JCT3V-F0146 – IC for VSP Candidate for 3D-HEVC

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Introduction

❖ In 3D-HEVC, ic_flag is signaled for every VSP candidates

❖ However, VSP mode does not use IC
- i.e. ic_flag is always set to '0'

❖ There is no method to support IC for VSP candidate in 3D-HEVC
- This problem was pointed out at the last meeting in JCT3V-E0143

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Proposed Method

❖ In case of VSP candidate with ic_flag = 1,

  ▪ Simply perform DCP (disparity compensation prediction) with IC (but, Not perform VSP)

  ▪ Minor changes

  ▪ No additional complexity

Current Inter-view prediction

```
if(vsp_flag == 0)
{
    DCP
}
else
{
    VSP
}
```

Proposed Inter-view prediction

```
if(vsp_flag == 0 && ic_flag == 1)
{
    DCP
}
else
{
    VSP
}
```

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Experimental Results

❖ Based on CTC with HTM 8.0

- 0.1% bit-saving for coded and synthesized views

	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	0.0%	-0.5%	-0.2%	-0.2%	-0.1%	-0.1%	99.2%	92.2%	97.7%
Kendo	0.0%	-0.3%	-0.5%	-0.2%	-0.2%	-0.2%	98.5%	97.8%	97.7%
Newspaper_CC	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	99.1%	93.9%	97.5%
GT_Fly	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.1%	94.7%	100.5%
Poznan_Hall2	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	98.5%	91.6%	99.2%
Poznan_Street	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.1%	92.2%	100.5%
Undo_Dancer	0.0%	0.0%	-0.2%	0.0%	0.0%	0.0%	99.7%	98.9%	99.8%
1024x768	0.0%	-0.3%	-0.3%	-0.1%	-0.1%	-0.1%	98.9%	94.6%	97.7%
1920x1088	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.1%	94.4%	100.0%
average	**0.0%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**-0.1%**	**99.0%**	**94.5%**	**99.0%**
Shark	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	97.4%	99.5%	97.7%

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Conclusions

❖ We propose a method to support IC for VSP candidates

 ▪ When VSP candidate has ic_flag equal to 1, we propose to perform DCP with IC

 ▪ 0.1% bit-saving with no additional complexity

 ▪ Minor change in text and software

❖ We recommend to adopt the proposed method into next 3D-HEVC WD

Thanks Sharp for the cross checking (JCT3V-F0213).

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