

BoG on CE9: MV Coding and Skip/Merge operations

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- BoG report JCTVC-E481
 - Y.-W. Huang, Y. H. Tan, I.-K. Kim, T. Sugio, M. Zhou, T.K. Tan, E. Francois, K., W.-J. Chien, S. Sekiguchi, S. Park, W. Wan
- Background of things already agreed in Group A
 - Fix motion data compression (also compress refidx and mode)
- Topics
 - Test on simplifications
 - Test on temporal motion vector predictor
 - Test AMVP and MERGE skip
 - Further discussion

Test on Simplifications

- Perform simulations on M31 and T with
 - Simplification F (simplified AMVP spatial candidate scanning)
 - Simplification L (reduce the merge candidates for skip)
- Result:
 - Simplification F does not cause coding loss
 - Simplification L causes coding loss of 0.1% on average
- Recommends
 - To adopt simplification F

Test on Temporal Motion Vector Predictor

- Perform simulations with different temporal motion vector predictor
 - From M31 and T (Bottom right, then centered)
 - From HM2.0 (collocated centered)
- Result:
 - HM2.0 collocated introduces a loss of 0.8% and 1.1%
- Recommends
 - To adopt temporal predictor used in M31 and T

Test on AMVP and MERGE skip

- Perform simulations with different skip modes
 - AMVP skip (refidx derived from spatial neighbors)
 - MERGE skip (refidx for temporal mvp derived from spatial neighbors)
- Result:
 - 1.8% gain on average for both cases
 - -1.3% RA HE -1.7% RA LC -1.6% LD HE -2.6% LD LC (AMVP skip)
 - -1.4% RA HE -1.9% RA LC -2.1% LD HE -1.6% LD LC (MERGE skip)
- Recommends
 - To adopt MERGE skip

Further discussion

- Following concerns are raised and suggested to be further studied in either AGH or CE.
 - Study of spatial MVP scaling for small (8x8, 4x4) blocks
 - Study of the use of temporal MVP for small (16x16, 8x8, 4x4) blocks
 - Skip mode with no fixed reference index
 - Unification of the temporal candidates (H or Collocated): suggestion to check one position only
 - Encourage to test/study unified solutions for candidate positions for AMVP and Merge
- Reference of related CEs
 - Spatial MVP scaling with simplified AMVP spatial candidate scanning
 - Temporal motion vector predictor (Bottom right, then centered)
 - Motion data compression fix
 - MERGE skip (refidx for temporal mvp derived from spatial neighbors)