

# Red Hat Linux 8.0 Audio Driver Installation Guide

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## 1. Summary

This document describes three methods of installing the audio driver for VIA south bridge chips VT8231, VT8233, VT8233A, and VT8235 under Red Hat Linux 8.0. These methods include: (1) OS built-in driver (only for VT8231), (2) ALSA driver from the Advanced Linux Sound Architecture project, and (3) OSS driver from 4Front Technologies. The step-by-step instruction for each method and a comparison of their respective features are provided. The information in this document is provided “AS IS,” without guarantee of any kind.

## 2. File description

This package contains 7 files as described below.

al sa-dri ver-0. 9. 0rc6. tar. bz2	11-14-02 15: 02	1, 591, 170 bytes
al sa-li b-0. 9. 0rc6. tar. bz2	11-14-02 15: 04	468, 298 bytes
al sa-uti l s-0. 9. 0rc6. tar. bz2	11-14-02 15: 10	106, 835 bytes
al saconf	01-22-03 14: 54	306 bytes
audunmute	11-23-01 08: 18	350 bytes
oss397g-li nux-v2x. tar. gz	01-08-03 22: 44	2, 772, 842 bytes
Readme. doc	thi s fi l e	

The ALSA driver packages are maintained by the Advanced Linux Sound Architecture project, and users are advised to download the latest version from <http://www.alsa-project.org/>. The Open Sound System (OSS) driver is maintained by 4Front Technologies, and users may download the latest evaluation version from <http://www.opensound.com/>; however, using the OSS driver may require a fee.

## 3. Prior to installation preparation

Before installing any audio driver, you should do two things. First, remove the previously installed driver by following the steps below.

### (1) OS built-in

```
# modprobe -r vi a82cxxx_audi o
```

### (2) ALSA

```
# modprobe -r snd-pcm-oss  
# modprobe -r snd-seq-oss
```

```
# modprobe -r snd-mixer-oss
# modprobe -r snd-via82xx
```

### (3) OSS

#### Method 1:

```
# cd /usr/lib/oss
# ./soundoff          (turn off the OSS audio driver)
```

#### Method 2:

```
# cd /usr/lib/oss
# ./uninstall.sh     (uninstall the OSS audio driver)
```

Next, if you have other vendors' drivers installed as well, backup the *"/etc/modules.conf"* file. In case you make any mistake, you can always use the file to restore your system back to the initial configuration. Note before removing the previously installed driver, terminate any sound related applications and make sure your sound card is no longer in use. Run the *"# lsmod"* command to confirm whether the audio driver is loaded.

## 4. OS built-in driver (only for VT8231)

The OS will automatically detect the on-chip audio controller and install the driver for it. To verify whether the driver is installed, run *"# lsmod"* in the command line to check if the audio module is loaded into kernel. If it was loaded, you should see the module named *"via82cxxx\_audio"* and its size.

## 5. ALSA driver

### (1) Prepare kernel source code

The kernel-headers and kernel-source are both required for rebuilding the audio kernel module. You can select the source during your first installation process by checking the box *../Package Group Selection/ Kernel Development/ Base Package/kernel-source*. Alternatively, you may install the kernel source anytime by selecting "Package" tool from the / Program/ System Settings in GNOME/ KDE, or run the *"rpm -ivh kernel-source-2.4.18-14.i386.rpm"* command to install from the second installation CD under the path *"/RedHat/RPMS/"*.

### (2) Download and decompress the ALSA package

Download and decompress the package in a directory you specify, for example, by using the following command.

```
# bzip2 -dc alsa-driver-0.9.0rc6.tar.bz2 | tar xvf -
```

### (3) Create sound devices

Change directory to “*alsa-driver-0.9.0rc6*”, and run the following commands to create new sound devices in the /dev directory and probe the audio controller.

```
# ./configure --with-kernel=/usr/src/linux-2.4
# make
# make install
# ./snddevices
```

You have two choices to load the audio module into kernel: manually or automatically. If manually, go to Step 4; if automatically, go to Step 5.

### (4) Manually load the audio modules

Run the “*modprobe*” command to load the necessary audio modules into kernel.

```
# modprobe snd-via82xx
# modprobe snd-mixer-oss
# modprobe snd-seq-oss
# modprobe snd-pcm-oss
```

However, after system reboot the audio modules no longer exist in the kernel; you need to manually re-load them again.

### (5) Automatically load the audio modules

You need to edit and add the following lines to the “*/etc/modules.conf*” file. The audio and associated modules will be automatically loaded into the kernel upon the use of any audio applications.

```
alias char-major-116 snd
alias snd-card-0 snd-via82xx
alias char-major-14 soundcore
alias sound-slot-0 snd-card-0
alias sound-service-0-0 snd-mixer-oss
alias sound-service-0-1 snd-seq-oss
alias sound-service-0-3 snd-pcm-oss
alias sound-service-0-8 snd-seq-oss
alias sound-service-0-12 snd-pcm-oss
```

A sample configuration file “*alsaconf*” is provided in this package for your convenience.

