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| *Title:* | **CE1.h related : Unification of Disparity Vector Accuracy in VSP with Motion Vector/Disparity Vector Accuracy in Temporal/Inter-View Prediction for Depth Coding** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution proposes to unify the DV (disparity vector) accuracy in VSP (view synthesis prediction) with the MV (motion vector)/DV accuracy in temporal/inter-view prediction for depth coding. That is to say, only use integer-pel DV for VSP in depth coding. It is reported that there is no compress performance loss.

# Proposed Method

In 3D-HEVC [1], only integer-pel MV/DV is used for depth coding because sub-pel MV/DV cannot bring significant compress performance improvement. However, in VSP of depth coding, sub-pel DV is used.

To unify the accuracy of MV/DV for depth coding, we propose to use only integer DV for VSP in depth coding.

# Results

Proposed method is integrated into 3DV-HTM 6.0 software and compared with it under common test condition [2], and results are shown in Table 1. It can be seen that there is no coding performance loss.

Table 1: performance comparison with HTM-6.0 (CTC)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 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% | 0.00% | 0.00% | 0.00% | 0.00% | 0.02% | 106.5% | 99.9% |
| Kendo | 0.0% | 0.00% | 0.00% | 0.00% | 0.00% | 0.01% | 114.0% | 100.0% |
| Newspaper\_CC | 0.0% | 0.00% | 0.00% | 0.00% | 0.02% | 0.00% | 99.3% | 99.8% |
| GT\_Fly | 0.0% | 0.00% | 0.00% | 0.00% | -0.01% | -0.02% | 108.0% | 98.9% |
| Poznan\_Hall2 | 0.0% | 0.00% | 0.00% | 0.00% | -0.01% | -0.01% | 102.7% | 99.7% |
| Poznan\_Street | 0.0% | 0.00% | 0.00% | 0.00% | 0.00% | 0.02% | 102.6% | 99.9% |
| Undo\_Dancer | 0.0% | 0.00% | 0.00% | 0.00% | -0.02% | -0.03% | 106.1% | 99.3% |
| 1024x768 | 0.0% | 0.00% | 0.00% | 0.00% | 0.00% | 0.01% | 106.6% | 99.9% |
| 1920x1088 | 0.0% | 0.00% | 0.00% | 0.00% | -0.01% | -0.01% | 104.9% | 99.5% |
| **average** | **0.0%** | **0.00%** | **0.00%** | **0.00%** | **0.00%** | **0.00%** | **105.6%** | **99.6%** |

# Conclusion

This contribution proposes to unify the MV/DV accuracy for depth coding, which can avoid sub-pel interpolation filtering for depth coding. Proposed method brings no compress performance loss. We recommend that proposed method adopted into 3D-HEVC.

# Reference

[1] G. Tech, K. Wegner, Y. Chen, S.Yea, “3D-HEVC Test Model 3”, Doc. JCT3V-C1005, Geneva, Swizerland, 17–23 Jan. 2013.

[2] D. Rusanovskyy, K. Müller, A. Vetro, “Common Test Conditions of 3DV Core Experiments”, Doc. JCT3V-C1100, Geneva, Swizerland, 17–23 Jan. 2013.

# Patent rights declaration(s)

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