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Sent: Tuesday, October 15, 2002 9:12 PM
To: Jvt-Experts (jvt-experts@mail.imtc.org)
Subject: [jvt-experts] Remark on JVT-E068 comment on section 7.4.5.1

The USNB comment about section 7.4.5.1 proposes removal of clipping the motion comp range to +/- 19 integer samples outside the picture. In response to the question raised, the software correctly captured the intent of this design at the time this restriction was put in place. Motion vectors outside of this range do not address new samples and are not needed to expand the set of prediction samples. It was thought that restricting the MV range to +/-19 outside the frame may cause inefficiency in the coding of MV and hence the motion vector range is unrestricted for prediction. The restriction of 7.4.5.1 clarified the handling of these unrestricted motion vectors.

The benefit of allowing prediction from these unrestricted MV is questionable. It is true that if the predictor MV is outside of this range, there may be a small savings in coding the current vector as lying outside of this range. However, if the prediction MV is not outside of this range there is a small cost of coding the current vector as lying outside of this range. Any benefit from coding a MV outside of this range is small and difficult to attain. The encoder must decide to pay the cost of coding the first MV outside of this range in expectation of benefit in coding later MVs outside of this range. Looking at the entire motion field, given a collection of MB samples addressed by a motion field, the same collection of MB samples can be addressed by a motion field lying entirely in this range. The flexibility of allowing prediction to use MVs outside of this range is of little if any practical value and certainly injects confusion to someone trying to understand the text.

As an alternative I propose restricting the range of motion vectors rather than just clipping the range during motion comp or removing this restriction. This provides a clear limit to an implementer and removes flexibility of dubious value.

Alternate Proposal

Restrict the motion vector range to +/- 19 integer samples outside of the picture (for both motion comp and prediction)

Regards,

Louie

The use of the jvt-experts list is intended only for the video coding standardization work conducted by the Joint Video Team (JVT) of ISO/IEC JTC1/SC29/WG11 (MPEG) and ITU-T SG16 Q.6 (VCEG).

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