

Advantech AE Technical Sharing Document

Date	2019 / 12 / 05	Release Note	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	Linux OS: Debian9
Abstract	How to input Audio configuration files in Debian 9 for running Audio device PCM-27J3AU-AE?		
Keyword	PCM-27J3AU-AE, Debian9.		
Related Product	PCM-27J3AU-AE.		

■ Problem Description:

PCM-27J3AU equips three functions including “line in”, “line out” and “MIC in”. Originally, only “line out” function works in Debian9 when there is no any configuration adjustment.



■ Brief Analysis and Solution :

To make PCM-27J3AU workable in Debian9.9, we need some preparation as listed.

1. follow steps below to renew firmware.

```
$ chmod 777 rt_UAC_utility
```

```
$ ./rt_UAC_utility --force firmware.bin --reset RST_2_ATTACH
```

```

debian@debian: ~/Desktop
File Edit View Search Terminal Help
| dBminmax-min=-63.50dB,max=0.00dB
root@debian:/home/debian/Desktop# ls
1kHz_44100Hz_16bit_30sec.wav  linux update tool  pavucontrol-4.0.tar.gz
90-pulseaudio.rules          NEW driver package  rt4020-286-usb-audio.conf
dd.txt                        pavucontrol-4.0     test.sh
root@debian:/home/debian/Desktop# cd linux\ update\ tool\
root@debian:/home/debian/Desktop/linux update tool# ls
Advantech_4020_ALC286_0005_20191202.bin  rt_UAC_utility
readme.txt                               rt_UAC_utility.zip
root@debian:/home/debian/Desktop/linux update tool# vi readme
root@debian:/home/debian/Desktop/linux update tool# vi readme.txt
root@debian:/home/debian/Desktop/linux update tool# clear

root@debian:/home/debian/Desktop/linux update tool# ls
Advantech_4020_ALC286_0005_20191202.bin  rt_UAC_utility
readme.txt                               rt_UAC_utility.zip
root@debian:/home/debian/Desktop/linux update tool# chmod 777 rt_UAC_utility
root@debian:/home/debian/Desktop/linux update tool# ./rt_UAC_utility --force Advantech_4020_ALC286_0005_20191202
.bin --reset RST_2_ATTACH
bash: ./rt_UAC_utility: Is a directory
root@debian:/home/debian/Desktop/linux update tool# cd rt_UAC_utility
root@debian:/home/debian/Desktop/linux update tool/rt_UAC_utility# ls
Advantech_4020_ALC286_0005_20191202.bin  rt_UAC_utility
root@debian:/home/debian/Desktop/linux update tool/rt_UAC_utility# ./rt_UAC_utility --force Advantech_4020_ALC28
6_0005_20191202.bin --reset RST_2_ATTACH

```

2. the process will show as below.

----Welcome to Realtek UAC Utility Tool. Version 1.0.10----

Download Stage is: 3%

Download Stage is: 6%

Download Stage is: 9%

Download Stage is: 12%

Download Stage is: 15%

Download Stage is: 18%

Download Stage is: 21%

Download Stage is: 25%

Download Stage is: 28%

Download Stage is: 31%

Download Stage is: 34%

Download Stage is: 37%

Download Stage is: 40%

Download Stage is: 43%

Download Stage is: 46%

Download Stage is: 50%

Download Stage is: 53%

Download Stage is: 56%

Download Stage is: 59%

Download Stage is: 62%

Download Stage is: 65%

Download Stage is: 68%

Download Stage is: 71%

Download Stage is: 75%

Download Stage is: 78%

Download Stage is: 81%

Download Stage is: 84%

Download Stage is: 87%

Download Stage is: 90%

Download Stage is: 93%

Download Stage is: 96%

Download Stage is: 100%

process_cmd, retval=0

Update Fw Success

Cmd 5 success. Use time:3914 ms

Cmd 3 success. Use time:0 ms

- check device ID by “cat /proc/asound/cards”, and then “amixer –c1 controls”
The iDoor module here is recognized as device 1.

