

JCT3V-H0069

Disparity Vector for DBBP in 3D-HEVC

Min Woo Park

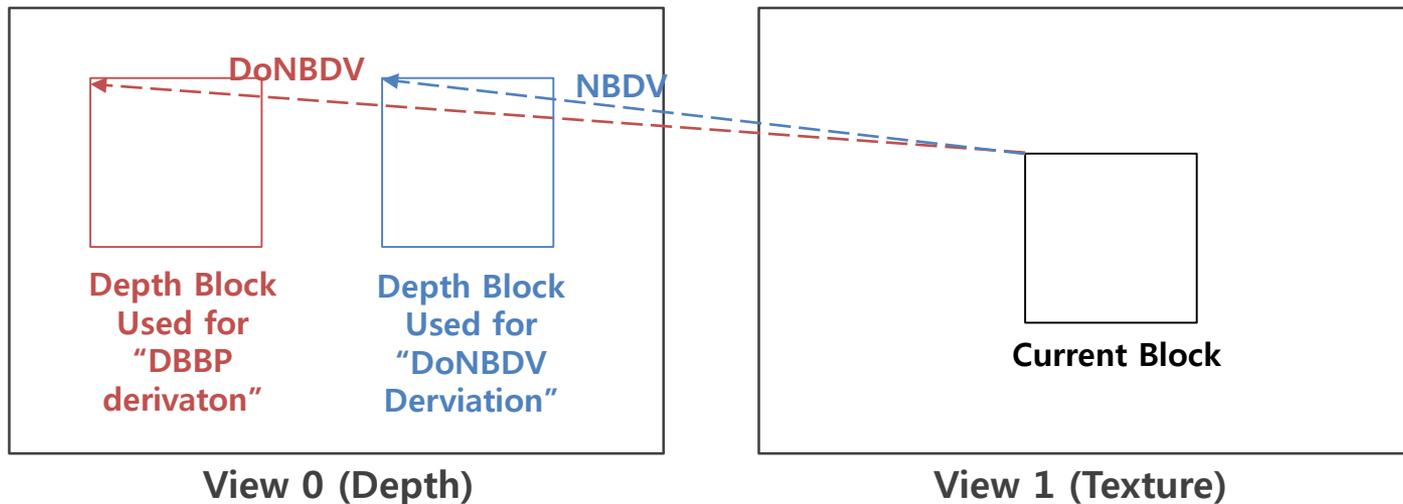
Multimedia Platform Lab.

DMC R&D Center

Samsung Electronics

DV used for DBBP

- ❖ Currently, DBBP uses DoNBDV to find the corresponding depth block
- ❖ But, this can cause increasing memory access complexity since it needs to fetch the depth block twice
 - 1st fetch: to derive DoNBDV
 - 2nd fetch: to derive a segmentation mask and PU partition mode in DBBP



- ❖ Therefore, we propose to use NBDV instead of DoNBDV for DBBP
 - # of depth blocks to be fetched: **2** → **1**

Simulation Results

- ❖ Based on CTC with HTM 10.0r1 reference software
 - No coding loss

	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%	0.00%	0.19%	0.04%	0.02%	0.01%	100.0%	100.9%	104.3%
Kendo	0.00%	0.15%	0.02%	0.03%	0.04%	0.00%	100.3%	100.9%	105.9%
Newspaper_CC	0.00%	-0.01%	-0.02%	0.01%	0.00%	-0.01%	100.2%	108.1%	103.5%
GT_Fly	0.00%	0.38%	0.34%	0.07%	0.06%	0.07%	100.8%	93.0%	106.5%
Poznan_Hall2	0.00%	0.08%	-0.13%	0.01%	0.01%	-0.07%	99.9%	100.9%	97.9%
Poznan_Street	0.00%	0.08%	0.43%	0.06%	0.05%	0.04%	100.1%	94.4%	97.6%
Undo_Dancer	0.00%	0.39%	0.51%	0.11%	0.08%	0.07%	100.7%	91.9%	95.2%
Shark	0.00%	0.40%	0.50%	0.09%	0.07%	0.05%	100.0%	103.9%	106.2%
1024x768	0.00%	0.04%	0.06%	0.03%	0.02%	0.00%	100.2%	103.3%	104.6%
1920x1088	0.00%	0.26%	0.33%	0.07%	0.05%	0.03%	100.3%	96.8%	100.7%
average	0.00%	0.18%	0.23%	0.05%	0.04%	0.02%	100.3%	99.3%	102.2%

Conclusion

- ❖ We proposed to use NBDV instead of DoNBDV for DBBP process in order to reduce the memory access complexity
 - Number of depth blocks to be fetched from 2 to 1
 - DoNBDV derivation and DBBP can use the same depth block
 - No coding loss
- ❖ We recommend to adopt the proposed method into next 3D-HEVC WD

Thanks **NTT** for the cross checking (JCT3V-H0143).

