

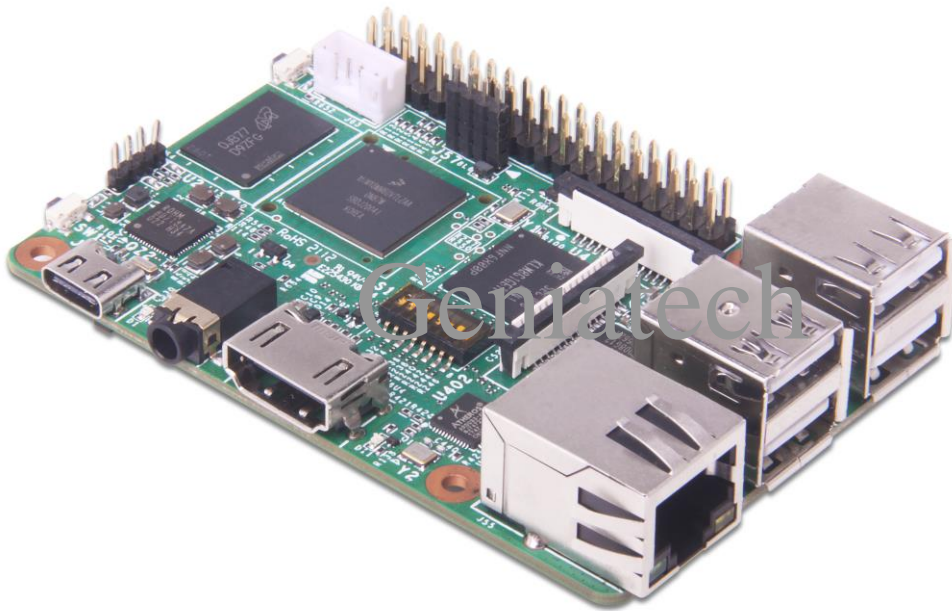
深圳金亚太科技有限公司

Shenzhen Geniatech Co.,Ltd.

Software User Guide

MODEL: XPI_i.MX8MM

V1.0



REVISION HISTORY

| DATE | REVISION TYPE | REVISION # | COMMENTS | INITIALS |
|------------|---------------|------------|-----------------|----------|
| 09/29/2021 | Major | V1.0 | Initial version | JY |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Geniatech

1. Install Yocto on the XPI_i.MX8MM

XPI_i.MX8MM currently supports the system: Linux version 4.14.98

2. Installing Yocto

2.1 Installing the image from a Host-pc

2.1.1 Installation prerequisites

- Type-c cable
- Host PC
- XPI_i.MX8MM Board
- Burn Line (Dual head USB Type-A port)



2.1.2 Step1: Download the Yocto images and Tools from the Geniatech website

<https://www.geniatech.com/download/xpi-imx8mm/>:

2.1.3 step 2. Download Driver in Host PC

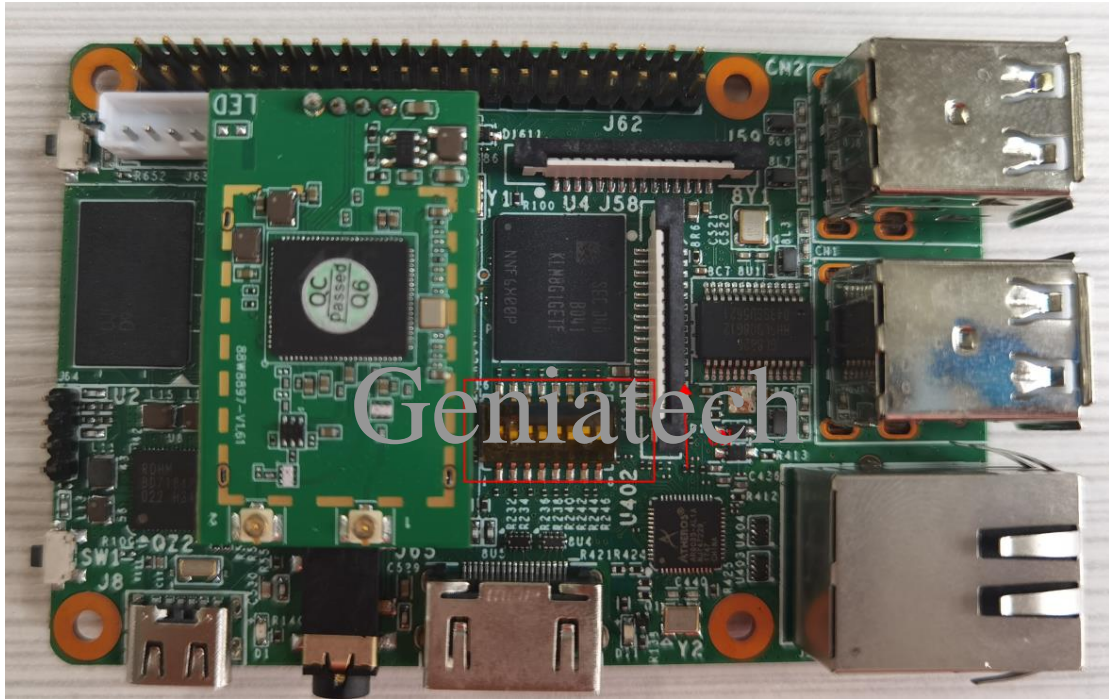
Download the Driver from below website:

