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 one or more layers and a scalable nesting supplemental enhancement information (SEI) message, wherein the scalable nesting SEI message includes one or more scalable-nested SEI messages and a scalable nesting output layer set (OLS) flag, and wherein the scalable nesting OLS flag is set to specify whether the scalable-nested SEI messages apply to specific OLSs or specific layers; and

decoding, by a processor of the decoder, a coded picture from the one or more layers, based on the scalable-nested SEI messages, to produce a decoded picture.

2. The method of claim 1, wherein the scalable nesting OLS flag is set to one when specifying that the scalable-nested SEI messages apply to specific OLSs, and wherein the scalable nesting OLS flag is set to zero when specifying that the scalable-nested SEI messages apply to specific layers.

3. The method of any of claims 1-2, wherein the scalable nesting OLS flag is set to one when the scalable nesting SEI message contains an SEI message that has a payload type of buffering period, picture timing, or decoding unit information.

4. The method of any of claims 1-3, wherein the scalable nesting SEI message includes a scalable nesting number of OLSs minus one (num_olss_minus1) syntax element when the scalable nesting OLS flag is set to one, and wherein the scalable nesting num_olss_minus1 syntax element specifies a number of OLSs to which the scalable-nested SEI messages apply, and wherein a value of the scalable nesting num_olss_minus1 syntax element is in a range of zero to a total number of OLSs (TotalNumOlss) − 1, inclusive.

5. The method of any of claims 1-4, wherein the scalable nesting SEI message includes a scalable nesting OLS delta minus one (ols_idx_delta_minus1[i]) syntax element used to derive a nesting OLS index (NestingOlsIdx[i]) that specifies an OLS index of an i-th OLS to which the scalable-nested SEI messages apply when the scalable nesting OLS flag is equal to

one, wherein a value of the scalable nesting ols_idx_delta_minus1[i] syntax element is in a range of zero to the TotalNumOlss − 2, inclusive.

6. The method of any of claims 1-5, further comprising deriving NestingOlsIdx[i] as follows:

if(i = = 0)

NestingOlsIdx[i] = scalable nesting ols_idx_delta_minus1[i]

else

NestingOlsIdx[i] = NestingOlsIdx[i − 1] + scalable nesting ols_idx_delta_minus1[i] + 1.

7. The method of any of claims 1-6, wherein the scalable nesting SEI message includes a scalable nesting number of layers minus one (num_layers_minus1) syntax element when the scalable nesting OLS flag is set to zero, and wherein the scalable nesting num_layers_minus1 syntax element specifies a number of layers to which the scalable-nested SEI messages apply.

~~8. A method implemented by an encoder, the method comprising:~~

~~encoding, by a processor of the encoder, a bitstream comprising one or more layers;~~

~~encoding into the bitstream, by the processor, a scalable nesting supplemental enhancement information (SEI) message, wherein the scalable nesting SEI message includes one or more scalable-nested SEI messages and a scalable nesting output layer set (OLS) flag, and wherein the scalable nesting OLS flag is set to specify whether the scalable-nested SEI messages apply to specific OLSs or specific layers;~~

~~performing, by the processor, a set of bitstream conformance tests based on the scalable nesting SEI message; and~~

~~storing, by a memory coupled to the processor, the bitstream for communication toward a decoder.~~

~~9. The method of claim 8, wherein the scalable nesting OLS flag is set to one when specifying that the scalable-nested SEI messages apply to specific OLSs, and wherein the scalable nesting OLS flag is set to zero when specifying that the scalable-nested SEI messages apply to specific layers.~~

10. The method of any of claims 8-9, wherein the scalable nesting OLS flag is set to one when the scalable nesting SEI message contains an SEI message that has a payload type of buffering period, picture timing, or decoding unit information.

11. The method of any of claims 8-10, wherein the scalable nesting SEI message includes a scalable nesting number of OLSs minus one (num_olss_minus1) syntax element when the scalable nesting OLS flag is set to one, and wherein the scalable nesting num_olss_minus1 syntax element specifies a number of OLSs to which the scalable nested SEI messages apply, and wherein a value of the scalable nesting num_olss_minus1 syntax element is in a range of zero to a total number of OLSs (TotalNumOlss) − 1, inclusive.

12. The method of any of claims 8-11, wherein the scalable nesting SEI message includes a scalable nesting OLS delta minus one (ols_idx_delta_minus1[i]) syntax element used to derive a nesting OLS index (NestingOlsIdx[i]) that specifies an OLS index of an i-th OLS to which the scalable nested SEI messages apply when the scalable nesting OLS flag is equal to one, wherein a value of the scalable nesting ols_idx_delta_minus1[i] syntax element is in a range of zero to the TotalNumOlss − 2, inclusive.

13. The method of any of claims 8-12, further comprising deriving NestingOlsIdx[i] as follows:

if(i == 0)
NestingOlsIdx[i] = scalable nesting ols_idx_delta_minus1[i]
else
NestingOlsIdx[i] = NestingOlsIdx[i − 1] + scalable nesting ols_idx_delta_minus1[i] + 1.

14. The method of any of claims 8-13, wherein the scalable nesting SEI message includes a scalable nesting number of layers minus one (num_layers_minus1) syntax element when the scalable nesting OLS flag is set to zero, and wherein the scalable nesting num_layers_minus1 syntax element specifies a number of layers to which the scalable-nested SEI messages apply.

~~15~~8. 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~~7.

~~16~~9. A non-transitory computer readable medium comprising executable instructions~~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~~7.

~~17~~10. A decoder comprising:

a receiving means for receiving a bitstream comprising one or more layers and a scalable nesting supplemental enhancement information (SEI) message, wherein the scalable nesting SEI message includes one or more scalable-nested SEI messages and a scalable nesting output layer set (OLS) flag, and wherein the scalable nesting OLS flag is set to specify whether the scalable-nested SEI messages apply to specific OLSs or specific layers;

a decoding means for decoding a coded picture from the one or more layers, based on the scalable-nested SEI messages, to produce a decoded picture; and

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

~~18~~11. The decoder of claim ~~17~~10, 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; and~~

~~encoding into the bitstream a scalable nesting supplemental enhancement information (SEI) message, wherein the scalable nesting SEI message includes one or more scalable-nested SEI messages and a scalable nesting output layer set (OLS) flag, and wherein the scalable nesting OLS flag is set to specify whether the scalable-nested SEI messages apply to specific OLSs or specific layers;~~

~~a hypothetical reference decoder (HRD) means for performing a set of bitstream conformance tests based on the scalable nesting SEI message; 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.~~