



MEDIATEK

Audio Test User Manual

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1 Overview

Audio information is very important on MediaTek platform. If you want to test MediaTek Audio driver only. The main information will be introduced as follows:

- Use Alsa standard interface to open audio hw.
- Use different node to playback.
- Use different command to capture audio data from TDMIN/DMIC/LINEIN.

1.1 Alsa Architecture Overview

This section describes the standard Architecture of Audio system.

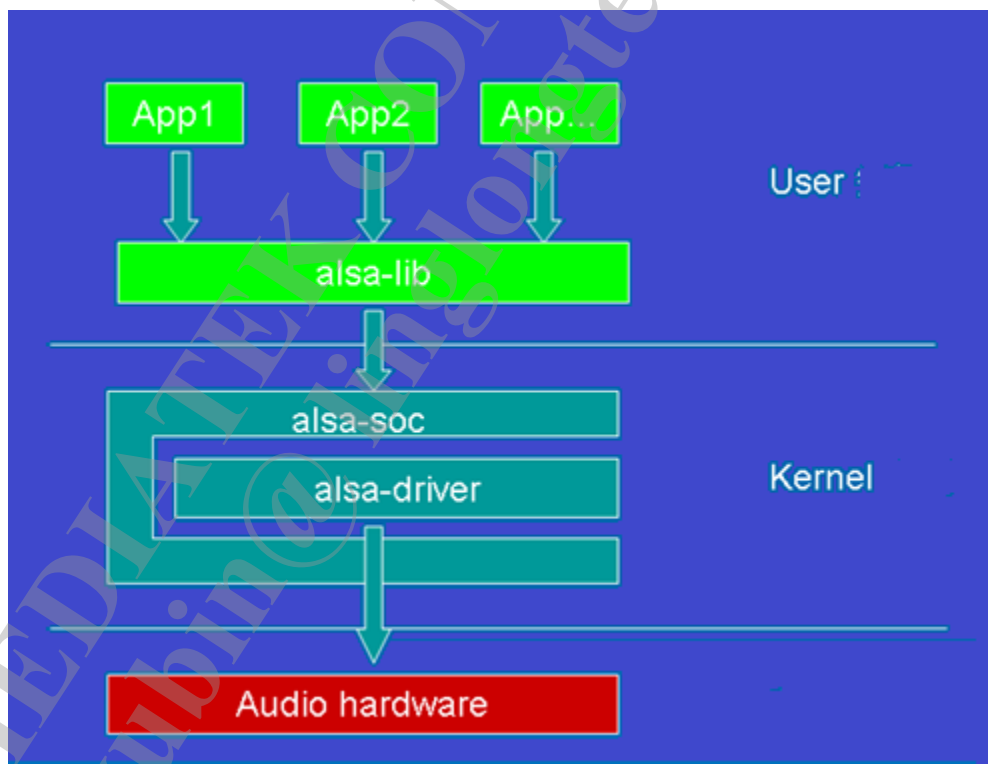


Figure 1-1. System Architecture.

In Figure 1-1, ALSA Architecture is composed of 4 parts:

- **Application:** It is developed by Mediatek, if the function you want to use is exist in it ,you can use it freely.
- **Alsa-lib:** Alsa standard interface provided to Application level.
- **Alsa-soc:** It is used to package Alsa-driver ,to make Application calls driver more simple.
- **Alsa-driver:** Describe the common code of GPU and BUS .
- **Audio-hardware:** Mediatek Audio driver.

1.2 Alsa Devices Overview

This section introduces the basic information of alsa interface as *Figure 1-2*.

