



- eXpressDSP Algorithm Interface Standard (XDAIS) compliant
- Supports both REV2 and REV3 versions of C55x.
- 16-bit PCM samples supported as input
- Constant Bit Rate (CBR) encoding supported.
- Input sampling frequencies from 8 KHz to 96 KHz supported
- Only AAC-LC output format supported
- Mono and stereo input files supported
- Bit rates based on sampling frequency and number of channels supported
- Audio Data Interchange Format (ADIF), and Audio Data Transport Stream (ADTS) output format supported
- ISO/IEC 14496-3 (MPEG 4 AAC) and ISO/IEC 13818-7 (MPEG 2-AAC) standards compliant
- Validated on TMS320C5505 EVM with Code Composer Studio version 3.3 and Code Generation Tools version 4.3.3

description

AAC is one of the most popular audio compression standards across wide spectrum of application ranging from portable player, cell phones, music systems, internet, and so forth. It is validated on TMS320C5505 EVM with Code Composer Studio version 3.3 and Code Generation Tools version 4.3.3.

PRODUCT PREVIEW



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

All trademarks are the property of their respective owners.

PRODUCT PREVIEW information concerns products in the formative or design phase of development. Characteristic data and other specifications are design goals. Texas Instruments reserves the right to change or discontinue these products without notice.



Copyright © 2010, Texas Instruments Incorporated



Summary of performance

Table 1. Configuration Table

CONFIGURATION	ID
AAC_LC	AACLC_ENC_001

Table 2. Cycles Information – Profiled on TMS320C5505 EVM with Code Generation Tools Version 4.3.3

CONFIGURATION ID	PERFORMANCE STATISTICS (IN MEGA CYCLES PER SEC) ¹		
	TEST DESCRIPTION	AVERAGE	PEAK
AACLC_ENC_001	44.1 kHz – Stereo 64 kbps	48.85	62.4

¹ Measured with stack, instance, and scratch in DARAM and rest in SARAM,

Table 3. Memory Statistics - Generated with Code Generation Tools Version 4.3.3

CONFIGURATION ID	MEMORY STATISTICS ²				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL	EXTERNAL	STACK	
AACLC_ENC_001	48	77.25	0	2.0	127.25

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

Table 4. Internal Data Memory Split-up

CONFIGURATION ID	DATA MEMORY – INTERNAL ⁴		
	SHARED		INSTANCE ⁵
	CONSTANTS	SCRATCH	
AACLC_ENC_001	28	6.25	43

⁴ All memory requirements are expressed in kilobytes

⁵ Does not include I/O buffers

**Notes**

- I/O buffers:
 - Output buffer size = 2048 bytes
 - Input buffer size = 1024 samples per channel
- Total data memory for N non pre-emptive instances = Constants + Runtime Tables + Scratch + $N \times (\text{Instance} + \text{I/O buffers} + \text{Stack})$
- Total data memory for N pre-emptive instances = Constants + Runtime Tables + $N \times (\text{Instance} + \text{I/O buffers} + \text{Stack} + \text{Scratch})$

References

- ISO/IEC IS 14496-3 Information Technology -- Coding of Moving Pictures and Associated Audio for Digital Storage Media at up to about 1.5 Mbps -- Part 3: Audio
- ISO/IEC IS 13818-7 Information Technology -- Generic Coding of Moving Pictures and Associated Audio Information -- Part 7 Advanced Audio Coding
- User Guide for AAC Encoder on C55x

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
ADIF	Audio Data Interchange Format
ADTS	Audio Data Transport Stream
CBR	Constant Bit Rate
EVM	Evaluation Module
Kbps	Kilo bits per second
KHz	Kilo Hertz
LC	Low Complexity
MPEG	Moving Picture Experts Group
PCM	Pulse Code Modulation
VBR	Variable Bit Rate
XDAIS	eXpressDSP Algorithm Interface Standard

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions

Products

Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
RF/IF and ZigBee® Solutions	www.ti.com/lprf
Wireless	www.ti.com/wireless-apps

Applications

Audio	www.ti.com/audio
Automotive	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics & Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2010, Texas Instruments Incorporated