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Open Multiprocessing Aided Overlapped Motion Compensated Temporal Interpolation

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ABSTRACT

Many todays' multimedia applications demand low bit rate transmission of the video sequences due to the limited bandwidth of transmission channels. Video compression is particularly required for these applications for the reception of an acceptable video quality at receiver. An important part of many video compression techniques is motion compensation. Overlapped Motion Compensated Temporal Interpolation (OMCTI) is a block based search approach for the temporal interpolation of skipped frames. It generates interpolated frames with considerably improved video quality at the receiver. Motion compensation is computationally complex and data intensive operation. Multi-core processor has captured major portion of the market due to its enhanced computational capabilities. Increase in single-core microprocessors performance is limited by semiconductor scaling associated power and thermal challenges. Currently multi-core CPUs have turned out to be the mechanism for enhancement of processor's performance to overcome limitations. Parallel processing changes the whole way we live. In this work, we speed up the motion compensation by leveraging the multicore processors and an OpenMP based multithreaded approach is established to reduce the computational complexity of the OMCTI. The performance of the proposed multi-core processor technique is evaluated with reference to the bench marker as single-core processor in order to analyze the performance tradeoff. The paper is concluded with a discussion about the generated experimental results. Multi-core processors achieve performance enhancement of 30% - 50% in different scenario while the single-core processor, the bench marker, performance is improved by 3% at the most.

configurable computing resources that can be rapidly provisioned and released with minimal management effort [1]. Advances in virtualization, storage, connectivity and processing power are combined to create a new ecosystem for cloud computing. It is an internet based service delivery model which provides internet based services, computing and storage for users in all markets