CLAIMS

1. An image predictive encoding device comprising:

region partition means adapted to partition an input picture into a plurality of regions;

predicted signal generation means adapted to determine motion information for acquisition of a pixel signal having a high correlation with a pixel signal of a target region of an encoding target, the target region being from among the plurality of regions partitioned by the region partition means, from a reconstructed picture, and the predicted signal generation means adapted to generate a predicted signal of the target region from the reconstructed picture based on the motion information;

motion information recording means adapted to store the motion information;

residual signal generation means adapted to generate a residual signal, the residual signal being a difference between the predicted signal of the target region and the pixel signal of the target region;

residual signal encoding means adapted to encode the residual signal generated by the residual signal generation means;

residual signal reconstruction means adapted to encoded date generated by the residual signal encoding means, to generate a reconstructed residual signal;

addition means adapted to add the predicted signal to the reconstructed residual signal to generate a reconstructed pixel signal of the target region; and

picture recording means adapted to store the reconstructed pixel

signal generated by the addition means, as a part of a reconstructed picture,

wherein the predicted signal generation means comprises:

motion information derivation means adapted to derive one or more motion information sets from plural pieces of motion information stored in the motion information recording means, each of the one or more motion information sets consisting of two pieces of motion information between which any one of constituent elements differ in value;

motion prediction information selection means adapted to select, from the one or more motion information sets, a motion information set to be used in generation of the predicted signal of the target region, the motion prediction information selection means further adapted to direct storage of two pieces of motion information included in the selected set in the motion information recording means; and

motion compensation means adapted to combine two signals acquired from the reconstructed picture based on the two pieces of motion information in the selected set, to generate the predicted signal of the target region.

2. The image predictive encoding device according to claim 1,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein each piece of the motion information contains information to identify the reconstructed picture, and a motion vector,

wherein the reconstructed pictures stored in the picture

recording means are identified using respective frame numbers assigned during encoding of the reconstructed pictures, and

wherein the motion information derivation means is adapted to derive a motion information set including two pieces of motion information which contain motion vectors whose frame number of the reconstructed picture is identical, but whose values are different.

3. The image predictive encoding device according to claim 1,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein the plurality of reconstructed pictures stored in the picture recording means are identified using two reference picture lists each consisting of one or more reconstructed pictures,

wherein each piece of the motion information contains information to identify the two reference picture lists, and a motion vector, and

wherein the motion information derivation means is adapted to derive motion information sets to include two pieces of motion information having identical information to identify the reference picture lists, and different values of motion vectors.

4. The image predictive encoding device according to any one of claims 1 to 3, wherein the motion information derivation means is adapted to derive the motion information set to be used in generation of the predicted signal of the target region from plural pieces of motion information associated with a region neighboring the target region.

5. The image predictive encoding device according to any one of claims 1 to 4, further comprising prediction information encoding means adapted to encode information to indicate the motion information set consists of the two pieces of motion information selected by the predicted signal generation means.

6. An image predictive decoding device comprising:

data analysis means adapted to extract encoded data of motion information, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, and the data analysis means further adapted to extract encoded data of a residual signal from compressed data;

motion information recording means adapted to store the motion information;

motion compensation means adapted to generate the predicted signal of the target region based on the motion information;

residual signal decoding means adapted to decode a residual signal of the target region from the encoded data of the residual signal;

picture recording means adapted to add the predicted signal to the decoded residual signal to restore a pixel signal of the target region and to store the restored pixel signal as a part of a reconstructed picture;

motion information derivation means adapted to derive, from plural pieces of motion information stored in the motion information recording means, one or more motion information sets each consisting

of two pieces of motion information between which any one of constituent elements differ in value; and

motion information determination means adapted to determine, from among the one or more derived motion information sets, a motion information set to be used in generation of the predicted signal of the target region and the motion information determination means further adapted to direct storage of two pieces of motion information included in the determined set in the motion information recording means,

wherein the motion compensation means is adapted to combine two signals acquired from the reconstructed picture to generate the predicted signal of the target region, the two signals combined based on the two pieces of motion information in the determined set.

7. The image predictive decoding device according to claim 6,

wherein the data analysis means is adapted to extract, from plural pieces of motion information stored in the motion information recording means, encoded data comprising indication information that identifies at least one motion information set consisting of two pieces of motion information between which any one of constituent elements differ in value,

the image predictive decoding device further comprising prediction information decoding means adapted to decode the indication information,

wherein the motion information determination means is adapted to extract, based on the decoded indication information, a motion information set to be used in generation of the predicted signal of the

target region, the motion information set extracted out of the one or more motion information sets derived by the motion information derivation means.