### (6) Use the mixer to enable audio features

The audio features in the ALSA driver are muted by default. You may use either the KMIX or the ALSA mixer to enable them. The KMIX is easy to use and thus

is recommended.

(a) Use the KMIX mixer (recommended)

The mixer implements a GUI interface for users to adjust the sound level. Run the KMIX (selecting through Programs/Sound & Video/ Sound Mixer) to adjust settings. However, after system reboot the end user needs to run the KMIX again to enable the audio driver; otherwise, the audio driver will be muted. Once the KMIX is activated, the previously audio settings will automatically take into effect.

(b) Use the ALSA mixer

Download and use the following instructions to install the ALSA library and utilities. First, decompress them in the directory you specify.

```
# bzip2 -dc alsa-lib-0.9.0rc6.tar.bz2 | tar xvf -
# bzip2 -dc alsa-utils-0.9.0rc6.tar.bz2 | tar xvf -
```

Then change directory to “*alsa-lib-0.9.0rc6*” and “*alsa-utils-0.9.0rc6*” respectively and run the following commands.

```
# ./configure; make; make install
```

After installing the ALSA utilities successfully, execute “*# amixer*”. You will see that all options are muted by default. Run the following 12 commands to un-mute and set the sound level.

```
# amixer set PCM 22 unmute
# amixer set PC\ Speaker 22 unmute
# amixer set Master 22 unmute
# amixer set Master\ Mono 22 unmute
# amixer set Headphone 22 unmute
# amixer set Phone 22 unmute
# amixer set Aux 22 unmute
# amixer set Video 22 unmute
# amixer set CD 22 unmute
# amixer set Input\ Gain 22 unmute
# amixer set Line 22 unmute
# amixer set MIC 22 unmute
```

For your convenience, the “*audunmute*” script file is provided in this package. You may run the following command to enable all the audio function.

```
# ./audunmute
```

Note if you cannot run the “*audunmute*” command, make sure to change its

attributes by the “chmod 755” command. After system reboot the audio driver will be muted; the end user needs to run the “audunmute” again to enable the audio driver.

## 6. OSS driver

Download an evaluation version and use “*oss397g-linux-v2x.tar.gz*” or later. Run the following two commands in the command shell to decompress and install the audio driver package.

```
# tar zxvf oss397g-linux-v2x.tar.gz
# ./oss-install
```

The first command will decompress 6 files. The second will install the driver. If you have other audio modules loaded in your kernel or other third-party modules in your system, the OSS program may abort the install process. It’s important to make sure you remove any previously installed audio driver or modules before installing the OSS driver.

Navigate through the GUI interface to install audio driver; choose the target directory located at the decompressed OSS packages; remember to save the changes and exit. Next, change your directory to the target directory, # *cd /usr/lib/oss*. Run # *./soundon* to load the related audio modules into kernel. Or you may run # *./soundoff* anytime to disable the sound. The audio modules will not be loaded after restarting the system.

If you want to have your audio devices work properly every time you reboot the system, follow the instruction in the OSS driver release notes.

## 7. Driver feature comparison

The driver features supported by each installation method are described below. The recorder used is the built-in *Gnome Sound Recorder* selecting through Programs/Sound & Video/Sound Recorder and *Sound Studio*.

(1) VT8231

	CD player	Sound Recorder	Sound Studio	MIDI	WAV	MP3	Real Player	Xine
Built-in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ALSA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OSS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(2) VT8233

	CD player	Sound Recorder	Sound Studio	MIDI	WAV	MP3	Real Player	Xine
ALSA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OSS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(3) VT8233A

	CD player	Sound Recorder	Sound Studio	MIDI	WAV	MP3	Real Player	Xine
ALSA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OSS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(4) VT8235

	CD player	Sound Recorder	Sound Studio	MIDI	WAV	MP3	Real Player	Xine
ALSA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OSS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## 8. Test configuration

The following systems were used for test.

(1) VT8231

Mother Board	EPIA-V (VT8601A + VT8231)
CPU	VIA C3 800 MHz
Memory	128 MB PC133 SDRAM

(2) VT8233

Mother Board	VT5543B (Pro266T + VT8233)
CPU	VIA C3 1.0 GHz
Memory	128 MB DDR RAM

(3) VT8233A

Mother Board	VT5668A1 (Pro266T + VT8233A)
CPU	VIA C3 1.0 GHz
Memory	128 MB DDR RAM

(4) VT8235

Mother Board	EPIA-M (CLE266 + VT8235)
CPU	VIA C3 933 MHz
Memory	128 MB DDR RAM