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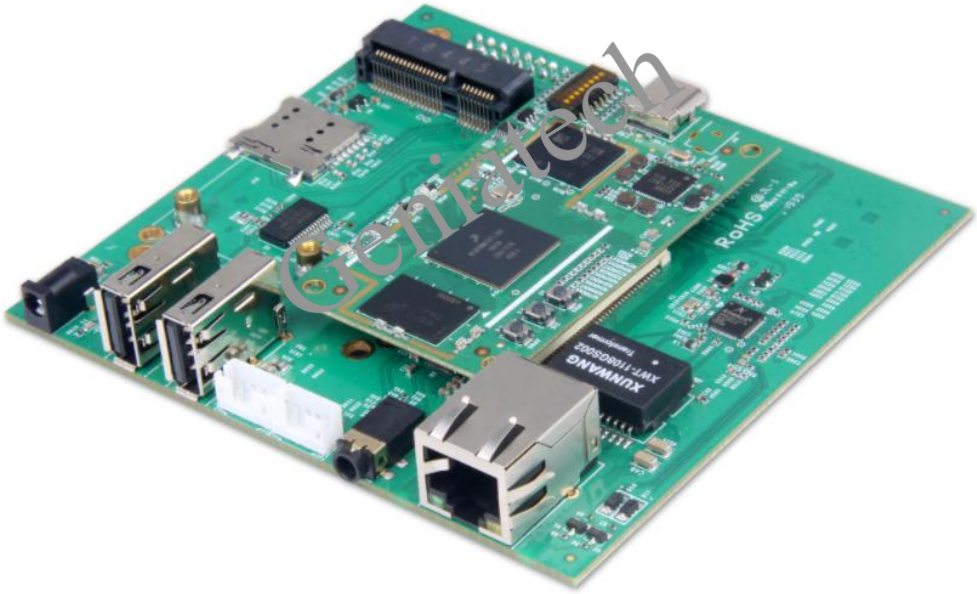
DBN8MM(Gum Stick) Software UserGuide

V1.1



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REVISION HISTORY

DATE	REVISION TYPE	REVISION #	COMMENTS	INITIALS
07/15/2020	Major	1.0	Initial version	JY
07/16/2020	Major	1.1	New feature description	JY

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Content

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1. Yocto on the DBN8MM(Gum Stick）

DBN8MM currently supports the system：Yocto

2. Installing Yocto

2.1 Installing the image from a Host-pc

2.1.1 Installation prerequisites

- type-c cable
- Host PC(Only supports 64-bit)
- DBN8MM Board

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

Download the Linux images from below website:

https://mega.nz/file/BiYUwayJ#peDJXB00i0Z2pLI0hVmzvmp9l-Lofg8gIudR7sItPiM

2.1.3 step 2. Download Driver in Host PC

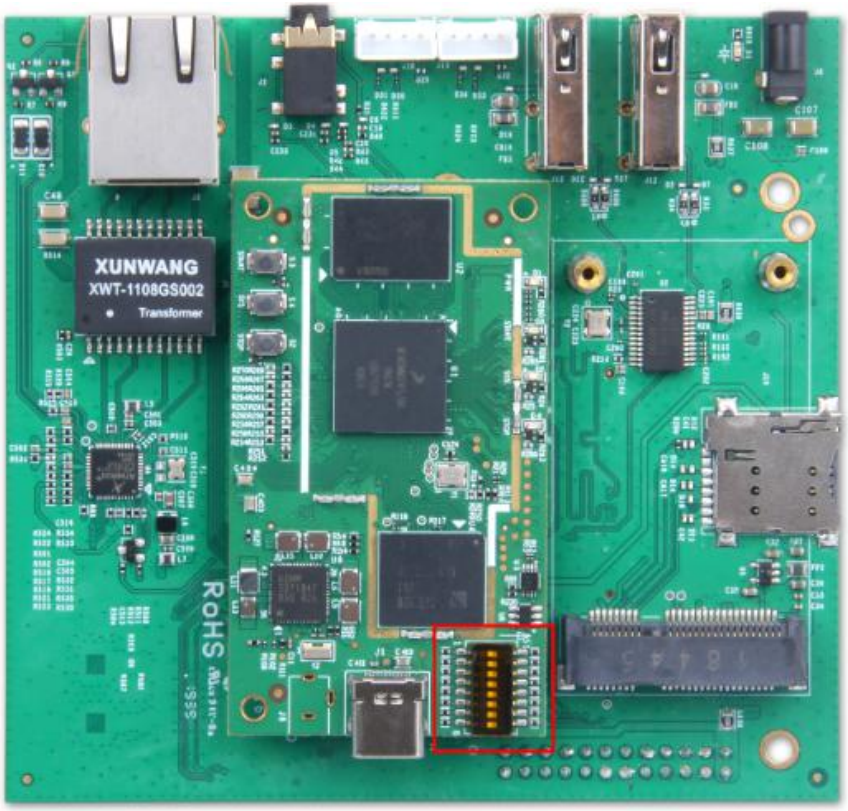
Download the Driver from below website:

