DEBIX Infinity User Guide

Version: V1.4 (2024-09)

Complied by: Polyhex Technology Company Limited (http://www.polyhex.net/)

DEBIX Infinity is an embedded board based on NXP i.MX 8M Plus Quad Lite, which provides rich and scalable interfaces aimed at smart robots, Industry 4.0, edge computing, gateways, IoT, and security applications.

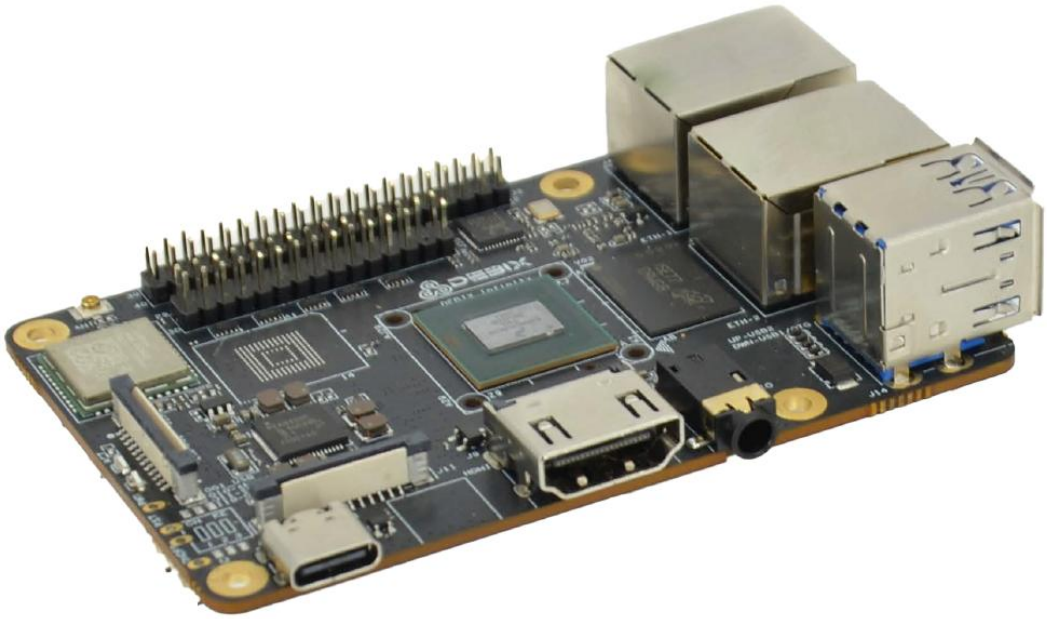

Figure 1 DEBIX Infinity

REVISION HISTORY		
Rev.	**Date**	**Description**
1.0	2023.12.29	First edition
1.1	2024.08.16	Revised the usage of display screen, updated the display model, and modified the pin connection instructions.
1.2	2024.08.20	Revised the part of multi-screen unique display
1.3	2024.09.13	Added pictures illustrating the booting way of USB flash
1.4	2024.09.20	Optimized the content

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Chapter 1 Security

1.1. Safety Precaution

This document inform how to make each cable connection. In most cases, you will simply need to connect a standard cable.

Table 1 Terms and conventions

Symbol	Meaning
Warning! 	Always disconnect the power cord from the chassis whenever there is no workload required on it. Do not connect the power cable while the power is on. A sudden rush of power can damage sensitive electronic components. Only experienced electricians should open the chassis.
Caution! 	Always ground yourself to remove any static electric charge before touching *DEBIX Infinity* product. Modern electronic devices are very sensitive to electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag.

1.2. Safety Instruction

To avoid malfunction or damage to this product please observe the following:

1．Disconnect the device from the DC power supply before cleaning. Use a damp cloth. Do not use liquid detergents or spray-on detergents.

2．Keep the device away from moisture.

3．During installation, set the device down on a reliable surface. Drops and bumps will lead to damage.

4．Before connecting the power supply, ensure that the voltage is in the required range, and the way of wiring is correct.

5．Carefully put the power cable in place to avoid stepping on it.

6．If the device is not used for a long time, power it off to avoid damage caused by sudden

overvoltage.

7. Do not pour liquid into the venting holes of the enclosure, as this could cause fire or electric shock.

8. For safety reasons, the device can only be disassembled by professional personnel.

9. If one of the following situations occur, get the equipment checked by service personnel:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it to work according to the user's manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.

10. Do not place the device outside the specified ambient temperature range. This will damage the machine. It needs to be kept in an environment at controlled temperature.

11. Due to the sensitive nature of the equipment, it must be stored in a restricted access location, only accessible by qualified engineer.

DISCLAIMER: Polyhex disclaims all responsibility for the accuracy of any statement of this instructional document.

1.3. Declaration of Compliance

This product has passed the following certifications:

Table 2 Compliance Certification

Symbol	Meaning
CE	This equipment has passed CE certified.
RoHS	This equipment is manufactured in compliance with RoHS regulations.

UKCA	This equipment has passed UKCA certified.
FC	This equipment has passed FCC certified.
KC	This equipment has passed KC certified.
TELEC	This equipment is manufactured in compliance with MIC/TELEC regulations.
RCM	This equipment is manufactured in compliance with RCM regulations.

1.4. Technical Support

1. Visit DEBIX website https://www.debix.io/ where you can find the latest information about the product.
2. Contact your distributor, sales representative or Polyhex's customer service center for technical support if you need additional assistance. Please have the following info ready before you call:
    - Product name and memory size
    - Description of your peripheral attachments
    - Description of your software(operating system, version, application software, etc.)
    - A complete description of the problem
    - The exact wording of any error messages

Discord Community (recommended): https://discord.com/invite/adaHHaDkH2

Email: *info@debix.io*

Chapter 2 DEBIX Infinity Introduction

DEBIX Infinity is single board computer based on NXP i.MX 8M Plus Quad Lite, which can be widely used in artificial intelligence, industry 4.0, edge computation, gateway, IoT, security monitoring etc..

Main features:

- Powerful Quad Core Arm ® Cortex ® -A53 CPU at 1.6GHz.
- Real-time control with Cortex-M7. Robust control networks supported by dual CAN FD and dual Gigabit Ethernet with Time Sensitive Networking (TSN).
- High industrial reliability with DRAM inline ECC.
- Designed for severe environmental conditions and industrial grade temperature requirements. The wide CPU temperature range of -40°C to 105°C makes it suitable for extreme operation environments like public transportation and industrial control etc.
- Rich and extensible interfaces: 2 x USB 3.0 Host, 1 x LVDS, 1 x HDMI, 1 x MIPI DSI, 1 x MIPI CSI, 40Pin dual-row headers etc.
- Support mainstream operating systems including Android, Ubuntu, Yocto and Windows 10 IoT Enterprise.
- Compatible with DEBIX IO Board, DEBIX 4G Board, DEBIX Lora Board, DEBIX PoE module and DEBIX Camera Module

2.1. Overview

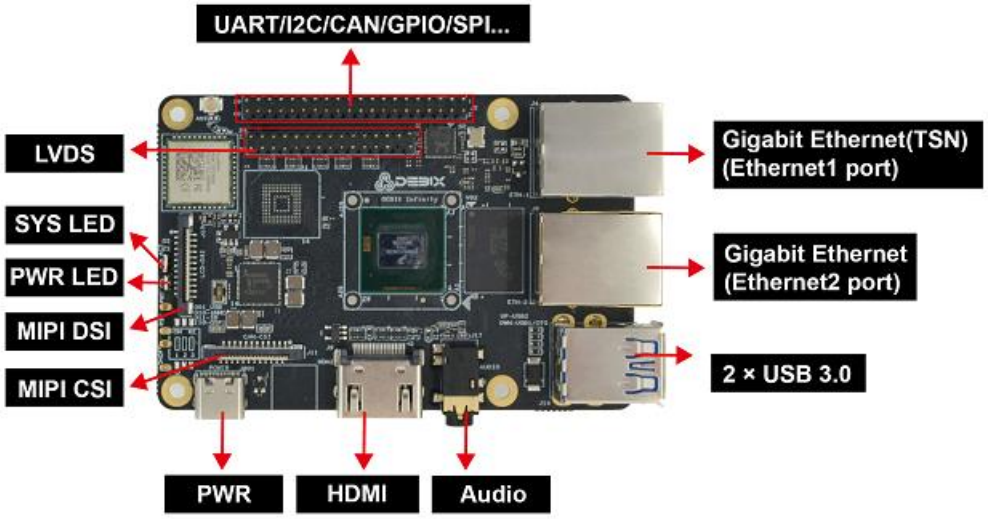


Figure 2 DEBIX Infinity Front interface

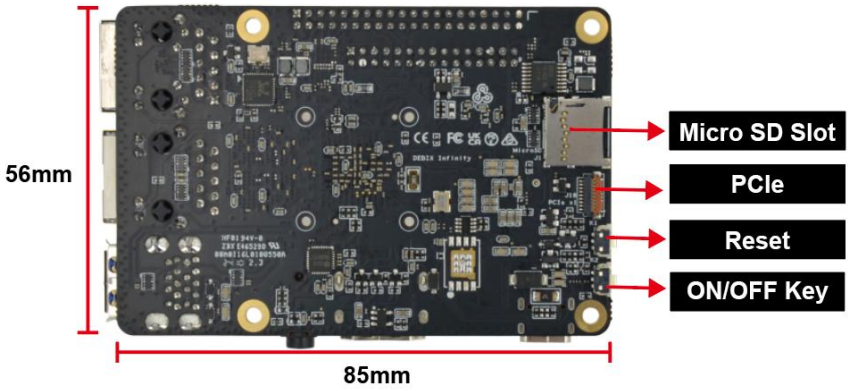


Figure 3 DEBIX Infinity Back interface

DEBIX Infinity uses NXP i.MX 8M Plus Quad Lite based Soc, supports Gigabit Ethernet, dual-band wireless network and Bluetooth 5.2, etc. The data specifications are as below:

Table 3 DEBIX Infinity Specification

System	
CPU	i.MX 8M Plus Quad Lite , MIMX8ML4CVNKZAB , 4 x Cortex-A53 1.6GHz
Memory	2GB LPDDR4 (4GB/8GB optional)
Storage	● Micro SD Card (8GB/16GB/32GB/64GB/128GB/256GB optional) ● Onboard eMMC (8GB/16GB/32GB/64GB/128GB/256GB optional)

Nor Flash	64Mbits Nor Flash (reserved)
OS	Android 11, Ubuntu 20.04, Yocto-L5.10.72_2.2.0, Windows 10 IoT Enterprise **NOTE** DEBIX Infinity with 4GB LPDDR4 (recommended 8GB LPDDR4) supports Windows 10 IoT Enterprise
Boot Mode	● Boot from Micro SD Card (default) ● Boot from eMMC ● Boot from Nor Flash
Communication	
Gigabit Network	● 2 x 10/100/1000M Ethernet interfaces ■ 1 x Gigabit Ethernet1 port, supports TSN and POE power supply (need POE power supply module) ■ 1 x Gigabit Ethernet2 port (POE power supply not supported)
WiFi & BT	NXP 88W8987 SoC: 2.4GHz & 5GHz dual-band WiFi, BT 5.2; external WiFi&BT SMA antenna(IPEX-1) connector
Video & Audio	
HDMI	1 x HDMI output, the connector is Type A HDMI female
LVDS	1 x LVDS output, single & dual channel 8 bit, 2 x 15Pin double-row pin headers
MIPI CSI	1 x MIPI CSI, support 4-lane, 24Pin 0.5mm Pitch FPC socket
MIPI DSI	1 x MIPI DSI, support 4-lane, 24Pin 0.5mm Pitch FPC socket
Audio	1 x 3.5mm headphone and microphone combo port
External I/O Interface	
USB	● 2 x USB 3.0 Host, the connector is double layer Type-A interface (DWN_USB1 can be configured as USB OTG via software) ● 1 x USB 2.0 PWR, the connector is Type-C interface for DC 5V

	power input
PCIe	1 x PCIe, support PCIe x1, 19Pin 0.3mm Pitch FPC socket
40-Pin Double-Row Headers	● Default: 3 x UART, 2 x SPI, 2 x I2C, 2 x CAN, 6 x GPIO, which can be configured to I2S, PWM, SPDIF, GPIO, etc. via software ● 5V power supply, system reset, ON/OFF
Slot	1 x Micro SD slot
DIP Switch	1 x DIP Switch
Power Supply	
Power Input	DC 5V/3A
Mechanical & Environmental	
Size (L x W)	85.0mm x 56.0mm (±0.5mm)
Weight	46g (±0.5g)
Operating Temp.	● Industrial grade: -20°C~70°C ● Industrial grade: -40°C~85°C

2.2. Composition

Like DEBIX Model A/B, DEBIX Infinity consists of a range of different computer components, including the central processing unit (CPU) located at the center of the motherboard, as well as Random Memory (RAM), eMMC, WiFi Bluetooth module that contains the wireless communication components, and the PMIC (PCA9450C) that manages the power devices of the host machine, as shown in the following figure:

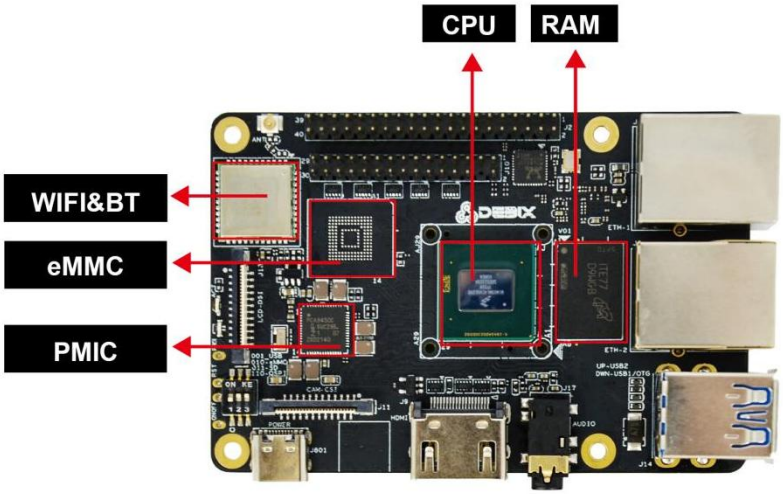


Figure 4 DEBIX Infinity Board

2.3. Interface

2.3.1. Power Interface

DEBIX Mode SE provides a USB Type-C power interface (J801) with default DC 5V/3A power input.

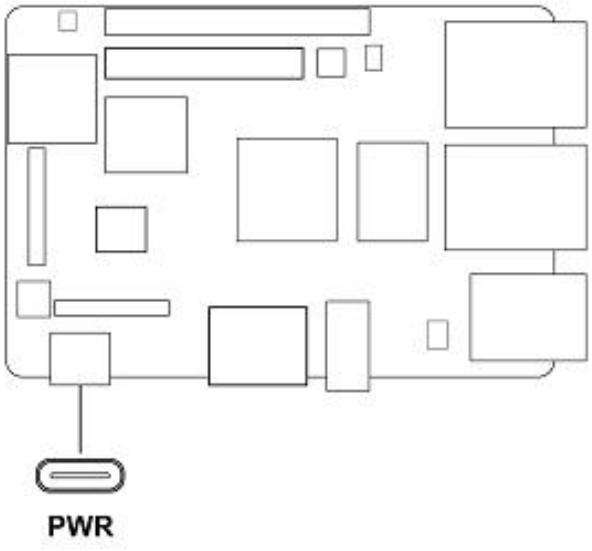


Figure 5 Power interface

2.3.2. USB 3.0 Interface

DEBIX Infinity has two 2 x USB 3.0 Host with double layer Type-A interface (J14, J15), and DWN_USB1 can be configured as USB OTG via software.

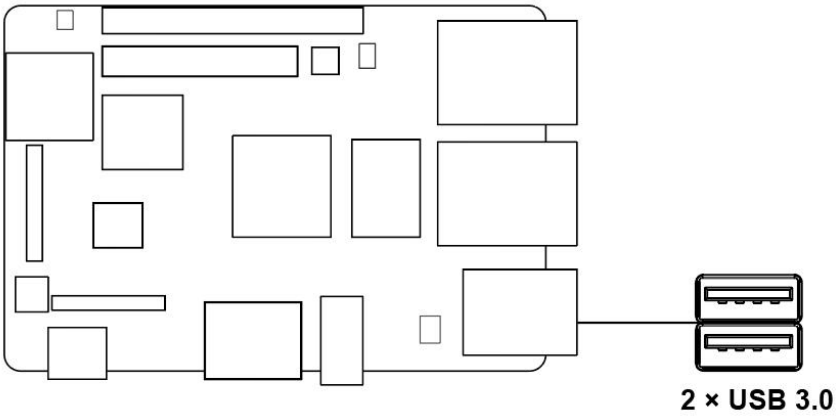


Figure 6 USB3.0 interface

2.3.3. Ethernet Interface

DEBIX Infinity provides two Gigabit Ethernet interfaces, both are independent MAC network port.

- One independent MAC Gigabit Ethernet port (J4) , support TSN and POE power supply (need POE power supply module).
- One independent MAC Gigabit Ethernet port (J6).

Connect DEBIX Infinity to the network through the network cable of the RJ45 connector, and a set of status indicators below the interface to display the status signal, the green is Link and the yellow is Active.

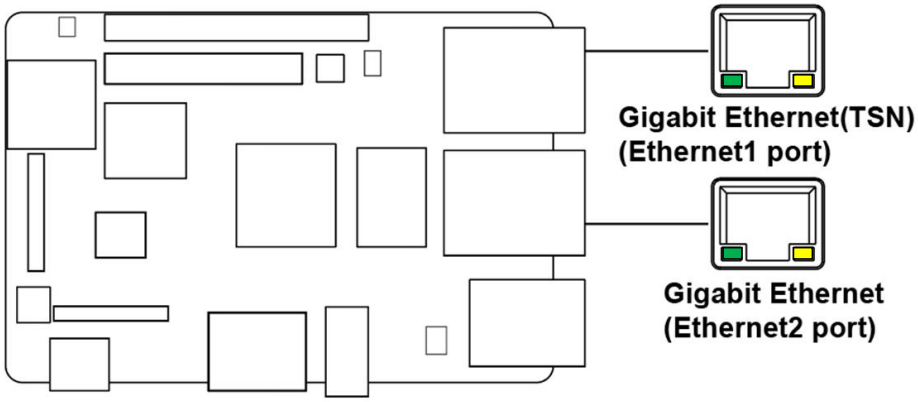


Figure 7 Ethernet interface

Table 4 Description of Gigabit Ethernet Port Status Indicator

LED	Color	Description
Link	Green	Light, the network cable is plugged in, network connection status is good
Active	Yellow	Blinking, network data is being transmitted

2.3.4. Display Interface

DEBIX Infinity supports three LCDIF Display Controllers:

- One LCDIF driver for MIPI DSI, Up to UWHD and WUXGA
- One LCDIF driver for LVDS Tx, Up to 1920x1080p60
- One LCDIF driver HDMI Tx, 4kp30

When no more than 2 LCD interfaces are used at the same time, each LCD interface supports

up to 1920x1200p60 display. When all 3 LCD interfaces are used at the same time, it supports 2 x 1080p60 + HDMI 4kp30.

NOTE

When DEBIX Infinity is configured with multiple displays on Ubuntu, drag mouse to operate on other displays.

2.3.4.1. HDMI Interface

DEBIX Infinity has an HDMI interface (J9), and the connector is an Type-A HDMI female socket, which is used to connect a monitor, TV or projector. HDMI resolution up to 3840x2160p30.

Audio supports 32 channel audio output and supports 1 S/PDIF audio eARC input.

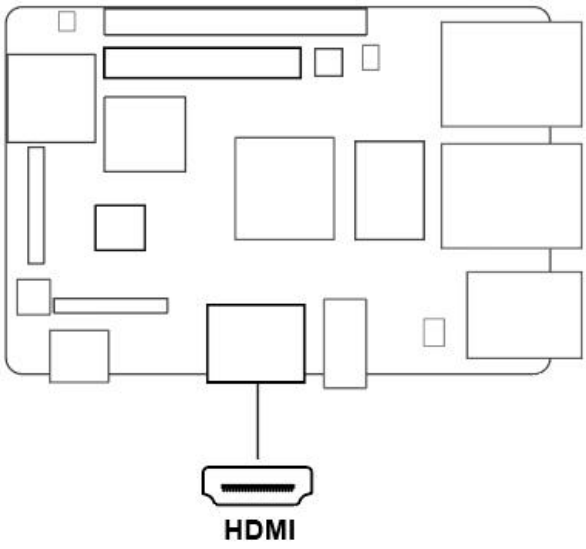


Figure 8 HDMI interface

The pin sequence is as shown in the figure:

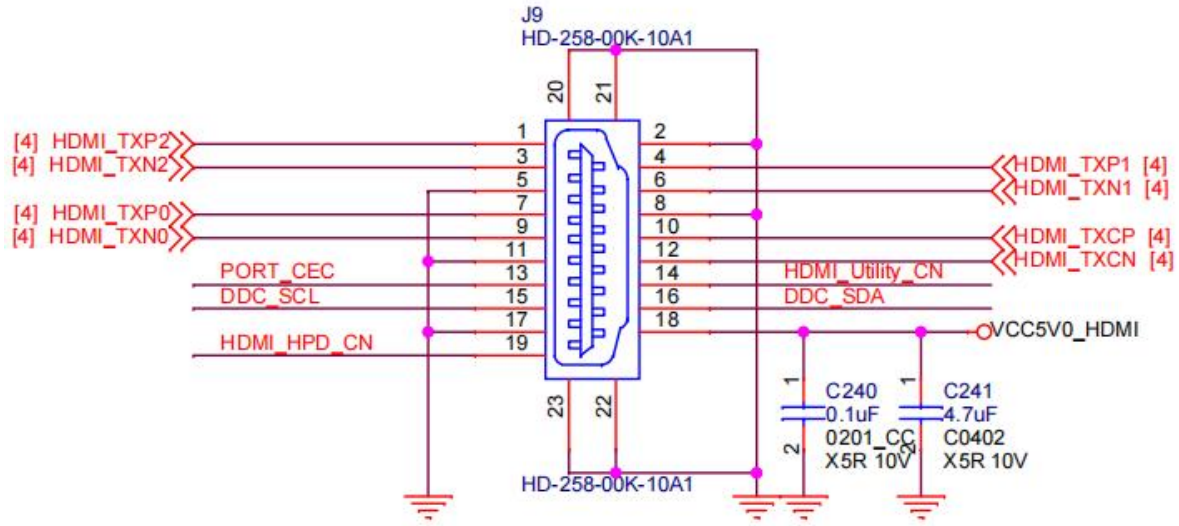


Figure 9 Pin sequence of HDMI

The HDMI interface is defined as follows:

Table 5 Pin definition of HDMI

Pin	Definition	Pin	Definition
1	HDMI-TXP2	2	GND
3	HDMI-TXN2	4	HDMI-TXP1
5	GND	6	HDMI-TXN1
7	HDMI-TXP0	8	GND
9	HDMI-TXN0	10	HDMI-TXCP
11	GND	12	HDMI-TXCN
13	PORT_CEC	14	HDMI_Utility_CN
15	DDC_SCL	16	DDC_SDA
17	GND	18	VDD5V
19	HDMI_HPD_CN	20	GND
21	GND	22	GND
23	GND		

2.3.4.2. LVDS Interface

DEBIX Infinity provides one 2 x 15Pin LVDS display output interface (J10) driven by LDB to support single or dual LVDS display.

- Single channel (4 lanes) 80MHz pixel clock and LVDS clock output. It supports resolutions up to 1366x768p60.
- Asynchronous dual channel (8 data, 2 clocks). This is for a screen with two interfaces, which are transmitted through two channels (odd pixel/even pixel). It supports pixels higher than 1366x768p60 and up to 1080p60.

