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**Non-CE4: Neighboring locations for  
CIIP**

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# ○ Introduction

- This contribution proposes to change the derivation of neighboring locations used for CIIP weight determination.

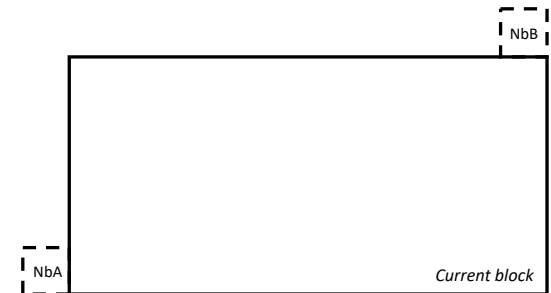


# ○ Introduction

- CIIP refers left (NbA) and above (NbB) locations.
  - To determine the weight used for combining the inter prediction signal and the intra prediction signal
  - The two neighboring locations are represented in luma samples in the specification as below.

- $(x_{NbA}, y_{NbA}) = (x_{Cb} - 1, y_{Cb} - 1 + (cbHeight \ll scallFact))$
- $(x_{NbB}, y_{NbB}) = (x_{Cb} - 1 + (cbWidth \ll scallFact), y_{Cb} - 1)$

where  $scallFact = (cIdx == 0) ? 0 : 1$



- For 4:2:0 format, SubWidthC and SubHeightC are equal to 2, and the derived locations indicate NbA and NbB in the above figure.
- However, if SubWidthC or SubHeightC is equal to 1, a non-adjacent location is indicated for chroma components.



# ○ Proposed specification change

## 8.5.6.7 Weighted sample prediction process for combined merge and intra prediction

Inputs to this process are:

- a luma location (  $x_{Cb}$ ,  $y_{Cb}$  ) specifying the top-left sample of the current luma coding block relative to the top left luma sample of the current picture,
- the width of the current coding block  $cbWidth$ ,
- the height of the current coding block  $cbHeight$ ,
- two  $(cbWidth) \times (cbHeight)$  arrays  $predSamplesInter$  and  $predSamplesIntra$ ,
- a variable  $cIdx$  specifying the colour component index.

Output of this process is the  $(cbWidth) \times (cbHeight)$  array  $predSamplesComb$  of prediction sample values.

The variable  $bitDepth$  is derived as follows:

- If  $cIdx$  is equal to 0,  $bitDepth$  is set equal to  $BitDepth_Y$ .
- Otherwise,  $bitDepth$  is set equal to  $BitDepth_C$ .

The variable  $scallFact$  is derived as follows:

$$scallFact_{Width} = ( cIdx == 0 \ || \ SubWidthC == 1 ) ? 0 : 1. \quad (8-838)$$

$$scallFact_{Height} = ( cIdx == 0 \ || \ SubHeightC == 1 ) ? 0 : 1. \quad (8-839)$$

The neighbouring luma locations (  $x_{NbA}$ ,  $y_{NbA}$  ) and (  $x_{NbB}$ ,  $y_{NbB}$  ) are set equal to (  $x_{Cb} - 1$ ,  $y_{Cb} - 1 + ( cbHeight \ll scallFact_{Height} )$  ) and (  $x_{Cb} - 1 + ( cbWidth \ll scallFact_{Width}$  ),  $y_{Cb} - 1$  ), respectively.

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# ○ Conclusion

- This contribution proposes to change the derivation of neighboring locations for CIIP to indicate adjacent left and above locations for all color formats.

