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| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11**  9th Meeting: Geneva, CH, 27 April – 7 May 2012 | Document: JCTVC-I0074  WG11 Number: m24313 |

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| *Title:* | **Cross-check report for Sharp's merge candidate refinement for uni-predictive block (JCTVC-I0293)** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Report | | |
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# Abstract

Cross-checking results of merge candidate refinement for uni-predictive block (JCTVC-I0293) are shown. A source code package was distributed by proponents and it was run on an independent platform. All local decoded images by encoder matched decoded images by decoder perfectly. All bitrate and PSNR were identical with proponent's results perfectly. Detailed experimental results show attached Excel files. Merge candidate refinement for uni-predictive block (JCTVC-I0293) has been cross-verified independently.

# Software check

This contribution is an additional proposal for Sony and Sharp’s contribution, JCTVC-I0107 which proposes an improvement of merge method for bi-predictive block when smaller PU sizes of bi-prediction are restricted. In this contribution, a merge candidate refinement for uni-predictive block is added. Since only 27 lines are inserted in TComDataCU.cpp, the modification of the software is small.

# Experimental results

The simulation was conducted for all sequences of WQVGA, WVGA, 720p, 1080p and cropped 4kx2k based on the recommended simulation common conditions, JCTVC-H1100. Table 1 indicates the average results of coding efficiency compared to each anchor. Used platform is that the OS is Windows 7 64-bit; the CPU is Core™i7-2600, 3.4GHz and the compiler is Visual C++ 2008. All local decoded images by encoder match decoded images by decoder perfectly. All bitrate and PSNR are identical with proponent's results perfectly.

Table Results of 8x4/4x8 bi-pred restriction with JCTVC-I0293 (compared to HM-6.0)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Random Access Main** | | | **Random Access HE10** | | |
|  | Y | U | V | Y | U | V |
| Class A | 0.1% | 0.2% | 0.3% | 0.0% | 0.1% | -0.1% |
| Class B | 0.2% | 0.2% | 0.2% | 0.1% | 0.0% | 0.1% |
| Class C | 0.3% | 0.4% | 0.3% | 0.3% | 0.3% | 0.2% |
| Class D | 0.5% | 0.5% | 0.6% | 0.5% | 0.5% | 0.3% |
| Class E |  |  |  |  |  |  |
| **Overall** | 0.3% | 0.3% | 0.3% | 0.2% | 0.2% | 0.1% |
|  | 0.3% | 0.3% | 0.3% | 0.2% | 0.3% | 0.1% |
| Class F | 0.1% | 0.2% | 0.2% | 0.1% | 0.2% | 0.2% |
| Enc Time[%] | 93% | | | 94% | | |
| Dec Time[%] | 100% | | | 99% | | |
|  |  |  |  |  |  |  |
|  | **Low delay B Main** | | | **Low delay B HE10** | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | 0.2% | 0.0% | 0.2% | 0.1% | 0.0% | 0.0% |
| Class C | 0.4% | 0.6% | 0.3% | 0.3% | 0.3% | 0.5% |
| Class D | 0.5% | -0.2% | 0.8% | 0.5% | -0.1% | -0.1% |
| Class E | 0.2% | -0.1% | 0.4% | 0.0% | -0.1% | 0.1% |
| **Overall** | 0.3% | 0.1% | 0.4% | 0.2% | 0.0% | 0.1% |
|  | 0.3% | 0.1% | 0.4% | 0.2% | 0.0% | 0.1% |
| Class F | 0.2% | 0.2% | 0.4% | 0.2% | -0.1% | 0.5% |
| Enc Time[%] | 91% | | | 92% | | |
| Dec Time[%] | 100% | | | 100% | | |
|  |  |  |  |  |  |  |
|  | **Low delay P Main** | | | **Low delay P HE10** | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | -0.4% | -0.4% | -0.4% | -0.5% | -0.2% | -0.7% |
| Class C | -0.3% | -0.5% | -0.2% | -0.3% | -0.2% | -0.3% |
| Class D | -0.3% | -0.4% | -1.2% | -0.3% | 0.2% | -0.7% |
| Class E | -0.1% | 1.1% | 2.0% | -0.1% | 1.1% | 0.2% |
| **Overall** | -0.3% | -0.1% | -0.1% | -0.3% | 0.1% | -0.4% |
|  | -0.3% | -0.1% | 0.0% | -0.3% | 0.1% | -0.3% |
| Class F | 0.1% | 1.4% | 0.4% | -0.1% | 1.3% | 0.9% |
| Enc Time[%] | 101% | | | 100% | | |
| Dec Time[%] | 101% | | | 99% | | |

# Conclusions

Merge candidate refinement for uni-predictive block (JCTVC-I0293) that is proposed by Sharp has been cross-verified independently.

# References

[1] F. Bossen, “Common test conditions and software reference configurations,” Joint Collaborative Team on Video Coding, JCTVC-H1100, San Jose, Feb. 2012.

# Patent rights declaration(s)

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