
BPC-iMX8MP-01 Industrial Computer User Guide

Version: V1.0 (2023-03)

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

BPC-iMX8MP-01 Industrial Computer is a ruggedized and protected computer. It is composed of a DEBIX Model A/B and an aluminum alloy enclosure. It combines various types of harsh environment resistance features, including ruggedness, dustproof, anti-vibration, shock resistance, wide temperature, portability and other indicators.



Figure 1

REVISION HISTORY		
Rev.	Date	Description
1.0	2023.03.24	First edition

INDEX



Chapter 1 Security	4
1.1. Safety Precaution	4
1.2. Safety Instruction	4
1.3. Technical Support	5
Chapter 2 BPC-iMX8MP-01 Industrial Computer Introduction	7
2.1. Overview	8
2.2. Composition	10
2.3. External Interface	12
2.3.1. Power Interface	12
2.3.2. OTG Interface	12
2.3.3. HDMI Interface	12
2.3.4. Audio Interface	13
2.3.5. Ethernet Interface	13
2.3.6. USB Interface	14
2.3.7. Key	14
Chapter 3 DEBIX Installation Guide	15
3.1. Installation	15
3.2. Power on	17
Chapter 4 Software Application Examples	18
4.1. Use of Ethernet	18
4.2. Use of WiFi	20
4.3. Use of Bluetooth	22
4.4. Use of USB	24
4.5. Verification of RTC	27

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
<i>Warning!</i> 	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.
<i>Caution!</i> 	Always ground yourself to remove any static electric charge before touching <i>BPC-iMX8MP-01</i> 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 in a place where the ambient temperature is below -40°C (-40°F) or above 85°C (185°F). 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. 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@polyhex.net

Chapter 2 BPC-iMX8MP-01 Industrial Computer Introduction

BPC-iMX8MP-01 Industrial Computer is a compact, durable and high heat dissipation computer, which can be widely used in industry 4.0, IoT, smart city, advanced multimedia etc..

Main features:

- It is compatible with a DEBIX Model A or a DEBIX Model B
- Support Gigabit Ethernet, 4 x USB 3.0 to bring an efficient data transmission speed
- Support for Ubuntu, Android, Yocto, Windows 10 IoT

2.1. Overview



Figure 2

BPC-iMX8MP-01 Industrial Computer uses DEBIX Model A or DEBIX Model B as the main board, the data specifications are as follows.

Table 2 BPC-iMX8MP-01 Industrial Computer specification

System	
Motherboard	DEBIX Model A/B
Model	BPC-iMX8MP-01
CPU	i.MX 8M Plus, MIMX8ML8CVNKZAB, 4 x Cortex-A53, industrial-grade processor clocked at 1.6GHz, with C520L 3D GPU andGC7000UltraLite 3D GPU
Memory	2GB LPDDR4 (4GB/8GB optional)
Storage	1) 8GB/16GB/32GB/64GB/128GB/256GB Micro SD card (self-prepared) 2) Onboard 16GB eMMC (8GB/32GB/64GB/128GB/256GB optional)

OS	Ubuntu 20.04, Android 11, Yocto-L5.10.72_2.2.0, Windows 10 IoT Enterprise
Boot Mode	1) DEBIX Model A: <ul style="list-style-type: none"> ● Boot from Micro SD Card 2) DEBIX Model B: <ul style="list-style-type: none"> ● Boot from Micro SD Card ● Boot from eMMC (default)
Communication	
Gigabit Network	1 x RJ45 Gigabit Ethernet port
Wi-Fi & Bluetooth	2.4GHz & 5GHz dual-band Wi-Fi, Bluetooth 5.0
I/O Interface	
USB	1) 1 x USB 2.0 Type-C for DC 5V power input 2) 1 x USB 2.0 OTG Type-C 3) 4 x USB 3.0 Host Type-A
HDMI	1 x HDMI output, connector is Type A HDMI female
Audio	1 x headphone output and microphone input combo interface, the connector is a 3.5mm socket
Key	1) 1 x Reset key 2) 1 x ON/OFF key
Power Supply	
Power Input	DC 5V/3A Type-C
Mechanical & Environmental	
Enclosure Material	Aluminum alloy
Dimension (W x D x H)	93mm x 72mm x 30mm
Gross Weight	190g
Heat Dissipation	No fan, heat dissipation through the enclosure
Operating Temp.	-20°C to 70°C(DEBIX Model A), -40°C to 85°C(DEBIX Model B)

2.2. Composition



Figure 3

BPC-iMX8MP-01 Industrial Computer assembly consists of these main components: DEBIX Model A/B, enclosure and power adapter.

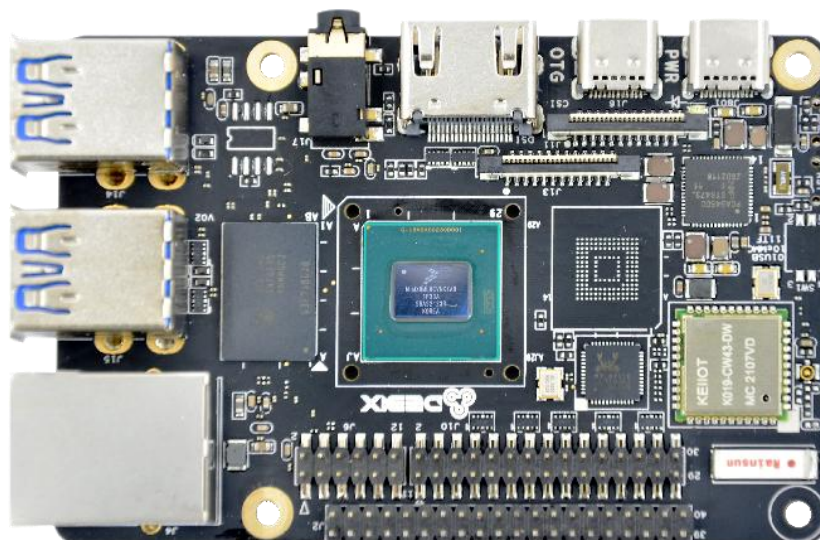


Figure 4 DEBIX



Figure 5 Enclosure



Figure 6 Power adapter

2.3. External Interface

2.3.1. Power Interface

BPC-iMX8MP-01 Industrial Computer provides one power interface with a Type-C connector, which supports DC 5V power supply. As shown in the figure below.



Figure 7

2.3.2. OTG Interface

BPC-iMX8MP-01 Industrial Computer provides an OTG interface with a Type-C connector, which can be used for programming, system updating, or USB drive & hard disk connecting etc. to facilitate data exchange. As shown in the figure above.

2.3.3. HDMI Interface

BPC-iMX8MP-01 Industrial Computer provides an HDMI interface, and the connector is an A-type HDMI female socket, which is used to connect a monitor, TV or projector. HDMI resolution up to 3840x2160p30. As shown in the figure below.



