

JVET-N0075

CE2-2.1: Simplification of constructed affine merging candidate derivation

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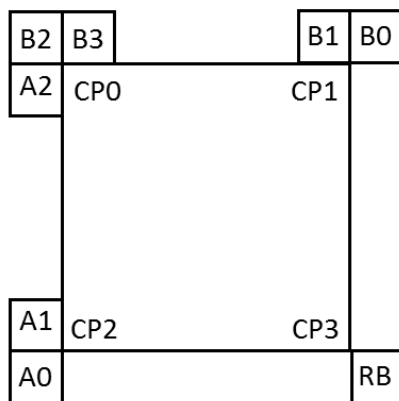
Overall Summary

- Proposed to simplify the constructed affine candidate derivation in merging list
 - Only select the MV with reference index equal to 0 for CP0, CP1, and CP2
 - The total number of comparisons is reduced from 60 to 47

	RA			LB		
	Y	U	V	Y	U	V
Proposed method	0.02%	-0.01%	0.00%	0.02%	0.04%	-0.08%

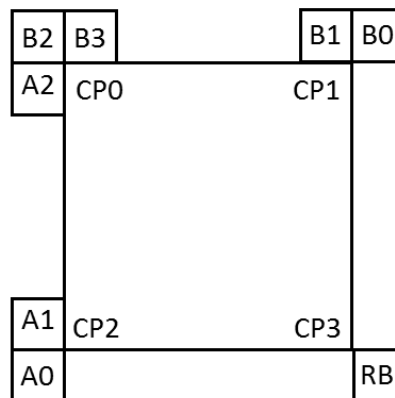
Current VTM-4.0

- The constructed affine candidate derivation includes two stages
 1. MV selection for each control point (8 comp.)
 - Take the MV of the first inter-coded neighbouring block
 2. Control point set validation (52 comp.)
 - Check MV availability
 - Check if the reference indices of all CPMVs are the same



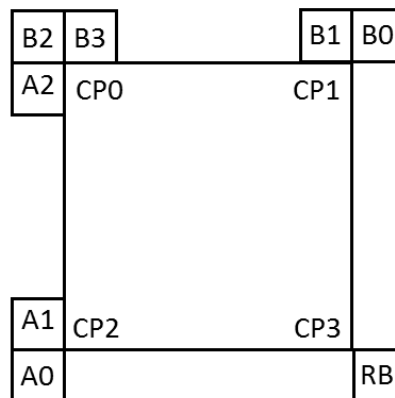
Proposed Method

- The constructed affine candidate generation includes two stages
 1. MV selection for each control point (15 comp.)
 - Take the MV of the first inter-coded neighbouring block
 2. Control point set validation (32 comp.)
 - Check MV availability
 - Check if the reference indices of all CPMVs are the same



Proposed Method

- The constructed affine candidate generation includes two stages
 1. MV selection for each control point (15 comp.)
 - ~~Take the MV of the first inter-coded neighbouring block~~
 - For list 0 and list 1, take the first MV with reference index equal to 0 for CP0, CP1, and CP2
 2. Control point set validation (32 comp.)
 - ~~Check MV availability~~
 - Check if the reference indices of all CPMVs are the same



Comparison

Number of comparisons	VTM-4.0		Proposed	
CPMV selection	8		15	
affine model	6-para.	4-para.	6-para.	4-para.
MV availability	24	8	24	8
reference index check	16	4	0	0
Total	60		47	

Simulation Results

Random access Main10					
Over VTM-4.0					
	Y	U	V	EncT	DecT
Class A1	0.01%	0.02%	0.10%	100%	99%
Class A2	0.00%	-0.04%	0.02%	100%	98%
Class B	0.04%	0.01%	0.02%	100%	99%
Class C	0.00%	-0.03%	-0.13%	100%	100%
Class E					
Overall	0.02%	-0.01%	0.00%	100%	99%
Class D	-0.01%	-0.01%	-0.04%	100%	100%
Class F	-0.02%	0.01%	-0.04%	100%	103%

Low delay B Main10					
Over VTM-4.0					
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.05%	-0.06%	0.23%	100%	102%
Class C	0.03%	0.34%	-0.19%	100%	103%
Class E	-0.04%	-0.21%	-0.44%	100%	97%
Overall	0.02%	0.04%	-0.08%	100%	101%
Class D	0.12%	-0.11%	0.02%	102%	101%
Class F	-0.07%	-0.27%	-0.47%	100%	100%

Conclusions

- Simplify the constructed affine candidate derivation
 - Only select the MV with reference index equal to 0 for CP0, CP1, and CP2
 - The total number of comparisons is reduced from 60 to 47

	RA			LB		
	Y	U	V	Y	U	V
Proposed method	0.02%	-0.01%	0.00%	0.02%	0.04%	-0.08%

The background is a solid blue color with a repeating pattern of white line-art icons. These icons include various nautical items like anchors, lifebuoys, seashells, and fish, as well as outdoor and travel items like a compass, a map, a tent, a backpack, and a camera. There are also symbols for weather like a sun and a lightning bolt, and other items like a compass, a map, a tent, a backpack, and a camera.

MEDIATEK

Thank you!