~~WHAT IS CLAIMED IS~~CLAIMS:

1. A method of video processing, comprising:

determining, for a conversion between a first video picture of a video comprising one or more video pictures and a bitstream of the video, a value of an inter_slice_allowed flag included in a picture header for the first video picture in the bitstream,

performing the conversion based on the determining,

wherein in response to the value of the inter_slice_allowed flag is equal to a first value, one or more syntax elements are omitted from a picture header for the first video picture in the bitstream,

wherein the one or more syntax elements comprise a first syntax element specifying usage of a first prediction mode for the first video picture,

wherein in the first prediction mode, a signaled motion vector is refined based on at least one motion vector with an offset to the signaled motion vector.

2. The method of claim 1, wherein the one or more syntax elements are conditionally included in the picture header when the value of the inter_slice_allowed flag is not equal to the first value, respectively.

3. The method of claim 2, wherein the one or more syntax elements further comprise at least one of the following: temporal_mvp_enabled_flag, mvd_l1_zero_flag, a second syntax element specifying usage of a second prediction mode for the first video picture, or a third syntax element specifying usage of a third prediction mode for the first video picture,

wherein in the second prediction mode, for a video block in the first video picture, a bi-directional optical flow tool is used to obtain a motion vector offset based on at least one gradient value corresponding to a sample in a reference block of the video block, and

wherein in the third prediction mode, for a video block in the first video picture, initial prediction samples of a sub-block of the video block coded with an affine mode is generated, and an optical flow operation is applied to generate final prediction samples for the sub-block by deriving a prediction refinement based on motion vector differences dMvH and/or dMvV, wherein dMvH and dMvV indicate motion vector differences along a horizontal direction and a vertical direction.

4. The method of claim 2, wherein the one or more syntax elements further comprise at least one of the following: log2_diff_min_qt_min_cb_inter_slice, max_mtt_hierarchy_depth_inter_slice, log2_diff_max_bt_min_qt_inter_slice, or log2_diff_max_tt_min_qt_inter_slice.

5. The method of any one of claims 1 to 4, wherein whether a slice_type syntax element is included in a slice header for a slice associated with the picture header in the bitstream is based on the value of the inter_slice_allowed flag, wherein the slice_type syntax element indicates a slice type of the slice and has a value of several predetemined values.

6. The method of claim 5, wherein slice_type syntax elements for all slices associated with the picture header are not present in the bitstream in case that the value of the inter_slice_allowed flag is not equal to the first value.

7. The method of claim 5, wherein when the slice_type syntax element is not present in the bitstream, the slice_type syntax element is inferred to have a value indicating I slice.

8. The method of any one of claims 1 to 7, wherein an intra_slice_allowed flag is conditionally included in the picture header.

9. The method of any one of claims 1 to 8, wherein the first video picture comprises one or more tiles, wherein a max tile width of the one or more tiles is defined as a max luma tile width in units of coding tree blocks, and a max tile height of the one or more tiles is defined as a max luma tile height in units of coding tree blocks.

10. The method of any one of claims 1 to 9, wherein the first video picture comprises one or more slices, wherein a max slice height of the one or more slices is defined in units of coding tree blocks.

11. The method of any one of claims 1 to 10, wherein the conversion includes decoding the video from the bitstream.

12. The method of any one of claims 1 to 10, wherein the conversion includes encoding the video into the bitstream.

13. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

determine, for a conversion between a first video picture of a video comprising one or more video pictures and a bitstream of the video, a value of an inter_slice_allowed flag included in a picture header for the first video picture in the bitstream,

perform the conversion based on the determining,

wherein in response to the value of the inter_slice_allowed flag is equal to a first value, one or more syntax elements are omitted from a picture header for the first video picture in the bitstream,

wherein the one or more syntax elements comprises a first syntax element specifying usage of a first prediction mode for the first video picture,

wherein in the first coding prediction mode, a signaled motion vector is refined based on at least one motion vector with an offset to the signaled motion vector.

14. The apparatus of claim 13, wherein the one or more syntax elements are conditionally included in the picture header when the value of the inter_slice_allowed flag is not equal to the first value, respectively.

