

CLAIMS

1. A method of intra prediction for a picture block implemented by a decoding device, comprising:

obtaining a value of a first indication information of a current block from a bitstream when the first indication information is present, or the value of the first indication information is inferred to be equal to 1 when the first indication information is not present in the bitstream, the value of the first indication information indicating whether an intra prediction mode of the current block is comprised in a set of most probable modes, wherein the set of most probable modes comprises 5 candidate intra prediction modes and Planar mode;

obtaining a value of a reference index line of the current block from the bitstream when the value of the reference index line is present, or the value of the reference index line is inferred to be equal to 0 when the reference index line is not present in the bitstream;

when the value of the first indication information indicates the intra prediction mode of the current block is comprised in the set of most probable modes, and when the value of the

reference index line indicates the closest neighboring reference line to the current block is used, obtaining a value of a second indication information of the current block from the bitstream when the second indication information is present, or the value of the second indication information is inferred to be equal to 1 when the second indication information is not present in the bitstream, the value of the second indication information of the current

block indicating whether the intra prediction mode of the current block is Planar mode or not, wherein the first indication information is indicated by a first flag intra_luma_mpm_flag, and the second indication information is indicated by a second flag intra_luma_not_planar_flag, wherein when the value of intra_luma_mpm_flag equals to 1, the intra prediction mode of the current block is comprised in the set of most probable modes, and when the value of the

reference index line of the current block equals to 0, the closest neighboring reference line to the current block is used,

when the value of the second indication information of the current block indicating the intra prediction mode of the current block is not Planar mode, intra_luma_mpm_idx corresponding to an index of the 5 candidate intra prediction modes is parsed, predicting the current block according to the index and entries of an MPM list.

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2. The method of claim 1, wherein the value of the second indication information is context adaptive binary arithmetic coding (CABAC) context decoded.

~~3. The method of claim 1 or 2, wherein the first indication information is indicated by a first flag, and the second indication information is indicated by a second flag.~~

~~4. The method of claim 3, wherein the first flag is intra_luma_mpm_flag, and the second flag is intra_luma_not_planar_flag.~~

~~5. The method of claim 4, wherein when the value of intra_luma_mpm_flag equals to 1, the intra prediction mode of the current block is comprised in the set of most probable modes, and
when the value of the reference index line of the current block equals to 0, the closest neighboring reference line to the current block is used.~~

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~~63.~~ The method of any one of claims ~~31-52~~, wherein the method further comprises:
parse the second flag using context based on whether the current block is an intra block with intra sub-partition (ISP) coding mode enabled or not.

74. The method of any one of claims 1-63, wherein when the value of the second indication information of the current block indicates the intra prediction mode of the current block is not Planar mode, and when one or more of the following conditions are true, a candidate intra prediction mode candIntraPredModeX is set equal to INTRA_PLANAR:

- 5 – The variable availableX is equal to FALSE;
- CuPredMode[xNbX][yNbX] is not equal to MODE_INTRA; or
- X is equal to B and yCb – 1 is less than
 ((yCb >> CtbLog2SizeY) << CtbLog2SizeY).

wherein X being replaced by either neighbor block A or B, a luma location (xCb , yCb)
10 specifying the top-left sample of the current luma coding block relative to the top-left luma sample of the current picture, the location (xNbA, yNbA) of the neighbor A is set equal to (xCb – 1, yCb + cbHeight – 1), the location (xNbB, yNbB) of the neighbor B is set equal to (xCb + cbWidth – 1, yCb – 1), a variable cbWidth specifying the width of the current coding block in luma samples, a variable cbHeight specifying the height of the current coding
15 block in luma samples, CuPredMode representing a current prediction mode, SizeY representing the size of Y components of a coding tree block.

85. The method of any one of claims 1-74, wherein when an intra prediction mode of a left neighbor block and an intra prediction mode of an above neighbor block are both non-angular
20 modes, the MPM list comprises:

candModeList[0] = INTRA_DC
candModeList[1] = INTRA_ANGULAR50
candModeList[2] = INTRA_ANGULAR18
candModeList[3] = INTRA_ANGULAR46
25 candModeList[4] = INTRA_ANGULAR54.

