RZG2L-OSM_yocto 用户使用手册

V1.0

内容

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REVISION HISTORY

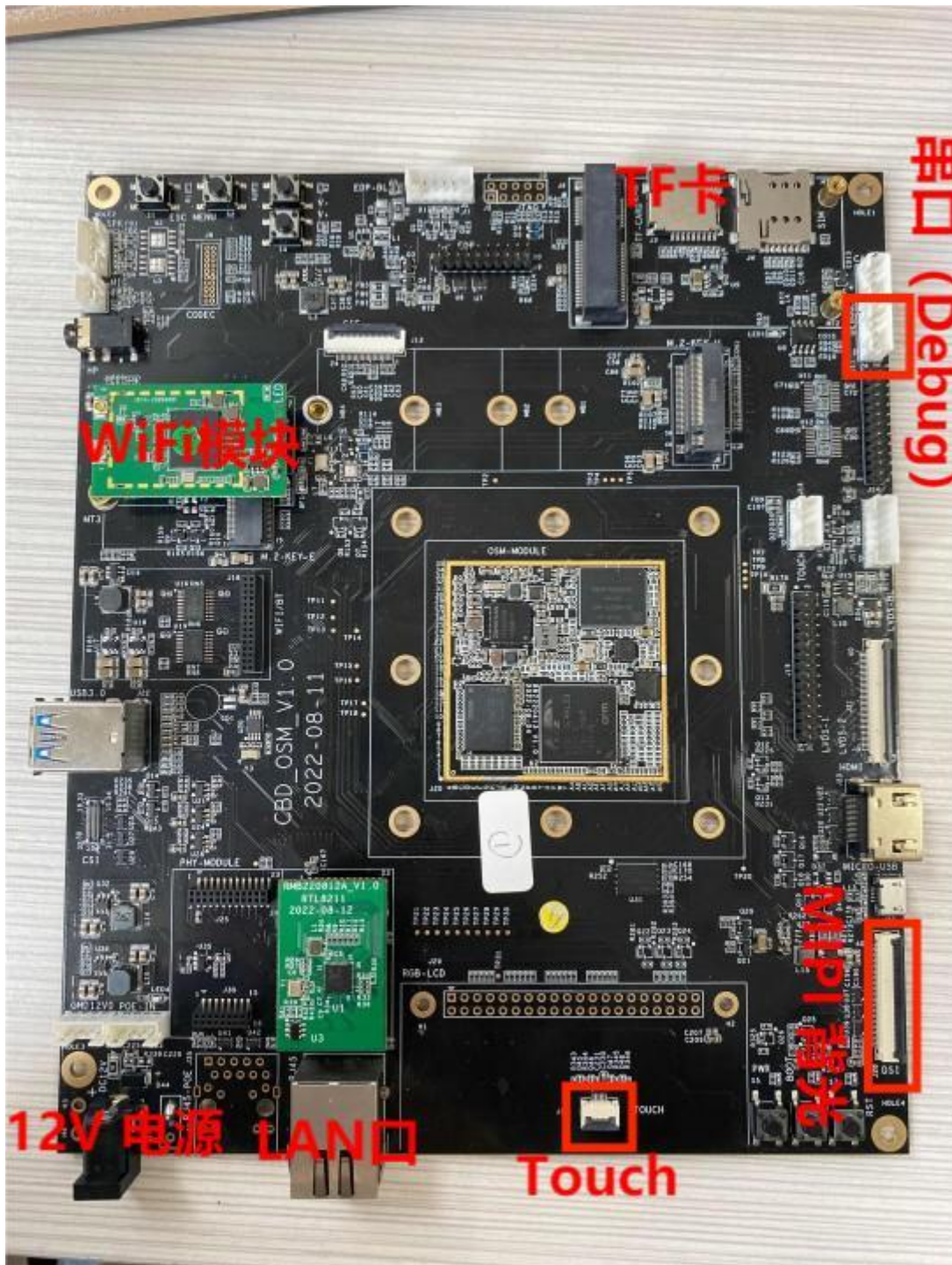| 时间	版本号	更改原因	修改人员	备注
2022/11/03	1.0	创建文档	wj	

