SBC3300

Quick Start Guide

Release Notes

Version	Release Date	Notes
1.0	July 2020	Initial release

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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/NOR 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 product is covered by a one-year 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 in this product is provided by third parties, and we make no representation or warranty as to the accuracy of such information.

2. Setup

2.1 Overview

The SBC3300 is a pico-itx form factor (100mmx72mm) single board computer designed for applications such as digital signage, HMI, POS, Gaming, Set top box, KIOSK and other smart devices. The SBC3300 features a quad-core 64-bit ARM Cortex-A35 processor, 2x 10/100 LAN ports and PoE (Power over Ethernet) for a wide range of commercial and industrial applications.

Each SBC3300 can be installed in advance with Linux or Android for immediate evaluation.

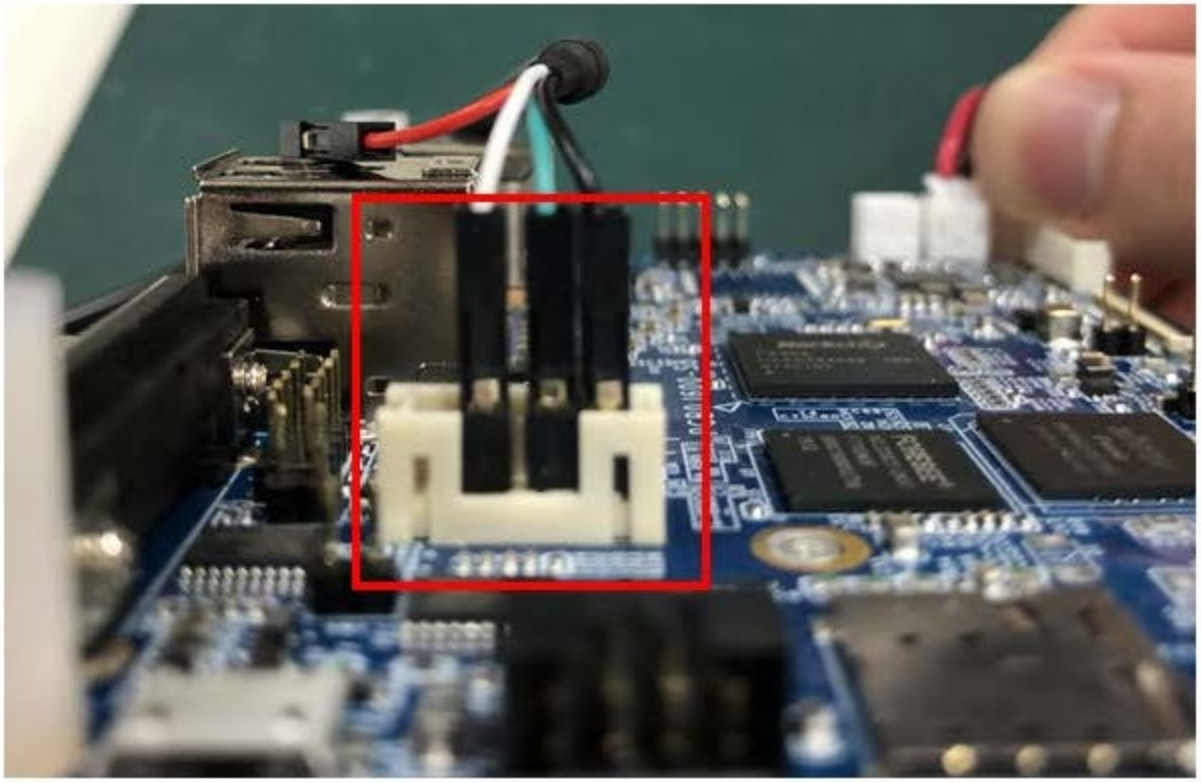
Console / Debug Port

To use the Debug port, please follow the following steps.
You can refer to the Quick Start Guide for more detail.

① First, connect to debug port and run your hyper terminal program of choice.

- *Make sure you have a USB UART cable. Please note the cable is not included with this product.*

The USB cable comes with four colored terminals. Connect them as shown below.



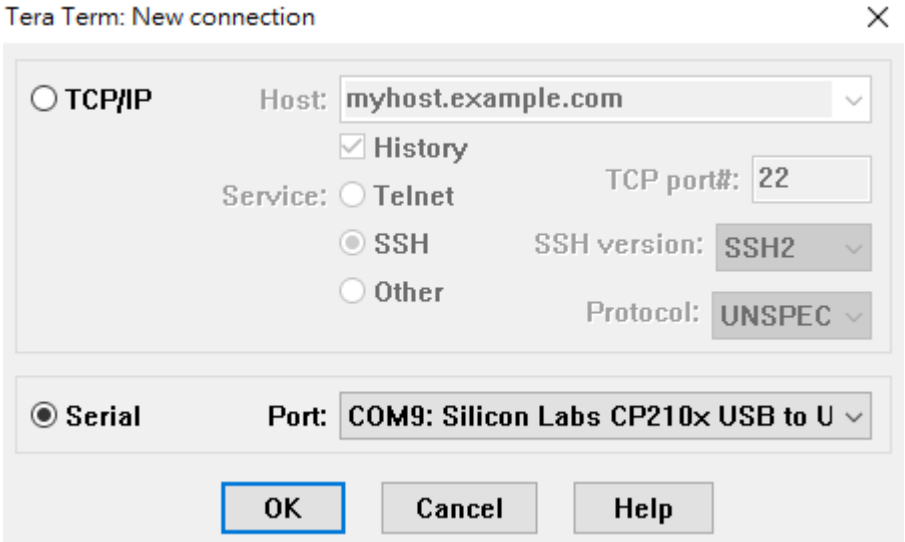
WARNING: Do NOT connect the red cable (VCC) to the board.

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)

② **Connect to PC**

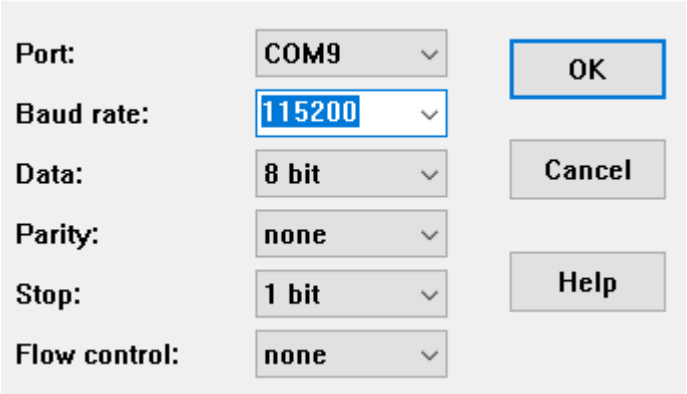
The SBC3300 is based on a Silicon Lab CP210X chip. You may need to download and install the driver if your PC does not support it. Please download the file from here: https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers.

Run your terminal emulation program of choice (e.g. TeraTerm) and open the Serial/COM port.

