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Status **Report**
Title **m25021 3D-CE2h cross check of Samsung proposal on Adaptive Depth Quantization by Poznan University of Technology**
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1 Introduction

This documents presents Core Experiment 2 for HEVC based 3D Video Coding [1] cross check attained by Poznan University of Technology. The tools that was investigated was proposed by Samsung in [2] and further improved in [3, 4]. Tool was evaluated according to the common test conditions [5]. Documents provides results in terms of rate and distortion both coded and synthesized.

2 Adaptive Depth Quantization tools description

Depth information is for view rendering, and it is important to note that depth distortion would not linearly affect the synthesized view distortion. For example, smooth texture regions would be more tolerate for depth distortion, while complex texture region would be more sensitive for depth distortion.

In the proposed tools, Samsung introduce the two approaches to set the block-adaptive QP values, say ΔQP with texture information, and dQP with multiple tries. Details are described in [3,4]

3 Test Platform

The simulations results was generated on a ~80 core cluster system. This cluster platform's processing units have the following specifications:

- Processor: Intel Xeon X5675
- Clock Speed: 3.06 GHz
- Memory: approx. 4 GB per Core
- OS: 64-bit Windows Server 2008
- Compiler: Microsoft Visual Studio 2008 (64 bit)

4 Results

	Texture Coding		Synthesized Views	
	BD-rate (piecewise cubic)	BD-rate (cubic)	BD-rate (piecewise cubic)	BD-rate (cubic)
S01	-0,04%	-0,04%	-0,17%	-0,15%
S02	0,00%	0,00%	-0,30%	-0,31%
S03	0,01%	0,01%	-0,34%	-0,33%
S04	-0,03%	-0,03%	-0,21%	-0,21%
S05	0,00%	0,00%	-0,17%	-0,17%
S06	-0,03%	-0,03%	-0,44%	-0,44%
S08	0,00%	0,00%	0,00%	0,00%
Average	**-0,01%**	**-0,01%**	**-0,24%**	**-0,23%**

Please note that the last sequence (S08) is not computed, due to system crash.
The results will be available in the upcoming days.

Unfortunately there are some small mismatch of about 0,01% in results attained by us and the proponent.
The source of those differences is not yet known due to time shortage, as the computations started very lately.

Detailed results can be found in attached Excel file.

5 Conclusions

Attained result match first received version of the proposed tools.
This will be updated in the upcoming days.

6 References

[1] Anthony Vetro, Karsten Müller, “Description of Core experiments in 3D video coding”, ISO/IEC JTC1/SC29/WG11 MPEG, N12561 2012.

[2] “Description of AVC compatible 3D video coding technology by Samsung,” ISO/IEC JTC1/SC29/WG11 MPEG, M22632, November 2011.

[2] Byung Tae Oh, Jaejoon Lee, Du Sik Park, “3D-AVC-CE3 results on Samsung's adaptive depth quantizatio”, ISO/IEC JTC1/SC29/WG!! MPEG, M23659, San Jose, USA, February 2012

[3] Byung Tae Oh, Jaejoon Lee, Du Sik Park, “3D-CE2.a results on adaptive depth quantization by Samsung”, ISO/IEC JTC1/SC29/WG!! MPEG, M24820, Geneva, Switzerland, May 2012

[4] Dmytro Rusanovskyy Heiko Schwarz, "Common Test Conditions for HEVC- and AVC-based 3DV," ISO/IEC JTC1/SC29/WG11 MPEG, N12560 2012.

[5] M. Domański, T. Grajek, K. Klimaszewski, M. Kurc, O. Stankiewicz, J. Stankowski, K. Wegner, "Poznań Multiview Video Test Sequences and Camera Parameters", ISO/IEC JTC1/SC29/WG11 MPEG 2009/M17050, Xian, China, October 2009.