IEI Integration Corp.

MODEL:

IKARPC-07A

7” Android-Based In-Vehicle Panel PC with Touch Screen TI AM3715 ARM Cortex™ A8 CPU, OBD-II, CAN, USB, Audio, RS-232, RoHS Compliant, IP 54 Front Panel

User Manual

Rev. 1.02 – December 24, 2014

RoHS Lead Free

Revision

Date	Version	Changes
December 24, 2014	1.02	Modified power input voltage range
October 7, 2013	1.01	Updated for new Android version 4.1.2
December 5, 2012	1.00	Initial release

Copyright

COPYRIGHT NOTICE

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

TRADEMARKS

All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.

Table of Contents

List of Figures

List of Tables

Chapter

1

Introduction

1.1 Overview

Figure 1-1: IKARPC-07A-A8 Panel PC

The IKARPC-07A-A8 is a 7” Android-based panel PC designed for in-car use.

At the heart of the system is the Texas Instruments (TI) AM3715 ARM Cortex™ A8 processor, offering low power in a powerful package. The system also offers a multimedia experience with a built-in camera, microphone and speakers. Other peripherals include two USB ports and two I/O connectors which support RS-232, OBD-II, CAN 2.0 B, digital I/O, video input and audio input/output. Wireless networking capabilities include Bluetooth 2.1 and 802.11b/g/n.

1.2 Features

The IKARPC-07A-A8 features the following:

- TI AM3715 ARM Cortex™ A8 processor
- On-board 1.0 GB 533 MHz DDR2 memory
- Pre-installed Android 4.1.2 operating system
- 802.11b/g/n wireless
- Bluetooth 2.1 + EDR Class 1
- Two USB 2.0 ports
- 3.75G connectivity with external antenna

- Support OBD-II, CAN 2.0 B, digital I/O and RS-232
- GPS antenna connector
- 2-megapixel front-facing camera, speaker, microphone
- Touch screen
- IP 54 compliant front panel
- RoHS compliance

1.3 Front Panel

The front of the IKARPC-07A-A8 is a flat panel screen with a plastic frame. The components on the front panel are listed below:

- 2-megapixel camera
- Ambient light sensor
- Four Function key (refer to Section 1.3.1)
- LED indicators (see Section 1.3.2)
- Microphone
- RFID reader

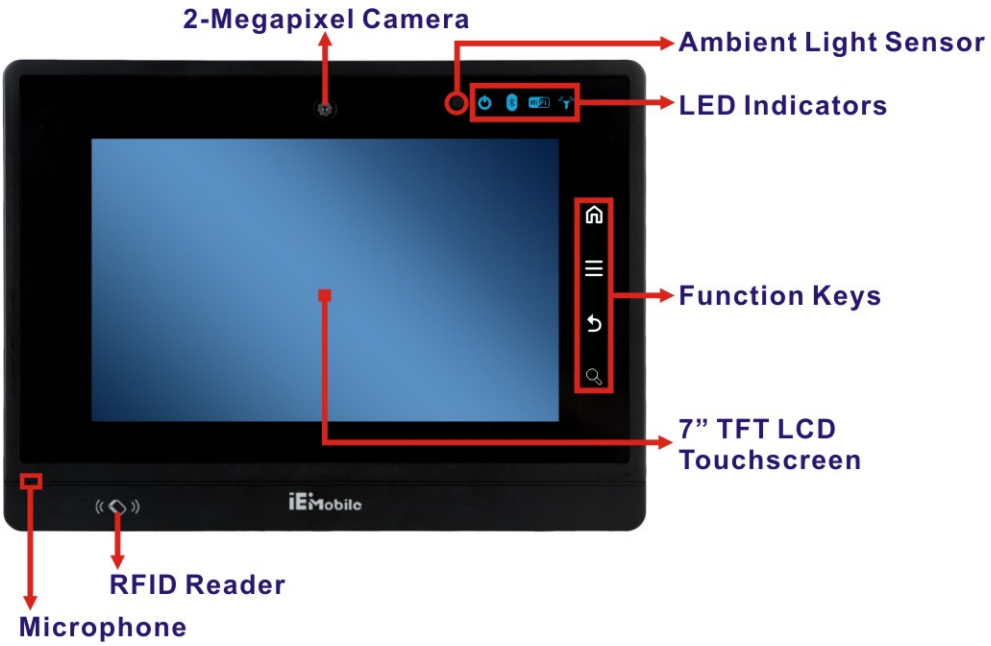


Figure 1-2: Front View

1.3.1 Function Keys

There are four function keys on the front panel of the IKARPC-07A-A8 as shown in the figure below.

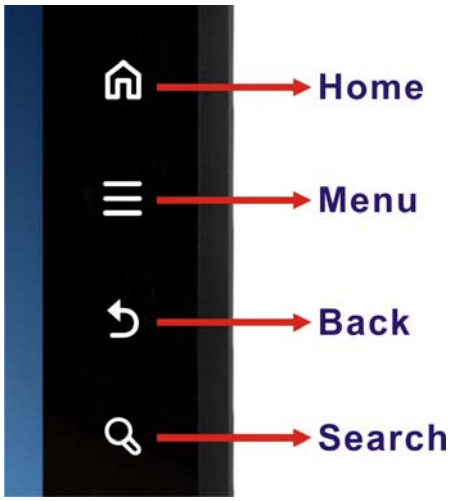


Figure 1-3: Function Keys

1.3.2 LED Indicators

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

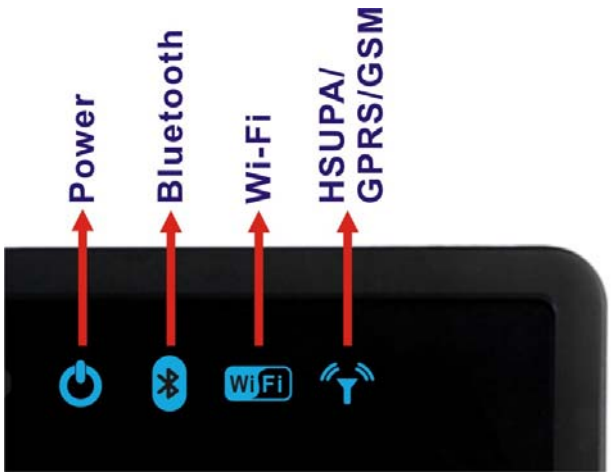


Figure 1-4: LED Indicators

1.4 Rear Panel

The rear panel has VESA mounting screw holes and an access panel for SD card and SIM card. The following I/O connectors can also be found on the rear panel.

- 1 x 9 V~ 30 V DC input connector
- 20-pin connector:
  - 1 x 10/100 Mbps LAN
  - 1 x CAN 2.0 B
  - 1 x OBD-II
  - 1 x USB
- 24-pin Connector:
  - 1 x Audio line-out (R+L)
  - 1 x Audio mic-in
  - 1 x RS-232
  - 1 x Video in
  - 2-bit digital input
  - 2-bit digital output
- 1 x 3.75G antenna connector
- 1 x GPS antenna connector

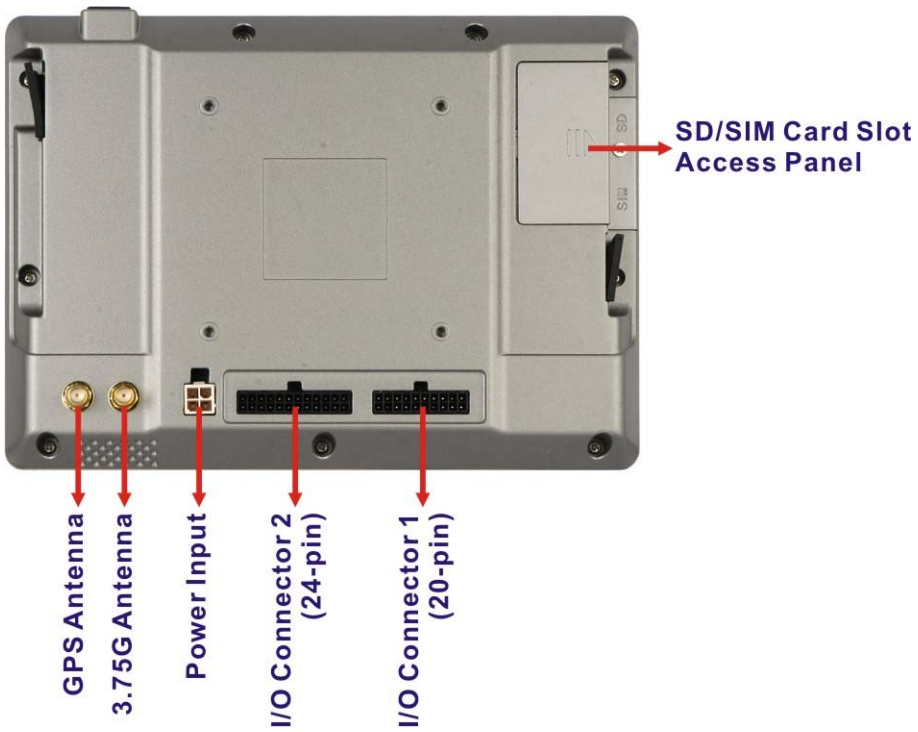


Figure 1-5: Rear View

1.5 Side Panels

Each side panel has one USB host port.

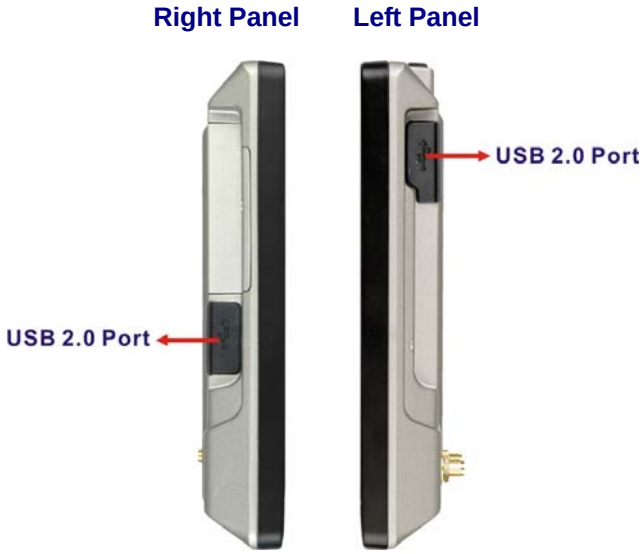


Figure 1-6: Side Panels

1.6 Top Panel

The top panel has a power button. Press the power button for 4~6 seconds to power on the system.

Figure 1-7: Top Panel

1.7 Bottom Panel

The bottom panel has a 1 W speaker.

Figure 1-8: Bottom Panel

1.8 System Specifications

The technical specifications for the IKARPC-07A-A8 systems are listed in **Table 1-1.**

System	
CPU	TI AM3715 ARM Cortex™ A8 processor
Memory	On-board 512 MB DDR memory
Boot Flash	4 GB iNAND e.MMC Flash
OS	Android 4.1.2
Storage	One SD card slot (SD 2.0 compatible, max. 32 GB)
Audio	1 x Speaker (1 W) 1 x Microphone

Camera	Front-facing 2-megapixel camera
Watchdog Timer	Software programmable supports 1~255 sec. system reset
Real-time Clock	Battery backup RTC
Display	
LCD	7" TFT LCD with LED backlight
Max. Resolution	800 x 480 (WVGA)
Brightness (cd/m^2)	500
Viewing Angle (H-V)	130/140
Touchscreen	5-wire projective capacitive touchscreen
Auto-dimming	Yes
Communication	
LAN	1 x 10/100 Mbps RJ-45
Wireless LAN	802.11b/g/n
Bluetooth	Bluetooth 2.1 + EDR Class 1
WWAN	Built-in u-blox LISA-U200-00S 3.75G UMTS/HSPA+ module supports: HSPA/UMTS-800/850/1900/2100 MHz Quad-band EDGE/GPRS/GSM-850/900/1800/1900MHz
GPS	Built-in u-blox MAX-6Q GPS module with external antenna
RFID	On-board RFID antenna 13.56MHz protocols supported: ISO/IEC 14443A, ISO/IEC 14443B PCD 106 kbit/s to 848 kbit/s ISO/IEC 14443A, ISO/IEC 14443B PICC 106 kbit/s to 424 kbit/s
Power	
Power Input	4-pin (2x2) Molex power connector supports DC or ACC power Optional 40 W power adapter with transfer cable
DC Power	9 V ~ 30 V DC input via cigarette lighter power cable
ACC Power	ACC power on/off mode with software configurable delay time
Physical Character	
Construction Material	ABS + PC plastic front frame
Mounting	VESA 75 mm x 75 mm
Dimensions (W x H x D)	210.0 mm x 154.0 mm x 28.1 mm
Operation Temperature	-20°C ~ 60°C
Storage Temperature	-30°C ~ 70°C
Humidity	5% ~ 95%, non-condensing

Net weight	0.8 kg
IP level	IP 54 compliant front panel
Drop Survival	1 m
Safety	CE, FCC, e-MARK, ISO7637
Connectors and Buttons	
Antenna Connectors	1 x 3.75G antenna SMA female connector 1 x GPS antenna SMA female connector
Expansion Slot	1 x SIM card slot
I/O Ports	1 x 9 V~ 30 V DC input connector 2 x USB Host ports
	20-pin Connector: 1 x 10/100 Mbps LAN 1 x CAN 2.0 B 1 x OBD-II 1 x USB
	24-pin Connector: 1 x Audio line-out (R+L) 1 x Audio mic-in 1 x RS-232 1 x Video in 2-bit digital input 2-bit digital output
Front Panel Buttons	1 x Power button 4 x Function buttons (Home, Menu, Back, Search)
LED Indicators	1 x Power LED 1 x Bluetooth status LED 1 x Wi-Fi connection LED 1 x 3G connection LED

Table 1-1: Technical Specifications

1.9 Dimensions

The dimensions are shown below.

