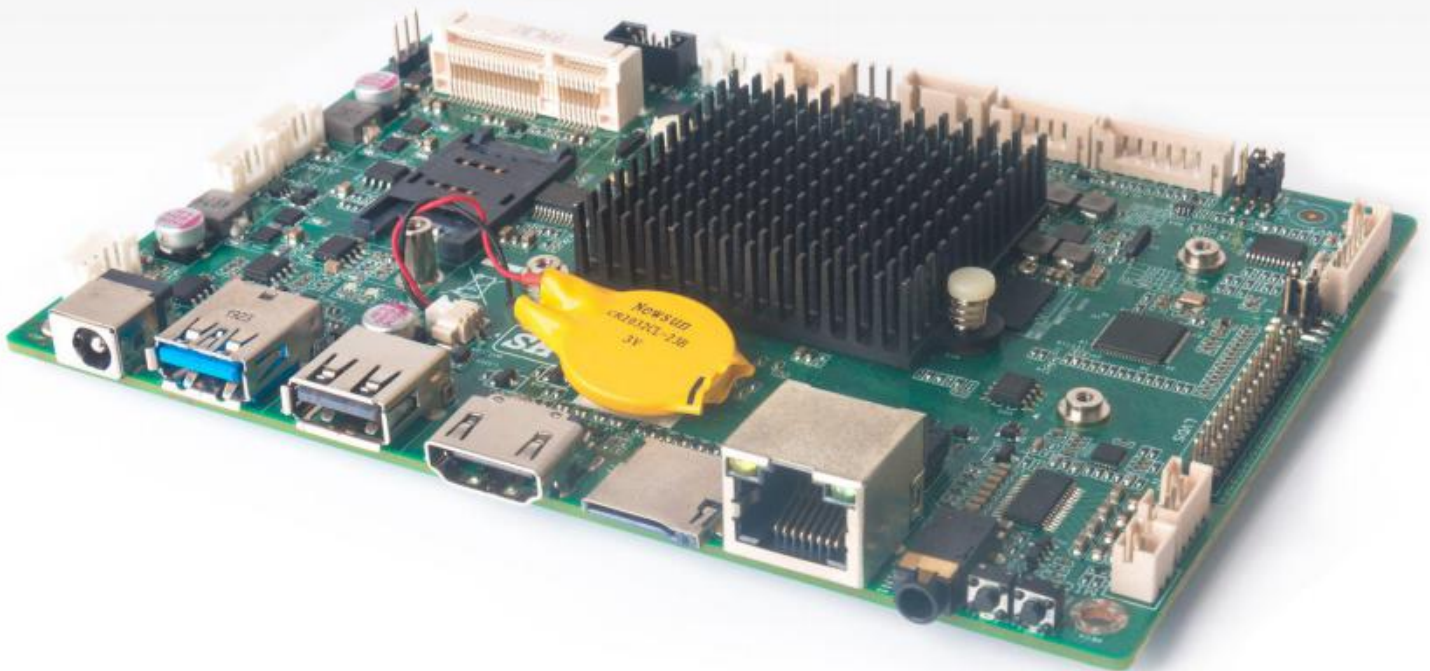


# IBC-381 User Manual



## Statement

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Without official authorization of Giada, other company or individual may not copy, plagiarize, translate or disseminate this manual for commercial purpose.

The information provided in this manual is accurate and reliable. The company does not take any legal responsibility for the consequences of infringement use of this manual.

## Safety Notice

- Read the user manual carefully before setting up the Giada product.
- Disconnect the power cord before installing the internal components.
- Most electronic components are sensitive to static electrical charge, please wear a wrist-grounding strap when installing the internal components.
- Don't disconnect the power cord when the system is running to avoid damage to the sensitive components by instantaneous surge voltage.

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## 1. Product Introduction

Embedded motherboard IBC-381 adopts RK3328 Quad-core ARM Cortex-A53 CPU. With one LVDS (Optional: HDMI) display output, it supports 4K resolution. The board is suitable to be applied in all-in-one digital signage solution, POS and smart control applications.

