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| **Joint Collaborative Team on 3D Video Coding Extension Development**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  4th Meeting: Incheon, KR, 20–26 Apr. 2013 | Document: JCT3V-D0094 |

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| *Title:* | **CE1.h The results on unification of simplified depth retrieval process for VSP and DoNBDV** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Proposal | | |
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# Abstract

In the 3rd JCT-3Vmeeting, B-VSP(Backward View Synthesis Prediction) and DoNBDV(Depth oriented Neighboring Block Disparity Vector) were adopted into 3D-HEVC. The depth retrieval processes for both tools are similar. For DoNBDV, a simplification method was adopted to reduce the computational complexity of comparing depth pixel values. In this contribution, it is proposed that the identical simplification be applied to the depth retrieval process of B-VSP. The benefit of complexity reduction achieved by the proposed simplification becomes higher for larger block sizes. It is reported that the proposed simplification has 0.0% BD-rate changes compared to the anchor for video-only and synthesis cases, with 99.6% encoding and 99.6% decoding time, respectively.

# Introduction

# In the 3rd JCT-3Vlast meeting, B-VSP(Backward View Synthesis Prediction) [1] and DoNBDV(Depth oriented Neighboring Block Disparity Vector)[2] were adopted into 3D-HEVC. A depth retrieval process is needed for both tools. For DoNBDV, a simplified method [3] was adopted to reduce the computational burden of comparing depth pixel values. However, the depth retrieval process for B-VSP is a full search for the maximum depth value in the block. In this contribution, the simplified depth retrieval is proposed to be used for V-BSP as well in order to pursue a consistency for conceptually identical processes in the current design.

# Proposed Method

Figure 1 shows the proposed simplification where only 5 samples in a depth block are selected (sub-sampled) for a maximum value comparison.

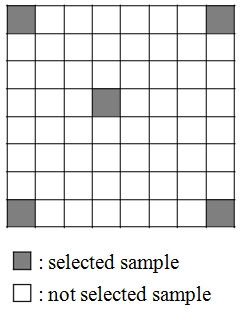


Figure1. Example of selected samples in a 8x8 block

B-VSP has two steps of depth retrieval process. The first one is to get virtual depth position. The second one is to get disparity from each sub-block in depth block. The simplifications are applied to both steps.

# Experimental results

The unification method is integrated into HTM-6.1. The configuration of common test condition is applied. Table1 reports the experimental results.

Table1. Results on unification of simplified depth retrieval process for VSP and DoNBDV



# WD Text

# Conclusion

In this contribution, the simplified method used in DoNBDV is also applied to reduce the complexity of B-VSP. The unification of the depth retrieval process can simplify and bring in a consistency into the current design for conceptually identical building blocks in DoNBDV and V-BSP with a negligible coding impacts. It is recommended that the proposed method be adopted into 3D-HEVC.

# Reference

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3. J.W. Jung, J. Sung, S. Yea, (LG), " CE1.h related: Adaptive method for Depth Oriented Neighboring Block Disparity Vector ", Joint Collaborative Team on 3D Video Coding Extension Development (JCT-3V) of ITU-T VCEG and ISO/IEC MPEG JCT3V-C0112, Geneva, Switzerland, January, 2013.

# Patent rights declaration(s)

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