~~[CLAIMS]~~ CLAIMS

~~[Claim 1]~~

~~An image coding method for coding an image on a block-by-block basis to generate a bitstream, the method comprising:~~

~~determining a maximum number of merging candidates each of which is a combination of a prediction direction, a motion vector, and a reference picture index for use in coding of a current block;~~

~~deriving a plurality of first merging candidates based on prediction directions, motion vectors, and reference picture indexes used in coding of blocks spatially or temporally neighboring the current block;~~

~~determining whether or not a total number of the derived first merging candidates is smaller than the maximum number;~~

~~deriving, by making a combination out of the derived first merging candidates, a second merging candidate for bi-directional prediction when it is determined that the total number of the derived first merging candidates is smaller than the maximum number;~~

~~selecting a merging candidate to be used for the coding of the current block from the derived first merging candidates and the derived second merging candidate; and~~

~~coding, using the determined maximum number, an index for identifying the selected merging candidate, and attaching the coded index to the bitstream.~~

~~[Claim 2]~~

~~The image coding method according to Claim 1,~~

~~wherein, in the deriving of a second merging candidate, the second merging candidate is derived by combining a motion vector and a reference picture index for a first prediction direction which are included in one of the first merging candidates, and a motion vector and a reference picture index for a second prediction direction which are included in a different one of the first merging candidates.~~

~~[Claim 3]~~

~~The image coding method according to Claim 1 or 2,~~

~~wherein in the deriving of a plurality of first merging candidates, the plurality of first merging candidates are derived such that each of the first merging candidates is a different combination of a prediction direction, a motion vector, and a reference picture index.~~

~~[Claim 4]~~

~~The image coding method according to any one of Claims 1 to 3,~~

~~wherein in the deriving of a plurality of first merging candidate, a combination of a prediction direction, a motion vector, and a reference picture index is derived as one of the plurality of first merging candidates, and the combination of the prediction direction, motion vector, and reference picture index has been used in coding a block among blocks spatially neighboring the current block except a block coded by intra prediction, a block outside a boundary of a slice including the current block or a boundary of a picture including the current block, and a block yet to be coded.~~

~~[Claim 5]~~

~~The image coding method according to any one of Claims 1 to 4,~~

~~wherein in the coding, information indicating the determined maximum number is further attached to the bitstream.~~

~~[Claim 6]~~

~~The image coding method according to Claim 1, further comprising:~~

~~switching a coding process between a first coding process conforming to a first standard and a second coding process conforming to a second standard; and~~

~~attaching, to the bitstream, identification information indicating either the first standard or the second standard to which~~

~~the coding process after the switching conforms,~~

~~wherein when the coding process is switched to the first coding process, the determining of a maximum number of merging candidates, the deriving of a plurality of first merging candidates, the determining of whether or not the total number of the derived plurality of first merging candidates is smaller than the maximum number, the deriving of a second merging candidate, the selecting, and the coding are performed as the first coding process.~~

~~[Claim 7]~~

~~An image coding apparatus which codes an image on a block-by-block basis to generate a bitstream, the apparatus comprising:~~

~~a first determination unit configured to determine a maximum number of merging candidates each of which is a combination of a prediction direction, a motion vector, and a reference picture index for use in coding of a current block;~~

~~a first derivation unit configured to derive a plurality of first merging candidates based on prediction directions, motion vectors, and reference picture indexes used in coding blocks spatially or temporally neighboring the current block;~~

~~a second determination unit configured to determine whether or not a total number of the derived first merging candidates is smaller than the maximum number;~~

~~a second derivation unit configured to derive, by making a combination out of the derived first merging candidates, a second merging candidate for bi-directional prediction when it is determined that the total number of the derived first merging candidates is smaller than the maximum number;~~

~~a prediction control unit configured to select a merging candidate to be used for the coding of the current block from the derived first merging candidates and the derived second merging candidate; and~~

~~a coding unit configured to code, using the determined~~

maximum number, an index for identifying the selected merging candidate, and attach the coded index to the bitstream.

[Claim 8]

An image decoding method for decoding, on a block-by-block basis, a coded image included in a bitstream, the method comprising:

determining a maximum number of merging candidates each of which is a combination of a prediction direction, a motion vector, and a reference picture index for use in decoding of a current block;

deriving a plurality of first merging candidates based on prediction directions, motion vectors, and reference picture indexes used in decoding of blocks spatially or temporally neighboring the current block;

determining whether or not a total number of the derived first merging candidates is smaller than the maximum number;

deriving, by making a combination out of the derived first merging candidates, a second merging candidate for bi-directional prediction when it is determined that the total number of the derived first merging candidates is smaller than the maximum number;

decoding an index coded and attached to the bitstream, using the determined maximum number, the index being an index for identifying a merging candidate; and

selecting, based on the decoded index, a merging candidate to be used for the decoding of a current block, the merging candidate being selected from the derived first merging candidates and the derived second merging candidate.

