AceThought
Your Partner in Innovation

VC-1 (WMV9) Software Decoder

for Intel x86 and ARM Cortex-A (ARMv7 & ARMv8) Processors

Overview

AceThought VC-1 (WMV9) software Decoders IP is available on a range of Intel x86 and ARM Cortex Ax platforms. Our VC-1 software video decoders are designed for performance, multi-threading, conformance and variety across mobile and desktop processors and operating systems.

SMPTE (Society for Motion Picture Television Engineers) VC-1 has been adopted as a mandatory video format for HD-DVD and Blue-ray.

Benefits

- Optimized for 32 and 64 bit **ARM Cortex-A** (ARMv7, ARMv8) and **Intel x86** architecture.
- Supported on **Android**, **iOS** (iPhone, iPad), **Windows 10 Phone**, **Linux**, **Mac OSX** and **Windows**.
- Multi-thread for multi-core processors.
- **ANSI C** implementation with key modules optimized for vector instructions (ARM **NEON** and Intel **SSE**, **AVX**).
- Efficient software architecture
- Re-entrant library
- Error detection of lost packets and frames
- Availability of both C and C++ interfaces for easy integration.
- 720p HD decoding on dual core and 1080p HD decoding on quad core.

Features

- Fully compliant with SMPTE 421M VC-1 **Simple, Main & Advance Profile**
- I, P and B pictures
- Variable Sized Transform, 16-Bit Transform, Overlapped Transform
- 4 Motion Vector, Extended Motion Vector
- ½ and ¼ pixel interpolation
- Start Codes
- Loop Filter (Deblocking)
- Dynamic resolution change
- Adaptive Macroblock Quantization
- Intensity Compensation
- Range Adjustment
- Field & Frame Coding
- Gop Layer
- Display Metadata

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Performance

Ace Thought's Multi-threaded VC-1 decoder processing requirement is measured in millions of cycles per second (MHz). The Table 1 below summarizes the MHz for Single-Threaded VC-1 decoder on single core ARM Cortex-A9 application processor with NEON™ Advanced SIMD and DDR2 RAM.

Table 1. Performance Benchmark Numbers for Single Core ARM Cortex-A9

Profile	**Resolution**	**Bit-Rate**	**Frame-Rate**	**MHz** *(Single-Threaded)*
Main	720x480	2Mbps	24fps	322
Advance	720x480	2Mbps	24fps	390
Main	1280x720	4Mbps	24fps	688
Advance	1280x720	4Mbps	24fps	815

The Table 2 below summarizes the MHz for Dual-Threaded VC-1 decoder on dual core ARM Cortex-A9 application processor with NEON™ Advanced SIMD and DDR2 RAM.

Table 2. Performance Benchmark Numbers for Dual Core ARM Cortex-A9

Profile	**Resolution**	**Bit-Rate**	**Frame-Rate**	**MHz** *(Single-Threaded)*
Main	720x480	2Mbps	24fps	245
Advance	720x480	2Mbps	24fps	298
Main	1280x720	4Mbps	24fps	484
Advance	1280x720	4Mbps	24fps	596
Main	1920x1080	6Mbps	24fps	1165