bematech

SB8015A

All-in-One Bezel Free Android POS Terminal

User Manual

Ver 1.0

How to Use This Manual

This manual contains information to set up and use the SB8015A. In addition, instructions are included for added hardware, software, upgrades, and optional items.

Chapter 1 An introduction to what you find in the box and an overview of product specifications, appearance, and interface.

Chapter 2 Disassembling the unit for upgrade or maintenance.

Chapter 3 Mounting procedures for optional devices, such as MSR,VFD.

Chapter 4 & 5 Motherboard information.

WARNING! Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

NOTE: Text set off in this manner provides important supplemental information.

Before installing and operating the unit, please read this user manual thoroughly and retain for reference.

Federal Communications Commission (FCC) Notice

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 in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE: Shielded interconnect cables and shielded AC power cables must be employed with this equipment to insure compliance with pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

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.

Copyright

Precautions

1. Please read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from the AC outlet before cleaning. Do not use liquid or spray detergent for cleaning. Use only a moistened sheet or cloth.
4. For pluggable equipment, the socket outlet should be installed near the equipment and should be easily accessible.
5. Avoid humidity and moisture.
6. Install equipment on a stable surface.
7. Do not leave this equipment running in an enclosed or non-air-circulated environment, nor store in temperatures above 60°C. Such conditions may damage the equipment.
8. Ventilation openings on the unit are for air circulation and protect the equipment from overheating. DO NOT COVER THE OPENINGS.
9. Check the voltage of the power source before connecting the equipment to the power outlet.
10. Place the power cord so that it will not be stepped on. Do not place anything over the power cord. The power cord must be rated for the product and for the voltage and current marked on the product's electrical ratings label. The voltage and current rating of the cord should be greater than the voltage and current rating marked on the product.
11. All cautions and warnings on the equipment should be noted.
12. If the equipment is not used for a long time, disconnect the equipment from the power outlet to avoid damage.
13. Never allow any liquid into ventilation openings. This could cause fire or electrical shock.
14. Never open the equipment. For safety reasons, qualified service personnel should only open the equipment.
15. If one of the following situations may arise, get the equipment checked by qualified service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well or you cannot get it work according to the user manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of damage.

⚠ **WARNING!** Not intended for outdoor use.

⚠ **CAUTION:** Danger of explosion if battery is incorrectly replaced. Replace only with same type, and discard used batteries according to manufacturer's instructions.

Contents

Chapter 1 Introduction

Features

- 15" TFT LCD with Bezel Free Resistive Touch
- FreeScale i.MX 6 Dual core Cortex-A9 1.0 GHz
- Robust plastic housing
- IP65 sealed front touch panel
- 2 x COM, 4 x USB, 1 x VGA
- Flexible options: MSR, VFD
- RoHS compliant

Specifications

System Configuration	
CPU	FreeScale i.MX 6 Dual core Cortex-A9 1.0 GHz
System Memory	DDR3 2GB on board and SD card connector (default 4GB)
Power	1 x external 60W 12VDC power adapter (100~240VAC, 50~60Hz, 5.0A)
OS Support	Android 4.2
LCD Touch Panel	
Resolution Size	15" TFT LCD / 1024 x 768
Brightness	250 cd/m^2
Touch Screen Type	Bezel Free 5-wire resistive touch
I/O Ports	
USB Ports	4 x USB 2.0 ports
Serial Ports	2 x COM ports (DB9)
VGA Port	1 x external VGA Port
Cash Drawer Port	1 x 12V/24V RJ11 connector
LAN Port	1 x Giga LAN (10/100/1000Mbps), RJ45 connector
Audio Port	1 x Line-out, 1 x Mic-in
Speaker	2 x internal stereo 2W speakers
Mechanics and Environment	
Dimensions & Weight	Stand base type 272(D) x 380(W) x 329(H) mm/6.8Kg
IP65	IP65 sealed front panel with touch screen
Operating Temperature	0 °C ~ 40 °C
EMI/Safety	CE, FCC, RoHS

