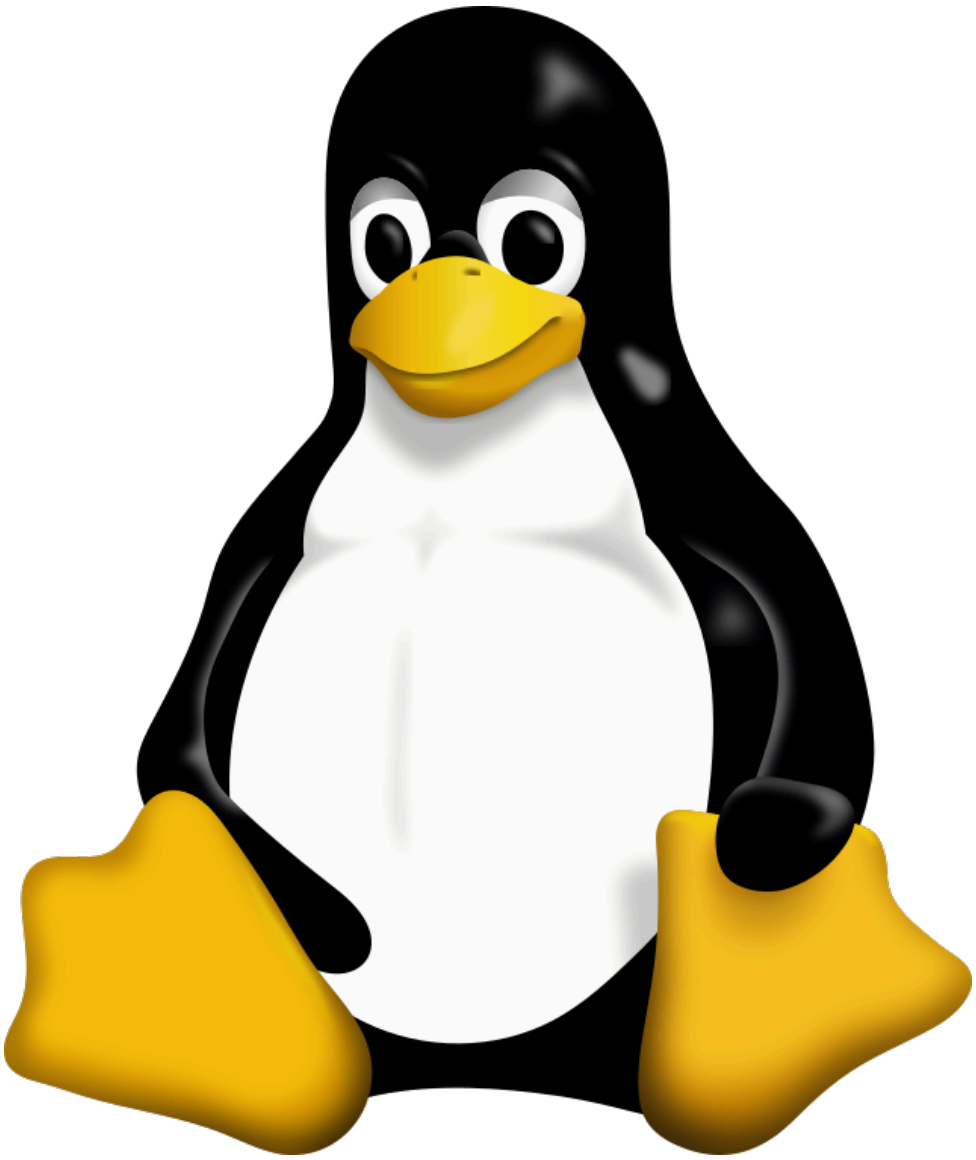
SOM-IMX8MP-TII
YOCTO-L6.12.3 User Manual



Version: 0.1
2025-06-18

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Revision History

Version	Date	Description
0.1	2025-06-18	Initial Release

Contents

1. Product Overview

2. Introduction

3. Resource

MEMORY DEVICE	DISCRIPTION
LPDDR4	Capacity: 4GB
eMMC	Capacity: 32GB

4. Yocto L6.12.3

4.1 SETUP

Setup Yocto environment according to https://github.com/nxp-imx/imx-manifest, branch: ***imx-linux-styhead***.

