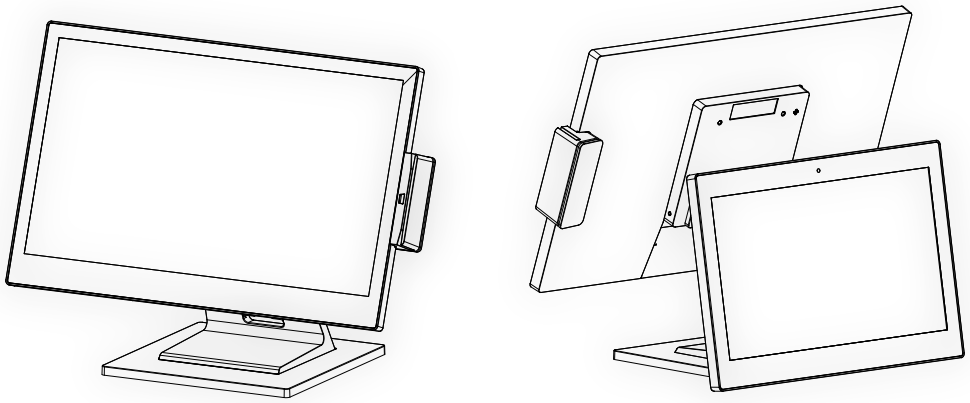
USER MANUAL

VERSION 1.0 May 2024

NEXUS



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Manual Version 1.0

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Safety

IMPORTANT SAFETY INSTRUCTIONS

1. To disconnect the machine from the electrical power supply, turn off the power switch and remove the power cord plug from the wall socket. The wall socket must be easily accessible and in close proximity to the machine.
2. Read these instructions carefully. Save these instructions for future reference.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register or in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

CE MARK

This device complies with the requirements of the EEC directive 2014/30/EU with regard to “Electromagnetic compatibility” and 2014/35/EU “Low Voltage Directive”.

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.
(2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION ON LITHIUM BATTERIES

There is a danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions.

Battery Caution

Risk of explosion if battery is replaced by an incorrectly type. Dispose of used battery according to the local disposal instructions.

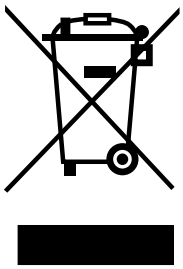
Safety Caution

Note: To comply with IEC60950-1 Clause 2.5 (limited power sources, L.P.S) related legislation, peripherals shall be 4.7.3.2 “Materials for fire enclosure” compliant.

4.7.3.2 Materials for fire enclosures
For MOVABLE EQUIPMENT having a total mass not exceeding 18kg.the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of V-1 CLASS MATERIAL or shall pass the test of Clause A.2.
For MOVABLE EQUIPMENT having a total mass exceeding 18kg and for all STATIONARY EQUIPMENT, the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of 5VB CLASS MATERIAL or shall pass the test of Clause A.1

LEGISLATION AND WEEE SYMBOL

2012/19/EU Waste Electrical and Electronic Equipment Directive on the treatment, collection, recycling and disposal of electric and electronic devices and their components.



The crossed dust bin symbol on the device means that it should not be disposed of with other household wastes at the end of its working life. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.

This product should not be mixed with other commercial wastes for disposal.

Revision History

Changes to the original user manual are listed below:

Revision	Description	Date
1.0	• Initial release	May 2024

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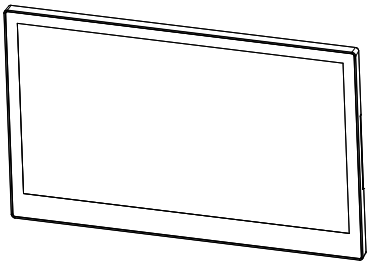
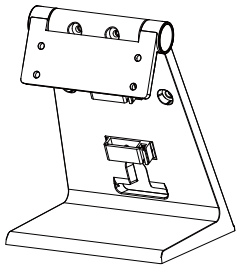
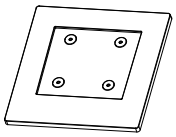
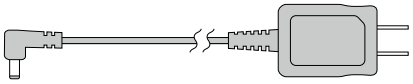
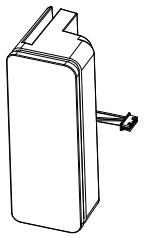
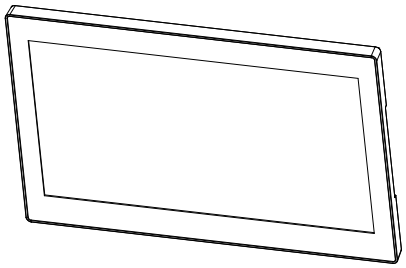
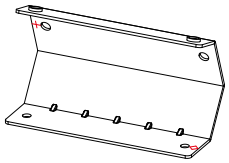
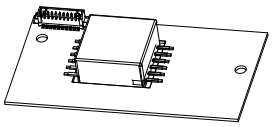
1. Packing List

1-1. Standard Accessories

	
a. 11.6"/ 15.6"/ 21.5" LED panel	b. Stand
	
c. Stand base	d. 36W power adapter

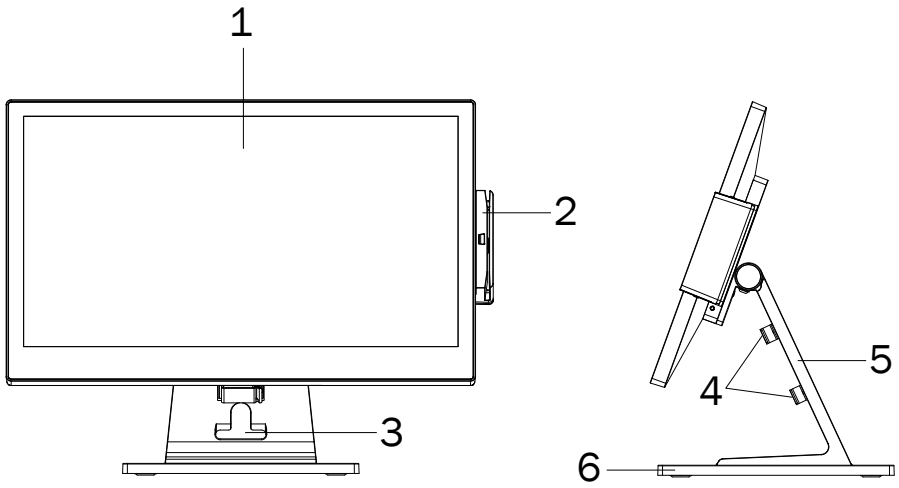
Note: Power cord will be supplied differently according to various region or country.

1-2. Optional Accessories

	
a. MSR module	b. 11.6" 2nd display
	
c. 2nd display holder bracket	d. PoE module

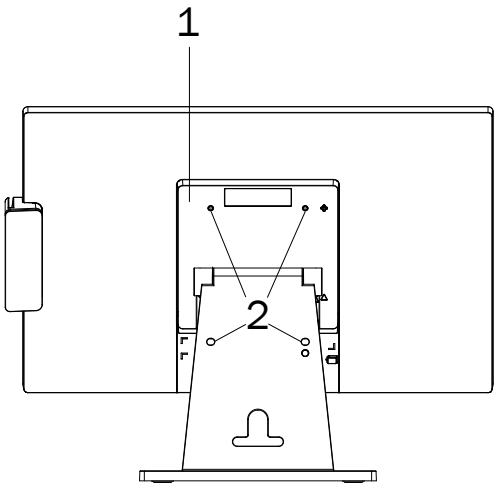
2. System View

2-1. Front & Side View



No.	Description
1	Touch screen
2	MSR
3	Stand opening for cable management
4	Cable clamp x 2
5	Stand
6	Base plate

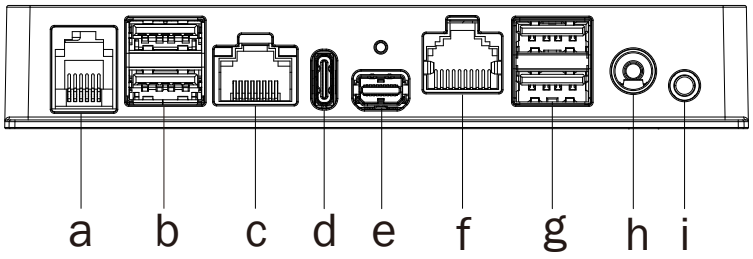
2-2. Rear View



No.	Description
1	I/O box (motherboard inside)
2	screw holes for 2nd display bracket

