## Claims

[ claim 1 ]

An image decoding device which decodes a predictive-encoded bit stream to acquire a moving image signal, the bit stream being created by dividing each frame of the moving image signal into a plurality of blocks and by performing a motion prediction for each of the blocks, the image decoding device comprising:

an arithmetic decoding unit for switching among occurrence probabilities according to whether or not a surrounding block of the block has a skip mode so as to decode the bit stream;

a decoding unit

for decoding the bit stream to acquire information indicating a size of the block, information indicating a threshold on a block size, a first motion prediction mode for a first motion prediction unit block which corresponds to the block, and

for decoding the bit stream to acquire a second motion prediction mode for a second motion prediction unit block when the first motion prediction mode is not a skip mode and a size of the first motion prediction unit block is larger than the threshold, the second motion prediction unit block being obtained by dividing the first motion prediction unit block hierarchically; and

a predicting unit

for, when the first motion prediction mode is a skip mode, determining an estimated vector from surrounding motion vectors, and setting the estimated vector as a motion vector for the first motion prediction unit block to create a prediction image,

for, when the second motion prediction mode is a skip mode, determining an estimated vector from surrounding motion vectors, and setting the estimated vector as a motion vector for the second motion prediction unit block to create a prediction image.

[ claim 2 ]

An image encoding device which creates a predictive-encoded bit stream, the bit stream being created by dividing each frame of a moving image signal into a plurality of

blocks and by performing a motion prediction for each of the blocks, the image encoding device comprising:

a predicting unit

for, when a first motion prediction mode for a first motion prediction unit block corresponding to the block is a skip mode, determining an estimated vector from surrounding motion vectors, and setting the estimated vector as a motion vector for the first motion prediction unit block to create a prediction image, and

for, when the first motion prediction mode is not a skip mode and a size of the first motion prediction unit block is larger than a threshold, and

when a second motion prediction mode for a second motion prediction unit block is a skip mode, the second motion prediction unit block being obtained by dividing the first motion prediction unit block corresponding to the block hierarchically, determining an estimated vector from surrounding motion vectors, and setting the estimated vector as a motion vector for the second motion prediction unit block to create a prediction image;

an encoding unit

for encoding the first motion prediction mode and the second motion prediction mode; and

an arithmetic encoding unit for performing arithmetic encoding by switching among occurrence probabilities according to whether or not a surrounding block of the block has a skip mode to create the bit stream.

[ claim 3 ]

An encoded data which is predictive-encoded by dividing each frame of a moving image signal into a plurality of blocks and by performing a motion prediction for each of the blocks, the encoded data comprising:

information indicating a size of the block;

information indicating a threshold on a block size;

a first motion prediction mode for a first motion prediction unit block which corresponds to the block; and

a second motion prediction mode for a second motion prediction unit block, which is

encoded when the first motion prediction mode is not a skip mode and a size of the first motion prediction unit block is larger than the threshold, the second motion prediction unit block being obtained by dividing the first motion prediction unit block hierarchically;

wherein, when the first motion prediction mode is a skip mode, the encoded data permits an image decoding device to determine an estimated vector from surrounding motion vectors, and to set the estimated vector as a motion vector for the first motion prediction unit block to create a prediction image, and

when the second motion prediction mode is a skip mode, the encoded data permits the image decoding device to determine an estimated vector from surrounding motion vectors, and to set the estimated vector as a motion vector for the second motion prediction unit block to create a prediction image, and

when a surrounding block of the block is a skip mode, the encoded data permits the image decoding device to switch among occurrence probabilities so as to decode the encoded data.