4.2 U-BOOT PATCH

- Fix LPDDR4 Capacity

root@Ubuntu24:~# vi tmp/work/imx8mp_lpddr4_evk-poky-linux/u-boot-imx/2024.04/git/include/configs/imx8mp_evk.h

```
@@ -172,7 +172,7 @@
 #ifdef CONFIG_TARGET_IMX8MP_DDR4_EVK
 #define PHYS_SDRAM_2_SIZE               0x40000000      /* 1 GB */
 #else
-#define PHYS_SDRAM_2_SIZE               0xC0000000      /* 3 GB */
+#define PHYS_SDRAM_2_SIZE               0x40000000      /* 1 GB */
 #endif
```

4.3 LINUX PATH

- Create a new file:

root@Ubuntu24:~# vi ../sources/meta-imx/meta-imx-bsp/recipes-kernel/linux/linux-imx_6.12.bbappend

```
FILESEXTRAPATHS:prepend := "${THISDIR}/patches:"
SRC_URI += "file://#blue-text-inbox()[linux-imx-6.12.3-emtop-20250616.patch]"
COMPATIBLE_MACHINE = "imx-nxp-bsp"

KERNEL_DEVICETREE = "\
        freescale/imx8mp-evk.dtb \
        freescale/imx8mp-emtop-tii.dtb"
```

- Create a new directory ***sources/meta-imx/meta-imx-bsp/recipes-kernel/linux/patches***
- Put the patch file ***Source/yocto-patch/linux-imx-6.12.3-emtop-20250616.patch*** under the above path.

4.4 Rebuild imx-image-full

Note

- Please rename ***imx8mp-emtop-tii.dtb*** to ***imx8mp-evk.dtb*** in the target image FAT partition. So the bootloader can load it. Or user should modify u-boot environment variable `fdtfile=imx8mp-emtop-tii.dtb`.

Of course, we already make some necessary changes and generate a complete image: ***Image/SOM-IMX8MP-TII-YOCTO-L6.12.3-REV01.img.xz***. Extract .img from it, and write SD card with Win32diskimager.exe.

Please refer to the file ***ChangeLog.txt*** under FAT partition of it for specific information.

5. STANDALONE BUILD

5.1 BUILD KERNEL

- Install Cross-Compiler

Download from https://releases.linaro.org/components/toolchain/binaries/7.5-2019.12/aarch64-linux-gnu/gcc-linaro-7.5.0-2019.12-x86_64_aarch64-linux-gnu.tar.xz. And unzip it to ***/opt/bin/arm***.

- Get linux-imx-6.12.3 source code from EMTOP Tech, or from github.com.

```
root@Ubuntu24:~# tar -xvf <YOUR_PATH>/linux-imx-6.12.3-git-xxxxxx.tar.xz
```

```
root@Ubuntu24:~# cd linux-imx-6.12.3
```

Restore the source code:

```
root@Ubuntu24:~# git checkout .
```

- Build Kernel

```
root@Ubuntu24:~# ./make.sh imx8mp-tii modules
```

After successfully complete, the target files will be generated under ***/dev/shm/***.

TARGET FILE	SYSTEM UPDATE
imx8mp-emtop-tii.dtb	Copy to SD/eMMC <FAT PARTITION>
Image	Copy to SD/eMMC <FAT PARTITION>
lib/modules/6.12.3	Copy to SD/eMMC <EXT4 PARTITION>/usr/lib/modules/6.12.3

6. Test and Demonstration

This section will run some tests on the peripheral devices.

POWER: **DC 12V-2A**

Debug Port: **UART2, 115200 1N8**

6.1 RTC

There is a RTC chip RX-8025T on the base board, but the integrated RTC is still enabled by default. So there are 2 RTC devices accessible under system.

```
root@arm:~# cat /sys/class/rtc/rtc0/name

rtc-ds1307 2-0032
```

```
root@arm:~# cat /sys/class/rtc/rtc1/name

snvs_rtc 30370000.snvs:snvs-rtc-lp
```

That means the ***rtc0*** is rtc-ds1307 [RX-8025T], and ***rtc1*** is snvs_rtc [Integrated RTC]. The command hwclock accesses ***/dev/rtc0*** as default. If you want to access ***/dev/rtc1***, please append parameter: ***-f /dev/rtc1***.