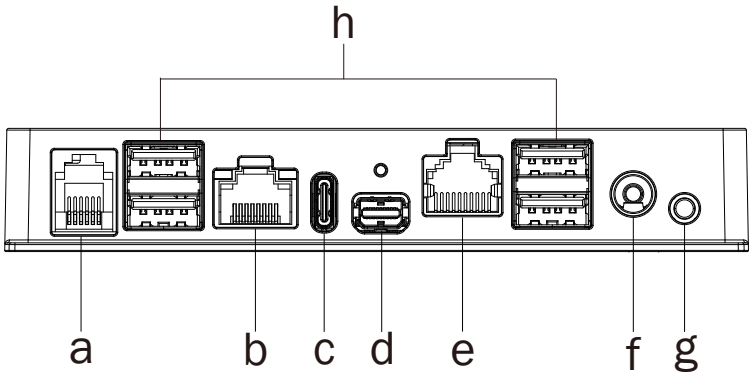
2-3. IO Ports View

J6412 Motherboard



No.	Description
a	Cash drawer
b	USB 3.0 x 2
c	LAN
d	USB Type-C
e	custom miniDP (2nd display)
f	COM
g	USB 2.0 x 2
h	DC 19V in
i	Power button

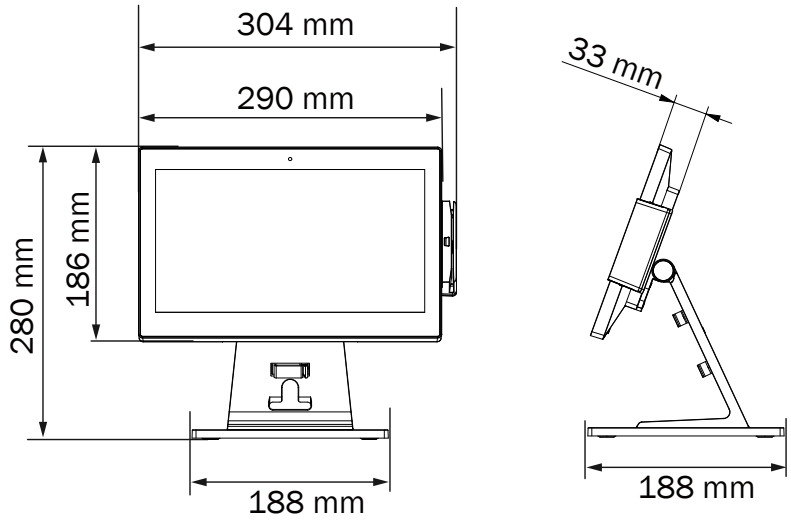
Mediatek Motherboard



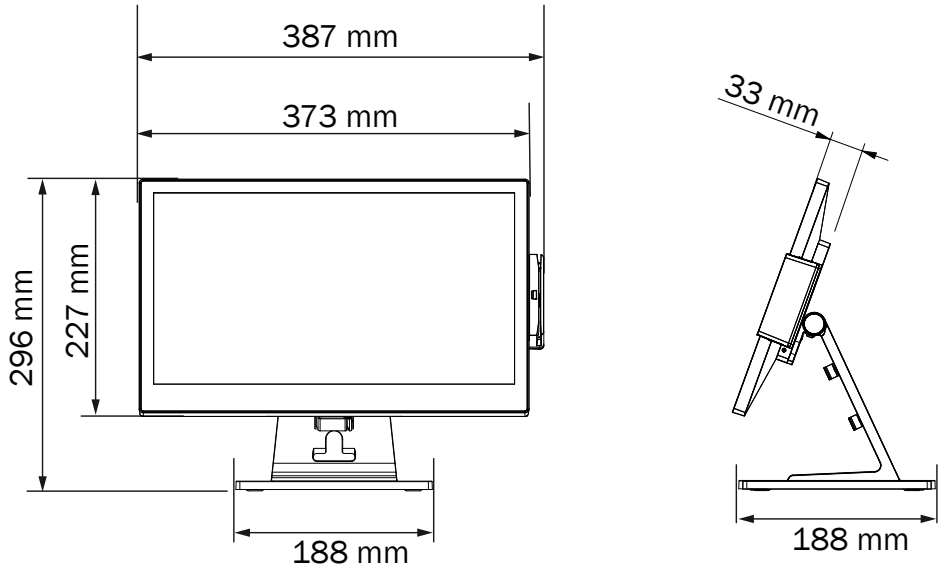
No.	Description
a	Cash drawer
b	LAN
c	USB Type-C
d	custom miniDP (2nd display)
e	COM
f	DC 19V in
g	Power button
h	USB 2.0 x 4

2-4. System Dimensions

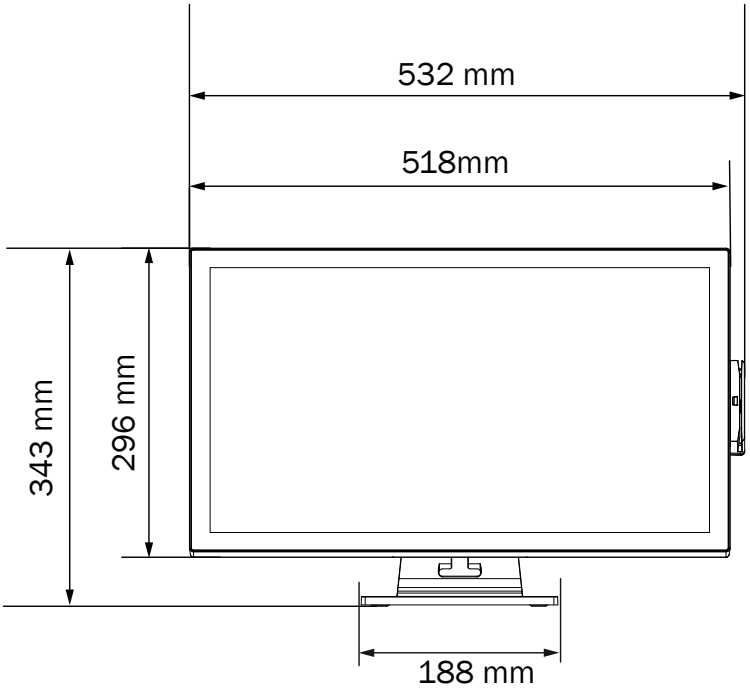
Nexus 11.6”

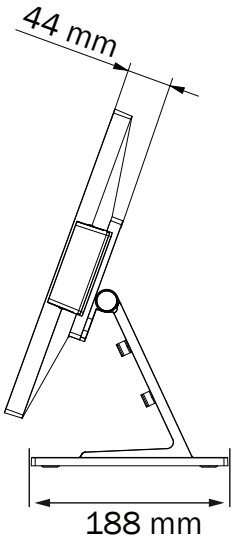


Nexus 15.6”



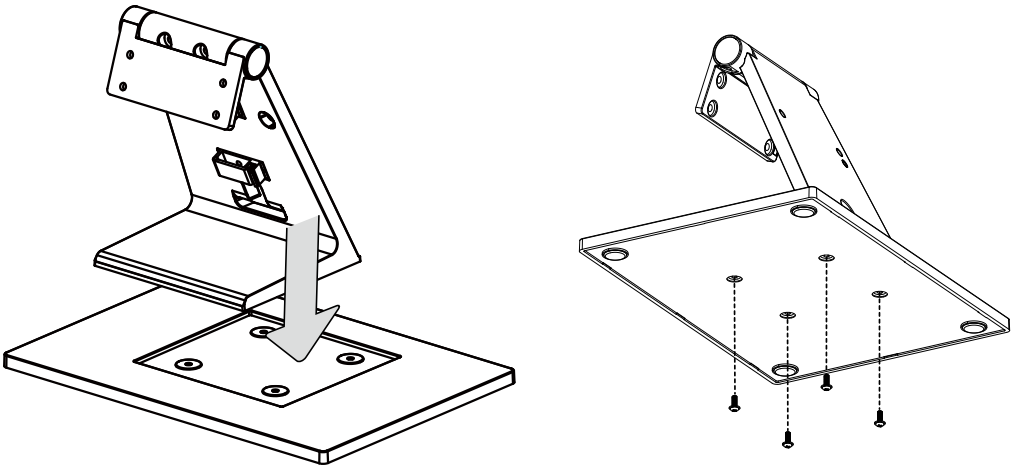
Nexus 21.5”





