【CLAIMS】

1. An apparatus for generating a residual block, comprising:

an entropy decoding unit configured to decode residual signals to generate quantized coefficient components;

an inverse scanning unit configured to determine an inverse scan pattern and generate a quantized block using the inverse scan pattern;

an inverse quantization unit configured to derive a quantization parameter and inversely quantize the quantized block using the quantization parameter to generate a transformed block; and

an inverse transform unit configured to inversely transform the transformed block to generate a residual block,

wherein when the quantization parameter is a chroma quantization parameter, the chroma quantization parameter is generated using a luma quantization parameter and an offset parameter indicating a relationship between the luma quantization parameter and the chroma quantization parameter,

the luma quantization parameter is derived using a differential quantization parameter and a quantization parameter predictor, the differential quantization parameter is generated by entropy decoding,

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 a predetermined order, and

if only one quantization parameter is available, the available quantization parameter is set as the quantization parameter predictor.

2. The apparatus of claim 1, wherein when the transformed block is a luma block and a prediction mode is an intra prediction, an inverse transform type used for inversely transforming the transformed block is a DST-based integer transform if the size of the transformed block is smaller than 8×8, and the inverse transform type used

for inversely transforming the transformed block is a DCT-based integer transform if the size of the transformed block is not smaller than 8×8.

3. The apparatus of claim 1, wherein when the transformed block is a chroma block, the inverse transform type used for inversely transforming the transformed block is a DCT-based integer transform.

4. The apparatus of claim 1, wherein when the transformed block is the luma block and the prediction mode is a luma block, the inverse transform type used for inversely transforming the transformed block is a DCT-based integer transform.

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