15. The apparatus of claim 14, wherein the one or more syntax elements further comprise at least one of the following: temporal_mvp_enabled_flag, mvd_l1_zero_flag, a second syntax element specifying usage of a second prediction mode for the first video picture, or a third syntax element specifying usage of a third prediction mode for the first video picture,

wherein in the second prediction mode, for a video block in the first video picture, a bi-directional optical flow tool is used to obtain a motion vector offset based on at least one gradient value corresponding to a sample in a reference block of the video block, and

wherein in the third prediction mode, for a video block in the first video picture, initial prediction samples of a sub-block of the video block coded with an affine mode is generated, and an optical flow operation is applied to generate final prediction samples for the sub-block by deriving a prediction refinement based on motion vector differences dMvH and/or dMvV, wherein dMvH and dMvV indicate motion vector differences along a horizontal direction and a vertical direction.

16. The apparatus of claim 14, wherein the one or more syntax elements further comprise at least one of the following: log2_diff_min_qt_min_cb_inter_slice, max_mtt_hierarchy_depth_inter_slice, log2_diff_max_bt_min_qt_inter_slice, or log2_diff_max_tt_min_qt_inter_slice.

17. The apparatus of any one of claims 13 to 16, wherein whether a slice_type syntax element is included in a slice header for a slice associated with the picture header in the bitstream is based on the value of the inter_slice_allowed flag, wherein the slice_type syntax element indicates a slice type of the slice and has a value of several predetemined values.

18. The apparatus of any one of claims 13 to 17, wherein slice_type syntax elements for all slices associated with the picture header are not present in the bitstream in case that the value of the inter_slice_allowed flag is not equal to the first value.

19. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

determine, for a conversion between a first video picture of a video comprising one or more video pictures and a bitstream of the video, a value of an inter_slice_allowed flag included in a picture header for the first video picture in the bitstream,

perform the conversion based on the determining,

wherein in response to the value of the inter_slice_allowed flag is equal to a first value, one or more syntax elements are omitted from a picture header for the first video picture in the bitstream,

wherein the one or more syntax elements comprises a first syntax element specifying usage of a first prediction mode for the first video picture,

wherein in the first coding prediction mode, a signaled motion vector is refined based on at least one motion vector with an offset to the signaled motion vector.

20. A non-transitory computer-readable recording medium storing a bitstream of a video which is generated by a method performed by a video processing apparatus, wherein the method comprises:

determining, for a first video picture of a video comprising one or more video pictures, a value of an inter_slice_allowed flag included in a picture header for the first video picture in the bitstream,

generating the bitstream based on the determining,

wherein in response to the value of the inter_slice_allowed flag is equal to a first value, one or more syntax elements are omitted from a picture header for the first video picture in the bitstream,

wherein the one or more syntax elements comprise a first syntax element specifying usage of a first prediction mode for the first video picture,

wherein in the first prediction mode, a signaled motion vector is refined based on at least one motion vector with an offset to the signaled motion vector.

~~1. A method of video processing, comprising:~~

~~performing a conversion between a video comprising one or more video pictures comprising one or more slices and a bitstream of the video,~~

~~wherein the bitstream conforms to a format rule, and~~

~~wherein the format rule specifies that for a video picture of the one or more video pictures having all slices coded as I slices, P slice and B slice related syntax elements are omitted from a picture header for the video picture.~~

~~2. The method of claim 1, wherein a first syntax element indicating that all slices of the video unit are I slices is signaled in the picture header.~~

~~3. The method of claim 2, wherein whether or not to signal a second syntax element in the bitstream is based on the first syntax element, and wherein the second syntax element indicates slice type information in a slice header of a slice associated with the picture header.~~

4. The method of claim 3, wherein the second syntax element is excluded from the bitstream and inferred to be a slice type.

5. The method of claim 3, wherein the second syntax element is signaled in the bitstream and is equal to one of multiple predetermined values based on a conformance requirement.

6. The method of claim 3, wherein a first syntax element indicating that the video unit comprises all I slices is signaled in an access unit (AU) delimiter raw byte sequence payload (RBSP) associated with at least one of the I slices.

