|  |  |
| --- | --- |
| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11**  8th Meeting: San José, CA, USA, 1–10 February, 2012 | Document: JCTVC-H0539  WG11 Number: m23420 |

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | **CE6.a: Cross-check report for CE6a on intra chroma prediction** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Information | | |
| *Author(s) or Contact(s):* | Xingyu Zhang  Oscar C. Au | Email: | eexyzhang@ust.hk eeau@ust.hk |
| *Source:* | The Hong Kong University of Science and Technology (HKUST) |  |  |
|  |  | | |

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

# Abstract

This contribution presents a summary of the cross-check results for CE6.a by HKUST.

# Introduction

CE6.a includes the following four tools to be tested:

* Cross-channel intra chroma residual prediction (JCTVC-G173)
* Luma-based chroma prediction - Model correction (JCTVC-G244)
* Chroma intra prediction based on residual luma samples (JCTVC-G346)
* New modes for chroma intra prediction (LML and LMA)( (JCTVC-G358)

In this contribution, 10 combinations are tested and their results are provided. As agreed in the CE6.a subgroup, scheme 1 of G358 was integrated into the software. The combinations are listed as follows:

* G173
* G346
* G358
* G173+G244
* G173+G346
* G173+G358
* G244+G346
* G244+G358
* G173+G244+G346
* G173+G346+G358

Simulation Results

These combinations are tested under AI\_HE, AI\_LC and AI\_HE10bit conditions according the common test condition JCTVC-G1200. LM mode is set to off in the AI\_LC case. Therefore, for G244 and G358, which is closely related to LM mode, AI\_LC tests are not included.

Summary results of "all intra HE" condition are shown in table 1. The complete results are available in the excel files.

Table 1 Summary of BD-bitrate for AI\_HE condition in CE6.a

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| HM5.0 CE6a AI-HE | Y | U | V | YUV | Enc | Dec |
| G173 | -0.3% | -0.6% | -3.1% | -0.6% | 101% | 101% |
| G346 | -0.1% | -1.7% | -1.3% | -0.3% | 100% | 98% |
| G358 | -0.1% | -2.2% | -2.2% | -0.5% | 102% | 96% |
|  |  |  |  |  |  |  |
| G173G244 | -0.4% | -2.2% | -3.8% | -0.8% | 97% | 95% |
| G173G346 | -0.4% | -3.2% | -5.2% | -1.0% | 101 % | 99% |
| G173G358 | -0.4% | -2.8% | -5.1% | -1.0% | 103% | 97% |
| G244G346 | -0.1% | -3.6% | -3.2% | -0.7% | 100% | 99% |
| G244G358 | -0.1% | -3.5% | -3.3% | -0.7% | 104% | 99% |
|  |  |  |  |  |  |  |
| G173G244G346 | -0.4% | -4.1% | -5.6% | -1.1% | 100% | 99% |
| G173G346G358 | -0.4% | -4.5% | -6.5% | -1.3% | 105% | 97% |

# References

1. Y. Chiu, Y. Han, L. Xu, W. Zhang, and H. Jiang, “Cross-channel intra chroma residual prediction,” Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, JCTVC-G173,7th Meeting: Geneva, Switzerland, 21-30 November, 2011.
2. C. Gisquet and E. François, “Non-CE6a: Luma-based chroma prediction - Model correction,” Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, JCTVC-G244,7th Meeting: Geneva, Switzerland, 21-30 November, 2011.
3. K. Kawamura, T. Yoshino, H. Kato, S. Naito, “Chroma intra prediction based on residual luma samples,” Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, JCTVC-G346, 7th Meeting: Geneva, CH, 21-30 November, 2011.
4. X. Zhang, O. C. Au, J. Dai, F. Zou, C. Pang, X. Wen, “New modes for chroma intra prediction,” Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, JCTVC-G358,7th Meeting: Geneva, Switzerland, 21-30 November, 2011.
5. F. Bossen, “Common test conditions and software reference configurations”, Joint Collaborative Team on Video Coding (JCT-VC) of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, JCTVC-G1200,7th Meeting: Geneva, Switzerland, 21-30 November, 2011.