

$$+ (V_{B3_y} - V_{B2_y}) * (\text{posCurPU_X} - \text{posB2_X}) / \text{RefPUB_width};$$

$$V_{1_x} = V_{0_x} + (V_{B3_x} - V_{B2_x}) * \text{PU_width} / \text{RefPUB_width},$$

$$V_{1_y} = V_{0_y} + (V_{B3_y} - V_{B2_y}) * \text{PU_width} / \text{RefPUB_width}; \quad (13)$$

where (V_{0_x}, V_{0_y}) represents the motion vector Mv0 on the upper-left corner of the current block 80, and
 5 (V_{1_x}, V_{1_y}) represents the motion vector Mv1 on the upper-right corner of the current block 80. A coordinate $(\text{posCurPU_X}, \text{posCurPU_Y})$ represents a pixel position of a bottom-left corner sample of the current block 80 relative to an upper-left corner sample of the current picture. A coordinate $(\text{posB2_X}, \text{posB2_Y})$ represents a pixel position of an upper-left sample of the sub-block 826 relative to the upper-left corner sample of the current picture. RefPUB_width represents the width of the neighboring
 10 block 82 and PU_width represents the width of the current block 80.

[0057] The sixth to ninth embodiments described in the following are related to implementing Adaptive Motion Vector Resolution (AMVR) with affine motion compensation. AMVR provides a flexible scheme to reduce motion vector difference (MVD) transmission overhead by adaptively restricting MVD to integer pixel resolution. An AMVR flag is signaled for a coding unit (CU) or a prediction unit (PU) to
 15 indicate whether integer pixel resolution is used or fractional pixel resolution is used. An implementation of affine motion compensation disclosed in the literature proposes not to signal the AMVR flag for CU or PU coded in an affine mode, so AMVR is always disabled for affine coded blocks. Affine motion vectors for all control points in an affine-coded block are in fractional pixel resolution by default.

[0058] Sixth Embodiment. In the sixth embodiment, adaptive motion vector resolution is enabled with
 20 affine motion compensation and an AMVR flag is signaled for each affine-coded block. The AMVR flag in one example only controls the resolution of MVDs for the affine-coded block to be integer pixel resolution or fractional pixel resolution. The AMVR flag in another example controls the resolution of MVDs as well as the resolution of motion vector predictors (MVPs) for the affine-coded block so the final motion vectors are in integer resolution if the AMVR flag indicates an integer pixel resolution is
 25 used. For a current block coded in an affine mode such as affine Inter mode, there are M MVDs calculated from M corresponding MVPs, where M refers to the number of control points for the current block. M in this example is selected from 0, 1, 2, 3, and 4. The M corresponding MVPs are affine motion vectors in an affine candidate, and each affine motion vector is a predictor for a motion vector at one control point for the affine-coded block. If the current block is coded in affine Inter mode and the AMVR
 30 flag is true, indicating integer pixel resolution is used for the current block, the MVDs of the control

receiving a video bitstream corresponding to compressed data including the current block in the current picture at a video decoder, wherein the current block is coded or to be coded in an affine mode according to an affine motion model;

retrieving two or more motion vectors of a valid neighboring block from a temporal buffer for the current block, wherein the temporal buffer stores motion vectors of one neighboring $N \times N$ block row or one neighboring $N \times N$ block column of the current block, and $N \times N$ is a block size for storing one motion vector in the temporal buffer;

deriving an affine candidate including affine motion vectors using the retrieved two or more motion vectors of the valid neighboring block; and

encoding or decoding the current block by predicting the current block using one or more motion compensated blocks by the derived affine candidate, wherein the affine motion vectors predict a movement between a point of the current block and a corresponding point of the one or more motion compensated blocks.

14. The method of Claim 13, wherein the retrieved two or more motion vectors correspond to two motion vectors, one of said two motion vectors is an original motion vector at a lower-left corner of the valid neighboring block and the other one of said two motion vectors is an original motion vector at a lower-right corner of the valid neighboring block if the valid neighboring block is above the current block.

15. The method of Claim 14, wherein the retrieved two or more motion vectors correspond to two motion vectors, wherein one of said two motion vectors is an original motion vector at an upper-right corner of the valid neighboring block and the other one of said two motion vectors is an original motion vector at a lower-right corner of the valid neighboring block if the valid neighboring block is on the left side of the current block.

16. The method of Claim 13, wherein the current block is predicted by said one or more motion compensated blocks by the affine motion vectors in the affine candidate according to a four-parameter affine motion model with two control points.

17. An apparatus of video coding with affine motion compensation in a video coding system, the apparatus comprising one or more electronic circuits configured for:

receiving input data associated with a current block in a current picture at a video encoder or receiving a video bitstream corresponding to compressed data including the current block in the current

picture at a video decoder, wherein the current block is coded or to be coded in an affine mode according to an affine motion model;

retrieving two or more motion vectors of a neighboring block from a temporal buffer for the current block, wherein at least one of the retrieved motion vectors is not corresponding to a sub-block in a first
 5 neighboring $N \times N$ block row closest to a top boundary of the current block or a first neighboring $N \times N$ block column closest to a left boundary of the current block, wherein the temporal buffer stores selective motion vectors less than all motion vectors of previous coded blocks in the current picture, and $N \times N$ is a block size for storing one motion vector in the temporal buffer;

deriving an affine candidate including affine motion vectors using the retrieved two or more motion
 10 vectors of the neighboring block; and

encoding or decoding the current block by predicting the current block using one or more motion compensated blocks by the derived affine candidate, wherein the affine motion vectors predict a movement between a point of the current block and a corresponding point of the one or more motion compensated blocks.

15 18. An apparatus of video coding with affine motion compensation in a video coding system, the apparatus comprising one or more electronic circuits configured for:

receiving input data associated with a current block in a current picture at a video encoder or receiving a video bitstream corresponding to compressed data including the current block in the current picture at a video decoder, wherein the current block is coded or to be coded in an affine mode according
 20 to an affine motion model;

retrieving two or more motion vectors of a valid neighboring block from a temporal buffer for the current block, wherein the temporal buffer stores motion vectors of one neighboring $N \times N$ block row or one neighboring $N \times N$ block column of the current block, and $N \times N$ is a block size for storing one motion vector in the temporal buffer;

25 deriving an affine candidate including affine motion vectors using the retrieved two or more motion vectors of the valid neighboring block; and

encoding or decoding the current block by predicting the current block using one or more motion compensated blocks by the derived affine candidate, wherein the affine motion vectors predict a movement between a point of the current block and a corresponding point of the one or more motion
 30 compensated blocks.