CLAIMS

What is claimed is:

1. A method for decoding a prediction mode, wherein in response to determining that a merge mode is enabled for a current block and a current candidate prediction mode is allowed for the current block, the method comprises:

acquiring enablement states of one or more to-be-traversed prediction modes, wherein the one or more to-be-traversed prediction modes comprise at least one candidate prediction mode available for predicting the current block other than the current candidate prediction mode;

decoding indication information of the current candidate prediction mode in response to determining that a candidate prediction mode being allowed is present in the to-be-traversed prediction modes, wherein the indication information is configured to indicate whether to enable the current candidate prediction mode for the current block; and

directly determining that the current candidate prediction mode is enabled for the current block without decoding the indication information of the current candidate prediction mode in response to determining that none of the to-be-traversed prediction modes is allowed.

2. The method according to claim 1, wherein both the current candidate prediction mode and the candidate prediction mode in the to-be-traversed prediction modes are prediction modes based on the merge mode, and the prediction modes based on the merge mode at least comprise a regular merge mode, a merge mode with motion vector difference, a sub-block motion information based merge mode, or a combined inter-picture merge and intra-picture prediction mode.

3. The method according to claim 1, wherein

acquiring the enablement states of the to-be-traversed prediction modes comprises: determining that none of the to-be-traversed prediction modes is allowed in response to determining that the current block does not meet a mode restriction condition of each candidate prediction mode in the to-be-traversed prediction modes, wherein the mode restriction condition comprises a size restriction condition, a restriction condition of other modes, a frame type restriction condition, and a sequence level enabled flag restriction condition; or

determining that the current candidate prediction mode is disabled for the current block in response to determining that the current candidate prediction mode is not allowed for the

current block, wherein it is determined that the current candidate prediction mode is not allowed for the current block in response to determining that the current block does not meet a mode restriction condition of the current candidate prediction mode, wherein the mode restriction condition comprises a size restriction condition, a restriction condition of other modes, a frame type restriction condition, and a sequence level enabled flag restriction condition; or

determining that the current candidate prediction mode is allowed for the current block comprises: determining that the current candidate prediction mode is allowed for the current block in response to the current block meeting the size restriction condition, the restriction condition of other modes, the frame type restriction condition, and the sequence level enabled flag restriction condition for enabling the current candidate prediction mode; or

any candidate prediction mode in the to-be-traversed prediction modes is allowed for the current block in response to the current block meeting the size restriction condition, the restriction condition of other modes, the frame type restriction condition, and the sequence level enabled flag restriction condition of the candidate prediction mode.

4. The method according to claim 1, wherein

in the case that the current candidate prediction mode is a combined inter-picture merge and intra-picture prediction mode, the method further comprises: determining that the combined inter-picture merge and intra-picture prediction mode is allowed for the current block, in response to a sequence level enabled flag for the combined inter-picture merge and intra-picture prediction mode being in an enabled state, an area of the current block being greater than or equal to 64, and both a height and a width of the current block being less than respective thresholds; and otherwise, determining that the combined inter-picture merge and intra-picture prediction mode is not allowed for the current block; or

in the case that the current candidate prediction mode is a combined inter-picture merge and intra-picture prediction mode, the method further comprises: determining that the combined inter-picture merge and intra-picture prediction mode is disabled for the current block and setting a value of a mode flag bit of the combined inter-picture merge and intra-picture prediction mode to 0 in response to determining that the combined inter-picture merge and intra-picture prediction mode is not allowed for the current block; or

the method further comprises: determining that the combined inter-picture merge and intra-picture prediction mode is not allowed for the current block, in response to a value of a sequence level enabled flag for the combined inter-picture merge and intra-picture

prediction mode being 0, wherein the value of the sequence level enabled flag is present in a sequence parameter set; or

determining that the combined inter-picture merge and intra-picture prediction mode is not allowed for the current block, in response to a height or a width of the current block being equal to or greater than 128.

5. The method according to claim 1, further comprising:

directly setting a value of a mode flag bit of the current candidate prediction mode to 0 without decoding the mode flag bit of the current candidate prediction mode, in response to determining that the current candidate prediction mode is not allowed for the current block.

