



IMPROVEMENT ON ILLUMINATION COMPENSATION REFERENCE PIXELS SELECTION

JCT3V-H0128

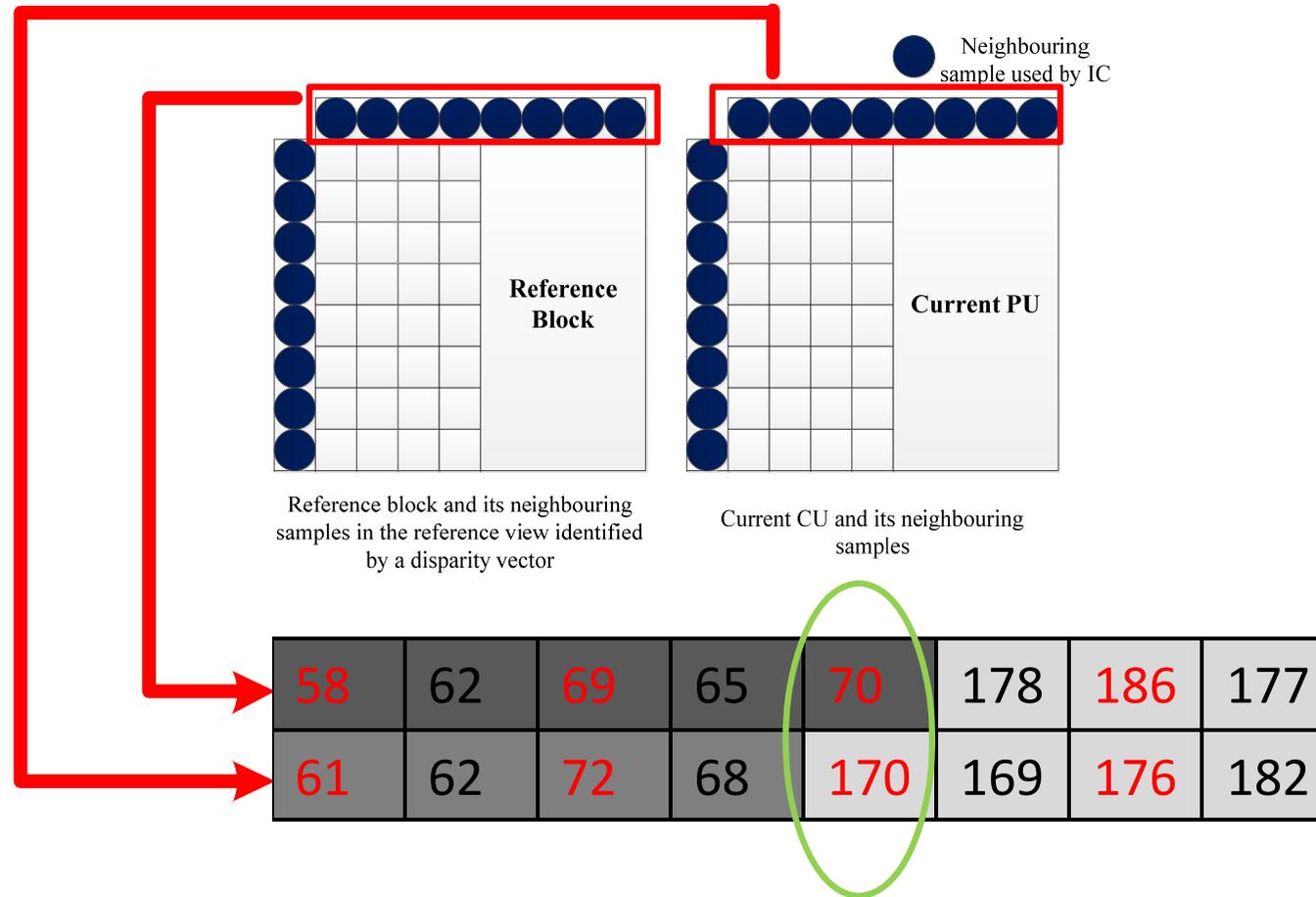
**Zhouye Gu (Santa Clara University)
Jianhua Zheng (HiSilicon)
Nam Ling (Santa Clara University)
Philipp Zhang (HiSilicon)**

INTRODUCTION

- Additional reference pixels are considered to improve IC parameter derivation
- Implementation based on HTM-10.0r1:
0.1% gain (0.24% gain for PoznanHall sequence)
for synthesized view under CTC
- Thanks LGE for crosscheck (JCT3V-H0149)



