

# **SA-112-N**

## **Digital Signage Player For Android**

### **User's Manual**

Version 1.1  
(July 2017)



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## Compliance

### CE

This is a class A product. In a domestic environment, this product may cause radio interference in which case users may be required to take adequate measures.

### FCC

This product has been tested and found to comply with the limits for a Class A 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 manufacturer's instructions, may cause harmful interference to radio communications.

### WEEE



This product must not be disposed of as normal household waste, in accordance with the EU directive of for waste electrical and electronic equipment (WEEE - 2012/19/EU). Instead, it should be disposed of by returning it to a municipal recycling collection point. Check local regulations for disposal of electronic products.

### Green IBASE



This product is compliant with the current RoHS restrictions and prohibits use of the following substances in concentrations exceeding 0.1% by weight (1000 ppm) except for cadmium, limited to 0.01% by weight (100 ppm).

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6+)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

## Important Safety Information

Carefully read the precautions before using the device.

### Environmental conditions:

- Lay the device horizontally on a stable and solid surface in case the device may fall, causing serious damage.
- Leave plenty of space around the device and do not block the openings for ventilation. NEVER DROP OR INSERT ANY OBJECTS OF ANY KIND INTO THE VENTILATION OPENINGS.
- Slots and openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the device for ventilation. NEVER INSERT OBJECTS OF ANY KIND INTO THE VENTILATION OPENINGS.
- Use this product in environments with ambient temperatures between -40°C and 75°C.
- DO NOT LEAVE THIS DEVICE IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -50° C OR ABOVE 85° C. This could damage the device. The device must be used in a controlled environment.

### Care for your iBASE products:

- Before cleaning the device, turn it off and unplug all cables such as power in case a small amount of electrical current may still flow.
- Use neutral cleaning agents or diluted alcohol to clean the device chassis with a cloth. Then wipe the chassis with a dry cloth.
- Vacuum the dust with a computer vacuum cleaner to prevent the air vent or slots from being clogged.



## WARNING

### Attention during use:

- Do not use this product near water.
- Do not spill water or any other liquids on your device.
- Do not place heavy objects on the top of the device.
- Operate this device from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your distributor or local power company.
- Do not walk on the power cord or allow anything to rest on it.
- If you use an extension cord, make sure that the total ampere rating of the product plugged into the extension cord does not exceed its limits.

### Avoid Disassembly

You are not suggested to disassemble, repair or make any modification to the device. Disassembly, modification, or any attempt at repair could generate hazards and cause damage to the device, even bodily injury or property damage, and will void any warranty.



## CAUTION

Danger of explosion if internal lithium-ion battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## Warranty Policy

- **IBASE standard products:**

24-month (2-year) warranty from the date of shipment. If the date of shipment cannot be ascertained, the product serial numbers can be used to determine the approximate shipping date.
- **3<sup>rd</sup>-party parts:**

12-month (1-year) warranty from delivery for the 3<sup>rd</sup>-party parts that are not manufactured by IBASE, such as CPU, memory, HDD, power adapter, panel and touchscreen.
- \* PRODUCTS, HOWEVER, THAT FAIL DUE TO MISUSE, ACCIDENT, IMPROPER INSTALLATION OR UNAUTHORIZED REPAIR SHALL BE TREATED AS OUT OF WARRANTY AND CUSTOMERS SHALL BE BILLED FOR REPAIR AND SHIPPING CHARGES.

## Technical Support & Services

1. Visit the IBASE website at [www.ibase.com.tw](http://www.ibase.com.tw) to find the latest information about the product.
2. If you need any further assistance from your distributor or sales representative, prepare the following information of your product and elaborate upon the problem.
  - Product model name
  - Product serial number
  - Detailed description of the problem
  - The error messages in text or in screenshots if there is any
  - The arrangement of the peripherals
  - Software in use (such as OS and application software, including the version numbers)
3. If repair service is required, you can download the RMA form at <http://www.ibase.com.tw/english/Supports/RMAService/>. Fill out the form and contact your distributor or sales representative.

# Table of Contents

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<b>Compliance</b> .....	<b>iii</b>
<b>Important Safety Information</b> .....	<b>iv</b>
<b>WARNING</b> .....	<b>iv</b>
<b>CAUTION</b> .....	<b>v</b>
<b>Warranty Policy</b> .....	<b>v</b>
<b>Technical Support &amp; Services</b> .....	<b>v</b>
<b>Chapter 1 General Information</b> .....	<b>1</b>
1.1 Introduction .....	2
1.2 Features.....	2
1.3 Packing List .....	3
1.4 Optional Accessories .....	3
1.5 Specifications.....	4
1.6 Overview.....	6
1.7 Dimensions .....	8
<b>Chapter 2 Installation and Motherboard Information</b> .....	<b>9</b>
2.1 Hardware Installation .....	10
2.1.1 3G / 4G Module Installation .....	10
2.1.2 VESA Mount & Wall Mount Installation.....	11
2.2 Connector Locations on Motherboard .....	12
2.3 Jumper & Connector Quick Reference Table .....	13
2.3.1 AT / ATX Power Mode Connector (P16).....	14
2.3.2 CAN Connector (P12).....	14
2.3.3 GPIO Connector (P15) .....	15
2.3.4 Mini PCIe Connector (P9).....	16
2.3.5 RTC Battery Connector (P12).....	17
2.3.6 Audio Jack (P5) .....	17
2.3.7 RJ45 Port for COM RS-232 (P13) .....	17
2.3.8 DC Jack (P3).....	18
2.3.9 HDMI Port (P10).....	18
2.3.10 Mini USB OTG Port (P8) .....	18
2.3.11 RJ45 LAN Port (P11).....	19
2.3.12 SD Card Connector (P4) .....	19
2.3.13 USB 2.0 Port (P6, P7) .....	19

2.3.14	VGA Port (P14)	20
<b>Chapter 3</b>	<b>System Setup</b>	<b>21</b>
3.1	System Quick Installation	22
3.1.1	Default Function	23
3.2	Playing Mode	24
3.3	Exit from Playing Mode	24
3.4	Bluetooth Connection	25
3.5	Firmware Update	25
3.6	Loading Factory Default	27
<b>Chapter 4</b>	<b>Content Management</b>	<b>28</b>
4.1	ADPlayer	29
4.2	Uploading and Updating Media Files	31
4.3	Editing Media Files	32
4.4	Setting up the Playing Schedule	33
<b>Appendix</b>		<b>34</b>
A.	APK Example Content	35
B.	The Protocol File of ADPlayer	35

# Chapter 1

## General Information

The information provided in this chapter includes:

- Features
- Packing List
- Specifications
- Overview
- Dimensions

## 1.1 Introduction

SA-112-N, a product code of IBASE Digital Signage Player series, is an Android platform system for general applications. It is a fanless signage player with ARM®-based Cortex® A9 i.MX6 Dual/Quad processor and outputs through HDMI or VGA. The device provides 3D graphics acceleration and supports various peripherals, such as RS-232 COM, CAN, USB, VGA and HDMI, and audio line-out. The device is able to be operated at the ambient operating temperature ranging from -40 ~ 75 °C, and even up to 85 °C for storage.



