

CLAIMS

1. A method of decoding implemented by a video decoder, comprising:
receiving, by the video decoder, a video bitstream including a plurality of layers and a sequence parameter set (SPS) including a flag, wherein each of the plurality of layers referring to the SPS has a same set of decoded picture buffer (DPB) parameters regardless of whether each of the plurality of layers is an output layer, each output layer being one of the plurality of layers designated for output, or a non-output layer when the flag has a first value, wherein each of the plurality of layers referring to the SPS has a first set of DPB parameters that apply to output layers and a second set of DPB parameters that apply to non-output layers when the flag has a second value, and wherein the DPB parameters contain DPB size information, maximum picture reorder number and maximum latency information; and
decoding, by the video decoder, a picture from one of the plurality of layers to obtain a decoded picture, the decoding comprising processing the DPB parameters of the selected layer.
2. The method of claim 1, wherein the plurality of layers comprise an output layer, the method further comprising selecting the output layer from the plurality of layers prior to the decoding, and selecting the picture from the output layer after the output layer has been selected.
3. The method of any of claims 1 to 2, wherein the DPB parameters include a picture reorder number and latency information.
4. A method of encoding implemented by a video encoder, the method comprising:
generating, by the video encoder, a plurality of layers and a sequence parameter set (SPS) including a flag;
setting, by the video encoder, the flag in the SPS to a first value or a second value, wherein the first value specifies that each of the plurality of layers referring to the SPS has a same set of decoded picture buffer (DPB) parameters regardless of whether each of the plurality of layers is an output layer, each output layer being one of the plurality of layers designated for output, or a non-output layer, wherein the second value specifies that each of the plurality of layers referring to the SPS has a first set of DPB parameters that apply to output layers and a second set of DPB parameters that apply to non-output layers, and wherein the DPB parameters contain DPB size information, maximum picture reorder number and maximum latency information;
encoding, by the video encoder, the plurality of layers and the SPS into a video bitstream; and
storing, by the video encoder, the video bitstream for communication toward a video decoder.
5. The method of claim 4, wherein the DPB parameters comprise one or more DPB sizes.
6. The method of claim 4, wherein the DPB parameters include only a single DPB size.
7. The method of any of claims 4 to 6, wherein the DPB parameters includes one or more of a picture reorder number and latency information.

8. A decoding device, comprising:
- a receiver configured to receive a video bitstream including a plurality of layers and a sequence parameter set (SPS) including a flag, wherein each of the plurality of layers referring to the SPS has a same set of decoded picture buffer (DPB) parameters regardless of whether each of the plurality of layers is an output layer, each output layer being one of the plurality of layers designated for output, or a non-output layer when the flag has a first value, wherein each of the plurality of layers referring to the SPS has a first set of DPB parameters that apply to output layers and a second set of DPB parameters that apply to non-output layers when the flag has a second value, and wherein the DPB parameters contain DPB size information, maximum picture reorder number and maximum latency information;
 - a memory coupled to the receiver, the memory storing instructions; and
 - a processor coupled to the memory, the processor configured to execute the instructions to cause the decoding device to decode a picture from one of the plurality of layers to obtain a decoded picture, the decoding comprising processing the DPB parameters of the selected layer
9. The decoding device of claim 8, wherein the processor is further configured to:
- select an output layer from one of the one or more layers prior to the decoding; and
 - select the picture from the output layer after the output layer has been selected.
10. The decoding device of claim 8, wherein the DPB parameters include a picture reorder number.
11. The decoding device of any of claims 8 to 10, wherein the DPB parameters include latency information.
12. An encoding device, comprising:
- a memory containing instructions;
 - a processor coupled to the memory, the processor configured to implement the instructions to cause the encoding device to:
- generate a plurality of layers and a sequence parameter set (SPS) including a flag;
 - set the flag in the SPS to a first value when each of the plurality of layers referring to the SPS has a same set of decoded picture buffer (DPB) parameters regardless of whether each of the plurality of layers is an output layer, each output layer being one of the plurality of layers designated for output, or a non-output layer;
 - set the flag in the SPS to a second value when each of the plurality of layers referring to the SPS has a first set of DPB parameters that apply to output layers and a second set of DPB parameters that apply to non-output layers, wherein the DPB parameters contain DPB size information, maximum picture reorder number and maximum latency information; and
 - encode the plurality of layers and the SPS into a video bitstream; and
 - a transmitter coupled to the processor, the transmitter configured to transmit the video bitstream toward a video decoder.

13. The encoding device of claim 12, wherein the processor is further configured to cause the encoding device to designate one of the plurality of layers as an output layer and designate another of the plurality of layers as a non-output layer.
14. The encoding device of claim 12, wherein the DPB parameters include only a single DPB size.
15. A coding apparatus, comprising:
 - a receiver configured to receive a picture to encode or to receive a bitstream to decode;
 - a transmitter coupled to the receiver, the transmitter configured to transmit the bitstream to a decoder or to transmit a decoded image to a display;
 - a memory coupled to at least one of the receiver or the transmitter, the memory configured to store instructions; and
 - a processor coupled to the memory, the processor configured to execute the instructions stored in the memory to perform the method in any of claims 1 to 3 and any of claims 4 to 7.