Claims

1. An image decoding method performed by an image decoding apparatus, the image decoding method comprising:

obtaining a reconstructed picture;

determining a target boundary of deblocking filtering in the reconstructed picture;

determining a boundary strength for the target boundary; and

applying deblocking filtering to the target boundary based on the boundary strength,

wherein, based on the target boundary being a transform block boundary and a color component of the reconstructed picture being a chroma component, the boundary strength is determined based on a sum of two first flags specifying whether joint CbCr residual coding is performed on two blocks adjacent the target boundary and two second flags specifying whether two blocks adjacent to the target boundary include non-zero transform coefficient level, and

wherein the joint CbCr residual coding corresponds to encoding residual samples for a chroma Cb component and a chroma Cr component as a single transform block.

2. The image decoding method of claim1, wherein the boundary strength is determined to be 1, based on the sum being greater than 0.

3. The image decoding method of claim 1, wherein, based on the target boundary being a transform block boundary and the color component of the reconstructed picture being a luma component, the boundary strength is determined based on whether at least one of two blocks adjacent to the target boundary includes a non-zero transform coefficient level.

4. An image encoding method performed by an image encoding apparatus, the image encoding method comprising:

generating a reconstructed picture;

determining a target boundary of deblocking filtering in the reconstructed picture;

determining a boundary strength for the target boundary; and

applying deblocking filtering to the target boundary based on the boundary strength,

wherein, based on the target boundary being a transform block boundary and a color component of the reconstructed picture being a chroma component, the boundary strength is determined based on a sum of two first flags specifying whether joint CbCr residual coding is performed on two blocks adjacent the target boundary and two second flags specifying whether two blocks adjacent to the target boundary include non-zero transform coefficient level, and

wherein the joint CbCr residual coding corresponds to encoding residual samples for a chroma Cb component and a chroma Cr component as a single transform block.

5. The image encoding method of claim 4, wherein the boundary strength is determined to be 1, based on the sum being greater than 0.

6. A method of transmitting a bitstream generated by the image encoding method of claim 4.