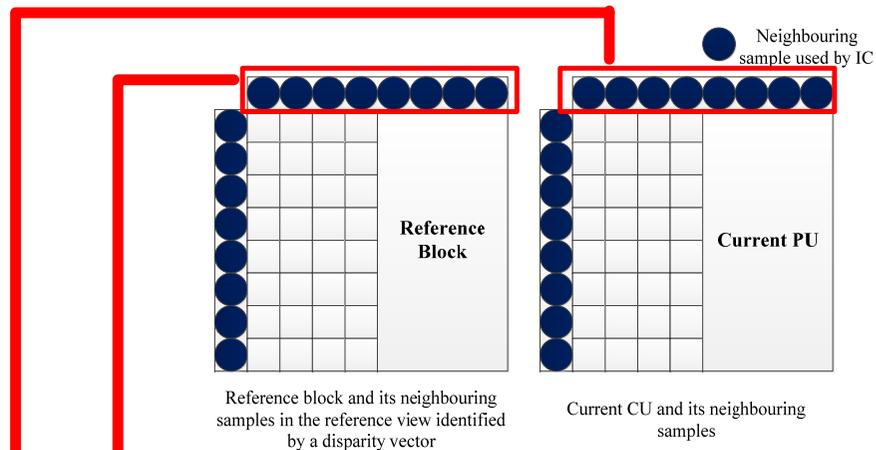
CURRENT IC REFERENCE PIXEL SELECTION



One pixel misalignment of reference neighboring pixels



PROPOSED IC REFERENCE PIXEL SELECTION



Only applied to PU size $\leq 16 \times 16$
 Select the pairs with minimal SAD

58	62	69	65	70	178	186	177
61	62	72	68	170	169	176	182

SAD = 116

58	62	69	65	70	178	186	177
61	62	72	68	170	169	176	182

SAD = 108

58	62	69	65	70	178	186	177
61	62	72	68	170	169	176	182

SAD = 17



HTM-10.0r1 Random Access (CTC) test result

	video 0	video 1	video 2	video PSNR / video bitrate	video PSNR / total bitrate	synth PSNR / total bitrate	enc time	dec time	ren time
Balloons	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	96.7%	83.6%	97.4%
Kendo	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	96.6%	87.5%	98.6%
Newspaper_CC	0.0%	0.0%	-0.2%	0.0%	0.0%	-0.1%	97.9%	105.4%	99.6%
GT_Fly	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	97.2%	93.0%
Poznan_Hall2	0.0%	0.0%	-0.7%	-0.1%	-0.1%	-0.2%	100.4%	100.7%	105.5%
Poznan_Street	0.0%	-0.2%	0.0%	0.0%	0.0%	0.0%	100.8%	86.6%	89.7%
Undo_Dancer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	101.9%	97.6%
Shark	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	99.6%	88.7%	90.2%
1024x768	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	97.0%	92.2%	98.5%
1920x1088	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%	100.2%	95.0%	95.2%
average	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%	99.0%	94.0%	96.4%



HTM-10.0r1 Random Access (CTC) test result for Natural/Camera videos

	video 0	video 1	video 2	video PSNR / video bitrate	video PSNR / total bitrate	synth PSNR / total bitrate	enc time	dec time	ren time
Balloons	0.00%	0.01%	-0.03%	0.00%	-0.01%	-0.05%	96.7%	83.6%	97.4%
Kendo	0.00%	-0.05%	-0.02%	0.01%	0.00%	-0.01%	96.6%	87.5%	98.6%
Newspaper_CC	0.00%	-0.03%	-0.15%	-0.01%	0.00%	-0.10%	97.9%	105.4%	99.6%
Poznan_Hall2	0.00%	-0.03%	-0.66%	-0.11%	-0.10%	-0.24%	100.4%	100.7%	105.5%
Poznan_Street	0.00%	-0.18%	-0.01%	-0.02%	-0.02%	-0.05%	100.8%	86.6%	89.7%
1024x768	0.00%	-0.03%	-0.07%	0.00%	0.00%	-0.05%	97.0%	92.2%	98.5%
1920x1088	0.00%	-0.10%	-0.33%	-0.07%	-0.06%	-0.15%	100.6%	93.7%	97.6%
average	0.00%	-0.06%	-0.17%	-0.03%	-0.02%	-0.09%	98.5%	92.8%	98.2%



SUMMARY

- Additional reference pixels are considered to improve IC parameter derivation
- Only applied to PU size $\leq 16 \times 16$
- Achieves 0.1% gain (0.24% gain for PoznanHall sequence) for synthesized view under CTC
- Suggest to adopt the proposal into the working draft

