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| *Title:* | **Cross-check report of adjusted significant coefficient map context for non-square blocks (JCTVC-H0476)** | | |
| *Status:* | Input Document to the JCT-VC | | |
| *Purpose:* | Cross-verification | | |
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# Abstract

This is a cross verification of contribution for adjusted significant coefficient map context for non-square blocks (JCTVC-H0476). The source code was provided LGE and was based on HM-5.0. We compiled, inspected, and ran the code with Low delay, and Random access for high efficiency configurations. We reports that the RD results obtained are identical to those provided by LGE.

# Test conditions

Our computing platform used for cross-verification tests is a clustering system with 16 computing nodes, each of which contains:

* CPU: dual-socket quad-core Intel Xeon 2.5 GHz
* memory: 32 GB RAM
* storage (local): one 146 GB 2.5" 10k RPM SAS disk

The encoder and decoder executables were generated with g++ 4.1.2.

# Simulation results

The adjusted significant coefficient map context for non-square blocks was evaluated on the top HM5.0 under the configuration of RAHE and LDHE [1]. The coding gains for the contribution are summarized as following:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Random Access HE** | | | **Low delay B HE** | | |
|  | Y | U | V | Y | U | V |
| Class A (8bit) | 0.0% | 0.0% | 0.0% |  |  |  |
| Class B | 0.0% | 0.0% | -0.1% | 0.0% | 0.1% | 0.2% |
| Class C | 0.0% | 0.0% | -0.1% | 0.0% | -0.2% | 0.0% |
| Class D | 0.0% | -0.1% | -0.1% | 0.0% | -0.2% | 0.4% |
| Class E |  |  |  | 0.1% | -0.3% | -0.3% |
| **Overall** | 0.0% | 0.0% | -0.1% | 0.0% | -0.1% | 0.1% |
|  | 0.0% | 0.0% | -0.1% | 0.0% | -0.1% | 0.1% |
| Class F | 0.0% | -0.1% | 0.0% | -0.1% | 0.0% | -0.3% |

Moreover, when the method for adjusting significant coefficient map is applied to 32x8/8x32 blocks and the method of JCTVC-G750 [2] is applied to 16x4/4x16 block, the RD performance is shown as following:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Random Access HE** | | | **Low delay B HE** | | |
|  | Y | U | V | Y | U | V |
| Class A (8bit) | 0.0% | 0.0% | 0.0% |  |  |  |
| Class B | 0.0% | 0.1% | 0.1% | 0.1% | 0.3% | 0.3% |
| Class C | 0.1% | 0.0% | 0.1% | 0.1% | 0.1% | 0.1% |
| Class D | 0.1% | -0.1% | -0.2% | 0.1% | -0.1% | -0.1% |
| Class E |  |  |  | 0.1% | 0.2% | -0.1% |
| **Overall** | 0.1% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% |
|  | 0.1% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% |
| Class F | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | -0.2% |

# Conclusion

The code and results are verified and are conformant to the results stated by LGE

# References

1. F. Bossen, “*Common HM test conditions and software reference configurations*”, JCTVC-G1200, 7th JCT-VC Meeting, Geneva, CH, Nov. 2011.
2. J. Sole, X. Wang, M. Karczewicz, J. Kim, B. Jeon, “*Non-CE2: Harmonization of HE residual coding and NSQT*”, JCTVC-G750, 7th JCT-VC Meeting, Geneva, CH, Nov. 2011.