Amended Set of Claims

1. A method of processing video data, the method comprising:

receiving a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures;

receiving a message from an external means indicating whether to use an alternative set of coded picture buffer (CPB) parameters for at least one of the one or more CRA pictures or the one or more the BLA pictures;

setting a variable defined to indicate the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the received message; and

selecting the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the variable.

2. The method of claim 1, further comprising initializing a hypothetical reference decoder (HRD) using the at least one of the one or more CRA pictures or the one or more BLA pictures and associated HRD parameters, wherein the HRD parameters include the selected set of CPB parameters.

3. The method of claim 1, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable does not indicate the alternative set of CPB parameters, and wherein selecting the set of CPB parameters comprises selecting a default set of CPB parameters.

4. The method of claim 1, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable indicates the alternative set of CPB parameters, and wherein selecting the set of CPB parameters comprises selecting the alternative set of CPB parameters.

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5. The method of claim 1, further comprising setting a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, wherein selecting the set of CPB parameters comprises selecting the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the variable.

6. The method of claim 5, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, and wherein setting the NAL unit type comprises setting the NAL unit type for the CRA picture handled as the BLA picture based on the variable.

7. The method of claim 6, wherein setting the NAL unit type for the CRA picture handled as the BLA picture comprises:

based on the variable indicating the alternative set of CPB parameters, setting the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with decodable leading pictures; and

based on the variable not indicating the alternative set of CPB parameters, setting the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with non-decodable leading pictures.

8. The method of claim 5, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture, and wherein setting the NAL unit type comprises setting the NAL unit type for the CRA picture to indicate a general CRA picture as signaled in the bitstream.

9. The method of claim 5, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture, and wherein setting the NAL unit type comprises setting the NAL unit type for the CRA picture to indicate one of a CRA picture with non-decodable leading pictures, a CRA picture with decodable leading pictures, or a CRA picture with no leading pictures as signaled in the bitstream.

10. (Canceled).

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11. The method of claim 1, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures had non-decodable leading pictures in an original bitstream and the non-decodable leading pictures have been discarded by the external means, and wherein the received message indicates to use the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

12. The method of claim 1, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures did not have non-decodable leading pictures in an original bitstream or had non-decodable leading pictures in the original bitstream and the non-decodable leading pictures have not been discarded by the external means, and wherein the received message does not indicate to use the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

13. The method of claim 1, further comprising:

not receiving a message indicating whether to use the alternative set of CPB parameters for another one of the one or more CRA pictures or the one or more BLA pictures;

setting the variable to not indicate the alternative set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures; and

selecting the set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures based on the variable.

14. The method of claim 1, wherein the CPB parameters include initial CPB removal delays and initial CPB removal delay offsets.

15. The method of claim 1, further comprising applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a CPB included in a video decoding device to ensure that the CPB does not overflow during decoding of the video data.

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16. The method of claim 1, further comprising applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a first CPB included in a video encoding device to ensure that the first CPB included in the video encoding device will not overflow during encoding of the video data, and ensure that a second CPB included in a video decoding device does not overflow upon receiving an encoded bitstream generated by the video encoding device.

17. A video coding device for processing video data, the device comprising:

a coded picture buffer (CPB) configured to store video data; and

one or more processors configured to receive a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures, receive a message from an external means indicating whether to use an alternative set of CPB parameters for at least one of the one or more CRA pictures or the one or more BLA pictures, setting a variable defined to indicate the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the received message, and selecting the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the variable.

18. The video coding device of claim 17, wherein the processors are configured to initialize a hypothetical reference decoder (HRD) using the at least one of the one or more CRA pictures or the one or more BLA pictures and associated HRD parameters, wherein the HRD parameters include the selected set of CPB parameters.

19. The video coding device of claim 17, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable does not indicate the alternative set of CPB parameters, and wherein the processors are configured to select a default set of CPB parameters.

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20. The video coding device of claim 17, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable indicates the alternative set of CPB parameters, and wherein the processors are configured to select the alternative set of CPB parameters.

21. The video coding device of claim 17, wherein the processors are configured to set a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, and select the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the variable.

22. The video coding device of claim 21, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, and wherein the processors are configured to set the NAL unit type for the CRA picture handled as the BLA picture based on the variable.

