IEI Integration Corp.

MODEL:

IOVU-07F-AD

7” RISC-Based Panel PC with Touchscreen, Android 4.2 OS, Freescale™ i.MX6 Cortex™-A9 Quad-Core CPU, CAN 2.0B, Wi-Fi, Bluetooth, Camera, PoE, RoHS Compliant

User Manual

Rev. 1.02 – December 3, 2015

RoHS Lead Free

Revision

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December 3, 2015	1.02	Updated 2.2 Optional Items Updated 3.5.4 Serial Interfaces
August 18, 2015	1.01	Added IOVU-07F-AD-WBC-POE-R10 Updated 1.9 System Specifications
November 5, 2014	1.00	Initial release

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Manual Conventions

WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

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Chapter

1

Introduction

1.1 Overview

Figure 1-1: IOVU-07F-AD Panel PC

The IOVU-07F-AD is a 7” RISC-based panel PC with Android 4.2 OS. At the heart of the system is the Freescale™ i.MX6 Cortex™-A9 quad-core processor, offering low power in a powerful package. The IOVU-07F-AD provides rich input capabilities utilizing the projected capacitive touchscreen. Other peripherals include one SD card slot, two USB 2.0 host ports, one RS-232 port, one RS-232/422/485 port, one 10/100/1000 Mbps LAN port and one I/O connector which supports CAN 2.0B and digital I/O.

1.2 Model Variations

Model	Camera	Wi-Fi	Bluetooth	PoE
IOVU-07F-AD-WBC-POE-R10	Yes	Yes	Yes	Yes
IOVU-07F-AD-WBC-R10	Yes	Yes	Yes	No
IOVU-07F-AD-ET-R10	No	No	No	No

Table 1-1: Model Variations

1.3 Features

The IOVU-07F-AD features the following:

- Freescale™ i.MX6 Cortex™-A9 quad-core processor
- On-board 1 GB DDR3 memory
- Android 4.2 OS
- 7” color active-matrix TFT LCD with LED backlight
- Projected capacitive touchscreen
- Wi-Fi 802.11b/g/n (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only)
- Bluetooth v4.0 + HS (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only)
- 2-megapixel CMOS front-facing camera (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only)
- Supports 802.11at compliant PoE function (IOVU-07F-AD-WBC-POE-R10 only)
- One 10/100/1000 Mbps Ethernet LAN port
- Supports CAN 2.0B and four digital I/O (software configurable)
- One DB-9 RS-232/422/485 port (software configurable)
- One DB-9 RS-232 port (full function)
- One internal SD card slot
- Two USB 2.0 host ports
- RoHS compliant

1.4 Front Panel

The front panel of the IOVU-07F-AD has a 7” color active-matrix TFT LCD with a plastic frame. The front panel also contains an optional 2-megapixel camera, a microphone and LED indicators.

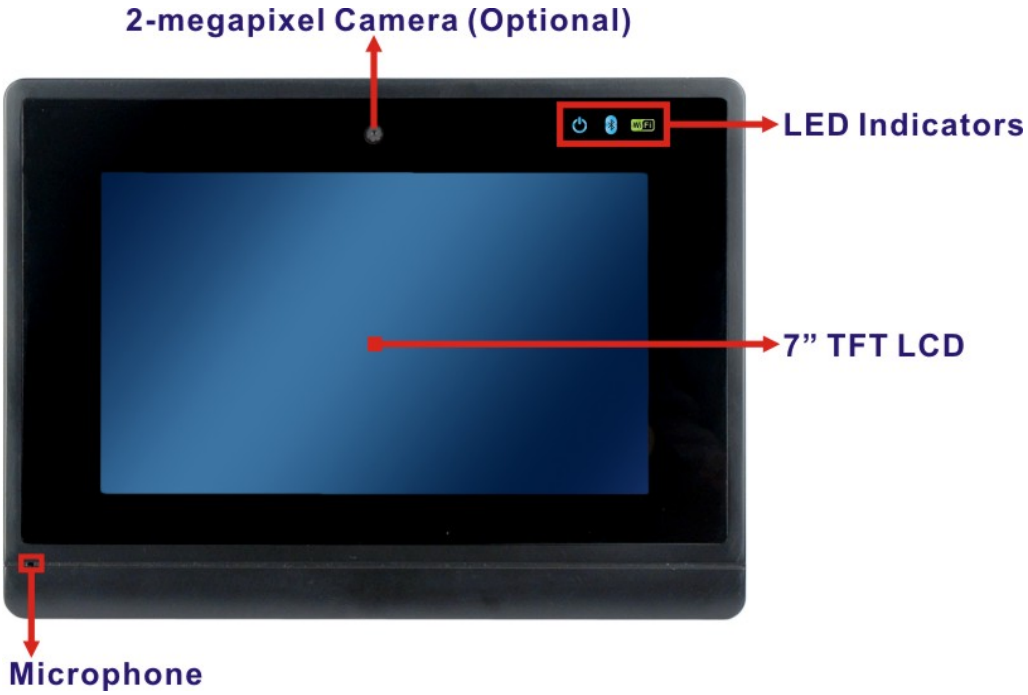


Figure 1-2: Front Panel

1.4.1 LED Indicators

The LED indicators on the front panel show the status of power, Bluetooth and Wi-Fi.

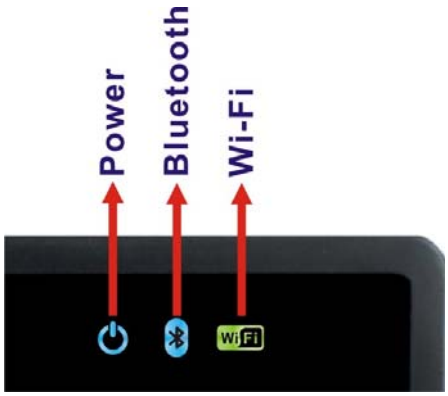


Figure 1-3: LED Indicators

1.5 Bottom Panel

The bottom panel contains the I/O interfaces as shown in **Figure 1-4**.

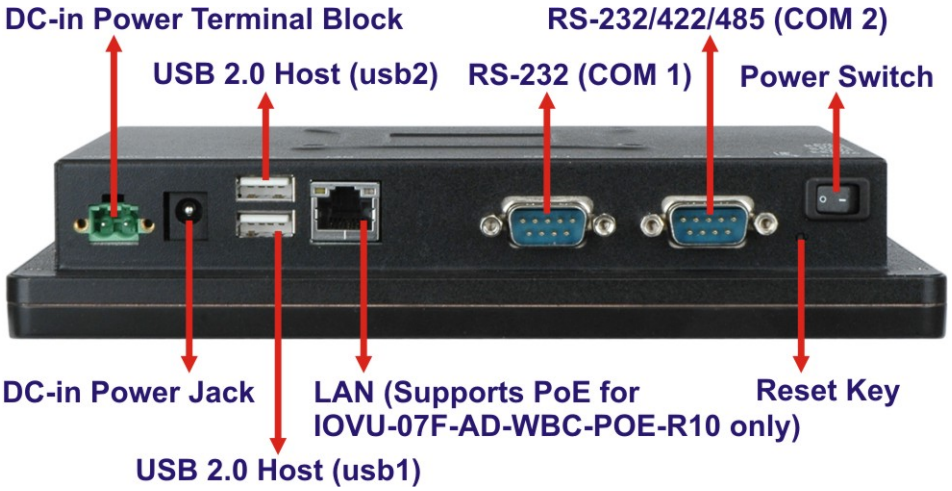


Figure 1-4: Bottom Panel

1.6 Rear Panel

The rear panel has four VESA 75 mounting screw holes.

Figure 1-5: Rear Panel

1.7 Left Panel

The left panel has a 1.5 W speaker.

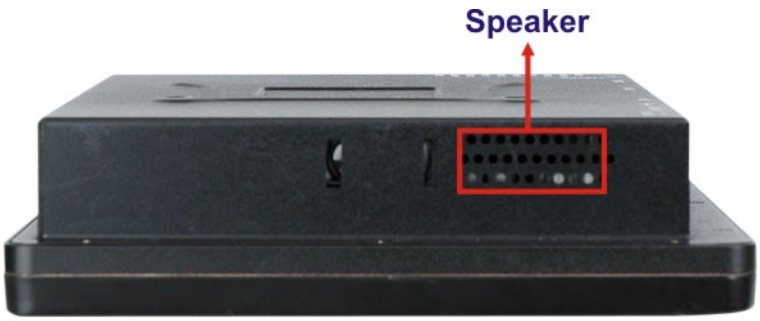


Figure 1-6: Left Panel

1.8 Right Panel

The right panel has a 10-pin I/O connecter which supports CAN 2.0B and four digital I/O.

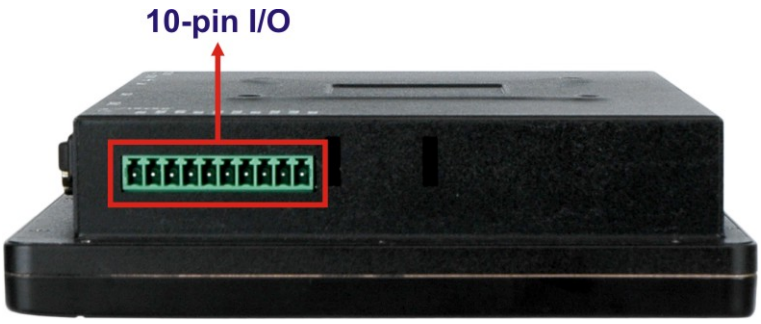


Figure 1-7: Right Panel

1.9 System Specifications

The IOVU-07F-AD technical specifications are listed in **Table 1-2**.

System	
CPU	Freescale™ i.MX6 Cortex™-A9 quad-core, 1.0 GHz
Memory	On-board 1 GB DDR3 SDRAM
OS	Android 4.2
Boot Flash	4 GB eMMC NAND flash
Storage	One SD card slot (max. 32 GB)
Audio	1 x Speaker (1.5 W) 1 x Microphone
Camera	2-megapixel CMOS front-facing camera (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only)
Real-time Clock	Battery backup RTC
Display	
LCD	7” color active-matrix TFT LCD with LED backlight
Max. Resolution	1024 (W) x 600 (H), WSVGA
Brightness (cd/m^2)	500
Viewing Angle	75/75/70/75 degree
Touchscreen	Projected capacitive
Communication	
Wireless LAN	Wi-Fi 802.11b/g/n (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only)
Bluetooth	Bluetooth v4.0 + HS (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only)
Indicators and Buttons	
Buttons and Keys	1 x Power switch 1 x Reset key
LED Indicators	1 x Power LED 1 x Bluetooth status LED (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only) 1 x Wi-Fi connection LED (IOVU-07F-AD-WBC-R10 and IOVU-07F-AD-WBC-POE-R10 only)

I/O Interface	
CAN 2.0B and Digital I/O	1 x 10-pin connector, supporting one CAN 2.0B and four Digital I/O (software configurable)
LAN	1 x 10/100/1000 Mbps RJ-45 Supports 802.11at compliant PoE function (IOVU-07F-AD-WBC-POE-R10 only)
Power Input	1 x 2-pin power terminal block (9 V ~ 30 V DC) 1 x Power jack (9 V ~ 30 V DC)
RS-232/422/485	1 x DB-9 RS-232, full function (COM 1) 1 x DB-9 RS-232/422/485, software configurable (COM 2)
USB 2.0	2 x USB 2.0 host ports
Environment	
Operating Temperature	0ºC ~ 50ºC
Storage Temperature	-10ºC ~ 60ºC
Humidity	5% ~ 90%, non-condensing
Physical Characteristics	
Mounting	VESA 75 mm x 75 mm
Dimensions (W x H x D)	210.0 mm x 154.0 mm x 40.1 mm
Net Weight	945 g

Table 1-2: Technical Specifications

1.10 Dimensions

The dimensions are shown below.