1. RZG2L-OSM 操作系统

RZG2L-OSM 目前支持的系统为 Linux

2. Linux 系统安装

安装步骤请见<RZG2L-OSM_yocto>烧录说明文档>

3. 功能描述

3.1 硬件接口示意图

3.1.1 测试准备：

（1）串口线*1，连接到串口（J11），打开串口调试软件选择 COM 口与波特率 115200

（2）上电启动完成后，输入 root 登录

3.2 WIFI 连接

3.2.1 测试准备：两根 WiFi 天线，按图示连接
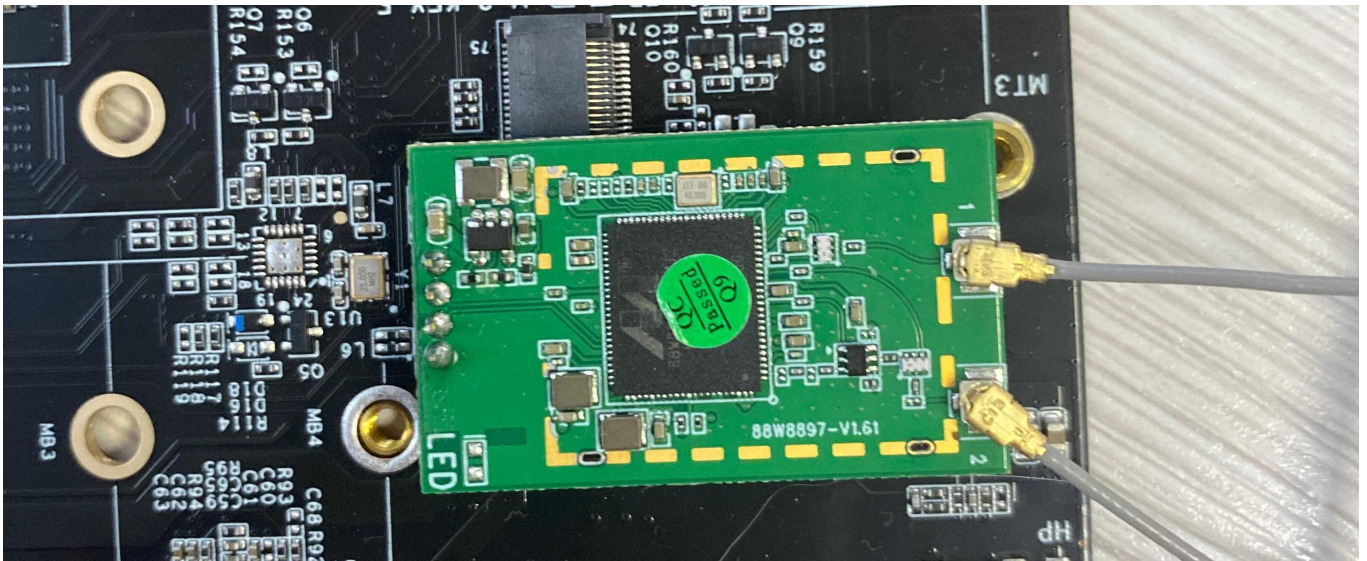
3.2.2 连接环境中不加密 WiFi，输入以下命令

（1）ifconfig mlan0 up 将 WiFi 节点打开，再输入 ifconfig 查看节点是否打开

```
root@smarc-rzg2l:~# ifconfig mlan0 up
root@smarc-rzg2l:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 06:29:3D:2F:EA:71
          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)
          Interrupt:107 DMA chan:ff

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: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)

mlan0     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 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
```