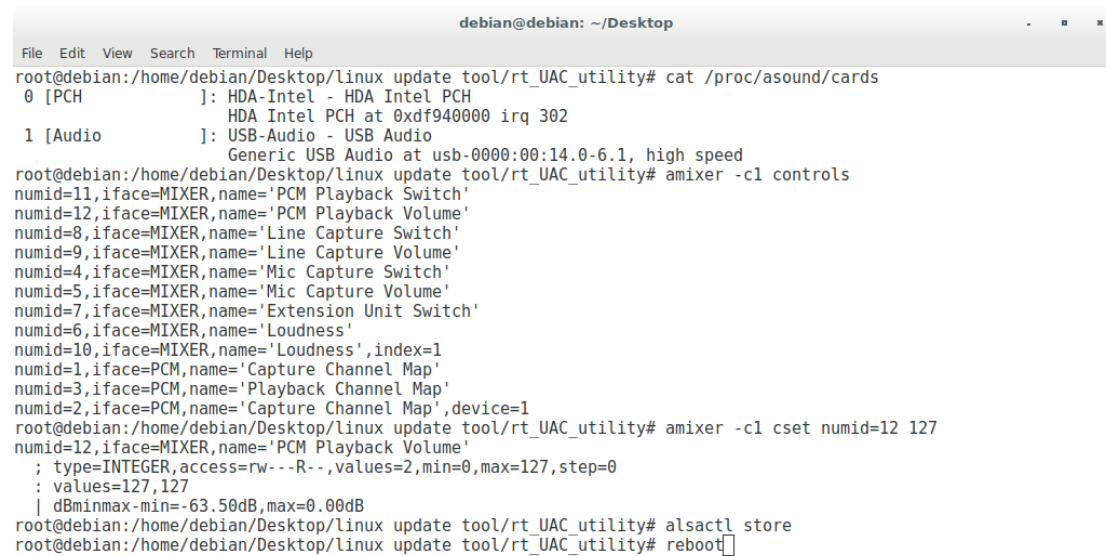
```
root@debian:/home/debian/Desktop/pavucontrol-4.0# cat /proc/asound/cards
0 [PCH                ]: HDA-Intel - HDA Intel PCH
                        HDA Intel PCH at 0xdf940000 irq 297
1 [Audio              ]: USB-Audio - USB Audio
                        Generic USB Audio at usb-0000:00:14.0-5, high speed
```

Then check “numid” of all functions of device 1 by “amixer –c1 controls”.

```
root@debian:/home/debian/Desktop/pavucontrol-4.0# amixer -c1 controls
numid=11,iface=MIXER,name='PCM Playback Switch'
numid=12,iface=MIXER,name='PCM Playback Volume'
numid=8,iface=MIXER,name='Line Capture Switch'
numid=9,iface=MIXER,name='Line Capture Volume'
numid=4,iface=MIXER,name='Mic Capture Switch'
numid=5,iface=MIXER,name='Mic Capture Volume'
numid=7,iface=MIXER,name='Extension Unit Switch'
numid=6,iface=MIXER,name='Loudness'
numid=10,iface=MIXER,name='Loudness',index=1
numid=1,iface=PCM,name='Capture Channel Map'
numid=3,iface=PCM,name='Playback Channel Map'
numid=2,iface=PCM,name='Capture Channel Map',device=1
```

Numid=12 is the function ID of device output volume.

- set the volume to maximum by “amixer –c1 cset numid=12 127”.
- To check the current volume setting, check it by “amixer –c1 cget numid=12”
- Then set the volume to maximum by “amixer –c1 cset numid=12 127”
- store the setting by “alsactl store”
- Reboot.

