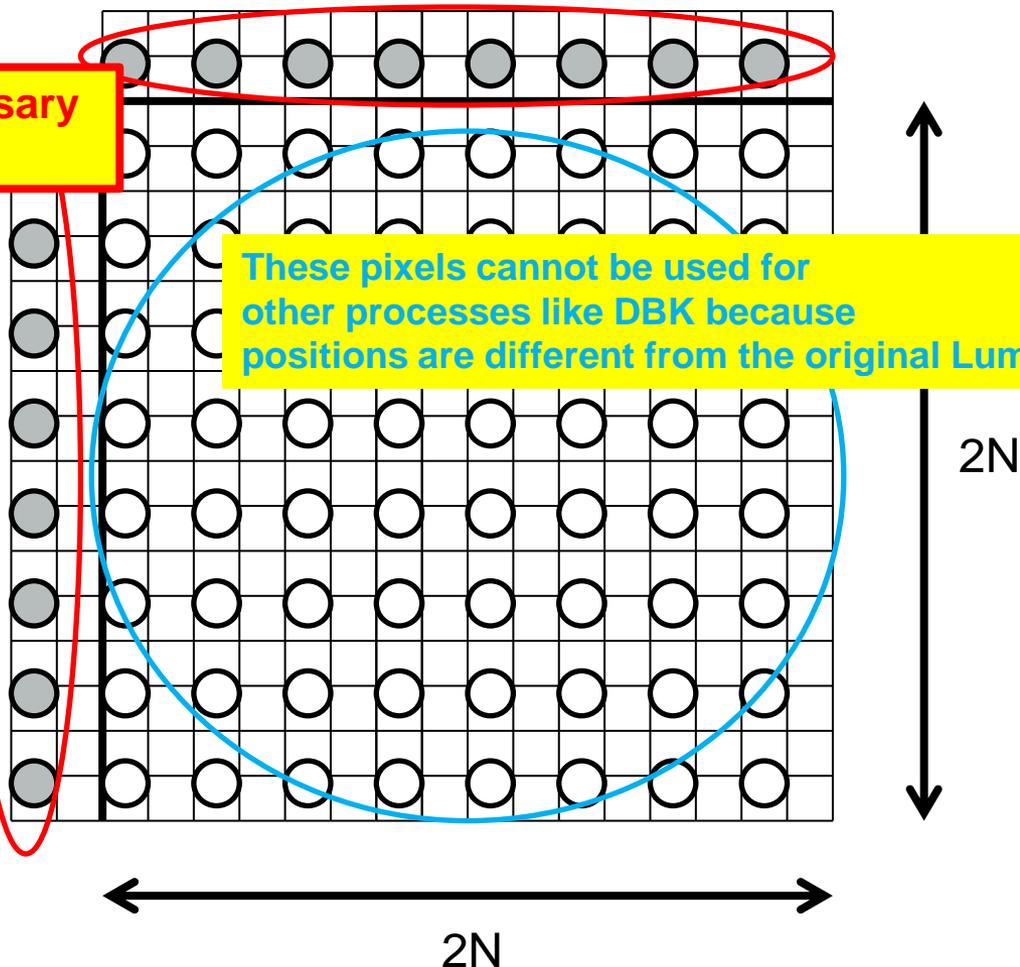
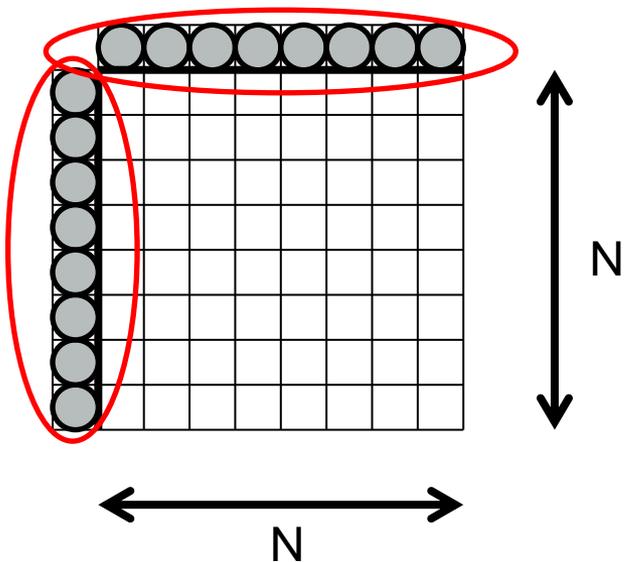