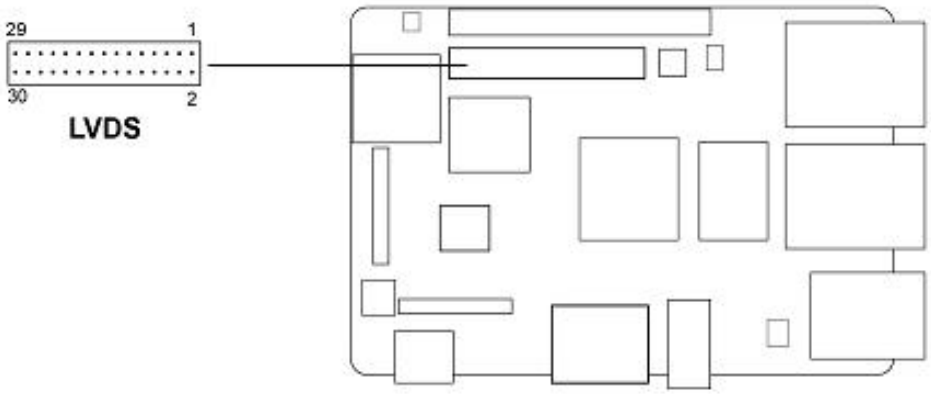


Figure 10 LVDS interface

The pin sequence is shown in the figure:

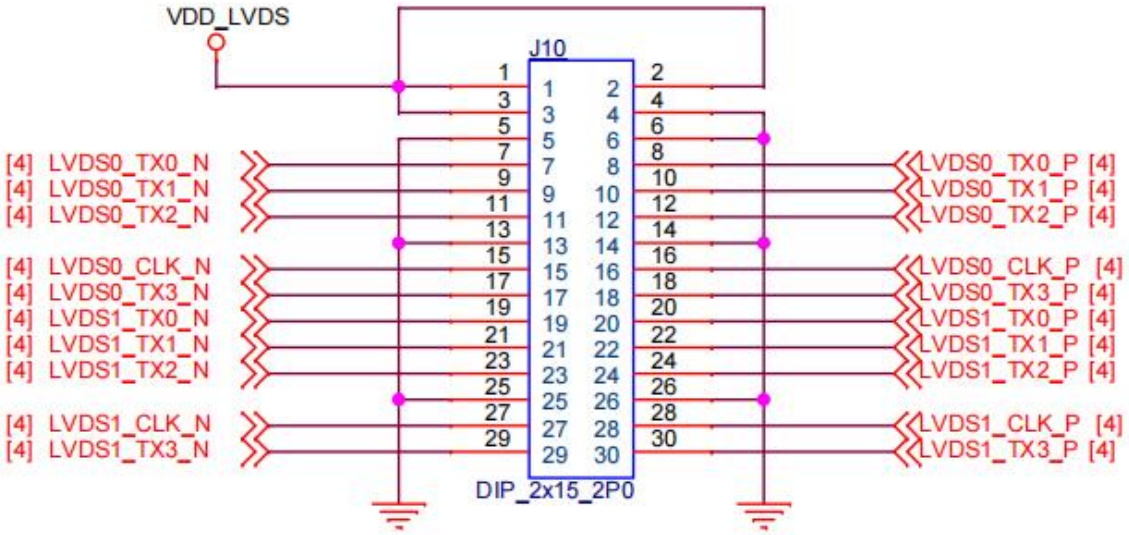


Figure 11 Pin sequence of LVDS

The LVDS interface is defined as follows:

Table 6 Pin definition of LVDS

Pin	Definition	Description
1	VDD_LVDS	VDD 5V
2	VDD_LVDS	VDD 5V
3	VDD_LVDS	VDD 5V
4	GND	To Ground
5	GND	To Ground
6	GND	To Ground
7	LVDS0_TX0_N	LVDS0 Differential data channel 0 (-)
8	LVDS0_TX0_P	LVDS0 Differential data channel 0 (+)
9	LVDS0_TX1_N	LVDS0 Differential data channel 1 (-)
10	LVDS0_TX1_P	LVDS0 Differential data channel 1 (+)
11	LVDS0_TX2_N	LVDS0 Differential data channel 2 (-)
12	LVDS0_TX2_P	LVDS0 Differential data channel 2 (+)
13	GND	To Ground
14	GND	To Ground
15	LVDS0_CLK_N	LVDS0 Clock differential signal path (-)
16	LVDS0_CLK_P	LVDS0 Clock differential signal path (+)
17	LVDS0_TX3_N	LVDS0 Differential data channel 3 (-)
18	LVDS0_TX3_P	LVDS0 Differential data channel 3 (+)
19	LVDS1_TX0_N	LVDS1 Differential data channel 0 (-)
20	LVDS1_TX0_P	LVDS1 Differential data channel 0 (+)
21	LVDS1_TX1_N	LVDS1 Differential data channel 1 (-)
22	LVDS1_TX1_P	LVDS1 Differential data channel 1 (+)
23	LVDS1_TX2_N	LVDS1 Differential data channel 2 (-)
24	LVDS1_TX2_P	LVDS1 Differential data channel 2 (+)

25	GND	To Ground
26	GND	To Ground
27	LVDS1_CLK_N	LVDS1 Clock differential signal path (-)
28	LVDS1_CLK_P	LVDS1 Clock differential signal path (+)
29	LVDS1_TX3_N	LVDS1 Differential data channel 3 (-)
30	LVDS1_TX3_P	LVDS1 Differential data channel 3 (+)

2.3.4.3. MIPI DSI Interface

DEBIX Infinity provides one MIPI DSI interface (J13) with a 2*12Pin/0.5mm FPC socket connector, which can be used to connect a MIPI display touch screen.

Key features of MIPI DSI include:

- MIPI DSI compliant with MIPI-DSI standard V1.2, compatible with standard specification V1.01r11
- The commonly used MIPI DSI resolutions are supported as follows:
  - 1080 p60, WUXGA (1920x1200) at 60 Hz, 1920x1440 at 60 Hz, UWHD (2560x1080) at 60 Hz
  - Maximum resolution up to WQHD(2560x1440), it depends on bandwidth between input clock (video clock) and output clock (D-PHY HS clock)
  - Support 1, 2, 3 or 4 data lanes
  - Support pixel format: 16bpp, 18bpp packed, 18bpp loosely packed (3 bytes format), 24bpp.
- Interface
  - Compliant with Protocol-to-PHY Interface (PPI) at 1.0Gbps/1.5Gbps MIPI DPHY
  - Support RGB interface for video image input from general display controller.

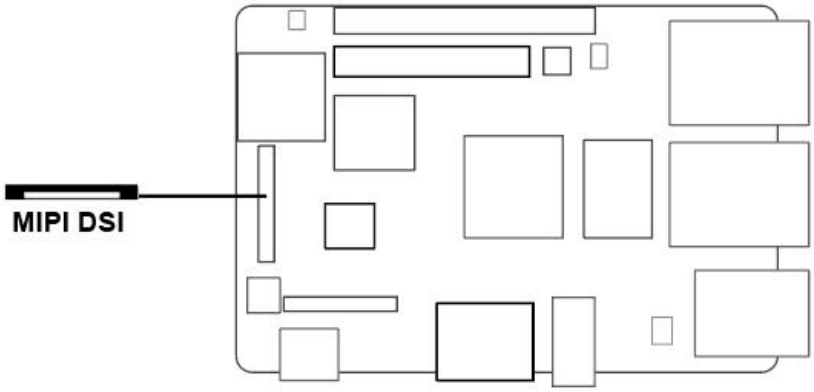


Figure 12 MIPI DSI

The pin sequence is shown in the figure:

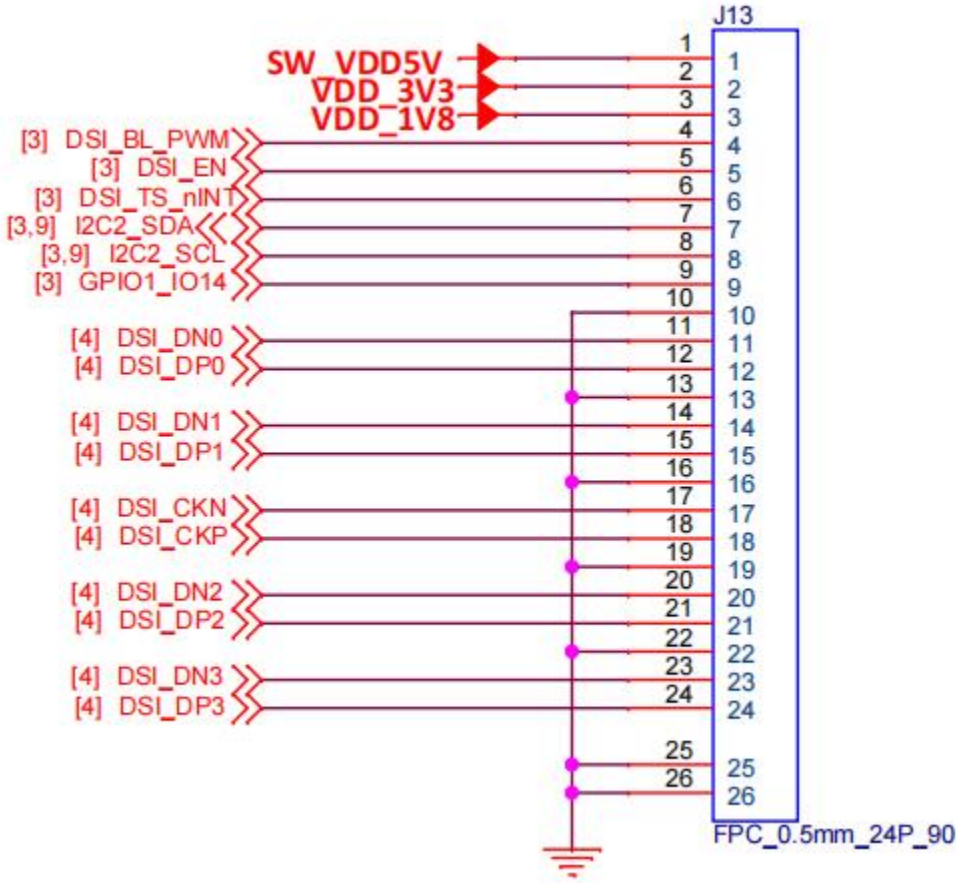


Figure 13 Pin sequence of MIPI DSI

The MIPI DSI interface is defined as follows:

Table 7 Pin definition of MIPI DSI

Pin	Definition	Description
1	SW_VDD5V	5V output

2	VDD_3V3	3.3V output
3	VDD_1V8	1.8V output
4	DSI_BL_PWM	Backlight control signal
5	DSI_EN	LCD enable signal
6	DSI_TP_nINT	touch interrupt pin
7	DSI_I2C_SDA	Touch the clock terminal of I2C (controlled by I2C2)
8	DSI_I2C_SCL	Touch the clock terminal of I2C (controlled by I2C2)
9	GPIO1_IO14	IO control pin
10	GND	To Ground
11	DSI_DN0	DSI Differential data channel 0 (-)
12	DSI_DP0	DSI Differential data channel 0 (+)
13	GND	To Ground
14	DSI_DN1	DSI Differential data channel 1 (-)
15	DSI_DP1	DSI Differential data channel 1 (+)
16	GND	To Ground
17	DSI_CKN	DSI Differential Clock Channels (-)
18	DSI_CKP	DSI Differential Clock Channels (+)
19	GND	To Ground
20	DSI_DN2	DSI Differential data channel 2 (-)
21	DSI_DP2	DSI Differential data channel 2 (+)
22	GND	To Ground
23	DSI_DN3	DSI Differential data channel 3 (-)
24	DSI_DP3	DSI Differential data channel 3 (+)
25	GND	To Ground
26	GND	To Ground

2.3.5. MIPI CSI Interface

There is one MIPI CSI interface (J11) on board, with a 2*12Pin/0.5mm FPC socket connector for connecting DEBIX's camera module. Supports up to 12MP @30fps or 4kp45.

Figure 14 MIPI CSI

The pin sequence is shown in the figure:

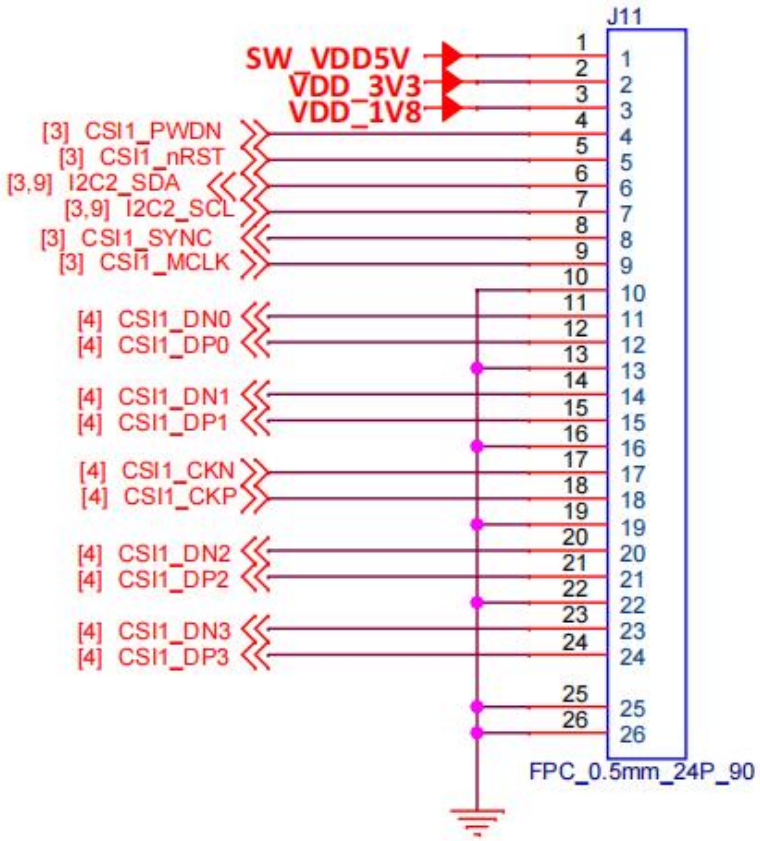


Figure 15 Pin sequence of MIPI CSI

The MIPI CSI interface is defined as follows:

Table 8 Pin definition of MIPI CSI

Pin	Definition	Description
1	SW_VDD5V	5V output
2	VDD_3V3	3.3V output
3	VDD_1V8	1.8V output
4	CSI1_PWDN	CSI low power mode
5	CSI1_nRST	CSI reset signal
6	I2C2_SDA	I2C data signal
7	I2C2_SCL	I2C clock signal
8	CSI1_SYNC	CSI synchronization signal
9	CSI1_MCLK	CSI external clock input
10	GND	To Ground
11	CSI1_DN0	CSI Differential data channel 0 (-)
12	CSI1_DP0	CSI Differential data channel 0 (+)
13	GND	To Ground
14	CSI1_DN1	CSI Differential data channel 1 (-)
15	CSI1_DP1	CSI Differential data channel 1 (+)
16	GND	To Ground
17	CSI1_CKN	CSI Differential Clock Channels (-)
18	CSI1_CKP	CSI Differential Clock Channels (+)
19	GND	To Ground
20	CSI1_DN2	CSI Differential data channel 2 (-)
21	CSI1_DP2	CSI Differential data channel 2 (+)
22	GND	To Ground
23	CSI1_DN3	CSI Differential data channel 3 (-)
24	CSI1_DP3	CSI Differential data channel 3 (+)

25	GND	To Ground
26	GND	To Ground

2.3.6. Audio Interface

DEBIX Infinity provides a combined headphone and microphone input interface (J17), the connector is 3.5mm socket, with audio in/out function, and supports rated voltage 1.5V MIC audio input.

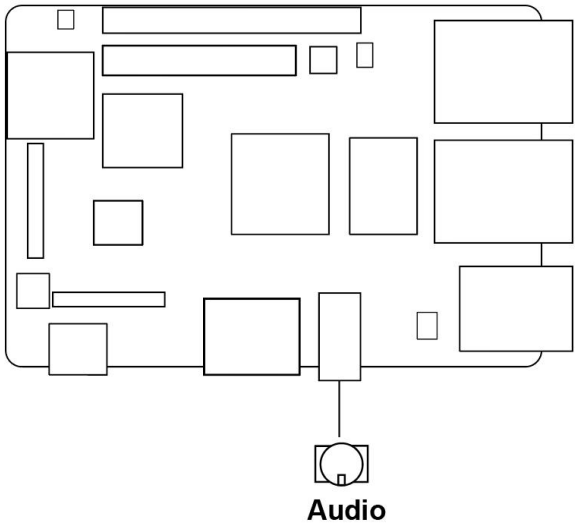


Figure 16 Audio interface

NOTE

DEBIX Infinity uses MIC and only supports four-segment headphones. The definition is shown in the following figure, which includes left channel, right channel, GND, and MIC recording. It is necessary to connect to the audio interface according to the GND and MIC connection lines for normal use.

Figure 17 Definition of four-segment headphones

2.3.7. PCIe

DEBIX Infinity provides a PCIe interface (J18) with 19Pin/0.3mm FPC socket connector, please refer to "FH26W-19S-0.3SHW(97)" on DEBIX website, which can be used to connect some independent accessories, such as PCIe to USB.

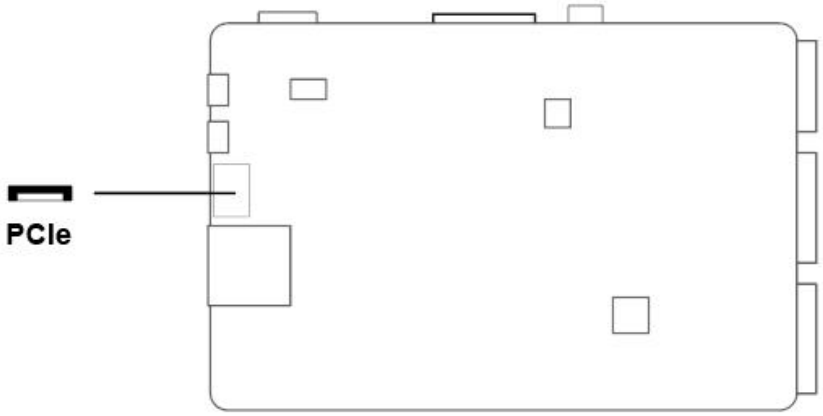


Figure 18 PCIe interface

The pin sequence is shown in the figure:

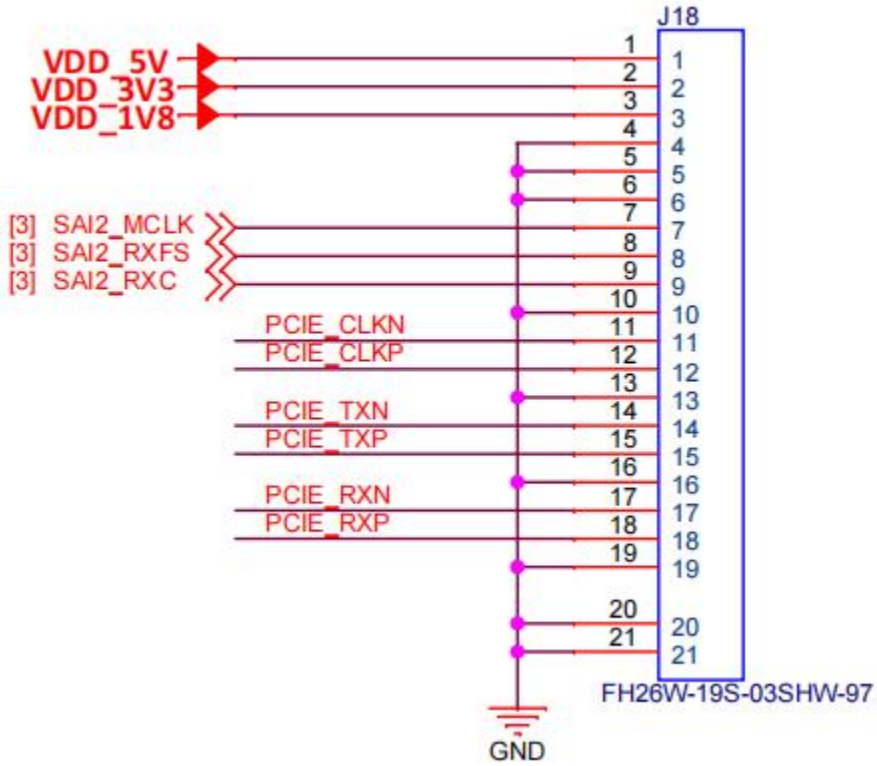


Figure 19 Pin sequence of PCIe

The PCIe interface is defined as follows:

Table 9 Pin definition of PCIe

Pin	Definition	CPU PAD/Pin
1	VDD_3V3	-
2	VDD_5V	-
3	VDD_1V8	-
4	GND	-
5	GND	-
6	GND	-
7	SAI2_MCLK	AJ15
8	SAI2_RXFS	AH17
9	SAI2_RXC	AJ16
10	GND	-
11	PCIE_CLKN	E16
12	PCIE_CLKP	D16
13	GND	-
14	PCIE_TXN	B15
15	PCIE_TXP	A15
16	GND	-
17	PCIE_RXN	B14
18	PCIE_RXP	A14
19	GND	-

2.3.8. GPIO

DEBIX Infinity has a set of 2*20Pin/2.0mm GPIO interface (J2), which can be used for external hardware such as LED, button, sensor, function modules, etc.

- The voltage of I2C, UART, CAN, SPI, GPIO pin is 3.3V.
- 5V pins (pin6, pin8) can be used to power to DEBIX Infinity or peripherals.

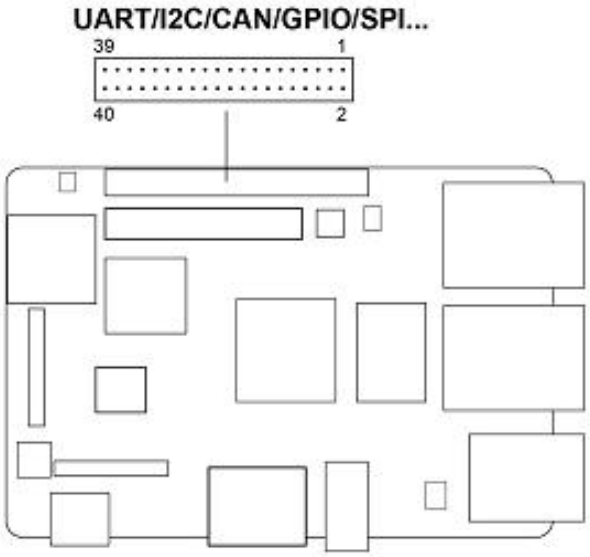


Figure 20 GPIO

The pin sequence is shown in the figure:

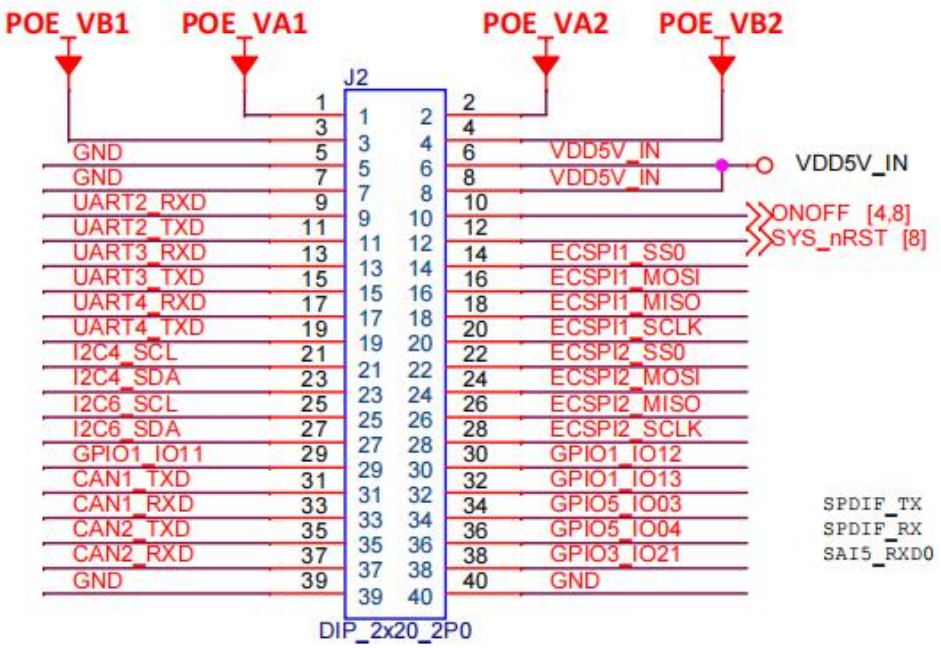


Figure 21 Pin sequence of GPIO

The GPIO interface pins are defined in the table below:

Table 10 Pin definition of GPIO

Pin	Definition	Pin	Definition
1	POE_VA1	2	POE_VA2

3	POE_VB1	4	POE_VB2
5	GND	6	VDD5V_IN
7	GND	8	VDD5V_IN
9	UART2_RXD	10	ONOFF
11	UART2_TXD	12	SYS_nRST
13	UART3_RXD	14	ECSPI1_SS0
15	UART3_TXD	16	ECSPI1_MOSI
17	UART4_RXD	18	ECSPI1_MISO
19	UART4_TXD	20	ECSPI1_SCLK
21	I2C4_SCL	22	ECSPI2_SS0
23	I2C4_SDA	24	ECSPI2_MOSI
25	I2C6_SCL	26	ECSPI2_MISO
27	I2C6_SDA	28	ECSPI2_SCLK
29	GPIO1_IO11	30	GPIO1_IO12
31	CAN1_TXD	32	GPIO1_IO13
33	CAN1_RXD	34	GPIO5_IO03
35	CAN2_TXD	36	GPIO5_IO04
37	CAN2_RXD	38	GPIO3_IO21
39	GND	40	GND

2.3.9. LED & KEY

DEBIX Infinity has two LED indicators and two Keys.

