【CLAIMS】

1. An image coding method, the method comprising:

generating a prediction block using an intra prediction mode;

generating a prediction block using motion information;

transforming residual signals generated using an original block and the prediction block to generate a transformed block;

quantizing the transformed block using a quantization parameter to generate a quantized block;

determining a scan pattern and applying the scan pattern the quantized block to generate one-dimensional coefficient information; and

entropy-coding the one-dimensional coefficient information,

wherein the residual signals are transformed in transform unit, a transform type used for transforming the residual signals of luma component is determined by a prediction mode and a size of the transform unit, and a transform type used for transforming the residual signals of chroma components is a DCT-based integer transform, and

wherein the quantization parameter is a luma quantization parameter, and a differential quantization parameter is generated by subtracting a quantization parameter predictor from the quantization parameter, and is entropy-coded,

wherein if two or more quantization parameters are available among a left quantization parameter, an above quantization parameter and a previous quantization parameter of a current coding unit, the quantization parameter predictor is generated using two available quantization parameters if at least two quantization parameters of the left quantization parameter, the above quantization parameter and the previous quantization parameter are available, and if only one quantization parameter is available among the left quantization parameter, the above quantization parameter and the previous quantization parameter, the available quantization parameter is set as the quantization parameter predictor, and

wherein when the residual signals are luma signals and a prediction mode is an intra prediction, the transform type used for transforming the residual signals is a DST-based integer transform if the size of the transform unit is smaller than 8×8, and the type used for transforming the residual signals is a DCT-based integer transform if the size of the transform unit is not smaller than 8×8.

2. The method of claim 1, wherein when the residual signals are chroma signals, the transform type used for transforming the residual signals is a DCT-based integer transform.

3. The method of claim 1, wherein if the left and above quantization parameters are available, an average of the left and above quantization parameters is set as the quantization parameter predictor.

4. The method of claim 1, wherein if the left quantization parameter is not available, an average of the above quantization parameter and the previous quantization parameter is set as the quantization parameter predictor.

5. The method of claim 1, wherein the quantization parameter is generated per quantization unit, and a minimum size of the quantization unit is adjusted per picture.

6. The method of claim 1, wherein a parameter indicating a relationship between the quantization parameter and a chroma quantization parameter is included in a picture parameter set.

7. The method of claim 1, wherein when a prediction mode is an intra prediction, the residual signals are luma signals and a size of the transform unit is equal to or smaller than 8×8, the scan pattern is selected among a diagonal scan, a vertical scan and a horizontal scan.

8. The method of claim 1, wherein when a prediction mode is an intra prediction, the residual signals are chroma signals and a size of the transform unit is equal to 4×4, the scan pattern is selected among a diagonal scan, a vertical scan and a horizontal scan.

9. An image decoding method, the method comprising:

entropy-decoding a bit stream to generate one-dimensional coefficient information;

determining a scan pattern and applying the scan pattern to the one dimensional coefficient information to generate a quantized block;

inversely quantizing the quantized block using a quantization parameter to generate a transformed block;

inversely transforming the transformed block to generate residual block;

generating a prediction block using motion information;

generating a prediction block using an intra prediction mode; and

generating a reconstructed block using the prediction block and the residual block,

wherein the residual block is generated in transform unit, a transform type used for inversely transforming the transformed block of luma component is determined by a prediction mode and a size of the transform unit, and a transform type used for inversely transforming the transformed block of chroma components is a DCT-based integer transform,

wherein when components of the residual block are luma signals and a prediction mode is an intra prediction, the transform type used for inversely transforming the transformed block is a DST-based integer transform if the size of the transform unit is smaller than 8×8, and the type used for inversely transforming the transformed block is a DCT-based integer transform if the size of the transform unit is not smaller than 8×8,

wherein the quantization parameter is a luma quantization parameter which is generated by adding a quantization parameter predictor and a differential quantization parameter obtained from the bit stream, and

wherein if two or more quantization parameters are available among a left quantization parameter, an above quantization parameter and a previous quantization parameter of a current coding unit, the quantization parameter predictor is generated using two available quantization parameters if at least two quantization parameters of the left quantization parameter, the above quantization parameter and the previous quantization parameter are available, and if only one quantization parameter is available among the left quantization parameter, the above quantization parameter and the previous quantization parameter, the available quantization parameter is set as the quantization parameter predictor.

10. A non-transitory computer-readable storage medium storing encoded video information, comprising:

a bit stream stored in the medium, the bit stream comprising entropy-encoded information on a differential quantization parameter and a quantized block,

wherein the quantized block is inversely quantized with a quantization parameter to generate a transformed block and the transformed block is inversely transformed to generate a residual block, and a reconstructed block is generated with the residual block and a prediction block,

wherein the residual signals are transformed in transform unit, a transform type used for transforming the residual signals of luma component is determined by a prediction mode and a size of the transform unit, and a transform type used for transforming the residual signals of chroma components is a DCT-based integer transform, and

wherein the quantization parameter is a luma quantization parameter, and a differential quantization parameter is generated by subtracting a quantization parameter predictor from the quantization parameter, and is entropy-coded,

wherein if two or more quantization parameters are available among a left quantization parameter, an above quantization parameter and a previous quantization parameter of a current coding unit, the quantization parameter predictor is generated using two available quantization parameters if at least two quantization parameters of the left quantization parameter, the above quantization parameter and the previous quantization parameter are available, and if only one quantization parameter is available among the left quantization parameter, the above quantization parameter and the previous quantization parameter, the available quantization parameter is set as the quantization parameter predictor, and

wherein when the residual signals are luma signals and a prediction mode is an intra prediction, the transform type used for transforming the residual signals is a DST-based integer transform if the size of the transform unit is smaller than 8×8, and the type used for transforming the residual signals is a DCT-based integer transform if the size of the transform unit is not smaller than 8×8.