JCTVC-F431:
**Complexity Reduction of Chroma Intra
Prediction by Reconstructed Luma
Samples**

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Concerns on LM_CHROMA

More neighboring pixels are necessary for alpha&beta calc. for larger PUs



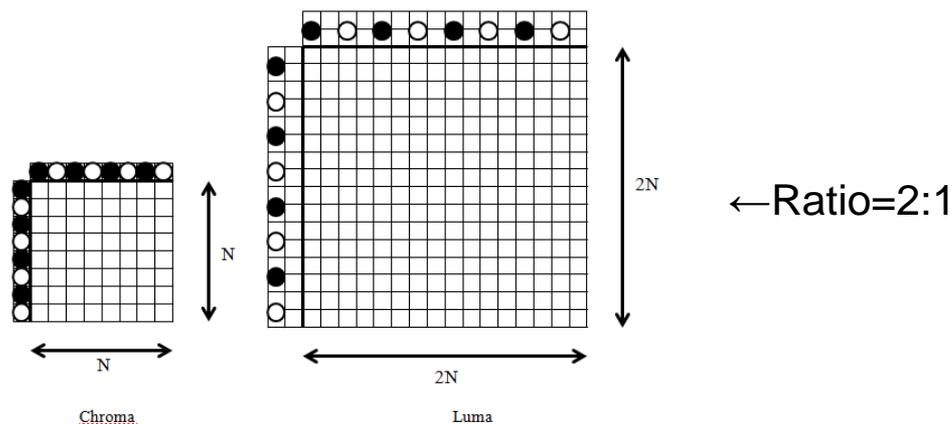
These pixels cannot be used for other processes like DBK because positions are different from the original Luma pels

More buffers are needed to store $RecL'[x,y]$
Worst case: 64x64 for Chroma [128x128 for luma]

In HM order of transmission is CoefY:CoefU:CoefV in the unit of CU

Proposed Methods

- Solution A: Subsampling of neighboring pixels for larger blocks
 - 4x4: Ratio=1:1
 - 8x8: Ratio=2:1
 - 16x16: Ratio=4:1
- Solution B: Not 10bit but 8bit samples are used for alpha&beta calculation
- Solution C: Not 10bit but 8bit samples are stored as $\text{RecL}'[x,y]$



Thanks Panasonic for x-checking!

	Intra			Intra LC		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A	1.2	18.8	8.3	1.3	21.2	10.8
Class B	0.7	7.1	3.7	0.8	7.9	4.3
Class C	1.0	6.6	7.5	1.2	6.9	7.8
Class D	0.6	4.7	4.7	0.8	5.1	4.9
Class E	0.0	1.9	2.8	0.2	4.5	5.0
All	0.7	8.1	5.5	0.9	9.3	6.5
Enc Time[%]	99%			100%		
Dec Time[%]	100%			101%		

←LM_CHROMA 0

	Intra			Intra LC		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A	0.1	0.9	-1.0	0.4	2.9	0.2
Class B	0.1	0.7	-0.2	0.4	1.8	0.7
Class C	0.1	0.2	0.2	0.4	0.9	0.8
Class D	0.0	0.0	0.1	0.2	0.4	0.3
Class E	0.0	0.0	0.4	0.2	1.9	0.9
All	0.1	0.4	-0.1	0.3	1.6	0.6
Enc Time[%]	100%			100%		
Dec Time[%]	100%			101%		

←Solution A&B

	Intra			Intra LC		
	Y BD-rate	U BD-rate	V BD-rate	Y BD-rate	U BD-rate	V BD-rate
Class A	0.1	0.9	-1.0	0.4	2.9	0.2
Class B	0.1	0.8	-0.1	0.4	2.0	0.7
Class C	0.1	0.2	0.2	0.3	1.0	0.9
Class D	0.0	0.1	0.0	0.2	0.5	0.5
Class E	0.0	0.0	0.4	0.2	1.9	1.1
All	0.1	0.4	-0.1	0.3	1.7	0.7
Enc Time[%]	100%			100%		
Dec Time[%]	101%			101%		

←Solution A&B&C

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