

CLAIMS

[1] An image decoding device comprising:

an intra prediction unit for, when a coding mode for a coding block is an intra coding mode, carrying out an intra-frame prediction process on each of processing blocks to generate a predicted value of pixels of a prediction image, each of the processing blocks being the coding block or a sub-block obtained by dividing the coding block,

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

[2] An image decoding method comprising an intra prediction processing step performed by an intra prediction unit, the intra prediction processing step including processes of,

when a coding mode for a coding block is an intra coding mode, carrying out an intra-frame prediction process on each of processing blocks to generate a predicted value of pixels of a prediction image, each of the processing blocks being the coding block or a sub-block obtained by dividing the coding block, and

when an intra prediction parameter indicates a vertical prediction process, adding a value to a signal value of a pixel adjacent to top of the processing block and setting a result of the addition as the predicted value, the value being proportional to a change in a vertical direction of signal value of pixels adjacent to left of the processing block.

[3] An image encoding device comprising:

an intra prediction unit for, when a coding mode for a coding block is an intra coding mode, carrying out an intra-frame prediction process on each of processing blocks to generate a predicted value of pixels of a prediction image, each of the processing blocks being the coding block or a sub-block obtained by dividing the coding block,

wherein, when an intra prediction parameter indicates a vertical prediction process, the intra prediction unit adds a value to a signal value of a pixel adjacent to top of the processing block and sets a result of the addition as the predicted value, the value being proportional to a change in a vertical direction of signal value of pixels adjacent to

left of the processing block.

[4] An image encoding method comprising an intra prediction processing step performed by an intra prediction unit, the intra prediction processing step including processes of,

when a coding mode for a coding block is an intra coding mode, carrying out an intra-frame prediction process on each of processing blocks to generate a predicted value of pixels of a prediction image, each of the processing blocks being the coding block or a sub-block obtained by dividing the coding block, and

when an intra prediction parameter indicates a vertical prediction process, adding a value to a signal value of a pixel adjacent to top of the processing block and setting a result of the addition as the predicted value, the value being proportional to a change in a vertical direction of signal value of pixels adjacent to left of the processing block.

[5] A storage medium storing a data structure of encoded data encoded by carrying out a prediction process on each of processing blocks, each of the processing blocks being a coding block or a sub-block obtained by dividing the coding block,

wherein the encoded data comprises

a coding mode for the coding block,

an intra prediction parameter indicating an intra prediction mode used for carrying out an intra-frame prediction process on each of the processing blocks when the coding mode is an intra coding mode,

information defining a block size of each of the processing blocks, and

compressed data generated by carrying out a compression process on a difference image between an image of each of the processing blocks and each of the prediction images obtained by carrying out the prediction process on each of the processing blocks,

wherein, when the coding mode is an intra coding mode and the intra prediction parameter indicates a vertical prediction process, a prediction value of the prediction image is obtained by adding a value to a signal value of a pixel adjacent to top of the processing block and setting the added value as the prediction value, the value being proportional to an amount of change in a vertical direction of signal values of pixels adjacent to the left of the processing block.