6.2 UNIQUE ID

```
root@arm:~# cat /sys/devices/soc0/serial_number

46966BA4B3EBC2DF192D98007A69897E
```

6.3 CPU/SOC Temperature

CPU Temperature:

```
root@arm:~# cat /sys/devices/virtual/thermal/thermal_zone0/temp

68000
```

SOC Temperature:

```
root@arm:~# cat /sys/devices/virtual/thermal/thermal_zone1/temp

70000
```

The unit is mill degree Celsius.

6.4 UART

DEVICE NODE	HARDWARE	USAGE
/dev/ttymxc0	UART1	BLUETOOTH
/dev/ttymxc1	UART2	DEBUG PORT
/dev/ttymxc2	UART3	RS485

6.5 RS485

Connect a RS485 device, or connect 2 boards directly: A to A, B to B.

```
root@arm:~# /test/app/com -d /dev/ttymxc2 -m rs485

SEND: 1234567890
RECV: 1234567890
SEND: 1234567890
RECV: 1234567890
```

The default baud rate is ***115200***. If you want to assign another specific baud rate:

```
root@arm:~# /test/app/com -d /dev/ttymxc2 -m rs485 -b 9600
```

Please refer to the source code com.tar.xz for all supported baud rates.

6.6 CAN BUS

Connect 2 boards directly: CANH to CANH, CANL to CANL.

```
root@arm:~# ifconfig can0

can0: flags=128<NOARP>  mtu 16
        unspec 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00  txqueuelen 10  (
UNSPEC)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
        device interrupt 231
```

Configure parameters [both side]:

```
root@arm:~# ifconfig can0 down
```

```
root@arm:~# ip link set can0 type can bitrate 1000000
```

```
root@arm:~# ip link set can0 type can restart-ms 100
```

```
root@arm:~# ifconfig can0 up
```

Start to listen on one board:

```
root@arm:~# candump can0 &
```

Send package on the other board:

```
root@arm:~# cansend can0 "5A1#1122334455667788"
```

For more information, please refer to project can-utils.

6.7 eMMC

```
root@arm:~# fdisk -l

Disk /dev/mmcblk2: 28.91 GiB, 31037849600 bytes, 60620800 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: 0x076c4a2a

Device         Boot  Start      End  Sectors  Size Id Type
/dev/mmcblk2p1 *     16384   186775   170392 83.2M  c W95 FAT32 (LBA)
/dev/mmcblk2p2      196608 60620799 60424192 28.8G 83 Linux


Disk /dev/mmcblk2boot0: 4 MiB, 4194304 bytes, 8192 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


Disk /dev/mmcblk2boot1: 4 MiB, 4194304 bytes, 8192 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


Disk /dev/mmcblk1: 14.84 GiB, 15931539456 bytes, 31116288 sectors
......
```

Note

- eMMC contains boot partition: ***/dev/mmcblk2boot0***, ***/dev/mmcblk2boot1***, but SD card doesn't.

6.8 SD

```
root@arm:~# fdisk -l
```

```
......
Disk /dev/mmcblk1: 14.84 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: 0x076c4a2a

Device         Boot  Start      End  Sectors   Size Id Type
/dev/mmcblk1p1 *     16384   697957   681574 332.8M  c W95 FAT32 (LBA)
/dev/mmcblk1p2      704512 19713861 19009350   9.1G 83 Linux
```

6.9 PCIe SSD

Devices already tested:

MODEL	TYPE
PM991 NVMe	SSD

root@arm:~# fdisk -l

```
......
Disk /dev/nvme0n1: 119.24 GiB, 128035676160 bytes, 250069680 sectors
Disk model: SAMSUNG MZALQ128HBHQ-000L1
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: 0x49551b37

Device         Boot Start    End Sectors  Size Id Type
/dev/nvme0n1p1       2048 264191  262144  128M  c W95 FAT32 (LBA)
```

6.10 USB HOST

root@arm:~# fdisk -l

```
......
Disk /dev/sda: 14.65 GiB, 15728640000 bytes, 30720000 sectors
Disk model: ProductCode
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: 0x0238a7de

Device     Boot Start      End  Sectors  Size Id Type
/dev/sda1  *       64 30719999 30719936 14.6G  c W95 FAT32 (LBA)
```

6.11 HDMI

Connect HDMI displayer, power up the ARM board. It can display Linux boot logo and Wayland desktop.