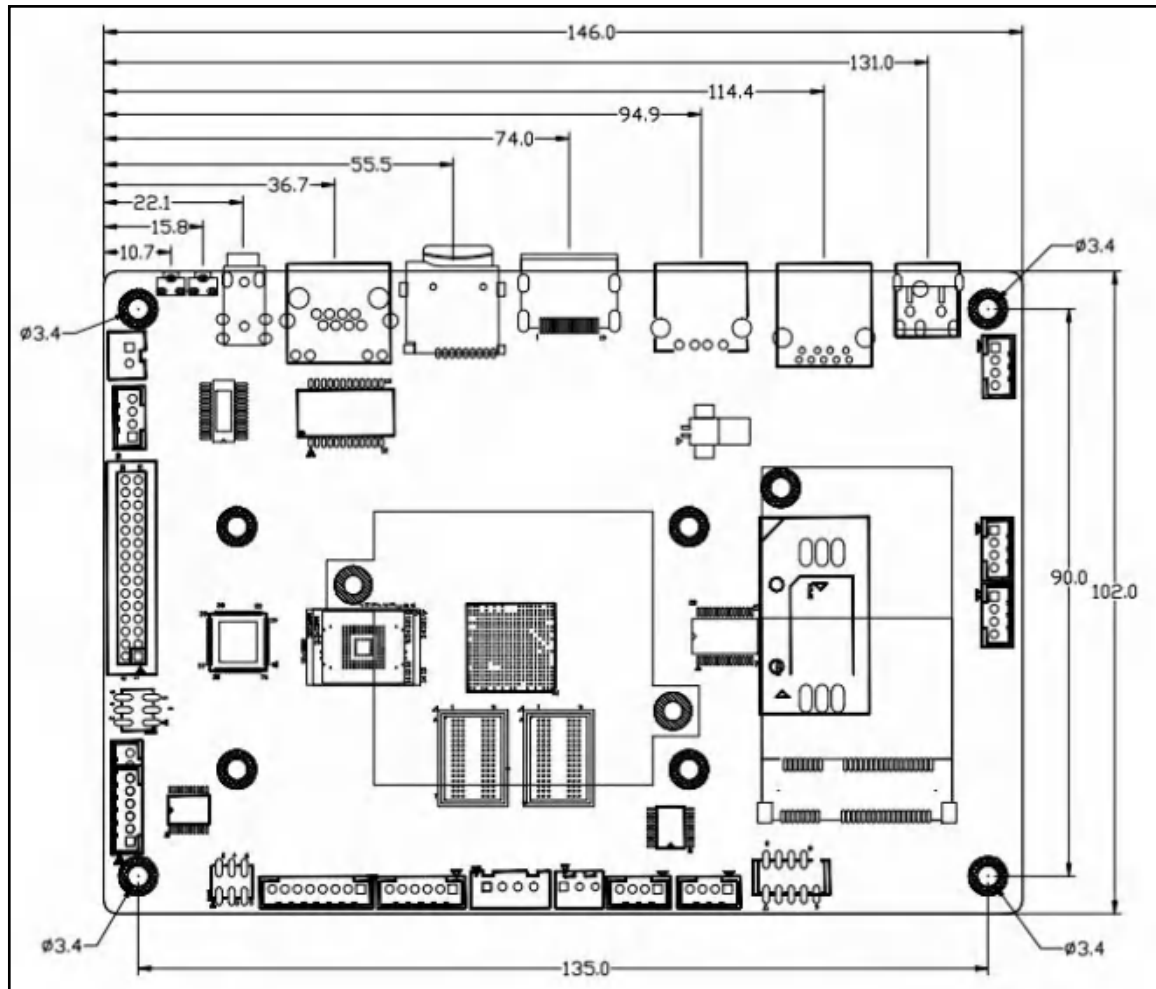
## 2. Hardware Specifications

IBC-381		IBC-381-3328R41E4G-GIA
<b>Processor</b>	<b>CPU</b>	RK3328 Quad-core ARM Cortex-A53
	<b>Chipset</b>	SOC
<b>Memory</b>	<b>Type</b>	DDR3L-1333MHz
	<b>Socket</b>	Onboard
	<b>Capacity</b>	2GB (Optional: 1GB)
<b>Graphics</b>	<b>GPU</b>	Mali-450MP2 GPU
	<b>Graphic Engine</b>	4K video decoder, 1080P video encoder/1080P 60fps video decoders
	<b>LVDS</b>	1 x LVDS (Optional: HDMI)
<b>Network</b>	<b>Controller</b>	Realtek RTL8211E Gigabit Ethernet
	<b>Interface</b>	1 x RJ45
<b>I/O Interface</b>	<b>USB</b>	1 x USB3.0, 1 x USB2.0(OTG), 2 x USB2.0 Slot
	<b>LVDS</b>	1 x LVDS 30pin
	<b>Mini-PCle</b>	1 x Full-size Mini-PCle for 3G/4G
	<b>Audio</b>	1 x AUDIO-OUT, 1 x MIC-IN
	<b>Serial</b>	1 x RS232
	<b>IO Slot</b>	1 x IO/KEY, 1 x TTL, 1 x TP, 1 x DEBUG
	<b>SIM</b>	1 x SIM Slot
	<b>WiFi/BT</b>	1 x WiFi/BT Onboard (Support 2.4GHz/5GHz)

<b>Storage</b>	<b>eMMC</b>	Onboard 16GB, Up to 64GB
	<b>TF Card</b>	1 x TF Card Reader
<b>JAHC</b>	<b>WatchDog Timer</b>	0~255 Second Time Out Support
	<b>Auto Power On</b>	Power Activated Automatically Start
	<b>RTC</b>	Set Up Independently Every day, A Week as a Cycle
	<b>Wake On LAN</b>	Remote wakeup in the same LAN
<b>Operation System</b>	<b>OS</b>	Android7.1
<b>Power</b>	<b>Power Type</b>	DC-IN
	<b>Input Voltage</b>	12V/2A
<b>PCB</b>	<b>Dimension(W x D x H)</b>	146mm x 102mm (5.75" x 4.02")
<b>Environment</b>	<b>Operating Temperature</b>	0° C ~ 60° C (32° F ~ 140° F) at 0.7m/s Air Flow
	<b>Relative Humidity</b>	95% @ 60°C (non-condensing)
	<b>Storage Temperature</b>	-40° C ~ 85° C (-40 ~ 185° F)