<https://www.driverscape.com/download/hid-compliant-vendor-defined-device>

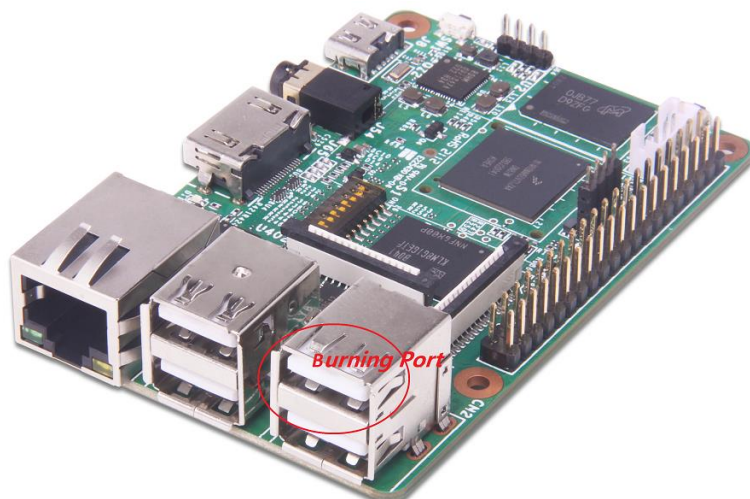
2.1.4 step 3. Bring the board into burn mode

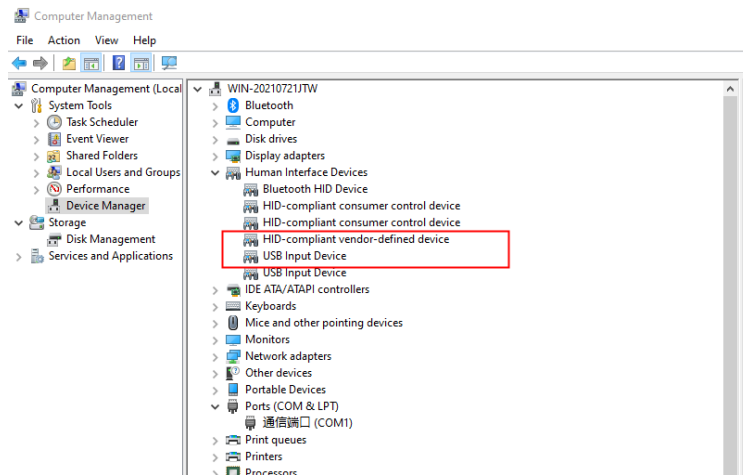
1) Set the S1 switch:

1-on 2-off 3-on 4-off 5-on 6-off 7-on 8-off



2) One end of the Burn Line is connected to the computer and the other is connected to the burn port of the board. The computer's device manager will load the new device; (The Burn line can be powered, so type-c cable access is not necessary)





