CLAIMS

1. A motion vector determining method for inter prediction, the motion vector determining method comprising:

determining a candidate motion vector list comprising motion vectors of a plurality of candidate blocks referred so as to predict a motion vector of a current block;

when a reference image of a first candidate block from among the plurality of candidate blocks is different from a reference image of the current block, determining whether or not to use a motion vector of the first candidate block from the candidate motion vector list, based on whether each of the reference image of the current block and the reference image of the first candidate block is a short-term reference image or a long-term reference image; and

determining the motion vector of the current block by using a candidate motion vector selected from among the motion vectors comprised in the candidate motion vector list.

2. The motion vector determining method of claim 1, wherein, when all of the reference image of the current block and the reference image of the first candidate block are the long-term reference images, the determining of whether or not to use the motion vector comprises maintaining the motion vector of the first candidate block in the candidate motion vector list.

3. The motion vector determining method of claim 1, wherein, when one of the reference image of the current block and the reference image of the first candidate block is the short-term reference image, and the other one of the reference image of the current block and the reference image of the first candidate block is the long-term reference image, the determining of whether or not to use the motion vector comprises determining not to use the motion vector of the first candidate block in the candidate motion vector list.

4. The motion vector determining method of claim 1, wherein the first candidate block is a neighboring block of the current block in a current image of the

current block or is a collocated block at the same position as the current block in an image that is restored earlier than the current image.

5. The motion vector determining method of claim 1, wherein, regardless of whether the reference image of the current block is the short-term reference image or the long-term reference image, the determining of the motion vector of the current block comprises determining a reference block indicated by the motion vector of the current block that is determined in the reference image of the current block according to a picture order count (POC) indicated by a reference index of the current block.

6. The motion vector determining method of claim 1, wherein the determining of whether or not to use the motion vector comprises:

determining whether the reference image of the current block is the long-term reference image, by using a long-term reference index indicating whether the reference image of the current block is the long-term reference image; and

determining whether the reference image of the first candidate block is the long-term reference image, by using a long-term reference index of the first candidate block.

7. The motion vector determining method of claim 1, further comprising:

determining a reference block that is indicated by the motion vector of the current block in the reference image of the current block, and generating residual data between the reference block and the current block; and

performing transformation and quantization on the residual data and generating quantized transform coefficients.

8. The motion vector determining method of claim 1, further comprising:

receiving a reference index and quantized transform coefficients of the current block, and the motion vector of the first candidate block;

performing inverse-quantization and inverse-transformation on the quantized transform coefficients of the current block and thus restoring residual data of the current block; and

determining a reference block indicated by the motion vector of the current block in the reference image of the current block indicated by a reference index of the current block, synthesizing the reference block and residual data of the current block, and thus restoring the current block.

9. A motion vector determining apparatus for inter prediction, the motion vector determining apparatus comprising:

a candidate list determining unit for determining a candidate motion vector list comprising motion vectors of a plurality of candidate blocks referred so as to predict a motion vector of a current block and, when a reference image of a first candidate block from among the plurality of candidate blocks is different from a reference image of the current block, for determining whether or not to use a motion vector of the first candidate block from the candidate motion vector list, based on whether each of the reference image of the current block and the reference image of the first candidate block is a short-term reference image or a long-term reference image; and

a motion vector determining unit for determining the motion vector of the current block by using a candidate motion vector selected from among the motion vectors comprised in the candidate motion vector list.

10. The motion vector determining apparatus of claim 9, wherein, when all of the reference image of the current block and the reference image of the first candidate block are the long-term reference images, the candidate list determining unit maintains the motion vector of the first candidate block in the candidate motion vector list.

11. The motion vector determining apparatus of claim 9, wherein, when one of the reference image of the current block and the reference image of the first candidate block is the short-term reference image, and the other one of the reference image of the current block and the reference image of the first candidate block is the long-term reference image, the candidate list determining unit determines not to use the motion vector of the first candidate block in the candidate motion vector list.

12. The motion vector determining apparatus of claim 9, wherein the first candidate block is a neighboring block of the current block in a current image of the current block or is a collocated block at the same position as the current block in an image that is restored earlier than the current image.

13. The motion vector determining apparatus of claim 9, wherein the motion vector determining apparatus comprises:

an inter prediction unit for determining a reference block that is indicated by the motion vector of the current block in the reference image of the current block, and for generating residual data between the reference block and the current block; and

a transformation and quantization unit for performing transformation and quantization on the residual data and for generating quantized transform coefficients.

14. The motion vector determining apparatus of claim 9, wherein the motion vector determining apparatus receives a reference index and quantized transform coefficients of the current block, and the motion vector of the first candidate block, and further comprises:

an inverse-quantization and inverse-transformation unit for performing inverse-quantization and inverse-transformation on the quantized transform coefficients of the current block and for restoring residual data of the current block; and

a motion compensation unit for determining a reference block indicated by the motion vector of the current block in the reference image of the current block indicated by a reference index of the current block, for synthesizing the reference block and residual data of the current block, and for restoring the current block.

15. A computer-readable recording medium having recorded thereon a computer program for executing the motion vector determining method of claim 1.

CLAIMS

1. A method for decoding an image, the method comprising:

determining whether both of a reference picture of a candidate block and a reference picture of a current prediction unit are long-term reference pictures, wherein the candidate block is from among a plurality of candidate blocks adjacent to the current prediction unit;

when both of the reference picture of the candidate block and the reference picture of the current prediction unit are the long-term reference pictures, obtaining a spatial motion vector prediction candidate without scaling a motion vector of the candidate block; and

determining a motion vector prediction of the current prediction unit from among motion vector prediction candidates comprising the spatial motion vector prediction candidate, and generating the motion vector of the current prediction unit by using the motion vector prediction,

wherein a picture is split into a plurality of maximum coding units, and a maximum coding unit among the plurality of maximum coding units is hierarchically split into coding units of a depth comprising at least one of a current depth and a lower depth, according to split information, and

when the split information indicates a non-split of the current depth, one or more prediction units that comprise the current prediction unit are obtained from a coding unit of the current depth.

2. The motion vector determining method of claim 1, further comprising, when one of the reference picture of the current prediction unit and the reference picture of the candidate block is a short-term reference picture and another one is the long-term reference picture, determining not to use the motion vector of the candidate block as a candidate for the motion vector prediction.

3. The motion vector determining method of claim 1, further comprising, when one of the reference picture of the current prediction unit and the reference picture of the candidate block is a short-term reference picture and another one is the long-term reference picture, determining the spatial motion vector prediction candidate caused by the candidate block as 0.