Package Contents

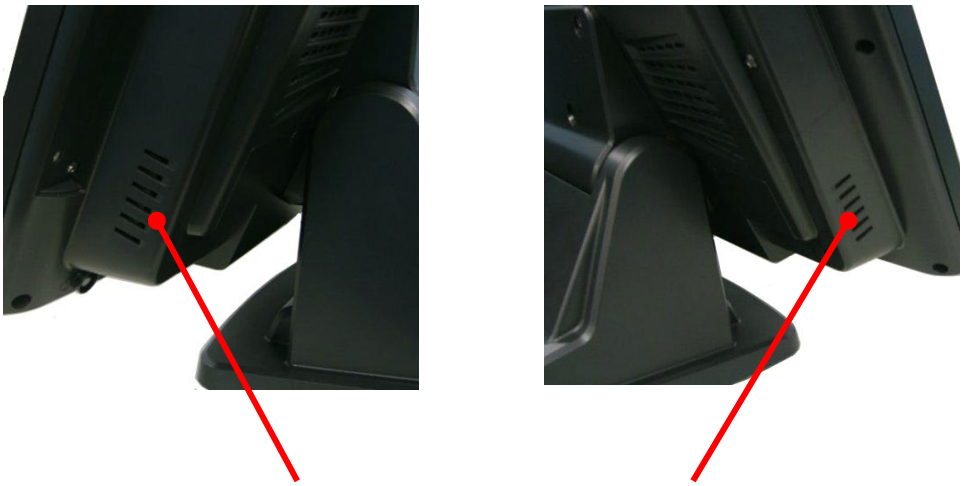
The following items come standard with the SB8015A:

POS System		**Power Adaptor**	
Utility and Main Board Chipset Driver CD		**AC Power Cord**	

Base System

Before you begin, take a few moments to become familiar with the SB8015A.

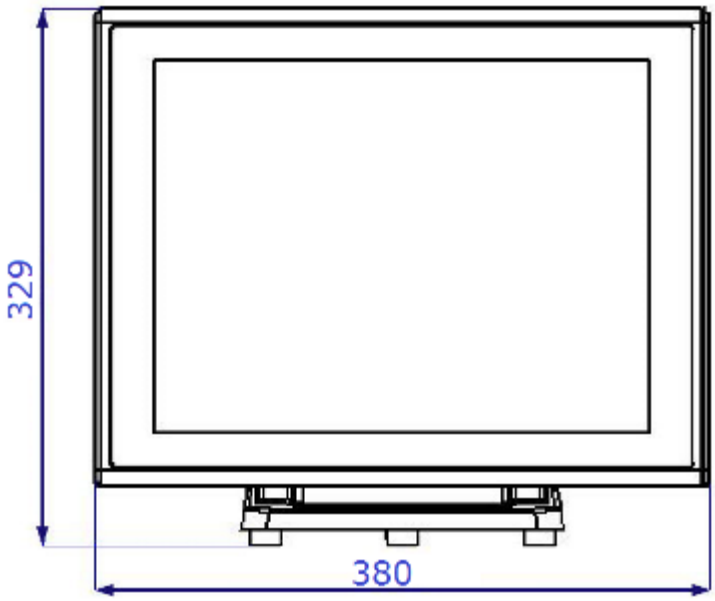
The rear of the system

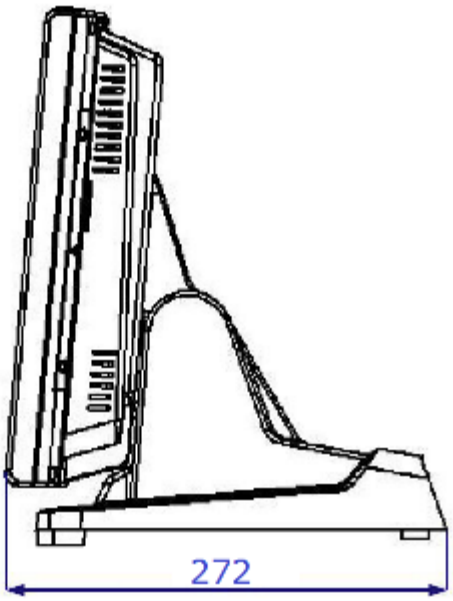


Expandable Options

SB8015A Dimensions

(Unit: mm)

