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| *Title:* | **CE4: Crosscheck of Qualcomm’s 1/8 pel accuracy high precision Interpolation Filter for Chroma by MediaTek** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Report | | |
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| *Source:* | MediaTek Inc. | | |

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# Abstract

The purpose of this document is to crosscheck Qualcomm’s inter on interpolation filter for chroma proposed by Qualcomm. The verification task has been done successfully and the BD-rates match those provided by Qualcomm exactly.

# Introduction

Qualcomm provided the TMuC0.9-based source code of their proposed algorithm. Compared to TMuC0.9, the macro SAMSUNG\_CHROMA\_IF\_EXT is enabled and a new macro QC\_CHP is added and enabled.

Four configurations (random access, random access LoCo, Low dealy, and low delay LoCo) were tested for the provided code.

# Test Results

The BD-rates from our experimental results listed in Table 1 match those provided by Qualcomm exactly. The detailed results are listed in JCTVC-D289.xls.

Table 1. Experimental results of Mediatek’s crosschecking

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Random access |  |  |  | Random access LoCo |  |  |
| Y BD-rate | U BD-rate | V BD-rate | YUV BD-rate | Y BD-rate | U BD-rate | V BD-rate | YUV BD-rate |
| Class A | -0.1 | -1.5 | -2.3 | -0.7 | -0.1 | -1.9 | -2.7 | -0.9 |
| Class B | -0.1 | -4.7 | -5.7 | -1.8 | -0.1 | -5.8 | -6.2 | -1.9 |
| Class C | -0.2 | -5.3 | -4.9 | -2.0 | -0.2 | -6.5 | -5.9 | -2.3 |
| Class D | -0.3 | -6.6 | -8.1 | -2.6 | -0.2 | -8.1 | -9.9 | -2.8 |
| Class E |  |  |  |  |  |  |  |  |
| All | -0.2 | -5.0 | -5.7 | -1.9 | -0.2 | -6.1 | -6.6 | -2.1 |
| Enc Time[%] | 102% | | | | 105% | | | |
| Dec Time[%] | 115% | | | | 131% | | | |
|  |  |  |  |  |  |  |  |  |
|  | Low delay | | | | Low delay LoCo | | | |
|  | Y BD-rate | U BD-rate | V BD-rate | YUV BD-rate | Y BD-rate | U BD-rate | V BD-rate | YUV BD-rate |
| Class A |  |  |  |  |  |  |  |  |
| Class B | -0.4 | -2.7 | -3.4 | -1.3 | -0.7 | -5.9 | -7.6 | -2.4 |
| Class C | -0.5 | -3.2 | -3.7 | -1.8 | -0.7 | -5.8 | -5.0 | -2.6 |
| Class D | -0.6 | -4.2 | -4.6 | -2.1 | -1.1 | -7.9 | -8.6 | -3.2 |
| Class E | -0.1 | -0.6 | -0.8 | -0.2 | -0.3 | 2.6 | 2.9 | 0.6 |
| All | -0.4 | -2.8 | -3.3 | -1.4 | -0.7 | -4.8 | -5.2 | -2.1 |
| Enc Time[%] | 102% | | | | 104% | | | |
| Dec Time[%] | 111% | | | | 126% | | | |

# Conclusion

The results of Qualcomm presented by Qualcomm in are confirmed.

# References

1. E. Alshina, Y.L. Lee, P. Chen and H. Lakshman, “Description of Core Experiment 4: Interpolation for MC (Chroma),” JCTVC-C504, Oct. 2010.