SBC3100

Quick Start Guide

Release Notes

Version	Release Date	Notes
1.0	May 2018	Initial release
2.0	December, 2018	Review and Update

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Table of Contents

1.   Precautions

1.1   Safety Precautions

In order to use this product safely, please take special note of the following precautions.

- Read all product manuals and related documentation before using this product. Use this product correctly and safely. Follow all warnings.
- If operating or extending this product in a manner not described in this manual, please do so at your own risk. Be sure to fully read this manual and other technical information on our website and proceed safely and responsibly.
- Do not install this product in a place with a lot of water, moisture, dust or soot. This could cause product failure, fire, or an electric shock.
- Some parts of this product generate heat and can reach high temperatures. This may cause burns if it is improperly handled. Do not touch the electronic components or surrounding area while powered on or immediately after being turned off.
- Carry out any design and development only after you have thoroughly read and understood this manual and any other related technical materials on the website or in the data sheets. Test your product thoroughly for reliability and safety.
- This product is not intended for applications that require extremely high reliability, safety, functionality and accuracy: including but not limited to medical equipment, traffic control systems, combustion control systems, and safety equipment. This company is not liable for death or injury if used in such systems.
- This product uses semiconductor components designed for generic electronics equipment such as office automation, communications, measurement equipment and machine tools. Foreign noise or a power surge may cause this product to malfunction or fail.
- To ensure there is no risk of bodily harm or property damage, be sure to take all electrical safety precautions such as protection circuits, limit switches, fuse breakers, or redundant systems. Only use the device after sufficient reliability and safety measures are in place.

1.2   Write Prohibited Regions

Data stored by the EEPROM, i.MX6 electrical fuse (e-Fuse) is used by the software contained in this product. Do not write to these regions as this may cause the product stop working correctly. Purposely writing to these regions voids the product warranty.

1.3   Warrnty

As described in the Product Warranty Policy provided with this product, the main board is covered by a one year replacement warranty starting from the time of purchase. Please note that the other included goods and software are not covered under this warranty. Some knowledge used by IC-NEXUS is provided by third parties, and IC-NEXUS makes no representation or warranty as to the accuracy of such information.

2.   Overview

The SBC3100 is a flexible and high performance single board computer designed for a wide range of commercial and industrial applications such as digital signage, POS, Gaming, Set top box, KIOSK and other smart devices. The SBC3100 features a dual-core ARM Cortex-A72 and quad-core ARM Cortex-A53 processor and powerful hardware video / graphics engine for high-end application.

Each SBC3100 can be installed in advance with Linux or Android for immediate evaluation.
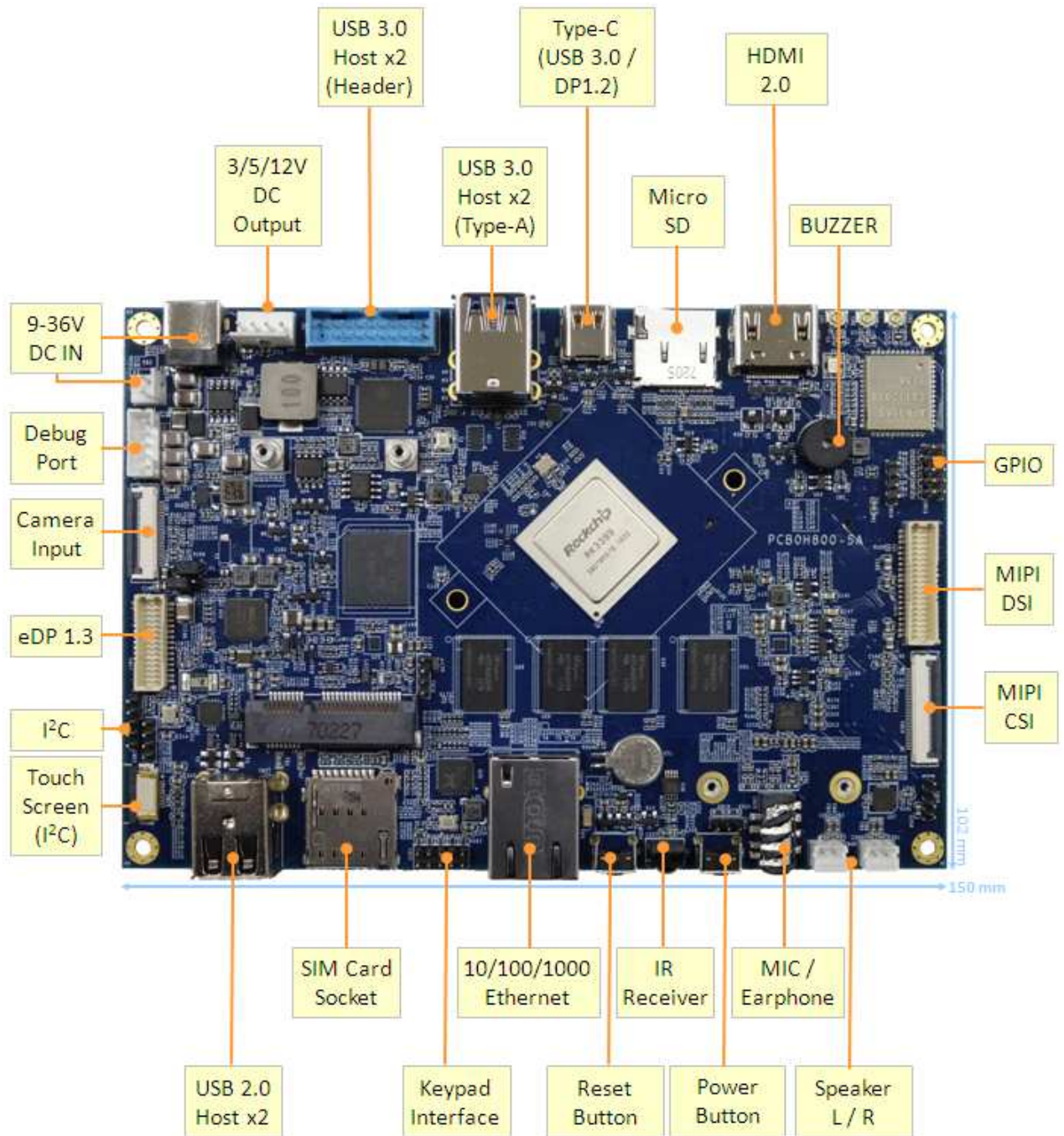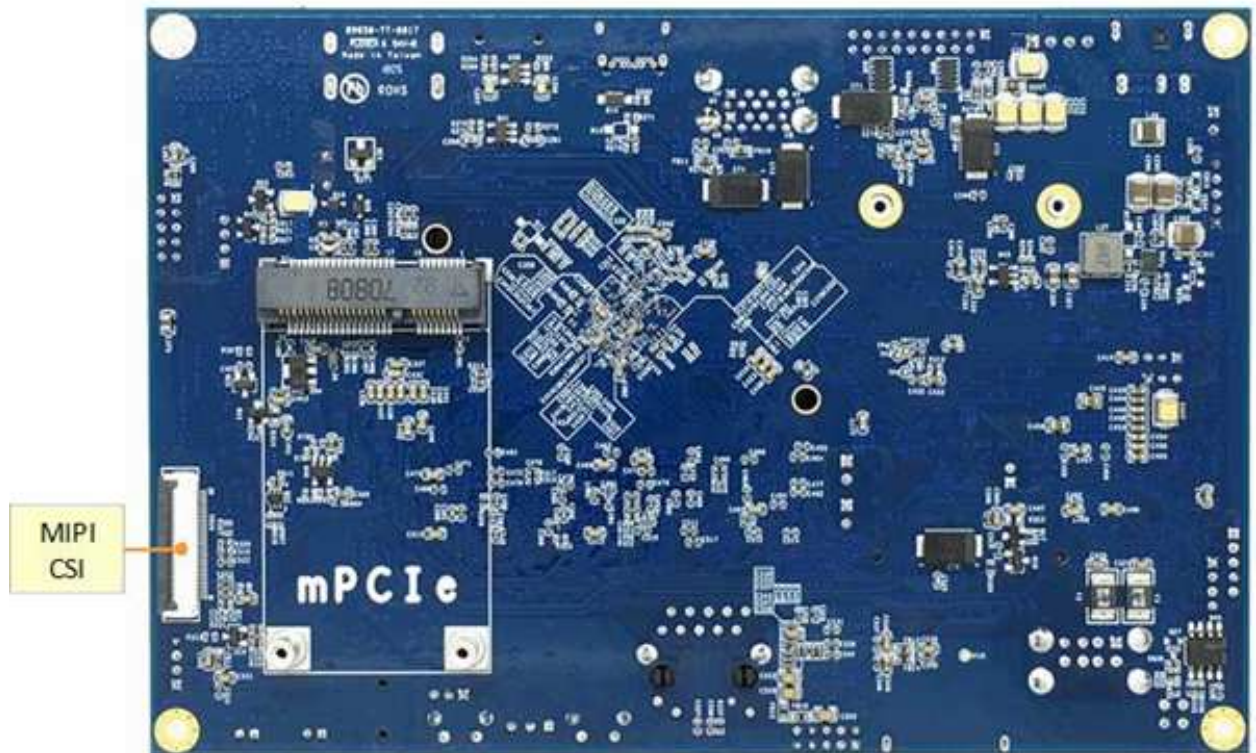
The product includes the following models:

SBC3100 - A - 1G

Product Type	SBC
Single Board Computer	SBC

RAM Size	1G
1GB DDR3	1G
2GB DDR3	2G
4GB DDR3	4G

OS	A
Android	A
Ubuntu	U
Debian	D
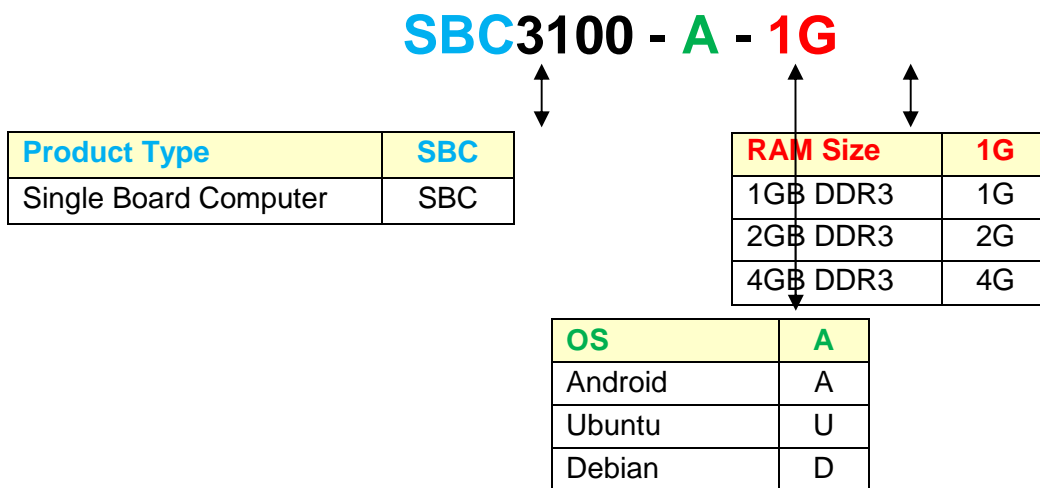
Figure 1: Product Number Naming Conventions

