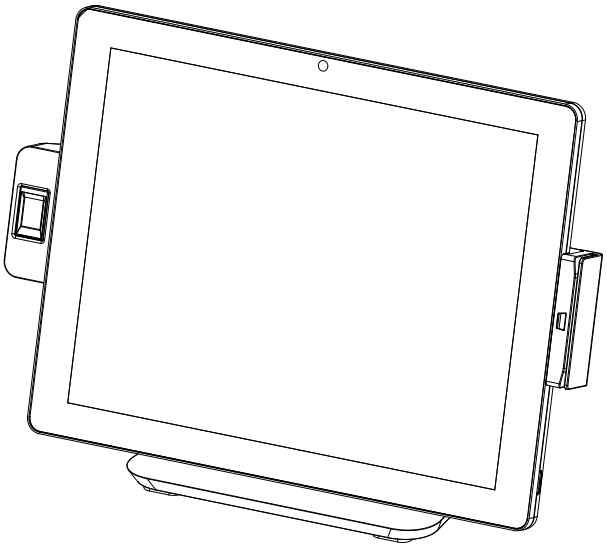
USER MANUAL

VERSION 1.0 September 2017

POS455
Hardware System



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.

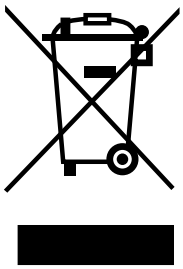
Safety Caution

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	September 2017

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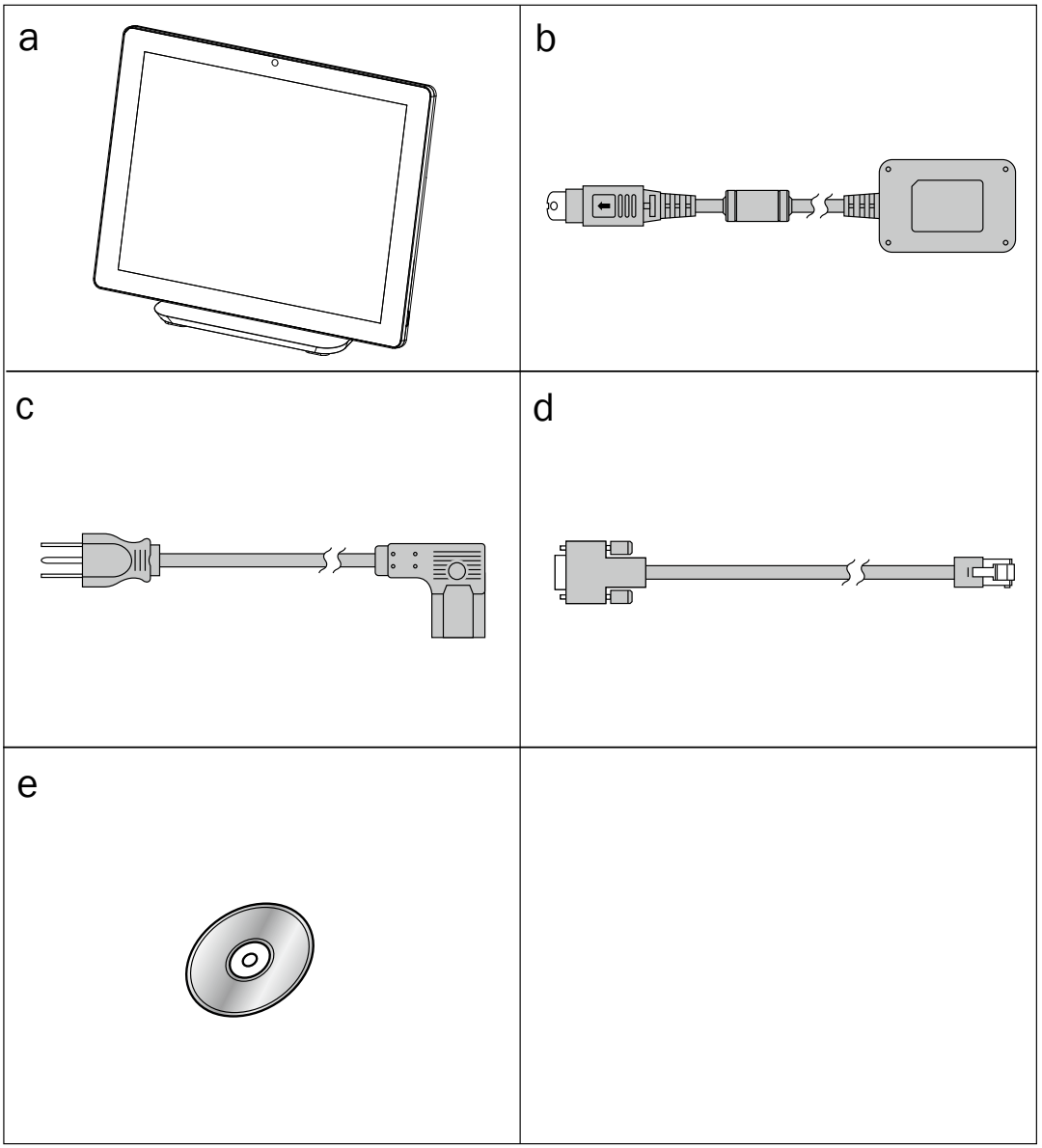
1. Packing List

