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| *Title:* | **Cross-check result of JCTVC-H0548: Implicit signaling of collocated picture for HEVC** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Information | | |
| *Author(s) or Contact(s):* | Yong He  9710 Scranton Rd, Suite 250 San Diego, CA 92121, USA | Tel: Email: | +1-858-210-4807 [yong.he@interdigital.com](mailto:yong.he@interdigital.com) |
| *Source:* | InterDigital Communications | | |

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# Abstract

This document is a cross-check report on Motorola Mobility's proposal JCTVC-H0548 on implicit signaling of collocated picture in HEVC. It was verified that the cross-check encoding/decoding results completely match those reports in JCTVC-H0548, and the BD-rate results also exactly match those reported by the proponent.

# Introduction

Motorola Mobility's contribution, JCTVC-H0548 [1], proposes to remove collocated\_from\_l0\_flag for low delay case and add an extra flag at sequence level to indicate that only one picture motion information is kept for collocated picture purpose instead of keeping multiple pictures in the current working draft.

# Experimental results

The implementation of the proposal was based on HM5.0, and the software received from Motorola Mobility was compiled well with gcc 4.4.5. The proposed signaling in JCTVC-H0548 was added in the software with the macros ‘COLLOCATED\_PICTURE’.

The following macro setting is used for test:

COLLOCATED\_PICTURE 1

New configuration file for LB-HE and LB-LC are used in the cross check, the new configuration file has one more parameter defined:

COL                           : 1           # Using Collocated Picture  (0: OFF, 1: ON)

The modified encoder source code sets “collocated\_from\_l0\_flag” at slice header when slice type is B and “update\_collocated\_picture\_idx\_SPS” is zero. The modified decoder source code reads “collocated\_from\_l0\_flag” from slice header for slice B only when “update\_collocated\_picture\_idx\_SPS” is not set in SPS. When using collocated picture is turned on, the modified code always extracts the first reference picture from the reference picture list0. Otherwise, the code replies on collocated\_from\_l0\_flag to determine the corresponding reference picture list.

The cross-check experiments were conducted on 64-bit Linux cluster under the common test condition [2] with HM 5.0 software [3]. Table 1 shows the experimental results of the proposal.

Table 1. Results for JCTVC-H0548

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Low delay B HE** | | | **Low delay B LC** | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Class C | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Class D | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Class E | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| **Overall** | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
|  | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Class F | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Enc Time[%] | #NUM! | | | #NUM! | | |
| Dec Time[%] | 280% | | | 269% | | |

# Conclusion

It was verified that the simulation results matched exactly those reported by the proponent and the description in the proposed scheme in JCTVC-H0548 matches the implementation in the software.

# Reference

1. Yue Yu, Krit Panusopone, Limin Wang, “Implicit signaling of collocated picture for HEVC”, Document no JCTVC-H0548, Feb. 2012.
2. F. Bossen, “Common test conditions and software reference configurations,” Joint Collaborative Team on Video Coding, JCTVC-G1200, Geneva, Switzerland, Nov. 2011.
3. HM 5.0 Software, http://hevc.kw.bbc.co.uk/trac/browser/tags/HM-5.0.