

Abstract

The latest video compression standard HEVC was established by the Joint Collaborative Team on Video Coding (JCT-VC) and provided various encoding tools to achieve high coding efficiency in comparison to previous standards at the cost of higher computational complexity. However, the allowable computational capability of a portable device for real-time video encoding is generally constrained. Therefore, that well allocates the computational complexity of video encoding under the complexity constraint while maintaining optimal rate-distortion performance is important.

The analysis of complexity can effectively understand the distribution of HEVC overall complexity. In this project, we propose a method to allocate and analyze the computational complexity of HEVC for high-resolution video on devices with limited computational resources. We first distribute the complexity evenly to each GOP at the GOP level. At the picture level, we give different computational complexity according to the quantization parameter (QP) of each picture. Next, the picture plane is assigned to the largest coding unit (LCU) level by referring to the Mean Absolute Difference (MAD) of the previous picture.

In this paper, we use three ways to do analysis, CU layer cutting, Motion Vector and Quantization Parameter. From these three aspects, On the other hand, we can get the complexity of how the frames are allocated to use, and then by the variety of information obtained to determine the complexity of the distribution, to achieve the desired results.