6. The method according to claim 1, further comprising:

determining that a combined inter-picture merge and intra-picture prediction mode is not allowed for the current block in response to the merge mode enabled for the current block belonging to a skip mode.

7. The method according to claim 1, further comprising:

determining that a merge mode with motion vector difference is not allowed for the current block, in response to a value of a sequence level enabled flag for the merge mode with motion vector difference being 0, wherein the value of the sequence level enabled flag is present in a sequence parameter set.

8. The method according to claim 1, further comprising:

determining that a sub-block motion information based merge mode is not allowed for the current block in response to a size of the current block being 4x8 or 8x4.

9. The method according to claim 1, wherein in the case that the current candidate prediction mode is a combined inter-picture merge and intra-picture prediction mode and the to-be-traversed prediction modes comprise a geometric partitioning mode with triangular partition, the method further comprises: determining whether the combined inter-picture merge and intra-picture prediction mode is allowed for the current block; acquiring an enablement state of the current block for the geometric partitioning mode with triangular partition, in response to determining that the combined inter-picture merge and intra-picture prediction mode is allowed for the current block; and acquiring and decoding, in response to

determining that the geometric partitioning mode with triangular partition is allowed for the current block, a flag bit of the combined inter-picture merge and intra-picture prediction mode; and determining whether to enable the combined inter-picture merge and intra-picture prediction mode for the current block based on decoded information of the flat bit, wherein the geometric partitioning mode with triangular partition is configured to predict, based on motion information of the current block, two triangular sub-blocks acquired by dividing the current block according to a preset angle, the preset angle comprising 45º or 135º; and determining that the geometric partitioning mode with triangular partition is allowed for the current block comprises: determining that the geometric partitioning mode with triangular partition is allowed for the current block, in response to determining that a regular merge mode, a merge mode with motion vector difference, a sub-block motion information based merge mode, and a combined inter-picture merge and intra-picture prediction mode are all disabled; or

in the case that the current candidate prediction mode is a combined inter-picture merge and intra-picture prediction mode and the to-be-traversed prediction modes comprise a geometric partitioning mode with triangular partition, the method further comprises: determining whether the combined inter-picture merge and intra-picture prediction mode is allowed for the current block; acquiring an enablement state of the current block for the geometric partitioning mode with triangular partition, in response to determining that the combined inter-picture merge and intra-picture prediction mode is allowed for the current block; and directly determining that the combined inter-picture merge and intra-picture prediction mode is enabled for the current block without decoding flag bit, in response to determining that the geometric partitioning mode with triangular partition is not allowed for the current block, wherein the geometric partitioning mode with triangular partition is configured to predict, based on motion information of the current block, two triangular sub-blocks acquired by dividing the current block according to a preset angle, the preset angle comprising 45º or 135º; and determining that the geometric partitioning mode with triangular partition is not allowed for the current block comprises: determining that the geometric partitioning mode with triangular partition is not allowed for the current block in response to a value of a sequence level enabled flag for the geometric partitioning mode with triangular partition being 0, wherein the value of the sequence level enabled flag is present in a sequence parameter set; or determining that the geometric partitioning mode with triangular partition is not allowed for the current block in response to a current frame where the current block is located is a P frame.

10. A method for coding a prediction mode, wherein in response to determining that a merge mode is enabled for a current block and a current candidate prediction mode is allowed for the current block, the method further comprises:

acquiring enablement states of one or more to-be-traversed prediction modes, wherein the one or more to-be-traversed prediction modes comprise at least one candidate prediction mode available for predicting the current block other than the current candidate prediction mode;

coding indication information of the current candidate prediction mode in response to determining that a candidate prediction mode being allowed is present in the to-be-traversed prediction modes, wherein the indication information is configured to indicate whether to enable the current candidate prediction mode for the current block; and

not coding the indication information of the current candidate prediction mode in response to determining that none of the to-be-traversed prediction modes is allowed.

11. The method according to claim 10, wherein both the current candidate prediction mode and the candidate prediction mode in the to-be-traversed prediction modes are prediction modes based on the merge mode, and the prediction modes based on the merge mode at least comprise a regular merge mode, a merge mode with motion vector difference, a sub-block motion information based merge mode, or a combined inter-picture merge and intra-picture prediction mode.

