**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 and a scalable nesting supplemental enhancement information (SEI) message in a current SEI network abstraction layer (NAL) unit, wherein the scalable nesting SEI message contains scalable-nested SEI messages and a scalable nesting all layers flag (all_layers_flag) that specifies whether the scalable-nested SEI messages apply to all layers that have a layer identifier (Id) that is greater than or equal to a layer Id of the current SEI NAL unit;

wherein the scalable nesting all_layers_flag equals one when specifying that the scalable-nested SEI messages apply to all layers that have a NAL unit header layer Id (nuh_layer_id) greater than or equal to a nuh_layer_id of the current SEI NAL unit, wherein nuh_layer_id is a syntax element that specifies an identifier of a layer, and wherein the scalable nesting all_layers_flag equals zero when specifying that the scalable-nested SEI messages might or might not apply to all layers that have a nuh_layer_id greater than or equal to a nuh_layer_id of the current SEI NAL unit;

deriving, a number of nesting layers (nestingNumLayers), and a list of nesting layer Ids (NestingLayerId[i]) wherein the nestingNumLayers specifies a number of layers to which the scalable-nested SEI messages apply, and wherein the NestingLayerId[i]) specifies a list of nuh_layer_id values of the layers to which the scalable-nested SEI messages apply for i in a range of zero to nestingNumLayers minus one, inclusive, and wherein the nestingNumLayers and the NestingLayerId[i] are derived as follows:

```
if( scalable nesting all_layers_flag ) {
   nestingNumLayers = vps_max_layers_minus1 + 1 −  GeneralLayerIdx[ nuh_layer_id ]
   for( i = 0; i < nestingNumLayers; i ++)
            NestingLayerId[ i ] = vps_layer_id[ GeneralLayerIdx[ nuh_layer_id ] + i ]
} else {
    nestingNumLayers = scalable nesting num_layers_minus1 + 1
    for( i = 0; i < nestingNumLayers; i ++)
            NestingLayerId[ i ] = ( i  = = 0 ) ? nuh_layer_id : scalable nesting layer_id[ i ]
}
```

where vps_max_layers_minus1 plus one specifies a number of layers specified by a video parameter set (VPS), GeneralLayerIdx is a variable specifying a layer index of a layer with nuh_layer_id equal to vps_layer_id[ i ], vps_layer_id[i] specifies a nuh_layer_id value of an i-th layer, scalable nesting num_layers_minus1 plus one specifies a number of layers to which the scalable-nested SEI messages apply, and scalable nesting layer_id[i] specifies a nuh_layer_id value of an i-th layer to which the scalable-nested SEI messages apply;

decoding, by a processor of the decoder, a coded picture from the one or more layers to produce a decoded picture; and

forwarding, by the processor, the decoded picture for display as part of a decoded video sequence.

2. A method implemented in a video 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 in a current SEI network abstraction layer (NAL) unit, wherein the scalable nesting SEI message contains

scalable-nested SEI messages and a scalable nesting all layers flag (all_layers_flag) that specifies whether the scalable-nested SEI messages apply to all layers that have a layer identifier (Id) that is greater than or equal to a layer Id of the current SEI NAL unit;

wherein the scalable nesting all_layers_flag equals one when specifying that the scalable-nested SEI messages apply to all layers that have a NAL unit header layer Id (nuh_layer_id) greater than or equal to a nuh_layer_id of the current SEI NAL unit, wherein nuh_layer_id is a syntax element that specifies an identifier of a layer, and wherein the scalable nesting all_layers_flag equals zero when specifying that the scalable-nested SEI messages might or might not apply to all layers that have a nuh_layer_id greater than or equal to a nuh_layer_id of the current SEI NAL unit;

deriving, a number of nesting layers (nestingNumLayers), and a list of nesting layer Ids (NestingLayerId[i]) wherein the nestingNumLayers specifies a number of layers to which the scalable-nested SEI messages apply, and wherein the NestingLayerId[i]) specifies a list of nuh_layer_id values of the layers to which the scalable-nested SEI messages apply for i in a range of zero to nestingNumLayers minus one, inclusive, and wherein the nestingNumLayers and the NestingLayerId[i] are derived as follows:

```
if( scalable nesting all_layers_flag ) {
   nestingNumLayers = vps_max_layers_minus1 + 1 −  GeneralLayerIdx[ nuh_layer_id ]
   for( i = 0; i < nestingNumLayers; i ++)
         NestingLayerId[ i ] = vps_layer_id[ GeneralLayerIdx[ nuh_layer_id ] + i ]
} else {
    nestingNumLayers = scalable nesting num_layers_minus1 + 1
    for( i = 0; i < nestingNumLayers; i ++)
         NestingLayerId[ i ] = ( i  = = 0 ) ? nuh_layer_id : scalable nesting layer_id[ i ]
}
```

where vps_max_layers_minus1 plus one specifies a number of layers specified by a video parameter set (VPS), GeneralLayerIdx is a variable specifying a layer index of a layer with nuh_layer_id equal to vps_layer_id[ i ], vps_layer_id[i] specifies a nuh_layer_id value of an i-th layer, scalable nesting num_layers_minus1 plus one specifies a number of layers to which the scalable-nested SEI messages apply, and scalable nesting layer_id[i] specifies a nuh_layer_id value of an i-th layer to which the scalable-nested SEI messages apply;

performing, by the processor, a set of bitstream conformance tests on the layers based on the scalable-nested SEI messages; and

