

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);
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 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 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 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 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 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 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;
 - 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 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 *i*th HRD parameter syntax structure.
11. The method of any 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 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 the HRD output times of consecutive pictures in output order is constrained.

13. The method of any 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 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 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 plurality of sublayer representations, 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 decoding means for decoding a picture from the 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 of claims 1-7.

19. An encoder comprising:
an encoding means for:
encoding a plurality of sublayer representations into a bitstream;
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 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.