HEAAC Decoder

Getting Started Guide

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Revision History

Version	Date	Changes
1.0	May 16, 2008	Original
1.1	September 23, 2008	Made it generic for all pacakges

Contents

1. Introduction

1.1 Motivation

AAC is a popular audio coding technique recommended by MPEG committee. The codec handles audio signals sampled in the range of 8 kHz to 96 kHz. It operates on a frame of 1024 samples. The bit-rates supported are in the range of 8 kbps to 576 kbps per channel.

SBR and PS are the tools used in combination with the AAC general audio codec resulting in HEAAC (also known as Enhanced AAC Plus). It provides significant increase in coding gain. In SBR, the high-band, i.e. the high frequency part of the spectrum is replicated using the low-band. In PS, channel redundancy is exploited and parameters are extracted from a down-mixed channel.The bit-rate is by far below the bit-rate required when using conventional AAC coding. This translates into better quality at lower bit-rates.

It can be used in several consumer applications, like mobile streaming and download, digital terrestrial, cable & satellite television broadcasting and Internet Video on demand service.

1.2 Scope

This document discusses the following:

- Running the decoder (**Chapter 2**)
  - This chapter gives a complete overview of the procedure to run the sample application provided.
- Validation (**Chapter 3**)
  - This chapter describes the tools for validation.

1.3 Glossary

Term	Explanation
MPEG	Moving Picture Experts Group
AAC	Advanced Audio Coding
ISO	International Standards Organization
IEC	International Electro technical Commission
PCM	Pulse Code Modulation
SBR	Spectral Band Replication
PS	Parametric Stereo

2. Running the Sample Application

2.1 Usage

Executable can be run with command line or with a parameter file.

The Enhanced AAC Plus Decoder can be run for multiple testfiles through different command lines. The command line syntax is given below:

```
<executable> -ifile:<inputfile> -ofile:<outputfile> [options]
[options] can be,
[-pcmsz:<pcmwordsize>]
[-dmix:<down_mix>]
[-tostereo:<interleave_to_stereo>]
[-dsample:<down_sample_sbr>] (available in HEAAC mode)
[-fs:<RAW_sample_rate>]
[-nosync:<disable_sync>]
[-sbrup: <auto_sbr_upsample>](available in HEAAC mode)
[-maxchannel:<maximum_num_channels>]
[-coupchannel:<coupling_ch>] (available in Multichannel mode)
[-downmix:<dmix_stereo>] (available only in Multichannel mode)
```

where,

`<inputfile>` is the input AAC file name

`<outputfile>` is the output file name

`<pcmwordsize>` is the bits per sample info. Only 16 is valid

`<down_mix>` is to enable/disable always mono output. Default 0

`<interleave_to_stereo>` is to enable/disable always interleaved to stereo output. Default 1

`<down_sample_sbr>` is to enable/disable down-sampled SBR output. Default auto identification from header. Used in HEAAC libraries only

`<RAW_sample_rate>` is to indicate the core AAC sample rate for a RAW stream. If this is specified no other file format headers are searched for.

`<disable_sync>` is to disable the ADTS/ADIF sync search i.e when enabled the decoder expects the header to be at the start of input buffer. Default 0

<auto_sbr_upsample> is to enable(1) or disable(0) auto SBR upsample in case of stream changing from SBR present to SBR not present. Default 1

`<maximum_num_channels>` is the number of maxiumum channels the input may have. Default is 6 for multichannel libraries and 2 for stereo libraries

<coupling_ch> is element instance tag of independent coupling channel to be mixed. Default is 0. Used in multichannel libraries only

<dmix_stereo> is flag for Downmix. Give 1 to get stereo (downmix) output. Default is 0. Used in multichannel libraries only

If no command line argument is given the application reads the testvectors names from the parameter file. (Example given in same directory as the executable, in the release package).

The syntax for writing into the parameter file is ...

```
@Start

@Input_path <path to be appended to all input files>
@Output_path <path to be appended to all output files>
<command line 1>
<command line 2>
....
@Stop
```

Note All the @<command> should be at the first column of a line except the @New_line command.

Note All the @<command> are case sensitive.

Note If the command line in the parameter file has to be broken to two parts in two different lines use the @New_line command.

Eg.

<command line part 1> @New_line

<command line part 2>.

Note Blank lines will be neglected.

Note Individual lines can be commented out using "//" at the beginning of the line.

3. Validation

3.1 Testing the decoder

Conformance testing mainly involves comparing decoder under test output with the ISO and 3GPP reference decoded output. For further details please refer to the Test Report document [1].

4. References

[1] *Test Report Document*