3. System Assembly & Disassembly

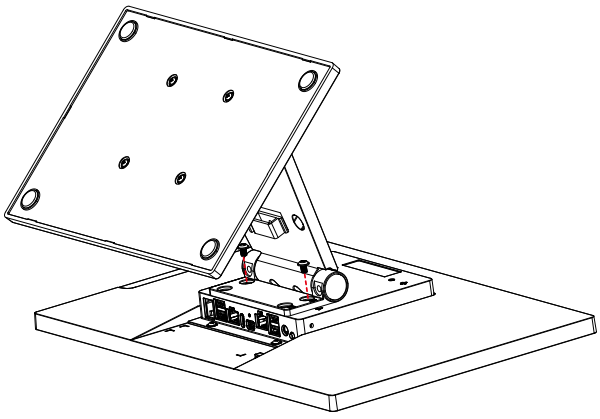
3-1. Install the Stand

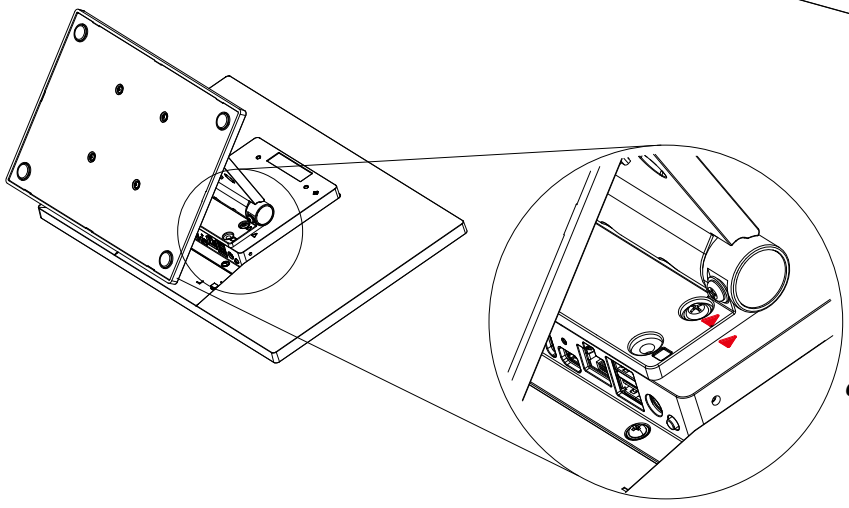


1. **Position the stand over the base plate and secure with the M3*8L screws (x4).**

3-2. Install Stand on the LED Panel

1. Place the LED panel face down.
2. There is a triangle mark ▲ on both stand and I/O box. Attach the stand to the I/O box, make sure the triangles are aligned properly.
3. Fasten the M4*6L screws (x2) to secure.



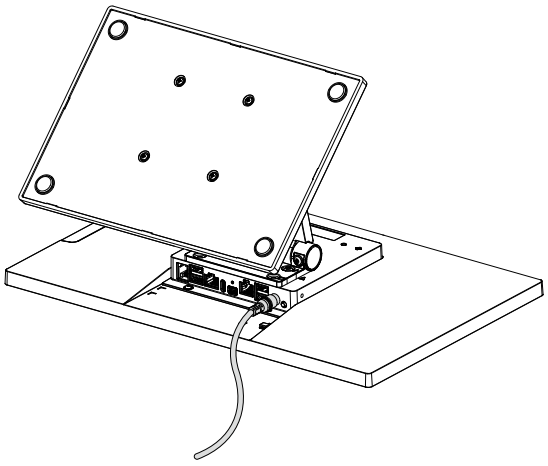


corresponding position

3-3. Install the Power Adapter

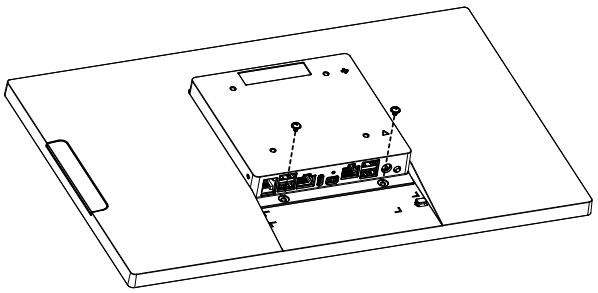
The system is equipped with an external power adapter. Please plug it into the system as shown below.

1. Find the DC-in connector located on the I/O box.
2. Plug the cable directly into the connector then plug the adapter directly into the AC outlet. Use the tie down clip to avoid the cable from being pulled out.

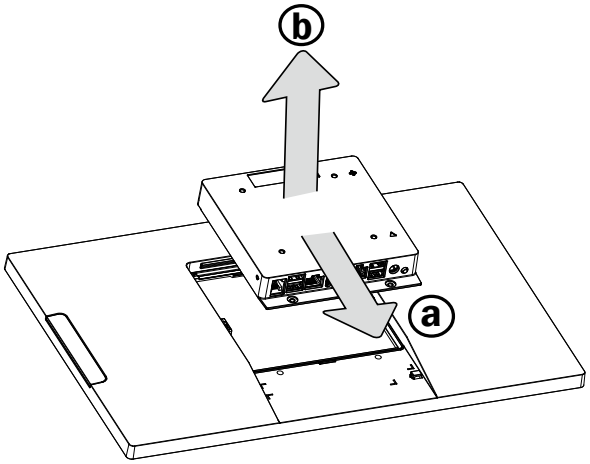


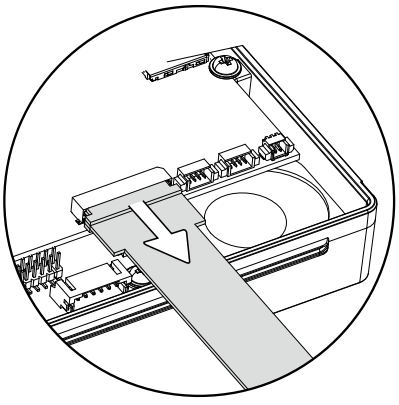
3-4. Remove the I/O Box

1. Remove the M3*4L screws (x2) from the I/O box.



2. Pull the I/O box outwards (a) then lift it up (b) to release it from the LCD panel.



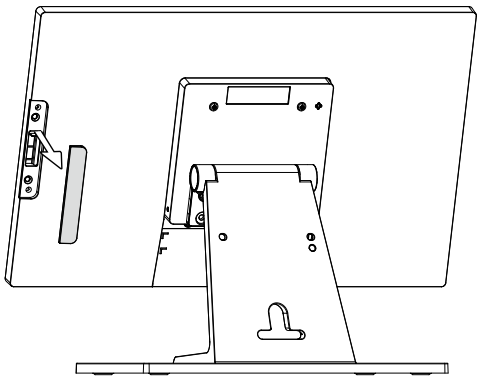


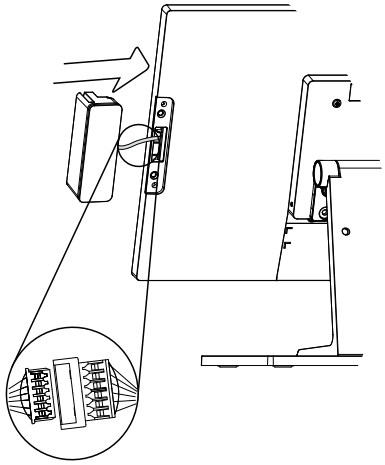
Caution: DO NOT lift up the I/O box abruptly because the 40 pin eDP cable of the LCD panel is connected to the motherboard. Disconnect the cable first before lifting up the I/O box.