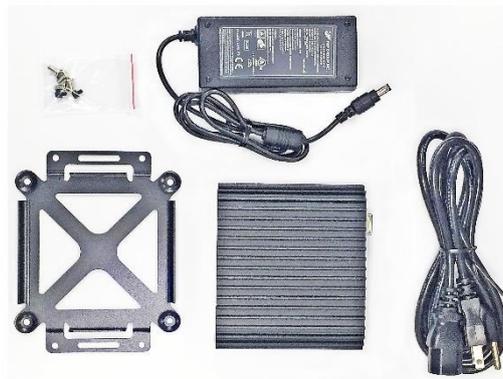
## 1.2 Features

- Freescale™ ARM®-based Cortex®-A9 i.MX6 Dual Lite Commercial 1GHz / Quad Automotive 1GHz Processor
- Built-in an eMMC NAND flash 8GB on board
- DDR3L, 1GB 533MHz (1066MT/s) on board
- Display via VGA or HDMI (without HDCP)
- Gigabit Ethernet, RS-232 COM port (RJ45 type), Mini-USB (OTG) slot, SD card storage
- CAN-based, Mini PCIe slot for 4G wireless (optional)
- 5V DC-in power input
- Ruggedized, fanless and compact design

### 1.3 Packing List

Your SA-112-N package should include the items listed below. If any of the items below is missing, contact the distributor or the dealer from whom you purchased the product.

- SA-112-N Digital Signage Player for Android
- SA-112-N Bracket
- Power Adapter
- Power Cord
- Screws (4 x M4, 2 x M3)



### 1.4 Optional Accessories

IBASE provide optional accessories as follows. Please contact us or your dealer if you need any.

- Internal GPS Cable (100 mm)
- External GPS Antenna (3G / 4G)
- COM Port Cable (150 cm)

## 1.5 Specifications

Product	SA-112-NDL	SA-112-NQC
<b>System</b>		
<b>Mainboard</b>	MBD112	
<b>Operating System</b>	Android 4.4.2 VGA or HDMI output	Android 4.4.2 VGA+HDMI or VGA or HDMI output
<b>CPU</b>	NXP / Freescale™ ARM®-based Cortex®-A9 <ul style="list-style-type: none"> <li>• i.MX6 Dual Lite Commercial 1GHz processor</li> <li>• i.MX6 Quad Automotive 1GHz Processor</li> </ul>	
<b>Chipset</b>	Integrated	
<b>Memory</b>	DDR3L 1GB 533 MHz (1066 MT/s) on board	
<b>Flash</b>	1 x eMMC 8GB on board	
<b>Graphics</b>	i.MX53 + VP6 / WebM VP8, H.264 MVC	
<b>Power Requirement</b>	5V DC-in	
<b>Power Supply</b>	25W power adapter	
<b>Watchdog</b>	Watchdog Timer 256 segments, 0, 1, 2...255 sec/min	
<b>TV Standard</b>	NTSC, PAL	
<b>Chassis</b>	Aluminum and SGCC, black & white	
<b>Mounting</b>	Standard system bracket	
<b>Dimensions (W x H x D)</b>	117 x 35.1 x 104.5 mm (4.61" x 1.38" x 4.11")	
<b>Net Weight</b>	0.5 kg (1.1 lb)	
<b>Certificate</b>	CE, FCC, cULus, CCC	
<b>I/O Ports</b>		
<b>Display</b>	1 x HDMI (up to 1920 x 1080) 1 x VGA	
<b>LAN</b>	1 x GbE RJ45	
<b>Serial Port</b>	1 x RJ45 for COM RS-232	
<b>USB</b>	2 x USB 2.0 Type A 1 x Mini-USB (OTG)	
<b>SD Card</b>	1 x SD/SDHC card slot (FAT32 and NTFS formats), up to 32 GB	
<b>Audio Jack</b>	1 x Line-out (3.5 mm)	
<b>Expansion</b>	1 x Mini PCIe (x1) slot for 4G wireless (Optional)	

<b>Media Output Format</b>	
<b>Video</b>	Up to 1920 x 1080 MPEG4, H.263, MPEG-1/2, RV8/9/10, VP8 (1280 x 720), H.264, VC-1, AVS
<b>Audio</b>	AAC, He-AAC, MP3, MP3 VBR, WAV
<b>Photo</b>	Up to 8192 x 8192 JPEG
<b>Environment</b>	
<b>Temperature</b>	<ul style="list-style-type: none"> <li>• <b>Operating:</b> -40 ~ 75 °C (-40 ~ 167 °F), without adapter</li> <li>• <b>Storage:</b> --50 ~ 85 °C (-58 ~ 185 °F)</li> </ul>
<b>Relative Humidity</b>	5 ~ 90% (non-condensing)
<b>Vibration Protection</b>	Operating, random vibration 5 grms (5~500Hz)

All specifications are subject to change without prior notice.

