

## Guide to DVD Chapter 17 Examples: *Andrés Cabrera*

# Dynamic Range Processing

## Libraries

The examples in this chapter use both portaudio and libsndfile since they can work both processing files and in realtime. Libsndfile can be downloaded from [www.mega-nerd.com/libsndfile](http://www.mega-nerd.com/libsndfile). See Appendix C for more details. See the Appendix D for more details about Portaudio.

## Building

The Makefile provided will build all the examples at once. All that's needed is to execute:

```
$ make
```

The individual examples can be built on Linux with a line like:

```
$ gcc -o simple_compressor main.c -DSIMPLE_COMPRESSOR -I/usr/local/include -L/usr/local/lib -lportaudio -lsndfile
```

By passing different macros than SIMPLE\_COMPRESSOR, the other compressors can be built. The valid macros are SIMPLE\_COMPRESSOR, SIMPLE\_COMPRESSOR\_LOG, LOOKAHEAD\_COMPRESSOR, RMS\_COMPRESSOR and KNEE\_COMPRESSOR.

## Simple Compressor

This program will work in realtime using Portaudio if no arguments are given:

```
$ ./simple_compressor
```

Otherwise it will process the file given, like this:

```
$ ./simple_compressor input.wav output.wav
```

The compressor's parameters are set by the macros THRESHOLD, RATIO, ATTACK\_TIME and RELEASE\_TIME. To change them, it's necessary to recompile the program.

## Simple Compressor (Logarithmic)

This program will work in realtime using Portaudio if no arguments are given:

```
$ ./simple_compressor_log
```

Otherwise it will process the file given, like this:

```
$ ./simple_compressor_log input.wav output.wav
```

The compressor's parameters are set by the macros THRESHOLD, RATIO, ATTACK\_TIME and RELEASE\_TIME. To change them, it's necessary to recompile the program.

## Lookahead Compressor

This program will work in realtime using Portaudio if no arguments are given:

```
$ ./lookahead_compressor
```

Otherwise it will process the file given, like this:

```
$ ./lookahead_compressor input.wav output.wav
```

The compressor's parameters are set by the macros THRESHOLD, RATIO, ATTACK\_TIME, RELEASE\_TIME and LOOKAHEAD\_SAMPLES. To change them, it's necessary to recompile the program.

## RMS Compressor

This program will work in realtime using Portaudio if no arguments are given:

```
$ ./rms_compressor
```

Otherwise it will process the file given, like this:

```
$ ./rms_compressor input.wav output.wav
```

The compressor's parameters are set by the macros THRESHOLD, RATIO, ATTACK\_TIME, RELEASE\_TIME, LOOKAHEAD\_SAMPLES and RMS\_WINDOW\_SAMPLES. To change them, it's necessary to recompile the program.

## Knee Compressor

This program will work in realtime using Portaudio if no arguments are given:

```
$ ./knee_compressor
```

Otherwise it will process the file given, like this:

```
$ ./knee_compressor input.wav output.wav
```

The compressor's parameters are set by the macros THRESHOLD, RATIO, ATTACK\_TIME, RELEASE\_TIME, LOOKAHEAD\_SAMPLES, RMS\_WINDOW\_SAMPLES and KNEE\_WIDTH. To change them, it's necessary to recompile the program.