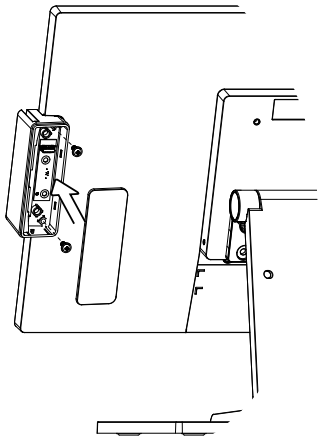
4. Peripherals Installation

4-1. Install the MSR Module

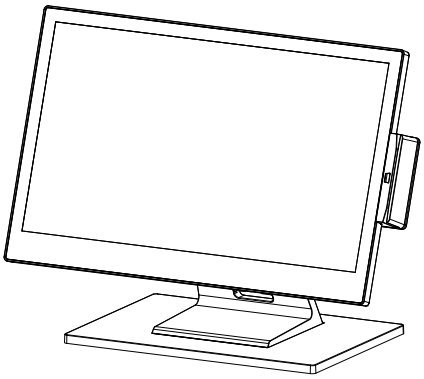
1. Remove the dummy cover first.





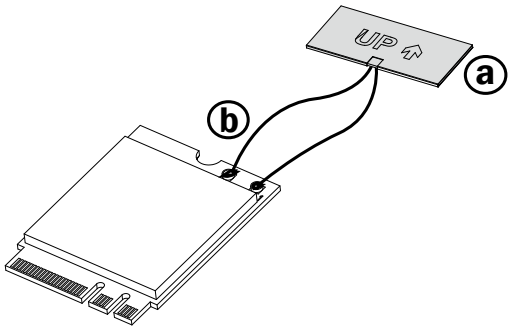


2. Connect the MSR cable to the connector on the system side and **install** the MSR module in place.
3. Fasten the M3*8L screws (x2) to secure the module and attach the top cover of the MSR module.

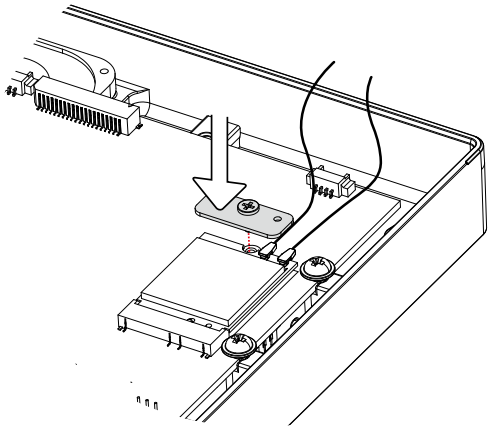


4-2. Install the Antennas

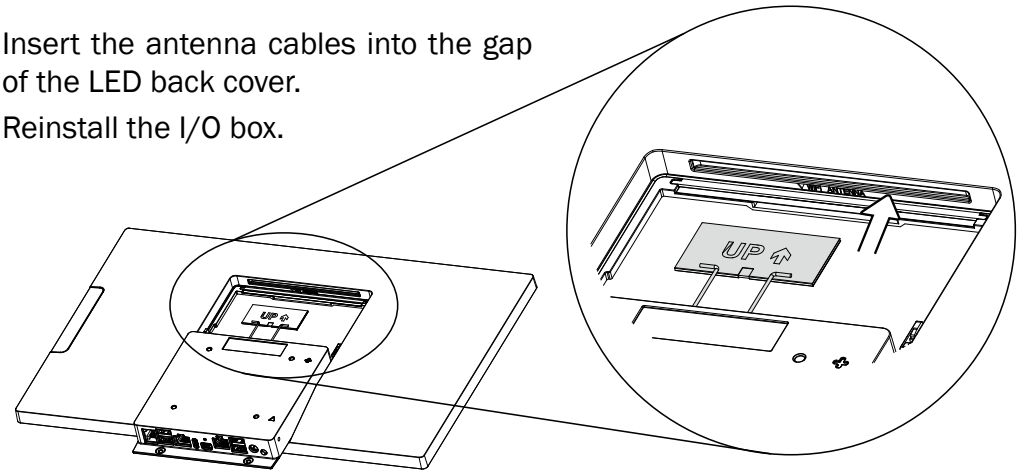
1. Follow the steps in Chapter 3-4 to remove the I/O box first.
2. Use the insulating tape to wrap the antenna cables (a).
3. Connect one of the cables on the main connector on the wireless card and another one on the auxiliary connector (b).



4. Push the wireless card into the slot at a 30 degree angle and then secure the card with a bracket module which containing a screw.



5. Insert the antenna cables into the gap of the LED back cover.
6. Reinstall the I/O box.

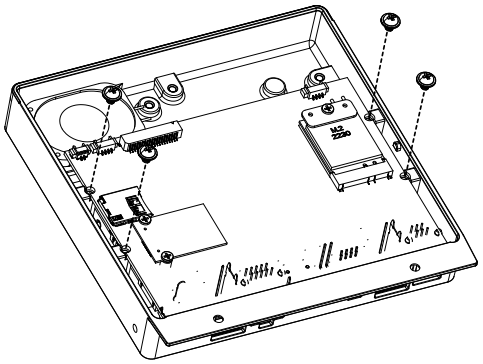


Note: The WLAN antenna and wires will be pre-installed prior to shipping if the function requested.

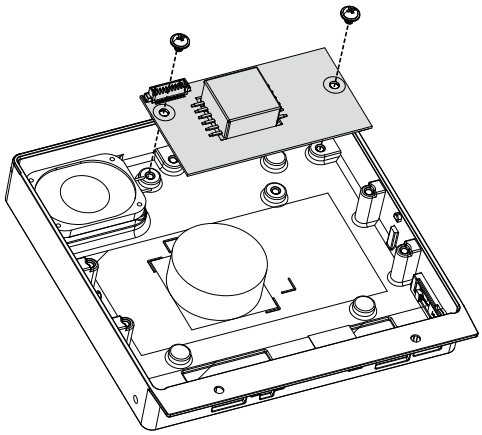
4-3. Install the PoE Module

G17 motherboard system can be equipped with PoE module as an optional peripehral.

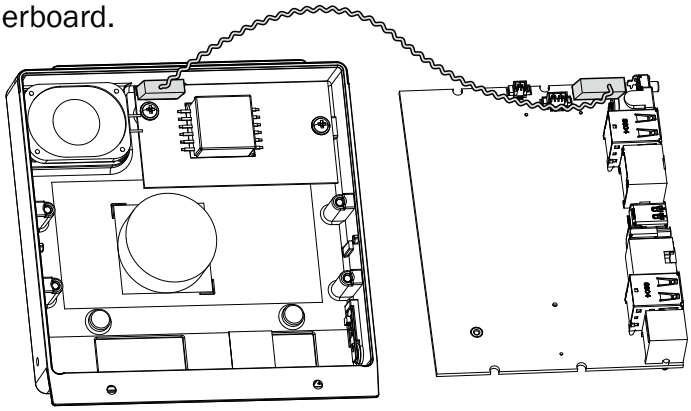
1. Follow the steps in Chapter 3-4 to remove the I/O box first.
2. Remove the screws (x4) to release the motherboard.



3. Attach the PoE module and fasten the M3*4L screws (x2).



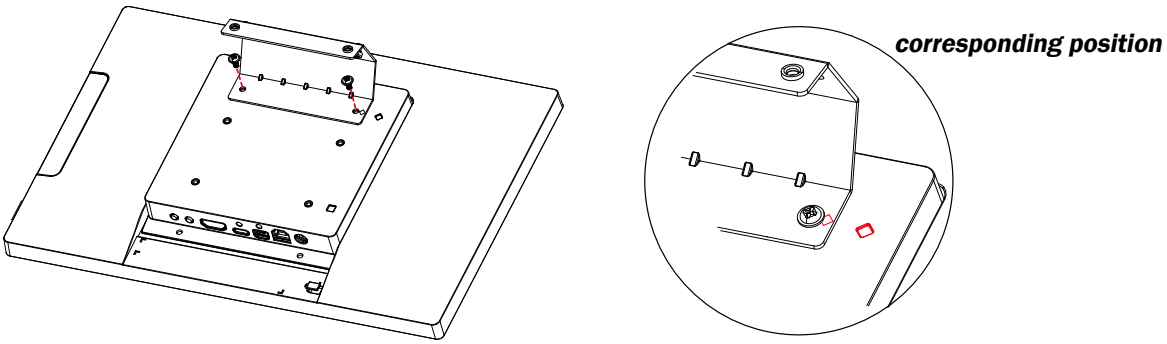
4. Connect the PoE cable to the connector (CN4) on the motherboard.



