CLAIMS:

1. An image decoding method using arithmetic decoding, the method comprising:

determining a context for use in a current block, from among a plurality of contexts;

performing arithmetic decoding on a bit sequence corresponding to the current block, using the determined context to decode a binary sequence, the bit sequence being obtained by performing arithmetic coding on a control parameter of the current block; and

inversely binarizing the binary sequence to decode the control parameter of the current block,

wherein the determining of a context includes:

determining a signal type of the control parameter of the current block;

determining the context under a first condition that decoded control parameters of neighboring blocks of the current block are used, when the signal type is a first type, the neighboring blocks being a left block and an upper block of the current block; and

determining the context under a second condition that a predetermined fixed value is used and the decoded control parameters of the left block and the upper block are not used, when the signal type is a second type different from the first type,

wherein the first type is one of (i) a flag indicating whether or not the current block is partitioned into a plurality of blocks and (ii) a flag indicating whether or not the current block is to be skipped, and

the second type is a flag indicating whether or not a merge mode is used for the current block.

2. An image decoding apparatus using arithmetic decoding, the apparatus comprising:

a context control unit configured to determine a context for use in a current block, from among a plurality of contexts;

an arithmetic decoding unit configured to perform arithmetic decoding on a bit sequence corresponding to the current block, using the determined context to decode a binary sequence, the bit sequence being obtained by performing arithmetic coding on a control parameter of the current block; and

an inverse binarization unit configured to inversely binarize the binary sequence to decode the control parameter of the current block,

wherein the context control unit is configured to:

determine a signal type of the control parameter of the current block;

determine the context under a first condition that decoded control parameters of neighboring blocks of the current block are used, when the signal type is a first type, the neighboring blocks being a left block and an upper block of the current block; and

determine the context under a second condition that a predetermined fixed value is used and the decoded control parameters of the left block and the upper block are not used, when the signal type is a second type different from the first type,

wherein the first type is one of (i) a flag indicating whether or not the current block is partitioned into a plurality of blocks and (ii) a flag indicating whether or not the current block is to be skipped, and

the second type is a flag indicating whether or not a merge mode is used for the current block.

CLAIMS

[Claim 1] An image decoding method using arithmetic decoding, the method comprising:

determining a context for use in a current block, from among a plurality of contexts;

performing arithmetic decoding on a bit sequence corresponding to the current block, using the determined context to decode a binary sequence, the bit sequence being obtained by performing arithmetic coding on a control parameter of the current block; and

inversely binarizing the binary sequence to decode the control parameter of the current block,

wherein the determining of a context includes:

determining a signal type of the control parameter of the current block;

determining the context under a first condition that decoded control parameters of neighboring blocks of the current block are used, when the signal type is a first type, the neighboring blocks being a left block and an upper block of the current block; and

determining the context under a second condition that the decoded control parameter of the upper block is not used, when the signal type is a second type different from the first type.

[Claim 2] The image decoding method according to Claim 1,

wherein the second condition is a condition that the decoded control parameters of the left block and the upper block are not used.

[Claim 3] The image decoding method according to Claim 2,

wherein in the determining of a context, a predetermined context is determined under the second condition, as the context for use in the arithmetic decoding of the current block, when the signal type is the second type.

[Claim 4] The image decoding method according to Claim 2,

wherein the context is determined under the second condition

according to a hierarchical depth of a data unit to which the control parameter of the current block belongs, when the signal type is the second type.

[Claim 5] The image decoding method according to one of Claims 1 to 4,

wherein the determining of a context further includes:

determining whether or not the decoded control parameter of the upper block is available in decoding, based on a position of the current block; and

determining the context under the second condition, when the decoded control parameter of the upper block is not available.

[Claim 6] The image decoding method according to Claim 5,

wherein in the determining of a context, it is determined that the decoded control parameter of the upper block is not available in decoding, when the current block is at a slice boundary.

[Claim 7] The image decoding method according to Claim 5,

wherein in the determining of a context, it is determined whether or not the decoded control parameter of the upper block is available in decoding, according to a hierarchical depth of a data unit to which the control parameter of the current block belongs.

[Claim 8] The image decoding method according to one of Claims 1 to 7,

wherein the second type is a control parameter having a predetermined data structure.

[Claim 9] The image decoding method according to one of Claims 1 to 8,

wherein the determining of a context further includes determining a context of a control parameter of a second unit smaller than a first unit by switching between the first condition and the second condition, based on a control parameter of the first unit.

[Claim 10] The image decoding method according to one of Claims 1 to 9,

wherein the first type is one of "split_coding_unit_flag" and "skip_flag", and the second type is "merge_flag".

[Claim 11] The image decoding method according to Claim 10,

wherein the "split_coding_unit_flag" indicates whether or not the current block is partitioned into a plurality of blocks,

the "skip_flag" indicates whether or not the current block is to be skipped, and

the "merge_flag" indicates whether or not a merge mode is used for the current block.

[Claim 12] The image decoding method according to one of Claims 1 to 11,

wherein decoding processes in accordance with a first standard and decoding processes in accordance with a second standard are switched according to an identifier indicating one of the first standard and the second standard, the identifier being included in a coded signal, and

the determining of a context, the performing, and the inversely binarizing are performed as the decoding processes in accordance with the first standard, when the identifier indicates the first standard.

[Claim 13] An image coding method using arithmetic coding, the method comprising:

binarizing a control parameter of a current block to generate a binary sequence;

determining a context for use in the current block, from among a plurality of contexts; and

performing arithmetic coding on the binary sequence using the determined context to generate a bit sequence,

wherein the determining of a context includes:

determining a signal type of the control parameter of the current block;

determining the context under a first condition that control parameters of neighboring blocks of the current block are used, when the signal type is a first type, the neighboring blocks being a left block and an upper block of the current block; and

determining the context under a second condition that the control parameter of the upper block is not used, when the signal type is a second type different from the first type.

[Claim 14] An image decoding apparatus using arithmetic decoding, the apparatus comprising:

a context control unit configured to determine a context for use in a current block, from among a plurality of contexts;

an arithmetic decoding unit configured to perform arithmetic decoding on a bit sequence corresponding to the current block, using the determined context to decode a binary sequence, the bit sequence being obtained by performing arithmetic coding on a control parameter of the current block; and

an inverse binarization unit configured to inversely binarize the binary sequence to decode the control parameter of the current block,

wherein the context control unit is configured to:

determine a signal type of the control parameter of the current block;

determine the context under a first condition that decoded control parameters of neighboring blocks of the current block are used, when the signal type is a first type, the neighboring blocks being a left block and an upper block of the current block; and

determine the context under a second condition that the decoded control parameter of the upper block is not used, when the signal type is a second type different from the first type.

[Claim 15] An image coding apparatus using arithmetic coding, the apparatus comprising:

a binarization unit configured to binarize a control parameter of

a current block to generate a binary sequence;

a context control unit configured to determine a context for use in the current block, from among a plurality of contexts; and

an arithmetic coding unit configured to perform arithmetic coding on the binary sequence using the determined context to generate a bit sequence,

wherein the context control unit is configured to:

determine a signal type of the control parameter of the current block;

determine the context under a first condition that control parameters of neighboring blocks of the current block are used, when the signal type is a first type, the neighboring blocks being a left block and an upper block of the current block; and

determine the context under a second condition that the control parameter of the upper block is not used, when the signal type is a second type different from the first type.

[Claim 16] An image coding and decoding apparatus comprising:

the image decoding apparatus according to Claim 14; and

the image coding apparatus according to Claim 15.