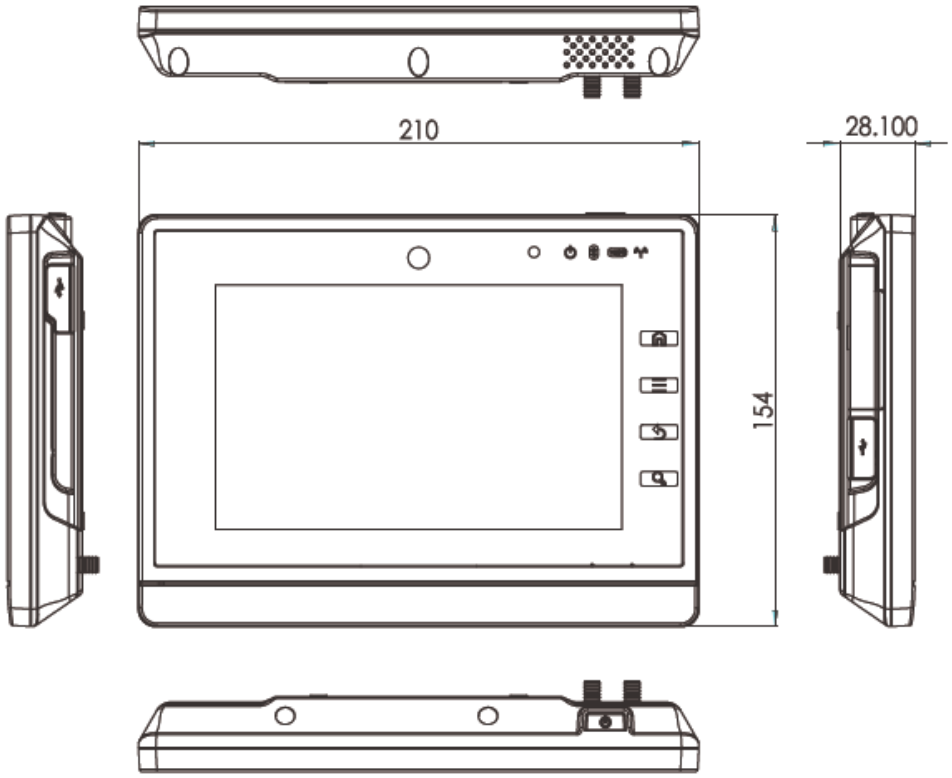


Figure 1-9: Dimensions (unit: mm)

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: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Pull the plastic cover off the flat panel PC.

Step 7: Make sure all the components listed in the packing list are present. **Step 0:**

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 IKARPC-07A-A8 was purchased from or contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

The IKARPC-07A-A8 is shipped with the following components:

Quantity	Item	Image
1	IKARPC-07A-A8 in-vehicle panel PC	
1	ACC power cable (P/N: 32002-001900-100-RS)	
1	GPS/GSM antenna (P/N: 32506-000100-100-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
Power adapter with transfer cable (P/N: IVIPOWER-4PIN-R10)	

Item	Image
Cigarette lighter power cable (P/N: 32002-004000-100-RS)	
I/O connector 1 cable (20-pin) (P/N: 32024-002400-100-RS)	
I/O connector 2 cable (24-pin) (P/N: 32024-002300-100-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 IKARPC-07A-A8 may result in permanent damage to the IKARPC-07A-A8 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IKARPC-07A-A8. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IKARPC-07A-A8 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 IKARPC-07A-A8, place it on an anti-static pad. This reduces the possibility of ESD damaging the IKARPC-07A-A8.
- ***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 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the system

Step 2: Install a SD card

Step 3: Install a SIM card

Step 4: Connect peripheral devices

Step 5: Mount the system

Step 6: Power up the system

3.4 SD Card Installation

To install the SD card, follow the instructions below.

Step 1: Remove the retention screw and lift the SD card slot access panel.

Figure 3-1: SD Card Slot Access Panel Retention Screw

Step 2: Locate the SD card slot. Insert the SD card into the slot

Figure 3-2: Install the SD Card

Step 3: Replace the SD card slot access panel.

3.5 SIM Card Installation

To install the SIM card, follow the instructions below.

Step 1: Remove the retention screw and lift the SIM card slot access panel.

Figure 3-3: SIM Card Slot Access Panel Retention Screw

Step 2: Locate the SIM card slot. Slide the slot cover to the left to unlock the cover.

Figure 3-4: Unlock the SIM Card Slot Cover

Step 3: Open the SIM card slot cover.

Figure 3-5: Open the SIM Card Slot Cover

Step 4: Place a SIM card onto the slot as shown in **Figure 3-6**.

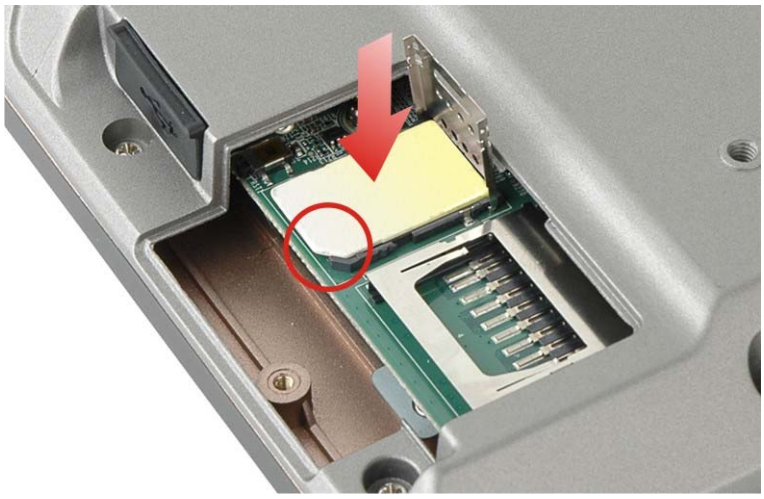


Figure 3-6: Place a SIM Card

Step 5: Close the slot cover. Slide the slot cover to the right to lock the cover.

Figure 3-7: Lock the SIM Card Slot Cover

Step 6: Replace the SIM card slot access panel.

3.6 Mounting the System

The IKARPC-07A-A8 is VESA (Video Electronics Standards Association) compliant and can be mounted on a mounting device with a 75 mm interface pad. The IKARPC-07A-A8 VESA mount retention screw holes are shown in Figure 3-8. Refer to the installation documentation that came with the mounting device to mount the IKARPC-07A-A8.

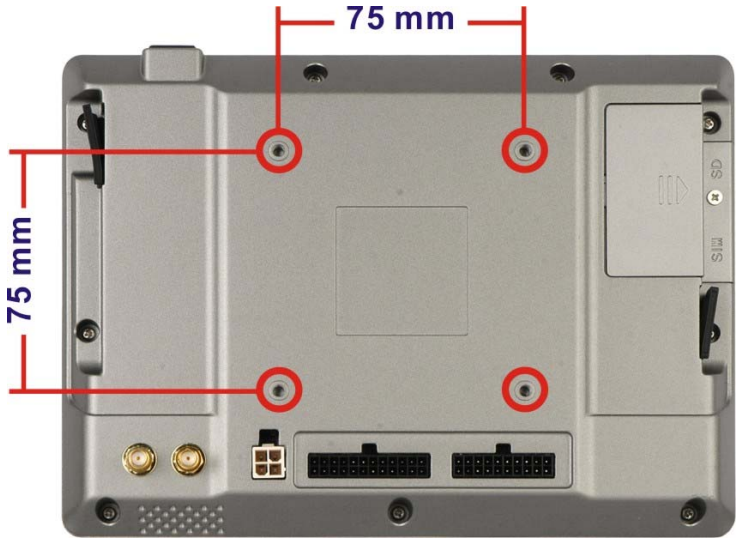


Figure 3-8: VESA Mount Retention Screw Holes

NOTE:

When purchasing the mounting device please ensure that it is VESA compliant and that the device has a 75 mm interface pad. If the mounting device is not VESA compliant it cannot be used to support the IKARPC-07A-A8.

3.7 External I/O Connectors

This section provides and overview of the external I/O connectors of the IKARPC-07A-A8.

3.7.1 I/O Connector 1 (20-pin)

The 20-pin I/O connector 1 supports the following external peripheral devices:

- 1 x 10/100 Mbps LAN
- 1 x CAN 2.0 B
- 1 x OBD-II
- 1 x USB

The pinouts for the I/O connector 1 are listed in the figure and table below.

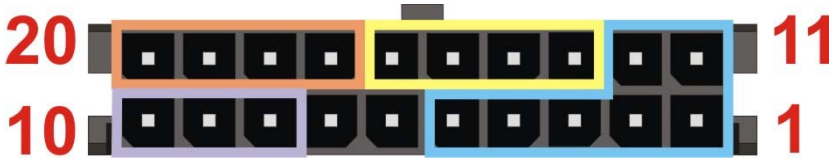


Figure 3-9: I/O Connector 1 Pinouts Location

	Pin	Description	Pin	Description	
OBD-II	1	OBD_CAN_H	11	ISO9141-2-K	OBD-II
	2	OBD_CAN_L	12	ISO9141-2-L	
	3	GND	13	LAN_MDI0-	10/100Mbps LAN
	4	J2850_BUS+	14	LAN_MDI0+	
	5	J2850_BUS-	15	LAN_MDI1-	
	6	GND	16	LAN_MDI1+	
	7	GND	17	GND	USB 2.0
CAN Bus	8	GND	18	USB DATA-	
	9	CAN_L	19	USB DATA+	
	10	CAN_H	20	USB VCC (+5V)	

Table 3-1: I/O Connector 1 Pinouts

3.7.2 I/O Connector 2 (24-pin)

The 24-pin I/O connector 2 supports the following external peripheral devices:

- 1 x Audio line-out (R+L)
- 1 x Audio line-in
- 1 x RS-232
- 1 x Video in
- 2-bit digital input
- 2-bit digital output

The pinouts for the I/O connector 2 are listed in the figure and table below.

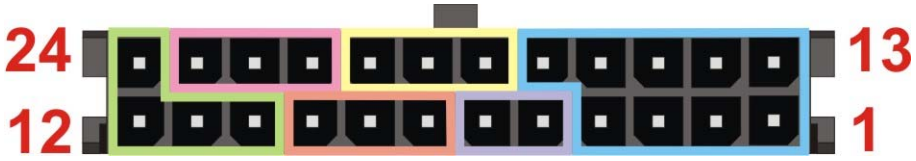


Figure 3-10: I/O Connector 2 Pinouts Location

	Pin	Description	Pin	Description	
COM	1	COM_TX	13	COM_RX	**COM**
	2	COM_DTR	14	COM_DSR	
	3	COM_RTS	15	COM_CTS	
	4	COM_GND	16	COM_DCD	
Video in	5	VIDEO_IN	17	COM_RI	
	6	AGND	18	DIO_GND	**Digital Input**
Digital Output	7	DIO_OUT_1	19	DIO_IN_1	
	8	DIO_OUT_2	20	DIO_IN_2	
	9	DIO_GND	21	AUDIO_GND	**Audio Line-in**
Audio Line-out	10	AUDIO_GND	22	LINE_IN_L	
	11	HP_OUT_L	23	LINE_IN_R	
	12	HP_OUT_R	24	HP_DET_IN	

Table 3-2: I/O Connector 2 Pinouts

NOTE:

In order to play sounds through the headset connected to the audio line-out connector, the “Switch to headset” option must be enabled. Please refer to **Section 4.4.2** for detail information.

3.7.3 Power Input Connection

The IKARPC-07A-A8 has one 4-pin power input connector on the rear panel. The pinouts for the power input connector are listed in the figure and table below.

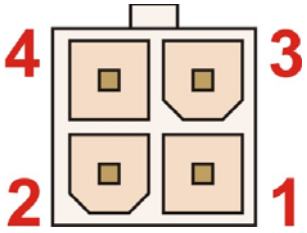


Figure 3-11: Power Input Connector

PIN NO.	DESCRIPTION
1	GND
2	GND
3	POWER
4	ACC

Table 3-3: Power Input Connector Pinouts

The IKARPC-07A-A8 can use either ACC power or DC power from the vehicle. To use ACC power, connect the IKARPC-07A-A8 to the vehicle through the ACC power cable. See **Figure 3-12**.

Figure 3-12: ACC Power Cable

[Optional Choice]

To use DC power, connect the IKARPC-07A-A8 to the vehicle cigarette lighter connector through the optional cigarette lighter cable. See **Figure 3-13**.

Figure 3-13: Optional Cigarette Lighter Cable

3.7.4 USB Connectors

The IKARPC-07A-A8 has two USB 2.0 ports on the side panels. Each USB port has a screw on the side for securing the USB devices, such as barcode scanners and smart card readers. The following diagram shows the USB port and the screw on the left side panel.