## 1.6 Overview

### Front View



### Rear View



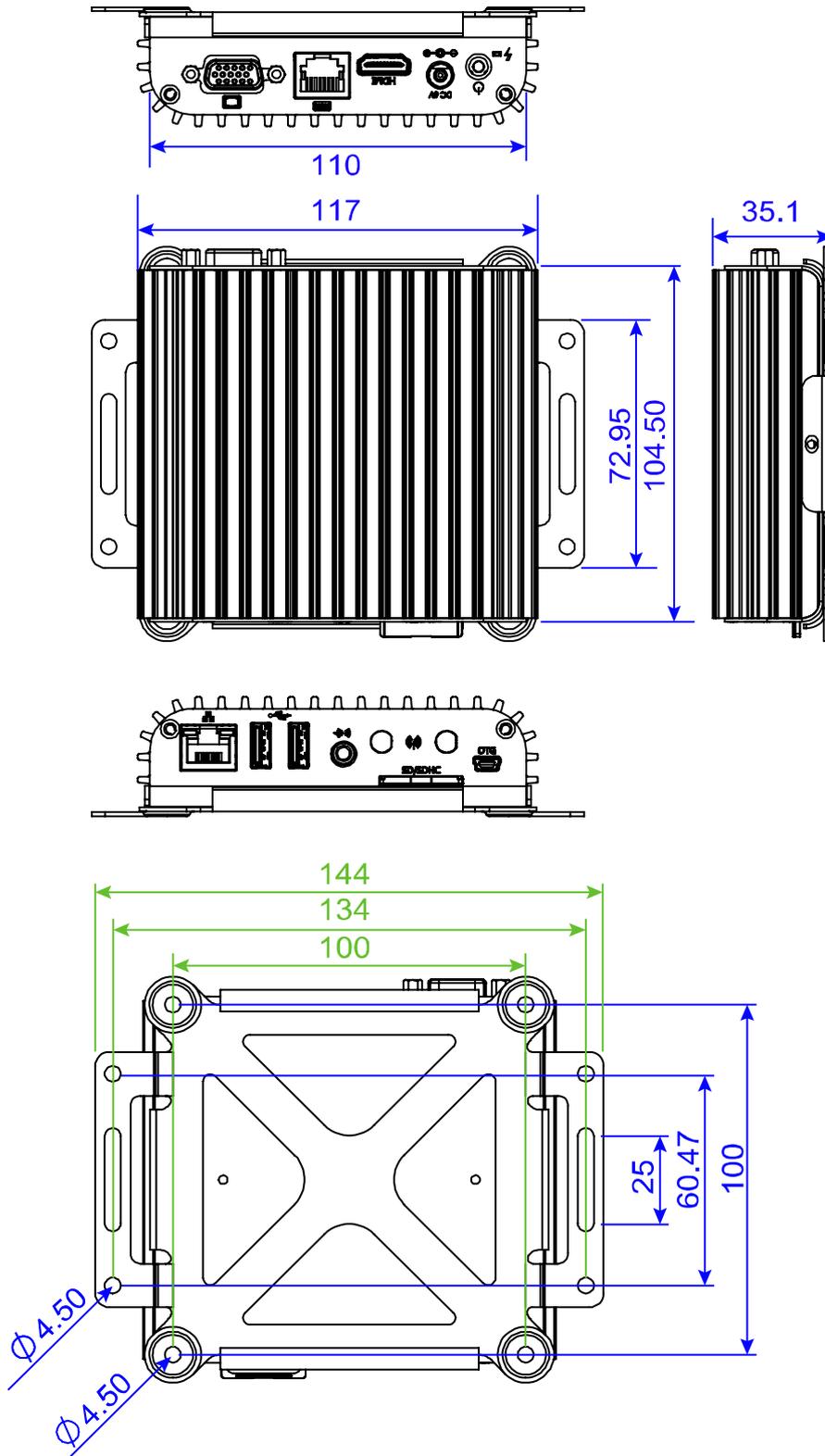
No.	Name	No.	Name
1	LED Indicators	7	LAN Port
2	Power Button	8	USB 2.0 Port
3	DC Jack	9	Audio Line Out
4	HDMI Port	10	SD Card Slot
5	RJ45 Port for COM RS-232	11	USB OTG Port
6	VGA Port	12	3G / 4G Antenna Hole

## Oblique View



### 1.7 Dimensions

Unit: mm



## **Chapter 2**

# **Installation and Motherboard Information**

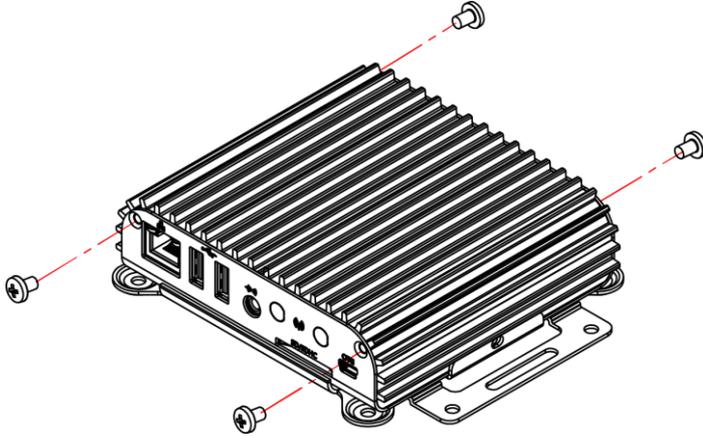
The information provided in this chapter includes:

- Hardware Installation
- Information and locations of connectors

## 2.1 Hardware Installation

### 2.1.1 3G / 4G Module Installation

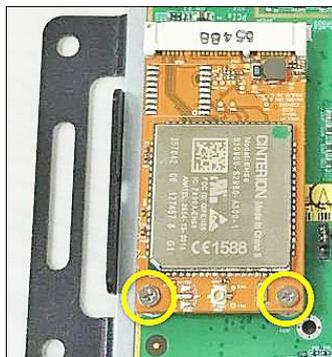
1. Remove the following 4 screws to remove the cover of SA-112-N.



2. Remove the cover, thread the 3G / 4G antenna and cable through an antenna hole and fasten the antenna.



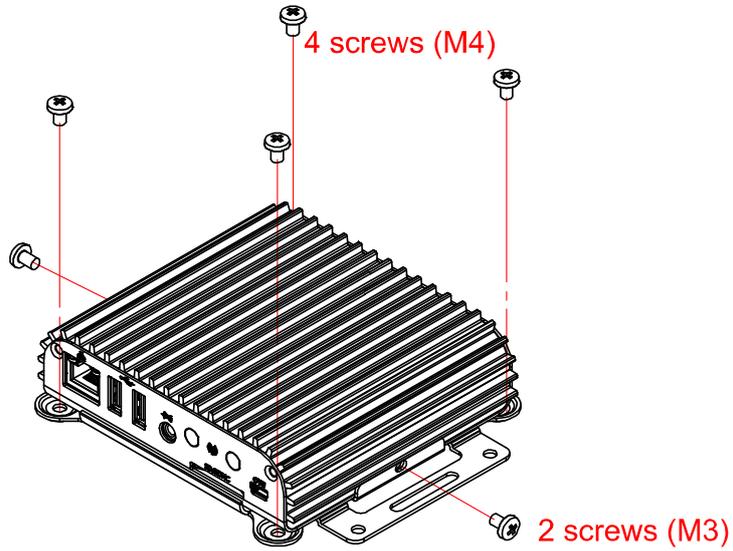
3. Install the module card into the mini-PCle slot by inserting the card slantwise. Then push it down and fasten 2 screws.