- LED
  - 1 x ACT LED (Green)
  - 1 x Power LED (Red and Blue)
- Key
  - 1 x ON/OFF Key

- 1 x Reset Key

The specific states are described in the following table:

Table 11 Description of LED & Key

Function Name		Status	Description
LED	Power LED	Lighting	Power is on, and red & blue light
		off	Power is off, and red & blue change to red, until off
	ACT LED	Blinking	System is normal
		off	System fault
Key	ON/OFF Key	Short press	Sleep/Wake
		Long press	Power off/on
	RESET Key	Press	System reset

2.3.10. DIP Switch

There is a dip-switch combination, which is used to determine the BOOT startup mode. Three switches in total, and each switch has the two states of ON/OFF. By default, the switch is turned ON. Four BOOT startup modes as follows:

- 001-USB burning mode
- 010-eMMC Boot
- 011-Micro SD Card Boot
- 100-SPI Nor Flash boot

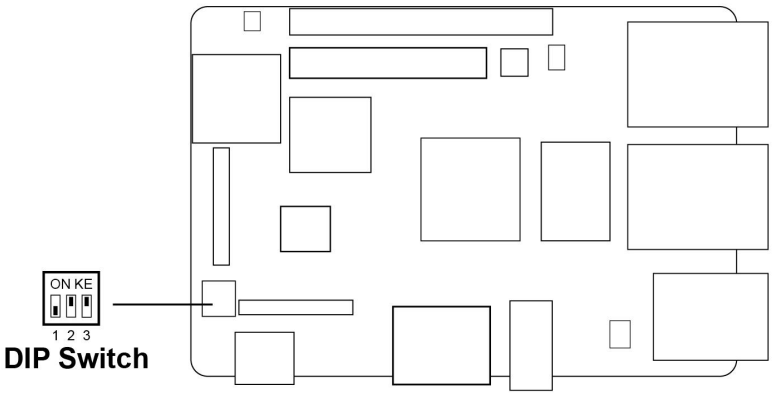


Figure 22 DIP Switch

The selected boot mode is shown in the table below:

Table 12 DIP switch set boot mode

Mode / Switch	USB	eMMC	Micro SD	Nor Flash
SW state setting				
Note: The switch is facing up, it is ON state, the switch is facing down, it is OFF state.				

2.3.11. Slot

DEBIX Infinity provides a Micro SD slot (J1), set the DIP switch to "011" (Micro SD card boot mode), Micro SD card can be used as a system boot card, insert the Micro SD card with the system installed here, and then power on device to start the system in the Micro SD card. When the DIP switch is set to other modes and the device is power on, the Micro SD card can be used as a standard memory card to save user data.

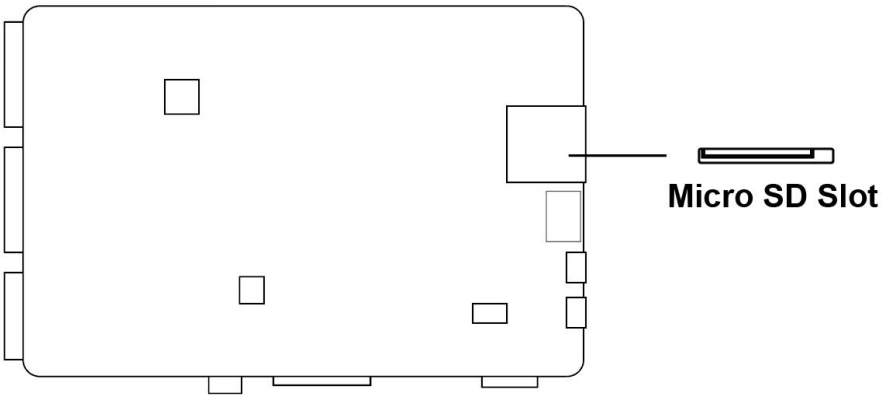


Figure 23 Micro SD slot

2.4. Packing List

- DEBIX Infinity (default without eMMC)
- 1 x Foam bag
- 1 x Packing box

Chapter 3 Getting started

DEBIX Infinity is designed to maximize the ease of use and convenience for users, as much as possible, while making sure it still works normally like a standard computer. You will need to prepare the following peripherals to make it work:

- **Power adapter:** DC 5V power adapter, at least 3A rated current, equipped with USB Type-C Output.

Figure 24 Power adapter

- **Micro SD card:** DEBIX OS is installed on it, the minimum capacity requirement is 8GB, 16GB or larger capacity (32GB/64GB/128GB) is recommended.

Warning

If you need to change the Micro SD card of system, please power off the system beforehand.

Figure 25 Micro SD card

- **USB keyboard and mouse:** Any standard USB computer keyboard and mouse will do. They should work normally after being inserted into the USB interfaces.

Figure 26 Keyboard

- **HDMI Cable:** Being used to connect to a TV, projector, or display device that supports HDMI input. If your display device only supports VGA or DVI input, you will also need an adapter. Users can choose to replace HDMI with the LVDS interface or MIPI DSI interface when connecting to a LVDS screen or a MIPI display.

Figure 27 HDMI cable

3.1. Software Installation

3.1.1.Download Image

1. Download the latest system image from the software download page of DEBIX official website;

IMPORTANT

> The boot type of the image downloaded depends on which boot mode image you choose to install, and whether or not the board contains eMMC, etc. For example, if you need to install an image with eMMC boot mode, and the board has an eMMC module, you can choose “Boot from eMMC” link.

2. If the downloaded image file is a zip file, you need to decompress it into an .img file;
3. Write the .img file into the Micro SD card by balenaEtcher tool.

3.1.2.System Boot

DEBIX Infinity has three boot modes: Micro SD card (default), eMMC, Nor Flash (reversed).

3.1.2.1. Boot from Micro SD Card

- **Component Preparation**

✓ DEBIX Infinity board

✓ Micro SD card, and card reader

✓ DC 5V/3A power adapter

✓ PC (windows 10/11)

- **Micro SD Card Installation Boot from Micro SD Card Image**

Select the link to download Boot from SD Card for DEBIX Infinity from DEBIX official website: Debix-SD-V3.5-202XXXXX.img, as shown below.

Figure 28

1. Install and open the Etcher tool on your PC, insert the Micro SD card, select the img file to be installed and the disk partition corresponding to the Micro SD card;

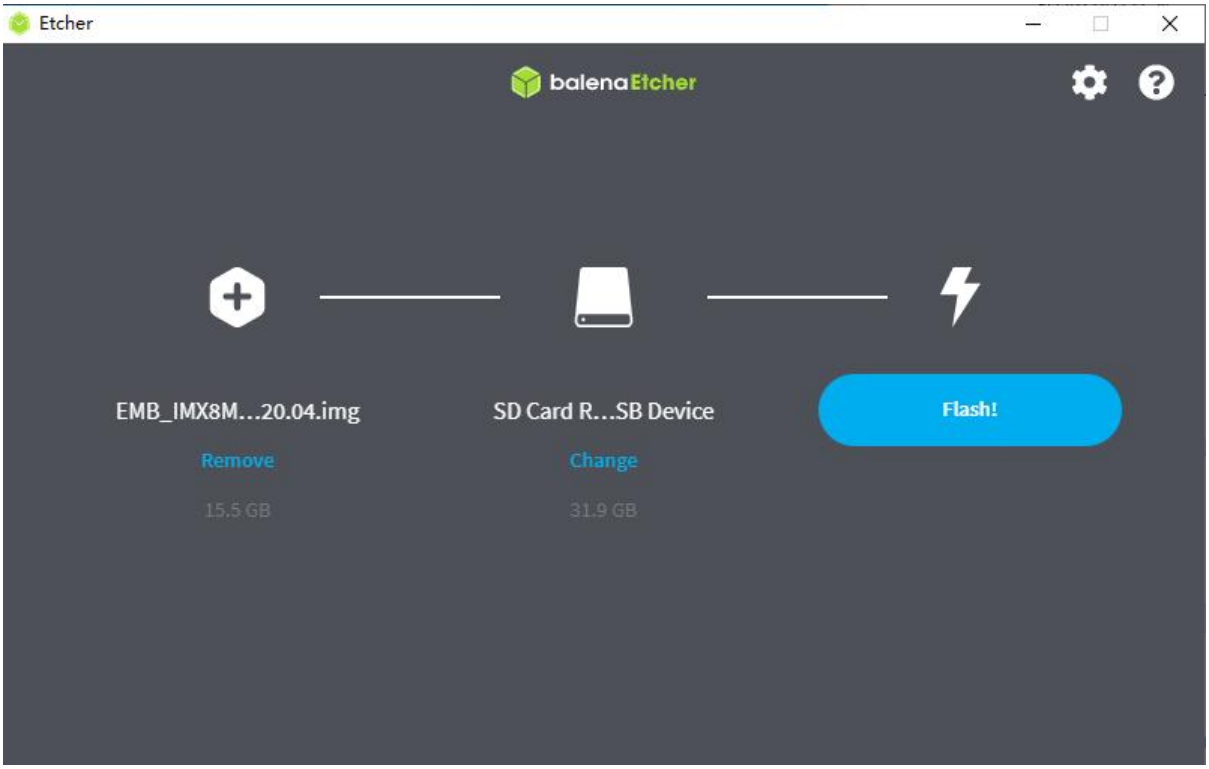


Figure 29

2. Click **Flash!** Wait patiently and the program will write the system to the Micro SD card;

NOTE

The system may prompt you that the disk is unavailable and needs to be formatted, please ignore it, it is not an error!

3. When **Flash Complete!** appears, it means the system has been successfully programmed to the Micro SD card;

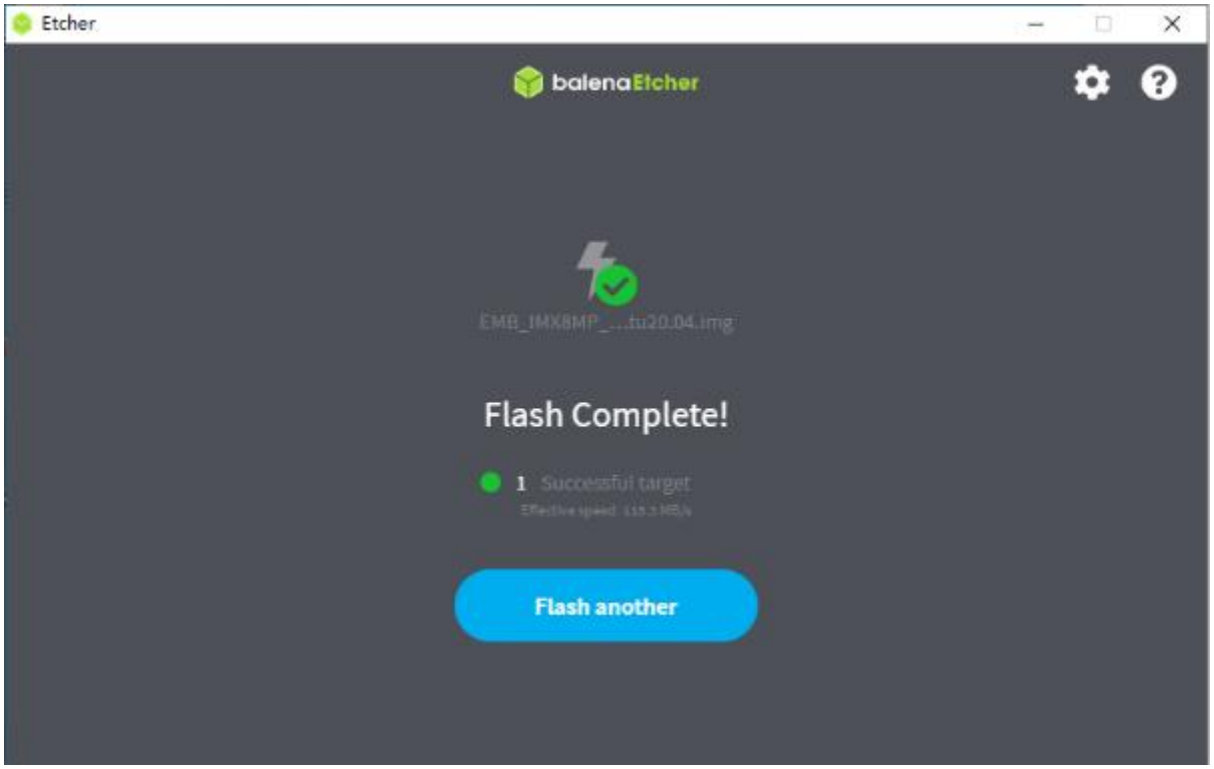


Figure 30

4. Insert the Micro SD card into the slot of the device, connect the display and power on, then you can see the boot screen.

3.1.2.2. Boot from eMMC

- **Component Preparation**

✓ DEBIX Infinity board

✓ Micro SD card above 16GB, and card reader

✓ DC 5V/3A power adapter

✓ PC (windows 10/11)

- **Micro SD Card Installation Boot from eMMC Image**

Select the link to download Boot from eMMC for DEBIX Infinity from DEBIX official website: Debix-SD-UPGRADE-EMMC-V3.5-202XXXXX.img, as shown below.

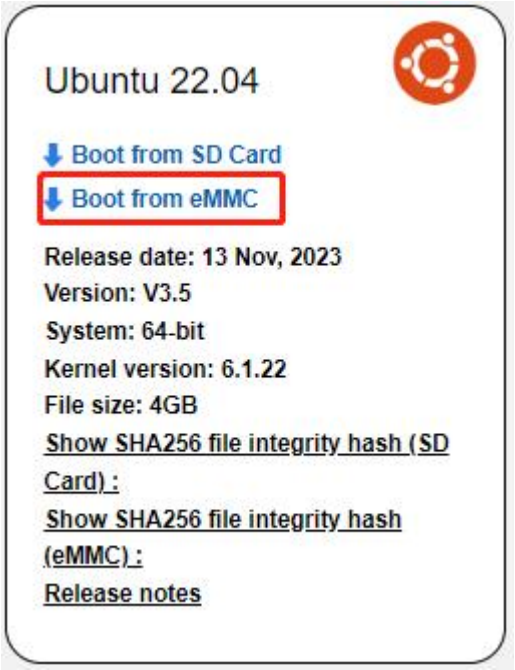


Figure 31

Write the downloaded system image to the Micro SD card according to the steps 1-3 operation of "Boot from Micro SD Card". Then burn it to eMMC with the following steps:

1. Insert the Micro SD card into DEBIX Infinity and set the onboard DIP switch to "011", the system will boot from the Micro SD card, then power on.

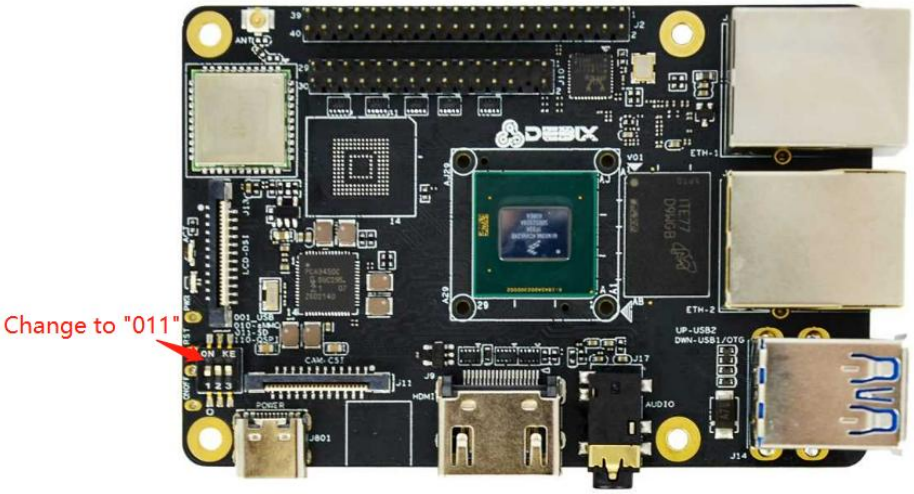


Figure 32

2. After booting, the system will automatically write to eMMC through the Micro SD card, this burn process will not be displayed on screen. When burning, the green LED on the

motherboard will flash quickly, please wait. When the green LED changes from fast flash to slow flash, that is, the programming is complete.

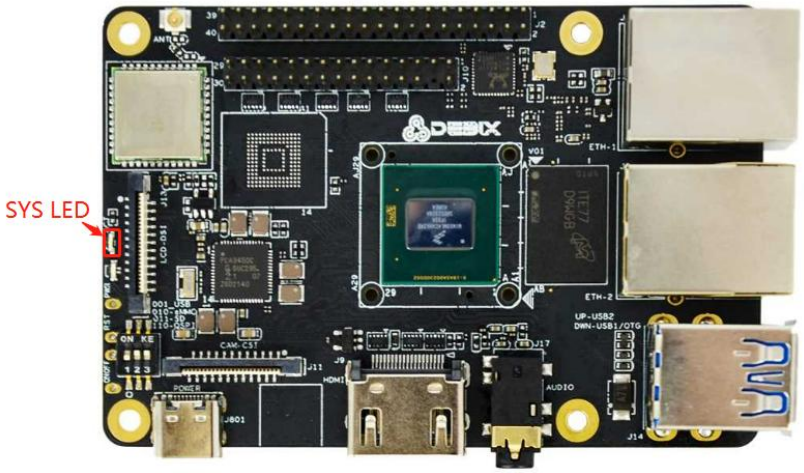


Figure 33

IMPORTANT

If the system with the same version as the Micro SD card has been burned to eMMC, the system will not be burned again, and the indicator light will not flash quickly.

If you need to flash the eMMC system again, you need to format the eMMC first. Proceed as follows:

1) Connect the motherboard to the keyboard, mouse and HDMI display, set the DIP switch to "11" to start the system from the Micro SD card, and power on.
2) In the Terminal, enter the default username “debix” and password "debix" to enter the command line, and run the following commands (as shown in the figure below):

   #sudo su (password: debix)

   #fdisk /dev/mmcblk2

   d

   d

   w
3) Repeat step 2 to burn the system to eMMC again.

```
root@imx8mpevk:/home/debix# fdisk /dev/mmcblk2
mmcblk2       mmcblk2boot1  mmcblk2p2
mmcblk2boot0  mmcblk2p1     mmcblk2rpmb
root@imx8mpevk:/home/debix# fdisk /dev/mmcblk2p
mmcblk2p1  mmcblk2p2
root@imx8mpevk:/home/debix# fdisk /dev/mmcblk2

Welcome to fdisk (util-linux 2.34).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): p
Disk /dev/mmcblk2: 14.58 GiB, 15636365312 bytes, 30539776 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xc84cc398

Device         Boot   Start      End  Sectors  Size Id Type
/dev/mmcblk2p1        20480  1024000  1003521  490M 83 Linux
/dev/mmcblk2p2      1228800 30539775 29310976   14G 83 Linux

Command (m for help): d
Partition number (1,2, default 2):

Partition 2 has been deleted.

Command (m for help): d
Selected partition 1
Partition 1 has been deleted.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

root@imx8mpevk:/home/debix#
```

3. Disconnect the power supply, and set the DIP switch to "010", the system will boot from eMMC, connect to HDMI and power on, then you can see the boot screen.