Figure 8

2.3.4. Audio Interface

BPC-iMX8MP-01 Industrial Computer provides a combined headphone and microphone input interface. The connector is a 3.5mm socket, compatible with the built-in needle socket design, has audio input/output functions, and supports rated voltage 1.5V MIC audio input. As shown in the right side of Figure 8.

2.3.5. Ethernet Interface

BPC-iMX8MP-01 Industrial Computer provides one independent MAC RJ45 Gigabit Ethernet port (Network port: LAN), support POE power supply (Additional POE power supply module is required), connect DEBIX 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, one is Link and the other is Active.

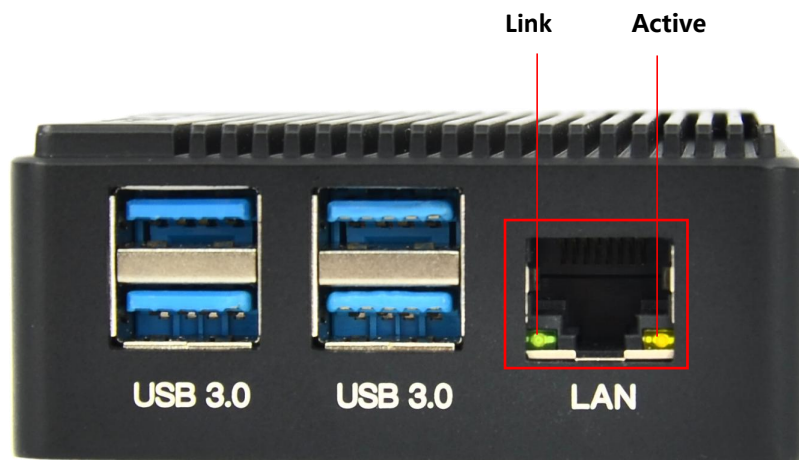


Figure 9

Table 3 Description of RJ45 Port Status Indicator

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

2.3.6. USB Interface

BPC-iMX8MP-01 Industrial Computer has six USB interfaces, supports USB 3.0 and 2.0. There are two USB 2.0 interfaces with Type-C connectors, one for DC 5V power input and one for OTG (Figure 7). And another four USB 3.0 interfaces with dual-layer Type-A connectors, as shown in the figure below.

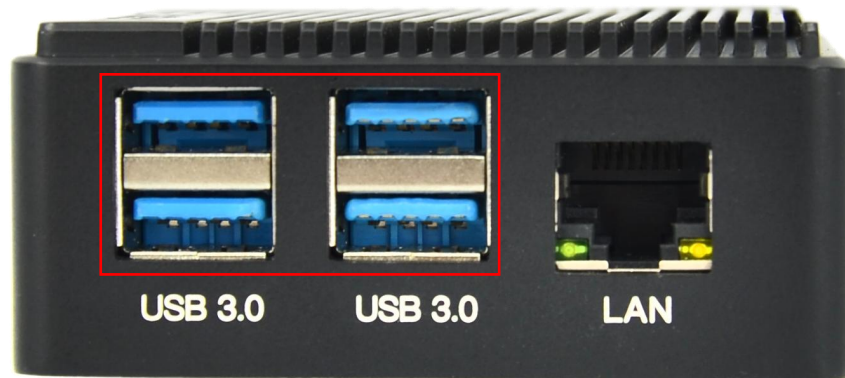


Figure 10

2.3.7. Key



Figure 11

- Reset button: short press to reset the system.
- ON/OFF button: short press to hibernate or wake up, long press to power off or on.

Chapter 3 DEBIX Installation Guide

A standalone DEBIX enclosure does not include DEBIX product and power adapter, If you install it by yourself, you need to purchase an additional DEBIX single board computer and power adapter.

3.1. Installation

The steps for DEBIX installation into the DEBIX enclosure are as follows:

1. First, paste the CPU thermal conductive rubber pad on the front of the DEBIX board, as shown in the figure below:

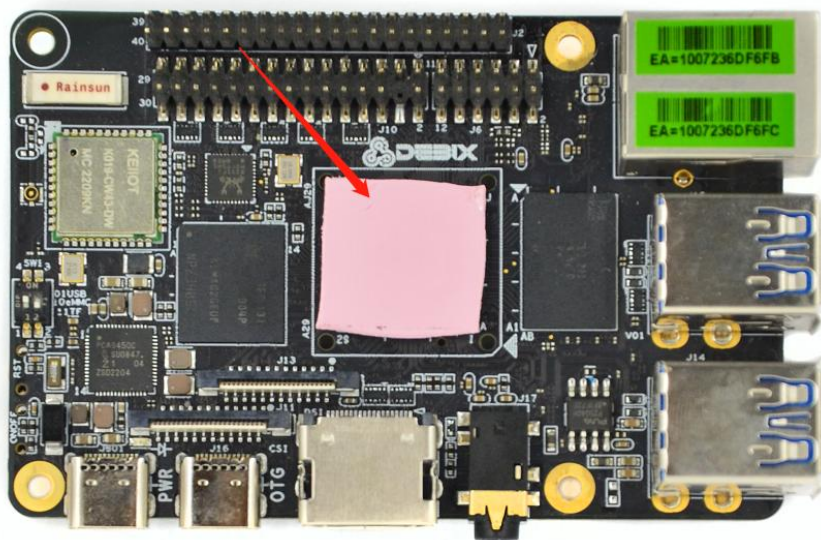


Figure 12

- Align with the appropriate and corresponding mounting holes, place the single board computer into the enclosure, then fix in place with four PM2.5X6 screws, as shown in the figure below:

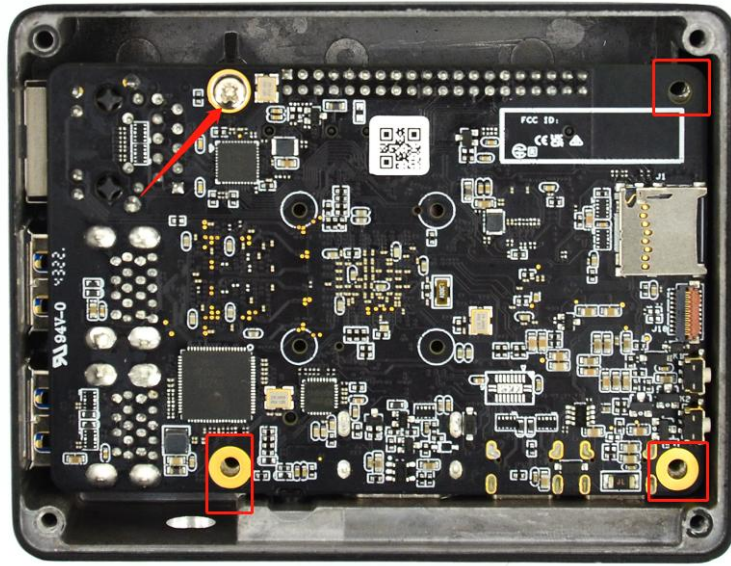


Figure 13

3. The PC sheet into the right side of the enclosure according to the corresponding hole position.
4. Install the back cover of the enclosure and fix it with 4 KM2.5X6 locking screws, as shown in the figure below:



Figure 14



Figure 15

5. Industrial Computer installation is complete.

3.2. Power on

NOTE

The factory default boot mode of BPC-iMX8MP-01 Industrial Computer is Micro SD card boot. If the main board for DEBIX Model B, you need to change to other boot modes, please contact our engineer for modification before leaving the factory, and do not disassemble the machine by yourself.

