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| **Joint Collaborative Team on 3D Video Coding Extension Development**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  3rd Meeting: Geneva, CH, 17–23 Jan. 2013 | Document: JCT3V-C0197 |

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| *Title:* | **3D-CE2.h-related: Crosscheck of results on disparity vector derivation (JCT3V-C0097)** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Information | | |
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# Abstract

This contribution reports a cross-check of disparity vector derivation process in inter-view candidate creation in JCT3V-C0097. Experiment results perfectly match with those provided by the proponent. The software was also studied and confirmed that it is correctly implemented.

JCT3V-C0097 Scheme 1 uses the temporal MV as the first candidate of the disparity vector derivation process which is used in Merge, AMVP and residual prediction process, while the temporal MV is put after special MVcandidates in the current HTM. It is reported that the scheme improve coding efficiency by 0.1 % in coded & synthesis on CTC.

JCT3V-C0097 Scheme 2 proposes to remove the usage of DV\_MCP vectors which are the disparity vectors which is used to derive base layer’s motion vector. It is reported that the scheme bring 0.1 % loss in coded & synthesis on CTC.

It is reported that JCT3V-C0097 Scheme 1+2 brings no loss.

# Verification

Table 1 Tested scheme

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | HTM5.0.1 | Test 1 | Test 2 | Test 3  (Test1 + Test2) |
| Position of  temporal MV candidate | After special MVcandidates | First candidate | Same as CTC | First candidate |
| DV\_MCP | Yes | Same as CTC | No | No |

# Experimental results

The experiment result on CTC by cross-checker is shown in Table 1 to Table 3

Table 1 Use temporal MV as first candidate(Test 1)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | video 0 | video 1 | video 2 | video only | synthesized only | coded & synthesized | enc time | dec time | ren time |
| Balloons | 0.0% | -0.2% | -0.5% | -0.2% | -0.1% | -0.1% | 99.1% | 98.4% | 99.4% |
| Kendo | 0.0% | -0.7% | -0.6% | -0.3% | -0.2% | -0.2% | 98.7% | 98.7% | 100.0% |
| Newspapercc | 0.0% | -0.3% | -0.2% | -0.1% | -0.1% | -0.1% | 99.1% | 98.8% | 99.8% |
| GhostTownFly | 0.0% | -0.1% | -0.1% | 0.0% | 0.0% | 0.0% | 100.0% | 101.9% | 102.8% |
| PoznanHall2 | 0.0% | 0.2% | 0.2% | 0.1% | 0.1% | 0.1% | 99.1% | 103.8% | 103.7% |
| PoznanStreet | 0.0% | -0.4% | 0.0% | -0.1% | -0.1% | -0.1% | 100.4% | 102.5% | 102.9% |
| UndoDancer | 0.0% | -0.3% | 0.3% | 0.0% | -0.1% | -0.1% | 100.3% | 101.7% | 102.9% |
| 1024x768 | 0.0% | -0.4% | -0.4% | -0.2% | -0.1% | -0.1% | 98.9% | 98.6% | 99.7% |
| 1920x1088 | 0.0% | -0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 100.0% | 102.5% | 103.1% |
| **average** | **0.0%** | **-0.3%** | **-0.1%** | **-0.1%** | **-0.1%** | **-0.1%** | **99.5%** | **100.8%** | **101.6%** |

Table 2 Remove of DV\_MCP (Test 2)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | video 0 | video 1 | video 2 | video only | synthesized only | coded & synthesized | enc time | dec time | ren time |
| Balloons | 0.0% | 0.6% | 1.2% | 0.4% | 0.3% | 0.3% | 98.0% | 95.5% | 99.7% |
| Kendo | 0.0% | 0.2% | 0.7% | 0.2% | 0.1% | 0.1% | 97.4% | 95.5% | 101.1% |
| Newspapercc | 0.0% | 0.7% | 1.0% | 0.3% | 0.3% | 0.3% | 97.4% | 93.6% | 100.0% |
| GhostTownFly | 0.0% | 0.2% | 0.1% | 0.0% | 0.0% | 0.0% | 99.4% | 97.9% | 102.6% |
| PoznanHall2 | 0.0% | 0.1% | 0.5% | 0.1% | 0.1% | 0.1% | 96.6% | 96.5% | 103.9% |
| PoznanStreet | 0.0% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 98.7% | 96.7% | 102.8% |
| UndoDancer | 0.0% | 0.2% | 0.3% | 0.1% | 0.0% | 0.0% | 99.0% | 97.2% | 103.0% |
| 1024x768 | 0.0% | 0.5% | 1.0% | 0.3% | 0.2% | 0.2% | 97.6% | 94.9% | 100.3% |
| 1920x1088 | 0.0% | 0.1% | 0.3% | 0.1% | 0.0% | 0.0% | 98.4% | 97.1% | 103.1% |
| **average** | **0.0%** | **0.3%** | **0.6%** | **0.2%** | **0.1%** | **0.1%** | **98.1%** | **96.1%** | **101.9%** |

Table 3 Use temporal MV as first candidate and Remove of DV\_MC (Test1 + Test2)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | video 0 | video 1 | video 2 | video only | synthesized only | coded & synthesized | enc time | dec time | ren time |
| Balloons | 0.0% | 0.2% | 0.6% | 0.2% | 0.1% | 0.1% | 98.4% | 94.4% | 100.0% |
| Kendo | 0.0% | -0.4% | 0.2% | -0.1% | 0.0% | 0.0% | 97.5% | 95.4% | 101.4% |
| Newspapercc | 0.0% | 0.3% | 0.7% | 0.2% | 0.1% | 0.1% | 98.2% | 93.8% | 100.3% |
| GhostTownFly | 0.0% | -0.1% | -0.1% | 0.0% | -0.1% | 0.0% | 99.3% | 96.6% | 101.3% |
| PoznanHall2 | 0.0% | 0.2% | 0.1% | 0.1% | 0.0% | 0.0% | 96.4% | 96.5% | 103.7% |
| PoznanStreet | 0.0% | -0.1% | -0.2% | 0.0% | 0.0% | 0.0% | 98.9% | 96.6% | 103.2% |
| UndoDancer | 0.0% | 0.0% | 0.6% | 0.1% | 0.0% | 0.0% | 98.8% | 97.9% | 103.3% |
| 1024x768 | 0.0% | 0.0% | 0.5% | 0.1% | 0.1% | 0.1% | 98.1% | 94.5% | 100.6% |
| 1920x1088 | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 98.3% | 96.9% | 102.9% |
| **average** | **0.0%** | **0.0%** | **0.3%** | **0.1%** | **0.0%** | **0.0%** | **98.2%** | **95.9%** | **101.9%** |

# References

[1] J. Y. Lee, H.-C. Wey, D.-S. Park, “3D-CE2.h related results on disparity vector derivation, “JCT3V-C0097, JCT3V 3rd Meeting: Geneva, CH, 17–23 Jan. 2013

# Patent rights declaration(s)

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