

CLAIMS

1. A video decoding method comprising the steps of:

5 parsing a non-zero flag indicating whether a residual coefficient is non-zero from a bitstream;

parsing absolute value information for determining an absolute value of the residual coefficient from the bitstream when the non-zero flag indicates that the residual coefficient is non-zero; and

10 determining the absolute value of the residual coefficient based on the absolute value information,

wherein

the absolute value information comprises a residual coefficient comparison flag indicating whether the residual coefficient is greater than a first value,

15 a parity flag is further parsed from the bitstream only when the residual coefficient is greater than the first value; and the parity flag indicates whether the value of the residual coefficient is an even number or an odd number;

a first adjusted remnant coefficient comparison flag indicating whether an adjusted remnant coefficient derived by bit-shifting the residual coefficient to the right by 1 is greater than a second value is further parsed when the residual coefficient is greater than the first value;

20 a second adjusted remnant coefficient comparison flag indicating whether the adjusted remnant coefficient is greater than a third value is further parsed when the adjusted remnant coefficient is greater than the second value; and

25 one or more adjusted remnant coefficient comparison flags indicating whether the adjusted remnant coefficient is greater than one or more values are further parsed when the adjusted remnant coefficient is greater than the third value,

wherein N is the second value, and wherein the residual coefficient is determined to be $2N$ or $2N+1$ depending on the parity flag in either the case the adjusted remnant coefficient is less than the second value or equal to the second value.

30 2. The method of claim 1, wherein

a residual value information is further parsed when the adjusted remnant coefficient is greater than the second value, and

the residual value information includes a value obtained by subtracting the second value from the adjusted remnant coefficient.

3. A video encoding method comprising the steps of:

encoding a non-zero flag indicating whether a residual coefficient is non-zero; and

encoding absolute value information for determining an absolute value of the residual

5 coefficient when the residual coefficient is non-zero,

wherein

the absolute value information includes a residual coefficient comparison flag indicating whether the residual coefficient is greater than a first value,

10 a parity flag for the residual coefficient is further encoded only when the residual coefficient is greater than the first value; and the parity flag indicates whether the value of the residual coefficient is an even number or an odd number;

15 a first adjusted remnant coefficient comparison flag indicating whether an adjusted remnant coefficient derived by bit-shifting the residual coefficient to the right by 1 is greater than a second value is further encoded when the residual coefficient is greater than the first value;

a second adjusted remnant coefficient comparison flag indicating whether the adjusted remnant coefficient is greater than a third value is further encoded when the adjusted remnant coefficient is greater than the second value, and

20 one or more adjusted remnant coefficient comparison flags indicating whether the adjusted remnant coefficient is greater than one or more values are further encoded when the adjusted remnant coefficient is greater than the third value,

wherein N is the second value, and wherein the residual coefficient is determined to be $2N$ or $2N+1$ depending on the parity flag in either the case the adjusted remnant coefficient is less than the second value or equal to the second value.

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4. The method of claim 3, wherein

residual value information is further encoded when the adjusted remnant coefficient is greater than the second value, and

30 the residual value information includes a value obtained by subtracting the second value from the adjusted remnant coefficient.

5. A video decoding device, comprising:

a memory having stored instructions;

a processor for executing the instructions to:

parse a non-zero flag indicating whether a residual coefficient is non-zero from a bitstream;

parse absolute value information for determining an absolute value of the residual coefficient from the bitstream when the non-zero flag indicates that the residual coefficient is

5 non-zero; and

determine the absolute value of the residual coefficient based on the absolute value information,

wherein

10 the absolute value information comprises a residual coefficient comparison flag indicating whether the residual coefficient is greater than a first value,

a parity flag is further parsed from the bitstream only when the residual coefficient is greater than the first value; and the parity flag indicates whether the value of the residual coefficient is an even number or an odd number,

15 a first adjusted remnant coefficient comparison flag indicating whether an adjusted remnant coefficient derived by bit-shifting the residual coefficient to the right by 1 is greater than a second value is further parsed when the residual coefficient is greater than the first value,

a second adjusted remnant coefficient comparison flag indicating whether the adjusted remnant coefficient is greater than a third value is further parsed when the adjusted remnant coefficient is greater than the second value, and

20 one or more adjusted remnant coefficient comparison flags indicating whether the adjusted remnant coefficient is greater than one or more values are further parsed when the adjusted remnant coefficient is greater than the third value,

25 wherein N is the second value, and wherein the residual coefficient is determined to be $2N$ or $2N+1$ depending on the parity flag in either the case the adjusted remnant coefficient is less than the second value or equal to the second value.

6. The device of claim 5, wherein

a residual value information is further parsed when the adjusted remnant coefficient is greater than the second value, and

30 the residual value information includes a value obtained by subtracting the second value from the adjusted remnant coefficient.

7. A video encoding device, comprising:

a memory having stored instructions;

a processor for executing the instructions to:

encode a non-zero flag indicating whether a residual coefficient is non-zero; and
encode absolute value information for determining an absolute value of the
residual coefficient when the residual coefficient is non-zero,

wherein

the absolute value information includes a residual coefficient comparison flag
indicating whether the residual coefficient is greater than a first value,
a parity flag for the residual coefficient is further encoded only when the residual
coefficient is greater than the first value; and the parity flag indicates
whether the value of the residual coefficient is an even number or an odd
number,

a first adjusted remnant coefficient comparison flag indicating whether an
adjusted remnant coefficient derived by bit-shifting the residual
coefficient to the right by 1 is greater than a second value is further
encoded when the residual coefficient is greater than the first value,

a second adjusted remnant coefficient comparison flag indicating whether the
adjusted remnant coefficient is greater than a third value is further
encoded when the adjusted remnant coefficient is greater than the second
value, and

one or more adjusted remnant coefficient comparison flags indicating whether
the adjusted remnant coefficient is greater than one or more values are
further encoded when the adjusted remnant coefficient is greater than the
third value,

wherein N is the second value, and wherein the residual coefficient is determined
to be $2N$ or $2N+1$ depending on the parity flag in either the case the
adjusted remnant coefficient is less than the second value or equal to the
second value.

8. The device of claim 7, wherein

residual value information is further encoded when the adjusted remnant coefficient is
greater than the second value, and

the residual value information includes a value obtained by subtracting the second value
from the adjusted remnant coefficient.