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Title: **Additional Cross Check of 3D-CE7.h Results on Global Depth and View Prediction of NICT by Poznan**

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Abstract

This contribution reports an additional result cross-check of CE7.h on Global Depth and View Prediction of NICT described in N12561[1], obtained by Poznan University of Technology. CE7 was executed on 3-view case based on 3DV-HTM3.1 [2].

1 Introduction

A view synthesis based Global Depth and View Prediction scheme is described in JCT2-A0069 [3]. The cross-check report contains the simulations results obtained with the software provided by NICT and described in [3].

2 Cross-check results

The simulations results were generated on a ~80 core cluster system. The 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)

Exemplary result is shown in Table 1. Overview of the results is shown in Table 2. All simulation results are attached to this document in excel sheet. The obtained results are in perfect match with those provided by NICT in JCT2-A0069 [3].

Table 1 Exemplary simulation results for 3-view case

			NICT Proposal by Poznan						
Sequence	component	QPISlice(V0	kbps	Y-PSNR	U-PSNR	V-PSNR	Enc T [s]	Dec T [s]	Ren T [s]
Balloons	video 0	25	876,3144	43,1018	43,3824	43,9388	5359,34	52,85	
		30	482,1216	41,0737	42,1375	42,3253	4976,21	53,15	
		35	278,0360	38,5104	40,6941	40,5634	4695,92	52,07	
		40	168,6792	35,6814	39,6440	39,3220	4495,38	48,80	
	Residual Video Generation	25					939,96		
		30					940,65		
		35					941,01		
	(VSencR)	40					933,33		
	Residual Video	25	807,7312	43,4772	45,8510	44,8373	2594,38	12,86	
		30	373,4624	40,5209	43,9132	42,7656	2383,15	12,46	
		35	183,9312	37,8582	42,0166	40,7784	2240,51	12,06	
		40	104,4448	35,2107	40,5769	39,3017	2146,21	11,86	
	Global depth	25	187,9192	44,5205			1275,02	28,92	
		30	77,5120	41,8944			1161,73	27,24	
		35	35,6216	39,7549			1074,36	27,77	
		40	18,9752	37,7701			1039,26	28,25	
	Global depth generation	25					124,25		
		30					124,25		
		35					124,25		
	(VSencD)	40					124,25		
	synth 0,25	25		35,4115	43,1519	42,6406			
	(VSdec)	30		35,0602	42,2212	41,4823			
		35		34,2914	40,9512	40,0065			
		40		32,9278	39,8739	38,8363			
	synth 0,50	25		37,0234	43,9081	43,4134			
	(VSdec)	30		36,5468	42,8181	42,1344			
		35		35,5402	41,3993	40,5494			
		40		33,9039	40,2603	39,3275			
	synth 0,75	25		39,0089	44,0197	43,5457			
	(VSdec)	30		38,2372	42,9305	42,3191			
		35		36,8048	41,4999	40,7673			
		40		34,7701	40,3763	39,5651			
	synth 1,25	25		39,2517	44,4665	44,3915			
	(VSdec)	30		38,3065	43,2608	42,9126			
		35		36,7491	41,7217	41,1441			
		40		34,6269	40,5242	39,8149			
	synth 1,50	25		38,2034	43,2740	43,0830			
	(VSdec)	30		37,3940	42,4168	41,9617			
		35		35,9929	41,1898	40,4745			
		40		34,0343	40,1078	39,2790			
	synth 1,75	25		36,6177	42,0203	41,8804			
	(VSdec)	30		35,9115	41,4252	41,0000			
		35		34,7447	40,4639	39,7367			
		40		33,0442	39,5161	38,6579			
	overall	25	1871,9648				10292,96	94,63	1000,51
		30	933,0960				9586,00	92,85	999,45
		35	497,5888				9076,05	91,90	998,39
		40	292,0992				8738,43	88,91	1000,10

Table 2 Overview of simulation results for 3-view case

	video 0	synthesized only	enc time	dec time	ren time
Balloons	0,0%	100,5%	18,7%	75,7%	205,8%
Kendo	0,0%	182,1%	20,7%	77,8%	153,9%
Newspaper	0,0%	0,0%	19,3%	67,9%	161,2%
GhostTown	0,0%	53,1%	15,0%	179,6%	244,0%
PoznanHall	0,0%	336,7%	14,8%	183,5%	320,3%
PoznanStre	0,0%	64,6%	13,9%	112,8%	187,4%
UndoDance	0,0%	58,2%	14,8%	55,5%	117,9%
1024x768	0,0%	94,2%	19,6%	73,7%	172,2%
1920x1088	0,0%	128,2%	14,6%	119,8%	203,8%
average	**0,0%**	**113,6%**	**16,6%**	**97,3%**	**189,6%**

3 Conclusion

Additional cross-check results for Global Depth and View Prediction in 3D-CE7.h proposed by NICT have been reported in this contribution. The simulation results are in perfect match with whose provided by NICT.

References

[1] ISO/IEC JTC1/SC29/WG11 MPEG2011/N12561: "Description of Core Experiments for 3D Video Coding," (February 2012)

[2] ISO/IEC JTC1/SC29/WG11 MPEG2011/N12744: " Test Model under consideration for HEVC based 3D Video Coding V3.0," (February 2012)

[3] T. Senoh, K. Yamamoto, R. Oi, Y. Ichihashi, "3DV CE7.h results on Global Depth and View Prediction by NICT", ISO/IEC JTC1/SC29/WG11 m26011, ITU-T SG 16 WP JCT2-A0069, Stockholm, July 2012.

[4] ISO/IEC JTC1/SC29/WG11 MPEG2011/N12754: "Common Test Conditions for 3DV Experimentation," (May 2012).