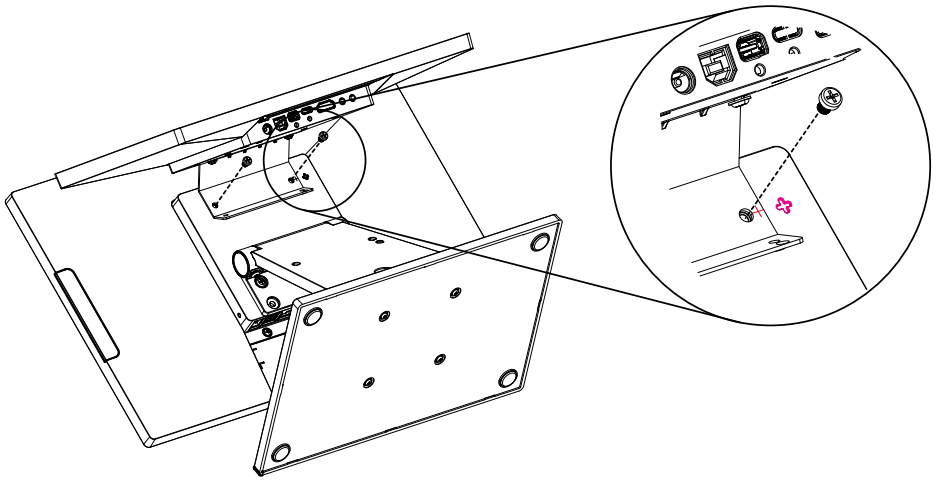
Note: The PoE module will be pre-installed prior to shipping if the function requested.

4-4. Install the Second Display

4-4-1. On the Main

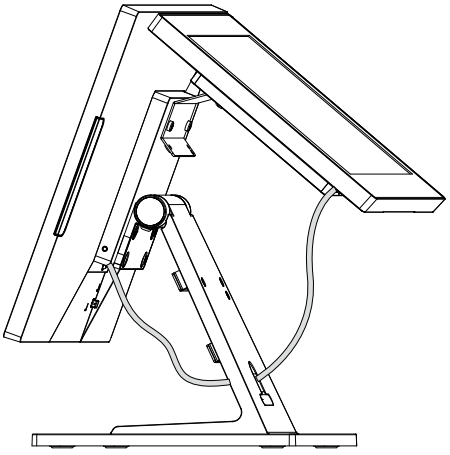


1. Place the 11.6" 2nd display face down.
2. There is a diamond mark ◆ on both stand and 2nd display I/O box. Position and attach the 2nd display bracket over the I/O box, make sure the diamonds are aligned properly.
3. Fasten with the M3*6L screws (x2) provided.

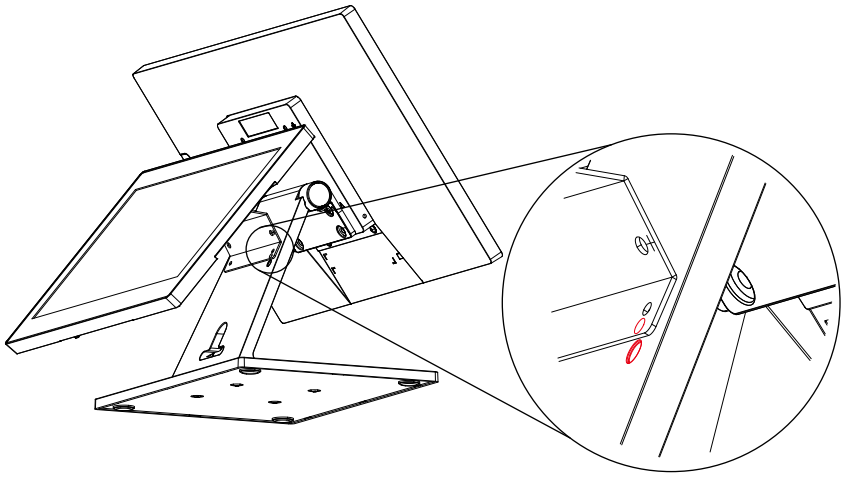


4. After assembling the 2nd display module, attach it to the I/O box of the main LED panel, align the cross mark ✚ and then fasten the M4*5L screws (x2).

5. Thread the 2nd display cable through the opening of the stand and connect the host end of the cable to FeDP port.

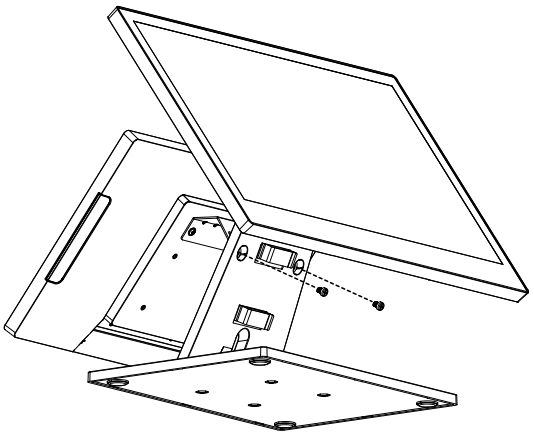


4-4-2. On the Stand

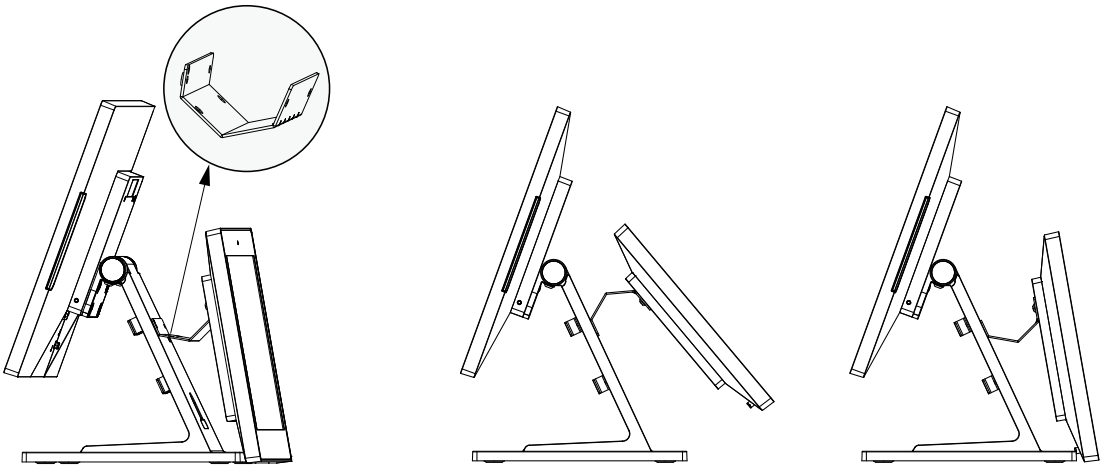


1. Follow the steps 1~3 in Chapter 4-4-1 to assemble the 2nd display module.
2. Attach the 2nd display module to the stand, make sure the circle mark ● are aligned properly.

3. Fasten the M4*5L screws (x2) from the front side of the stand to fix the 2nd display to the stand.
4. Thread the 2nd display cable through the opening of the stand and connect the host end of the cable to FeDP port.



change the bracket direction

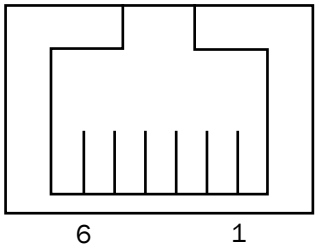


Note: You can change the bracket direction according to your preference of 2nd display viewing angle.

4-5. Cash Drawer Installation

You can install a cash drawer through the cash drawer port. Please verify the pin assignment before installation.

Cash Drawer Pin Assignment



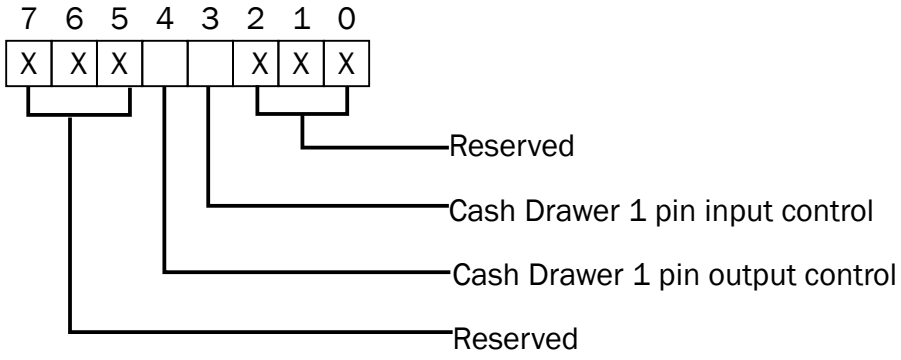
Pin	Signal
1	Cash drawer 2 In
2	Cash drawer 1 Out
3	Cash drawer 1 In
4	12V
5	Cash drawer 2 Out
6	GND

Cash Drawer Controller Register

The Cash Drawer Controller use one I/O addresses to control the Cash Drawer.