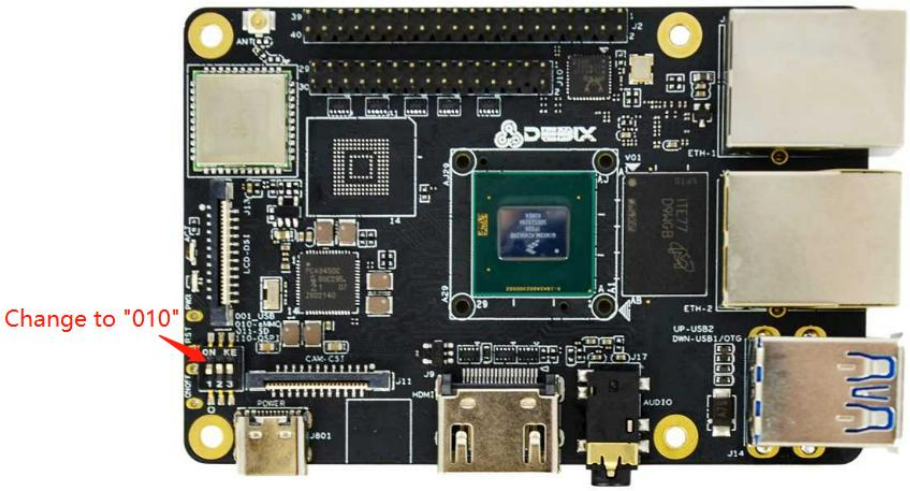


Figure 34

3.1.2.3. USB Flash

- **Component Preparation**

✓ DEBIX Infinity board

✓ USB-A to USB-A data cable

✓ DC 5V/3A power adapter

✓ PC (windows 10/11)

- **Burning to eMMC via USB**

1. Download the system installation package we provided to DEBIX Infinity, check the MD5 match after downloading, and then unzip it to PC;
2. Use USB cable to connect the OTG port of the device to the USB port of PC, set the DIP switch to "001", connect the power supply, the system will enter the USB burning mode;

Figure 35

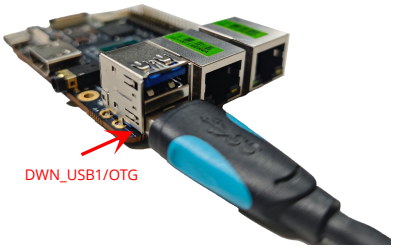


Figure 36

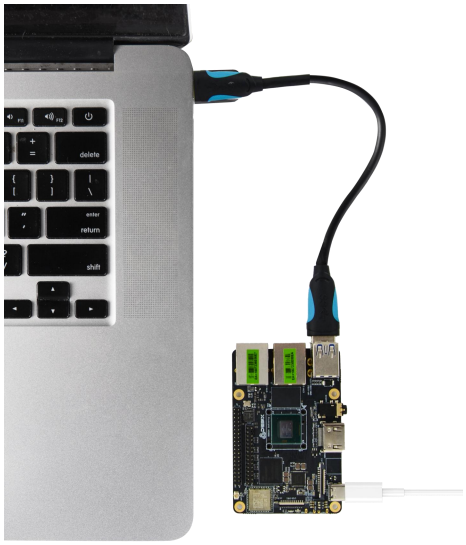


Figure 37

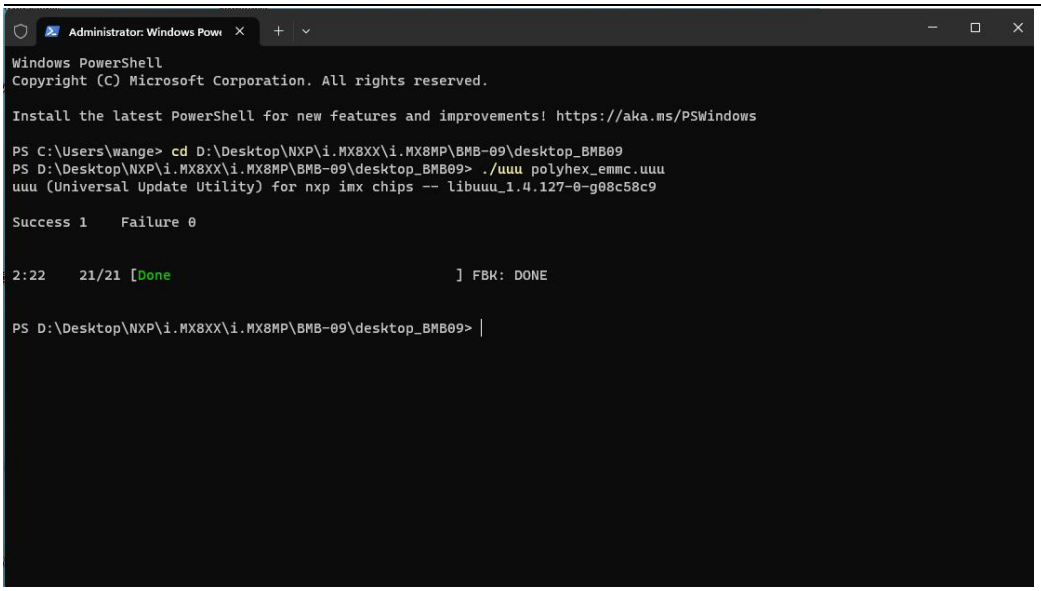
3. Run **Windows PowerShell** as administrator;
4. Type cd command to enter the root directory of the system installation package, for example:

```
cd D:\Desktop\NXP\i.MX8MP\BMB-09\desktop_BMB09
```

5. Run the following command to download the file and start burning the system to eMMC;

```
. /uuu polyhex_emmc.uuuu
```

6. Wait for the system burning to finish; when the terminal shows green "Done", it means the burning is finished;



7. After burning, disconnect the power supply and OTG USB cable, make sure the device is completely powered off, and then connect the power supply to start.

3.2. Hardware connection

Hardware connections are made as shown in the diagram and the steps are as follows:

1. **Insert the Micro SD card with the system installed:** Insert it into the slot on the back of DEBIX Infinity; if you need to remove it, just gently pull out the card after power off.
2. **Connect the HDMI monitor**
3. **Connect the keyboard**
4. **Connect the mouse**
5. **Connect the network cable**
6. **Connect the power adapter:** Plug in the power supply, DEBIX Infinity will power on, and the red & blue indicator light will be on, the green indicator light will be blinking (if the boot fails, the green indicator light will be off).

Chapter 4 Software Application Examples

4.1. System Desktop

The default system we provide is with Desktop. Here is a brief exhibition. The following picture shows the system desktop:

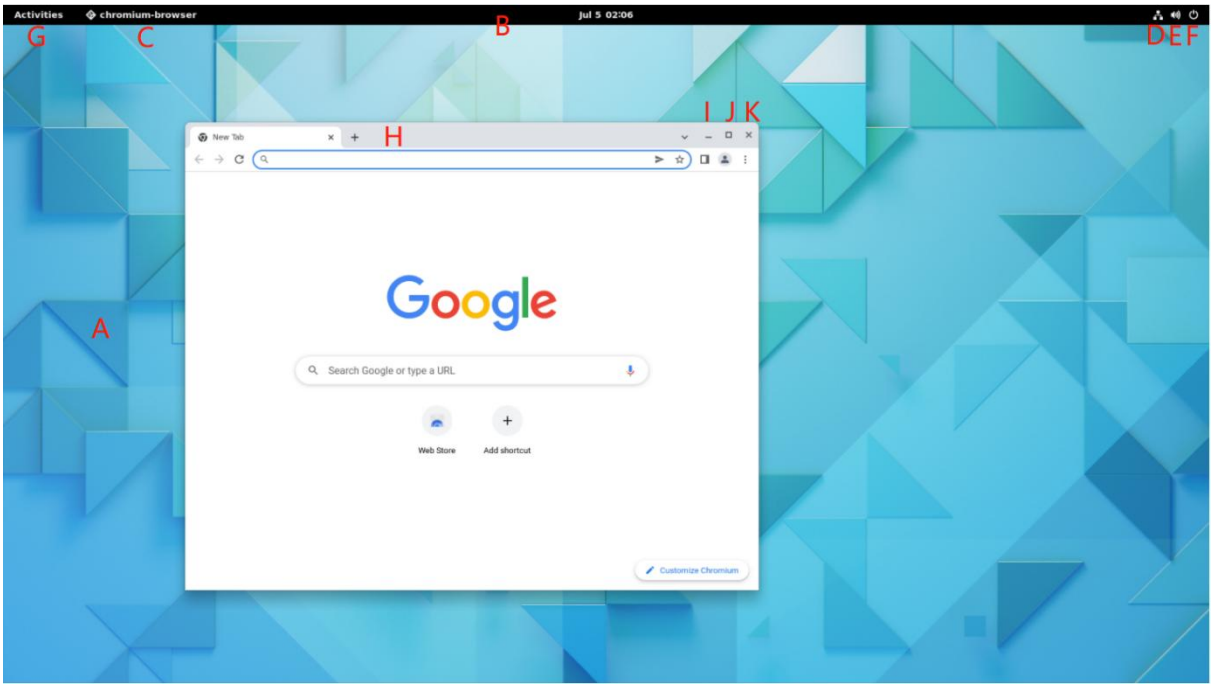


Figure 38 System Desktop

Table 13 Description of System Desktop

No	Description	No	Description
A	Wallpaper	**B**	Taskbar
C	Task	**D**	Network Identity
E	Sound Volume Icon	**F**	Power Button
G	Activity Button	**H**	Window Title Bar
I	Window Minimize Button	**J**	Window Maximum Button
K	Window Close Button		

4.2. System Browser

The desktop system pre-installed the Chromium browser, which has the same function as Google Chrome, and has the same performance of simplicity, speed and security.

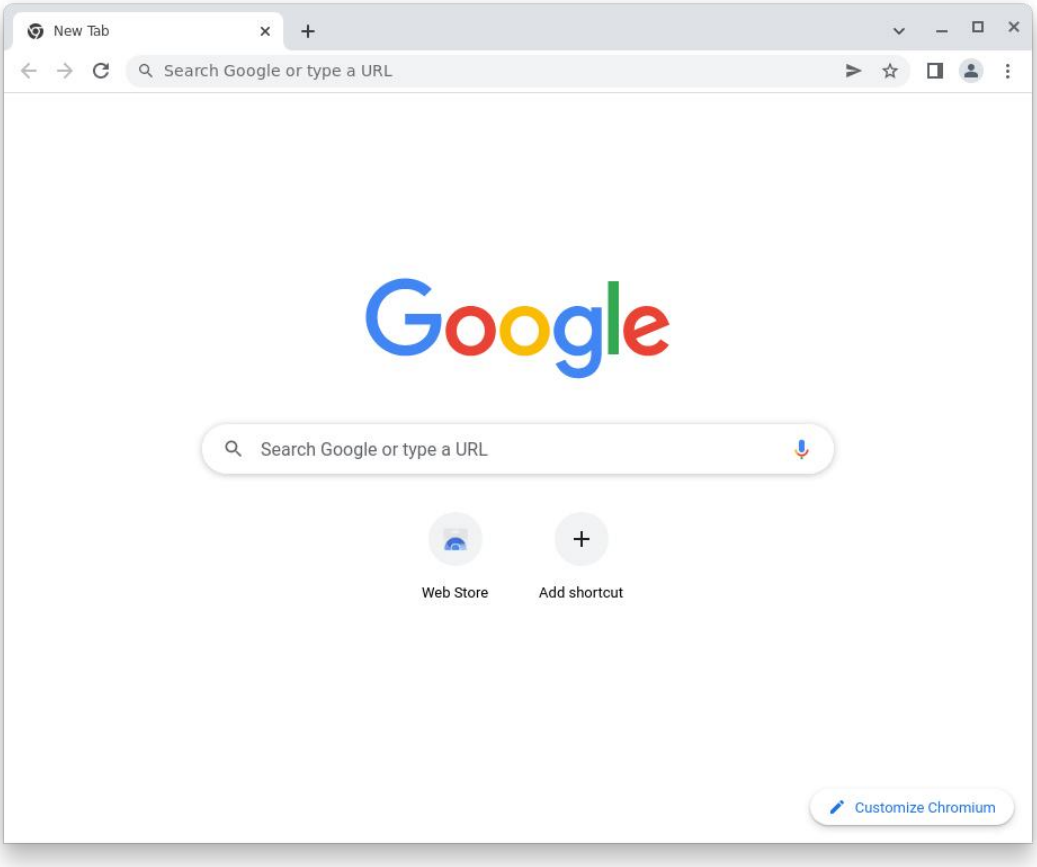


Figure 39 Chromium-browser

4.3. File Management

DEBIX Infinity uses Files as the desktop file management tool.

- Files downloaded by browser are stored in the **/Home/Downloads** directory.
- Files for the desktop are stored in the **/Home/Desktop** directory.
- Pictures taken by the camera or Screenshot are stored in the **/Home/Pictures** directory.
- When you insert a removable disk, the name of the disk will be displayed in the file manager, and you can view it by clicking on it.

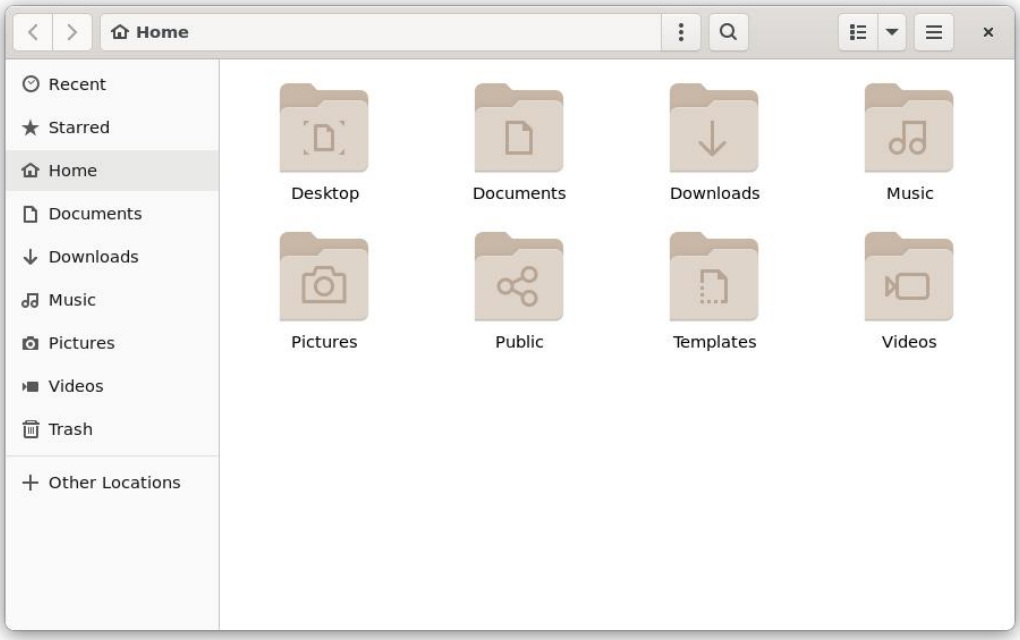


Figure 40 Files

You can set the display of files and folders by the icon  in the upper right corner.

4.4. Application Interface

1. Click **Activities** in the upper left corner of the desktop;
2. Click on **Show Applications** icon  to open the all application interface of DEBIX Infinity;

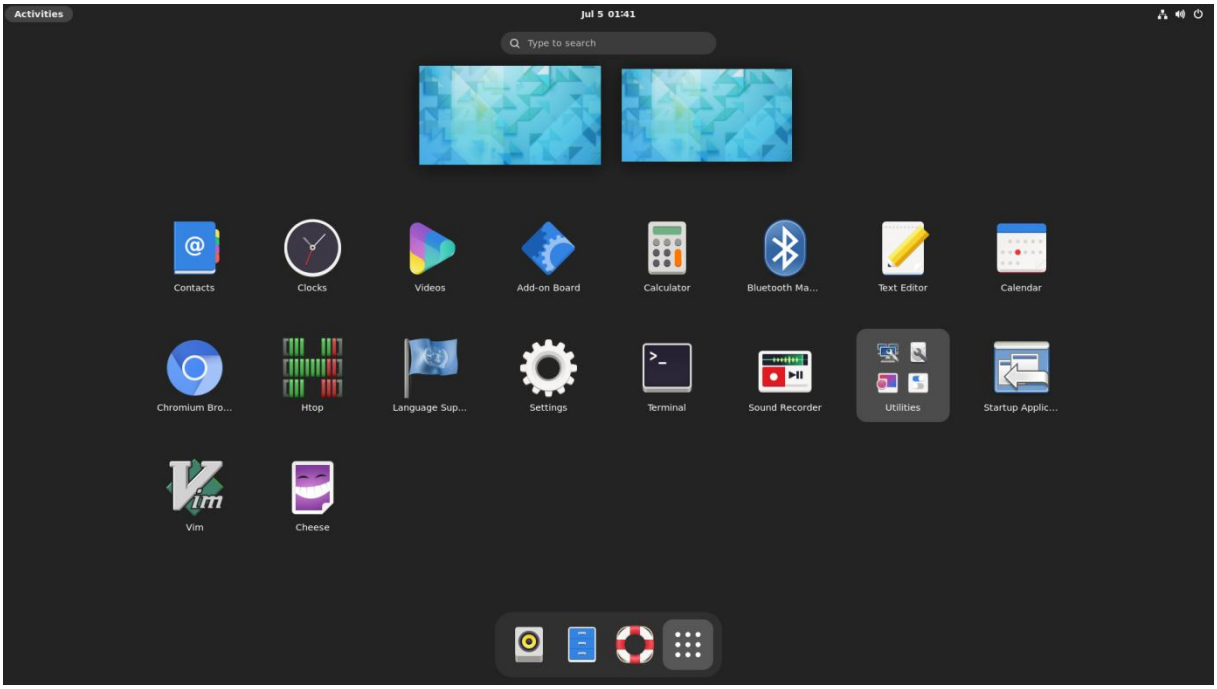


Figure 41 Application of System Desktop

3. Click any application icon to enter the application interface.
4. For example, click **Settings** application to pop up Settings interface, and on the left side is function menu; you can set Wi-Fi, Bluetooth, displays and other functions.

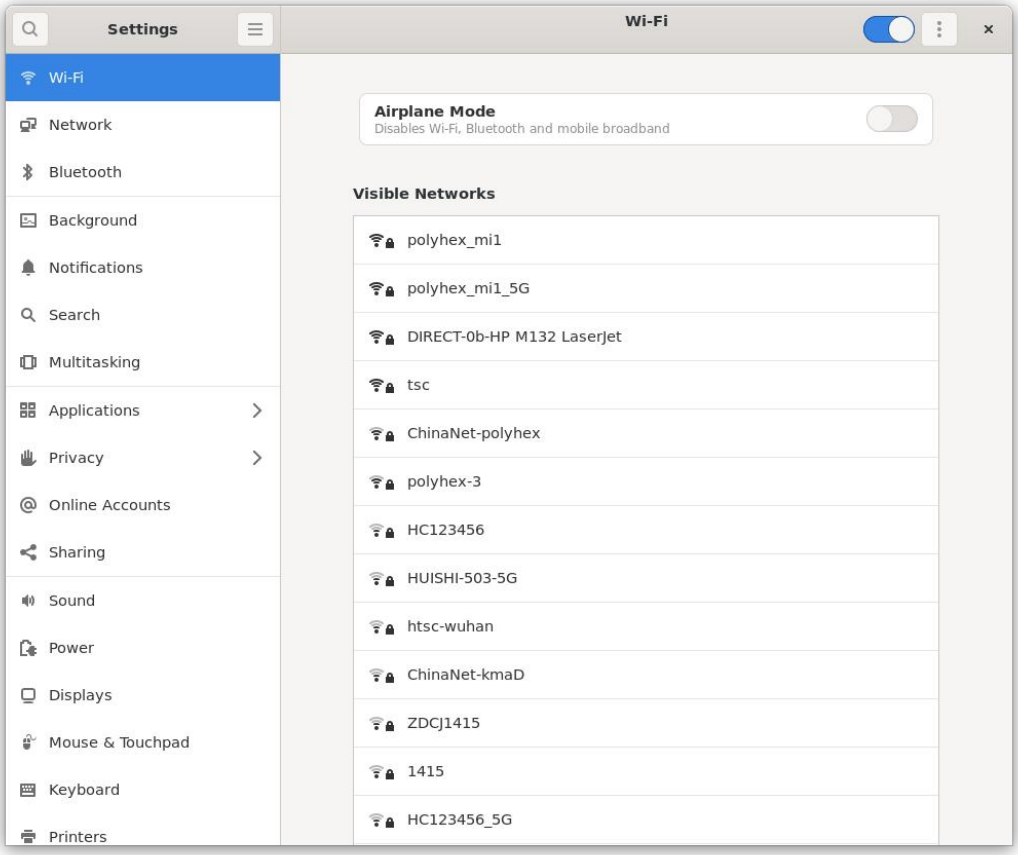


Figure 42 Settings interface

4.5. Change User Password

Location: **Settings -->> Users**

1. Click **Settings** app to open Settings interface;
2. On the left side of the function menu, select **Users** to display user name and password information;

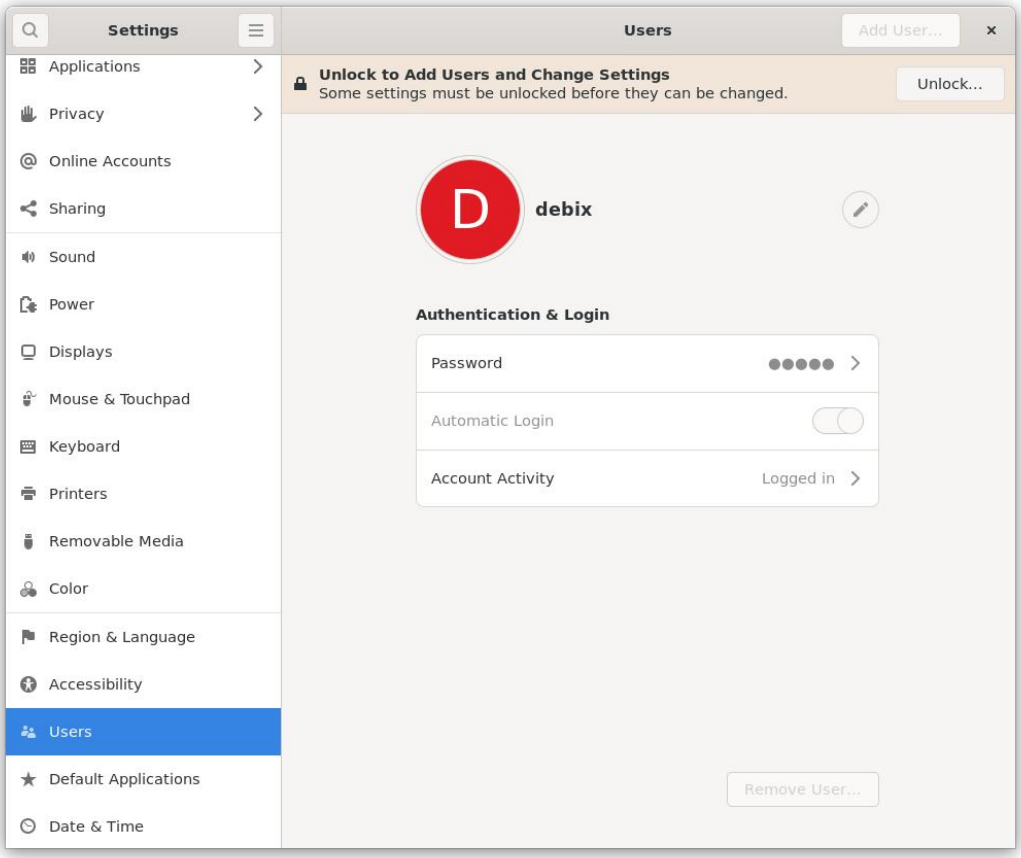


Figure 43 Users interface

3. Click **Unlock** button in the upper right corner to pop up the "Authentication Required" dialog box, type the current user password and click **Authenticate** button to verify;

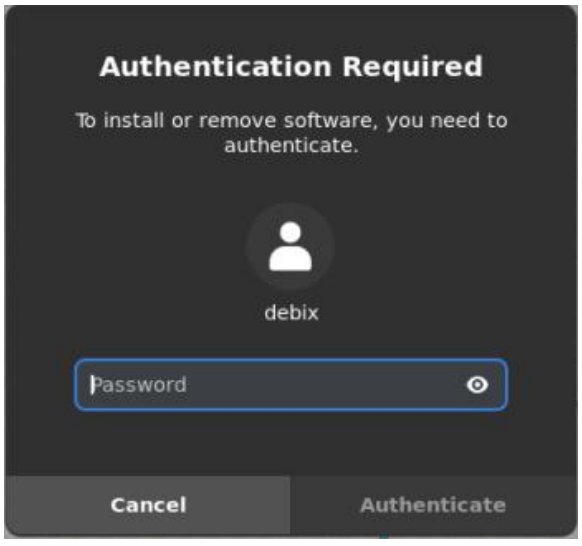


Figure 44 Authenticate dialog box

4. If the authentication passes, click edit icon  in the Users interface's Username

column to modify the username and then press **Enter** to save the username.

