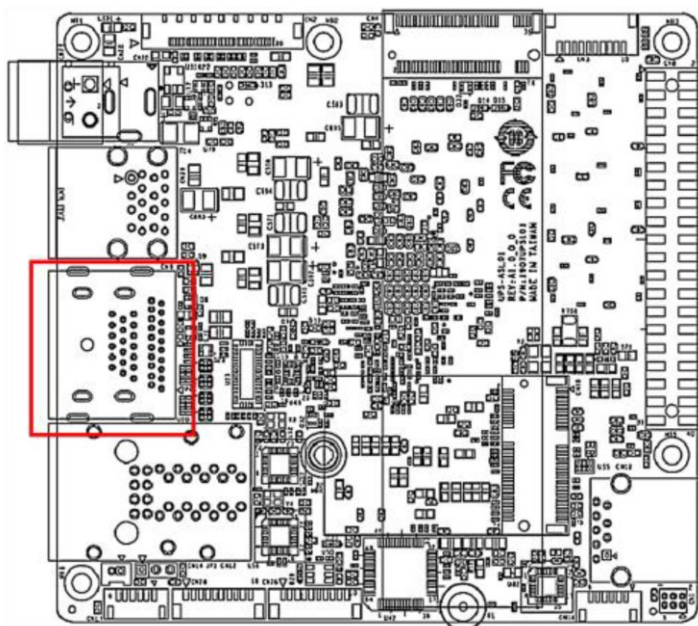
| LAN 1 | | | |
|-------|------------|-----|----------------|
| Pin | Signal | Pin | Signal |
| R1A | LAN1_MDI0+ | L1A | LAN1_ACTLED- |
| R2A | LAN1_MDI0- | L2A | LAN1_ACTLED+ |
| R3A | LAN1_MDI1+ | L3A | LAN1_LINK1000# |
| R4A | LAN1_MDI1- | L4A | LAN1_LINK100# |
| R5A | LAN1_MDI2+ | | |
| R6A | LAN1_MDI2- | | |
| R7A | LAN1_MDI3+ | | |
| R8A | LAN1_MDI3- | | |
| R9A | GND | | |
| R10A | GND | | |

| LAN 2 | | | |
|-------|------------|-----|----------------|
| Pin | Signal | Pin | Signal |
| R1B | LAN2_MDI0+ | L1B | LAN2_ACTLED- |
| R2B | LAN2_MDI0- | L2B | LAN2_ACTLED+ |
| R3B | LAN2_MDI1+ | L3B | LAN2_LINK100# |
| R4B | LAN2_MDI1- | L4B | LAN2_LINK1000# |
| R5B | LAN2_MDI2+ | | |
| R6B | LAN2_MDI2- | | |

| | | | |
|------|------------|--|--|
| R7B | LAN2_MDI3+ | | |
| R8B | LAN2_MDI3- | | |
| R9B | GND | | |
| R10B | GND | | |

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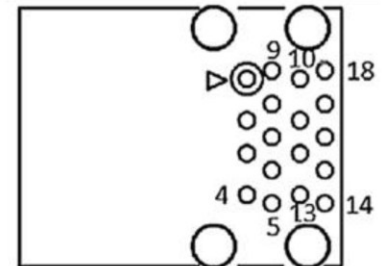
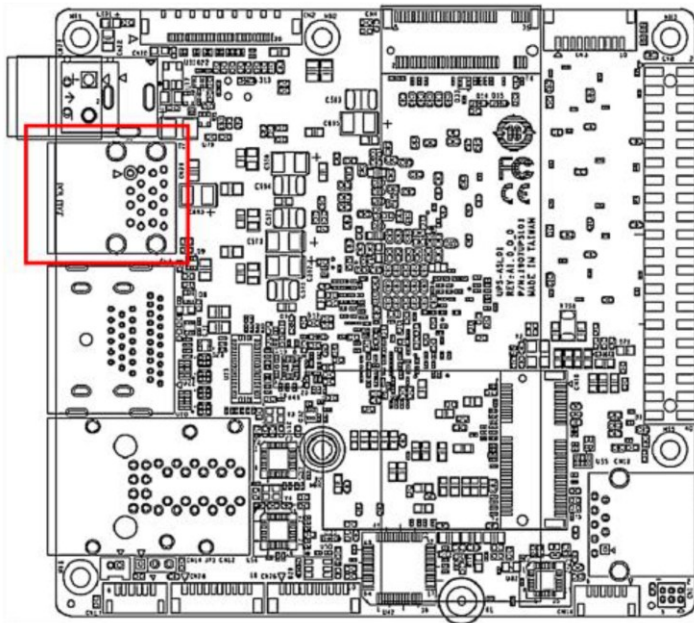
2.3.2. HDMI/DP Port (3&4)



