

11th JCT-3V Meeting

JCT3V-K0036: Position Derivation for Shifted-IVMC

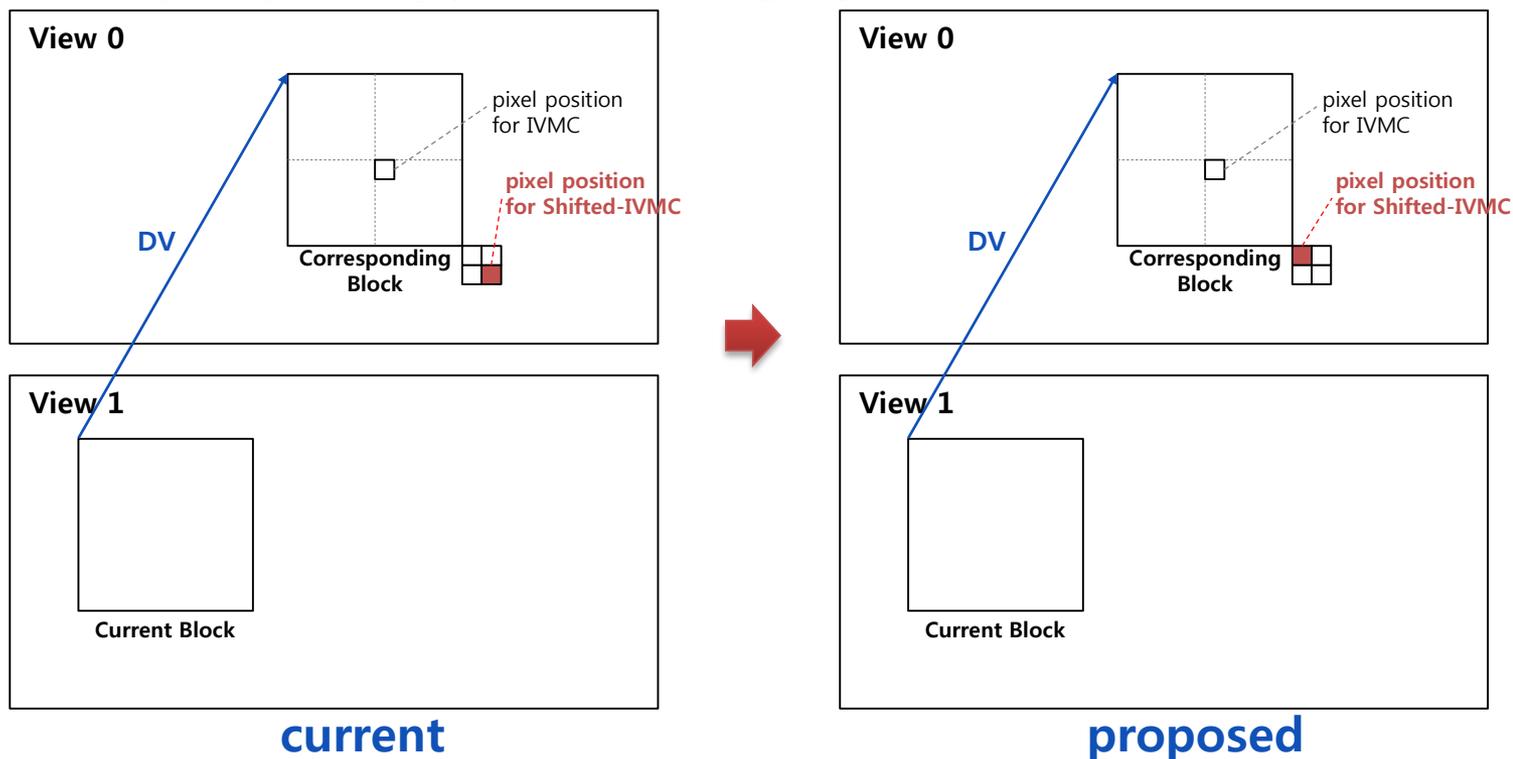
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Position Derivation for Shifted-IVMC

- Pixel position for shifted-IVMC derivation is misplaced by (1, 1) pixels from the bottom-right pixel
 - In HEVC and its extension, we typically use the immediately adjacent pixels for neighboring block derivation (e.g. merge candidate derivation)
- So, we propose to fix the pixel position for shifted-IVMC derivation to use the immediately neighboring pixel (bottom-right pixel)



current

proposed

Proposed decoding process changes

- Remove 2 additions

I.8.5.3.2.11 Derivation process for inter-view predicted and disparity information merge candidates

...