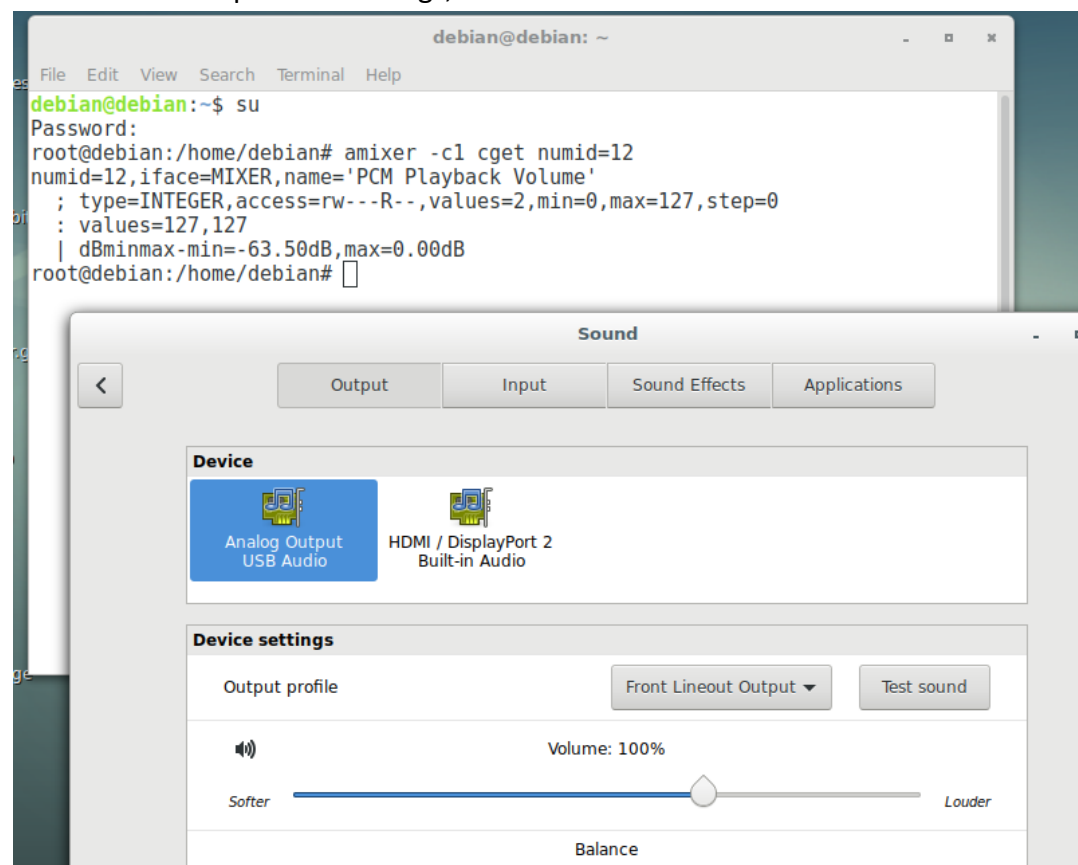


```
debian@debian: ~/Desktop
File Edit View Search Terminal Help
root@debian:/home/debian/Desktop/linux update tool/rt_UAC_utility# cat /proc/asound/cards
0 [PCH                ]: HDA-Intel - HDA Intel PCH
                        HDA Intel PCH at 0xdf940000 irq 302
1 [Audio              ]: USB-Audio - USB Audio
                        Generic USB Audio at usb-0000:00:14.0-6.1, high speed
root@debian:/home/debian/Desktop/linux update tool/rt_UAC_utility# amixer -c1 controls
numid=11,iface=MIXER,name='PCM Playback Switch'
numid=12,iface=MIXER,name='PCM Playback Volume'
numid=8,iface=MIXER,name='Line Capture Switch'
numid=9,iface=MIXER,name='Line Capture Volume'
numid=4,iface=MIXER,name='Mic Capture Switch'
numid=5,iface=MIXER,name='Mic Capture Volume'
numid=7,iface=MIXER,name='Extension Unit Switch'
numid=6,iface=MIXER,name='Loudness'
numid=10,iface=MIXER,name='Loudness',index=1
numid=1,iface=PCM,name='Capture Channel Map'
numid=3,iface=PCM,name='Playback Channel Map'
numid=2,iface=PCM,name='Capture Channel Map',device=1
root@debian:/home/debian/Desktop/linux update tool/rt_UAC_utility# amixer -c1 cset numid=12 127
numid=12,iface=MIXER,name='PCM Playback Volume'
; type=INTEGER,access=rw--R-- ,values=2,min=0,max=127,step=0
: values=127,127
| dBminmax-min=-63.50dB,max=0.00dB
root@debian:/home/debian/Desktop/linux update tool/rt_UAC_utility# alsactl store
root@debian:/home/debian/Desktop/linux update tool/rt_UAC_utility# reboot
```