8. The image predictive decoding device according to claim 6 or 7,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein the motion information contains information to identify the plurality of reconstructed pictures, and motion vectors,

wherein the plurality of reconstructed pictures stored in the picture recording means are identified using respective frame numbers during decoding of the respective reconstructed pictures, and

wherein the motion information derivation means is adapted to derive a motion information set including two pieces of motion information which contain motion vectors whose frame number of the reconstructed picture is identical but whose values are different .

9. The image predictive decoding device according to claim 6 or 7,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein the plurality of reconstructed pictures stored in the picture recording means are identified using two reference picture lists, each consisting of one or more reconstructed pictures,

wherein each piece of the motion information is configured to

contain information identifying the two reference picture lists, and a motion vector, and

wherein the motion information derivation means is adapted to derive a motion information set including two pieces of motion information having identical information to identify the reference picture lists, and different values of motion vectors.

10. The image predictive decoding device according to any one of claims 6 to 9, wherein the motion information derivation means is adapted to derive the motion information set to be used in generation of the predicted signal of the target region, from plural pieces of motion information associated with a region neighboring the target region.

11. An image predictive encoding method comprising:

partitioning an input picture into a plurality of regions;

generating a predicted signal of a target region of an encoding target out of the plurality of regions, said generating including determining motion information for acquisition of a pixel signal from a reconstructed picture having a high correlation with a pixel signal of the target region, and generating the predicted signal from the reconstructed picture based on the motion information;

storing the motion information by motion information recording means;

generating a residual signal, the residual signal being a difference between the predicted signal of the target region and the pixel signal of the target region;

encoding the residual signal;

decoding encoded data generated by said encoding of the residual signal, to generate a reconstructed residual signal;

adding the predicted signal to the reconstructed residual signal to generate a reconstructed pixel signal of the target region; and

storing, with picture recording means, the reconstructed pixel signal as a part of a reconstructed picture,

wherein said generating the predicted signal comprises:

deriving one or more motion information sets out of plural pieces of motion information stored in the motion information recording means, each of the one or more sets consisting of two pieces of motion information between which any one of constituent elements differ in value;

selecting, from the one or more motion information sets, a motion information set to be used in generation of the predicted signal of the target region, and storing two pieces of motion information in the selected set in the motion information recording means; and

combining two signals acquired from the reconstructed picture based on the two pieces of motion information in the selected set, the two signals combined to generate the predicted signal of the target region.

12. An image predictive encoding program for causing a computer to function as:

region partition means adapted to partition an input picture into a plurality of regions;

predicted signal generation means adapted to determine motion information for acquisition of a pixel signal from a reconstructed picture, the pixel signal from the reconstructed picture having a high correlation with a pixel signal of a target region of an encoding target included in the plurality of regions partitioned by the region partition means, and the predicted signal generation means further adapted to generate a predicted signal of the target region from the reconstructed picture based on the motion information;

motion information recording means adapted to store the motion information;

residual signal generation means adapted to generate a residual signal, the residual signal being a difference between the predicted signal of the target region and the pixel signal of the target region;

residual signal encoding means adapted to encode the residual signal generated by the residual signal generation means;

residual signal reconstruction means adapted to decode encoded data generated by the residual signal encoding means to generate a reconstructed residual signal;

addition means adapted to add the predicted signal to the reconstructed residual signal to generate a reconstructed pixel signal of the target region; and

picture recording means adapted to store the reconstructed pixel signal generated by the addition means, as a part of a reconstructed picture,

wherein the predicted signal generation means comprises:

motion information derivation means adapted to derive one or

more motion information sets out of plural pieces of motion information stored in the motion information recording means, each of the motion information sets consisting of two pieces of motion information between which any one of constituent elements differs in value;

motion prediction information selection means adapted to select a motion information set to be used in generation of the predicted signal of the target region, from the one or more motion information sets, and the motion prediction information selection means adapted to direct storage of two pieces of motion information in the selected set in the motion information recording means; and

motion compensation means adapted to combine two signals acquired from the reconstructed picture based on the two pieces of motion information in the selected set, the two signals combined to generate the predicted signal of the target region.

