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[JCTVC-G418]

Simplification of intra prediction mode mapping table

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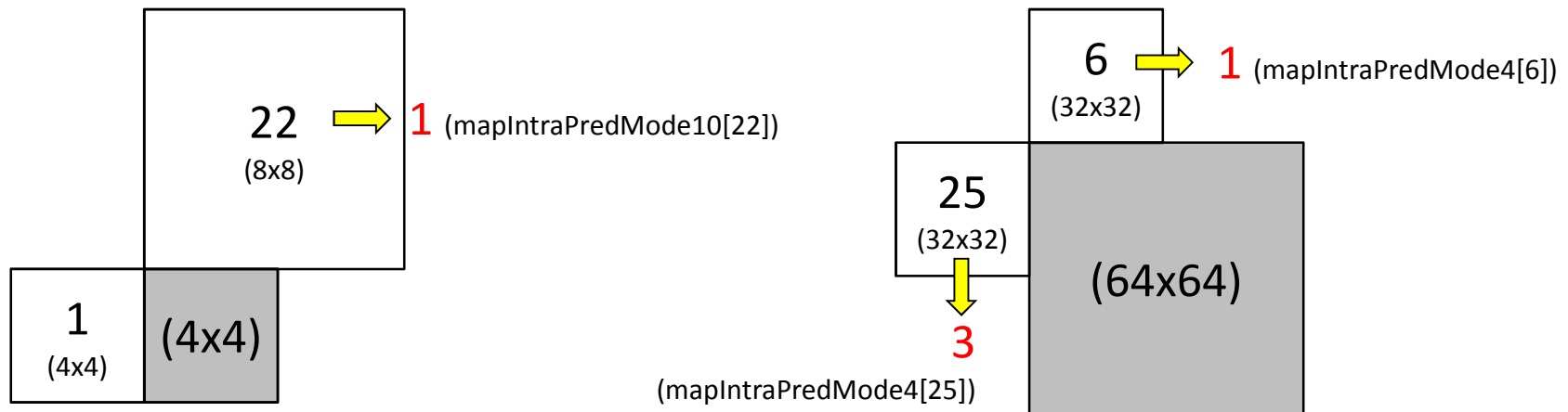
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Introduction

❑ Intra prediction mode mapping table in HM4.0

❖ Derivation process for luma intra prediction mode

Block size	intraPredModeNum	value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
4x4	18	mapIntraPredMode4[value]	0	1	2	3	3	3	1	3	2	2	3	3	1	1	3	3	2	
8x8	35	mapIntraPredMode10[value]	0	1	2	3	4	5	6	7	8	9	3	3	3	3	3	3	3	
16x16	35	value	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
32x32	35	mapIntraPredMode4[value]	2	3	3	3	3	1	1	1	3	3	3	3	2	2	2	2	3	3
64x64	4	mapIntraPredMode10[value]	3	3	4	5	5	1	1	6	6	7	4	8	8	2	2	9	9	3



