

JVET-O0363

Context Reduction for intra MPM related syntax element

Hikvision

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Introduction

- The syntax intra_luma_not_planar_flag represents if the intra prediction mode is Planar or not.
- In the current scheme, intra_luma_not_planar_flag is coded by CABAC with two contexts depending on the coding mode.

Syntax element	Bin Idx					
	0	1	2	3	4	5
intra_luma_not_planar_flag[ ][ ]	intra_subpartitions_mode_flag	na	na	na	na	na

Proposed

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- Method1
  - In the proposed scheme, intra_luma_not_planar_flag is coded by CABAC with one context.

Syntax element	Bin Idx					
	0	1	2	3	4	5
intra_luma_not_planar_flag[ ][ ]	0	na	na	na	na	na

- Method2
  - In the proposed scheme, intra_luma_not_planar_flag is coded by bypass.

Syntax element	Bin Idx					
	0	1	2	3	4	5
intra_luma_not_planar_flag[ ][ ]	bypass	na	na	na	na	na

Experimental Results

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- Results for Proposed Method1 VS VTM 5.0

	All Intra Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1	-0.01%	0.05%	-0.02%	101%	100%
Class A2	0.01%	-0.04%	-0.05%	101%	100%
Class B	0.00%	0.01%	0.07%	100%	102%
Class C	-0.01%	-0.07%	0.05%	101%	104%
Class E	-0.01%	-0.07%	-0.07%	100%	103%
Overall	0.00%	-0.02%	0.01%	101%	102%
Class D	-0.01%	0.05%	-0.07%	101%	108%
Class F	0.01%	-0.01%	0.05%	100%	101%

	Random access Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1	0.01%	0.01%	0.15%	100%	100%
Class A2	0.03%	0.04%	0.09%	100%	100%
Class B	-0.01%	-0.05%	-0.12%	100%	101%
Class C	-0.02%	-0.05%	-0.05%	100%	102%
Class E					
Overall	0.00%	-0.02%	-0.01%	100%	101%
Class D	0.05%	-0.04%	0.41%	101%	102%
Class F	0.01%	0.01%	0.14%	100%	101%

Thank Sharp for the crosscheck.

Experimental Results

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- Results for Proposed Method2 VS VTM 5.0

	All Intra Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1	0.09%	0.14%	0.08%	101%	101%
Class A2	0.07%	0.03%	0.08%	100%	99%
Class B	0.10%	0.05%	0.11%	101%	101%
Class C	0.10%	0.09%	0.15%	101%	103%
Class E	0.05%	0.04%	0.03%	100%	104%
Overall	0.08%	0.07%	0.09%	101%	102%
Class D	0.00%	0.10%	0.00%	101%	103%
Class F	0.13%	0.18%	0.19%	100%	102%

	Random access Main10				
	Over VTM-5.0				
	Y	U	V	EncT	DecT
Class A1	0.03%	-0.09%	-0.04%	100%	100%
Class A2	0.04%	0.07%	0.12%	100%	100%
Class B	0.07%	0.01%	0.00%	100%	101%
Class C	0.01%	-0.03%	-0.01%	100%	103%
Class E					
Overall	0.04%	-0.01%	0.01%	100%	101%
Class D	0.00%	-0.05%	0.26%	101%	102%
Class F	0.07%	-0.03%	0.18%	100%	101%

Thank Sharp for the crosscheck.

Conclusion

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- This contribution proposes to reduce the number of CABAC contexts.
- The modification almost has no impact on the coding efficiency, it is recommendable to be adopted in the next version of VTM.

Thank you !