（2）vi /etc/wpa_supplicant.conf 进入后按 i 进入编辑模式，改成以下配置
network={

　　　　ssid="TP-LINK_5G_20EE"（此处设置为环境中的 WiFi 名称）

　　key_mgmt=NONE

}

```
COM6:115200baud - Tera Term VT
File  Edit  Setup  Control  Window  Help
ctrl_interface=/var/run/wpa_supplicant
ctrl_interface_group=0
update_config=1

network={
        ssid="TP-LINK_5G_20EE"
        key_mgmt=NONE
}
~
~
```

（3）编辑完成后，按 esc 键，然后输入:wq 并回车保存配置

（4）输入 wpa_supplicant -B -c /etc/wpa_supplicant.conf -imlan0 -Dnl80211,wext 指令

```
root@smarc-rzg2l:~# wpa_supplicant -B -c /etc/wpa_supplicant.conf -imlan0 -Dnl80211,wext
Successfully initialized wpa_supplicant
nl80211: Driver does not support authentication/association or connect commands
nl80211: deinit ifname=mlan0 disabled_11b_rates=0
rfkill: Cannot get wiphy information
[  987.113787] wlan: SCAN COMPLETED: scanned AP count=0
ioctl[SIOCSIWESSID]: Bad address
root@smarc-rzg2l:~# [  994.682317] wlan: SCAN COMPLETED: scanned AP count=25
```

（5）再输入 udhcpc -i mlan0 指令进行拨号

```
root@smarc-rzg2l:~# udhcpc -i mlan0
udhcpc: started, v1.31.1
udhcpc: sending discover
udhcpc: sending select for 192.168.3.154
udhcpc: lease of 192.168.3.154 obtained, lease time 86400
/etc/udhcpc.d/50default: Adding DNS 192.168.3.1
```

（6）输入 ifconfig 查看 mlan0 是否获取到 IP，有 IP 即连接成功

```
root@smarc-rzg2l:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 06:29:3D:2F:EA:71
          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)
          Interrupt:107 DMA chan:ff

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: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)

mlan0     Link encap:Ethernet  HWaddr 00:50:43:02:FE:01
          inet addr:192.168.3.154  Bcast:192.168.3.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:110 errors:0 dropped:30 overruns:0 frame:0
          TX packets:11 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:10534 (10.2 KiB)  TX bytes:1632 (1.5 KiB)
```

3.2.3 连接环境中加密 WiFi

（1）ifconfig mlan0 up 输入该命令打开 WiFi 节点
（2）vi /etc/wpa_supplicant.conf 进入配置，按 i 键进入编辑模式。设置如下
network={
        ssid="111" （环境中加密 WiFi 名称）
        key_mgmt=WPA-PSK
        psk="12345678" （WiFi 密码）
}

```
File  Edit  Setup  Control  Window  Help
ctrl_interface=/var/run/wpa_supplicant
ctrl_interface_group=0
update_config=1

network={
        ssid="111"
        key_mgmt=WPA-PSK
        psk="12345678"
}
~
~
```

（3）按 esc 键退出编辑，输入:wq 并回车保存

（4）输入 wpa_supplicant -B -c /etc/wpa_supplicant.conf -imlan0 -Dnl80211,wext 指令

```
root@smarc-rzg2l:~# wpa_supplicant -B -c /etc/wpa_supplicant.conf -imlan0 -Dnl80211,wext
Successfully initialized wpa_supplicant
nl80211: Driver does not support authentication/association or connect commands
nl80211: deinit ifname=mlan0 disabled_11b_rates=0
rfkill: Cannot get wiphy information
[   61.855951] wlan: SCAN COMPLETED: scanned AP count=0
ioctl[SIOCSIWESSID]: Bad address
root@smarc-rzg2l:~# [   69.427259] wlan: SCAN COMPLETED: scanned AP count=26
```

