CLAIMS

1. An apparatus for post-processing a reconstructed image, the apparatus comprising:

an inter prediction unit for generating a prediction block using a reference picture and a motion vector, wherein the prediction block generated by the inter prediction unit is added to a residual block to generate a reconstructed picture;

an intra prediction unit for recovering an intra prediction mode for a current prediction unit and generating a prediction block using the intra prediction mode, wherein the prediction block generated by the intra prediction unit is added to a residual block to generate a reconstructed picture; and

a post-processing unit for determining a boundary strength for each 4-sample edge which is a prediction edge or a transform edge and lies on 8X8 sample grid on the reconstructed picture, determining whether deblocking filtering is applied on the 4-sample edge or not using the boundary strength and a boundary quantization parameter, and filtering the 4-sample edge in order of vertical edges and horizontal edges if the deblocking filtering is applied on the 4-sample edge, and for generating an edge index of a current sample, and applying an edge offset corresponding to the edge index to the current sample,

wherein the edge index is generated using the following equation, edgeIdx=2+sign3(recPicture(x)-recPicture(x-1))+sign3(recPicture(x)-recPicture(x+1))

wherein the function sign3(y) is equal to 1 if the y is larger than 0, the function sign3(y) is equal to -1 if the y is smaller than 0, and the function sign3(y) is equal to 0 if the y is equal to 0,

wherein the variable recPicture(x) represents a current sample value, the variables recPicture(x-1) and recPicture(x+1) represent the two neighboring sample values,

wherein the boundary quantization parameter is an average of a quantization parameter of a P block containing sample p0 and a quantization parameter of Q block containing sample q0,

wherein the quantization parameter of the P block is generated by adding a quantization parameter predictor and a differential quantization parameter of the P block, and the quantization parameter of the Q block is generated by adding a quantization parameter predictor and a differential quantization parameter of the Q block, and

wherein each of the quantization parameter predictors of the P block and Q block is set to an average of two available quantization parameters determined among a left quantization parameter, an above quantization parameter and a previous quantization parameter in order of the left quantization parameter, the above quantization parameter and the previous quantization parameter for each of the P block and Q block.

2. The apparatus of claim 1, wherein when if the left quantization parameter and the above quantization parameter are unavailable, the quantization parameter predictor of the P block is set to the previous quantization parameter.

3. The apparatus of claim 1, wherein the average is a value rounded off.

4. The apparatus of claim 1, wherein the 4-sample edge is filtered with a deblocking filter which is selected using the boundary quantization parameter.

5. The apparatus of claim 1, wherein the boundary strength is set equal to zero if the 4-sample edge is not the transform unit edge and the 4-sample edge is not the prediction unit edge.