13. An image predictive decoding method comprising:

extracting encoded data of motion information, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, and extracting encoded data of a residual signal from compressed data;

storing the motion information with motion information recording means;

generating the predicted signal of the target region based on the motion information;

restoring a decoded residual signal of the target region from

encoded data of the residual signal;

adding the predicted signal to the decoded residual signal to decode a pixel signal of the target region, and storing, with picture recording means, the decoded pixel signal as a part of a reconstructed picture;

deriving, out of plural pieces of motion information stored in the motion information recording means, one or more motion information sets each consisting of two pieces of motion information between which any one of constituent elements differ in value; and

determining, from among the derived motion information sets, a motion information set to be used in generation of the predicted signal of the target region, and directing storage of two pieces of motion information in the determined set in the motion information recording means,

wherein said generating the predicted signal comprises combining two signals acquired from the reconstructed picture based on the two pieces of motion information in the determined set, to generate the predicted signal of the target region.

14. An image predictive decoding program for causing a computer to function as:

data analysis means adapted to extract encoded data of motion information, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, and the data analysis means further adapted to extract encoded data of a residual signal from compressed

data;

motion information recording means adapted to store the motion information;

motion compensation means adapted to generate the predicted signal of the target region based on the motion information;

residual signal restoration means adapted to decode a residual signal of the target region from the encoded data of the residual signal;

picture recording means adapted to add the predicted signal to the decoded residual signal to decode a pixel signal of the target region, and the picture recording means further adapted to store the decoded pixel signal as a part of a reconstructed picture;

motion information derivation means adapted to derive, from plural pieces of motion information stored in the motion information recording means, one or more motion information sets each consisting of two pieces of motion information between which any one of constituent elements differ in value; and

motion information determination means adapted to determine, out of the one or more derived motion information sets, a motion information set to be used in generation of the predicted signal of the target region, and the motion information determination means further adapted to direct storage of two pieces of motion information in the determined set in the motion information recording means,

wherein the motion compensation means is adapted to combine two signals acquired from the reconstructed picture based on the two pieces of motion information in the determined set, the two signals combined to generate the predicted signal of the target region.

CLAIMS

1. An image predictive encoding device comprising:

region partition means adapted to partition an input picture into a plurality of regions;

predicted signal generation means adapted to determine motion information for acquisition of a pixel signal having a high correlation with a pixel signal of a target region of an encoding target, the target region being from among the plurality of regions partitioned by the region partition means, from a reconstructed picture, and the predicted signal generation means adapted to generate a predicted signal of the target region from the reconstructed picture based on the motion information;

motion information recording means adapted to store the motion information;

residual signal generation means adapted to generate a residual signal, the residual signal being a difference between the predicted signal of the target region and the pixel signal of the target region;

residual signal encoding means adapted to encode the residual signal generated by the residual signal generation means;

residual signal reconstruction means adapted to encoded data generated by the residual signal encoding means, to generate a reconstructed residual signal;

addition means adapted to add the predicted signal to the reconstructed residual signal to generate a reconstructed pixel signal of the target region; and

picture recording means adapted to store the reconstructed pixel signal generated by the addition means, as a part of a reconstructed picture,

wherein the predicted signal generation means comprises:

motion information derivation means adapted to derive one or more motion information sets from plural pieces of motion information stored in the motion information recording means, each of the one or more motion information sets consisting of two pieces of motion information between which any one of constituent elements differ in value;

motion prediction information selection means adapted to select, from the one or more motion information sets, a motion information set to be used in generation of the predicted signal of the target region, the motion prediction information selection means further adapted to direct storage of two pieces of motion information included in the selected set in the motion information recording means; and

motion compensation means adapted to combine two signals acquired from the reconstructed picture based on the two pieces of motion information in the selected set, to generate the predicted signal of the target region.

2. The image predictive encoding device according to claim 1,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein each piece of the motion information contains information to identify the reconstructed picture, and a motion vector,

wherein the reconstructed pictures stored in the picture recording means are identified using respective frame numbers assigned during encoding of the reconstructed pictures, and

wherein the motion information derivation means is adapted to derive a motion information set including two pieces of motion information which contain motion vectors whose frame number of the reconstructed picture is identical, but whose values are different.