2.1   SBC3100 Single Board Computer Interfaces

Topview

__Bottom View__

2.2   Features and Specifications

__Features__

➢   High performance 2x ARM Cortex-A72 + 4x ARM Cortex-A53 cores
➢   Dedicated hardware decoder up to 4Kx2K@60fps and encoder to
    1080p@30fps
➢   Hardware 2D/3D graphics accelerator
➢   Multi-display interfaces (HDMI, eDP, DP, MIPI-DSI)
➢   Multi-camera interfaces (MIPI-DSI, USB)
➢   Rich set of peripherals (USB3.0, USB2.0, LAN, Buzzer GPIO, I²C, etc)
➢   Preinstalled Linux or Android OS

SBC3100 Specifications

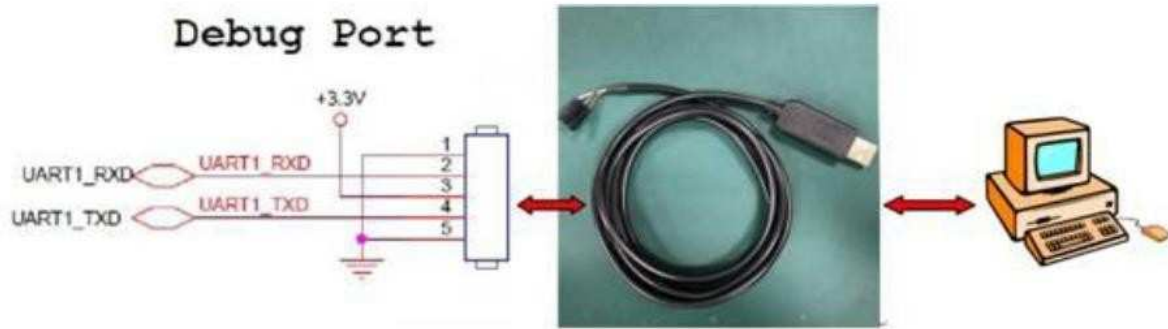|	SBC3100
CPU	Rockchip RK3399 (2x ARM Cortex-A72 + 4x ARM Cortex-A53)
OS	Android / Ubuntu
DDR RAM	1GB / 2GB / 4GB
Flash ROM	4GB / 16GB
Display Interface	1x HDMI 2.0 (4Kx2K @60fps)
	1x DisplayPort 1.2 (4Kx2K @60fps)
	1x eDP 1.3 (2560x1600 @60fps)
	MIPI-DSI (2560x1600 @60fps)
MIPI	1x CSI + 1x DSI + 1x (CSI or DSI)
Touch Interface	1x Capacitive Touch Screen Interface (I^2C)
Audio Interface	1x Mic input + 1x Earphone output + 2x Speaker connector
USB 2.0 Host	2x USB 2.0 type-A + 1x USB 2.0 pin header
USB 3.0 Host	2x USB 3.0 type-A + 2x USB 3.0 pin header
Type-C	USB 3.0 OTG / DisplayPort 1.2
SD Card slot	1x microSD
Ethernet	1x 10/100/1000 Mbps (RJ-45)
WiFi/BT	WiFi 802.11 b/g/n + Bluetooth 4.1
Sensor (optional)	3-axis Accelerometer + 3-axis Gyroscope
Buzzer	1x Buzzer
GPIO	8-bit digital input/output
Console port	1x UART (console / debug)
I^2C port	1x I^2C master port
IR	1x IR receiver
Power Input	DC 9V - 36V
Dimension	102 x 150 mm
Weight	<TBD>
Environment	<TBD>

3.   Setup

3.1 Console / Debug Port

CN12 can be for Linux console port or debug port.

It is a TTL UART signal level (+3.3V) and connected to the RK3399 UART2.
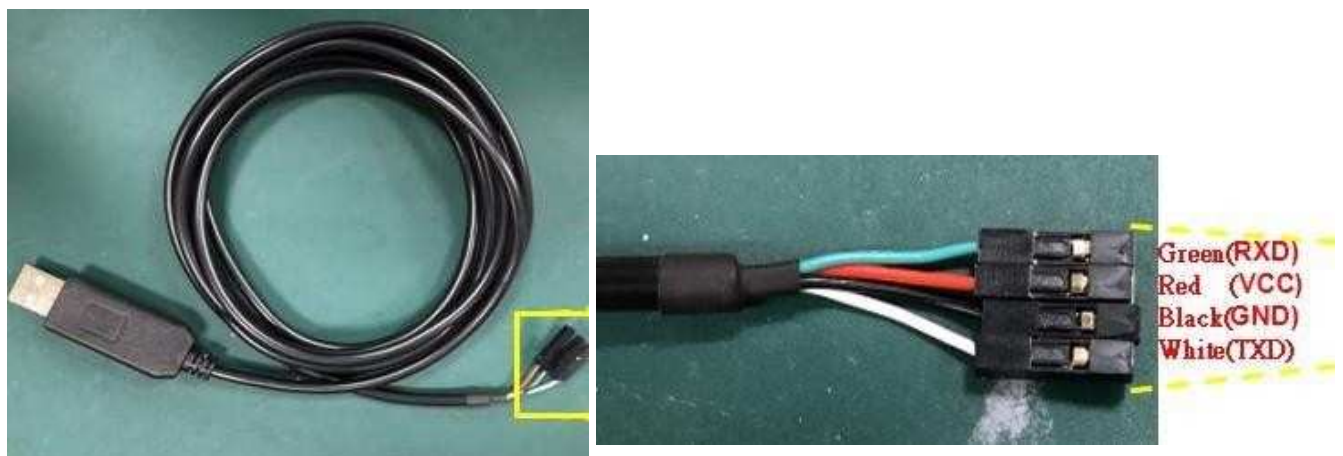
Ping definition
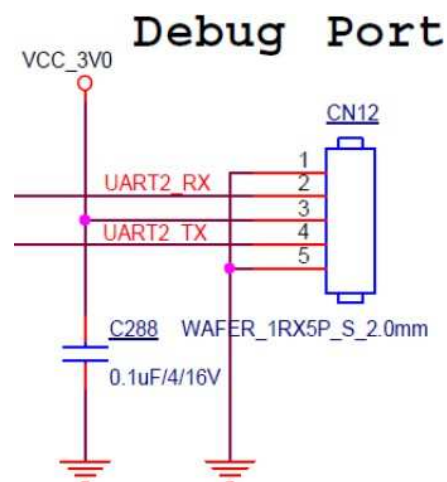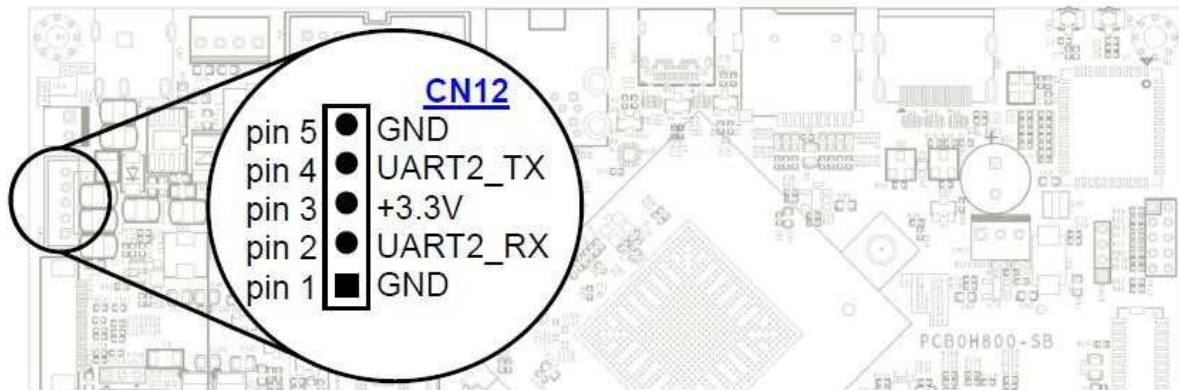
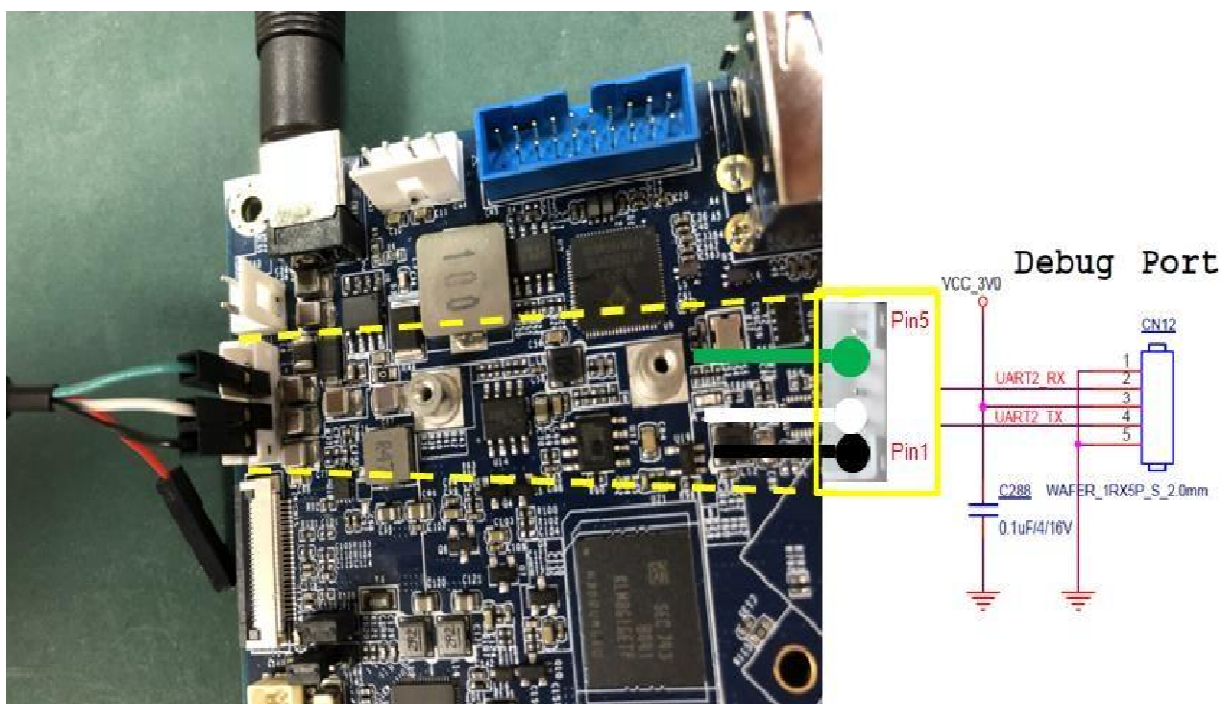Follow the steps below to connect debug port with a Windows PC:

Make sure you have a USB UART cable.

