

JVET-P0465

Non-CE7 : Rice parameter derivation for coefficient level coding

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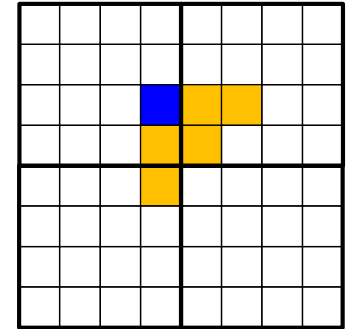
Summary

- Proposal
 - Rice parameter derivation method based on the number of available neighboring coefficients

- For QP = 2, 7, 12, 17 (Luma BD-rates)
 - Overall: -0.02% (AI), 0.0% (RA), 0.0% (LD)
 - Class F: -0.03% (AI), -0.13% (RA), -0.12% (LD)
 - TGM: -0.14% (AI), -0.05% (RA), -0.11% (LD)

Proposed method

- In VTM-6.0, Rice parameter is determined based on the sum of absolute levels of five neighboring transform coefficients and corresponding base level
 - Only levels within the current transform block are accumulated
 - It is not always five neighboring coefficients available



- In the proposed method, we reflect the number of available neighboring coefficients

VTM-6.0	$\text{RiceParam} = \text{RiceParamTable}[\text{Clip3}(0, 31, \text{locSumAbs} - \text{baseLevel} * 5)]$
Proposed	$\text{RiceParam} = \text{RiceParamTable}[\text{Clip3}(0, 31, \text{locSumAbs} - \text{baseLevel} * \text{locNumNb})]$

* *locNumNb*: the number of available neighboring coefficients

Test Results (AI, RA)

	All Intra Main10									
	Over VTM-6.0					Over VTM-6.0_lowQP				
	Y	U	V	EncT	DecT	Y	U	V	EncT	DecT
Class A1	0.00%	0.00%	0.01%	99%	99%	0.00%	0.00%	0.00%	100%	101%
Class A2	0.00%	0.00%	-0.01%	99%	100%	0.00%	-0.01%	-0.01%	99%	101%
Class B	0.00%	0.00%	0.01%	98%	98%	0.00%	-0.02%	-0.01%	100%	100%
Class C	0.00%	0.00%	0.00%	99%	99%	-0.07%	-0.03%	-0.02%	99%	97%
Class E	0.00%	0.00%	0.04%	99%	98%	0.00%	0.01%	0.00%	100%	100%
Overall	0.00%	0.00%	0.01%	99%	99%	-0.02%	-0.01%	-0.01%	100%	100%
Class D	0.00%	-0.01%	-0.02%	99%	100%	-0.10%	-0.08%	-0.08%	99%	96%
Class F	0.00%	0.02%	-0.01%	100%	98%	-0.03%	-0.04%	-0.06%	100%	98%
TGM	0.00%	-0.01%	0.00%	99%	97%	-0.14%	-0.12%	-0.14%	100%	99%

	Random Access Main 10									
	Over VTM-6.0					Over VTM-6.0_lowQP				
	Y	U	V	EncT	DecT	Y	U	V	EncT	DecT
Class A1	0.00%	0.00%	-0.01%	100%	101%	0.00%	0.01%	-0.01%	100%	100%
Class A2	0.00%	0.03%	0.02%	101%	101%	0.00%	0.00%	0.00%	100%	100%
Class B	0.01%	0.04%	0.00%	100%	100%	0.01%	0.01%	0.02%	101%	101%
Class C	-0.01%	0.02%	-0.11%	99%	99%	-0.02%	-0.03%	0.01%	100%	100%
Class E										
Overall	0.00%	0.03%	-0.03%	100%	100%	0.00%	0.00%	0.01%	100%	100%
Class D	-0.01%	0.03%	0.07%	100%	99%	-0.03%	-0.09%	-0.05%	100%	100%
Class F	-0.01%	-0.07%	0.02%	100%	99%	-0.13%	-0.16%	-0.16%	100%	101%
TGM	-0.01%	-0.04%	-0.01%	100%	100%	-0.05%	0.02%	-0.01%	101%	101%

Test Results (LD)

	Low delay B Main10									
	Over VTM-6.0					Over VTM-6.0_lowQP				
	Y	U	V	EncT	DecT	Y	U	V	EncT	DecT
Class A1										
Class A2										
Class B	0.01%	0.01%	-0.21%	100%	100%	0.00%	0.00%	0.00%	100%	101%
Class C	0.00%	-0.01%	-0.01%	100%	99%	-0.01%	0.00%	-0.02%	100%	99%
Class E	0.00%	-0.17%	0.73%	100%	100%	0.01%	-0.03%	0.02%	100%	100%
Overall	0.00%	-0.04%	0.09%	100%	100%	0.00%	-0.01%	0.00%	100%	100%
Class D	0.00%	0.02%	0.10%	100%	98%	-0.03%	0.05%	-0.04%	101%	101%
Class F	0.09%	0.13%	0.13%	100%	99%	-0.12%	-0.15%	-0.12%	101%	102%
TGM	0.01%	0.03%	0.00%	100%	100%	-0.11%	-0.06%	-0.03%	100%	99%

Thank you