3. The image predictive encoding device according to claim 1,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein the plurality of reconstructed pictures stored in the picture recording means are identified using two reference picture lists each consisting of one or more reconstructed pictures,

wherein each piece of the motion information contains information to identify the two reference picture lists, and a motion vector, and

wherein the motion information derivation means is adapted to derive motion information sets to include two pieces of motion information having identical information to identify the reference picture lists, and different values of motion vectors.

4. The image predictive encoding device according to any one of claims 1 to 3, wherein the motion information derivation means is adapted to derive the motion information set to be used in generation of the predicted signal of the target region from plural pieces of motion information associated with a region neighboring the target region.

5. The image predictive encoding device according to any one of claims 1 to 4, further comprising prediction information encoding means adapted to encode information to indicate the motion information set consists of the two pieces of motion

information selected by the predicted signal generation means.

6. An image predictive decoding device comprising:

data analysis means adapted to extract encoded data of motion information, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, and the data analysis means further adapted to extract encoded data of a residual signal from compressed data;

motion information recording means adapted to store the motion information;

motion compensation means adapted to generate the predicted signal of the target region based on the motion information;

residual signal decoding means adapted to decode a residual signal of the target region from the encoded data of the residual signal;

picture recording means adapted to add the predicted signal to the decoded residual signal to restore a pixel signal of the target region and to store the restored pixel signal as a part of a reconstructed picture;

motion information derivation means adapted to derive, from plural pieces of motion information stored in the motion information recording means, one or more motion information sets each consisting of two pieces of motion information between which any one of constituent elements differ in value; and

motion information determination means adapted to determine, from among the one or more derived motion information sets, a motion information set to be used in generation of the predicted signal of the target region and the motion information determination means further adapted to direct storage of two pieces of motion information included in the determined set in the motion information recording means,

wherein the motion compensation means is adapted to combine two signals acquired from the reconstructed picture to generate the predicted signal of the target region, the two signals combined based on the two pieces of motion information in the determined set.

7. The image predictive decoding device according to claim 6,

wherein the data analysis means is adapted to extract, from plural pieces of motion information stored in the motion information recording means, encoded data comprising indication information that identifies at least one motion information set consisting of two pieces of motion information between which any one of constituent elements differ in value,

the image predictive decoding device further comprising prediction information decoding means adapted to decode the indication information,

wherein the motion information determination means is adapted to extract, based on the decoded indication information, a motion information set to be used in generation of the predicted signal of the target region, the motion information set extracted out of the one or more motion information sets derived by the motion information derivation means.

8. The image predictive decoding device according to claim 6 or 7,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein the motion information contains information to identify the plurality of reconstructed pictures, and motion vectors,

wherein the plurality of reconstructed pictures stored in the picture recording means are identified using respective frame numbers during decoding of the respective reconstructed pictures, and

wherein the motion information derivation means is adapted to derive a motion information set including two pieces of motion information which contain motion vectors whose frame number of the reconstructed picture is identical but whose values are different .

9. The image predictive decoding device according to claim 6 or 7,

wherein the picture recording means is adapted to store a plurality of reconstructed pictures,

wherein the plurality of reconstructed pictures stored in the picture recording means are identified using two reference picture lists, each consisting of one or more reconstructed pictures,

wherein each piece of the motion information is configured to contain information identifying the two reference picture lists, and a motion vector, and

wherein the motion information derivation means is adapted to derive a motion information set including two pieces of motion information having identical information to identify the reference picture lists, and different values of motion vectors.

10. The image predictive decoding device according to any one of claims 6 to 9, wherein the motion information derivation means is adapted to derive the motion information set to be used in generation of the predicted signal of the target region, from

plural pieces of motion information associated with a region neighboring the target region.

11. An image predictive encoding method comprising:

partitioning an input picture into a plurality of regions;

generating a predicted signal of a target region of an encoding target out of the plurality of regions, said generating including determining motion information for acquisition of a pixel signal from a reconstructed picture having a high correlation with a pixel signal of the target region, and generating the predicted signal from the reconstructed picture based on the motion information;

storing the motion information by motion information recording means;

generating a residual signal, the residual signal being a difference between the predicted signal of the target region and the pixel signal of the target region;

encoding the residual signal;

decoding encoded data generated by said encoding of the residual signal, to generate a reconstructed residual signal;

adding the predicted signal to the reconstructed residual signal to generate a reconstructed pixel signal of the target region; and

storing, with picture recording means, the reconstructed pixel signal as a part of a reconstructed picture,

wherein said generating the predicted signal comprises:

deriving one or more motion information sets out of plural pieces of motion information stored in the motion information recording means, each of the one or more sets consisting of two pieces of motion information between which any one of constituent elements differ in value;

selecting, from the one or more motion information sets, a motion information set to be used in generation of the predicted signal of the target region, and storing two pieces of motion information in the selected set in the motion information recording means; and

combining two signals acquired from the reconstructed picture based on the two pieces of motion information in the selected set, the two signals combined to generate the predicted signal of the target region.

