

MEDIA TEK

CE6-related: A combination of CE6 Test C.2 – transition-copy mode and CE6 Test C.3 (configuration 1) - Copy-from-previous-row mode

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Overview Summary

- A combination of CE6 Test C.2 and Test C.3 is proposed
 - CE6 Test C.2: Transition-copy mode
 - CE6 Test C.3: Copy-from-previous-row mode
- Results:

Lossy coding BD-rate	AI	RA	LB
YUV, text & graphics with motion, 1080p	-2.5%	-1.2%	-1.0%

Introduction

- In SCM-2.0, there are two palette prediction mode
 - Index mode
 - Copy above mode
- Two new palette modes are tested in CE6:
 - CE6 Test C.2 - transition-copy mode (JCTVC-S0078)
 - CE6 Test C.3 - copy-from-previous-row mode (JCTVC-S0174)
- **In this proposal, a combination of C.2 and C.3 is proposed.**

Combination of C.2 and C.3

- Mode syntax design:

	SCM-2.0	Proposed
INDEX	0	00
INDEX_TC	N/A	01
COPY_ABOVE	1	10
COPY_ABOVE_EXT	N/A	11

Experimental Results - Combine C.2 and C.3

- Anchor: SCM-2.0
- -2.5%/-1.2%/-1.0% bit-rate saving for AI/RA/LB in “YUV, text and graphics with motion, 1080p”
- Thanks NCTU (JCTVC-S0288) and Nokia for cross-checking

	All Intra			Random Access			Low delay B		
	G/Y	B/U	R/V	G/Y	B/U	R/V	G/Y	B/U	R/V
RGB, text & graphics with motion, 1080p	-2.3%	-2.6%	-2.5%	-1.1%	-1.3%	-1.3%	-0.9%	-1.2%	-1.1%
RGB, text & graphics with motion,720p	-1.6%	-1.7%	-1.7%	-1.3%	-1.4%	-1.4%	-1.2%	-1.2%	-1.2%
RGB, mixed content, 1440p	-0.2%	-0.3%	-0.3%	-0.1%	-0.3%	-0.3%	-0.4%	-0.5%	-0.4%
RGB, mixed content, 1080p	-1.4%	-1.8%	-1.5%	-1.0%	-1.4%	-1.3%	-0.9%	-1.3%	-0.6%
RGB, Animation, 720p	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.1%	0.1%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
YUV, text & graphics with motion, 1080p	-2.5%	-3.0%	-2.9%	-1.2%	-1.7%	-1.6%	-1.0%	-1.6%	-1.5%
YUV, text & graphics with motion,720p	-1.2%	-1.6%	-2.0%	-1.0%	-1.4%	-1.9%	-0.9%	-1.2%	-1.9%
YUV, mixed content, 1440p	-0.4%	-1.1%	-1.0%	-0.3%	-1.2%	-0.8%	-0.4%	-1.6%	-1.2%
YUV, mixed content, 1080p	-1.5%	-3.8%	-3.2%	-1.0%	-3.4%	-2.8%	-1.4%	-4.0%	-3.1%
YUV, Animation, 720p	0.0%	-0.1%	-0.1%	0.0%	-0.1%	0.0%	0.0%	-0.3%	0.2%
YUV, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	-0.1%	0.0%
Enc Time[%]		106%			104%			103%	
Dec Time[%]		102%			103%			111%	

Experimental Results - Combine C.2 and C.3

- The gains of C.2 and C.3 are additive
 - Some synergy gains are mainly from using C.3 RDO for C.2

	AI			RA			LB		
	C.2	C.3	C.2 + C.3	C.2	C.3	C.2 + C.3	C.2	C.3	C.2 + C.3
	G/Y	G/Y	G/Y	G/Y	G/Y	G/Y	G/Y	G/Y	G/Y
RGB, text & graphics with motion, 1080p	-1.1%	-1.2%	-2.3%	-0.5%	-0.6%	-1.1%	-0.4%	-0.5%	-0.9%
RGB, text & graphics with motion,720p	-0.8%	-0.6%	-1.6%	-0.7%	-0.5%	-1.3%	-0.6%	-0.5%	-1.2%
RGB, mixed content, 1440p	-0.1%	-0.1%	-0.2%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.4%
RGB, mixed content, 1080p	-0.2%	-1.2%	-1.4%	0.0%	-0.8%	-1.0%	0.0%	-1.0%	-0.9%
RGB, Animation, 720p	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%
RGB, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
YUV, text & graphics with motion, 1080p	-1.2%	-1.4%	-2.5%	-0.4%	-0.7%	-1.2%	-0.4%	-0.5%	-1.0%
YUV, text & graphics with motion,720p	-0.4%	-0.5%	-1.2%	-0.4%	-0.5%	-1.0%	-0.3%	-0.5%	-0.9%
YUV, mixed content, 1440p	0.0%	-0.3%	-0.4%	0.0%	-0.2%	-0.3%	0.0%	-0.4%	-0.4%
YUV, mixed content, 1080p	-0.1%	-1.2%	-1.5%	-0.1%	-1.0%	-1.0%	-0.4%	-1.2%	-1.4%
YUV, Animation, 720p	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%
YUV, camera captured, 1080p	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Conclusion

- A combination of CE6 Test C.2 and Test C.3 is proposed
 - CE6 Test C.2: Transition-copy mode
 - CE6 Test C.3: Copy-from-previous-row mode
- The gains are additive