6.12 AUDIO WM8904

- Play Audio File

```
root@arm:~# aplay -D plughw:imx8mpwm8904 /usr/share/sounds/alsa/*.wav

Playing WAVE '/usr/share/sounds/alsa/Front_Center.wav' : Signed 16 bit Little Endian, Rate
48000 Hz, Mono
Playing WAVE '/usr/share/sounds/alsa/Front_Left.wav' : Signed 16 bit Little Endian, Rate
48000 Hz, Mono
Playing WAVE '/usr/share/sounds/alsa/Front_Right.wav' : Signed 16 bit Little Endian, Rate
48000 Hz, Mono
Playing WAVE '/usr/share/sounds/alsa/Noise.wav' : Signed 16 bit Little Endian, Rate 48000
Hz, Mono
......
```

- Record

```
root@arm:~# arecord -D plughw:imx8mpwm8904 -d 20 -c 1 -f S16_LE -t wav test.wav

Recording WAVE 'test.wav' : Signed 16 bit Little Endian, Rate 8000 Hz, Mono
```

- Playback

```
root@arm:~# aplay -D plughw:imx8mpwm8904 test.wav

Playing WAVE 'test.wav' : Signed 16 bit Little Endian, Rate 8000 Hz, Mono
```

6.13 HDMI AUDIO

```
root@arm:~# aplay -D plughw:audiohdmi /usr/share/sounds/alsa/*.wav
```

6.14 MIPI-CSI CAMERA

Devices already tested:

MODEL	CORE	RESOLUTION
ALINX AN5641	OV5640	QSXGA (2592x1944), 1080p, 1280x960, VGA (640x480)

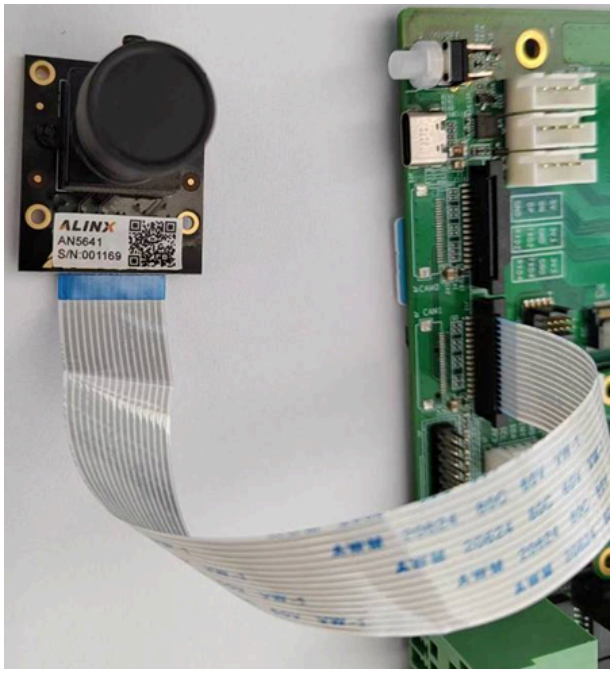

Figure 6-1: AN5641

```
root@arm:~# v4l2-ctl --list-devices
 ():
        /dev/v4l-subdev0

 ():
        /dev/v4l-subdev1

FSL Capture Media Device (platform:32c00000.bus:camera):
        /dev/media0

mxc-isi-m2m_v1 (platform:32e00000.isi:m2m_devic):
        /dev/video2

mxc-isi_v1 (platform:32e02000.isi:cap_devic):
        /dev/video4

vsi_v4l2dec (platform:vsi_v4l2dec):
        /dev/video1

vsi_v4l2enc (platform:vsi_v4l2enc):
        /dev/video0
```

Camera Test:

```
root@arm:~# gst-launch-1.0 v4l2src device=/dev/video4 ! video/x-raw,width=1920,height=1080 ! waylandsink window-width=1280 window-height=720

Setting pipeline to PAUSED ...
Pipeline is live and does not need PREROLL ...
Pipeline is PREROLLED ...
Setting pipeline to PLAYING ...
New clock: GstSystemClock
```

```
Redistribute latency...
0:00:03.0 / 99:99:99.
```

The HDMI screen will show preview image captured by the camera.