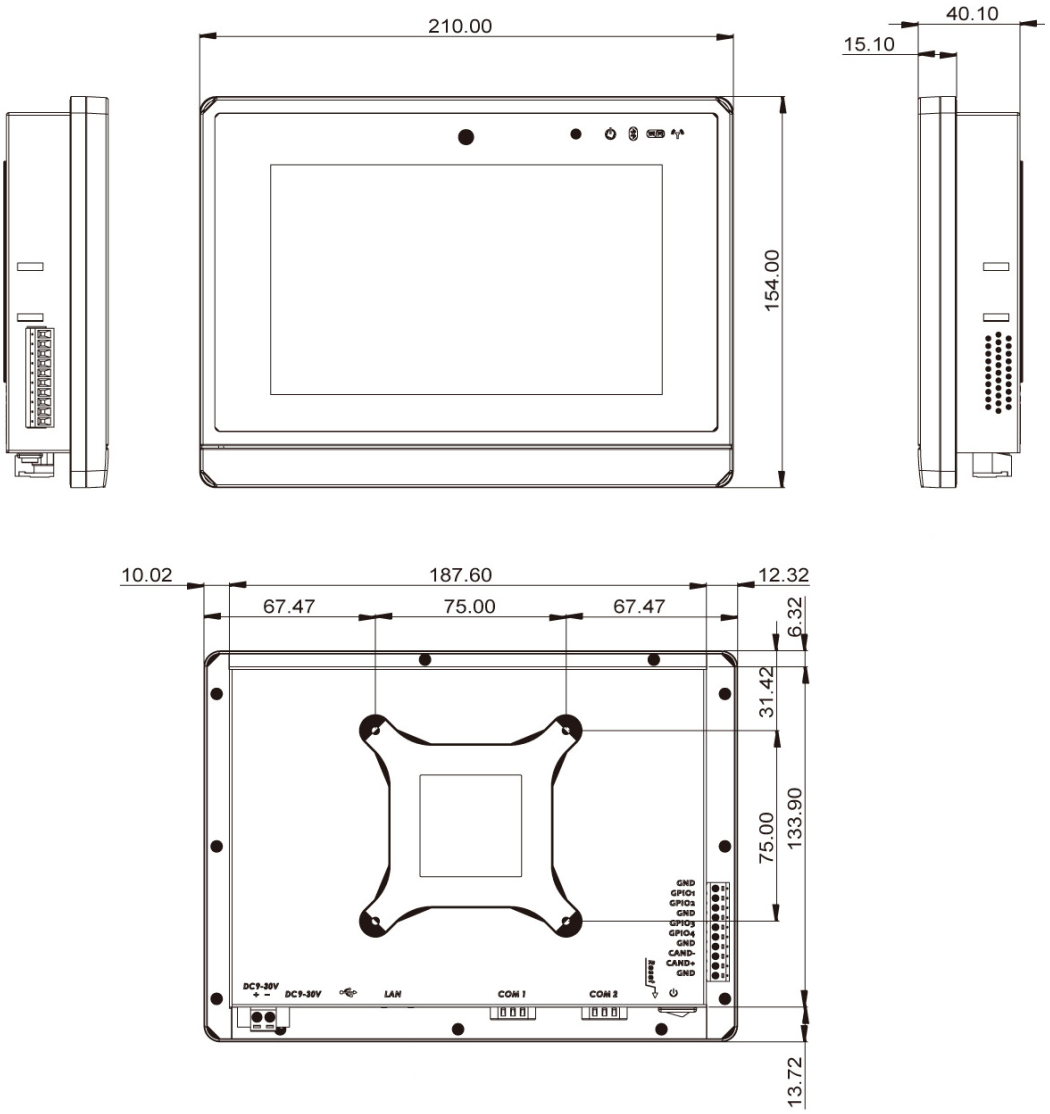


Figure 1-8: Dimensions (unit: mm)

Chapter

2

Unpacking

To unpack the panel PC, follow the steps below:

WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the system has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 2: Open the box.

Step 3: Lift the IOVU-07F-AD out of the box.

Step 4: Remove both polystyrene ends, one from each side.

Step 5: Pull the plastic cover off the IOVU-07F-AD.

Step 6: Make sure all the components listed in the packing list are present.

2.1 Packing List

NOTE:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the IOVU-07F-AD was purchased from or contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

The IOVU-07F-AD is shipped with the following components:

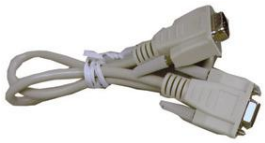
Quantity	Item	Image
1	IOVU-07F-AD RISC-based panel PC	
1	RS-232 cable (**P/N**: 32005-001800-100-RS)	
1	User manual CD and driver CD	

Table 2-1: Packing List

2.2 Optional Items

The following are optional components which may be separately purchased:

Item	Image
Panel mounting kit (**P/N**: AFLPK-12)	
VESA 75 wall mounting kit (**P/N**: AFLWK-12)	

Item	Image
LCD monitor/PPC arm kit, loading capacity of 3kg ~ 7kg (**P/N**: ARM-11-RS)	
LCD monitor/PPC stand kit for VESA 75, supporting up to 5kg (**P/N**: STAND-B08)	
LCD monitor/PPC stand V type for VESA 75, 0~90 degree adjustable hinge and up to 2.5 kg capacity (**P/N**: VSTAND-A07)	
90V~264V AC input, 12V/60W DC power adapter (**P/N**: 63040-010060-130-RS)	
90V~264V AC input, 12V/60W DC power adapter with bare wire (**P/N**: 63040-010060-140-RS)	

Table 2-2: Optional Items

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

Chapter

3

Installation

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the IOVU-07F-AD may result in permanent damage to the IOVU-07F-AD and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IOVU-07F-AD. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IOVU-07F-AD is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: - When configuring the IOVU-07F-AD, place it on an anti-static pad. This reduces the possibility of ESD damaging the IOVU-07F-AD.
- ***Only handle the edges of the PCB***: - When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

When installing the flat panel PC, please follow the precautions listed below:

- **Power turned off**: When installing the flat panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.

- **Anti-static Discharge**: If a user open the rear panel of the flat panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

3.3 SD Card Installation

To install the SD card, follow the instructions below.

Step 1: Remove the retention screws on the rear cover (**Figure 3-1**).

Figure 3-1: Retention Screws on the Rear Cover

Step 2: Remove the hex nuts on the bottom panel (**Figure 3-2**).

Figure 3-2: Hex Nuts on the Bottom Panel

Step 3: Gently lift the rear cover out of the IOVU-07F-AD.

Step 4: Locate the SD card slot (**Figure 3-3**).

Step 5: Insert the SD card into the slot (**Figure 3-3**).

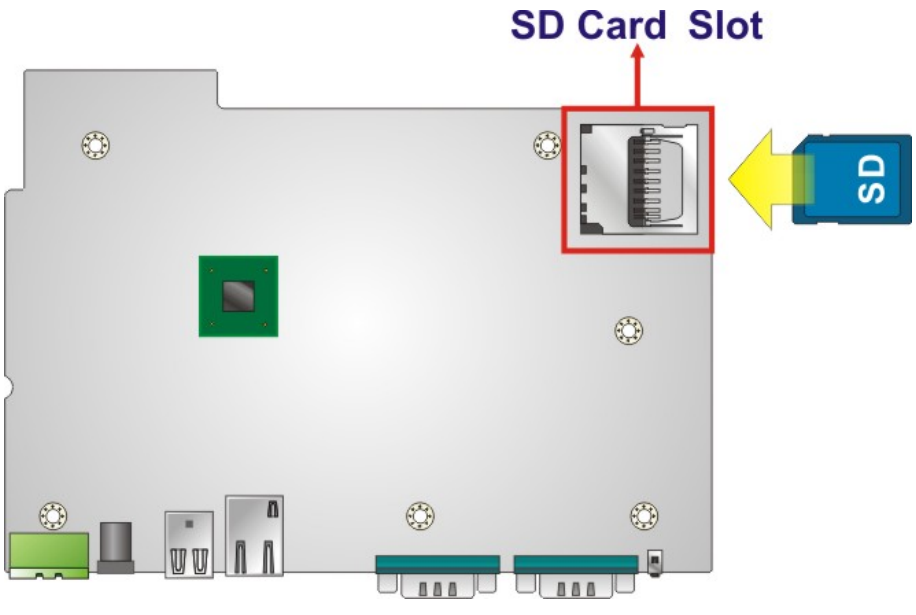


Figure 3-3: SD Card Installation

Step 6: Replace the rear cover.

3.4 Mounting the System

WARNING!

When mounting the panel PC, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

Four methods of mounting the IOVU-07F-AD are listed below.

- Wall mounting
- Panel mounting
- Arm mounting
- Stand mounting

The four mounting methods are described below.

3.4.1 Wall Mounting

To mount the IOVU-07F-AD onto the wall, please follow the steps below.

Step 1: Select the location on the wall for the wall-mounting bracket.

Step 2: Carefully mark the locations of the four screw holes in the bracket on the wall.

Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-4**).

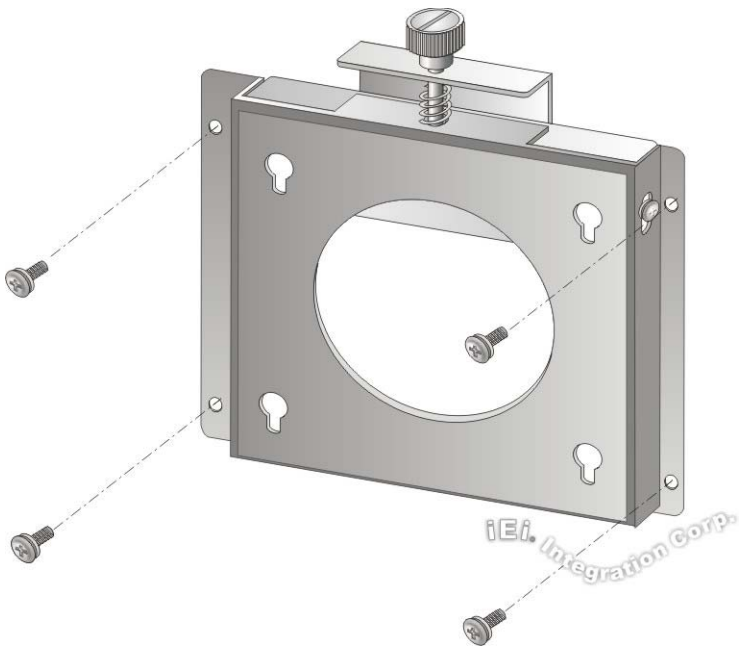


Figure 3-4: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the IOVU-07F-AD and tighten until the screw shank is secured against the rear panel (**Figure 3-5**).

Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-5**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

NOTE:

In the diagram below the bracket is already installed on the wall.

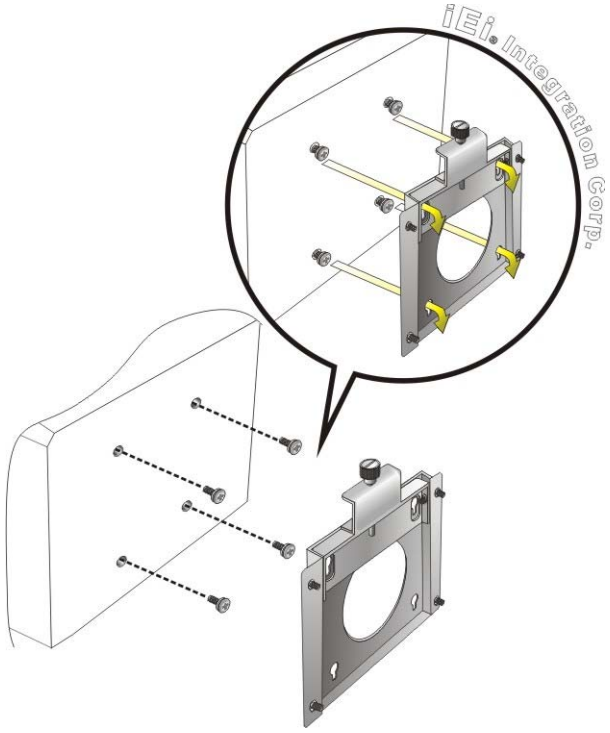


Figure 3-5: Chassis Support Screws

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket (**Figure 3-6**).

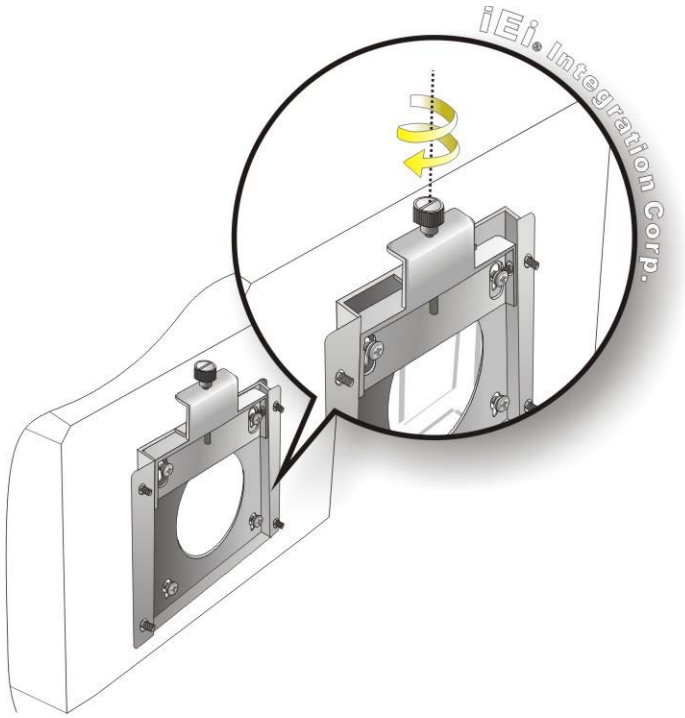


Figure 3-6: Secure the IOVU-07F-AD

3.4.2 Panel Mounting

The IOVU-07F-AD can be mounted in a panel.

CAUTION:

When mounting the IOVU-07F-AD, take care to tighten the retention screws or bolts until fully secure, but do not over tighten. Over tightening the retention screws or bolts may cause them to become stripped, rendering them useless.

To mount the IOVU-07F-AD into a panel, please follow the steps below.

Step 1: Select the position on the panel to mount the IOVU-07F-AD.

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the IOVU-07F-AD. Take care that the panel section that is cut out is smaller

than the overall size of the frame that surrounds the IOVU-07F-AD but just large enough for the rear panel of the IOVU-07F-AD to fit through.

Step 3: Slide the IOVU-07F-AD through the hole until the frame is flush against the panel.

Step 4: Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the frame. There are a total of four panel mounting clamps for the IOVU-07F-AD.

Figure 3-7: Panel Mounting Clamps

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel.

3.4.3 Arm Mounting

The IOVU-07F-AD is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 75 mm interface pad. To mount the IOVU-07F-AD on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

NOTE:

When purchasing the arm, please ensure that it is VESA compliant and that the arm has a 75 mm interface pad. If the mounting arm is not VESA compliant, it cannot be used to support the IOVU-07F-AD.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the IOVU-07F-AD onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the IOVU-07F-AD, as shown in **Figure 3-8**.

