UM

ALSA Testing Application Guide-ASC884xA/5xA

Rev. 1.02 — 21 December 2012 **User manual**

Document information

Info	Content
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Revision history

Rev	Date	Description
1.0	20120117	Initial version
1.01	20121023	1. Added SSM2603 related explain 2. Modified/Added Chapter 1, 2, 3 and 4 content.
1.02	20121221	Updated for ASC884xA/5xA

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1. Introduction

This user manual describes how to use ALSA test application for testing audio codec basic function (capture, mixer and playback).

1.1 Scope

- Illustrates SSM2603 and NVP1114A audio codec
- Test environment explanation
  - Basic root file system (basic_rootfs.sqfs)
  - Kilrogg (rootfs.sqfs)
- How to check AUDIO_SEL1 Jump need to “disable”
  - Non-disable: EVM ver. b
  - Need disable: EVM ver. c and ver. d
- Package contents

1.2 Package contents

```
|-- ALSA_Lib
|-- Alsa_Test_App
|   |-- Capture
|   |-- Mixer
|   `-- playback
`-- Install
    |-- ALSA
    |-- drivers
    |   `-- i2c
    `-- lib
```

2. Setup testing environment

2.1 Used basic root file system (basic_rootfs.sqfs)

Burn boot, Kernel and basic rootfs file system to EVM.

2.2 Used Kilrogg (rootfs.sqfs)

- Burn boot, Kernel and rootfs(Kilrogg) to EVM
- Stop all process

  ```
  ~# stopallproc
  ```

- Remove audio related driver

  ```
  ~ # rmmod i2c_gpio
  ~ # rmmod i2c_algo_bit
  ~ # rmmod Audio_Codec_Driver
  ```

3. SSM2603 audio codec

3.1 Put SSM2603.ko to drivers folder

3.2 Check install.sh file content

insmod drivers/i2c/i2c-gpio.ko bus_num=2 scl0=255 sda0=255 scl1=12 sda1=13

insmod drivers/SSM2603.ko

3.3 Run the script file in /Install/

```
sh install.sh
```

3.4 Capture audio files

- In /Alsa_Test_App/Capture/

- Run capture_app_infinite

Usage:

./capture_app_infinite -h

```
-c : codec chip type,
     this can be t(TW2866), s(SSM2603), a(WAU8822), m(WM8978), n(NVP1114A),
c(CAT6011), i(AIC3104), l(ALC5623)
 -n : channel number, this should be 2 or 4(only TW2866/NVP1114A supports 4).
 -t : capture format, this can be p(PCM), u(u-Law), a(a-Law).
 -d : capture device, this can be 0 or 1.
 -r : capture sample rate, this can be 8000, 16000, 32000, 44100, 48000.
 -0 : capture-channel#0 file name
 -1 : capture-channel#1 file name
 -2 : capture-channel#2 file name
 -3 : capture-channel#3 file name
 [EX]
  If we hope to use capture-dev#0 to capture 4 channels audio, u-Law, 44100, and write
channel#0 data to /tmp/cap0.pcm, using TW2866/NVP1114A, the command will be
"./capture_app_infinite -c t -n 4 -d 0 -t u -r 44100 -0 /tmp/cap0.pcm"
```

3.4.1 Capture audio file

```
./capture_app_infinite -c s -n 2 -t p -d 0 -r 44100 -0 /tmp/cap0.pcm
```

3.5 Playback the audio files

In ‘Alsa_Test_App/playback’, run play_app_infinite

Usage: ./play_app_infinite -h

- -d: playback device number.
- -r: playback sample rate.
- -f: playback file name.

