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| *Title:* | **3D-CE2.a results on simplified disparity vector derivation in Skip mode and Direct mode** | | |
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| *Purpose:* | Proposal | | |
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# Abstract

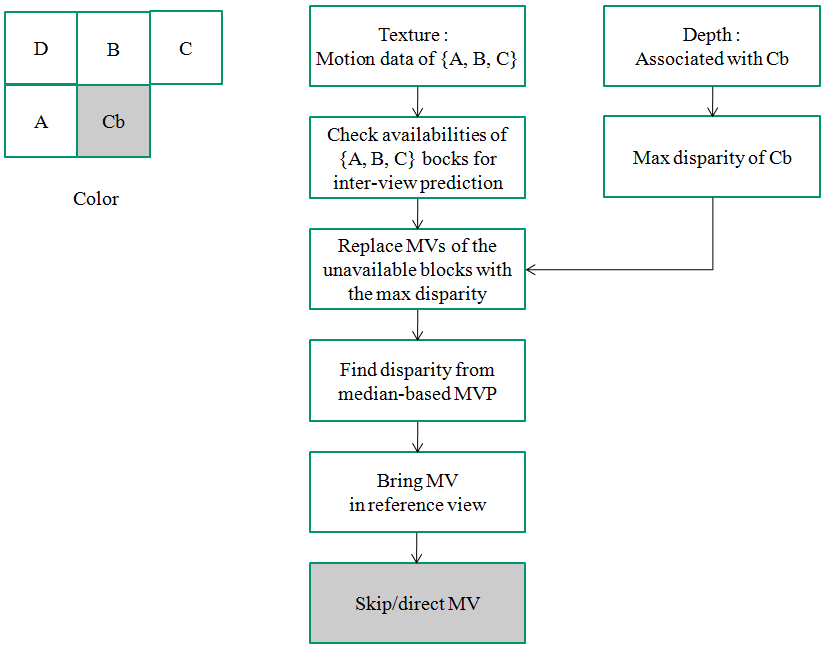
This contribution presents the results of CE2.a experiments related to the simplification of the disparity vector (DV) derivation proposed in JCT3V-D0108. In the current 3D-AVC, the DV used for the inter-view motion vector predictor (MVP) derivation in Skip mode and Direct mode is derived from the motion vectors (MVs) of the neighboring blocks and from the maximum of four corner depth samples in the associated depth block. In JCT3V-D0108, it was proposed to derive the DV only from the maximum of four corner depth samples without using the MVs of the neighboring blocks. The proposed simplification is tested again on ATM-8.0, and the results reportedly show that the proposed simplification brings no coding efficiency loss.

# Introduction

In 3D-AVC, the derivation process of the inter-view MVP in Skip mode and Direct mode [1] is shown in Fig. 1. The DV for locating the corresponding block in the inter-view MVP derivation is derived from the MVs of the neighboring blocks and the depth samples in the associated depth block of the current texture block as shown in Fig. 2. Specifically, the DV is derived from the list 0 or list 1 MVs of neighboring blocks A, B, and C (D). If only one of the neighboring blocks is coded with inter-view prediction, the DV of the neighboring block with inter-view prediction is interpreted as the DV utilized in the inter-view MVP derivation. If more than one neighboring blocks use inter-view prediction, the DV is derived as the median of the three neighboring blocks, where any one of the neighboring blocks not coded with inter-view prediction is replaced with the DV converted from the maximum of four corner depth samples in the associated depth block.



**Fig. 1. The inter-view candidate in Skip mode and Direct mode**



**Fig. 2. The DV derivation procedure of inter-view MVP [2]**

# Simplification for disparity vector derivation

In CE2 [3], to target at a simplified and robust solution for DV derivation process in Skip mode and Direct mode, a simplified DV derivation method proposed in JCT3V-D0108 [4] is tested. In JCT3V-D0108, it was proposed to directly derive the DV from the depth samples instead of from both the MVs of the neighboring blocks and the depth samples in the associated depth block. Fig. 3 shows the simplified DV derivation process in which the DV is directly converted from the maximum of four corner depth samples in the associated depth block.



**Fig. 3. The simplified DV derivation procedure of inter-view MVP**

# Experimental results

The proposed simplification is conducted again on ATM-8.0 [5]. Table 1 shows the results of the simplified DV derivation procedure in Skip mode and Direct mode under the common test conditions [6]. The experimental results show that this proposed simplification brings no coding efficiency loss while the complexity of the inter-view candidate derivation and memory access bandwidth for the motion data access of the neighboring block are reduced.

Table 1. Results of the simplified DV derivation



# Conclusion

This contribution presented the results of CE2.a experiments related to the simplification of the DV derivation proposed for Skip mode and Direct mode in JCT3V-D0108. It was proposed to directly derive the DV from the depth samples instead of from both the MVs of the neighboring blocks and the depth samples in the associated depth block. The results show that the proposed simplification brings no coding efficiency loss while the complexity and memory access for the motion data of the neighboring blocks are reduced.

# Patent rights declaration(s)

**MediaTek Inc. may have current or pending patent rights relating to the technology described in this contribution and, conditioned on reciprocity, is prepared to grant licenses under reasonable and non-discriminatory terms as necessary for implementation of the resulting ITU-T Recommendation | ISO/IEC International Standard (per box 2 of the ITU-T/ITU-R/ISO/IEC patent statement and licensing declaration form).**

# References

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