Note : The USB UART cable is not part of the SBC3100 product. It has to be purchased separately.

The USB UART cable is with 4 terminals (with 4 different color cables).

Green(RXD)
Red (VCC)
Black(GND)
White(TXD)

Connect USB UART cable to SBC3100 CN12(as shown below).

Warning: Do NOT connect Red terminal (VCC) to CN12

USB UART terminal	CN12 pin number
White (TXD) ⟶	pin 2 (RXD)
Green (RXD) ⟶	pin 4 (TXD)
Black (GND) ⟶	Pin 1 (GND) or pin 5 (GND)

Connect USB typa A connector to PC host port

➢ The USB UART cable is based on Silicon Lab CP210X chip. You may need to download the driver if your Windows PC does not support it.

Driver download link

https://www.silabs.com/products/development-tools/software

Run terminal emulation program (e.g. *TeraTerm*), and open TeraTerm COM port.

➢ Set TeraTerm COM port at **Baud Rate 115200, 8 data bits, no parity, 1 stop bit and no flow control**.

After the above connection/setting, you will see Linux console prompt "$" in the PC TeraTerm.

3.2   Start Running

The SBC3100 board allows +9V ~ +36V DC power input to CN7 DC jack or
CN11 header:
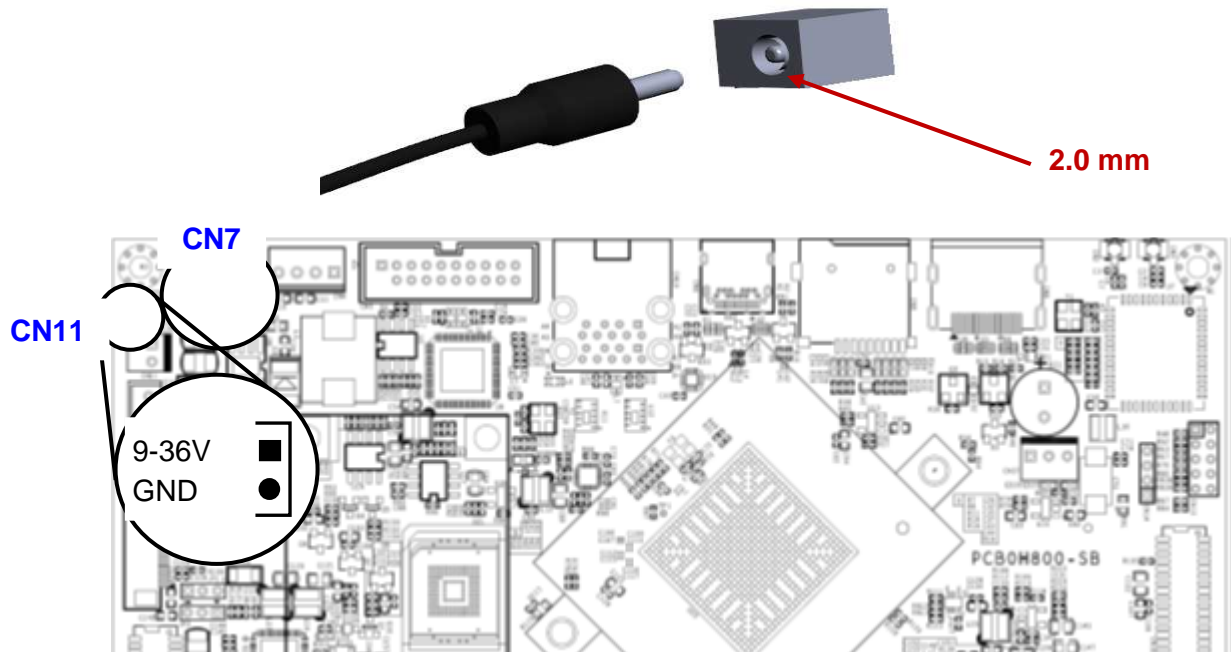
**Warning: CN7 and CN11 are connected together. Only one power source
can be applied to either CN7 or CN11.**

After plug in the power, long press on **SW2** to start SBC3100.
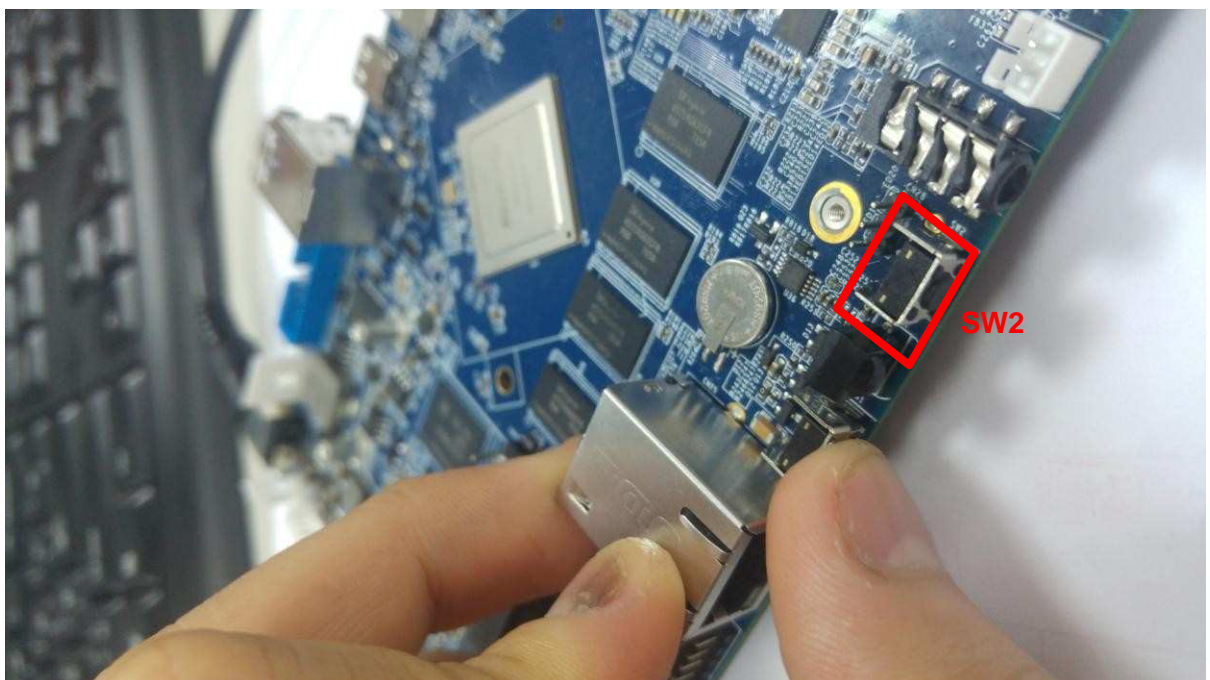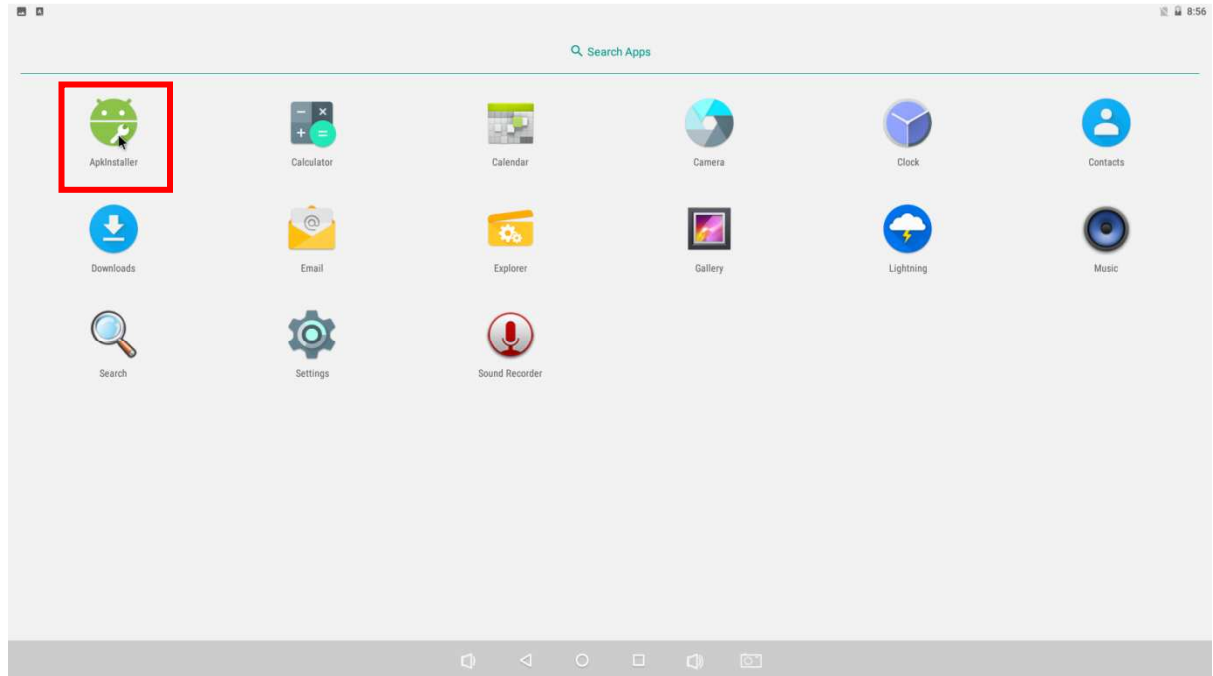
4.   Running Software
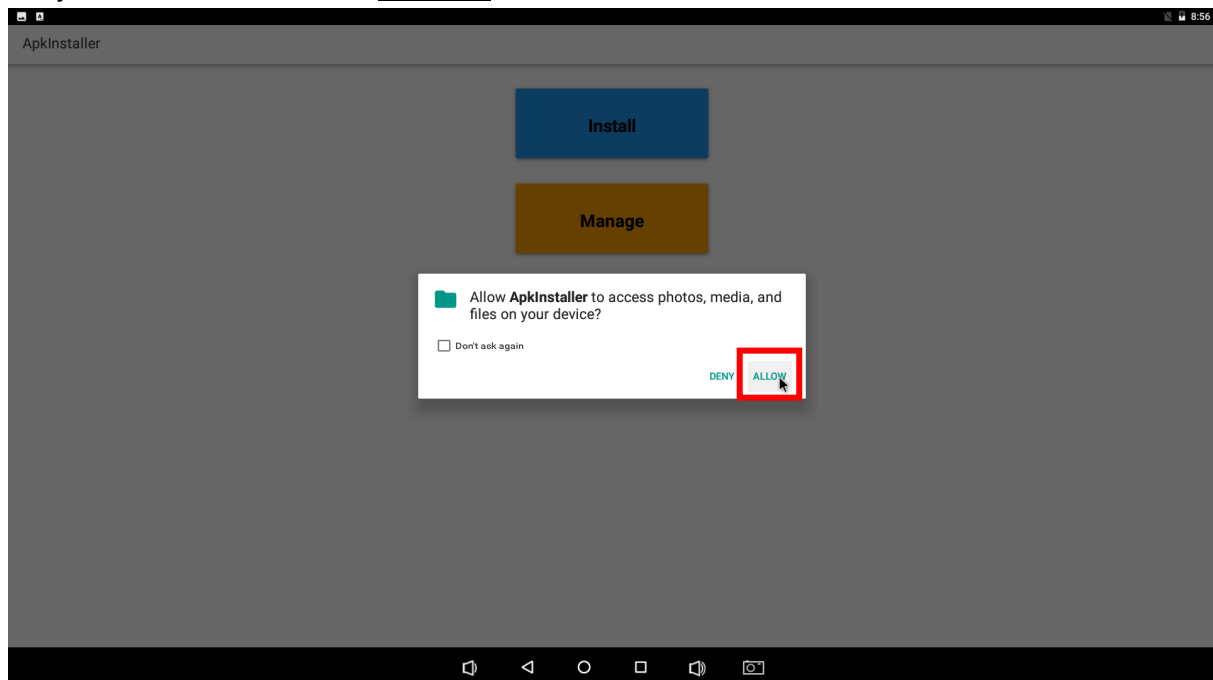
4.1   Android