6.15 NETWORK

There are one 1Gbps network chip AR8035 on board. DHCP feature is enabled by default.

```
root@arm:~# ifconfig eth0

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.3.81  netmask 255.255.255.0  broadcast 192.168.3.255
        inet6 fe80::d834:dcff:fec4:6bef  prefixlen 64  scopeid 0x20<link>
        ether da:34:dc:c4:6b:ef  txqueuelen 1000  (Ethernet)
        RX packets 2259  bytes 143101 (139.7 KiB)
        RX errors 0  dropped 2146  overruns 0  frame 0
        TX packets 117  bytes 12681 (12.3 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
        device interrupt 221
```

The wired network interface eth0 is managed by connman tool.

Note

- The MAC address is random. If user want to configure a static MAC address, please append a u-boot command ***setenv eth1addr 8a:5b:fb:a9:ba:86*** to set the environment variable.

6.16 WIFI AW-CM358SM

Update printk message level, otherwise the UART debug port will print nothing.

```
root@arm:~# dmesg -n 8
```

Load the WiFi driver manually:

```
root@arm:~# modprobe moal sta_name=wlan uap_name=wlan wfd_name=p2p max_vir_bss=1 cfg80211_wext=0xf cal_data_cfg=none fw_name=nxp/sduart8987_combo.bin

[   38.076107] mlan: loading out-of-tree module taints kernel.
[   38.162571] wlan: Loading MWLAN driver
[   38.167329] wlan: Register to Bus Driver...
[   38.171764] vendor=0x02DF device=0x9149 class=0 function=1
[   38.177435] Attach moal handle ops, card interface type: 0x105
[   38.183340] rps set to 0 from module param
[   38.187472] No module param cfg file specified
[   38.191984] SDIO: max_segs=128 max_seg_size=65535
[   38.196732] rx_work=1 cpu_num=4
[   38.199955] Enable moal_recv_amsdu_packet
[   38.204066] Attach mlan adapter operations.card_type is 0x105.
[   38.210401] wlan: Enable TX SG mode
[   38.213900] wlan: Enable RX SG mode
[   38.219053] Request firmware: nxp/sduart8987_combo.bin
[   38.599684] Wlan: FW download over, firmwarelen=627476 downloaded 618432
```

```
[   39.471629] WLAN FW is active
[   39.474648] on_time is 39472396000
[   39.530566] VDLL image: len=9044
[   39.533909] FW country code WW does not match with US
[   39.539205] fw_cap_info=0x181d6f03, dev_cap_mask=0xffffffff
[   39.544822] max_p2p_conn = 8, max_sta_conn = 8
[   39.549646] SDIO rx aggr: 1 block_size=512
[   39.553786] wlan: Enable RX SG mode
[   39.557291] mpa_rx_buf_size=65280
[   39.582701] Register NXP 802.11 Adapter wlan0
[   39.595294] Register NXP 802.11 Adapter wlan1
[   39.603831] Register NXP 802.11 Adapter p2p0
[   39.608621] wlan: version = SD8987----16.92.21.p149.2-MM6X16505.p14-GPL-(FP92)
[   39.616942] wlan: Register to Bus Driver Done
[   39.621443] wlan: Driver loaded successfully
```

Bring up the WiFi interface:

```
root@arm:~# ifconfig wlan0 up
```

Scan remote AP:

```
root@arm:~# iw dev wlan0 scan | grep SSID

[  516.880447] wlan: wlan0 START SCAN
[  521.869466] wlan: SCAN COMPLETED: scanned AP count=5
        SSID: CMCC-5Et2-5G
        SSID: EMTOP
        ......
```

Terminate the wpa_supplicant program already run in background:

```
root@arm:~# systemctl stop wpa_supplicant
```

Connect AP `EMTOP`:

```
root@arm:~# wpa_passphrase EMTOP 12345678 >> /etc/wpa_supplicant.conf
```

```
root@arm:~# wpa_supplicant -B -iwlan0 -c/etc/wpa_supplicant.conf

Successfully initialized wpa_supplicant
nl80211: kernel reports: multicast RX registrations are not supported
rfkill: Cannot open RFKILL control device
```

```
root@arm:~# udhcpc -i wlan0

udhcpc: started, v1.36.1
Dropped protocol specifier '.udhcpc' from 'wlan0.udhcpc'. Using 'wlan0' (ifindex
=4).
udhcpc: broadcasting discover
udhcpc: broadcasting discover
```

```
udhcpc: broadcasting select for 192.168.210.236, server 192.168.210.66
udhcpc: lease of 192.168.210.236 obtained from 192.168.210.66, lease time 3599
/etc/udhcpc.d/50default: Adding DNS 192.168.210.66
Dropped protocol specifier '.udhcpc' from 'wlan0.udhcpc'. Using 'wlan0' (ifindex=4).
```

