JCT3V-C0091: CE3.a related: Improved inside-view motion prediction for 3D-AVC

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Summary

- Improve the coding efficiency of inside-view motion prediction while reducing the complexity of JCT3V-B0146

  - IVMP is supported when co-located MB is intra coded or coded with four partitions

  - Limited number of candidate 4x4 blocks are utilized to derive the motion information for depth views.

- It is reported that there is 0.9% and 0.1% bitrate saving for depth views and synthesized views, respectively.

Background

- When texture and depth views are coded in different resolution, IVMP is disabled if one of the following conditions is satisfied:
  - The corresponding co-located MB is inter coded with four partitions
    - Directly inheriting the co-located MB's information may result in each 4x4 block with different reference pictures

  - The corresponding co-located MB is intra coded
    - no motion information available

Proposed method

- To deal with the co-locate MBs coded four partitions
  - One 8x8 partition is selected, closest to the center
  - Motion vectors with the maximum magnitudes within the selected partition are used for deriving the motion information of current depth 8x8 partition.
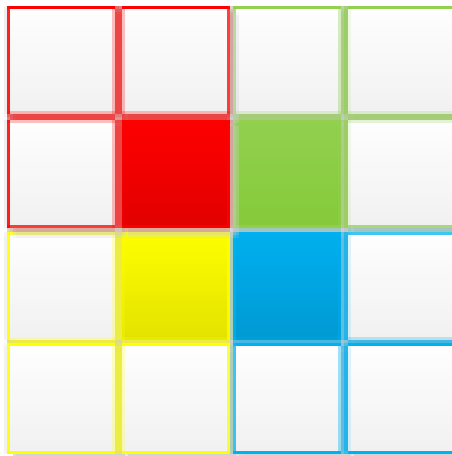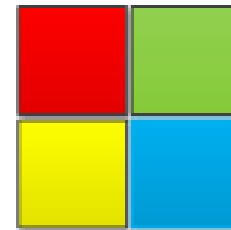
(a) Four co-located texture MBs   (b) One depth MB

Figure 1: Texture 8x8 MB partition to be used directly for depth partition.

Proposed method

- To deal with the co-locate MBs coded with intra modes
  - Three 4x4 blocks in each neighbouring MB is selected, closest to the center
  - The motion vector with maximum/medium magnitude is selected for deriving the motion information of current depth depth 8x8 partition.
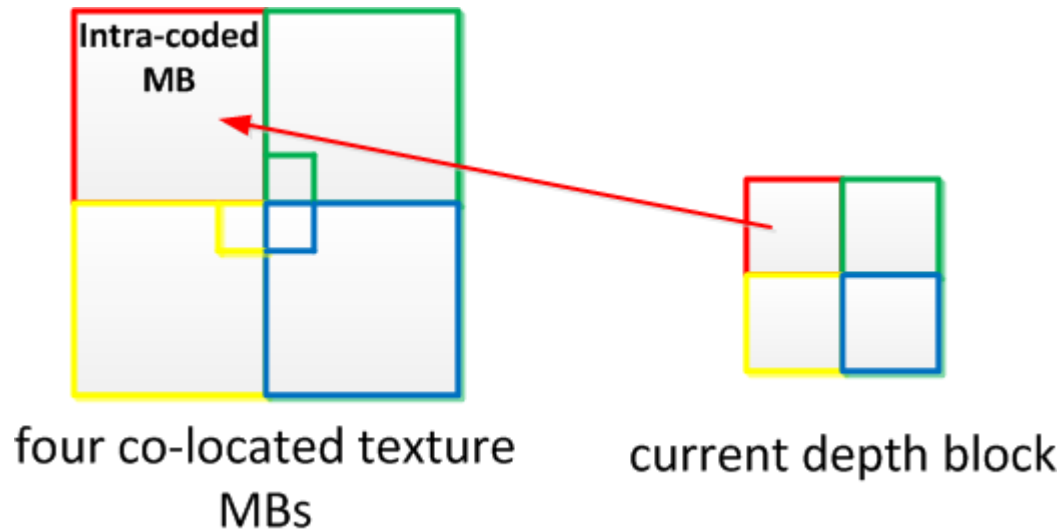

four co-located texture MBs

current depth block

Figure 2: Candidate blocks to be used for IVMP.

Simulation Results

- CTC, ATMv6.0

Table 1: Coding performance comparison

	Texture Coding		Depth Coding		Total (Coded PSNR)		Total (Syn. PSNR)		Complexity estimate (ratio to anchor)		
	dBR %	dPSNR dB	dBR %	dPSNR dB	dBR %	dPSNR dB	dBR %	dPSNR dB	Enc. Time %	Dec. Time %	Ren. Time %
S01	0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	96	100	106
S02	0.0	0.0	-0.7	0.0	0.0	0.0	0.0	0.0	100	101	109
S03	0.0	0.0	-1.9	0.1	-0.1	0.0	-0.3	0.0	98	100	105
S04	0.0	0.0	-2.2	0.1	-0.1	0.0	-0.1	0.0	99	101	103
S05	0.0	0.0	-0.5	0.0	-0.1	0.0	-0.1	0.0	100	97	103
S06	0.0	0.0	-0.9	0.0	-0.1	0.0	-0.1	0.0	99	100	128
S08	0.0	0.0	-0.3	0.0	0.0	0.0	0.0	0.0	99	101	102
Aver	**0.0**	**0.0**	**-0.9**	**0.1**	**-0.1**	**0.0**	**-0.1**	**0.0**	99	100	108

- Thank NTT for crosscheck (JCT3V-C0186)

Thank you!