96. The method of any one of claims 1-85, wherein the step of obtaining the value of the second indication information comprise:

parsing a bitstream to obtain the value of the second indication information;

5 or when Multiple Reference Line (MRL) coding is enabled, the value of the second indication information is obtained by a default value.

~~10. The method of any one of claims 1-8, when Multiple Reference Line (MRL) coding is enabled, the value of the second indication information is obtained by a default value.~~

10 ~~117.~~ A method of intra prediction for a picture block implemented by an encoding device, comprising:

determining whether an intra prediction mode of a current block is comprised in a set of most probable modes, wherein the set of most probable modes comprises 5 candidate intra prediction modes and Planar mode;

determining whether the closest neighboring reference line to the current block is used for intra prediction;

encoding a bitstream, wherein the bitstream includes information to indicate whether the intra prediction mode of the current block is Planar mode when the intra prediction mode of the current block is comprised in the set of most probable modes, and the closest neighboring reference line to the current block is used for intra prediction;

20 wherein the bitstream includes a first flag intra_luma_mpm_flag indicating whether the intra prediction mode of the current block is comprised in the set of most probable modes, and a second flag intra_luma_not_planar_flag indicating whether the intra prediction mode of the
25 current block is Planar mode;

wherein when the value of intra_luma_mpm_flag equals to 1, the intra prediction mode of the

current block is comprised in the set of most probable modes, and

when a value of the reference index line of the current block equals to 0, the closest neighboring reference line to the current block is used;

when the value of the second flag indicating the intra prediction mode of the current block is not Planar mode, the bitstream includes intra_luma_mpm_idx corresponding to an index of the 5 candidate intra prediction modes;

wherein the current block is predicted according to the index and entries of an MPM list.

~~12. The method of claim 11, wherein the bitstream includes a first flag indicating whether the intra prediction mode of the current block is comprised in the set of most probable modes, and a second flag indicating whether the intra prediction mode of the current block is Planar mode.~~

~~13. The method of claim 12, wherein the first flag is intra_luma_mpm_flag, and the second flag is intra_luma_not_planar_flag.~~

~~14. The method of claim 13, wherein when the value of intra_luma_mpm_flag equals to 1, the intra prediction mode of the current block is comprised in the set of most probable modes, and~~

~~when a value of the reference index line of the current block equals to 0, the closest neighboring reference line to the current block is used for intra prediction.~~

~~15. The method of any one of claims 11-14,~~ wherein the information to indicate whether the intra prediction mode of the current block is Planar mode is context adaptive binary arithmetic coding (CABAC) context encoded, and wherein the context includes whether the current block is an intra block with intra sub-partition (ISP) coding mode enabled.

16. The method of claim 15, wherein the context includes whether the current block is an intra block with intra sub-partition (ISP) coding mode enabled.

179. A decoding device for intra prediction of a picture block, the device comprising:

a first obtaining unit, configured to obtain a value of a reference index line of a current block;
~~and~~ from a bitstream when the value of the reference index line is present, or the value of the reference index line is inferred to be equal to 0 when the reference index line is not present in the bitstream, and further configured to obtain a value of a first indication information of the current block from the bitstream when the first indication information is present, or the value of the first indication information is inferred to be equal to 1 when the first indication information is not present in the bitstream, the value of the first indication information indicating whether an intra prediction mode of the current block is comprised in a set of most probable modes, wherein the set of most probable modes comprises 5 candidate intra prediction modes and Planar mode;

a second obtaining unit, configured to obtain a value of a second indication information of the current block from a bitstream when the second indication information is present, or the value of the second indication information is inferred to be equal to 1 when the second indication information is not present in the bitstream, when the value of the first indication information indicates the intra prediction mode of the current block is comprised in the set of most probable modes, and when the value of the reference index line indicates the closest neighboring reference line to the current block is used, wherein the value of the second indication information of the current block indicates whether the intra prediction mode of the current block is Planar mode, wherein the first indication information is indicated by a first flag intra luma mpm flag, and the second indication information is indicated by a second flag intra luma not planar flag, wherein when the value of intra luma mpm flag equals to