Examples of intra prediction mode mapping

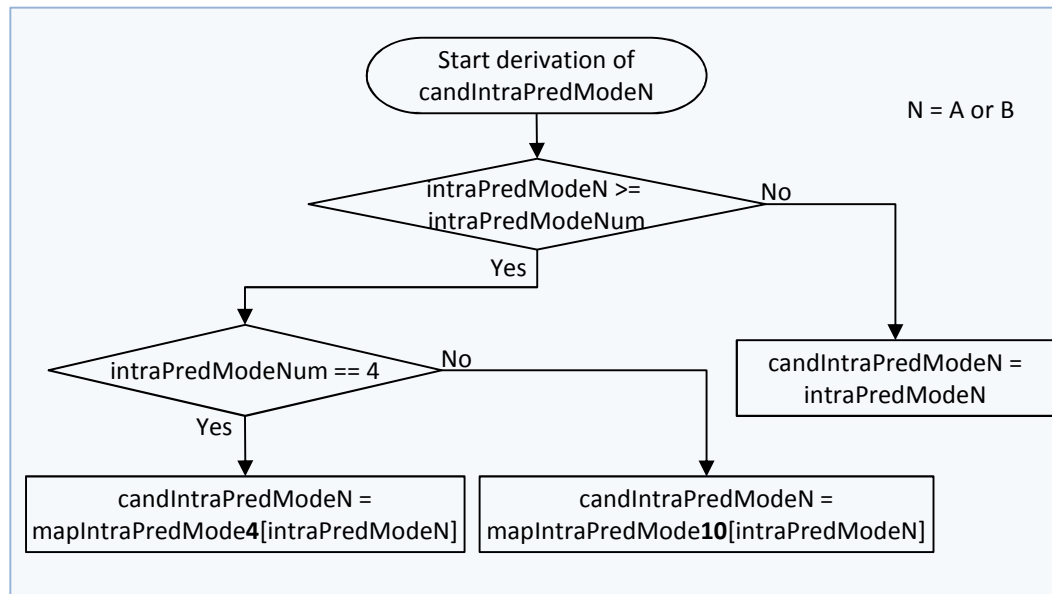
Proposed method

❑ Fixed mapping by Intra_Planar (mode 0) mode

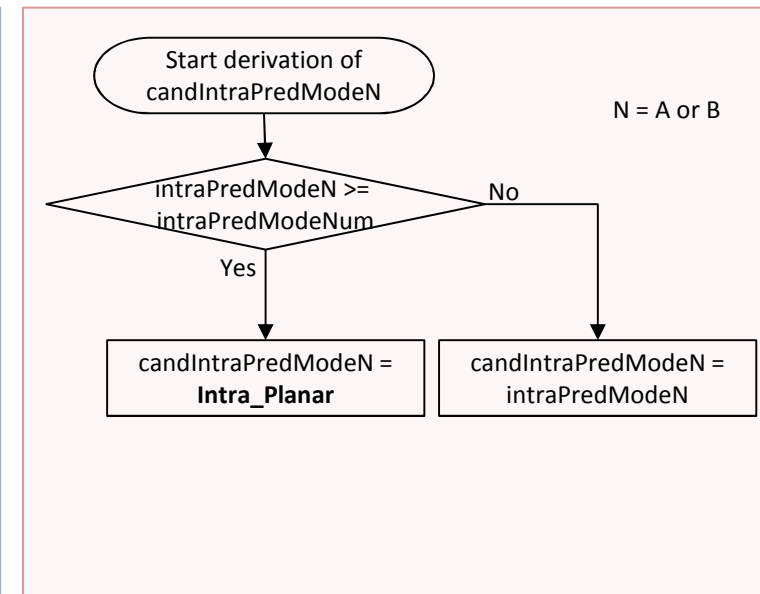
- ❖ Mapping table is not required
- ❖ No check on second condition
- ❖ Simplification without visible coding loss

		B
A		C

Block size	intraPredModeNum
4x4	18
8x8	35
16x16	35
32x32	35
64x64	4



WD 4.0



Proposed

Simulation & Conclusion

❑ Simulation result

- ❖ Anchor: HM4.0rc1
- ❖ Cross-checked by Sony (JCTVC-G870)

	All Intra HE (BD-rate)			All Intra LC (BD-rate)		
	Y	U	V	Y	U	V
Class A	0.01	0.00	0.09	0.01	0.04	0.05
Class B	0.03	0.04	0.03	0.02	0.03	0.08
Class C	0.06	0.10	0.09	0.06	0.05	0.07
Class D	0.03	0.04	0.03	0.03	0.09	0.08
Class E	0.08	0.08	0.12	0.07	0.08	0.10
Overall	0.04	0.05	0.07	0.04	0.06	0.07
Enc Time[%]	100%			100%		
Dec Time[%]	100%			100%		

❑ Conclusion

- ❖ Simplification without visible coding loss.
- ❖ Simplified WD text.
- ❖ Suggest the proposal to be adopted into the HM.

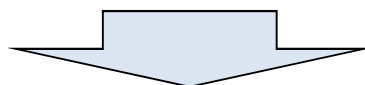
Revised WD text

❑ WD4.0_d5

❖ For N being either replaced A or B, the variables candIntraPredModeN are derived as follows.

- If intraPredModeN is greater than or equal to intraPredModeNum
 - If intraPredModeNum is equal to 4 then candIntraPredModeN is set equal to mapIntraPredMode4[intraPredModeN]
 - Otherwise candIntraPredModeN is set equal to mapIntraPredMode10[intraPredModeN].
- Otherwise, candIntraPredModeN is set equal to intraPredModeN

value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
mapIntraPredMode4[value]	0	1	2	3	3	3	1	3	2	2	3	3	1	1	3	3	2	
mapIntraPredMode10[value]	0	1	2	3	4	5	6	7	8	9	3	3	3	3	3	3	3	
value	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
mapIntraPredMode4[value]	2	3	3	3	3	1	1	1	3	3	3	3	2	2	2	2	3	3
mapIntraPredMode10[value]	3	3	4	5	5	1	1	6	6	7	4	8	8	2	2	9	9	3



❑ WD (proposed)

❖ For N being either replaced A or B, the variables candIntraPredModeN are derived as follows.

- If intraPredModeN is greater than or equal to intraPredModeNum
 - candIntraPredModeN is set equal to **Intra_Planar**
- Otherwise, candIntraPredModeN is set equal to intraPredModeN

Thank You !

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