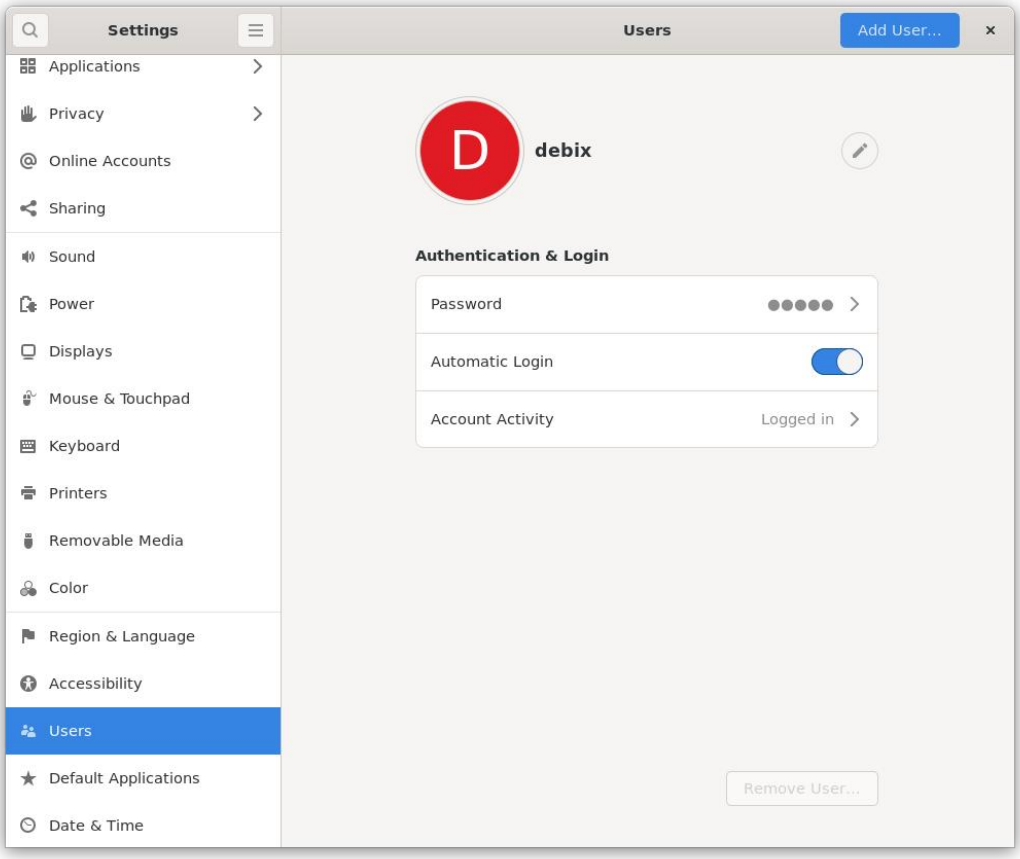


Figure 45

5. Click the Password column in the Users interface, the "Change Password" dialog box pops up to change the password, type "Current Password", "New Password", "Confirm New Password", click **Change** button.

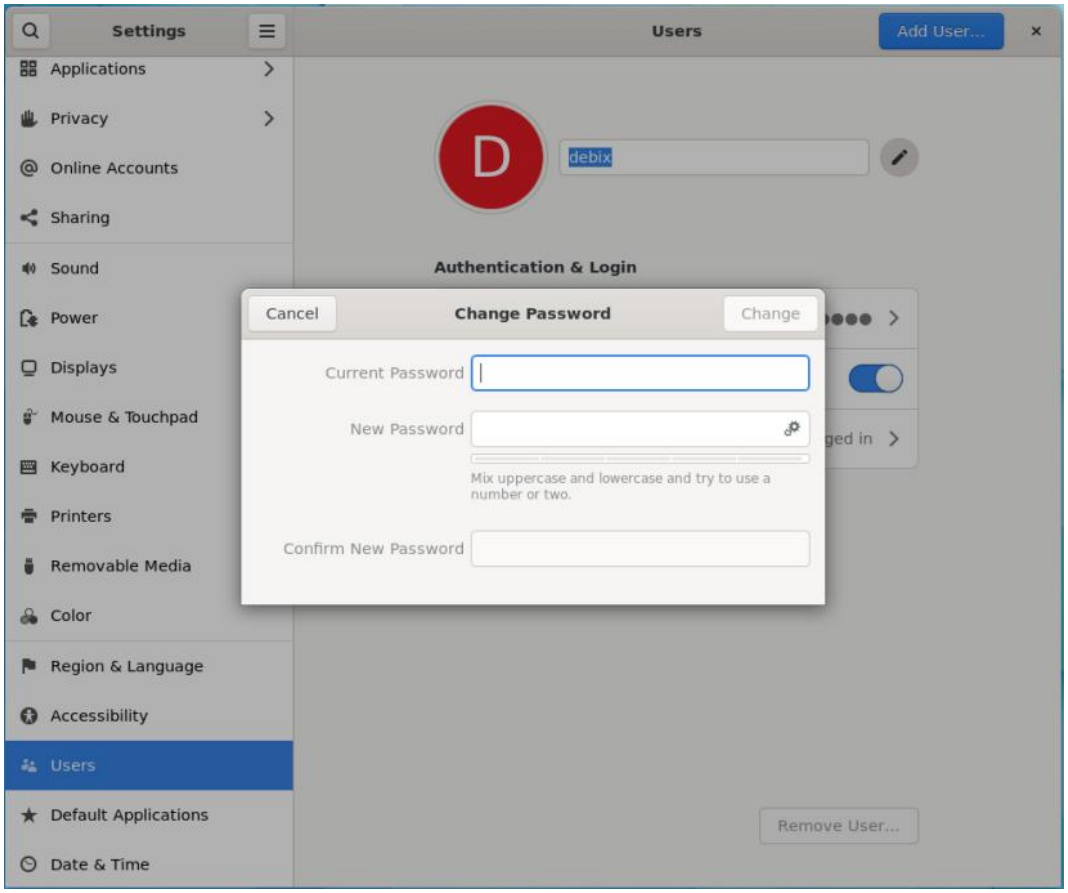


Figure 46 Change Password

NOTE

The value of “New Password” and “Confirm New Password” must be the same.

6. You can also click **Add User** button in the upper right corner to add a new user.

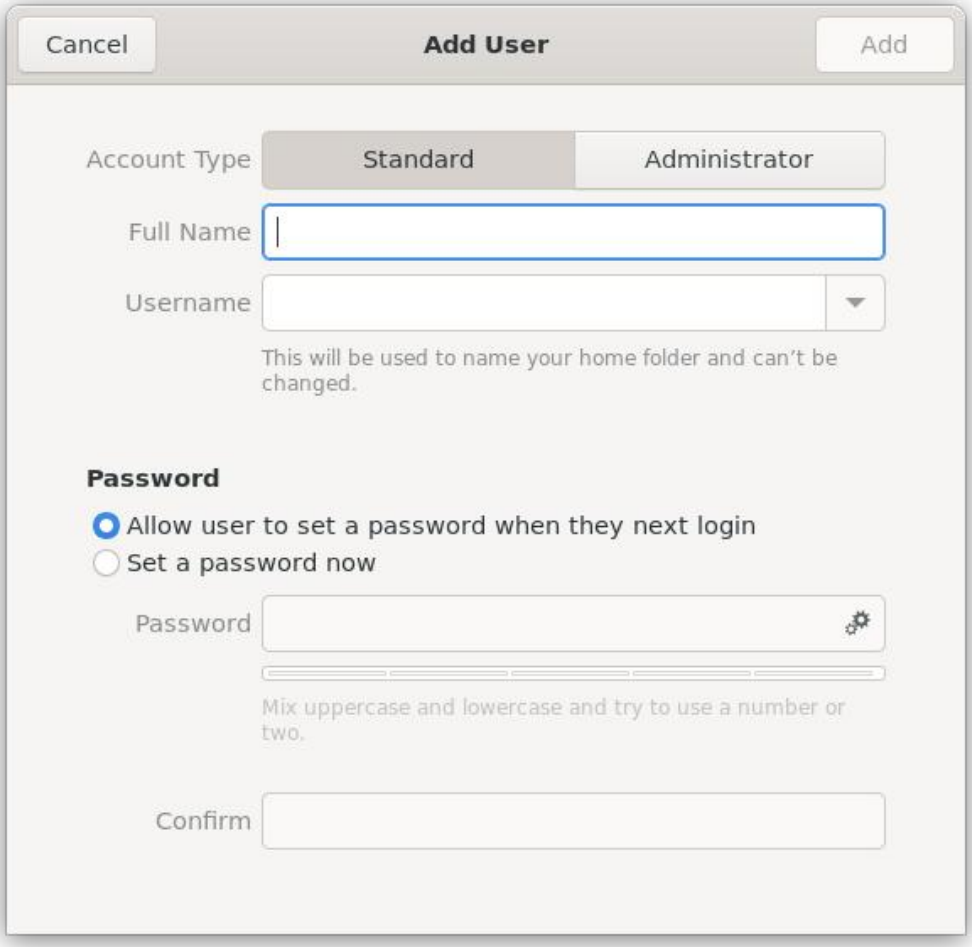


Figure 47 Add User interface

4.6. Setting up WiFi

Location: **Settings -->> Wi-Fi**

1. Click **Settings** app to open Settings interface;
2. On the left side of the function menu, select **Wi-Fi**, click  button in the upper right corner to turn on WiFi network (WiFi network is enabled by default), and the interface will show the available WiFi networks;

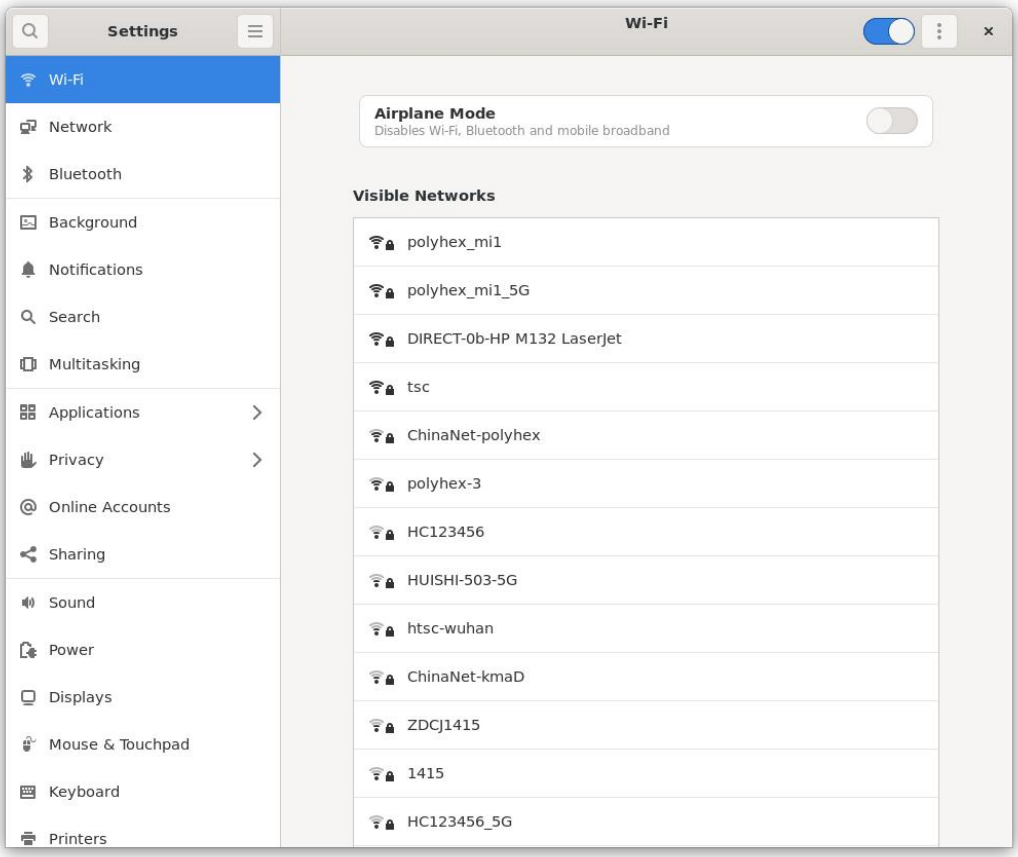


Figure 48 Wi-Fi interface

3. If the name of the connected WiFi is "polyhex_m1", click the WiFi name column, the "Authentication Required" dialog box pops up, and type the WiFi password and click **Connect** button;

Figure 49 WiFi password verification interface

4. Wait for the connection to be successful.

5. You can also connect to the network by clicking the icon in the upper right corner and selecting **Connect to Hidden Network**, **Turn On Wi-Fi Hotspot**, or **Known Wi-Fi Networks**.

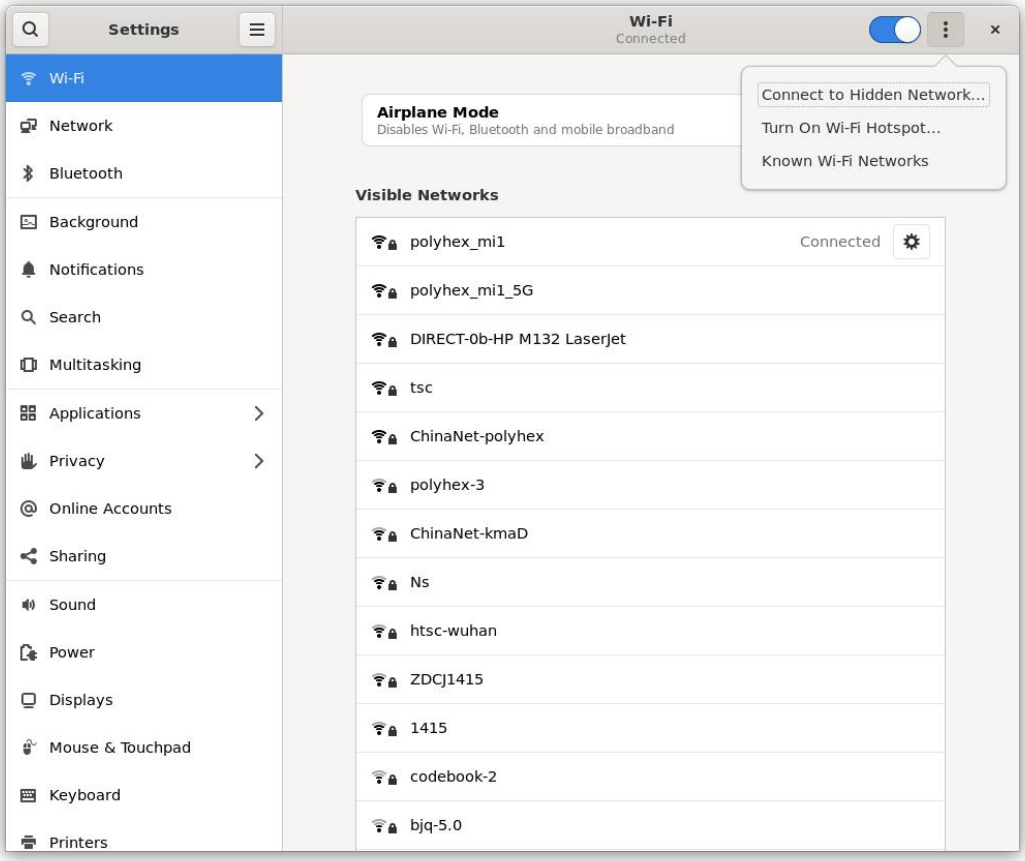


Figure 50

6. Click **Airplane Mode** button to turn on or off the airplane mode.

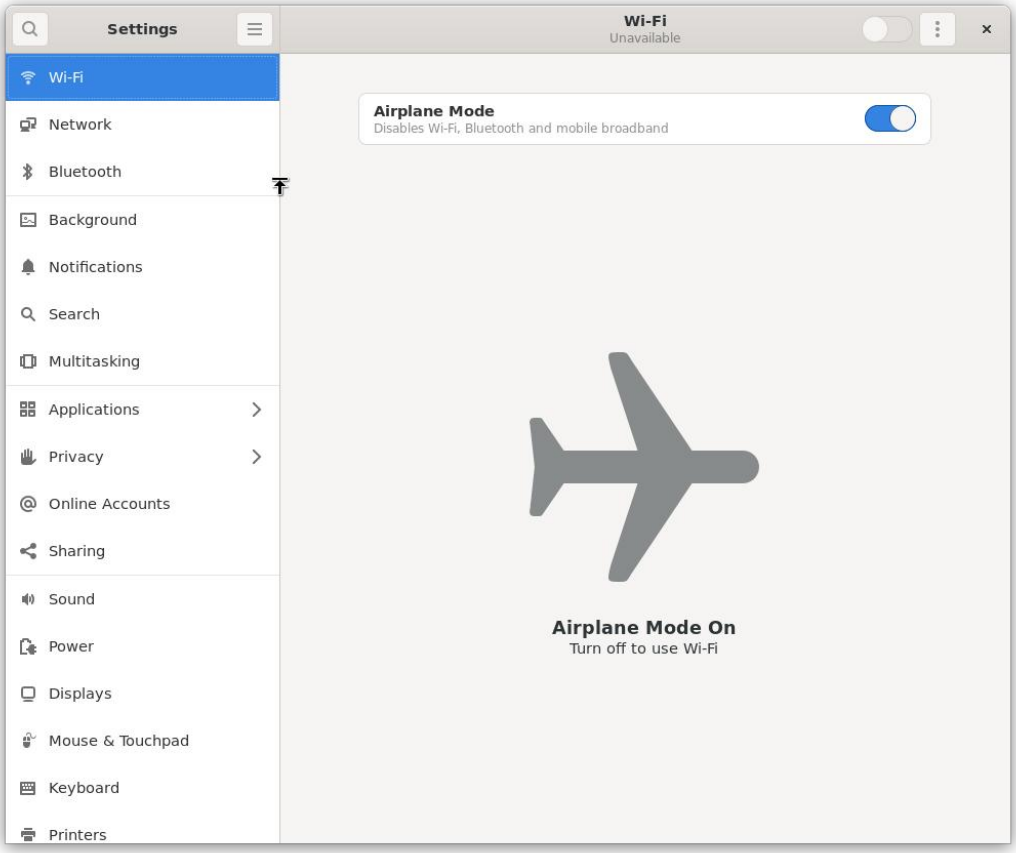


Figure 51 Airplane Mode

4.7. Configure WiFi hotspot

IMPORTANT

- WiFi network needs to be turned on before configuring WiFi Hotspot.
- WiFi network is disconnected after the WiFi Hotspot is turned on.

There are two ways to enable WiFi Hotspot:

- **Command to enable**: nmcli dev wifi hotspot ifname wlan0 ssid debix_ap password "12345678"
- Interface to enable: **Settings -->> Wi-Fi -->> "Turn On WiFi Hotspot"**

1. Click **Settings** app to open Settings interface;
2. On the left side of the function menu, select **Wi-Fi**, click the icon in the upper right

corner and select "Turn On Wi-Fi Hotspot";

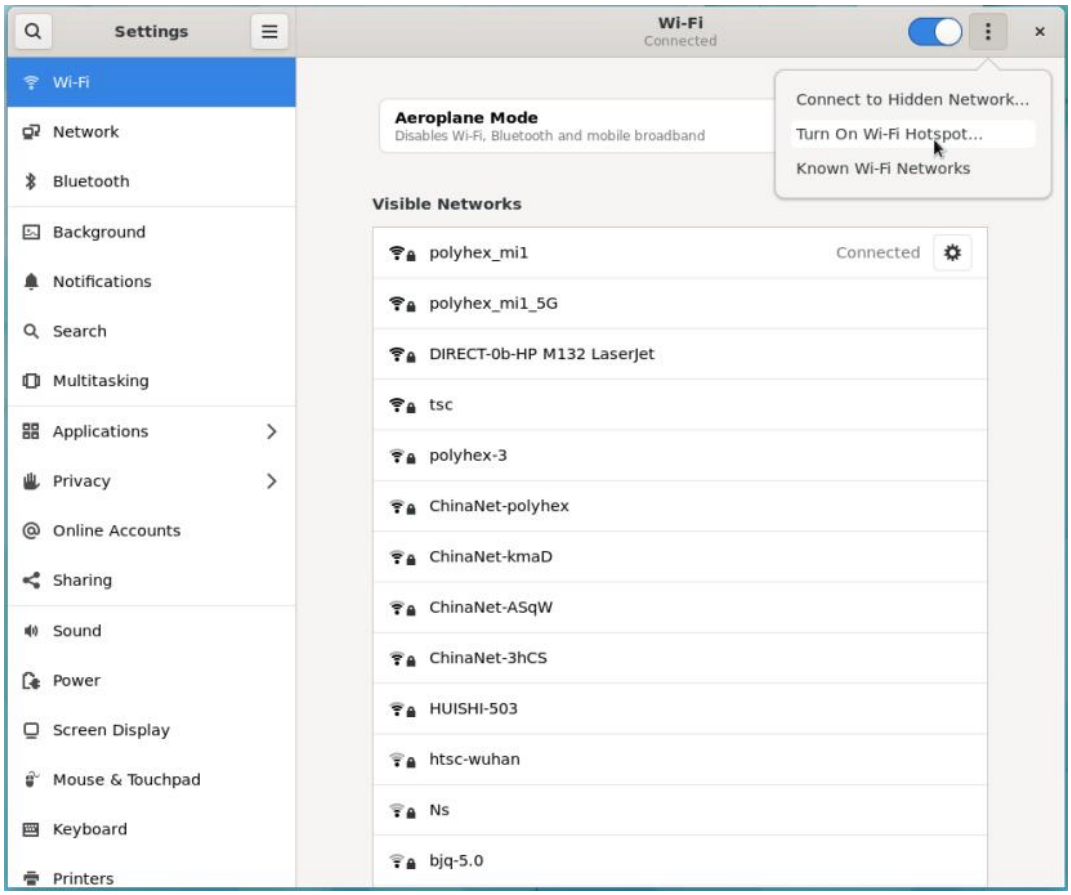


Figure 52 Wi-Fi Hotspot

3. When the "Turn on Wi-Fi Hotspot?" interface pops up, type the password of the hotspot network, click **Turn On** to enable the hotspot and display the QR code of the WiFi hotspot.

NOTE

The password of the current hotspot with the network name "imx8mpevk" is imx8mpevk.

