|  |  |
| --- | --- |
| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  12th Meeting: Geneva, CH, 14–23 Jan. 2013 | Document: JCTVC-L0383 |

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | **Non-TE3: Crosschecking of Simplification of Generalized Residual Inter-Layer Prediction (GRILP) in SHVC** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
| *Author(s) or Contact(s):* | Xiang Li  5775 More house drive San Diego, CA 92121-1714 | Tel: Email: | +1 858-658-3923 lxiang@qti.qualcomm.com |
| *Source:* | Qualcomm Incorporated | | |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Abstract

This contribution reports crosschecking results of JCTVC-L0104 on simplification of generalized residual inter-layer prediction (GRILP) in SHVC. The simulation results reportedly matched those provided by the proponents.

# Introduction

In JCTVC-L0104, Canon proposed a simplification method to reduce memory access of generalized residual inter-layer prediction (GRILP).

In GRILP, the prediction signal for the enhancement layer is as

|  |  |  |
| --- | --- | --- |
|  |  |  |

where and are the temporal reference pictures in the enhancement and base layers, denotes the collocated base layer reconstructed picture, represents the enhancement layer motion vector, is the up-sampling operator, is the motion compensation step of the current picture using as reference picture and as the motion vector, and is a weighting factor possibly applied to the second order residual. Please note that in current SMUC-0.1.1, both up-sampling and MC interpolation are 8-tap filters.

In JCTVC-L0104, it is proposed to reduce memory access in (1) by combining the 8-tap motion compensation interpolation and 8-tap up-sampling operation on into a single step , namely

|  |  |  |
| --- | --- | --- |
|  |  |  |

where is a 8-tap filter.

For spatial 2x case, an 8-phase-8-tap luma filter and a 16-phase-4-tap chroma filter are used while for spatial 1.5x case, a 6-phase-8-tap luma filter and a 12-phase-4-tap chroma filter are employed.

# Experimental results

We received the source code from the proponents, implemented in SMUC 0.1.1, and did a code study to verify that the proposed method was implemented as described. We used the common conditions generated from AHG10 in our experiments and ran simulations for the cases of RA and LDP.

The results match what was provided by the proponents and are summarized as follows:



# Conclusion

In this contribution, we have presented the results of our cross-check of JCTVC-L0104. The implemented algorithm is in line with the proponent’s description, and the simulation results also match that provided by the proponents.

# Patent rights declaration(s)

**Qualcomm Incorporated 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).**