## 2.1.2 VESA Mount & Wall Mount Installation

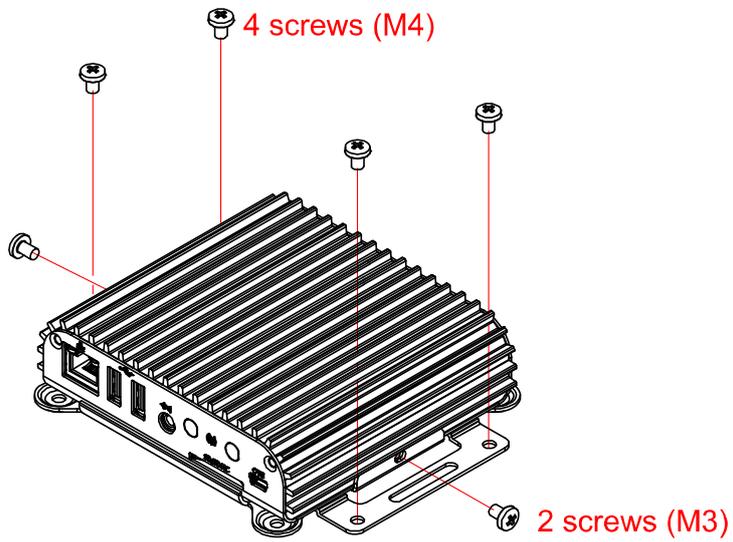
### VESA Mount

Fasten 6 screws for VESA mount installation.



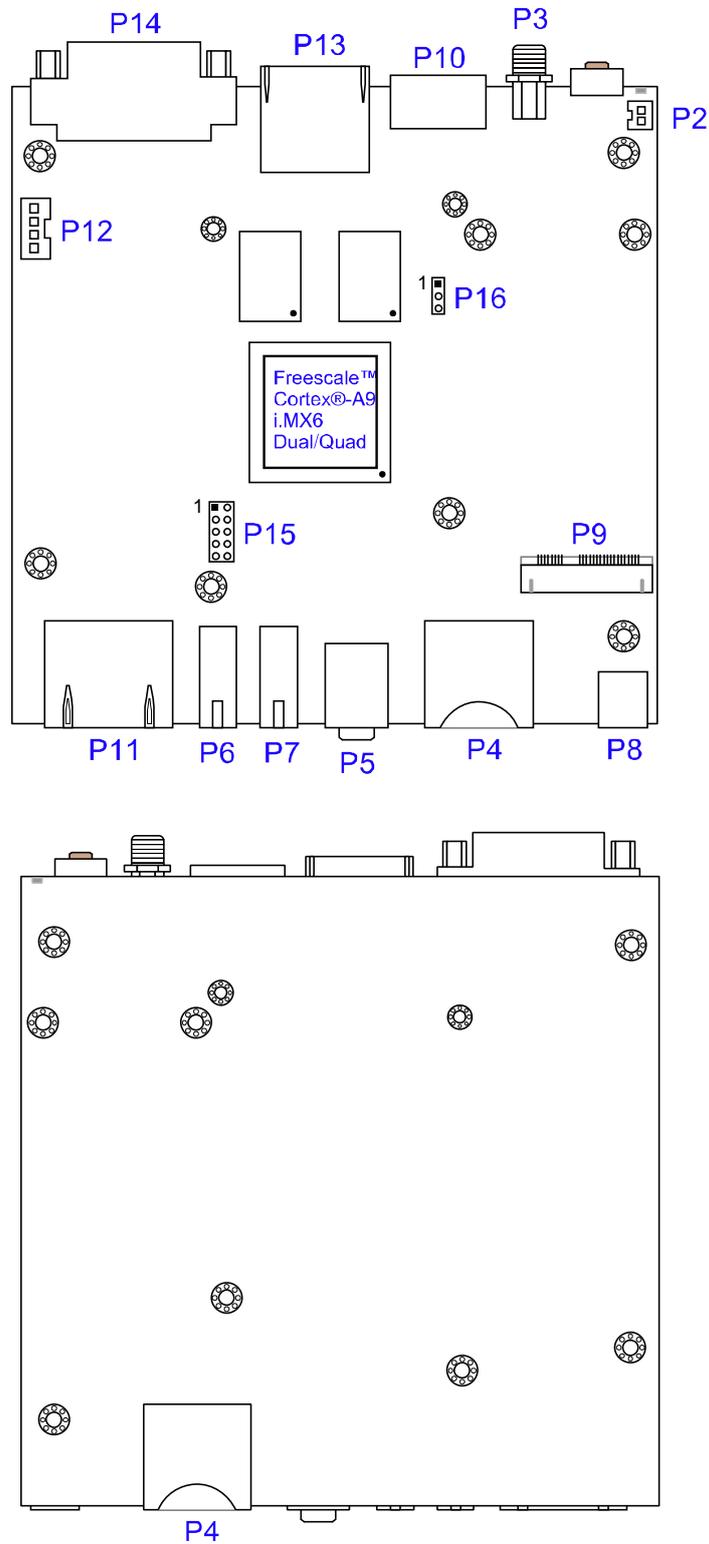
### Wall Mount

Fasten 6 screws for wall mount installation.



## 2.2 Connector Locations on Motherboard

Motherboard: MBD112



## 2.3 Jumper & Connector Quick Reference Table

Jumper:

Function	Connector Name	Page
AT / ATX Power Mode Connector	P16	14

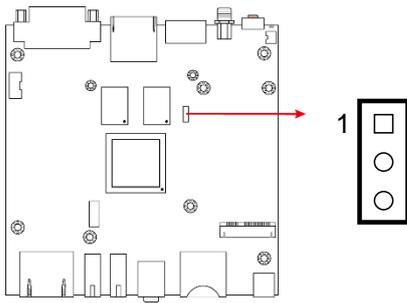
On-board connectors:

Function	Connector Name	Page
CAN Connector	P12	14
GPIO Connector	P15	15
Mini PCIe Connector	P9	16
RTC Battery Connector	P2	17

I/O coastline connectors:

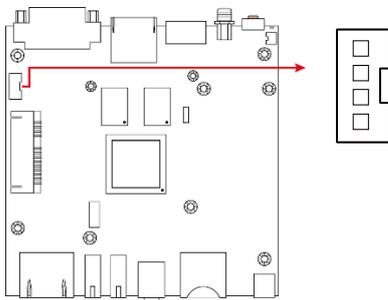
Function	Connector Name	Page
Audio Jack	P5	17
RJ45 Port for COM RS-232	P13	17
DC Jack	P3	18
HDMI Port	P10	18
Mini USB OTG Port	P8	18
RJ45 LAN Port	P11	19
SD Card Connector	P4	19
USB 2.0 Port	P6, P7	19
VGA Port	P14	20

## 2.3.1 AT / ATX Power Mode Connector (P16)



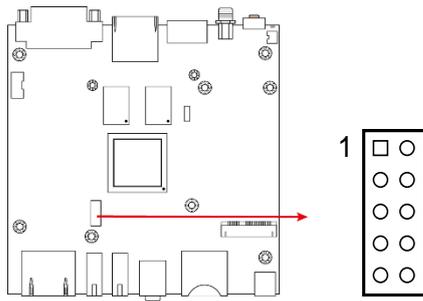
Function	Pin closed	Illustration
ATX Mode	1-2	1
AT Mode	2-3	1

## 2.3.2 CAN Connector (P12)



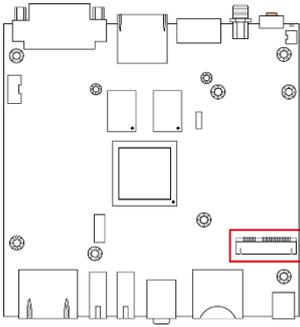
Pin	Assignment
1	5V
2	CAN2_RX
3	CAN2_TX
4	GND

### 2.3.3 GPIO Connector (P15)



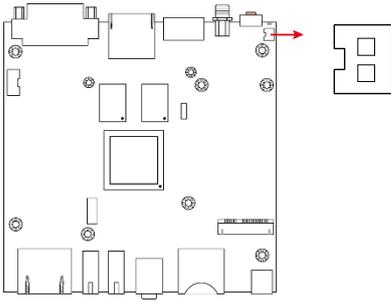
Pin	Assignment	Pin	Assignment
1	GND	6	VDD
2	OUTPUT 3	7	OUTPUT 1
3	OUTPUT 2	8	OUTPUT 0
4	INPUT 3	9	INPUT 1
5	INPUT 2	10	INPUT 0

**2.3.4 Mini PCIe Connector (P9)**



Pin	Assignment	Pin	Assignment	Pin	Assignment
1	nWAKE	19	NC	36	USB-D-
2	VDD	20	nDISABLE	37	GND
3	NC	20	GND	38	USB-D+
4	GND	21	GND	39	VDD
5	NC	22	Nreset	40	GND
6	NC	23	NC	41	VDD
7	NC	24	GND	42	NC
8	NC	25	NC	43	GND
9	GND	26	NC	44	NC
10	NC	27	GND	45	AUD4_TXC
11	NC	28	NC	46	NC
12	NC	29	GND	47	AUD4_TXD
13	NC	30	NC	48	NC
14	NC	31	NC	49	AUD4_RXD
15	GND	32	NC	51	AUD4_TXFS
16	NC	33	NC	52	VDD
17	NC	34	GND		
18	GND	35	GND		

### 2.3.5 RTC Battery Connector (P12)



Pin	Assignment
1	Battery +
2	Battery -

### 2.3.6 Audio Jack (P5)

Pin	Assignment
1	GND
2	HP_RIGHT
3	GND
4	HP_DET_B
5	HP_LEFT

### 2.3.7 RJ45 Port for COM RS-232 (P13)

Pin	Assignment	Pin	Assignment
1	NC	6	NC
2	GND	7	NC
3	GND	8	CTS
4	RX	9	RTS
5	TX	10	NC

**2.3.8 DC Jack (P3)**

Pin	Assignment
1	DC_5V
2	DC_GND

**2.3.9 HDMI Port (P10)**

Pin	Assignment	Pin	Assignment
1	TX2_P	11	GND
2	GND	12	TXC_N
3	TX2_N	13	CEC_A
4	TX1_P	14	NC
5	GND	15	DSCL
6	TX1_N	16	DSDA
7	TX0_P	17	GND
8	GND	18	VDD
9	TX0_N	19	HPD
10	TXC_P		

**2.3.10 Mini USB OTG Port (P8)**

Pin	Assignment
1	5V
2	D-
3	D+
4	USB_OTG_ID
5	GND

### 2.3.11 RJ45 LAN Port (P11)

Pin	Assignment	Pin	Assignment
1	TRX0+	7	TRX3+
2	TRX0-	8	TRX3-
3	TRX1+	9	LED_Y+
4	TRX2+	10	LED_Y-
5	TRX2-	11	LED_G+
6	TRX1-	12	LED_G-

### 2.3.12 SD Card Connector (P4)

Pin	Assignment	Pin	Assignment
1	SD2_DATA3	6	GND
2	SD2_CMD	7	SD2_DATA0
3	GND	8	SD2_DATA1
4	VDD	9	SD2_DATA2
5	SD2_CLK	10	SD_DET_B

### 2.3.13 USB 2.0 Port (P6, P7)

Pin	Assignment
1	5V
2	D-
3	D+
4	GND

**2.3.14 VGA Port (P14)**

Pin	Assignment	Pin	Assignment
1	VGA_R	9	5V
2	VGA_G	10	GND
3	VGA_B	11	NC
4	NC	12	SDA
5	GND	13	VGA_HS
6	GND	14	VGA_VS
7	GND	15	SCL
8	GND		

## Chapter 3

# System Setup

The information provided in this chapter includes:

- System Quick Installation
- Playing Mode
- Exit from Playing Mode
- Wireless Connection
- Firmware Update
- Loading Factory Default

### **3.1 System Quick Installation**

To set up your SA-112-N, place the device on a flat, stable and solid surface, and prepare all the items in the package. Then follow the steps below for quick installation.

4. Connect your SA-112-N to a display device with supplied HDMI cable.
5. Use the supplied power adapter and power cable to supply power to SA-112-N and turn on the device.
6. For remote control, connect any of your USB mouse/keyboard or wireless receiver to the USB port of the dongle to set up a wireless network.
7. Install an SD card or USB flash drive if you have.
8. Turn on your display device and set its input source to the selected HDMI port.

### 3.1.1 Default Function

SA-112-N will automatically run the default function.