Figure 3-8: Arm Mounting Retention Screw Holes

Step 4: Secure the IOVU-07F-AD to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the IOVU-07F-AD.

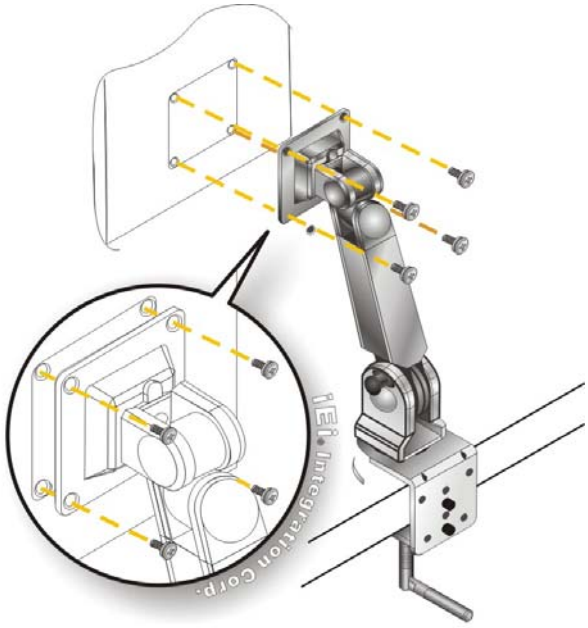


Figure 3-9: Arm Mounting

3.4.4 Stand Mounting

The IOVU-07F-AD has Video Electronics Standards Association (VESA) standard mounting holes tapped into the rear panel. The monitor stand mounting plate has a matching VESA hole pattern. To mount the IOVU-07F-AD onto a stand, please follow the steps below.

Step 1: Line up the threaded holes on the system rear panel with the screw holes on the monitor stand mounting plate.

Step 2: Secure the system to the stand with the supplied retention screws (**Figure 3-10**).

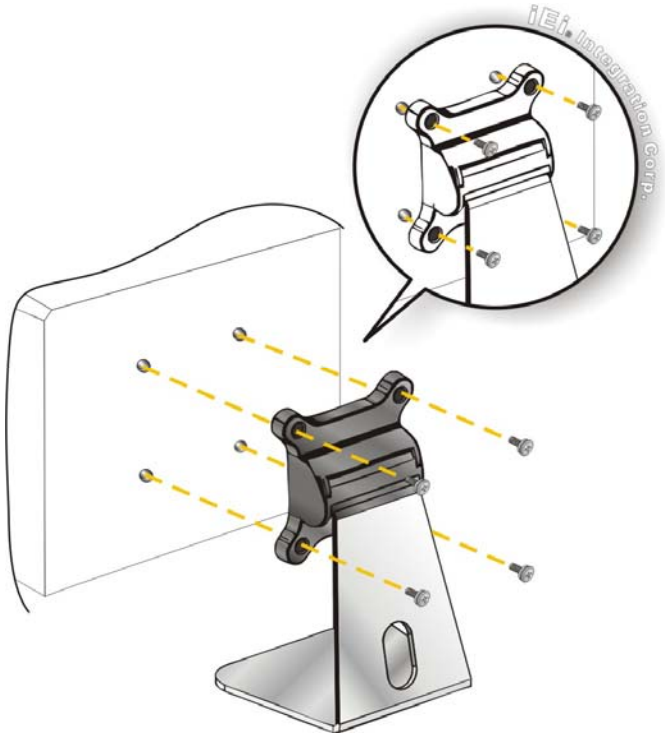


Figure 3-10: Stand Mounting

3.5 External I/O Connectors

This section provides an overview of the external I/O connectors of the IOVU-07F-AD.

3.5.1 10-pin I/O Connector

The 10-pin I/O connector on the right panel (**Figure 1-7**) supports the following external peripheral devices:

- 1 x CAN 2.0B
- 4 x Digital I/O

The pinouts for the I/O connector are listed in the figure and table below.

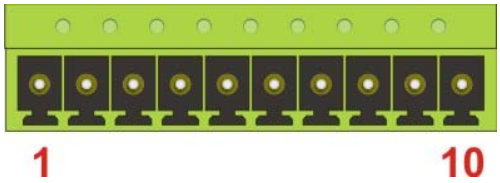


Figure 3-11: I/O Connector Pinouts Location

Pin	Description
1	GND
2	DIO1
3	DIO2
4	GND
5	DIO3
6	DIO4
7	GND
8	CAN_L
9	CAN_H
10	GND

Table 3-1: I/O Connector Pinouts

3.5.2 DC Power Input Interfaces

3.5.2.1 9 V ~ 30 V DC Power Jack

Use the DC power jack to connect the system to a power source.

Figure 3-12: 9 V ~ 30 V DC Power Jack Location

3.5.2.2 9 V ~ 30 V DC Power Terminal Block

The power terminal block connects to a 9 V ~ 30 V DC power source.

Figure 3-13: 9 V ~ 30 V DC Power Terminal Block Location

The pinouts for the power terminal block are listed in the figure and table below.

Pin	Description
1	GND
2	EXT_VIN

Table 3-2: 9 V ~ 30 V Power Terminal Block Pinouts

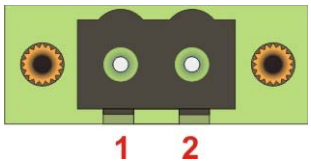


Figure 3-14: Power Terminal Block

3.5.3 Ethernet Connector

There is one external RJ-45 LAN connector. The RJ-45 connector enables connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Align the connectors.** Align the RJ-45 connector on the LAN cable with the RJ-45 connector on the IOVU-07F-AD. See **Figure 3-15**.

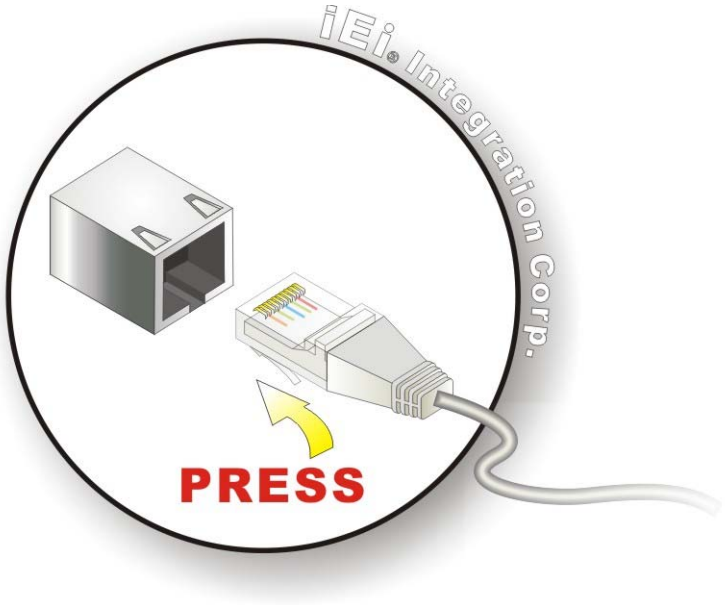


Figure 3-15: LAN Connection

Step 2: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector.

The Ethernet connector pinouts are shown below.

PIN	DESCRIPTION
1	LAN1_MDI[0]+
2	LAN1_MDI[0]-
3	LAN1_MDI[1]+
4	LAN1_MDI[1]-
5	LAN1_MDI[2]+
6	LAN1_MDI[2]-
7	LAN1_MDI[3]+
8	LAN1_MDI[3]-

Table 3-3: Ethernet Connector Pinouts

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked (**Table 3-4**).

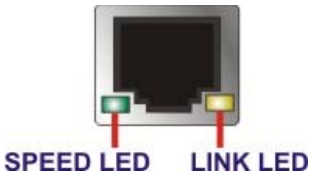


Figure 3-16: Ethernet Connector

SPEED LED		LINK LED	
Status	**Description**	**Status**	**Description**
Green	10/100 Mbps	Off	No link
Orange	1000 Mbps	Yellow	On: Linked Flashing: Activity

Table 3-4: Ethernet Connector LEDs

3.5.4 Serial Interfaces

The system has an RS-232 and an RS-232/422/485 serial port connector.

3.5.4.1 RS-232 Serial Interface Pinouts (COM 1)

Pinouts for the RS-232 serial port are shown below.

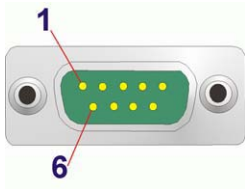
Pin Arrangement	Pin	Description
	1	RS-232_DCD1
	2	RS-232_RXD1
	3	RS-232_TXD1
	4	RS-232_DTR1
	5	GND
	6	RS-232_DSR1
	7	RS-232_RTS1
	8	RS-232_CTS1
	9	RS-232_RI1

Table 3-5: RS-232 Serial Port Pinouts

3.5.4.2 RS-232/422/485 Serial Interface Pinouts (COM 2)

Pinouts for the RS-232/422/485 serial port are shown below.

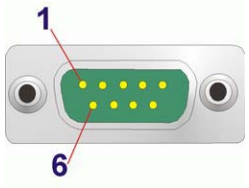
Pin Arrangement	Pin	RS-232	RS-422	RS-485
	1		COM2_1 (RX-)	COM2_1 (DATA-)
	2	RS-232_RXD2	RS-232_RXD2 (RX+)	RS-232_RXD2 (DATA+)
	3	RS-232_TXD2	RS-232_TXD2 (TX-)	
	4			
	5	GND	GND	GND
	6			
	7		COM2_7 (TX+)	
	8			
	9			

Table 3-6: RS-232/422/485 Serial Port Pinouts

The IOVU-07F-AD provides a demo app to select the RS-232, RS-422, or RS-485 mode for the COM 2 port. Please refer to **Section 4.8** for details.

3.5.4.3 Connecting the Serial Port

Follow the steps below to connect a serial device to the IOVU-07F-AD.

Step 1: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 3-17**.

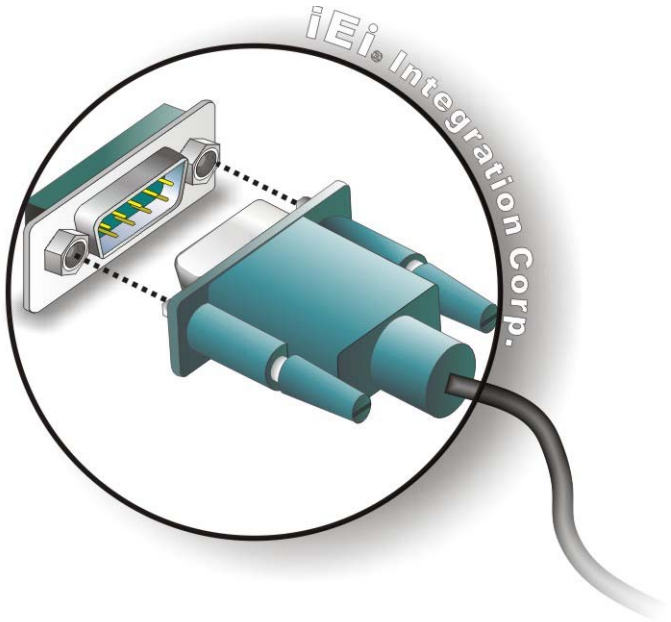


Figure 3-17: Serial Device Connector

Step 2: **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

3.5.5 USB Connectors

The external USB Series "A" receptacle connectors provide easier and quicker access to external USB devices. Follow the steps below to connect USB devices to the IOVU-07F-AD.

Step 1: **Locate the USB Series "A" receptacle connectors**. The locations of the USB Series "A" receptacle connectors are shown in **Figure 1-4**.

Step 2: **Insert a USB Series "A" plug**. Insert the USB Series "A" plug of a device into the USB Series "A" receptacle on the external peripheral interface. See **Figure 3-18**.

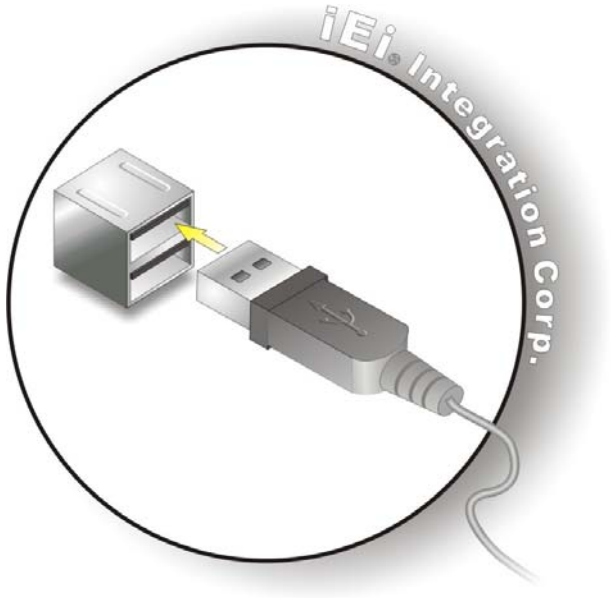


Figure 3-18: USB Connector

Pinouts for the USB connector are shown below.

Pin	Description	Pin	Description
1	VUSB1	5	VUSB2
2	DM1	6	DM2-
3	DP1	7	DP2
4	GND	8	GND

Table 3-7: USB Connector Pinouts

3.6 System Maintenance

If the components of the IOVU-07F-AD fail, they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts.

NOTE:

A user cannot replace a motherboard. If the motherboard fails it must be shipped back to IEI to be replaced. Please contact the system vendor, reseller or an IEI sales person directly.

Chapter

4

Using the IOVU-07F-AD

4.1 Power-On/Off Procedure

4.1.1 Installation Checklist

WARNING:

Make sure a power supply with the correct input voltage is being fed into the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and may also cause injury to the user.