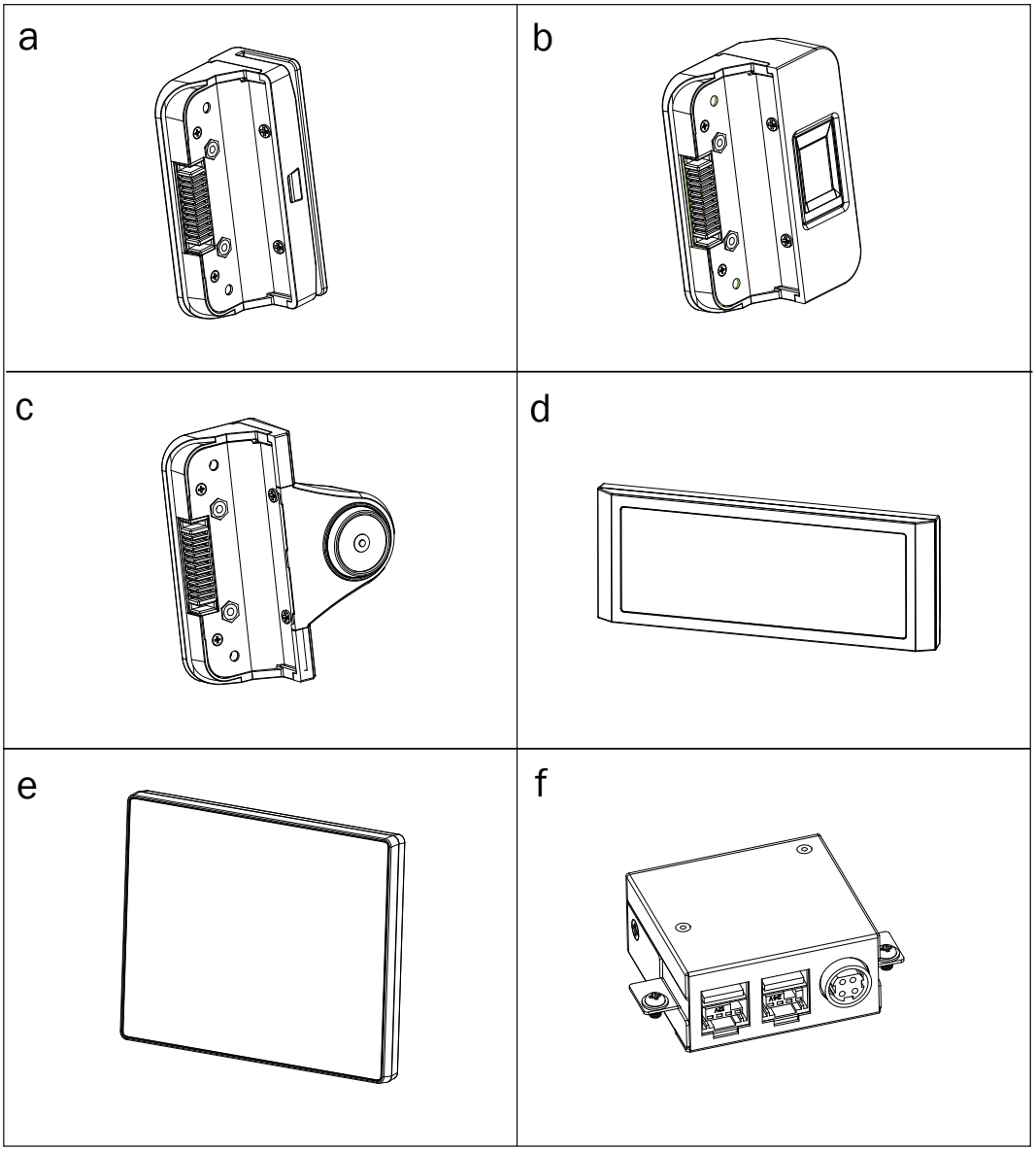
1-1. Standard Accessories



a. System
b. Power adapter
c. Power cord
d. RJ45-DB9 cable (x2)
e. Driver bank

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

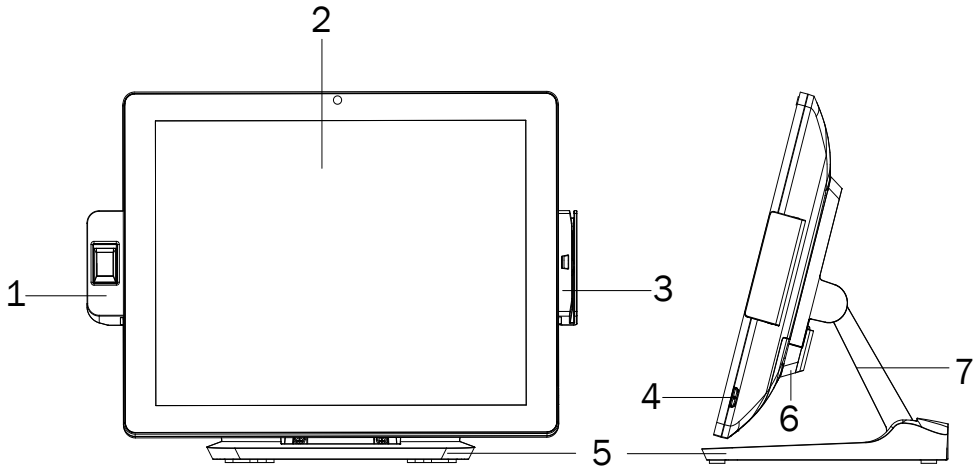
1-2. Optional Accessories



a. MSR module
b. Fingerprint module
c. iButton module
d. Customer display
e. 2nd display
f. Power box (custom-made) (powered USB 12V / powered USB 24V / DC jack)

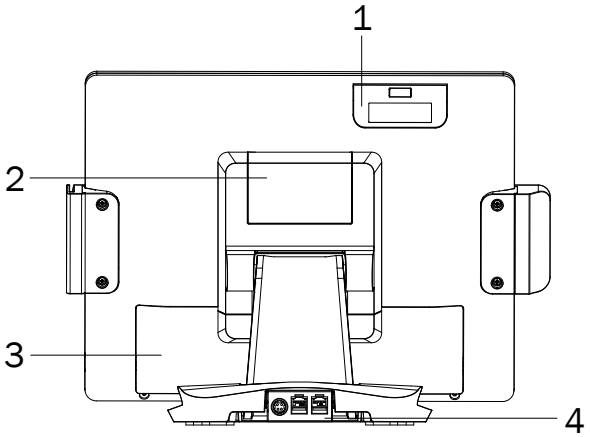
2. System View

2-1. Front & Side View



No.	Description
1	Fingerprint (option)
2	Touch screen
3	MSR (option)
4	Power button
5	Stand
6	VESA bottom cover
7	Stand front cover

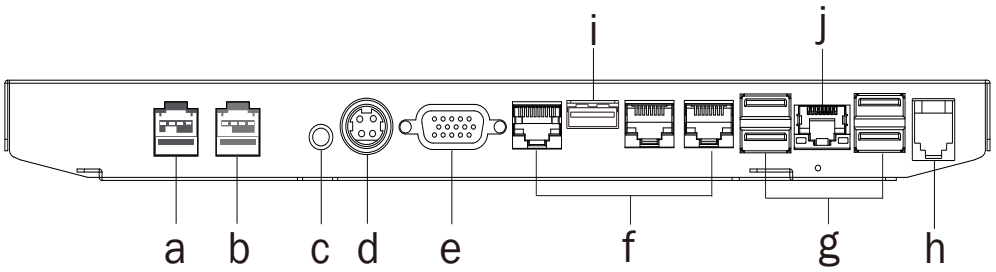
2-2. Rear View



No.	Description
1	Dummy door of the HDD
2	VESA top cover
3	Cable cover
4	Power box (custom-made)

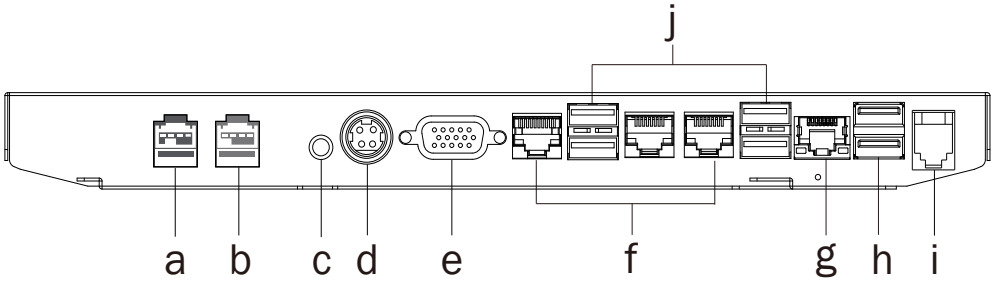
2-3. IO Ports View

D36 Motherboard



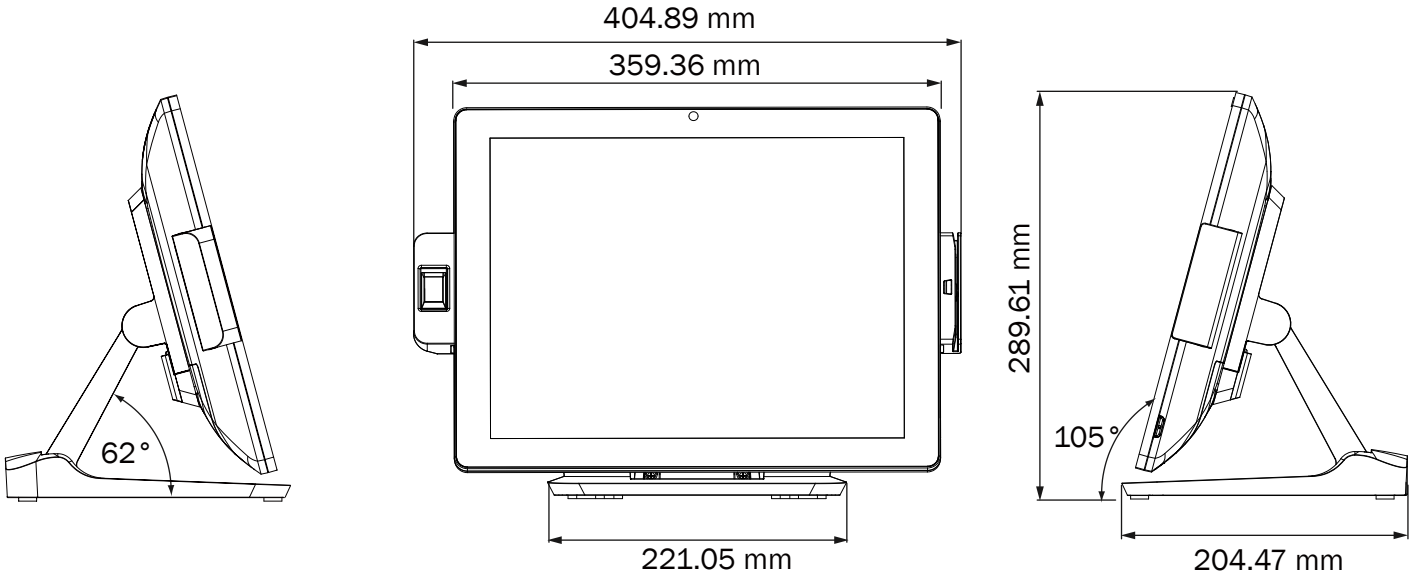
No.	Description
a	Powered USB 24V (option)
b	Powered USB 12V (option)
c	Power button
d	DC 19V in
e	VGA
f	COM 1, 2, 3 (from right to left)
g	USB 2.0 x 4
h	Cash drawer
i	USB 3.0 x 1
j	LAN

