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| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11**  7th Meeting: Geneva, CH, 21-30 November, 2011 | Document: JCTVC-G596 |

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| *Title:* | **Cross-check report of Harmonization of HE residual coding and NSQT by Qualcomm and LGE (JCTVC-G750)** | | |
| *Status:* | Input Document to the JCT-VC | | |
| *Purpose:* | Cross-verification | | |
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# Abstract

This is a cross verification of contribution for harmonization of HE residual coding and NSQT (JCTVC-G750). The source code was provided by Qualcomm and LGE and was based on HM-4.0. We compiled, inspected, and ran the code with Low delay, and Random access for high efficiency configurations. We report that the RD results obtained are identical to those provided by Qualcomm and 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 harmonization of HE residual coding and NSQT was evaluated in JCTVC-F900. The coding gains for the contribution are summarized as following:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Random Access HE** | | | **Low Delay HE** | | |
|  | Y | U | V | Y | U | V |
| Class A | 0.0% | -0.1% | -0.3% |  |  |  |
| Class B | -0.1% | -0.1% | 0.0% | -0.1% | -0.2% | -0.2% |
| Class C | 0.0% | 0.0% | 0.1% | -0.1% | -0.2% | -0.2% |
| Class D | 0.0% | 0.0% | -0.2% | -0.1% | -0.2% | -0.2% |
| Class E |  |  |  | 0.0% | -0.7% | 0.8% |
| **Overall** | 0.0% | -0.1% | -0.1% | -0.1% | -0.3% | 0.0% |
|  | 0.0% | -0.1% | -0.1% | -0.1% | -0.3% | 0.0% |
| Enc Time[%] | 100% | | | 101% | | |
| Dec Time[%] |  | | |  | | |

It is noted that the measurement of execution time may not be consistent with the one by a dedicated execution platform because the simulation is done in a cluster environment.

# Conclusion

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