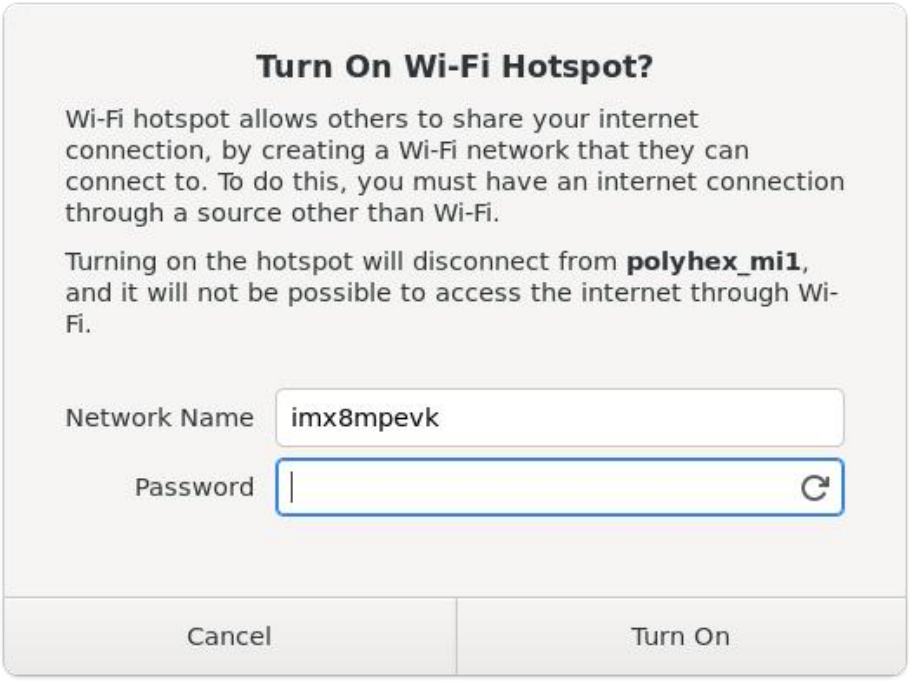


Figure 53 Hotspot Password Verification

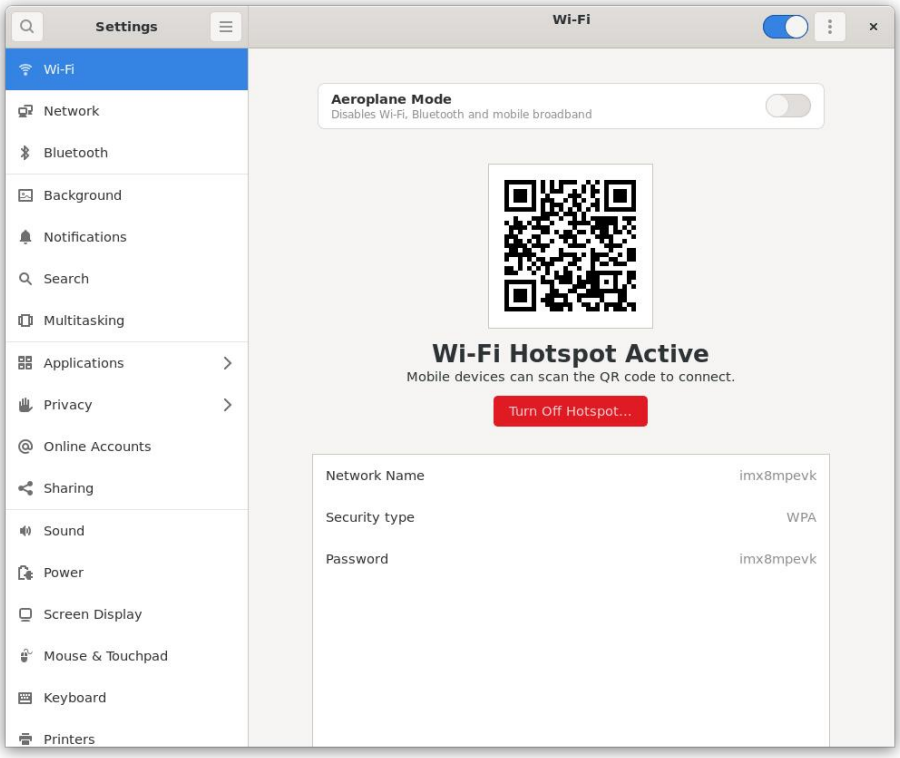


Figure 54 Hotspot active

4. If you need to turn off the WiFi hotspot, you can do it in the following two ways:

- Click **Turn Off Hotspot**, click **Stop Hotspot** to disconnect the hotspot and connect to the

WiFi network;

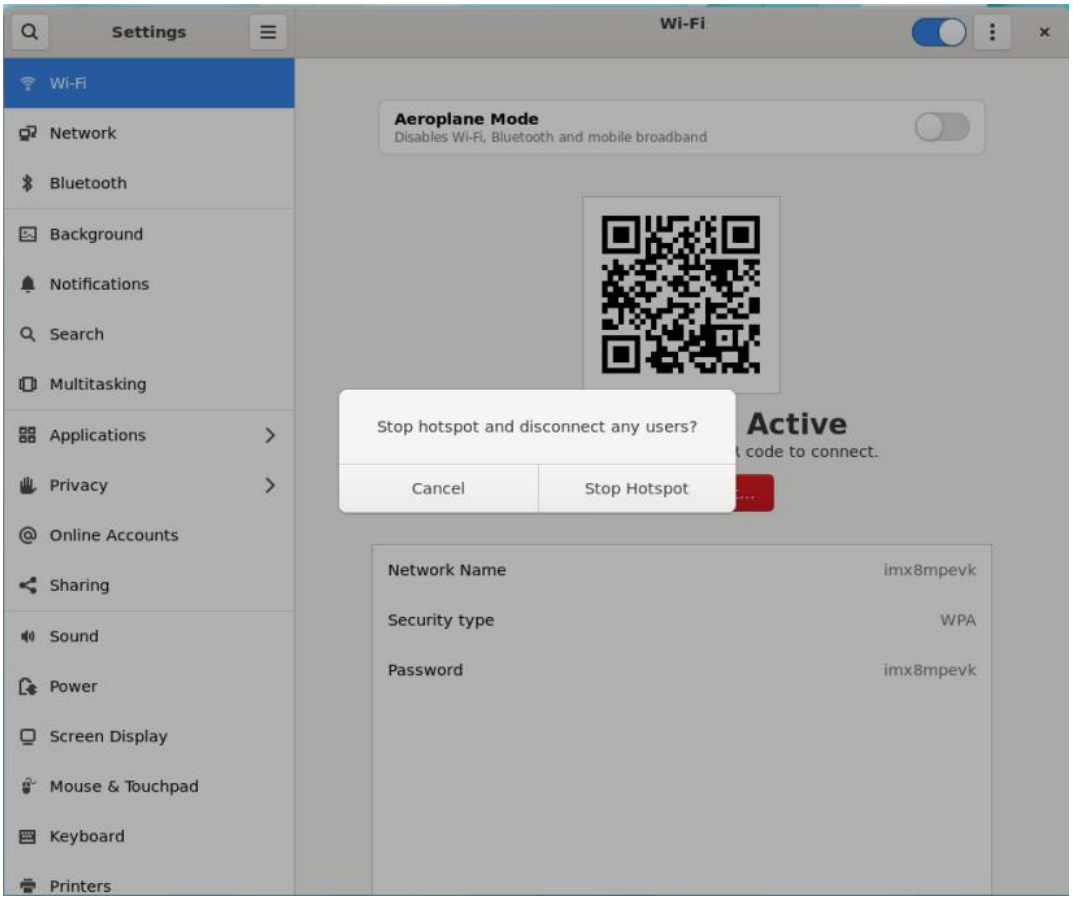


Figure 55

- Or click the top right corner  of desktop, select "Wi-Fi Hotspot Active", click **Turn Off** to disconnect the hotspot.

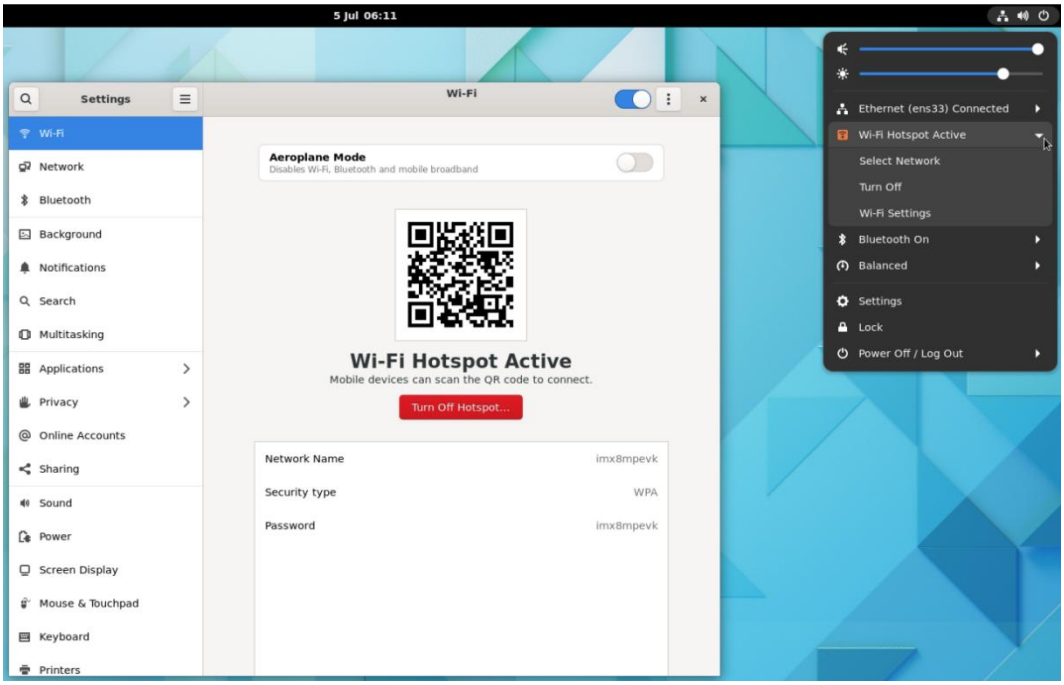


Figure 56

4.8. Change Language

Location: **Settings -->> Region & Language**

1. Click **Settings** app to open Settings interface;
2. On the left side of the function menu, select **Region & Language**, and in the Region & Language interface, click **Manage Installed Languages** to pop up the "Language Support" dialog box;

NOTE

If the DEBIX Infinity system does not have a language package, you need to download the update through network.

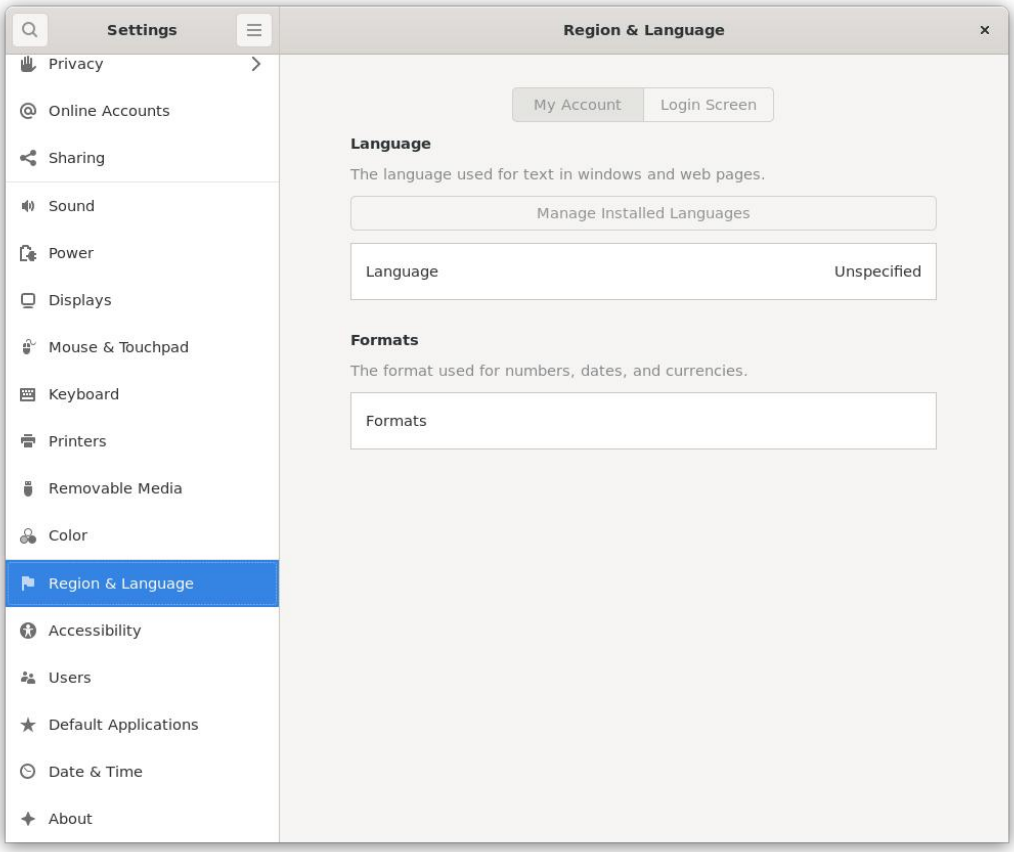


Figure 57 Region & Language interface

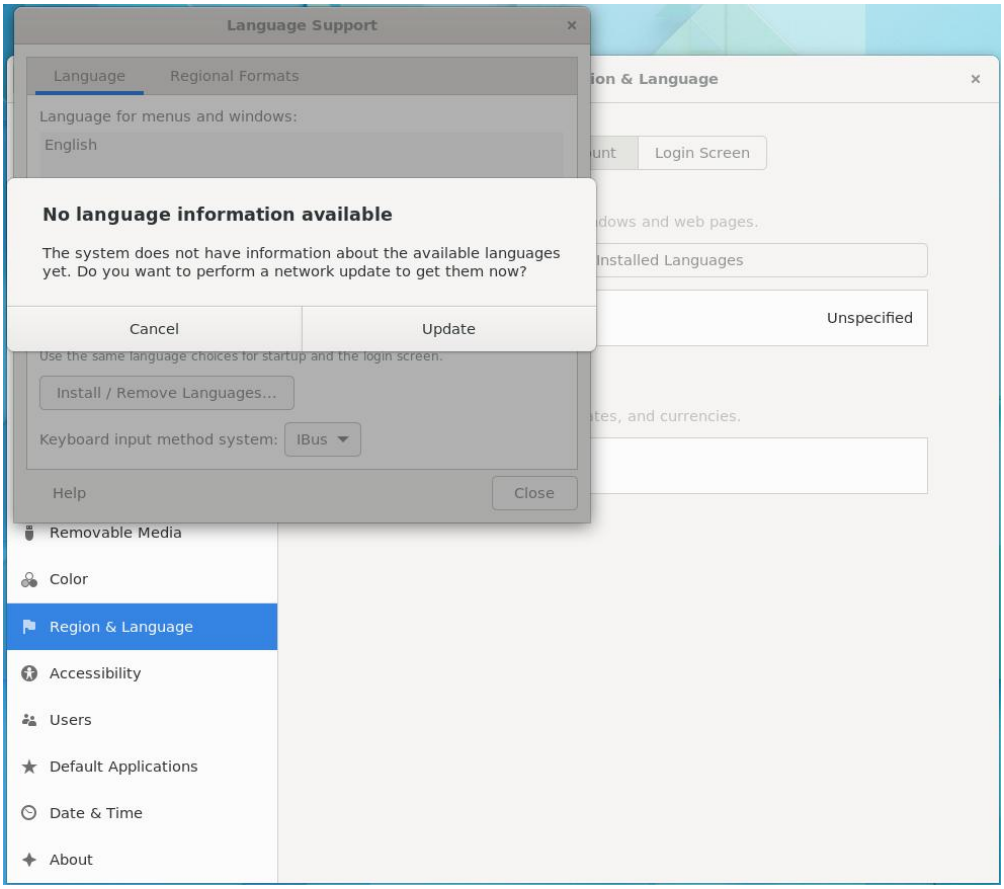


Figure 58 Update language package through network

3. After downloading the updated language package, in the "Language Support" interface, click **Install/Remove Languages** to pop up the "Installed Languages" dialog box, select the languages you need to install, click **Apply** button.

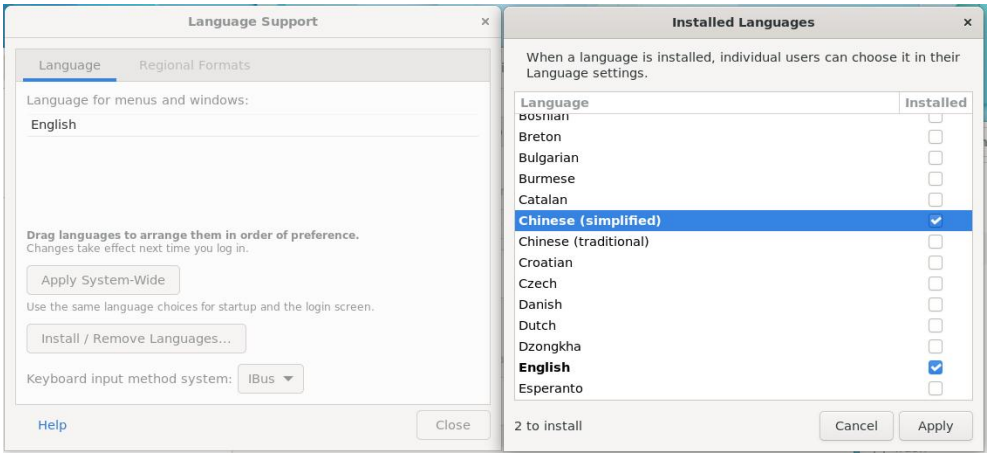


Figure 59 Languages option

4. When the "Authentication Required" dialog box pops up, type the password of the current

user and click **Authenticate** button to install the language package automatically.

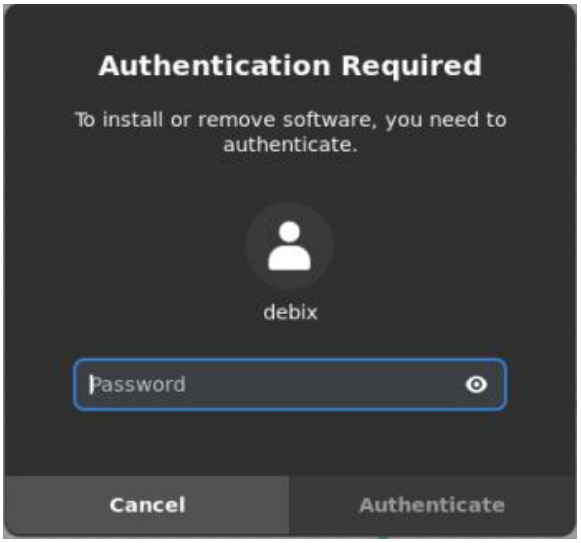


Figure 60

5. After the installation is finished, in the "Language Support" interface, click **Apply System-Wide**; the "Authentication Required" dialog box will pop up, type the current user password. After logging in the system again, go back to the “Language and Region” tab, click on the Language column, select the language you want to set, click **Select**; click **Restart**, then click **Log Out** and restart to take effect.

NOTE

To configure the language for the first time, you need to re-login the system after installing the language package to take effect, and the Language column displays the set language.

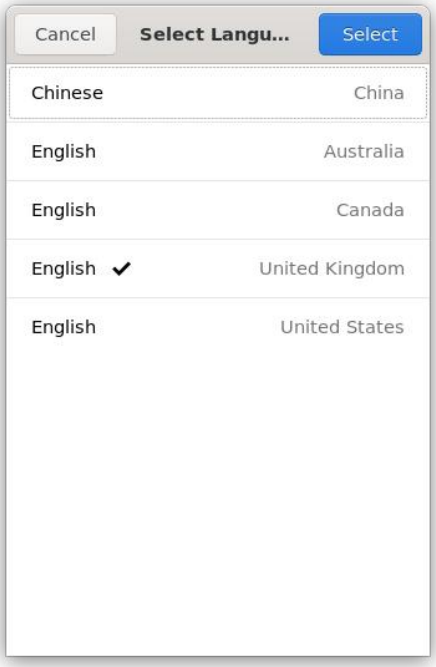


Figure 61 Language settings

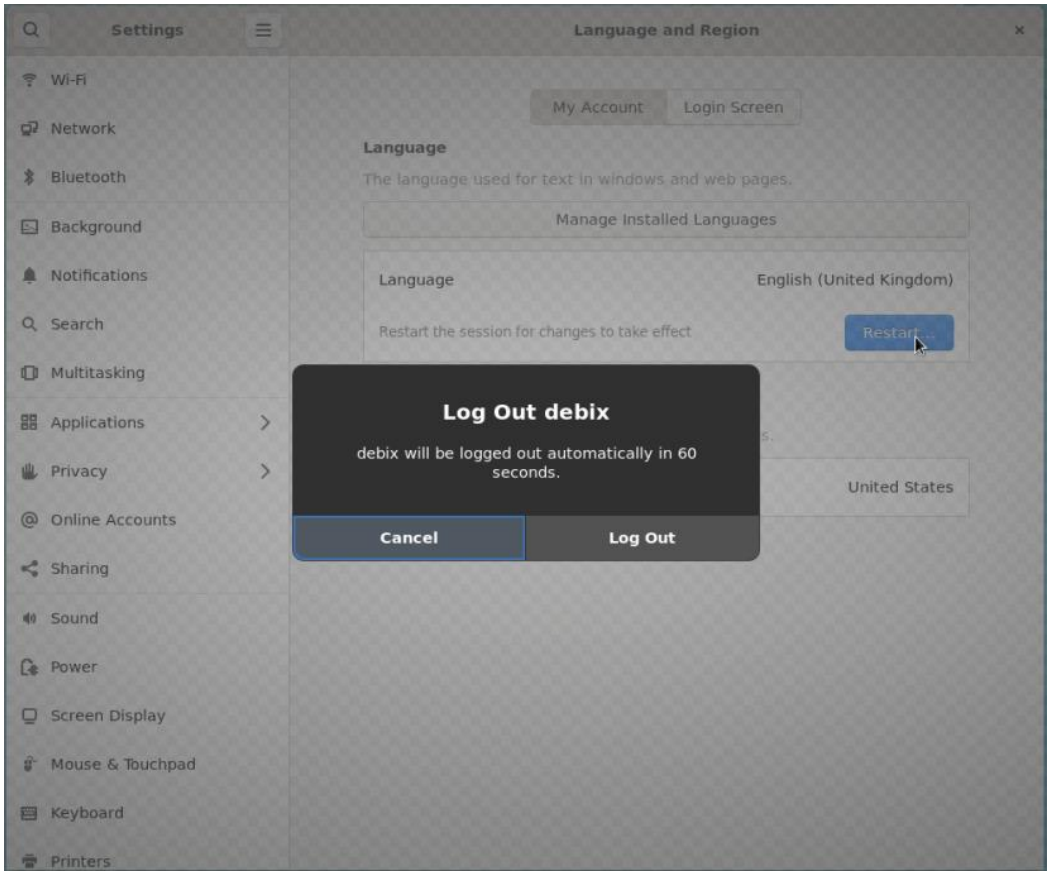


Figure 62 Restart to take effect settings

4.9. Usage of Display Screen

Please refer to the Multi-screen unique display section for more information on how to use the display screen switching.

The three screens supported by DEBIX Infinity are as follows:

Table 14 Display Screen supported by DEBIX Infinity (Touchscreen with USB interface)

No	Screen Type	Specification Address
1	DEBIX TD050A 800x480 5-inch LVDS screen	https://debix.io/Uploads/Temp/file/20240724/DEBIX%20TD050A.pdf
2	DEBIX TD070A 1024x600 7-inch LVDS screen	https://debix.io/Uploads/Temp/file/20240724/DEBIX%20TD070A.pdf
3	DEBIX TD101A 1280x800 10.1-inch LVDS screen	https://debix.io/Uploads/Temp/file/20240724/DEBIX%20TD101A.pdf

1. Usage of DEBIX TD070A 1024x600 7-inch LVDS screen

1) **Component Preparation:** LVDS screen, DEBIX Inifinity, LVDS screen cable, as shown in the figure below:

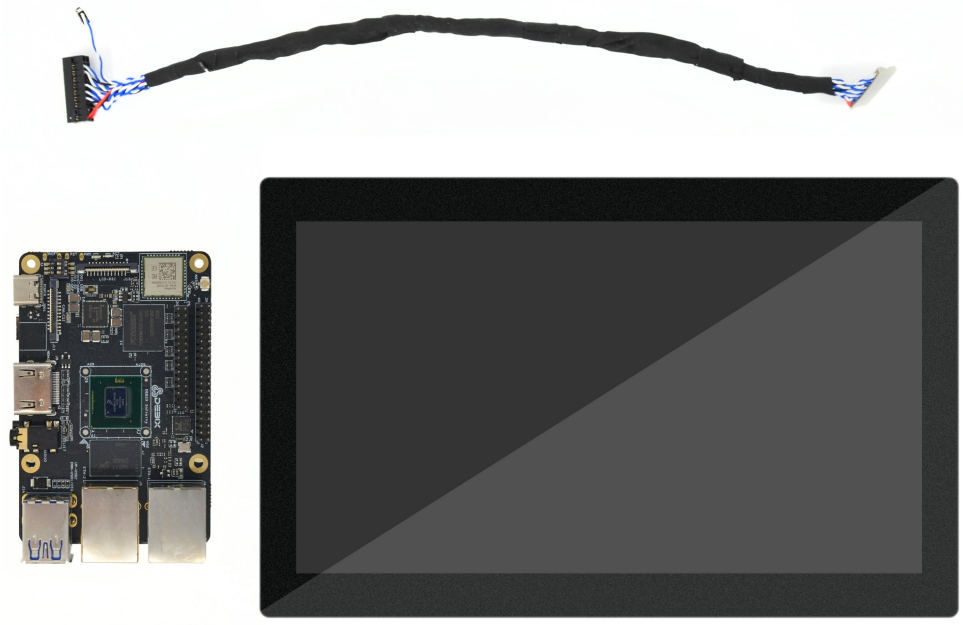


Figure 63

2) Plug the double-row female header of LVDS screen cable to LVDS interface (J10) of DEBIX Infinity, the red line should be connected to Pin1, Pin2; as for the sole 2Pin blue and white line, the blue line is connected to Pin36 of GPIO (J2), the white line is connected to Pin38 of GPIO (J2).

