# UPDATE OF LOOK UP TABLE: FIFO, CONSTRAINED FIFO

## CROSS REFERENCE TO RELATED APPLICATIONS

**[0001]** This application is made to timely claim the priority to and benefits of International Patent Application No. PCT/CN2018/093663, filed on June 29, 2018, International Patent Application No. PCT/CN2018/094929, filed on July 7, 2018, International Patent Application No. PCT/CN2018/101220, filed on August 18, 2018, International Patent Application No. PCT/CN2018/117627, filed on November 27, 2018, and International Patent Application No. PCT/CN2019/071214, filed on January 10, 2019. The entire disclosures of International Patent Application No. PCT/CN2018/093663, International Patent Application No. PCT/CN2018/094929, International Patent Application No. PCT/CN2018/101220, International Patent Application No. PCT/CN2018/117627, and International Patent Application No. PCT/CN2019/071214 are incorporated by reference as part of the disclosure of this application

## TECHNICAL FIELD

**[0002]** This patent document relates to video coding and decoding techniques, devices and systems.

## BACKGROUND

**[0003]** In spite of the advances in video compression, digital video still accounts for the largest bandwidth use on the internet and other digital communication networks. As the number of connected user devices capable of receiving and displaying video increases, it is expected that the bandwidth demand for digital video usage will continue to grow.

## SUMMARY

**[0004]** This document discloses methods, systems, and devices for encoding and decoding digital video.

**[0005]** In one example aspect, a video processing method is provided to include maintaining

## CLAIMS

1. A method of processing video data, comprising

constructing a motion candidate list for a current video block of a video;

determining motion information of the current video block using the motion candidate list;

coding the current video block based on the determined motion information; and

updating a table using a new motion candidate corresponding to the determined motion information;

wherein the table comprises one or more motion candidates derived from one or more video blocks that have been coded and indices of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table, wherein at least one motion candidate in the table is checked in an order during constructing a motion candidate list of a subsequent video block.

2. The method of claim 1, wherein the coding comprises generating a bitstream representation from the current video block.

3. The method of claim 1 or claim 2, wherein the coding comprises generating the current video block from a bitstream representation.

4. The method of anyone of claims 1-3, wherein when the new motion candidate is added into the table, the new motion candidate has an index greater than other motion candidates in the table.

5. The method of anyone of claims 1-4, wherein an index of the new motion candidate in the table is equal to or smaller than L-1, L representing a size of the table to be updated.

6. The method of anyone of claims 1-5, wherein an index of the new motion candidate in the table is equal to one of K%L, K or K-1, K representing a counter of previous motion candidates that have been added to the table and L representing a size of the table.

7. The method of anyone of claims 1-6, wherein the method further comprises:

pruning motion information of the new motion candidate with at least one current motion candidate in the table, before adding the new motion candidate into the table.

8. The method of anyone of claims 1-7, wherein a motion candidate in the table comprises motion information different from any other motion candidates in the table.

9. The method of anyone of claims 1-8, wherein a motion vector (MV) difference between an MV of a motion candidate in the table and an MV of a same reference picture of another motion candidate is not smaller than a threshold.

10. The method of anyone of claims 1-9, wherein at least one motion candidate is removed from the table due to addition of the new motion candidate into the table.

11. The method of claim 10, wherein when the table is full before the addition of the new candidate into the table, a motion candidate is removed from the table.

12. The method of claim 11, wherein the motion candidate to be removed has an index of 0.

13. The method of anyone of claims 10-12, wherein the at least one motion candidate is removed from the table to provide an empty entry in the table and motion candidates whose indices are greater than that of the at least one motion candidate are moved forward to fill the empty entry and the addition of the new motion candidate into the table is performed after the moving of the motion candidates.

14. The method of anyone of claims 10-13, wherein the at least one motion candidate is identified as a redundancy of current motion candidates by a redundancy checking before adding the new motion candidate into the table, wherein redundancy checking is used to check a redundancy of current motion candidates in the table.

15. The method of claim 14, wherein the redundancy checking is performed in an order that the current motion candidates have been added to the table or in an order of a coding process of blocks from where the current motion candidates in the table have been obtained.

16. The method of claim 14, wherein the redundancy checking is performed in an order from a first motion candidate with a minimum index in the table to a last motion candidate with a maximum index in the table.

17. The method of anyone of claims 14-16, wherein the redundancy checking is terminated when a redundant motion candidate in the table is identified.

18. The method of anyone of claims 14-17, wherein redundancy checking comprises comparing motion candidates in the table with the new motion candidate.

19. The method of anyone of claims 14-18, wherein when at least one of current motion candidates in the table is redundant to the new motion candidate, the counter indicating a number of motion candidates in the table is not increased.

20. The method of anyone of claims 1-19, wherein the updating is performed if at least one condition is satisfied, wherein the at least one condition is based on at least one of a coding mode of current video block or source of motion information of a corresponding motion candidate.

21. The method of claim 20, wherein the at least one condition comprises:

the coding mode belonging to at least one specific mode which comprises at least one of an inter coding mode or a merge mode or a mode in which the current video block is coded with motion information directly signaled.

22. The method of claim 20, wherein the at least one condition comprises:

the coding mode belonging to at least one specific mode which excludes a coding mode corresponding to at least one of a sub-block based motion prediction or sub-block based motion compensation method.

23. The method of claim 21, wherein the mode in which the current video block is coded with motion information directly signaled comprises at least one of an AMVP mode, a merge with motion vector differences (MMVD) mode for normal or affine inter mode, or an advanced motion vector prediction (AMVR) mode for normal or affine inter mode.

24. The method of anyone of claims 1-23, wherein a motion candidate in the table is associated with motion information including at least one of: a block position information to indicate from which the motion information is coming, a prediction direction, a reference picture index, motion vector values, an intensity compensation flag, an affine flag, a motion vector difference precision, or a motion vector difference value.

25. The method of anyone of claims 1-24, wherein the at least one motion candidate in the table is checked in an order of at least one index of the at least one motion candidate during constructing the motion candidate list of the subsequent block.

26. The method of anyone of claims 1-25, wherein the sequence of addition of the candidates into the table is based on a sequence of coding blocks from which the candidates are derived.

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

construct a motion candidate list for a current video block of a video;

determine motion information of the current video block using the motion candidate list;

code the current video block based on the determined motion information; and

update a table using a new motion candidate corresponding to the determined motion information;

wherein the table comprises one or more motion candidates derived from one or more video blocks that have been coded and indices of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table, wherein at least one motion

candidate in the table is checked in an order during constructing a motion candidate list of a subsequent video block.

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

construct a motion candidate list for a current video block of a video;

determine motion information of the current video block using the motion candidate list;

code the current video block based on the determined motion information; and

update a table using a new motion candidate corresponding to the determined motion information;

wherein the table comprises one or more motion candidates derived from one or more video blocks that have been coded and indices of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table, wherein at least one motion candidate in the table is checked in an order during constructing a motion candidate list of a subsequent video block.

29. 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:

constructing a motion candidate list for a current video block of a video;

determining motion information of the current video block using the motion candidate list;

generating the bitstream representation from the current video block based on the determined motion information; and

updating a table using a new motion candidate corresponding to the determined motion information;

wherein the table comprises one or more motion candidates derived from one or more video blocks that have been coded and indices of the motion candidates in the table is based on a sequence of addition of the motion candidates into the table, wherein at least one motion candidate in the table is checked in an order during constructing a motion candidate list of a subsequent video block.