### Residual coding syntax

|  |  |
| --- | --- |
| residual\_coding( x0, y0, log2TrafoWidth, log2TrafoHeight, scanIdx, cIdx ) { | Descriptor |
| **last\_significant\_coeff\_x\_prefix** | ae(v) |
| **last\_significant\_coeff\_y\_prefix** | ae(v) |
| if( last\_significant\_coeff\_x\_prefix > 3 ) |  |
| **last\_significant\_coeff\_x\_suffix** | ae(v) |
| if( last\_significant\_coeff\_y\_prefix > 3 ) |  |
| **last\_significant\_coeff\_y\_suffix** | ae(v) |
| numCoeff = 0 |  |
| do { |  |
| xC = ScanOrder[ log2TrafoWidth ][ log2TrafoHeight ][ scanIdx ][ numCoeff ][ 0 ] |  |
| yC = ScanOrder[ log2TrafoWidth ][ log2TrafoHeight ][ scanIdx ][ numCoeff ][ 1 ] |  |
| numCoeff++ |  |
| } while( ( xC != LastSignificantCoeffX ) | | ( yC != LastSignificantCoeffY ) ) |  |
| numLastSubset = (numCoeff − 1) >> 4 |  |
| for( i = numLastSubset; i >= 0; i− − ) { |  |
| offset = i << 4 |  |
| if( scanIdx = = 1 && log2TrafoWidth = = 3 && log2TrafoHeight = = 3 ) { |  |
| xCG = 0 |  |
| yCG = i |  |
| } else if( scanIdx = = 2 && log2TrafoWidth = = 3 && log2TrafoHeight = = 3 ) { |  |
| xCG = i |  |
| yCG = 0 |  |
| } else { |  |
| xCG = ScanOrder[ log2TrafoWidth ][ log2TrafoHeight ][ scanIdx ][ i << 4 ][ 0 ] >> 2 |  |
| yCG = ScanOrder[ log2TrafoWidth ][ log2TrafoHeight ][ scanIdx ][ i << 4 ][ 1 ] >> 2 |  |
| } |  |
| implicitNonZeroCoeff = 0 |  |
| if( (i < numLastSubset) && (i > 0) ) { |  |
| **significant\_coeff\_group\_flag**[ xCG ][ yCG ] | ae(v) |
| implicitNonZeroCoeff = 1 |  |
| } |  |
| for( n = 15; n >= 0; n− − ) { |  |
| xC = ScanOrder[ log2TrafoWidth ][ log2TrafoHeight ][ scanIdx ][ n + offset ][ 0 ] |  |
| yC = ScanOrder[ log2TrafoWidth ][ log2TrafoHeight ][ scanIdx ][ n + offset ][ 1 ] |  |
| if( (n + offset) < (numCoeff − 1) && significant\_coeff\_group\_flag[ xCG ][ yCG ] &&   ( n > 0 | | implicitNonZeroCoeff = = 0 ) ) { |  |
| **significant\_coeff\_flag**[ xC ][ yC ] | ae(v) |
| if( significant\_coeff\_flag[ xC ][ yC ] = = 1 ) |  |
| implicitNonZeroCoeff = 0 |  |
| } |  |
| } |  |
| firstNZPosInCG = 16 |  |
| lastNZPosInCG = −1 |  |
| numSigCoeff = 0 |  |
| firstGreater1CoeffIdx = −1 |  |
| for( n = 15; n >= 0; n− − ) { |  |