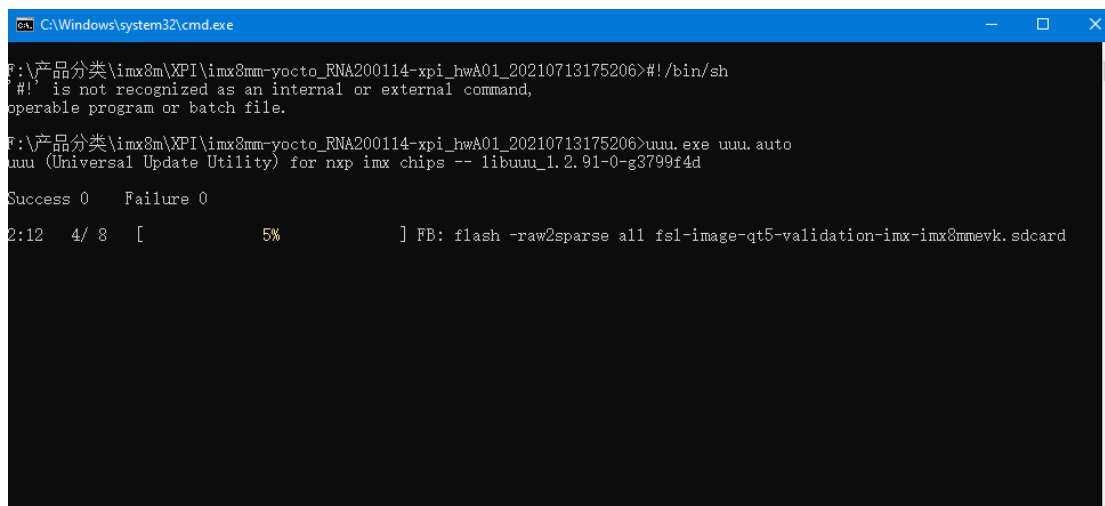
2.1.5 step 4. Flash the Yocto image

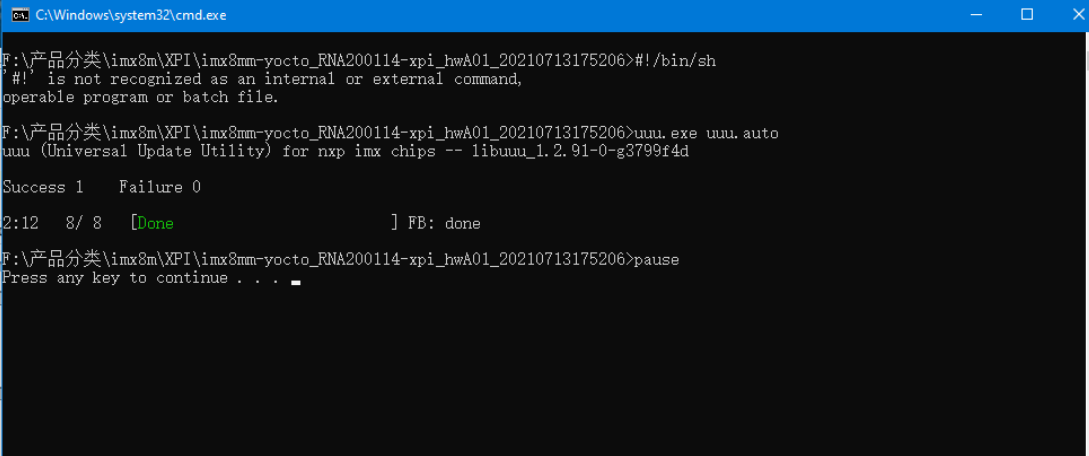
1) Unzip the file

Geniatech

imx8mm-yocto_RNA200114-xpi_hwA01_20210713175206.tar.gz. Double-click flash.bat, the burning progress is loaded, please wait for the burning to complete.

| Name | Date modified | Type | Size |
|---|-----------------|--------------------|--------------|
| flash.bat | 2021/7/13 17:52 | Windows Batch File | 1 KB |
| fsl-image-qt5-validation-imx-imx8mme... | 2021/7/13 17:52 | SDCARD File | 3,121,152 KB |
| imx-boot-imx8mmevk-sd.bin-flash_evk | 2021/7/13 17:52 | BIN-FLASH_EVK File | 1,378 KB |
| uuu.auto | 2021/7/13 17:52 | AUTO File | 2 KB |
| uuu.exe | 2021/7/13 17:52 | Application | 914 KB |





```

C:\Windows\system32\cmd.exe
F:\产品分类\imx8m\XPI\imx8mm-yocto_RNA200114-xpi_hwA01_20210713175206>#!/bin/sh
#!/ is not recognized as an internal or external command,
operable program or batch file.

F:\产品分类\imx8m\XPI\imx8mm-yocto_RNA200114-xpi_hwA01_20210713175206>uuu.exe uuu.auto
uuu (Universal Update Utility) for nxp imx chips -- libuuu_1.2.91-0-g3799f4d

Success 1   Failure 0

2:12  8/ 8  [Done] FB: done

F:\产品分类\imx8m\XPI\imx8mm-yocto_RNA200114-xpi_hwA01_20210713175206>pause
Press any key to continue . . .

