Claims

1. A method of decoding a motion vector, the method comprising:

obtaining motion vector predictor of a current block based on the motion vector information obtained from a bitstream

restoring the motion vector of the current block based on the motion vector predictor and the decoded difference,

wherein the motion vector predictor is a motion vector predictor generated from one of a motion vector of an adjacent block referring to a first reference picture, if a block having a motion vector referring to the first reference picture identical to the first block exists from among adjacent blocks of the current block, and a motion vector of an adjacent block referring to a second reference picture other than the first reference picture, if the block having the motion vector referring to the first reference picture does not exist from among the adjacent blocks.

2. The method of claim 1, wherein the motion vector predictor comprises a first motion vector predictor selected from among blocks adjacent to a left side of the current block, a second motion vector predictor selected from among blocks adjacent to a top side of the current block, and a third motion vector predictor selected from among blocks located at a corner of the current block, which is encoded before the current block.

3. The method of claim 2, wherein the motion vector predictor further comprises a median of the first motion vector predictor, the second motion vector predictor, and the third motion vector predictor.

4. The method of claim 3, wherein the median is calculated by setting a motion vector predictor that does not exist from among the first motion vector predictor, the second motion vector predictor, and the third motion vector predictor as a 0 vector.

5. The method of claim 3, wherein, if only one of the first motion vector predictor, the second motion vector predictor, and the third motion vector predictor exists, an existing motion vector predictor is set as the median.

6. The method of claim 1, wherein the obtaining of the motion vector predictor comprises:

scanning blocks adjacent to a left side of the current block according to a predetermined scanning order and selecting a motion vector of a motion block having a motion vector referring to the first reference picture as the first motion vector predictor from among the scanned blocks adjacent to the left side of the current block;

scanning blocks adjacent to a top side of the current block according to a predetermined scanning order and selecting a motion vector of a motion block having a motion vector referring to the first reference picture as the second motion vector predictor from among the scanned blocks adjacent to the top side of the current block; and

selecting a motion vector of a motion block having a motion vector referring to the first reference picture, from among blocks located at corners of the current block, as the third motion vector predictor.

7. The method of claim 1, wherein the obtaining of the motion vector predictor comprises:

scanning blocks adjacent to a left side of the current block according to a predetermined scanning order and selecting a motion vector of a motion block referring to the second reference picture from among the scanned blocks adjacent to the left side of the current block as the first motion vector predictor;

scanning blocks adjacent to a top side of the current block according to a predetermined scanning order and selecting a motion vector of a motion block referring to the second reference picture from among the scanned blocks adjacent to the top side of the current block as the second motion vector predictor; and

selecting a motion vector of a motion block referring to the second reference picture, from among blocks located at corners of the current block, as the third motion vector predictor.

8. The method of claim 7, wherein the first motion vector predictor, the second motion vector predictor, and the third motion vector predictor are motion vectors of motion blocks identified from among motion vectors of motion blocks referring to the second reference picture located at the same list direction of the first reference picture according to the predetermined scanning order.

9. The method of claim 8, wherein, if the motion vectors of the motion blocks referring to the second reference picture located at the same list direction of the first reference picture do not exist, the first motion vector predictor, the second motion estimator, and the third motion estimator are motion vectors of motion blocks identified from among motion vectors of motion blocks referring to the second reference picture located at a different list direction from the first reference picture according to the predetermined scanning order.

10. The method of claim 7, further comprising, determining whether the first motion vector predictor, the second motion vector predictor, and the third motion vector predictor are motion vectors referring to the second reference picture ; and

scaling the first motion vector predictor, the second motion vector predictor, and the third motion vector predictor based on a temporal distance between the current picture and the other second reference picture, in response to determining that the first motion vector predictor, the second motion vector predictor, and the third motion vector predictor are motion vectors referring to the second reference picture.

Claims

1. A method of decoding a motion vector, the method comprising:

obtaining a prediction mode information of a current block to be decoded, from a bitstream;

when a prediction mode of the current block is inter-prediction, obtaining motion vector predictor candidates of the current block by using a motion vector of a neighboring block adjacent to the current block;

obtaining a motion vector predictor of the current block from among the motion vector predictor candidates based on a motion vector predictor information obtained from the bitstream;

obtaining a difference between a motion vector of the current block and the motion vector predictor of the current block; and

restoring the motion vector of the current block based on the motion vector predictor and the difference,

wherein the motion vector predictor candidates comprise a first motion vector predictor obtained by searching for an available motion vector of the neighboring block adjacent to a left side of the current block according to a first order, and a second motion vector predictor obtained by searching for an available motion vector of the neighboring block adjacent to an upper side of the current block according to a second order, and

wherein the neighboring block adjacent to the left side of the current block comprise a first neighboring block located on a lower-left side of the current block and a second neighboring block located on an upper side of the first neighboring block.

2. The method of claim 1, wherein the first motion vector predictor and the second motion vector predictor are motion vectors of motion blocks identified firstly from among motion vectors of the neighboring blocks according to the first order and the second order, respectively.