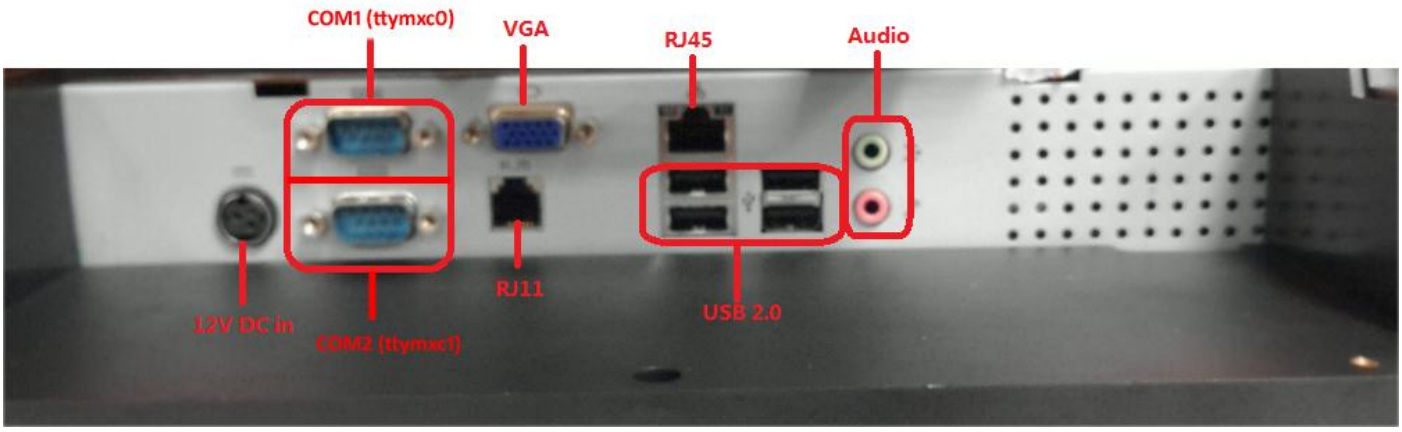




Connector Panel

The SB8015A primary connector panel is located at the back side of LCD.

NOTE: SB8015A COM ports are referred as "ttymxc0" and "ttymxc1" respectively in Android.



Chapter 2 Disassemby Guide

Detaching the LCD Panel

1. Turn off the system power properly through the operating system, then turn off any external devices.

2. Disconnect the power cord from the power outlet and disconnect any external devices.

△ **CAUTION:** Regardless of the power-on state, voltage is always present on the main board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the system.

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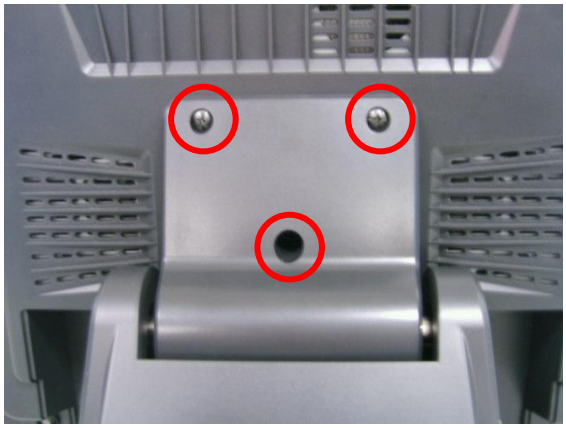
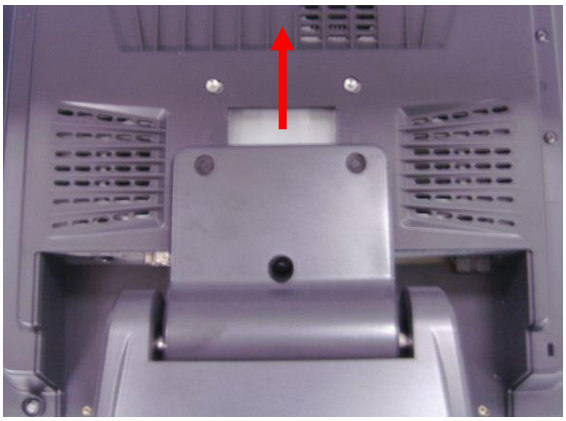
3. Remove the three screws from the back of the panel.



4. Place hands on both sides of the panel bottom and then to gently slide it up and off the hinge.



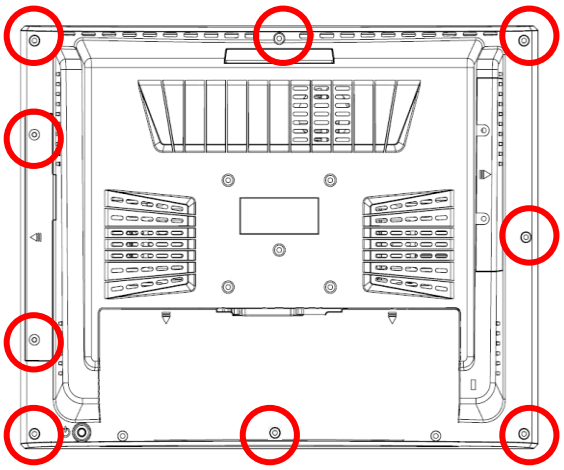
Opening Back Cover

CAUTION: To prevent loss of work and damage to the system or drive:

If you are inserting or removing a drive, shut down the operating system properly, turn off the system, and unplug the power cord. Do not remove a drive while the system is on or in standby mode.

