CLAIMS

1. A method of video encoding, the method comprising:

determining, by processing circuitry of a video encoder, whether a first block associated with a second block is to be predicted according to a block differential pulse code modulation (BDPCM) mode;

in response to determining that the first block is to be predicted according to the BDPCM mode, associating the first block with an intra prediction mode value based on a BDPCM direction for the first block, the intra prediction mode value being selected from a plurality of intra prediction modes that include angular intra prediction modes;

determining an intra prediction mode value for the second block using the intra prediction mode value associated with the first block; and

encoding the second block using the determined intra prediction mode value for the second block.

2. The method according to claim 1, wherein the BDPCM direction is one of (i) a horizontal intra prediction directional mode, or (ii) a vertical intra prediction directional mode.

3. The method according to claim 2, wherein a total number of the plurality of intra prediction modes is 67 with the horizontal intra prediction directional mode being associated with angular intra prediction mode 18 and the vertical intra prediction directional mode being associated with angular intra prediction mode 50.

4. The method according to claim 1, further comprising, in response to a determination that the first block is predicted according to the BDPCM mode, generating prediction

information including a value of a BDPCM flag for the first block, the value indicating a presence of a BDPCM directional flag for the first block, the BDPCM directional flag indicating the BDPCM direction.

5. The method according to claim 1, wherein the first block and the second block are included in a same picture, and the first block spatially neighbors the second block.

6. The method according to claim 5, further comprising:

deriving for the second block, using a most probable mode (MPM) derivation process, a candidate list, the candidate list being derived based on the determination of whether the first block is predicted according to the BDPCM mode, wherein

the determining the intra prediction mode value for the second block includes using the derived candidate list.

7. The method according to claim 6, wherein the candidate list includes

a first candidate intra prediction mode value that corresponds to the intra prediction mode value of the first block, and

a second candidate intra prediction mode value and a third candidate intra prediction mode value that are determined in accordance with a predetermined offset from the first candidate intra prediction mode value and a modulo M operation, in which M is a power of 2.

8. The method according to claim 1, wherein the second block is a chroma block and the first block is a luma block co-located with the chroma block.

9. The method according to claim 8, further comprising:

determining whether the second block is coded with a direct copy mode (DM); and

in response to (i) a determination that the second block is coded with the direct copy mode and (ii) a determination that the first block is predicted according to the BDPCM mode, using the intra prediction mode value associated with the first block as the intra prediction mode value of the second block.

10. A video encoder for video encoding, comprising:

processing circuitry configured to:

determine whether a first block associated with a second block is to be predicted according to a block differential pulse code modulation (BDPCM) mode;

in response to a determination that the first block is to be predicted according to the BDPCM mode, associate the first block with an intra prediction mode value based on a BDPCM direction for the first block, the intra prediction mode value being selected from a plurality of intra prediction modes that include angular intra prediction modes;

determine an intra prediction mode value for the second block using the intra prediction mode value associated with the first block; and

encode the second block using the determined intra prediction mode value for the second block.

11. The video encoder according to claim 10, wherein the BDPCM direction is one of (i) a horizontal intra prediction directional mode, or (ii) a vertical intra prediction directional mode.

12. The video encoder according to claim 11, wherein a total number of the plurality of intra prediction modes is 67 with the horizontal intra prediction directional mode being associated with angular intra prediction mode 18 and the vertical intra prediction directional mode being associated with angular intra prediction mode 50.

13. The video encoder according to claim 10, wherein the processing circuitry is further configured to, in response to a determination that the first block is predicted according to the BDPCM mode, generate prediction information including a value of a BDPCM flag for the first block, the value indicating a presence of a BDPCM directional flag for the first block, the BDPCM directional flag indicating the BDPCM direction.

14. The video encoder according to claim 10, wherein the first block and the second block are included in a same picture, and the first block spatially neighbors the second block.

15. The video encoder according to claim 14, wherein the processing circuitry is further configured to:

derive for the second block, using a most probable mode (MPM) derivation process, a candidate list, the candidate list being derived based on the determination of whether the first block is predicted according to the BDPCM mode, wherein

the processing circuitry determines the intra prediction mode value for the second block by using the derived candidate list.

16. The video encoder according to claim 15, wherein the candidate list includes:

a first candidate intra prediction mode value that corresponds to the intra prediction mode value of the first block, and

a second candidate intra prediction mode value and a third candidate intra prediction mode value that are determined in accordance with a predetermined offset from the first candidate intra prediction mode value and a modulo M operation, in which M is a power of 2.

17. The video encoder according to claim 10, wherein the second block is a chroma block and the first block is a luma block co-located with the chroma block.

18. The video encoder according to claim 17, wherein the processing circuitry is further configured to:

determine whether the second block is coded with a direct copy mode (DM); and

in response to (i) a determination that the second block is coded with the direct copy mode and (ii) a determination that the first block is predicted according to the BDPCM mode, use the intra prediction mode value associated with the first block as the intra prediction mode value of the second block.

19. A non-transitory computer readable medium having instructions stored therein, which when executed by a processor in a video encoder cause the video encoder to execute a method comprising:

determining whether a first block associated with a second block is predicted according to a block differential pulse code modulation (BDPCM) mode;

in response to determining that the first block is to be predicted according to the BDPCM mode, associating the first block with an intra prediction mode value based on a BDPCM

direction for the first block, the intra prediction mode value being selected from a plurality of intra prediction modes that include angular intra prediction modes;

determining an intra prediction mode value for the second block using the intra prediction mode value associated with the first block; and

encoding the second block using the determined intra prediction mode value for the second block.

20. The non-transitory computer readable medium according to claim 19, wherein the BDPCM direction is one of (i) a horizontal intra prediction directional mode, or (ii) a vertical intra prediction directional mode.

21. A bistream, which is generated by a method according to any one of claims 1 to 9.