CLAIMS

1. An image decoding device comprising:

a variable length decoder to variable-length-decode encoded data multiplexed into a bitstream to obtain first information indicating a size of a largest coding block in a picture, and compressed data of each coding block which is hierarchically divided from the largest coding block, and to variable-length-decode the encoded data to obtain second information indicating whether or not to carry out a filtering process of the picture, and a filter parameter for the largest coding block when the second information indicates that the filtering process is carried out;

a predictor to perform a prediction process on the coding block to generate a prediction image;

a difference image generator to generate a difference image from the compressed data;

a decoded image generator to generate a decoded image by adding the difference image to the prediction image; and

a filter to carry out the filtering process using the filter parameter on the decoded image to output a decoded image filtering-processed, wherein

the variable length decoder variable-length-decodes, when the second information indicates that the filtering process is carried out, a flag for the largest coding block and indicating whether the filter parameter for the largest coding block is same as a filter parameter for another largest coding block adjacent to top or left, and, when the filter parameter is the same as the filter parameter for the another largest coding block, sets the filter parameter for the another largest coding block to the filter parameter for the largest coding block.

2. An image encoding device comprising:

a coding parameter determinator to determine a largest coding block in a picture;

a block divider to divide the picture by the largest coding block, and divide the largest coding block into coding blocks;

a predictor to perform a prediction process on the coding block to generate a prediction image;

a difference image generator to generate a difference image between an input image and the prediction image on the coding block;

an image compressor to output compressed data about the difference image by compressing the different image;

a decoded image generator to generate a decoded image by decoding the compressed data and adding the difference image decoded and the prediction image;

a filter to carry out a filtering process on the decoded image; and

a variable length encoder to variable-length-encode the compressed data, first information indicating a size of the largest coding block, and second information indicating whether or not to carry out the filtering process on the picture, and to variable-length-encode, when the second information indicates that the filtering process is carried out, a flag for the largest coding block and indicating whether a filter parameter for the largest coding block is same as a filter parameter for another largest coding block adjacent to top or left.

3. An image decoding method comprising:

a variable length decoding processing step of variable-length-decoding encoded data multiplexed into a bitstream to obtain first information indicating a size of a largest coding block in a picture, and compressed data of each coding block which is hierarchically divided from the largest coding block, and variable-length-decoding the encoded data to obtain second information indicating whether or not to carry out a filtering process of the picture, and a filter parameter for the largest coding block when the second information indicates that the filtering process is carried out;

a prediction processing step of performing a prediction process on the coding block to generate a prediction image;

a difference image generation processing step of generating a difference image from the compressed data;

a decoded image generation processing step of generating a decoded image by adding the difference image to the prediction image; and

a filtering processing step of carrying out the filtering process on the decoded image to output a decoded image filtering-processed,

wherein in the variable length decoding processing step, when the second information indicates that the filtering process is carried out, a flag for the largest coding block and

indicating whether the filter parameter for the largest coding block is same as a filter parameter for another largest coding block adjacent to top or left is variable-length-decoded, and, when the filter parameter is the same as the filter parameter for the another largest coding block, the filter parameter for the another largest coding block is set to the filter parameter for the largest coding block.

4. An image encoding method comprising:

a coding parameter determination processing step of determining a largest coding block in a picture;

a block dividing processing step of dividing the picture by the largest coding block, and dividing the largest coding block into coding blocks;

a prediction processing step of performing a prediction process on the coding block to generate a prediction image;

a difference image generation processing step of generating a difference image between an input image and the prediction image on the coding block;

an image compression processing step of outputting compressed data about the difference image by compressing the difference image;

a decoded image generation processing step of generating a decoded image by decoding the compressed data and adding the difference image decoded and the prediction image;

a filtering processing step of carrying out a filtering process on the decoded image; and

a variable length encoding processing step of variable-length-encoding the compressed data, and first information indicating a size of the largest coding block, and second information indicating whether or not to carry out the filtering process on the picture, and variable-length-encoding, when the second information indicates that the filtering process is carried out, a flag for the largest coding block and indicating whether a filter parameter for the largest coding block is same as a filter parameter for another largest coding block adjacent to top or left.