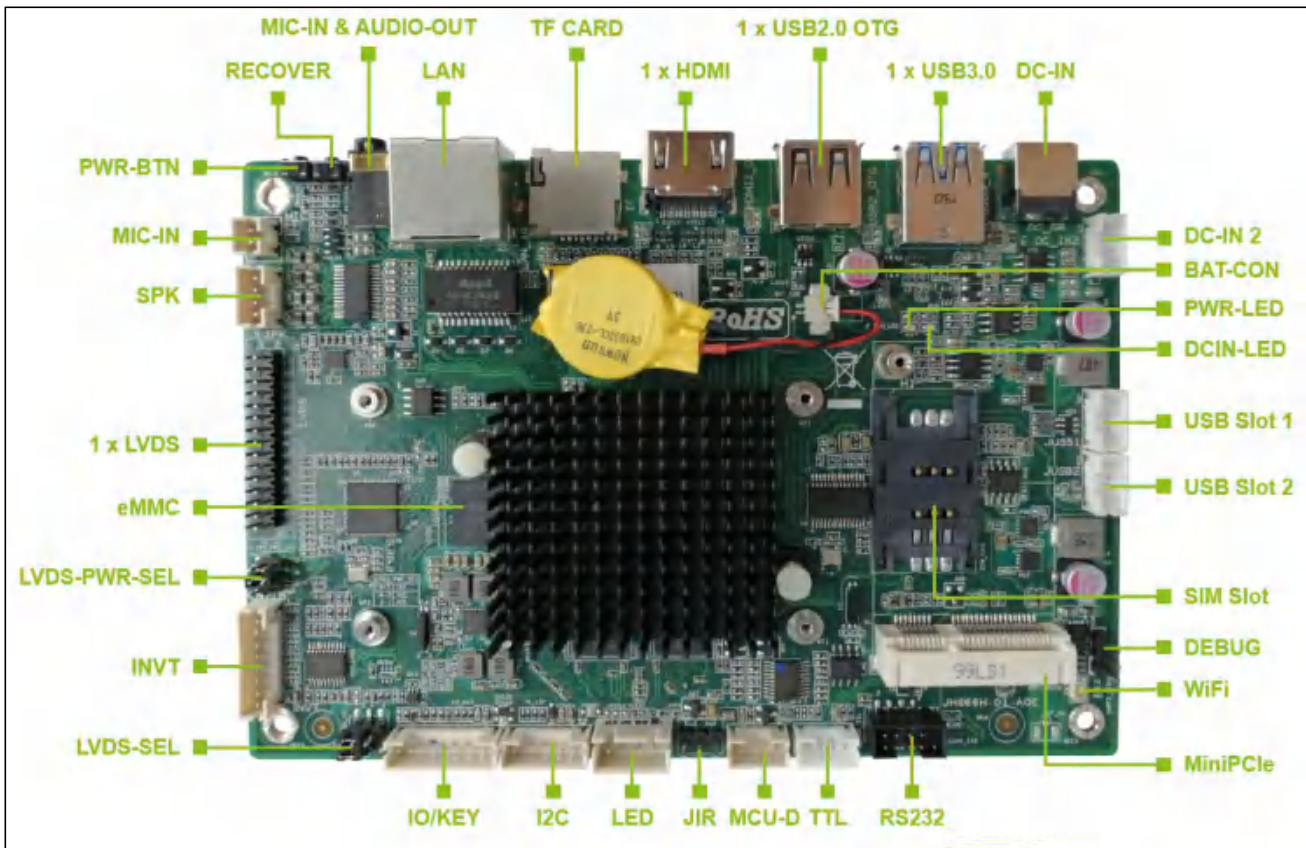
## 3. Hardware Usage Instruction

### 3.1 Dimensions Chart



## 3.2 Interface Definition

### 3.2.1 Jumper, Header and Interface Diagram



## 3.2.2 Jumper and Header Definition

No.	Jumper/Header	Name	Function	PIN Definition
1	DCIN	DC_IN2	DC IN PIN	<p>DC_IN2 CON_1*4PIN/2.0P/DIP</p>
2	MIC	MIC	MIC PIN	<p>MIC MIC1 C 1*2PIN/全包</p>
3	SPEAKER	SPK	SPEAKER PIN	<p>SPK ROUT- ROUT+ LOUT- LOUT+ CONN/FAN/1*4P/2.0MM</p>
4	LVDS	LVDS	LVDS PIN	<p>LVDS_PWR HD15*2P/2MM</p>
5	LVDS_PWR_SEL	LVDS_PWR_SEL	LVDS_PWR_SEL PIN	<p>LVDS_PWR_SEL 3D3V_MCU VCC_SYS DC_12V LVDS_PWR SMT/2*3P/2.0MM</p>



6	INVETER	INVNT	INVETER BACKLIGHT PIN	
7	LVDS_SET	LVDS_SET	LVDS SETTING; 1-3:1PORT 3-5:2PORT 2-4:8bit 4-6:6bit	
8	IO_KEY	IO_KEY	IO_ KEY KEYPAD PIN	
9	TP_I2C	TP_I2C	TP_I2C : I2C TOUCH PANEL	
10	JLED1	JLED1	LED PIN	
11	JIR1	JIR1	INFRARED RECEIVER PIN	

12	F_COM1_TTL	F_COM1_TTL	EITHER OF F_COM1_TTL AND F_COM1_232	
13	F_COM1_232	F_COM1_232	EITHER OFF_COM1_TTL AND F_COM1_232	
14	UART2_DEBUG	UART2_DEBUG	DEBUGGING SERIAL PORT	
15	JUSB	JUSB1 JUSB2	USB PIN*2	