Figure 3-14: USB Connector

3.8 System Maintenance

If the components of the IKARPC-07A-A8 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 IKARPC-07A-A8

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 (antenna, serial communications devices etc.) are connected
- The system is securely mounted
- The power cables are plugged in

4.1.2 Power-on Procedure

To power-on the IKARPC-07A-A8 please follow the steps below:

Step 1: Connect either the ACC power cable or the optional cigarette lighter power cable from the IKARPC-07A-A8 to the vehicle. See **Section 3.7.3**.

Step 2: Start the vehicle, and the IKARPC-07A-A8 will be on automatically after **10 seconds**. The power LED lights up in blue when the system is turned on. The user can also hold down the power button on the top panel for **4~6 seconds** to turn on the system when the key is in ACC or ON position. The following table shows the relation of the power state and vehicle ignition system.

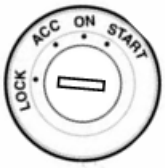
	LOCK	ACC	ON	START
				
ACC Signal	Off	On	On	Off
Car Cigarette Lighter	Off	On	On	Off
5 V Standby Power	Off	On after 1 second	On	On
Auto Start-up	--	After 10 seconds		--
Auto Shut-down	After 5 seconds	--	--	--

Table 4-1: Power Sate and Ignition System

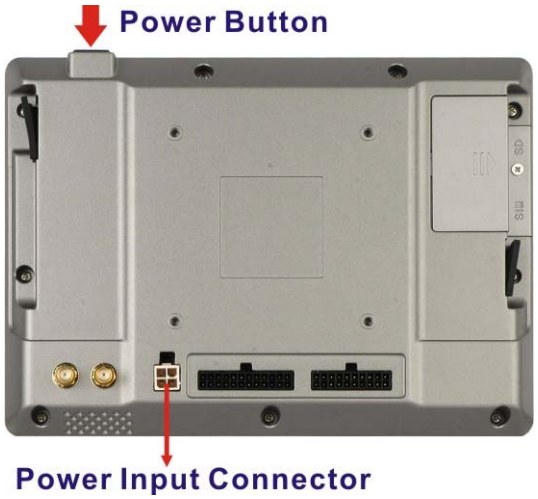


Figure 4-1: Power Connector and Power Button

Step 3: The system starts booting. When the main screen shows, press and slide the lock button on the screen to the unlock icon to unlock the system.

4.1.3 Power-off Procedure

To power-off the IKARPC-07A-A8 please follow the steps below:

Step 1: (1) Turn off the vehicle, or

(2) Hold down the power button for **4~6 seconds** to turn off the system.

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

NOTE:

If the user does not press the OK button to confirm, the IKARPC-07A-A8 will still shut down the system automatically after **5 seconds**.

Figure 4-2: Power-off Confirmation Screen

4.2 Function Buttons

The IKARPC-07A-A8 has several function buttons on the system front panel and the Android home screen to control the system. The function buttons are shown in **Figure 4-3** and described in **Table 4-2**.

Figure 4-3: Function Buttons

Buttons	Description
Home	Press to return to the home screen.
Menu	Press to bring up a function menu on the bottom of the screen. Each application contains different function menu.
Back	Press to return to the previous screen.
Search	Press to search on the Internet.
Web	Press to open an Internet browser to access a web page.
Launcher	Access to the Launcher where all apps are listed.
Contacts	Press to open the contacts page.

Table 4-2: Function Buttons

4.3 Home Screen

The IKARPC-07A-A8 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.

4.3.1 Multiple Home Screens

Swipe left or right to switch. Long press an item on the home screen and when it vibrates drag the item to other screen.

Figure 4-4: Multiple Home Screens

4.3.2 Add 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.

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.

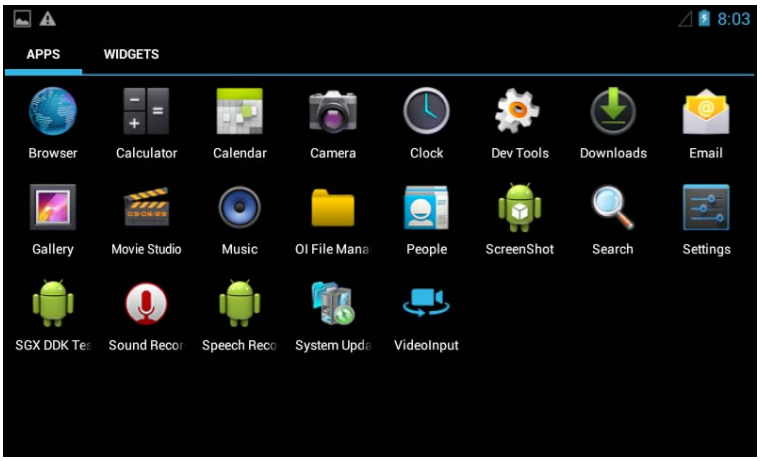


Figure 4-5: Launcher Page

4.3.3 Arrange 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 4-6: Move and Trash Item on Home Screen

4.3.4 Function Menu

The home screen function menu bar appears when pressing the **Menu** button. The menu bar is shown in **Figure 4-7** and described in **Table 4-3**.

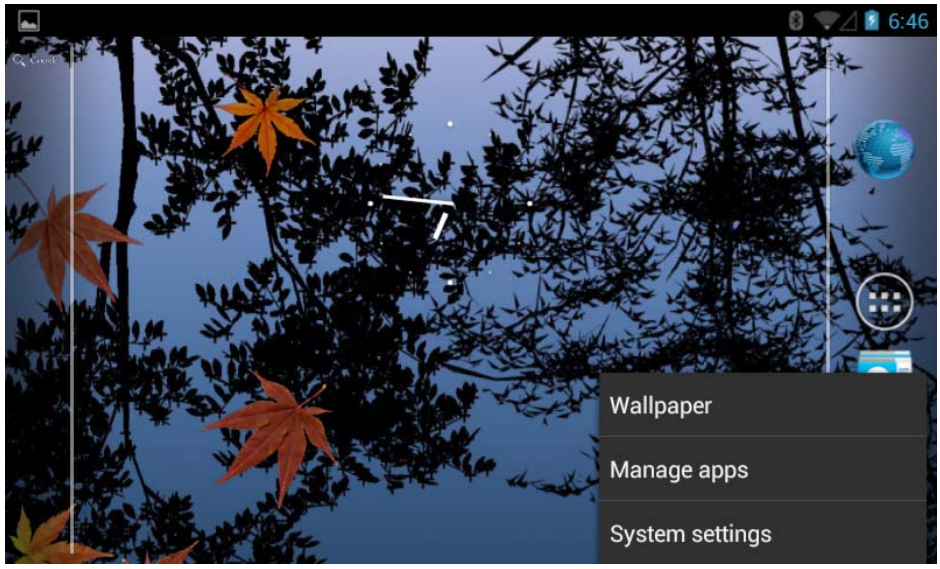


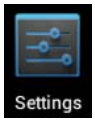
Figure 4-7: Home Screen Function Menu

Buttons	Description
Wallpaper	Change wallpaper of the home screen.
Manage apps	Manage all apps installed in the system. The functions include uninstall, force stop, clear data, move to SD card and clear cache, etc..
System Settings	Press to bring up the Settings menu. The detail information is described in Section 4.4.

Table 4-3: Function Buttons

4.4 Settings

The Settings menu allows configuration to the IKARPC-07A-A8, such as Wi-Fi, volume, screen brightness, etc. To enter the Settings menu, tap **Settings** on the launcher page.



4.4.1 WIRELESS & NETWORKS

Figure 4-8: 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.

4.4.1.1 More Settings

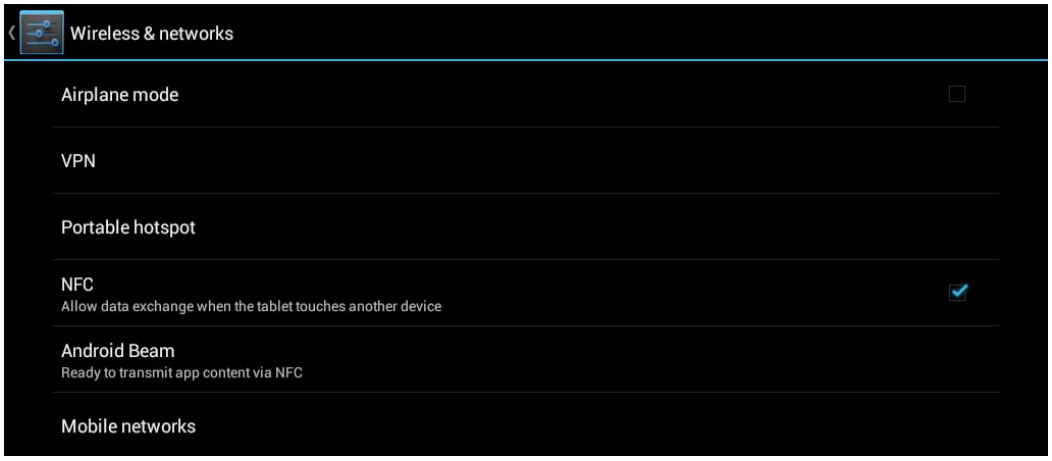


Figure 4-9: More Settings Menu

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).
- **Portable hotspot**:
  Allows the user to set this device as a portable Wi-Fi hotspot and configure the hotspot settings.
- **NFC**:
  Turns on or off the NFC function.
- **Android Beam**:
  This item is available only when the NFC function is turned on. Enabling this feature allows the user to beam app content to another NFC-capable device.
- **Mobile networks**:
  Configures the mobile network settings.

4.4.2 Sound

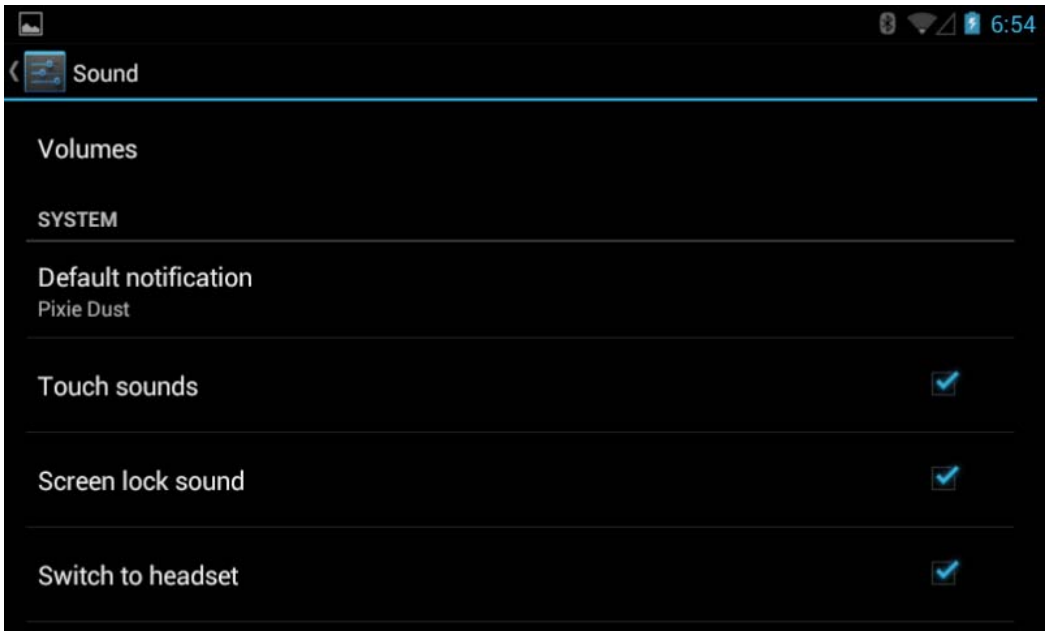


Figure 4-10: Sound Menu

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.
- **Switch to headset**:
  Enables to play sounds through the headset connected to the audio line-out connector of the IKARPC-07A-A8.

4.4.3 Display

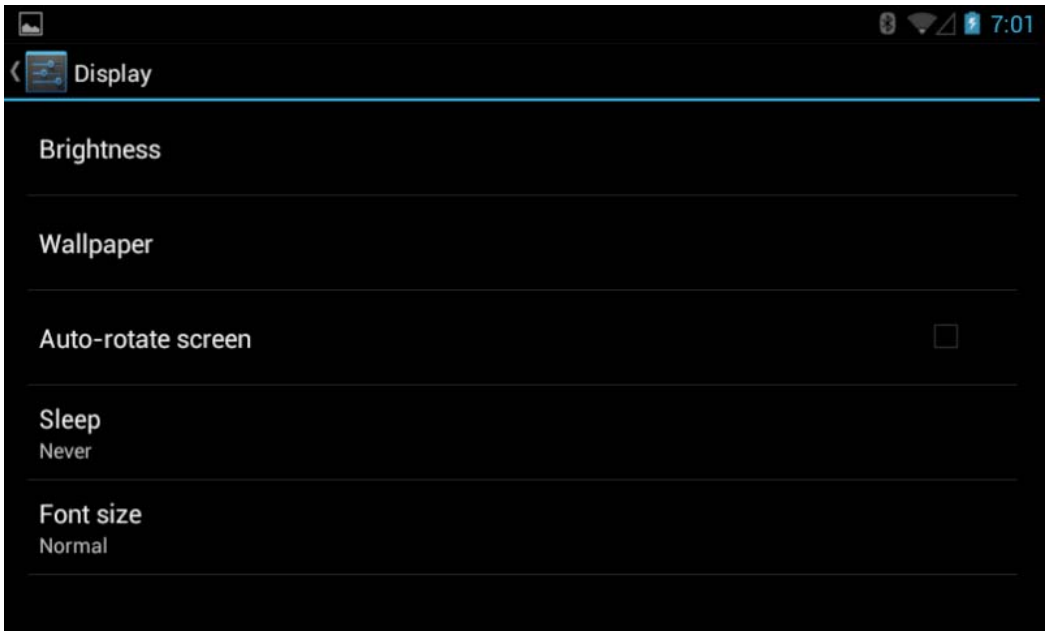


Figure 4-11: Display Menu

Use the Display menu to configure the following items.