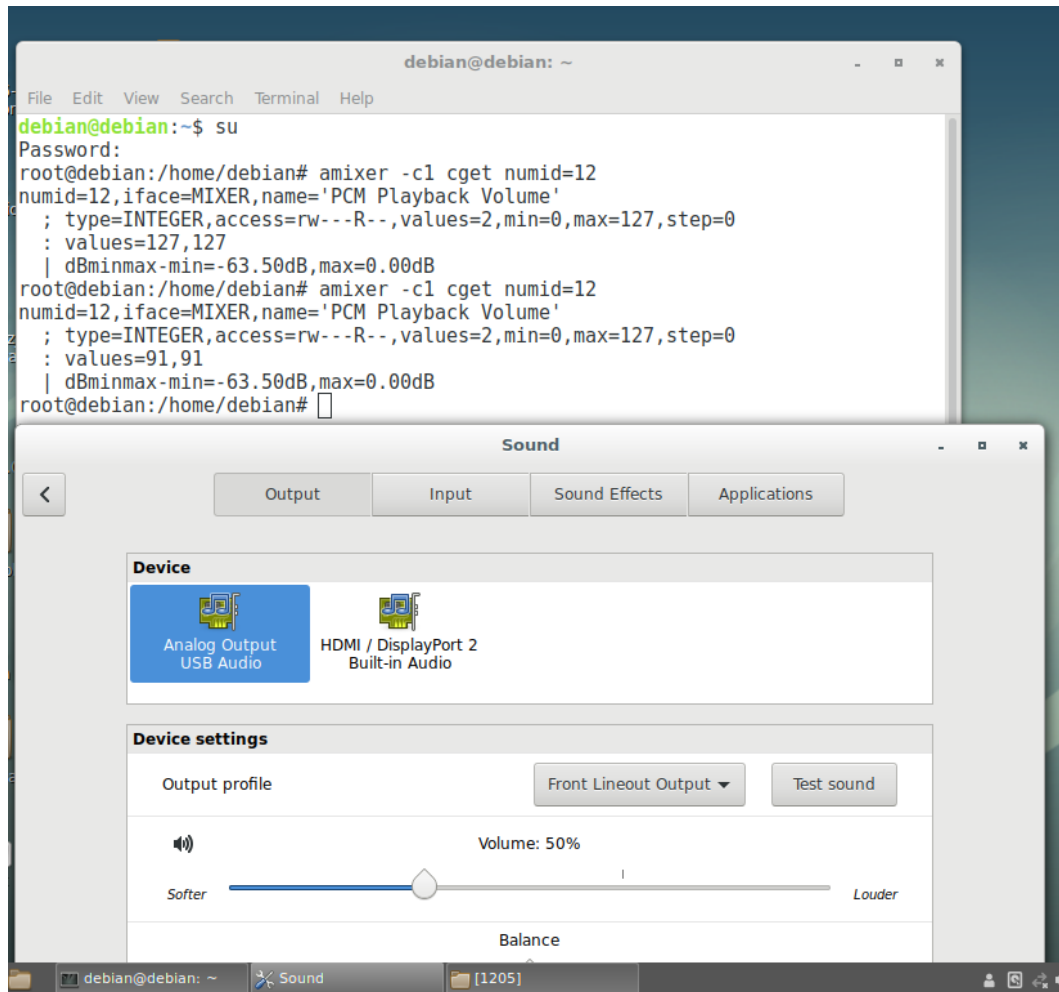
7. Copy the file "90-pulseaudio.rules" into the direction: /lib/udev/rules.d
8. Copy the file "rt4020-286-usb-audio.conf" into the direction:
/usr/share/pulseaudio/alsa-mixer/profile-sets
9. Reboot the OS

```
debian@debian: ~  
File Edit View Search Terminal Help  
debian@debian:~$ su  
Password:  
root@debian:/home/debian# ls  
Desktop Documents Downloads Music Pictures Public Templates Videos  
root@debian:/home/debian# cd Desktop/  
root@debian:/home/debian/Desktop# ls  
1kHz_44100Hz_16bit_30sec.wav  linux update tool  pavucontrol-4.0.tar.gz  
90-pulseaudio.rules          NEW driver package  rt4020-286-usb-audio.conf  
dd.txt                       pavucontrol-4.0     test.sh  
root@debian:/home/debian/Desktop# cp 90-pulseaudio.rules /lib/udev/rules.d/root@debian:/home/debian/Desktop# cp  
rt4020-286-usb-audio.conf /usr/share/pulseaudio/alsa-mixer/profile-sets/  
root@debian:/home/debian/Desktop# reboot
```