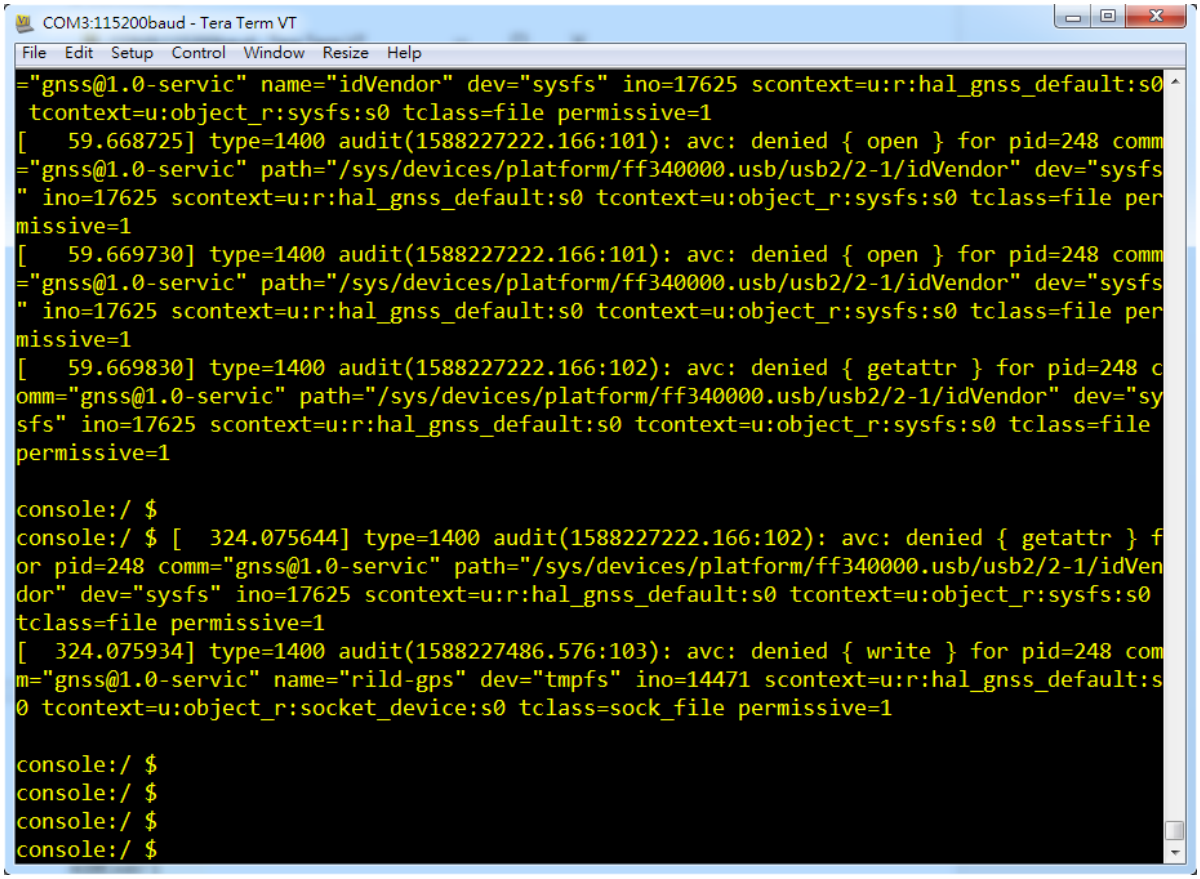


If nessecary, modify the settings to the following:

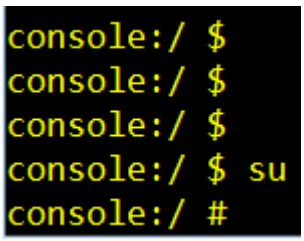
Baud Rate 115200, 8 data bits, no parity, 1 stop bit and no flow control.



If the connection is successful, the console will display “$” to indicate it is waiting for a command.



At this point, the device has entered debug mode. Type “su” into the console to enter root mode.



A “#” indicates the system is now in root mode.

2.2 Start Running

The SBC3100 board allows +12V DC power input to CN18 2-pin header:

2.3 Features and Specifications

NSD3300 is a series of products that combine functionality of TFT LCD display, capacitive touch screen and SBC3300 main board.

For detailed specifications of SBC3300 main board, please refer to Chapter 3 SBC3300 Interface Specifications in the manual.
For specifications of TFT LCD and touch screen, please refer to NSD3300 Specifications in below table.

Features

- 5-inch / 7-inch / 10-inch TFT LCD
- 6H hardness capacitive touch screen
- 64-bit Quad-core Cortex-A35 @1.3Ghz
- Dual Display Interfaces
- Dual 10/100Mbps LAN (LAN2 optional)
- I/O: 5x USB2.0, 2x RS232/485, 8x GPIO
- PoE (Power over Ethernet) (optional)
- Battery Charging (optional)
- OS: Android, Ubuntu
- -20°C~70°C operating temperature

NSD3300 Specifications

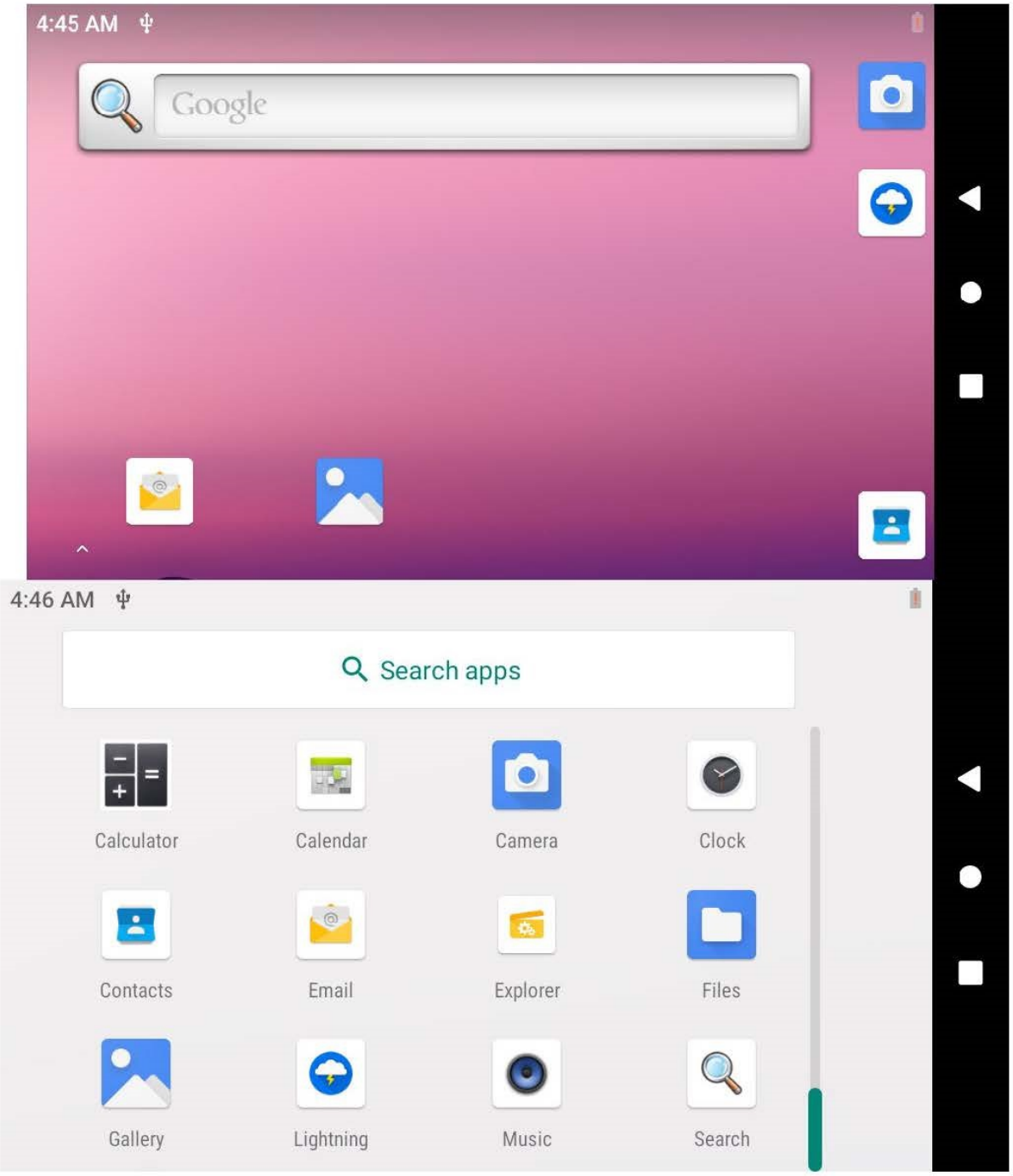
		NSD3310WS	NSD3307WV	NSD3305WV
Display	Screen Size	10.1-inch	7-inch	5-inch
	Resolution/Color	1024x600 / 16.7M	800x480 / 16.7M	800x480 / 16.7M
	Active Area (mm^2)	222.72 x 125.28	154.08 x 85.92	108 x 64.8
	Contrast	800	500	500
	Luminance (cd/m^2)	400	250	350
	Backlight Lifetime	LED 30K hours	LED 10K hours	LED 15K hours
	View Angle (°)	(H) 85/85; (V) 85/85	(H) 70/70; (V) 50/70	(H) 70/70; (V) 50/70