### 3.3 Accessories Installation Steps

**▲** For safety reasons, please ensure that the board is disconnected with power before installation.

#### 3.3.1 3G/4G Installation

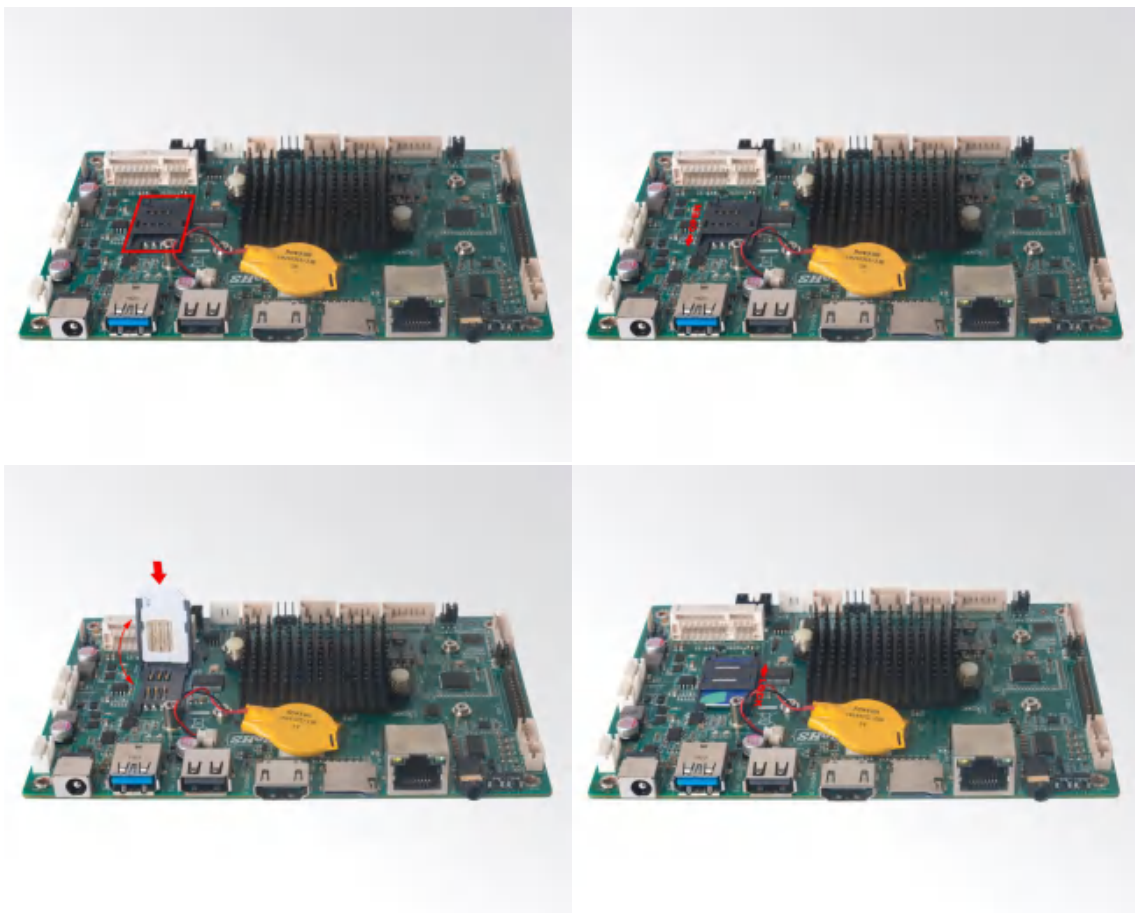
1. Plug the 3G/4G module into the mini PCIE slot.
2. Secure the module to the carrier by tightening up the screw.



### 3.3.2 SIM Card Installation

⚠ This product supports standard SIM card with the size of 25mm × 15mm.

1. [Open] the SIM card holder and pull it up.
2. Insert the SIM card.
3. [Lock] the card holder.



## 4. Firmware Upgrade Guide

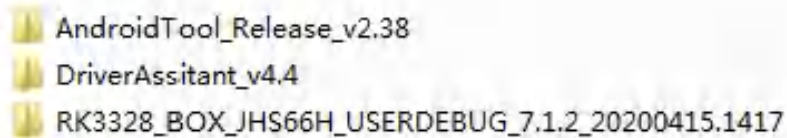
### 4.1 Preparation:

- IBC-381 motherboard.
- Archive of motherboard firmware provided by Giada technical support.
- Host PC with screen and installed the Windows operation system.
- USB OTG Cable (RP-SMA Male↔RP-SMA Male).



After you get the Archive from Giada technical support, copy the Archive to your host PC, you will find below files inside:

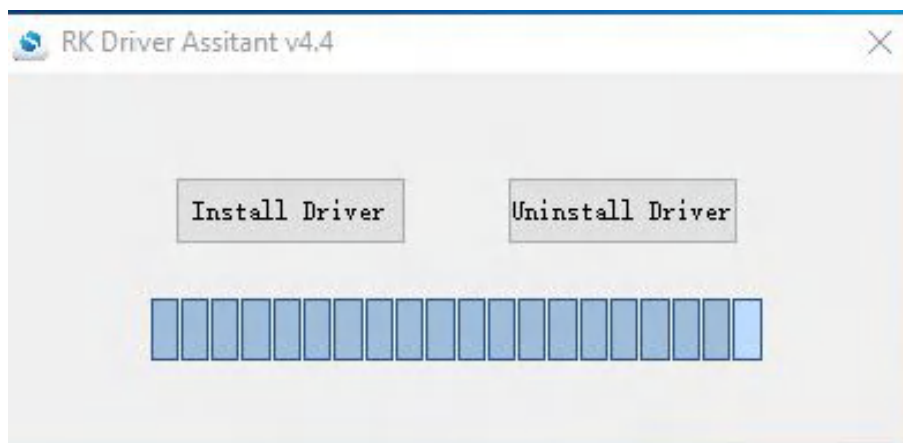
- Android Tool - tool for updating.
- DriverAssitant - tool to install drivers and firmware image file.
- Firmware image.