Attention! the ***udhcpc*** will keep the DNS information in ***/etc/resolv-conf.systemd***, but the ***/etc/resolv.conf*** points to ***/etc/resolv-conf.connman***, so we need to copy the DNS info:

```
root@arm:~# cat /etc/resolv-conf.systemd > /etc/resolv.conf
```

Ping test:

```
root@arm:~# ping -I wlan0 www.baidu.com

PING www.baidu.com (2409:8c54:870:310:0:ff:b0ed:40ac) 56 data bytes
64 bytes from 2409:8c54:870:310:0:ff:b0ed:40ac: icmp_seq=1 ttl=51 time=200 ms
64 bytes from 2409:8c54:870:310:0:ff:b0ed:40ac: icmp_seq=2 ttl=51 time=47.8 ms
64 bytes from 2409:8c54:870:310:0:ff:b0ed:40ac: icmp_seq=4 ttl=51 time=470 ms
64 bytes from 2409:8c54:870:310:0:ff:b0ed:40ac: icmp_seq=5 ttl=51 time=264 ms
64 bytes from 2409:8c54:870:310:0:ff:b0ed:40ac: icmp_seq=6 ttl=51 time=290 ms
......
```

6.17 BLUETOOTH AW-CM358SM

Note

- The WiFi driver ***moal*** must be loaded before operating bluetooth, otherwise it will report error: `Bluetooth: hci0: Frame reassembly failed (-84)`.

```
root@arm:~# hciattach /dev/ttymxc0 any 115200 flow

Device setup complete
```

```
root@arm:~# hciconfig -a

hci0:   Type: Primary  Bus: UART
        BD Address: 14:13:33:3E:49:0A  ACL MTU: 1016:5  SCO MTU: 60:12
        UP RUNNING
        RX bytes:819 acl:0 sco:0 events:55 errors:0
        TX bytes:2984 acl:0 sco:0 commands:55 errors:0
        Features: 0xff 0xfe 0x8f 0xfe 0xdb 0xff 0x7b 0x87
        Packet type: DM1 DM3 DM5 DH1 DH3 DH5 HV1 HV2 HV3
        Link policy: RSWITCH HOLD SNIFF
        Link mode: PERIPHERAL ACCEPT
        Name: 'imx8mp-lpddr4-evk'
        Class: 0x200000
        Service Classes: Audio
        Device Class: Miscellaneous,
        HCI Version: 5.4 (0xd)  Revision: 0x8300
        LMP Version: 5.4 (0xd)  Subversion: 0x1095
        Manufacturer: Marvell Technology Group Ltd. (72)
```

```
root@arm:~# bluetoothctl
```

```
Agent registered
[bluetooth]# power on
Changing power on succeeded
[bluetooth]# scan on
Discovery started
[CHG] Controller D0:C5:D3:F9:60:06 Discovering: yes
[NEW] Device 78:C5:28:67:88:03 78-C5-28-67-88-03
[NEW] Device 7B:A2:1E:1D:15:60 7B-A2-1E-1D-15-60
.. ..
[bluetooth]# scan off
```

Please search ***bluetoothctl*** usage on web for more information.

6.18 WAYLAND GPU

```
root@arm:~# glmark2-es2-wayland --run-foreve

=======================================================
    glmark2 2023.01
=======================================================
    OpenGL Information
    GL_VENDOR:      Vivante Corporation
    GL_RENDERER:    Vivante GC7000UL
    GL_VERSION:     OpenGL ES 3.1 V6.4.11.p3.1049711
    Surface Config: buf=32 r=8 g=8 b=8 a=8 depth=24 stencil=0 samples=0
    Surface Size:   800x600 windowed
=======================================================
[build] use-vbo=false: FPS: 882 FrameTime: 1.134 ms
[build] use-vbo=true: FPS: 1623 FrameTime: 0.616 ms
[texture] texture-filter=nearest: FPS: 1520 FrameTime: 0.658 ms
[texture] texture-filter=linear: FPS: 1490 FrameTime: 0.671 ms
[texture] texture-filter=mipmap: FPS: 1463 FrameTime: 0.684 ms
......
```

Figure 6-2: glmark2-es2-wayland

Note

- It's recommended to install heat sink or cooler to avoid overheat warning: System is too hot. GPU3D will work at 1/64 clock.

