WMA Version9 Decoder (v01.21.00) on C64x+

FEATURES

- **eXpressDSP™ Digital Media (XDM 1.0 IAUDDEC1) Interface compliant**
- **Validated on DM6446 EVM**
- **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 5-384kbps input bit-rates supported**
- **Digital Rights Management (DRM) not supported**
- **Microsoft Acceptance Test criteria compliant**
- **This codec can be used on any of TI's C64x+ based platforms such as DM644x, DM648, DM643x, DM646x, OMAP35xx and their derivatives.**

DESCRIPTION

WMA Version 9 Decoder is a WMA standard decoder that decodes Windows Media Audio files in the Raw Compressed Audio (RCA) format. It is validated on DM6446 EVM with Code Composer Studio version 3.2.37.12 and Code Generation Tools version 6.0.8.

PRODUCT PREVIEW

Performance Summary

This section describes the performance of the WMA Version9 Decoder on DM6446 EVM.

Table 1. Configuration Table

CONFIGURATION	ID
RCA support library	WMA_DEC_001

Table 2. Cycles Information

CONFIGURATION ID	PERFORMANCE STATISTICS (MEGA CYCLES PER SECOND)(1)		
	TEST DESCRIPTION	AVERAGE	PEAK
WMA_DEC_001	test1_WMA_v8_20kbps_22kHz_2.wma	12.88	36.11
	test1_WMA_v8_32kbps_44kHz_2.wma	9.42	17.42
	test2_WMA_v9_1pCBR_320kbps_48kHz_2.wma	12.35	26.04
	test2_WMA_v9_2pVBR-Bitrate_192kbps_48kHz_2_NC.wma	10.67	21.02
	test2_WMA_v9_2pVBR-Peak128kbps_Avg64kbps_48kHz_2_NC.wma	9.09	16.88
	test2_WMA_v9_1pCBR_128kbps_44kHz_2_NC.WMA	9.42	20.35

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

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

CONFIGURATION ID	MEMORY STATISTICS(1)				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL(2)	EXTERNAL	STACK	
WMA_DEC_001	114.25	Not used	121.61	6	241.86

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

Table 4. Internal Data Memory Split-Up

CONFIGURATION ID	DATA MEMORY - INTERNAL		
	SHARED		INSTANCE
	CONSTANTS	SCRATCH	
WMA_DEC_001	Not used	Not used	Not used

Table 5. External Data Memory Split-Up

CONFIGURATION ID	DATA MEMORY - EXTERNAL		
	SHARED		INSTANCE
	CONSTANTS	SCRATCH	
WMA_DEC_001	58.54	16	47.07

PRODUCT PREVIEW

Notes

- I/O buffers
  - Input buffer size = 25K-bytes
  - Output buffer size = 16K-bytes
- Total data memory for N nonpre-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
- *WMA Version9 Decoder on C64x+ User's Guide* (literature number: SPRUFN2A)

Glossary

Term	Description
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

Acronym	Description
DRM	Digital Rights Management
EVM	Evaluation Module
RCA	Raw Compressed Audio
VBR	Variable Bit Rate
WMA	Windows Media Audio
XDM	eXpressDSP Digital Media

Revision History

This revision history highlights the changes made to the SPRS519 codec specific user guide to make it SPRS519A

Table 6. Revision History for WMA Version9 Decoder (v01.21.00) on C64x+

SECTION	CHANGES
Global	**NOTE** There are no changes in data sheet for this release.

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