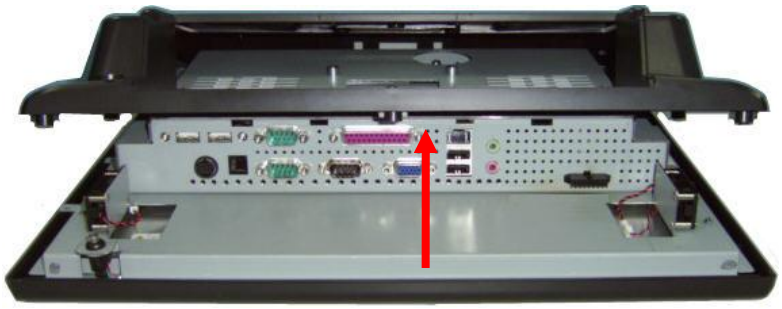
Before handling a drive, ensure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

1. Turn off the system power properly through the operating system, then turn off any external devices.
2. Disconnect the power cord from the power outlet and disconnect any external devices.
3. Place the main unit upside down. Next, Unscrew nine screws on the panel back cover as show below to remove it.

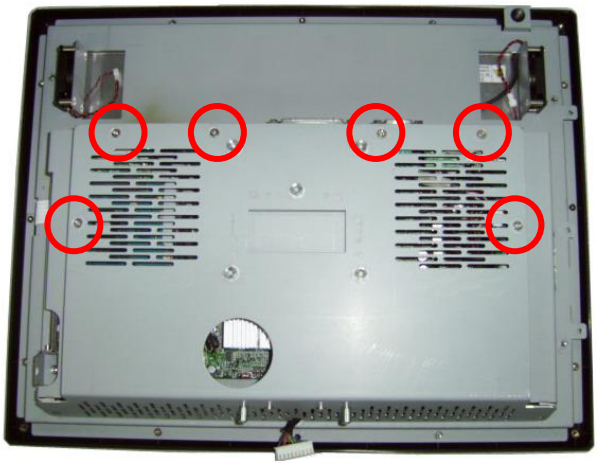


CAUTION: To avoid scratching the panel, before doing dismantling, put a piece of cloth or cushion under the main unit.

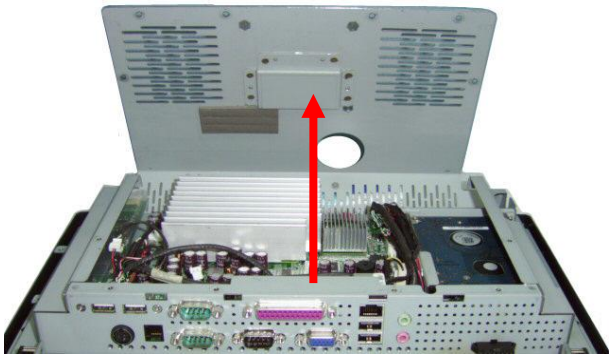
4. Open the panel back cover in the direction of the arrow.



5. Unscrew the eight screws as shown below to remove it.



6. Open the metal cover in the direction of the arrow.



Chapter 3 Optional Components and Peripherals

MSR Module Installation

1. Turn off the system power properly through the operating system, then turn off any external devices.

2. Disconnect the power cord from the power outlet and disconnect any external devices.

△ **CAUTION:** Regardless of the power-on state, voltage is always present on the main board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the system.

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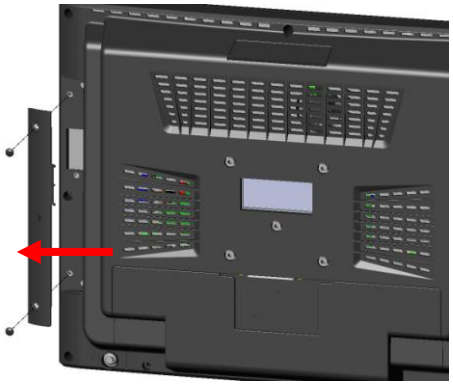
3. Remove the two screws from the left MSR side cover on the back of the display.



4. Secure the screw as shown below.

5. Connect the single MSR module's signal cable connector into the socket. Next, fix MSR module with two screws.

6. Reconnect the power cord and any external devices, then turn on the system.

NOTE: The MSR module interfaces to Android as HID keyboard. To allow use of the on-screen keyboard in Android, it is necessary to change the settings of "Hardware Physical Keyboard" to OFF in "Language & input".