4.1.1   Desktop
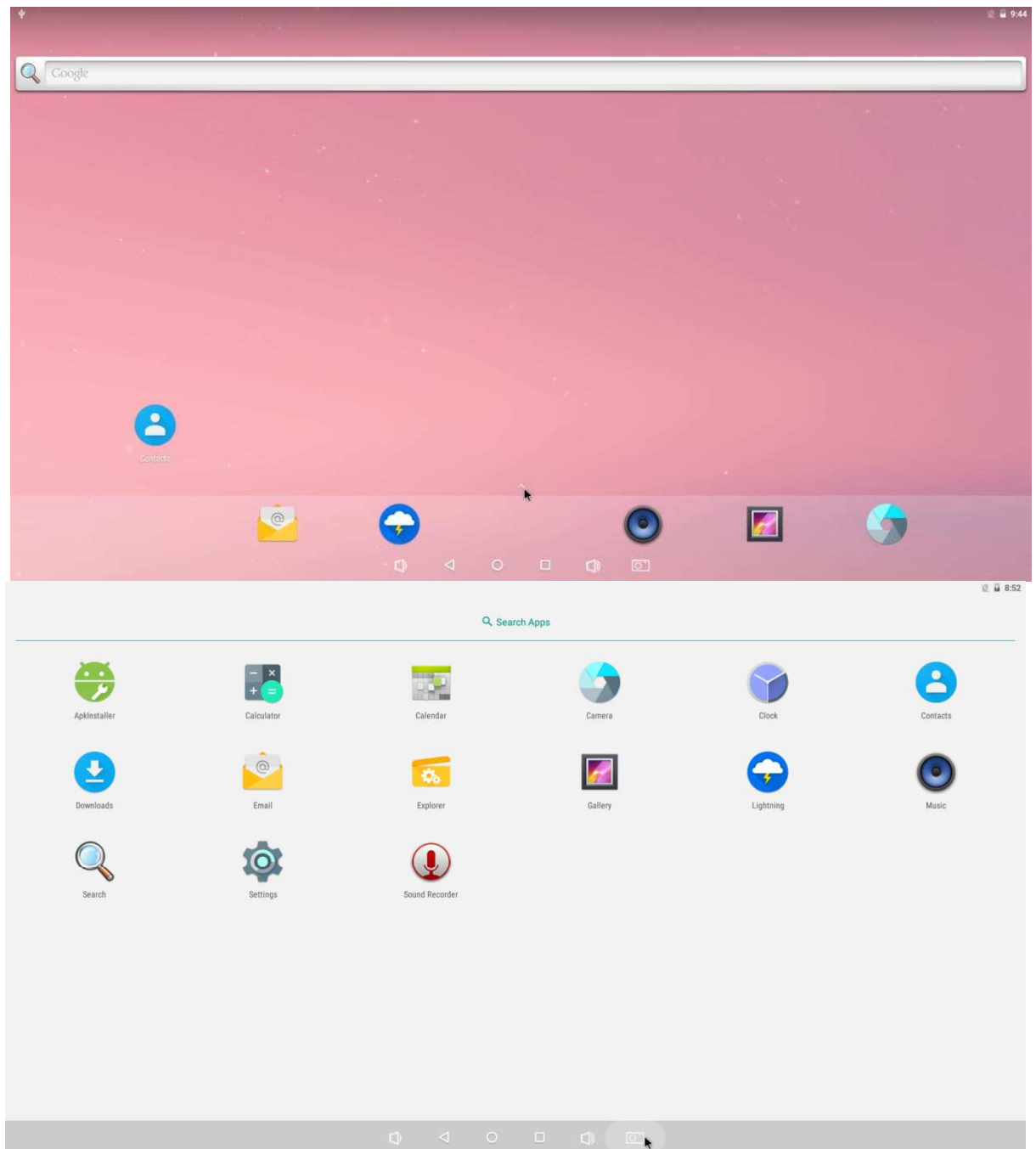
4.1.2   Apkinstaller

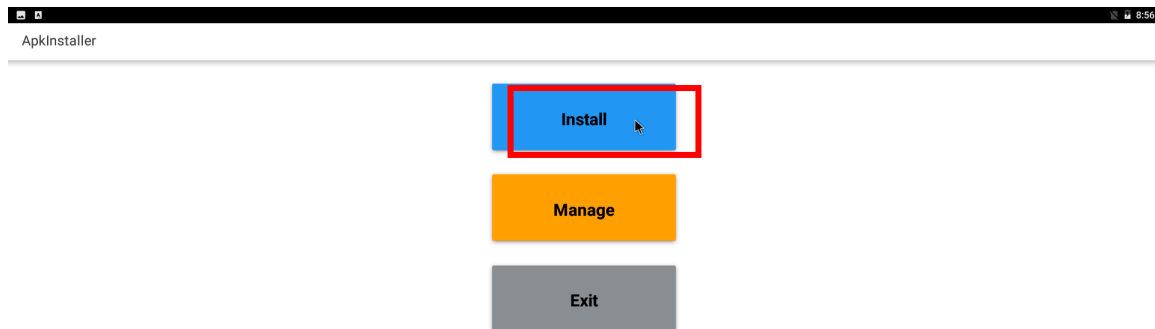Following are the steps how to install apps from external devices using
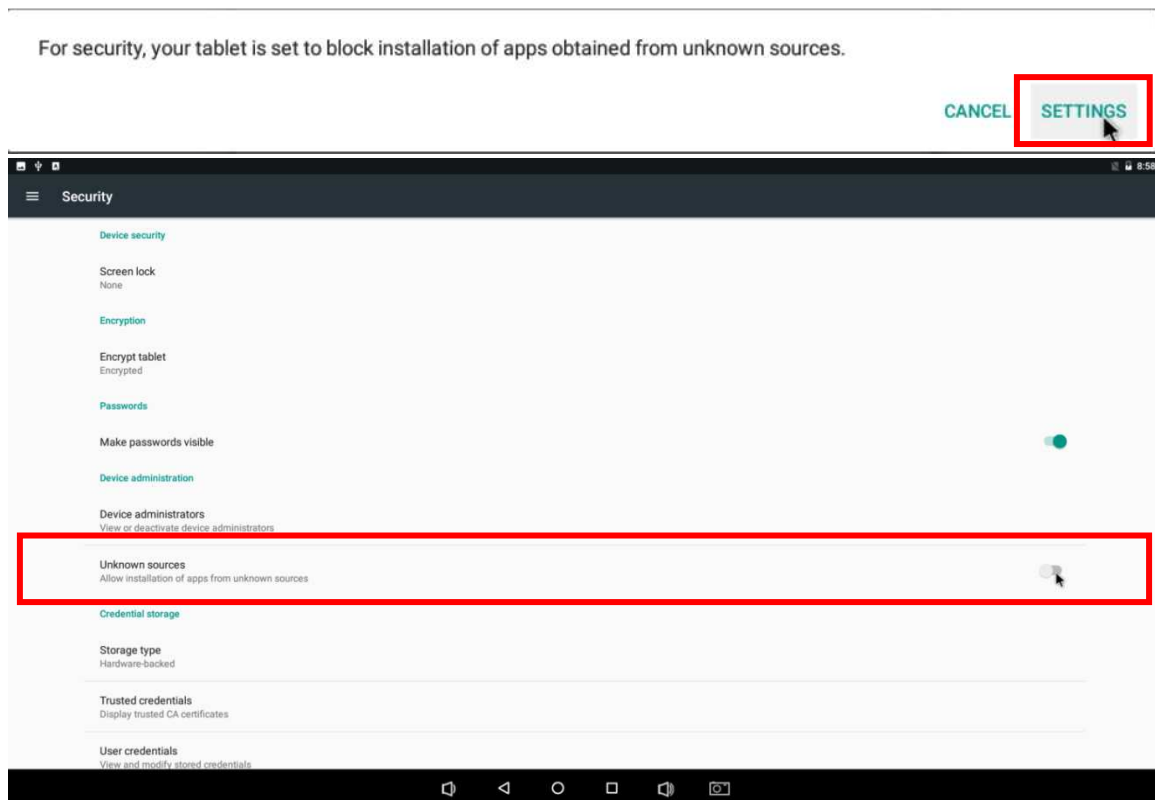**Apkinstaller**.

