

A decorative geometric shape, resembling a stylized star or a series of overlapping triangles, is located on the left side of the slide. It is light gray and partially overlaps the white background. The shape is composed of several triangular segments that create a sense of depth and movement.

JVET-N0165

On spatial candidate list construction

Hikvision

Liying Xu, Fangdong Chen, Li Wang

- Introduction
- Proposed Method
- Experimental Results
- Conclusion

■ Current Spatial Candidate list construction for Merge Mode and AMVP

Regular 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

Regular 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

■ Reorder

Regular 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

Regular 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

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

Regular 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

- Partially removing of B2

Regular merge

A1-B1-B0-A0

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: Only remove B2 for regular merge list.

	Test2			Test3			Test4		
RA	0.03%	0.01%	-0.01%	0.05%	0.01%	0.01%	0.02%	-0.04%	-0.01%
LB	0.04%	0.19%	-0.03%	0.02%	0.12%	-0.08%	0.01%	0.01%	-0.17%

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Experimental Results-Part2

Test2: Full remove B2 for merge list

	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.02%	0.09%	-0.01%	99%	100%
Class A2	0.02%	0.07%	0.04%	99%	99%
Class B	0.03%	-0.07%	0.06%	99%	98%
Class C	0.06%	0.01%	-0.12%	99%	99%
Class E					
Overall	0.03%	0.01%	-0.01%	99%	99%
Class D	-0.02%	-0.05%	-0.05%	99%	104%
Class F	0.02%	-0.05%	-0.05%	99%	99%
	Low delay B Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.01%	-0.05%	-0.09%	100%	100%
Class C	0.02%	0.24%	0.22%	100%	101%
Class E	0.12%	0.54%	-0.28%	99%	101%
Overall	0.04%	0.19%	-0.03%	100%	101%
Class D	-0.04%	-0.44%	-0.61%	99%	96%
Class F	-0.06%	0.06%	0.19%	99%	99%

Thank for Peking university the crosscheck.

Experimental Results-Part2

Test3: Full remove B2 for merge and AMVP list

	Random access Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1	0.04%	0.13%	0.03%	99%	100%
Class A2	0.06%	-0.02%	0.09%	100%	98%
Class B	0.06%	0.00%	0.01%	99%	99%
Class C	0.04%	-0.04%	-0.05%	99%	99%
Class E					
Overall	0.05%	0.01%	0.01%	99%	99%
Class D	0.01%	0.01%	-0.06%	99%	102%
Class F	0.00%	-0.02%	-0.04%	99%	100%
	Low delay B Main10				
	Over VTM-4.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.01%	-0.04%	0.03%	100%	101%
Class C	-0.01%	0.24%	-0.06%	101%	102%
Class E	0.08%	0.23%	-0.29%	100%	101%
Overall	0.02%	0.12%	-0.08%	100%	101%
Class D	-0.02%	0.44%	0.23%	100%	101%
Class F	-0.12%	-0.12%	-0.93%	100%	100%

Thank for Peking university the crosscheck.

Experimental Results-Part2

Test4: Only remove B2 for regular merge list

	Random access Main10				
	Over HM-16.18				
	Y	U	V	EncT	DecT
Class A1	0.03%	-0.03%	0.03%	101%	102%
Class A2	0.02%	-0.01%	0.03%	101%	99%
Class B	0.03%	-0.09%	0.00%	100%	99%
Class C	0.02%	0.00%	-0.06%	100%	99%
Class E					
Overall	0.02%	-0.04%	-0.01%	100%	100%
Class D	0.01%	-0.06%	-0.02%	100%	101%
Class F	0.01%	0.06%	-0.04%	100%	100%
	Low delay B Main10				
	Over HM-16.18				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	-0.01%	-0.18%	-0.33%	100%	99%
Class C	-0.01%	0.23%	0.15%	100%	102%
Class E	0.09%	0.02%	-0.33%	100%	100%
Overall	0.01%	0.01%	-0.17%	100%	100%
Class D	-0.01%	-0.34%	-0.57%	100%	99%
Class F	-0.12%	-0.56%	0.41%	100%	98%

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 0.01%, and 0.02% BD loss for, LB, and RA configurations, respectively when removing B2 from the regular merge lists.
- As it is simple but valid method , it is recommendable to be adopted in the next version of VTM .

Thank you !

A decorative horizontal bar at the bottom of the slide, consisting of a red segment on the left and a grey segment on the right.