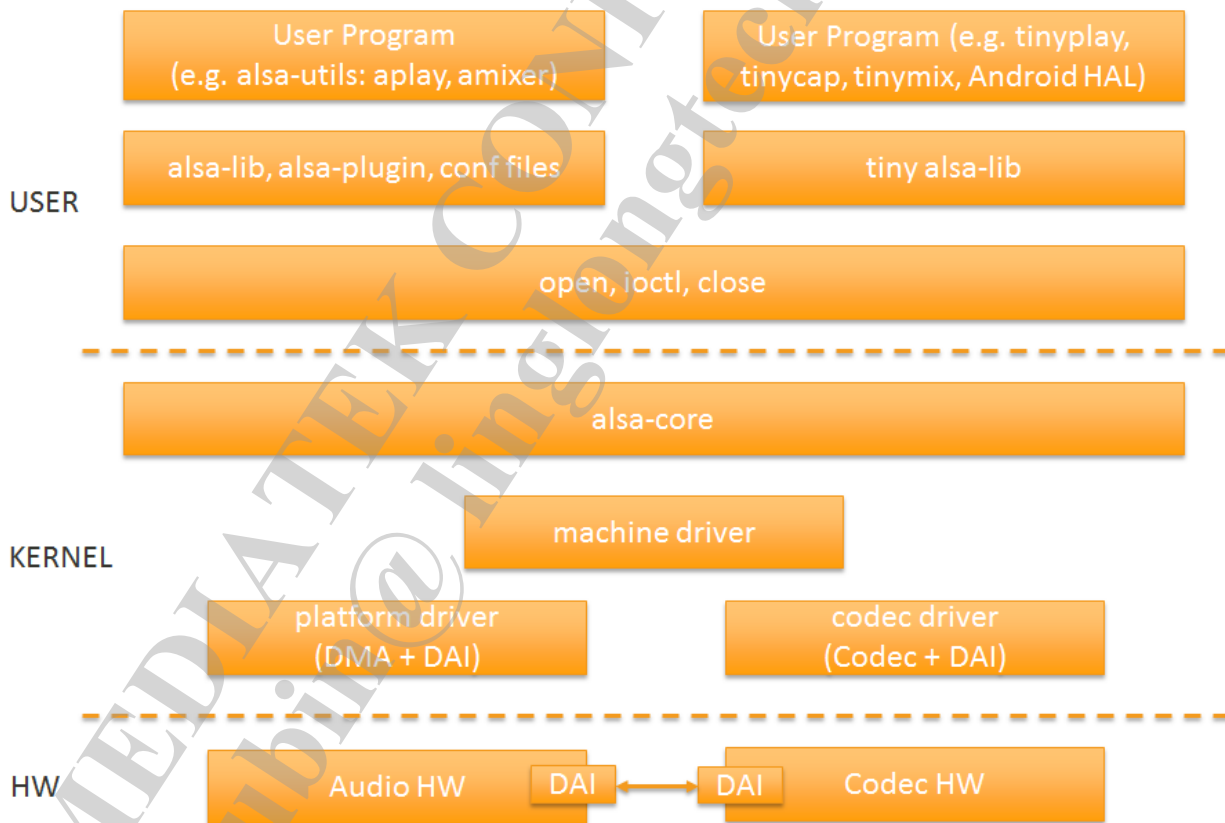


Figure 1-2. ALSA Architecture.

2 Test method

2.1 TDM-in Test method

Tdm in is to capture multi-ch audio data from the Tdm mic. If you want to record audio, please use the commands as below:

- **Boot up:** Boot up your platform.
- **Open cmd window:** Open your dos cmd window in your pc to input adb shell.
- **Capture Audio data:** Capture audio data from tdmi mic.
 - `aplay -C -D hw:0,1 -r 48000 -c 8 -f S32_LE -d 30 --period-size=1024 --buffer-size=8192 /data/48k_8ch_32bit.wav . // 48000 is sample rate , -d 30 30 is capture time, /data/48k_8ch_32bit.wav is the data path you record, other value you can not change.`
 - Say something to microphone for 30s or long time.
 - `adb cmd "adb pull /data/48k_8ch_32bit.wav D:\"`
 - Use Audio tool "audition/cool editor" open file and check the audio wave.

2.2 DMic-in Test method

Dmic is to capture 2-ch audio data from the Dmic. If you want to record audio, please use the commands as below:

- **Boot up:** Boot up your platform.
- **Open cmd window:** Open your dos cmd window in your pc to input adb shell.
- **Capture Audio data:** Capture audio data from Dmic.

- amixer cset name='Left PGA Mux' 2
- amixer cset name='Right PGA Mux' 2
- amixer cset name='O09 I03 Switch' on
- amixer cset name='O10 I04 Switch' on
- amixer cset name='AIN Mux' 0
- amixer cset name='AIF TX Mux' 1
- aplay -C -D hw:0,2 -r [8000, 16000, 32000] -c 2 -f S16_LE -d 30 /data/8k_2ch_16bit.wav. // 48000 is sample rate , -d 30 30 is capture time, /data/48k_8ch_32bit.wav is the data path you record, other value you can not change.
- Say something to microphone for 30s or long time.
- adb cmd "adb pull /data/8k_2ch_16bit.wav D:\\"
- Use Audio tool "audition/cool editor" open file and check the audio wave.