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

2.1.4 step 3. Bring the board into burn mode

1) Set the start switch S1 to:

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



2.1.5 step 4. Flash the yocto image

1) Connect the device to the type -c data cable, and connect the other end of the data cable to the computer USB port; the device manager first displays the following:

2) Unzip the **nxp-imx8_yocto_xwayland-imx8mmevk_20200107170055.tar.gz** file, double-click imx-yocto-flash.bat after opening, burning will proceed;

Name	Date modified	Type	Size
imx-geniatech.zip	5/16/2020 10:05 AM	好压 ZIP 压缩文件	285,633 KB
imx-yocto-flash.bat	5/16/2020 10:03 AM	Windows Batch File	1 KB
uuu.exe	5/16/2020 10:03 AM	Application	914 KB

3) Burn screenshot:

```
G:\imx8mm\SMA\nxp-imx8_yocto_xwayland-imx8mmevk-smarc_20200624085359>uuu.exe imx-geniatech.zip
uuu (Universal Update Utility) for nxp imx chips -- libuuu_1.2.91-0-g3799f4d

Success 0    Failure 0

1:11   2/ 3   [                          ] SDPV: write -f imx-boot-imx8mmevk-sd.bin-flash_evk -skipsp1
```

```
G:\imx8mm\SMA\nxp-imx8_yocto_xwayland-imx8mmevk-smarc_20200624085359>uuu.exe imx-geniatech.zip
uuu (Universal Update Utility) for nxp imx chips -- libuuu_1.2.91-0-g3799f4d

Success 1    Failure 0

1:11   8/ 8   [Done                      ] FB: done

G:\imx8mm\SMA\nxp-imx8_yocto_xwayland-imx8mmevk-smarc_20200624085359>pause
请按任意键继续. . .
```