To power on the system, please make sure of the following:

- The rear cover is installed
- All peripheral devices (SD card, serial communications devices etc.) are connected
- The system is securely mounted if required
- The power cables are plugged in

4.1.2 Power-on Procedure

To power-on the IOVU-07F-AD , just press the power switch to turn on the system.

Figure 4-1: Power Switch

4.1.3 Power-off Procedure

To power-off the IOVU-07F-AD, please follow the steps below:

Step 1: Press and hold the power switch until the screen in **Figure 4-2** appears. Tap **Power off**.

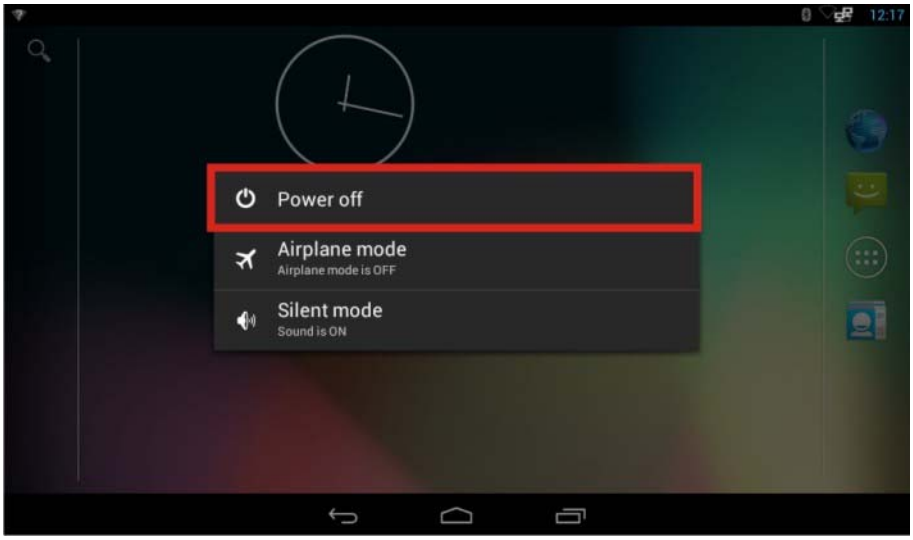


Figure 4-2: Power-off Menu

Step 2: A message window prompts as shown in **Figure 4-3**. Click **OK** to turn off the system.

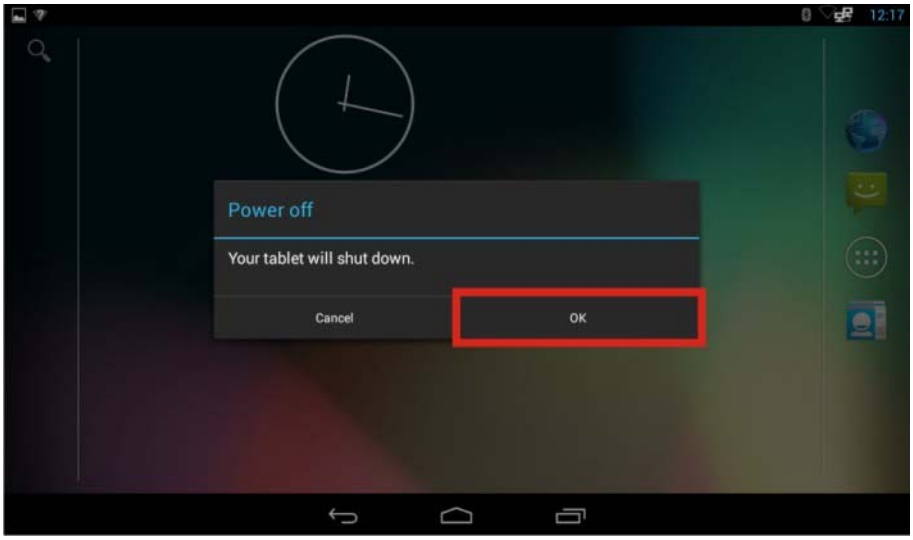


Figure 4-3: Power-off Confirmation Screen

4.2 Home Screen

The IOVU-07F-AD has multiple home screens, allowing users to customize the screen with widgets, apps, folders and shortcuts. The following sections describe the basic technique to manage the home screen.

4.2.1 Switching between Home Screens

Swipe left or right to switch between home screens.

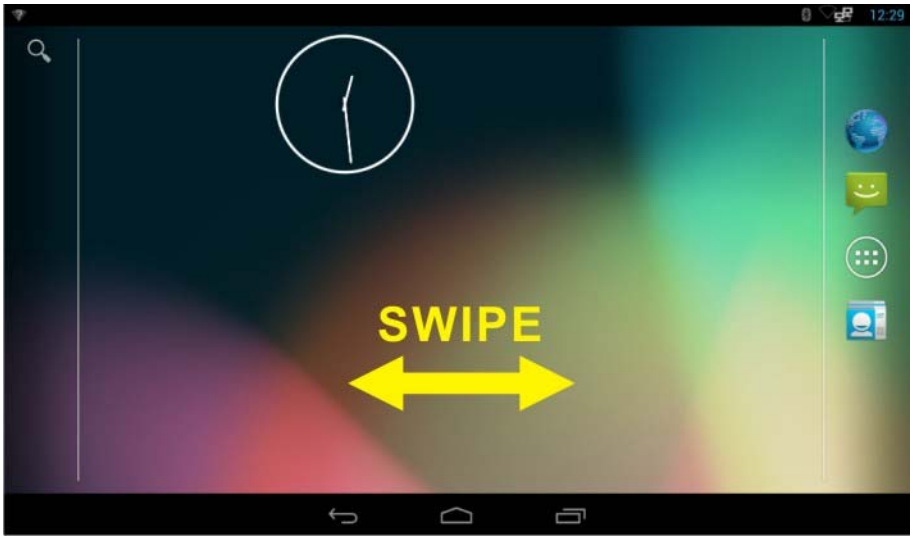


Figure 4-4: Multiple Home Screens

4.2.2 Favorites Tray

The Favorites tray at the side of each home screen allows users to keep the most important or frequently used shortcuts and folders.

Long press an item on the home screen. When it vibrates, drag it to the Favorites tray or move it from the Favorites tray. The launcher button at the center of the Favorites tray is fixed and can not be moved.

Figure 4-5: Favorites Tray

4.2.3 Adding Shortcut

To add app or widget shortcuts on the home screen, follow the steps below.

Step 1: Click the launcher button on the home screen to access the launcher/widget page.

Figure 4-6: Launcher Button

Step 2: Long press an app icon or a widget (click the WIDGETS tab to access the widgets page). When it vibrates, drag app/widget to the home screen.

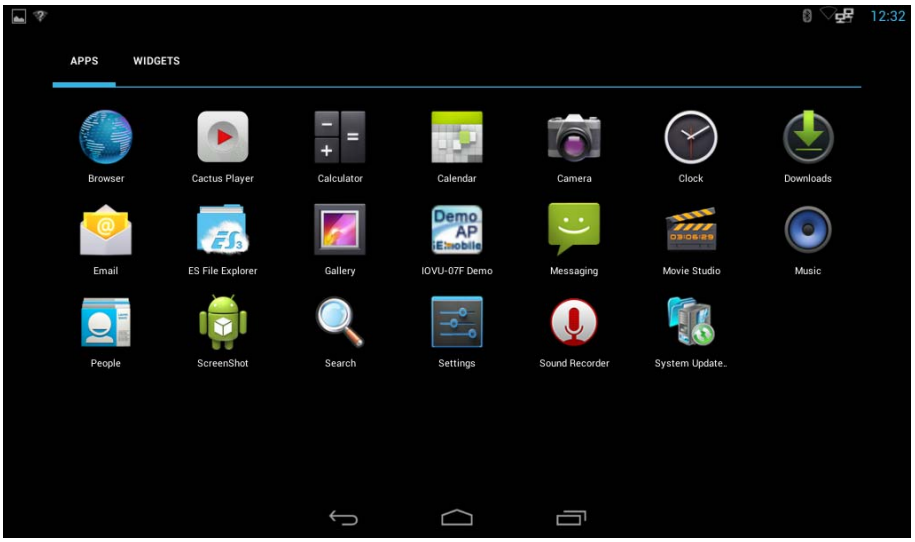


Figure 4-7: Launcher Page

4.2.4 Arranging the Home Screen

The items on the home screen can be moved and deleted. Long press an item on the home screen. When it vibrates, drag it where you want. To trash the item on the desktop, drag it to the “X” icon. Release the icon when it turns red.

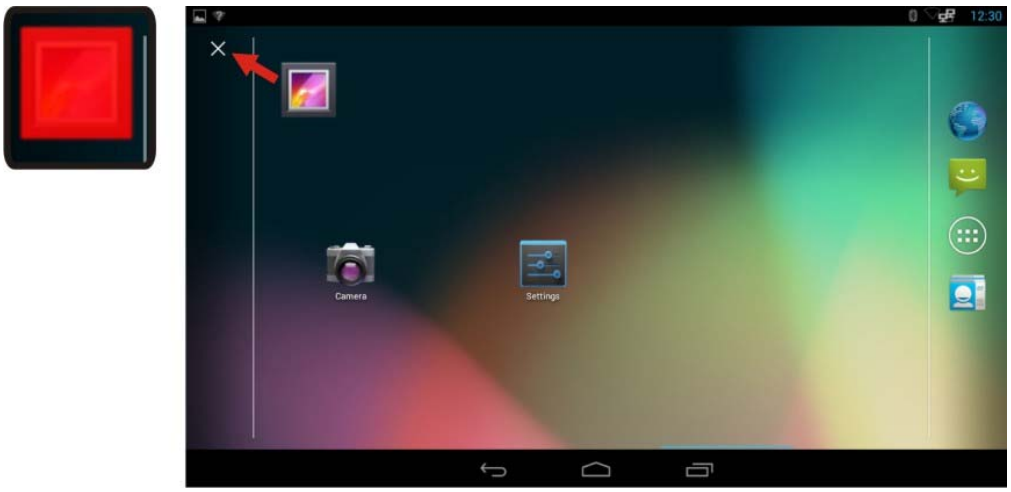


Figure 4-8: Move and Trash Item on Home Screen

4.3 Navigation Buttons

The three navigation buttons shown in **Figure 4-9** can always be found at the bottom of every screen.

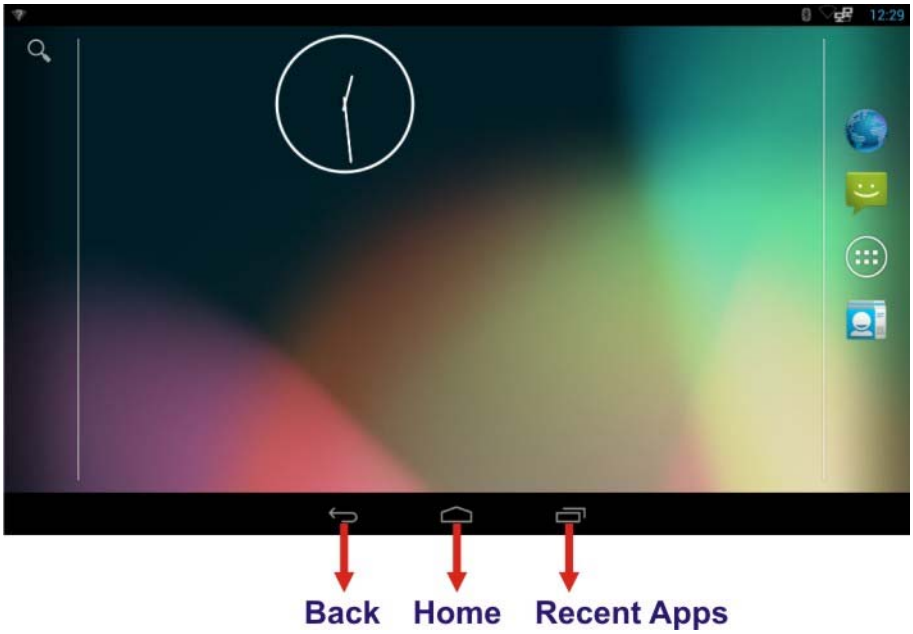


Figure 4-9: Navigation Buttons

Buttons	Description
Back	Tap to return to the previous screen.
Home	Tap to return to the home screen.
Recent Apps	Tap to display all the recently used applications.

Table 4-1: Navigation Buttons

4.4 Status Bar

The status bar on the top of the screen (**Figure 4-10)** displays the pending notifications and status, such as battery level or signal strength.

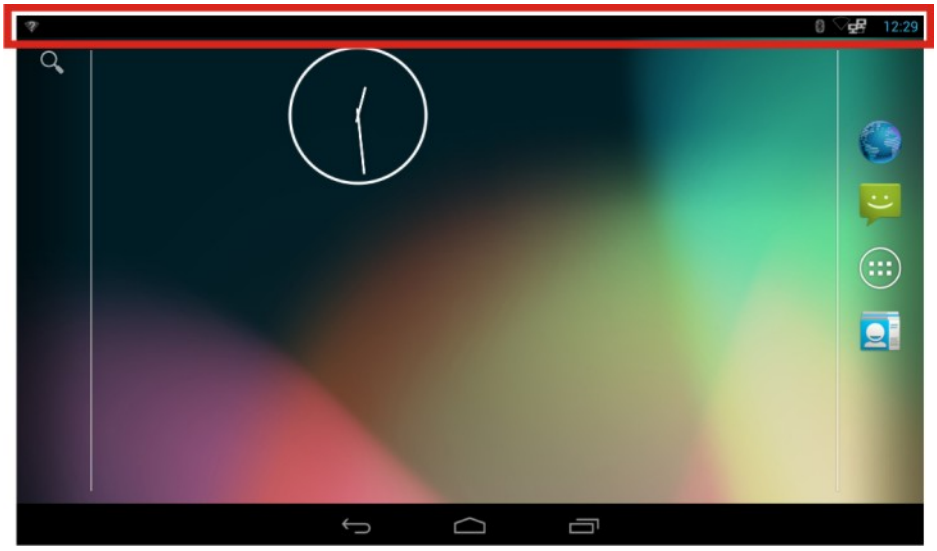


Figure 4-10: Status Bar

Swipe down from the right of the status bar to view the setting shortcut.

