

Non-SCE 1: Simplified Intra Coding at Enhancement Layer for SHVC

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Outline

- Algorithm description
- Experimental results
- Conclusions

Algorithm Description

- Motivation
 - BL provides good texture predictors in most cases.
 - Intra differential coding is expected to be more efficient than conventional intra coding
- Use intra differential coding mode to replace conventional Intra prediction mode in EL
 - No flag required to signal intra differential coding mode
- Same parsing in EL as in BL (single layer HM10)
- The increase of encoding complexity from additional intra differential coding mode is significantly reduced

Experimental Results (1/2)

- Anchor – SHM1.0
- Thank LG for cross verifying our results (M0305).

Overall (EL+BL)	AI 2x			AI 1.5x			AI2x		AI1.5x	
	Y	U	V	Y	U	V	ENC%	DEC%	ENC%	DEC%
SCE1.2.2 &SCE1.2.6	-0.8%	-0.5%	-0.5%	-0.6%	-0.1%	-0.1%	165.2	111.7	156.4	108.3
Proposed	-0.4%	0.2%	0.3%	-0.5%	0.1%	0.2%	100	103.7	98.3	102.5
Proposed +SCE1.3.1	-0.7%	0.1%	0.2%	-0.8%	0.0%	0.1%	101.8	104	99.2	102.2

Experimental Results (2/2)

- Provide the results of SCE1.3.1 on top of intra differential coding (SCE1.2.2&1.2.6) in M0324
- Anchor: M0324
- Thanks LG for cross verifying our results (M0305)

Overall (EL+BL)	AI 2x			AI 1.5x		
	Y	U	V	Y	U	V
MDCS on	-0.5%	-0.4%	-0.4%	-0.3%	-0.1%	-0.1%
MDCS off	-0.3%	-0.1%	-0.1%	-0.2%	-0.1%	-0.1%

Run-time	AI 2x		AI 1.5x	
	Enc	Dec	Enc	Dec
MDCS on	102.6%	99.8%	102.1%	100.7%
MDCS off	102.3%	99.9%	102%	100.1%

Conclusions

- Proposed to use intra differential coding mode to replace the conventional Intra prediction mode in EL
- Parsing remains the same in EL as in BL
- The increase of encoding complexity from additional intra differential coding mode is significantly reduced
- Experimental Results:
 - BD-rate reduction of 0.4% and 0.5% for AI2x and AI1.5x
 - Encoding time: 100% and 98.3%
 - Decoding time: 103.7% and 102.5%
- Recommend to be adopted into SHM.

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