- **Brightness**:
  Adjusts the screen brightness.
- **Wallpaper**:
  Sets up the wallpaper.
- **Auto-rotate screen**:
  The auto-rotate screen function is not supported by the IKARPC-07A-A8 .
- **Sleep**:
  Sets up the time of inactivity after which the screen turns to sleep mode.
- **Font size**:
  Sets up the font size.

4.4.4 Storage

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

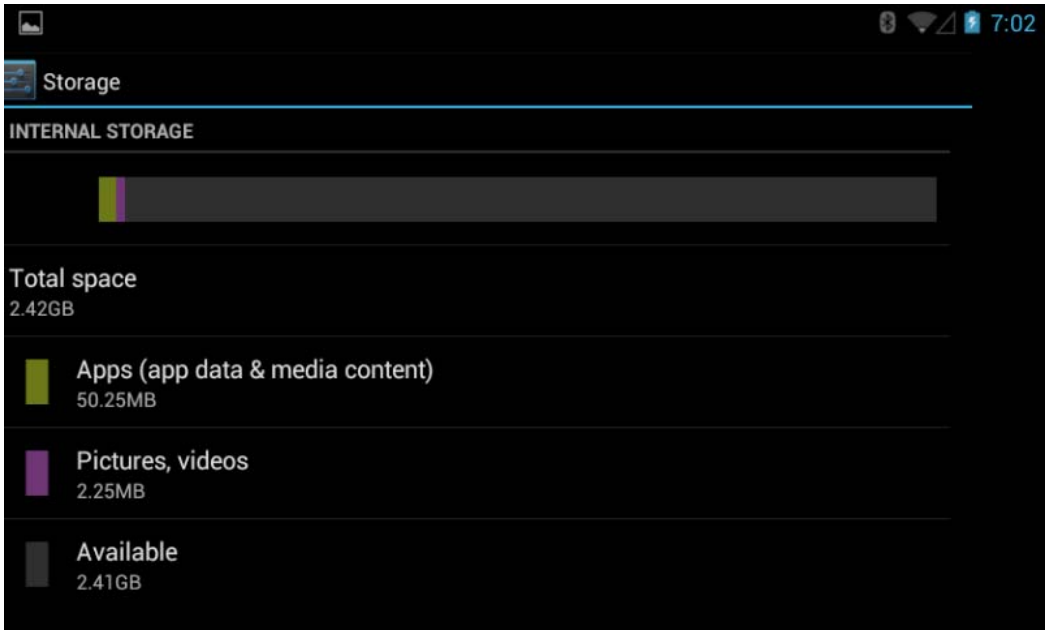


Figure 4-12: Storage Menu

4.4.5 Apps

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

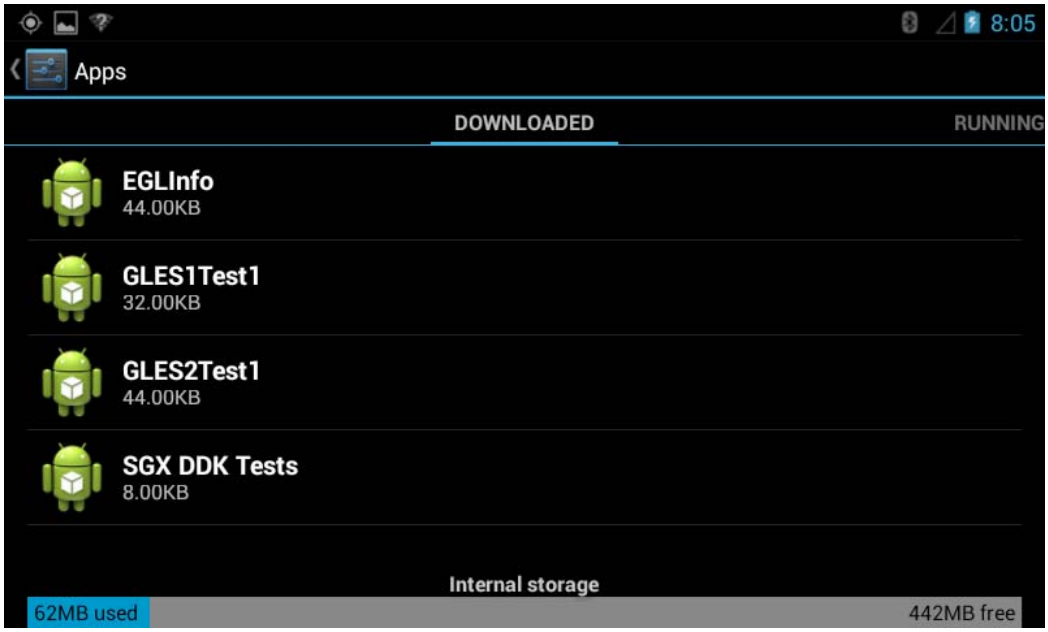


Figure 4-13: Apps Menu

4.4.6 Location Access

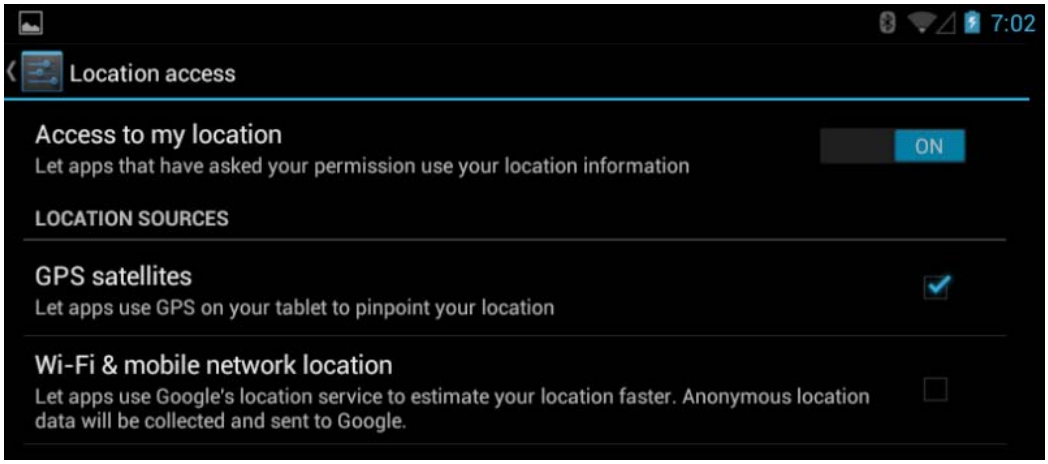


Figure 4-14: Location Access Menu

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.

4.4.7 Security

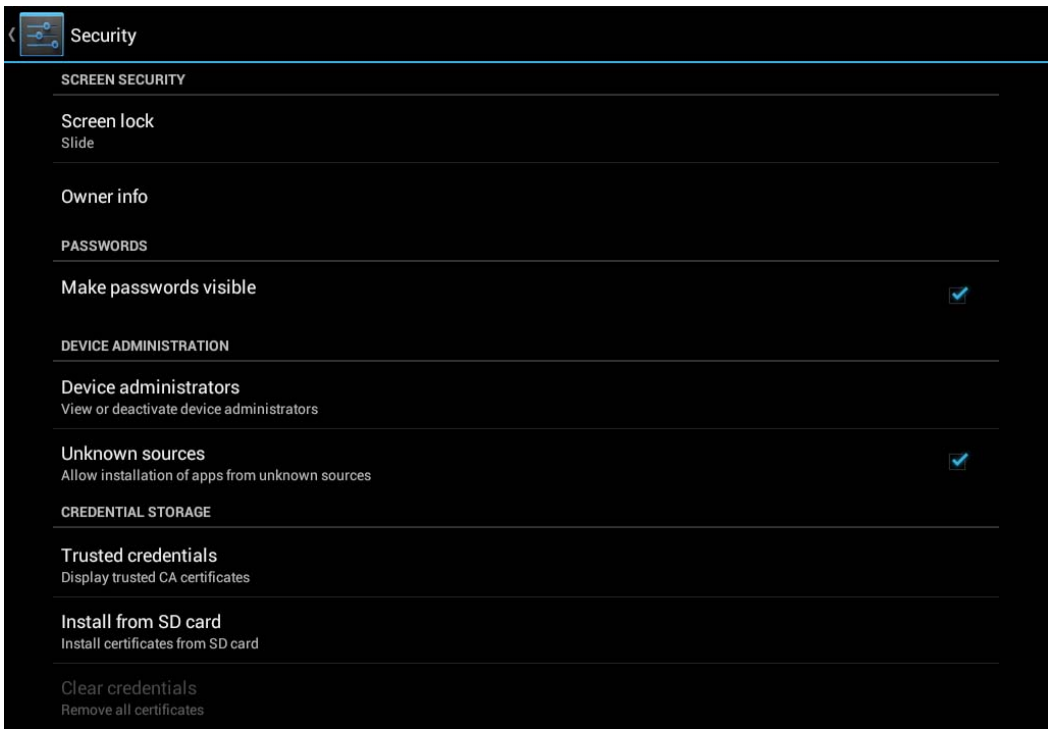


Figure 4-15: Security Menu

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.
- **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.

4.4.8 Language & Input

Figure 4-16: Language & Input Menu

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

- **Language**:
  Sets up the language for IKARPC-07A-A8.
- **Spell checker**:
  Allows the user to enable the spell checking 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.

4.4.9 Backup & Reset

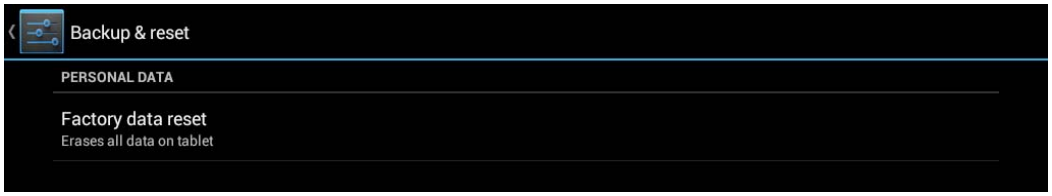


Figure 4-17: Backup & Reset Menu

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

- **Factory data reset**:
  Erases all data from the internal storage of the IKARPC-07A-A8.

4.4.10 Add account

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

Figure 4-18: Add Account Menu

4.4.11 Date & Time

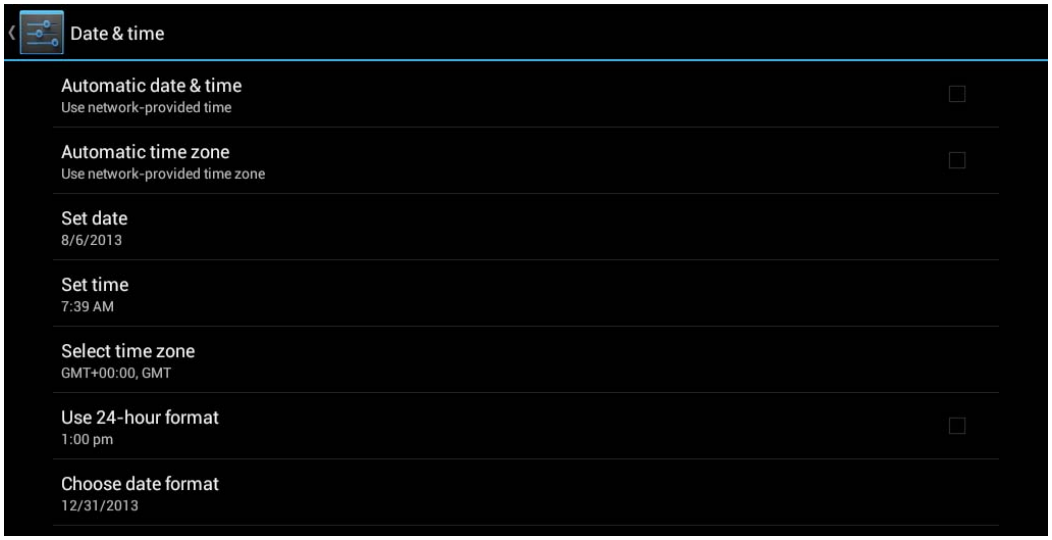


Figure 4-19: Date & Time Menu

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

- **Automatic date & time**:
  Turns on to use the network-provided time.
- **Automatic time zone**:
  Turns on to use the network-provided time zone.
- **Set date**:
  Sets up the date.
- **Set time**:
  Sets up the time.
- **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.

4.4.12 Accessibility

Figure 4-20: Accessibility Menu

Use the Accessibility menu to configure the following items.