（5）再输入 udhcpc -i mlan0 指令进行拨号

```
root@smarc-rzg2l:~# udhcpc -i mlan0
udhcpc: started, v1.31.1
udhcpc: sending discover
udhcpc: sending select for 172.20.10.2
udhcpc: lease of 172.20.10.2 obtained, lease time 86400
/etc/udhcpc.d/50default: Adding DNS 172.20.10.1
```

（6）输入 ifconfig 查看 mlan0 是否获取到 IP，有 IP 即连接成功

```
root@smarc-rzg2l:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 06:29:3D:2F:EA:71
          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)
          Interrupt:107 DMA chan:ff

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: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)

mlan0     Link encap:Ethernet  HWaddr 00:50:43:02:FE:01
          inet addr:172.20.10.2  Bcast:172.20.10.15  Mask:255.255.255.240
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:4 errors:0 dropped:0 overruns:0 frame:0
          TX packets:12 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:918 (918.0 B)  TX bytes:1826 (1.7 KiB)
```

3.3 Ethernet

3.2.1 测试工具准备：网线*1

（1）板子上电，将网线接入网口

（2）系统启动完成后等待 5 秒左右输入 ifconfig，查看 eth0 节点是否有 IP

```
root@smarc-rzg2l:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 06:29:3D:2F:EA:71
          inet addr:192.168.6.104  Bcast:192.168.6.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:29 errors:0 dropped:3 overruns:0 frame:0
          TX packets:20 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:7222 (7.0 KiB)  TX bytes:2257 (2.2 KiB)
          Interrupt:107 DMA chan:ff

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:1 errors:0 dropped:0 overruns:0 frame:0
          TX packets:1 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:90 (90.0 B)  TX bytes:90 (90.0 B)

wlan0     Link encap:Ethernet  HWaddr 00:50:43:02:FE:01
          inet addr:192.168.3.154  Bcast:192.168.3.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:159 errors:0 dropped:41 overruns:0 frame:0
          TX packets:13 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:18950 (18.5 KiB)  TX bytes:1716 (1.6 KiB)
```

（3）获取 IP 代表连接成功

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3.4 TF 卡（备注：插入 TF 卡时系统无法启动，需要启动完成后插入）