When DepthFlag is equal to 0 and ic_flag[xPb][yPb] is equal to 0, the shifted temporal inter-view motion vector merging candidate is derived by the following ordered steps.

1. For the prediction list indication X being 0 and 1 the following applies:

– The derivation process for an inter-view predicted motion vector candidate as specified in clause I.8.5.3.2.12 is invoked with the luma location (xPb, yPb), the variables nPbW and nPbH, the prediction list indication X, the view order index

RefViewIdx[xPb][yPb], and the disparity vector

MvRefinedDisp[xPb][yPb] + (nPbW * ~~2+4~~, nPbH * ~~2+4~~) as inputs, and the outputs are the flag availableFlagLXIVShift, the motion vector mvLXIVShift and the reference index refIdxLXIVShift.

2. The availability flag availableFlagIVShift, and the prediction utilization flags predFlagL0IVShift and predFlagL1IVShift are derived by

$$\bullet \text{availableFlagIVShift} = \text{availableFlagL0IVShift} \mid \mid \text{availableFlagL1IVShift} \quad (\text{I-147})$$

$$\bullet \text{predFlagL0IVShift} = \text{availableFlagL0IVShift} \quad (\text{I-148})$$

$$\bullet \text{predFlagL1IVShift} = \text{availableFlagL1IVShift} \quad (\text{I-149})$$

...

Based on CTC and HTM 13

- The proposed method does not change the coding performance

	video 0	video 1	video 2	video PSNR / video bitrate	video PSNR / total bitrate	synth PSNR / total bitrate	enc time	dec time	ren time
Balloons	0.00%	-0.02%	0.02%	0.00%	0.01%	0.05%	100.2%	99.3%	101.2%
Kendo	0.00%	-0.04%	0.06%	0.00%	0.00%	0.00%	100.0%	100.0%	99.4%
Newspaper_CC	0.00%	-0.08%	0.10%	0.01%	0.01%	0.05%	100.1%	100.8%	100.3%
GT_Fly	0.00%	0.06%	-0.01%	0.00%	0.00%	0.00%	99.7%	103.1%	101.0%
Poznan_Hall2	0.00%	-0.03%	-0.15%	-0.04%	-0.03%	-0.04%	100.2%	100.7%	99.6%
Poznan_Street	0.00%	-0.02%	-0.04%	-0.01%	-0.01%	-0.01%	100.3%	96.8%	99.2%
Undo_Dancer	0.00%	-0.05%	0.00%	0.00%	0.00%	0.05%	100.4%	93.9%	101.7%
Shark	0.00%	-0.07%	0.00%	0.00%	0.01%	-0.01%	99.2%	98.4%	97.6%
1024x768	0.00%	-0.05%	0.06%	0.00%	0.01%	0.04%	100.1%	100.0%	100.3%
1920x1088	0.00%	-0.02%	-0.04%	-0.01%	-0.01%	0.00%	100.0%	98.6%	99.8%
average	0.00%	-0.03%	0.00%	0.00%	0.00%	0.01%	100.0%	99.1%	100.0%

- **We proposed to use the bottom-right pixel position for the shifted-IVMC derivation rather than to use the misaligned pixel position**
 - Design consistency with HEVC
- **The proposed method does not change the coding performance**
- **It is recommended to adopt proposed fix to 3D-HEVC**
- **Thanks Sharp for the cross check (JCT3V-K0058)**