



# HEVC ENCODER

## Broadcast-Quality Real-Time HD Encoders for x86 Processors

### Key Features

- Compression Quality Levels Approaching HM Reference Model
- Main-8, Main-10 Profiles
- 720, 1080 and up to 4K Resolutions
- CBR, VBR, ABR Support
- Support for Tiles, Slices, Dependent Slices
- Support for Multiple Streams
- Up to Level 5.0 Main Profile
- Slice Types – I, P and B
- Coding Units 64x64, 32x32, 16x16 and 8x8
- Prediction Units Including Asymmetric Partitions
- Transform Units 32x32, 16x16, 8x8 and 4x4
- De-Blocking Filter
- Sample Adaptive Offset Filter
- Entropy Coding – CABAC
- Highly Efficient Multi-Threaded Implementation to Exploit Multiple Cores
- Re-Entrant Library Supports Multiple Instantiations

The Squid Systems high performance, high quality HEVC software encoder supports encoding at multiple resolutions using proprietary technologies to achieve higher video quality at lower bit rate than competing video encoders.

The Squid HEVC encoder supports a range of quality levels, allowing optimized solutions to be developed for applications including broadcast head-end equipment, cloud based encode / transcode servers, DVRs, NVRs, STBs/OTTs, video conferencing servers, home media servers, surveillance servers, and automotive driver assistance systems.

### Key Benefits

- Flexible Support for Variety of Resolutions, Multiple Streams, Proprietary Algorithms, Variable Quality / Compression Levels
- Supports Evolving Standards and Extensions
- Upgradeable for Future Algorithmic Improvements

The Squid HEVC real-time encoder is available in versions optimized for the highest compression quality or for higher stream density. It is available on x86 based platforms.

### Real-Time Product Configurations

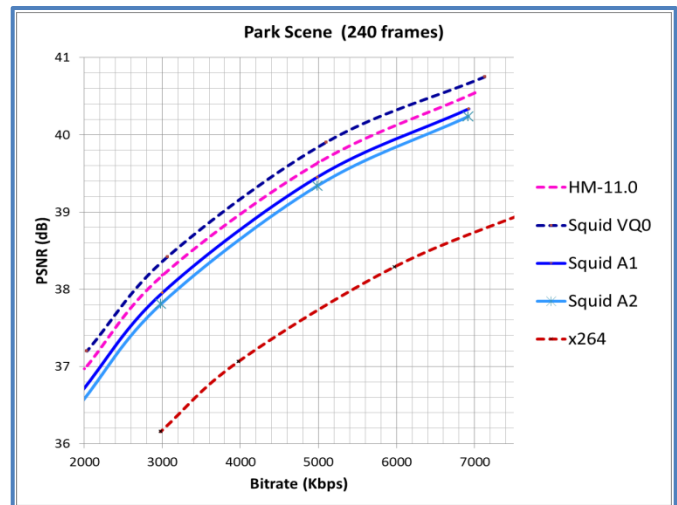
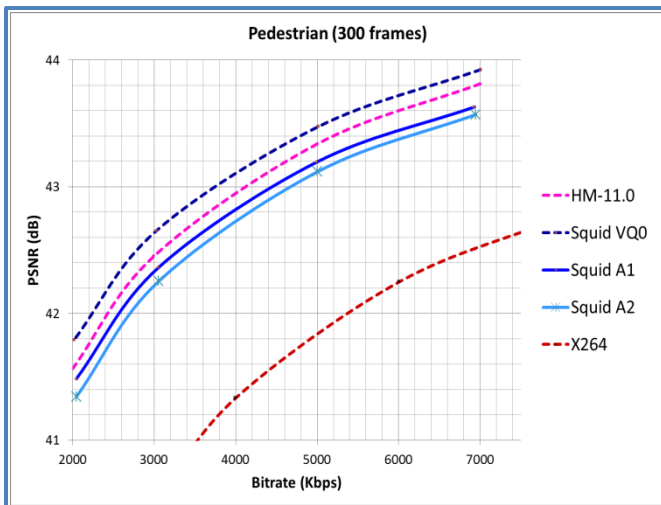
Product	Application Domain	Platform	Realtime Encode Stream Density
A1	Highest Quality Compression	Dual 8-12 Core Xeon Processors	1 x 1080p30 1 x 720p60 or 2 x 720p30
A2	Professional Multi-Stream Encode	Dual 8-12 Core Xeon Processors	2 x 1080p30 2 x 720p60 or 4 x 720p30

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## Compression Comparison on Intel® Xeon® 16-Core System

Squid A1 Encoder:	Real-time, single stream 1080p30
Squid A2 Encoder:	Real-time, dual stream 1080p30
Squid VQ0 Reference Algorithms:	Not real-time, 1080p
HM11 H.265 Reference Encoder:	Not real-time, <b>500x slower</b> than real-time, 1080p
X.264 Encoder:	Best quality settings, <b>10x slower</b> than real-time, 1080p



## Fulfilling the Promise of H.265: a 50% Reduction over H.264 Bit Rates

Encoding results are available for a variety of video clips which demonstrate the superior results achieved with Squid H.265 HEVC real-time A1 or A2 encoders. The Squid A1 real-time encoder generally provides bit rate reductions in the area of 45-55%, at equivalent PSNR (peak signal-to-noise ratio, measured in dB), when compared to the popular open-source x.264 encoder configured for maximum encode quality / non-real-time single-pass operation.

The H.265 HM reference model and the Squid VQ0 algorithm set are presented as references, and do not operate in real-time.