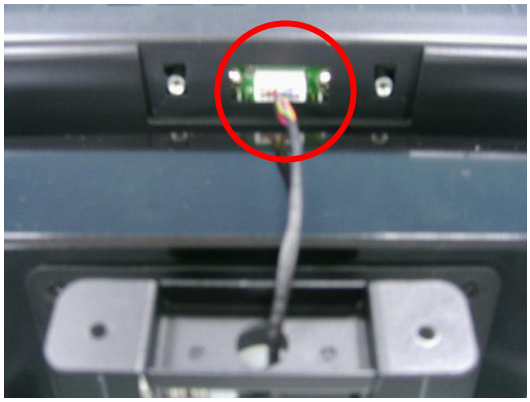
Rear Mount VFD Module Installation

1. Turn off the system power properly through the operating system, then turn off any external devices.

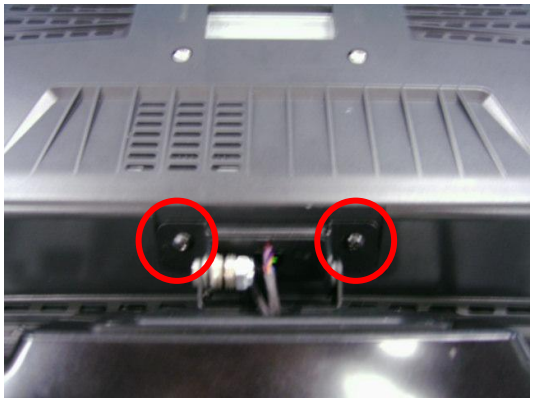
2. Disconnect the power cord from the power outlet and disconnect any external devices.

CAUTION: Regardless of the power-on state, voltage is always present on the main board as long as the system is plugged into an active AC outlet. You must disconnect the power cord to avoid damage to the internal components of the system.

3. Connect the VFD module's cable connector to the socket on the top of panel back cover.



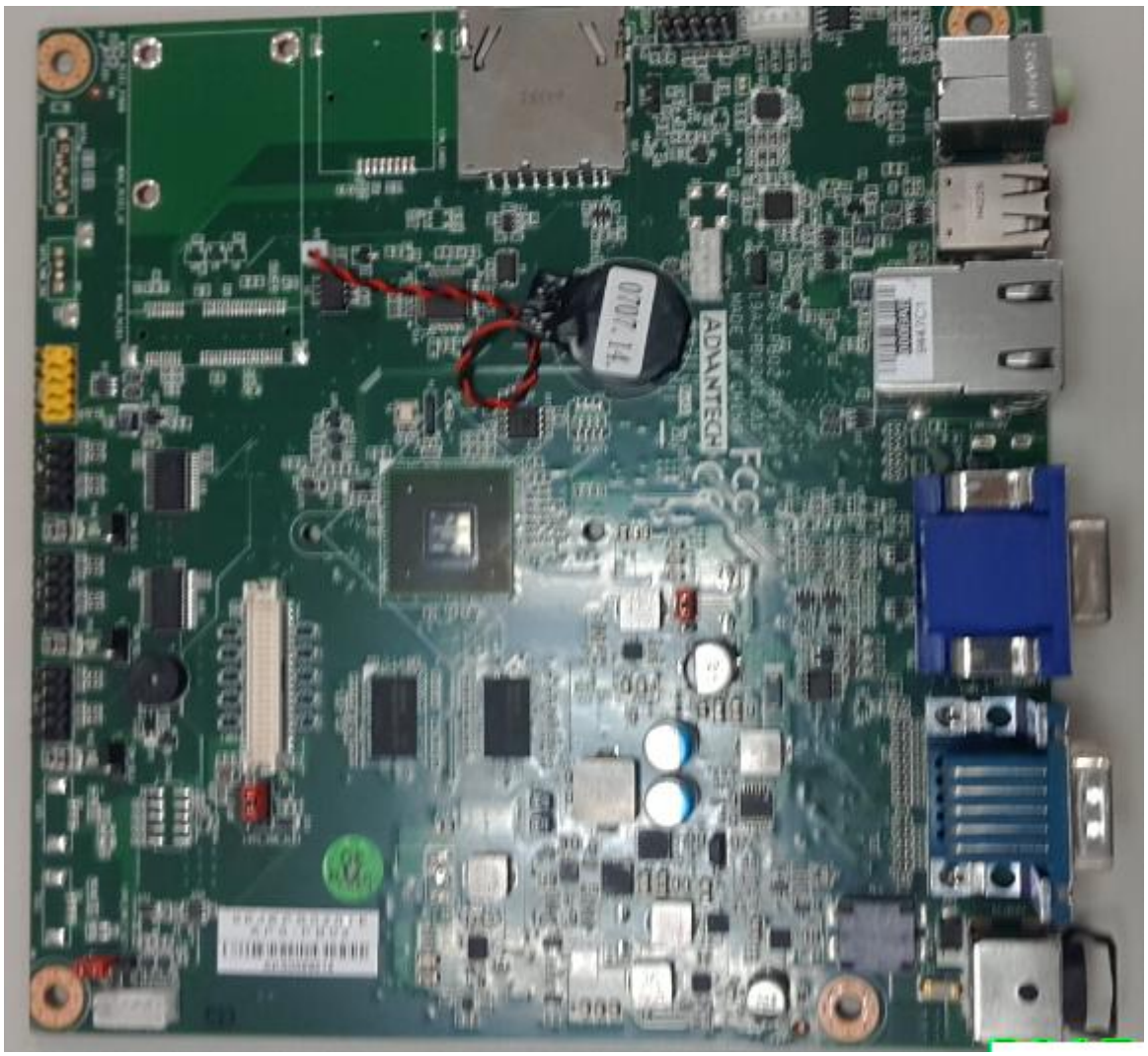
4. Secure the VDF module with two screws.