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

3. A decoder comprising:

a receiving means for receiving a bitstream comprising one or more layers and a scalable nesting supplemental enhancement information (SEI) message in a current SEI network abstraction layer (NAL) unit, wherein the scalable nesting SEI message contains scalable-nested SEI messages and a scalable nesting all layers flag (all_layers_flag) that specifies whether the scalable-nested SEI messages apply to all layers that have a layer identifier (Id) that is greater than or equal to a layer Id of the current SEI NAL unit;

wherein the scalable nesting all_layers_flag equals one when specifying that the scalable-nested SEI messages apply to all layers that have a NAL unit header layer Id (nuh_layer_id) greater than or equal to a nuh_layer_id of the current SEI NAL unit, wherein nuh_layer_id is a syntax element that specifies an identifier of a layer, and wherein the scalable nesting all_layers_flag equals zero when specifying that the scalable-nested SEI

messages might or might not apply to all layers that have a nuh_layer_id greater than or equal to a nuh_layer_id of the current SEI NAL unit;

deriving, a number of nesting layers (nestingNumLayers), and a list of nesting layer Ids (NestingLayerId[i]) wherein the nestingNumLayers specifies a number of layers to which the scalable-nested SEI messages apply, and wherein the NestingLayerId[i]) specifies a list of nuh_layer_id values of the layers to which the scalable-nested SEI messages apply for i in a range of zero to nestingNumLayers minus one, inclusive, and wherein the nestingNumLayers and the NestingLayerId[i] are derived as follows:

```
if( scalable nesting all_layers_flag ) {
   nestingNumLayers = vps_max_layers_minus1 + 1 −  GeneralLayerIdx[ nuh_layer_id ]
   for( i = 0; i < nestingNumLayers; i ++)
         NestingLayerId[ i ] = vps_layer_id[ GeneralLayerIdx[ nuh_layer_id ] + i ]
} else {
    nestingNumLayers = scalable nesting num_layers_minus1 + 1
    for( i = 0; i < nestingNumLayers; i ++)
         NestingLayerId[ i ] = ( i  = = 0 ) ? nuh_layer_id : scalable nesting layer_id[ i ]
}
```

where vps_max_layers_minus1 plus one specifies a number of layers specified by a video parameter set (VPS), GeneralLayerIdx is a variable specifying a layer index of a layer with nuh_layer_id equal to vps_layer_id[ i ], vps_layer_id[i] specifies a nuh_layer_id value of an i-th layer, scalable nesting num_layers_minus1 plus one specifies a number of layers to which the scalable-nested SEI messages apply, and scalable nesting layer_id[i] specifies a nuh_layer_id value of an i-th layer to which the scalable-nested SEI messages apply;

a decoding means for decoding a coded picture from the one or more layers to produce a decoded picture; and

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

4. A video 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 in a current SEI network abstraction layer (NAL) unit, wherein the scalable nesting SEI message contains scalable-nested SEI messages and a scalable nesting all layers flag (all_layers_flag) that specifies whether the scalable-nested SEI messages apply to all layers that have a layer identifier (Id) that is greater than or equal to a layer Id of the current SEI NAL unit;

wherein the scalable nesting all_layers_flag equals one when specifying that the scalable-nested SEI messages apply to all layers that have a NAL unit header layer Id (nuh_layer_id) greater than or equal to a nuh_layer_id of the current SEI NAL unit, wherein nuh_layer_id is a syntax element that specifies an identifier of a layer, and wherein the scalable nesting all_layers_flag equals zero when specifying that the scalable-nested SEI messages might or might not apply to all layers that have a nuh_layer_id greater than or equal to a nuh_layer_id of the current SEI NAL unit;

deriving, a number of nesting layers (nestingNumLayers), and a list of nesting layer Ids (NestingLayerId[i]) wherein the nestingNumLayers specifies a number of layers to which the scalable-nested SEI messages apply, and

wherein the NestingLayerId[i]) specifies a list of nuh_layer_id values of the layers to which the scalable-nested SEI messages apply for i in a range of zero to nestingNumLayers minus one, inclusive, and wherein the nestingNumLayers and the NestingLayerId[i] are derived as follows:

```
if( scalable nesting all_layers_flag ) {
   nestingNumLayers = vps_max_layers_minus1 + 1 −  GeneralLayerIdx[ nuh_layer_id ]
   for( i = 0; i < nestingNumLayers; i ++)
            NestingLayerId[ i ] = vps_layer_id[ GeneralLayerIdx[ nuh_layer_id ] + i ]
} else {
    nestingNumLayers = scalable nesting num_layers_minus1 + 1
    for( i = 0; i < nestingNumLayers; i ++)
            NestingLayerId[ i ] = ( i  = = 0 ) ? nuh_layer_id : scalable nesting layer_id[ i ]
}
```

where vps_max_layers_minus1 plus one specifies a number of layers specified by a video parameter set (VPS), GeneralLayerIdx is a variable specifying a layer index of a layer with nuh_layer_id equal to vps_layer_id[ i ], vps_layer_id[i] specifies a nuh_layer_id value of an i-th layer, scalable nesting num_layers_minus1 plus one specifies a number of layers to which the scalable-nested SEI messages apply, and scalable nesting layer_id[i] specifies a nuh_layer_id value of an i-th layer to which the scalable-nested SEI messages apply;

a hypothetical reference decoder (HRD) means for performing a set of bitstream conformance tests on the layers based on the scalable-nested SEI messages; and

a storing means for storing the bitstream for communication toward a decoder.