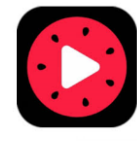


JVET-AE0174

AHG7: On TM control for non-inter tools

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Introduction & Proposal

■ Background

- In AHG7, TM search for inter tools (group 1) and non-inter tools (group 3) should be tested separately
- However, there are several issues identified in ECM-9.0:
 - ARMC for inter tools and non-inter tools are mixed up
 - In group 1 off test, some IBC ARMC aspects are erroneously disabled
 - In group 3 off test, some IBC ARMC aspects are erroneously enabled
 - There is no control to turn off the ARMC just for non-inter tools, or just for inter tools
 - There is no control to turn off the template aspects of LBCCP in group 3 off test
 - It is not appropriate to have a flag for every template related element of each coding tool

■ Proposal

- Propose a non-inter TM SPS flag to solve the identified problems as follows:
 - The inter TM aspects and non-inter TM aspects are totally decoupled
 - In group 1 off test, the ECM existing inter TM sps flag is set to false
 - In group 3 off test, the proposed non-inter TM sps flag is set to false
 - The template aspect of LBCCP is controlled by the proposed non-inter TM sps flag
 - Current group 3 tools are controlled by the proposed non-inter TM sps flag

Experimental results (overall)

Group 1 off test w/ the proposed change

	Random Access Main 10				
	Over AHG7 group 1 off				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B	0.00%	0.00%	0.00%	102.5%	100.4%
Class C	0.00%	0.00%	0.00%	100.7%	101.7%
Class E					
Overall					
Class D	0.00%	0.00%	0.00%	100.3%	100.7%
Class F	-0.29%	-0.19%	-0.15%	101.0%	99.9%
Class TGM	-1.09%	-1.17%	-1.12%	102.3%	104.5%

	Low delay B Main 10				
	Over AHG7 group 1 off				
	Y	U	V	EncT	DecT
Class A1					
Class A2					
Class B					
Class C	0.00%	0.00%	0.00%	102.8%	105.9%
Class E	0.00%	0.00%	0.00%	103.7%	106.4%
Overall					
Class D	0.00%	0.00%	0.00%	101.1%	105.7%
Class F					
Class TGM					

Group 3 off test w/ the proposed change

	All Intra Main 10				
	Over AHG7 group 3 off				
	Y	U	V	EncT	DecT
Class A1	0.06%	0.14%	0.09%	98.9%	99.5%
Class A2	0.03%	0.13%	0.15%	99.3%	100.6%
Class B	0.02%	0.16%	0.18%	99.3%	98.2%
Class C	0.04%	0.20%	0.09%	100.1%	98.4%
Class E	0.02%	-0.04%	0.09%	99.0%	104.6%
Overall	0.03%	0.13%	0.13%	99.4%	99.9%
Class D	0.01%	-0.05%	0.16%	100.0%	103.5%
Class F	1.61%	1.41%	1.35%	92.6%	79.0%
Class TGM	3.08%	3.00%	3.00%	93.4%	75.8%

	Random Access Main 10				
	Over AHG7 group 3 off				
	Y	U	V	EncT	DecT
Class A1					
Class A2	-0.01%	0.11%	0.12%	100.0%	99.8%
Class B	0.00%	0.09%	0.01%	98.7%	97.2%
Class C	-0.04%	0.06%	0.01%	99.0%	99.4%
Class E					
Overall					
Class D	-0.02%	-0.02%	0.10%	99.1%	102.2%
Class F	0.97%	0.81%	0.78%	96.3%	96.1%
Class TGM	2.41%	2.65%	2.92%	98.9%	98.2%

* Note that runtime may not be accurate, since the anchor and the test were launched in different time slots and tested in heterogeneous cluster.

Experimental results (per-sequence)

Proposed group 1 off test

		Random Access Main 10			Low Delay B Main 10		
		Over AHG7 group 1 off			Over AHG7 group 1 off		
		Y	U	V	Y	U	V
Class F	BasketballDrillText	-0.12%	0.18%	-0.07%	0.02%	0.48%	0.15%
	ArenaOfValor	-0.04%	0.18%	-0.10%			
	SlideEditing	-0.35%	-0.51%	-0.56%	0.07%	-0.54%	-0.46%
	SlideShow	-0.65%	-0.62%	0.13%			
Class TGM	FlyingGraphic	-1.67%	-1.78%	-1.89%			
	Desktop	-0.75%	-0.78%	-0.80%	-0.37%	-0.36%	-0.33%
	Console	-1.41%	-1.38%	-1.41%	-1.34%	-1.24%	-1.31%
	ChineseEditing	-0.53%	-0.74%	-0.38%	-0.33%	0.17%	-0.48%
Class F		-0.29%	-0.19%	-0.15%			
ClassTGM		-1.09%	-1.17%	-1.12%			

Proposed group 3 off test

		All Intra Main10			Random Access Main 10		
		Over AHG7 group 3 off			Over AHG7 group 3 off		
		Y	U	V	Y	U	V
Class F	BasketballDrillText	0.81%	1.01%	0.70%	0.03%	-0.11%	0.12%
	ArenaOfValor	0.77%	0.84%	0.82%	0.19%	0.03%	0.14%
	SlideEditing	2.65%	2.67%	2.45%	2.35%	2.14%	2.03%
	SlideShow	2.20%	1.14%	1.44%	1.33%	1.18%	0.83%
Class TGM	FlyingGraphic	3.94%	3.76%	3.70%	3.00%	3.82%	4.89%
	Desktop	2.88%	2.86%	2.92%	2.18%	2.17%	2.23%
	Console	3.89%	3.73%	3.74%	2.97%	3.04%	3.07%
	ChineseEditing	1.62%	1.64%	1.64%	1.47%	1.56%	1.48%
Class F		1.61%	1.41%	1.35%	0.97%	0.81%	0.78%
ClassTGM		3.08%	3.00%	3.00%	2.41%	2.65%	2.92%

Conclusions

- It is asserted that the proposed method solves identified issues in AHG7
- It is recommended to adopt the proposed method to ECM

Thank Google (JVET-AE0212) and Qualcomm (JVET-AE0256) for crosschecking!