### 4.2 Upgrade the firmware

#### 4.2.1. Install the driver in your host PC by following steps:

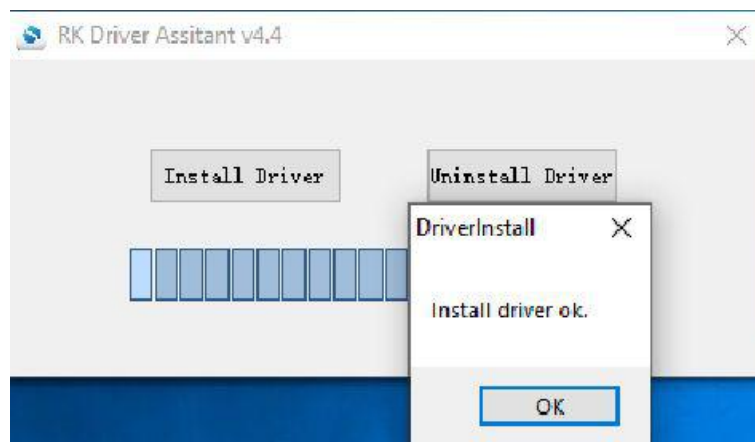
- a. Click the DriverAssitant file. Launch RK DriverAssitant and press "Install Driver".



b. Apply all changes and warnings during the installation.

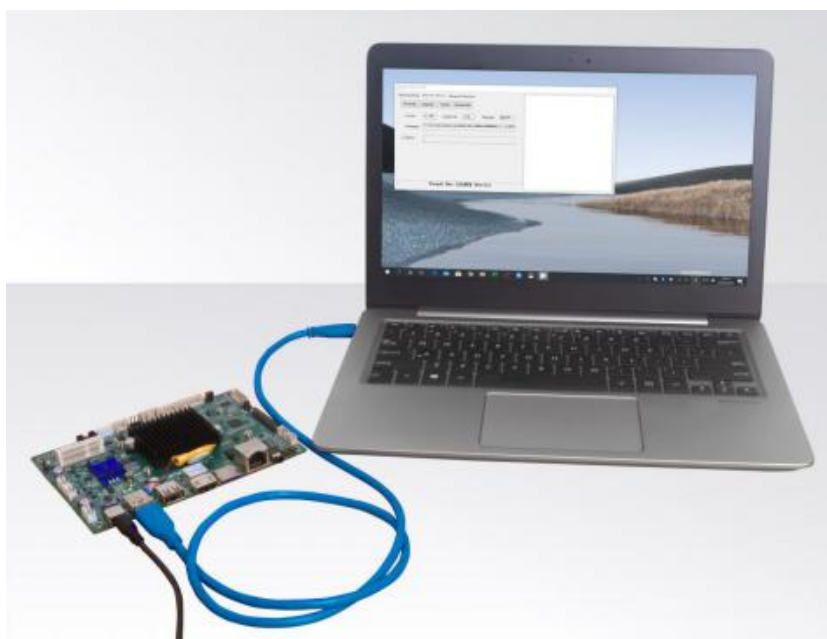


c. Click "ok" after the installation finish



#### 4.2.2. Connect the motherboard with host PC

In order to connect the motherboard with Host PC and run bootloader mode, you should perform following steps:



- a. Please ensure that the power of the motherboard is disconnected.
- b. Run Android tool V2.38 under the windows of the host PC.
- c. Connect motherboard to the host PC via usb OTG port.

Firstly, hold the motherboard recovery button (please refer to fig1 for the location of the button), then connect the power adaptor to the motherboard, you will see “Found a MSC Device” or “Found One Loader Device”. (Please refer to Fig2).

**▲** Please don't loosen the button and don't press twice until you see the 'Found a MSC Device' or 'Found One loader device'



( Fig1)



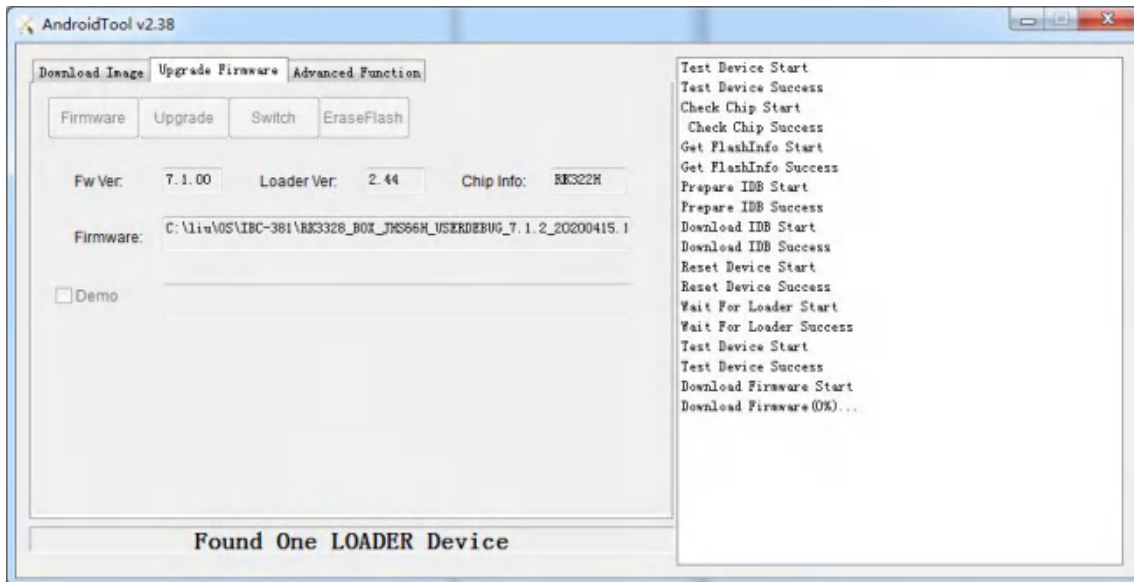
(Fig2)