1) Go to **Apps** → Find "**Apkinstaller**"

2) It will ask you if allows Aplinstaller to access photos, media and files on
   your device? Click on <u>ALLOW</u>

3) Click on **Install**

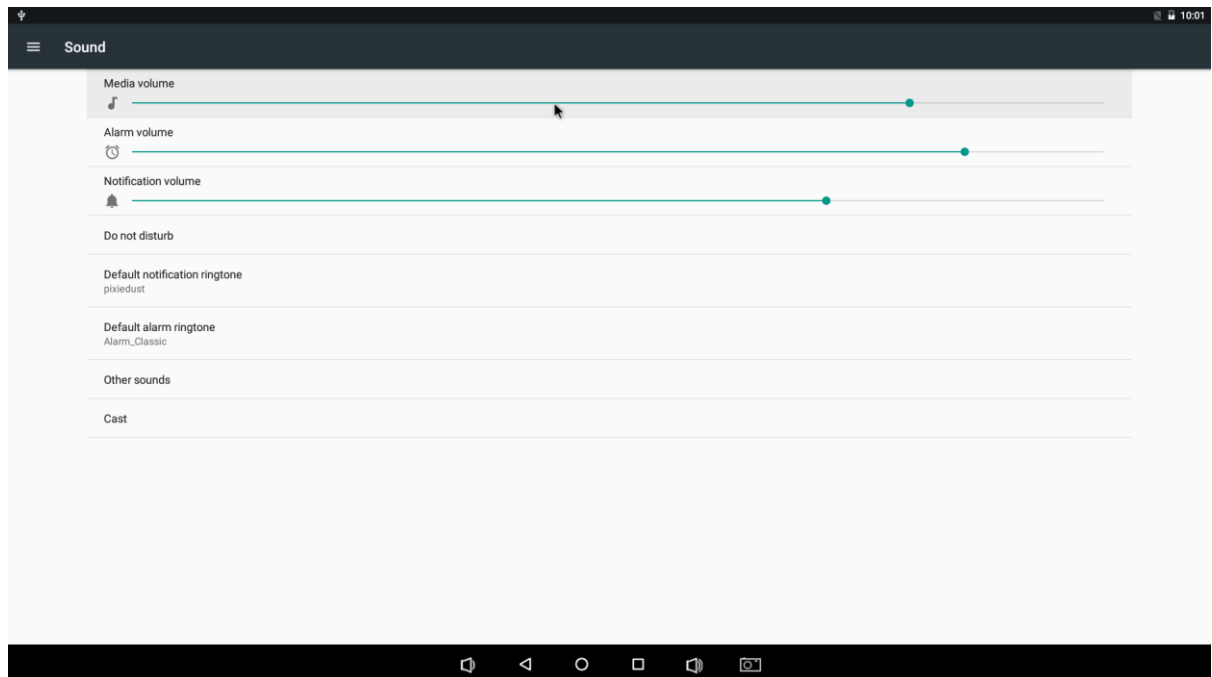4) Go to **Settings** → turn on the **Unknow sources** option.

5) Click on **OK**
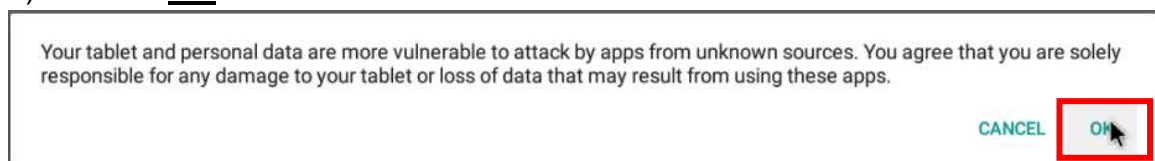
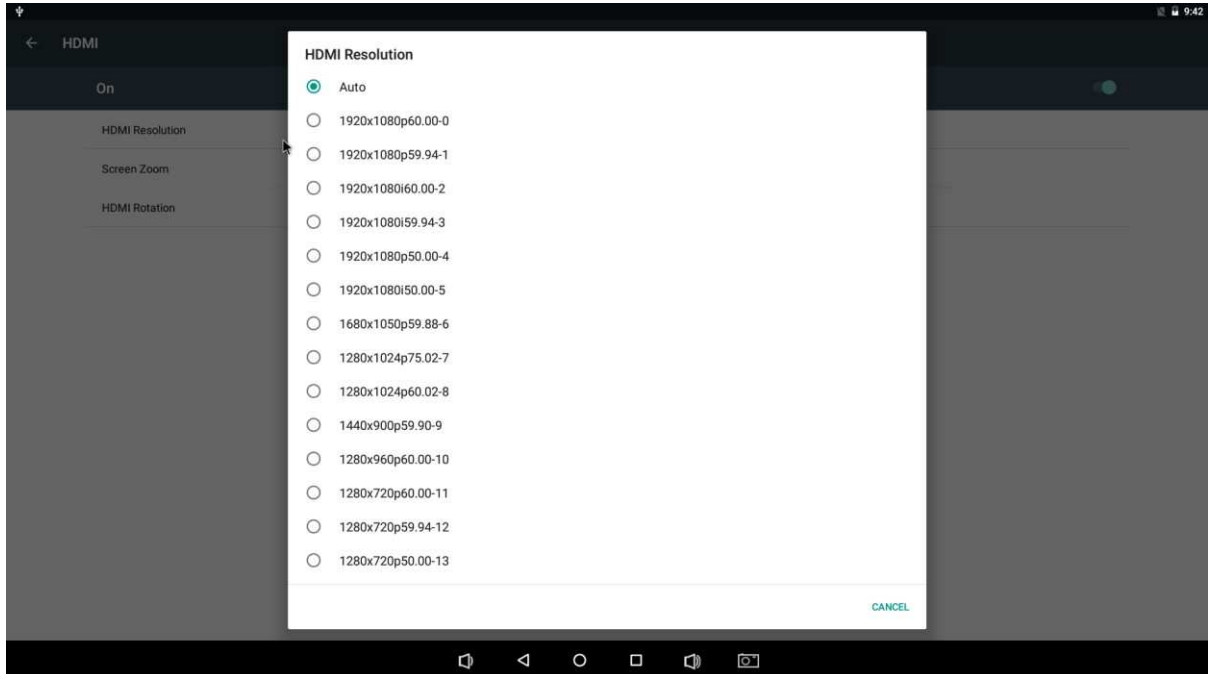You can now using Apkinstaller to install apps you want.

4.1.3   Sound Settings

Go to **Apps** → **Settings** → **Sound** to set up sound volume.

4.1.4   HDMI Resolution Settings

You can use Android HDMI Resoultion to set up the idea resolution.
Go to **Apps → Settings → Display → HDMI → HDMI Resolution**
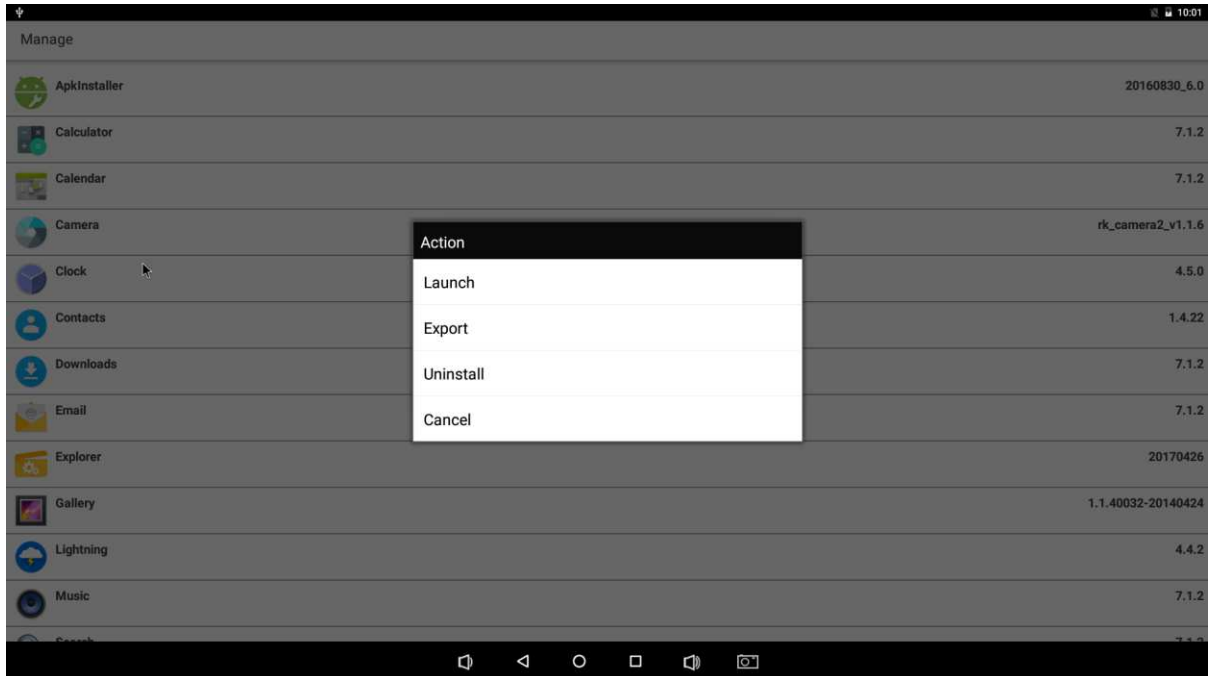

