CLAIMS

What is Claimed:

1. A method for processing a video, the method comprising:

identifying a collocated picture for a current slice of the video, wherein the current slice comprises a current ~~coding unit (CU)~~block and a neighboring ~~CU~~block of the current ~~CU~~block, the neighboring ~~CU~~block being associated with a reference picture;

determining a temporal distance between the reference picture of the neighboring ~~CU~~block and the collocated picture;

determining a motion vector (MV) for the ~~current CU~~obtaining a collocated sub-block in the collocated picture based on the temporal distance between the reference picture of the neighboring ~~CU~~block and the collocated picture, wherein the MV ~~for the current CU~~ is ~~set to~~ a default value based on a condition that the temporal distance indicates that the reference picture differs from the collocated picture;

obtaining the collocated sub-block in the collocated picture based on the MV; and

predicting a sub-block of the current ~~CU~~block based on the ~~determined MV~~ collocated sub-block in the collocated picture.

2. A video processing device, comprising:

a processor configured to:

identify a collocated picture for a current slice of a video, wherein the current slice comprises a current ~~coding unit (CU)~~block and a neighboring ~~CU~~block of the current ~~CU~~block, the neighboring ~~CU~~block being associated with a reference picture;

determine a temporal distance between the reference picture of the neighboring ~~CU~~block and the collocated picture;

determine a motion vector (MV) for ~~the current CU~~ obtaining a collocated sub-block in the collocated picture based on the temporal distance between the reference picture of the neighboring ~~CU~~block and the collocated picture, wherein the MV ~~for the current CU~~ is ~~set to~~ a default value on a condition that the temporal distance indicates that the reference picture differs from the collocated picture;

obtain the collocated sub-block in the collocated picture based on the MV; and

predict a sub-block of the current ~~CU~~block based on the ~~determined MV~~

collocated sub-block in the collocated picture.

3. The method of claim 1 or the video processing device of claim 2, wherein the MV ~~for the current CU~~ is determined to be ~~a reference~~an MV of the neighboring ~~CU~~block based on a condition that the temporal distance indicates that the reference picture is the same as the collocated picture.

4. The method of claim 1 or the video processing device of claim 2, wherein the reference picture of the neighboring ~~CU~~block is associated with a picture order count (POC), and the temporal distance between the reference picture of the neighboring ~~CU~~block and the collocated picture is indicated by a POC difference from the collocated picture.

5. The method of claim 1 or the video processing device of claim 2, wherein the collocated picture is identified based on a collocated picture indication in a slice header.

6. The method of claim 1 or the video processing device of claim 2, wherein the neighboring ~~CU~~block is one of a plurality of neighboring ~~CUs~~blocks of the current ~~CU~~block, and the neighboring ~~CU~~block is selected ~~to be a candidate neighboring CU~~ based on respective temporal ~~differences~~distances between respective reference pictures of the neighboring ~~CUs~~blocks and the collocated picture.

7. The method of claim 1 or the video processing device of claim 2, wherein the neighboring ~~CU~~block is one of a plurality of neighboring ~~CUs~~blocks of the current ~~CU~~block, and the neighboring ~~CU~~block is selected ~~to be a candidate neighboring CU~~ without considering ~~further~~the other neighboring ~~CUs~~blocks ~~upon identifying~~ based on a determination that the reference picture of the neighboring ~~CU~~block ~~having the reference picture that~~ is the same as the collocated picture.

8. The method of claim 1 or the video processing device of claim 2, wherein the neighboring ~~CU~~block is one of a plurality of neighboring ~~CUs~~blocks of the current ~~CU~~block, and a candidate neighboring ~~CU~~block is selected based on having a reference picture that is the same as the collocated picture.

9. The method of claim 1 or the video processing device of claim 2, wherein the neighboring ~~CU~~block is associated with a ~~reference~~spatial MV, ~~wherein the reference MV is a spatial MV~~ and the MV for the current ~~CU~~block is a temporal MV.

10. The method of claim 1, wherein the neighboring ~~CU~~block is associated with a reference MV, and the method further comprises performing temporal scaling on the reference MV on a condition that the reference picture of the neighboring ~~CU~~block differs from the collocated picture.

11. The method of claim 10, wherein performing temporal scaling comprises multiplying the reference MV by a scaling factor, wherein the scaling factor is based on a temporal difference between the reference picture of the neighboring ~~CU~~block and the collocated picture.

12. The method of claim 1, wherein the MV ~~for the current CU~~ comprises a collocated MV, wherein the collocated MV is associated with a first collocated block of a plurality of collocated blocks within the collocated picture, and the method further comprises:

identifying a valid collocated block region of the collocated picture based on the current slice;

on a condition that the collocated block is not located in the region, selecting a second collocated block that is located within the region; and

replacing the collocated MV with a second collocated MV associated with the second collocated block.

13. The method of claim 12, wherein the second collocated block is selected based on having a lowest distance to the first collocated block.

14. The video processing device of claim 2, wherein the processor is further configured to:

subdivide the current ~~CU~~block into one or more sub-blocks, wherein the one or more sub-blocks comprise the sub-block, and each sub-block of the one or more sub-blocks corresponds to a respective reference MV~~; and~~ wherein, based on a condition that the temporal distance indicates that the reference picture is the same as the collocated picture, obtain a respective collocated sub-block for

~~identify~~ a respective collocated ~~MV from~~ sub-block in the collocated picture for each sub-block ~~based on the reference MV for the sub-block~~.

15. The video processing device of claim 14, wherein the processor is further configured to determine a size of the sub-block~~s~~ based on a temporal layer of the current ~~CU~~block.