D86U Motherboard



No.	Description
a	Powered USB 24V (option)
b	Powered USB 12V (option)
c	Power button
d	DC 19V in
e	VGA
f	COM 1, 2, 3 (from right to left)
g	LAN
h	USB 2.0 x 2
i	Cash drawer
j	USB 3.0 x 4

2-4. System Dimensions



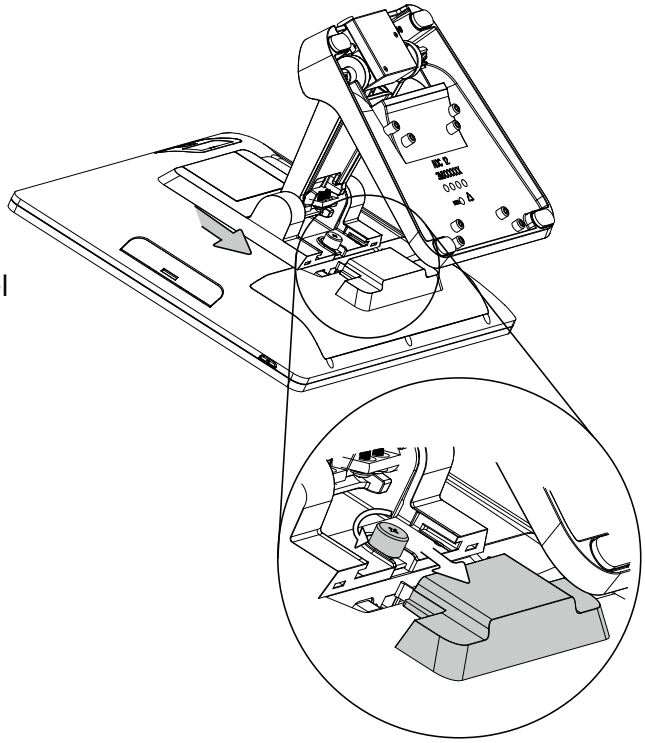
3. System Assembly & Disassembly

3-1. Disassemble the Stand

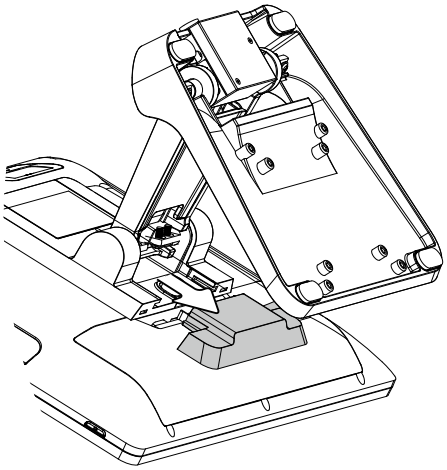
1. Slide the VESA bottom cover outwards.

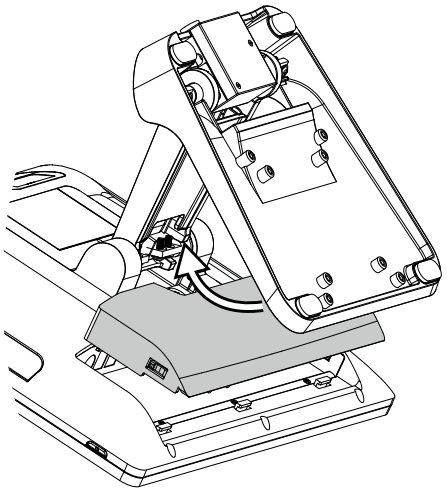
2. Loosen the thumb screw (x1) and slide the stand towards the IO panel to release it from the system.

3. Reverse the steps above to attach stand to the system.



3-2. Remove the Cable Cover

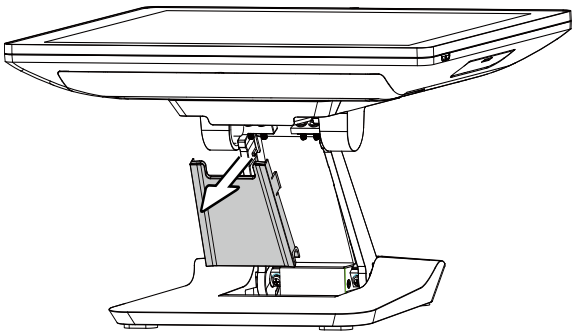


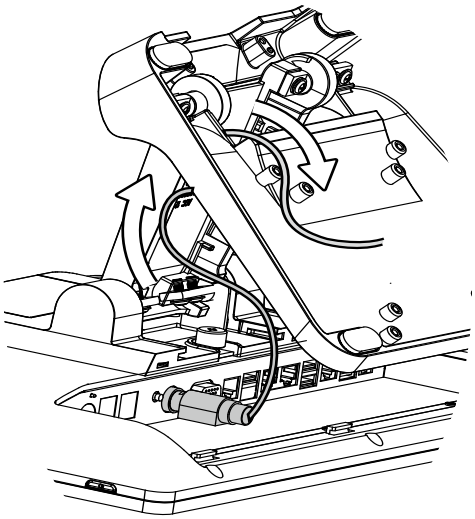


1. Slide the VESA bottom cover outwards.
2. Pull the cable cover upwards to release it from the system.

3-3. Install the Power Adapter

The system is equipped with a 65W or 90W power adapter. Please follow the steps to install the power adapter.

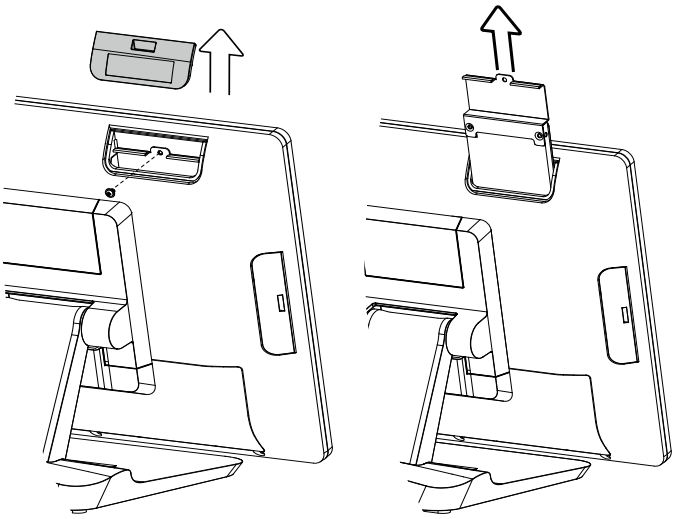




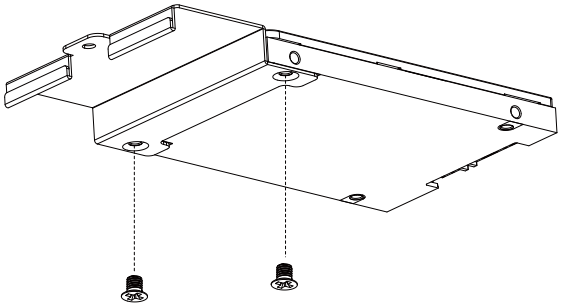
1. The stand is designed to allow for clean cable management. There is a cable channel through the stand, which has a quick access cover. Please pull the front cover of the stand outwards.
2. Place the system face down. Making sure not to scrath the touchscreen.
3. Connect the power adapter to the 19V DC IN port and then route the cable as shown in the picture.
4. Replace the front cover.