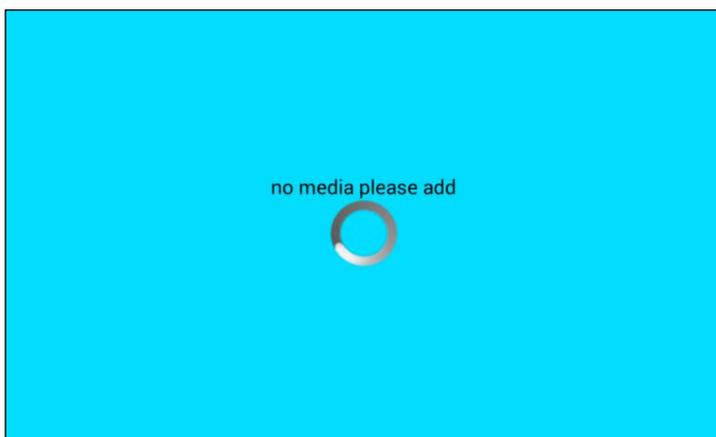
1. If your SA-112-N is pre-loaded with a standard Android operating system, use the device as a typical Android device. You can skip the following information and directly refer to *Chapter 3 Content Management* to upload media files.

You will see the following main desktop screen.



If your device is also pre-loaded with any demo application file (\*.apk), the player will automatically start and play back a loop of videos or pictures repeatedly. You can update or change these media files.

2. If your SA-112-N does not have any media content pre-loaded, the below screen will show up and you will need to upload media files. Refer to *Chapter 3 Content Management*.



## 3.2 Playing Mode

All the media files including videos, images and text files detected from an SD card, a USB flash drive, or from the ADPlayer over the network, will be played in a loop repeatedly.

The images are played with a default interval of 10 seconds, and the interval is only configurable by IBASE. The text messages scroll automatically.

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**Note:** The video files playing over the network should be short in length.

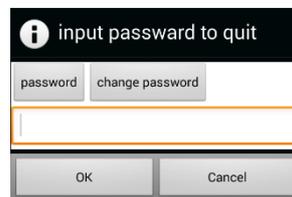
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For more information about updating media files, refer to *Chapter 3 Content Management*.

## 3.3 Exit from Playing Mode

To exit from the playing mode, you can either right-click the mouse or press the **ESC** button on the keyboard, and you will need to enter a password. The default password is IBASE.

The following screenshots are based on Android.



After exiting from the playing mode, you will see the *Home* screen of Android below. Then if there is no user activity for 60 seconds, the system will return to the playing mode automatically.

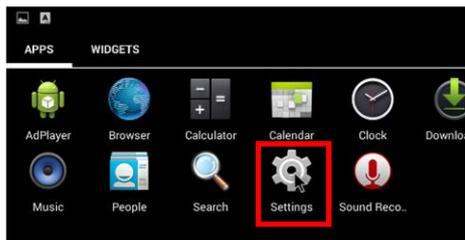


### 3.4 Bluetooth Connection

1. On the *Home* screen, click the **Menu** icon .



2. In the APPS tab, click **Settings** in the APPS tab.



3. Click **Bluetooth**, and turn it on.

### 3.5 Firmware Update

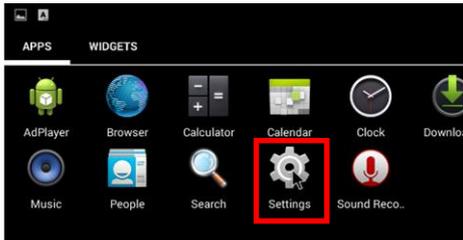
To update the firmware of SA-112-N, you need to contact IBASE for the latest new firmware image, copy it to a USB flash drive or an SD card, and insert to the device. Then update the firmware by referring to the following instructions.

The following screenshots are based on Android.

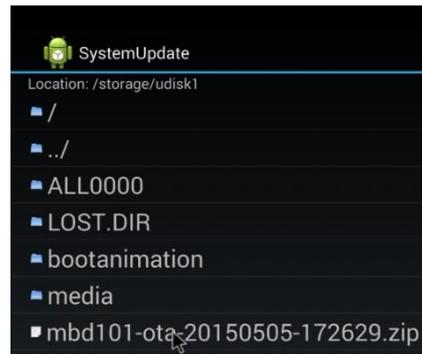
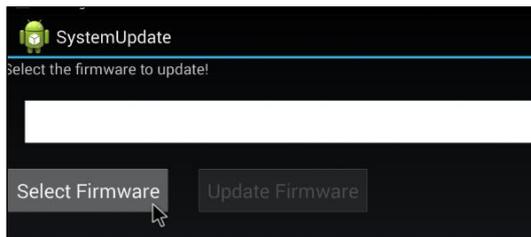
1. On the *Home* screen, click the **Menu** icon .



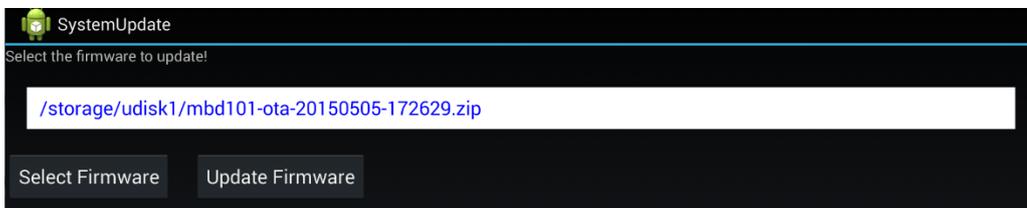
2. In the APPS tab, click **Settings**, click **About tablet**, and select **Additional.system updates**.



3. The *System Update* screen will appear. Click **Select Firmware** to select a firmware image from the USB flash drive or the SD card to update.



4. In this example, the firmware image is named "mbd101-ota-20150505-172629.zip". Click **Update Firmware** to start.



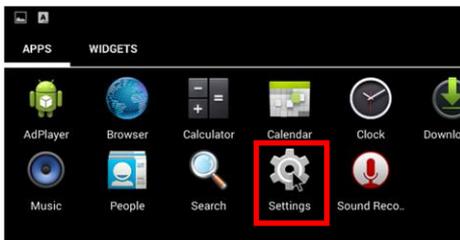
### 3.6 Loading Factory Default

If you need to load the factory default settings, follow the steps below.

