Claims

1. A decoder for decoding information from a datastream to reconstruct a picture, which is partitioned into slices, the decoder comprising:

an entropy decoder configured to entropy decode, using a processor, the slices based on wavefront parallel processing (WPP) in which a current slice of the slices is entropy decoded according to one of at least two modes indicated by a syntax element portion within the current slice, wherein the entropy decoder is configured to:

in accordance with a first mode of the at least two modes, decode data related to the current slice from the datastream using context adaptive entropy decoding to obtain a residual signal, which comprises a derivation of contexts across slice boundaries and an initialization of a symbol probability associated with the current slice depending on a saved state of the symbol probability of a previously decoded slice, wherein, in initializing the symbol probability associated with the current slice in accordance with the first mode, the entropy decoder is configured to:

check as to whether a first coding block associated with the current slice is a first coding block in a row of the picture in accordance with a raster scan order, and if so, initialize the symbol probability associated with the current slice depending on the saved symbol probability as acquired in context adaptive entropy decoding the previously decoded slice up to a second coding block in a row associated with the previously decoded slice in accordance with the raster scan order, and if not, initialize the symbol probability associated with the current slice depending on a symbol probability as acquired in context adaptive entropy decoding the previously decoded slice up to the end of the previously decoded slice, in accordance with a second mode of the at least two modes, decode data related to the current slice from the datastream using context adaptive entropy decoding to obtain a residual signal, which comprises restricting the derivation of the contexts so as to not cross the slice boundaries and an initialization of the symbol probabilities independent on a previously decoded slice, and save the symbol probability as acquired in context adaptive entropy decoding the previously decoded slice up to the second coding block in the row associated with the previously decoded slice in accordance with the raster scan order; a predictor configured to generate, using the processor, a prediction signal based on prediction parameters related to the current slice from

the datastream; and a reconstruction module configured to reconstruct, using the processor, a portion of the picture related to the current slice based on the residual signal and the prediction signal.

2. The decoder according to claim 1, where the picture is partitioned in coding blocks arranged in rows and columns and having the raster scan order defined among each other, and the decoder is configured to associate each slice with a continuous subset of the coding blocks in the raster scan order so that the subsets follow each other along the raster scan order in accordance with a slice order.

3. The decoder according to claim 1, wherein the entropy decoder is configured to be responsive to the syntax element portion within the current slice of the slices, so as to decode the current slice in accordance with one of at least three modes, namely in the one of the first mode and a third mode or a second mode, wherein the decoder is configured to in accordance with the first mode, decode the current slice using predictive decoding across the slice boundaries, in accordance with the second mode, decode the current slice using predictive decoding with restricting the predictive decoding so as to not cross the slice boundaries, and in accordance with the third mode, decode the current slice from the datastream using context adaptive entropy decoding with restricting the derivation of the contexts so as to not cross the slice boundaries, a continuous update of symbol probabilities of the contexts and an initialization of the symbol probabilities independent on any previously decoded slice, and predictive decoding across the slice boundaries, wherein the one of the first and third modes is selected depending on a syntax element.

4. The decoder according to claim 1, wherein the entropy decoder is configured to be responsive to a generic syntax element in the datastream so as to operate in one of at least two generic operating modes, with, according to a first generic operating mode, performing the responsiveness to the syntax element portion for each slice, and, according to a second generic operating mode, using a different one of the at least two modes other than the first mode.

5. The decoder according to claim 2, wherein the entropy decoder is configured to according to the first and second modes, continue continuously updating the symbol probabilities from a beginning to an end of the current slice.

6. The decoder according to claim 2, wherein the entropy decoder is configured to save symbol as acquired in context adaptive entropy decoding the previously decoded slice up to an end of the previously decoded slice.

7. The decoder according to claim 3, wherein the entropy decoder is configured to, in the first and second mode, restrict the predictive decoding within tiles into which the picture is sub-divided.

8. The decoder according to claim 1, wherein the entropy decoder is configured to, in accordance with the first of the at least two modes, copy for the current slice a portion of a slice header syntax from a preceding slice decoded in the second mode.

9. The decoder according to claim 1, wherein each slice comprises a start syntax portion indicating a position within the picture at which the entropy decoding of the respective slice begins, the entropy decoder being configured to identify entry points of WPP substreams associated with the slices using the slices' start syntax portions.

10. The decoder according to claim 9, wherein the entropy decoder is configured to parallel decode the WPP substreams in a staggered manner with sequentially commencing the decoding of the WPP sub streams in accordance with the slice order.