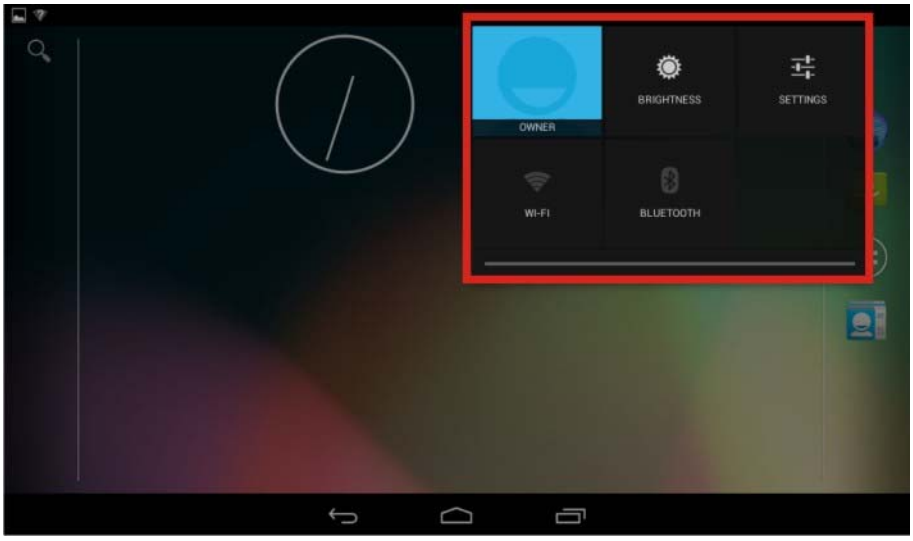


Figure 4-11: Status Bar – Setting Shortcut

Swipe down from the left of the status bar to view notification details.

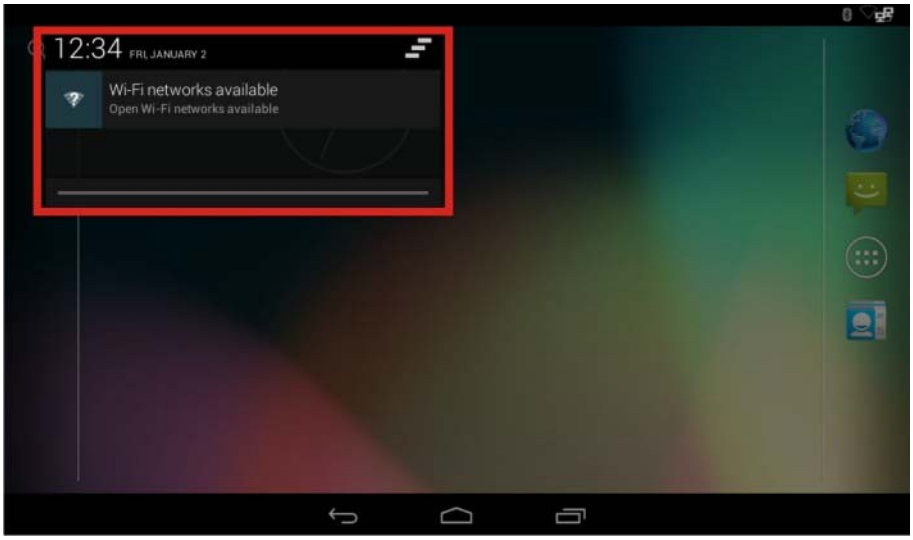


Figure 4-12: Status Bar – Notification

4.5 Settings

The Settings menu allows configuration to the IOVU-07F-AD, such as Wi-Fi, volume, screen brightness, etc. To enter the Settings menu, tap **Settings** on the launcher page.

4.5.1 WIRELESS & NETWORKS

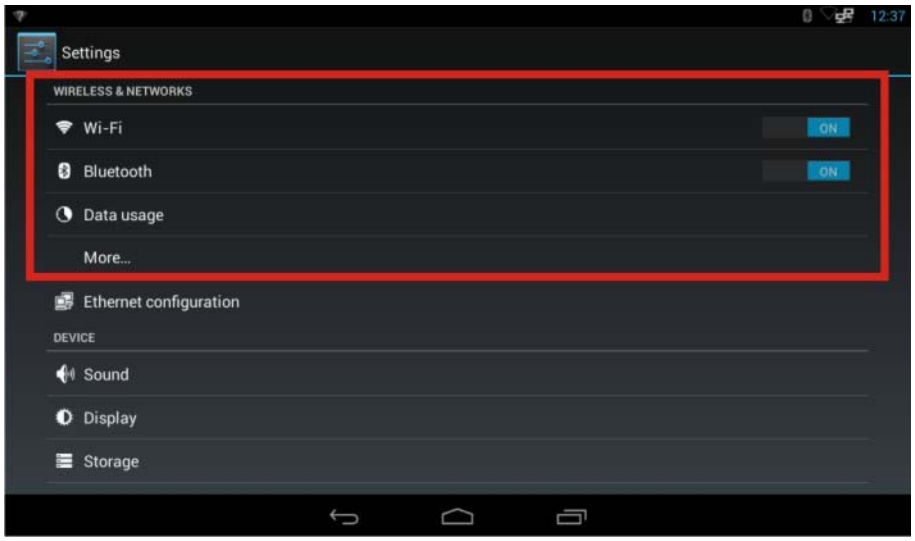


Figure 4-13: Wireless and Networks Settings

In the WIRELESS & NETWORKS field, the user can turn on/off the Wi-Fi and Bluetooth functions, and configure the network settings.

- **Wi-Fi**:
  Allows the user to turn on or turn off the Wi-Fi function. When the Wi-Fi function is turned on, tap this item to manage the access points.
- **Bluetooth**:
  Allows the user to turn on or turn off the Bluetooth function. When the Bluetooth function is turned on, tap this item to manage the Bluetooth connections.
- **Ethernet proxy settings**:
  Configures the Ethernet proxy settings.

4.5.1.1 More Settings

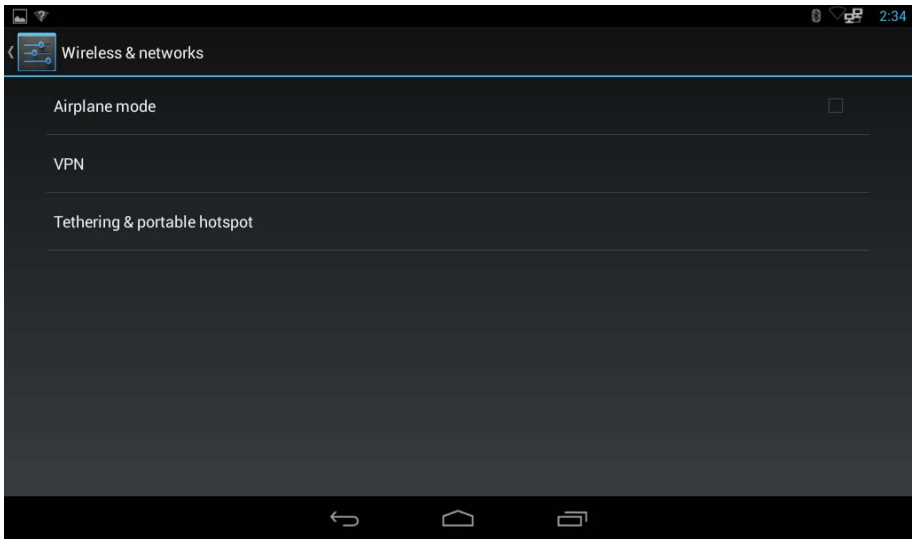


Figure 4-14: More Settings Menu

After tapping **More…** in the WIRELESS & NETWORKS field, the user can configure the following network settings.

- **Airplane mode**:
  Turns on or turns off the airplane mode.
- **VPN**:
  Sets up and manages Virtual Private Networks (VPNs).
- **Tethering & portable hotspot**:
  Allows the user to set this device as a portable Wi-Fi hotspot and configure the hotspot settings.

4.5.2 Sound

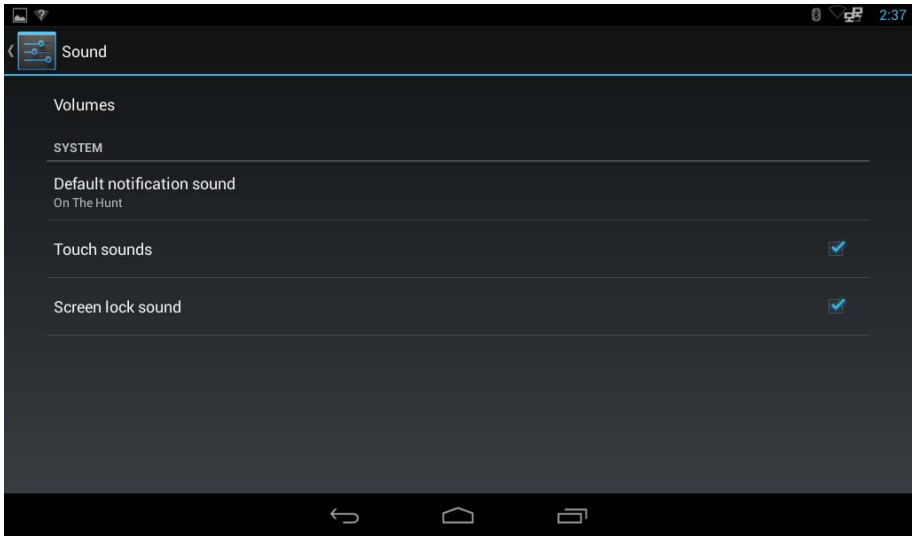


Figure 4-15: Sound Menu

Use the Sound menu to configure the following items.

- **Volumes**:
  Adjusts the volume of alarms, notifications, music, video, games and other media.
- **Default notification**:
  Sets up the notification ringtone.
- **Touch sounds**:
  Enables or disables playing a sound when making screen selection.
- **Screen lock sound**:
  Enables or disables playing a sound when unlocking the home screen.

4.5.3 Display

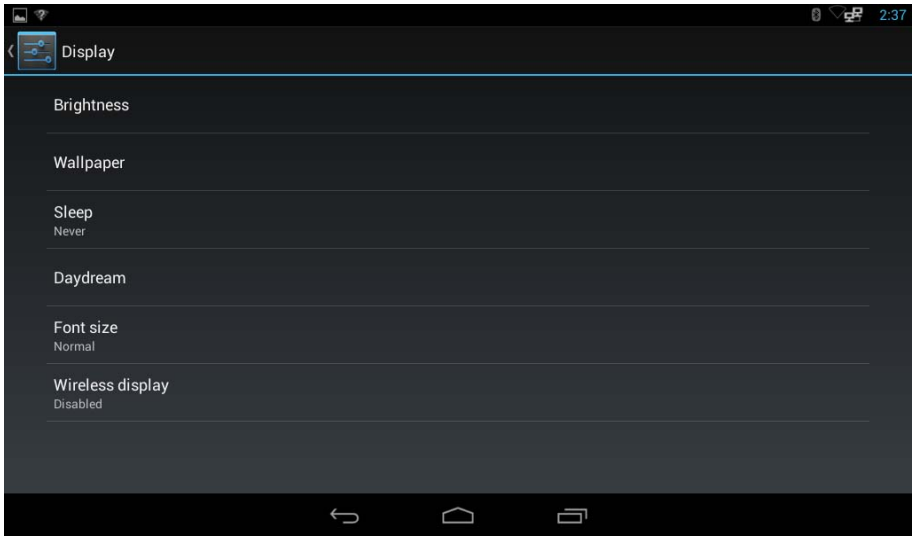


Figure 4-16: Display Menu

Use the Display menu to configure the following items.

- **Brightness**:
  Adjusts the screen brightness.
- **Wallpaper**:
  Sets up the wallpaper.
- **Sleep**:
  Sets up the time of inactivity after which the screen turns to sleep mode.
- **Daydream**:
  Configures the screensaver settings.
- **Font size**:
  Sets up the font size.
- **Wireless display**:
  Turns on or off the wireless display function and configures its settings.

4.5.4 Storage

The Storage menu displays the status of the internal storage, the inserted SD card and the connected USB storage devices, and allows users to manage the data stored in them.