[Claim 9]

The image decoding method according to Claim 8,

wherein, in the deriving of a second merging candidate, the second merging candidate is derived by combining a motion vector and a reference picture index for a first prediction direction which are included in one of the first merging candidates, and a motion vector

and a reference picture index for a second prediction direction which are included in a different one of the first merging candidates.

[Claim 10]

The image decoding method according to Claim 8 or 9,

wherein in the deriving of a plurality of first merging candidates, the plurality of first merging candidates are derived such that each of the first merging candidates is a different combination of a prediction direction, a motion vector, and a reference picture index.

[Claim 11]

The image decoding method according to any one of Claims 8 to 10,

wherein in the deriving of a plurality of first merging candidate, a combination of a prediction direction, a motion vector, and a reference picture index is derived as one of the plurality of first merging candidates, and the combination of the prediction direction, motion vector, and reference picture index has been used in decoding of a block among blocks spatially neighboring the current block except a block decoded by intra prediction, a block outside a boundary of a slice including the current block or a boundary of a picture including the current block, and a block yet to be decoded.

[Claim 12]

The image decoding method according to any one of Claims 8 to 11,

wherein in the determining of a maximum number of merging candidates, the maximum number is determined based on information attached to the bitstream and indicating the maximum number.

[Claim 13]

The image decoding method according to Claim 8, further comprising:

switching a decoding process between a first decoding process conforming to a first standard and a second decoding process conforming to a second standard, according to identification information attached to the bitstream and indicating either the first standard or the second standard,

wherein when the decoding process is switched to the first decoding process, the determining of a maximum number of merging candidates, the deriving of a plurality of first merging candidates, the determining of whether or not the total number of the derived plurality of first merging candidates is smaller than the maximum number, the deriving of a second merging candidate, the decoding, and the selecting are performed as the first decoding process.

[Claim 14]

An image decoding apparatus which decodes, on a block-by-block basis, a coded image included in a bitstream, the apparatus comprising:

a first determination unit configured to determine a maximum number of merging candidates each of which is a combination of a prediction direction, a motion vector, and a reference picture index for use in decoding of a current block;

a first derivation unit configured to derive a plurality of first merging candidates based on prediction directions, motion vectors, and reference picture indexes used in decoding blocks spatially or temporally neighboring the current block;

a second determination unit configured to determine whether or not a total number of the derived first merging candidates is smaller than the maximum number;

a second derivation unit configured to derive, by making a combination out of the derived first merging candidates, a second merging candidate for bi-directional prediction when it is determined that the total number of the derived first merging candidates is smaller than the maximum number;

a decoding unit configured to decode an index coded and

attached to the bitstream, using the determined maximum number, the index being an index for identifying a merging candidate; and

a prediction control unit configured to select, based on the decoded index, a merging candidate to be used for the decoding of a current block, the merging candidate being selected from the derived first merging candidates and the second merging candidate.

[Claim 15] (Amended)

An image coding and decoding apparatus comprising:

an image coding apparatus which codes an image on a block-by-block basis to generate a bitstream, the apparatus comprising:

a first determination unit configured to determine a maximum number of merging candidates each of which is a combination of a prediction direction, a motion vector, and a reference picture index for use in coding of a current block;

a first derivation unit configured to derive a plurality of first merging candidates based on prediction directions, motion vectors, and reference picture indexes used in coding blocks spatially or temporally neighboring the current block;

a second determination unit configured to determine whether or not a total number of the derived first merging candidates is smaller than the maximum number;

a second derivation unit configured to derive, by making a combination out of the derived first merging candidates, a second merging candidate for bi-directional prediction when it is determined that the total number of the derived first merging candidates is smaller than the maximum number;

a prediction control unit configured to select a merging candidate to be used for the coding of the current block from the derived first merging candidates and the derived second merging candidate; and

a coding unit configured to code, using the determined maximum number, an index for identifying the selected merging

~~candidate, and attach the coded index to the bitstream; and~~

~~the image decoding apparatus according to Claim 14.~~

~~[Claim 16] (New)~~

1. An image coding method for coding a current block, comprising:

deriving a first candidate having a first motion vector that has been used to code a first block;

deriving a second candidate having a second motion vector that has been used to code a second block which is different from the first block;

determining whether or not a total number of candidates having the first candidate and the second candidate is less than a maximum candidate number;

deriving a third candidate having a third motion vector and a fourth motion vector when the total number of candidates having the first candidate and second candidates is less than the maximum candidate number, the third motion vector being identical to the first motion vector, the fourth motion vector being identical to the second motion vector;

coding an index corresponding to a candidate having a motion vector; and

generating a bitstream having the coded index,

wherein the maximum candidate number is used to code the index,

wherein the motion vector is used to code the current block, and

wherein the candidate is one of a plurality of candidates having the first candidate, the second candidate, and the third candidate.