### 4.2.3. Start the firmware updating

- a. Click “Firmware” button and specify the path to the firmware file which is stored in the host PC (Please refer to Fig2).
- b. Wait around 5 seconds to upload the program, FW information will display on the screen. After the “Upgrade” button turns to black, you can click “Upgrade” to update the firmware (please refer to Fig3 and Fig4).

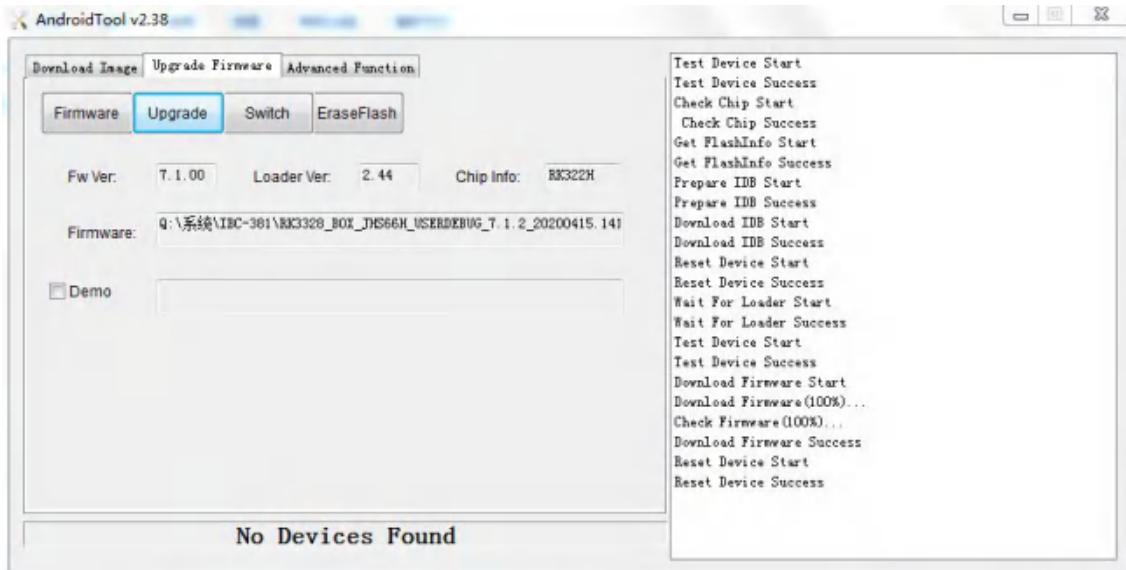


(Fig3)



(Fig4)

c. In the end, you will see a report indicating a successful operation.





## 5. JAHC APP

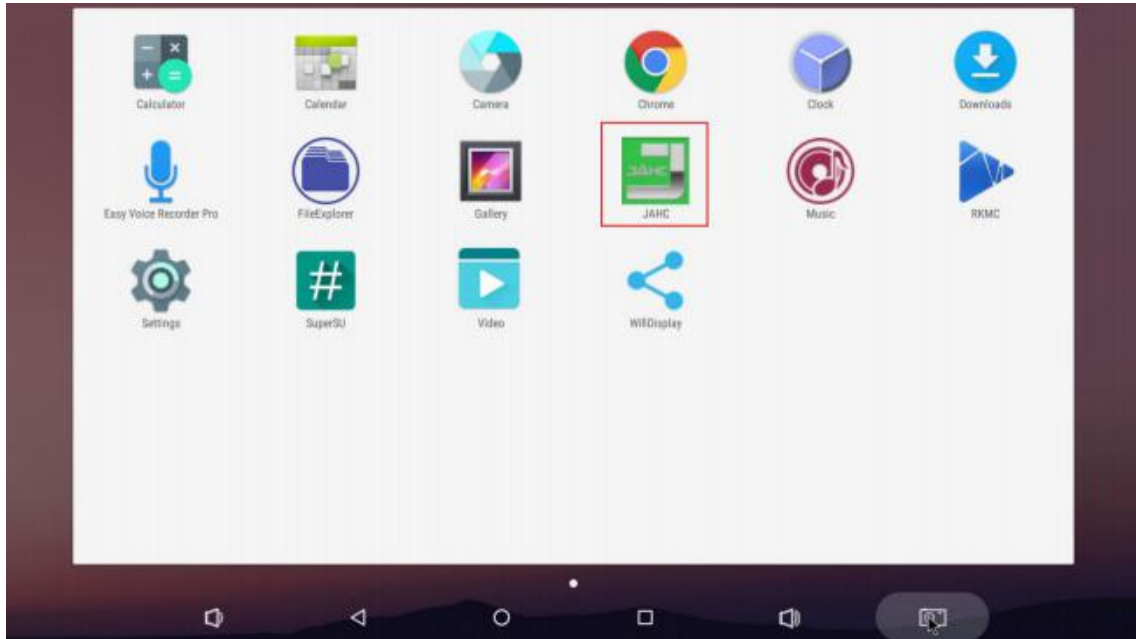
### 5.1 JAHC APP functions

The user can set up automatic startup and shutdown, one week as a circle.

