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 for 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 H246 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

Implementing Entropy Codec for H.264 Video Compression Standard


6. Thomas Wiegand, Gary J. Sullivan, Senior Member, IEEE, Gisle Bjøntegaard, and Ajay Luthra, Senior Member, IEEE, "Overview of the H.264/AVC Video Coding Standard", IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, VOL. 13, NO. 7, JULY 2003

7. Xiaohua Tian, Thinh M. Le, Yong Lian, Entropy Coders of the H.264/AVC Standard


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

Computer Science Image Processing

Keywords

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