3-4. Replace HDD

1. Remove the HDD dummy cover retaining a screw and sliding the drive out.



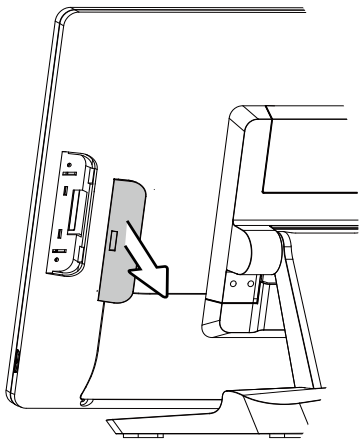
2. Remove the screws (x2) that fix the HDD to the bracket.



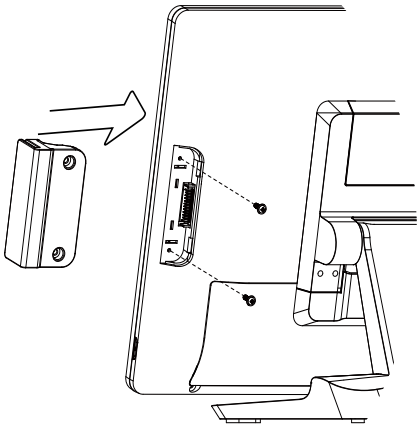
4. Peripheral Installation

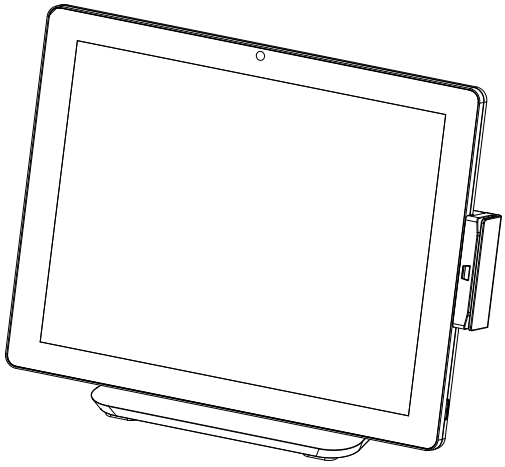
4-1. Install the MSR Module

1. Remove the dummy cover first.



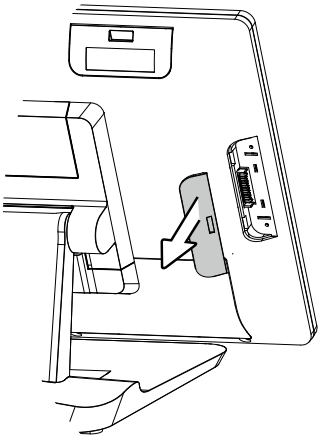
2. Insert the MSR module in place and fasten the screws (x2) on the back to secure the module.



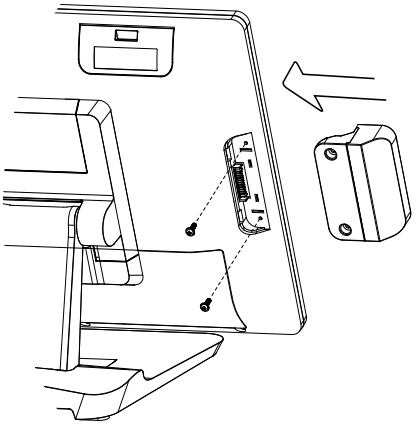


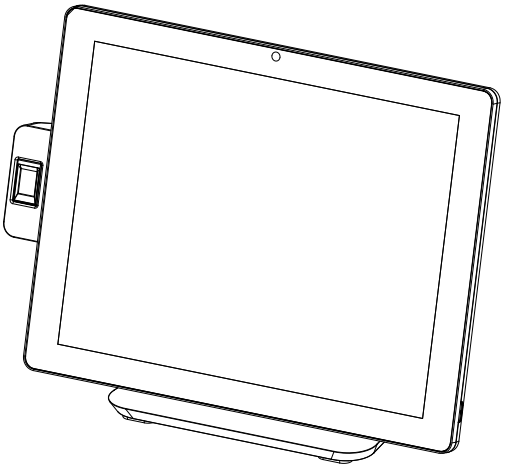
4-2. Install the Fingerprint Module

1. Remove the dummy cover first.



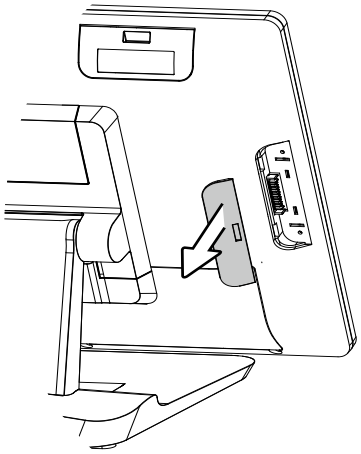
2. Insert the Fingerprint module in place and fasten the screws (x2) on the back to secure the module.



