10. An image processing method for allowing an image processing device to execute:

decoding an encoded stream encoded in units each having a layer structure to generate an image;

applying a deblocking filter to a block boundary according to a strength of the deblocking filter applied to the block boundary which is a boundary between a block of the generated image and an adjacent block adjacent to the block; and

controlling so that, when strong filtering is applied as the strength of the deblocking filter, a clipping process is applied to the deblocking filter with respect to luminance components of the generated image.

11. An image processing device comprising:

a filtering unit that applies a deblocking filter to a block boundary according to a strength of the deblocking filter applied to the block boundary which is a boundary between a block of an image locally decoded when an image is encoded and an adjacent block adjacent to the block;

a controller that controls the filtering unit so that, when strong filtering is applied as the strength of the deblocking filter, a clipping process is applied to the deblocking filter with respect to luminance components of the locally decoded image; and

an encoding unit that encodes the image in units each having a layer structure using an image to which the deblocking filter is applied.

12. The image processing device according to claim 11,

wherein

the controller applies the clipping process to values of parts that change when the deblocking filter is applied.

13. The image processing device according to claim 12, wherein

the controller applies the clipping process according to the following expressions:

[Mathematical formula 38]

$$p0_i = p0_i + Clip_{(-pv)-(pv)}((p2_i + 2*p1_i - 6*p0_i + 2*q0_i + q1_i + 4) >> 3);$$

$$q0_i = q0_i + Clip_{(-pv)-(pv)}((p1_i + 2*p0_i - 6*q0_i + 2*q1_i + q2_i + 4) >> 3);$$

$$p1_i = p1_i + Clip_{(-pv)-(pv)}((p2_i - 3*p1_i + p0_i + q0_i + 2) >> 2);$$

$$q1_i = q1_i + Clip_{(-pv)-(pv)}((p0_i + q0_i - 3*q1_i + q2_i + 2) >> 2);$$

$$p2_i = p2_i + Clip_{(-pv)-(pv)}((2*p2_i - 5*p2_i + p1_i + p0_i + q0_i + 4) >> 3);$$

$$q2_i = q2_i + Clip_{(-pv)-(pv)}((p0_i + q0_i + p1_i - 5*q2_i + 2*q3_i + 4) >> 3);$$

where i = 0, 7 and pv is a clipping value.

14. The image processing device according to claim 13, wherein

the controller sets a value that is integer multiples of parameters of the deblocking filter as the clipping value used when the clipping process is performed.

15. The image processing device according to claim 14, wherein

the controller sets a value that is twice the parameters of the deblocking filter as the clipping value used when the clipping process is performed.

16. The image processing device according to claim 11, further comprising:

a filter strength determining unit that determines the strength of the deblocking filter applied to the block boundary, wherein

the filtering unit applies the deblocking filter to the block boundary according to the strength determined by the filter strength determining unit, and

the controller controls the filtering unit so that, when the filter strength determining unit determines that strong filtering is to be applied, a clipping process is applied to the deblocking filter with respect to the luminance components of the image generated by the decoding unit.

17. The image processing device according to claim 16, wherein

the filter strength determining unit determines the strength of the deblocking filter using a plurality of lines as processing units.

18. The image processing device according to claim 17, wherein

the filter strength determining unit determines the strength of the deblocking filter using four lines as the

processing units.

19. The image processing device according to claim 17, further comprising:

a filtering necessity determining unit that determines whether the deblocking filter is to be applied to the block boundary using a plurality of lines as processing units, wherein

the filter strength determining unit determines the strength of the deblocking filter when the filtering necessity determining unit determines that the deblocking filter is to be applied.

20. An image processing method for allowing an image processing device to execute:

applying a deblocking filter to a block boundary according to a strength of the deblocking filter applied to the block boundary which is a boundary between a block of an image locally decoded when an image is encoded and an adjacent block adjacent to the block;

controlling so that, when strong filtering is applied as the strength of the deblocking filter, a clipping process is applied to the deblocking filter with respect to luminance components of the locally decoded image; and

encoding the image in units each having a layer structure using an image to which the deblocking filter is applied.