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| *Title:* | **CE5 subtest 5.1: Performance impact of varying the maximum palette size** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

The effect of varying the maximum palette size was investigated while keeping the palette predictor size constant. It is reported that increasing the maximum palette size to 47 and 63 from 31 (used in SCM2.0) has virtually no effect on BD-rate performance (up to −0.1% for some classes). However decreasing the maximum palette size to 15 leads to some BD-rate losses. BD-rates of 0.8% and 0.9% for All-Intra 1080p text and graphics RGB and YUV categories, respectively, over SCM2.0 anchor are reported for this case.

# Introduction

SCM2.0 uses a maximum palette size (MAX\_PLT\_SIZE) of 31. The palette indices can take values in the range [0, MAX\_PLT\_SIZE], where index value MAX\_PLT\_SIZE is reserved to indicate an escape pixel. In subtest 5.1, maximum palette sizes of 15, 47, and 63 were investigated, while keeping the size of the palette predictor constant (=64).

# Results

SCM2.0 was modified by changing the #define for MAX\_PLT\_SIZE to the appropriate value (15, 47, and 63). Simulations were performed under common test conditions (JCTVC-Q1015). The simulation platform is a homogenous LINUX cluster consisting of Intel(R) XEON CPUs. The BD-rate results for All-Intra lossy configuration for maximum palette sizes of 15, 47, and 63 are shown in tables 1, 2 and 3, respectively. Complete simulation results including RA, LB and lossless configurations are in the accompanying spreadsheets.



**Table 1: BD-rate results for MAX\_PLT\_SIZE = 15 and MAX\_PLT\_PRED\_SIZE = 64 (All-Intra lossy configuration)**



**Table 2: BD-rate results for MAX\_PLT\_SIZE = 47 and MAX\_PLT\_PRED\_SIZE = 64 (All-Intra lossy configuration)**



**Table 3: BD-rate results for MAX\_PLT\_SIZE = 63 and MAX\_PLT\_PRED\_SIZE = 64 (All-Intra lossy configuration)**

# Conclusions

In this subtest, maximum palette sizes of 15, 47, and 63 were investigated. The BD-rate results indicate that there is almost no gain in increasing the palette size beyond 31 when the palette predictor size is fixed at 64. When the maximum palette size is decreased to 16, BD-rate losses of 0.8% and 0.9% are observed for All-Intra 1080p text and graphics RGB and YUV categories, respectively, over SCM2.0 anchor.

# Patent rights declaration(s)

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