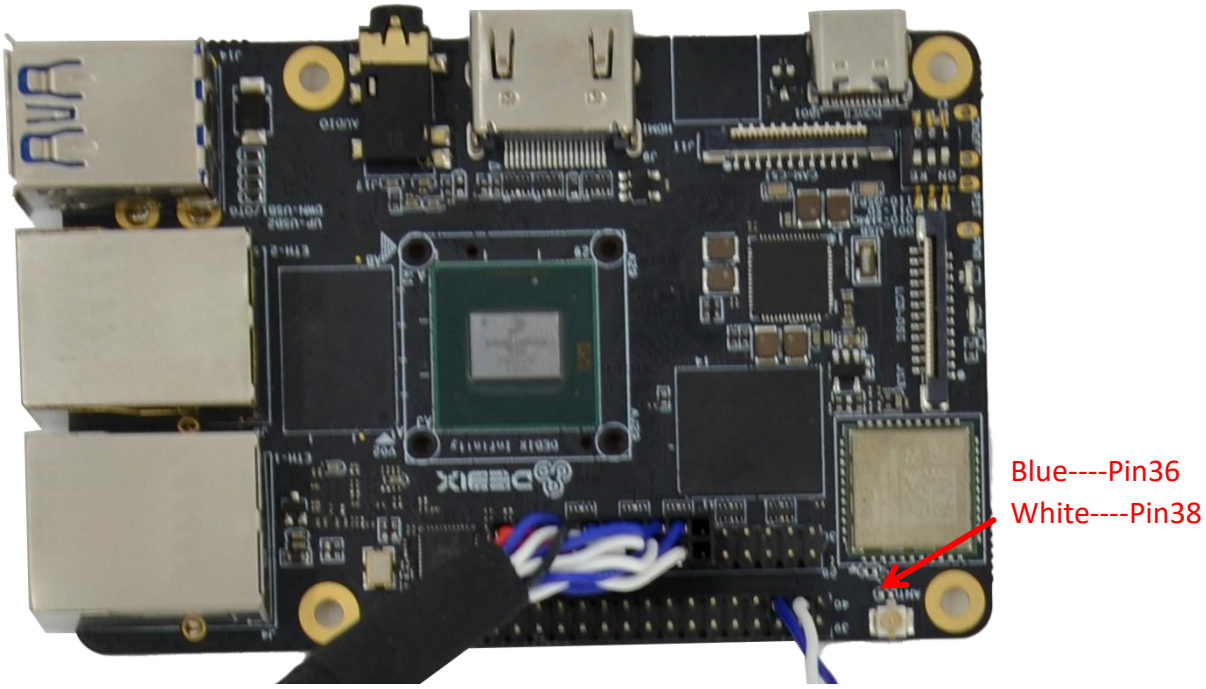


Figure 64 Connect LVDS screen cable to DEBIX Infinity

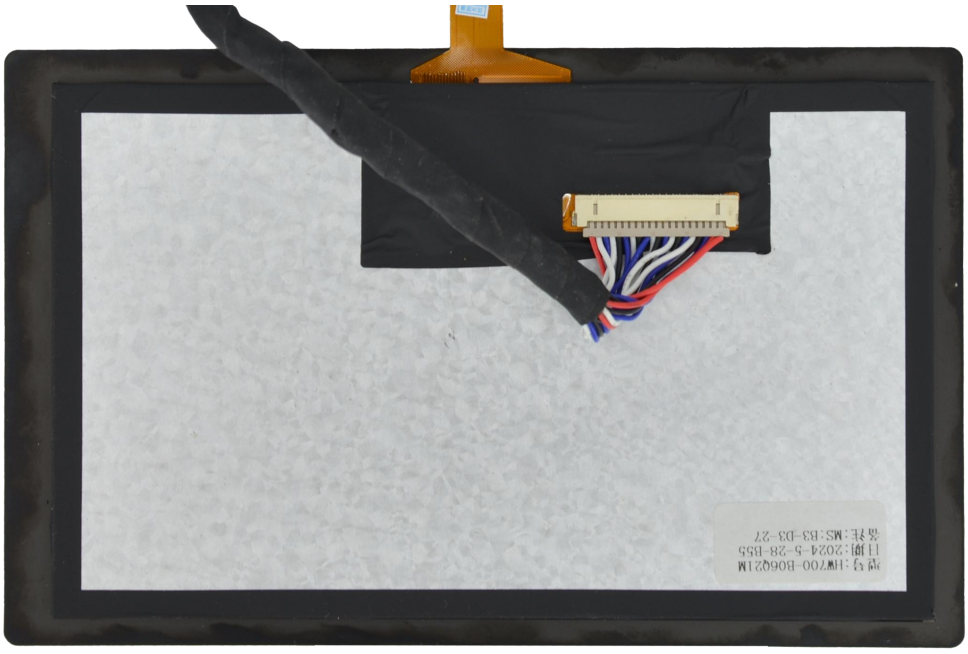


Figure 65 Connect LVDS screen cable to LVDS screen

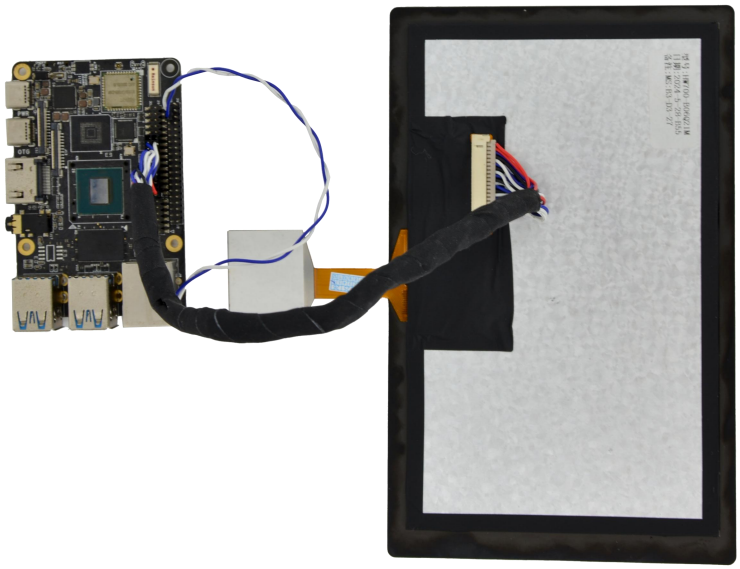


Figure 66 LVDS screen to DEBIX Infinity completed

3) DEBIX Infinity is connected to the power supply, the LVDS screen displays the following figure:

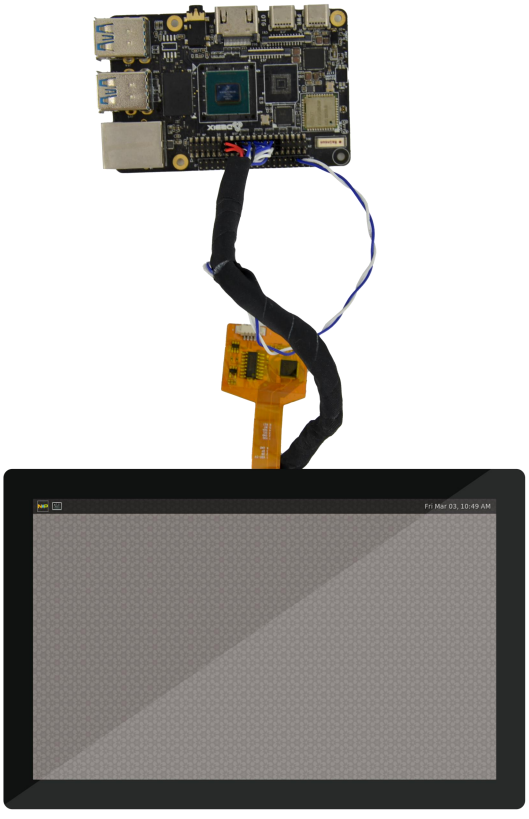


Figure 67

2. Usage of DEBIX TD050A/TD101A 800x480/1280x800 5-inch/10.1-inch LVDS screen is similar to the one described above.

4.10. Usage of Radar Module

Component Preparation

- Radar module, refer to specification of radar module
- Control board of the Radar module, refer to the specification
- Standard micro USB data cable
- Lead wire
- DEBIX Infinity board

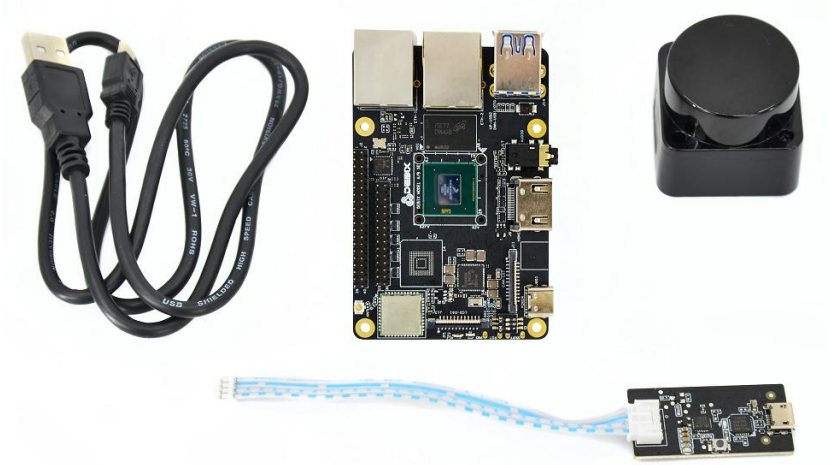


Figure 68

Figure 69 Radar module

1. Connect the Radar module with DEBIX Infinity via a micro USB data cable;
2. Connect the radar module to the radar module control board via Lead wire;

Figure 70

3. Radar module and DEBIX Infinity board connection is completed.
4. Connect DEBIX Infinity with peripherals (keyboard, mouse, display) and insert the Micro SD card with DEBIX system, and power on DEBIX Infinity;
5. Open the Terminal, run the command `ldlidar_stl /dev/ttyUSB0`;
6. Radar begins to work, the above command will output data continuously; when the radar module is covered, some data will change to 0, as shown below:

```
[ldrobot] angle: 328.15 distance(mm): 0 intensity: 232
[ldrobot] angle: 328.94 distance(mm): 0 intensity: 232
[ldrobot] angle: 329.73 distance(mm): 0 intensity: 236
[ldrobot] angle: 330.52 distance(mm): 0 intensity: 234
[ldrobot] angle: 331.31 distance(mm): 4 intensity: 234
[ldrobot] angle: 332.1 distance(mm): 0 intensity: 235
[ldrobot] angle: 332.89 distance(mm): 4 intensity: 234
[ldrobot] angle: 333.76 distance(mm): 0 intensity: 235
[ldrobot] angle: 335.69 distance(mm): 0 intensity: 238
[ldrobot] angle: 336.47 distance(mm): 0 intensity: 237
[ldrobot] angle: 337.25 distance(mm): 0 intensity: 238
[ldrobot] angle: 338.03 distance(mm): 0 intensity: 240
[ldrobot] angle: 338.81 distance(mm): 0 intensity: 242
[ldrobot] angle: 339.59 distance(mm): 3 intensity: 241
[ldrobot] angle: 340.37 distance(mm): 0 intensity: 243
[ldrobot] angle: 341.12 distance(mm): 3 intensity: 244
[ldrobot] angle: 341.91 distance(mm): 3 intensity: 247
[ldrobot] angle: 342.7 distance(mm): 3 intensity: 246
[ldrobot] angle: 343.49 distance(mm): 3 intensity: 248
[ldrobot] angle: 344.28 distance(mm): 3 intensity: 249
[ldrobot] angle: 345.07 distance(mm): 3 intensity: 248
[ldrobot] angle: 345.86 distance(mm): 3 intensity: 249
[ldrobot] angle: 346.65 distance(mm): 3 intensity: 247
[ldrobot] angle: 347.44 distance(mm): 3 intensity: 245
[ldrobot] angle: 348.23 distance(mm): 3 intensity: 243
[ldrobot] angle: 349.02 distance(mm): 3 intensity: 239
[ldrobot] angle: 349.81 distance(mm): 3 intensity: 240
[ldrobot] angle: 350.6 distance(mm): 0 intensity: 237
[ldrobot] angle: 351.37 distance(mm): 0 intensity: 237
[ldrobot] angle: 352.14 distance(mm): 0 intensity: 238
[ldrobot] angle: 352.91 distance(mm): 3 intensity: 236
[ldrobot] angle: 353.68 distance(mm): 0 intensity: 236
[ldrobot] angle: 354.45 distance(mm): 0 intensity: 235
[ldrobot] angle: 355.22 distance(mm): 0 intensity: 237
[ldrobot] angle: 355.99 distance(mm): 0 intensity: 234
[ldrobot] angle: 356.76 distance(mm): 0 intensity: 237
[ldrobot] angle: 357.53 distance(mm): 0 intensity: 237
[ldrobot] angle: 358.3 distance(mm): 3 intensity: 236
[ldrobot] angle: 359.07 distance(mm): 0 intensity: 238
[ldrobot] angle: 359.87 distance(mm): 0 intensity: 239
[ldrobot] speed(Hz): 10.0222
```

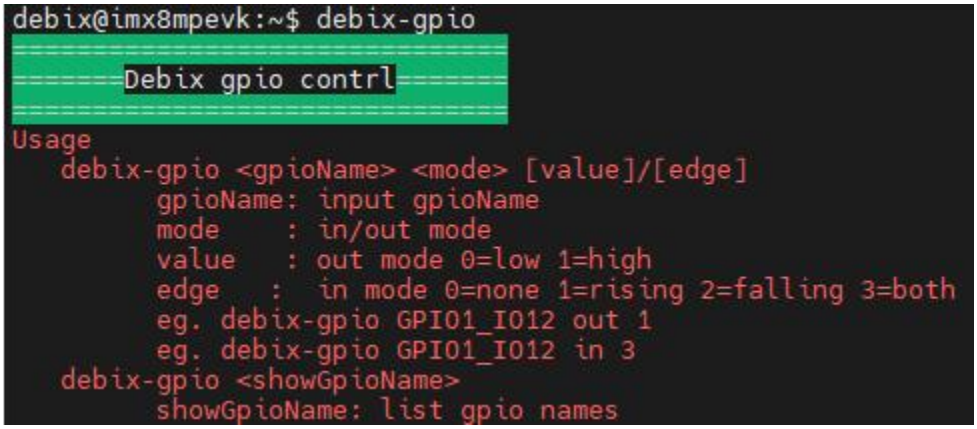
4.11. Usage of GPIO

DEBIX OS has built-in GPIO interface operation command, you can set GPIO by GPIO command.

IMPORTANT

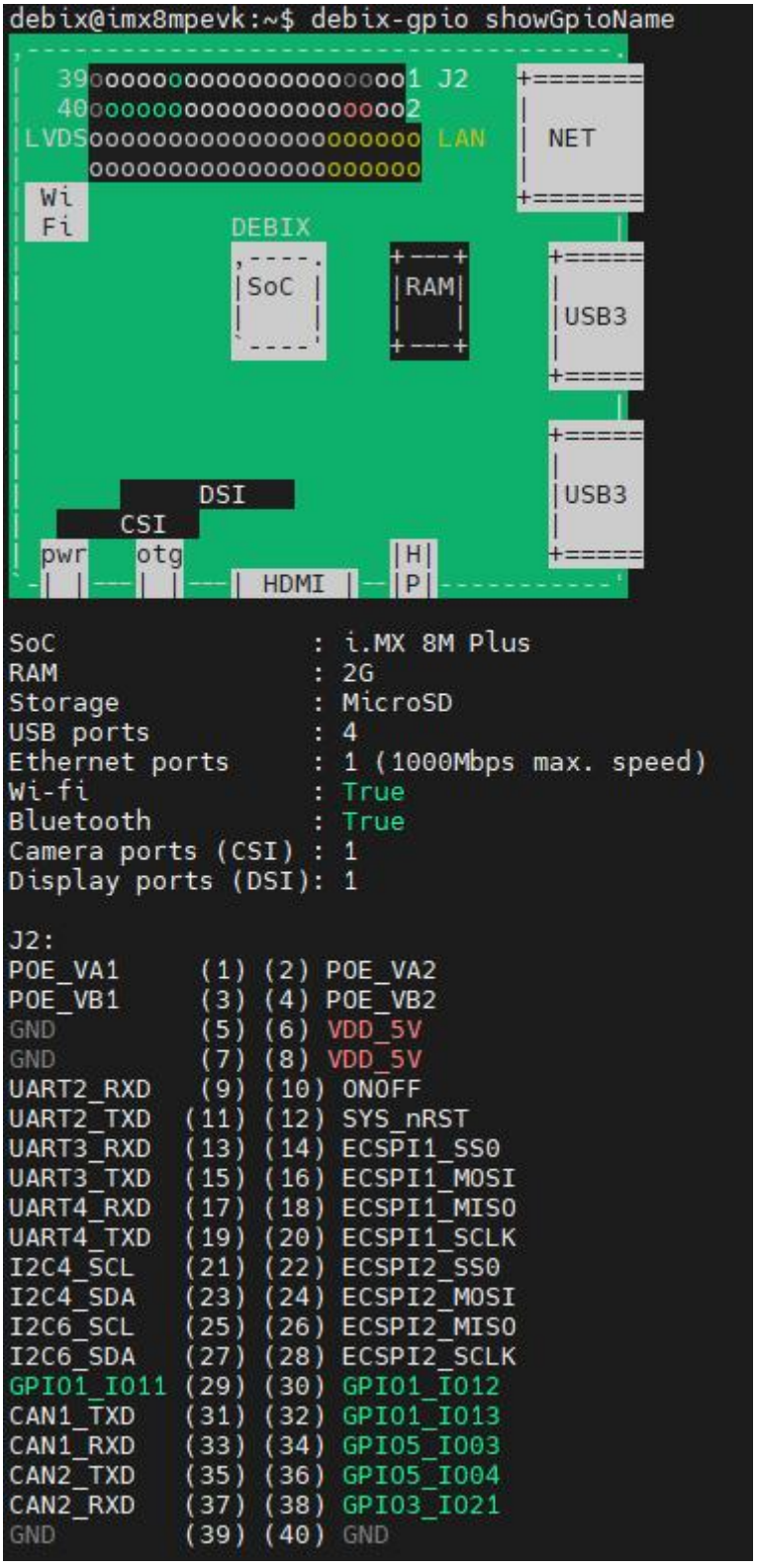
> The GPIO voltage input of DEBIX Infinity only supports 3.3V. If the input is higher than 3.3V, it may cause damage to the GPIO interface and CPU.

1. In the terminal window, type command debix-gpio to print out the use of GPIO as follows:



- Command Format: debix-gpio <gpioName> <mode> [value]/[edge]
  - gpioName: GPIO interface name, for example: GPIO1_IO11
  - mode: GPIO mode, respectively out (output) and in (input)
  - value: When mode is out (output), the value attribute takes effect; the value can be 0 or 1, 0 means output low level, 1 means output high level
  - Edge: When mode is in (input), the edge attribute takes effect; there are 4 GPIO states: 0-none, 1-rising, 2-falling, 3-both

2. Type command debix-gpio showGpioName to print out the definition of the GPIO interface and the location on the board, as follows:



3. Example: Set GPIO5_IO03 to output high, type command debix-gpio GPIO5_IO03 out 1, GPIO5_IO03 will output 3.3V.

4. Example: Set GPIO5_IO03 to input rising edge, type command debix-gpio GPIO5_IO03

in 1, if Pin34 (GPIO5_IO03) detects power, the message INFO: pin:131 value=1; if the power is disconnected, the message INFO: pin:131 value=0.

4.12. Usage of UART

DEBIX Infinity has three UART serial ports, of which UART2 is used as a UART TTL 3.3V system debug serial port.

Table 15 Pin definition of UART

Function	Interface	Pin	Definition	Device Node
UART	J2	9	UART2_RXD	
		11	UART2_TXD	
		13	UART3_RXD	/dev/ttymxc2
		15	UART3_TXD	
		17	UART4_RXD	/dev/ttymxc3
		19	UART4_TXD	

UART connection:

Take UART3 as an example, you need to short UART3_RXD and UART3_TXD of the UART interface as shown below:

UART/I2C/CAN/GPIO/SPI...

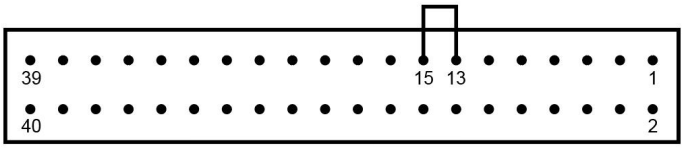


Figure 71 UART3 short jumper

Verify UART3 communication:

1. Open Terminal on DEBIX Infinity and run the following command to install the cutecom serial port tool:

```
sudo apt update
sudo apt install cutecom qtwayland5
```

2. Open **cutecom** tool and set the serial port parameters as shown in the following table:

Table 16 Parameter setting of Cutecom

Parameter	Value
Baudrate	115200
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None

3. Set Device to /dev/ttymxc2 and click **Open**.

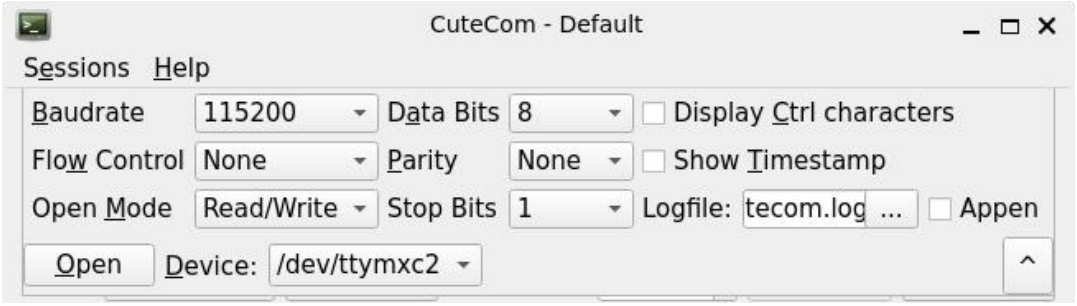


Figure 72 Device node setting

4. **Send and Receive:** Type the test string in the input box of the cutecom window, press **Enter** to send, and you can receive the same message in the receive box, as shown in the following figure:

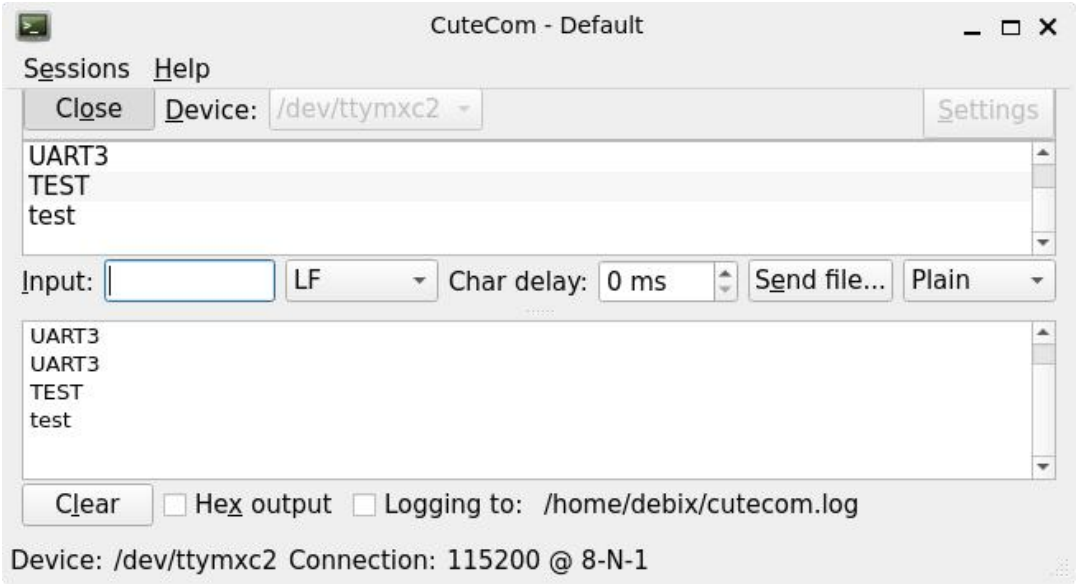


Figure 73 UART self-sending and self-receiving

4.13. Usage of CAN

DEBIX Infinity has two CAN communication interfaces. The CAN interface needs to be used in conjunction with a CAN transceiver peripheral for CAN communication, such as the DEBIX I/O Board, or other CAN transceiver modules.