23. The video coding device of claim 22, wherein:

based on the variable indicating the alternative set of CPB parameters, the processors are configured to set the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with decodable leading pictures; and

based on the variable not indicating the alternative set of CPB parameters, the parameters are configured to set the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with non-decodable leading pictures.

24. The video coding device of claim 21, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture, and wherein the processors are configured to set the NAL unit type for the CRA picture to indicate a general CRA picture as signaled in the bitstream.

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25. The video coding device of claim 21, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture, and wherein the processors are configured to set the NAL unit type for the CRA picture to indicate one of a CRA picture with non-decodable leading pictures, a CRA picture with decodable leading pictures, or a CRA picture with no leading pictures as signaled in the bitstream.

26. (Canceled).

27. The video coding device of claim 17, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures had non-decodable leading pictures in an original bitstream and the non-decodable leading pictures have been discarded by the external means, and wherein the received message indicates to use the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

28. The video coding device of claim 17, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures did not have non-decodable leading pictures in an original bitstream or had non-decodable leading pictures in the original bitstream and the non-decodable leading pictures have not been discarded by the external means, and wherein the received message does not indicate to use the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

29. The video coding device of claim 17, wherein the processors are configured to:

not receive a message indicating whether to use the alternative set of CPB parameters for another one of the one or more CRA pictures or the one or more BLA pictures;

set the variable to not indicate the alternative set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures; and

select the set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures based on the variable.

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30. The video coding device of claim 17, wherein the CPB parameters include initial CPB removal delays and initial CPB removal delay offsets.

31. The video coding device of claim 17, wherein the processors are configured to apply the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a CPB included in a video decoding device to ensure that the CPB does not overflow during decoding of the video data.

32. The video coding device of claim 17, wherein the processors are configured to apply the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a first CPB included in a video encoding device to ensure that the first CPB included in the video encoding device will not overflow during encoding of the video data, and ensure that a second CPB included in a video decoding device does not overflow upon receiving an encoded bitstream generated by the video encoding device.

33. A video coding device for processing video data, the device comprising:

means for receiving a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures;

means for receiving a message from an external means indicating whether to use an alternative set of coded picture buffer (CPB) parameters for at least one of the one or more CRA pictures or the one or more BLA pictures;

means for setting a variable defined to indicate the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the received message; and

means for selecting the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the variable.

34. The video coding device of claim 33, further comprising means for initializing a hypothetical reference decoder (HRD) using the at least one of the one or more CRA pictures or the one or more BLA pictures and associated HRD parameters, wherein the HRD parameters include the selected set of CPB parameters.

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35. The video coding device of claim 33, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable does not indicate the alternative set of CPB parameters, further comprising means for selecting a default set of CPB parameters.

36. The video coding device of claim 33, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable indicates the alternative set of CPB parameters, further comprising means for selecting the alternative set of CPB parameters.

37. The video coding device of claim 33, further comprising means for setting a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, and means for selecting the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the variable.

38. The video coding device of claim 37, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, further comprising means for setting the NAL unit type for the CRA picture handled as the BLA picture based on the variable.

39. (Canceled).

40. The video coding device of claim 33, further comprising means for applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a CPB included in a video decoding device to ensure that the CPB does not overflow during decoding of the video data.

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41. The video coding device of claim 33, further comprising means for applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a first CPB included in a video encoding device to ensure that the first CPB included in the video encoding device will not overflow during encoding of the video data, and ensure that a second CPB included in a video decoding device does not overflow upon receiving an encoded bitstream generated by the video encoding device.

42. A computer-readable medium comprising instructions for processing video data, the instructions, when executed, cause one or more processors to:

receive a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures;

receive a message from an external means indicating whether to use an alternative set of coded picture buffer (CPB) parameters for at least one of the one or more CRA pictures or the one or more BLA pictures;

set a variable defined to indicate the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the received message; and

select the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the variable.

43. The computer-readable medium of claim 42, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable does not indicate the alternative set of CPB parameters, and wherein the instructions cause the processors to select a default set of CPB parameters.

44. The computer-readable medium of claim 42, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the variable indicates the alternative set of CPB parameters, and wherein the instructions cause the processors to select the alternative set of CPB parameters.

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45. The computer-readable medium of claim 42, wherein the instructions cause the processors to set a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, and select the set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the variable.

46. The computer-readable medium of claim 45, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, and wherein the instructions cause the processor to set the NAL unit type for the CRA picture handled as the BLA picture based on the variable.