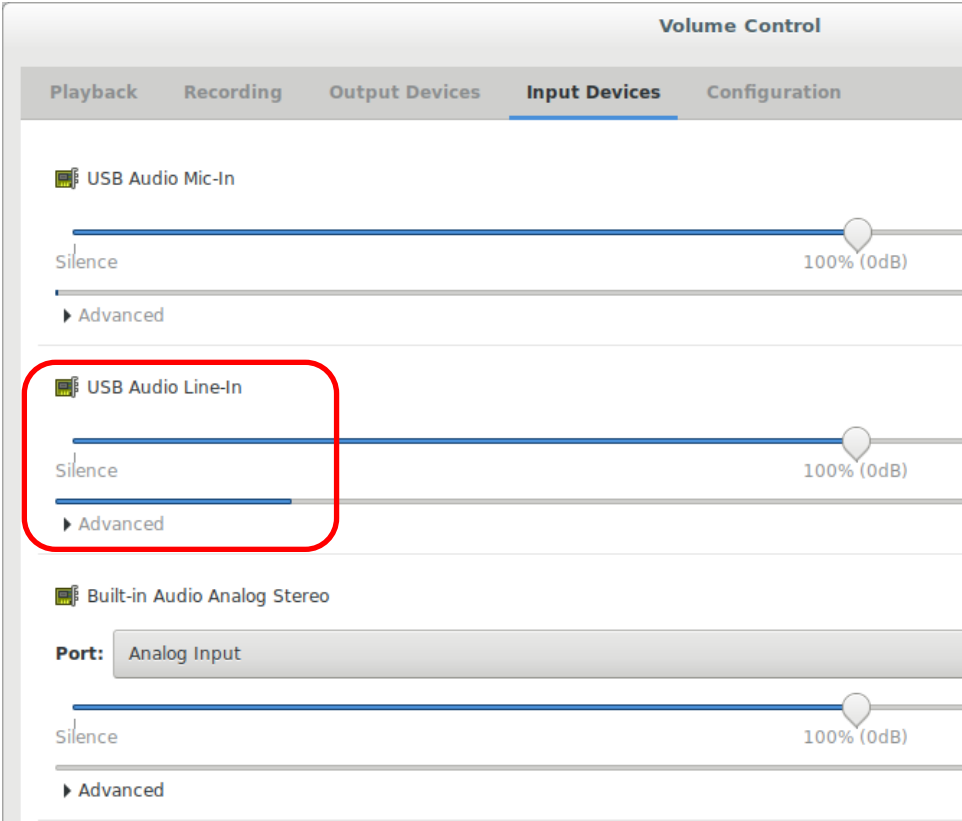
10. Here we complete all settings, the default volume will be set to maximum 127.



