CLAIMS

1. A method of decoding a video bitstream implemented by a decoding device, wherein a sequence parameter set, SPS, is coded in the video bitstream and contains syntax elements that apply to a video sequence, the method comprising:

obtaining (1410) a value of a first syntax element and a value of a third syntax element from the SPS, wherein the value of the first syntax element is used to specify whether a decoded picture buffer, DPB, parameters syntax structure is present in the SPS, and wherein the value of the third syntax element plus 1 specifies a maximum number of temporal sublayers that are present in the video sequence referring to the SPS; and

at least when determining that the DPB parameters syntax structure is present in the SPS based on the value of the first syntax element:

determining whether the maximum number of the temporal sublayers in the video bitstream is greater than 1 based on the value of the third syntax element; and

when determining that the maximum number of temporal sublayers is greater than 1:

obtaining (1420) a value of a second syntax element from the SPS, wherein the value of the second syntax element is used to specify presence of a DPB syntax element in the DPB parameters syntax structure, wherein the DPB syntax element is applied to a temporal sublayer except for the highest temporal sublayer in the video sequence; and

obtaining, from the SPS, the DPB parameters syntax structure with the value of the third syntax element as a first input parameter and the value of the second syntax element as a second input parameter.

2. The method of claim 1, wherein the method further comprises:

obtaining a value of the DPB syntax element based on the value of the second syntax element; and

reconstructing the video sequence based on the value of the DPB syntax element.

3. The method of claim 2, wherein the obtaining the value of the DPB syntax element based on

the value of the second syntax element comprises:

obtaining the value of the DPB syntax element from the DPB parameters syntax structure, when determining that the value of the second syntax element specifies that the DPB syntax element is present in the DPB parameters syntax structure; or

setting the value of the DPB syntax element equal to a value of another DPB syntax element applied to the highest temporal sublayer in the DPB parameters syntax structure, when determining that the value of the second syntax element specifies that the DPB syntax element is not present in the DPB parameters syntax structure.

4. The method of any one of claims 2 to 3, wherein the reconstructing the video sequence based on the value of the DPB syntax element comprises: configuring the DPB based on the value of the DPB syntax element; and reconstructing the video sequence using the DPB.

5. The method of any one of claims 2 to 3, wherein the reconstructing the video sequence based on the value of the DPB syntax element comprises: reconstructing the video sequence based on determining that the DPB used satisfies the requirement specified by the value of the DPB syntax element.

6. A method of encoding a video bitstream implemented by an encoding device, wherein a sequence parameter set, SPS, is encoded in the video bitstream and contains syntax elements that apply to a video sequence, the method comprising:

encoding a first syntax element and a third syntax element into the SPS, wherein a value of the first syntax element specifies whether a decoded picture buffer, DPB, parameters syntax structure is present in the SPS, and wherein a value of the third syntax element plus 1 specifies a maximum number of temporal sublayers that are present in the video sequence referring to the SPS;

when determining (1510) that the DPB parameters syntax structure is present in the SPS based

on the value of the first syntax element:

encoding (1540) a second syntax element into the SPS when determining that the maximum number of temporal sublayers that are present in the video sequence referring to the SPS is greater than one based on the value of the third syntax element, wherein a value of the second syntax element is used to specify whether a DPB syntax element is present in the DPB parameters syntax structure, wherein the DPB syntax element is applied to a temporal sublayer except for the highest temporal sublayer in the video sequence; and

encoding, into the SPS, the DPB parameters syntax structure with the value of the third syntax element as a first input parameter and the value of the second syntax element as a second input parameter.

7. The method of claim 6, wherein the method further comprises: determining a value of the DPB syntax element when determining that the DPB syntax element is present in the DPB parameters syntax structure; and reconstructing the video sequence based on the value of the DPB syntax element.

8. The method of claim 6, wherein the method further comprises: setting the value of the DPB syntax element equal to a value of another DPB syntax element applied to the highest temporal sublayer in the DPB parameters syntax structure; and reconstructing the video sequence based on the value of the DPB syntax element.

9. The method of any one of claims 7 to 8, the reconstructing the video sequence based on the value of the DPB syntax element comprises: configuring the DPB to satisfy the value of the DPB syntax element; and reconstructing the video sequence using the DPB.

10. An apparatus (1600) for decoding a coded video bitstream, wherein a sequence parameter set, SPS, is coded in the video bitstream and contains syntax elements that apply to a video sequence, wherein the apparatus comprises:

an obtaining unit (1610) configured to obtain a value of a first syntax element and a value of a third syntax element from a SPS coded in the video bitstream, wherein the value of the first syntax element is used to specify whether a decoded picture buffer, DPB, parameters syntax structure is present in the SPS, and wherein the value of the third syntax element plus 1 specifies a maximum number of temporal sublayers that are present in the video sequence referring to the SPS; and

a determining unit (1620) configured to determine whether the value of the first syntax element specifies that the DPB parameters syntax structure is present in the SPS, and at least when determining that the DPB parameters syntax structure is present in the SPS based on the value of the first syntax element, to determine whether the maximum number of the temporal sublayers in the video bitstream is greater than 1 based on the value of the third syntax element; and wherein the obtaining unit is further configured to obtain a value of a second syntax element from the SPS, when determining that the maximum number of temporal sublayers is greater than 1, at least when determining that the value of the first syntax element specifies that the DPB parameters syntax structure is present in the SPS, wherein the value of the second syntax element is used to specify the presence of a DPB syntax element in the DPB parameters syntax structure, wherein the DPB syntax element is applied to a temporal sublayer except for the highest temporal sublayer in the video sequence, and wherein the obtaining unit is further configured to obtain, from the SPS, the DPB parameters syntax structure with the value of the third syntax element as a first input parameter and the value of the second syntax element as a second input parameter.