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CLAIMS

1. A method of processing video data, the method comprising:

receiving a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures;

receiving, from an external device, a message specifying a value of a variable UseAltCpbParamsFlag, the variable UseAltCpbParamsFlag being indicative of whether to use an alternative set of coded picture buffer (CPB) parameters for at least one of the one or more CRA pictures or the one or more BLA pictures;

setting the value of the variable UseAltCpbParamsFlag based on the value specified by the received message; and

selecting one of a default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the value of the variable UseAltCpb-ParamsFlag.

2. The method of claim **1**, further comprising initializing a hypothetical reference decoder (HRD) using the at least one of the one or more CRA pictures or the one or more BLA pictures and associated HRD parameters, wherein the HRD parameters include the selected set of CPB parameters.

3. The method of claim **1**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures is associated with a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture that may have at least one of associated non-decodable leading pictures or associated decodable leading pictures, wherein the value of the variable UseAltCpbParamsFlag does not indicate use of the alternative set of CPB parameters, and wherein selecting one of the default set of CPB parameters or the alternative set of CPB parameters comprises selecting the default set of CPB parameters.

4. The method of claim **1**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures is associated with a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture that may have at least one of associated non-decodable leading pictures or associated decodable leading pictures, wherein the value of the variable UseAltCpbParamsFlag indicates use of the alternative set of CPB parameters, and wherein selecting one of the default set of CPB parameters or the alternative set of CPB parameters comprises selecting the alternative set of CPB parameters.

5. The method of claim **1**, further comprising setting a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, wherein selecting one of a default set of CPB param-

eters or the alternative set of CPB parameters comprises selecting the one of a default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the value of the variable UseAltCpbParamsFlag.

6. The method of claim **5**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, and wherein setting the NAL unit type comprises setting the NAL unit type for the CRA picture handled as the BLA picture based on the value of the variable UseAltCpbParams-Flag.

7. The method of claim **6**, wherein setting the NAL unit type for the CRA picture handled as the BLA picture comprises:

based on the value of the variable UseAltCpbParamsFlag indicating use of the alternative set of CPB parameters, setting the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with associated decodable leading pictures; and

based on the value of the variable UseAltCpbParamsFlag not indicating use of the alternative set of CPB parameters, setting the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with associated non-decodable leading pictures.

8. The method of claim **5**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture, and wherein setting the NAL unit type comprises setting the NAL unit type for the CRA picture to indicate a general CRA picture.

9. The method of claim **5**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures

comprises a CRA picture, and wherein setting the NAL unit type comprises setting the NAL unit type for the CRA picture to indicate one of a CRA picture with associated non-decodable leading pictures, a CRA picture with associated decodable leading pictures, or a CRA picture with no leading pictures.

10. The method of claim **1**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures had associated non-decodable leading pictures in an original bitstream and the associated non-decodable leading pictures have been discarded by the external device, and wherein the value of the variable UseAltCpbParamsFlag indicates use of the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

11. The method of claim **1**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures did not have associated non-decodable leading pictures in an original bitstream or had associated non-decodable leading pictures in the original bitstream and the associated non-decodable leading pictures have not been discarded by the external device, and wherein the value of the variable UseAltCpbParamsFlag does not indicate use of the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

12. The method of claim **1**, further comprising:

setting, based on not receiving a message indicating whether to use the alternative set of CPB parameters for another one of the one or more CRA pictures or the one or more BLA pictures, the value of the variable UseAltCpbParamsFlag to not indicate use of the alternative set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures; and

selecting the default set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures based on the value of the variable UseAltCpbParamsFlag.

13. The method of claim **1**, wherein each of the default set of CPB parameters and the alternative set of CPB parameters includes initial CPB removal delays and initial CPB removal delay offsets.

14. The method of claim **1**, further comprising applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a CPB included in a video decoding device to ensure that the CPB does not overflow during decoding of the video data.

15. The method of claim **1**, further comprising applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a first CPB included in a video encoding device to ensure that the first CPB included in the video encoding device will not overflow during encoding of the video data, and ensure that a second CPB included in a video decoding device does not overflow upon receiving an encoded bitstream generated by the video encoding device.

