CLAIMS

1. A method for coding a video implemented in an encoder or a decoder, the method comprising:

determining control point motion vectors, CPMVs, for an affine block;

determining a first sub-block size of a sub-block of the affine block based on motion vector differences between affine control points;

if the first sub-block size is greater than or equal to a first sub-block size threshold, performing sub-block-based affine transform prediction on the affine block with the first sub-block size;

if the first sub-block size is less than the first sub-block size threshold, determining, whether a pixel-based motion vector field is not applied for performing motion compensation for the affine block, according to values of the CPMVs and motion vector differences between affine control points;

upon determination that the pixel-based motion vector field is not applied, performing sub-block-based affine transform prediction on the affine block with a second sub-block size, wherein the second sub-block size is based on the first sub-block size and wherein the second sub-block size is set as a second sub-block size threshold, when the first sub-block size is smaller than the second sub-block size threshold;

upon determination that the pixel-based motion vector field is applied, performing motion compensation of the affine block using the pixel-based motion vector field.

2. The method of claim 1, wherein said second sub-block size threshold is a square sub-block size threshold NxN.

3. The method of claim 2, wherein said second sub-block size threshold is 8x8.

4. The method of claim 1, wherein the following are calculated:

sizeSbX' = Max(8, sizeSbX)

sizeSbY' = Max(8, sizeSbY)

wherein the second sub-block size threshold is 8, sizeSbX and sizeSbY indicate the first sub-block size, sizeSbX' and sizeSbY' indicate the second sub-block size.

5. The method of any one of claims 1 to 4, wherein the second sub-block size threshold is the same as the first sub-block size threshold.

6. The method of any one of the preceding claims, wherein performing motion compensation for the affine block using a pixel-based motion vector field, comprises:

deriving the pixel-based motion vector field for the affine block;

obtaining interpolated samples in a reference picture based on the derived motion vector field; and

applying a high-pass filter to the interpolated samples.

7. An encoder (20) comprising processing circuitry for carrying out the method according to any one of the claims 1 to 6.

8. A decoder (30) comprising processing circuitry for carrying out the method according to any one of claims 1 to 6.

9. A computer program product comprising instructions which, when the program is executed by a computer, cause the computer to carry out the method according to any one of claims 1 to 6.

10. A decoder (30), comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the one or more processors and storing instructions for execution by the one or more processors, wherein the instructions, when executed by the one or more processors, configure the decoder to carry out the method according to any one of claims 1 to 6.

11. An encoder (20), comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the one or more processors and storing instructions for execution by the one or more processors, wherein the instructions, when executed by the one or more processors, configure the encoder to carry out the method according to any one of claims 1 to 6.

12. A non-transitory computer-readable medium carrying a program code which, when executed by a computer device, causes the computer device to perform the method of any one of claims 1 to 6.

13. A decoder (30) or an encoder (20) for coding a video sequence, comprising:

a determining unit configured to determine control point motion vectors, CPMVs, for an affine block and a first sub-block size of a sub-block of the affine block based on motion vector differences between affine control points;

a predicting and determining unit configured to:

perform sub-block-based affine transform prediction on the affine block with the first sub-block size if the first sub-block size is greater than or equal to a first sub-block size threshold, and

if the first sub-block size is less than the first sub-block size threshold, determine whether a pixel-based motion vector field is not applied for performing motion compensation for the affine block, according to values of the CPMVs and motion vector differences between affine control points; and

upon determination that the pixel-based motion vector field is not applied, perform sub-block-based affine transform prediction on the affine block with a second sub-block size, wherein the second sub-block size is based on the first sub-block size and wherein the second sub-block size is set as a second sub-block size threshold, when the first sub-block size is smaller than the second sub-block size threshold; and

upon determination that the pixel-based motion vector field is applied, perform motion compensation of the affine block using the pixel-based motion vector field.