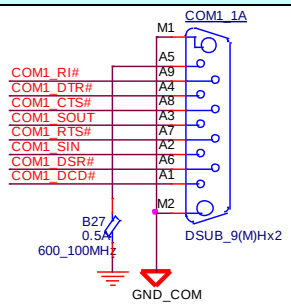
5. Reconnect the power cord and any external devices, then turn on VFD/LCD power. Finally, turn on the system power.

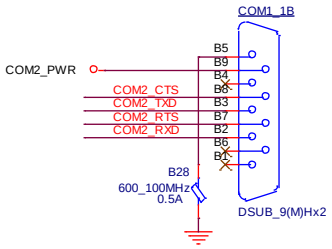
NOTE: The rear mount VFD module is connected with serial interface to Android apps under device name "/dev/ttymxc3" and the baud rate is 9600.

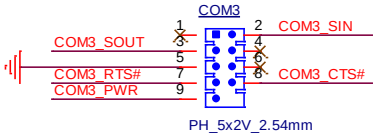
Chapter 4 Main Board Configuration

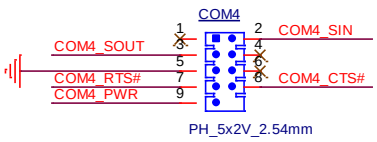


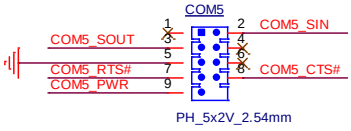
Chapter 5 Main Board Connector Pin Definitions

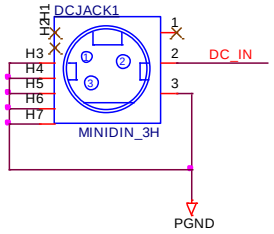
COM1 (ttymxc0)		COM Connector		
Pin Definition	Pin #		Pin #	Pin Definition
COM1_DCD#	A1		M1	GND
COM1_SIN	A2		M2	GND
COM1_SOUT	A3			
COM1_DTR#	A4			
GND	A5			
COM1_DSR#	A6			
COM1_RTS#	A7			
COM1_CTS#	A8			
COM1_RI#	A9			

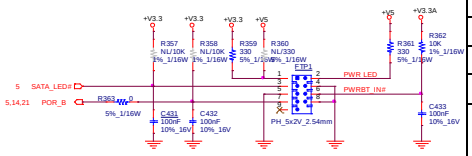
COM2 (ttymxc1)		COM Connector		
Pin Definition	Pin #		Pin #	Pin Definition
NC	B1		B9	COM2_PWR
COM2_RXD	B2			
COM2_TXD	B3			
NC	B4			
GND	B5			
NC	B6			
COM2_RTS	B7			
COM2_CTS	B8			

COM3		COM Connector		
Pin Definition	Pin #		Pin #	Pin Definition
NC	1		6	NC
COM3_SIN	2		7	COM3_RTS#
COM3_SOUT	3		8	NC
NC	4		9	COM3_PWR
GND	5			

		COM Connector		
Pin Definition	Pin #		Pin #	Pin Definition
NC	1		6	NC
COM4_SIN	2		7	COM4_RTS#
COM4_SOUT	3		8	NC
NC	4		9	COM4_PWR
GND	5			

COM5		COM Connector		
Pin Definition	Pin#		Pin #	Pin Definition
NC	1		6	NC
COM5_SIN	2		7	COM5_RTS#
COM5_SOUT	3		8	NC
NC	4		9	COM5_PWR
GND	5			

DCJACK1		DC JACK Connector		
Pin Definition	Pin#			
NC	1			
DC_IN	2			
PGND	3			

FTP1		POWER BUTTON Connector		
Pin Definition	Pin #		Pin #	Pin Definition
SATA_LED#	1		6	PWRBT_IN#
PWRLED	2		7	POR_B
SATA_LED#	3		8	GND
GND	4		9	NC
GND	5			

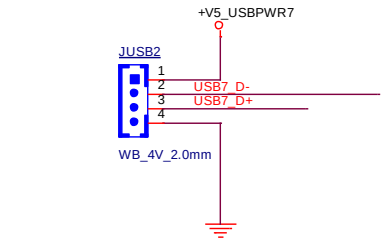
HDMI1		HDMI Connector		
Pin Definition	Pin #		Pin #	Pin Definition
HDMI_TD2+	1		11	GND
GND	2		12	HDMI_CLK-
HDMI_TD2-	3		13	HDMI_CEC_A
HDMI_TD1+	4		14	NC
GND	5		15	DDC_CLK_HDMI_A
HDMI_TD1-	6		16	DDC_DATA_HDMI_A
HDMI_TD0+	7		17	GND
GND	8		18	+5V_HDMI
HDMI_TD0-	9		19	HDMI_HP
HDMI_CLK+	10			

