WHAT IS CLAIMED IS:

1. A method of motion compensation for a block of a frame in a video with a decoder-side motion vector refinement (DMVR) process comprising:

obtaining, by a decoder, motion compensated interpolated samples in two reference frames of the block based on sub-pixel accurate merge motion vectors of the block for the two reference frames via a bilinear motion compensated interpolation;

computing, by the decoder, a sum of absolute differences (SAD) between two motion compensated reference patches using a subset of the motion compensated interpolated samples;

determining, by the decoder, whether the SAD is less than a coding unit (CU) size-dependent threshold value, the CU threshold value depending on a size of the CU;

when the SAD is less than the CU size-dependent threshold value:

skipping remaining steps of the DMVR process for the block; and

performing final motion compensation using the sub-pixel accurate merge motion vectors of the block to obtain reconstructed samples for the block; and

when the SAD is not less than the CU size-dependent threshold value:

performing the remaining steps of the DMVR process to determine refined motion vectors for the block; and

performing the final motion compensation using the refined motion vectors to obtain the reconstructed samples for the block.

2. The method of claim 1, wherein the subset of the motion compensated interpolated samples are generated based on unrounded merge motion vectors associated with the two motion compensated reference patches.

3. The method of claim 1, wherein the bilinear motion compensated interpolation for generating the motion compensated interpolated samples in the two reference frames are performed in parallel .

4. The method of claim 1, wherein the motion compensated interpolated samples are generated in an interleaved manner.

5. The method of claim 1, wherein the subset of the motion compensated interpolated samples comprises a block of samples having a dimension equal to a dimension of a coding unit (CU).

6. The method of claim 5, wherein the subset of the motion compensated interpolated samples comprises (CU_width – 2) * (CU-height – 2) samples, wherein CU_width is a width of the coding unit and CU-height is a height of the coding unit.

7. The method of claim 5, wherein the subset of the motion compensated interpolated samples comprises (CU_width * CU_height – (CU_width – 2) * (CU-height – 2)) samples, wherein CU_width is a width of the coding unit and CU-height is a height of the coding unit.

8. The method of claim 1, wherein the CU size-dependent threshold value is a function of a number of samples in the subset of motion compensated interpolated samples.

9. A decoder, performing motion compensation for a block of a frame in a video with a decoder-side motion vector refinement (DMVR) process, the decoder comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, the programming, when executed by the processors, configuring the decoder to:

obtain motion compensated interpolated samples in two reference frames of the block based on sub-pixel accurate merge motion vectors of the block for the two reference frames via a bilinear motion compensated interpolation;

compute a sum of absolute differences (SAD) between two motion compensated reference patches using a subset of the motion compensated interpolated samples;

determine whether the SAD is less than a coding unit (CU) size-dependent threshold value, the CU threshold value depending on a size of the CU;

when the SAD is less than the CU size-dependent threshold value:

skip remaining steps of the DMVR process for the block; and

perform final motion compensation using the sub-pixel accurate merge motion vectors of the block to obtain reconstructed samples for the block; and

when the SAD is not less than the CU size-dependent threshold value:

perform the remaining steps of the DMVR process to determine refined motion vectors for the block; and

perform the final motion compensation using the refined motion vectors to obtain the reconstructed samples for the block.

10. The decoder of claim 9, wherein the subset of the motion compensated interpolated samples are generated based on unrounded merge motion vectors associated with the two motion compensated reference patches.

11. The decoder of claim 9, wherein the bilinear motion compensated interpolation for generating the motion compensated interpolated samples in the two reference frames are performed in parallel.

12. The decoder of claim 9, wherein the motion compensated interpolated samples are generated in an interleaved manner.

13. The decoder of claim 9, wherein the subset of the motion compensated interpolated samples comprises a block of samples having a dimension equal to a dimension of a coding unit (CU).

14. The decoder of claim 13, wherein the subset of the motion compensated interpolated samples comprises (CU_width – 2) * (CU-height – 2) samples, wherein CU_width is a width of the coding unit and CU-height is a height of the coding unit.

15. The decoder of claim 13, wherein the subset of the motion compensated interpolated samples comprises (CU_width * CU_height – (CU_width – 2) * (CU-height – 2)) samples, wherein CU_width is a width of the coding unit and CU-height is a height of the coding unit.

16. The decoder of claim 9, wherein the CU size-dependent threshold value is a function of a number of samples in the subset of motion compensated interpolated samples.

17. A non-transitory computer-readable storage medium comprising instructions which, when the instructions are executed by a computer, cause the computer to carry out motion compensation for a block of a frame in a video with a decoder-side motion vector refinement (DMVR) process comprising:

obtaining motion compensated interpolated samples in two reference frames of the block based on sub-pixel accurate merge motion vectors of the block for the two reference frames via a bilinear motion compensated interpolation;

computing a sum of absolute differences (SAD) between two motion compensated reference patches using a subset of the motion compensated interpolated samples;

determining whether the SAD is less than a coding unit (CU) size-dependent threshold value, the CU threshold value depending on a size of the CU;

when the SAD is less than the CU size-dependent threshold value:

skipping remaining steps of the DMVR process for the block; and

performing final motion compensation using the sub-pixel accurate merge motion vectors of the block to obtain reconstructed samples for the block; and

when the SAD is not less than the CU size-dependent threshold value:

performing the remaining steps of the DMVR process to determine refined motion vectors for the block; and

performing the final motion compensation using the refined motion vectors to obtain the reconstructed samples for the block.

18. The non-transitory computer-readable storage medium of claim 17, wherein the subset of the motion compensated interpolated samples are generated based on unrounded merge motion vectors associated with the two motion compensated reference patches.

19. The non-transitory computer-readable storage medium of claim 17, wherein the bilinear motion compensated interpolation for generating the motion compensated interpolated samples in the two reference frames are performed in parallel.

20. The non-transitory computer-readable storage medium of claim 17, wherein the motion compensated interpolated samples are generated in an interleaved manner.