[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 a merging candidate 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 first merging candidate;

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

deriving a second merging candidate when it is determined that the total number of the first merging candidate is smaller than the maximum number;

selecting a merging candidate for use in the coding of the current block from the first merging candidate and the 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 first merging candidate, a merging candidate which is a combination of a prediction direction, a motion vector, and a reference picture index is derived as the first merging candidate, the combination being different from a combination of a prediction direction, a motion vector, and a reference picture index of any first merging candidate previously derived.

[Claim 3]

The image coding method according to Claim 1 or 2,

wherein in the deriving of a first merging candidate, the first merging candidate is derived based on a prediction direction, a motion vector, and a reference picture index used in coding of a block spatially or temporally neighboring the current block.

[Claim 4]

The image coding method according to Claim 3,

wherein in the deriving of a first merging candidate, a combination of a prediction direction, a motion vector, and a reference picture index is derived as the first

merging candidate, the combination of the prediction direction, motion vector, and reference picture index having been used in coding of 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 deriving of a second merging candidate, a merging candidate which is different in at least one of prediction direction, motion vector, and reference picture index from the first merging candidate is derived as the second merging candidate.

[Claim 6]

The image coding method according to any one of Claims 1 to 5,

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

[Claim 7]

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 a merging candidate, the deriving of a first merging candidate, the determining of whether or not the total number of the first merging candidate 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 8]

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 candidate 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 first merging candidate;~~

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

~~a second derivation unit configured to derive a second merging candidate when it is determined that the total number of the first merging candidate is smaller than the maximum number;~~

~~a prediction control unit configured to select a merging candidate for use in the coding of the current block from the first merging candidate and the 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 9]~~

~~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 a merging candidate 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 first merging candidate;~~

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

~~deriving a second merging candidate when it is determined that the total number of the first merging candidate 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 for use in the decoding of a current block, the selected merging candidate being selected from the first merging candidate and the second merging candidate.~~

~~[Claim 10]~~

~~The image decoding method according to Claim 9,~~

~~wherein in the deriving of a first merging candidate, a merging candidate which is a combination of a prediction direction, a motion vector, and a reference picture index is derived as the first merging candidate, the combination being different from a combination of a prediction direction, a motion vector, and a reference picture index of any first merging candidate previously derived.~~

~~[Claim 11]~~

~~The image decoding method according to Claim 9 or 10,~~

~~wherein in the deriving of a first merging candidate, the first merging candidate is derived based on a prediction direction, a motion vector, and a reference picture index used in decoding of a block spatially or temporally neighboring the current block.~~

~~[Claim 12]~~

~~The image decoding method according to Claim 11,~~

~~wherein in the deriving of a first merging candidate, a combination of a prediction direction, a motion vector, and a reference picture index is derived as the first merging candidate, the combination of the prediction direction, motion vector, and reference picture index having 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 13]~~

~~The image decoding method according to any one of Claims 9 to 12,~~

~~wherein in the deriving of a second merging candidate, a merging candidate which is different in at least one of prediction direction, motion vector, and reference picture index from the first merging candidate is derived as the second merging candidate.~~

~~[Claim 14]~~

~~The image decoding method according to any one of Claims 9 to 13,~~

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

[Claim 15]

The image decoding method according to Claim 9, 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 which is attached to the bitstream and indicates 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 a merging candidate, the deriving of a first merging candidate, the determining of whether or not the total number of the first merging candidate 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 16]

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 a merging candidate which is a candidate 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 first merging candidate;

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

a second derivation unit configured to derive a second merging candidate when it is determined that the total number of the first merging candidate 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 for use in the decoding of a current block, the selected merging candidate being selected from the first merging candidate and the second merging candidate.

[Claim 17] (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 candidate 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 first merging candidate;~~

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

~~a second derivation unit configured to derive a second merging candidate when it is determined that the total number of the first merging candidate is smaller than the maximum number;~~

~~a prediction control unit configured to select a merging candidate for use in the coding of the current block from the first merging candidate and the 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 16.~~

~~[Claim 18]~~(~~New~~)

1. An image coding method for coding a current block included in a slice of the image, comprising:

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

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

deriving a second candidate having a second motion vector when the total number of one or more candidates having the first candidate is less than the maximum candidate number; and

coding an index corresponding to a candidate having a motion vector,

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 and the second candidate, and

wherein the maximum candidate number embedded in a slice header for the slice is fixed for all blocks in the slice.

~~[Claim 19] (New)~~

2. An image decoding method for decoding a current block included in a slice of the image, comprising:

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

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

deriving a second candidate having a second motion vector when the total number of one or more candidates having the first candidate is less than the maximum candidate number; and

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

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 and the second candidate, and

wherein the maximum candidate number embedded in a slice header for the slice is fixed for all blocks in the slice.

~~[Claim 20] (New)~~

~~A motion vector derivation method, comprising:~~

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

~~determining whether or not a total number of one or more candidates having the first candidate is less than a maximum candidate number;~~

~~deriving a second candidate having a second motion vector when the total number of one or more candidates having the first candidate is less than the maximum candidate number; and~~

~~deriving a motion vector,~~

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

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

~~[Claim 21] (New)~~

3. An image coding apparatus that codes a current block included in a slice of the image, 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 determiner configured to determine whether or not a total number of one or more candidates having the first candidate is less than a maximum candidate number;

a second deriver configured to derive a second candidate having a second motion vector when the total number of one or more candidates having the first candidate is less than the maximum candidate number; and

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

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 and the second candidate, and

wherein the maximum candidate number embedded in a slice header for the slice is fixed for all blocks in the slice.

~~[Claim 22] (New)~~

4. An image decoding apparatus that decodes a current block included in a slice of the image, 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 determiner configured to determine whether or not a total number of one or more candidates having the first candidate is less than a maximum candidate number;

a second deriver configured to derive a second candidate having a second motion vector when the total number of one or more candidates having the first candidate is less than the maximum candidate number; and

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

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 and the second candidate, and

wherein the maximum candidate number embedded in a slice header for the slice is fixed for all blocks in the slice.

~~[Claim 23] (New)~~

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

~~a second deriver configured to derive a second candidate having a second motion vector when the total number of one or more candidates having the first candidate is less than the maximum candidate number; and~~

~~a third deriver configured to derive a motion vector,~~

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

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

~~[Claim 24] (New)~~

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

~~a second deriver configured to derive a second candidate having a second motion vector when the total number of one or more candidates having the first candidate is less than the maximum candidate number; and~~

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

~~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 and the second candidate.~~