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| *Title:* | **Cross-check of JCT3V-D0164: 3D-AVC: Removal of texture to depth resolution ratio restrictions** | | |
| *Status:* | Input Document to JCT-3V | | |
| *Purpose:* | Cross check | | |
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# Abstract

This document presents the cross-check results of JCT3V-D0164[1] which supports coding MVD data with an arbitrary depth-to-texture resolution.

# Experimental Condition

ETRI and KHU received the package of crosscheck data of JCT3V-D0164[1] from Nokia and checked its performance. We found no problem in compiling, building, encoding and decoding.

The test configurations are summarized in Table 1. Note that Scheme 1~3 were simulated using several downsampled depth maps and set the encoder options to disable VSD and IVMP. The anchor, utilized for comparison was produced by 3D-ATM v7.0 executed under the CTC[2] with disabled VSO and IVMP.

Table 1. Test configurations

|  |  |
| --- | --- |
| Test case | Depth/Texture resolution ratio  (vertical x horizontal) |
| Anchor | 0.5x0.5 |
| Scheme 1 | 0.25x1.0 |
| Scheme 2 | 0.25x0.5 |
| Scheme 3 | 0.25x0.25 |

# Results

R-D performance of each experimental result are summarized in Table 2~Table 4.

It was confirmed that these results perfectly match with the one provided by the proponent.

Table 2. Compression efficiency of the Scheme 1 compared against the Anchor (VSD=OFF)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Texture Coding | | Depth Coding | | Total (Coded PSNR) | | Total (Synthesed PSNR) | |
|  | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB |
| S01 | 0.08 | 0.00 | 6.62 | -0.33 | 1.29 | -0.04 | -1.03 | 0.04 |
| S02 | 0.11 | 0.00 | 14.54 | -0.53 | 0.61 | -0.02 | 0.96 | -0.03 |
| S03 | 0.03 | 0.00 | 11.21 | -0.82 | 1.12 | -0.04 | -7.15 | 0.24 |
| S04 | -0.08 | 0.00 | 23.53 | -1.19 | 1.08 | -0.04 | -0.12 | 0.00 |
| S05 | 0.01 | 0.00 | 8.74 | -0.43 | 1.29 | -0.06 | 0.91 | -0.04 |
| S06 | -0.01 | 0.00 | 16.90 | -0.68 | 1.87 | -0.09 | 1.69 | -0.07 |
| S08 | 0.00 | 0.00 | 11.83 | -0.46 | 0.80 | -0.03 | 1.71 | -0.06 |
| Average | 0.02 | 0.00 | 13.34 | -0.64 | 1.15 | -0.04 | -0.43 | 0.01 |

Table 3. Compression efficiency of the Scheme 2 compared against the Anchor (VSD=OFF)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Texture Coding | | Depth Coding | | Total (Coded PSNR) | | Total (Synthesed PSNR) | |
|  | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB |
| S01 | 0.14 | -0.01 | -23.61 | 1.32 | -3.89 | 0.13 | -2.08 | 0.07 |
| S02 | 0.43 | -0.01 | -19.28 | 0.83 | -4.32 | 0.13 | -2.72 | 0.09 |
| S03 | 0.37 | -0.01 | -26.85 | 2.39 | -1.98 | 0.07 | -0.36 | 0.01 |
| S04 | 0.54 | -0.02 | -26.26 | 1.76 | -3.70 | 0.14 | -1.22 | 0.04 |
| S05 | 0.34 | -0.02 | -16.87 | 0.96 | -9.02 | 0.43 | -6.87 | 0.30 |
| S06 | 0.18 | -0.01 | -15.36 | 0.73 | -7.28 | 0.36 | -5.41 | 0.25 |
| S08 | 0.10 | 0.00 | -12.75 | 0.56 | -4.99 | 0.22 | 0.05 | 0.00 |
| Average | 0.30 | -0.01 | -20.14 | 1.22 | -5.03 | 0.21 | -2.66 | 0.11 |

Table 4. Compression efficiency of the Scheme 3 compared against the Anchor (VSD=OFF)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Texture Coding | | Depth Coding | | Total (Coded PSNR) | | Total (Synthesed PSNR) | |
|  | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB | dBR, % | dPSNR,dB |
| S01 | 0.30 | -0.01 | -38.67 | 2.34 | -6.76 | 0.22 | 1.79 | -0.07 |
| S02 | 0.79 | -0.02 | -37.58 | 1.81 | -7.01 | 0.22 | -2.16 | 0.07 |
| S03 | 0.85 | -0.03 | -43.45 | 4.25 | -3.18 | 0.11 | 22.47 | -0.65 |
| S04 | 1.19 | -0.04 | -48.84 | 3.83 | -5.80 | 0.22 | 2.37 | -0.10 |
| S05 | 0.70 | -0.03 | -31.55 | 1.95 | -15.40 | 0.78 | -8.72 | 0.38 |
| S06 | 0.59 | -0.03 | -30.93 | 1.61 | -12.10 | 0.62 | -6.94 | 0.32 |
| S08 | 0.16 | -0.01 | -26.57 | 1.32 | -7.35 | 0.32 | 3.94 | -0.15 |
| Average | 0.65 | -0.02 | -36.80 | 2.44 | -8.23 | 0.36 | 1.82 | -0.03 |

# Conclusion

The results of JCT3V-D0164 were confirmed. Experimental results perfectly match with the one provided by the proponent.

# References

1. D.Rusanovskyy, P. Aflaki, M.M. Hannuksela, “3D-AVC: Removal of texture to depth resolution ratio restrictions”, The 4th JCT3V meeting, JCT3V-D0164, Incheon, KR, Apr. 2013.
2. D. Rusanovskyy, K. Müller, A. Vetro, “Common Test Conditions of 3DV Core Experiments”, The 3rd JCT3V meeting, JCT3V-C1100, Geneva, CH, Jan. 2013.