【CLAIMS】

【Claim 1】

A method of decoding quantization parameter, comprising:

restoring a differential quantization parameter of a current coding unit;

generating a quantization parameter predictor of the current coding unit; and

generating a quantization parameter of the current coding unit using the differential quantization parameter and the quantization parameter predictor,

wherein the quantization parameter predictor is generated using one or two quantization parameters of a left quantization parameter, an above quantization parameter and a previous quantization parameter.

【Claim 2】

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.

【Claim 3】

The method of claim 2, wherein the minimum size of the quantization unit is derived using a parameter specifying the depth of a minimum size of the quantization unit and the size of the largest coding unit.

【Claim 4】

The method of claim 1, wherein the differential quantization parameter is restored by arithmetic-decoding an encoded differential quantization parameter to generate a bin string and by applying inverse binarization to the bin string.

【Claim 5】

The method of claim 4, wherein the bin string comprises a bin for indicating whether the differential quantization parameter is equal to zero or not.

【Claim 6】

The method of claim 5, wherein if the differential quantization parameter is not zero, the bin string further comprises a bin for sign of the differential quantization parameter.

【Claim 7】

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

【Claim 8】

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.

CLAIMS

1. A method of inversely quantizing a quantized block, the method comprising:

reconstructing a differential quantization parameter;

generating a quantization parameter predictor;

generating a quantization parameter using the differential quantization parameter and the quantization parameter predictor; and

inversely quantizing the quantized block using the quantization parameter and a quantization matrix,

wherein the differential quantization parameter is reconstructed using a bin string indicating an absolute value of the differential quantization parameter and a bin indicating a sign of the differential quantization parameter,

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 determined according to a predetermined order,

the quantization parameter is reconstructed per quantization unit, and a minimum size of the quantization unit is adjusted by a picture parameter set,

if the quantization matrix is a user-defined quantization matrix, the quantization matrix is reconstructed by using an inverse DPCM, and

the quantized block is generated by inversely scanning significant flags, coefficient signs and coefficient levels according to an inverse scan pattern which is selected based on an intra prediction mode and a size of a transform unit.

2. The method of claim 1, wherein if only one quantization parameter is available, the available quantization parameter is set as the quantization parameter predictor.

3. The method of claim 1, wherein the predetermined order is an order of the left quantization parameter, the above quantization parameter and the previous quantization parameter.

4. The method of claim 1, wherein the size of the quantization unit is derived using a size of a Largest Coding Unit (LCU) and a parameter specifying depth of the minimum size of the quantization unit.

5. 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.

6. 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.

7. The method of claim 1, wherein if the quantization matrix is larger than the restored quantization matrix, the quantization matrix is generated by up-sampling the restored quantization matrix.

8. The method of claim 7, wherein a DC coefficient of the quantization matrix is restored separately from AC coefficients of the quantization matrix.