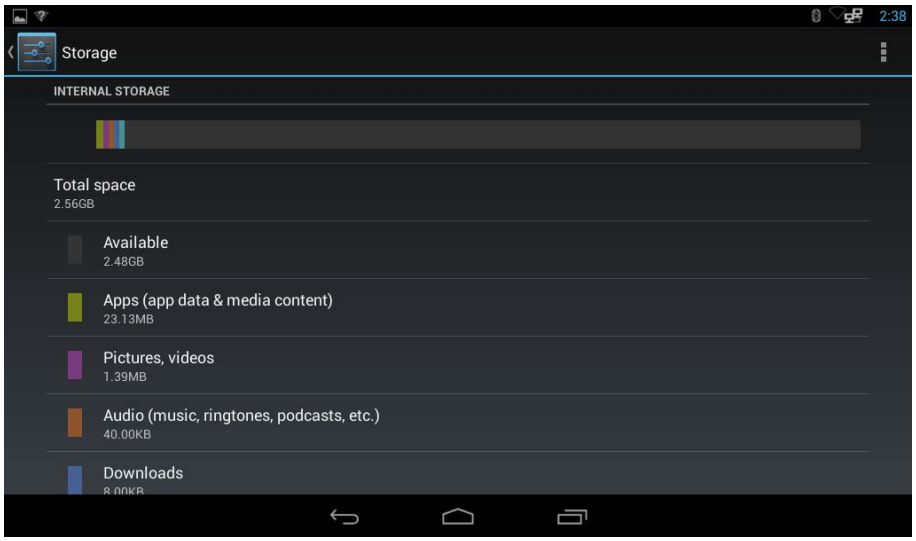


Figure 4-17: Storage Menu

4.5.5 Apps

The Apps menu displays the applications installed in the device, and allows users to manage them.

Figure 4-18: Apps Menu

4.5.6 Users

The Users menu allows the user to configure the owner information.

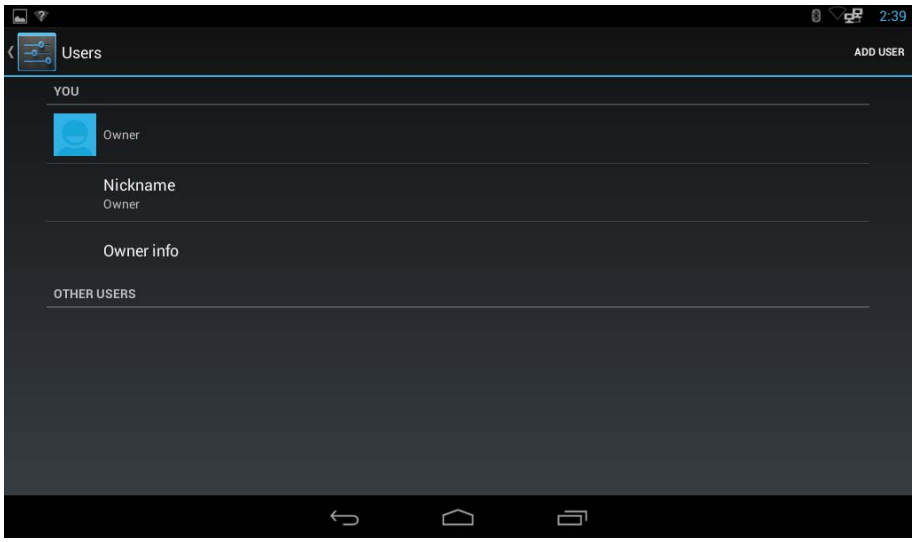


Figure 4-19: Users Menu

4.5.7 Location Access

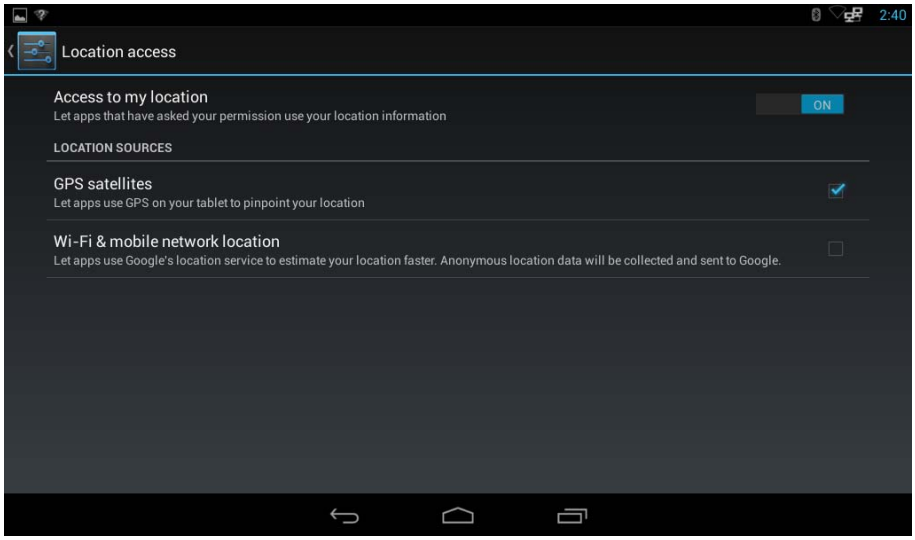


Figure 4-20: Location Access Menu

Use the Location access menu to configure the following items.

- **Access to my location**:
  Turns on to let the apps obtain the user's location information.
- **GPS satellites**:
  This item is available only when the **Access to my location** item is enabled. Enabling this item allows the apps to use the GPS in the device to pinpoint the user's location.
- **Wi-Fi & mobile network location**:
  This item is available only when the **Access to my location** item is enabled. Enabling this item allows the apps to use Google's location service to estimate the user's location.

4.5.8 Security

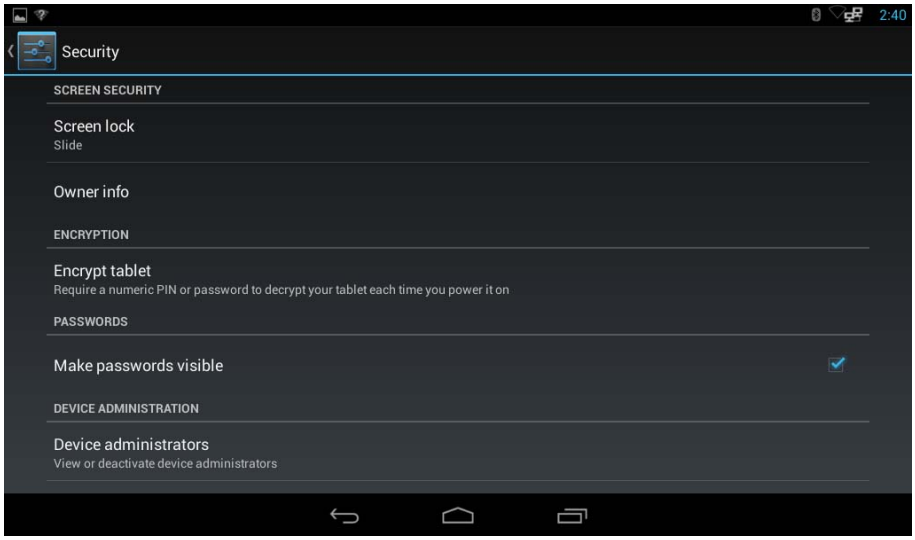


Figure 4-21: Security Menu

Use the Security menu to configure the following items.

- **Screen lock**:
  Sets up the way to unlock the screen.
- **Owner info**:
  Enables to show the information of the device owner on the lock screen.
- **Encrypt phone**:
  Once this item is enabled, the user will need to type a numeric PIN or password to decrypt the IOVU-07F-AD each time when powering on.
- **Make passwords visible**:
  Enables to show password when typing.
- **Device administrators**:
  Views or deactivates the device administrators.
- **Unknown sources**:
  Enables to allow installation of applications from unknown sources.
- **Trusted credentials**:
  Taps to display the CA certificates.
- **Install from SD card**:
  Taps to install certificates from the SD card.

4.5.9 Language & Input

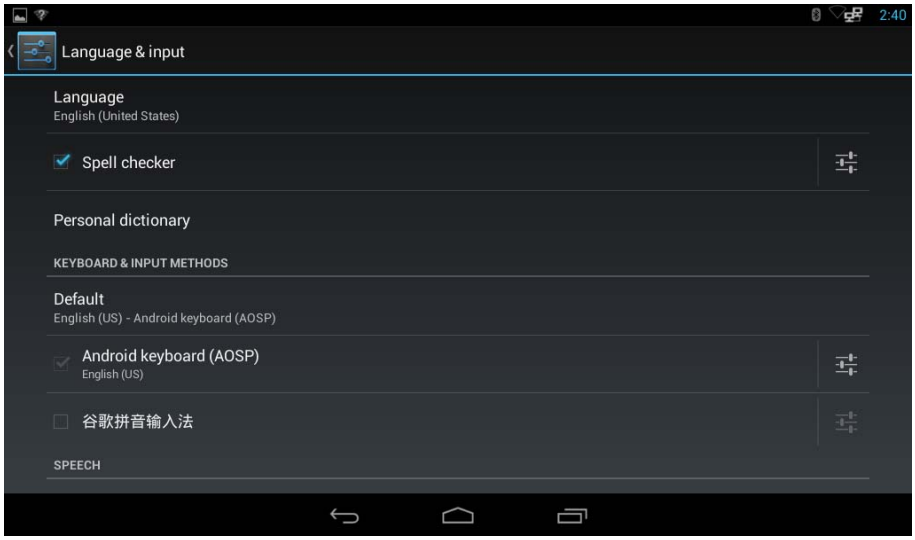


Figure 4-22: Language & Input Menu

Use the Language & input menu to configure the following items.

- **Language**:
  Sets up the language for IOVU-07F-AD.
- **Spell checker**:
  Allows the user to enable the spell check function and configure its settings.
- **Personal dictionary**:
  Configures the user dictionary.
- **KEYBOARD & INPUT METHODS**:
  Allows the user to set up the onscreen keyboard.
- **Text-to-speech output**:
  Configures the text-to-speech settings.
- **Pointer speed**:
  Sets up the pointer speed.

4.5.10 Backup & Reset

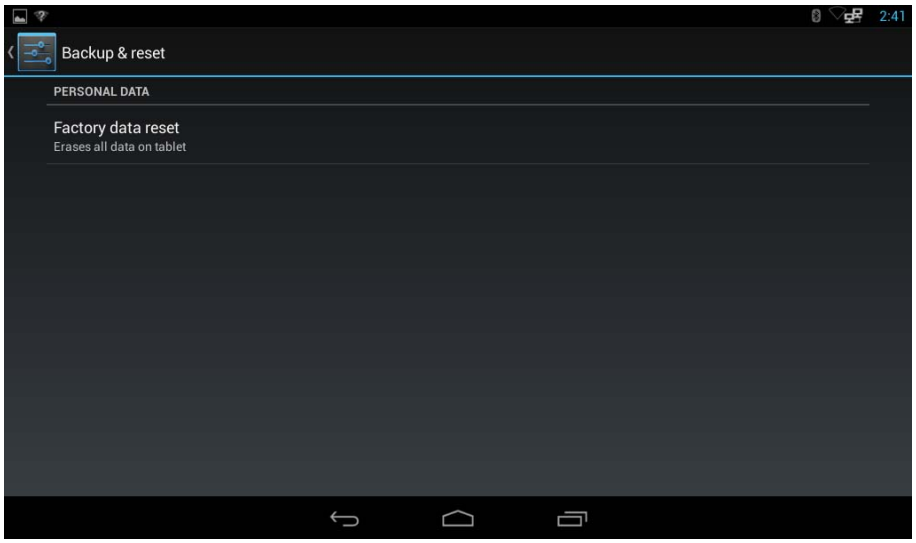


Figure 4-23: Backup & Reset Menu

Use the Backup & reset menu to configure the following items.

- **Factory data reset**:
  Erases all data from the internal storage of the IOVU-07F-AD.

4.5.11 Add account

Tap **Add account** to start setting up an e-mail or corporate account.

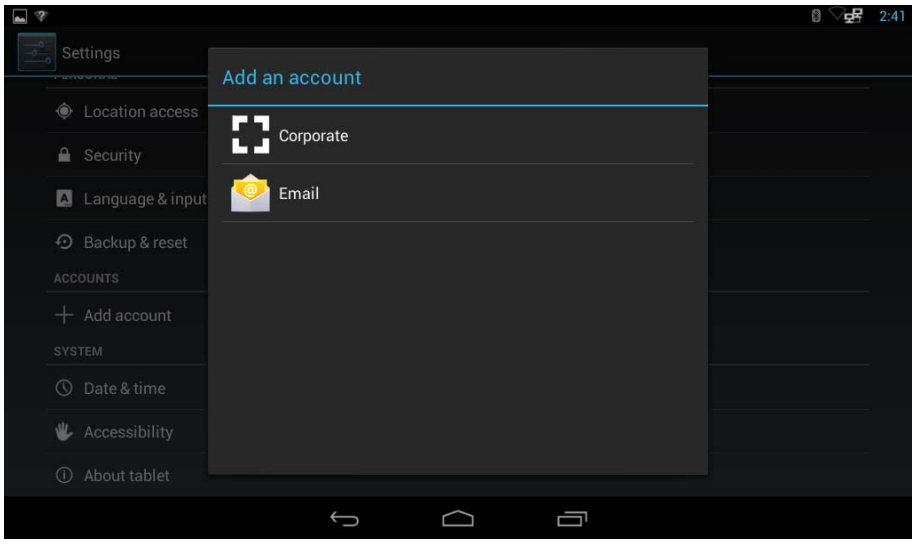


Figure 4-24: Add Account Menu

4.5.12 Date & Time

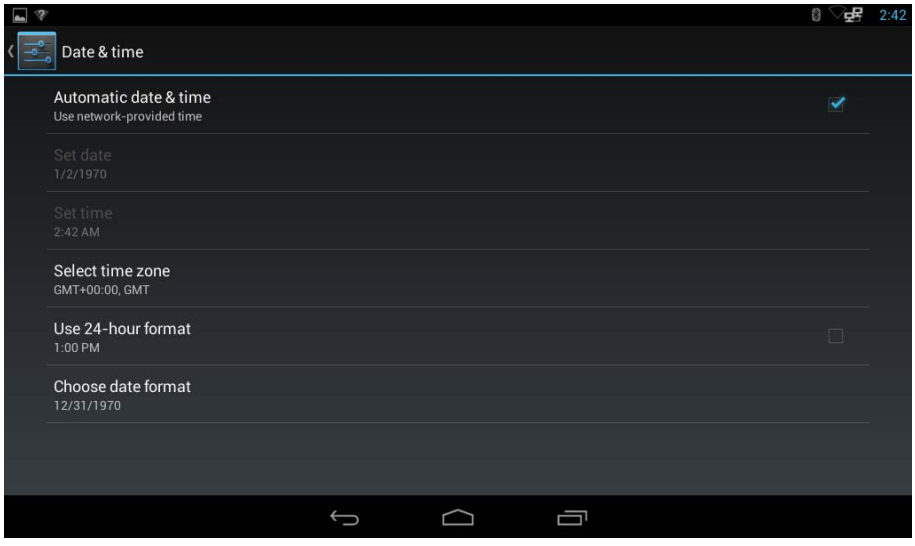


Figure 4-25: Date & Time Menu

Use the Date & time menu to configure the following items.

