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| *Title:* | **Description of Core Experiment 2 (CE2) on Residual Prediction** | | |
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| *Purpose:* | Core Experiment Description | | |
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# Abstract

This document defines Core Experiment (CE) 2 on residual prediction to be performed for the 8th JCT-3V meeting.

# Introduction

The goal of this CE is to investigate the methods for advanced residual prediction (ARP) proposed at the 7th JCT-3V meeting. Tools under test will be evaluated according to their impact on both compression efficiency and implementation complexity.

# Participants

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# Tools under Investigation

## Further improvements on advanced residual prediction [JCT3V-G0121]

In this proposal, block-level ARP is proposed. With the proposed method, all PUs which are coded with ARP are split into multiple 8x8 blocks and each 8x8 block perform ARP separately.

* For the temporal ARP, the disparity vector from NBDV process may be updated by the disparity motion vector of the corresponding 8x8 block identified by current PU’s temporal motion vector;
* For the inter-view ARP, the temporal motion vector may be derived from the corresponding 8x8 block identified by current PU’s disparity motion vector.

## ARP simplification [JCT3V-G0033]

This contribution proposes to disable ARP for 4x4 chroma blocks to reduce ARP’s bandwidth.

# Mandates

Mandates for the CE are as follows:

1. To study the coding efficiency improvement and compleixty issues as in JCT3V-G0121 and JCT3V-G0033 in 3D-HEVC.
2. To check the performance of the combination of the two CE proposals.

# Software, Configuration and Evaluation

## Software

Experiments in CE2 will use the HTM version 10.0 software that is recommended in JCT3V-G1100. Proponents are requested to provide software that can be compiled under Windows and Linux platforms.

## Test Sequences, Bit Rates and Coding Conditions

The CE will use the test sequences, configuration and conditions that are recommended in JCT3V-G1100.

## Evaluation of CE Results

The performance measurements are evaluated by switching on and off individual tools to identify their relative performance. The following measurements are considered to be used in this core experiment.

1. **Coding Performance Measurements:** Measure impact on bitrate/PSNR. PSNR shall be calculated for the decoded texture views, relative to original texture views and for the synthesized views relative to uncompressed synthesized views. Use 4-point BD-PSNR and BD-Rate according to common conditions. The anchors will be generated according to common test conditions.
2. **Complexity measurements:** For the complexity measurement, the reference software and the reference software with the proposed method implemented will be executed on the same machine with the same configuration and the computational time will be measured. A time ratio will then be calculated between the reference software and the reference software with the proposed method implemented.

# Timelines

2014/02/10 Release HTM version 10.0

2014/03/14 Make source code, simulation results and draft text available for all proponents and cross-checkers.

2013/03/21 Register and upload documents for the 8th JCT-3V meeting

2014/03/29-2014/04/04 The 8th JCT-3V meeting