| HDMI | | | | | |
|------|----------------------|-----|--------|-----|-------------|
| Pin | Signal | Pin | Signal | Pin | Signal |
| P21 | HDMI_TX2+ | P22 | GND | P23 | HDMI_TX2- |
| P24 | HDMI_TX1+ - | P25 | GND | P26 | HDMI_TX1- - |
| P27 | HDMI_TX0+ | P27 | GND | P29 | HDMI_TX0- |
| P30 | HDMI_CLK+ | P31 | GND | P32 | HDMI_CLK- |
| P33 | HDMI_CEC+ | P34 | NC | P35 | HDMI_SCL |
| P36 | HDMI_SDA- | P37 | GND | P38 | +5V/0.5A |
| P39 | HDMI_Hot Plug Detect | | | | |

| DP | | | | | |
|-----|-----------|-----|---------------------|-----|----------------------|
| Pin | Signal | Pin | Signal | Pin | Signal |
| P1 | DP_TX0+ | P2 | GND | P3 | DP_TX0- |
| P4 | DP_TX1+ | P5 | GND | P6 | DP_TX1- |
| P7 | DP_TX2+ | P8 | GND | P9 | DP_TX2- |
| P10 | DP_CLK+ | P11 | GND | P12 | DP_CLK- |
| P13 | DP_AUX_EN | P14 | Pull down 1M to GND | P15 | DP_AUX+ |
| P16 | GND | P17 | DP_AUX- | P18 | HDMI_Hot Plug Detect |
| P19 | GND | P20 | +3.3V/1A | | |

2.3.3. USB 3.2 Gen 2 (Type-A) Dual Stack (5&6)



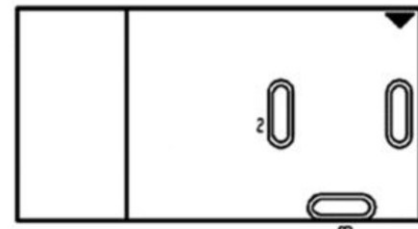
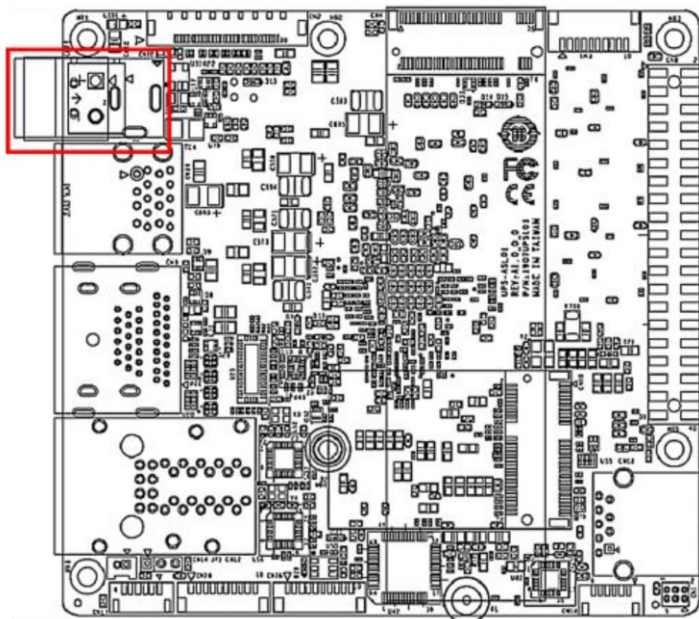
USB #1

| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------|-----|-----------|-----|-----------|
| 1 | +5V/2A | 2 | USB2_D1- | 3 | USB2_D1+ |
| 4 | GND | 5 | USB3_RX1- | 6 | USB3_RX1+ |
| 7 | GND | 8 | USB3_TX1- | 9 | USB3_TX1+ |

USB #2

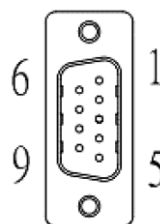
| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------|-----|-----------|-----|-----------|
| 10 | +5V/2A | 11 | USB2_D2- | 12 | USB2_D2+ |
| 13 | GND | 14 | USB3_RX2- | 15 | USB3_RX2+ |
| 16 | GND | 17 | USB3_TX2- | 18 | USB3_TX2+ |

2.3.4. 12V DC-in (8)



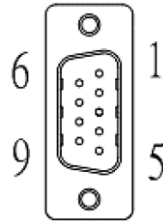
| Pin | Signal | Pin | Signal |
|-----|--------|-----|------------|
| 1 | DC_IN | 2 | GND_Signal |
| 3 | GND | 4 | |

