Implementing Entropy Codec for H.264 Video Compression Standard

Abstract

Entropy coding is a lossless compression technique which is supported in H.264/AVC standard by different techniques. According to baseline and the extended profiles of H.264/AVC, two variable length techniques are seen. The first one is context adaptive variable length coding (CAVLC) and the other is exponential Golomb (Exp-Golomb) one. The CAVLC is used to quantize transform residues after reordering them by ZigZag scanning while Exp-Golomb coding is used to quantize other syntax elements. Within the frame of realizing the whole H264 standards, this paper, introduces an implementation of these two codec techniques for baseline profile using Matlab and Simulink. The main concept is to implement CAVLC and Exp-Golomb decoder according to H.264/AVC standard and then device a technique to implement CAVLC & Exp-Golomb encoder. The different implementations are utilized to verify each other.

References

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A HIGH PERFORMANCE AND LOW POWER HARDWARE ARCHITECTURE FOR H.264 CAVLC ALGORITHM, Esra Sahin and Ilker Hamzaoglu Faculty of Engineering and Natural Sciences, Sabanci University 34956, Orhanli, Tuzla, Istanbul, TURKEY.

Index Terms

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Keywords

Context adaptive variable length coder (CAVLC), Entropy coding, Exp-Golomb, H.264/AVC.