	2nd Interface	1x 24-bit RGB	1x LVDS (or MIPI-DSI)	1x LVDS (or MIPI-DSI)
Touch Screen	Type	Projected Capacitive	Projected Capacitive	Projected Capacitive
	Points	10	10	10
	Operation force	10g	10g	10g
	Hardness	6H	6H	7H
CPU Memory OS	Processor	Rockchip PX30K (64-bit quad-core ARM Cortex-A35 @ 1.3Ghz)		
	DDR3 / Flash	LPDDR3 1GB (or 2GB) / eMMC 8GB		
	OS	Android 9.0 (or higher) / Ubuntu 18 (or higher)		
Power	DC Power	+12V (optional 12V-36V converter board)		
	PoE	(optional) external PoE module to LAN1		
	Battery	(optional) battery charging function		
Audio	Audio Interfaces	2x speaker connector + 1x MIC/Earphone connector		
Network	LAN	LAN1: 10/100Mbps Ethernet LAN2: 10/100 Mbps Ethernet (optional)		
I/O	Camera	1x MIPI CSI (4 lanes)		
	USB ports	1x USB2.0 OTG + 5x USB2.0 Host		
	COM Port	2x RS232 (or RS485)		
	I^2C / GPIO	1x I^2C master + 8-bit GPIO		
Timer	Watchdog Timer	Yes		
Temperature	Operating Storage	-20°C to 70°C -30°C to 80°C		
Certification	EMI / EMC	CE, FCC		
Option	Optional Functions/Modules	WiFi 802.11bgn/Bluetooth 4.1; PoE module; Battery Charging		
Weight / Dimension		237 x 167 x 50 mm	167 x 126 x 45 mm	141 x 110 x 42 mm