### 5.2 Startup(open) & shutdown(close) time setup

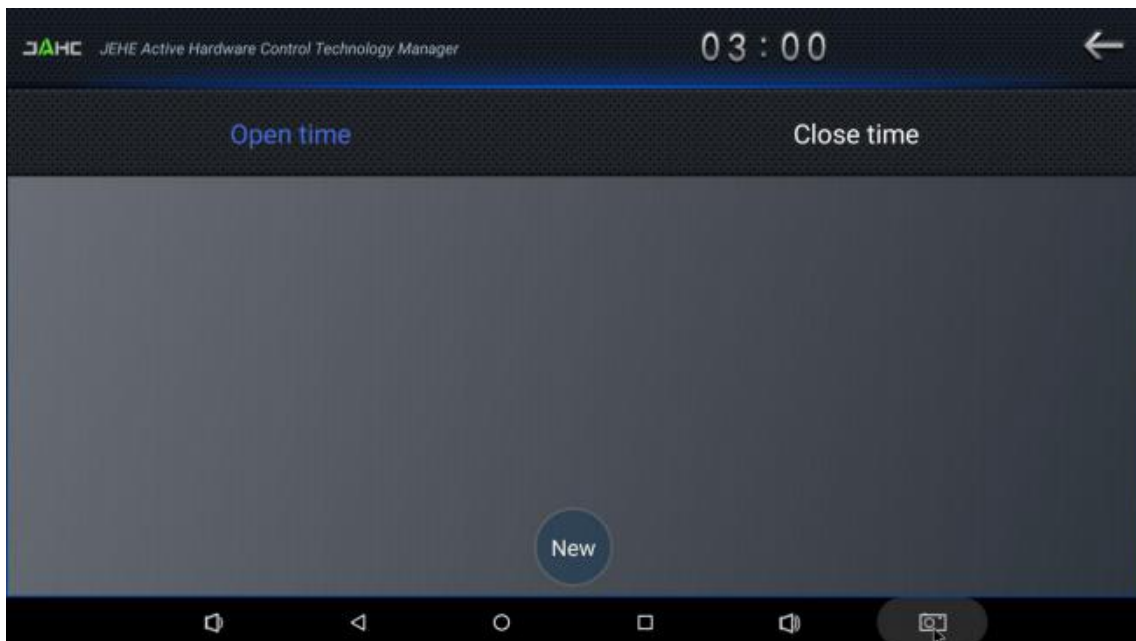
#### System Requirements:

- Giada player with JAHC APP function.
- Android OS includes JAHC APP (please refer to Fig1) .



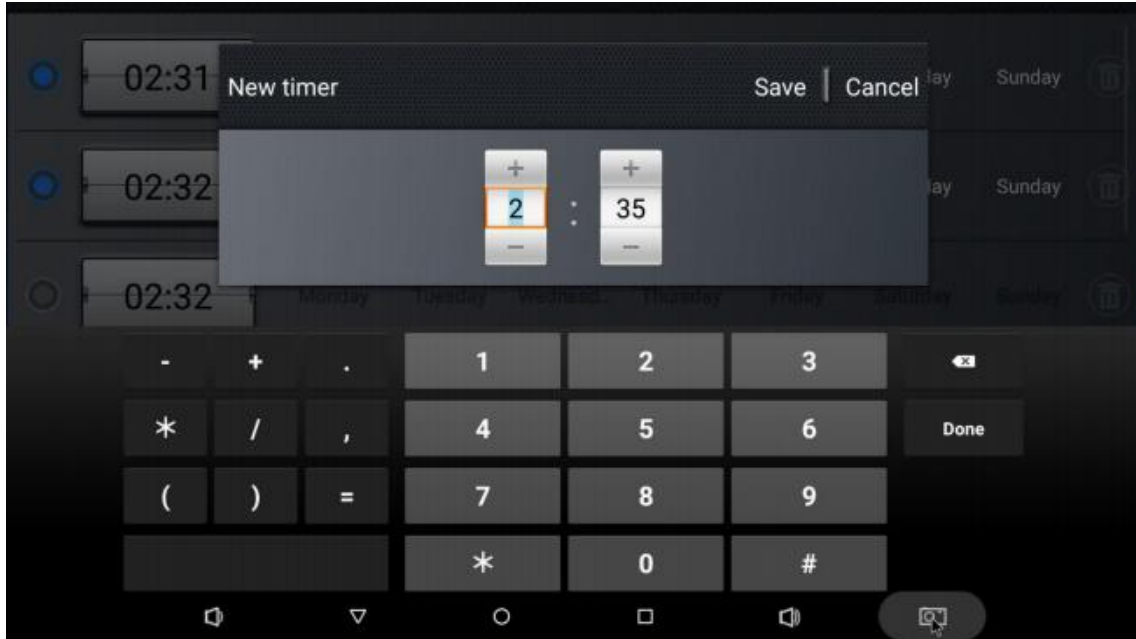
(Fig1)

