ABSTRACT

There have been great interests in developing video compression techniques due to the increased multimedia applications. This research work describes the development of efficient motion estimation algorithms for multimedia video compression. The features of the algorithms include better compression quality and high compression speed. The first method used for motion estimation is adaptive, in the manner in which, frames with very few motion changes are predicted in its integer wavelet domain and for high motion activity frame, motion compensation is applied in its spatial domain. This approach gives good compression quality and compression rate. Secondly, a two-pass motion estimation algorithm using trace calculation with reduced search is introduced as a method to enhance the speed of video compression. Thirdly, a parallel motion estimation using cluster computing is applied to perform compression on different input frames simultaneously. Finally, computing load is distributed in a dynamic balanced manner among all processors by the resource management technique of cluster computing. The outcome of this research work is very much useful for multimedia applications such as video Conferencing and Telemedicine.