

CLAIMS

1. A method implemented in a decoder, the method comprising:
 - receiving a bitstream comprising syntax of video data, wherein the video data comprises information of a plurality of pictures;
 - partitioning a picture of the plurality of pictures into a plurality of coded slices, wherein the syntax comprises a plurality of adaptation parameter sets (APSs) including a plurality of APS types associated with a coded slice of the coded slices, wherein each APS includes an APS identifier (ID), and wherein each of the APS types uses a separate value space for the APS ID;
 - decoding the coded slice using parameters from the plurality of APSs obtained based on the APS IDs;
 - wherein the plurality of APS types include an adaptive loop filter (ALF) type containing ALF parameters, a luma mapping with chroma scaling (LMCS) type containing LMCS parameters;
 - wherein the APS is a syntax structure containing syntax elements that apply to slices, the LMCS parameters are used for a LMCS which is a process that scale chroma values based on luma mappings, and wherein the ALF parameters are used for an ALF which is a filter that is controlled by parameters included in the ALF APS; and
 - wherein each of the separate value spaces extend over a predefined range, and wherein the predefined ranges are determined based on the APS types;
 - wherein each APS includes an APS parameter type (aps_params_type) set to a predefined value indicating the parameter type of each APS, and the parameter type indicates the ALF parameters or the LMCS parameters.
2. The method of claim 1, wherein the separate value spaces are overlapping.
3. The method of claim 1 or 2, wherein the plurality of APS types include a scaling list type containing scaling list parameters, wherein the scaling list parameters are included in a scaling list for a transform process.
4. The method of any of claims 1 to 3, wherein a current APS includes a current APS ID selected from a predefined range across a current value space, wherein the current APS ID is related to a previous APS ID associated with a previous APS of a same type as the current APS, and wherein the current APS ID is not related to another previous APS ID associated with another previous APS of a different type than the current APS.
5. The method of any of claims 1 to 4, wherein each APS is identified by a combination of a current APS type and a current APS ID.
6. A method implemented in an encoder, the method comprising:
 - receiving a video data comprising a plurality of pictures;
 - partitioning a picture of the plurality of pictures into a plurality of slices;
 - determining a plurality of types of parameters employed for encoding a slice of the plurality of slices;

encoding the slice into a bitstream as a coded slice;
 encoding the plurality of types of parameters into a plurality of adaptation parameter sets (APSs) of the bitstream by including the plurality of types of parameters in a plurality of APS types;
 assigning an APS identifier (ID) to each of the APSs, wherein each of the APS types uses a separate value space for the APS ID;
 encoding each APS ID into the plurality of APSs;
 wherein the plurality of APS types include an adaptive loop filter (ALF) type containing ALF parameters, a luma mapping with chroma scaling (LMCS) type containing LMCS parameters;
 wherein the APS is a syntax structure containing syntax elements that apply to slices, the LMCS parameters are used for a LMCS which is a process that scale chroma values based on luma mappings, and wherein the ALF parameters are used for an ALF which is a filter that is controlled by parameters included in the ALF APS; and
 wherein each of the separate value spaces extend over a predefined range, and wherein the predefined ranges are determined based on the APS types;
 wherein each APS includes an APS parameter type (aps_params_type) set to a predefined value indicating the parameter type of each APS, and the parameter type indicates the ALF parameters or the LMCS parameters.

7. The method of claim 6, wherein the separate value spaces are overlapping.
8. The method of claim 6 or 7, wherein the plurality of APS types include a scaling list type containing scaling list parameters.
9. The method of any of claims 6 to 8, wherein a current APS includes a current APS ID selected from a predefined range across a current value space, wherein the current APS ID is related to a previous APS ID associated with a previous APS of a same type as the current APS, and wherein the current APS ID is not related to another previous APS ID associated with another previous APS of a different type than the current APS.
10. The method of any of claims 6 to 9, wherein each APS is identified by a combination of a current APS type and a current APS ID.
11. 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 to 10.

12. 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 to 10.

13. A decoder comprising:

a receiving unit, configured to:

receive a bitstream comprising syntax of video data, wherein the video data comprises information of a plurality of pictures;

a partitioning unit, configured to: partition a picture of the plurality of pictures into a plurality of coded slices, wherein the syntax comprises a plurality of adaptation parameter sets (APSs) including a plurality of APS types associated with a coded slice of the coded slices, wherein each APS includes an APS identifier (ID), and wherein each of the APS types uses a separate value space for the APS ID; and

a decoding unit, configured to decode the coded slice using parameters from the plurality of APSs obtained based on the APS IDs;

wherein the plurality of APS types include an adaptive loop filter (ALF) type containing ALF parameters, a luma mapping with chroma scaling (LMCS) type containing LMCS parameters;

wherein the APS is a syntax structure containing syntax elements that apply to slices, the LMCS parameters are used for a LMCS which is a process that scale chroma values based on luma mappings, and wherein the ALF parameters are used for an ALF which is a filter that is controlled by parameters included in the ALF APS; and

wherein each of the separate value spaces extend over a predefined range, and wherein the predefined ranges are determined based on the APS types;

wherein each APS includes an APS parameter type (aps_params_type) set to a predefined value indicating the parameter type of each APS, and the parameter type indicates the ALF parameters or the LMCS parameters.

14. The decoder of claim 13, wherein the decoder is further configured to perform the method of any of claims 1 to 5.

15. An encoder comprising:

a receiving unit, configured to receive a video data comprising a plurality of pictures;

a partitioning unit, configured to partition a picture of the plurality of pictures into a plurality of slices;

a determining unit, configured to determine a plurality of types of parameters employed for encoding a slice;

an encoding unit, configured to:

encode the slice into a bitstream as a coded slice;

encode the plurality of types of parameters into a plurality of adaptation parameter sets (APSs) of the bitstream by including the plurality of types of parameters in a plurality of APS types; and

encode each APS identifier (ID) into the plurality of APSs; and

an assigning unit, configured to assign an APS ID to each of the APSs, wherein each of the APS types uses a separate value space for the APS ID;

wherein the plurality of APS types include an adaptive loop filter (ALF) type containing ALF parameters, and a luma mapping with chroma scaling (LMCS) type containing LMCS parameters;

wherein the APS is a syntax structure containing syntax elements that apply to slices, the LMCS parameters are used for a LMCS which is a process that scale chroma values based on luma mappings, and wherein the ALF parameters are used for an ALF which is a filter that is controlled by parameters included in the ALF APS; and

wherein each of the separate value spaces extend over a predefined range, and wherein the predefined ranges are determined based on the APS types

wherein each APS includes an APS parameter type (aps_params_type) set to a predefined value indicating the parameter type of each APS, and the parameter type indicates the ALF parameters or the LMCS parameters.

16. The encoder of claim 15, wherein the encoder is further configured to perform the method of any of claims 6 to 10.

17. A non-transitory storage medium which includes an encoded bitstream, the bitstream being generated by a method according to any of claims 6 to 10.

18. A decoder comprising processing circuitry for carrying out the method according to any one of claims 1 to 5.

19. An encoder comprising processing circuitry for carrying out the method according to any of claims 6 to 10.

20. A computer program product comprising program code for performing the method according to any of claims 1 to 10 when executed on a computer or a processor.

21. A non-transitory computer-readable medium carrying a program code which, when executed by a computer device, causes the computer device to perform the method of any one of claims 1 to 10.