- **eXpressDSP™ Algorithm Interface Standard (XDAIS) compliant**
- **eXpressDSP Digital Media (XDM) interface compliant**
- **All versions, namely V2, V7, V8, V9, V9 beta odd, and V9 NC supported**
- **Class 4 implementation of WMA Decoder supported**
- **Low, medium, and high bit rates supported**
- **Variable Bit Rate (VBR) mode supported**
- **Maximum of two channels supported**
- **Raw Compressed Audio (RCA) streams supported**
- **Outputs 16-bit PCM samples**
- **8 - 48 kHz output sampling rates and 5 - 384 kbps input bit rates supported**
- **Digital Rights Management (DRM) not supported**
- **Microsoft Acceptance Test criteria compliant**
- **Validated on DM6437 EVM with Code Composer Studio version 3.2.37.12 and Code Generation Tools version 6.0.8**

PRODUCT PREVIEW

description

WMA Version9 Decoder is WMA standard decoder that decodes Windows Media Audio files in the Raw Compressed Audio Format (ASF). It is validated on DM6437 EVM with Code Composer Studio version 3.2.37.12 and Code Generation Tools version 6.0.8.

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TEXAS INSTRUMENTS

summary of performance

Table 1.   Configuration Table

CONFIGURATION	ID
RCA support library	WMA_DEC_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
WMA_DEC_001	test1_WMA_v8_20kbps_22kHz_2.wma	11.80	34.05
	test1_WMA_v8_32kbps_44kHz_2.wma	9.27	16.86
	test2_WMA_v9_1pCBR_320kbps_48kHz_2.wma	11.46	26.17
	test2_WMA_v9_2pVBR-Bitrate_192kbps_48kHz_2_NC.wma	10.11	21.28
	test2_WMA_v9_2pVBR-Peak128kbps_Avg64kbps_48kHz_2_NC.wma	8.14	17.11
	test2_WMA_v9_1pCBR_128kbps_44kHz_2_NC.WMA	8.79	21.50

[1] Measured with program memory, stack, and I/O buffers in external memory and with cache configuration: 64K-bytes L2, 32K-bytes L1P, and 16K-bytes L1D cache with cache thrashing.

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

CONFIGURATION ID	MEMORY STATISTICS[2]				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL[3]	EXTERNAL	STACK	
WMA_DEC_001	111.6	Not used	121.9	6	239.5

[2] All memory requirements are expressed in kilobytes (1K-byte = 1024 bytes).
[3] Internal memory is not used.

Table 4. **Internal Data Memory Split-up**

CONFIGURATION ID	DATA MEMORY – INTERNAL[4]		
	SHARED		INSTANCE
	CONSTANTS	SCRATCH	
WMA_DEC_001	Not used	Not used	Not used

[4] All memory requirements are expressed in kilobytes.

Table 5. **External Data Memory Split-up**

CONFIGURATION ID	DATA MEMORY – EXTERNAL[5]		
	SHARED		INSTANCE
	CONSTANTS	SCRATCH	
WMA_DEC_001	58.8	16	47.06

[5] All memory requirements are expressed in kilobytes.

Table 6. **Co Processor(s) Memory Statistics**

CONFIGURATION ID	SEQ DATA MEMORY	SEQ PROG MEMORY	IMX WORKING MEM	IMX IMG BUF	IMX CMD MEM
WMA_DEC_001	0	0	0	0	0

Note: The decoder does not use co-processors and hence all the values are zero.

PRODUCT PREVIEW

notes

- I/O Buffers
  - Input buffer size = 25K-bytes
  - Output buffer size = 16K-bytes
- 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

- Implementation acceptance test specification, Version 9.00, Revision G. Date: May 19, 2003, Microsoft Corporation.
- An Overview of Windows Media Audio Decoding, WMA Version 7.0, Microsoft Corporation.
- TMS320 DSP Algorithm Standard API Reference (literature number SPRU360)
- User Guide for WMA Version9 Decoder on C64x+ (literature number SPRUEZ1)

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

ASF	Advanced Systems Format
EVM	Evaluation Module
RCA	Raw Compressed Audio
VBR	Variable Bit Rate
WMA	Windows Media Audio
XDAIS	eXpressDSP Algorithm Interface Standard
XDM	eXpressDSP Digital Media

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