CLAIMS

1. An image decoding device comprising:

an intra prediction unit for carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode,

wherein said intra prediction unit provides an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and provides the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including a block size of said block, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

2. An image decoding method comprising:

carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode, and

providing an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and providing the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including a block size of said block, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

3. An image encoding device comprising:

an intra prediction unit for carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode,

wherein said intra prediction unit provides an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and provides the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including a block size of said block, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

4. An image encoding method comprising:

carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode, and

providing an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and providing the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including a block size of said block, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

5. An image decoding device comprising:

an intra prediction unit for carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode,

wherein said intra prediction unit provides an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and provides the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including the intra prediction mode, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

6. An image decoding method comprising:

carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode, and

providing an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and providing the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including the intra prediction mode, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

7. An image encoding device comprising:

an intra prediction unit for carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said

intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode,

wherein said intra prediction unit provides an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and provides the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including the intra prediction mode, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

8. An image encoding method comprising:

carrying out an intra-frame prediction process on a block which is a unit for a prediction process to generate an intermediate prediction image, said intermediate prediction image being generated by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode, and

providing an image which is obtained by performing a filtering process on the intermediate prediction image as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and providing the intermediate prediction image as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including the intra prediction mode, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

9. A non-transitory computer-readable medium storing a bitstream generated by performing a block based prediction process on an image, said bitstream comprising:

a coded data of intra prediction mode used to generate an intermediate prediction image by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode; and

a compressed difference image obtained by performing a data compression process on a difference image between a final prediction image and said image;

wherein an image which is obtained by performing a filtering process on the intermediate prediction image is provided as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and the intermediate prediction image is provided as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including a block size of said block, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.

10. A non-transitory computer-readable medium storing a bitstream generated by performing a block based prediction process on an image, said bitstream comprising:

a coded data of intra prediction mode used to generate an intermediate prediction image by obtaining a prediction value for each pixel based on reference pixels according to an intra prediction mode, the intra prediction mode being an average prediction mode; and

a compressed difference image obtained by performing a data compression process on a difference image between a final prediction image and said image;

wherein an image which is obtained by performing a filtering process on the intermediate prediction image is provided as a final prediction image only for specific pixels in the block, the specific pixels being determined depending on a distance between the reference pixels and pixels in the block, and the intermediate prediction image is provided as a final prediction image for other pixels in the block, the filtering process being performed according to a condition of a plurality of parameters including the intra prediction mode, a type of color component, and an index value indicating the intra prediction mode at the time of generating the intermediate prediction image.