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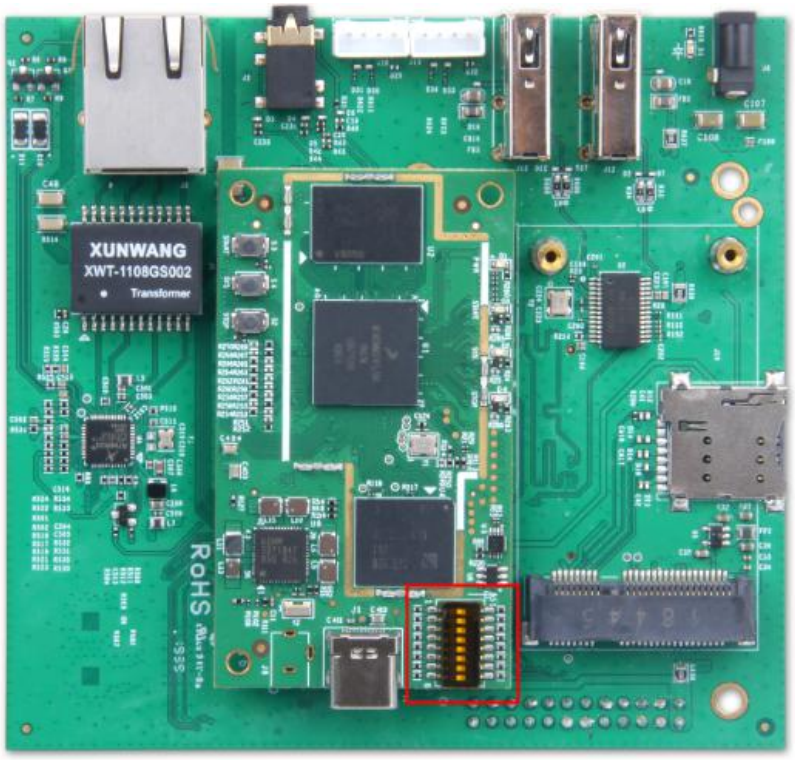
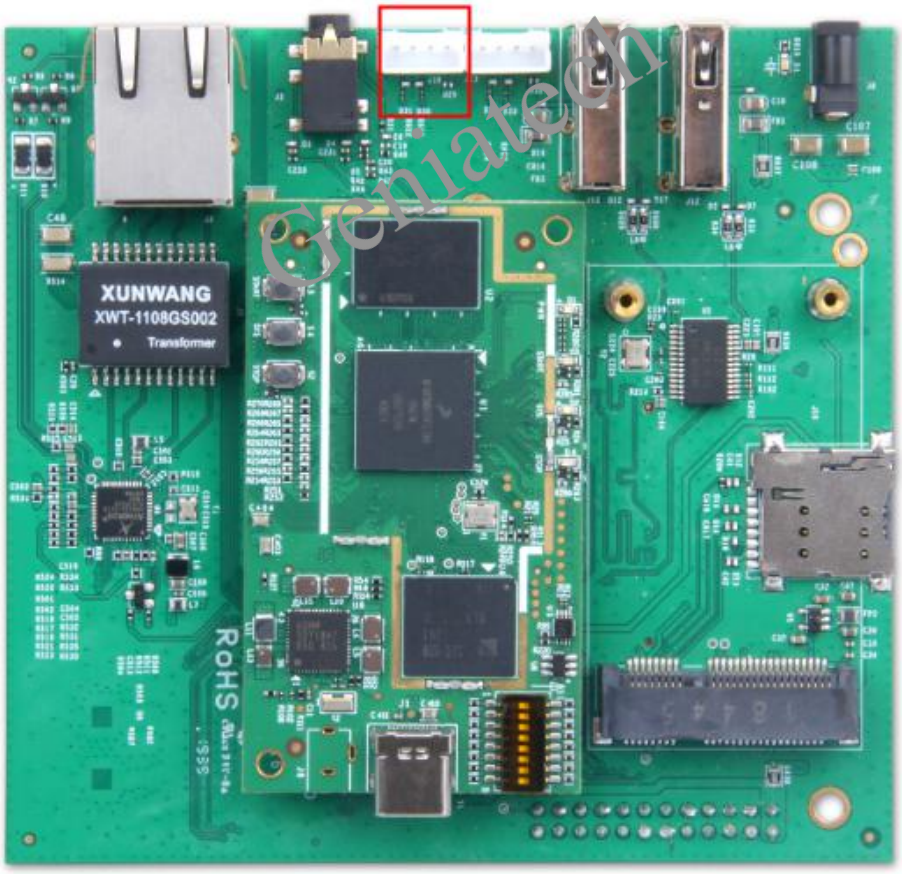
4) After the programming is completed, the switch dial is as shown below:

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



2.1.6 Step 5: Reboot and enjoy!

After completing the above operations, connect the power supply; connect the serial port after 30s (the serial port is marked as red); after normal startup, the serial port prints as follows: (login name: root)




```
/k login:
( Release Distro 4.14-sumo imx8mmevk ttymxc1

/k login:
( Release Distro 4.14-sumo imx8mmevk ttymxc1

imx8mmevk login:
NXP i.MX Release Distro 4.14-sumo imx8mmevk ttymxc1

imx8mmevk login:
NXP i.MX Release Distro 4.14-sumo imx8mmevk ttymxc1

imx8mmevk login: root
Last login: Wed Dec 25 05:48:25 UTC 2019 on tty7
[    33.236626] audit: type=1006 audit(1577252931.636:3): pid=3611 uid=0 old-auid=4294967295 auid=0 tty=(none) old-ses=4294967295 ses=2 res=1
root@imx8mmevk:~#
root@imx8mmevk:~#
root@imx8mmevk:~#
root@imx8mmevk:~#
root@imx8mmevk:~#
```