- **Automatic date & time**:
  Turns on to use the network-provided time.
- **Set date**:
  Sets up the system date. This item is available only when the **Automatic date & time** item is disabled.
- **Set time**:
  Sets up the system time. This item is available only when the **Automatic date & time** item is disabled.
- **Select time zone**:
  Sets up the time zone.
- **Use 24-hour format**:
  Turns on to use the 24-hour format.
- **Choose date format**:
  Sets up the date format.

4.5.13 Accessibility

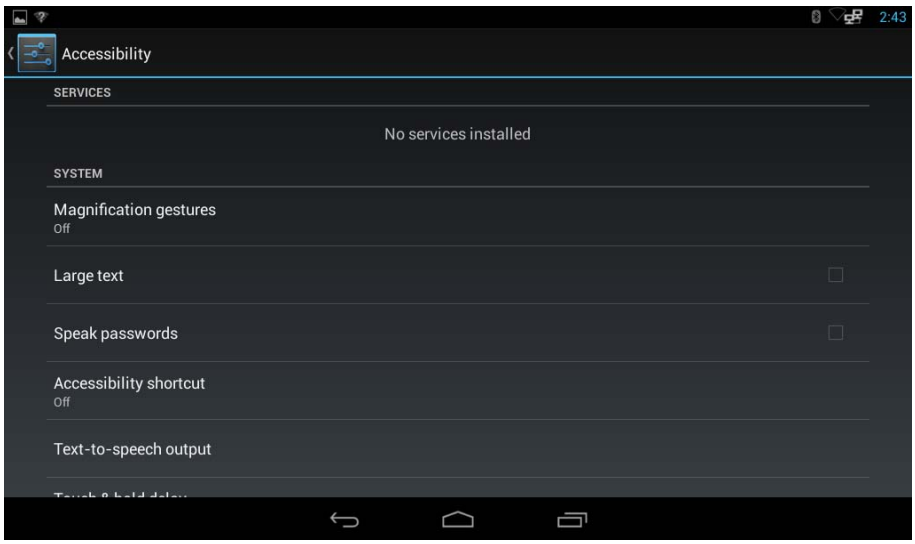


Figure 4-26: Accessibility Menu

Use the Accessibility menu to configure the following items.

- **Magnification gestures**:
  Enables to zoom in and out by triple-tapping the screen.

- **Large text**:
  Turns on to use large text.
- **Speak passwords**:
  Turns on or off the speak password fucntion.
- **Accessibility shortcut**:
  Turns on to allow the user to quickly enable the accessibility features.
- **Text-to-speech output**:
  Configures the text-to-speech settings.
- **Touch & hold delay**:
  Configures the touch & hold delay settings.
- **Enhance web accessibility**:
  Turns on to allow apps to install scripts from Google that make their web content more accessible.

4.5.14 About Tablet

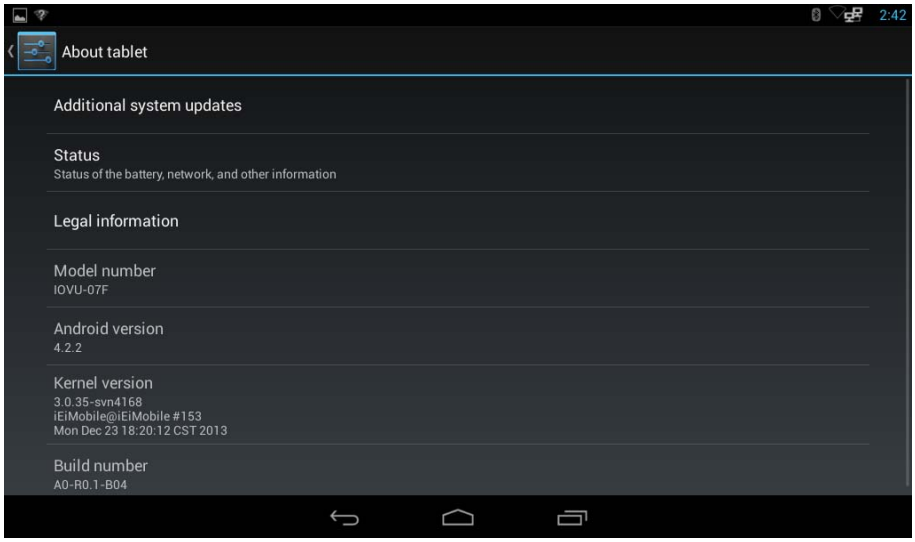


Figure 4-27: About Tablet Menu

Use the About tablet menu to display the following items.

- **Additional system updates**:
  Taps to update the system from OTA (over-the-air) or from the microSD card.

- **Status**:
  Taps to display the status of batteries, network, signal, etc.
- **Legal information**:
  Taps to display the legal information.
- **Model number**:
  Displays the model number.
- **Android version**:
  Displays the Android version.
- **Kernel version**:
  Displays the kernal version.
- **Build number**:
  Displays the device build number.

4.6 File Management

The IOVU-07F-AD provides a file management tool that allows users to manage files in the internal storage and external storage devices. Tap **ES File Explorer** on the application page to launch it.

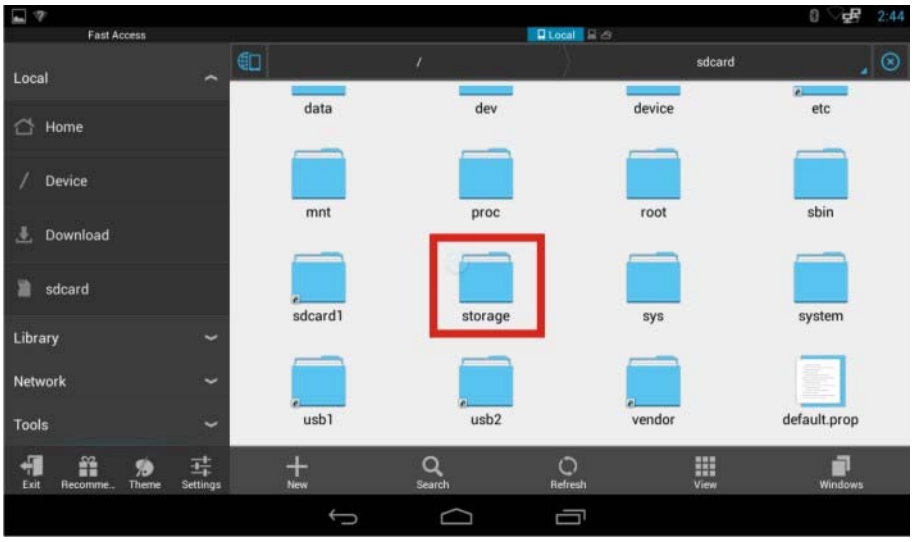


Figure 4-28: ES File Explorer Screen

The user can tap the **storage** folder (**Figure 4-28**) to view all the possible storage devices listed below.

- **sdcard0**: Internal storage of the IOVU-07F-AD
- **sdcard1**: SD card connected to the IOVU-07F-AD
- **usb1**: USB storage device connected to the USB host connector on the bottom panel. Refer to **Figure 1-4** for the connector location.
- **usb2**: USB storage device connected to the USB host connector on the bottom panel. Refer to **Figure 1-4** for the connector location.

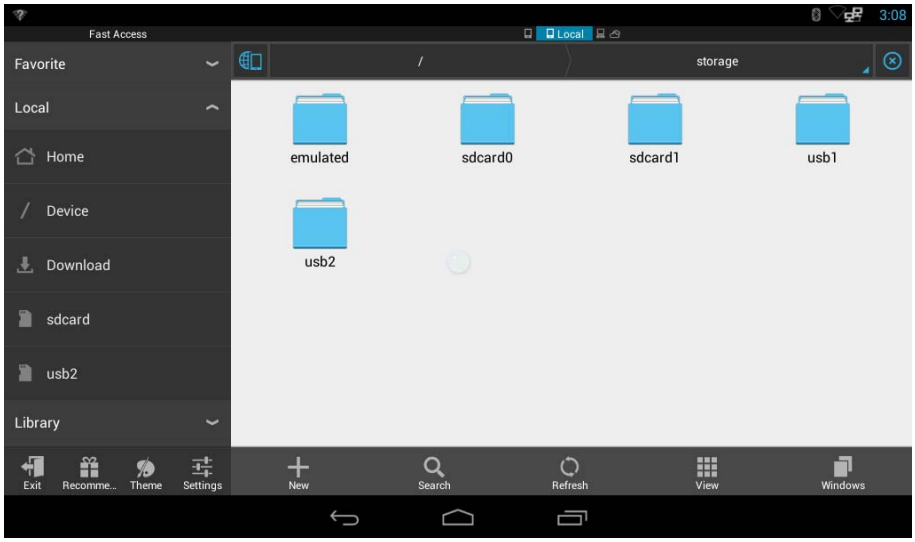


Figure 4-29: Possible Storage Devices

Tap a storage device to display its contents if available.

4.7 Camera

The IOVU-07F-AD equips with a 2-megapixel front camera. Tap **Camera** on the application page to launch it.

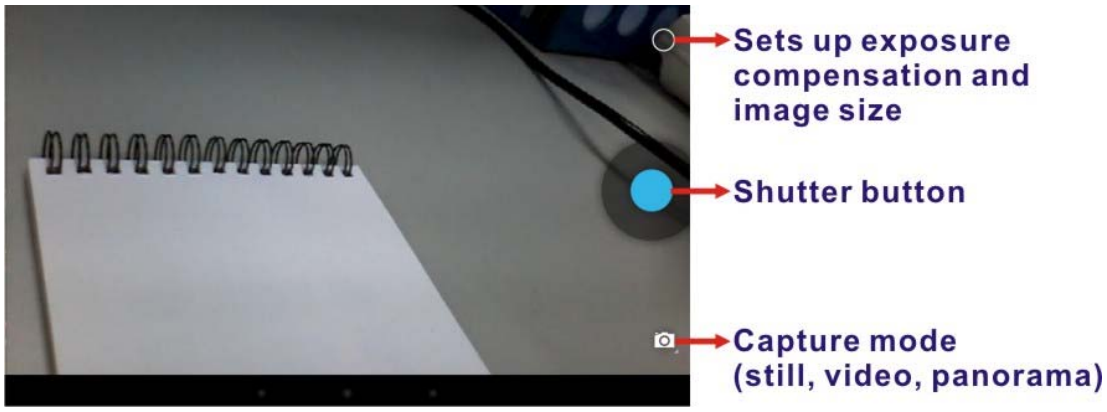


Figure 4-30: Camera Application

4.8 Configuring the RS-232/422/485 Serial Port and Digital I/O

The IOVU-07F-AD provides a demo app, allowing users to configure the RS-232/422/485 serial port (COM 2) and digital I/O settings. Tap **IOVU-07F Demo** on the application page to launch it.

In the RS232/422/485 menu (**Figure 4-31**), the user can select the serial port mode.

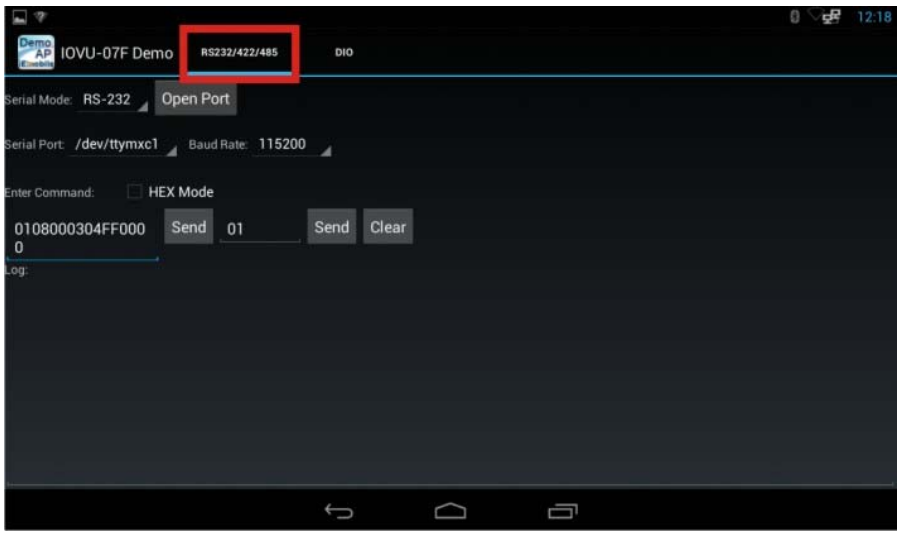


Figure 4-31: RS-232/422/485 Serial Port Settings

In the DIO menu (**Figure 4-32**), the user can configure the digital I/O settings.