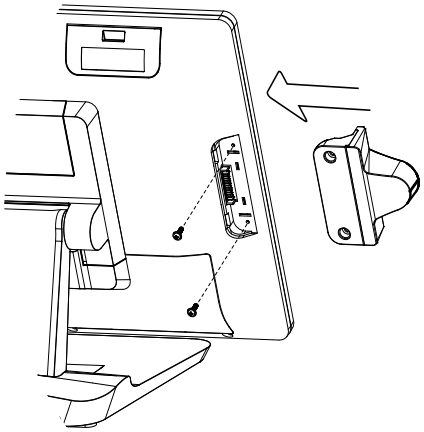


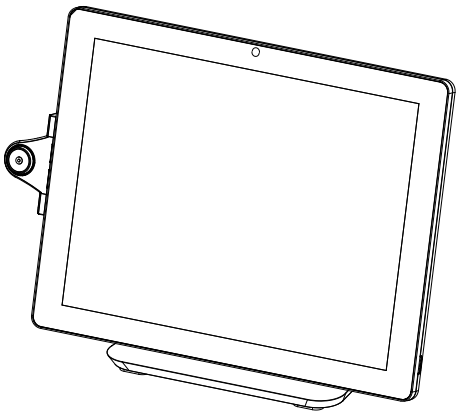
4-3. Install the iButton Module

1. Remove the dummy cover first.

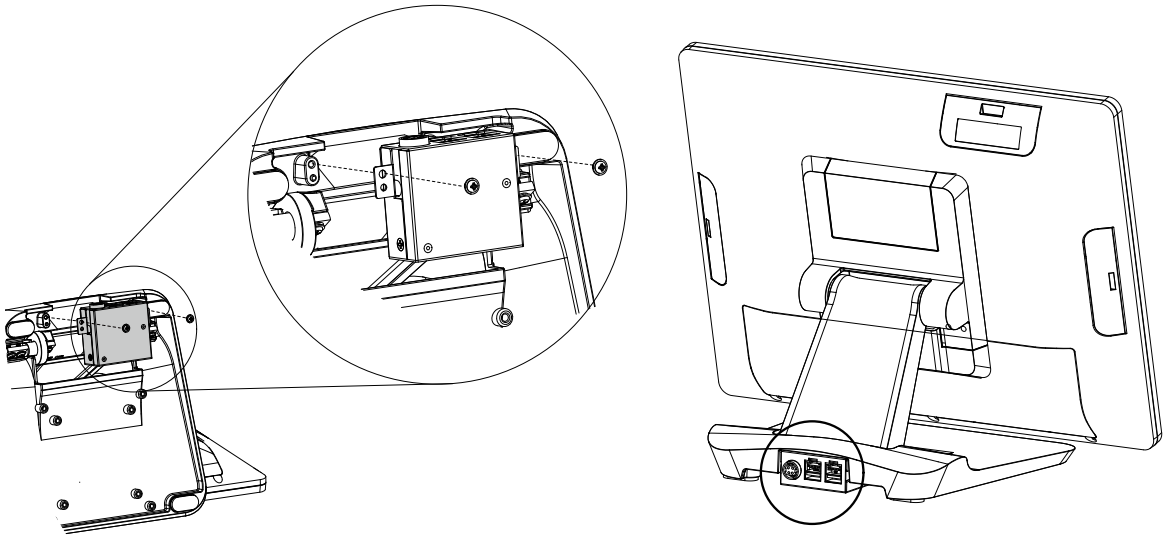


2. Insert the iButton module in place and fasten the screws (x2) on the back to secure the module.





4-4. Install the Power Box

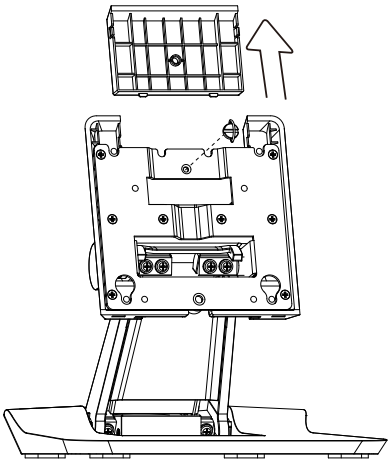


1. Lay down system to access the bottom of the stand.
2. Attach the power box and then fasten two screws to secure it to the system.

4-5. Install the Customer Display

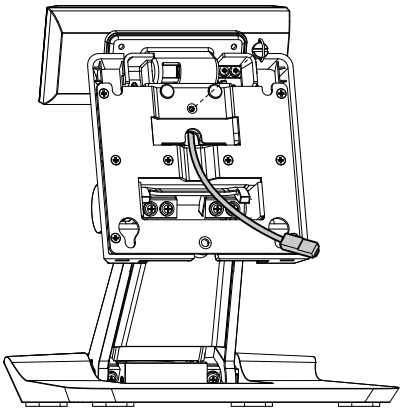
1. Follow the steps in Chapter 3-1 to diassemble the stand from the LCD panel.

2. Remove the thumb screw (x1) from the VESA top cover and then pull the cover up.

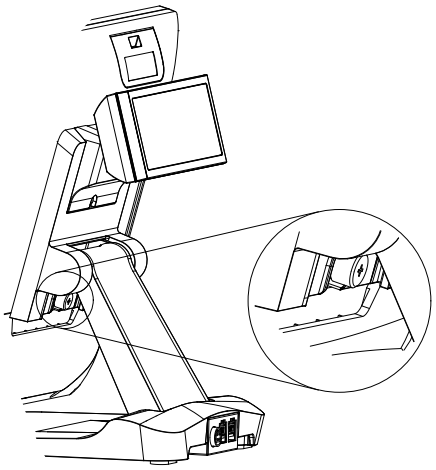


3. Attach the LCM module to system by fastening the thumb screw (x1).

4. Route the RJ-45 cable through the hole of the stand as picture shown.

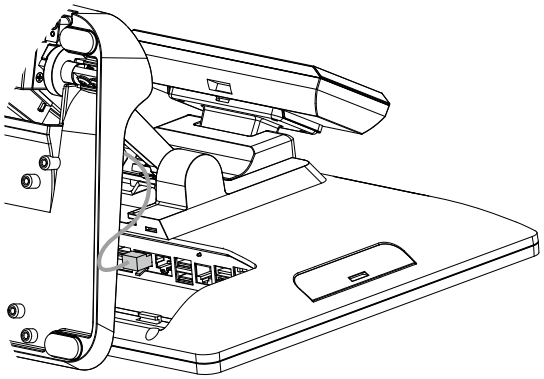


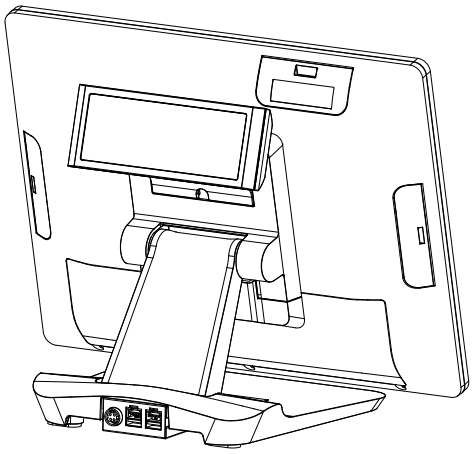
5. Attach the stand to the LCD panel and fasten the thumb screw (x1).



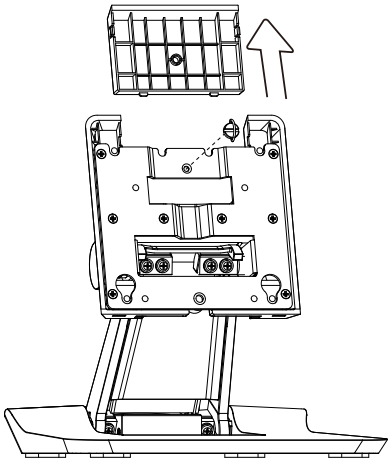
6. Connect the RJ-45 cable to COM port on the systems IO panel. Make sure the system is powered off.

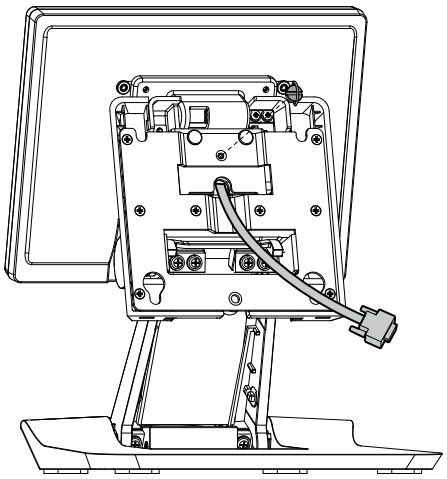
* Please note the cable cover and the stand front cover (refer to Chapter 2-1 and 2-2) have to be removed before routing the cable.





4-6. Install the Second Display



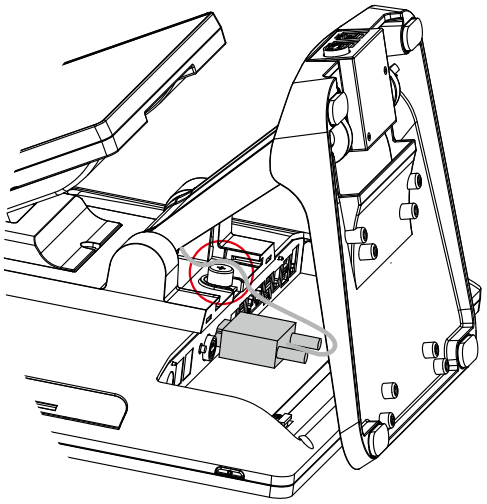


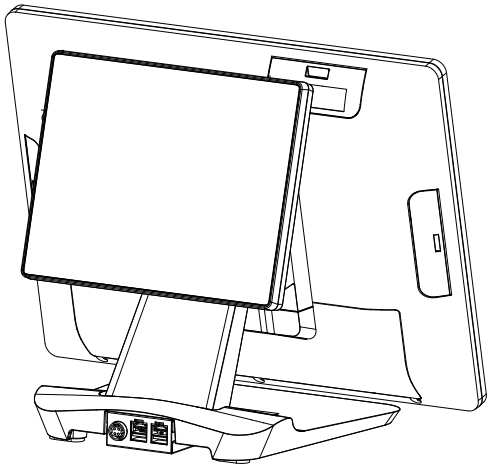
1. Follow the steps in Chapter 3-1 to diassemble the stand from the LCD panel.
2. Remove the thumb screw (x1) from the VESA top cover and then pull the cover up.
3. Attach the 8' 2nd display module to system by fastening the thumb screw (x1).
4. Route the 2nd display cable through the hole of the stand as picture shown.