2.3.5. COM 1 (12)



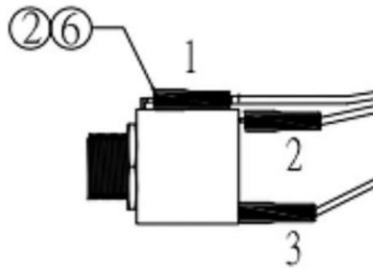
| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | DCDN | 2 | SINN |
| 3 | SOUTN | 4 | DTRN |
| 5 | GND | 6 | DSRN |
| 7 | RTSN | 8 | CTSN |
| 9 | RIN | | |

2.3.6. COM 2 (9)



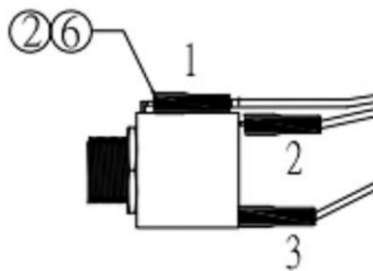
| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | DCDN | 2 | SINN |
| 3 | SOUTN | 4 | DTRN |
| 5 | GND | 6 | DSRN |
| 7 | RTSN | 8 | CTSN |
| 9 | RIN | | |

2.3.7. Audio Jack (Line-out) (10)



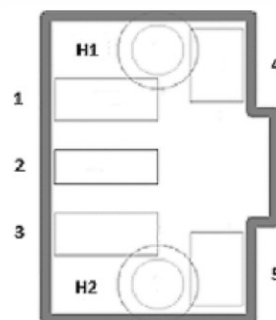
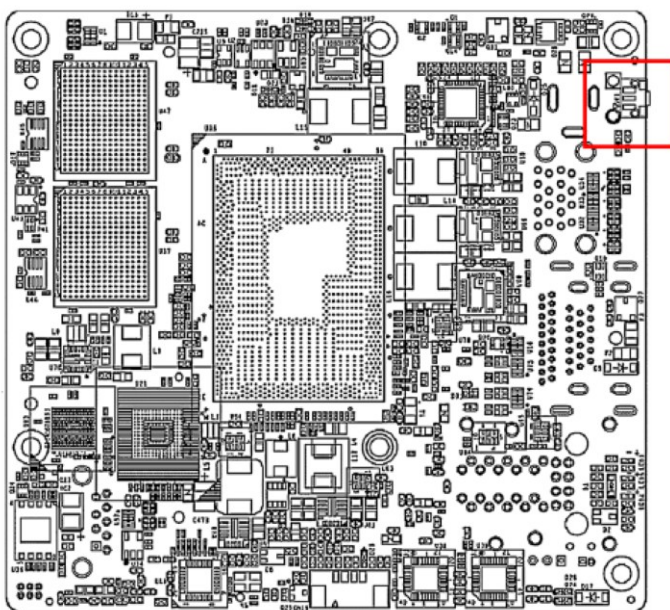
| Pin | Signal | Pin | Signal |
|-----|---------|-----|--------|
| 1 | AUD_GND | 2 | LOUT_R |
| 3 | LOUT_L | 4 | |

2.3.8. Audio Jack (Mic-in) (11)



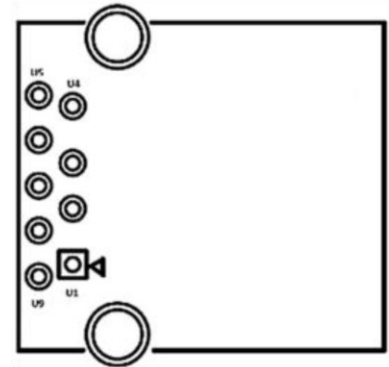
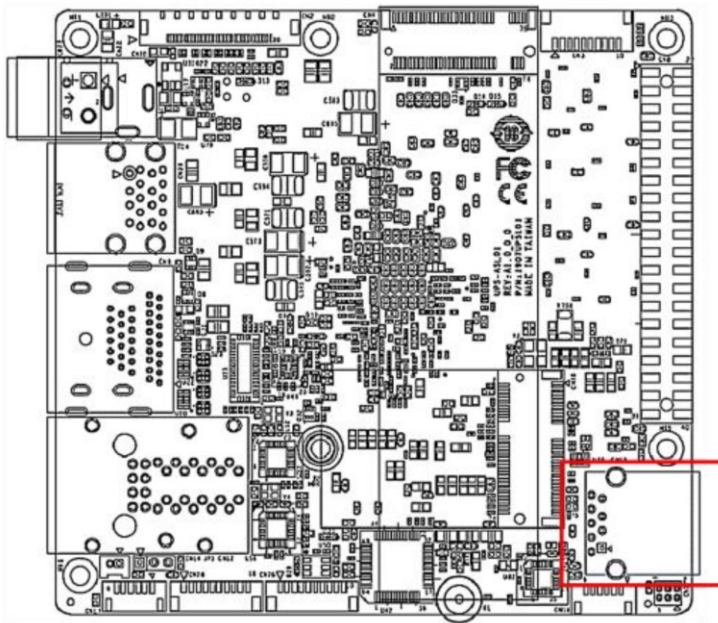
| Pin | Signal | Pin | Signal |
|-----|-----------|-----|-----------|
| 1 | AUD_GND | 2 | MIC_LR_CN |
| 3 | MIC_LR_CN | 4 | |

