AAC

Comprehensive A/C Codec Library

Largest video codec libraries on earth, supporting nearly every major format in use today in both consumer and professional markets.

Advanced Audio Coding (AAC) is the most powerful audio codec available today, representing the actual "state of the art" in natural audio coding. AAC has already been adopted by major standards organizations including the Third Generation Partnership Programme (3GPP), the Digital Radio Mondiale Consortium (DRM), the Internet Streaming Media Alliance (ISMA), the Bluetooth Special Interest Group, the satellite based XM Radio, the Japanese Association of Radio Industries and Businesses (ARIB), and many others.

The MainConcept AAC SDK Packages offers fast and high-quality encoding and decoding of LC, HE v1 and HE v2 AAC audio as defined by the ISO and MPEG (decoding also includes Main and LTP profiles), making it very easy to add support for this extraordinary audio formats to existing applications.

AAC PROFILES

- AAC LC: Being 30% more efficient than mp3 in terms of quality vs. bitrate, Low Complexity (LC) is the most efficient and mostly used AAC profile which offers transparent, near-CD quality at 80 kbps for mono and 128 kbps for stereo input (44.1 kHz sampling frequency) and is targeted to high-quality encoding of complex audio material (music), as well as voice-only recordings.
- AAC HE: High Efficiency (HE) AAC is the extension to standard AAC which significantly improves audio quality at lower bitrates.
- AAC HE v1: First defined in Amendment 1 to MPEG-4 AAC, HE AAC version 1 (v1) is the extension to AAC which significantly improves audio quality at lower bitrates, where standard AAC cannot achieve acceptable quality. Using SBR (Spectral Band Replication) technology at low bitrates, HE v1 AAC is 30% more efficient than LC AAC. However, HE v1 AAC itself cannot achieve transparency, so it is not a replacement for LC AAC but rather its extension and should be the audio codec of choice for internet, mobile, and broadcasting arenas. This encoder is targeted to medium-quality encoding at bitrates 24 kbps/channel and higher.
- AAC HE v2: First defined in Amendment 2 to MPEG-4 AAC, HE AAC version 2 (v2) is the extension to HE AAC v1. It significantly improves audio quality for stereo signals at extremely low bitrates, such as 32 kbps for stereo input. Using PS (Parametric Stereo) technology, HE AAC v2 becomes nearly 50% more efficient than HE v1. This AAC extension should be used for internet, mobile, broadcasting, and other domains with limited resources and where transparent (CD-like) quality is not essential.

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Besides the MainConcept AAC Encoder that is mostly suited for file based use-cases, the package also contains a Fraunhofer AAC Encoder which optimized for adaptive bitrate streaming formats.

The corresponding AAC Decoder enables the software-only decoding of MPEG-2 (ISO/IEC 13818-7) and MPEG-4 (ISO/IEC 14496-3 including Amd.1:2003 – HE AAC v1 and Amd.2:2004 – HE AAC v2) AAC audio streams. The AAC format is predominantly used together with H.264/AVC and MPEG-4 Part 2 video streams that are muxed into the MP4 or 3GP containers, which are required for mobile devices, such as Sony PSP, Apple iPod or various cell phones.

FEATURES

ENCODER:

- Fully compliant to MPEG-2 (ISO/IEC 13818-7) and MPEG-4 (ISO/IEC 14496-3 including Amd.1:2003 – HE AAC v1 and Amd.2:2004 – HE AAC v2) AAC audio streams.
- Encoding supports Low Complexity, HE v1 and HE v2
- Sampling rates supported for LC: 8, 11.025, 16, 22.05, 24, 32, 44.1, 48, 64, 88.2 and 96 kHz
- Sampling rates supported for HE: 16, 22.05, 24, 32, 44.1, 48 kHz
- Constant bitrates (CBR) supported for LC: 6, 7, 8, 10, 12, 14, 16, 20, 24, 28, 32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 640, 768, 896 and 1024 kbps (maximum bitrate depends on the sampling rate and number of channels)
- HE v1 constant bitrates (CBR) supported, sampling frequency dependent, e.g. 44.1 kHz stereo - 40, 48, 56, 64, 80 and 96 kbps
- HE v2 constant bitrates (CBR) supported, sampling frequency dependent, e.g. 44.1 kHz stereo - 20, 28, 32 and 40 kbps
- 9 quality levels for variable bitrates (VBR) encoding (LC only)
- Support for 8, 16 and 24-bit PCM input
- Output format: RAW (no header, used for multiplexing into MP4 file format), ADTS (Audio Data Transport Stream header, stand-alone AAC files), LOAS/LATM (used for multiplexing into MPEG-2 streams)
- Channel configurations supported for LC and HE v1:
  - Mono (1 channel, front center speaker),
  - Stereo (2 channels, front left + right speakers),
  - LRC (3 channels, front left + right + center speakers),
  - LRCS (4 channels, front left + right + center, back center speakers),
  - 5.0 (5 channels, front left + right + center, back left + right),
  - 5.1 surround (6 channels, front left + right + center, back left + right, low frequency enhance speakers).
  - 7.1 surround
- Channel configurations supported for HE v2:
- Stereo (2 channels, front left + right speakers).
- Presets available for targeting Apple iPod® and Sony PSP®
- Allow timestamp offset for AAC Encoder

DECODER:

- Decodes MPEG-2 (ISO/IEC 13818-7) and MPEG-4 (ISO/IEC 14496-3 including Amd.1:2003 – HE AAC v1 and Amd.2:2004 – HE AAC v2) AAC audio streams.
- Supports Main, LC and SBR audio object types.
- Supports up to 8 audio channels.
- Decoding supports LC, Main, LTP, HE v1, HE v2

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MAINCONCEPT AAC SDK PACKAGES

AAC ENCODER SDK

Complete AAC Encoder to generate streams with AAC LC, AAC HE v1 and AAC-HE v2 audio.

AAC DECODER SDK

Complete AAC Decoder to play back streams with AAC LC, AAC HE v1 and AAC-HE v2 audio.

COMPONENTS

AAC ENCODER SDK	Fraunhofer AAC Encoder AAC Encoder
AAC DECODER SDK	AAC Decoder

TECH SPECS

- **Microsoft® Windows® 7, Windows 8, Windows 10 (32-bit/64-bit)**
- **Apple Mac OS X 10.6 or higher (Mac/Intel) (32-bit/64-bit)**
- **Linux Ubuntu 10.04 LTS (32-bit/64-bit)**

For Windows, Mac OS X and Linux, the codec package consists of a Low Level API (in the C programming language). Under Windows, it additionally includes DirectShow® filters for decoding and encoding.

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