

CLAIMS

[1] An image decoding device comprising:

an intra prediction unit for carrying out an intra-frame prediction process on each block to generate a prediction image when an encoding mode associated with a coding block is an intra encoding mode, said block being a unit for prediction process of said coding block,

wherein, when an intra prediction parameter of a block indicates a horizontal prediction process, the intra prediction unit adds a value to a luminance value of a pixel adjacent to left of said block and sets a result of the addition as a predicted value of said prediction image, the value being proportional to an amount of change in a horizontal direction of luminance value of pixels adjacent to top of said block.

[2] An image decoding method comprising:

an intra prediction processing step of carrying out, by an intra prediction unit, an intra-frame prediction process on each block to generate a prediction image when an encoding mode associated with a block is an intra encoding mode, said block being a unit for prediction process of said coding block,

wherein, the intra prediction processing step includes adding a value to a luminance value of a pixel adjacent to left of said block and setting a result of the addition as a predicted value of said prediction image when an intra prediction parameter of a block indicates a horizontal prediction process, the value being proportional to an amount of change in a horizontal direction of luminance values of pixels adjacent to top of said block.

CLAIMS

[1] An image decoding device comprising an intra prediction unit for, when an encoding mode associated with a coding block is an intra encoding mode, carrying out an intra-frame prediction process on each block to generate a prediction image, said block being a unit for prediction process of said coding block, said intra prediction unit, when an intra prediction parameter indicates a horizontal prediction process, adding a value to a luminance value of a pixel adjacent to left of said each block and setting a result of the addition as a predicted value of said prediction image, the value being proportional to a change in a horizontal direction of luminance value of pixels adjacent to top of said each block.

[2] The image decoding device according to claim 1, wherein when said intra prediction parameter indicates a horizontal one prediction process, and coordinates of a pixel at an upper left corner of said each block are set to be a point of origin (0, 0) and coordinates of each pixel for which a predicted value is calculated are expressed as (x, y), said intra prediction unit sets a luminance value of a pixel at coordinates (-1, y) as the luminance value of the pixel adjacent to the left of said each block, and sets a value which is acquired by subtracting a luminance value of a pixel at coordinates (-1, -1) from a luminance value of a pixel at coordinates (x, -1) as the change in the horizontal direction of the luminance values of the pixels adjacent to the top of said each block.

[3] An image encoding device comprising an intra prediction unit for, when an encoding mode corresponding to a coding block is an intra encoding mode, carrying out an intra-frame prediction process on each block to generate a prediction image, said block

being a unit for prediction process of said coding block, said intra prediction unit, when an intra prediction parameter indicates a horizontal prediction process, adding a value to a luminance value of a pixel adjacent to left of said each block and setting a result of the addition as a predicted value of said prediction image, the value being proportional to a change in a horizontal direction of luminance value of pixels adjacent to top of said each block.

[4] The image encoding device according to claim 3, wherein when said intra prediction parameter indicates a horizontal prediction process, and coordinates of a pixel at an upper left corner of said each block are set to be a point of origin (0, 0) and coordinates of each pixel for which a predicted value is calculated are expressed as (x, y) , said intra prediction unit sets a luminance value of a pixel at coordinates $(-1, y)$ as the luminance value of the pixel adjacent to the left of said each block, and sets a value which is acquired by subtracting a luminance value of a pixel at coordinates $(-1, -1)$ from a luminance value of a pixel at coordinates $(x, -1)$ as the change in the horizontal direction of the luminance values of the pixels adjacent to the top of said each block.

[5] An image encoding method comprising an intra prediction processing step of, when an encoding mode associated with a coding block is an intra encoding mode, an intra prediction unit carrying out an intra-frame prediction process on each block to generate a prediction image, said block being a unit for prediction process of said coding block, when an intra prediction parameter indicates a horizontal prediction process, adding a value to a luminance value of a pixel adjacent to left of said each block and setting a result of the addition

as a predicted value of said prediction image, the value being proportional to a change in a horizontal direction of luminance values of pixels adjacent to top of said each block.

[6] An image decoding method comprising an intra prediction processing step of, when an encoding mode associated with a variable-length-decoded coding block is an intra encoding mode, an intra prediction unit carrying out an intra-frame prediction process on each block to generate a prediction image, said block being a unit for prediction process of said coding block when an intra prediction parameter indicates a horizontal prediction process, adding a value to a luminance value of a pixel adjacent to left of said each block and setting a result of the addition as a predicted value of said prediction image, the value being proportional to a change in a horizontal direction of luminance values of pixels adjacent to top of said each block.

[7] An image decoding device comprising an intra prediction unit for carrying out an intra-frame prediction process to generate a prediction image.