7. A method of video processing, comprising:

performing a conversion between a video comprising one or more video pictures comprising one or more slices and a bitstream of the video,

wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a picture header for each video picture comprises a syntax element indicating whether all slices in the video picture are coded with an identical coding type.

8. The method of claim 7, wherein all slices are coded as either I slices, P slices, or B slices.

9. The method of claim 7, wherein a slice header for a slice excludes slice type information and the slice is inferred to be an I-slice due to the syntax element in the picture header indicating that all the slices are I slices.

10. A method of video processing, comprising:

performing a conversion between a video comprising one or more video pictures and a bitstream of the video,

wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a picture header for each of the one or more video pictures comprises a syntax element indicating a picture type thereof.

11. The method of claim 10, wherein a slice type of one or more slices in the picture is only allowed to indicate an I-slice due to the syntax element indicating that the picture is an I-picture.

12. The method of claim 10, wherein a slice type of one or more slices in the picture indicates an I-slice and/or a B-slice and/or a P-slice due to the syntax element indicating that the picture is a non-I picture.

13. A method of video processing, comprising:

performing a conversion between a video comprising one or more video pictures and a bitstream of the video,

wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a syntax element indicating a picture type for a picture is signaled in an access unit (AU) delimiter raw byte sequence payload (RBSP), and wherein the syntax element indicates whether all slices in the picture are I-slices.

14. A method of video processing, comprising:

performing a conversion between a video comprising a video picture comprising one or more video slices and a bitstream of the video,

wherein the bitstream conforms to a format rule, and

wherein, for a picture having each of a plurality of slices in the picture be an I-slice, the format rule specifies that an indication of a slice type is excluded from slice headers of the plurality of slices in the bitstream during encoding or inferred to be an I-slice during decoding.

15. The method of claim 14, wherein the bitstream is organized such that each of the plurality of slices in the picture is an I-slice.

16. The method of claim 14, wherein the bitstream is organized such that a B-slice or a P-slice is not included in the picture.

17. A method of video processing, comprising:

making a determination, for a conversion between a video comprising a W-slice or a W-picture and a bitstream of the video, regarding whether one or more non-W related syntax elements are signaled in a slice header of the W-slice or a picture header of the W-picture, wherein W is I, B, or P; and

performing, based on the determination, the conversion.

~~18. The method of claim 17, wherein W is I, and wherein non-W is B or P.~~

~~19. The method of claim 17, wherein W is B, and wherein non-W is I or P.~~

~~20. The method of any of claims 17 to 19, wherein the one or more syntax elements are excluded from the bitstream due to all slices in the picture being W-slices.~~

~~21. The method of any of claims 17 to 19, wherein the one or more syntax elements are conditionally signaled in the bitstream due to all slices in the picture being W-slices.~~

~~22. The method of any of claims 17 to 21, wherein the one or more syntax elements comprise reference picture related syntax elements in the picture header.~~

~~23. The method of any of claims 17 to 21, wherein the one or more syntax elements comprise inter slice related syntax elements in the picture header.~~

~~24. The method of any of claims 17 to 21, wherein the one or more syntax elements comprise inter prediction related syntax elements in the picture header.~~

~~25. The method of any of claims 17 to 21, wherein the one or more syntax elements comprise bi-prediction related syntax elements in the picture header.~~

~~26. The method of any of claims 1 to 25, wherein the conversion comprises decoding the video from the bitstream.~~

~~27. The method of any of claims 1 to 25, wherein the conversion comprises encoding the video into the bitstream.~~

~~28. A method of writing a bitstream representing a video to a computer-readable recording medium, comprising:~~

~~generating a bitstream from a video according to a method described in any of claims 1 to 25; and~~

~~writing the bitstream to a computer-readable recording medium.~~

~~29. A video processing apparatus comprising a processor configured to implement a method recited in any one or more of claims 1 to 27.~~

~~30. A computer readable medium having instructions stored thereon, the instructions, when executed, causing a processor to implement a method recited in any one or more of claims 1 to 28.~~

~~31. A computer readable medium that stores the bitstream generated according to any of claims 1 to 28.~~

~~32. A video processing apparatus for storing a bitstream, wherein the video processing apparatus is configured to implement a method recited in any one or more of claims 1 to 28.~~