HE-AAC and LC Encoder

CAPABILITY SUPPORTED (V1.00) FEATURES

- **VBR Support**
- **eXpressDSP Algorithm Interface Standard (XDAIS) Compliant**
- **eXpressDSP Digital Media (XDM) interface compliant**
- **16-Bit and 32-Bit PCM Samples as Input Supported. In Case of 32-Bit PCM it Takes the Most Significant 16- Bits as Input Internally**
- **Constant Bit Rate (CBR) Encoding and Variable Bit Rate (VBR) Encoding Supported**
  - **Input Sampling Frequencies From 8 KHz to 96 KHz Supported**
- **Mono, Stereo, and Dual Mono Input Files Supported**
- **Bit-Rates Based on Sampling Frequency and Number of Channels Supported**
- **Audio Data Interchange Format (ADIF), Audio Data Transport Stream (ADTS), and Raw Output Format Supported**
- **ISO/IEC 14496-3 (MPEG-4 AAC) and ISO/IEC 13818-7 (MPEG-2 AAC) Standards Compliant**

BACKGROUND

The advanced audio coding (AAC) encoder is a wideband audio coding algorithm that exploits two primary coding strategies to dramatically reduce the amount of data needed to convey high-quality digital audio. First, signal components that are perceptually irrelevant and which can be discarded without a perceived loss of audio quality are removed. Next, redundancies in the coded audio signal are eliminated. Efficient audio compression is achieved by a variety of perceptual audio coding and data compression tools that are a part of the AAC specification.

DESCRIPTION

The HE-AAC and LC encoders are proven modules. The ready-to-implement HE-AAC and LC encoders reduce time-to-market because they can be treated as tested modules and integrated into a software system. TIs encoders conform to the standard originally developed by the International Standards Organization (ISO) and the International Electrotechnical Commission (IEC). The encoders implement the AAC low-complexity (LC) and longterm prediction (LTP) object types in addition to the high-efficiency (HE), low-memory and low-MIPS profiles which are compile-time options.

TIs AAC is an optimized audio encoder and is xDM compliant. It is available in system tested codec combinations with Codec Engine, DSP/BIOS, DSPLink and Framework components.

PRODUCT PREVIEW

Software Architecture

The overall software architecture for the DaVinci Technology-based TMS320DM644x processors are shown in Figure 1. TI digital media encoders and decoders seamlessly plug into the signal processing layer architecture; the right side of the above diagram. The codec engine framework includes code for different classes of TI digital media software. It connects to the application layer and exposes user control through the VISA API; a high level interface that allows developers to control and operate the software from a high level Operating System (OS) environment. TI digital media encoders, such as the AAC encoder, allow developers to focus design efforts on differentiating features at the application layer, while DaVinci's open software environment allows developers to include differentiating IP on any of the DSP, application, or IO layers shown above.

