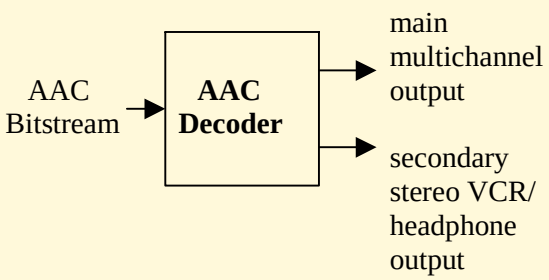
Philips Semiconductors

TSSA Software library for decoding MPEG2 AAC bitstreams (Advanced Audio Coding) on all members of the 32-bit TriMedia processor family.

AdecAAC



Description

The MPEG2 AAC Decoder library can be used in any product using a 16/32-bit TriMedia VLIW processor. It can handle ADIF as well as ADTS bitstream types. Raw AAC bitstreams can also be decoded, provided that the profile and the sampling rate are provided. Currently the low complexity profile is implemented. The AAC decoder will work with all default channel configurations, as defined in the AAC specification. It will attempt to decode any reasonable non-standard channel configuration as well, and match it to the output format of the device. Downmix of the 3/2 standard configurations to the stereo output format is an option. Only one audio program will be decoded and played. The output sample always has 16-bit precision, but both 16 and 32-bit output formats are supported.

A special feature of the decoder is its second output which can be used to send a stereo audio to a VCR, or encoded 1937 data to an external decoder.

Note that the MPEG 4 version of AAC is also under development.

Features:

- Decodes MPEG2 AAC bitstreams as described by ISO/IEC 13818-3 (MPEG-2 Audio)
- Supports 16 PCM sample resolution with 16 and 32-bit output formats
- Main Multichannel Output supports the seven AAC standard channel configurations as well as double mono, quadro and any other reasonable non-standard configuration
- Optionally downmixes of 3/2 channel configuration to stereo
- Provides an optional Stereo 1937 Output
- Supports a streaming TSSA interface only.

Applications

- BS Digital Japanese TV system
- Set Top Boxes for internet audio

Documentation

A detailed document describing the API and the internal behaviour of the component is available.

AdecAAC

Technical Information

Memory Usage

Static Memory (code)	161 Kbytes
Static Memory (data)	73 KBytes
Dynamic Memory	~52 Kbytes/chann + 33 Kbyte pSOS overhead

Note that additional memory is required for buffering of input and output data. The amount is application dependent.

Processor Load

Main output	**Secondary Output**	
Stereo (48 kHz, 128kbps)	disabled	11.5-12.5 Mcycles/sec (5.8-6.3 per channel)
5 Channel (48 kHz, 384 kbps)	disabled	30.5-33.5 Mcycles/sec (6.1-6.7 per channel)
5.1 Channel (48 kHz, 384 kbps)	disabled	33.1-36.5 Mcycles/sec (6.1-6.7 per channel)
5 Channel (48 kHz, 384 kbps) with downmix	disabled	32.6-36.6 Mcycles/sec (6.5-7.3 per channel)

Other Information

Supported Processors	TM-1100, TM-1300, TM-2700
Release Status	Beta
Patent/License Issues	Manufacturer of the end product needs to contact Dolby Laboratories® about the license fees
Built with Compiler Version	TCS 2.1 final

Related TriMedia TSSA Software Components

AdigAI, ArendAO, AudSysStb

Example Programs

This library is shipped with an example program, which demonstrates how to use the streaming interface of the AAC decoder. It reads an AAC stream from a file (Fread component) and passes it to the AAC decoder. The AAC decoder sends the decoded PCM samples to the Audio Renderer components.

Release Date: