

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 plurality of sublayer representations, hypothetical reference decoder (HRD) parameters, and a sublayer coding picture buffer (CPB) parameters present flag (sublayer_cpb_params_present_flag); wherein a sublayer representation is a subset of the bitstream containing network abstraction layer (NAL) units of a particular sublayer and the lower sublayers;
inferring, by a processor of the decoder, that the HRD parameters for all sublayer representations with temporal identifiers (TemporalIds) less than a maximum TemporalId are equal to the HRD parameters for a maximum sublayer representation with the maximum TemporalId when the sublayer_cpb_params_present_flag is set to zero; and
decoding, by the processor, a picture from the plurality of sublayer representations.
2. The method of claim 1, wherein the sublayer_cpb_params_present_flag is contained in a video parameter set (VPS) in the bitstream.
3. The method of any one of claims 1-2, wherein a maximum TemporalId of a maximum sublayer representation is expressed as HRD maximum TemporalId (hrd_max_tid[i]) where i indicates an ith HRD parameter syntax structure.
4. The method of any one of claims 1-3, wherein the TemporalIds less than the maximum TemporalId range from zero to hrd_max_tid[i] minus one.
5. The method of any one of claims 1-4, wherein the HRD parameters include a fixed picture rate general flag (fixed_pic_rate_general_flag[i]) that indicates whether a temporal distance between the HRD output times of consecutive pictures in output order is constrained.
6. The method of any one of claims 1-4, wherein the HRD parameters include a sublayer HRD parameters (sublayer_hrd_parameters(i)) syntax structure that contains HRD parameters for one or more sublayers.

7. The method of any one of claims 1-4, wherein the HRD parameters include a general video coding layer (VCL) HRD parameters present flag (general_vcl_hrd_params_present_flag) that indicates whether VCL HRD parameters pertaining to a conformance point are present in a general HRD parameters syntax structure.
8. A method implemented by an encoder, the method comprising:
encoding, by a processor of the encoder, a plurality of sublayer representations into a bitstream; wherein a sublayer representation is a subset of the bitstream containing network abstraction layer (NAL) units of a particular sublayer and the lower sublayers;
encoding into the bitstream, by the processor, hypothetical reference decoder (HRD) parameters and a sublayer coding picture buffer (CPB) parameters present flag (sublayer_cpb_params_present_flag);
inferring, by the processor, that the HRD parameters for all sublayer representations with temporal identifiers (TemporalIds) less than a maximum TemporalId are equal to the HRD parameters for a maximum sublayer representation with the maximum TemporalId when the sublayer_cpb_params_present_flag is set to zero; and
performing, by the processor, a set of bitstream conformance tests on the bitstream based on the HRD parameters.
9. The method of claim 8, wherein the sublayer_cpb_params_present_flag is encoded into a video parameter set (VPS) in the bitstream.
10. The method of any one of claims 8-9, wherein the maximum TemporalId of the maximum sublayer representation is expressed as HRD maximum TemporalId (hrd_max_tid[i]) where i indicates an ith HRD parameter syntax structure.
11. The method of any one of claims 8-10, wherein the TemporalIds less than the maximum TemporalId range from zero to hrd_max_tid[i] minus one.
12. The method of any one of claims 8-11, wherein the HRD parameters include a fixed picture rate general flag (fixed_pic_rate_general_flag[i]) that indicates whether a temporal distance between HRD output times of consecutive pictures in output order is constrained.

13. The method of any one of claims 8-12, wherein the HRD parameters include a sublayer HRD parameters (sublayer_hrd_parameters(i)) syntax structure that contains HRD parameters for one or more sublayers.

14. The method of any one of claims 8-13, wherein the HRD parameters include a general video coding layer (VCL) HRD parameters present flag (general_vcl_hrd_params_present_flag) that indicates whether VCL HRD parameters pertaining to a conformance point are present in a general HRD parameters syntax structure.

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 one of claims 1-14.

16. A computer program which causes a video coding device to perform the method of any one of claims 1-14.

17. A decoder comprising:

a receiving means for receiving a bitstream comprising a plurality of sublayer representations, hypothetical reference decoder (HRD) parameters, and a sublayer coding picture buffer (CPB) parameters present flag (sublayer_cpb_params_present_flag); wherein a sublayer representation is a subset of the bitstream containing network abstraction layer (NAL) units of a particular sublayer and the lower sublayers;

an inferring means for inferring that the HRD parameters for all sublayer representations with temporal identifiers (TemporalIds) less than a maximum TemporalId are equal to the HRD parameters for a maximum sublayer representation with the maximum TemporalId when the sublayer_cpb_params_present_flag is set to zero;

a decoding means for decoding a picture from the plurality of sublayer representations; and

a forwarding means for forwarding the 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 one of claims 1-7.

19. An encoder comprising:
an encoding means for:
encoding a plurality of sublayer representations into a bitstream; wherein a sublayer representation is a subset of the bitstream containing network abstraction layer (NAL) units of a particular sublayer and the lower sublayers;
encoding into the bitstream hypothetical reference decoder (HRD) parameters and a sublayer coding picture buffer (CPB) parameters present flag (sublayer_cpb_params_present_flag);
an inferring means for inferring that the HRD parameters for all sublayer representations with temporal identifiers (TemporalIds) less than a maximum TemporalId are equal to the HRD parameters for a maximum sublayer representation with the maximum TemporalId when the sublayer_cpb_params_present_flag is set to zero;
a HRD means for performing a set of bitstream conformance tests on the bitstream based on the HRD parameters; 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 one of claims 8-14.
21. A data structure comprising a bitstream encoded by the method of any one of claims 8-14, wherein the sublayer_cpb_params_present_flag equal to zero causes a decoder to infer that the HRD parameters for all sublayer representations with temporal identifiers (TemporalIds) less than a maximum TemporalId are equal to the HRD parameters for a maximum sublayer representation with the maximum TemporalId.