12. An image predictive encoding program for causing a computer to function as:

region partition means adapted to partition an input picture into a plurality of

regions;

predicted signal generation means adapted to determine motion information for acquisition of a pixel signal from a reconstructed picture, the pixel signal from the reconstructed picture having a high correlation with a pixel signal of a target region of an encoding target included in the plurality of regions partitioned by the region partition means, and the predicted signal generation means further adapted to generate a predicted signal of the target region from the reconstructed picture based on the motion information;

motion information recording means adapted to store the motion information;

residual signal generation means adapted to generate a residual signal, the residual signal being a difference between the predicted signal of the target region and the pixel signal of the target region;

residual signal encoding means adapted to encode the residual signal generated by the residual signal generation means;

residual signal reconstruction means adapted to decode encoded data generated by the residual signal encoding means to generate a reconstructed residual signal;

addition means adapted to add the predicted signal to the reconstructed residual signal to generate a reconstructed pixel signal of the target region; and

picture recording means adapted to store the reconstructed pixel signal generated by the addition means, as a part of a reconstructed picture,

wherein the predicted signal generation means comprises:

motion information derivation means adapted to derive one or more motion information sets out of plural pieces of motion information stored in the motion information recording means, each of the motion information sets consisting of two pieces of motion information between which any one of constituent elements differs in value;

motion prediction information selection means adapted to select a motion information set to be used in generation of the predicted signal of the target region, from the one or more motion information sets, and the motion prediction information selection means adapted to direct storage of two pieces of motion information in the selected set in the motion information recording means; and

motion compensation means adapted to combine two signals acquired from the reconstructed picture based on the two pieces of motion information in the selected set, the two signals combined to generate the predicted signal of the target region.

13. An image predictive decoding method comprising:

extracting encoded data of motion information, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, and extracting encoded data of a residual signal from compressed data;

storing the motion information with motion information recording means;

generating the predicted signal of the target region based on the motion information;

restoring a decoded residual signal of the target region from encoded data of the residual signal;

adding the predicted signal to the decoded residual signal to decode a pixel signal of the target region, and storing, with picture recording means, the decoded pixel signal as a part of a reconstructed picture;

deriving, out of plural pieces of motion information stored in the motion information recording means, one or more motion information sets each consisting of two pieces of motion information between which any one of constituent elements differ in value; and

determining, from among the derived motion information sets, a motion information set to be used in generation of the predicted signal of the target region, and directing storage of two pieces of motion information in the determined set in the motion information recording means,

wherein said generating the predicted signal comprises combining two signals acquired from the reconstructed picture based on the two pieces of motion information in the determined set, to generate the predicted signal of the target region.

14. An image predictive decoding program for causing a computer to function as:

data analysis means adapted to extract encoded data of motion information, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, and the data analysis means further adapted to extract encoded data of a residual signal from compressed data;

motion information recording means adapted to store the motion information;

motion compensation means adapted to generate the predicted signal of the target region based on the motion information;

residual signal restoration means adapted to decode a residual signal of the

target region from the encoded data of the residual signal;

picture recording means adapted to add the predicted signal to the decoded residual signal to decode a pixel signal of the target region, and the picture recording means further adapted to store the decoded pixel signal as a part of a reconstructed picture;

motion information derivation means adapted to derive, from plural pieces of motion information stored in the motion information recording means, one or more motion information sets each consisting of two pieces of motion information between which any one of constituent elements differ in value; and

motion information determination means adapted to determine, out of the one or more derived motion information sets, a motion information set to be used in generation of the predicted signal of the target region, and the motion information determination means further adapted to direct storage of two pieces of motion information in the determined set in the motion information recording means,

wherein the motion compensation means is adapted to combine two signals acquired from the reconstructed picture based on the two pieces of motion information in the determined set, the two signals combined to generate the predicted signal of the target region.

