Claims

1. An apparatus for entropy decoding transformation coefficients, the apparatus comprising:

an entropy decoder which extracts, from a received bitstream according to a certain scan order, information about a horizontal axis direction location and a vertical axis direction location of a last significant transformation coefficient having a non-zero value and included in a transformation block, and which determines a location of the last significant transformation coefficient by decoding the extracted information about the horizontal axis direction location and the vertical axis direction location.

CLAIMS

1. A method of video decoding, performed by at least one processor, the method comprising:

obtaining, from a bitstream, an x index indicating an x coordinate of a last significant coefficient, from among transformation coefficients of a transformation block, and a y index indicating a y coordinate of the last significant coefficient;

determining a scan index of the last significant coefficient based on the x index and the y index;

obtaining, from the bitstream, level information of the last significant coefficient;

reconstructing the last significant coefficient using the level information of the last significant coefficient;

obtaining, from the bitstream, a significant coefficient flag and level information of a first transformation coefficient which has a smaller scan index than the scan index of the last significant coefficient among the transformation coefficients;

reconstructing the first transformation coefficient by using the significant coefficient flag and the level information of the first transformation coefficient; and

performing inverse transformation on the transformation block using transformation coefficients including the last significant coefficient and the first transformation coefficient,

wherein the significant coefficient flag indicates whether a level of the first transformation coefficient is zero or non-zero, and

wherein the level information of the first transformation coefficient indicates the level of the first transformation coefficient is greater than 1, when the significant coefficient flag indicates the level of the first transformation coefficient is non-zero.

2. The method of claim 1, wherein the x index indicates an x-th location in a horizontal axis direction from a location of an upper-leftmost coefficient of the transformation block,

wherein the y index indicates a y-th location in a vertical axis direction, from the upper-leftmost coefficient of the transformation block, and

wherein the x-th location and the y-th location are integers equal to or greater than 0.

3. The method of claim 1, wherein a significant coefficient is a non-zero coefficient among the coefficients of the transformation block,

the last significant coefficient is a significant coefficient scanned last in a scanning order, from among the significant coefficients of the transformation block, and

an origin of the x coordinate and the y coordinate of the last significant coefficient is an upper-leftmost point of the transformation block.