```

2.1.6 Step 5: Reboot and enjoy!

1) After burning, remove the burn line. Set the Switch to:

1-off 2-on 3-on 4-off 5-on 6-off 7-on 8-off

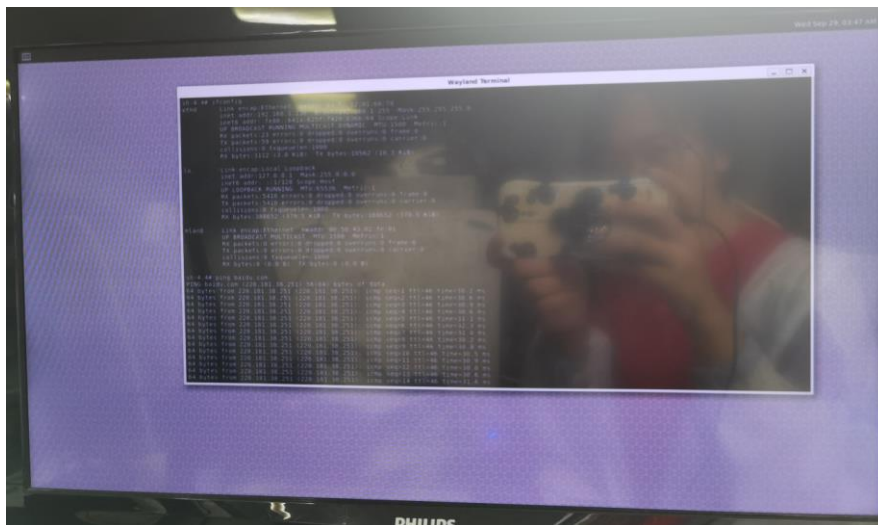
The device is powered by Type-c by default, and the screen can be displayed when connected to the display through the HDMI OUT port.

3. System function introduction

3.1 Test Methods

Test can be done through serial line, SSH, Wayland terminal.

3.1.1.1 Wayland terminal



3.1.1.2 Serial Line

The board and the computer can be connected via USB to serial port; the interface definition is

shown in the figure;

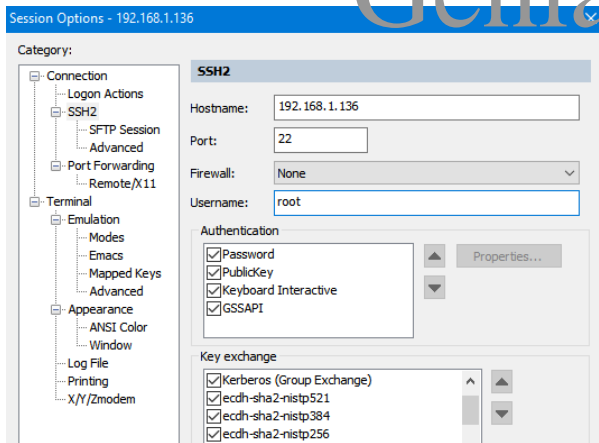
Baud rate: 115200

Data bits: 8



3.1.1.3 SSH

Get the device IP first. When the computer and the device are in the same local area network, they can be connected remotely.



