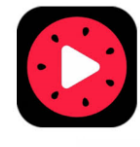
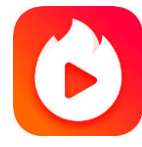


JVET-AG0096

Non-EE2: On temporal buffer handling

Zhipin Deng, Kai Zhang, Lei Zhao, Li Zhang
ByteDance Inc.



Motivation

- For temporal candidate derivation, there is a constraint to clip the position of the temporal block to not exceed a restricted area:
 - collocated CTU plus 4 sample columns right to the collocated CTU (VVC) → collocated CTU row (earlier ECM) → whole reference picture area (current ECM)

Table 1. Constraint of the position of a temporal block in ECM-11.0

Coding methods in ECM-11.0	Require more than one CTU row buffer?
intraCCP merge: temporal CCP candidate derivation	Yes
interCCP merge: temporal CCP candidate derivation	Yes
Inter merge/AMVP: TMVP candidate derivation	No
BM merge: TMVP candidate derivation	No
affine merge/AMVP: TMVP candidate derivation	No
affine BM merge/AMVP: TMVP candidate derivation	No
sbTMVP: motion shift derivation	No
Inter propagated IPM/CCP-model derivation	No

Proposal

- It is proposed to remove the temporal buffer restriction for all coding tools in ECM in a consistent way
- Simulation results

	Random Access Main 10						
	Over ECM-11.0						
	Y	U	V	EncT	DecT	EncVmPeak	DecVmPeak
Class A1	-0.01%	-0.15%	-0.11%	100.4%	100.1%	100.1%	100.5%
Class A2	-0.02%	0.03%	-0.07%	100.5%	100.7%	100.5%	99.9%
Class B	-0.01%	-0.06%	0.07%	100.1%	100.4%	99.4%	100.2%
Class C	-0.04%	0.00%	0.00%	100.5%	100.3%	99.6%	100.1%
Class E							
Overall	-0.02%	-0.04%	-0.01%	100.3%	100.4%	99.8%	100.2%
Class D	0.00%	0.12%	0.10%	99.9%	101.1%	100.0%	100.0%
Class F	-0.04%	0.12%	-0.04%	100.5%	100.3%	99.6%	100.0%
Class TGM	-0.08%	-0.13%	-0.10%	99.9%	100.3%	100.6%	100.1%
	Low delay B Main 10						
	Over ECM-11.0						
	Y	U	V	EncT	DecT	EncVmPeak	DecVmPeak
Class A1							
Class A2							
Class B	-0.16%	0.19%	0.46%	100.1%	100.5%	99.8%	100.1%
Class C	-0.07%	0.09%	-0.46%	100.6%	100.1%	100.4%	100.0%
Class E	-0.47%	-0.03%	0.26%	100.5%	99.9%	101.2%	99.7%
Overall	-0.21%	0.10%	0.10%	100.3%	100.2%	100.4%	100.0%
Class D	-0.08%	-0.15%	-0.41%	99.6%	100.7%	100.0%	100.0%
Class F	-0.09%	-0.13%	-0.15%	100.7%	101.3%	99.2%	100.0%
Class TGM	-0.16%	-0.18%	-0.20%	99.9%	100.5%	99.6%	99.0%

Conclusions

- This proposal presents the results of a consistent design of temporal buffer access
 - This change can provide BD-rate gain of 0.02% in RA and 0.21% in LDB
 - Negligible complexity change
- It is recommended to further study the proposed method in next EE

Thank vivo (JVET-AG0291) for crosschecking!