Register Location: 0x482h
Attribute: Read / Write
Size: 8bit

BIT	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Attribute	Reserved			CD1 Out	CD1 In	Reserved		



Bit 7: Reserved
Bit 6: Reserved
Bit 5: Reserved
Bit 4: Cash Drawer 1 pin output control.
= 1: Opening the Cash Drawer
= 0: Allow close the Cash Drawer
Bit 3: Cash Drawer 1 pin input control.
= 1: the Cash Drawer closed or no Cash Drawer
= 0: the Cash Drawer opened
Bit 2: Reserved
Bit 1: Reserved
Bit 0: Reserved

Note: Please follow the Cash Drawer control signal design to control the Cash Drawer.

Cash Drawer Control Command Example

Command	Cash Drawer
O 482 10	Opening
O 482 00	Allow to close
► Set the I/O address 482h bit4 =1 for opening Cash Drawer by "DOUT bit0" pin control. ► Set the I/O address 482h bit4 = 0 for allow close Cash Drawer.	

Command	Cash Drawer
I 482	Check status
► The I/O address 482h bit3 =1 mean the Cash Drawer is opened or not exist. ► The I/O address 482h bit3 =0 mean the Cash Drawer is closed.	

5. Specification

Model Name	Nexus 11.6"	Nexus 15.6"	Nexus 21.5"
Mainboard	Elkhart		
CPU	Intel Elkhart Lake CPU EIA GT2 CELERON (J6412) 2.0G/3200M 10nm FCBGA		
Chipset	CPU Integrated		
System memory	On board memory 8GB DDR4		
Graphic memory	Intel Graphic (Gen 10), defined on CPU		
LCD/Touch Panel			
LCD size	11.6" LED (eDP) IPS	15.6" LED (eDP) IPS	21.5" LED (eDP) IPS
Brightness	250 nits	250 nits	250 nits
Maximal resolution	1920 x 1080 (full HD)	1920 x 1080 (full HD)	1920 x 1080 (full HD)
Touch screen type	True flat PCAP touch		
Storage			
Flash memory	128GB eMMC		
Expansion			
M.2	E-key 2230 for WLAN		
Mico SD socket	1 x socket		
External I/O Ports			
Defined connector	1 x mini-DP for 2nd display (2-lane eDP/USB2.0/audio(R-CH)/power button/power)		
USB Type A	4 (2 x USB 2.0/2 x USB 3.0)		
USB Type C	1 (support USB3.0/USB2.0) PD source 5V(2A)		
COM port	1 x RJ48 w/o LED (TX/RX/RTS/CTS only)		
LAN	1 x RJ45		
Cash drawer	1 x RJ-11 (12V, 2 in 2 out)		
DC jack	1 x 2 pin		
Power button	1		
Power			
Power adapter	default 12V/36W		
Peripherals (optional)			
MSR	1 (USB)		
Second display	11,6" 2nd display (touch option)		
Audio			
Speaker	1 x 3W/8 Ohm		
Communication			
Wireless LAN	Antenna PCB cable with WLAN card		
inefi (optional)			
OOB management	Remote OS recovery, power management (power on/power off/restart)		
Certificate			
EMC & Safety	FCC, Class A, CE, LVD		
ESD	4 kV Contact discharge, 8 kV Air discharge		
Color	Black C		
Environment			
Sealing	IP54 (front side)		
Operating temperature	0°C ~ 35°C (32°F ~ 95°F)		
Storage temperature	-20° ~ 60°C (-4°F ~ 140°F)		
Humidity	20% - 85% RH non-condensing		
OS support	Windows 10 (64-bit), Windows IOT Enterprise 10(64-bit), Linux, Android 13.0		

*This specification is subject to change without prior notice.

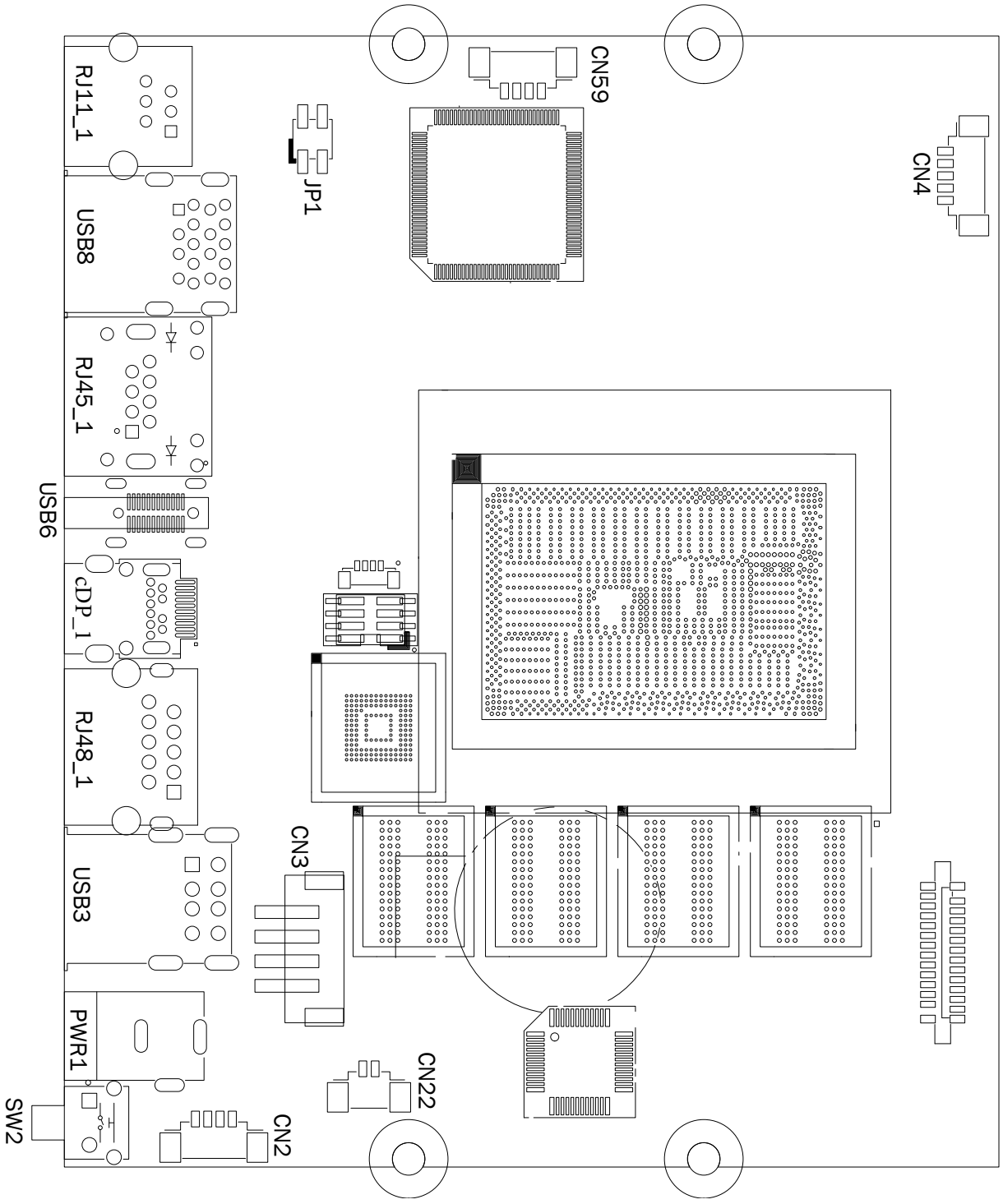
Model Name	Nexus 11.6"	Nexus 15.6"	Nexus 21.5"
Mainboard	Mediatek		
CPU	G700(MT8390) Dual- core Arm Cortex A78 processor Hexa-core Arm Cortex A55 processor		
APU	Single-core AI Processor Unit (APU) Cadence Tensilica VP6 processor with AI Accelerator (AIA)		
System memory	On board memory default 4GB LPDDR4		
Graphic memory	Arm Mali G57 MC3 3D Graphics Accelerator		
LCD/Touch Panel			
LCD size	11.6” LED (eDP) IPS	15.6” LED (eDP) IPS	21.5” LED (eDP) IPS
Brightness	250 nits	250 nits	250 nits
Maximal resolution	1920 x 1080 (full HD)	1920 x 1080 (full HD)	1920 x 1080 (full HD)
Touch screen type	True flat PCAP touch		
Storage			
Flash memory	eMMC 32GB /eMMC 64GB (default)		
Expansion			
M.2	E-key 2230 for WLAN		
Micro SD socket	1 x socket		
External I/O Ports			
Defined connector	1 x mini-DP for 2nd display (2-lane eDP/USB2.0/audio(R-CH)/power button/power)		
USB Type A	4 x USB 2.0		
USB Type C	1 x full-function USB3.0/USB2.0 & DP)/PD source 5V(2A)/12V(1A)		
COM port	1 x RJ48 w/o LED (TX/RX/RTS/CTS only)		
LAN	1 x RJ45 (PoE module IEEE 802.3bt, up to 51W)		
Cash drawer	1 x RJ-11 (12V, 2 in 2 out)		
DC jack	1 x 2 pin		
Power button	1		
Power			
Power adapter	default 12V/36W		
Peripherals (optional)			
MSR	1 (USB)		
Second display	11,6” 2nd display (touch option)		
Audio			
Speaker	1 x 3W/8 Ohm		
Communication			
Wireless LAN	Antenna PCB cable with WLAN card		
inefi (optional)			
OOB management	Remote OS recovery, power management (power on/power off/restart)		
Certificate			
EMC & Safety	FCC, Class A, CE, LVD		
ESD	4 kV Contact discharge, 8 kV Air discharge		
Color	Black C		
Environment			
Sealing	IP54 (front side)		
Operating temperature	0°C ~ 35°C (32°F ~ 95°F)		
Storage temperature	-20° ~ 60°C (-4°F ~ 140°F)		
Humidity	20% - 85% RH non-condensing		
OS support	Android 13.0 (GMS certified)		