3. Running Software

3.1 Android

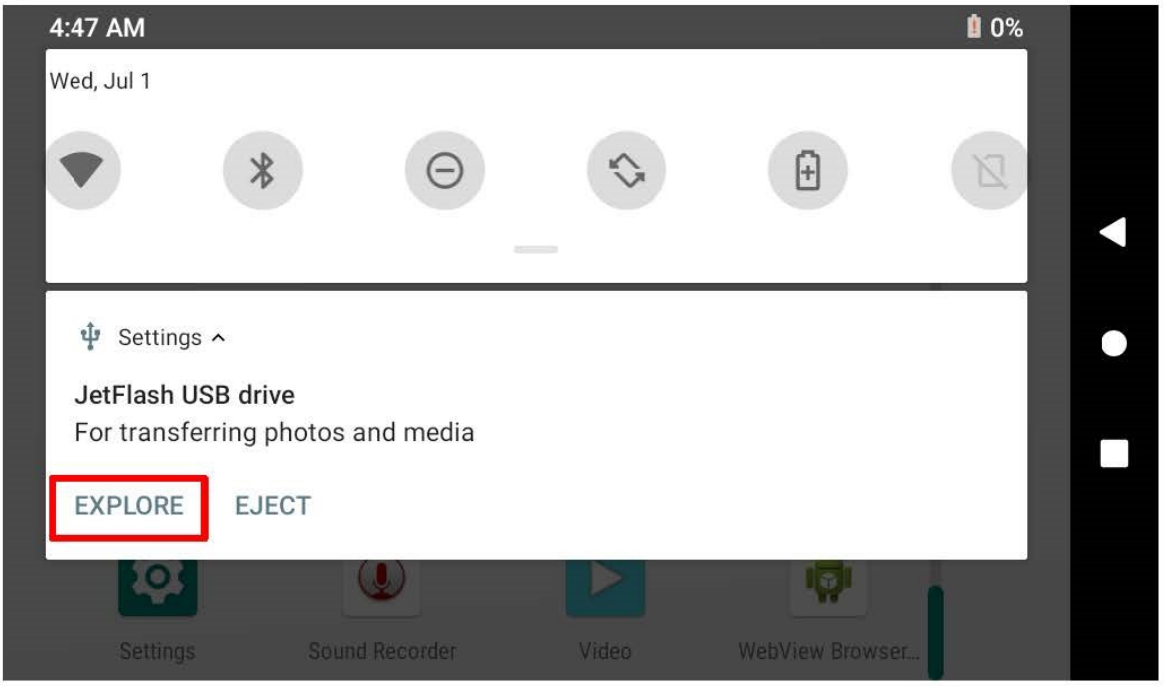
3.1.1 Desktop



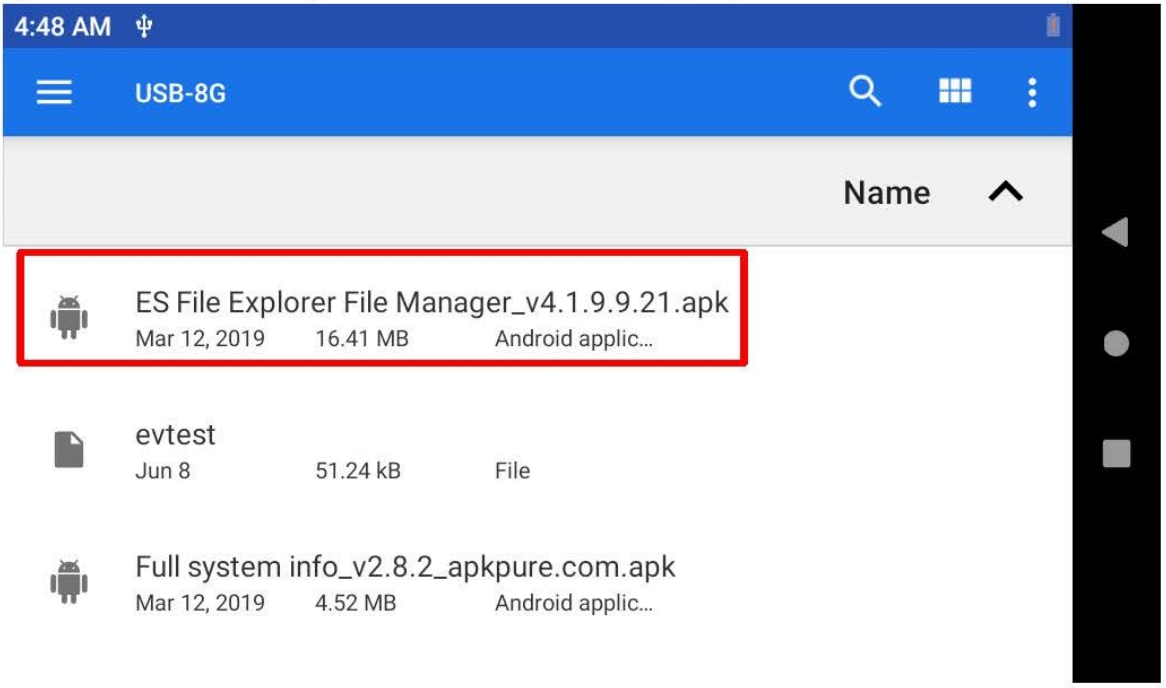
3.1.2 APK install

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

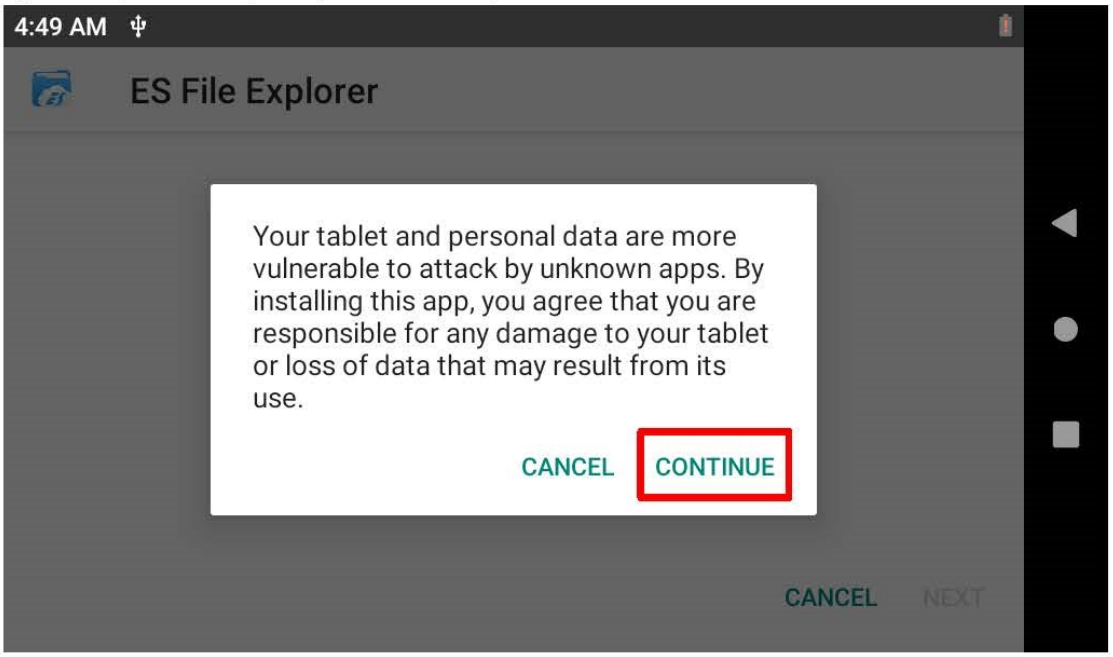
1) Go to **USB devices** → And "**EXPLORE**"