- **Large text**:
  Turns on to use large text.
- **Auto-rotate screen**:
  Turns on or off the auto-rotate function of the screen.
- **Speak passwords**:
  Turns on or off the speak password fucntion.
- **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.

4.4.13 Developer Options

The Developer options menu contains several settings for development use only which may cause the device and the applications on the system to break or misbehave. Be cautious prior changing these settings. The items in this menu can be configured only when the **Developer options** is enabled (**Figure 4-21**).

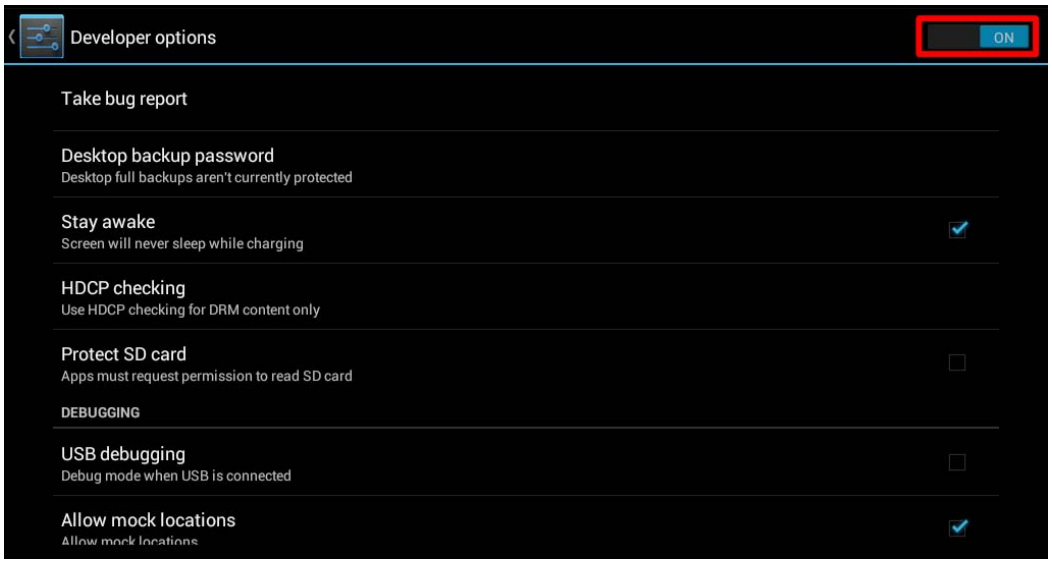


Figure 4-21: Developer Options Menu

4.4.14 About Tablet

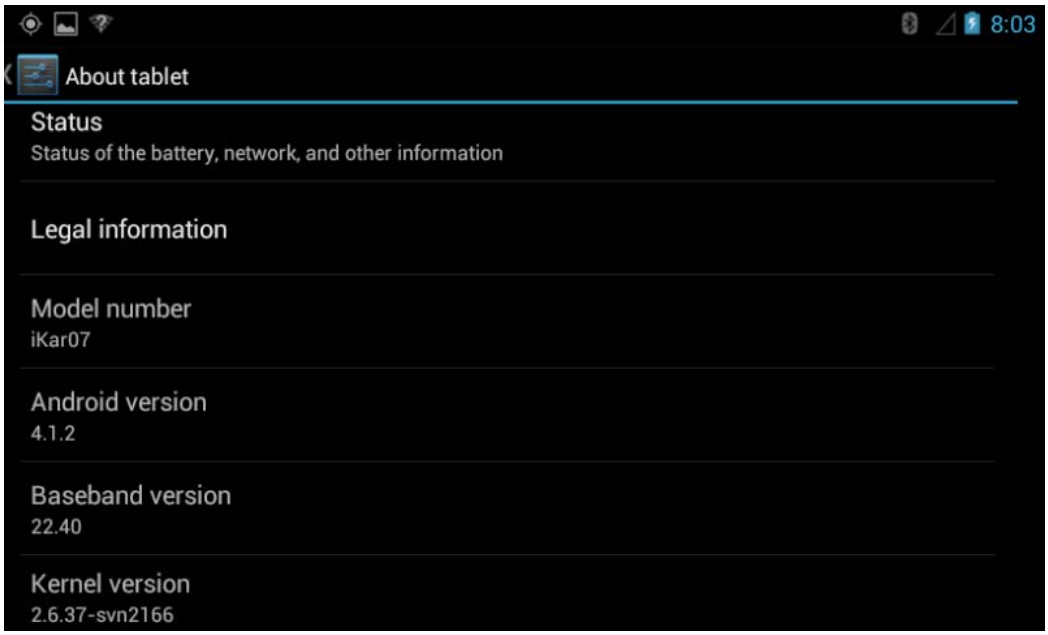


Figure 4-22: About Tablet Menu

Use the About tablet menu to display the following items.

- **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.
- **Baseband version**:
  Displays the baseband version.
- **Kernel version**:
  Displays the kernal version.
- **Build number**:
  Displays the device build number.

4.5 File Manager

The IKARPC-07A-A8 provides a file management tool that allows users to manage files in the internal storage and external storage devices. Tap **OI File Manager** on the application page to launch it.

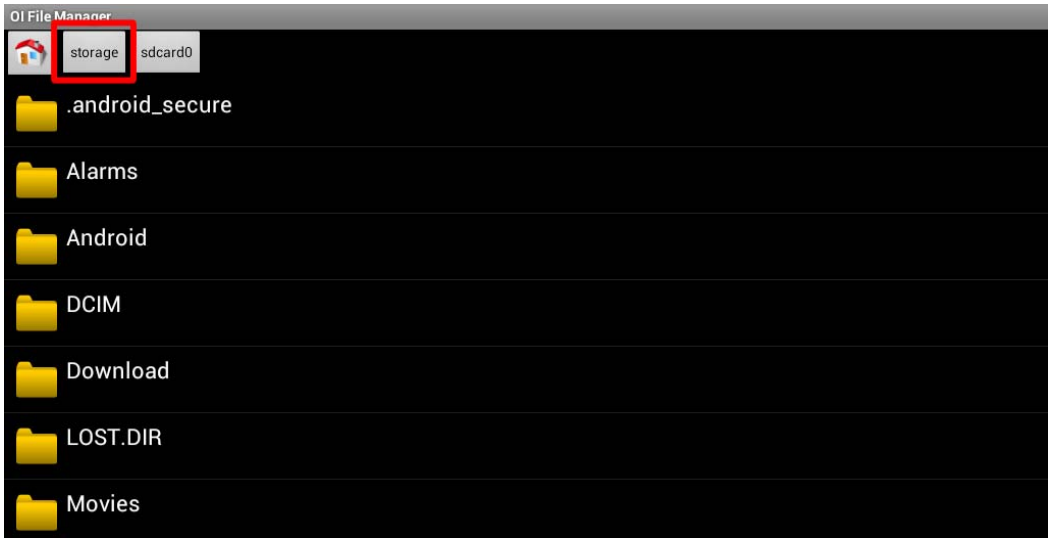


Figure 4-23: OI File Manager

Tap **storage** (**Figure 4-23**) to view all the possible storage devices listed below.

- **sdcard0**: Internal storage of the IKARPC-07A-A8
- **sdcard1**: SD card connected to the IKARPC-07A-A8
- **usb1**: USB storage device connected to the USB host connector on the left side panel. Refer to Figure 1-6 for the connector location.
- **usb2**: USB storage device connected to the USB host connector on the right side panel. Refer to Figure 1-6 for the connector location.
- **usb3**: USB storage device connected to the USB connector from 20-pin connector on the rear panel. Refer to Figure 1-5 for the connector location.

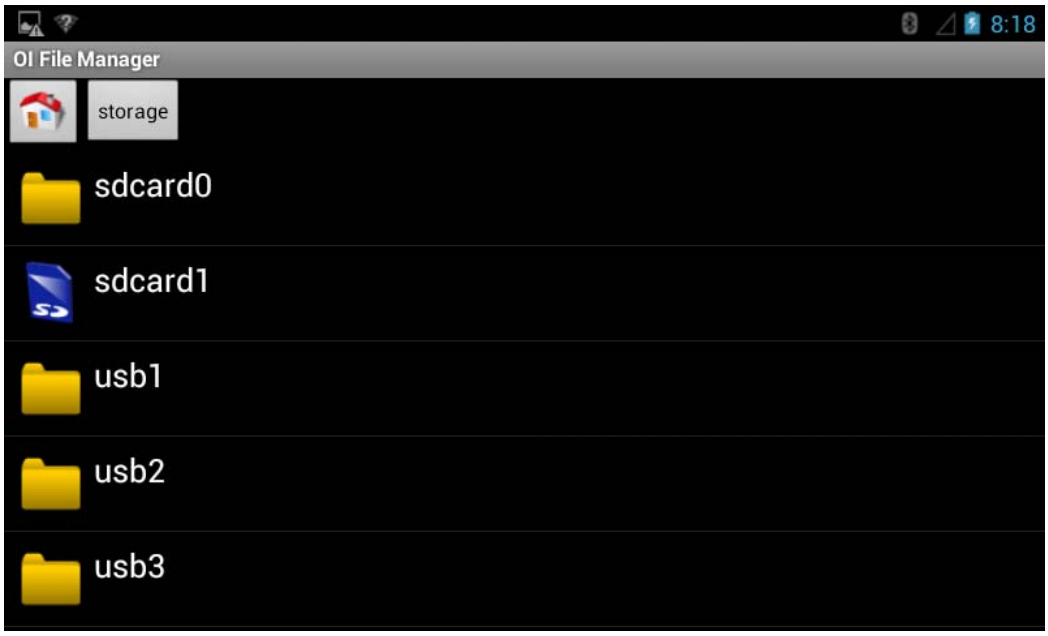
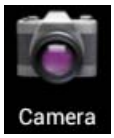


Figure 4-24: Possible Storage Devices

Tap a storage device to display its contents if available.

4.6 Camera

The IKARPC-07A-A8 equips with a 2-megapixel front camera. Tap **Camera** on the Launcher page to launch it.



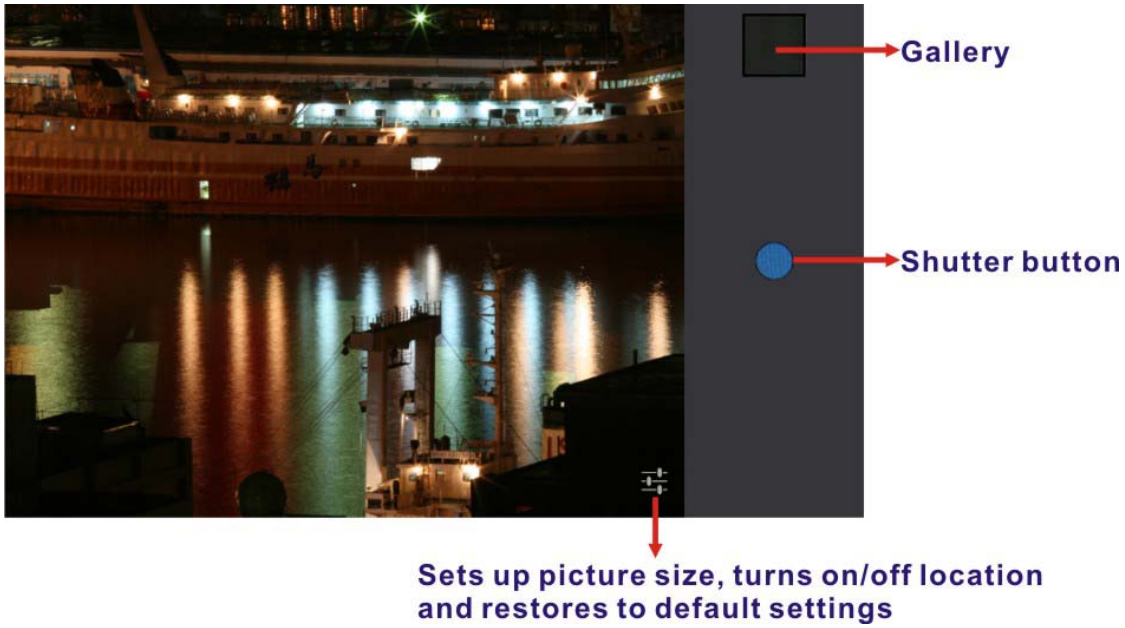


Figure 4-25: Camera Application

4.7 RFID Reader

There is a RFID reader on the front panel (**Figure 1-2**). To use the RFID reader, follow the steps below.

Step 1: Go to **Settings > Wireless & networks**, and tap **NFC** to turn on the RFID function.

Step 2: On the Launcher page, tap **NFC Demo** to open the RFID application.

Figure 4-26: RFID Application

Step 3: Use the RFID reader to read a RFID card, then the card number will be shown in the TAG Information column (**Figure 4-27**).