3.2 WiFi & Ethernet

3.2.1 Ethernet

```

root@imx8mevk:~# ifconfig
root@imx8mevk:~# ifconfig
eth0    Link encap:Ethernet  HWaddr ba:fc:32:d1:60:7d
        inet addr:192.168.1.136  Bcast:192.168.1.255  Mask:255.255.255.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:1689  errors:0  dropped:0  overruns:0  frame:0
        TX packets:462  errors:0  dropped:0  overruns:0  carrier:0
        collisions:0  txqueue:en:1000
        RX bytes:188844 (184.4 KiB)  TX bytes:50882 (49.6 KiB)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:5604  errors:0  dropped:0  overruns:0  frame:0
        TX packets:5604  errors:0  dropped:0  overruns:0  carrier:0
        collisions:0  txqueue:en:1000
        RX bytes:408992 (399.4 KiB)  TX bytes:408992 (399.4 KiB)

m1an0   Link encap:Ethernet  HWaddr 00:50:43:02:fe:01
        UP BROADCAST MULTICAST  MTU:1500  Metric:1
        RX packets:0  errors:0  dropped:0  overruns:0  frame:0
        TX packets:0  errors:0  dropped:0  overruns:0  carrier:0
        collisions:0  txqueue:en:1000
        RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

root@imx8mevk:~# ping baidu.com
PING baidu.com (220.181.38.148) 56(84) bytes of data:
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=1 ttl=46 time=32.7 ms
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=2 ttl=46 time=32.6 ms
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=3 ttl=46 time=32.7 ms
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=4 ttl=46 time=32.5 ms
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=5 ttl=46 time=32.1 ms
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=6 ttl=46 time=32.8 ms
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=7 ttl=46 time=32.9 ms
64 bytes from 220.181.38.148 (220.181.38.148): icmp_seq=8 ttl=46 time=33.0 ms
^C
--- baidu.com ping statistics ---
 8 packets transmitted, 8 received, 0% packet loss, time 11051ms
rtt min/avg/max/mdev = 32.144/32.710/33.016/0.325 ms
root@imx8mevk:~#
    
```

3.2.2 WiFi

Room 02-04, 10/F, Block A, Building 8, Shenzhen International Innovation Valley, Dashi Road, Nanshan District, Shenzhen, Guangdong, China

Email: support@geniatech.com Tel: (+ 86) 755 86028588

Command operation:

- iwlist scanning |grep ESSID //Query nearby WiFi signal
- nmcli dev wifi con Xiaomi_B5EF //Connect to WiFi ; Xiaomi_B5EF is the SSID of a certain WiFi in the environment
- nmcli dev status //View current device WiFi status
- nmcli dev dis wlan0 //Disconnect current connection

```

root@mx8mdev:~# iwlist scanning |grep ESSID
root@mx8mdev:~# nmcli dev wifi con Xiaomi_B5EF
Interface doesn't support scanning.
wlan0 Interface doesn't support scanning : operation not supported
[ 239.795916] wlan: SCAN COMPLETED: scanned AP count=18
ESSID:"Xiaomi_B5EF" [1]
ESSID:"ctc-2" [2]
ESSID:"geniatech-x3" [3]
ESSID:"geniatech360" [4]
ESSID:"geniatech_p00" [5]
ESSID:"Salen" [6]
ESSID:"Linksys3562-5GHz-XAE\xBF\xE5\xAE\xA2" [7]
ESSID:"HP-Print-76-LaserJet Pro MFP" [8]
ESSID:"geniatech-goog1e" [9]
ESSID:"2_Ag" [10]
ESSID:"Xiaomi_B5EF5G" [11]
ESSID:"geniatech_p00_5GHz" [12]
ESSID:"Linksys3562-5GHz-XAE\xBF\xE5\xAE\xA2" [13]
ESSID:"geniatech-goog1e2" [14]
ESSID:"5g" [15]
ESSID:"wxc20" [16]
ESSID:"ctc-5" [17]
ESSID:"geniatech-l-5g" [18]
[ 247.174664] wlan: SCAN COMPLETED: scanned AP count=17
ESSID:"Xiaomi_B5EF" [1]
ESSID:"geniatech360" [2]
ESSID:"geniatech_p00" [3]
ESSID:"Linksys3562-5GHz-XAE\xBF\xE5\xAE\xA2" [4]
ESSID:"Salen" [5]
ESSID:"HP-Print-76-LaserJet Pro MFP" [6]
ESSID:"geniatech-goog1e" [7]
ESSID:"2_Ag" [8]
ESSID:"Xiaomi_B5EF5G" [9]
ESSID:"geniatech_p00_5GHz" [10]
ESSID:"Linksys3562-5GHz-XAE\xBF\xE5\xAE\xA2" [11]
ESSID:"5g" [12]
ESSID:"wxc20" [13]
ESSID:"geniatech-goog1e2" [14]
ESSID:"ctc-5" [15]
ESSID:"geniatech-l-5g" [16]
ESSID:"geniatech-goog1e" [17]
eth0 Interface doesn't support scanning.

root@mx8mdev:~# nmcli dev wifi con Xiaomi_B5EF
[ 264.843143] wlan: SCAN COMPLETED: scanned AP count=17
[ 272.283403] wlan: SCAN COMPLETED: scanned AP count=16
[ 280.303282] wlan: SCAN COMPLETED: scanned AP count=16
Device wlan0 successfully activated with '1d20f556-0509-4683-8fef-2420f6e01584'.
root@mx8mdev:~# nmcli dev status
DEVICE TYPE STATE CONNECTION
wlan0 wifi connected -- Xiaomi_B5EF 1
wlan0 wifi disconnected --
eth0 ethernet unavailable --
lo loopback unmanaged --

root@mx8mdev:~# ifconfig
eth0 Link encap:Ethernet Hwaddr 0a:8e:96:1c:6e:22
UP BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueueLen:1000
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

lo Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
inet6 addr: ::1:128 Scope:HOST
UP LOOPBACK RUNNING MTU:65536 Metric:1
RX packets:342 errors:0 dropped:0 overruns:0 frame:0
TX packets:342 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueueLen:1000
RX bytes:38960 (38.0 KiB) TX bytes:38960 (38.0 KiB)

wlan0 Link encap:Ethernet Hwaddr 00:50:43:02:fe:01
inet addr:Fe80::66d8:b9fa:3bc6:ff76:64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:109 errors:0 dropped:0 overruns:0 frame:0
TX packets:1166 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueueLen:1100
RX bytes:122381 (119 KiB) TX bytes:22886 (22.3 KiB)

root@mx8mdev:~# ping -c 12 220.181.38.251
PING 220.181.38.251 (220.181.38.251): 64 bytes of data:
64 bytes from 220.181.38.251: icmp_seq=1 ttl=46 time=259 ms
64 bytes from 220.181.38.251: icmp_seq=2 ttl=46 time=256 ms
64 bytes from 220.181.38.251: icmp_seq=3 ttl=46 time=299 ms
64 bytes from 220.181.38.251: icmp_seq=4 ttl=46 time=477 ms
64 bytes from 220.181.38.251: icmp_seq=5 ttl=46 time=42.9 ms
64 bytes from 220.181.38.251: icmp_seq=6 ttl=46 time=565 ms
64 bytes from 220.181.38.251: icmp_seq=7 ttl=46 time=80.9 ms
64 bytes from 220.181.38.251: icmp_seq=8 ttl=46 time=61.3 ms
64 bytes from 220.181.38.251: icmp_seq=9 ttl=46 time=118 ms
64 bytes from 220.181.38.251: icmp_seq=10 ttl=46 time=823 ms
64 bytes from 220.181.38.251: icmp_seq=11 ttl=46 time=53.2 ms
64 bytes from 220.181.38.251: icmp_seq=12 ttl=46 time=83.1 ms
^C
--- baidu.com ping statistics ---
12 packets transmitted, 12 received, 0% packet loss, time 15283ms
rtt min/avg/max/mdev = 42.971/259.629/823.782/236.658 ms
root@mx8mdev:~# [ 445.582384] audit: type=1006 audit(1632897001.165:3): pid=4010 uid=0 old=au-
tid=4294967295 auid=0 tty=(none) old-ses=4294967295 ses=2 res=1

root@mx8mdev:~# nmcli dev dis wlan0
Error: Device 'wlan0' not found.
root@mx8mdev:~# nmcli dev dis wlan0
[ 2318.481637] wlan: SCAN COMPLETED: scanned AP count=16
Device 'wlan0' successfully disconnected.
root@mx8mdev:~# ifconfig

```

PS:

1. nmcli dev wifi con Salen password 11111111 //Use this command for WiFi encryption; Salen is WiFi SSID 11111111 is WiFi password
2. Please connect the antenna.