12. The method according to claim 10, wherein acquiring the enablement states of the to-be-traversed prediction modes comprises:

determining that none of the to-be-traversed prediction modes is allowed in response to determining that the current block does not meet a mode restriction condition of each candidate prediction mode in the to-be-traversed prediction modes, wherein the mode restriction condition comprises a size restriction condition, a restriction condition of other modes, a frame type restriction condition, and a sequence level enabled flag restriction condition.

13. The method according to claim 10, further comprising:

determining that the current candidate prediction mode is disabled for the current block in response to determining that the current candidate prediction mode is not allowed for the

current block,

wherein the current candidate prediction mode is not allowed for the current block in response determining that the current block does not meet a mode restriction condition of the current candidate prediction mode, wherein the mode restriction condition comprises a size restriction condition, a restriction condition of other modes, a frame type restriction condition, and a sequence level enabled flag restriction condition.

14. The method according to claim 10, wherein in the case that the current candidate prediction mode is a combined inter-picture merge and intra-picture prediction mode, the method further comprises:

determining that the combined inter-picture merge and intra-picture prediction mode is allowed for the current block in response to a sequence level enabled flag for the combined inter-picture merge and intra-picture prediction mode being in an enabled state, an area of the current block being greater than or equal to 64, and both a height and a width of the current block being less than respective thresholds; and otherwise, determining that the combined inter-picture merge and intra-picture prediction mode is not allowed for the current block.

15. A decoding apparatus, wherein in response to determining that a merge mode is enabled for a current block and a current candidate prediction mode is allowed for the current block, the decoding apparatus is configured to:

acquire enablement states of one or more to-be-traversed prediction modes, wherein the one or more to-be-traversed prediction modes comprise at least one candidate prediction mode available for predicting the current block other than the current candidate prediction mode;

decode indication information of the current candidate prediction mode in response to determining that a candidate prediction mode being allowed is present in the to-be-traversed prediction modes, wherein the indication information is configured to indicate whether to enable the current candidate prediction mode for the current block; and

directly determine that the current candidate prediction mode is enabled for the current block without decoding the indication information of the current candidate prediction mode in response to determining that none of the to-be-traversed prediction modes is allowed.

16. A coding apparatus, wherein in response to determining that a merge mode is enabled

for a current block and a current candidate prediction mode is allowed for the current block, the coding apparatus is configured to:

acquire enablement states of one or more to-be-traversed prediction modes, wherein the one or more to-be-traversed prediction modes comprise at least one candidate prediction mode available for predicting the current block other than the current candidate prediction mode;

code indication information of the current candidate prediction mode in response to determining that a candidate prediction mode being allowed is present in the to-be-traversed prediction modes, wherein the indication information is configured to indicate whether to enable the current candidate prediction mode for the current block; and

not code the indication information of the current candidate prediction mode in response to determining that none of the to-be-traversed prediction modes is allowed.

17. A decoding device, comprising:

a processor; and

a memory configured to store one or more instructions executable by the processor;

wherein the processor, when loading and executing the one or more instructions, is caused to perform the method for decoding the prediction mode as defined in any one of claims 1 to 9.

18. A coding device, comprising:

a processor; and

a memory configured to store one or more instructions executable by the processor;

wherein the processor, when loading and executing the one or more instructions, is caused to perform the method for coding the prediction mode as defined in any one of claims 10 to 14.

19. An electronic device, comprising:

a processor; and

a memory configured to store one or more instructions executable by the processor;

wherein the processor, when loading and executing the one or more instructions, is caused to perform the method for decoding the prediction mode as defined in any one of claims 1 to 9 or the method for coding the prediction mode as defined in any one of claims 10 to 14.

20. A non-transitory computer-readable storage medium storing one or more instructions, wherein the one or more instructions, when loaded and executed by a processor of an electronic device, cause the electronic device to perform the method for decoding the prediction mode as defined in any one of claims 1 to 9 or the method for coding the prediction mode as defined in any one of claims 10 to 14.