

Claims

1. An image decoding method, comprising:
dividing a first coding block to determine a second coding block; and
decoding the second coding block,
wherein the first coding block is divided based on one of division types pre-defined in an image decoding apparatus,
wherein the division types include at least one of a quad-tree division, a binary-tree division, or a ternary-tree division,
wherein the quad-tree division is representative of a division type of dividing one coding block into four coding blocks, the binary-tree division is representative of a division type of dividing one coding block into two coding blocks, and the ternary-tree division is representative of a division type of dividing one coding block into three coding blocks,
wherein a division type for the first coding block is determined to be one of the quad-tree division, the binary-tree division, or the ternary-tree division when a shape of the first coding block is square, and the division type for the first coding block is determined to be the binary-tree division or the ternary-tree division when the shape of the first coding block is non-square,
wherein the binary-tree division and the ternary-tree division are applied only when the quad-tree division is no longer performed,
wherein the second coding block is determined based on predetermined division information,
wherein the division information includes at least one of a first flag indicating whether to divide the first coding block, a second flag indicating a division direction, or a third flag indicating the division type,
wherein the second flag equal to a first value indicates that the first coding block is divided in a horizontal direction, and the second flag equal to a second value indicates that the first coding block is divided in a vertical direction,
wherein the third flag equal to a first value indicates that the binary-tree division is performed, and the third flag equal to a second value indicates that the ternary-tree division is performed,

wherein, when the first coding block is located at a boundary of a current picture, only at least one of the quad-tree division or the binary-tree division is allowed,

wherein the binary-tree division includes a horizontal binary-tree division and a vertical binary-tree division, and

wherein, when the boundary of the current picture is a bottom boundary, only the horizontal binary-tree division among the horizontal binary-tree division and the vertical binary-tree division is allowed for the binary-tree division.

2. An image encoding method, comprising:

dividing a first coding block to determine a second coding block; and

encoding the second coding block,

wherein the first coding block is divided based on one of division types pre-defined in an image encoding apparatus,

wherein the division types include at least one of a quad-tree division, a binary-tree division, or a ternary-tree division,

wherein the quad-tree division is representative of a division type of dividing one coding block into four coding blocks, the binary-tree division is representative of a division type of dividing one coding block into two coding blocks, and the ternary-tree division is representative of a division type of dividing one coding block into three coding blocks,

wherein a division type for the first coding block is determined to be one of the quad-tree division, the binary-tree division, or the ternary-tree division when a shape of the first coding block is square, and the division type for the first coding block is determined to be the binary-tree division or the ternary-tree division when the shape of the first coding block is non-square,

wherein the binary-tree division and the ternary-tree division are applied only when the quad-tree division is no longer performed,

wherein the second coding block is determined based on predetermined division information,

wherein the division information includes at least one of a first flag indicating whether to divide the first coding block, a second flag indicating a division direction, or a third flag indicating the division type,

wherein the second flag equal to a first value indicates that the first coding block is divided in a horizontal direction, and the second flag equal to a second value indicates that the first coding block is divided in a vertical direction,

wherein the third flag equal to a first value indicates that the binary-tree division is performed, and the third flag equal to a second value indicates that the ternary-tree division is performed,

wherein, when the first coding block is located at a boundary of a current picture, only at least one of the quad-tree division or the binary-tree division is allowed,

wherein the binary-tree division includes a horizontal binary-tree division and a vertical binary-tree division, and

wherein, when the boundary of the current picture is a bottom boundary, only the horizontal binary-tree division among the horizontal binary-tree division and the vertical binary-tree division is allowed for the binary-tree division.

3. A non-transitory computer readable medium having stored thereon instructions that when executed by a processor perform a decoding method, the method comprising:

dividing a first coding block to determine a second coding block; and

decoding the second coding block,

wherein the first coding block is divided based on one of division types,

wherein the division types include at least one of a quad-tree division, a binary-tree division, or a ternary-tree division,

wherein the quad-tree division is representative of a division type of dividing one coding block into four coding blocks, the binary-tree division is representative of a division type of dividing one coding block into two coding blocks, and the ternary-tree division is representative of a division type of dividing one coding block into three coding blocks,

wherein a division type for the first coding block is determined to be one of the quad-tree division, the binary-tree division, or the ternary-tree division when a shape of the first coding block is square, and the division type for the first coding block is determined to be the binary-tree division or the ternary-tree division when the shape of the first coding block is non-square,

wherein the binary-tree division and the ternary-tree division are applied only when the quad-tree division is no longer performed,

wherein the second coding block is determined based on predetermined division information,

wherein the division information includes at least one of a first flag indicating whether to divide the first coding block, a second flag indicating a division direction, or a third flag indicating the division type,

wherein the second flag equal to a first value indicates that the first coding block is divided in a horizontal direction, and the second flag equal to a second value indicates that the first coding block is divided in a vertical direction,

wherein the third flag equal to a first value indicates that the binary-tree division is performed, and the third flag equal to a second value indicates that the ternary-tree division is performed,

wherein, when the first coding block is located at a boundary of a current picture, only at least one of the quad-tree division or the binary-tree division is allowed,

wherein the binary-tree division includes a horizontal binary-tree division and a vertical binary-tree division, and

wherein, when the boundary of the current picture is a bottom boundary, only the horizontal binary-tree division among the horizontal binary-tree division and the vertical binary-tree division is allowed for the binary-tree division.