3. Wifi Instructions

Terminal input command:

ifconfig wlan0 up

iwlist scanning |grep ESSID

Iwconfig wlan0 essid //only support WPE encryption/password-free wifi;"Xiaomi_B5EF"searches the name of WiFi

iwconfig waln0 key s:123123123 //123123123 is the password of wifi,If wifi has no password, this step can be skipped

udhcpc -i wlan0 // view wifi information

The screenshot below:

```
iwconfig wlan0 essid                    ESSID:"geniatech-1-24G"
                    ESSID:"ChinaNet-gwaN"
                    ESSID:"geniatech-x3"
                    ESSID:"Linksys35562_5GHz-\xE8\xAE\xBF\xE5\xAE\xA2"
                    ESSID:"Xiaomi_B5EF_5G"
                    ESSID:"ido-5GHz"
                    ESSID:"Linksys35562-\xE8\xAE\xBF\xE5\xAE\xA2"
                    ESSID:"ANTD_2.4G"
                    ESSID:"Salen_123"
                    ESSID:"Xiaomi_B5EF"
                    ESSID:"geniatech360"
eth0      Interface doesn't support scanning.

                    ESSID:"ido-2.4GHz"
                    ESSID:"EK-030Plus-CC12345"
                    ESSID:"HP-Print-7e-LaserJet Pro MFP"
                    ESSID:"geniatech-google2"
                    ESSID:"Xiaolu"
                    ESSID:"geniatech-1-24G"
                    ESSID:"TDZ_TEST_WIFI"
                    ESSID:"geniatech-google1"
                    ESSID:"geniatech-x3"
root@imx8mmevk:~# iwconfig wlan0 essid Xiaomi_B5EF
root@imx8mmevk:~#
root@imx8mmevk:~# udhcpc -i wlan0
udhcpc: started, v1.27.2
udhcpc: sending discover
udhcpc: sending select for 192.168.3.113
udhcpc: lease of 192.168.3.113 obtained, lease time 43200
/etc/udhcpc.d/50default: Adding DNS 192.168.3.1
root@imx8mmevk:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 6a:64:f3:a8:79:78
          UP BROADCAST MULTICAST DYNAMIC  MTU:1500  Metric:1
          RX packets:137 errors:0 dropped:0 overruns:0 frame:0
          TX packets:104 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:12571 (12.2 KiB)  TX bytes:13892 (13.5 KiB)

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:652 errors:0 dropped:0 overruns:0 frame:0
          TX packets:652 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:47905 (46.7 KiB)  TX bytes:47905 (46.7 KiB)

wlan0     Link encap:Ethernet  HWaddr ac:5d:5c:56:74:09
          inet addr:192.168.3.113  Bcast:192.168.3.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:41 errors:0 dropped:0 overruns:0 frame:0
          TX packets:76 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:3000
          RX bytes:4751 (4.6 KiB)  TX bytes:10893 (10.6 KiB)

root@imx8mmevk:~#
root@imx8mmevk:~# ping baidu.com
PING baidu.com (39.156.69.79) 56(84) bytes of data.
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=1 ttl=50 time=29.7 ms
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=2 ttl=50 time=586 ms
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=3 ttl=50 time=33.2 ms
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=4 ttl=50 time=29.1 ms
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=5 ttl=50 time=29.6 ms
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=6 ttl=50 time=29.4 ms
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=7 ttl=50 time=29.0 ms
64 bytes from 39.156.69.79 (39.156.69.79): icmp_seq=8 ttl=50 time=615 ms
```

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4. BlueTooth Instructions

Terminal input command:

ls -al /dev/ttymxc* //View the port ttymxc0

hciattach /dev/ttymxc0 qca 2000000 flow -b -t 120

hciconfig hci0 up //Open the port ttymxc0

```
get_vs_hci_event: Command Request Response
get_vs_hci_event: Download Packet successfully!
read_vs_hci_event: Wait for HCI-Vendor Specfic Event from SOC, count - 0x6
hci_send_vs_cmd: Received HCI-Vendor Specific Event from SOC
rome_tlv_dnld_segment: Successfully downloaded patch segment: 8
qca_soc_init: Download TLV file successfully
rome_set_baudrate_req: HCI CMD: 0x1 0x48 0xfc 0x1 0xd
## userial_vendor_set_baud: 13
read_vs_hci_event: Wait for HCI-Vendor Specfic Event from SOC
wait_for_data: HCI-VS-EVENT available in TTY Serial buffer
read_vs_hci_event: Wait for HCI-Vendor Specfic Event from SOC, buf[0] - 0x4
read_vs_hci_event: Wait for HCI-Vendor Specfic Event from SOC, buf[1] - 0xff
get_vs_hci_event: Received HCI-Vendor Specific event
get_vs_hci_event: Parameter Length: 0x2
get_vs_hci_event: Command response: 0x92
get_vs_hci_event: Response type    : 0x1
read_vs_hci_event: Wait for HCI-Vendor Specfic Event from SOC, count - 0x5
rome_set_baudrate_req: Received HCI-Vendor Specific Event from SOC
rome_set_baudrate_req
rome_hci_reset_req: HCI RESET
rome_hci_reset_req: HCI CMD: 0x1 0x3 0xc 0x0
## userial_vendor_set_baud: 13
HCI Reset is done
Setting TTY to N_HCI line discipline
Device setup complete
root@imx8mmevk:~# hciconfig hci0 up
root@imx8mmevk:~#
```

sudo service bluetooth start //Open bluetooth service

bluetoothctl

power on

agent on

default-agent

scan on //Scanning nearby equipment

pair 7C:A1:77:78:ED:E1 //Pair devices according to the device's MAC;Complete the pairing according to the prompts; Pairing successful displays Pairing successful;

trust 7C:A1:77:78:ED:E1 //First connection skipped

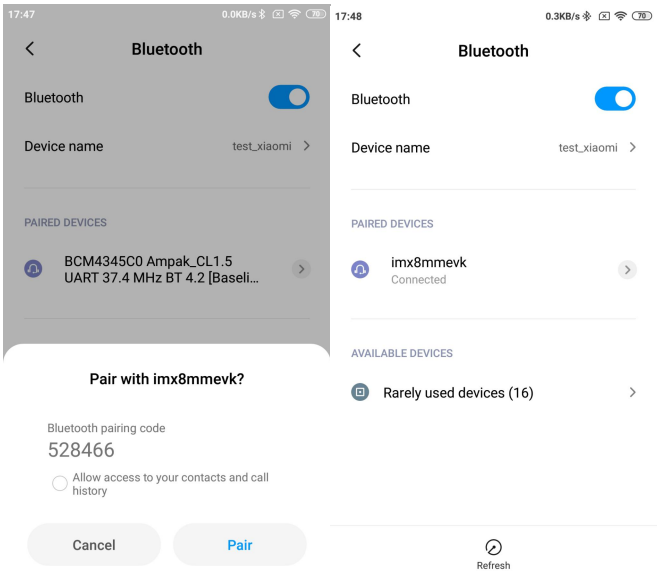
connect 7C:A1:77:78:ED:E1 //Connect devices

service bluetooth stop //Turn off bluetooth service

The screenshot below:

```
Discovery started
[CHG] Controller 61:47:AA:32:44:07 Discovering: yes
[NEW] Device 24:44:F7:04:0C:EE 24-44-F7-04-0C-EE
[NEW] Device D0:03:4B:0F:4E:73 D0-03-4B-0F-4E-73
[NEW] Device 59:C1:DD:9A:6D:3F 59-C1-DD-9A-6D-3F
[NEW] Device 45:74:B1:1E:E5:F7 45-74-B1-1E-E5-F7
[NEW] Device 46:FB:E2:4C:C3:0F 46-FB-E2-4C-C3-0F
[NEW] Device 38:F5:54:10:A9:55 38-F5-54-10-A9-55
[CHG] Device 7C:A1:77:78:ED:E1 RSSI: -66
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 00001105-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 0000110a-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 0000110c-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 00001112-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 00001115-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 00001116-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 0000111f-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 0000112f-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 00001200-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 00001132-0000-1000-8000-00805f9b34fb
[CHG] Device 7C:A1:77:78:ED:E1 UUIDs: 00000000-0000-0000-0000-000000000000
[NEW] Device F4:F5:DB:72:B8:17 test_xiaomi
[CHG] Device 46:FB:E2:4C:C3:0F ManufacturerData Key: 0x004c
[CHG] Device 46:FB:E2:4C:C3:0F ManufacturerData Value:
  10 06 2c 1e 42 94 48 9a                          ..,.B.H.
[NEW] Device 4E:08:CE:B7:22:A0 4E-08-CE-B7-22-A0
[bluetooth]# pair F4:F5:DB:72:B8:17
Attempting to pair with F4:F5:DB:72:B8:17
[CHG] Device F4:F5:DB:72:B8:17 Connected: yes
Request confirmation
[agent] Confirm passkey 528466 (yes/no): yes
[CHG] Device F4:F5:DB:72:B8:17 Modalias: bluetooth:v038Fp1200d1436
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001105-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 0000110a-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 0000110c-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001112-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001115-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001116-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 0000111f-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 0000112f-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001132-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001200-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001800-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 UUIDs: 00001801-0000-1000-8000-00805f9b34fb
[CHG] Device F4:F5:DB:72:B8:17 ServicesResolved: yes
[CHG] Device F4:F5:DB:72:B8:17 Paired: yes
Pairing successful
[test_xiaomi]#
```

