CLAIMS

1. A method of decoding an image based on an intra prediction with a decoding apparatus, comprising:

determining a reference pixel line for the intra prediction of a current block in the image;

determining an intra prediction mode of the current block; and

predicting the current block based on the reference pixel line and the intra prediction mode,

wherein the current block includes a luma block and a chroma block, and the intra prediction mode of the current block is determined for the luma block and the chroma block, respectively, and

wherein determining an intra prediction mode of the chroma block comprises:

selecting one of a first mode group and a second mode group based on a first flag signaled from the encoding apparatus, the first mode group including only inter-components reference-based prediction modes, the second mode group including 67 intra prediction modes pre-defined in the decoding apparatus, the 67 intra prediction modes being composed of 2 non-directional modes and 65 directional modes, and the first flag specifying whether the intra prediction mode of the chroma block belongs to the first mode group or the second mode group; and

deriving the intra prediction mode of the chroma block from the selected one.

2. The method of claim 1, wherein in response to the selection that the intra prediction mode of the chroma block is derived from the second mode group, the intra prediction mode of the chroma block is determined based on an intra prediction mode of the luma block.

3. The method of claim 2, wherein when the intra prediction mode of the luma block is unavailable, the intra prediction mode of the luma block is set equal to an intra prediction mode pre-defined in the decoding apparatus.

4. The method of claim 1, wherein a reference pixel line for the luma block is determined based on index information signaled from the encoding apparatus and a plurality of reference pixel line candidates,

wherein the index information specifies one of the plurality of reference pixel line candidates, and

wherein the plurality of reference pixel line candidates include at least one of a first pixel line adjacent to the luma block, a second pixel line adjacent to the first pixel line, or a third pixel line adjacent to the second pixel line.

5. The method of claim 4, wherein determining an intra prediction mode of the luma block comprises:

selecting one of a first MPM candidate group and a second MPM candidate group based on a second flag signaled from an encoding apparatus, the first MPM candidate group including only at least one non-directional mode, the second candidate group including only a plurality of MPM candidates of directional modes, and the second flag specifying whether the intra prediction mode of the luma block belongs to the first MPM candidate group or the second MPM candidate group; and

deriving the intra prediction mode of the luma block from the selected one.

6. The method of claim 5, wherein when the intra prediction mode of the luma block is derived from the first MPM candidate group, the luma block is predicted using only the first pixel line adjacent to the luma block.

7. A method of encoding an image based on an intra prediction with an encoding apparatus, comprising:

determining a reference pixel line for the intra prediction of a current block in the image;

determining an intra prediction mode of the current block;

obtaining a residual block of the current block based on an original block of the current block and a prediction block of the current block, the prediction block being obtained based on the reference pixel line and the intra prediction mode; and

encoding the residual block to generate a bitstream the encoded image,

wherein the current block includes a luma block and a chroma block, and the intra prediction mode of the current block is determined for the luma block and the chroma block, respectively,

wherein an intra prediction mode of the chroma block belongs to one of a first mode group and a second mode group, the first mode group including only inter-components reference-based prediction modes, the second mode group including 67 intra prediction modes pre-defined in the encoding apparatus, the 67 intra prediction modes being composed of 2 non-directional modes and 65 directional modes, and

wherein a flag for specifying whether the intra prediction mode of the chroma block belongs to the first mode group or the second mode group is encoded and is included in the

bitstream.

8. A non-transitory computer-readable storage medium having instructions stored thereon that, when executed, cause one or more processors to:

determining a reference pixel line for the intra prediction of a current block in the image;

determining an intra prediction mode of the current block; and

predicting the current block based on the reference pixel line and the intra prediction mode,

wherein the current block includes a luma block and a chroma block, and the intra prediction mode of the current block is determined for the luma block and the chroma block, respectively, and

wherein determining an intra prediction mode of the chroma block comprises:

selecting one of a first mode group and a second mode group based on a first flag signaled from the encoding apparatus, the first mode group including only inter-components reference-based prediction modes, the second mode group including 67 intra prediction modes pre-defined in the decoding apparatus, the 67 intra prediction modes being composed of 2 non-directional modes and 65 directional modes, and the first flag specifying whether the intra prediction mode of the chroma block belongs to the first mode group or the second mode group; and

deriving the intra prediction mode of the chroma block from the selected one.