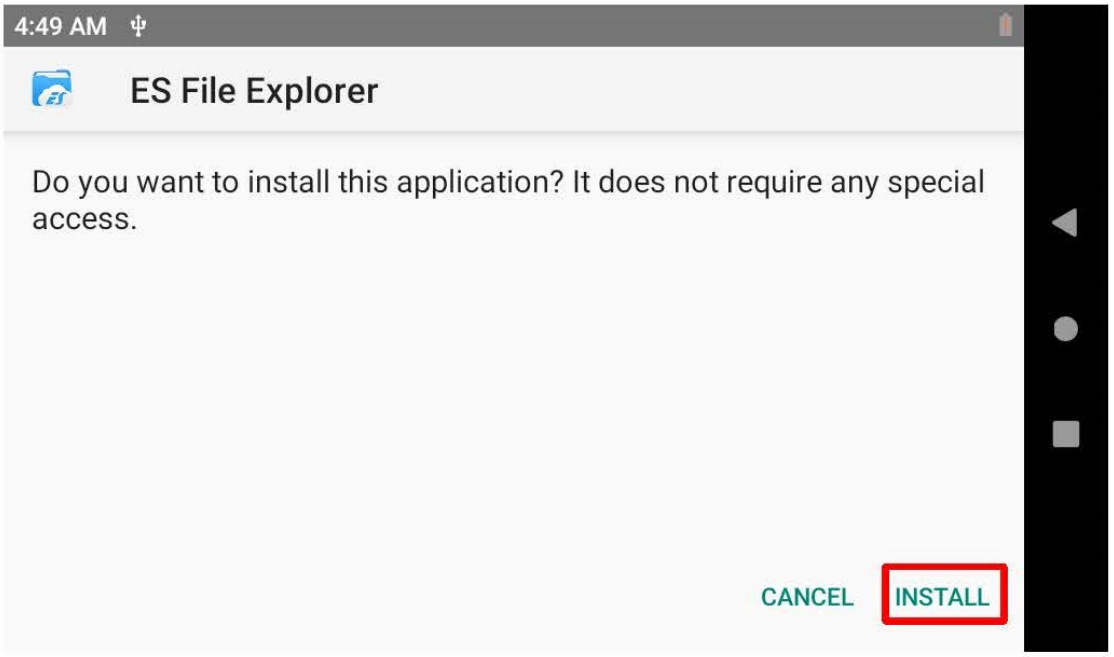


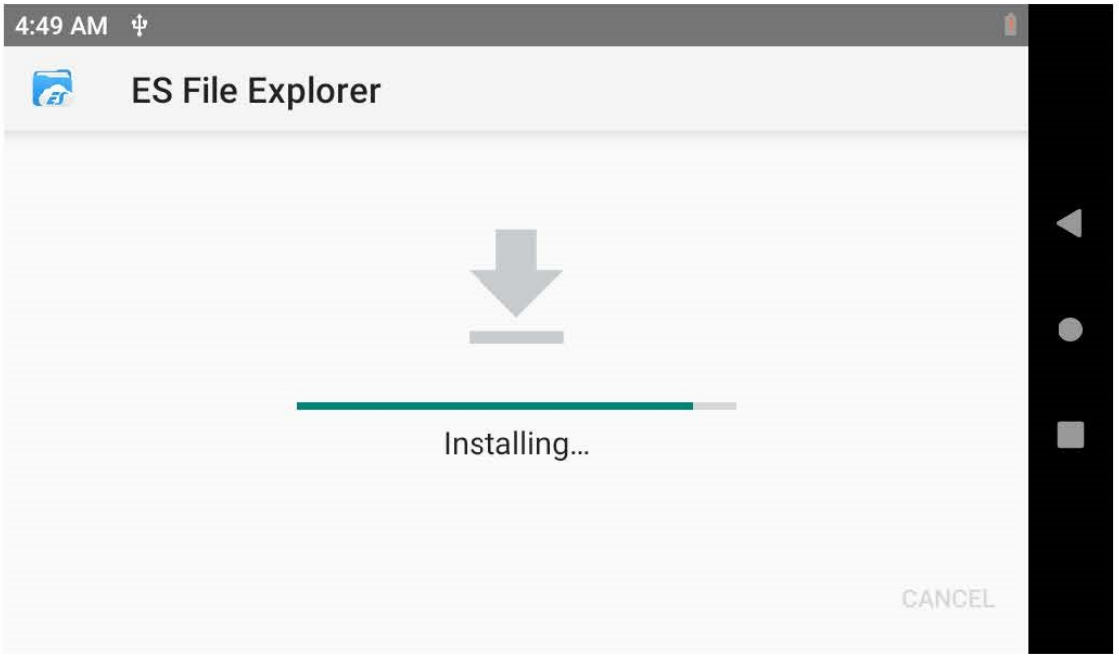
2) You can now using USB devices to install apps you want.