3.5.1 Play the audio file

./play_app_infinite -d 0 -r 44100 -f /tmp/cap0.pcm

3.6 Do audio mixer

3.6.1 Check "mixer_control.c"

#define CODECTYPE SSM2603

3.6.2 Setting audio function

./mixer_control

4. NVP1114A audio codec

4.1 Put NVP1114A_AUDIO.ko to drivers folder

4.2 Check install.sh file content

insmod drivers/i2c/i2c-gpio.ko bus_num=2 scl0=6 sda0=7 scl1=12 sda1=13

insmod drivers/NVP1114A_AUDIO.ko CodecNum=2

4.3 Run the script file in /Install/

```
sh install.sh
```

4.4 Capture audio files

- In /Alsa_Test_App/Capture/

- Run capture_app_infinite

Usage:

./capture_app_infinite -h

```
-c : codec chip type,
     this can be t(TW2866), s(SSM2603), a(WAU8822), m(WM8978), n(NVP1114A),
c(CAT6011), i(AIC3104), l(ALC5623)
-n : channel number, this should be 2 or 4(only TW2866/NVP1114A supports 4).
-t : capture format, this can be p(PCM), u(u-Law), a(a-Law).
-d : capture device, this can be 0 or 1.
-r : capture sample rate, this can be 8000, 16000, 32000, 44100, 48000.
-0 : capture-channel#0 file name
-1 : capture-channel#1 file name
-2 : capture-channel#2 file name
-3 : capture-channel#3 file name
[EX]
```

```
  If we hope to use capture-dev#0 to capture 4 channels audio, u-Law, 44100, and write
channel#0 data to /tmp/cap0.pcm, using TW2866/NVP1114A, the command will be

"./capture_app_infinite -c t -n 4 -d 0 -t u -r 44100 -0 /tmp/cap0.pcm"
```

4.4.1 Initialization chip 0 and chip 1

Chip 0

```
./capture_app_infinite -c n -n 4 -t p -d 0 -r 16000 -0 /tmp/cap0.pcm -1 /tmp/cap1.pcm
-2 /tmp/cap2.pcm -3 /tmp/cap3.pcm
```

Chip 1

```
./capture_app_infinite -c n -n 4 -t p -d 1 -r 16000 -0 /tmp/cap0.pcm -1 /tmp/cap1.pcm
-2 /tmp/cap2.pcm -3 /tmp/cap3.pcm

./capture_app_infinite -c n -n 4 -t p -d 0 -r 16000 -0 cap0.pcm -1 cap1.pcm
```

4.5 Playback the audio files

In ‘Alsa_Test_App/playback’, run play_app_infinite

Usage: ./play_app_infinite -h

- -d: playback device number.
- -r: playback sample rate.
- -f: playback file name.

4.5.1 Play the audio file

```
./play_app_infinite -d 1 -r 16000 -f /tmp/cap0.pcm
./play_app_infinite -d 1 -r 16000 -f /tmp/cap1.pcm
./play_app_infinite -d 1 -r 16000 -f /tmp/cap2.pcm
./play_app_infinite -d 1 -r 16000 -f /tmp/cap3.pcm
./play_app_infinite -d 1 -r 16000 -f /tmp/cap4.pcm
./play_app_infinite -d 1 -r 16000 -f /tmp/cap5.pcm
./play_app_infinite -d 1 -r 16000 -f /tmp/cap6.pcm
./play_app_infinite -d 1 -r 16000 -f /tmp/cap7.pcm
```

4.6 Do audio mixer

In ‘Alsa_Test_App/Mixer’, run mixer_control.

Usage: ./mixer_control –h

```
NVP1114A AUDIO MIXER help

== CAPTURE PART ==

The following capture options should be used TOGETHER!!

  -d : choose a codec Device(0~1)
```

```
  -c : choose a Channel(0~3) on this codec device.
  -v : choose a Volume value(0~15) on this channel.
== PLAYBACK PART ==
  -p : adjust Playback volume(0~15)
```

4.6.1 Check "mixer_control.c"

#define CODECTYPE NVP1114A

4.6.2 Setting audio function

```
1    ./mixer_control -d 0 -c 0 -v 15
2    ./mixer_control -d 0 -c 1 -v 15
3    ./mixer_control -d 0 -c 2 -v 15
4    ./mixer_control -d 0 -c 3 -v 15
5    ./mixer_control -d 1 -c 0 -v 15
6    ./mixer_control -d 1 -c 1 -v 15
7    ./mixer_control -d 1 -c 2 -v 15
8    ./mixer_control -d 1 -c 3 -v 15
9    ./mixer_control -p 15
```

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