1, the intra prediction mode of the current block is comprised in the set of most probable modes, and when the value of the reference index line of the current block equals to 0, the closest neighboring reference line to the current block is used,

when the value of the second indication information of the current block indicating the intra prediction mode of the current block is not Planar mode, intra_luma_mpm_idx corresponding to an index of the 5 candidate intra prediction modes is parsed;

wherein the current block is predicted according to the index and entries of an MPM list. –

~~18. The device of claim 17, wherein the value of the second indication information is context adaptive binary arithmetic coding (CABAC) context decoded.~~

~~19. The device of claim 17 or 18, wherein the first indication information is indicated by a first flag, and the second indication information is indicated by a second flag.~~

~~20. The device of claim 19, wherein the first flag is intra_luma_mpm_flag, and the second flag is intra_luma_not_planar_flag.~~

~~21. The device of claim 20, wherein when the value of intra_luma_mpm_flag equals to 1, the intra prediction mode of the current block is comprised in the set of most probable modes, and
when the value of the reference index line of the current block equals to 0, the closest neighboring reference line to the current block is used.~~

~~22. The device of any one of claims 19-21, wherein the device further comprises:
a parsing unit, configured to parse the second flag using context based on whether the current~~

~~block is an intra block with intra sub-partition (ISP) coding mode enabled or not.~~

~~23. The device of any one of claims 19-22, wherein the second obtaining unit is configured to obtain the value of the second indication information by parsing a bitstream.~~

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~~24. The device of any one of claims 19-22, wherein the second obtaining unit is configured to set a default value as the value of the second indication information when Multiple Reference Line (MRL) coding is enabled.~~

10 2510. An encoding device for intra prediction of a picture block, comprising:

a determining unit, configured to determine whether an intra prediction mode of a current block is comprised in a set of most probable modes, and to determine whether the closest neighboring reference line to the current block is used for intra prediction, wherein the set of most probable modes comprises 5 candidate intra prediction modes and Planar mode;

15 an encoding unit, configured to encode a bitstream, wherein the bitstream includes information to indicate whether the intra prediction mode of the current block is Planar mode when the intra prediction mode of the current block is comprised in the set of most probable modes, and the closest neighboring reference line to the current block is used for intra prediction;

20 wherein the bitstream includes a first flag intra_luma_mpm_flag indicating whether the intra prediction mode of the current block is comprised in the set of most probable modes, and a second flag intra_luma_not_planar_flag indicating whether the intra prediction mode of the current block is Planar mode;

when the value of the second flag indicating the intra prediction mode of the current block is not Planar mode, the bitstream includes intra_luma_mpm_idx corresponding to an index of the 5 candidate intra prediction modes;

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wherein the current block is predicted according to the index and entries of an MPM list.

26. ~~The device of claim 25, wherein the bitstream includes a first flag indicating whether the intra prediction mode of the current block is comprised in the set of most probable modes, and a second flag indicating whether the intra prediction mode of the current block is Planar mode.~~

27. ~~The device of claim 26, wherein the first flag is intra_luma_mpm_flag, and the second flag is intra_luma_not_planar_flag.~~

28. ~~The device of claim 27, wherein when the value of intra_luma_mpm_flag equals to 1, the intra prediction mode of the current block is comprised in the set of most probable modes, and when a value of the reference index line of the current block equals to 0, the closest neighboring reference line to the current block is used for intra prediction.~~

29. ~~The device of any one of claims 25-28, wherein the information to indicate whether the intra prediction mode of the current block is context adaptive binary arithmetic coding (CABAC) context encoded.~~

30. ~~The device of claim 29, wherein the context includes whether the current block is an intra block with intra sub-partition (ISP) coding mode enabled.~~

31. ~~A decoder (30) comprising processing circuitry for carrying out the method according to any one of claims 1 to 10.~~

32. ~~An encoder (20) comprising processing circuitry for carrying out the method according to any one of claims 11 to 16.~~

3311. A computer program product comprising a program code which, when executed by a computer, causes the computer to carry out ~~for performing~~ the method according to any one of claims 1 to 168.

34. A decoder for intra prediction, comprising:

~~one or more processors; and~~

~~a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the decoder to carry out the method according to any one of claims 1 to 10.~~

35. An encoder for intra prediction, comprising:

~~one or more processors; and~~

~~a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the decoder to carry out the method according to any one of claims~~

~~11 to 16.~~