3) Click **APK File** and **CONTINUE** to install

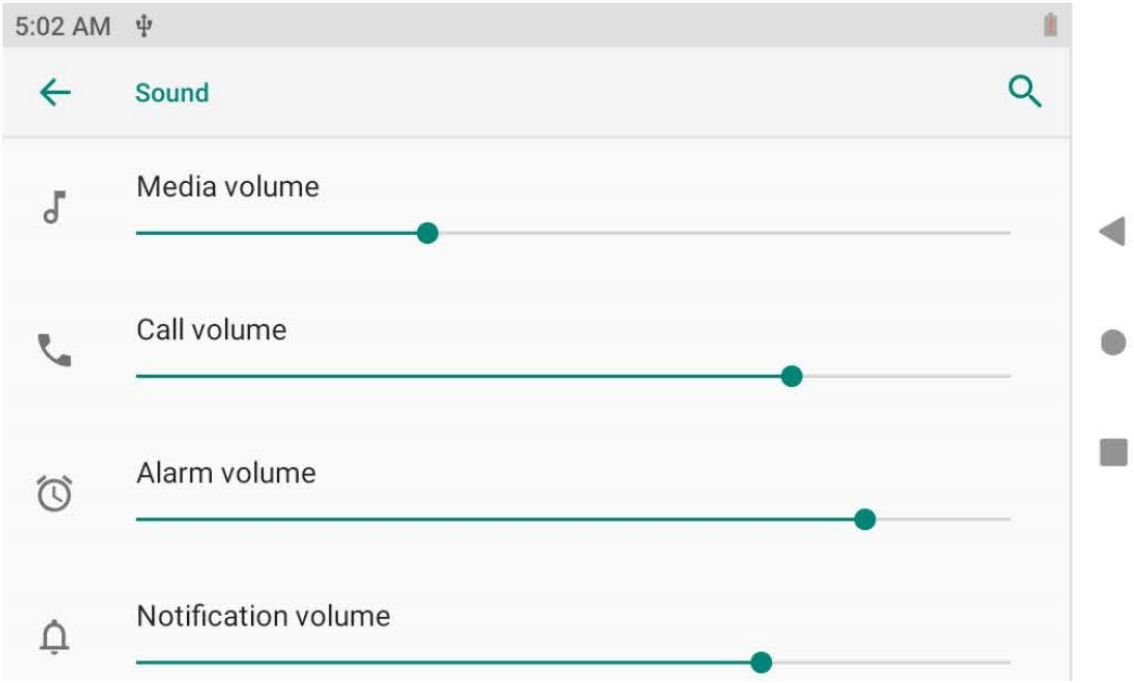






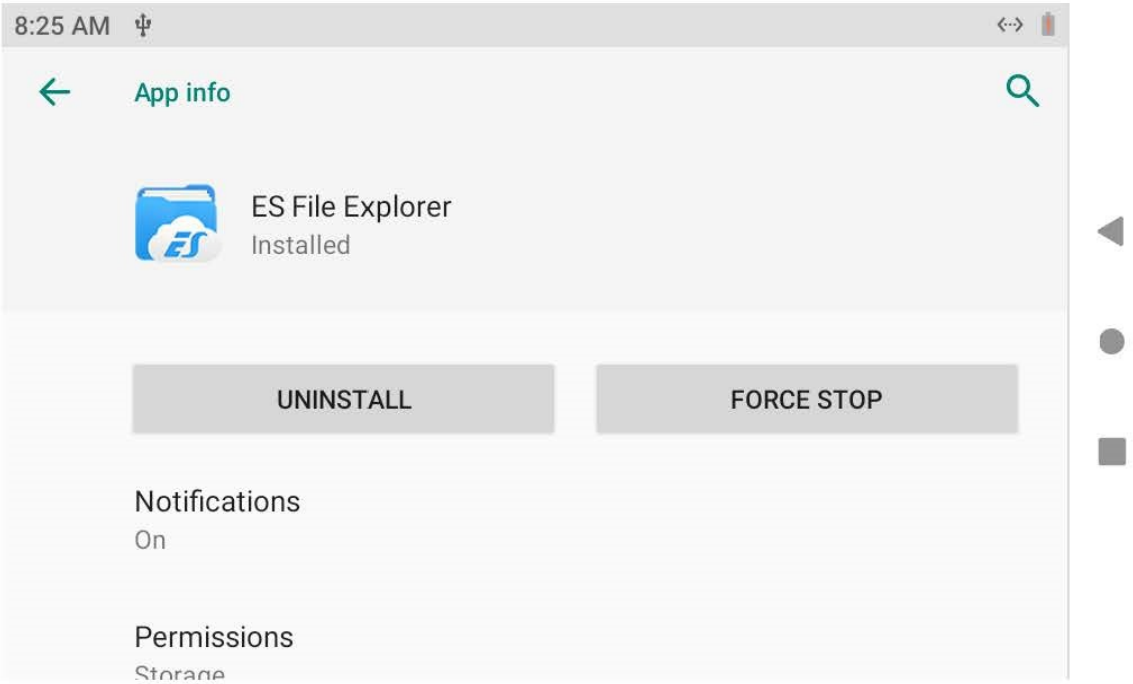
3.1.3 Sound Settings

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



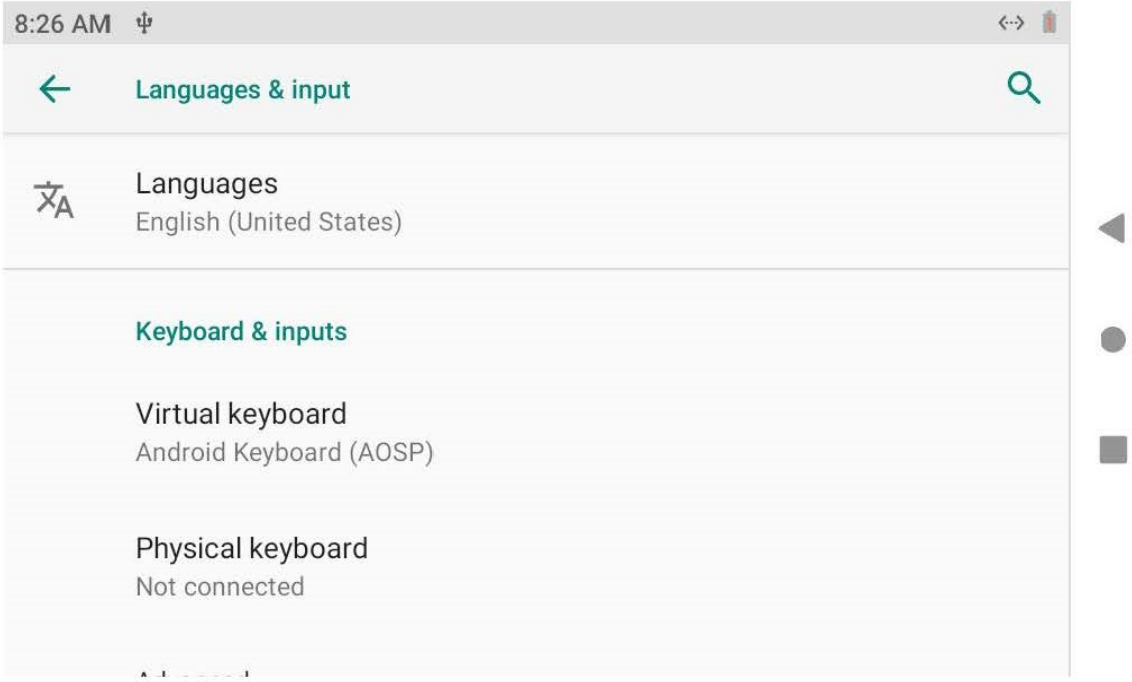
3.1.4 Apps

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



3.1.5 Language & Input

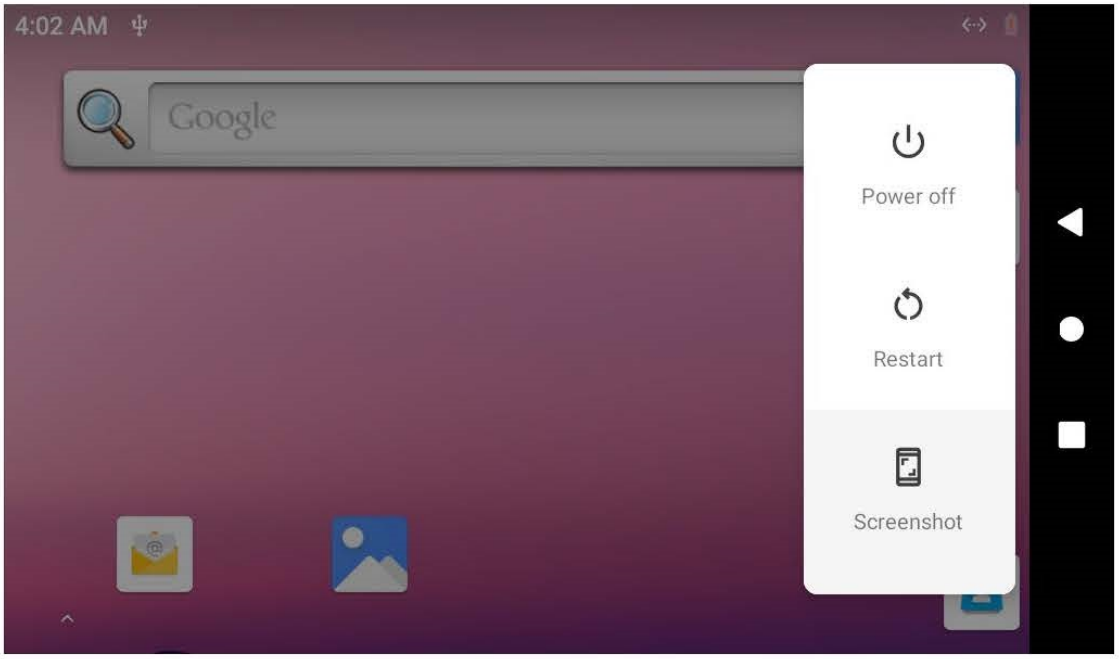
You can change the UI display language and the default input methods.



3.1.6 Power Button Switch(SW2)

When DC power is applied to DC input connector, SBC will be turned on automatically.

☐ SBC can be **Power off/Restart/Screenshot** if SW2 pin1 and pin2 are short for more than 2 seconds.



☐ Suspend Mode, short SW2 pin1 and pin2 more than 1 seconds, if wake up processor from Suspend Mode, short SW2 pin1 and pin2 more than 1 seconds again.

```
[  329.987314] PM: suspend entry 2020-07-06 08:28:54.747403199 UTC
[  329.987360] PM: Syncing filesystems ... done.
[  329.998939] Freezing user space processes ... (elapsed 0.002 seconds) done.
[  330.001624] Freezing remaining freezable tasks ... (elapsed 0.151 seconds) done.
[  330.153276] Suspending console(s) (use no_console_suspend to debug)
```

3.1.7 Reset Switch(SW1)

Short SW1 pin1 and pin2 to do SBC hardware reset.

3.1.8 COM (RS232/RS485) Port

- CN1

COM3 -- RS232/RS485 port (DB9) from CPU UART3.

Type command:
 # stty -F /dev/ttyS3
speed 9600 baud; line = 0;
-brkint -imaxbel
//Confirm the default configuration are 9600.

