CLAIMS

1. An inter prediction method comprising:

performing inter prediction on a current image by using a long-term reference image stored in a decoded picture buffer;

determining residual data and a motion vector of the current image generated via the inter prediction; and

determining least significant bit (LSB) information as a long-term reference index indicating the long-term reference image by dividing picture order count (POC) information of the long-term reference image into most significant bit (MSB) information and the LSB information.

2. The inter prediction method of claim 1, wherein the determining of the LSB information comprises dividing difference information between POC information of the current image and the POC information of the long-term reference image into MSB information and LSB information to determine the LSB information of the difference information as the long-term reference index.

3. The inter prediction method of claim 1, wherein the determining of the LSB information comprises inserting LSB information of POC information of a long-term reference image used for inter prediction of a current slice into a slice header, as the long-term reference index.

4. The inter prediction method of claim 1, further comprising:

performing inter prediction on the current image by using a short-term reference image stored in the decoded picture buffer; and

determining LSB information of POC information of the short-term reference image as a short-term reference index indicating the short-term reference image.

5. The inter prediction method of claim 1, wherein the determining of the residual data and the motion vector comprises determining the residual data and the motion vector according to blocks of the current image, based on results of inter

prediction performed according to the blocks of the current image.

6. A motion compensation method comprising:

receiving encoded image data, a motion vector, and a long-term reference index;

restoring residual data of a current image by decoding the encoded image data;

determining picture order count (POC) information by using most significant bit (MSB) information and least significant bit (LSB) information of a long-term reference image of the current image by reading the LSB information of the POC information of the long-term reference image from the long-term reference index; and

restoring the current image by performing motion compensation using the motion vector and the residual data based on the long-term reference image corresponding to the determined POC information from among reference images stored in a decoded picture buffer.

7. The motion compensation method of claim 6, wherein the determining of the POC information comprises:

predicting MSB information of POC information of a second long-term reference image from MSB information of POC information of a first long-term reference image, from among a plurality of long-term reference images for the current image; and

restoring the POC information of the second long-term reference image by composing LSB information of the POC information of the second long-term reference image read from the received long-term reference index, and the MSB information of the POC information of the second long-term reference image.

8. The motion compensation method of claim 6, wherein the determining of the POC information comprises:

restoring difference information between POC information of the current image and the POC information of the long-term reference image by composing the MSB information and the LSB information of the POC information of the long-term

reference image; and

determining a POC number of the long-term reference image by adding or subtracting the difference information to or from the POC information of the current image.

9. The motion compensation method of claim 6, wherein the receiving comprises parsing the long-term reference index indicating a long-term reference image for motion compensation of a current slice from a slice header.

10. The motion compensation method of claim 6, further comprising:

receiving a short-term reference index for inter prediction of the current image;

reading LSB information of POC information of a short-term reference image for inter prediction of the current image, from the short-term reference index;

determining the POC information of the short-term reference image by using the read LSB information of the short-term reference image and MSB information of a previous short-term reference image; and

performing motion compensation on the current image by using the short-term reference image corresponding to the determined POC information from among reference images stored in the decoded picture buffer.

11. The motion compensation method of claim 6, wherein the receiving comprises receiving the encoded image data according to blocks of the current image,

the restoring of the residual data comprises restoring the residual data and the motion vector according to the blocks, and

the restoring of the current image comprises restoring the current image by performing motion compensation using the residual data and the motion vector according to the blocks.

12. An inter prediction apparatus comprising:

an inter prediction unit for performing inter prediction on a current image by using a long-term reference image stored in a decoded picture buffer;

an output unit for outputting least significant bit (LSB) information as a long-term reference index indicating the long-term reference image by dividing picture order count (POC) information of the long-term reference image into most significant bit (MSB) information and the LSB information, and outputting residual data and a motion vector of the current image generated via the inter prediction.

13. A motion compensation apparatus comprising:

a receiving unit for receiving encoded image data, a motion vector, and a long-term reference index; and

a motion compensation unit for restoring residual data of a current image by decoding the encoded image data, reading least significant bit (LSB) information of picture order count (POC) information of a long-term reference image of the current image from the long-term reference index, determining the POC information by using most significant bit (MSB) information and the LSB information of the long-term reference image, and restoring the current image by performing motion compensation using the motion vector and the residual data based on the long-term reference image corresponding to the determined POC information from among reference images stored in a decoded picture buffer.

14. A computer-readable recording medium having recorded thereon a program for executing the inter prediction method of claim 1.

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

CLAIMS

1. A video decoding method comprising:

obtaining, from a slice header included in a bitstream, LSB(Least Significant Bits) information regarding image order information of a current long-term reference image of a current image;

determining MSB(Most Significant Bits) information regarding the image order information of the current long-term reference image of the current image by using MSB(Most Significant Bits) information regarding image order information of a previous long-term reference image of the current image;

determining the image order information of the current long-term reference image of the current image by using the LSB information and the MSB information regarding the image order information of the current long-term reference image of the current image; and

reconstructing the current image by using the current long-term reference image of the current image corresponding to the image order information of the current long-term reference image of the current image.

2. The method of claim 1, wherein the picture order information is picture order count (POC).

3. The method of claim 2, wherein the MSB information is information regarding a quotient obtained by dividing a picture order count of the long-term reference image by a maximum size of the LSB information, and the LSB information is information regarding a remainder obtained by dividing the picture order count of the long-term reference image by the maximum size of the LSB information.