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| **Joint Collaborative Team on 3D Video Coding Extensions**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  7th Meeting: San Jose, USA, 11 Jan. – 17 Jan. 2013 | Document: JCT3V-G0175 |

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| *Title:* | **CE5-related: Cross Check of Unification of delta DC coding and signaling for inter SDC and intra SDC in 3D-HEVC (JCT3V-G0130)** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Cross Check | | |
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# Abstract

This document describes RWTH Aachen University's crosscheck of Qualcomm’s proposal on *Unification of delta DC coding and signaling for inter SDC and intra SDC in 3D-HEVC* (JCT3V-G0130).

Qualcomm’s proposed modifications to the software were implemented into the 3DV-HTM reference software HTM 9.0r1 and evaluated according to the common test conditions [[1](#Hei11)]. The results of the crosscheck are provided in terms of rate and distortion. BD-Rates comparing the proposed method and the anchor encodings are also attached to this document.

# Crosscheck Results

Due to lack of time, the cross check was not performed with respect to the encoder and decoder runtimes. Therefore, these measurements are left out in the presented result tables. From the implementation it is to be assumed that the proposed technology does not have an impact on the encoder or decoder complexity.

It is also to be noted that the presented results use an implementation including JCT3V-F0126 as a reference.

## Common Test Conditions (JCT3V-F0126 as reference)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | video 0 | video 1 | video 2 | video PSNR / video bitrate | video PSNR / total bitrate | synth PSNR / total bitrate |
| Balloons | 0,0% | -0,2% | -0,2% | -0,1% | 0,0% | 0,0% |
| Kendo | 0,0% | 0,0% | 0,0% | 0,0% | 0,1% | 0,0% |
| Newspaper\_CC | 0,0% | -0,1% | -0,1% | 0,0% | 0,0% | -0,1% |
| GT\_Fly | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| Poznan\_Hall2 | 0,0% | -0,2% | -0,1% | -0,1% | 0,0% | 0,0% |
| Poznan\_Street | 0,0% | 0,0% | 0,1% | 0,0% | 0,0% | 0,0% |
| Undo\_Dancer | 0,0% | -0,1% | -0,2% | 0,0% | 0,0% | 0,0% |
| Shark | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| 1024x768 | 0,0% | -0,1% | -0,1% | 0,0% | 0,0% | 0,0% |
| 1920x1088 | 0,0% | 0,0% | -0,1% | 0,0% | 0,0% | 0,0% |
| **average** | **0,0%** | **-0,1%** | **-0,1%** | **0,0%** | **0,0%** | **0,0%** |

## All-Intra Coding Configuration

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | video 0 | video 1 | video 2 | video PSNR / video bitrate | video PSNR / total bitrate | synth PSNR / total bitrate |
| Balloons | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| Kendo | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| Newspaper\_CC | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| GT\_Fly | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| Poznan\_Hall2 | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| Poznan\_Street | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| Undo\_Dancer | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| Shark | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| 1024x768 | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| 1920x1088 | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |
| **average** | **0,0%** | **0,0%** | **0,0%** | **0,0%** | **0,0%** | **0,0%** |

# Investigation of Implementation

Qualcomm provided the source code of their modified 3DV-HTM 9.0r1 software together with a short explanation on how to enable and compile the proposed algorithm. All the modifications to the reference software were encapsulated in preprocessor statements for conditional compilation. Overall the implementation of the proposed algorithm is done in a clean and maintainable way and does not interfere with other coding tools.