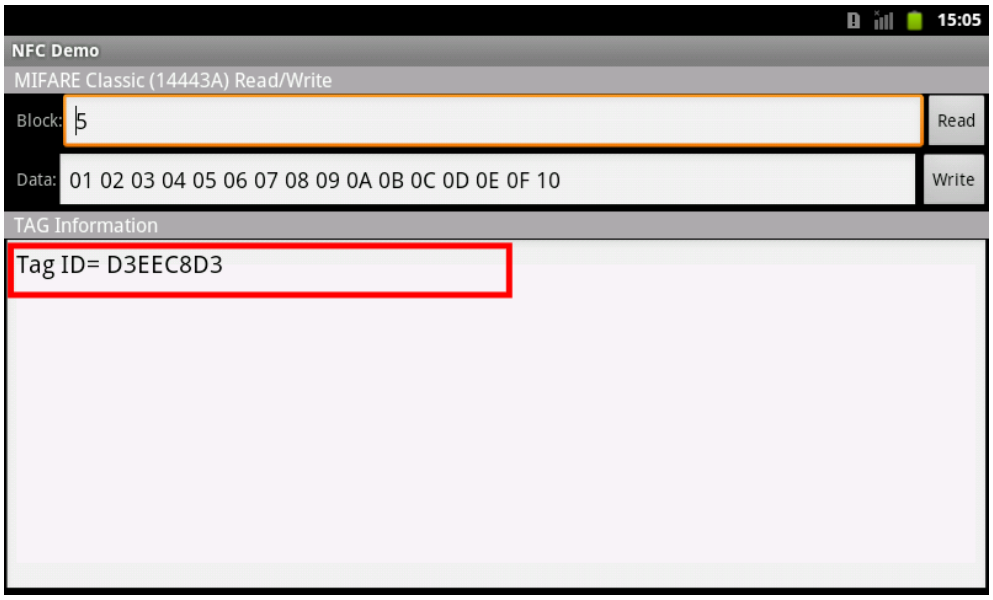


Figure 4-27: Tag Information

4.8 GPS

The IKARPC-07A-A8 is preinstalled with a GPS evaluation application which can evaluate the GPS receiver performance, and visualize the location data and GPS status. To launch the application, tap **u-center** on the Launcher page.

The application includes five screens that display the below information:

- Satellite location and signal strength
- Main satellite information in cockpit view
- Current location in world map view
- NMEA messages from the GPS receiver
- Basic information from each satellite

Slide your finger on the IKARPC-07A-A8 screen to switch between the five screens.

4.8.1 Satellite Location and Signal Strength

This screen allows users to check the number of satellite currently acquired and their relative signal strength. The user can double-tap either diagram to zoom them to full screen view.

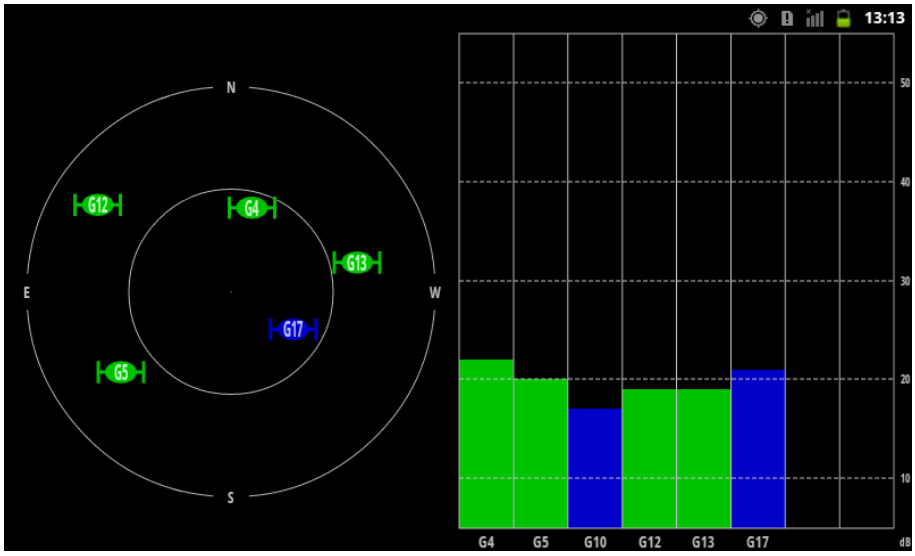


Figure 4-28: Satellite Location and Signal Strength

The satellite color coding is listed below.

Satellite Color	Description
Green	Satellite used in navigation
Blue	Satellite signal available, not available for use in navigation
Cyan	Satellite signal available, available for use in navigation
Red	Satellite signal not available

Table 4-4: Satellite Color Coding

4.8.2 Main Satellite Information in Cockpit View

This screen displays a summary of the main satellite and sensor data information in a cockpit-like interface.

The user can double-tap either diagram to zoom them to full screen view.

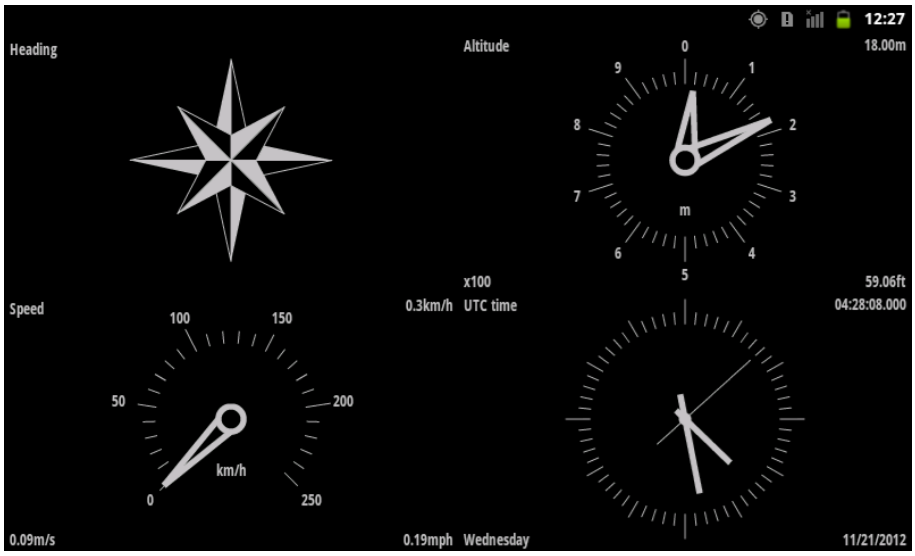


Figure 4-29: Main Satellite Information in Cockpit View

4.8.3 Current Location in World Map View

This screen displays a comprehensive world map with current location shown by the green crosshairs. Besides, the latitude and longitude coordinates of the current location are shown in three different formats:

- Degrees/minutes/seconds

- Degrees/minutes
- Degrees (with fractions in decimal)

The information of the measurement accuracy (in meters) is displayed on the bottom of the screen.

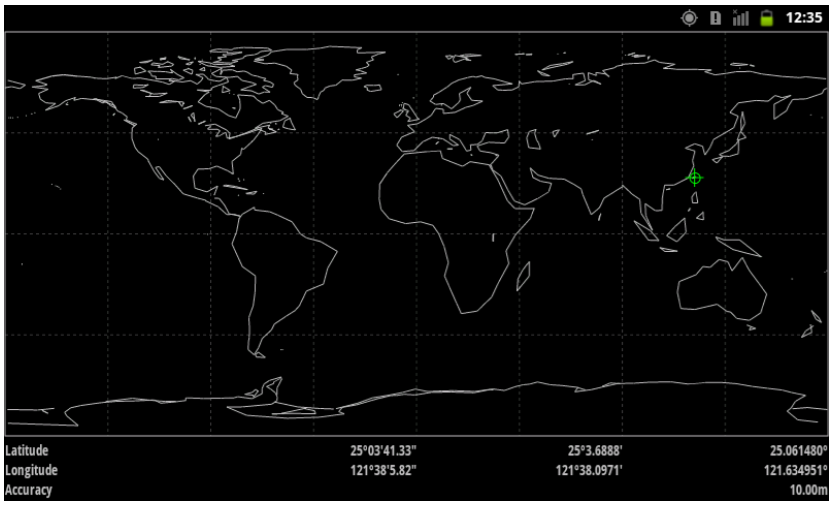


Figure 4-30: Current Location in World Map View

4.8.4 NMEA Messages from the GPS Receiver

This screen displays the NMEA messages from the GPS receiver.

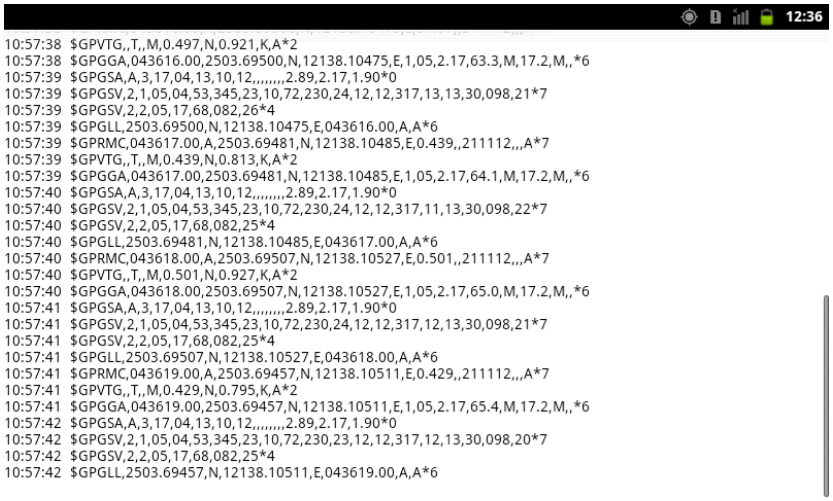


Figure 4-31: NMEA Messages

4.8.5 Basic Information from Each Satellite

This screen displays the basic information from each satellite.

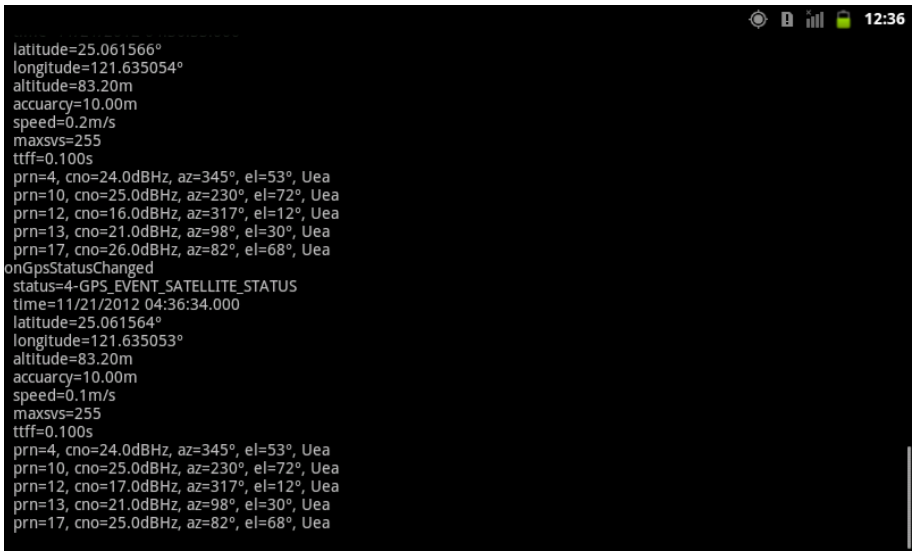


Figure 4-32: Basic Information from Each Satellite

4.8.6 Preferences Menu

The Preferences menu allows the users to customize the GPS application settings. To enter the Preferences menu, tap the Menu key (**Figure 1-3**) when the application is activated, and then tap **Preferences**.

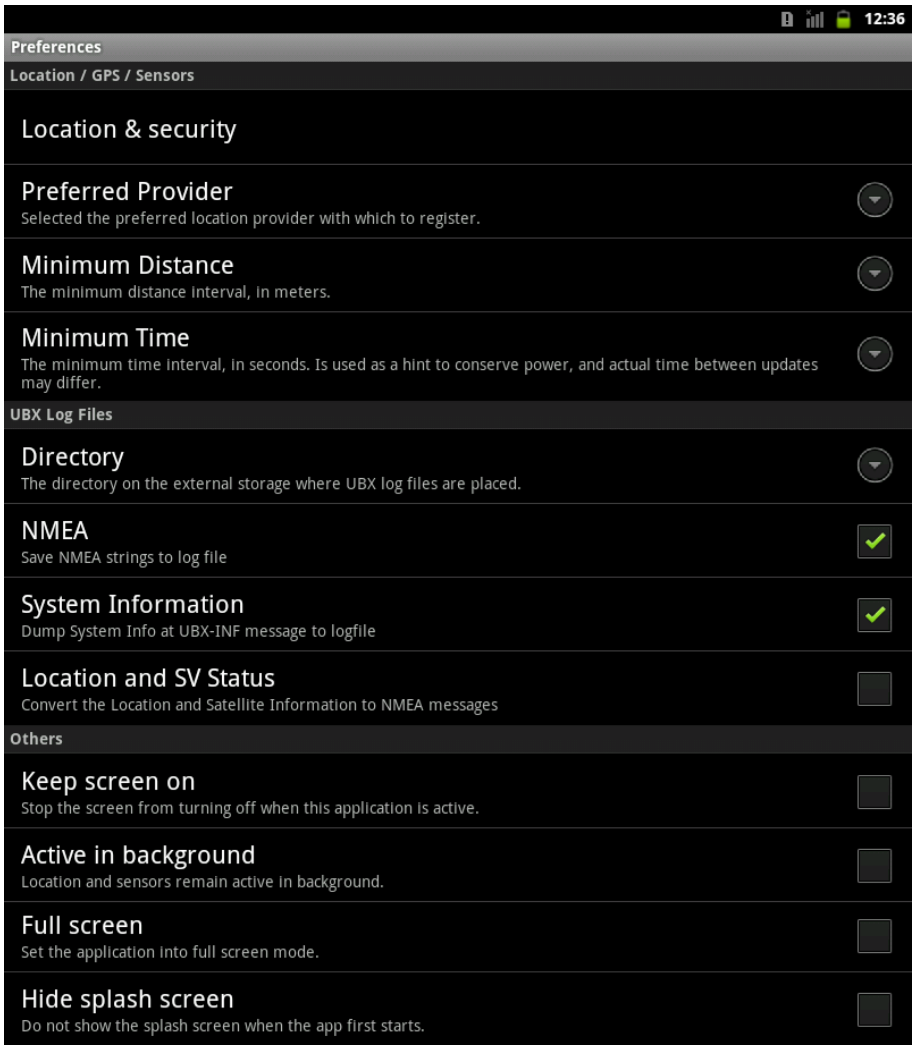


Figure 4-33: Preferences Menu

Use the Preferences menu to configure the following items.