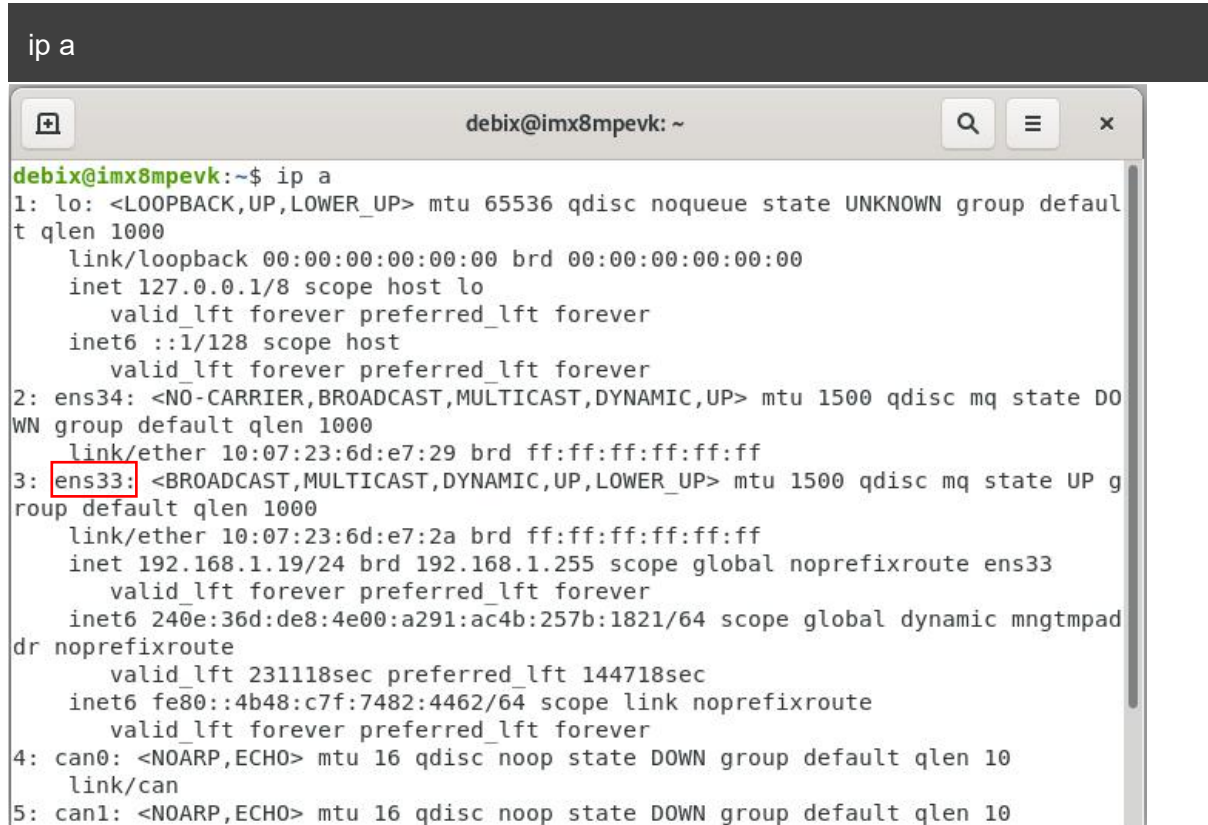
Please refer to section Getting started of DEBIX User Manual for the connection procedure. Insert the burned Micro SD card into the card slot on the BPC-iMX8MP-01 Industrial Computer, connect the display device and power on, then you can see the startup screen.

Chapter 4 Software Application Examples

4.1. Use of Ethernet

1. Query ip command.

```
ip a
```

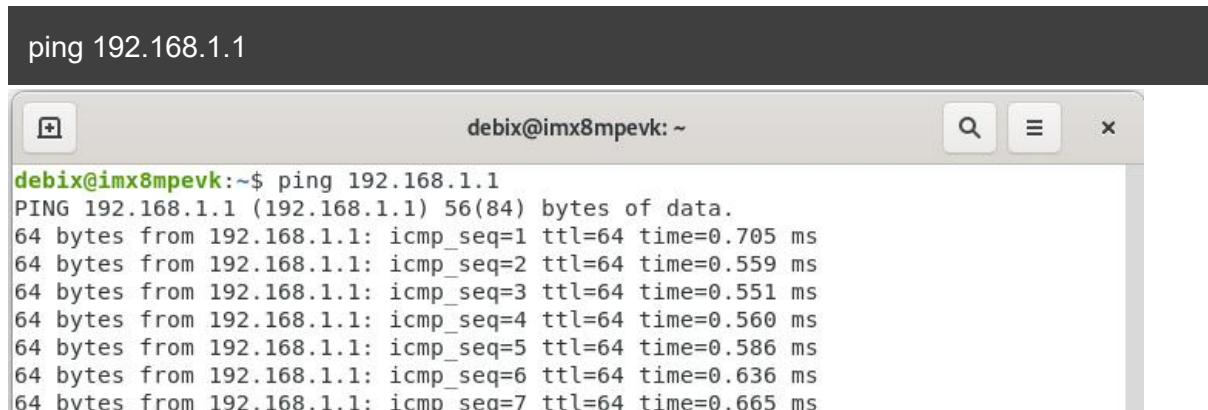


```
debix@imx8mpevk:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens34: <NO-CARRIER,BROADCAST,MULTICAST,DYNAMIC,UP> mtu 1500 qdisc mq state DOWN group default qlen 1000
    link/ether 10:07:23:6d:e7:29 brd ff:ff:ff:ff:ff:ff
3: ens33: <BROADCAST,MULTICAST,DYNAMIC,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 10:07:23:6d:e7:2a brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.19/24 brd 192.168.1.255 scope global noprefixroute ens33
        valid_lft forever preferred_lft forever
    inet6 240e:36d:de8:4e00:a291:ac4b:257b:1821/64 scope global dynamic mngttmpadr noprefixroute
        valid_lft 231118sec preferred_lft 144718sec
    inet6 fe80::4b48:c7f:7482:4462/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
4: can0: <NOARP,ECHO> mtu 16 qdisc noop state DOWN group default qlen 10
    link/can
5: can1: <NOARP,ECHO> mtu 16 qdisc noop state DOWN group default qlen 10
```

As shown above: eth33 network card corresponds to the network port of the device silkscreen "LAN" (Figure 9).