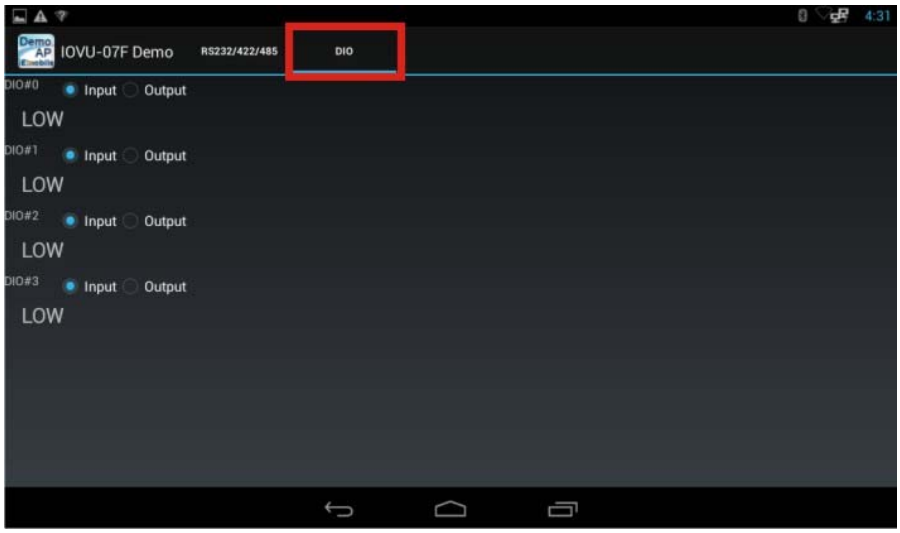


Figure 4-32: Digital I/O Settings

Chapter

5

Interface Connectors

5.1 Peripheral Interface Connectors

The motherboard of the IOVU-07F-AD comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 5-1** and **Figure 5-2**. The Pin 1 locations of the on-board connectors are also indicated in the diagrams below. The connector pinouts for these connectors are listed in the following sections.

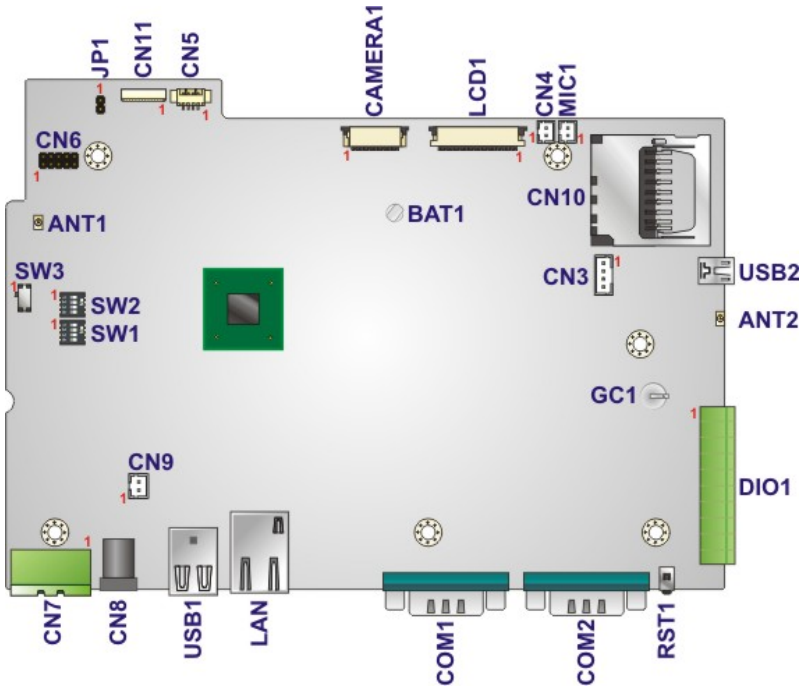


Figure 5-1: Main Board Layout Diagram (Front Side)

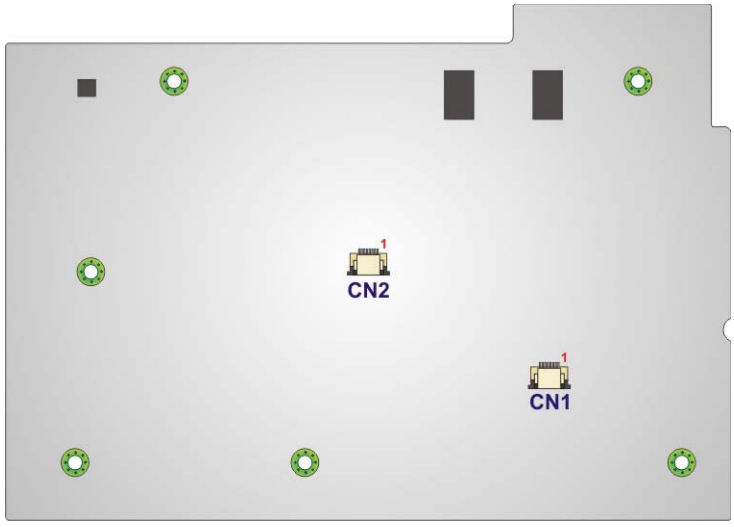


Figure 5-2: Main Board Layout Diagram (Solder Side)

5.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the IOVU-07F-AD motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Boot mode setting switch 1	DIP switch	SW1
Boot mode setting switch 2	DIP switch	SW2
Camera connector	24-pin FPC	CAMERA1
Debug connector (reserved)	4-pin wafer	CN5
Downloader mode switch	Switch	SW3
GPS antenna connector (reserved)	Antenna connector	ANT2
HP-out connector (reserved)	4-pin wafer connector	CN3
JATG interface for Wi-Fi module (reserved)	10-pin header	CN6
LCD connector	40-pin FPC	LCD1
Microphone connector	2-pin wafer	MIC1
Power button connector	2-pin wafer	CN9
RFID connector (reserved)	10-pin wafer	CN11
SD card slot	SD card slot	CN10
Speaker connector	2-pin wafer	CN4
Touchscreen connector	8-pin FPC	CN2
Wi-Fi + Bluetooth antenna connector	Antenna connector	ANT1

Table 5-1: Peripheral Interface Connectors

5.2.1 Boot Mode Setting Switches (SW1, SW2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HI	5	LOW
2	HI	6	LOW
3	HI	7	LOW
4	HI	8	LOW

Table 5-2: Boot Mode Setting Switches (SW1, SW2) Pinouts

5.2.2 Camera Connector (CAMERA1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	13	CSI_MCLK
2	GND	14	CSI_D8
3	SDATA1	15	NC
4	VDD_CAM2V8	16	CSI_D7
5	SCLK1	17	CSI_PCLK
6	CIM_RST	18	CSI_D6
7	CSI_VS	19	CSI_D2
8	CIM_PWDN	20	CSI_D5
9	CSI_HS	21	CSI_D3
10	VDD_CAM1V8	22	CSI_D4
11	VDD_CAM1V8	23	CSI_D1
12	CSI_D9	24	CSI_D0

Table 5-3: Camera Connector (CAMERA1) Pinouts

5.2.3 Debug Connector (CN5)

PIN NO.	DESCRIPTION
1	VIO_3V3
2	DB_RX
3	DB_tX
4	GND

Table 5-4: Debug Connector (CN5) Pinouts

5.2.4 Downloader Mode Switch (SW3)

PIN NO.	DESCRIPTION
A	NC
B	CFG1_5
C	GND

Table 5-5: Downloader Mode Switch (SW3) Pinouts

5.2.5 HP-out Connector (CN3)

PIN NO.	DESCRIPTION
1	HP_OL
2	EARPHONE_DET
3	HP_OR
4	GND

Table 5-6: HP-out Connector (CN3) Pinouts

5.2.6 JATG Interface for Wi-Fi Module (CN6)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	WL_TRST	2	GND
3	WL_TDI	4	GND
5	WL_TDO	6	GND
7	WL_TMS	8	GND
9	WL_TCK	10	GND

Table 5-7: JATG Interface for Wi-Fi Module (CN6) Pinouts

5.2.7 LCD Connector (LCD1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VLED+	21	C_TXOUT3-
2	VLED+	22	GND
3	LCD_VGH	23	C_TXCLK+
4	LCD_CABC_EN2	24	C_TXCLK-
5	LCD_CABC_EN1	25	GND

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
6	LCD_VGL	26	C_TXOUT2+
7	LCD_UD	27	C_TXOUT2-
8	LCD_LR	28	GND
9	VLED-	29	C_TXOUT1+
10	VLED-	30	C_TXOUT1-
11	GND	31	GND
12	LCD_SUP	32	C_TXOUT0+
13	LCD_SELB	33	C_TXOUT0-
14	LCD_DUNI	34	GND
15	NC	35	LCD_STBY
16	GND	36	LCD_RST
17	NC	37	NC
18	NC	38	VLCD_3V3
19	GND	39	VLCD_LCD
20	C_TXOUT3+	40	VLCD_LCD_COM

Table 5-8: LCD Connector (LCD1) Pinouts

5.2.8 Microphone Connector (MIC1)

PIN NO.	DESCRIPTION
1	MIC_IN1N
2	MIC_IN1P

Table 5-9: Microphone Connector (MIC1) Pinouts

5.2.9 Power Button Connector (CN9)

PIN NO.	DESCRIPTION
1	Power-Button
2	GND

Table 5-10: Power Button Connector (CN9) Pinouts

5.2.10 RFID Connector (CN11)

PIN NO.	DESCRIPTION
1	GND
2	NXP_TX
3	NXP_RX
4	NFC_IRQ
5	SRST
6	GND
7	NC
8	S1CLK
9	VMAIN
10	VMAIN

Table 5-11: RFID Connector (CN11) Pinouts

5.2.11 SD Card Slot (CN10)

PIN NO.	DESCRIPTION
1	SDIO3_DATA3
2	SDIO3_CMD
3	GND
4	SD_3P3V
5	SDIO3_CLK
6	GND
7	SDIO3_DATA0
8	SDIO3_DATA1
9	SDIO3_DATA2
10	SDIO3_nCD
11	GND
12	SDIO3_nWP

Table 5-12: SD Card Slot (CN10) Pinouts

5.2.12 Speaker Connector (CN4)

PIN NO.	DESCRIPTION
1	SPK_N
2	SPK_P

Table 5-13: Speaker Connector (CN4) Pinouts

5.2.13 Touchscreen Connector (CN2)

PIN NO.	DESCRIPTION
1	VCC_CTP
2	GND
3	DM4
4	DP4
5	TR_nRST-
6	I2C_SCL3
7	I2C_SDA3
8	NC

Table 5-14: Touchscreen Connector (CN2) Pinouts

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

CE

This equipment is in conformity with the following EU directives:

- EMC Directive 2004/108/EC
- Low-Voltage Directive 2006/95/EC
- RoHS II Directive 2011/65/EU
- Ecodesign Directive 2009/125/EC

If the user modifies and/or install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the R&TTE Directive 1999/5/EC.

English IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Български [Bulgarian] IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 1999/5/EC.
Česky [Czech] IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish] IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German] IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.
Eesti [Estonian] IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Español [Spanish] IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek] IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French] IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian] IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian] IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 1999/5/EK.
Lietuvių [Lithuanian] IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch] IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese] IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian] IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Polski [Polish] IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese] IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Româna [Romanian] IEI Integration Corp declară că acest echipament este in conformitate cu cerințele esențiale şi cu celelalte prevederi relevante ale Directivei 1999/5/CE.
Slovensko [Slovenian] IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak] IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish] IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish] IEI Integration Corp förklarar att denna utrustningstyp står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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.

Federal Communication Commission Interference Statement

This equipment has been assembled with components that comply with the limits for a Class B 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 of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into 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.

Appendix

B

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the IOVU-07F-AD.

B.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the IOVU-07F-AD is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the IOVU-07F-AD is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the IOVU-07F-AD chassis is opened when the IOVU-07F-AD is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the IOVU-07F-AD.
- ***If considerable amounts of dust, water, or fluids enter the IOVU-07F-AD***, turn off the power supply immediately, unplug the power cord, and contact the IOVU-07F-AD vendor.
- **DO NOT**:
  - Drop the IOVU-07F-AD against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the IOVU-07F-AD may result in permanent damage to the IOVU-07F-AD and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IOVU-07F-AD. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IOVU-07F-AD is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

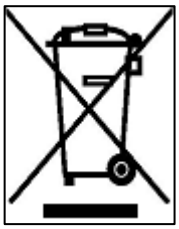
B.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the IOVU-07F-AD, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the IOVU-07F-AD, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the IOVU-07F-AD does not require cleaning. Keep fluids away from the IOVU-07F-AD interior.
- Be cautious of all small removable components when vacuuming the IOVU-07F-AD.
- Turn the IOVU-07F-AD off before cleaning the IOVU-07F-AD.
- Never drop any objects or liquids through the openings of the IOVU-07F-AD.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the IOVU-07F-AD.
- Avoid eating, drinking and smoking within vicinity of the IOVU-07F-AD.

B.2.2 Cleaning Tools

Some components in the IOVU-07F-AD may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the IOVU-07F-AD.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the IOVU-07F-AD.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the IOVU-07F-AD.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the IOVU-07F-AD as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the IOVU-07F-AD. Dust and dirt can restrict the airflow in the IOVU-07F-AD and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

Hazardous Materials Disclosure

C.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
Display	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						