Claims

1. An apparatus for decoding an image, the apparatus comprising:

an image data acquisition unit which acquires image data encoded by using a coding unit of a hierarchical structure split from a maximum coding unit;

an encoding information extractor which obtains prediction mode information of a current block from a bitstream; and

an image data decoder which determines a block co-located with the current block from among a first block co-located with the current block in a temporally preceding picture and a second block co-located with the current block in a temporally following picture for obtaining motion vector predictor candidates of the current block based on the obtained prediction mode information, obtains the motion vector predictor candidates of the current block using the determined block co-located with the current block, obtains a motion vector predictor of the current block among the obtained motion vector predictor candidates based on the obtained prediction mode information, and obtains a motion vector of the current block based on the obtained motion vector predictor and a differential vector obtained from the bitstream.

2. The apparatus of claim 1, wherein the image data decoder scales a motion vector of the determined block co-located with the current block in a reference picture based on a temporal distance between the reference picture comprising the determined block and a current picture comprising the current block.

3. The apparatus of claim 1, wherein the motion vector predictor candidates comprise at least one motion vector of a neighboring block adjacent to the current block.

4. The apparatus of claim 3, wherein the motion vector predictor of the current block is determined between a motion vector of the determined block co-located with the current block and a motion vector of the neighboring block based on the obtained prediction mode information.

5. The apparatus of claim 3, wherein the neighboring block comprises a third block located on an upper-right side of the current block, a fourth block adjacent to a left side of the third block located on the upper-right side of the current block, a fifth block located on a lower-left side of the current block, a sixth block adjacent to an upper side of the fifth block located on a lower-left side of the current block, and a seventh block located on an upper-left side of the current block.

6. The apparatus of claim 1, wherein the image is hierarchically split from a plurality of maximum coding units according to the information about a maximum size of a coding unit into coding units of coded depths according to depths,

wherein a coding unit of a current depth is one of rectangular data units split from a coding unit of a upper depth,

wherein the coding unit of a current depth are split into coding units of a lower depth, independently from neighboring coding units, and

wherein the coding units of a hierarchical structure comprise encoded coding units among the coding units split from a maximum coding unit.

Claims

1. An apparatus for decoding an image, the apparatus comprising:

an image data acquisition unit which acquires image data encoded by using a coding unit of a hierarchical structure split from a maximum coding unit;

an encoding information extractor which obtains prediction mode information of a current block from a bitstream; and

an image data decoder which determines a block co-located with the current block from among a first block co-located with the current block in a temporally preceding picture and a second block co-located with the current block in a temporally following picture for obtaining motion vector predictor candidates of the current block when the obtained prediction mode information indicates that the prediction mode of the current block is inter-prediction, obtains the motion vector predictor candidates of the current block using the determined block co-located with the current block, obtains a motion vector predictor of the current block among the obtained motion vector predictor candidates based on the obtained prediction mode information, and obtains a motion vector of the current block based on the obtained motion vector predictor and a differential vector obtained from the bitstream,

wherein the image is hierarchically split from a plurality of maximum coding units according to the information about a maximum size of a coding unit into coding units of coded depths according to depths;

a coding unit of a current depth is one of rectangular data units split from a coding unit of a upper depth;

the coding unit of a current depth are split into coding units of a lower depth, independently from neighboring coding units; and

the coding units of a hierarchical structure comprise encoded coding units among the coding units split from a maximum coding unit.

2. The apparatus of claim 1, wherein the image data decoder scales a motion vector of the determined block co-located with the current block in a reference picture based on a temporal distance between the reference picture comprising the determined block and a current picture comprising the current block.

3. The apparatus of claim 1, wherein the motion vector predictor candidates comprise at least one motion vector of a neighboring block adjacent to the current block.

4. The apparatus of claim 3, wherein the motion vector predictor of the current block is determined between a motion vector of the determined block co-located with the current block and a motion vector of the neighboring block based on the obtained prediction mode information.

5. The apparatus of claim 3, wherein the neighboring block comprises a third block located on an upper-right side of the current block, a fourth block adjacent to a left side of the third block located on the upper-right side of the current block, a fifth block located on a lower-left side of the current block, a sixth block adjacent to an upper side of the fifth block located on a lower-left side of the current block, and a seventh block located on an upper-left side of the current block.