

PULSE CODE MODULATION TECHNIQUE IN VIDEO PROCESSING

CROSS-REFERENCE TO RELATED APPLICATION

[001] This application is a national phase of International Application No. PCT/CN2019/120266, filed on November 22, 2019, which claims the priority to and benefit of International Patent Application No. PCT/CN2018/116885, filed on November 22, 2018. The entire disclosures of the aforementioned applications are incorporated by reference as part of the disclosure of this application.

TECHNICAL FIELD

[002] This patent document relates to image and video coding and decoding.

BACKGROUND

[003] Digital video accounts for the largest bandwidth use on the internet and other digital communication networks. As the number of connected user devices capable of receiving and displaying video increases, it is expected that the bandwidth demand for digital video usage will continue to grow.

SUMMARY

[004] The disclosed techniques may be used by video decoder or encoder embodiments during video decoding or encoding using intra prediction coding of video and images in which multiple reference lines are used.

[005] In one example embodiment, a method of video processing is disclosed. The method includes determining, for a current block of video, that at least one of a first coding mode in which pulse code modulation (PCM) is used or a second coding mode in which multiple reference line based intra prediction (MRLIP) is used is enabled; and performing, based on the first coding mode or the second coding mode, a conversion between the current block and a bitstream representation of the video, wherein a first indication indicative of use of the first coding mode and/or a second indication indicative of use of the second coding mode are included in the bitstream representation according to an ordering rule.

CLAIMS

1. A method of processing video data, comprising:
performing, a conversion between a current video unit of a video and a bitstream of the video;
wherein one of a first and a second indications is used to indicate a usage of a pulse code modulation (PCM) for the current video unit, and the other of the first and the second indications is used to indicate mode information of a multiple reference line based intra prediction (MRLIP) for the current video unit, and wherein whether the second indication is presented in the bitstream is related to the first indication.
2. The method of claim 1, wherein the first indication is used to indicate the usage of the PCM, and the second indication is used to indicate the mode information of the MRLIP, and wherein in a first case that the first indication indicates that the PCM is applied to the current video unit, the second indication is not presented in the bitstream.
3. The method of claim 1 or 2, wherein the mode information comprises a reference line index.
4. The method of anyone of claims 1-3, wherein the current video unit includes a luma video block and at least one chroma video block, and the first indication includes a luma indication and a chroma indication in response to a single tree being applied to the current video unit, and wherein the luma indication is used to indicate the usage of the PCM for the luma component, the chroma indication is used to indicate the usage of the PCM for the at least one chroma component.
5. The method of claim 4, further comprising:
applying a filtering process for the luma video block based on the luma indication during the conversion.
6. The method of claim 5, wherein the filtering process is a deblocking filter process.

7. The method of claim 4, further comprising:
applying a filtering process for the at least one chroma video block based on the chroma indication during the conversion.
8. The method of claim 7, wherein the filtering process is a deblocking filter process.
9. The method of claim 4, wherein the luma indication is a usage flag, and the chroma indication is a usage flag.
10. The method of anyone of claims 1-9, wherein the current video unit is a luma video unit and the first indication is a luma indication in response to a dual tree being applied to the current video unit, or wherein the current video unit is a chroma video unit with two color components and the first indication is a chroma indication in response to a dual tree being applied to the current video unit.
11. The method of anyone of claims 1-9, wherein the first indication is used to indicate the mode information of the MRLIP, and the second indication is used to indicate the usage of the PCM, and wherein in a second case that the first indication indicates that the MRLIP being applied to the current video unit, the second indication is not presented in the bitstream.
12. The method of claim 11, wherein in a third case that the first indication indicates that the MRLIP is not applied to the current video unit, the second indication is presented in the bitstream.
13. The method of anyone of claims 1-12, wherein the conversion includes encoding the current video unit into the bitstream.
14. The method of anyone of claims 1-12, wherein the conversion includes decoding the current video unit from the bitstream.
15. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

perform, a conversion between a current video unit of a video and a bitstream of the video;

wherein one of a first and a second indications is used to indicate a usage of a pulse code modulation (PCM) for the current video unit, and the other of the first and the second indications is used to indicate mode information of a multiple reference line based intra prediction (MRLIP) for the current video unit, and wherein whether the second indication is presented in the bitstream is related to the first indication.

16. The apparatus of claim 15, wherein the first indication is used to indicate the usage of the PCM, and the second indication is used to indicate the mode information of the MRLIP, and wherein in a first case that the first indication indicates that the PCM is applied to the current video unit, the second indication is not presented in the bitstream.

17. The apparatus of claim 15 or 16, wherein the mode information comprises a reference line index.

18. The apparatus of claim 15 or 16, wherein the current video unit includes a luma video block and at least one chroma video block, and the first indication includes a luma indication and a chroma indication in response to a single tree being applied to the current video unit, and wherein the luma indication is used to indicate the usage of the PCM for the luma component, the chroma indication is used to indicate the usage of the PCM for the at least one chroma component.

19. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

perform, a conversion between a current video unit of a video and a bitstream of the video;

wherein one of a first and a second indications is used to indicate a usage of a pulse code modulation (PCM) for the current video unit, and the other of the first and the second indications is used to indicate mode information of a multiple reference line based intra prediction (MRLIP) for the current video unit, and wherein whether the second indication is presented in the bitstream is related to the first indication.

20. A non-transitory computer-readable recording medium storing a bitstream of a video which is generated by a method performed by a video processing apparatus, wherein the method comprises:

generating the bitstream based on a current video unit of the video;

wherein one of a first and a second indications is used to indicate a usage of a pulse code modulation (PCM) for the current video unit, and the other of the first and the second indications is used to indicate mode information of a multiple reference line based intra prediction (MRLIP) for the current video unit, and wherein whether the second indication is presented in the bitstream is related to the first indication.