5. Attach the stand to the LCD panel and fasten the thumb screw (x1).

6. Connect the 2nd display cable to VGA port on the systems IO panel. Make sure the system is powered off.

* Please note the cable cover and the stand front cover (refer to Chapter 2-1 and 2-2) have to be removed before routing the cable.

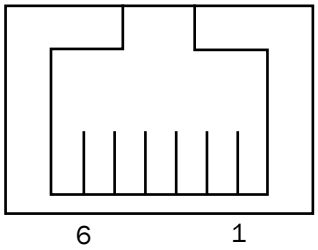




4-7. Cash Drawer Installation

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

Cash Drawer Pin Assignment



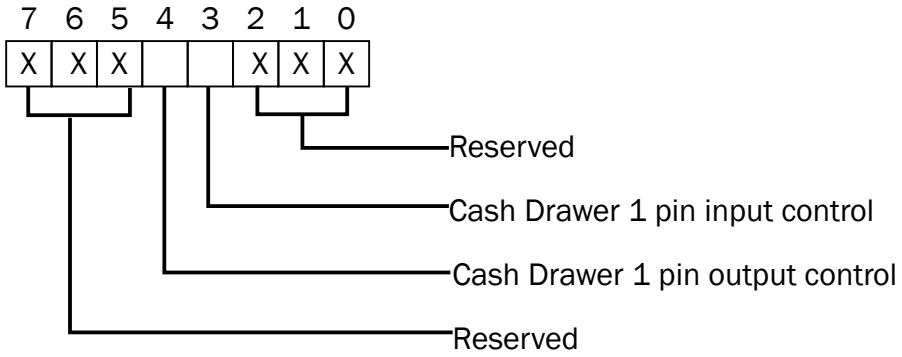
Pin	Signal
1	Cash drawer 2 In
2	Cash drawer 1 Out
3	Cash drawer 1 In
4	12V / 19V (or 24V)
5	Cash drawer 2 Out
6	GND

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

Use Debug.EXE program under DOS or Windows98

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	POS455	
Mainboard	**D36**	**D86U**
CPU support	Intel Bay Trail CPU BGA-1170 22nm Intel Bay Trail CPU Celeron J1900 2.4GHz, L2 2M	Intel SKYLAKE U CPU CPUBGA-1296 14nm Celeron 3955U 2GHz, LLC 2M (15W,EIA) I3-6100U 2.3GHz, LLC 3M(15W, EIA) i5-6300U 2.4GHz, LLC 3M (15W,EIA)
System memory	1x DDR3 SO-DIMM up to 8GB, 1066/1333MHz	1x DDR3 SO-DIMM up to 8GB, 1600MHz
Graphic memory	Intel HD graphic DX11 and OCL1.1	Intel HD Graphic (Gen 9) DX12 and OCL4.2
LCD Touch Panel		
LCD size	15” TFT LED Panel (LVDS)	15” LED (eDP)
Brightness (cd/m²)	250 nits / 350 nits	
Maximal resolution	1024 x 768	
Touch screen type	True flat (Mildex / ELO/Resistive & AUO P-CAP) (option)	
Tilt angle	0~90°	
Storage		
Storage	1 x 2.5” SATA HDD bay	
FlashMemory	Option SATA SSD flash card	
Expansion		
Mini PCI-E socket	1	
m.2	1 (M.2 2230 or M.2 1216)	
I/O Ports		
USB port	5 (1 x USB3.0/2.0 ; 4 x USB2.0)	6 (4 x USB3.0/2.0 ; 2 x USB2.0)
Serial / COM	3 (RJ45 type, COM1 & COM2 0V/5V, COM3 0V/12V, power enabled by BIOS)	
LAN (10/100/1000)	1 x RJ45	
VGA	1 (12V powered enable by BIOS)	
Cash drawer	1 x RJ11 (12V /24V)	
DC jack	1	
Power switch	1	
Expansion I/O		
Powered USB	2 (24V powered USB x1 / 12V powered USB x1)	
Audio	1	
Power		
Power adapter	default 65W /19V optional 120W /19V when powered USB module bundled	default 90W /19V optional 120W /19V when powered USB module bundled
Peripherals (optional)		
MSR	1 (USB)	
Fingerprint	1 (USB)	
iButton	1 (USB)	
Second display	8” LED Second display, resolution 800 *600	
Customer display	Flush mount LCM display 2 x 20 characters (COM)	
Speaker	2 x 2W	

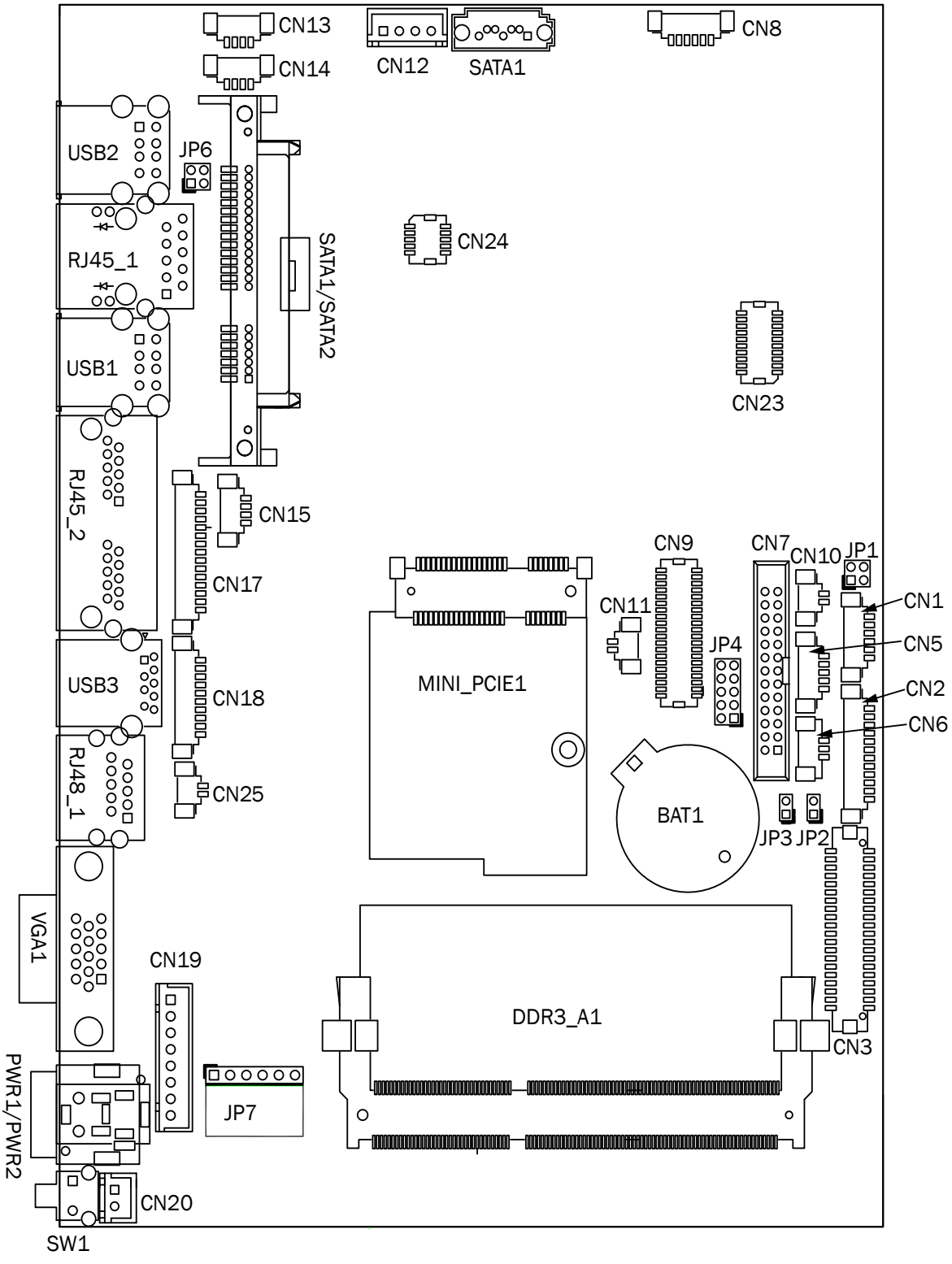
Model Name	**POS455**	
Mainboard	**D36**	**D86U**
Certificate		
EMC & Safety	FCC, Class A, CE, LVD	
ESD	4 kV Contact discharge, 8 kV Air discharge	
Environment		
Sealing	IP54 (front side)	
Operating temperature	0°C ~ 35°C (32°F ~ 95°F)	
Storage temperature	-20°C ~ 60°C (-4°F ~ 140°F)	
Humidity	20% ~ 85% RH non-condensing	
Dimension (W x D x H)	359.36 x 204.47 x 289.61mm	
Weight	4.3kg	
OS supported	Windows 7, POSReady7, Windows Embedded 8.1 Industry, Windows 10 IOT Enterprise, Linux Kernel 3.8 or above	Windows 10 IOT Enterprise (64-bit) Linux: Fedora 25 Ubuntu16.10 Desktop Kernel 4.7 above