3.3 Bluetooth

Command operation:

- bluetoothctl
 - power on
 - agent on
 - default-agent
 - scan on //Scan nearby devices
 - devices //View the searched devices
 - connect 14:32:D1:CD:00:B3 //Get the device mac, connect with the device
 - disconnect 14:32:D1:CD:00:B3
 - exit //Exit operation
- PS:
1. For devices that have been connected, you need to remove the device through the command 'remove 7C:A1:77:78:ED:E1' before you can connect again)
 2. Please connect the antenna.


```

root@mx8mek:/# bluetoothctl
Agent registered
[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 48:48:48:48:48:48 Discovering: yes
[CHG] Device 68:39:F3:D0:48:00 RSSI: -71
[CHG] Device 68:39:F3:D0:48:00 TxPower: 12
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -59
[CHG] Device 5E:F4:38:2F:2C:86 TxPower: 12
[CHG] Device 65:25:5A:3F:60:AA RSSI: -86
[CHG] Device 65:25:5A:3F:60:AA TxPower: 24
[CHG] Device 78:4A:46:06:9E:2F RSSI: -72
[CHG] Device 78:4A:46:06:9E:2F TxPower: 12
[CHG] Device 56:A1:5C:99:BF:2A RSSI: -83
[CHG] Device 56:A1:5C:99:BF:2A TxPower: 12
[CHG] Device 56:A1:5C:99:BF:2A ManufacturerData Key: 0x004c
[CHG] Device 56:A1:5C:99:BF:2A ManufacturerData Value:
10 07 00 1f c0 ba 26 b4 28 .....&.(
[CHG] Device 76:88:DC:77:69:48 RSSI: -80
[CHG] Device 76:88:DC:77:69:48 TxPower: 24
[bluetooth]# [54497:609238] wlan: SCAN COMPLETED: scanned AP count=18
[CHG] Device 42:AF:1F:35:C4:B7 RSSI: -75
[CHG] Device 42:AF:1F:35:C4:B7 TxPower: 10
[CHG] Device 5F:3E:6E:E7:E3:F0 RSSI: -71
[CHG] Device 5F:3E:6E:E7:E3:F0 TxPower: 7
[NEW] Device 38:F5:54:10:A9:55 38-F5-54-10-A9-55
[CHG] Device 56:A1:5C:99:BF:2A RSSI: -73
[CHG] Device 56:A1:5C:99:BF:2A TxPower: 12
[NEW] Device D3:E2:37:53:72:4C M1 Band 3
[CHG] Device 56:F4:38:2F:2C:86 RSSI: -67
[CHG] Device D3:E2:37:53:72:4C M1 Band 3
[CHG] Device 5F:3E:6E:E7:E3:F0 RSSI: -81
[NEW] Device 41:38:61:F4:65:A5 41-38-61-F4-65-A5
[CHG] Device 56:F4:38:2F:2C:86 RSSI: -58
[CHG] Device 56:F4:38:2F:2C:86 TxPower: 12
[CHG] Device 5F:3E:6E:E7:E3:F0 RSSI: -71
[CHG] Device 5F:3E:6E:E7:E3:F0 TxPower: 7
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -60
[NEW] Device 70:88:19:98:79:8D vti0nt123
[CHG] Device 56:F4:38:2F:2C:86 RSSI: -60
[NEW] Device 56:F4:38:2F:2C:86 TxPower: 12
[CHG] Device 56:F4:38:2F:2C:86 RSSI: -82
[CHG] Device 56:F4:38:2F:2C:86 TxPower: 12
[CHG] Device 53:3E:3D:8E:CC:CA RSSI: -75
[CHG] Device 53:3E:3D:8E:CC:CA RSSI: -86
[CHG] Device 42:AF:1F:35:C4:B7 RSSI: -77
[CHG] Device 53:3E:3D:8E:CC:CA RSSI: -74
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -64
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -79
[CHG] Device 53:3E:3D:8E:CC:CA RSSI: -85
[CHG] Device D3:E2:37:53:72:4C RSSI: -83
[CHG] Device A8:BE:27:D1:0C:73 RSSI: -78
[CHG] Device 60:05:E9:DF:93:6E ManufacturerData Key: 0x004c
[CHG] Device 60:05:E9:DF:93:6E ManufacturerData Value:
10 05 51 1c 94 6b 94 ...q..k.
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -65
[CHG] Device 42:AF:1F:35:C4:B7 RSSI: -86
[CHG] Device 65:25:5A:3F:60:AA RSSI: -72
[CHG] Device 65:25:5A:3F:60:AA RSSI: -84
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -79
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -71
[CHG] Device 42:AF:1F:35:C4:B7 RSSI: -71
[CHG] Device 5E:F4:38:2F:2C:86 RSSI: -82
lgw350t_apj#

```

3.4 Line OUT

switch sound card: `pactl set-default-sink 1` (sound is output from HDMI OUT)

`pactl set-default-sink 1` (speaker output)

PS:

The default sound is output from HDMI OUT;