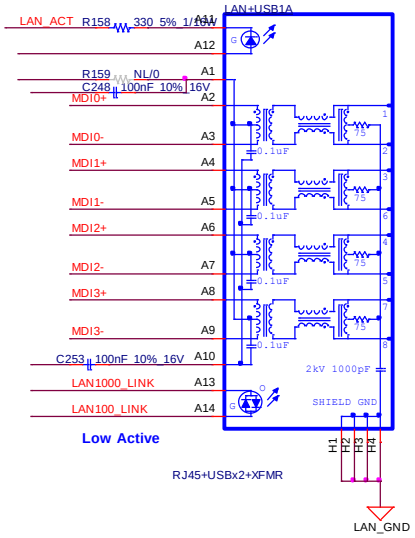
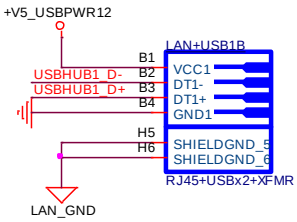
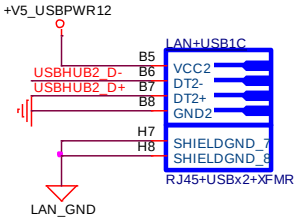
VGA1		VGA Connector		
Pin Definition	Pin #		Pin #	Pin Definition
VGA_R_2	1		9	+5V_CRT
VGA_G_2	2		10	GND
VGA_B_2	3		11	NC
NC	4		12	VGA_DDC_DA
GND	5		13	HSYN
GND	6		14	VSYN
GND	7		15	VGA_DDC_CK
GND	8			

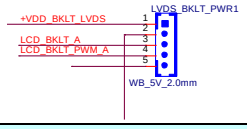
LVDS1		LVDS Connector		
Pin Definition	Pin #		Pin #	Pin Definition
+VDD_LVDS	1		21	LVDS0_TX2+
+VDD_LVDS	2		22	LVDS1_TX2+
+VDD_LVDS	3		23	GND
+VDD_LVDS	4		24	GND
GND	5		25	LVDS0_CLK-
GND	6		26	LVDS1_CLK-
LVDS0_TX0-	7		27	LVDS0_CLK+
LVDS1_TX0-	8		28	LVDS1_CLK+
LVDS0_TX0+	9		29	GND
LVDS1_TX0+	10		30	GND
GND	11		31	LVDS0_TX3-
GDN	12		32	LVDS1_TX3-
LVDS0_TX1-	13		33	LVDS0_TX3+
LVDS1_TX1-	14		34	LVDS1_TX3+
LVDS0_TX1+	15		35	GND
LVDS1_TX1+	16		36	GND
GND	17		37	I2C1_SDA_LVDS0
GND	18		38	GND
LVDS0_TX2-	19		39	I2C1_SCL_LVDS0
LVDS1_TX2-	20		40	GND
NC	41		43	GND
NC	42		44	GND

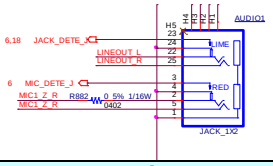
USB2		USB Port*2		
Pin Definition	Pin#		Pin#	Pin Definition
+V5_USBPWR3	I		7	USB_OTG_D+
USB3_D-	2		8	GND
USB3_D+	3		9	GND_USB
GND	4		10	GND_USB
+V5_OTG_PWR	5		11	GND_USB
USB_OTG_D-	6		12	GND_USB

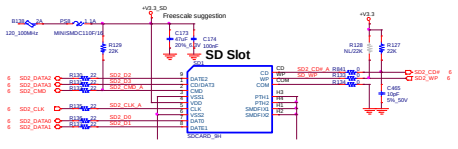
JUSB1		USB Pin header for two usb ports		
Pin Definition	Pin#		Pin#	Pin Definition
+V5_USBPWR45	1		6	USB5_D+
+V5_USBPWR45	2		7	GND
USB4_D-	3		8	GND
USB5_D-	4		10	NC
USB4_D+	5			