2. Apply ping command.

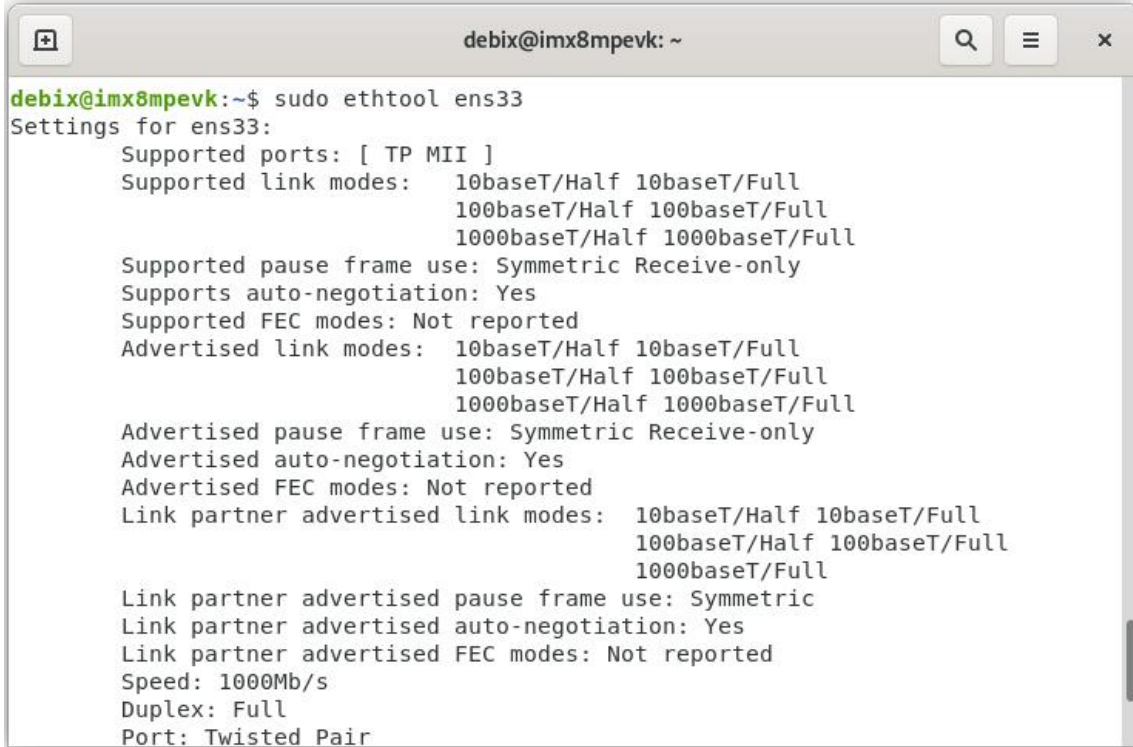
```
ping 192.168.1.1
```



```
debix@imx8mpevk:~$ ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.
64 bytes from 192.168.1.1: icmp_seq=1 ttl=64 time=0.705 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=64 time=0.559 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=64 time=0.551 ms
64 bytes from 192.168.1.1: icmp_seq=4 ttl=64 time=0.560 ms
64 bytes from 192.168.1.1: icmp_seq=5 ttl=64 time=0.586 ms
64 bytes from 192.168.1.1: icmp_seq=6 ttl=64 time=0.636 ms
64 bytes from 192.168.1.1: icmp_seq=7 ttl=64 time=0.665 ms
```

3. Query the speed of the network port.

```
sudo ethtool ens33
```



```
debix@imx8mpevk: ~  
debix@imx8mpevk:~$ sudo ethtool ens33  
Settings for ens33:  
  Supported ports: [ TP MII ]  
  Supported link modes:   10baseT/Half 10baseT/Full  
                        100baseT/Half 100baseT/Full  
                        1000baseT/Half 1000baseT/Full  
  Supported pause frame use: Symmetric Receive-only  
  Supports auto-negotiation: Yes  
  Supported FEC modes: Not reported  
  Advertised link modes:  10baseT/Half 10baseT/Full  
                        100baseT/Half 100baseT/Full  
                        1000baseT/Half 1000baseT/Full  
  Advertised pause frame use: Symmetric Receive-only  
  Advertised auto-negotiation: Yes  
  Advertised FEC modes: Not reported  
  Link partner advertised link modes:  10baseT/Half 10baseT/Full  
                                       100baseT/Half 100baseT/Full  
                                       1000baseT/Full  
  Link partner advertised pause frame use: Symmetric  
  Link partner advertised auto-negotiation: Yes  
  Link partner advertised FEC modes: Not reported  
  Speed: 1000Mb/s  
  Duplex: Full  
  Port: Twisted Pair
```

The desktop settings of the BPC-iMX8MP-01 Industrial Computer Ethernet (**Settings >> Network**) are as follows.

