

Ittiam WMA Pro Decoder

WMA Pro Decoder

Microsoft® Windows Media™ Audio 9 Professional (WMA Pro) codec is a popular audio coding standard, which is a part of the Microsoft® Windows Media ® series of technologies. WMA Pro was introduced by Microsoft Corporation in 2002. This codec was the first of its kind to support stereo, 5.1 and 7.1 discreet audio channels. Additionally, these new codecs contain support for 16 and 24 bit audio and sampling rates up to 96 KHz.

Ittiam's WMA Pro Decoder is an implementation of the WMA9 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.

This version of the decoder has the support for M1 profile only. It can decode stereo and 5.1 coded files with bitrate upto 384 Kbps and sample rates of 44k.1 kHz and 48 kHz.

Features

- Decoding of WMA Pro bit stream.
- M0 and M1 profiles of decoding.
- Supports all bit-rates from 128 kbps to 384 kbps.
- Supports sample rates of 44.1 kHz and 48 kHz.
- Supports both 16-bit and 24-bit output.
- Supports up to 5.1 channel output
- The decoder is compliant for M1 profile QL2 compliance level.
- Implementation is fully compliant to the Windows Media Technology implementation test specification.
- Supports a simple C callable with flexible memory allocation scheme.
- Multi-channel, Reentrant software.
- The implementation has been tested on a variety of bitstreams and audio files for robustness and quality.
- Optimized for low footprint and processing power.

Decoder Validation

The WMA Pro decoder implementation has been tested for conformance against the WMA Test specification (as defined in the Windows Media Technology implementation test specification v9.0.doc). The decoder has also been tested for robustness against bitstream errors and quality based on listening tests.

Resource Requirements on TI C64x Processor

Function	MCPS	Pgm	Tables	Static	Scratch
	Peak	ROM (kb)		RAM (kb)	
Decode (M0 Profile)	20.67	127	112	33	40
Decode (M1 Profile)	57.7	127	112	49	72

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

The size of input buffer is 0.125 Kbytes and output buffer is 48.0 Kbytes.

MCPS/MIPS indicates the CPU usage for processing 5.1/384 Kbps/48 KHz /24bits.

Memory needs to be aligned at 8 byte boundary.

MCPS measurement on 0-waitstate-memory access.

Details of resource requirement on C64x

CPU Loading

CPU	Simulator		Hardware	
Description	Ave MCPS	Peak MCPS	Ave MCPS	Peak MCPS
M0 Profile	14	20.6	40	61
M1 Profile	46	57.72	194	216

Memory Usage

Profile	Program	Tables	Static	Scratch	Input	Output
M0 Profile	127	112	33	40	0.125	16
M1 Profile	127	112	49	72	0.125	48

Note:

- Memory numbers are in KB (Kilobytes)
- Performance numbers on Simulator generated with C64x Cycle Accurate Simulator with 0 wait state memory access.
- Hardware configuration performance generated on a TMS320DM642 processor with all the program and data placed in external memory, with cache configuration of 16KB L1 P Cache, 16 KB L1 D cache and 64 KB L2 cache, and cache thrashed after decoding each frame.
- MCPS numbers on the hardware will vary with the I-Cache and D-Cache size and with the memory configuration/placement.
- Program memory does not include the code size of the testbench and standard library functions.
- Data memory should be aligned

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.

Microsoft Windows Media is a trademark of Microsoft Corporation.
Microsoft Windows Media Audio is a trademark of Microsoft Corporation.



Kane Computing Ltd
7 Theatre Court, London Road,
Northwich, Cheshire, CW9 5HB, UK.
Tel: +44(0)1606 351006
Fax: +44(0)1606 351007/8
Email: sales@kanecomputing.com
Web: www.kanecomputing.co.uk