

CLAIMS

1. A motion prediction method, the motion prediction method comprising:
determining, when a current slice is a B slice, a reference picture list used by
a current prediction unit from among prediction units included in a coding unit; and
5 outputting, when a size of the current prediction unit is 4X8 or 8X4,
inter-prediction index information of the current prediction unit indicating a reference
picture list from among a L0 list and a L1 list, and when a size of the current
prediction unit is not 4X8 or 8X4, the inter-prediction index information of the current
prediction unit indicating a reference picture list from among a L0 list, a L1 list, and a
10 bi-prediction list.

2. The motion prediction method of claim 1, further comprising:
determining whether inter-prediction where the bi-prediction list including the
L0 list and the L1 list is used for the current prediction unit is allowed with respect to
15 a prediction unit of a 4X8 or 8X4 size in the current slice; and
including bi-prediction restriction information indicating that inter-prediction
where the bi-prediction list is used for the current prediction unit is not allowed with
respect to the prediction unit of a 4X8 or 8X4 size, into a slice header of the current
slice.

3. The motion prediction method of claim 1, wherein the outputting of
inter-prediction index information of the current prediction unit comprises outputting,
when a size of the current prediction unit is 4X8 or 8X4, the inter-prediction index
information indicating that a reference picture list for the current prediction unit is a
25 reference picture list except the bi-prediction list.

4. The motion prediction method of claim 1, wherein in the outputting,
when a size of the current prediction unit is 4X8 or 8X4, a binarization operation for
information indicating that the reference picture list is a bi-prediction list is skipped.

5. The motion prediction method of claim 1, further comprising:
determining a reference block for inter-prediction of the current prediction unit
from among reconstructed images belonging to a reference picture list indicated by
the inter-prediction index information; and

determining a motion vector indicating a spatial distance between the current prediction unit and the reference block and residues indicating a pixel value difference between the current prediction unit and the reference block,

wherein the outputting further comprising outputting reference index information indicating a reconstructed image including the reference block from among reconstructed images belonging to the reference picture list, motion vector difference information indicating a difference between motion vector of the current prediction unit and a previous motion vector, and the residual difference component.

6. A motion compensation method, the motion compensation method comprising:

obtaining, when a current slice is a B slice, inter-prediction index information indicated according to a type of a reference picture list to be used by a current prediction unit from among prediction units included in a coding unit; and

determining, when a size of the current prediction unit is 4X8 or 8X4, a reference picture list of the current prediction unit based on the inter-prediction index information indicating that the reference picture list is one of a L0 list and a L1 list, and when a size of the current prediction unit is not 4X8 or 8X4, determining a reference picture list of the current prediction unit based on the inter-prediction index information indicating that the reference picture list is one of a L0 list, a L1 list, and a bi-prediction list.

7. The motion compensation method of claim 6, further comprising: parsing bi-prediction restriction information indicating whether inter-prediction is allowed with respect to the prediction unit of a 4X8 or 8X4 size, from a slice header of the current slice; and

determining whether inter-prediction where the bi-prediction list including the L0 list and the L1 list is used for the current prediction unit is allowed with respect to a prediction unit of a 4X8 or 8X4 size in the current slice based on the parsed bi-prediction restriction information.

8. The motion compensation method of claim 6, wherein in the obtaining the inter-prediction index information, when a size of the current prediction unit is 4X8 or 8X4, an operation of reading information indicating that the reference picture

list is a bi-prediction list from a binarization bit string parsed from the bitstream is skipped.

5 9. The motion compensation method of claim 6, wherein the determining comprises reading a reference picture list except the bi-prediction list from the inter-prediction index information when the size of the current prediction unit is 4X8 or 8X4,

10 wherein when the size of the current prediction unit is 4X8 or 8X4, an operation of checking whether the inter-prediction index information indicates that the reference picture list is the bi-prediction list is skipped.

15 10. The motion compensation method of claim 6, further comprising: further obtaining a reference index and motion vector difference information of the current prediction unit determined based on a reference picture list indicated by the inter-prediction index information;

obtaining partition type information of the coding unit; and
determining a size and a form of the prediction units based on the partition type information.

20 11. The motion compensation method of claim 6, further comprising: determining, based on the determined reference picture list, a reference image indicated by a reference index of the current prediction unit from among first restored reference images and a reference block indicated by a motion vector of the current prediction unit, from the reference image; and

25 restoring the current prediction unit by combining the reference block and residues of the current prediction unit.

30 12. A motion prediction apparatus comprising:
a motion prediction unit for determining, when a current slice is a B slice, a reference picture list to be used by a current prediction unit from among prediction units included in a coding unit and a reference block for the current prediction unit from among reconstructed images belonging to the reference picture list; and
an inter-prediction information output unit for outputting, when a size of the current prediction unit is 4X8 or 8X4, inter-prediction index information of the current

prediction unit indicating that the reference picture list is one of a L0 list and a L1 list, and when the size of the current prediction unit is not 4X8 or 8X4, inter-prediction index information of the current prediction unit indicating a reference picture list which is one of a L0 list, a L1 list, and a bi-prediction list.

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13. A motion compensation apparatus comprising:

an inter-prediction information obtaining unit for obtaining, when a current slice is a B slice, inter-prediction index information indicating a reference picture list according to a type of the reference picture list that is to be used by a current prediction unit from among prediction units included in a coding unit; and

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a motion compensation unit for determining, when a size of the current prediction unit is 4X8 or 8X4, a reference picture list of the current prediction unit based on the inter-prediction index information of the current prediction unit indicating that the reference picture list is one of a L0 list and a L1 list, and determining, when the size of the current prediction unit is not 4X8 or 8X4, a reference picture list of the current prediction unit based on the inter-prediction index information of the current prediction unit indicating that the reference picture list is of one of a L0 list, a L1 list, and a bi-prediction list, and performing motion compensation on the current prediction unit by using the determined reference picture list.

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14. A computer readable recording medium having embodied thereon a computer program for executing the motion prediction method of claim 1.

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15. A computer readable recording medium having embodied thereon a computer program for executing the motion compensation method of claim 6.

CLAIMS

1. A video decoding method, the method comprising:

receiving partition type information representing a partition type of a prediction unit from a bitstream;

5 determining a size of a current prediction unit by using the partition type information;

when the size of the current prediction unit is not a predetermined size, acquiring a first bit representing whether a prediction mode of the current prediction unit is a BI prediction mode and a second bit representing whether the prediction mode of the current prediction unit is an L0 prediction mode or an L1 prediction mode;

when the size of the current prediction unit is the predetermined size, acquiring a first bit representing whether the prediction mode of the current prediction unit is an L0 prediction mode or an L1 prediction mode; and

15 performing one inter-prediction from among the L0 prediction, the L1 prediction, and the BI prediction with respect to the current prediction unit, according to the first bit and the second bit that are acquired when the size of the current prediction unit is not the predetermined size or the first bit acquired when the size of the current prediction mode is the predetermined size.