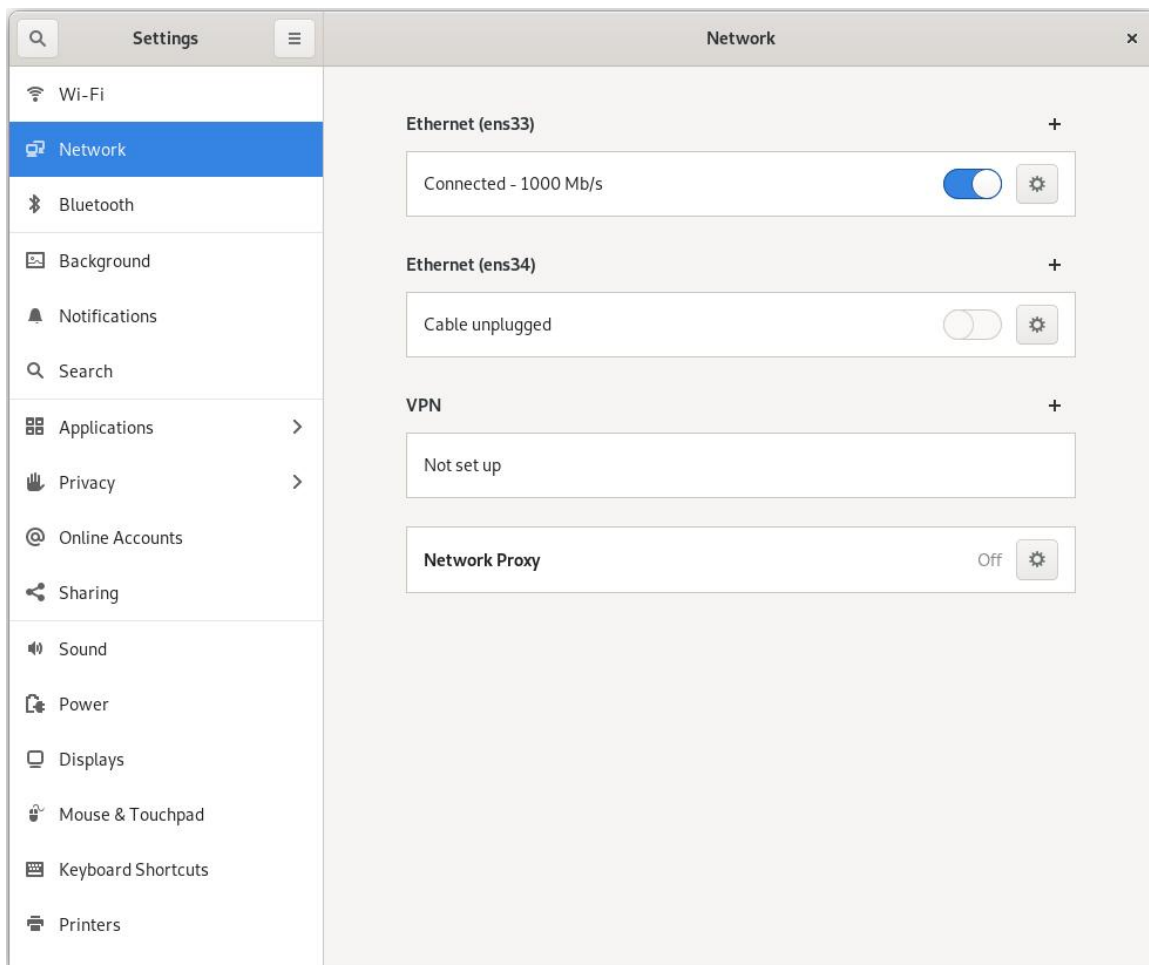
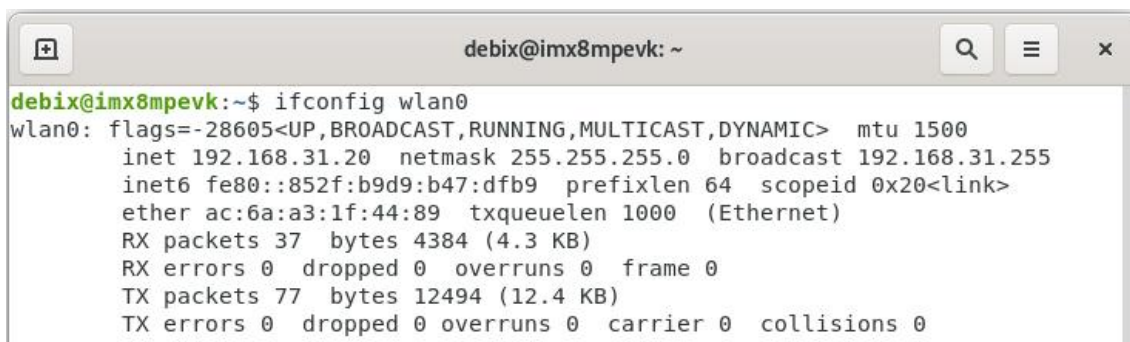


Figure 16

4.2. Use of WiFi

1. Unplug the network cable, DEBIX connect WiFi (polyhex_mi), query the WiFi network port via `ifconfig wlan0`.



2. Apply ping command to check the network connection status.

```
ping 192.168.1.1
```

```
debix@imx8mpevk:~$ ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.
64 bytes from 192.168.1.1: icmp_seq=1 ttl=63 time=4.60 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=63 time=4.44 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=63 time=8.36 ms
64 bytes from 192.168.1.1: icmp_seq=4 ttl=63 time=4.88 ms
64 bytes from 192.168.1.1: icmp_seq=5 ttl=63 time=4.49 ms
64 bytes from 192.168.1.1: icmp_seq=6 ttl=63 time=4.48 ms
64 bytes from 192.168.1.1: icmp_seq=7 ttl=63 time=66.9 ms
64 bytes from 192.168.1.1: icmp_seq=8 ttl=63 time=4.83 ms
64 bytes from 192.168.1.1: icmp_seq=9 ttl=63 time=5.29 ms
64 bytes from 192.168.1.1: icmp_seq=10 ttl=63 time=4.73 ms
64 bytes from 192.168.1.1: icmp_seq=11 ttl=63 time=19.2 ms
```

3. Reconnect to the new WiFi network (ChinaNet-polyhex), use the ping command, and the same screen appears as above.

The desktop settings of the BPC-IMX8MP-01 Industrial Computer WIFI (Settings >> Wi-Fi) are as follows.

- Click the wifi enable button to turn on the Wi-Fi function, as shown in Figure 18.
- Click on the wifi network name, the "Authentication required" dialog box will pop up, enter the wifi network password, as shown in the figure below:

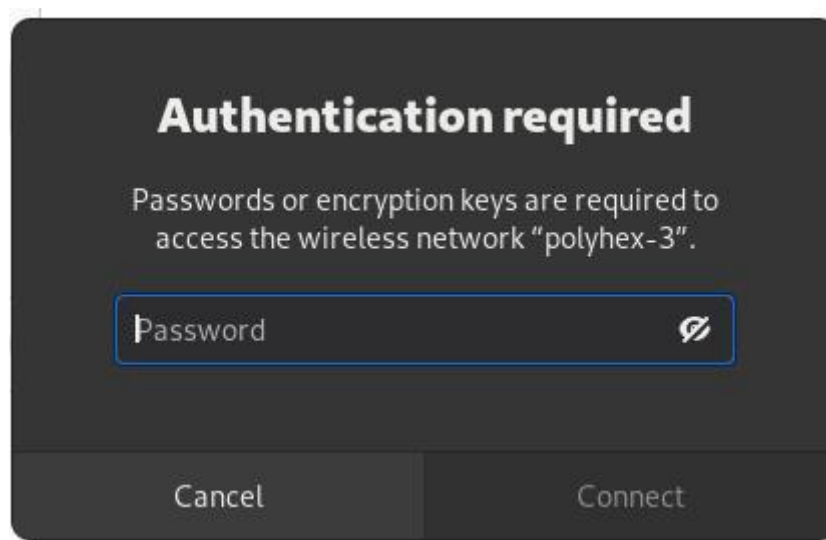


Figure 17

- Wait for a while, when you see the right side of the connected wifi name , that is, the wifi

connection is successful, as shown in the following figure.

