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**[JCTVC-H0238]**

# Non-CE6: Simplification of intra vertical/horizontal prediction

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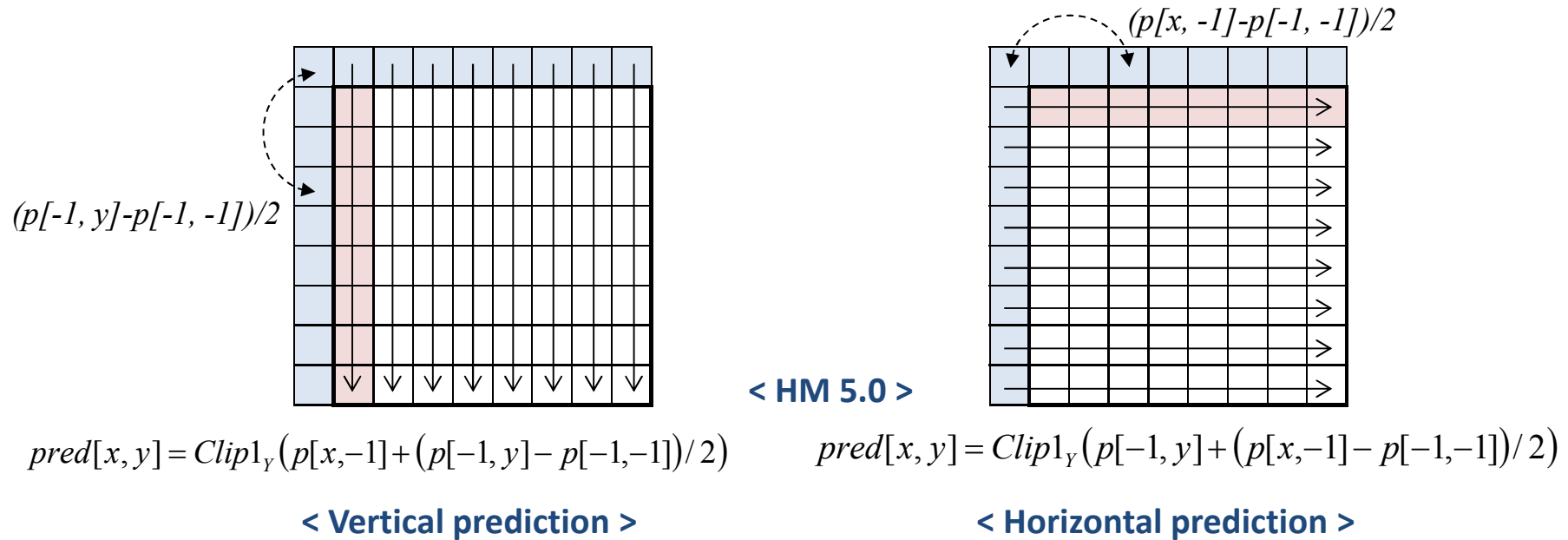


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# Introduction

## ❑ Filtering for intra vertical/horizontal predicted samples



<b>Vertical</b>	$predSamples[x, y] = Clip1_y(p[x, -1] + ((d[y] + (d[y] < 0 ? 1 : 0)) >> 1))$ where $d[y] = p[-1, y] - p[-1, -1]$ with $x=0, y=0 \sim nS-1$
<b>Horizontal</b>	$predSamples[x, y] = Clip1_y(p[-1, y] + ((d[x] + (d[x] < 0 ? 1 : 0)) >> 1))$ where $d[x] = p[x, -1] - p[-1, -1]$ with $y=0 \sim nS-1, x=0$

< WD 5.0 >

# Proposed method

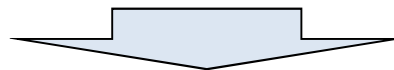
## ❑ Simplification by removing comparator

### ● WD5.0\_d8

- ❖ If cIdx is equal to 0,  
predSamples[ x, y ] = p[ x, -1 ], with x = 1..nS-1, y = 0..nS-1  
predSamples[ x, y ] = Clip1Y( p[ x, -1 ] + ( ( d[ y ] + ( d[ y ] < 0 ? 1 : 0 ) ) >> 1 ),  
with x = 0, y = 0..nS-1, where d[ y ] = p[ -1, y ] - p[ -1, -1 ]
- ❖ If cIdx is equal to 0,  
predSamples[ x, y ] = p[ -1, y ], with x = 0..nS-1, y = 1..nS-1  
predSamples[ x, y ] = Clip1Y( p[ -1, y ] + ( ( d[ x ] + ( d[ x ] < 0 ? 1 : 0 ) ) >> 1 ),  
with x = 0..nS-1, y = 0, where d[ x ] = p[ x, -1 ] - p[ -1, -1 ]

Vertical

Horizontal



### ● Proposed WD text

- ❖ If cIdx is equal to 0,  
predSamples[ x, y ] = p[ x, -1 ], with x = 1..nS-1, y = 0..nS-1  
predSamples[ x, y ] = Clip1Y( p[ x, -1 ] + ( ( p[ -1, y ] - p[ -1, -1 ] ) >> 1 ), with x = 0, y = 0..nS-1
- ❖ If cIdx is equal to 0,  
predSamples[ x, y ] = p[ -1, y ], with x = 0..nS-1, y = 1..nS-1  
predSamples[ x, y ] = Clip1Y( p[ -1, y ] + ( ( p[ x, -1 ] - p[ -1, -1 ] ) >> 1 ), with x = 0..nS-1, y = 0

Vertical

Horizontal

# Simulation & Conclusion

## ❑ Simulation result

- ❖ Anchor: HM5.0
- ❖ Cross-checked by Mitsubishi (JCTVC-H0614)

	All Intra HE (BD-rate)			All Intra LC (BD-rate)		
	Y	U	V	Y	U	V
Class A	0.0	0.0	0.0	0.0	0.0	0.0
Class B	0.0	0.0	0.0	0.0	0.0	0.0
Class C	0.0	0.0	0.0	0.0	0.0	0.0
Class D	0.0	0.0	0.0	0.0	0.0	0.0
Class E	0.0	0.1	0.1	0.0	0.0	0.0
Overall	0.0	0.0	0.0	0.0	0.0	0.0
Enc Time[%]	100%			100%		
Dec Time[%]	99%			100%		

## ❑ Conclusion

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

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***Thank You !***

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