Gwangju Institute of Science and Technology

CE6.h related: SDC coding

for 64x64 blocks

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Proposed Method

❖ **Incorporate SDC_PLANAR and SDC_DC into normal HEVC intra modes**

- depth_intra_mode does not need to be binarized

❖ **For 64x64 blocks only**

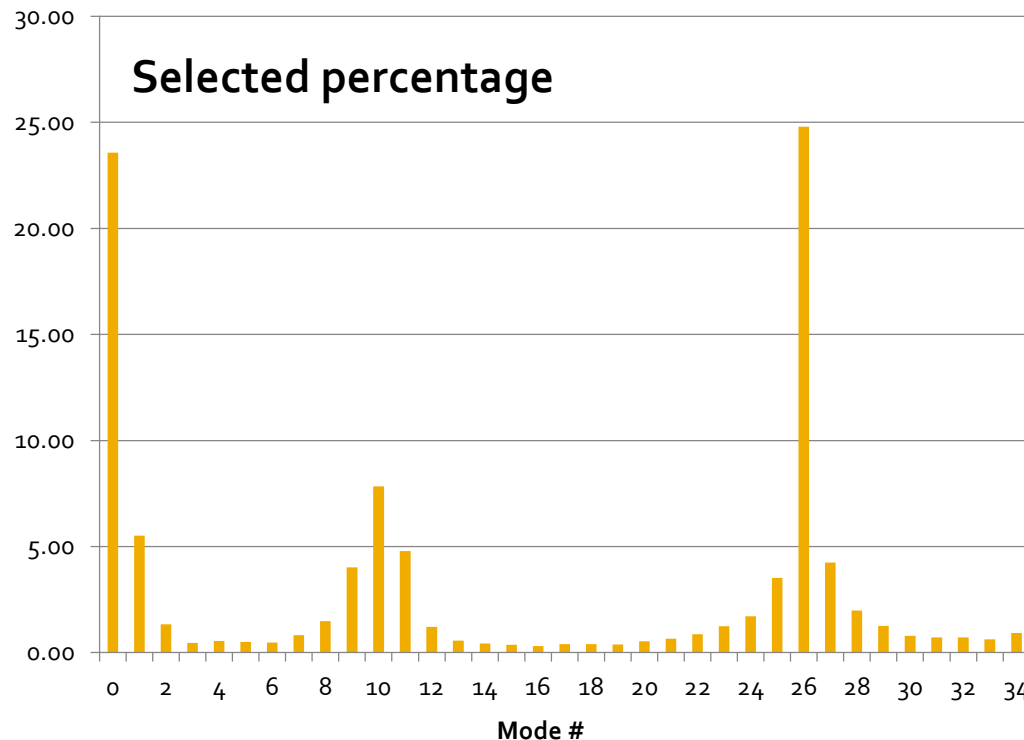| Name of depth_intra_mode	Bin String
	cLog2CbSize == 6
INTRA_DEP_SDC_PLANAR	0
INTRA_DEP_NONE	10
INTRA_DEP_SDC_DMM_WFULL	-
INTRA_DEP_DMM_WFULL	-
INTRA_DEP_DMM_CPREDTEX	-
INTRA_DEP_DMM_WPREDTEX	-
INTRA_DEP_SDC_DC	11
INTRA_DEP_DMM_WPREDDIR	-
INTRA_DEP_CHAIN	-

Bin string is no longer necessary

Depth intra modes for 64x64 blocks

Proposed Method

❖ **Analysis of HTM-7.0r1 depth intra coding**

- Selected percentage of normal HEVC modes
- Mode 15 and Mode 16 are the least used
  - 0.30% and 0.36% respectively

Proposed Method

❖ **New mode ordering for 64x64 intra coding**

- SDC_DC substitutes Mode 15
- SDC_PLANAR substitutes Mode 16

Mode number	Mode type
0-14	Normal HEVC modes
15	SDC_DC
16	SDC_PLANAR
17-34	Normal HEVC modes

Simulation Results

❖ **0.1% gain for both video and synthesis**

	video 0	video 1	video 2	video PSNR / video bitrate	video PSNR / total bitrate	synth PSNR / total bitrate
Balloons	0.0%	-0.1%	0.1%	0.0%	0.0%	-0.1%
Kendo	0.0%	0.3%	0.0%	0.1%	-0.1%	-0.2%
Newspaper_CC	0.0%	0.0%	-0.1%	0.0%	-0.1%	0.1%
GT_Fly	0.0%	0.2%	0.0%	0.0%	-0.2%	-0.2%
Poznan_Hall2	0.0%	-0.1%	0.1%	0.0%	-0.3%	-0.4%
Poznan_Street	0.0%	-0.1%	-1.3%	-0.2%	-0.2%	-0.2%
Undo_Dancer	0.0%	0.1%	0.2%	0.0%	-0.1%	0.0%
1024x768	0.0%	0.1%	0.0%	0.0%	-0.1%	-0.1%
1920x1088	0.0%	0.0%	-0.3%	0.0%	-0.2%	-0.2%
average	**0.0%**	**0.0%**	**-0.2%**	**0.0%**	**-0.1%**	**-0.1%**

Conclusion

❖ **Incorporation of SDC modes into the regular intra coding path**

  ▪ For 64x64 blocks only

  ▪ depth_intra_mode signaling can be skipped

❖ **Mode replacement**

  ▪ SDC_DC substitutes Mode 15

  ▪ SDC_PLANAR substitutes Mode 16

❖ **0.1% gain for both video and synthesis**