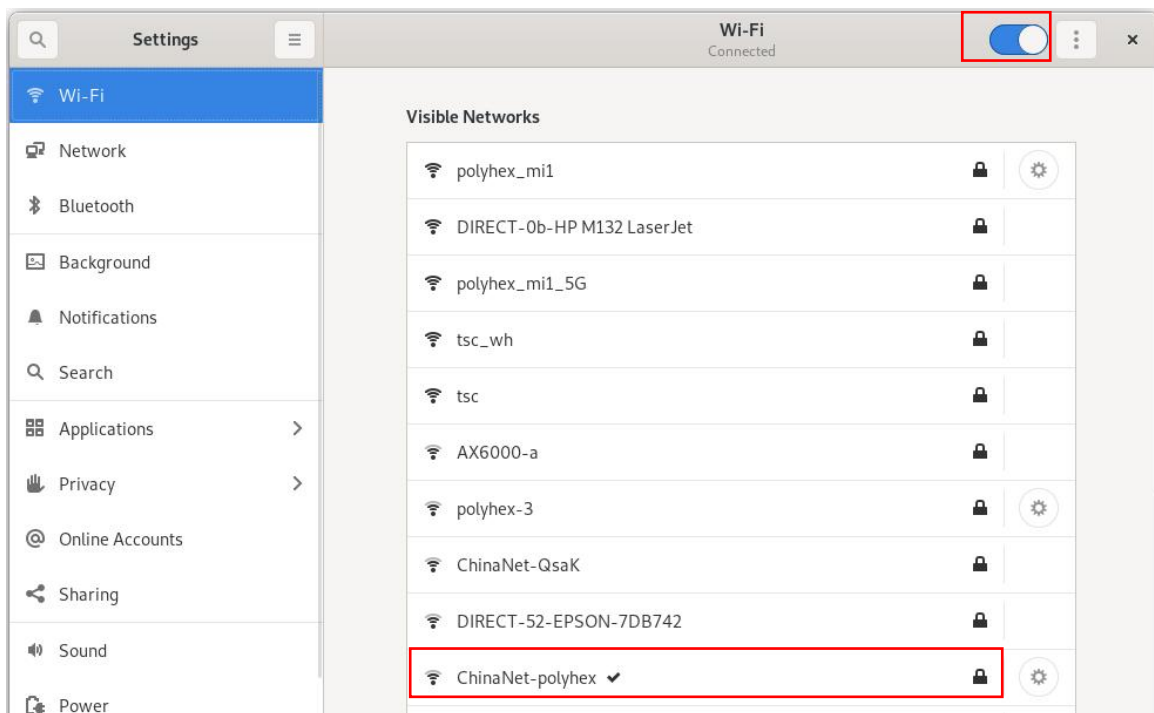


Figure 18

4.3. Use of Bluetooth

1. Query Bluetooth devices via the `hciconfig` command.

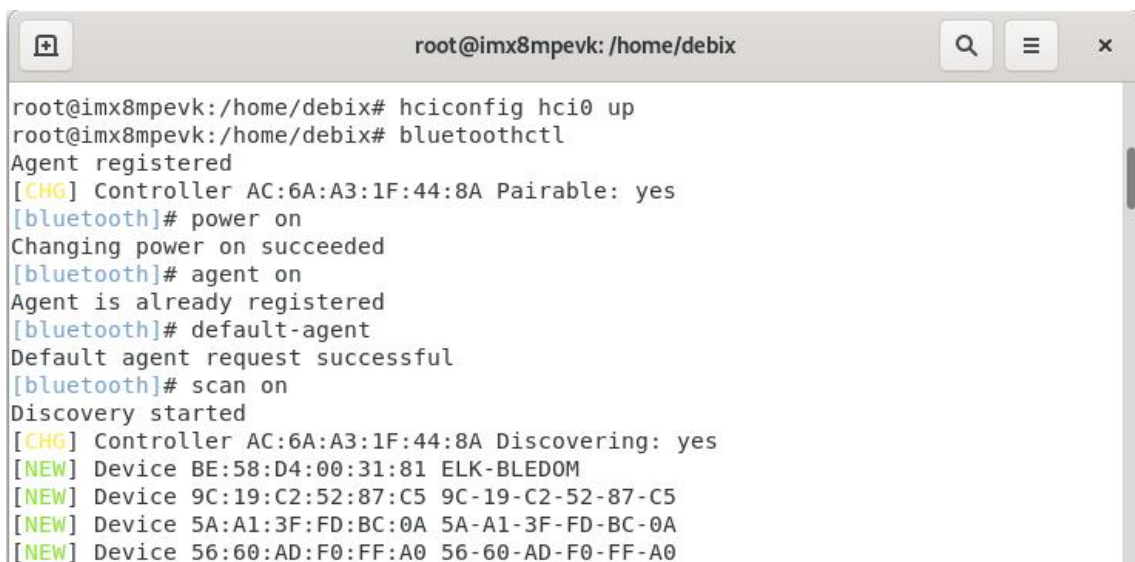
```
root@imx8mpevk: /home/debix
debix@imx8mpevk:~$ hciconfig
hci0:  Type: Primary  Bus: UART
      BD Address: AC:6A:A3:1F:44:8A  ACL MTU: 1021:8  SCO MTU: 64:1
      UP RUNNING
      RX bytes:577798 acl:0 sco:0 events:16942 errors:0
      TX bytes:408082 acl:0 sco:0 commands:2812 errors:0
```