Note: **In our Android system, like most of normal Android, there is the sleep mode for power manages.**
You can set the time out of sleep mode in Settings > Display > Sleep. The minimum is 15 seconds. When time is up, the screen will be dim.
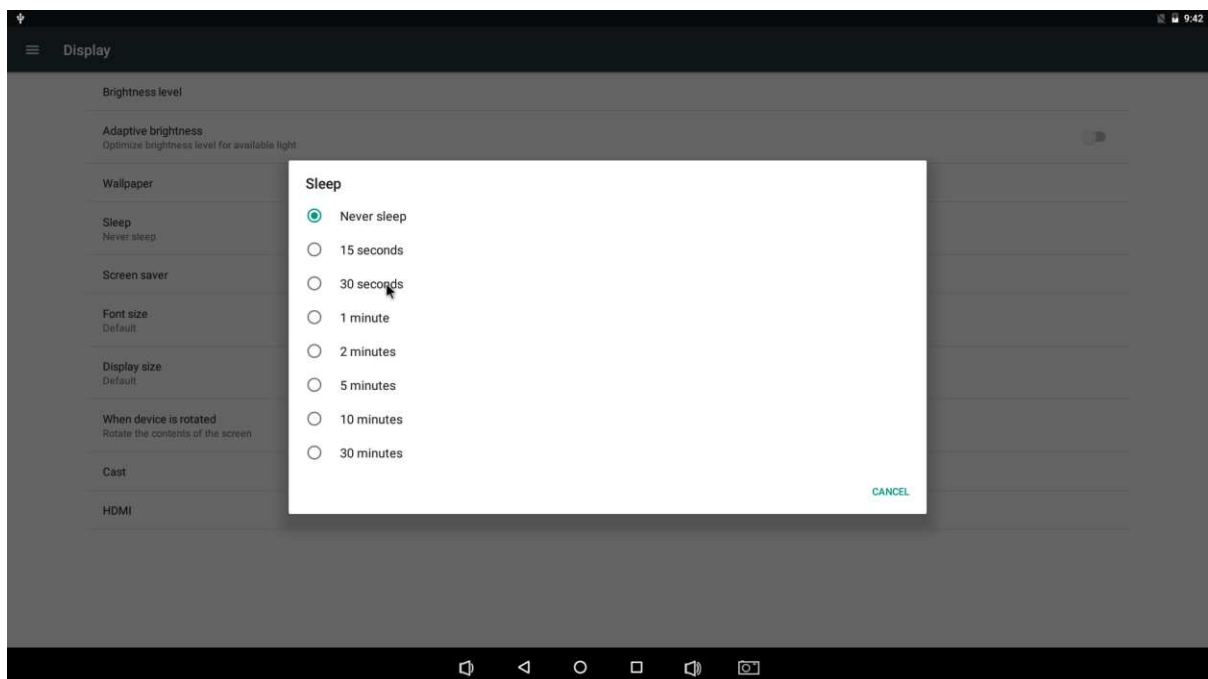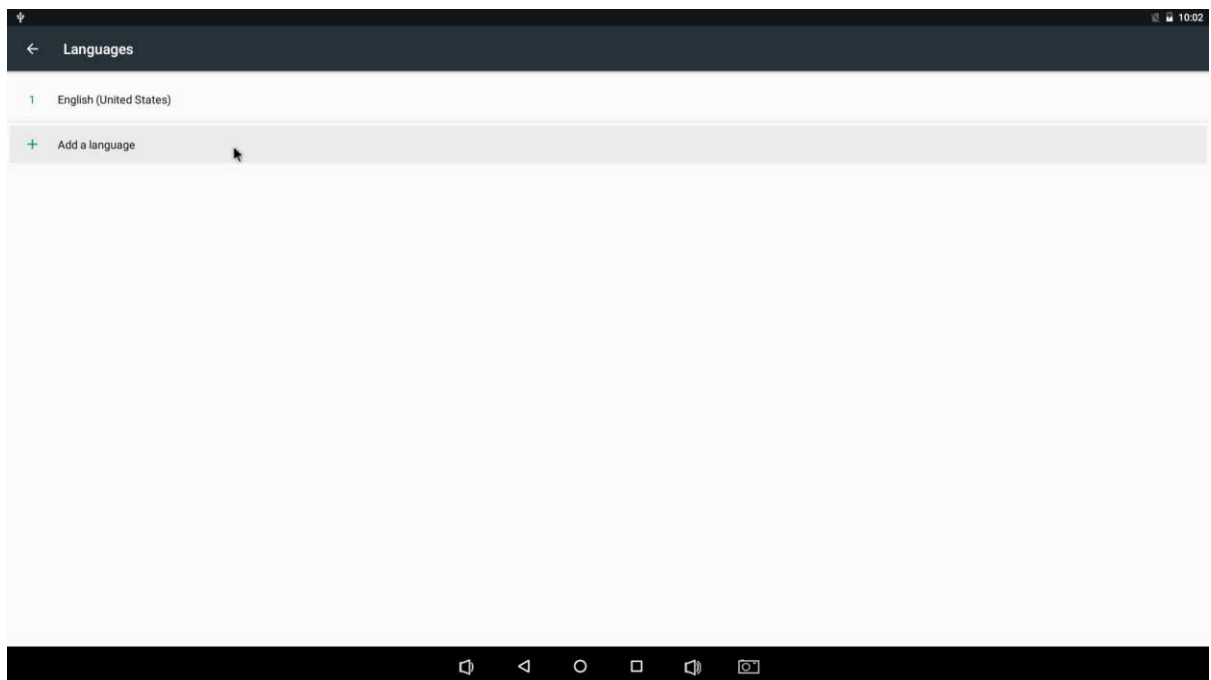
4.1.5   Apps

Go to Settings → Apps to manage all apps. You can force-stop or uninstall
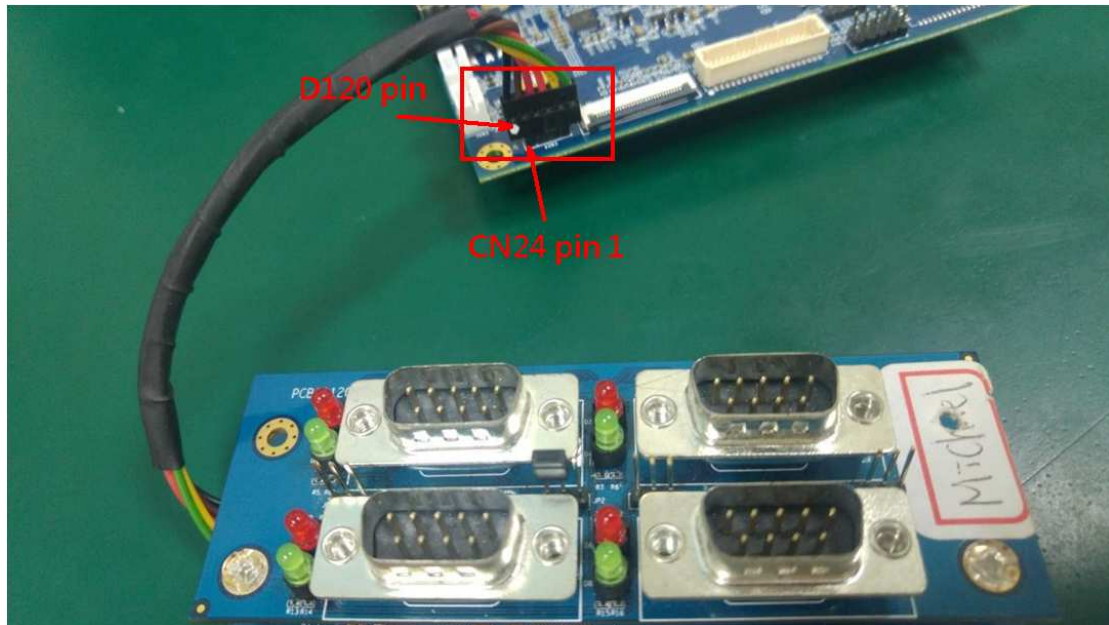an app that you have installed.

4.1.6   Language & Input

You can change the UI display language and the default input methods.

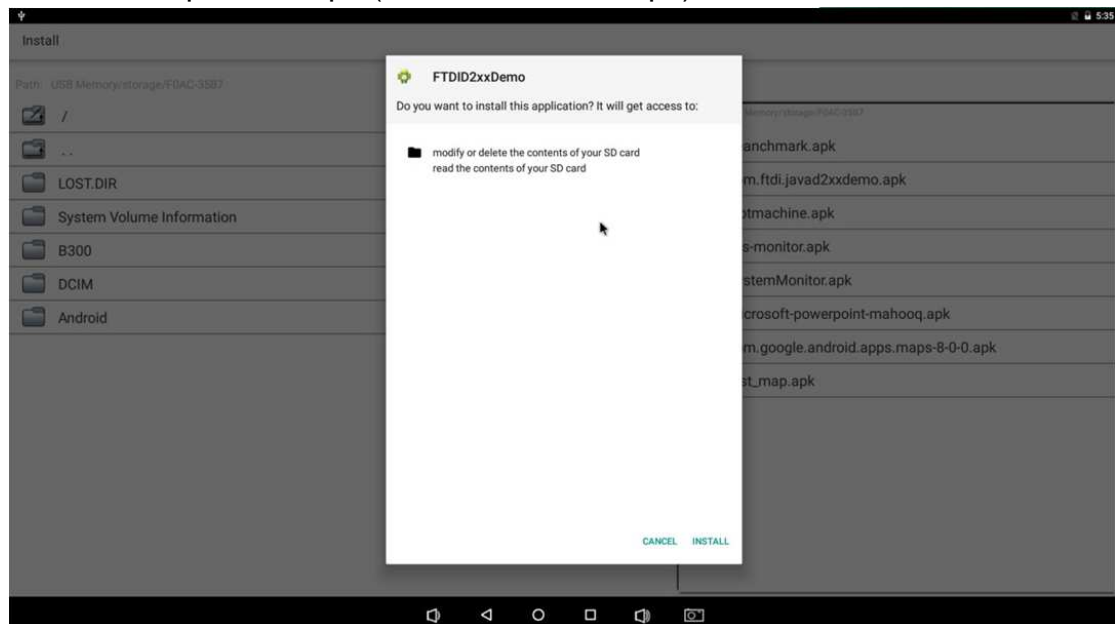## 4.1.7   Connect to D120 module

D120 is an expansion board designed for i.MX6 and RK3399 series main boards to expand 4 x RS232/RS485/RS422 serial ports.
For more information please contact us for the D120 Reference Manual.
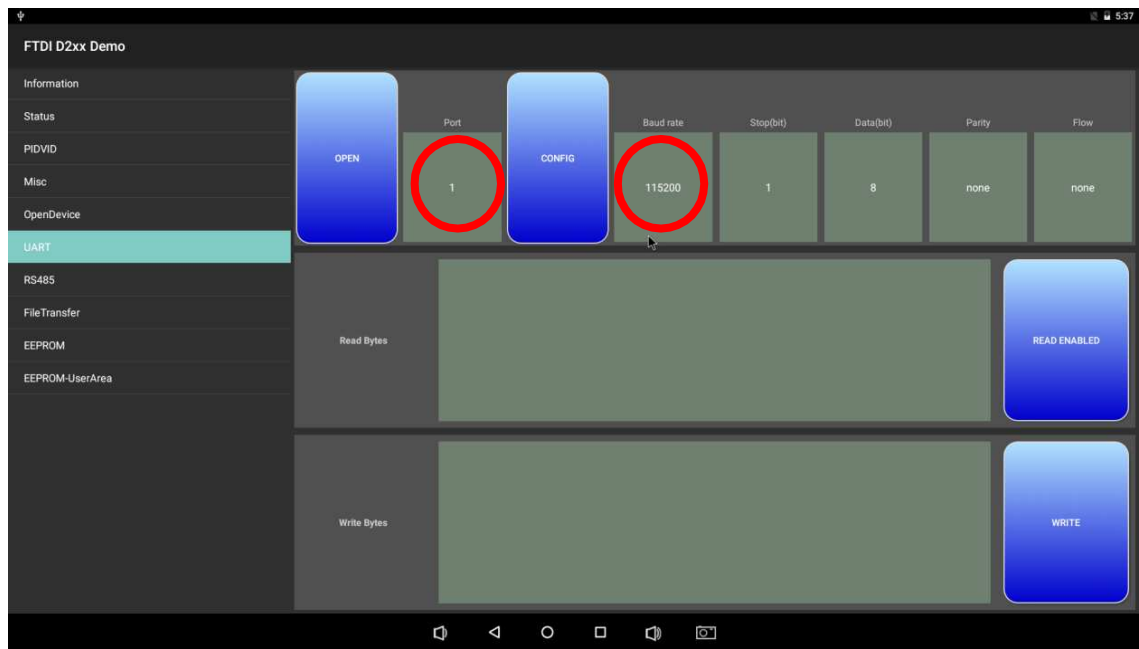

1)   Install serial port test apk (FTDID2XXDemo.apk)

Contact us for the FTDID2XXDemo APK.