~~[Claim 17] (New)~~

2. The image coding method according to Claim ~~16~~1,

wherein a bit sequence is determined based on the maximum

candidate number, the bit sequence corresponding to the coded index.

~~[Claim 18] (New)~~

3. The image coding method according to Claim ~~17~~2,

wherein, when the index has a value of 2 and the maximum candidate number is 3, the bit sequence is 11, and

wherein, when the index has a value of 2 and the maximum candidate number is 4, the bit sequence is 110.

~~[Claim 19] (New)~~

4. An image decoding method for decoding a current block, comprising:

deriving a first candidate having a first motion vector that has been used to decode a first block;

deriving a second candidate having a second motion vector that has been used to decode a second block which is different from the first block;

determining whether or not a total number of candidates having the first candidate and the second candidate is less than a maximum candidate number;

deriving a third candidate having a third motion vector and a fourth motion vector when the total number of candidates having the first candidate and second candidates is less than the maximum candidate number, the third motion vector being identical to the first motion vector, the fourth motion vector being identical to the second motion vector; and

decoding a coded index corresponding to a candidate having a motion vector,

wherein the maximum candidate number is used to decode the coded index,

wherein a bitstream has the coded index,

wherein the motion vector is used to decode the current block, and

wherein the candidate is one of a plurality of candidates

having the first candidate, the second candidate, and the third candidate.

~~[Claim 20] (New)~~

5. The image decoding method according to Claim ~~194~~,

wherein based on the maximum candidate number, the decoded index is determined from a bit sequence corresponding to the coded index.

~~[Claim 21] (New)~~

6. The image decoding method according to Claim ~~205~~,

wherein, when the bit sequence corresponding to the coded index is 11 and the maximum candidate number is 3, the decoded index has a value of 2, and

wherein, when the bit sequence corresponding to the coded index is 110 and the maximum candidate number is 4, the decoded index has a value of 2.

~~[Claim 22] (New)~~

7. A motion vector derivation method, comprising:

deriving a first candidate having a first motion vector that has been used to decode a first block;

deriving a second candidate having a second motion vector that has been used to decode a second block which is different from the first block;

determining whether or not a total number of candidates having the first candidate and the second candidate is less than a maximum candidate number;

deriving a third candidate having a third motion vector and a fourth motion vector when the total number of candidates having the first candidate and second candidates is less than the maximum candidate number, the third motion vector being identical to the first motion vector, the fourth motion vector being identical to the second motion vector; and

deriving a motion vector,

wherein a coded index corresponds to a candidate having the motion vector,

wherein the maximum candidate number is used to decode the coded index,

wherein a bitstream has the coded index,

wherein the motion vector is used to decode a current block, and

wherein the candidate having the motion vector is one of a plurality of candidates having the first candidate, the second candidate, and the third candidate.

~~[Claim 23] (New)~~

8. The motion vector derivation method according to Claim ~~22~~7,

wherein based on the maximum candidate number, the decoded index is determined from a bit sequence corresponding to the coded index.

~~[Claim 24] (New)~~

9. The motion vector derivation method according to Claim ~~23~~8,

wherein when the bit sequence corresponding to the coded index is 11 and the maximum candidate number is 3, the decoded index has a value of 2, and

wherein when the bit sequence corresponding to the coded index is 110 and the maximum candidate number is 4, the decoded index has a value of 2.

~~[Claim 25] (New)~~

10. An image coding apparatus that codes a current block, comprising:

a first deriver configured to derive a first candidate having a first motion vector that has been used to code a first block;

a second deriver configured to derive a second candidate having a second motion vector that has been used to code a second

block which is different from the first block;

a determiner configured to determine whether or not a total number of candidates having the first candidate and the second candidate is less than a maximum candidate number;

a third deriver configured to derive a third candidate having a third motion vector and a fourth motion vector when the total number of candidates having the first candidate and second candidates is less than the maximum candidate number, the third motion vector being identical to the first motion vector, the fourth motion vector being identical to the second motion vector; and

a coder configured to code an index corresponding to a candidate having a motion vector; and

a generator configured to generate a bitstream having the coded index,

wherein the maximum candidate number is used to code the index,

wherein the motion vector is used to code the current block, and

wherein the candidate is one of a plurality of candidates having the first candidate, the second candidate, and the third candidate.

~~[Claim 26] (New)~~

11. The image coding apparatus according to Claim ~~25~~10,

wherein a bit sequence is determined based on the maximum candidate number, the bit sequence corresponding to the coded index.