*This specification is subject to change without prior notice.

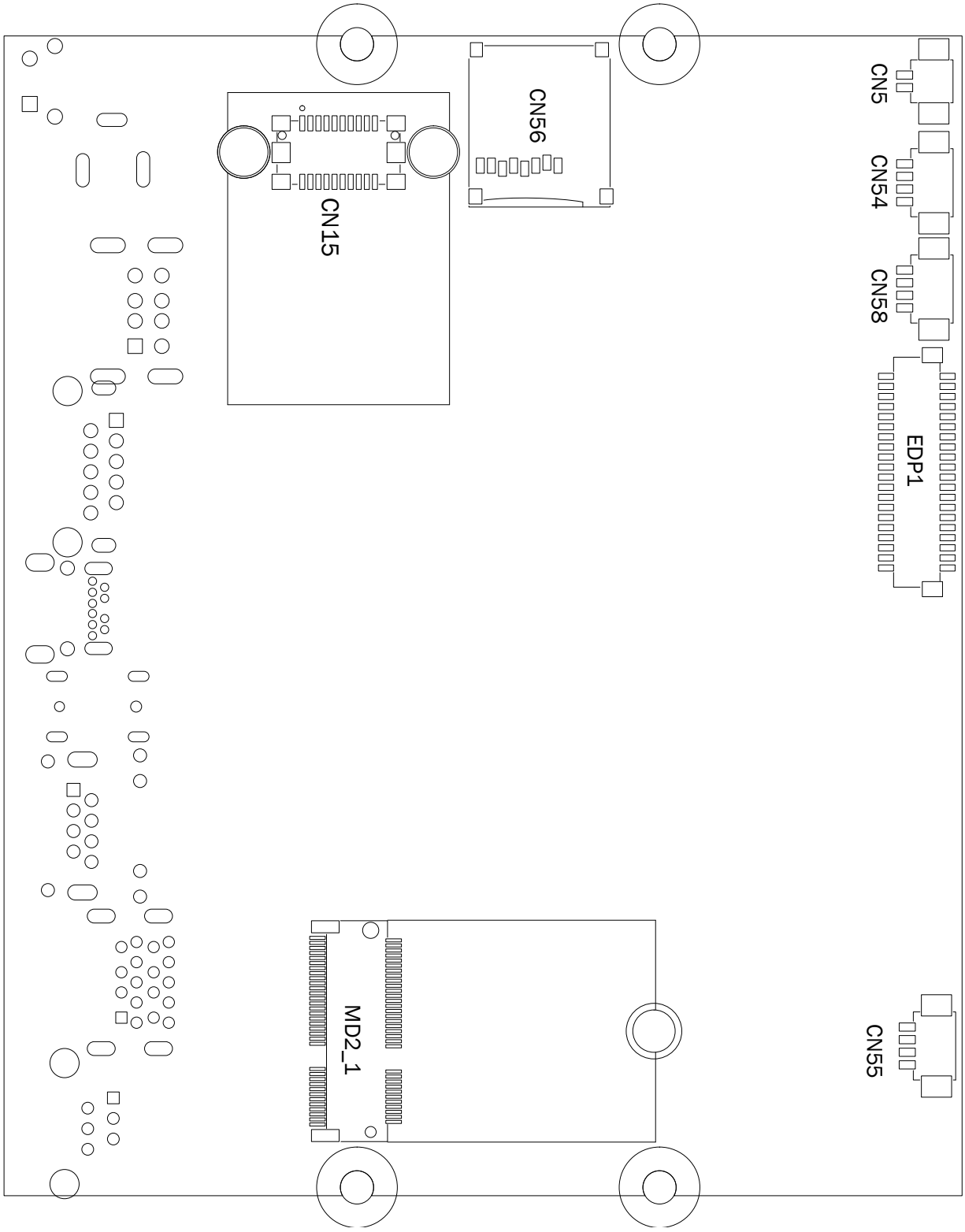
6. Configuration

6-1. J6412 Motherboard

6-1-1. Motherboard Layout



V1.0 Top Layer



V1.0 Bottom Layer

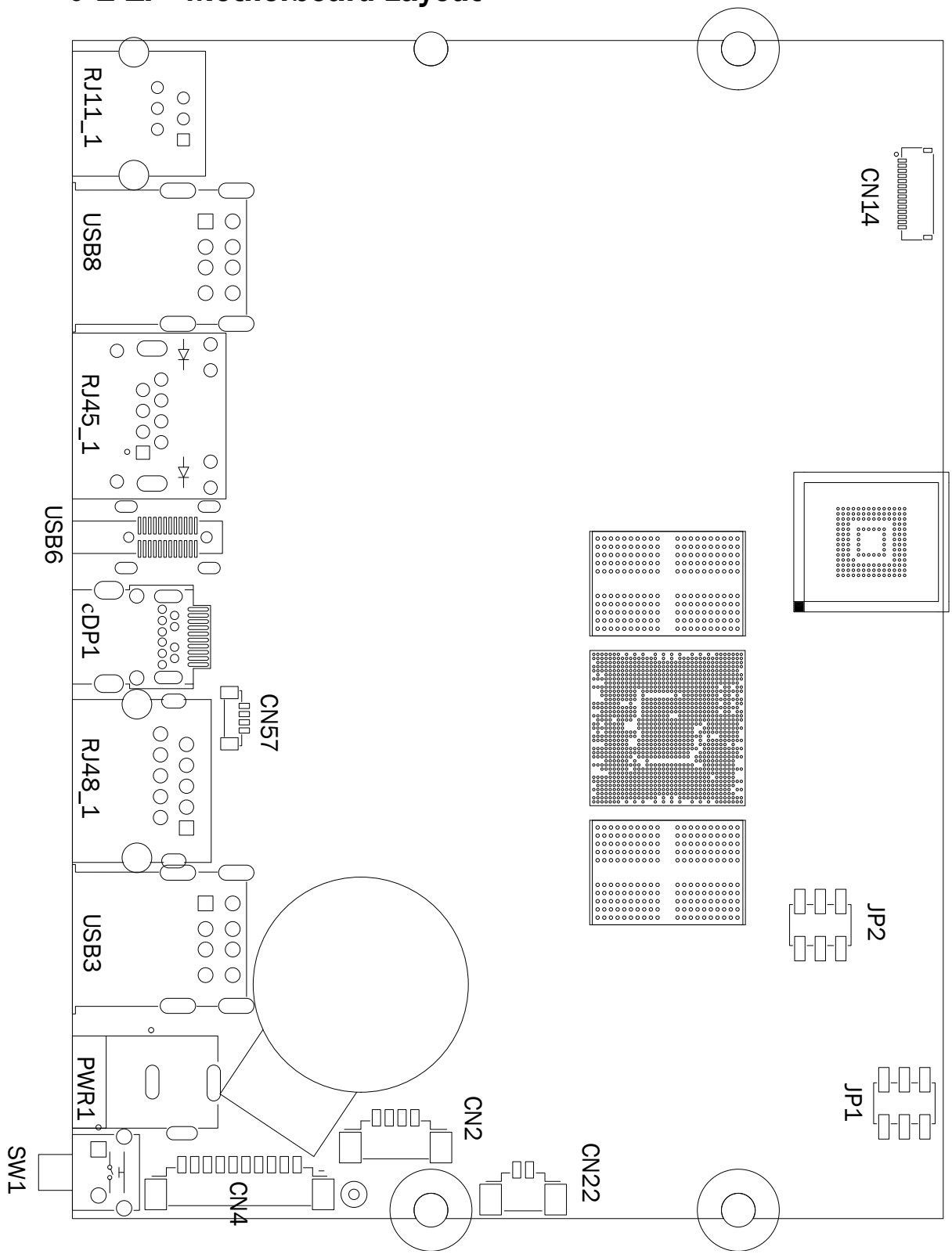
6-1-2. Connectors & Functions

Connector	Function
CN2	Power button w/2 LED connector
CN3	12V/19V connector
CN4	EC debug connector
CN5	Speaker L connector
CN15	OOB connector
CN22	RTC battery connector
CN54/CN55/CN58/CN59	Internal USB 2.0 connector
CN56	Micro SD card socket
RJ11_1	Cash drawer connector
RJ45_1	LAN connector
RJ48_1	COM1 connector
USB3	USB 2.0 connector
USB6	USB Type-C connector (DP/USB3.0)
USB8	USB 3.0 connector
EDP1	40 pin eDP Connector
cDP1	2nd custom MiniDP connector
MD2_1	M.2 slot, E-Key for wireless card
PWR1	DC-in connector
SW2	Power button
JP1	Cash drawer power setting jumper

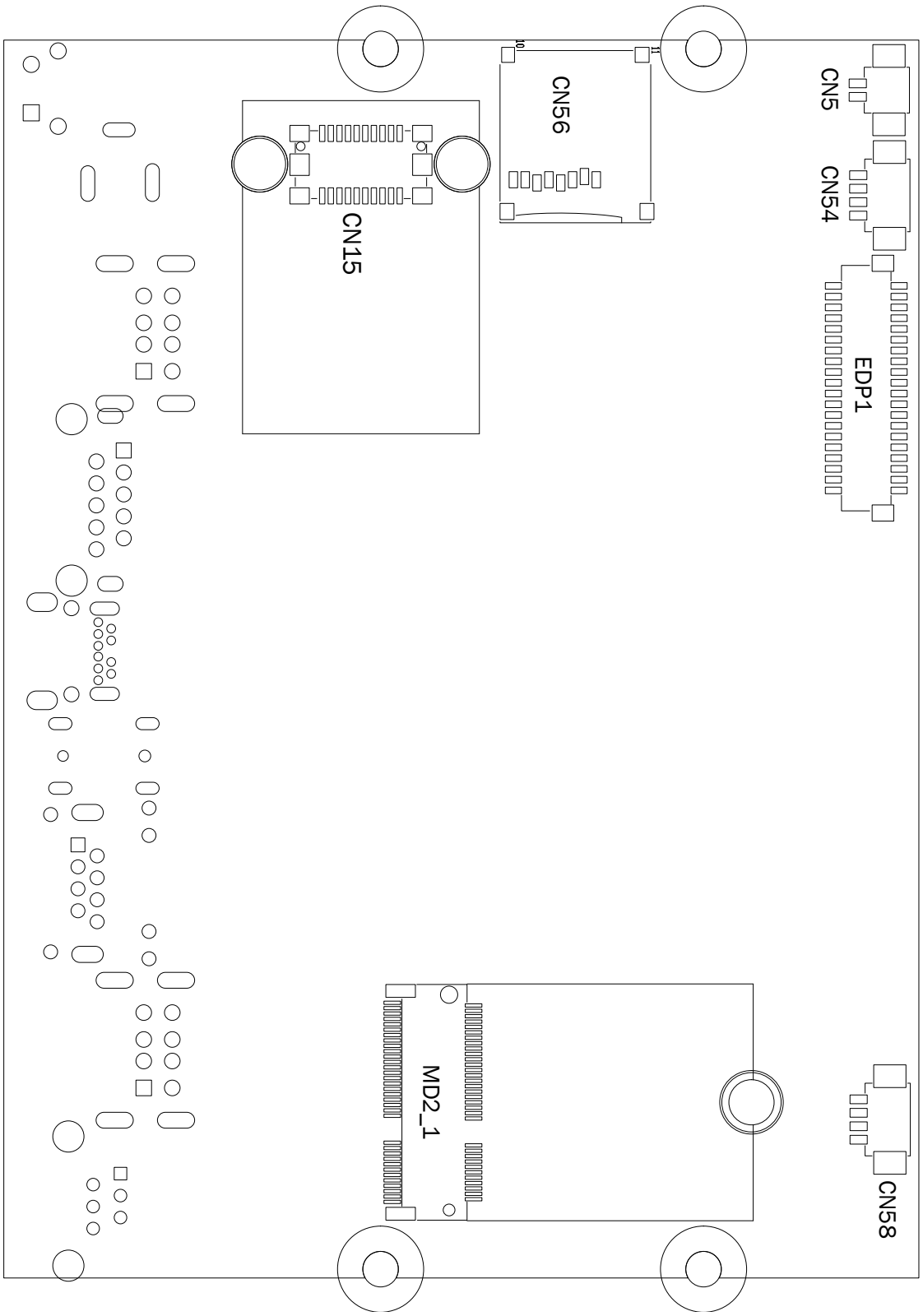
Note: *Connectors and jumpers will be different according to product difference, the real object should be considered as final. Contact your POS Systems authorized distributor or reseller for technical information or specific device configuration.*

6-2. Mediatek Motherboard

6-2-1. Motherboard Layout



V1.0 Top Layer



V1.0 Bottom Layer

6-2-2. Connectors & Functions