- **Location & security**:

  Refer to **Section 4.4.4** for details.
- **Preferred Provider**:

  Sets to **GPS** to correctly use of this application.
- **Minimum Distance**:

  Sets up the minimum distance interval expressed in meters.
- **Minimum Time**:

  Sets up the minimum time interval expressed in seconds.

- **Directory**:
  Sets up the directory on the external storage for storing the UBS log files.
- **NMEA**:
  Turns on to save NMEA strings to log file.
- **System Information**:
  Turns on to dump the system information at UBX-INF messages to log file.
- **Location and SV Status**:
  Turns on to convert the location and satellite information to NMEA messages.
- **Keep screen on**:
  Turns on to prevent the IKARPC-07A-A8 screen from turning off while the application is running.
- **Active in background**:
  Turns on to let the location and sensors remain in background.
- **Full screen**:
  Turns on to set the application into full screen mode.
- **Hide splash screen**:
  Turns on to hide the splash screen when the application starts up.

4.9 System Update

If there is a newer version of OS or firmware available, please follow the steps below to update the system.

Step 1: Save the update file to a SD card. Insert the SD card to the IKARPC-07A-A8.
See **Section 3.4** for the SD card installation instruction.

Step 2: Access the Launcher page and click **System Update**.

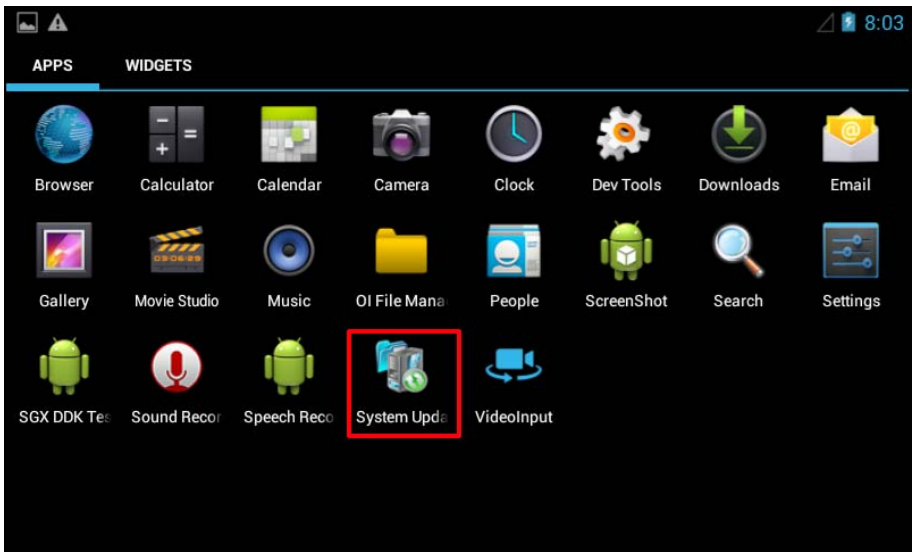


Figure 4-34: System Update Icon

Step 3: The System Update page shows. Click the **Browse Storage** button.

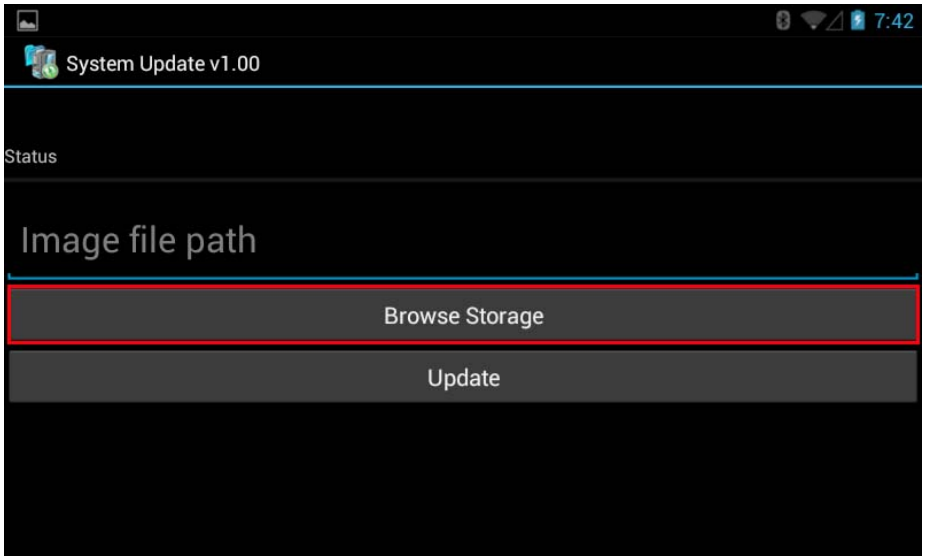


Figure 4-35: System Update-Browse Storage

Step 4: The Choose File menu prompts. Select **sdcard1**.

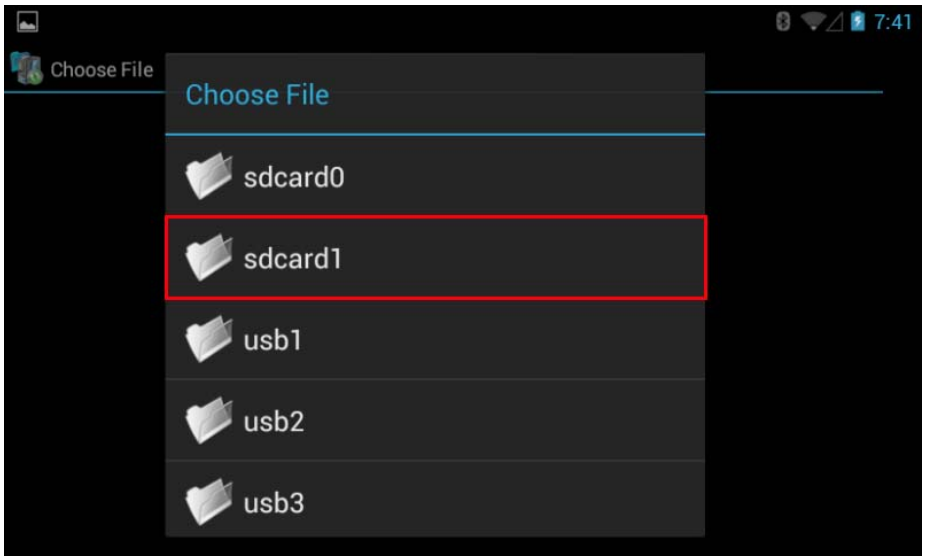


Figure 4-36: System Update-Select SD Card

Step 5: Select the update file.

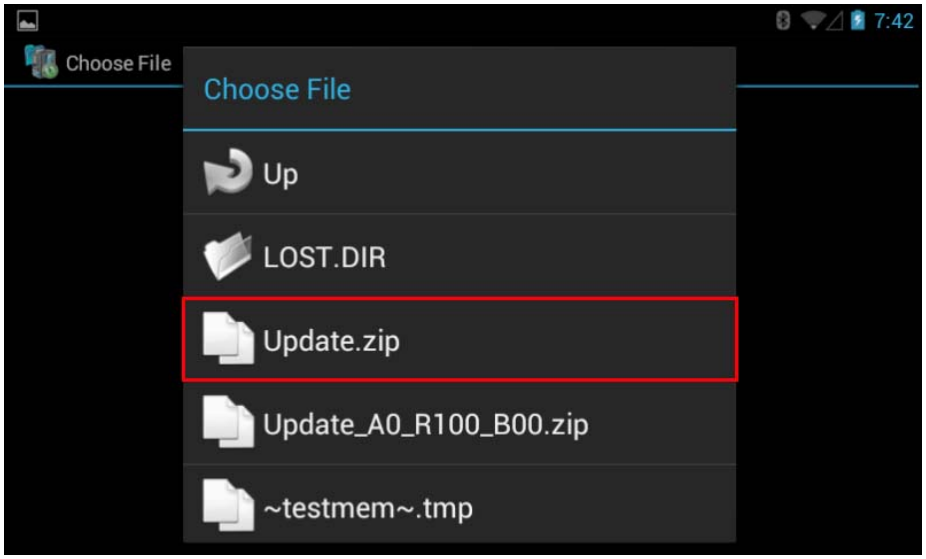


Figure 4-37: System Update-Select File

Step 6: Click the **Update** button to start updating the system. Please reboot the system after the system update is complete.

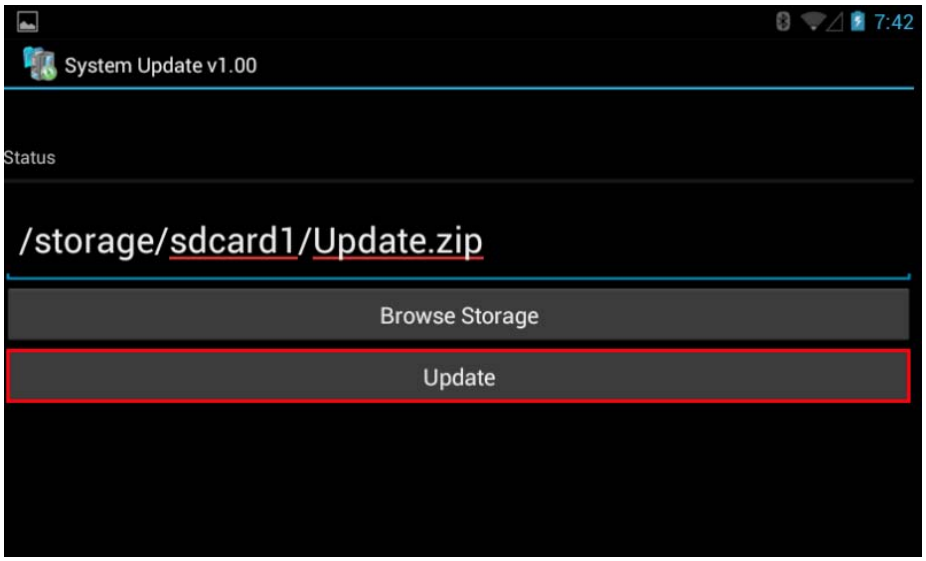


Figure 4-38: System Update-Update

Chapter

5

Interface Connectors

5.1 Peripheral Interface Connectors

The motherboard of the IKARPC-07A-A8 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.

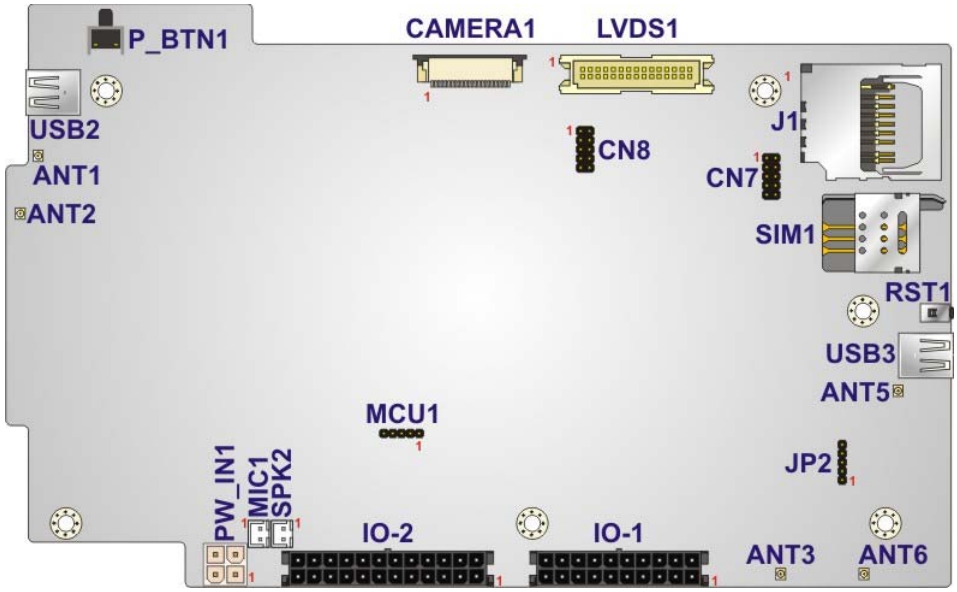


Figure 5-1: Main Board Layout Diagram (Front Side)