6.19 SUSPEND and RESUME

Update printk message level, otherwise the UART debug port will print nothing.

```
root@arm:~# dmesg -n 8
```

Suspend to ram:

```
root@arm:~# echo mem > /sys/power/state

[  412.495561] PM: suspend entry (deep)
[  412.499622] Filesystems sync: 0.000 seconds
[  412.504665] Freezing user space processes
[  412.510219] Freezing user space processes completed (elapsed 0.001 seconds)
[  412.517251] OOM killer disabled.
[  412.520494] Freezing remaining freezable tasks
[  412.526218] Freezing remaining freezable tasks completed (elapsed 0.001 seconds)
[  412.533645] printk: Suspending console(s) (use no_console_suspend to debug)
[Click the ON/OFF KEY on the base board…]
[  412.604719] imx-dwmac 30bf0000.ethernet eth0: Link is Down
[  412.607933] PM: suspend devices took 0.064 seconds
[  412.617509] Disabling non-boot CPUs ...
[  412.619363] psci: CPU3 killed (polled 4 ms)
[  412.621539] psci: CPU2 killed (polled 0 ms)
[  412.623308] psci: CPU1 killed (polled 4 ms)
[  412.623701] Enabling non-boot CPUs ...
[  412.624143] Detected VIPT I-cache on CPU1
[  412.624177] GICv3: CPU1: found redistributor 1 region 0:0x00000000388a0000
[  412.624211] CPU1: Booted secondary processor 0x0000000001 [0x410fd034]
[  412.624867] CPU1 is up
[  412.625247] Detected VIPT I-cache on CPU2
[  412.625268] GICv3: CPU2: found redistributor 2 region 0:0x00000000388c0000
[  412.625288] CPU2: Booted secondary processor 0x0000000002 [0x410fd034]
[  412.625811] CPU2 is up
[  412.626191] Detected VIPT I-cache on CPU3
[  412.626213] GICv3: CPU3: found redistributor 3 region 0:0x00000000388e0000
[  412.626233] CPU3: Booted secondary processor 0x0000000003 [0x410fd034]
[  412.626833] CPU3 is up
[  413.795547] imx6q-pcie 33800000.pcie: Phy link never came up
[  414.755569] imx6q-pcie 33800000.pcie: Phy link never came up
[  414.755577] imx6q-pcie 33800000.pcie: PM: dpm_run_callback(): genpd_resume_noirq returns
-110
[  414.755598] imx6q-pcie 33800000.pcie: PM: failed to resume noirq: error -110
[  414.760399] imx-dwmac 30bf0000.ethernet eth0: configuring for phy/rgmii-id link mode
[  414.771136] imx-dwmac 30bf0000.ethernet eth0: No Safety Features support found
[  414.771162] imx-dwmac 30bf0000.ethernet eth0: IEEE 1588-2008 Advanced Timestamp supported
[  414.772720] xhci-hcd xhci-hcd.1.auto: xHC error in resume, USBSTS 0x411, Reinit
[  414.772732] usb usb1: root hub lost power or was reset
[  414.772738] usb usb2: root hub lost power or was reset
[  414.772743] xhci-hcd xhci-hcd.2.auto: xHC error in resume, USBSTS 0x401, Reinit
```

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[  414.772751] usb usb3: root hub lost power or was reset
[  414.772756] usb usb4: root hub lost power or was reset
[  414.773895] caam 30900000.crypto: registering rng-caam
[  415.048314] usb 1-1: reset high-speed USB device number 2 using xhci-hcd
[  415.190076] PM: resume devices took 0.432 seconds
[  415.383724] OOM killer enabled.
[  415.386865] Restarting tasks ... done.
[  415.391160] random: crng reseeded on system resumption
[  415.396447] PM: suspend exit
```