1. On the *Home* screen, click the **Menu** icon .



2. In the APPS tab, click **Settings** in the APPS tab.



3. Click **Factory Data Reset** and the factory default settings will be automatically loaded.

## Chapter 4

# Content Management

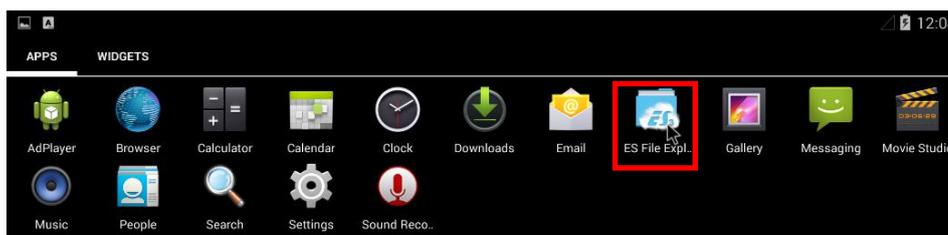
The information provided in this chapter includes:

- ADPlayer
- Uploading / Updating Media Files
- Editing Media Files
- Setting up the Playing Schedule

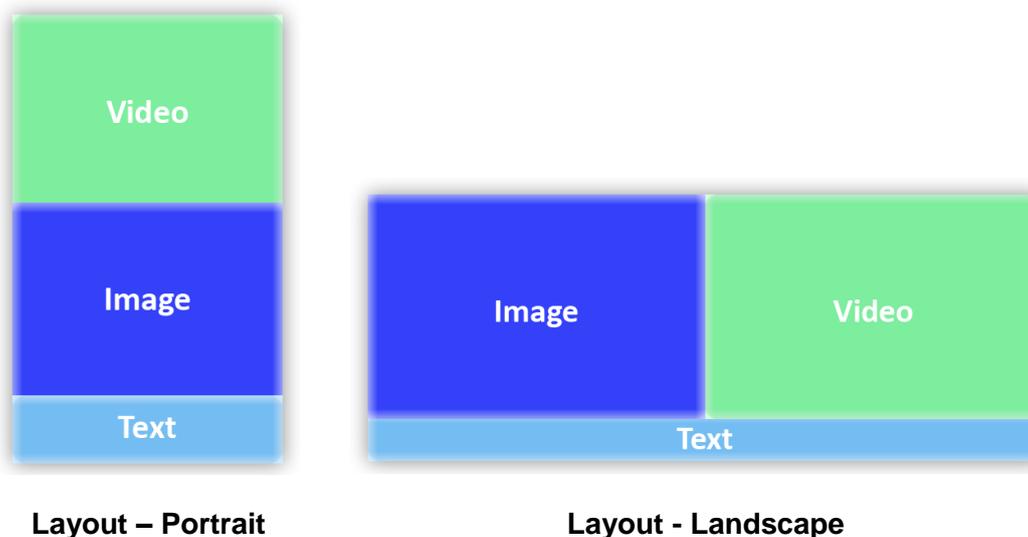
## 4.1 ADPlayer

Before you start to use the system, you need to:

1. Remove the file *PlayerWatchDog.apk* from the path /system/priv-app. Then reboot SA-112-N.
2. Download the application *Adplayer.apk* and install it. Click the Menu icon  on the *Home* screen, click **ES File Explore**, and click the *Adplayer.apk* for installation.



The Advance ADPlayer is a software program applying for SA-112-N, supporting 2 types of screen layout as below – portrait and landscape. Choose a desired type of layout per your request. We also provide another software program if a specific screen layout is preferred.



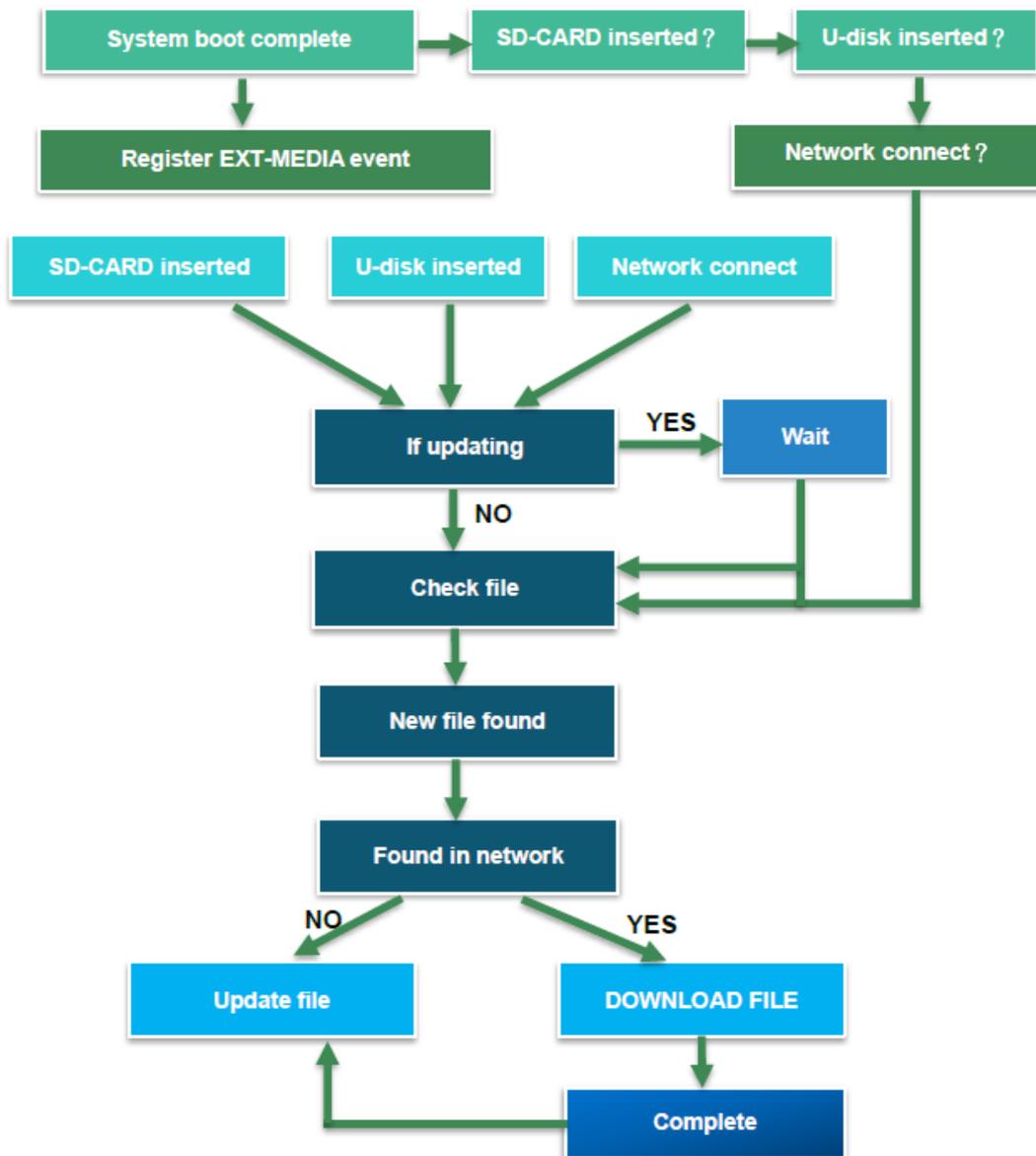
The ratio of the screen size is not configurable. If you need a layout consisting of 2 or 3 screens, provide IBASE with the desired layout arrangement, sizes and resolutions, and we will generate a target software image for you.