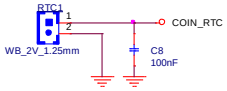
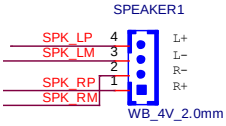
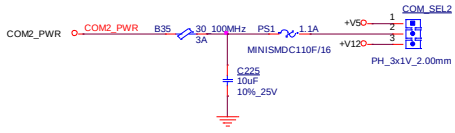
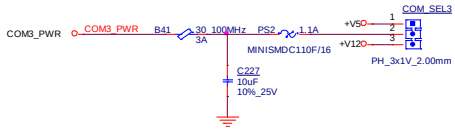
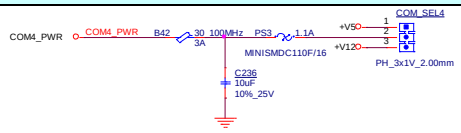
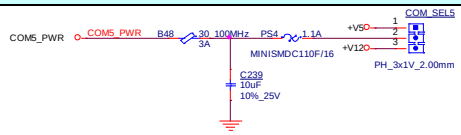
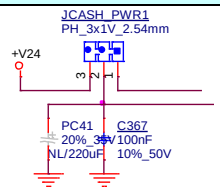
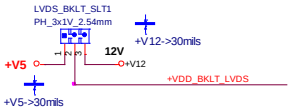
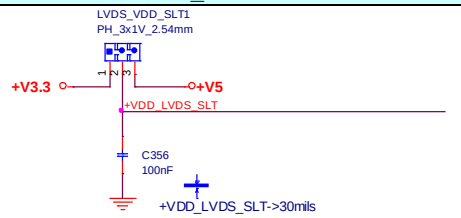
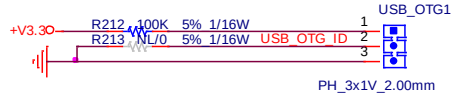
JUSB2		USB Pin for single usb port		
Pin Definition	Pin #			
+V5_USBPWR7	1			
USB7_D-	2			
USB7_D+	3			
GND	4			

LAN+USB		RJ45+USB*2 Connector		
Pin Definition	Pin #			
	A1			
MDI0+	A2			
MDI0-	A3			
MDI1+	A4			
MDI1-	A5			
MDI1-	A6			
MDI2-	A7			
MDI3+	A8			
MDI3-	A9			
	A10			
LAN_ACT	A11			
+V3.3	A12			
LAN1000_LINK	A13			
LAN100_LINK	A14			
+V5_USBPWR12	B1			
USBHUB1_D-	B2			
USBHUB1_D+	B3			
GND	B4			
+V5_USBPWR12	B5			
USBHUB2_D-	B6			
USBHUB2_D+	B7			
GND	B8			
				

LVDS_BKLT_PWR1		LVDS_BKLT_POWER Connector		
Pin Definition	Pin #		Pin #	Pin Definition
+VDD_BKLT_LVDS	1		4	LCD_BKLT_PWM_A
GND	2		5	+V5
LCD_BKLT_A	3			

AUDIO1		AUDIO Connector		
Pin Definition	Pin #		Pin #	Pin Definition
AMP_AGND	1		22	LINEOUT_L
	2		23	JACK_DETE_J
MIC1_Z_R	3		24	AMP_AGND
AMP_AGND	4		25	LINEOUT_R
MIC1_Z_R	5			

SD1		SD Slot		
Pin Definition	Pin #		Pin #	Pin Definition
SD2_D3	1		6	GND
SD2_CMD_A	2		7	SD2_D0
GND	3		8	SD2_D1
+V3.3_SD	4		9	SD2_D2
SD2_CLK_A	5		CD	SD2_CD#_A
SD_WP	WP			
GND	COM			

RTC1		RTC Connector	
Pin Definition	Pin #		
COIN_RTC	1		
GND	2		
SPEAKER1		**SPEAKER Connector**	
Pin Definition	Pin #		
SPK_RP	1		
SPK_RM	2		
SPK_LM	3		
SPK_LP	4		
COM_SEL2		**COM2 VCC Select**	
Pin Definition	Pin#		
+5V	1		
COM2_PWR	2		
+12V	3		
COM_SEL3		**COM3 VCC Select**	
Pin Definition	Pin#		
+5V	1		
COM3_PWR	2		
+12V	3		
COM_SEL4		**COM4 VCC Select**	
Pin Definition	Pin#		
+5V	1		
COM4_PWR	2		
+12V	3		
COM_SEL5		**COM5 VCC Select**	
Pin Definition	Pin#		
+5V	1		
COM5_PWR	2		
+12V	3		
JCASH_PWR1		**Cash drawer VCC Select**	
Pin Definition	Pin#		
+V12	1		
CASH_PWR	2		
+V24	3		
LVDS_BKLT_SLT1		**LVDS_BKLT Select**	
Pin Definition	Pin#		
+V5	1		
+VDD_BKLT_LVDS	2		
V12	3		
LVDS_VDD_SLT1		**LVDS_VDD Select**	
Pin Definition	Pin#		
+V3.3	1		
+VDD_LVDS_SLT	2		
+V5	3		
USB_OTG1		**USB_OTG Select**	
Pin Definition	Pin#		
+V3.3	1		
USB_OTG_ID	2		
GND	3		

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