



REDEFINING MOBILITY



# JCT3V-D0180: CE2.h related: Bug fix on unavailable disparity vector in 3D HEVC

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# Introduction

- Refining process after the NBDV process in the current disparity vector derivation
  - If a disparity motion vector is found in the NBDV process, the derived DV is refined using depth information of a reference view.
  - In the other hand, if a disparity motion vector is not found (unavailable DV), a zero DV is directly returned with skipping the refining process.
- Problem
  - The zero DV in the unavailable DV may incur a coding loss due to the lack of a proper DV for the current block.

# Proposed Fix in the Refining Process

- The zero DV is further refined if the use of the depth information of a reference view is allowed
  - The zero DV is used for an initial vector to the refining process. That is, the collocated depth block is retrieved, and used for the refining process as in the current design.
  - Inter-view residual prediction in the unavailable DV is still disabled as the current design, so this modification dose not affect the residual prediction.

# Experimental Results (in CTC)

- Proposed fix VS the anchor (Crosscheck results in JCT3V-D0132)

	video 0	video 1	video 2	video PSNR / video bitrate	video PSNR / total bitrate	synth PSNR / total bitrate	enc time	dec time
Balloons	0.0%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%	96.5%	96.8%
Kendo	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	101.3%	100.5%
Newspaper_CC	0.0%	-0.3%	-0.1%	-0.1%	-0.1%	-0.1%	106.5%	105.6%
GT_Fly	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	102.8%	97.8%
Poznan_Hall2	0.0%	-0.3%	-0.5%	-0.2%	-0.2%	-0.1%	96.6%	99.1%
Poznan_Street	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	94.8%	100.1%
Undo_Dancer	0.0%	0.0%	-0.4%	-0.1%	-0.1%	-0.1%	101.0%	100.7%
1024x768	0.0%	-0.2%	-0.1%	-0.1%	0.0%	-0.1%	101.4%	101.0%
1920x1088	0.0%	0.0%	-0.2%	-0.1%	-0.1%	-0.1%	98.8%	99.4%
<b>average</b>	<b>0.0%</b>	<b>-0.1%</b>	<b>-0.2%</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>99.9%</b>	<b>100.1%</b>

# Conclusion

- The proposed fix to the unavailable DV provides an additional coding gain (0.1% BD-rate saving).

# Thank you!

Special thank you Samsung for  
cross-checking