*** This specification is subject to change without prior notice.**

6. Configuration

6-1. D36 Motherboard

6-1-1. Motherboard Layout



6-1-2. Connectors & Functions

Connector	Function
CN1	Front I/O board
CN2	Inverter connector
CN3	LVDS connector
CN6	System FAN connector
CN7	LPT port connector
CN8	Speaker & MIC connector
CN9	40pin external connector
CN10	HDD LED connector
CN11	Power LED connector
CN12	SATA power connector
CN13/14	USB port (internal)
CN15	PS2 keyboard connector
CN17	MSR connector
CN18	COM5 (touch) connector
CN19	Wide Range
CN20	Power button (internal)
CN21	LCM connector
CN22	POS325 51pin connector
CN25	S5/S0 Status LED
PWR1/PWR2	DC Jack
RJ45_1	LAN connector
RJ45_2	COM1/ COM2
RJ48_1	COM3
DDR3_A1	DDR3 SO-DIMM
SATA0/SATA2	SATA
USB1/USB2	USB2.0
USB3	USB3.0
VGA1	CRT connector
SW1	Power button
MINI_PCIE1	MINI PCIE
JP1	Inverter select
JP4	LCD ID setting
JP7	Touch connector

6-1-3. Jumper Setting

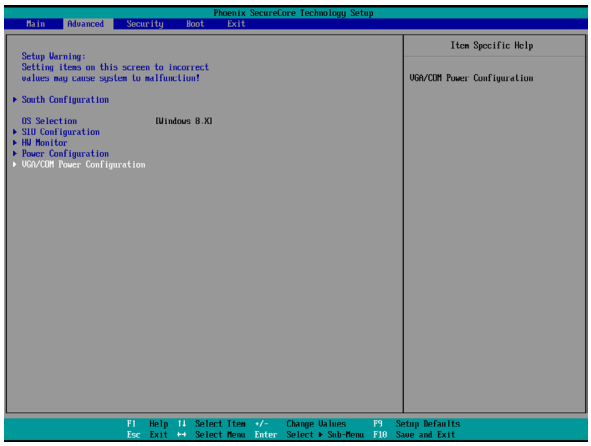
Inverter Selection

Function	JP1
▲LED	1 3 2 4
CCFL	1 3 2 4

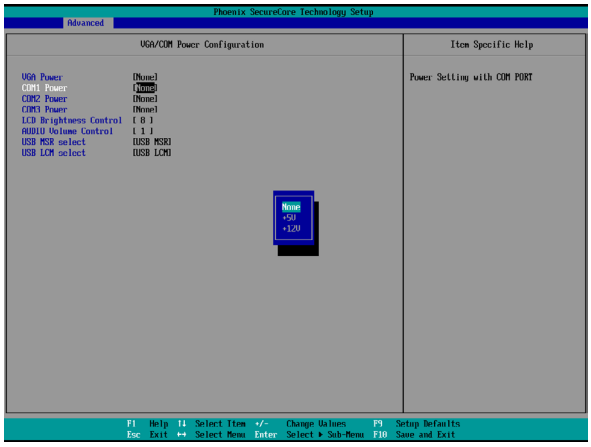
COM1/COM2/COM3 Power Setting

COM1, COM2 and COM3 can be set to provide power to your serial device. The voltage can be set to +5V or +12V in the BIOS.

1. Power on the system, and press the <DEL> key when the system is booting up to enter the BIOS Setup utility.
2. Select the Advanced tab.
3. Select **VGA/COM Power Configuration** Ports and press <Enter> to go to display the available options.

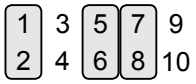
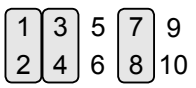
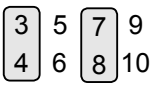
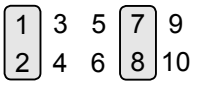
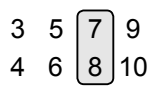
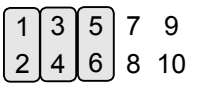
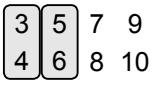
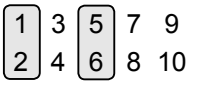
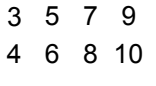
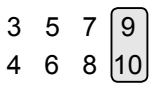


4. To enable the power, select COM1 ,COM2 or COM3 Power setting and press <Enter>. Select Power and press <Enter>. Save the change by pressing F10.



