Ittiam WMA Decoder

WMA Decoder

Microsoft® Windows Media™ Audio (WMA) codec is a popular audio coding standard, which is a part of the Microsoft® Windows Media ® series of technologies. WMA is designed to handle all types of audio content, from speech-only audio recorded with a sampling rate of 8 kilohertz (kHz), to 48 kHz high-quality stereo music. It is tolerant to packet loss, making it suitable for streaming content and player applications.

Ittiam's WMA Decoder is an implementation of the WMA10 Decoder (Windows Media Porting Kit (WMPK) and is provided subject to the terms and conditions of the Microsoft Corporation Implementation License Agreement to other Licensees of the same.

Features

- Decoding of WMA10 Standard bitstream.

- Supports all bitrates from 5 kbps to 384 kbps.

- Supports all sample rates from 8 kHz to 48 kHz.

- Decoder is conformant to WMA Version 10.0 specification provided as part of the Windows Media Porting Kit (WMPK).

- C Callable interface/TI XDM API for Decoder.

- Multi-channel reentrant software.

- The implementation has been tested on a variety bitstreams and audio files for robustness and quality.

- Optimized for low footprint and processing power.

Decoder Validation

The WMA decoder implementation has been tested for conformance against the WMA Test specification (as defined in "IC Test Spec v10.0 Revision I.doc"), for Revision-E testvectors. The decoder has also been tested for robustness against bitstream errors and quality based on listening tests.

Resource requirements on ARM9E Processor

Function	MCPS	Pgm	Tables	Static	Scratch
	Peak	ROM (kb)		RAM (kb)	
Decode	21.2	39.6	43.8	33.9	0

Note

The Data Memory mentioned in the above Table does not include Input/ Output buffers.

MCPS/MIPS indicate the CPU usage for processing Stereo/320 Kbps/48 KHz.

MCPS measurement on 0 wait-state memory access

Details of ARM9E Resources required

CPU Loading

CPU	Simulator		Hardware	
Description	Ave MCPS	Peak MCPS	Ave MCPS	Peak MCPS
High Rate, 320 kbps, 48khz	17.3	21.2	27.1	32.8
Low Rate, 22 kbps, 22khz	15.3	18.5	21.8	27.2
Mid Rate, 32 kbps, 44.1khz	16.1	19.6	24.9	29.7

Memory Usage

Program	Tables	Static	Scratch	Stack	Input	Output
39.6	43.8	33.9*	0	< 1	1	8

Memory Breakup

Tables				Static	
7.01	29.52	6.56	0.77	0.2	33.7*

Note:

- Memory numbers are in KB (Kilobytes)
- I/O Buffer size for single input/output buffers
- Ittiam WMA decoder does not support 32 kHz stereo files encoded at 22 kbps using WMA v4.0/4.1 encoder. These files are optional in WMA conformance test.
- Performance numbers on Simulator generated with ARM RVDS Tools version 2.1 *with 0-wait state memory access and without Cache*
- Hardware performance generated on a ARM926E processor with 16Kb of I Cache and 8 Kb of DCache
- Hardware performance generated under Linux 2.6 , using the ARM-GCC 3.4.3 Compiler
- MCPS numbers on the hardware will vary with the I-Cache and D-Cache size and with the memory configuration/place

* By default, only for files without packet loss, the decoder gives a constant number of output samples each frame. But the decoder can be enabled to give constant number of output samples for all files, in which case the static memory requirement increases by 8 KB.

Notice
Ittiam Systems reserves the right to make changes to its products or discontinue any of its products or offerings without notice. Ittiam warrants the performance of its products to the specifications applicable at the time of sale in accordance with Ittiam's standard warranty.