2.3 Line-in Test method

Line in is to capture audio data from the Line in interface. If you want to record audio, please use the commands as below:

- **Boot up:** Boot up your platform.
- **Source play music:** Use pc or phone to play music ,then connect to platform line in interface.
- **Open cmd window:** Open your dos cmd window in your pc to input adb shell.
- **Capture Audio data:** Capture audio data from tdmi mic.
 - amixer cset name='O05 I00 Switch' 1
 - amixer cset name='O06 I01 Switch' 1

- `aplay -C -D hw:0,3 -r 16000 -c 2 -f S32_LE -d 30 --period-size=1024 --buffer-size=4096 /data/16k_2ch_32bit.wav. // 48000 is sample rate , -d 30 30 is capture time, /data/48k_8ch_32bit.wav is the data path you record, other value you can not change.`
- `adb cmd "adb pull /data/16k_2ch_32bit.wav D:\`
- Use Audio tool "audition/cool editor" open file and check the audio wave.

2.4 Playback Test method

Playback is to play audio data from speaker. If you want to play audio data, please use the commands as below:

- **Boot up:** Boot up your platform.
- **Playback from speaker:** Playback some data from your usb or other source data use commands as below.
 - `aplay -Dhw:0,0 /data/xxx.wav`

3 Internal DAC Test Method

Internal DAC is Mediatek scheme. If you want to test Mediatek internal dac. Please follow the steps as below:

- amixer cset name='O03 I05 Switch' 1.
- amixer cset name='O04 I06 Switch' 1.
- amixer cset name= 'INT ADDA O03_O04 Switch' 1.
- amixer cset name= 'HPOUT Mux' AUDIO_AMP.
- aplay -D hw:0,6 /data/music.wav (DL1).
- amixer cset name='Audio Amp Playback Volume' 0
 - 0~7 0:-2db 7:12db every 2db gain

4 FAQ

4.1 Command not found

- Check the content on your pc dos cmd console.

```

- cat /proc/asound/pcm
  00-00: I2S8CH Playback (*) : : playback 1
  00-01: TDM_Capture (*) : : capture 1
  00-02: DMIC_Capture (*) : : capture 1
  00-03: AWB_Record (*) : : capture 1
  00-04: BTCVSD_Capture snd-soc-dummy-dai-4 : : playback 1 : capture 1
  00-05: BTCVSD_Playback snd-soc-dummy-dai-5 : : playback 1 : capture 1
  00-06: DL1_Playback (*) : : playback 1
  00-07: DL1_AWB_Record (*) : : capture 1
  DL1 Playback Device: 00-06
  DL1-AWB Loopback PCM Device : 00-07
  
```



```

ca. 管理员: C:\Windows\system32\cmd.exe - adb shell
Microsoft Windows [版本 6.1.7601]
版权所有 (c) 2009 Microsoft Corporation。保留所有权利。

C:\Users\mtk71258>adb shell
sh-3.2# cat /proc/asound/pcm
cat /proc/asound/pcm
00-00: I2S8CH Playback (*) : : playback 1
00-01: TDM_Capture (*) : : capture 1
00-02: DMIC_Capture (*) : : capture 1
00-03: AWB_Record (*) : : capture 1
00-04: BTCVSD_Capture snd-soc-dummy-dai-4 : : playback 1 : capture 1
00-05: BTCVSD_Playback snd-soc-dummy-dai-5 : : playback 1 : capture 1
00-06: DL1_Playback (*) : : playback 1
00-07: DL1_AWB_Record (*) : : capture 1
sh-3.2#
  