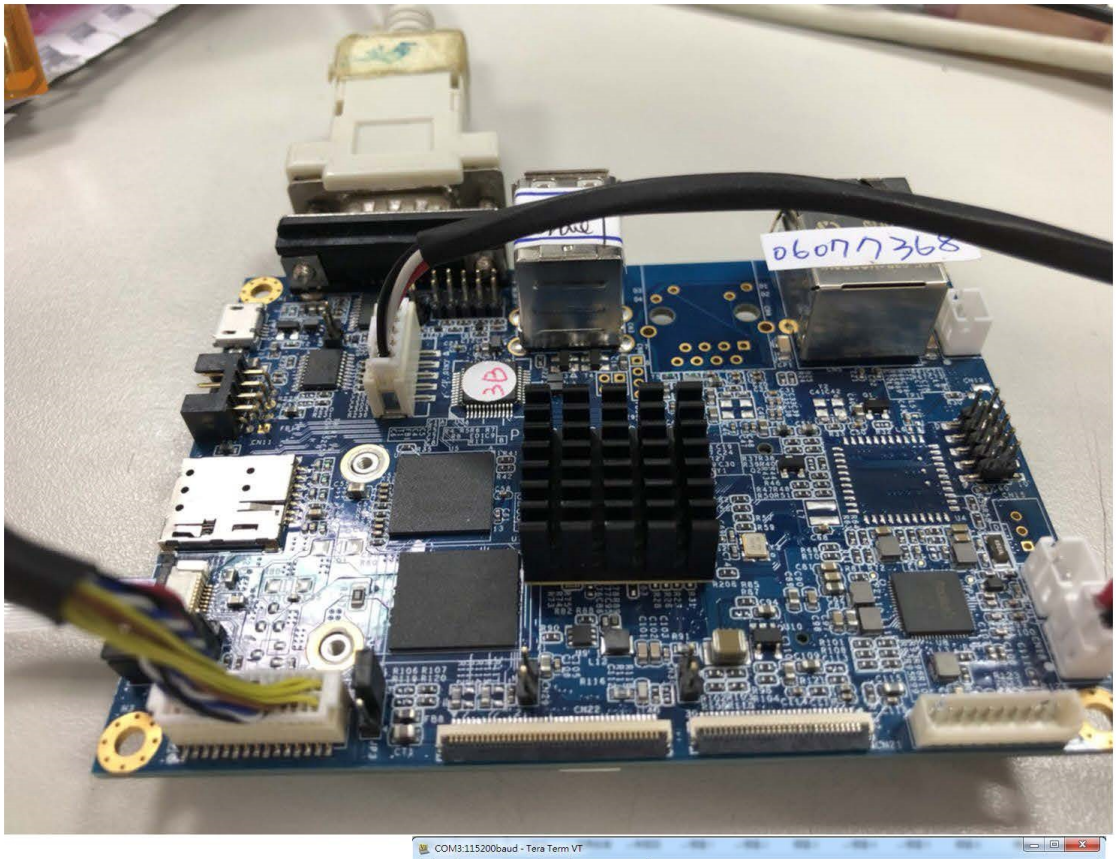
 # echo abcde > /dev/ttyS3
 # cat /dev/ttyS3

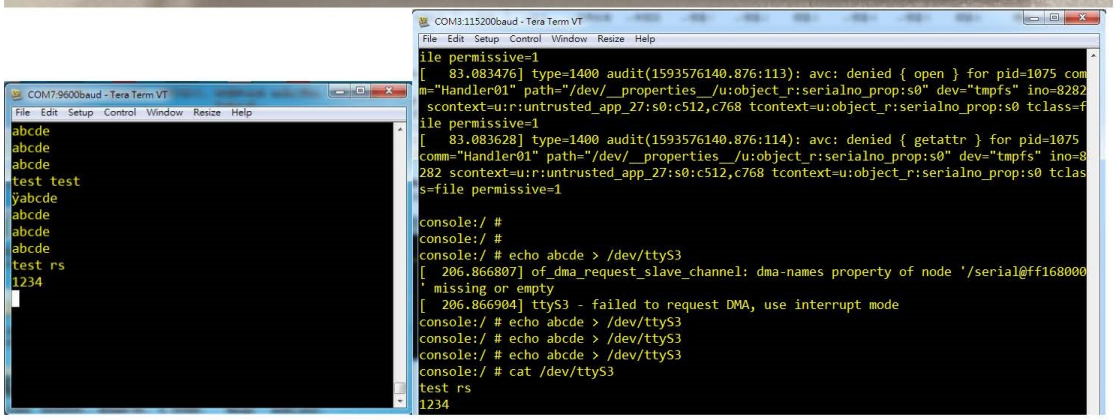
- CN11

COM4 -- RS232/RS485 port (2x4-pin header) from CPU UART4.

 # stty -F /dev/ttyS4
speed 9600 baud; line = 0;
hupcl clocal
-brkint ixon -imaxbel
//Confirm the default configuration are 9600.

 # echo abcde > /dev/ttyS4
 # cat /dev/ttyS4





3.1.9 The USB-LAN2(CN4) eth1

USB-ethernet's DHCP command :

