AceThought
Your Partner in Innovation

HEVC (H.265) Software Video Decoder

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

Overview

AceThought has been at the forefront of development of products based on HEVC technology and our HEVC software Decoders IP is available on a range of Intel x86 and ARM Cortex Ax platforms. Our HEVC Decoder implements Main Profile, Main 10 Profile & Main Still Picture Profile of the ITU - T H.265 standard.

H.265, known as HEVC (High Efficiency Video Coding) is a successor to H.264 or AVC, is the latest video codec standard. HEVC achieves up to 2X bandwidth savings over previous generation H.264/MPEG-4 AVC based technologies. The HEVC standard supports UHD resolutions, including 4K and 8K, and format range extensions (RExt) for higher bit depths and up to 4:4:4 chroma sub sampling.

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.

Features

- Fully compliant with Recommendation ITU-T H.265 Main, Main 10 and Main Still Picture profile
- I, P and B Picture
- Tiles, Slices and Dependent slices
- All Coding Tree Block Sizes (64 to 16)
- All Transform Block Sizes (32 to 4)
- All intra prediction modes and sizes
- Symmetric and Asymmetric Motion Partitions.
- All inter prediction unit sizes
- In-loop Deblocking filter
- Sample Adaptive Offset

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Performance - ARM

The Table 1 below summarizes the CPU Load for Quad-Threaded HEVC decoder on 1.6 GHz quad core ARM Cortex-A15 application processor with NEON™ Advanced SIMD running under Android OS 4.3.

Table 1. Performance Benchmark Numbers for 1.6 GHz Quad Core ARM Cortex A15

Profile	Resolution	Bit-Rate	Frame-Rate	CPU Load
Main	720x480	1Mbps	24fps	11 %
Main	1280x720	2Mbps	24fps	25 %
Main	1280x720	3Mbps	24fps	30 %
Main	1920x1080	3Mbps	24fps	55 %
Main	1920x1080	4Mbps	24fps	60 %

Performance – Intel

The Table 2 below summarizes the CPU Load for Quad-Threaded HEVC decoder on 2.5 GHz dual core Intel Core-i5 application processor running under 64-bit Windows 7 OS.

Table 2. Performance Benchmark Numbers for 2.5 GHz Dual Core Intel Core-i5

Profile	Resolution	Bit-Rate	Frame-Rate	CPU Load
Main	1280x720	2Mbps	24fps	11 %
Main	1280x720	3Mbps	24fps	14 %
Main	1920x1080	3Mbps	24fps	21 %
Main	1920x1080	4Mbps	24fps	25 %
Main	1920x1080	6Mbps	24fps	27 %
Main	1920x1080	10Mbps	24fps	33 %