11. An apparatus (1700) for encoding a video bitstream, wherein a sequence parameter set, SPS, is encoded in the video bitstream and contains syntax elements that apply to a video sequence, wherein the apparatus comprises:

a determining unit (1710) configured to determine the presence of a decoded picture buffer, DPB, parameters syntax structure in a SPS encoded in the video bitstream, and to obtain and encode a value of a first syntax element and a value of a third syntax element into the SPS, wherein the value of the first syntax element specifies whether the DPB parameters syntax structure is present in the SPS, and wherein the value of the third syntax element plus 1 specifies a maximum number of temporal sublayers that are present in the video sequence referring to the SPS, and when determining that the DPB parameters syntax structure is present in the SPS based on the value of the first syntax element; and

an encoding unit (1720) configured to encode a value of a first syntax element into the SPS based on the determining of the presence of the DPB parameters syntax structure in the SPS, wherein the value of the first syntax element is used to specify whether the DPB parameters syntax structure is present in the SPS; wherein

the determining unit (1710) is further configured to determine the presence of a DPB syntax element in the DPB parameters syntax structure, when determining that the DPB parameters syntax structure is present in the SPS, and to determine whether the maximum number of temporal sublayers that are present in the video sequence referring to the SPS is greater than one based on the value of the third syntax element, wherein the DPB syntax element is applied to a temporal sublayer except for the highest temporal sublayer in the video sequence; and wherein

the encoding unit (1720) is further configured to encode a value of a second syntax element into the SPS based on the determining of the presence of the DPB syntax element in the DPB parameters syntax structure, wherein the value of the second syntax element is used to specify the presence of the DPB syntax element in the DPB parameters syntax structure, when determining that the maximum number of temporal sublayers that are present in the video sequence referring to the SPS is greater than one based on the value of the third syntax element, and wherein the encoding unit (1720) is further configured to encode, into the SPS, the DPB parameters syntax structure with the value of the third syntax element as a first input parameter and the value of the second syntax element as a second input parameter.

12. An encoder comprising processing circuitry for carrying out the method according to any one of claims 6 to 9.

13. A decoder comprising processing circuitry for carrying out the method according to any one of claims 1 to 5.

14. A computer program product comprising a program code for performing the method according to any one of the claims 1 to 9 when executed on a computer or a processor.

15. A decoder, 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 the claims 1 to 5.

16. An encoder, 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 encoder to carry out the method according to any one of the claims 6 to 9.

17. A non-transitory computer-readable medium carrying a program code which, when executed by a computer device, causes the computer device to perform the method of any one of the claims

1 to 9.

18. A non-transitory storage medium which includes an encoded bitstream, the bitstream being generated by dividing a current picture of a video signal or an image signal into a plurality blocks, and comprising a plurality of syntax elements, wherein the plurality of syntax elements comprises a first syntax element in a SPS, wherein the value of the first syntax element is used to specify whether a decoded picture buffer, DPB, parameters syntax structure is present in the SPS; and a third syntax element in the SPS, wherein the value of the third syntax element plus 1 specifies a maximum number of temporal sublayers that are present in the video sequence referring to the SPS; in case that the value of the first syntax element specifies that the DPB parameters syntax structure is present in the SPS, the bitstream further comprises a second syntax element in the SPS, wherein the value of the second syntax element is used to specify the presence of a DPB syntax element in the DPB parameters syntax structure, wherein the DPB syntax element is applied to a temporal sublayer except for the highest temporal sublayer in the video sequence, and, when the maximum number of temporal sublayers that are present in the video sequence referring to the SPS is greater than one based on the value of the third syntax element, the DPB parameters syntax structure is encoded in the SPS with the value of the third syntax element as a first input parameter and the value of the second syntax element as a second input parameter.

19. An encoded bitstream, wherein the bitstream being generated by dividing a current picture of a video signal or an image signal into a plurality blocks, and comprising a plurality of syntax elements, wherein the plurality of syntax elements comprises a first syntax element in a SPS, wherein the value of the first syntax element is used to specify whether a decoded picture buffer, DPB, parameters syntax structure is present in the SPS; and a third syntax element in the SPS, wherein the value of the third syntax element plus 1 specifies a maximum number of temporal sublayers that are present in the video sequence referring to the SPS; in case that the value of the first syntax element specifies that the DPB parameters syntax structure is present in the SPS, the

bitstream further comprises a second syntax element in the SPS, wherein the value of the second syntax element is used to specify the presence of a DPB syntax element in the DPB parameters syntax structure, wherein the DPB syntax element is applied to a temporal sublayer except for the highest temporal sublayer in the video sequence, and, when the maximum number of temporal sublayers that are present in the video sequence referring to the SPS is greater than one based on the value of the third syntax element, the DPB parameters syntax structure is encoded in the SPS with the value of the third syntax element as a first input parameter and the value of the second syntax element as a second input parameter..