3.4.1 测试工具准备：TF 卡一张

（1）将 TF 卡插入（支持热插拔）卡槽中
（2）fdisk -l 查看分区

```
root@smarc-rzg2l:~# fdisk -l
Disk /dev/mtdblock0: 512 KiB, 524288 bytes, 1024 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: 0xffffffff

Device          Boot      Start        End   Sectors Size Id Type
/dev/mtdblock0p1      4294967295 8589934589 4294967295   2T ff BBT
/dev/mtdblock0p2      4294967295 8589934589 4294967295   2T ff BBT
/dev/mtdblock0p3      4294967295 8589934589 4294967295   2T ff BBT
/dev/mtdblock0p4      4294967295 8589934589 4294967295   2T ff BBT

Disk /dev/mtdblock1: 256 KiB, 262144 bytes, 512 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/mtdblock2: 256 KiB, 262144 bytes, 512 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/mtdblock3: 8 MiB, 8388608 bytes, 16384 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/mmcblk0: 14.69 GiB, 15758000128 bytes, 30777344 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: 14.57 GiB, 15634268160 bytes, 30535680 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: 0x5f0ae3db

Device          Boot Start      End  Sectors  Size Id Type
/dev/mmcblk1p1       8192 30535679 30527488 14.6G  c W95 FAT32 (LBA)
```
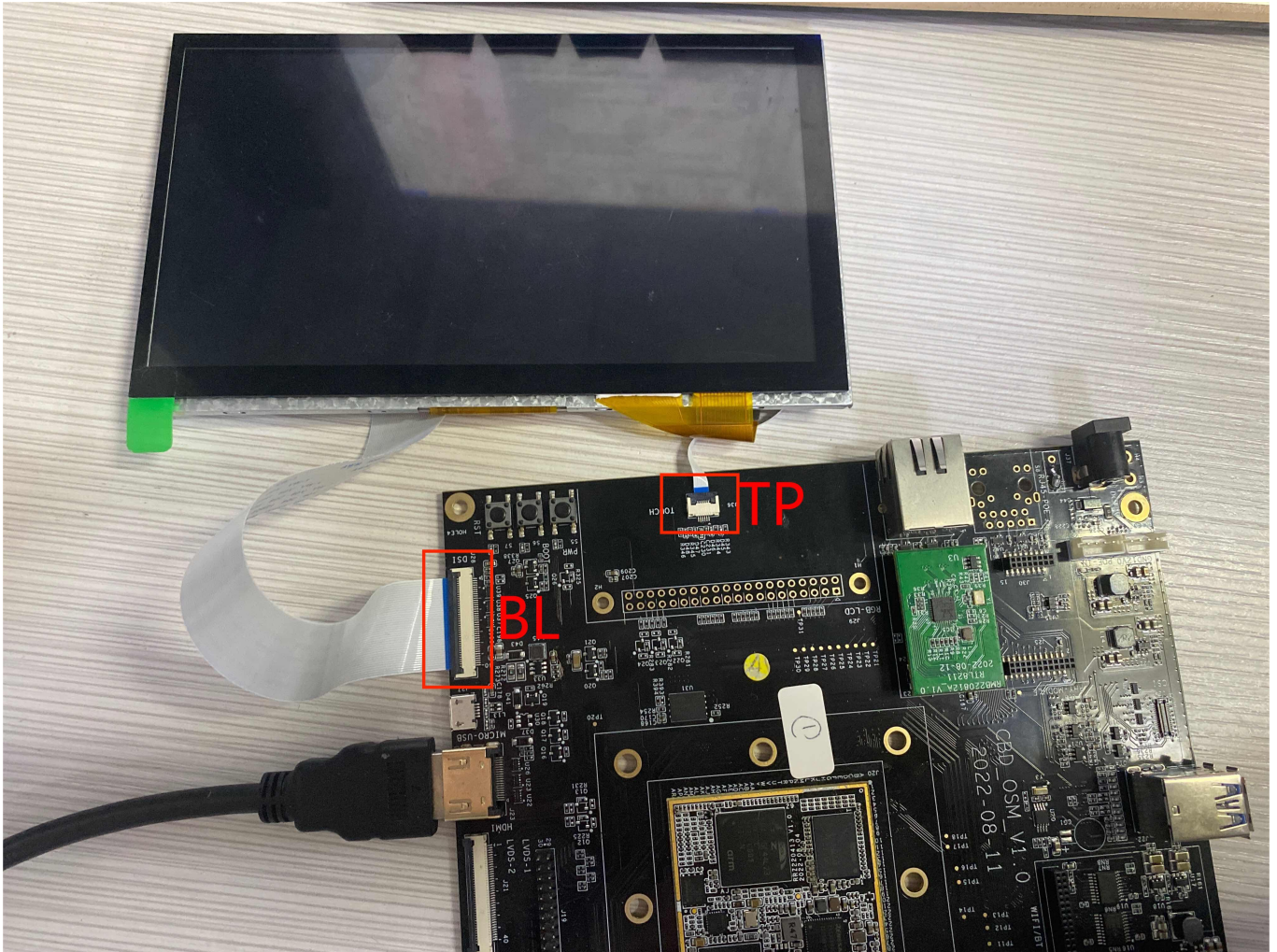
（3）mount /dev/mmcblk1p1 /media 手动挂载
（4）df -h 查看

```
root@smarc-rzg2l:~# df -h
Filesystem          Size  Used Avail Use% Mounted on
/dev/root           1.3G  894M  286M  76% /
devtmpfs            743M     0  743M   0% /dev
tmpfs               936M     0  936M   0% /dev/shm
tmpfs               936M  9.7M  926M   2% /run
tmpfs               936M     0  936M   0% /sys/fs/cgroup