16. A video coding device for processing video data, the device comprising:

a coded picture buffer (CPB) configured to store video data; and

one or more processors configured to:

receive a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures,

receive, from an external device, a message specifying a value of a variable UseAltCpbParamsFlag, the variable UseAltCpbParamsFlag being indicative of whether to use an alternative set of coded picture buffer (CPB)

parameters for at least one of the one or more CRA pictures or the one or more BLA pictures,

set the value of the variable UseAltCpbParamsFlag based on the value specified by the received message, and

select one of a default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the value of the variable UseAltCpbParamsFlag.

17. The video coding device of claim **16**, wherein the one or more processors are further configured to initialize a hypothetical reference decoder (HRD) using the at least one of the one or more CRA pictures or the one or more BLA pictures and associated HRD parameters, wherein the HRD parameters include the selected set of CPB parameters for the picture.

18. The video coding device of claim **16**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures is associated with a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture that may have at least one of associated non-decodable leading pictures or associated decodable leading pictures, wherein the value of the variable UseAltCpbParamsFlag does not indicate use of the alternative set of CPB parameters, and wherein the one or more processors are further configured to select the default set of CPB parameters.

19. The video coding device of claim **16**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures is associated with a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture that may have at least one of associated non-decodable leading pictures or associated decodable leading pictures, wherein the value of the variable UseAltCpbParams-

Flag indicates use of the alternative set of CPB parameters, and wherein the one or more processors are further configured to select the alternative set of CPB parameters.

20. The video coding device of claim **16**, wherein the one or more processors are further configured to set a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, and select the one of a default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the value of the variable UseAltCpbParamsFlag.

21. The video coding device of claim **20**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, and wherein the one or more processors are further configured to set the NAL unit type for the CRA picture handled as the BLA picture based on the value of the variable UseAltCpbParamsFlag.

22. The video coding device of claim **21**, wherein:

based on the value of the variable UseAltCpbParamsFlag indicating use of the alternative set of CPB parameters, the one or more processors are further configured to set the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with associated decodable leading pictures; and

based on the value of the variable UseAltCpbParamsFlag not indicating use of the alternative set of CPB parameters, the one or more processors are further configured to set the NAL unit type for the CRA picture handled as the BLA picture to indicate a BLA picture with associated non-decodable leading pictures.

23. The video coding device of claim **20**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture, and wherein the one or more processors are further configured to set the NAL unit type for the CRA picture to indicate a general CRA picture.

24. The video coding device of claim **20**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture, and wherein the one or more processors are further configured to set the NAL unit type for the CRA picture to indicate one of a CRA picture with associated non-decodable leading pictures, a CRA picture with associated decodable leading pictures, or a CRA picture with no leading pictures.

25. The video coding device of claim **16**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures had associated non-decodable leading pictures in an original bitstream and the associated non-decodable leading pictures have been discarded by the external device, and wherein the value of the variable UseAltCpbParamsFlag indicates use of the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

26. The video coding device of claim **16**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures did not have associated non-decodable leading pictures in an original bitstream or had associated non-decodable leading pictures in the original bitstream and the associated non-decodable leading pictures have not been discarded by the external device, and wherein the value of the variable UseAltCpbParamsFlag does not indicate use of the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures.

27. The video coding device of claim **16**, wherein the one or more processors are further configured to:

set, based on a lack of receipt of a message indicative of whether to use the alternative set of CPB parameters for another one of the one or more CRA pictures or the one or more BLA pictures, the value of the variable UseAltCpbParamsFlag to not indicate use of the alternative set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures; and

select the default set of CPB parameters for the another one of the one or more CRA pictures or the one or more BLA pictures based on the value of the variable UseAltCpbParamsFlag.

28. The video coding device of claim **16**, wherein each of the default set of CPB parameters and the alternative set of CPB parameters includes initial CPB removal delays and initial CPB removal delay offsets.

29. The video coding device of claim **16**, wherein the one or more processors are further configured to apply the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a CPB included in a video decoding device to ensure that the CPB does not overflow during decoding of the video data.

30. The video coding device of claim **16**, wherein the one or more processors are further configured to apply the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a first CPB included in a video encoding device to ensure that the first CPB included in the video encoding device will not overflow during encoding of the video data, and ensure that a second CPB included in a video decoding device does not overflow upon receiving an encoded bitstream generated by the video encoding device.

