

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 transparent.

Non-CE6: JVET-O0381

Simplification on SBT coding

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Outline

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Introduction

■ Number of contexts for SBT in VTM5.0

SBT Syntax element	binIdx	Number of contexts
cu_sbt_flag	(cbWidth * cbHeight < 256) ? 1 : 0	2
cu_sbt_quad_flag	0	1
cu_sbt_horizontal_flag	(cbWidth == cbHeight) ? 0 : (cbWidth < cbHeight) ? 1 : 2	3
cu_sbt_pos_flag	0	1
Total contexts		7

-- All 4 related SBT flag are using CABAC, 7 context are needed.

Proposed SBT Coding

- Context modelling for SBT with proposed method

□ #Method 1

SBT Syntax element	binIdx	Number of contexts
cu_sbt_flag	(cbWidth * cbHeight < 256) ? 1 : 0	2
cu_sbt_quad_flag	Bypass	0
cu_sbt_horizontal_flag	Bypass	0
cu_sbt_pos_flag	Bypass	0
Total contexts		2

-- 5 contexts reduced, 3 context coded bin reduced.

□ #Method 2

SBT Syntax element	binIdx	Number of contexts
cu_sbt_flag	0	1
cu_sbt_quad_flag	Bypass	0
cu_sbt_horizontal_flag	Bypass	0
cu_sbt_pos_flag	Bypass	0
Total contexts		1

-- 6 contexts reduced, 3 context coded bin reduced.

Experimental Results for method 1

Anchor: VTM5.0
Test: method1

	Random access Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1	0.02%	-0.17%	0.09%	100%	101%
Class A2	0.01%	-0.02%	0.07%	100%	100%
Class B	0.02%	0.01%	-0.01%	100%	101%
Class C	0.01%	-0.17%	-0.13%	101%	103%
Class E					
Overall	0.01%	-0.08%	-0.01%	100%	101%
Class D	0.02%	-0.12%	0.24%	101%	103%
Class F	0.03%	0.02%	0.01%	101%	102%

	Low delay B Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.01%	0.23%	0.24%	100%	99%
Class C	0.05%	-0.25%	-0.21%	101%	102%
Class E	-0.02%	0.10%	-0.14%	100%	101%
Overall	0.02%	0.04%	0.00%	100%	100%
Class D	-0.06%	-0.69%	0.35%	101%	103%
Class F	0.04%	-0.04%	0.06%	100%	101%

Thanks huawei for cross-checking

Experimental Results for method 2

Anchor: VTM5.0
Test: method2

	Random access Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1	0.03%	-0.08%	0.16%	100%	100%
Class A2	0.00%	0.13%	0.05%	100%	100%
Class B	0.02%	0.05%	-0.06%	100%	100%
Class C	-0.02%	-0.07%	-0.11%	100%	101%
Class E					
Overall	0.01%	0.01%	-0.01%	100%	100%
Class D	0.02%	-0.02%	0.21%	100%	100%
Class F	0.01%	0.04%	-0.01%	100%	99%

	Low delay B Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.01%	0.05%	-0.06%	99%	96%
Class C	0.01%	0.02%	-0.06%	100%	99%
Class E	-0.02%	0.16%	-0.60%	100%	98%
Overall	0.00%	0.07%	-0.20%	100%	98%
Class D	0.01%	-0.01%	0.33%	101%	101%
Class F	-0.04%	0.29%	-0.55%	100%	99%

Thanks huawei for cross-checking

Results for method 2 VS method1

Anchor: method1
Test: method2

	Random access Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1	0.01%	0.10%	0.08%	100%	100%
Class A2	-0.01%	0.15%	-0.02%	100%	100%
Class B	0.00%	0.04%	-0.04%	100%	99%
Class C	-0.02%	0.10%	0.02%	99%	98%
Class E					
Overall	-0.01%	0.09%	0.00%	100%	99%
Class D	0.00%	0.11%	-0.02%	99%	97%
Class F	-0.02%	0.02%	-0.02%	99%	97%

	Low delay B Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.00%	-0.18%	-0.31%	100%	97%
Class C	-0.04%	0.27%	0.16%	99%	97%
Class E	0.00%	0.07%	-0.46%	100%	98%
Overall	-0.01%	0.03%	-0.19%	100%	97%
Class D	0.07%	0.68%	-0.02%	100%	98%
Class F	-0.09%	0.33%	-0.55%	99%	98%

Thanks huawei for cross-checking

Conclusion

- This contribution proposed 2 MTS index coding methods:
 - method 1: 5 contexts reduced, 3 context coded bin reduced.
 - method 2: 6 contexts reduced, 3 context coded bin reduced.
- Experimental results for proposed method :
 - method 1 : 0.01% and 0.02% for RA and LB.
 - method 2: 0.01% and 0.00% for RA and LB.
- It is recommendable to adopt method 2 into VVC.

Thank you!