2. Switch to the root user.

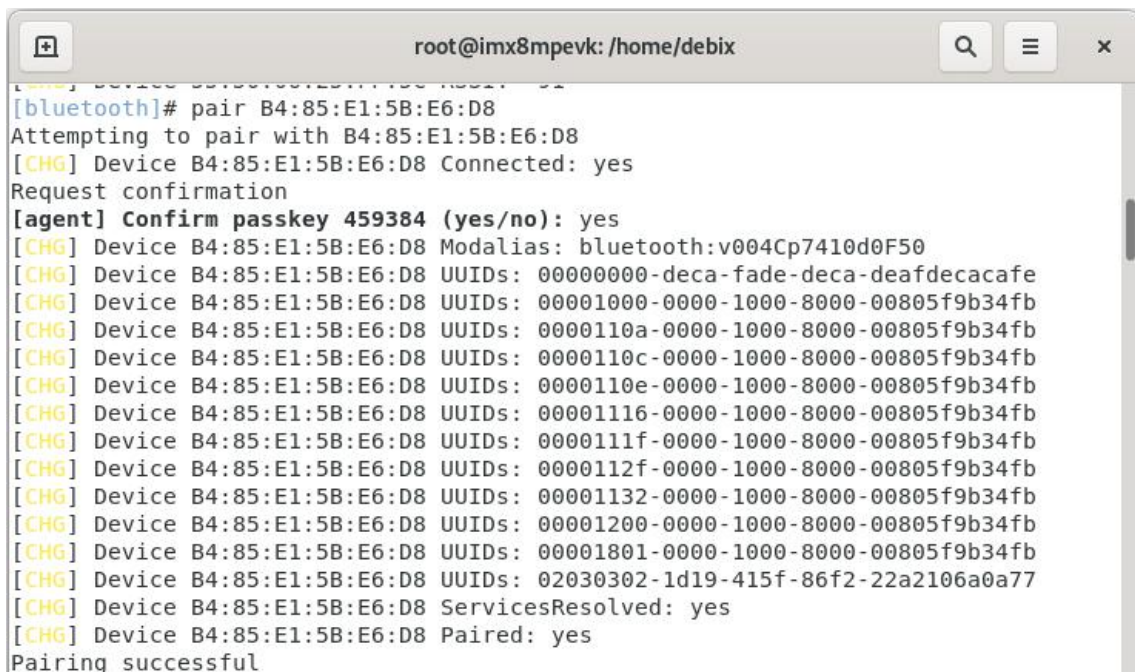
```
sudo su
```

3. Start bluetooth and match bluetooth.


```
hciconfig hci0 up
bluetoothctl
power on
agent on
default-agent
scan on
pair yourDeviceMAC      #Match the Bluetooth MAC address
```



```
root@imx8mpevk: /home/debix
root@imx8mpevk:/home/debix# hciconfig hci0 up
root@imx8mpevk:/home/debix# bluetoothctl
Agent registered
[CHG] Controller AC:6A:A3:1F:44:8A Pairable: yes
[bluetooth]# power on
Changing power on succeeded
[bluetooth]# agent on
Agent is already registered
[bluetooth]# default-agent
Default agent request successful
[bluetooth]# scan on
Discovery started
[CHG] Controller AC:6A:A3:1F:44:8A Discovering: yes
[NEW] Device BE:58:D4:00:31:81 ELK-BLEDOM
[NEW] Device 9C:19:C2:52:87:C5 9C-19-C2-52-87-C5
[NEW] Device 5A:A1:3F:FD:BC:0A 5A-A1-3F-FD-BC-0A
[NEW] Device 56:60:AD:F0:FF:A0 56-60-AD-F0-FF-A0
```



```
root@imx8mpevk: /home/debix
[bluetooth]# pair B4:85:E1:5B:E6:D8
Attempting to pair with B4:85:E1:5B:E6:D8
[CHG] Device B4:85:E1:5B:E6:D8 Connected: yes
Request confirmation
[agent] Confirm passkey 459384 (yes/no): yes
[CHG] Device B4:85:E1:5B:E6:D8 Modalias: bluetooth:v004Cp7410d0F50
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 00000000-deca-fade-deca-deafdecacafe
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 00001000-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 0000110a-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 0000110c-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 0000110e-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 00001116-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 0000111f-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 0000112f-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 00001132-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 00001200-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 00001801-0000-1000-8000-00805f9b34fb
[CHG] Device B4:85:E1:5B:E6:D8 UUIDs: 02030302-1d19-415f-86f2-22a2106a0a77
[CHG] Device B4:85:E1:5B:E6:D8 ServicesResolved: yes
[CHG] Device B4:85:E1:5B:E6:D8 Paired: yes
Pairing successful
```

The desktop settings of the BPC-iMX8MP-01 Industrial Computer Bluetooth

(Settings >> Bluetooth) are as follows.

Example: Turn on Bluetooth on both the phone and DEBIX, the phone Bluetooth can detect the DEBIX Bluetooth device, the DEBIX can detect the phone Bluetooth device, click on the Bluetooth device, connect, enter the key for pairing, as shown in the following figure.

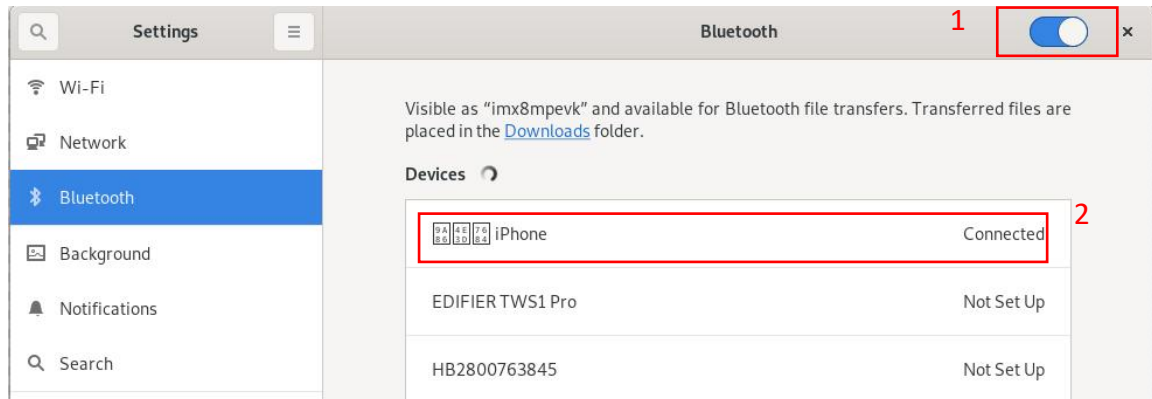


Figure 19

4.4. Use of USB

1. Access the U disk in FAT32 format, the system will automatically mount it to the /mnt path.

```
df -h
```



```

root@imx8mpevk: /home/debix
debix@imx8mpevk:~$ sudo su
[sudo] password for debix:
root@imx8mpevk: /home/debix# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        14G   5.0G   8.5G  37% /
devtmpfs        949M    0   949M   0% /dev
tmpfs           967M    0   967M   0% /dev/shm
tmpfs           194M   1.8M   192M   1% /run
tmpfs           5.0M   4.0K   5.0M   1% /run/lock
tmpfs           967M    0   967M   0% /sys/fs/cgroup
/dev/mmcblkp1    500M   32M   469M   7% /boot
tmpfs           194M   44K   194M   1% /run/user/1000
root@imx8mpevk: /home/debix# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        14G   5.0G   8.5G  37% /
devtmpfs        949M    0   949M   0% /dev
tmpfs           967M    0   967M   0% /dev/shm
tmpfs           194M   1.9M   192M   1% /run
tmpfs           5.0M   4.0K   5.0M   1% /run/lock
tmpfs           967M    0   967M   0% /sys/fs/cgroup
/dev/mmcblkp1    500M   32M   469M   7% /boot
tmpfs           194M   48K   194M   1% /run/user/1000
/dev/sda1        500M   34M   467M   7% /media/debix/68BA-C562
/dev/sda2        29G   4.1G   24G   15% /media/debix/79de8ff0-265b-451f-be52-87356

```

- If the U disk is not mounted, you can mount the U disk with the following command:

- Query the U disk letter:

```

fdisk -l

root@imx8mpevk: /home/debix
root@imx8mpevk: /home/debix# fdisk -l
Disk /dev/mmcblk1: 14.86 GiB, 15931539456 bytes, 31116288 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: 0x000dba0b

Device            Boot    Start        End    Sectors    Size Id Type
/dev/mmcblkp1          20480    1044479    1024000    500M  c W95 FAT32 (LBA)
/dev/mmcblkp2    1228800    31116287    29887488    14.3G  83 Linux

Disk /dev/sda: 29.74 GiB, 31914983424 bytes, 62333952 sectors
Disk model: STORAGE DEVICE
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: 0x000dba0b

Device            Boot    Start        End    Sectors    Size Id Type
/dev/sda1          20480    1044479    1024000    500M  c W95 FAT32 (LBA)
/dev/sda2    1228800    62333951    61105152    29.1G  83 Linux

```

- Mounting the U disk:

```
mount /dev/sda1 /mnt
```

```
root@imx8mpevk: /home/debix
root@imx8mpevk:/home/debix# mount /dev/sda1 /mnt
root@imx8mpevk:/home/debix# df -h