▲ = Manufacturer Default Setting

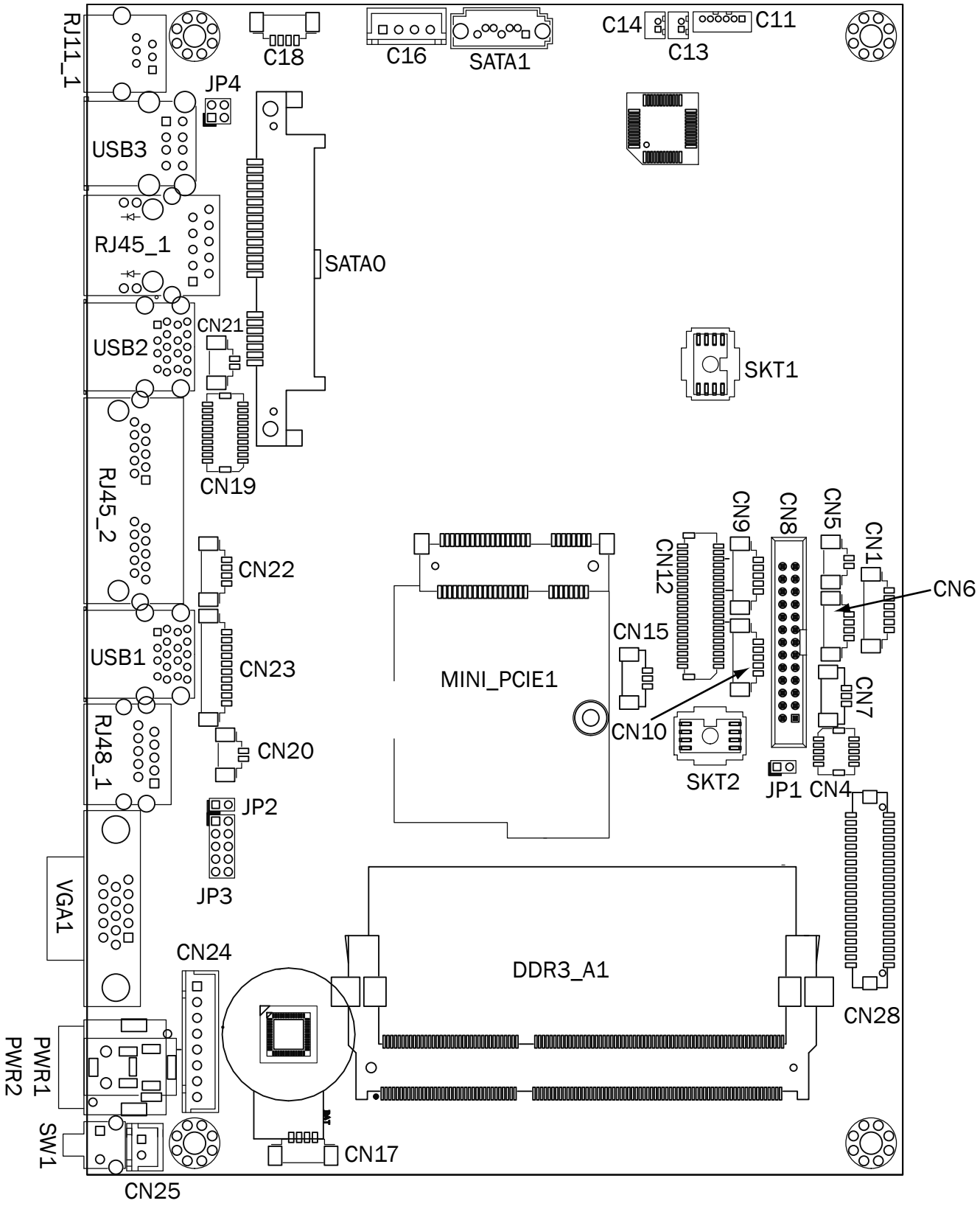
LCD ID Setting

Panel#	Resolution	LVDS		Output Interface	JP3
		Bits	Channel		
1	800 x 600	18	Single	LVDS Panel	
2	800 x 600	24	Single	LVDS Panel	
3	1024 x 768	18	Single	LVDS Panel	
4	1024 x 768	24	Single	LVDS Panel	
5	1366 x 768	18	Single	LVDS Panel	
6	1366 x 768	24	Single	LVDS Panel	
7	1024 x 600	18	Single	LVDS Panel	
8	1280 x 1024	24	Dual	LVDS Panel	
9	1440 x 900	24	Dual	LVDS Panel	
10	1028 x 800	18	Dual	LVDS Panel	
15	1920 x 1080	24	Dual	LVDS Panel	
				CRT	

 Jumper open  Jumper short

6-2. D86U Motherboard

6-2-1. Motherboard Layout



6-2-2. Connectors & Functions

Connector	Function
CN1	Front I/O board
CN4	NFC
CN5	HDD LED connector
CN6	USB connector
CN7	System FAN connector
CN8	LPT port connector
CN9	Smart device connector
CN10	Debug port
CN11	Speaker & MIC connector
CN12	40 pin external connector
CN13	Audio connector(right)
CN14	Audio connector(left)
CN15	two color LED
CN16	SATA power connector
CN17/18	USB connector
CN19	SDR connector
CN20	Battery connector
CN21	Power LED connector
CN22	PS/2 connector
CN23	COM5 connector
CN24	Wide range connector
CN25	Power button connector
CN26	LCM connector
CN28	51 pin connector
CN29	eDP connector
PWR1/PWR2	DC Jack
RJ11_1	Cash drawer connector
RJ45_1	LAN connector
RJ45_2	COM1/ COM2
RJ48_1	COM3
DDR3_A1	DDR3 SO-DIMM
SATA1	SATA connector
USB1/USB2	USB3.0
USB3	USB2.0
VGA1	CRT connector
SW1	Power button
MINI_PCIE1	MINI PCIE
JP1	Hardware reset
JP2	RTC reset
JP3	LCD ID setting
JP4	Cash drawer power setting

6-2-3. Jumper Setting

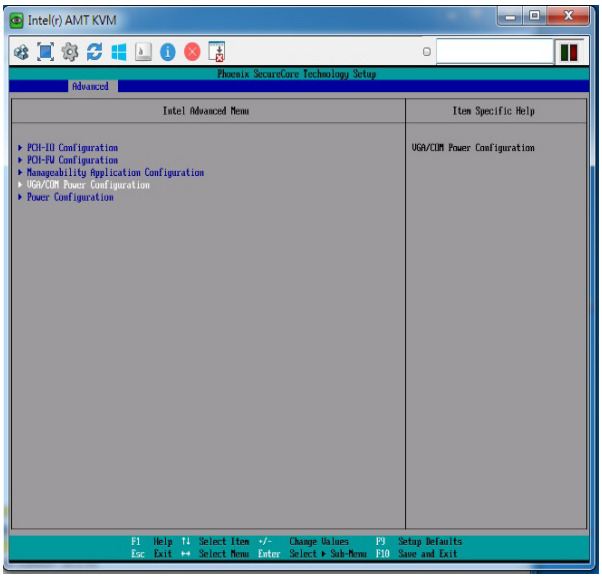
Cash Drawer Power Setting

Function	JP4
▲ +19V	1 3 2 4
+12V	1 3 2 4

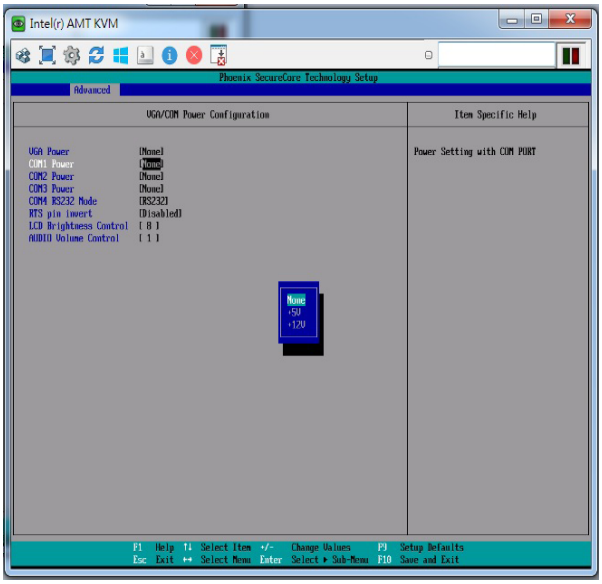
COM1/COM2/COM3 Power Setting

COM1, COM2 and COM3 can be set to provide power to your serial device. The voltage can be set to +5V or +12V in the BIOS.

1. Power on the system, and press the <DEL> key when the system is booting up to enter the BIOS Setup utility.
2. Select the Advanced tab.
3. Select **VGA/COM Power Configuration** Ports and press <Enter> to go to display the available options.

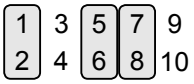
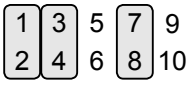
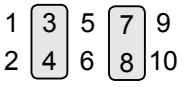
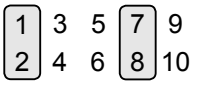
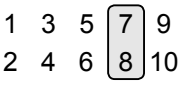
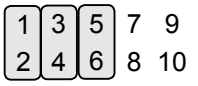
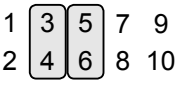
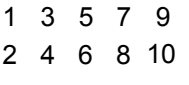
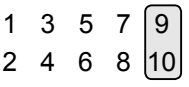


4. To enable the power, select COM1 ,COM2 or COM3 Power setting and press <Enter>. Select Power and press <Enter>. Save the change by pressing F10.



▲ = Manufacturer Default Setting

LCD ID Setting

Panel#	Resolution	LVDS		Output Interface	JP3
		Bits	Channel		
1	800 x 600	18	Single	LVDS Panel	
2	800 x 600	24	Single	LVDS Panel	
3	1024 x 768	18	Single	LVDS Panel	
4	1024 x 768	24	Single	LVDS Panel	
5	1366 x 768	18	Single	LVDS Panel	
6	1366 x 768	24	Single	LVDS Panel	
7	1024 x 600	18	Single	LVDS Panel	
8	1280 x 1024	24	Dual	LVDS Panel	
9	1440 x 900	24	Dual	LVDS Panel	
15	1920 x 1080	24	Dual	LVDS Panel	
				CRT	

 Jumper open  Jumper short

Appendix: Drivers Installation

The shipping package includes a Driver CD in which you can find every individual driver and utility that enables you to install the drivers on the system.
Please insert the Driver CD into the drive and double click on the “index.htm” to select the models. You can refer to the drivers installation guide for each driver in the “Driver/ Manual List”.