 # dhcpcd eth1

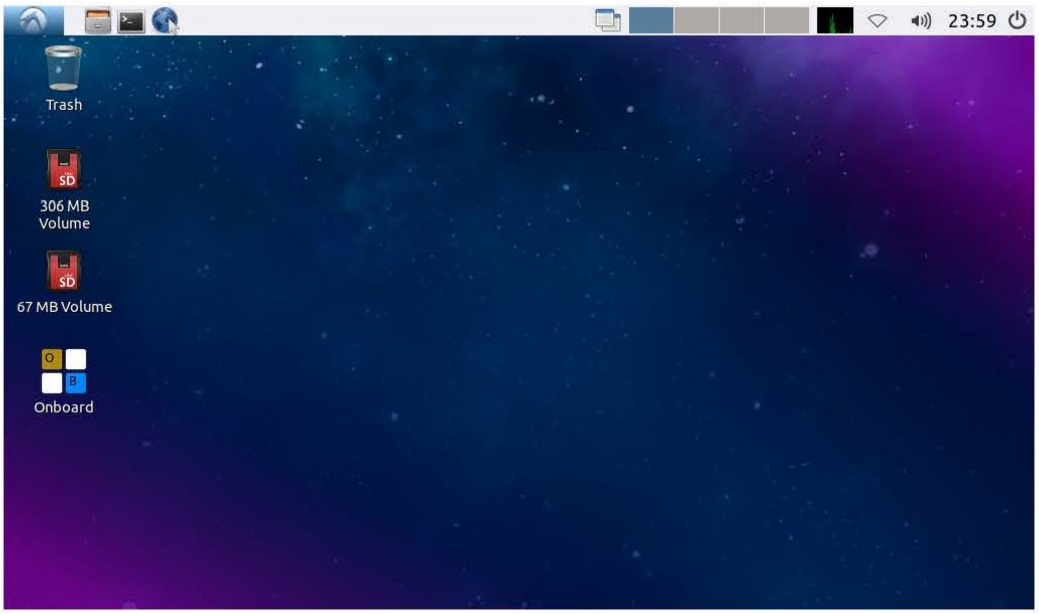
or

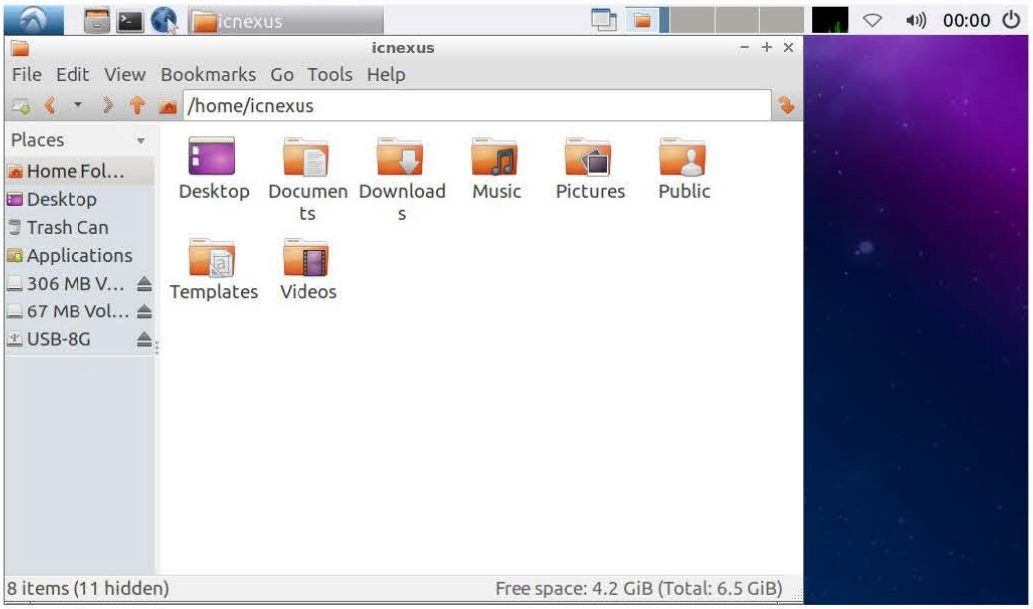
 # dhcpcd

3.2 Ubuntu Linux

3.2.1 Linux Desktop

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

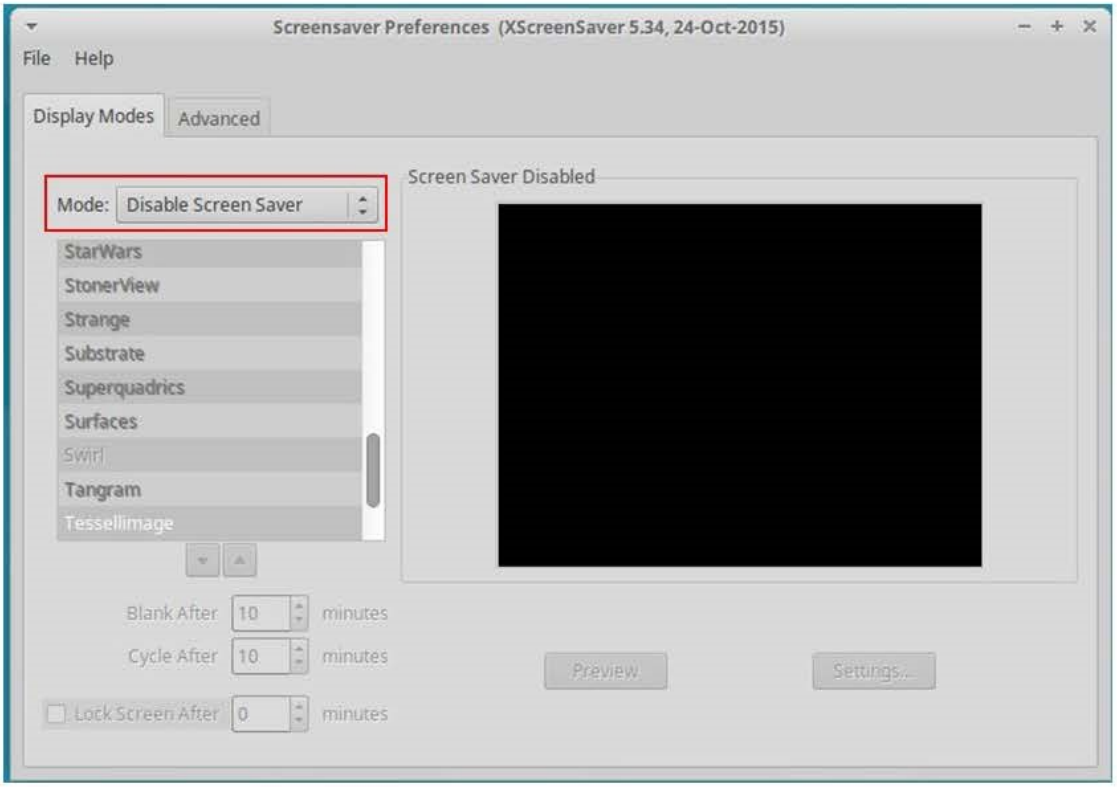




3.2.2 Screensaver

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**.



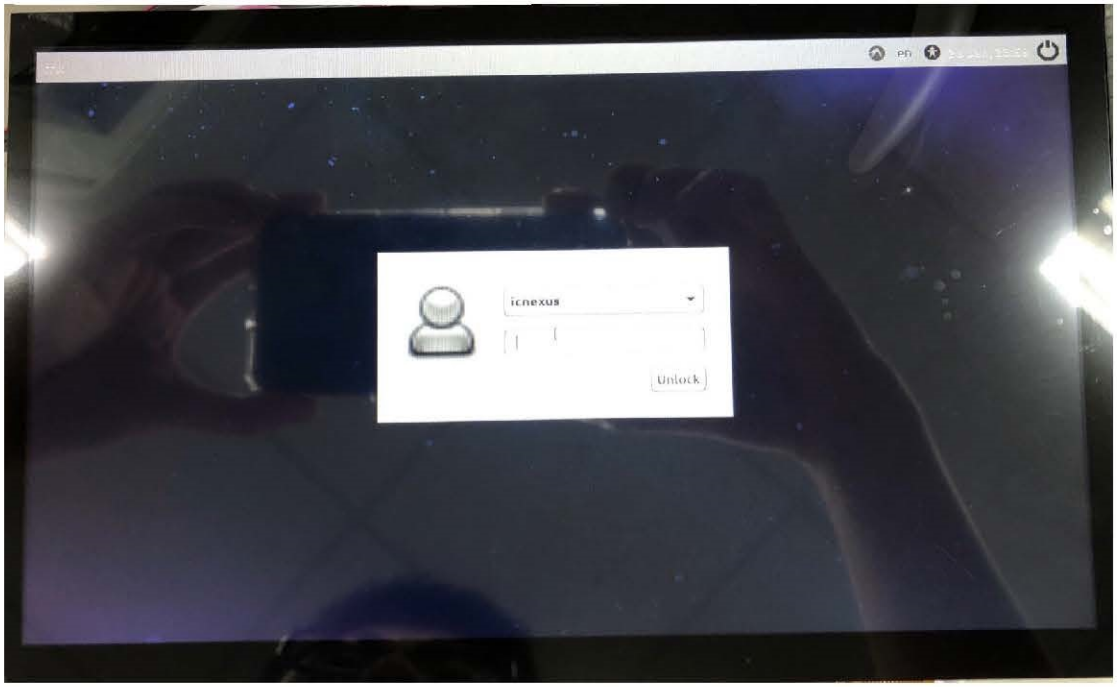
3.2.3 Power Button Switch(SW2)

When DC power is applied to DC input connector, SBC will be turned on automatically.

☐ SBC can be **Shutdown/Reboot/Suspend** if SW2 pin1 and pin2 are short for more than 2 seconds.

☐ Suspend Mode, if wake up processor from Suspend Mode, short SW2 pin1 and pin2 more than 1 seconds again.

Password: *icnexus*



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.