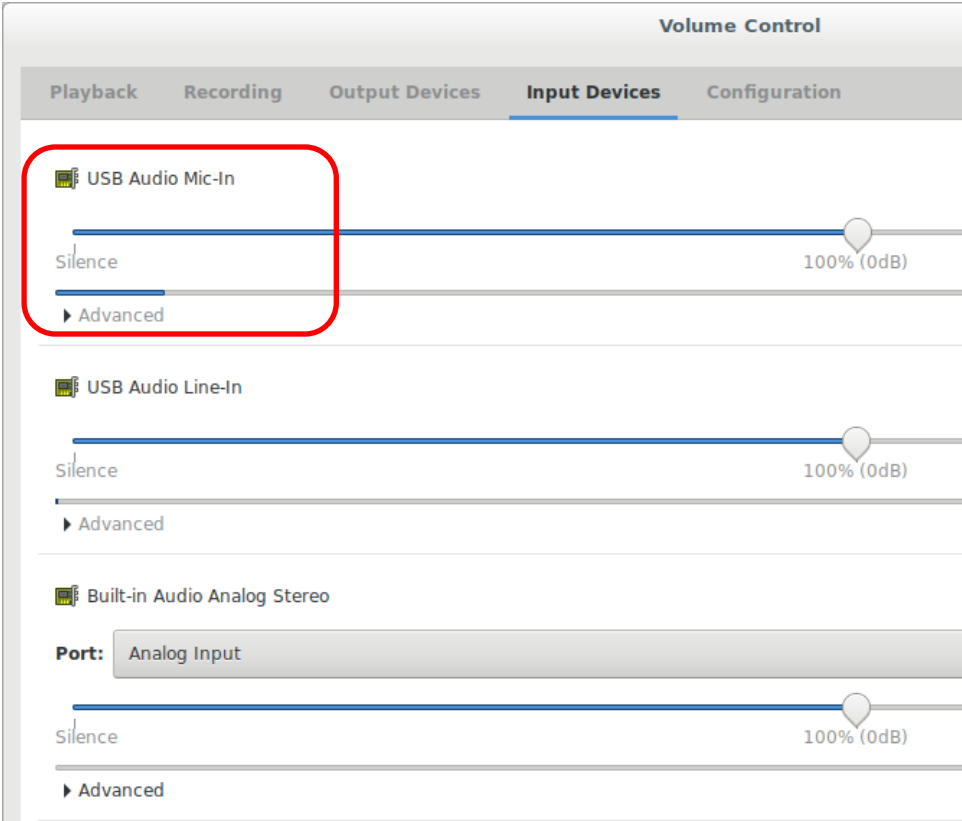
11. And the volume is adjustable by “sound setting bar”, the volume is checked which can be changed by bar setting.



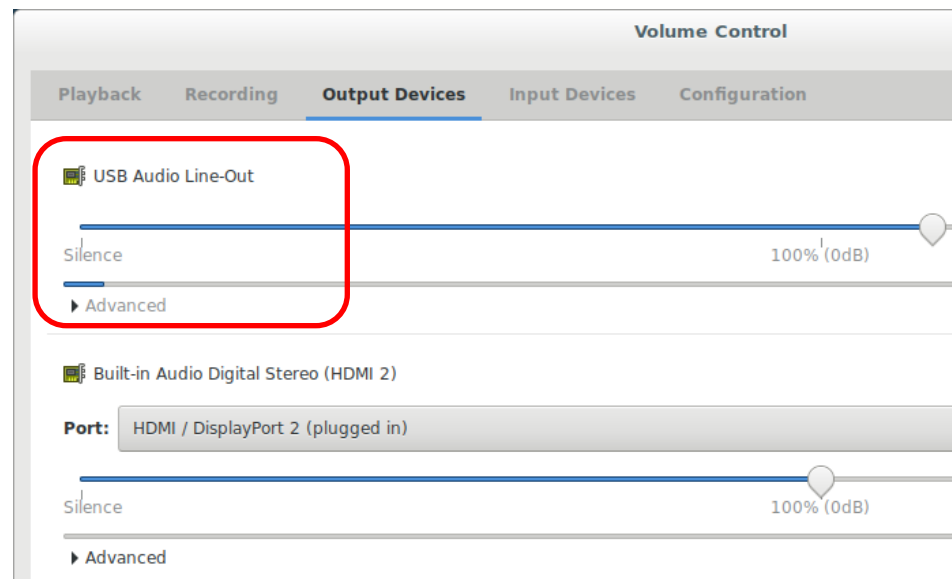
Check the functions by utility “Pulseaudio volume control” as figures below.
Line-in function:



MIC-in function:



Line-out function:



■ **Contact Window:**

If you need further information from headquarter, please contact PAE Tony.Cheng #7820.