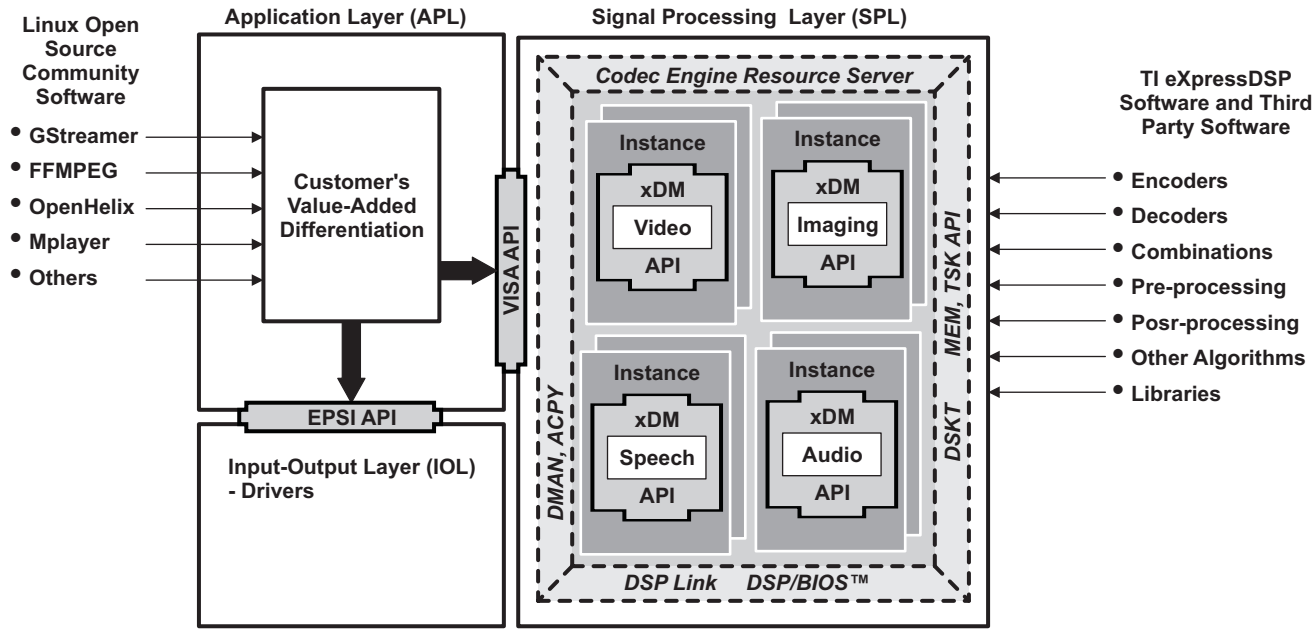

Figure 1. Software Architecture

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Commonly Used Terms:

API – Application Programming Interface

DMAN – Direct Memory Access Manager

EPSI – Easy Peripheral Software Interface

MEM - Memory

TSK – Task

VISA – Video Imaging Speech Audio

xDM – eXpressDSP Algorithm Interoperability Standard for Digital Media

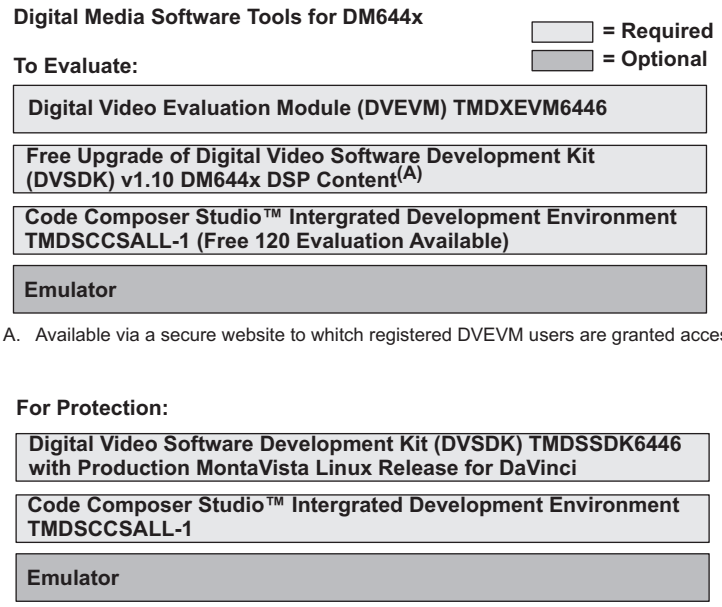

Figure 2. Required Tools

Performance Summary

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Table 1. Performance Summary

Criteria	PERFORMANCE
MIPS at single channel	• 32 MHz Typical • 39 MHz Peak
Memory	• 225 kB External • 5.5 kB Internal Data • 115 kB Program

Availability and Pricing

- Available stand alone or in combinations
- Available now, v1.00
- Price:
  - AAC LC Up front fee $15,000 + $.17 per unit royalty @ 10 KU
  - HE-AAC Up front fee $15,000 + $.30 per unit royalty @ 10 KU
  .
- For further pricing information, contact your TI representative or visitwww.ti.com/digitalmediasoftware

Future Features

- Support for HE-AAC
- Split decoder library into two separate libraries
  - MPEG-4 AAC LC only
  - MPEG-4 AAC LC + MPEG-4 HE-AAC

GET STARTED TODAY

Request an evaluation from your TI representative or a TI Authorized Software Provider www.ti.com/asp. To receive future updates or more information, complete the contact me information form at www.ti.com/digitalmediasoftware .

PRODUCT PREVIEW

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