2)   Test RS232 / RS485 function:
      Go to UART.
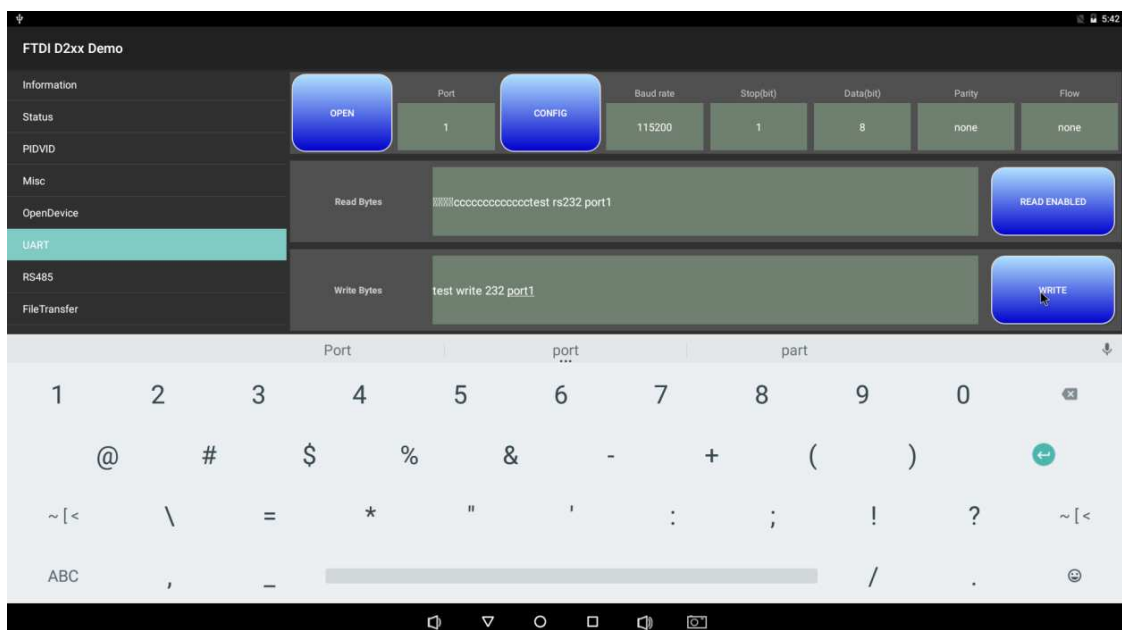3)   Setting up Port and click on OPEN. Setting up Baud rate as shown below

and click on CONFIG.

4) Turn on any terminal program on your PC. Select the same port and setting up Baud rate to begin RS232 test.

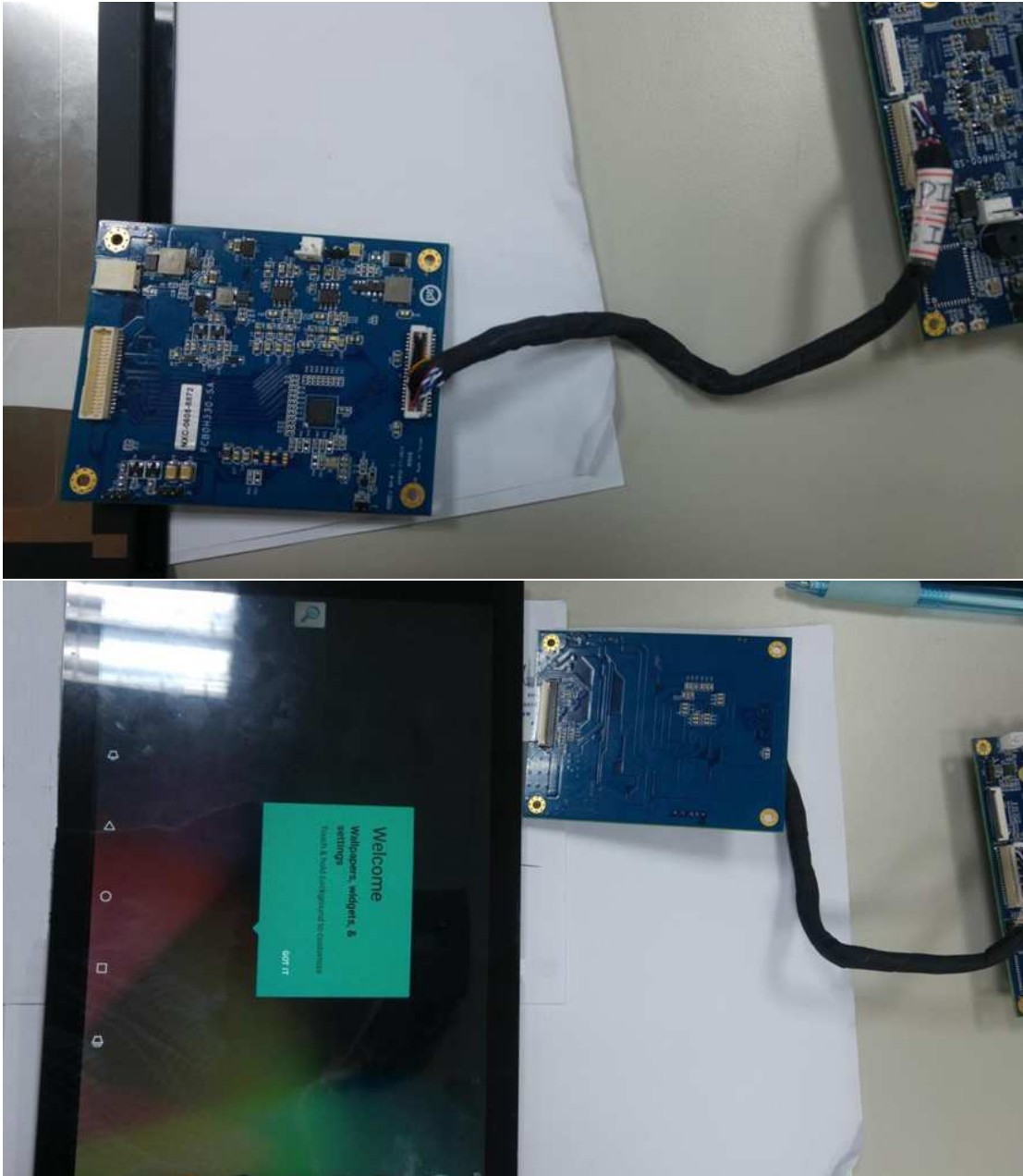To test RS485 function, please use a jumper to select RS232 / RS485.

4.1.8   Connect to H330 MIPI-LVDS bridge

The H330 MIPI-LVDS bridge is a display board which support MIPI input to

LVDS output signal.

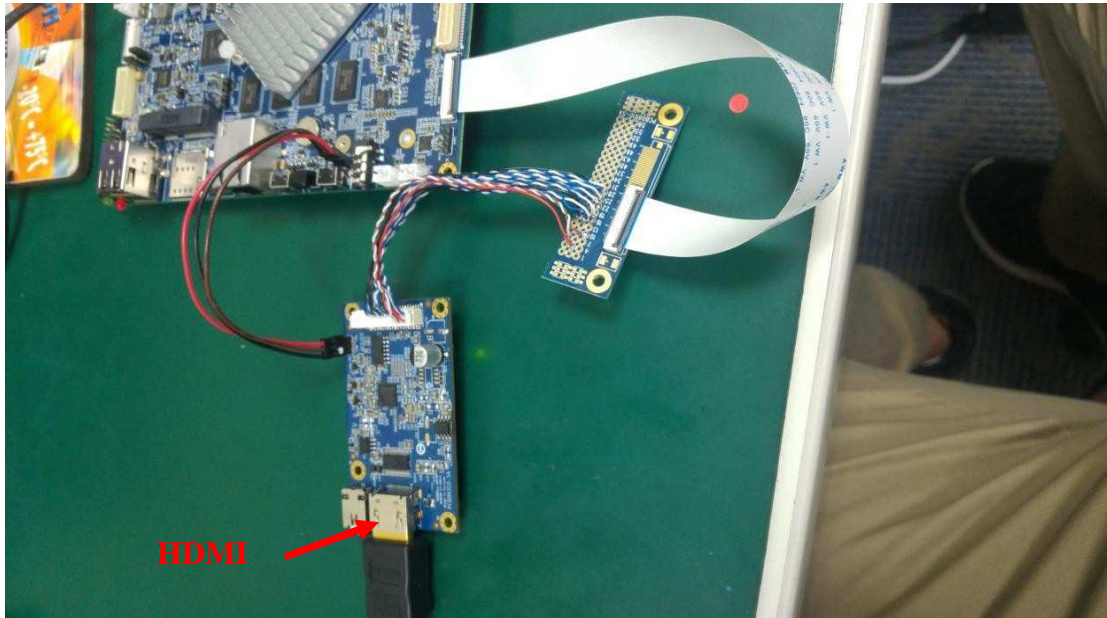Connection between SBC3100 and H330 shown as below:

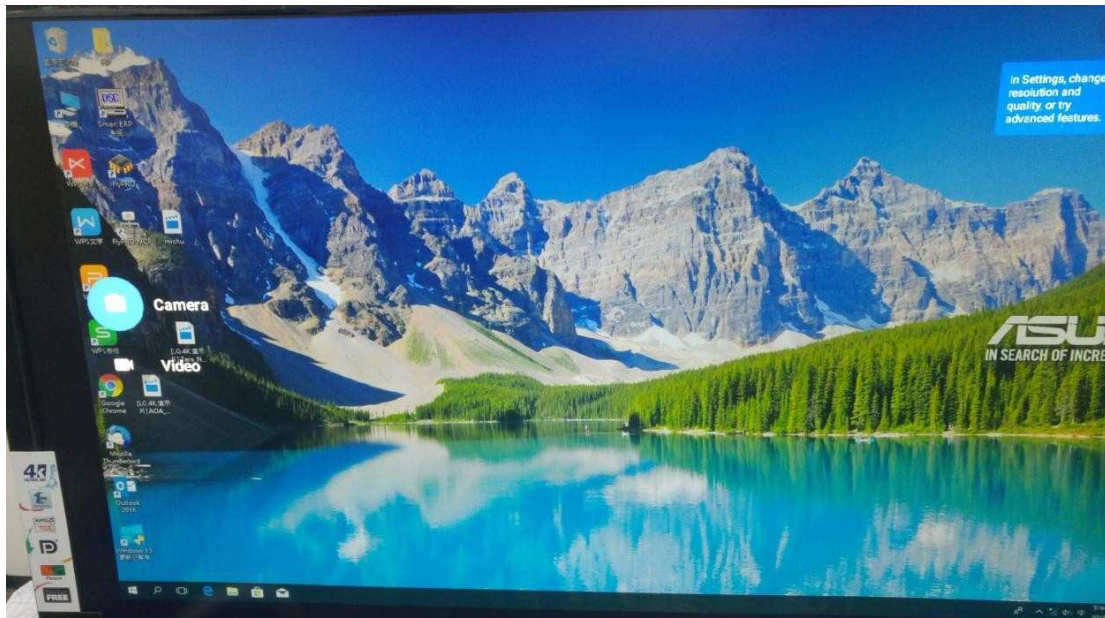**For more detail information please contact us for the H330_Reference Manual.**

4.1.9   Connect to H310 HDMI Receiver

H310 is one of optional module which can transfer the HDMI input signal to

MIPI and Audio output.

Connection between SBC3100 and H310 shown as below:

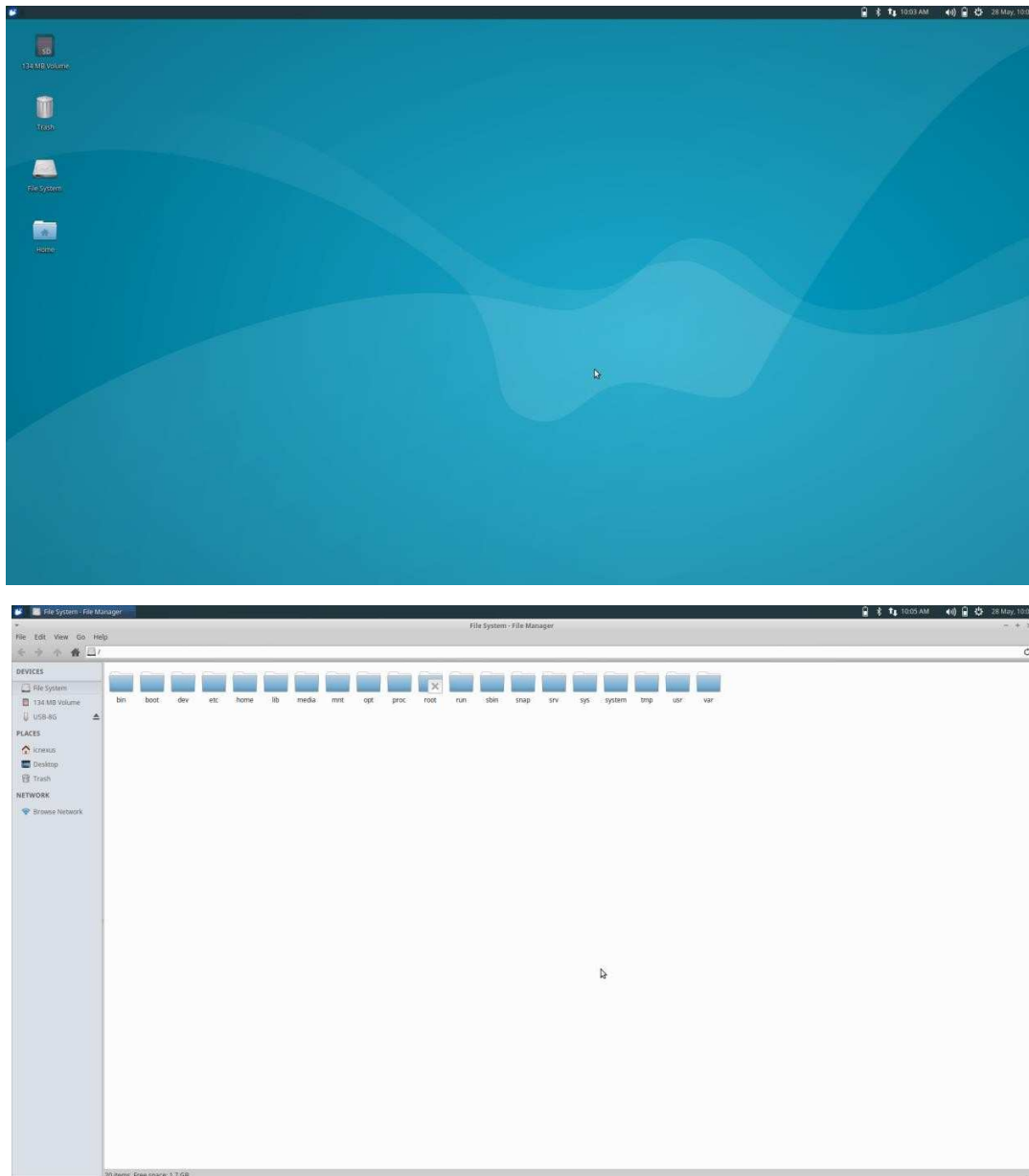Using Android default Camera apps to show the input streams.

4.2   Ubuntu Linux

Root Password: *icnexus*
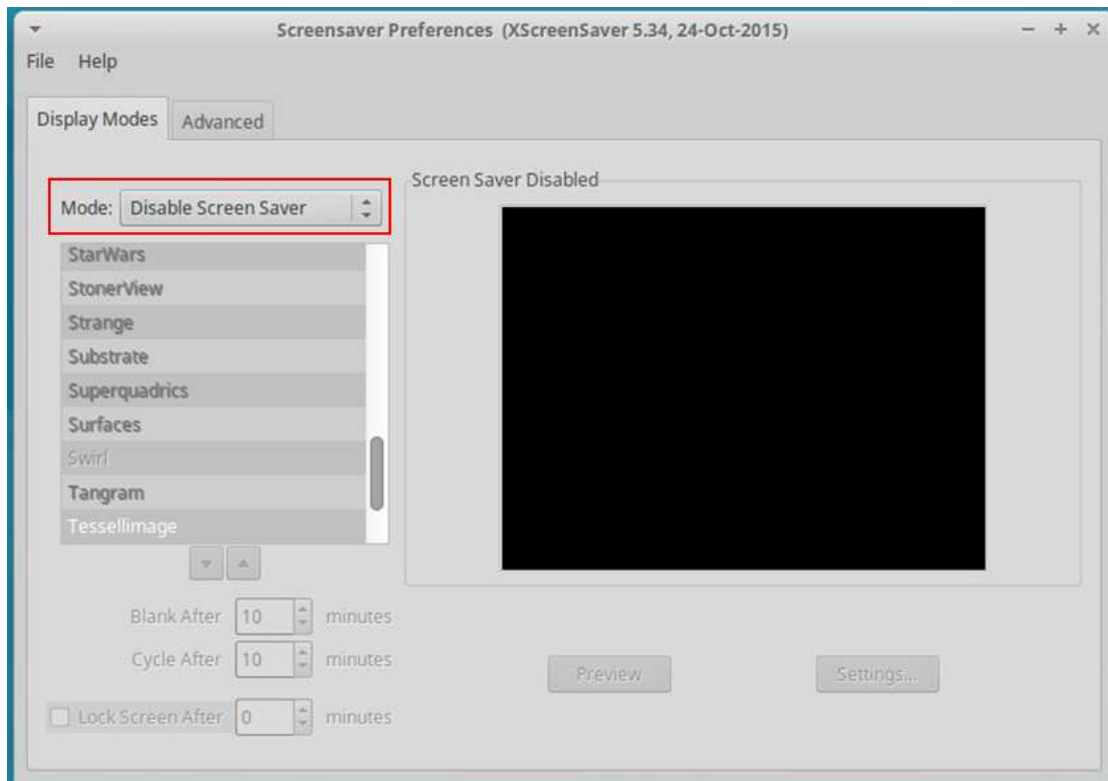
4.2.1   Linux Desktop

Find your Home folder, File System and external momery here.

4.2.2   Screensaver

Like Android, Ubuntu also has the sleep mode. To disable the sleep mode, you can go to **Settings → Screensaver Preference → Display Modes**.
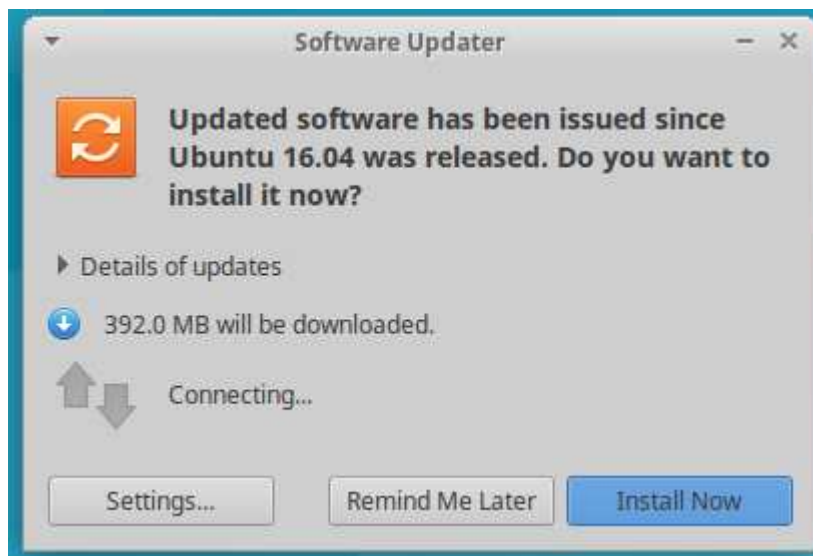
Seclet the mode **Disable Screen Saver**.

4.2.3   Update Manager

If the Update Manager for Ubuntu appears, please close it.

Do not use it to update the system. We do not offer any support that allows firmware update using system update manager.

For any further informatin that we do not mention in the manual, please contact us directly.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

"Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment." "This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmfulinterference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:-Reorient or relocate the receiving antenna.-Increase the separation between the equipment and receiver.-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.-Consult the dealer or an experienced radio/TV technician for help.