|  |  |
| --- | --- |
| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  13th Meeting: Incheon, KR, 18–26 Apr. 2013 | Document: JCTVC-M0237 |

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | **SCE3: Crosschecking of SCE3.9: Base Mode with Generalized Residual Prediction (JCTVC-M0110)** | | |
| *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 8x8 mode in JCTVC-M0110 on Base Mode with Generalized Residual Prediction in SHVC. The simulation results reportedly matched those provided by the proponents.

# Introduction

In JCTVC-M0110, base mode with generalized residual prediction is proposed.

The Base Mode consists in splitting the current CU in the enhancement layer into NxN blocks, and each block applies a motion compensation using the motion information (motion vector, reference list, reference index, …) of its collocated base layer CU. Motion vectors are scaled to match the spatial resolution change. In the proposed Base Mode, residual data is added to further improve the performance. The process applied to each NxN block of the CU can be summarized by the following formula:

PREEL = MC{ REFEL , SP\_ratio\*MVBL } + w \* RES,

where

MC{I, MV} corresponds to the motion compensation with motion vector MV and using as reference picture I, REFEL is the reference picture for the enhancement layer, MVBL is the motion vector of the base layer, SP\_ratio is the spatial ratio between the base layer and the enhancement layer, w is a weighted factor, RES is the residual of the corresponding CU in the base layer and is computed as follows:

RES = UPS{RECBL} – MC{UPS{REFBL}, SP\_ratio\*MVBL }}

where UPS{.} is the up-sampling operator, RECBL is the reconstructed base layer CU.

The BL upsampling uses the SHM1.0 upsampling filters. The motion compensation used both for the BL and EL blocks is based on bilinear filters.

# Experimental results

We received the source code from the proponents, implemented in SHM-1.0, and did a quick code study to verify that the proposed method was implemented as described. We used the common conditions [2] in our experiments and ran simulations for the cases of RA, LDP and LDB.

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-M0110. The implemented algorithm is in line with the proponent’s description, and the simulation results also match that provided by the proponents.

# References

1. [E. François](mailto:edouard.francois@crf.canon.fr), [A. Tabatabai](mailto:ali.tabatabai@am.sony.com), [E. Alshina](mailto:elena_a.alshina@samsung.com), BoG report: Methodology for evaluating complexity of combined and residual prediction methods in SHVC, JCTVC-L0440, Geneva, Switzerland, 14–23 Jan. 2013.

1. [X. Li](mailto:lxiang@qti.qualcomm.com), [J. Boyce](mailto:jill@vidyo.com), [P. Onno](mailto:patrice.onno@crf.canon.fr), [Y. Ye](mailto:yan.ye@interdigital.com), “Common SHM test conditions and software reference configurations”, JCTVC-L1009, Geneva, Switzerland, 14–23 Jan. 2013.