tmpfs               936M     0  936M   0% /tmp
tmpfs               936M   24K  936M   1% /var/volatile
tmpfs               188M     0  188M   0% /run/user/0
/dev/mmcblk1p1       15G  128K   15G   1% /media
```
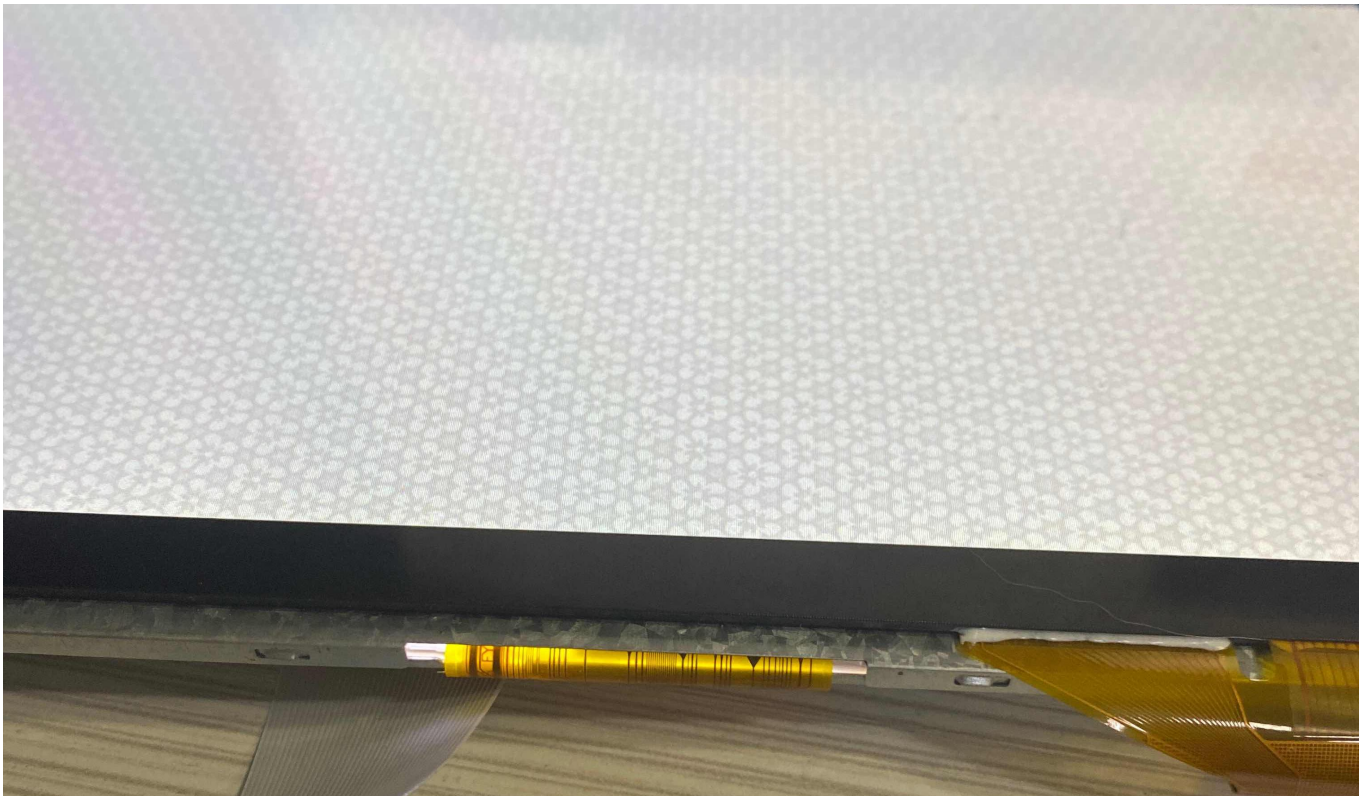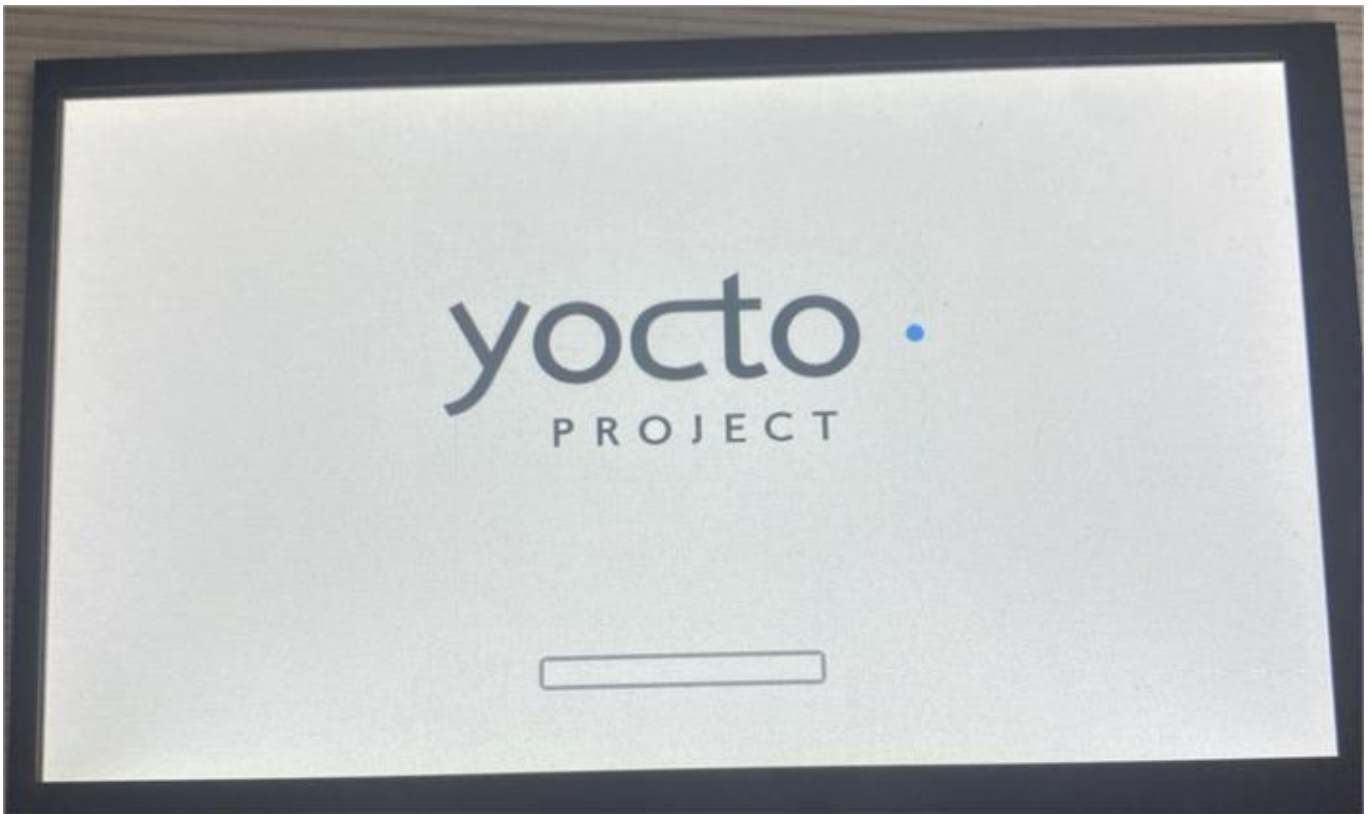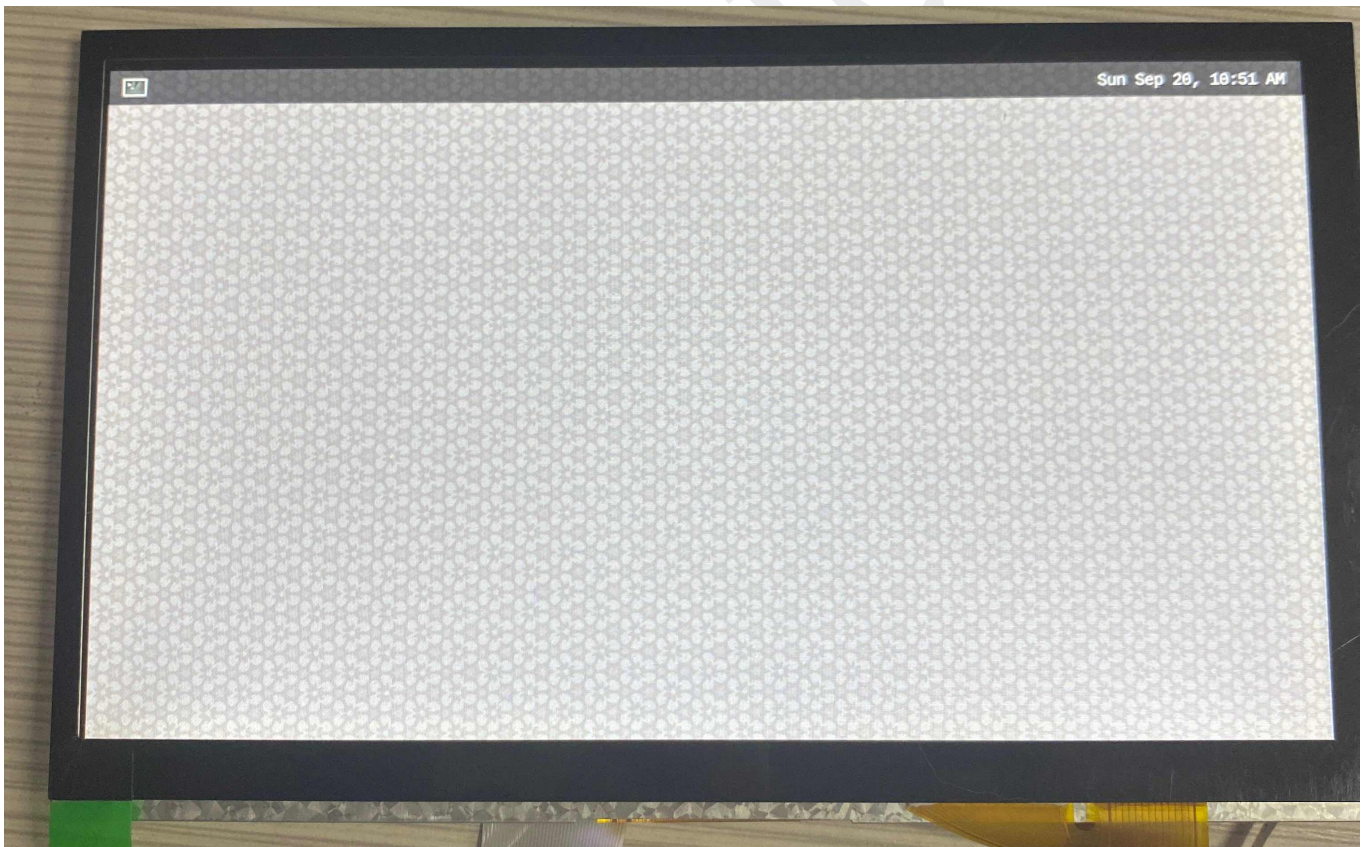
3.5 MIPI 屏 & Touch

（1）按照图示接好 MIPI 屏

（2）上电启动，观察是否有背光

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（3）开机界面如下

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（4）桌面

（5）TP 测试：用手指触屏点击软件，例如左上角的终端软件，可以点击打开即为正常

终端软件