

CLAIMS

What is claimed is:

1. A method implemented in a decoder, the method comprising:
receiving, by a receiver of the decoder, a bitstream comprising one or more layers of coded pictures and a video parameter set (VPS), wherein an each layer is an output layer set (OLS) flag (`each_layer_is_an_ols_flag`) is included in the VPS when all layers specified by the VPS are independently coded without inter-layer prediction, the `each_layer_is_an_ols_flag` specifying whether each OLS contains only one layer;
decoding, by a processor of the decoder, a coded picture from an output layer of an OLS based on the `each_layer_is_an_ols_flag` in the VPS to produce a decoded picture; and
forwarding, by the processor, the decoded picture for display as part of a decoded video sequence.
2. The method of claim 1, wherein the `each_layer_is_an_ols_flag` is set to one when specifying that each OLS contains only one layer and each layer is the only output layer in the each OLS.
3. The method of any of claims 1-2, wherein the `each_layer_is_an_ols_flag` is set to zero when specifying that at least one OLS contains more than one layer.
4. The method of any of claims 1-3, wherein a total number of OLSs are explicitly signaled and layers associated with OLSs are explicitly signaled when an OLS mode identification code (`ols_mode_idc`) is equal to two, and wherein the `ols_mode_idc` is inferred to be equal to two when a VPS all independent layers flag (`vps_all_independent_layers_flag`) is set to one and when the `each_layer_is_an_ols_flag` is set to zero.
5. The method of any of claims 1-4, wherein the VPS includes a `vps_all_independent_layers_flag` set to one to specify that all layers specified by the VPS are independently coded without inter-layer prediction.

6. The method of any of claims 1-5, wherein the VPS includes a VPS maximum layers minus one (`vps_max_layers_minus1`) syntax element specifying a number of layers specified by the VPS, and wherein the `vps_all_independent_layers_flag` is signaled when `vps_max_layers_minus1` is greater than zero.
7. The method of any of claims 1-6, wherein the VPS includes a number of output layer sets minus one (`num_output_layer_sets_minus1`) that specifies a total number of OLSs specified by the VPS when `ols_mode_idc` is equal to two.
8. A method implemented in 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 video parameter set (VPS), the VPS including an each layer is an output layer set (OLS) flag (`each_layer_is_an_ols_flag`) when all layers specified by the VPS are independently coded without inter-layer prediction, the `each_layer_is_an_ols_flag` specifying whether each OLS contains only one layer; and
 - storing, by a memory coupled to the processor, the bitstream for communication toward a decoder.
9. The method of claim 8, wherein the `each_layer_is_an_ols_flag` is set to one when specifying that each OLS contains only one layer and each layer is the only output layer in the each OLS.
10. The method of any of claims 8-10, wherein the `each_layer_is_an_ols_flag` is set to zero when specifying that at least one OLS contains more than one layer.
11. The method of any of claims 8-10, wherein a total number of OLSs are explicitly signaled and layers associated with OLSs are explicitly signaled when an OLS mode identification code (`ols_mode_idc`) is equal to two, and wherein the `ols_mode_idc` is inferred to be equal to two when a VPS all independent layers flag (`vps_all_independent_layers_flag`) is set to one and when the `each_layer_is_an_ols_flag` is set to zero.

12. The method of any of claims 8-11, wherein the VPS includes a `vps_all_independent_layers_flag` set to one to specify that all layers specified by the VPS are independently coded without inter-layer prediction.

13. The method of any of claims 8-12, wherein the VPS includes a VPS maximum layers minus one (`vps_max_layers_minus1`) syntax element specifying a number of layers specified by the VPS, and wherein the `vps_all_independent_layers_flag` is signaled when `vps_max_layers_minus1` is greater than zero.

14. The method of any of claims 8-13, wherein the VPS includes a number of output layer sets minus one (`num_output_layer_sets_minus1`) that specifies a total number of OLSs specified by the VPS when `ols_mode_idc` is equal to two.

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 one or more layers of coded pictures and a video parameter set (VPS), wherein an each layer is an output layer set (OLS) flag (`each_layer_is_an_ols_flag`) is included in the VPS when all layers specified by the VPS are independently coded without inter-layer prediction, the `each_layer_is_an_ols_flag` specifying whether each OLS contains only one layer;

a decoding means for decoding a coded picture from an output layer of an OLS based on the `each_layer_is_an_ols_flag` in the VPS to produce 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 video parameter set (VPS) including an each layer is an output layer set (OLS) flag (each_layer_is_an_ols_flag) when all layers specified by the VPS are independently coded without inter-layer prediction, the each_layer_is_an_ols_flag specifying whether each OLS contains only one layer; 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.