```

Figure 4-1. Cat pcm data.

```

- amixer controls
  
```

```

sh-3.2# amixer controls
amixer controls
numid=44,iface=MIXER,name='Master Switch'
numid=45,iface=MIXER,name='Master Switch X'
numid=42,iface=MIXER,name='Master Volume'
numid=43,iface=MIXER,name='Master Volume X'
numid=46,iface=MIXER,name='PCM State'
numid=47,iface=MIXER,name='PCM State X'
numid=78,iface=MIXER,name='PCM0 002 Switch'
numid=25,iface=MIXER,name='Lineout_PGA_GAIN'
numid=75,iface=MIXER,name='I2S 003_004 Switch'
numid=84,iface=MIXER,name='AIF DL_UL loopback Switch'
numid=81,iface=MIXER,name='AIF TX Mux'
numid=73,iface=MIXER,name='AIN Mux'
numid=86,iface=MIXER,name='AMIC Data Gen Switch'
numid=3,iface=MIXER,name='AP Loopback Select'
numid=20,iface=MIXER,name='Audio Amp Playback Volume'
numid=28,iface=MIXER,name='Audio HPL Offset'
numid=29,iface=MIXER,name='Audio HPR Offset'
numid=26,iface=MIXER,name='Audio_PGA1_Setting'
numid=27,iface=MIXER,name='Audio_PGA2_Setting'
numid=2,iface=MIXER,name='Audio_SideGen_SampleRate'
numid=1,iface=MIXER,name='Audio_SideGen_Switch'

```

Figure 4-2. Amixer Controls.

Note: when you input name information ,please pay attention the the number id ,it can be changed sometimes ,please use the string name after name = " not numid.

4.2 Audio wave tool

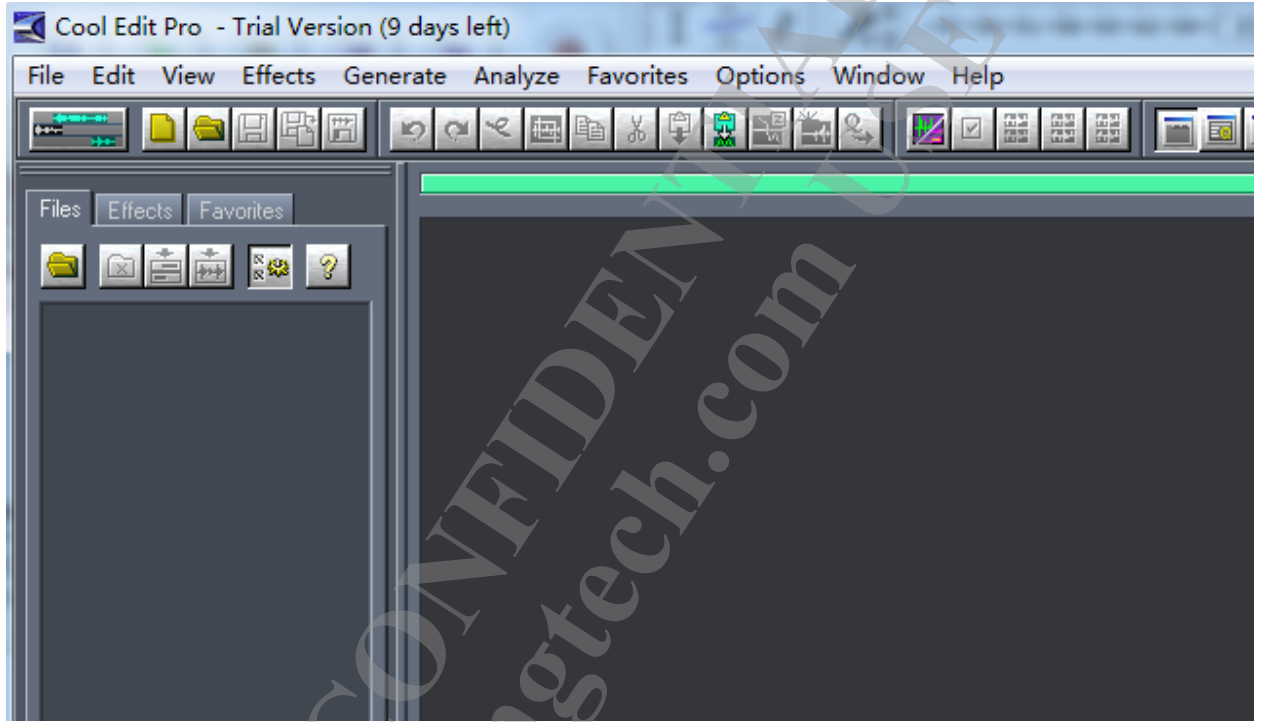


Figure 4-3. Cool Edit Pro.