~~[Claim 27] (New)~~

12. The image coding apparatus according to Claim ~~26~~11,

wherein when the index has a value of 2 and the maximum candidate number is 3, the bit sequence is 11, and

wherein when the index has a value of 2 and the maximum candidate number is 4, the bit sequence is 110.

~~[Claim 28] (New)~~

13. An image decoding apparatus that decodes a current block, comprising:

a first deriver configured to derive a first candidate having a first motion vector that has been used to decode a first block;

a second deriver configured to derive a second candidate having a second motion vector that has been used to decode a second block which is different from the first block;

a determiner configured to determine whether or not a total number of candidates having the first candidate and the second candidate is less than a maximum candidate number;

a third deriver configured to derive a third candidate having a third motion vector and a fourth motion vector when the total number of candidates having the first candidate and second candidates is less than the maximum candidate number, the third motion vector being identical to the first motion vector, the fourth motion vector being identical to the second motion vector; and

a decoder configured to decode a coded index corresponding to a candidate having a motion vector,

wherein the maximum candidate number is used to decode the coded index,

wherein a bitstream has the coded index,

wherein the motion vector is used to decode the current block,

wherein the candidate is one of a plurality of candidates having the first candidate, the second candidate, and the third candidate.

~~[Claim 29] (New)~~

14. The image decoding apparatus according to Claim ~~28~~13,

wherein based on the maximum candidate number, the decoded index is determined from a bit sequence corresponding to the coded index.

~~[Claim 30] (New)~~

15. The image decoding apparatus according to Claim ~~29~~14,

wherein when the bit sequence corresponding to the coded index is 11 and the maximum candidate number is 3, the decoded index has a value of 2, and

wherein when the bit sequence corresponding to the coded index is 110 and the maximum candidate number is 4, the decoded index has a value of 2.

~~[Claim 31] (New)~~

16. A motion vector derivation apparatus, comprising:

a first deriver configured to derive a first candidate having a first motion vector that has been used to decode a first block;

a second deriver configured to derive a second candidate having a second motion vector that has been used to decode a second block which is different from the first block;

a determiner configured to determine whether or not a total number of candidates having the first candidate and the second candidate is less than a maximum candidate number;

a third deriver configured to derive a third candidate having a third motion vector and a fourth motion vector when the total number of candidates having the first candidate and second candidates is less than the maximum candidate number, the third motion vector being identical to the first motion vector, the fourth motion vector being identical to the second motion vector; and

a fourth deriver configured to derive a motion vector,

wherein a coded index corresponds to a candidate having the motion vector,

wherein the maximum candidate number is used to decode the coded index,

wherein a bitstream has the coded index,

wherein the motion vector is used to decode a current block, and

wherein the candidate having the motion vector is one of a

plurality of candidates having the first candidate, the second candidate, and the third candidate.

~~[Claim 32] (New)~~

17. The motion vector derivation apparatus according to Claim ~~31~~16,

wherein based on the maximum candidate number, the decoded index is determined from a bit sequence corresponding to the coded index.

~~[Claim 33] (New)~~

18. The motion vector derivation apparatus according to Claim ~~32~~17,

wherein when the bit sequence corresponding to the coded index is 11 and the maximum candidate number is 3, the decoded index has a value of 2, and

wherein when the bit sequence corresponding to the coded index is 110 and the maximum candidate number is 4, the decoded index has a value of 2.

~~[Claim 34] (New)~~

19. An integrated circuit, comprising:

a first deriver configured to derive a first candidate having a first motion vector that has been used to decode a first block;

a second deriver configured to derive a second candidate having a second motion vector that has been used to decode a second block which is different from the first block;

a determiner configured to determine whether or not a total number of candidates having the first candidate and the second candidate is less than a maximum candidate number;

a third deriver configured to derive a third candidate having a third motion vector and a fourth motion vector when the total number of candidates having the first candidate and second candidates is less than the maximum candidate number, the third

motion vector being identical to the first motion vector, the fourth motion vector being identical to the second motion vector; and

a decoder configured to decode a coded index corresponding to a candidate having a motion vector,

wherein the maximum candidate number is used to decode the coded index,

wherein a bitstream has the coded index,

wherein the motion vector is used to decode the current block, and

wherein the candidate is one of a plurality of candidates having the first candidate, the second candidate, and the third candidate.

~~[Claim 35] (New)~~

20. The integrated circuit according to Claim ~~34~~19,

wherein based on the maximum candidate number, the decoded index is determined from a bit sequence corresponding to the coded index.

~~[Claim 36] (New)~~

21. The integrated circuit according to Claim ~~34~~19,

wherein when the bit sequence corresponding to the coded index is 11 and the maximum candidate number is 3, the decoded index has a value of 2, and

wherein when the bit sequence corresponding to the coded index is 110 and the maximum candidate number is 4, the decoded index has a value of 2.