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| **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-M0236 |

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| *Title:* | **SCE3: Crosschecking of SCE3.4 Generalized Combined Prediction (JCTVC-M0221)** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution reports crosschecking results of Test 1 (2GCP) in JCTVC-M0221 on Generalized Combined Prediction SHVC. The simulation results reportedly matched those provided by the proponents.

# Introduction

In JCTVC-M0221, generalized combined prediction (GCP) is proposed.

Three GCP modes are proposed. The corresponding {a,b} weightings and the mode indices are summarized as below:

**Table 1 GCP modes utilized in this contribution (SCE 3.4)**

|  |  |  |  |
| --- | --- | --- | --- |
| **GCP  mode idx** | **{a,b}** | **Inter-CU predictor** | **Note** |
| 0 | {0,0} | EL\_pred = EL\_ref | Normal Inter |
| 1 | {0, 0.5} | EL\_pred = EL\_ref + 0.5 (BL\_col – BL\_ref) |  |
| 2 | {0.5, 0.5} | EL\_pred = 0.5 EL\_ref + 0.5 BL\_col + 0.5 (BL\_col – BL\_ref) | Inter-DIFF half |
| 3 | {0, 1} | EL\_pred = EL\_ref + (BL\_col – BL\_ref) | Inter-DIFF |

To generate EL\_pred for GCP mode, upsampling is needed for BL signals and the motion compensation process has to be modified. Below the upsampling and motion compensation operations are analyzed using the methodology presented in the BoG report of SHVC complexity evaluation JCTVC-L0440 [1].

* GCP mode 1: {a,b} = {0,0.5}

EL\_pred = EL\_ref + 0.5 (BL\_col – BL\_ref)

= 0.5 BL\_col + (EL\_ref - 0.5 BL\_ref)

Complexity operations:

EL\_pred = 0.5 UP1 {BL\_col} + MC1 [(EL\_ref - 0.5 UP2 {BL\_ref}), EL\_motion]

* GCP mode 2: {a,b} = {0.5,0.5}

EL\_pred = 0.5 EL\_ref + 0.5 BL\_col + 0.5 (BL\_col – BL\_ref)

= BL\_col + 0.5 (EL\_ref - BL\_ref)

Complexity operations:

EL\_pred = UP1 {BL\_col} +0.5 MC1 [(EL\_ref - UP2 {BL\_ref}), EL\_motion]

* GCP mode 3: {a,b} = {0,1}

EL\_pred = EL\_ref + (BL\_col – BL\_ref)

= BL\_col + (EL\_ref - BL\_ref)

Complexity operations:

EL\_pred = UP1 {BL\_col} + MC1 [(EL\_ref - UP2 {BL\_ref}), EL\_motion]

In this test, only 2 GCP modes are tested, GCP mode 3 is not used.

# 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-M0221. 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.