2.3.9. Power Button (7)



| Pin | Signal | Pin | Signal |
|-----|--------|-----|---------------------|
| 1 | GND | 2 | Power Button Signal |
| 3 | GND | 4 | GND |
| 5 | GND | | |

2.3.10. USB 3.2. Gen 2 (Type-A) (13)



| Pin | Signal | Pin | Signal |
|-----|----------|-----|----------|
| U1 | +5V/2A | U2 | USB2_D3- |
| U3 | USB2_D3+ | U4 | GND |
| U5 | USB3_RX- | U6 | USB2_RX+ |
| U7 | GND | U8 | USB2_TX- |
| U9 | USB2_TX+ | | |

Chapter 3

Software Installation

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3.1. Linux Setup

DX-AIBOX-M1-N97 supports Linux operating systems (see Chapter 1 for specifications). For instructions on how to install a Linux OS onto your DX-AIBOX-M1-N97, you can find several guides and tutorials in the wiki section of the UP website at <https://up-board.org> (UP Squared 7100 Edge).

3.2. Windows Drivers Installation

Drivers for DX-AIBOX-M1-N97 can be downloaded from the UP website by following the link <https://up-board.org> (UP Squared 7100 Edge).

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3.3. DEEPX Driver Information

3.3.1. Installing DX-M1 on Ubuntu 22.04 or 24.04

Command:

```
$git clone --recurse-submodules https://github.com/DEEPX-AI/dx-all-suite.git
$cd dx-all-suite
$./dx-runtime/install.sh --all
```

3.3.2. Verifying if the installation works as expected

Command:

```
$lsmod | grep dxrt
```

```
dxrt_driver      53248  2
dx_dma           495616  9 dxrt_driver
```

Command:

```
$systemctl status dxrt.service
```

```
● dxrt.service - DX-RT Service
   Loaded: loaded (/etc/systemd/system/dxrt.service; enabled; preset: enabled)
   Active: active (running) since Mon 2025-12-22 13:49:42 KST; 3h 20min ago
     Main PID: 964 (dxrtd)
        Tasks: 6 (limit: 74076)
       Memory: 9.0M (peak: 10.0M)
          CPU: 665ms
       CGroup: /system.slice/dxrt.service
              └─964 /usr/local/bin/dxrtd
```

3.3.3. DEEPX SDK Reference Materials

For easier understanding, there are two YouTube videos on DX-SDK:

- [Youtube - DEEPX SDK Introduction](#)
- [Youtube - Quick Start Guide for DX-All Suite](#)

For better understanding, refer to the Git repository of DEEPX SDK:

- <https://github.com/DEEPX-AI/dx-all-suite>

Chapter A

Safety Precautions

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A.1. Safety Precautions

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

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
17. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.

Chapter B

Regulatory Compliance

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NOTE. DEEPX products are Class A. thus they must be installed only in Industrial PC, not PC (personal computer).

B.1. United States (FCC)

Federal Communications Commission (FCC)



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including any interference that may cause undesired operation of the device.

This equipment has been tested and found to comply with the limits for a class A Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Warning: The FCC requires that you be notified that any changes or modifications to this device not expressly approved by the manufacturer could void the user's authority to operate the equipment.

B.2. Europe (CE)

European Conformity; Conformité Européenne (CE)



This is a Class A product. In a domestic environment this product may cause radio frequency interference in which case the user may be required to take adequate measures.

This device bears the CE mark in accordance with Directive 2014/30/EU.

This device complies with the following Directives:

- EMC Directive A, I.T.E Equipment.
- RoHS Directive for hazardous substances.

B.3. South Korea (KATS)

Korean Agency for Technology and Standards (KATS)



| | |
|------------------------|---|
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This is a Class A Device and is registered for EMC requirements for industrial use. The seller or buyer should be aware of this. If this type was sold or purchased by mistake, it should be replaced with a residential-use type.