

CLAIMS

What is claimed is:

1. A method implemented by a decoder, the method comprising:
receiving, by a receiver of the decoder, a bitstream comprising a hypothetical reference decoder (HRD) parameters syntax structure and one or more layers of coded pictures such that all of the layers are associated with a same number of coded picture buffer (CPB) delivery schedules as specified by the HRD parameters syntax structure; and
decoding, by a processor of the decoder, a picture from one of the layers to obtain a decoded picture.
2. The method of claim 1, wherein the CPB delivery schedules are associated with a set of bitstream conformance tests performed by a HRD operating on an encoder.
3. The method of any of claims 1-2, wherein the number of CPB delivery schedules are specified in a HRD CPB count minus one (`hrd_cpb_cnt_minus1`), and wherein `hrd_cpb_cnt_minus1` is in a range of zero to thirty one, inclusive.
4. The method of any of claims 1-3, wherein the layers are organized into one or more output layer sets (OLSs), and wherein a corresponding CPB delivery schedule for a target OLS is referenced by a schedule index (`ScIdx`) in a range of zero to a value of `hrd_cpb_cnt_minus1`, inclusive.
5. The method of any of claims 1-4, wherein each of the CPB delivery schedules is described by a network abstraction layer (NAL) initial CPB removal delay (`nal_initial_cpb_removal_delay`) and a NAL initial CPB removal offset (`nal_initial_cpb_removal_offset`).
6. The method of any of claims 1-5, wherein each layer is associated with a buffering period (BP) CPB count minus1 (`bp_cpb_cnt_minus1`) plus one that specifies a number of `nal_initial_cpb_removal_delay` and `nal_initial_cpb_removal_offset` pairs for the each layer, and wherein `bp_cpb_cnt_minus1` is equal to the value of `hrd_cpb_cnt_minus1`.

7. The method of any of claims 1-6, wherein the HRD parameters HRD parameters is included in the bitstream in a video parameter set (VPS) specifying the OLSs.
8. A method implemented by an encoder, the method comprising:
 - encoding, by a processor of the encoder, a bitstream comprising one or more layers of coded pictures;
 - encoding into the bitstream, by the processor, a hypothetical reference decoder (HRD) parameters syntax structure specifying that all of the layers are associated with a same number of coded picture buffer (CPB) delivery schedules; and
 - performing, by the processor, a set of bitstream conformance tests on the layers based on the CPB delivery schedules.
9. The method of claim 8, wherein the set of bitstream conformance tests are performed by a HRD operating on the processor.
10. The method of any of claims 8-9, wherein the number of CPB delivery schedules are specified in a HRD CPB count minus one (`hrd_cpb_cnt_minus1`), and wherein `hrd_cpb_cnt_minus1` is in a range of zero to thirty one, inclusive.
11. The method of any of claims 8-10, wherein the layers are organized into one or more output layer sets (OLSs), and wherein a corresponding CPB delivery schedule for a target OLS is referenced by a schedule index (`ScIdx`) in a range of zero to a value of `hrd_cpb_cnt_minus1`, inclusive.
12. The method of any of claims 8-11, wherein each of the CPB delivery schedules is described by a network abstraction layer (NAL) initial CPB removal delay (`nal_initial_cpb_removal_delay`) and a NAL initial CPB removal offset (`nal_initial_cpb_removal_offset`).
13. The method of any of claims 8-12, wherein each layer is associated with a buffering period (BP) CPB count minus1 (`bp_cpb_cnt_minus1`) plus one that specifies a number of `nal_initial_cpb_removal_delay` and `nal_initial_cpb_removal_offset` pairs for the each layer, and wherein `bp_cpb_cnt_minus1` is equal to the value of `hrd_cpb_cnt_minus1`.

14. The method of any of claims 8-13, wherein the HRD parameters syntax structure is encoded in the bitstream in a video parameter set (VPS) specifying the OLSs.

15. A video coding device comprising:

a processor, a receiver coupled to the processor, a memory coupled to the processor, and a transmitter coupled to the processor, wherein the processor, receiver, memory, and transmitter are configured to perform the method of any of claims 1-14.

16. A non-transitory computer readable medium comprising a computer program product for use by a video coding device, the computer program product comprising computer executable instructions stored on the non-transitory computer readable medium such that when executed by a processor cause the video coding device to perform the method of any of claims 1-14.

17. A decoder comprising:

a receiving means for receiving a bitstream comprising a hypothetical reference decoder (HRD) parameters syntax structure and one or more layers of coded pictures such that all of the layers are associated with a same number of coded picture buffer (CPB) delivery schedules as specified by the HRD parameters syntax structure;

a decoding means for decoding a picture from one of the layers to obtain a decoded picture; and

a forwarding means for forwarding the decoded picture for display as part of a decoded video sequence.

18. The decoder of claim 17, wherein the decoder is further configured to perform the method of any of claims 1-7.

19. An encoder comprising:
an encoding means for:
encoding a bitstream comprising one or more layers of coded pictures; and
encoding into the bitstream a hypothetical reference decoder (HRD) parameters
syntax structure specifying that all of the layers are associated with a same number of
coded picture buffer (CPB) delivery schedules;
a HRD means for performing a set of bitstream conformance tests on the layers based on
the CPB delivery schedules; and
a storing means for storing the bitstream for communication toward a decoder.
20. The encoder of claim 19, wherein the encoder is further configured to perform the
method of any of claims 8-14.
21. A computer-readable medium comprising a bitstream encoded or decoded by the method
of any one of claims 1-14.