- **eXpressDSP™ Algorithm Interface Standard (XDAIS) compliant**
- **eXpressDSP Digital Media (XDM) Interface compliant**
- **MPEG4 AAC Low Complexity (LC) object type implementations supported**
- **MPEG2 AAC Low Complexity (LC) object type implementations supported**
- **MPEG4 AAC High Efficiency (HE) object type implementations supported**
- **Decoding of mono and stereo streams supported**
- **RAW data input format supported**
- **Audio Data Interchange Format (ADIF) and Audio Data Transport Stream (ADTS) input formats, encoded with ISO/IEC 13818-7 or 14496-3 compliant encoders supported**
- **High quality AAC HE decode as per ISO/IEC 14496-3:AMENDMENT 1 supported**
- **Sampling frequency range of 8 kHz – 96 kHz as per ISO/IEC 14496-3 standard supported**
- **Maximum bit-rate based on the sampling frequency as per standard supported**
- **Validated on DM6437 EVM with Code Composer Studio version 3.2.37.12 and Code Generation tools version 6.0.8**

PRODUCT PREVIEW

description

Advance Audio Coding (AAC) is an audio data compression format. This coding technique uses a perceptual filter bank, a sophisticated masking model, noise-shaping techniques, and channel coupling. It is validated on DM6437 EVM with Code Composer Studio version 3.2.37.12 and Code Generation tools version 6.0.8

summary of performance

Table 1. Configuration Table

CONFIGURATION	ID
MPEG4 AAC HE, High Quality	MPEG4_AAC_001

Table 2. Cycles Information – Profiled on DM6437 EVM with Code Generation Tools Version 6.0.8

CONFIGURATION ID	PERFORMANCE STATISTICS (IN MEGA CYCLES PER SEC)[1]		
	TEST DESCRIPTION	AVERAGE	PEAK
MPEG4_AAC_001	LC - mj_48khz_128000.aac	23.7	27.3
	LTP - miami_44_adif.aac	33.3	41.7
	HEHQ - MJ_STEREO1_44khz_64.aac	66.1	74.0
	PS - ps_mj_44khz_32000.aac	68.4	72.2

[1] Measured with program memory, stack, and I/O buffers in external memory and with cache configuration 32K-bytes L1P cache, 16K-bytes L1D cache, and 64K-bytes L2 cache
[1] L1 and L2 cache invalidation done for every frame
[1] Measured with frame size= 1024 samples for LC Profile
[1] Measured with frame size= 2048 samples for HEHQ Profile

Table 3. Memory Statistics - Generated with Code Generation Tools Version 6.0.8

CONFIGURATION	MEMORY STATISTICS[2]				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL	EXTERNAL	STACK	
MPEG4_AAC_001	162.60	0.00	751.43	40	954.03

[2] All memory requirements are expressed in kilobytes (1K-bytes = 1024 bytes).

Table 4. External Data Memory Split-up

CONFIGURATION	DATA MEMORY – EXTERNAL[3]		
	SHARED		INSTANCE[4]
	CONSTANTS	SCRATCH	
MPEG4_AAC_001	51.43	55.0	645.0

[3] All memory requirements are expressed in kilobytes.
[4] Does not include I/O buffers

notes

- I/O Buffers
  - Input Buffer Size = 1648 bytes
  - Output buffer size = 8192 bytes for 16-bit audio sample size, 2 channel output (stereo)
- Total data memory for N non pre-emptive instances =
  Constants + Runtime Tables + Scratch + N*(Instance + I/O buffers + Stack)
- Total data memory for N pre-emptive instances =
  Constants + Runtime Tables + N*(Instance + I/O buffers + Stack + Scratch)

references

- ISO/IEC 13818-7:2003 Information technology – Generic Coding of moving pictures and associated audio information -- Part 7: Advanced Audio Coding (MPEG2 AAC standards document)
- ISO/IEC 14496-3:1999(E) Information technology -- Coding of audio-visual objects -- Part 3: Audio (MPEG4 AAC standards document)
- ISO/IEC 14496-3:2001 / AMENDMENT 1 Bandwidth extension (MPEG4 AAC-HE standards document)
- User Guide for MPEG4AAC Decoder on C64x+ (literature number SPRUEY7)

glossary

Constants	Elements that go into .const memory section
Scratch	Memory space that can be reused across different instances of the algorithm
Shared	Sum of Constants and Scratch
Instance	Persistent-memory that contains persistent information - allocated for each instance of the algorithm

acronyms

AAC	Advanced Audio Coding
AAC-HE	High Efficiency Advanced Audio Coding
ADIF	Audio Data Interchange Format
ADTS	Audio Data Transport Stream
EVM	Evaluation Module
IEC	International Electro-technical Commission
ISO	International Organization for Standardization
MPEG4	Moving Pictures Experts Group-4
XDAIS	eXpressDSP Algorithm Interface Standard
XDM	eXpressDSP Digital Media

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Post Office Box 655303 Dallas, Texas 75265