

Bypass bins grouping on Intra mode coding

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Panasonic ideas for life

Draft7

- ✓ The bypass and context bin is interleaving on intra mode syntax.

In last meeting, Luma intra-prediction syntax is changed for bypass grouping.

Proposal

- ✓ Prefix part is firstly coded on Luma and Chroma, Surfix part later.

current possible patterns for intra mode coding syntax elements for INTRA_2Nx2N

	syntax elements	value	binalization (blue : context based, red: bypass)								
case 1	prev_intra_luma_pred_flag	1	1	0	0 ^{*1}						
	mpm_idx	0									
	intra_chroma_pred_mode	4 or 5									
case 2	prev_intra_luma_pred_flag	1	1	0	X	0 ^{*1}					
	mpm_idx	1 or 2									
	intra_chroma_pred_mode	4 or 5									
case 3	prev_intra_luma_pred_flag	1	1	0	1 ^{*1}	X	X				
	mpm_idx	0									
	intra_chroma_pred_mode	0 to 3									
case 4	prev_intra_luma_pred_flag	1	1	0	X	1 ^{*1}	X	X			
	mpm_idx	1 or 2									
	intra_chroma_pred_mode	0 to 3									
case 5	prev_intra_luma_pred_flag	0	0	X	X	X	X	X	0 ^{*1}		
	rem_intra_luma_pred_mode	N									
	intra_chroma_pred_mode	4 or 5									
case 6	prev_intra_luma_pred_flag	0	0	X	X	X	X	X	1 ^{*1}	X	X
	rem_intra_luma_pred_mode	N									
	intra_chroma_pred_mode	0 to 3									

prediction_unit(x0, y0, log2CbSize) {	Descriptor
if(skip_flag[x0][y0]) {	
....	
} else if(PredMode == MODE_INTRA) {	
....	
if(pcm_flag) {	
....	
} else {	
d0 = 1 << log2CbSize	
if (!(x0 % d0) &&!(y0 % d0)) {	
d1 = (PartMode == PART_2Nx2N ? d0: (d0>>1))	
for(i = 0; i < d0 ; i += d1)	
for(j = 0; j < d0 ; j += d1)	
prev_intra_luma_pred_flag[x0+j][y0 + i]	ae(v)
intra_chroma_pred_prefix_mode[x0][y0]	ae(v)
for(i = 0; i < d0 ; i += d1){	
for(j = 0; j < d0 ; j += d1){	
if(prev_intra_luma_pred_flag[x0 + j][y0 + i])	
mpm_idx[x0+j][y0 + i]	ae(v)
else	
rem_intra_luma_pred_mode[x0 + j][y0 + i]	ae(v)
}	
}	
if (intra_chroma_pred_prefix_mode[x0][y0] !=0 &&	
intra_chroma_pred_prefix_mode[x0][y0] !=3)	
rem_intra_chroma_pred_mode[x0][y0]	ae(v)
intra_chroma_pred_mode[x0][y0]	ae(v)
}	
}	
} else { /* MODE_INTER */	
.....	
}	
}	

possible patterns for intra mode coding syntax elements for INTRA_2Nx2N

By using proposal

	syntax elements	value	binalization (blue : context based, red: bypass)								
case 1	prev_intra_luma_pred_flag	1	1	0^{*2}	0						
	intra_chroma_pred_prefix_mode	0 or 2									
	mpm_idx	0									
	rem_intra_chroma_pred_mode	n/a									
case 2	prev_intra_luma_pred_flag	1	1	0^{*2}	0	X					
	intra_chroma_pred_prefix_mode	0 or 2									
	mpm_idx	1 or 2									
	rem_intra_chroma_pred_mode	n/a									
case 3	prev_intra_luma_pred_flag	1	1	1^{*2}	0	X	X				
	intra_chroma_pred_prefix_mode	1 or 3									
	mpm_idx	0									
	rem_intra_chroma_pred_mode	all									
case 4	prev_intra_luma_pred_flag	1	1	1^{*2}	0	X	X	X			
	intra_chroma_pred_prefix_mode	1 or 3									
	mpm_idx	1 or 2									
	rem_intra_chroma_pred_mode	all									
case 5	prev_intra_luma_pred_flag	0	0	0^{*2}	X	X	X	X	X		
	intra_chroma_pred_prefix_mode	0 or 2									
	rem_intra_luma_pred_mode	N									
	rem_intra_chroma_pred_mode	n/a									
case 6	prev_intra_luma_pred_flag	0	0	1^{*2}	X	X	X	X	X	X	X
	intra_chroma_pred_prefix_mode	1 or 3									
	rem_intra_luma_pred_mode	N									
	rem_intra_chroma_pred_mode	all									

Results

0.0 % RD-rate changes for AI, HB7, LB (Main) , AI, HB7, LB (HE10)

Cross-checked by Qualcomm (JCTVC-J0453)

Recommendation

It is suggested to consider the inclusion of this proposal in the DIS of HEVC.