The content media files can be updated from an SD card, USB flash drive, or from a network. Network update is only applicable for exporting small-sized media files.

For the supported formats of media files, refer to the following table (also listed in *1.5 Specifications* in this manual.)

Media Output Format	
<b>Video</b>	Up to 1920 x 1080 MPEG4, H.263, MPEG-1/2, RV8/9/10, VP8 (1280 x 720), H.264, VC-1, AVS
<b>Audio</b>	AAC, He-AAC, MP3, MP3 VBR, WAV
<b>Photo</b>	Up to 8192 x 8192 JPEG

The content manager will regularly keep checking the media files from the SD card, USB flash drive, and the network directory. If there is any change made to the media content, the text message file *text.xml* will be updated.



## 4.2 Uploading and Updating Media Files

You need to upload media files to SA-112-N when using the digital signage player for the first time.

1. Turn on SA-112-N.
2. Prepare and install a USB flash drive or an SD card pre-uploaded with the desired media files under a folder named **media**.

Alternatively, you can set up a network connection to update the content from the ADPlayer.

The media files will be located:

- **Video:** SD card (or USB flash drive, or ADPlayer) /media/video/
- **Image:** SD card (or USB flash drive, or ADPlayer) /media/picture/
- **Text:** SD card (or USB flash drive, or ADPlayer) /media/text.xml

The text messages are separated by the tag <msg> </msg> in the file text.xml.

3. As the media files are detected, they will be transferred from the USB flash drive, SD card, or from the ADPlayer over the network to the device automatically.

After the media files have been completely transferred, SA-112-N will start to play these files.

---

### Note:

1. Do not turn off SA-112-N or remove the USB flash drive or SD card during transfer.
  2. It may take some time to transfer large-sized media files.
- 

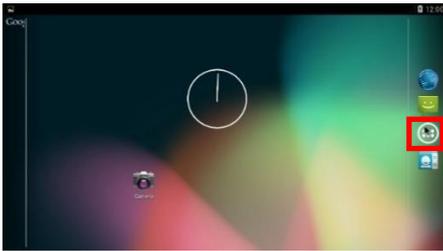
You can update media files in the same way.

### 4.3 Editing Media Files

Not only can you edit the media files saved on SA-112-N, but the media files saved either on the USB flash drive or on the SD card can also be edited when inserted to the device.

Before editing media files, you need to exit from the Ad Player mode and return to the *Home* screen. The following screenshots are based on Android.

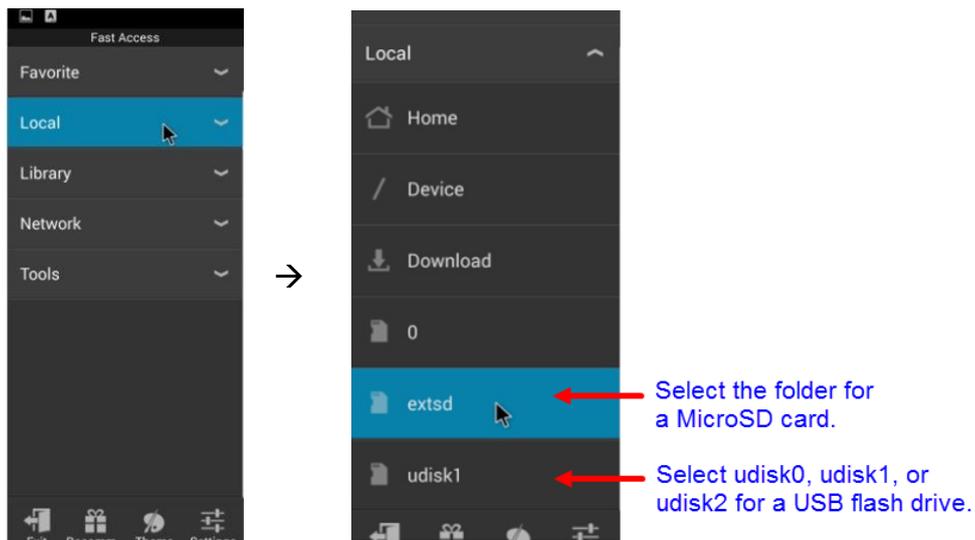
1. On the *Home* screen, click the **Menu** icon .



2. Click **ES File Explore** in the APPS tab.



3. Click **Local**.
  - If you are using an SD card, open the folder **extsd** to find the media files.
  - If you are using a USB flash drive, open the fold **udisk0**, **udisk1**, or **udisk2** to find the media files.



4. Select a desire media file and start to edit.

## 4.4 Setting up the Playing Schedule

The media playing schedule goes on the basis of the names of the media files. You can create a naming convention with respect to ordering relation and make the filenames all begin with a numeric or alphabetical character in a contiguous sequence.

## Appendix

The information provided in this chapter includes:

- APK Example Content
- The Protocol File of ADPlayer

## A. APK Example Content

You can refer to the link below for the APK example content.

<http://pan.baidu.com/s/1c1wftja>

(Password: 3n15)

## B. The Protocol File of ADPlayer

The software application ADPlayer usually checks the protocol file indicating the whether there is any change made to the media content.

The content of the protocol file:

```
<infos>
<!--it must contains this section, the version will be got and check with the version of locale --
>
<update>
    <version>x</version>
    <name>information</version>
</update>
< update >
<name></name> <!--name will be video/picture/text-->
<prog></prog><!--prog will be "none" or "all" or "part"
none mean should not update
all means will delete the locale files and download files in server
part means keep the locale files and download files in server
-->
<item>name<item><!--update file list-->
<item>name<item><!--update file list-->

</ update >
</infos>
```

Description:

Date:	the content updated date, find the newest date to update
Update all:	all the files in the relative direction will update, and remove original file
Update section:	copy files in the relative direction and keep original file