15. An image predictive decoding device comprising:

data analysis means adapted to extract, from compressed data, encoded data of motion information or encoded data of indication information, and extracting encoded data of a residual signal from the compressed data, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, the encoded data of indication information identifying a motion information set utilized for generation of a predicted signal of the target region out of a plurality of pieces of motion information associated with neighboring regions neighboring the target region;

prediction information decoding means adapted to decode (a) the encode data of motion information to restore two pieces of motion information which comprise a reference picture list identification, a reference picture index and a motion vector, or (b) the encoded data of indication information to restore the indication information;

motion information derivation means adapted to derive, one or more motion information sets out of plural pieces of motion information stored in memory, in response to restoration of the indication information, each of the one or more motion information sets including two pieces of motion information between which respective

frame numbers identified with respective reference picture list identification and respective reference picture index are different from each other, or between which respective motion vectors are different from each other;

motion information determination means adapted to determine, from the one or more motion information sets, a motion information set to be used in generation of the predicted signal of the target region based on the indication information;

motion compensation means adapted to generate the predicted signal of the target region by combining two signals obtained from one or more reconstructed pictures stored in the memory based on the two pieces of motion information which are the determined motion information set or the restored two pieces of motion information;

motion information recording means adapted to store motion information utilized for generation of the predicted signal of the target region in the memory;

residual signal restoration means adapted to restore a residual signal of the target region from the encoded data of the residual signal;

picture recording means adapted to reconstruct a pixel signal of the target region based on the predicted signal and the restored residual signal, and to store the reconstructed pixel signal as a part of a reconstructed picture.

16. An image predictive decoding method comprising:

extracting from compressed data, encoded data of motion information or encoded data of indication information, and extracting encoded data of a residual signal from the compressed data, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, the encoded data of indication information identifying a motion information set utilized for generation of a predicted signal of the target region out of a plurality of pieces of motion information associated with neighboring regions neighboring the target region;

decoding either (a) the encode data of motion information to restore two pieces of motion information which comprise a reference picture list identification, a reference picture index and a motion vector, or (b) the encoded data of indication information to restore the indication information;

deriving one or more motion information sets out of plural pieces of motion information stored in memory, in response to restoration of the indication information, each of the one or more motion information sets including two pieces of motion information between which respective frame numbers identified with respective reference picture list identification and respective reference picture index are different

from each other, or between which respective motion vectors are different from each other;

determining from the one or more motion information sets, a motion information set to be used in generation of the predicted signal of the target region based on the indication information;

generating the predicted signal of the target region by combining two signals obtained from one or more reconstructed pictures stored in the memory based on the two pieces of motion information which are the determined motion information set or the restored two pieces of motion information;

storing motion information utilized for generation of the predicted signal of the target region in the memory;

restoring a residual signal of the target region from the encoded data of the residual signal;

reconstructing a pixel signal of the target region based on the predicted signal and the restored residual signal; and

storing the reconstructed pixel signal as a part of a reconstructed picture.

17. An image predictive decoding program for causing a computer to function as:

extracting from compressed data, encoded data of motion information or encoded data of indication information, and extracting encoded data of a residual signal from the compressed data, the encoded data of motion information extracted out of a plurality of regions in a picture for generation of a predicted signal of a target region of a decoding target, the encoded data of indication information identifying a motion information set utilized for generation of a predicted signal of the target region out of a plurality of pieces of motion information associated with neighboring regions neighboring the target region;

decoding either (a) the encode data of motion information to restore two pieces of motion information which comprise a reference picture list identification, a reference picture index and a motion vector, or (b) the encoded data of indication information to restore the indication information;

deriving one or more motion information sets out of plural pieces of motion information stored in memory, in response to restoration of the indication information, each of the one or more motion information sets including two pieces of motion information between which respective frame numbers identified with respective reference picture list identification and respective reference picture index are different from each other, or between which respective motion vectors are different from each

other;

determining from the one or more motion information sets, a motion information set to be used in generation of the predicted signal of the target region based on the indication information;

generating the predicted signal of the target region by combining two signals obtained from one or more reconstructed pictures stored in the memory based on the two pieces of motion information which are the determined motion information set or the restored two pieces of motion information;

storing motion information utilized for generation of the predicted signal of the target region in the memory;

restoring a residual signal of the target region from the encoded data of the residual signal;

reconstructing a pixel signal of the target region based on the predicted signal and the restored residual signal; and

storing the reconstructed pixel signal as a part of a reconstructed picture.