Table 17 Pin definition of CAN

Function	Interface	Pin	Definition	Device Node
CAN	J2	31	CAN1_TXD	can0
		33	CAN1_RXD	
		35	CAN2_TXD	can1
		37	CAN2_RXD	

For CAN verification, refer to the CAN verification description of the DEBIX I/O Board.

4.14. Shutdown

1. Click on Power button  in the upper right corner of the system desktop to display the Power tab, which allows you to operate the computer by selecting “Log Out”, “Suspend”, “Restart”, or “Power Off”.

- **Log Out:** Logs out the currently logged in user;
- **Suspend:** Set the computer to standby, press the power button of DEBIX Infinity board without start the system and restore the original state, eliminating the tedious startup process and increase the life of the computer;
- **Restart:** Restart the computer;
- **Power Off:** Shut down the computer normally.

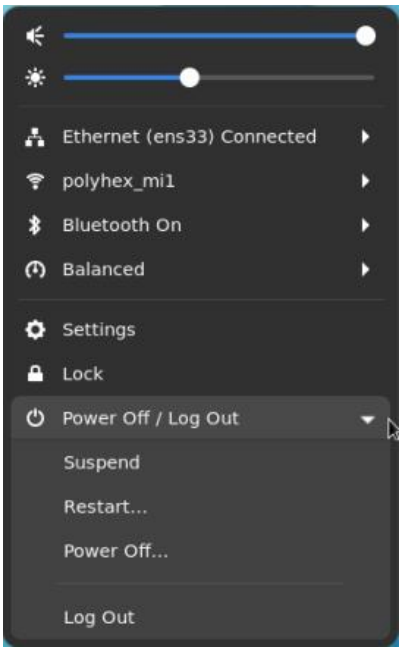


Figure 74

2. **Suspend:** Click **Suspend**, the display will turn black, and the indicator on DEBIX Infinity board will be off.

- **Another method:** you can set the delay time of Suspend in the **Power** of **Settings** app, and first set "Automatic Suspend" as **On**, as shown below:

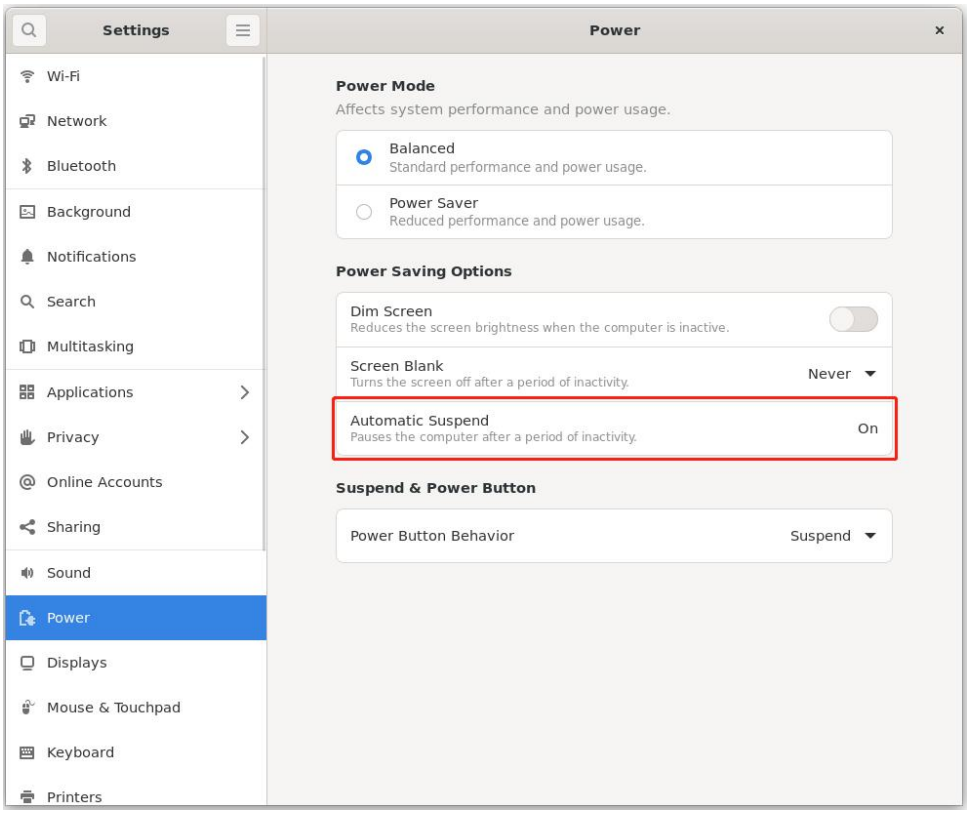


Figure 75Automatic Suspend

- pop-up "Automatic Suspend" dialog box, set the device idle **Delay** time; before the device Suspend, a reminder message "**Automatic suspend**: Suspending soon because of inactivity." will be displayed on the top of desktop.

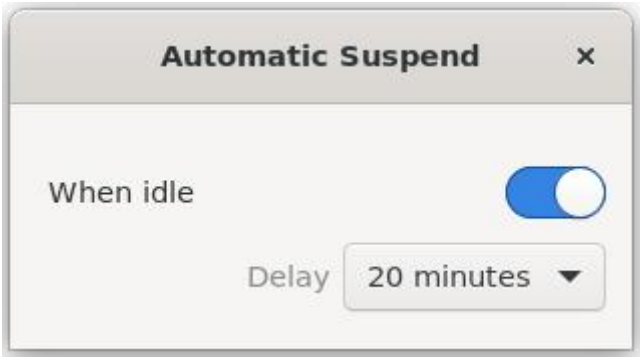


Figure 76 Set "Delay" time

- When the delay time is reached, the device suspends, the display turns black and the indicator goes off.

3. **Shutdown:** Click **Power Off**, wait for the display to turn black and the indicator on DEBIX Infinity board to off completely, and then finally disconnect the power.

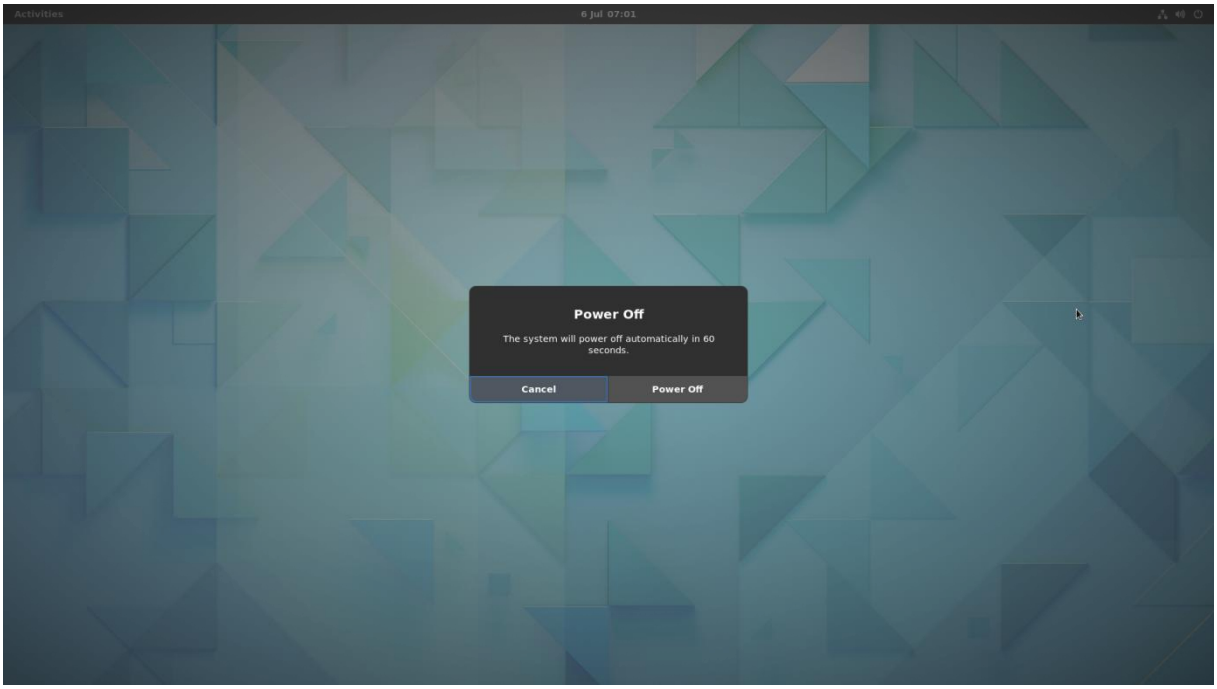


Figure 77

4.15. Heat Dissipation

When a DEBIX Infinity single board computer runs for a prolonged period of time, it will result in an increase in its CPU temperature. Therefore, implementations should be considered to cool the CPU and the entire device passively. If the CPU needs to be cooled, the following two methods are recommended:

- Use CPU aluminum alloy heatsink: Paste aluminum alloy heatsink directly above the CPU for heat dissipation, as shown below:

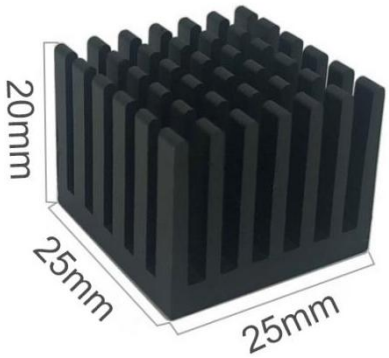


Figure 78 Aluminum alloy heatsink

4.16. Multi-screen unique display

NOTE

DEBIX Infinity supports multi-screen unique display by default in Ubuntu. When DEBIX Infinity is configured with multiple displays, drag mouse to operate on other displays.

When DEBIX Infinity is connected to other displays other than HDMI, the device tree needs to be switched. After restarting, the default multi-screen display effect. Take an 7-inch LVDS screen (model: DEBIX TD070A) as an example:

- **Set multi-screen unique display**

1. After connecting DEBIX Infinity to HDMI display and 7-inch LVDS screen, start DEBIX Infinity;
2. Enter the system desktop, select **Add-on Board** APP, and switch to the corresponding device tree;

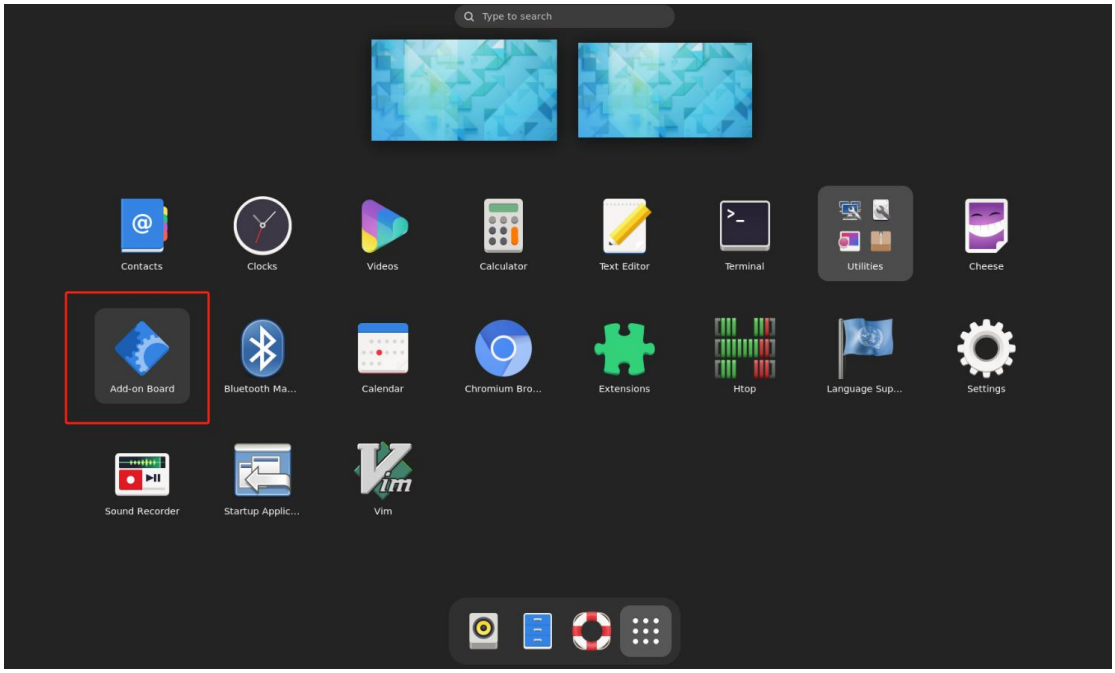


Figure 79

3. In the pop-up "DEBIX add on board dtb file selection" window, select **Debix board** and click **OK**.

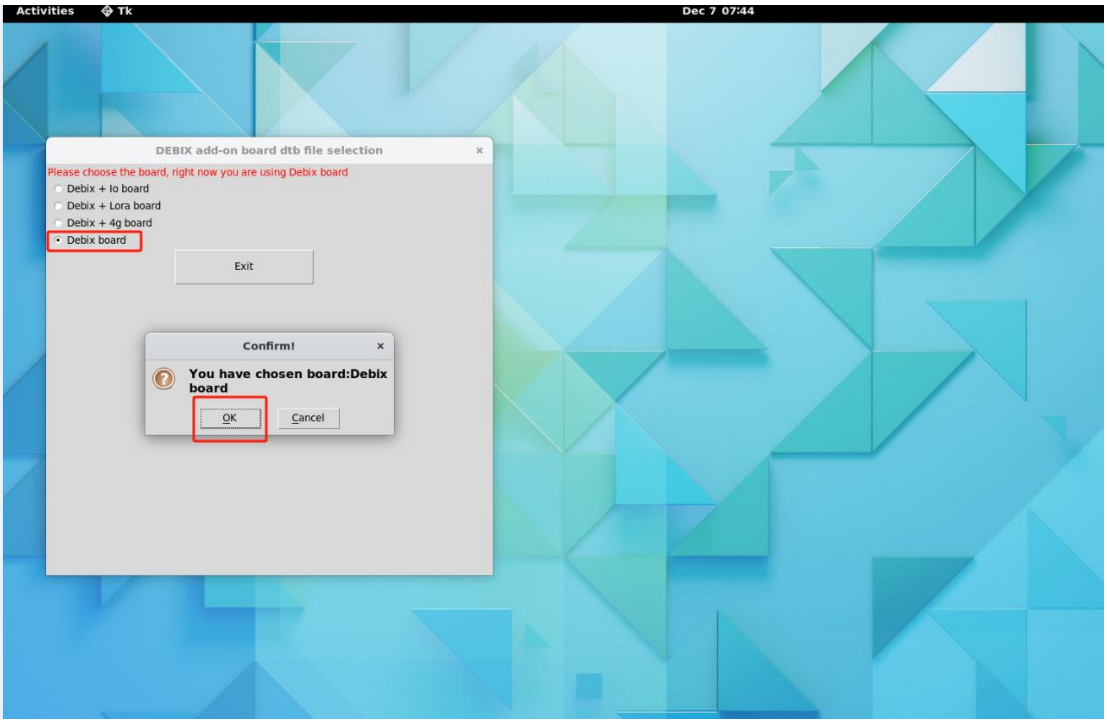


Figure 80

4. Check “Debix 7” TD070A”, click **OK**.

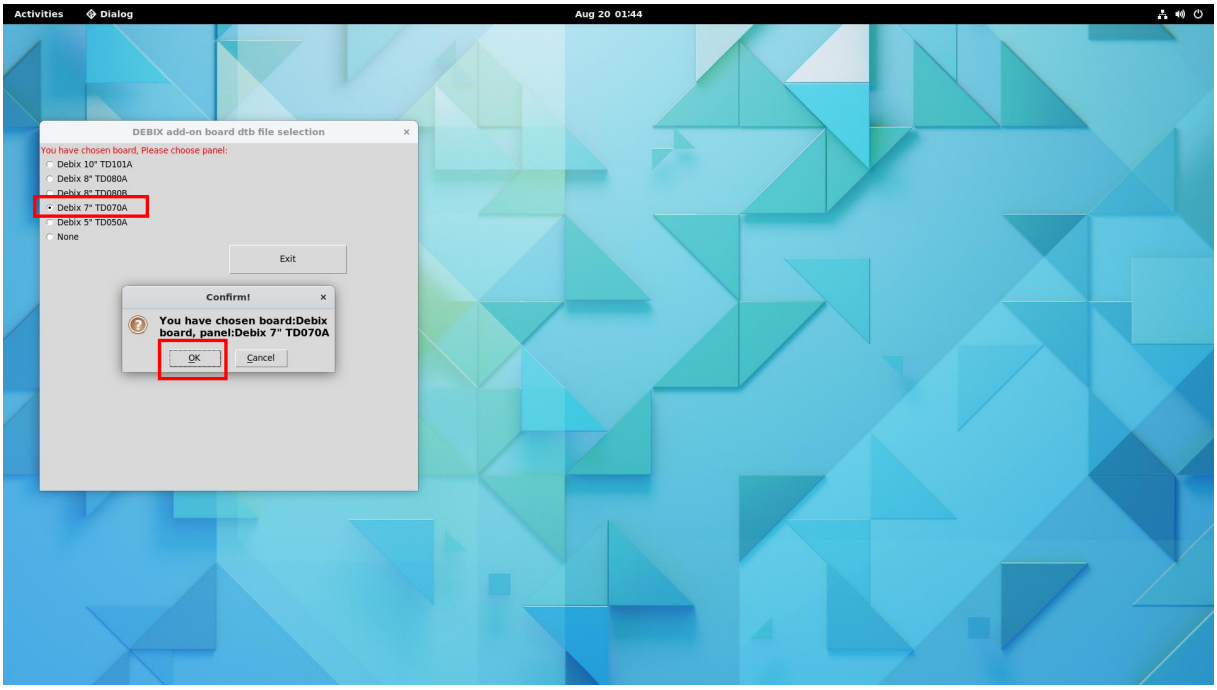


Figure 81

5. Click **Start**, and click **OK** to reboot DEBIX Infinity.

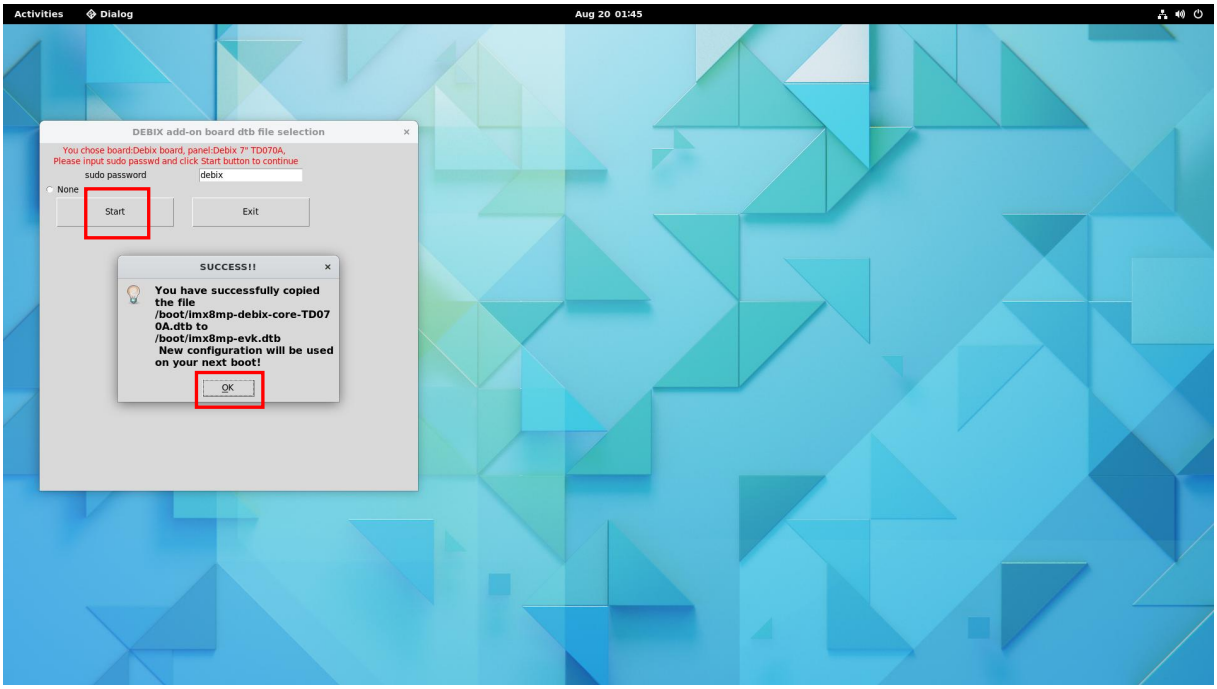


Figure 82

6. After DEBIX Infinity restarts, the display setting will be dual screen unique display by default.

- **Set Primary display (take setting HDMI as the primary display as a example)**

1. On the system desktop, select **Settings** APP, and select **Displays** function with “Settings” page;
2. **Set HDMI as the primary display:** in the “Displays” window, set “Primary Display” to **AOC 22** (HDMI display model);

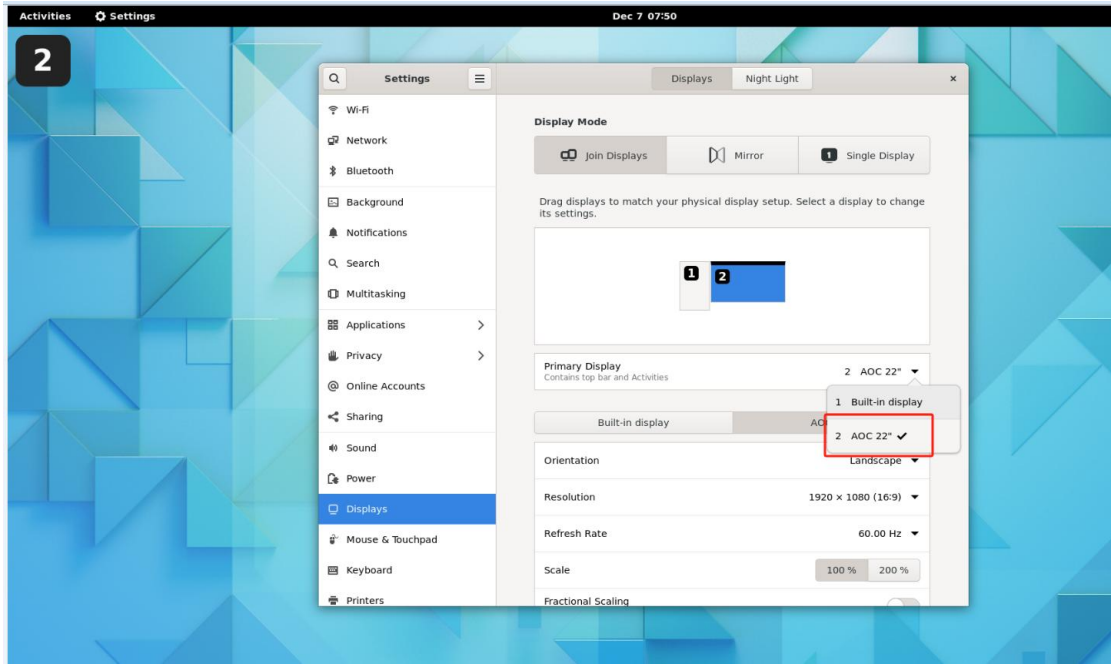


Figure 83

3. Click **Restart** in the upper right corner of the system desktop to restart DEBIX Infinity.
4. After DEBIX Infinity restarts, the HDMI display is the primary display and the LVDS display is the secondary display.