Connector	Function
CN2	Power button w/2 LED connector
CN4	PoE connector
CN5	Speaker L connector
CN14	NFC connector
CN15	OOB connector
CN22	RTC battery connector
CN54/CN58	Internal USB 2.0 connector
CN56	Micro SD card socket
CN57	Debug connector
RJ11_1	Cash drawer connector
RJ45_1	LAN connector
RJ48_1	COM1 connector
USB3/USB8	USB 2.0 connector
USB6	USB Type-C connector (DP/USB3.0)
EDP1	40 pin eDP Connector
cDP1	2nd Custom miniDP connector
MD2_1	M.2 slot, E-Key for wireless card
PWR1	DC-in connector
SW1	Power button
JP1	OS install/auto power on/download mode setting jumper
JP2	Panel ID setting jumper

Note: *Connectors and jumpers will be different according to product difference, the real object should be considered as final. Contact your POS Systems authorized distributor or reseller for technical information or specific device configuration.*

6-2-3. Jumper Setting

OS Install Setting Jumper

Function	JP1
▲Host mode	[1] 3 5 2 4 6
Device mode	[1] [2] 3 5 4 6

Auto Power On Setting Jumper

Function	JP1
▲ Non-auto on	1 [3] 5 2 4 6
Auto on	1 [3] 5 2 [4] 6

Download Mode Setting Jumper

Function	JP1
▲ Non-download mode	1 3 [5] 2 4 6
Download mode	1 3 [5] 2 4 [6]

1
2 Jumper open

[1]
[2] Jumper short

▲ = Manufacturer Default Setting