

A decorative geometric shape, resembling a stylized star or a cluster of overlapping triangles, is located on the left side of the slide. It is rendered in a light gray color.

JVET-N0165

On spatial candidate list construction

Hikvision

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- Introduction
- Proposed Method
- Experimental Results
- Conclusion

■ Current Spatial Candidate list construction for Merge Mode and AMVP

Normal merge	Triangle merge	IBC merge	Affine merge	ATMVP
A1-B1-B0-A0-B2	A1-B1-B0-A0-B2	A1-B1-B0-A0-B2	A0-A1-B0-B1-B2	A1

Normal AMVP	IBC AMVP	Affine AMVP
Check left: A0-A1- (scaledA0-ScaledA1), Then Check above: B0-B1-B2- (scaledB0-ScaledB1- ScaledB2)	Check left: A0-A1, Then Check above: B0-B1-B2	Check left: A0-A1, Then Check above: B0-B1-B2

Proposed Method-Part1

Normal merge	Triangle merge	IBC merge	Affine merge	ATMVP
B1-A1-A0-B0-B2	B1-A1-A0-B0-B2	B1-A1-A0-B0-B2	B0-B1-B2-A0-A1	B1

Normal AMVP	IBC AMVP	Affine AMVP
Check above: B0-B1-B2-(scaledB0-ScaledB1-ScaledB2) Then Check left: A0-A1-(scaledA0-ScaledA1)	Check above: B0-B1-B2, Then Check left: A0-A1	Check above: B0-B1-B2, Then Check left: A0-A1

Proposed Method-Part2

■ Full removing of B2

Normal merge	Triangle merge	IBC merge	Affine merge
A1-B1-B0-A0	A1-B1-B0-A0	A1-B1-B0-A0	A0-A1-B0-B1

Normal AMVP	IBC AMVP	Affine AMVP
Check left: A0-A1- (scaledA0-ScaledA1), Then Check above: B0-B1- (scaledB0-ScaledB1)	Check left: A0-A1, Then Check above: B0-B1	Check left: A0-A1, Then Check above: B0-B1

Proposed Method-Part2

■ Full removing of B2

Normal merge	Triangle merge	IBC merge	Affine merge
A1-B1-B0-A0	A1-B1-B0-A0	A1-B1-B0-A0	A0-A1-B0-B1- B2

Normal AMVP	IBC AMVP	Affine AMVP
Check left: A0-A1- (scaledA0-ScaledA1), Then Check above: B0-B1- (scaledB0-ScaledB1)	Check left: A0-A1, Then Check above: B0-B1	Check left: A0-A1, Then Check above: B0-B1- B2

Experimental Results-Part1

Test1: Full reorder the candidates

	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	-0.04%	-0.14%	-0.09%	99%	100%
Class A2	-0.02%	-0.01%	-0.01%	99%	100%
Class B	-0.03%	-0.01%	-0.12%	99%	97%
Class C	-0.07%	-0.19%	-0.14%	99%	98%
Class E					
Overall	-0.04%	-0.08%	-0.10%	99%	98%
Class D	-0.08%	-0.22%	-0.09%	99%	103%
Class F	0.00%	-0.02%	-0.06%	99%	100%
	Low delay B Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	-0.05%	-0.09%	-0.26%	100%	98%
Class C	-0.12%	0.17%	-0.23%	99%	99%
Class E	-0.28%	-0.64%	-1.25%	99%	99%
Overall	-0.13%	-0.14%	-0.50%	100%	99%
Class D	-0.10%	-0.29%	-0.67%	99%	96%
Class F	-0.10%	0.20%	0.09%	99%	98%

Thank for Peking university the crosscheck.

Experimental Results-Part2

Test2: Full remove B2 for merge list.

Test3: Full remove B2 for merge and AMVP list.

Test4: Partially remove B2 for merge list.

Test5: Partially remove B2 for merge and AMVP list.

	Test2			Test3			Test4			Test5		
R							0.04%	0.03%	0.01%	0.04%	-0.02%	0.02%
A												
L							0.00%	0.28%	-0.04%	0.06%	0.14%	-0.17%
B												

Thank for Peking university the crosscheck.

Experimental Results-Part2

Test2: Full remove B2 for merge list

Thank for Peking university the crosscheck.

Test3: Full remove B2 for merge and AMVP list

Thank for Peking university the crosscheck.

Experimental Results-Part2

Test4: Partially remove B2 for merge list

	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.01%	0.03%	0.11%	100%	99%
Class A2	0.03%	-0.02%	0.04%	99%	97%
Class B	0.04%	0.06%	0.00%	100%	98%
Class C	0.05%	0.02%	-0.06%	100%	98%
Class E					
Overall	0.04%	0.03%	0.01%	100%	98%
Class D	-0.01%	-0.04%	-0.04%	100%	101%
Class F	0.02%	-0.07%	-0.07%	100%	100%
	Low delay B Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.00%	-0.08%	-0.22%	100%	98%
Class C	0.01%	0.45%	0.16%	100%	96%
Class E	-0.01%	0.63%	0.00%	100%	101%
Overall	0.00%	0.28%	-0.04%	100%	98%
Class D	-0.01%	-0.09%	-0.84%	100%	99%
Class F	-0.03%	-0.44%	0.33%	100%	97%

Thank for Peking university the crosscheck.

Experimental Results-Part2

Test5: Partially remove B2 for merge and AMVP list

	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.01%	-0.06%	0.06%	100%	99%
Class A2	0.06%	0.01%	0.08%	99%	97%
Class B	0.04%	-0.04%	0.09%	100%	98%
Class C	0.05%	0.00%	-0.15%	100%	99%
Class E					
Overall	0.04%	-0.02%	0.02%	100%	98%
Class D	0.00%	0.10%	-0.02%	100%	105%
Class F	-0.02%	-0.07%	-0.05%	100%	102%
	Low delay B Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.01%	-0.03%	-0.30%	100%	100%
Class C	0.05%	0.49%	0.01%	100%	96%
Class E	0.17%	-0.03%	-0.21%	99%	99%
Overall	0.06%	0.14%	-0.17%	100%	98%
Class D	-0.05%	0.36%	-0.51%	99%	99%
Class F	-0.09%	0.13%	-0.52%	99%	95%

Thank for Peking university the crosscheck.

- This contribution proposes a candidate list construction method for merge mode and AMVP mode.
 - (1) Compared with VTM4.0, the results reportedly show that the proposed swapping method achieves 0.13%, and 0.04% BD rate reduction for, LB, and RA configurations.
 - (2) Compared with VTM4.0, the results reportedly show that the proposed method only gets XX%, and XX% BD loss for, LB, and RA configurations, respectively when removing B2 from the merge lists.
- As it is simple but valid method , it is recommendable to be adopted in the next version of VTM .

Thank you !

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