CLAIMS

1. A video processing method, comprising:

maintaining one or more tables, wherein each table includes a set of motion candidates, each of which is associated with corresponding motion information and is derived from a previous video block, and arrangement of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table;

performing a motion candidate list derivation process to derive a motion candidate list for a first video block, wherein the motion candidate list derivation process comprises selectively checking one or more motion candidates in a table of the one or more tables in an order;

deriving, based on the motion candidate list, motion information which is used as a motion vector predictor; and

performing a conversion between the first video block and a bitstream representation of a video including the first video block based on the motion information and a motion vector difference (MVD) between a motion vector and the motion vector predictor, wherein the MVD is indicated in the bitstream representation.

2. The method of claim 1, wherein the performing of the conversion includes encoding the first video block into the bitstream representation.

3. The method of claim 1, wherein the performing of the conversion includes decoding the first video block from the bitstream representation.

4. The method of any one of claims 1-3, wherein

the checking of the one or more motion candidates in the table is enabled when there is at least one motion candidate in the table; or

the checking of the one or more motion candidates in the table is enabled, when the motion candidate list is not full, after checking a temporal block in a picture different from a picture comprising the first video block to derive a temporal motion vector prediction (TMVP) motion candidate; or

the checking of the one or more motion candidates in the table is enabled, when the motion candidate list is not full after inserting a certain motion candidate; or

the checking of the one or more motion candidates in the table is enabled when i) there is no motion candidate from above neighboring blocks without scaling, and/or ii) when there is no motion candidate from left neighboring blocks without scaling; or

the checking of the one or more motion candidates in the table is enabled before checking other motion candidates comprising at least one of: motion candidates derived from a spatial or temporal block, AMVP motion candidates, SMVD motion candidates, SMV motion candidates, or affine inter motion candidates.

5. The method of any one of claims 1-4, wherein the motion candidate list is an Advanced Motion Vector Prediction (AMVP) candidate list.

6. The method of any one of claims 1-5, wherein whether to update the motion candidate list using the one or more checked motion candidates is based on the checking result.

7. The method of any one of claims 1-6, wherein the updating the motion candidate list comprises:

adding a motion vector associated with the checked motion candidate into the motion candidate list.

8. The method of any one of claims 1-7, wherein at least one motion candidate of the checked motion candidates used to update the motion candidate list has a reference picture same as a reference picture of the first video block.

9. The method of any one of claims 1-8, wherein the performing of the conversion includes performing at least one of a symmetric motion vector difference (SMVD) process using some of the motion vector differences, or a symmetric motion vector (SMV) process using some of motion vectors.

10. The method of any one of claims 1-9, wherein during the checking of the one or more motion candidates in the table, a reference picture of a first reference picture list is checked and then a reference picture of a second reference picture list is checked.

11. The method of claim 10, wherein the first reference picture list is a current target reference picture list.

12. The method of claim 10, wherein the motion candidate to be checked is a bi-predicted motion candidate.

13. The method of any one of claims 1-9, wherein motion candidates with an identical reference picture in the table to a current reference picture are checked.

14. The method of claim 13, wherein motion candidates with a different reference picture from the current reference picture are further checked, wherein the checking of the motion candidates with the identical reference picture is performed prior to the checking of the motion candidates with the different reference picture.

15. The method of any one of claims 1-14, wherein the motion candidate list construction process comprises a pruning operation before updating the motion candidate list based on at least one checked motion candidate in the table.

16. The method of claim 15, wherein the pruning operation includes comparing a motion candidate to be checked to part or all of available motion candidates in the motion candidate list.

17. The method of claim 15, wherein the pruning operation includes a number of operations, the number being a function of a number of spatial or temporal motion candidates.

18. The method of any one of claims 1-17, wherein a motion candidate in the table is associated with motion information including at least one of: a prediction direction, a reference picture index, motion vector values, an intensity compensation flag, an affine flag, a motion

vector difference precision, an intra mode information, an illumination compensation (IC) parameter, filter parameters used in a filtering process or motion vector difference value.

19. The method of any one of claims 1-18, wherein the method further comprises:

updating a table of one or more tables using a motion candidate which is based on the motion information of the first video block; and

wherein an index of the motion candidate in the table corresponding to the motion information of the first video block has an index larger than other motion candidates in the table.

20. The method of any one of claims 1-19, wherein the one or more motion candidates in the table is checked in an order of one or more indices of the one or more motion candidates.

21. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

maintain one or more tables, wherein each table includes a set of motion candidates, each of which is associated with corresponding motion information and is derived from a previous video block, and arrangement of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table;

perform a motion candidate list derivation process to derive a motion candidate list for a first video block, wherein the motion candidate list derivation process comprises selectively checking one or more motion candidates in a table of the one or more tables in an order;

derive, based on the motion candidate list, motion information which is used as a motion vector predictor; and

perform a conversion between the first video block and a bitstream representation of a video including the first video block based on the motion information and a motion vector difference (MVD) between a motion vector and the motion vector predictor, wherein the MVD is indicated in the bitstream representation.

22. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

maintain one or more tables, wherein each table includes a set of motion candidates, each of which is associated with corresponding motion information and is derived from a previous video block, and arrangement of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table;

perform a motion candidate list derivation process to derive a motion candidate list for a first video block, wherein the motion candidate list derivation process comprises selectively checking one or more motion candidates in a table of the one or more tables in an order;

derive, based on the motion candidate list, motion information which is used as a motion vector predictor; and

perform a conversion between the first video block and a bitstream representation of a video including the first video block based on the motion information and a motion vector difference (MVD) between a motion vector and the motion vector predictor, wherein the MVD is indicated in the bitstream representation.

23. A non-transitory computer-readable recording medium storing a bitstream representation which is generated by a method performed by a video processing apparatus, wherein the method comprises:

maintaining one or more tables, wherein each table includes a set of motion candidates, each of which is associated with corresponding motion information and is derived from a previous video block, and arrangement of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table;

performing a motion candidate list derivation process to derive a motion candidate list for a first video block, wherein the motion candidate list derivation process comprises selectively checking one or more motion candidates in a table of the one or more tables in an order;

deriving, based on the motion candidate list, motion information which is used as a motion vector predictor; and

generating the bitstream representation from the first video block based on the motion information and a motion vector difference (MVD) between a motion vector and the motion vector predictor, wherein the MVD is indicated in the bitstream representation.

24. A method for storing bitstream representation of a video, comprising:

maintaining one or more tables, wherein each table includes a set of motion candidates, each of which is associated with corresponding motion information and is derived from a previous video block, and arrangement of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table;

performing a motion candidate list derivation process to derive a motion candidate list for a first video block, wherein the motion candidate list derivation process comprises selectively checking one or more motion candidates in a table of the one or more tables in an order;

deriving, based on the motion candidate list, motion information which is used as a motion vector predictor;

generating the bitstream representation from the current block based on the motion information and a motion vector difference (MVD) between a motion vector and the motion vector predictor, wherein the MVD is indicated in the bitstream representation; and

storing the bitstream representation in a non-transitory computer-readable recording medium.