Android phone display :



5.Introduction of yocto system based on NXP platform

In order to meet customers' requirements on yocto system based on NXP platform, NXP official released a set of open source yocto system with certain universality based on Linux kernel 4.14.In order to facilitate the construction of the system and adapt to the specific NXP platform, NXP use repo to publish source code on GitHub for detailed reference：

NXP website： https://www.nxp.com.cn/

Yocto website：https://www.yoctoproject.org/

NXP now supported platform include imxRT/imx6/imx7/imx8 /imx28 family products, users are interested can go to NXP's website to get the code.We are currently updating the platform include imx6/imx8 series, details may refer to https://github.com/geniatech666 for making all provide open source code.This manual will take imx6ull board as an example to introduce the development guidelines;

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6.Building development environment

6.1 Download Essential Yocto Project host package(Host machine Ubuntu 12.04 or Ubuntu 14.04)

To get the Yocto Project expected behavior in a Linux Host Machine, the packages and utilities described below must be installed. An important consideration is the hard disk space required in the host machine. For example, when building on a machine running Ubuntu, the minimum hard disk space required is about 50 GB for the X11 backend. It is recommended that at least 120 GB is provided, which is enough to compile all backends together。

Essential Yocto Project host packages are：

$ sudo apt-get install gawk wget git-core diffstat unzip texinfo gcc-multilib build-essential chrpath socat libsdl1.2-dev

i.MX layers host packages for a Ubuntu 12.04 or 14.04 host setup are：

$ sudo apt-get install libsdl1.2-dev xterm sed cvs subversion coreutils texi2html docbook-utils python-pysqlite2 help2man make gcc g++ desktop-file-utils libgl1-mesa-dev libglu1-mesa-dev mercurial autoconf automake groff curl lzop asciidoc

i.MX layer host packages for a Ubuntu 12.04 host setup only are：

$ sudo apt-get install uboot-mkimage

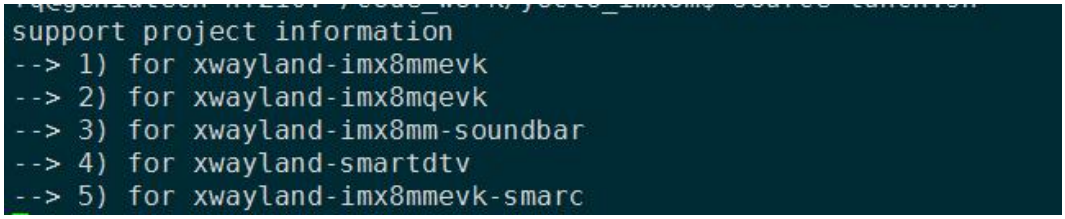
i. MX layers host packages for a Ubuntu 14.04 host setup only are：

$ sudo apt-get install u-boot-tools

6.2 Build Image

Please contact our staff after successfully obtaining the source code,run command

$ source lunch.sh



Select the corresponding project to input the corresponding number, such as input 1 to select the imx8mm project；The compilation options currently supported are as follows：

- ./build -i build_all: full compile，output image
- ./build -i uboot: compile u-boot module
- ./build -i bootimg: compile kernel module

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