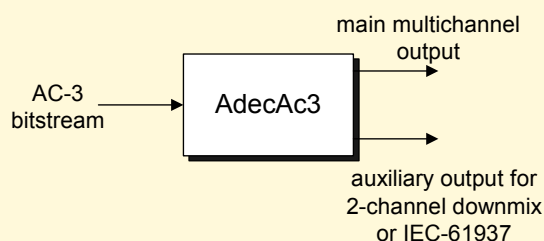


**AdecAc3 is a Dolby Digital® Decoder Library for AC-3® bitstream decoding on processors based on the TriMedia 32-bit architecture.**

# AdecAc3



## Description

The Dolby Digital (AC-3)® Decoder library can be used in any product using a 32-bit TriMedia VLIW processor core. It can be configured to meet high-end audio requirements such as 5.1 channel decode with 20-bit PCM output samples. In a typical low-end system it can perform a downmix to 16-bit stereo samples. A special feature of the decoder is its auxiliary output. It can be used to send either IEC-61937 data or a two-channel downmix, either regular stereo or Dolby Prologic® compliant. IEC-61937 is used to send compressed data to an external decoder. The stereo downmix can be used for recording on a VCR or monitoring on headphones while performing full multichannel playback. The stereo downmix can have dynamic range settings different from those for the main multichannel output.

The AC-3® decoder library does not implement typical post processing functions as Dolby Prologic® decoding, bass redirection, and channel delays. Other TSSA libraries are available that provide these features.

## Applications

- DVD Players,
- DTV Systems,
- Set-Top Boxes,
- Digital Video Recording systems.

## Documentation

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

## Licensing

This software library is ported to TriMedia from reference code provided by Dolby Labs. Under the terms of the porting agreement, Philips is an "Implementation Licensee." This library can only be provided to entities licensed by Dolby as a "System Licensee."

If a customer is interested in developing a product containing Dolby technologies, they must contact Dolby Laboratories and apply to become a System Licensee. A written request that includes a description of the intended application is required to begin the application process. All such requests should be faxed to Dolby Laboratories Licensing Corporation at 415-863-1373 and marked "Request for Dolby System License Application." Information explaining how to proceed with the application will be sent to the customer, including a confidential questionnaire that must be completed and returned for the qualification process to begin.

## Features:

- DVP compliant,
- 16, 18, and 20-bit PCM sample resolution,
- certified by Dolby® Laboratories,
- Karaoke-capable functionality,
- support for seven different multi-channel main output configurations, ranging from mono to 5.1,
- auxiliary output for connecting to headphones, VCRs, or external Dolby Digital® Decoders through IEC-61937 output formatting,
- streaming and non-streaming TSSA interface.

# AdecAc3

## Technical Information

### Memory Usage

<b>Static</b>	108 kByte
<b>Dynamic</b> (excluding pSOS task stack size)	30 kByte

Additional memory is required for buffering of input and output data. This amount is application-dependent.

### Processor Load

The processor load was measured on a TM-1300 running at 143MHz with 143MHz SDRAM.

#### Decoding of a 2-channel AC-3 bitstream

Main output	Auxiliary Output	Non-Streaming Mode	Streaming Mode
Stereo	disabled	13 MIPS	17 MIPS

#### Decoding of a 5.1-channel AC-3 bitstream

Main output	Auxiliary Output	Non-Streaming Mode	Streaming Mode
Stereo downmix	disabled	18 MIPS	24 MIPS
Stereo downmix	IEC-61937	Not supported	25 MIPS
5.1 Channel	disabled	22 MIPS	27 MIPS
5.1 Channel	stereo downmix	Not supported	31 MIPS

### Other Information

<b>Supported Processors</b>	TM-1100, TM-1300, pnx8500, pnx8525
<b>Version Number</b>	3.2
<b>Patent/License Issues</b>	see front page.
<b>Built with Compiler Version</b>	V5.7.1 of tcs2.2-dvp0003WinNT

### Related TSSA Software Components

AdecDPL2, AdigAi, ArendAO, ArendSpdif, AencAc3

### Example Programs

This library is shipped with two example programs. The example exolAdecAc3 implements a real time music player. It uses the streaming interface of the AC-3 decoder library. AC-3® data is read from a file by the Fread component and sent to the AC-3® decoder. The AC-3® decoder sends the decoded PCM samples to the Audio Renderer component. The second example, exolDemuxMpegPs, demonstrates how to use the AC-3® decoder in the context of MPEG program streams along with an MPEG-2 video decoder and a program stream demultiplexer.

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Release Date: August 2003

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