



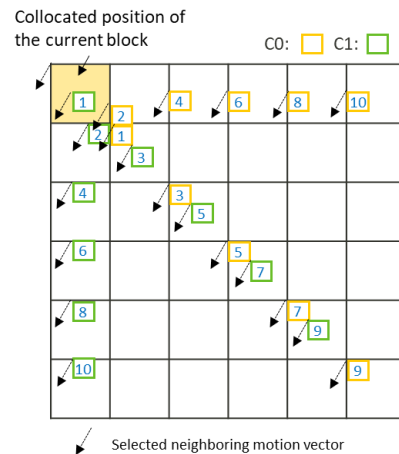
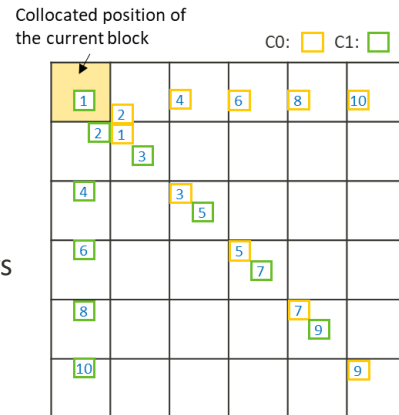
JVET-AD0048 EE2-related: Cross-component Merge Mode with Temporal Candidates

Hsin-Yi Tseng, Chia-Ming Tsai, Cheng-Yen Chuang,
Chih-Wei Hsu, Ching-Yeh Chen, Tzu-Der Chuang,
Olena Chubach, Yi-Wen Chen, Yu-Wen Huang, and
Shaw-Min Lei

Overall Summary

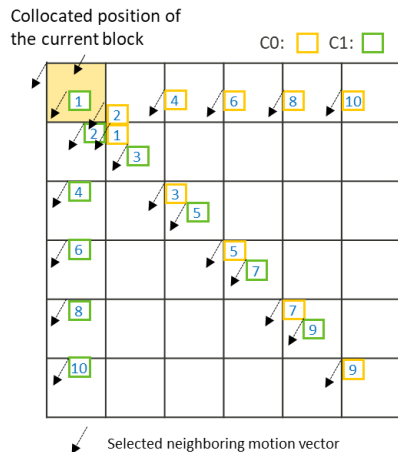
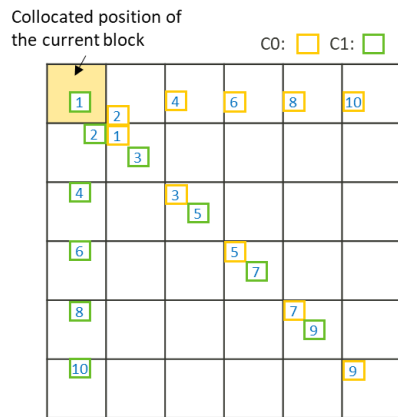
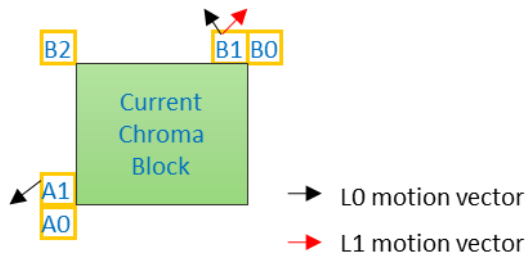
- Cross-component merge (CCMerge) mode was proposed in JVET-AC0315
 - Inherit cross-component prediction models from spatial adjacent and non-adjacent neighbors
- Propose to further inherit CCP model parameters from temporal candidates
- The merge list additionally includes the following candidates
 1. Temporal candidates
 - Use the temporal candidates in ECM inter merge mode
 2. Shifted temporal candidates
 - The collocated block position is shifted by a selected neighboring motion vector
- The additional gain over EE2 Test-1.6a in RA:

	CCMerge + Proposal over Test-1.6a				
	Y	Cb	Cr	EncT	DecT
Class A1	-0.37%	-0.32%	-1.77%	90%	84%
Class A2					
Class B	0.03%	-0.52%	-0.72%	87%	82%
Class C	0.00%	-0.26%	-0.35%	88%	81%



Proposed Method

- Temporal candidates
 - Inclusion order: $C0_1 \rightarrow C0_2 \rightarrow \dots \rightarrow C0_{10}$.
 - If $C0_i$ is not available, $C1_i$ will be used to replace $C0_i$
- Shifted temporal candidates
 - The positions of the collocated block, $C0_i$, and $C1_i$, are shifted by a selected neighboring motion vector
 - The neighboring motion vector is selected from one of the five spatial neighbors
 - The first MV which uses the collocated picture as the reference picture is selected.
- Candidates are reordered based on template SAD cost



Experimental Results

- The CCMerge mode and the proposed method were implemented on top of ECM-8.0
- Maximum number of allowed candidates is set to 6
- The additional gain over ECM 8.0 and EE2 Test 1.6a in random access configuration:

	CCMerge + Proposal									
	Over ECM 8.0					Over Test-1.6a				
	Y	Cb	Cr	EncT	DecT	Y	Cb	Cr	EncT	DecT
Class A1	-0.58%	-1.36%	-4.11%	105%	104%	-0.37%	-0.32%	-1.77%	90%	84%
Class A2										
Class B	0.00%	-2.22%	-2.22%	103%	102%	0.03%	-0.52%	-0.72%	87%	82%
Class C	-0.05%	-0.55%	-0.41%	102%	101%	0.00%	-0.26%	-0.35%	88%	81%
Overall										
Class D	0.05%	-0.82%	-0.88%	102%	101%	0.07%	-0.58%	-0.23%	87%	79%
Class F	-0.14%	-1.39%	-1.35%	103%	105%	0.00%	-0.09%	-0.20%	83%	76%

*The results of Class A1 are estimated due to that "Tango2 QP22" result is not completed and is replaced by ECM 8.0 anchor result.

The EncT and DecT in the table are not accurate

Conclusions

- Proposed to further inherit CCP model from temporal candidates in CCMerge mode
- The proposed method results in promising coding gains with affordable low computational complexity
- Recommended to be further studied in EE2

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