31. A video coding device for processing video data, the device comprising:

means for receiving a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures;

means for receiving, from an external device, a message specifying a value of a variable UseAltCpbParamsFlag, the variable UseAltCpbParamsFlag being indicative of whether to use an alternative set of coded picture buffer (CPB) parameters for at least one of the one or more CRA pictures or the one or more BLA pictures;

means for setting the value of the variable UseAltCpb-ParamsFlag based on the value specified by the received message; and

means for selecting one of a default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the value of the variable Use-AltCpbParamsFlag.

32. The video coding device of claim **31**, further comprising means for initializing a hypothetical reference decoder (HRD) using the at least one of the one or more CRA pictures or the one or more BLA pictures and associated HRD parameters, wherein the HRD parameters include the selected set of CPB parameters.

33. The video coding device of claim **31**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures is associated with a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture that may have at least one of associated non-decodable leading pictures or associated decodable leading pictures, wherein the value of the variable UseAltCpbParams-Flag does not indicate use of the alternative set of CPB

parameters, further comprising means for selecting the default set of CPB parameters.

34. The video coding device of claim **31**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures is associated with a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture that may have at least one of associated non-decodable leading pictures or associated decodable leading pictures, wherein the value of the variable UseAltCpbParamsFlag indicates use of the alternative set of CPB parameters, further comprising means for selecting the alternative set of CPB parameters.

35. The video coding device of claim **31**, further comprising means for setting a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, and means for selecting the one of a default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the value of the variable UseAltCpbParamsFlag.

36. The video coding device of claim **35**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, further comprising means for setting the NAL unit type for the CRA picture handled as the BLA picture based on the value of the variable UseAltCpbParamsFlag.

37. The video coding device of claim **31**, further comprising means for applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a CPB included in a video decoding device to ensure that the CPB does not overflow during decoding of the video data.

38. The video coding device of claim **31**, further comprising means for applying the selected set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures to a first CPB included in a video encoding device to ensure that the first CPB included in the video encoding device will not overflow during encoding of the video data, and ensure that a second CPB included in a video decoding device does not overflow upon receiving an encoded bitstream generated by the video encoding device.

39. A non-transitory computer-readable medium comprising instructions for processing video data, the instructions, when executed, cause one or more processors to:

receive a bitstream representing a plurality of pictures including one or more clean random access (CRA) pictures or one or more broken link access (BLA) pictures;

receive, from an external device, a message specifying a value of a variable UseAltCpbParamsFlag, the variable UseAltCpbParamsFlag being indicative of whether to use an alternative set of coded picture buffer (CPB) parameters for at least one of the one or more CRA pictures or the one or more BLA pictures;

set the value of the variable UseAltCpbParamsFlag based on the value specified by the received message; and

select one of a default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the value of the variable UseAltCpbParamsFlag.

40. The non-transitory computer-readable medium of claim **39**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures is associated with a network abstraction layer (NAL) unit type that indicates one

of a CRA picture or a BLA picture that may have at least one of associated non-decodable leading pictures or associated decodable leading pictures, wherein the value of the variable UseAltCpbParamsFlag does not indicate use of the alternative set of CPB parameters, and wherein the instructions cause the one or more processors to select the default set of CPB parameters.

41. The non-transitory computer-readable medium of claim **39**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises one of a CRA picture or a BLA picture with a network abstraction layer (NAL) unit type that indicates one of a CRA picture or a BLA picture with non-decodable leading pictures and the value of the variable UseAltCpbParamsFlag indicates the alternative set of CPB parameters, and wherein the instructions cause the one or more processors to select the alternative set of CPB parameters for the picture.

42. The non-transitory computer-readable medium of claim **39**, wherein the instructions cause the one or more processors to set a network abstraction layer (NAL) unit type for the at least one of the one or more CRA pictures or the one or more BLA pictures, and select the one of the default set of CPB parameters or the alternative set of CPB parameters for the at least one of the one or more CRA pictures or the one or more BLA pictures based on the NAL unit type and the value of the variable UseAltCpbParamsFlag.

43. The non-transitory computer-readable medium of claim **42**, wherein the at least one of the one or more CRA pictures or the one or more BLA pictures comprises a CRA picture that is handled as a BLA picture, and wherein the instructions cause the one or more processors to set the NAL unit type for the CRA picture handled as the BLA picture based on the value of the variable UseAltCpbParamsFlag.