```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/root	14G	5.0G	8.5G	37%	/
devtmpfs	949M	0	949M	0%	/dev
tmpfs	967M	0	967M	0%	/dev/shm
tmpfs	194M	1.8M	192M	1%	/run
tmpfs	5.0M	4.0K	5.0M	1%	/run/lock
tmpfs	967M	0	967M	0%	/sys/fs/cgroup
/dev/mmcblk1p1	500M	32M	469M	7%	/boot
tmpfs	194M	48K	194M	1%	/run/user/1000
/dev/sda1	500M	34M	467M	7%	/mnt
/dev/sda2	29G	4.1G	24G	15%	/media/debix/79de8ff0-265b-451f-be52-87356c5f68c0

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

2. Enter the U disk directory:

```
cd /mnt
```

```
root@imx8mpevk: /mnt
root@imx8mpevk:/home/debix# cd /mnt
root@imx8mpevk:/mnt# ls
Image
'System Volume Information'
bak
imx8mp-debix-4g-board.dtb
imx8mp-debix-core-HC050IG40029-D58V.C.dtb
imx8mp-debix-core-HC080IY28026-D60V.C.dtb
imx8mp-debix-core-HC101IK25050-D59V.C.dtb
imx8mp-debix-core-JW050R0320I01.dtb
imx8mp-debix-core-JW070R0520B02.dtb
imx8mp-debix-core-JW080R1120B02.dtb
imx8mp-debix-core-JW101HD-X00.dtb
imx8mp-debix-core-board.dtb
imx8mp-debix-io-HC050IG40029-D58V.C.dtb
imx8mp-debix-io-HC080IY28026-D60V.C.dtb
```

3. Clear the cache, run before each read and write test command.

```
sh -c "sync && echo 3 > /proc/sys/vm/drop_caches"
```

4. Write speed test.

```
sh -c "sync && echo 3 > /proc/sys/vm/drop_caches" // clear cache
dd if=/dev/zero of=./test_write count=1 bs=1G
```

```
root@imx8mpevk: /mnt
root@imx8mpevk:/mnt# sh -c "sync && echo 3 > /proc/sys/vm/drop_caches"
root@imx8mpevk:/mnt# dd if=/dev/zero of=./test_write count=1 bs=1G
dd: error writing './test_write': No space left on device
1+0 records in
0+0 records out
488660992 bytes (489 MB, 466 MiB) copied, 16.377 s, 29.8 MB/s
```

5. Reading speed test.

```
sh -c "sync && echo 3 > /proc/sys/vm/drop_caches" // clear cache
dd if=./test_write of=/dev/null count=1 bs=1G

root@imx8mpevk:/mnt# sh -c "sync && echo 3 > /proc/sys/vm/drop_caches"
root@imx8mpevk:/mnt# dd if=./test_write of=/dev/null count=1 bs=1G
0+1 records in
0+1 records out
488660992 bytes (489 MB, 466 MiB) copied, 5.52149 s, 88.5 MB/s
root@imx8mpevk:/mnt#
```

4.5. Verification of RTC

The desktop settings of the BPC-iMX8MP-01 Industrial Computer RTC (**Settings >> Date&Time**) are as follows.

- Unlock "Date & Time" to turn on or off automatic time.
- Set "Time Zone" as local zone.
- Set "Time Format" to 24-hour.

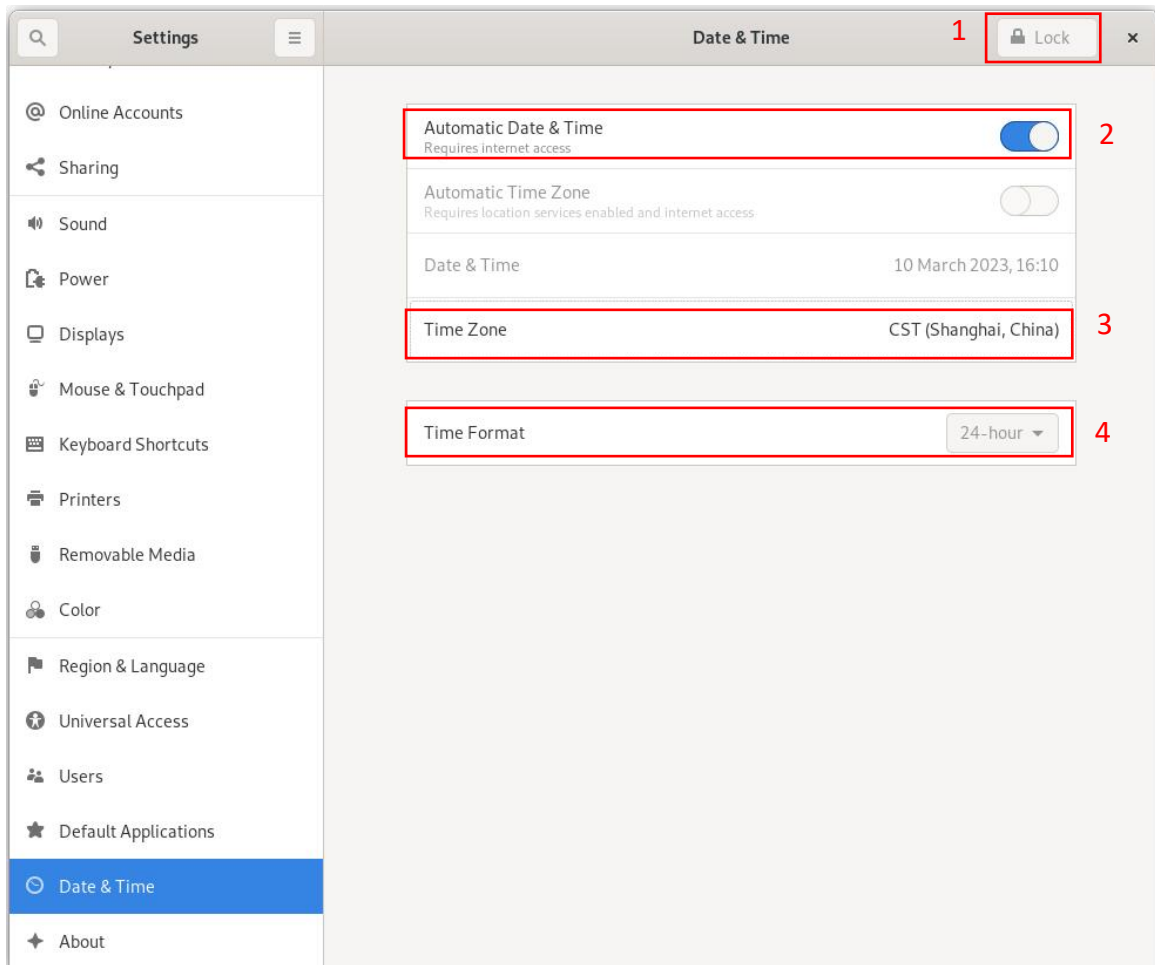


Figure 20

Read the RTC time of the Industrial Computer via `hwclock -r` command, as shown in the figure below.

```
root@imx8mpevk:/mnt# hwclock -r
2023-03-16 13:52:47.322857+08:00
root@imx8mpevk:/mnt#
```