

CLAIMS

1. A method of processing Versatile Video Coding (VVC) video data, the method comprising:

obtaining a bitstream that comprises an encoded representation of the video data, wherein the bitstream includes network abstraction layer (NAL) units, including a coded slice NAL unit for a slice of a picture of a current layer of the video data, wherein each NAL unit in the bitstream includes a syntax element specifying a layer identifier and a syntax element specifying a temporal identifier;

determining whether the layer identifier of a Luma Mapping and Chroma Scaling (LMCS) Adaptation Parameter Set (APS) NAL unit that is applicable to the coded slice NAL unit, is equal to the layer identifier of the coded slice NAL unit and is equal to the layer identifier of any layer that is allowed to be used to predict the current layer of the coded slice NAL unit, wherein the LMCS APS NAL unit that is applicable to the coded slice NAL unit has an APS identifier specified by an LMCS APS identifier syntax element for the coded slice NAL unit; and

decoding the bitstream in response to determining that the layer identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is equal to the layer identifier of the coded slice NAL unit and is equal to the layer identifier of any layer that is allowed to be used to predict the current layer of the coded slice NAL unit.

2. The method of claim 1, wherein:

the method further comprises determining whether the temporal identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is less than or equal to the temporal identifier of the coded slice NAL unit; and

decoding the bitstream in response to determining that the temporal identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is less than or equal to the temporal identifier of the coded slice NAL unit.

3. A computer-readable data storage medium having stored thereon instructions that, when executed, cause one or more processors to perform the method of claim 1 or claim 2.

4. A device for encoding Versatile Video Coding (VVC) video data, the device comprising:

means for obtaining a bitstream that comprises an encoded representation of the video data, wherein the bitstream includes network abstraction layer (NAL) units, including a coded slice NAL unit for a slice of a picture of a current layer of the video data, wherein each NAL unit in the bitstream includes a syntax element specifying a layer identifier and a syntax element specifying a temporal identifier;

means for determining whether the layer identifier of a Luma Mapping and Chroma Scaling (LMCS) Adaptation Parameter Set (APS) NAL unit that is applicable to the coded slice NAL unit, is equal to the layer identifier of the coded slice NAL unit and is equal to the layer identifier of any layer that is allowed to be used to predict the current layer of the coded slice NAL unit, wherein the LMCS APS NAL unit that is applicable to the coded slice NAL unit has an APS identifier specified by an LMCS APS identifier syntax element for the coded slice NAL unit; and

means for decoding the bitstream in response to determining that the layer identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is equal to the layer identifier of the coded slice NAL unit and is equal to the layer identifier of any layer that is allowed to be used to predict the current layer of the coded slice NAL unit.

5. The device of claim 4, wherein the device further comprises:

means for determining whether the temporal identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is less than or equal to the temporal identifier of the coded slice NAL unit; and

means for decoding the bitstream in response to determining that the temporal identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is less than or equal to the temporal identifier of the coded slice NAL unit.

6. A device for processing Versatile Video Coding (VVC) video data, the device comprising:

a memory to store the video data; and

one or more processors implemented in circuitry, the one or more processors configured to:

obtain a bitstream that comprises an encoded representation of the video data, wherein the bitstream includes network abstraction layer (NAL) units, including a coded slice NAL unit for a slice of a picture of a current layer of the video data, wherein each NAL unit in the bitstream includes a syntax element specifying a layer identifier and a syntax element specifying a temporal identifier;

determine whether the layer identifier of Luma Mapping and Chroma Scaling (LMCS) Adaptation Parameter Set (APS) NAL unit that is applicable to the coded slice NAL unit, is equal to the layer identifier of the coded slice NAL unit and is equal to the layer identifier of any layer that is allowed to be used to predict the current layer of the coded slice NAL unit, wherein the LMCS APS NAL unit that is applicable to the coded slice NAL unit has an APS identifier specified by an LMCS APS identifier syntax element for the coded slice NAL unit; and

decode the bitstream in response to determining that the layer identifier of the LMCS APS NAL unit is equal to the layer identifier of the coded slice NAL unit and is equal to the layer identifier of any layer that is allowed to be used to predict the current layer of the coded slice NAL unit.

7. The device of claim 6, further comprising a display configured to display decoded video data.

8. The device of claim 6, wherein the one or more processors are further configured to:

determine whether the temporal identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is less than or equal to the temporal identifier of the coded slice NAL unit; and

decode the bitstream in response to determining that the temporal identifier of the LMCS APS NAL unit that is applicable to the coded slice NAL unit is less than or equal to the temporal identifier of the coded slice NAL unit.

9. The device of claim 6, wherein the device comprises one or more of a camera, a computer, a mobile device, a broadcast receiver device, or a set-top box.