- After enter the android desktop, click the JAHC APP icon and the JAHC interface will pop up (please refer to Fig2)

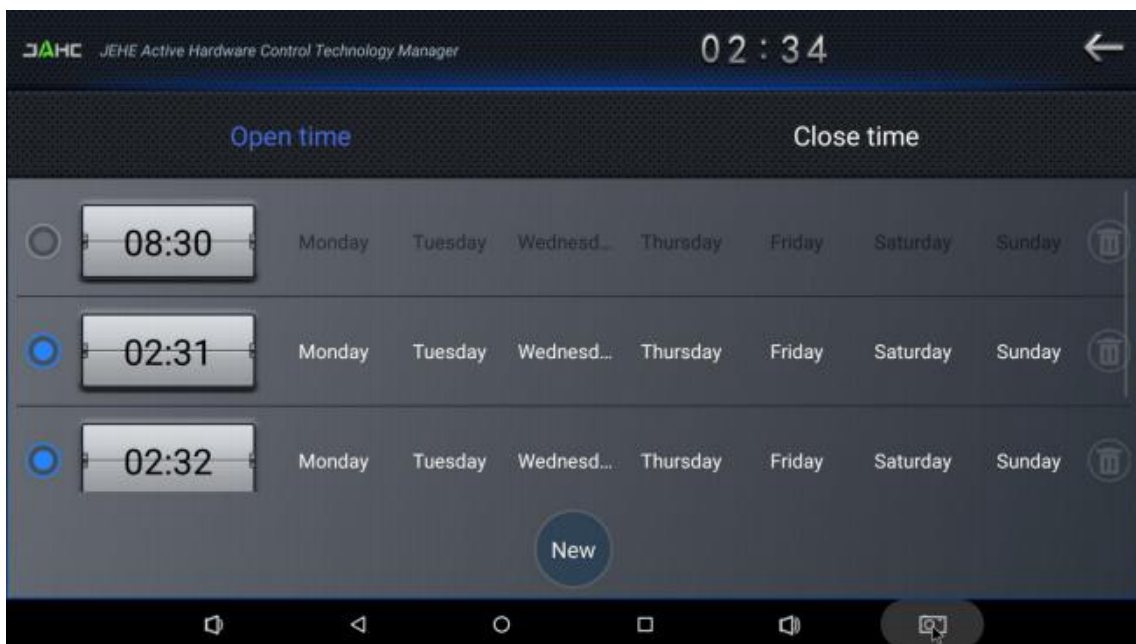


(Fig2)

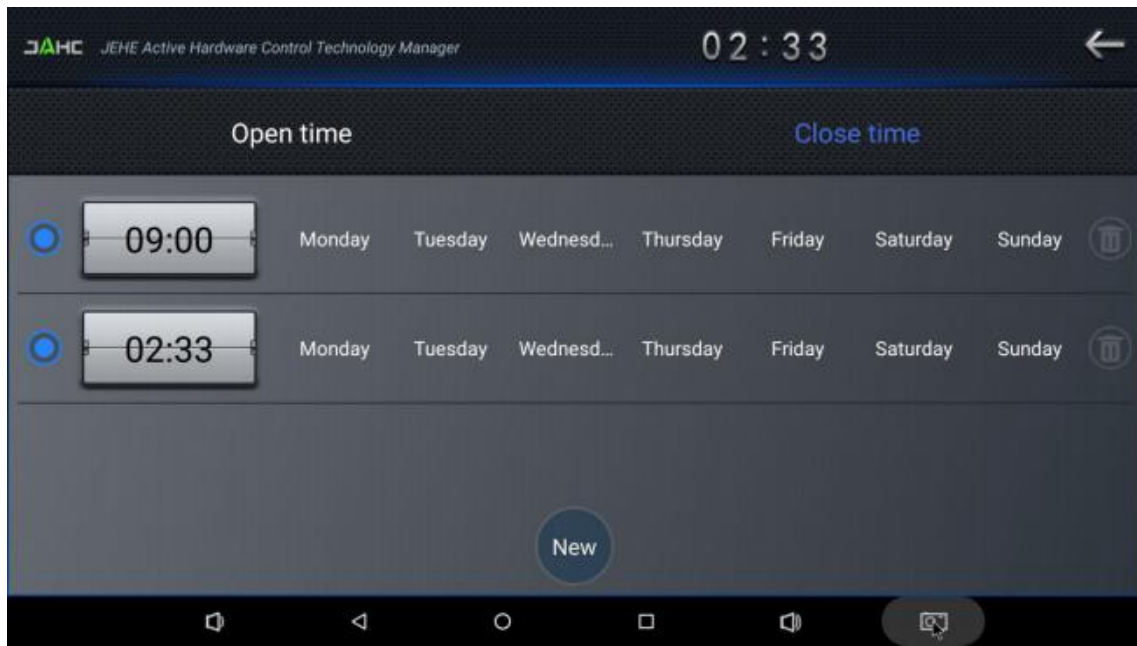
- b. Click 'New' button to set open time (Fig3) and then click Close time button to set close time. One week as a circle, maximum 3 schedules per day. Select each schedule to set up the Open time and Close time.
  - c. After finishing the setup, click circles to launch the schedule.
- User can click delete to remove the schedule.



(Fig3)



(Fig4)



(Fig5)

⚠ Caution: If the interval from shutdown time to next resume time is less than 3 minutes, the system will not shut down.



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