G.8.1.4.2.1 Derivation process for inter layer motion

Inputs to this process are

* a luma location ( xP, yP ) specifying the top-left sample of the current luma prediction block relative to the top-left luma sample of the current picture,
* the reference layer prediction modearray predModeRL,
* the reference layer reference index arrays refIdxL0RL and refIdxL1RL
* the reference layer motion vector arrays mvL0RL and mvL1RL
* the reference layer reference picture order counts arrays refPicOrderCntL0RL and refPicOrderCntL1RL
* the reference layer prediction list utilization flag arrays predFlagL0RL and predFlagL1RL.

Outputs of this process are

* a derived prediction mode predMode,
* two derived motion vectors mvL0 and mvL1
* two derived reference indices refIdxL0 and refIdxL1
* two derived reference picture order counts refPicOrderCntL0 and refPicOrderCntL1
* two derived prediction list utilization flags predFlagL0 and predFlagL1.

The variables predMode, mvLX, refIdxLX, refPicOrderCntLX, and predFlagLX are derived as follows.

1. The center location (xPCtr, yPCtr) of the luma prediction block is derived as follows

xPCtr = xP + 8 (G‑39)

yPCtr = yP + 8 (G‑40)

1. The derivation process for reference layer luma sample location specified in subclause G.6.1 is invoked with luma location ( xPCtr , yPCtr ) given as the inputs and ( xRef , yRef ) as output.
2. The collocated position (xRL, yRL) is derived as follows

xRL = ( xRef >> 3 ) << 3 (G‑41)

yRL = ( yRef >> 3 ) << 3 (G‑42)

1. The reference layer motion vector is derived as follows

* If ( xRL < 0 ) or ( xRL >= RefLayerPicWidthInSamplesL ) or ( yRL < 0 ) or ( yRL >= RefLayerPicHeightInSamplesL ), predMode[ xP ][ yP ] is set to MODE\_INTRA.
* Otherwise, predMode[ xP ][ yP ] is derived as follows

predMode[ xP ][ yP ] = predModeRL[ xRL ][ yRL ] (G‑43)

* If predMode[ xP ][ yP ] is equal to MODE\_INTER, for each X = 0, 1, the following applies

refIdxLX[ xP ][ yP ] = refIdxLXRL[ xRL ][ yRL ] (G‑44)

refPicOrderCntLX[ xP ][ yP ] = refPicOrderCntLXRL[ xRL ][ yRL ] (G‑45)

predFlagLX[ xP ][ yP ] = predFlagLXRL[ xRL ][ yRL ] (G‑46)

* + - * + If ScaledRefLayerPicWidthInSamplesL is not equal to RefLayerPicWidthInSamplesL, mvLX[ xP ][ yP ][ 0 ] is derived as follows:

scaleFactorMVX = Clip3( −4096, 4095, ( ( ScaledRefLayerPicWidthInSamplesL << 8 ) + ( RefLayerPicWidthInSamplesL >> 1 ) ) / RefLayerPicWidthInSamplesL) (G‑47)

mvLX[ xP ][ yP ][0] = Clip3( −32768, 32767, Sign(scaleFactorMVX \*   
mvLXRL[ xRL ][ yRL ][ 0 ] ) \*  ( ( Abs ( scaleFactorMVX \* mvLXRL[ xRL ][ yRL ][ 0 ] )  
 + 127 ) >> 8 ) ) (G‑48)

* + - * + Otherwise,

mvLX[ xP ][ yP ][ 0 ] = mvLXRL[ xRL ][ yRL ][ 0 ] (G‑49)

* + - * + If ScaledRefLayerPicHeightInSamplesL is not equal to RefLayerPicHeightInSamplesL, mvLX[ xP ][ yP ][ 1 ] is derived as follows:

scaleFactorMVY = Clip3( −4096, 4095, ( ( ScaledRefLayerPicHeightInSamplesL << 8 ) + ( RefLayerPicHeightInSamplesL >> 1 ) ) / RefLayerPicHeightInSamplesL) (G‑50)

mvLX[ xP ][ yP ][ 1 ] = Clip3( −32768, 32767, Sign(scaleFactorMVY \*   
mvLXRL[ xRL ][ yRL ][ 1 ] ) \*  ( ( Abs  ( scaleFactorMVY \* mvLXRL[ xRL ][ yRL ][ 1 ] )  
 + 127 ) >> 8 ) ) (G‑51)

* + - * + Otherwise,

mvLX[ xP ][ yP ][ 1 ] = mvLXRL[ xRL ][ yRL ][ 1 ] (G‑52)

* Otherwise, if predMode[ xP ][ yP ] is equal to MODE\_INTRA
  + - * + both components of mvL0[ xP ][ yP ] and mvL1[ xP ][ yP ] are set to 0, refIdxL0[ xP ][ yP ] and refIdxL1[ xP ][ yP ] are set to –1, refPicOrderCntL0[ xP ][ yP ] and refPicOrderCntL1[ xP ][ yP ] are set to –1, predFlagL0[ xP ][ yP ] and predFlagL1[ xP ][ yP ] are set to 0.