11. An encoder for encoding picture into a datastream wherein the picture is partitioned into slices, the encoder comprising:

a residual module configured to generate, using a processor, a residual signal related to a current slice of the slices of the picture; a predictor configured to generate, using the processor, prediction parameters based on a prediction signal, wherein the prediction parameters are encoded into the datastream; and an entropy encoder configured to determine, using the processor, a syntax element portion for the current slice and entropy encode, into the datastream, the slices based on wavefront parallel processing (WPP) in which the residual signal related to the current slice is entropy encoded according to one of at least two modes indicated by the syntax element portion, wherein the entropy encoder is configured to:

if the current slice is to be coded in accordance with a first mode of the at least two modes, encode the residual signal using context adaptive entropy encoding

comprising a derivation of contexts across slice boundaries and an initialization of a symbol probability associated with the current slice depending on a saved state of the symbol probability of a previously encoded slice, wherein, in initializing the symbol probability associated with the current slice in accordance with the first mode, the entropy encoder is configured to:

check as to whether a first coding block associated with the current slice is a first coding block in a row of the picture in accordance with a raster scan order, and if so, initialize the symbol probability associated with the current slice depending on the saved symbol probability as acquired in context adaptive entropy encoding the previously encoded slice up to a second coding block in a row associated with the previously encoded slice in accordance with the raster scan order, and if not, initialize the symbol probability associated with the current slice depending on a symbol probability as acquired in context adaptive entropy encoding the previously encoded slice up to the end of the previously encoded slice, if the current slice is to be coded in accordance with a second mode of the at least two modes, encode the residual signal using context adaptive entropy encoding with restricting the derivation of the contexts so as to not cross the slice boundaries and an initialization of the symbol probabilities independent on any previously encoded slice, and save the symbol probability as acquired in context adaptive entropy encoding the previously encoded slice up to the second coding block in the row associated with the previously encoded slice in accordance with the raster scan order.

12. The encoder according to claim 11, where the picture is partitioned in coding blocks arranged in rows and columns and having the raster scan order defined among each other, and the encoder is configured to associate each slice with a continuous subset of the coding blocks in the raster scan order so that the subsets follow each other along the raster scan order in accordance with a slice order.

13. The encoder according to claim 11, wherein the entropy encoder is configured code the syntax element portion into the current slice of the slices so that the current slice is signaled to be coded thereinto in accordance with one of at least three modes, namely in the one of the first mode and a third mode or a second mode, wherein the entropy encoder is configured to in accordance with the first mode, encode the current slice using predictive encoding across the slice boundaries, in accordance with the second mode, encode the current slice using predictive encoding with restricting the predictive encoding so as to not cross the slice boundaries, in accordance with the third mode, encode the current slice into the datastream using

context adaptive entropy encoding with restricting the derivation of the contexts so as to not cross the slice boundaries, a continuous update of symbol probabilities of the contexts and an initialization of the symbol probabilities independent on any previously encoded slice, and predictive coding across the slice boundaries, wherein the entropy encoder distinguishes between the one of the first and third modes using a syntax element.

14. The encoder according to claim 11, wherein the entropy encoder is configured to determine a generic syntax element and write same into the datastream with operating in one of at least two generic operating modes depending on the generic syntax element, namely, with, according to a first generic operating mode, performing coding the syntax element portion for each slice, and, according to a second generic operating mode, inevitably using a different one of the at least two modes other than the first mode.

15. The encoder according to claim 12, wherein the entropy encoder is configured to according to the first and second modes, continue continuously updating the symbol probabilities from a beginning to an end of the current slice.

16. The encoder according to claim 12, where the entropy encoder is configured to save symbol probabilities as acquired in context adaptive entropy encoding the previously encoded slice up to an end of the previously encoded slice.

17. The encoder according to claim 13, where the entropy encoder is configured to, in the first and second modes, restrict the predictive encoding within tiles into which the picture is sub-divided.

18. The encoder according to claim 11, wherein each slice comprises a start syntax portion indicating a position within the picture at which the entropy encoding of the respective slice begins, the entropy encoder being configured to identify entry points of WPP substreams associated with the slices using the slices' start syntax portions.

19. A method for decoding information from a datastream to reconstruct a picture, which is partitioned into slices, the method comprising:

entropy decoding the slices based on wavefront parallel processing (WPP) in which a current slice of the slices is entropy decoded according to one of at least two

modes indicated by a syntax element portion within the current slice, wherein the entropy decoding includes:

in accordance with a first mode of the at least two modes, decoding data related to the current slice from the datastream using context adaptive entropy decoding to obtain a residual signal, which comprises a derivation of contexts across slice boundaries and an initialization of a symbol probability associated with the current slice depending on a saved state of the symbol probability of a previously decoded slice, wherein, in initializing the symbol probability associated with the current slice in accordance with the first mode, the entropy decoding includes:

checking as to whether a first coding block associated with the current slice is a first coding block in a row of the picture in accordance with a raster scan order, and if so, initializing the symbol probability associated with the current slice depending on the saved symbol probability as acquired in context adaptive entropy decoding the previously decoded slice up to a second coding block in a row associated with the previously decoded slice in accordance with the raster scan order, and if not, initializing the symbol probability associated with the current slice depending on a symbol probability as acquired in context adaptive entropy decoding the previously decoded slice up to the end of the previously decoded slice, in accordance with a second mode of the at least two modes, decoding data related to the current slice from the datastream using context adaptive entropy decoding to obtain a residual signal, which comprises restricting the derivation of the contexts so as to not cross the slice boundaries and an initialization of the symbol probabilities independent on a previously decoded slice, and saving the symbol probability as acquired in context adaptive entropy decoding the previously decoded slice up to the second coding block in the row associated with the previously decoded slice in accordance with the raster scan order; generating a prediction signal based on prediction parameters related to the current slice from the datastream; and reconstructing a portion of the picture related to the current slice based on the residual signal and the prediction signal.

20. The method according to claim 19, where the picture is partitioned in coding blocks arranged in rows and columns and having the raster scan order defined among each other, and the method further comprises associating each slice with a continuous subset of the coding blocks in the raster scan order so that the subsets follow each other along the raster scan order in accordance with a slice order.

21. The method according to claim 19, wherein the entropy decoding is responsive to a generic syntax element in the datastream so as to operate in one of at least two generic operating modes, with, according to a first generic operating mode, performing the responsiveness to the syntax element portion for each slice, and, according to a second generic operating mode, using a different one of the at least two modes other than the first mode.

22. The method according to claim 20, wherein the entropy decoding includes, in accordance with the first and second modes, continuously updating the symbol probabilities from a beginning to an end of the current slice.

23. The method according to claim 20, wherein the entropy decoding includes saving symbol probabilities as acquired in context adaptive entropy decoding the previously decoded slice up to an end of the previously decoded slice.

24. The method according to claim 19, wherein the entropy decoding includes, in accordance with the first of the at least two modes, copying for the current slice a portion of a slice header syntax from a preceding slice decoded in the second mode.

25. The method according to claim 19, wherein each slice comprises a start syntax portion indicating a position within the picture at which the entropy decoding of the respective slice begins, the entropy decoding including identifying entry points of WPP substreams associated with the slices using the slices' start syntax portions.

26. A non-transitory computer-readable medium for storing data associated with a video, comprising:

a data stream stored in the non-transitory computer-readable medium, the data stream comprising encoded information related to a picture of a video, wherein the picture is partitioned in units of slices, wherein the encoded information is coded into the data stream for storing in the non-transitory computer-readable medium by operations including:

generating a residual signal related to a current slice of the slices of the picture; generating prediction parameters based on a prediction signal, wherein the prediction parameters are encoded into the data stream;

determining a syntax element portion for the current slice; and entropy encoding into the data stream the slices based on wavefront parallel processing (WPP) in which the residual signal related to the current slice is entropy encoded according to one of at least two modes indicated by the syntax element portion, wherein the entropy encoding includes:

if the current slice is to be coded in accordance with a first mode of the at least two modes, encoding the residual signal using context adaptive entropy encoding comprising a derivation of contexts across slice boundaries and an initialization of a symbol probability associated with the current slice depending on a saved state of the symbol probability of a previously encoded slice, wherein, for initializing the symbol probability associated with the current slice in accordance with the first mode, the operations include:

checking as to whether a first coding block associated with the current slice is a first coding block in a row of the picture in accordance with a raster scan order, and if so, initializing the symbol probability associated with the current slice depending on the saved symbol probability as acquired in context adaptive entropy encoding the previously encoded slice up to a second coding block in a row associated with the previously encoded slice in accordance with the raster scan order, and if not, initializing the symbol probability associated with the current slice depending on a symbol probability as acquired in context adaptive entropy encoding the previously encoded slice up to the end of the previously encoded slice, if the current slice is to be coded in accordance with a second mode of the at least two modes, encoding the residual signal using context adaptive entropy encoding with restricting the derivation of the contexts so as to not cross the slice boundaries and an initialization of the symbol probabilities independent on any previously encoded slice, and saving the symbol probability as acquired in context adaptive entropy encoding the previously encoded slice up to the second coding block in the row associated with the previously encoded slice in accordance with the raster scan order.

27. The non-transitory computer-readable medium according to claim 26, wherein the operations further include identifying entry points of WPP substreams associated with the slices using slices' start syntax portions, wherein each slice comprises a start syntax portion indicating a position within the picture at which the entropy encoding of the respective slice begins.