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| *Title:* | **SCE5: Results of test 5.1.10 on inter-layer motion information prediction** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution describes inter-layer motion information prediction of JCTVC-L0065, and reports the simulation results. The motion information of co-located PU in the base layer is employed as the first candidate for merge mode and motion vector prediction. For the merge mode, a pruning process is only performed between base layer motion and first spatial candidate.

# Introduction

At the last meeting, SCE5 [1] was set up for testing inter-layer syntax prediction tools for SHVC. SCE5.1 includes inter-layer motion information prediction, and the related proposal [2] is described in SCE5.1.10.

# Inter-layer motion information prediction

Since motion information of the current PU in the enhancement layer is likely to be similar to the co-located PU in the base layer (colBase), the motion information of the co-located PU in the base layer is assigned as the first candidate for both merge mode and motion vector prediction. By the way, the maximum number of candidate is not changed. The center position (T2 in Fig. 1) is used to get the colBase, and motion vector of the colBase is scaled by the spatial resolution factor.

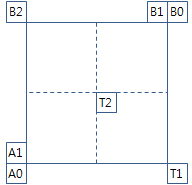


Figure 1. Candidate position

Table 1 represents the simplified derivation process for merging candidates. Currently, all the spatial candidates are compared with colBase to check duplication in SHM 1.0. To simplify pruning process, only one duplication check between colBase and the first spatial candidate (A1 in Fig. 1) is performed for merge mode.

Table 1. Merge candidate derivation process

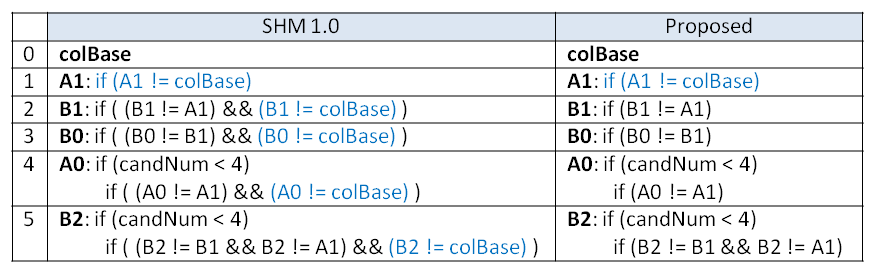
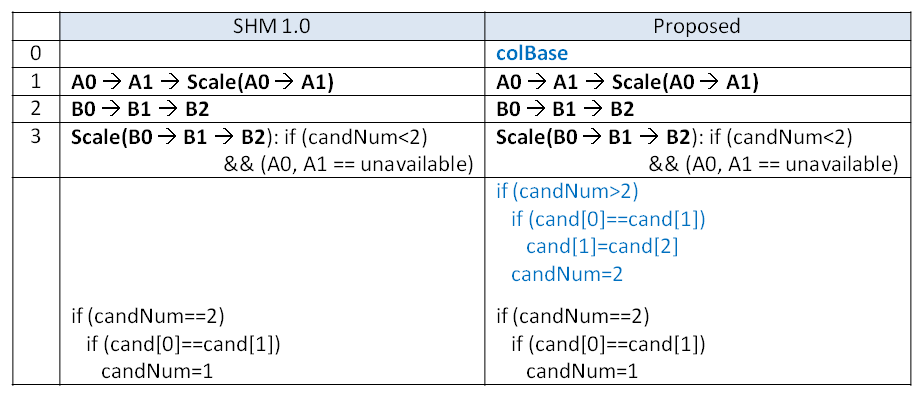


Table 2 represents the proposed derivation process for motion vector predictor candidates. The motion information of the colBase is added as the first motion vector prediction candidate, and the motion vector of the colBase is scaled when the POC of reference frame of the colBase is different from the POC of reference frame of the current PU in enhancement layer. In addition, duplication check and pruning process are performed when the number of candidate is larger than two after deriving spatial candidates.

Table 2. AMVP candidate derivation process



# Simulation results

The proposed method was performed based on SHM 1.0 software under common test condition. The experiments are conducted on the cluster platform of 64-bit Linux version and cross-checked by Canon.

Table 3 represents the simulation results of the simplified pruning process for merge mode.

Table 4 represents inter-layer motion prediction for AMVP.

Table 3. Simplified pruning process for merge mode



Table 4. Inter-layer motion prediction for AMVP



# Conclusions

The simplified pruning process for merge mode in SCE5.1.10 gives unnoticeable losses with BD-rate of 0.08% for RA and 0.09% for LD-P 2x spatial scalability. One the other hand, the inter-layer motion prediction for AMVP does not give additional gain.

# Patent rights declaration(s)

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# Reference

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2. J. Lee, H. Lee, J. W. Kang, J. S. Choi, “TE5: Results of test 5.2.3 on inter-layer motion vector prediction”, JCTVC-L0065, Jan. 2013, Geneva, Switzerland.