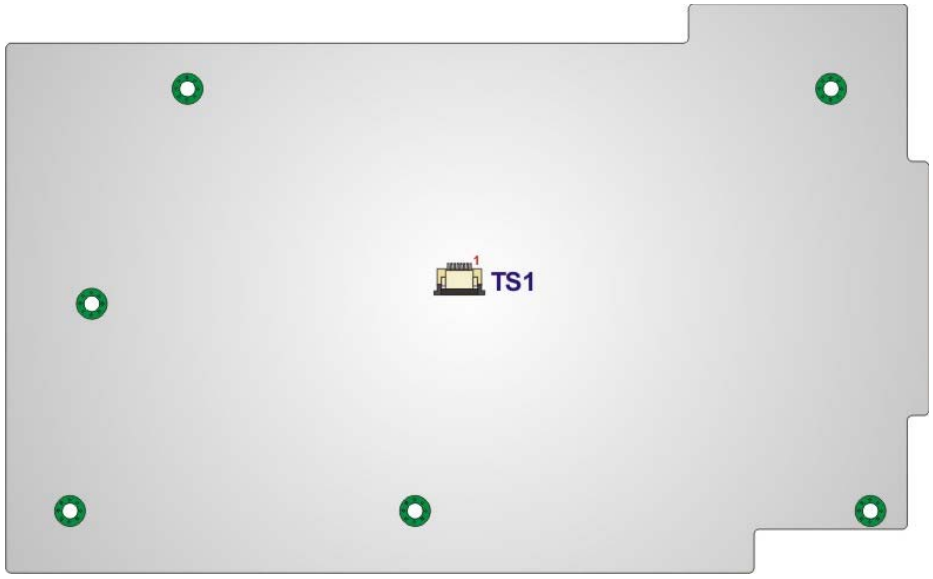


Figure 5-2: Main Board Layout Diagram (Solder Side)

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 IKARPC-07A-A8 motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
3.75G antenna connector	Antenna connector	ANT5
Camera connector	24-pin FPC	CAMERA1
GPS antenna connector	Antenna connector	ANT1
LVDS connector	30-pin crimp	LVDS1
Microphone connector	2-pin wafer	MIC1
Power button	Push button	P_BTN1
Power input connector	4-pin Molex	PW_IN1
Programming connector	5-pin header	MCU1 JP2 CN7 CN8
Reset button	Push button	RST1
RFID antenna connector	Antenna connector	ANT3 ANT6
SD card socket	SD card socket	J1
SIM card socket	SIM card socket	SIM1
Speaker connector	2-pin wafer	SPK2
Touch panel connector	8-pin FPC	TS1
USB ports	External USB port	USB2 USB3
Wi-Fi antenna connector	Antenna connector	ANT2

Table 5-1: Peripheral Interface Connectors

5.2.1 Camera Connector (CAMERA1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	13	MCLK
2	GND	14	D8
3	SDATA	15	GND
4	2.8V	16	D7
5	SCLK	17	PCLK
6	RST#	18	D6
7	VSYNC	19	D2
8	PD	20	D5
9	HSYNC	21	D3
10	1.8V	22	D4
11	1.8V	23	D1
12	D9	24	D0

Table 5-2: Camera Connector (CAMERA1) Pinouts

5.2.2 LVDS Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	LVDS_DAP0	4	LVDS_DAN0
5	LVDS_DAP1	6	LVDS_DAN1
7	LVDS_DAP2	8	LVDS_DAN2
9	LVDS_CLKA	10	LVDS_CLKA#
11	BKL_ADJ	12	NC
13	GND	14	GND
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	GND	26	GND

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
27	VCC_LCD	28	VCC_BKL
29	VCC_LCD	30	VCC_BKL

Table 5-3: LVDS Connector (LVDS1) Pinouts

5.2.3 Microphone Connector (MIC2)

PIN NO.	DESCRIPTION
1	MIC_P
2	MIC_N

Table 5-4: Microphone Connector (MIC2) Pinouts

5.2.4 Programming Connector (CN7, CN8)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TCK	2	GND
3	TMS	4	GND
5	TDI	6	3.3V
7	TDO	8	GND
9	NC	10	NC

Table 5-5: Programming Connector (CN7, CN8) Pinouts

5.2.5 Programming Connector (MCU1, JP2)

PIN NO.	DESCRIPTION
1	MCLR
2	5V
3	GND
4	CLK
5	DATA

Table 5-6: Programming Connector (MCU1, JP2) Pinouts

5.2.6 Speaker Connector (SPK2)

PIN NO.	DESCRIPTION
1	SPK_P
2	SPK_N

Table 5-7: Speaker Connector (SPK2) Pinouts

5.2.7 Touch Panel Connector (TS1)

PIN NO.	DESCRIPTION
1	3.3V
2	GND
3	USB_DN
4	USB_DP
5	ICON1
6	ICON2
7	ICON3
8	ICON4

Table 5-8: Touch Panel Connector (TS1) Pinouts

Appendix

A

OBD-II Reader Command

A.1 Select a Chip Initial Mode: UpDate F/W or RUN F/W

- AP sends query
- F/W receives query

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Enter Boot Mode	0x31																		
Enter RUN Mode	0x30																		

A.2 Boot Mode

- Launch AP: P1618QP (Pic18F Bootloader)
- Baud Rate:115200

A.3 Run Mode

Any mode in Run mode

- AP sends query
- F/W receives query

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Enter OBD-II	$	M	A	0x0A	0x0D														
Enter CAN Standard V2.2.B	$	M	B	0x0A	0x0D														
Request mode & version	$	M	R	0x0A	0x0D														

F/W returns (after receiving query)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Select a mode to send	$	M	0	0x00	Ver (1) 0x10	Ver (2) 0x06	0x0A	0x0D											
Tele mode response	$	M	1	0x00	Ver (1) 0x10	Ver (2) 0x06	0x0A	0x0D											
CAN S mode response	$	M	2	0x00	Ver (1) 0x10	Ver (2) 0x06	0x0A	0x0D											
Enter Tele mode to respond	$	M	T	0x0A	0x0D														
Enter CAN S mode to respond	$	M	C	0x0A	0x0D														

A.4 Into CAN_Standard V2.2.B (CAN standard)

- AP sends query
- F/W receives query

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Sent by CAN	$	C	T	0x0A	0x0D														
Set CAN baud	$	C	B	xxx Baud	0x00 Reserved	0x0A	0x0D												
Set to send by CAN	$	C	X	0x00 Reserved	TxIDE RTR B0 B1 DLC	ID(1)	ID(2)	ID(3)	ID(4)	D1	D2	D3	D4	D5	D6	D7	D8	0x0A	0x0D
Setup menu	$	C	M	M1ID(1)	M1ID(2)	M1ID(3)	M1ID(4)	M1F1ID(1)	M1F1ID(2)	M1F1ID(3)	M1F1ID(4)	M1F2ID(1)	M1F2ID(2)	M1F2ID(3)	M1F2ID(4)	M2ID(1)	M2ID(2)	M2ID(3)	M2ID(4)
	M2F1ID(1)	M2F1ID(2)	M2F1ID(3)	M2F1ID(4)	M2F2ID(1)	M2F2ID(2)	M2F2ID(3)	M2F2ID(4)	M3F3ID(1)	M3F3ID(2)	M3F3ID(3)	M3F3ID(4)	M3F4ID(1)	M3F4ID(2)	M3F4ID(3)	M3F4ID(4)	RxIDE xxxxx	0x0A	0x0D
Read setting	$	C	R	0x0A	0x0D														
Setup read menu	$	C	G	0x0A	0x0D														

- F/W returns (after receiving query)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Set CAN baud complete	$	C	9	0x0A	0x0D														
CAN query setup	$	C	3	0x0A	0x0D														

complete																			
Menu setup complete	$	C	4	0x0A	0x0D														
Read query setup	$	C	5	xxx Baud	TxIDE RTR B0 B1 DLC	ID(1)	ID(2)	ID(3)	ID(4)	D1	D2	D3	D4	D5	D6	D7	D8	0x0A	0x0D
Read menu setup	$	C	7	M1ID(1)	M1ID(2)	M1ID(3)	M1ID(4)	M1F1ID(1)	M1F1ID(2)	M1F1ID(3)	M1F1ID(4)	M1F2ID(1)	M1F2ID(2)	M1F2ID(3)	M1F2ID(4)	M2ID(1)	M2ID(2)	M2ID(3)	M2ID(4)
	M2F1ID(1)	M2F1ID(2)	M2F1ID(3)	M2F1ID(4)	M2F2ID(1)	M2F2ID(2)	M2F2ID(3)	M2F2ID(4)	M3F3ID(1)	M3F3ID(2)	M3F3ID(3)	M3F3ID(4)	M3F4ID(1)	M3F4ID(2)	M3F4ID(3)	M3F4ID(4)	RxIDE xxx xxxx	0x0A	0x0D
Read CAN complete	$	C	6	xxx Baud	IDE RTR B0 B1 DLC	ID(1)	ID(2)	ID(3)	ID(4)	D1	D2	D3	D4	D5	D6	D7	D8	0x0A	0x0D
CAN starts query	$	C	8	0x0A	0x0D														
CAN query error	$	C	E	0x0A	0x0D														
CAN query succeed	$	C	F	0x0A	0x0D														

A.5 Into Telematics (Vehicel Information)

- F/W:Telematics
- AP: Telematics V1.005

- AP sends query
- F/W receives query

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Scan all	Z	0	0x0D																
Scan all	Z	0x0D																	
Scan OBD-II	Z	1	0x0D																
Scan J1939	Z	2	0x0D																
Scan FMS	Z	1	0x0D																
OBD-II input PID-1	A	Mode-1	Mode-2	PID-1	PID-2	0x0D													
OBD-II input PID-2	B	Mode-1	Mode-2	PID-1	PID-2	0x0D													
OBD-II input PID-3	C	Mode-1	Mode-2	PID-1	PID-2	0x0D													
OBD-II input PID-4	D	Mode-1	Mode-2	PID-1	PID-2	0x0D													
Reserved	E																		
Reserved	F																		
Reserved	G																		

Reserved	H																		
J1939 input PSPF	I	P -1	P -2	P -1	P -2	0x0 D													
FMS input PSPF	J	P -1	P -2	P -1	P -2	0x0 D													
Version	Y	0x0 D																	

- F/W returns (after receiving query)

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
No device is scanned																			
Devices Scanned																			

OBD packet format (ASCII code)
OBD packet has five different format, they are: 1. CAN 11bits 250 2. CAN 29bits 250 3. CAN 11bits 500 4. CAN 29bits 500 5.Scanning Each format has its input code, they are: CAN 11bits 250: A CAN 29bits 250: B CAN 11bits 500: C CAN 29bits 500: D Scanning: Z
Example 1: To get PID=0104 from CAN 29bits 500 format Input: D0104+CR (Use ASCII code as the input format of the firmware) Output: CAN 29bits 500,0104 18DAF111 08 0241040000000000+LF+CR (Use ASCII code as the input format of the firmware) ID number Key-in value ID Len Data Other Information: Data include eight different bytes Byte 1: Data include some return information. For example, 1. 18DAF110 08 064100BE1B301300 Byte1 is 06 followed by six non-zero values. 2. 18DAF110 08 034104320000000 Byte1 is 03 followed by three non-zero values. Byte 2: Mode is related with the Key-in value. For example: 0104 18DAF110 08 034104320000000 Key-in value is 01, Byte 2 value will change to 41. The main difference is: 0 means to send out by query side, 4 means to send out by receiver side Byte 3: PID is the same with the Key-in value. For example: 0104 18DAF110 08 034104320000000 Key-in value is 04, Byte 3 value will be 04.

Byte 4 define as A. (same with the PID code table on Wikipedia)

Byte 5 define as B. (same with the PID code table on Wikipedia)

Byte 6 define as C. (same with the PID code table on Wikipedia)

Byte 7 define as D. (same with the PID code table on Wikipedia)

As shown below:

01	24	4	O2S1_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	((A*256)+B)/32768 ((C*256)+D)/8192
01	25	4	O2S2_WR_lambda(1): Equivalence Ratio Voltage	0 0	2 8	N/A V	((A*256)+B)/32768 ((C*256)+D)/8192

Example 2: To Scan

Input: Z+CR (Use ASCII code as the input format of the firmware)

Output: CAN 11bits 250,1 NO SUPPORT+LF+CR

CAN 29bits 250,2 NO SUPPORT+LF+CR

CAN 11bits 500,3 NO SUPPORT+LF+CR

CAN 29bits 500,4 SUPPORT+LF+CR

(Use ASCII code as the input format of the firmware)

Appendix

B

Watchdog Timer

NOTE:

The following discussion applies to DOS. Contact IEI support or visit the IEI website for drivers for other operating systems.

The Watchdog Timer is a hardware-based timer that attempts to restart the system when it stops working. The system may stop working because of external EMI or software bugs. The Watchdog Timer ensures that standalone systems like ATMs will automatically attempt to restart in the case of system problems.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table B-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

The Watchdog Timer is activated through software. The software application that activates the Watchdog Timer must also deactivate it when closed. If the Watchdog Timer is not deactivated, the system will automatically restart after the Timer has finished its countdown.

EXAMPLE PROGRAM:

```
; INITIAL TIMER PERIOD COUNTER

;
W_LOOP:
;

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT     15H

;
; ADD THE APPLICATION PROGRAM HERE
;

        CMP     EXIT_AP, 1      ;is the application over?
        JNE     W_LOOP          ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0;
        INT     15H

;
; EXIT ;
```

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。						