CLAIMS

What is claimed is:

1. A method of decoding implemented by a video decoder, comprising:

receiving, by the video decoder, a bitstream including a sequence parameter set (SPS) and a header referring to the SPS, wherein the SPS contains a first flag, wherein the header contains a second flag, an indicator of a length of a picture order count (POC) most significant bits (MSB) value, and the POC MSB value, wherein a value of the first flag specifies that the second flag is present in the header, and wherein a value of the second flag specifies that the POC MSB value is present in the header;

determining, by the video decoder, a POC value based on the POC MSB value;

identifying, by the video decoder, a picture from the bitstream based on the POC value; and

decoding, by the video decoder, the picture to obtain a decoded picture.

2. The method of claim 1, wherein the first flag comprises a POC MSB flag designated as sps_poc_msb_cycle_flag.

3. The method of any of claims 1 to 2, wherein the value of the first flag is one.

4. The method of any of claims 1 to 3, wherein the second flag comprises another POC MSB flag and is designated as ph_poc_msb_cycle_present_flag.

5. The method of any of claims 1 to 4, wherein the value of the second flag is one.

6. The method of any of claims 1 to 5, wherein the POC value is determined by concatenating the POC MSB value to a POC least significant bits (LSB) value.

7. The method of any of claims 1 to 6, wherein the second flag is a picture-level flag.

8. The method of any of claims 1 to 7, wherein the indicator of the length plus 1 specifies the length, in bits, of the POC MSB.

9. The method of any of claims 1 to 8, further comprising displaying the picture as decoded on a display of an electronic device.

10. A method of encoding implemented by a video encoder, the method comprising:

setting, by the video encoder, a first flag in a sequence parameter set (SPS) to a value to specify that a second flag is present in a header referring to the SPS;

providing in the SPS, by the video encoder, an indicator of a length of a picture order count (POC) most significant bits (MSB) value in the header;

setting, by the video encoder, the second flag in the header to a value to specify that the POC MSB value is present in the header;

encoding, by the video encoder, the SPS and the header into a bitstream; and

storing, by the video encoder, the bitstream for communication toward a video decoder.

11. The method of claim 10, wherein the first flag comprises a POC MSB flag designated as sps_poc_msb_cycle_flag, and wherein the value of the first flag is one.

12. The method of any of claims 10 to 11, wherein the second flag comprises another POC MSB flag and is designated as ph_poc_msb_cycle_present_flag, and wherein the value of the second flag is one.

13. The method of any of claims 10 to 12, wherein the POC value is determined by adding the POC MSB value to a POC least significant bits (LSB) value, and wherein the second flag is a picture-level flag.

14. A decoding device, comprising:

a receiver configured to receive a bitstream including a sequence parameter set (SPS) containing a first flag and an indicator of a length of a picture order count (POC) most significant bits (MSB) value when present in a header referring to the SPS;

a memory coupled to the receiver, the memory storing instructions; and

a processor coupled to the memory, the processor configured to execute the instructions to cause the decoding device to:

determine whether a second flag is present in the header referring to the SPS based on a value of the first flag;

determine whether the POC MSB value is present in the header based on a value of the second flag when the second flag is present;

determine a POC value, based on the POC MSB value when the POC MSB value is present;

identify a picture from the bitstream based on the POC value; and

decode the picture to obtain a decoded picture

15. The decoding device of claim 14, wherein the first flag comprises a POC MSB flag designated as sps_poc_msb_cycle_flag.

16. The decoding device of any of claims 14 to 15, wherein the second flag comprises another POC MSB flag and is designated as ph_poc_msb_cycle_present_flag.

17. The decoding device of any of claims 14 to 16, wherein the second flag is a picture-level flag.

18. An encoding device, comprising:

a memory containing instructions;

a processor coupled to the memory, the processor configured to implement the instructions to cause the encoding device to:

set a first flag in a sequence parameter set (SPS) to a value to specify that a second flag is present in a header referring to the SPS;

provide an indicator of a length of a picture order count (POC) most significant bits (MSB) value in the SPS when present in the header referring to the SPS;

set the second flag to a value to specify that the POC MSB value is present in the header; and

encode the SPS and the header into a bitstream; and

a transmitter coupled to the processor, the transmitter configured to transmit the bitstream toward a video decoder.

19. The encoding device of claim 18, wherein the first flag comprises a POC MSB flag designated as sps_poc_msb_cycle_flag, and wherein the second flag comprises another POC MSB flag and is designated as ph_poc_msb_cycle_present_flag.

20. The encoding device of any of claims 18 to 19, wherein the second flag is a picture-level flag.

21. A coding apparatus, comprising:

a receiver configured to receive a picture to encode or to receive a bitstream to decode;

a transmitter coupled to the receiver, the transmitter configured to transmit the bitstream to a decoder or to transmit a decoded image to a display;

a memory coupled to at least one of the receiver or the transmitter, the memory configured to store instructions; and

a processor coupled to the memory, the processor configured to execute the instructions stored in the memory to perform the method in any of claims 1 to 9 and any of claims 10 to 13.

22. The coding apparatus of claim 20, further comprising a display configured to display a decoded picture.

~~23. A system, comprising:~~

~~an encoder; and~~

~~a decoder in communication with the encoder, wherein the encoder or the decoder includes the decoding device, the encoding device, or the coding apparatus of any of claims 15 to 22.~~

~~24. A means for coding, comprising:~~

~~receiving means configured to receive a picture to encode or to receive a bitstream to decode;~~

~~transmission means coupled to the receiving means, the transmission means configured to transmit the bitstream to a decoding means or to transmit a decoded image to a display means;~~

~~storage means coupled to at least one of the receiving means or the transmission means, the storage means configured to store instructions; and~~

~~processing means coupled to the storage means, the processing means configured to execute the instructions stored in the storage means to perform the method in any of claims 1 to 9 and any of claims 10 to 13.~~

23. A non-transitory storage medium comprising a bitstream decoded by performing the method of any one of claims 1 to 9.

24. A non-transitory computer readable storage medium, tangibly embodying computer program code, which, when executed by a computer unit, causes the computer unit to perform the method of any one of claims 1 to 9.