

Claims

1. Decoder for reconstructing a picture from a datastream into which the picture is
 5 coded in units of slices into which the picture is partitioned, wherein the decoder is
 configured to decode the slices from the datastream in accordance with a slice order
 and the decoder is responsive to a syntax element portion within a current slice of
 the slices, so as to decode the current slice in accordance with one of at least two
 modes, and

10 in accordance with a first of the at least two modes, decode the current slice from
 the datastream using context adaptive entropy decoding including a derivation of
 contexts across slice boundaries, a continuous update of symbol probabilities of the
 contexts and an initialization of the symbol probabilities depending on saved states
 15 of symbol probabilities of a previously decoded slice, and

in accordance with a second of the at least two modes, 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
 20 update of symbol probabilities of the contexts and an initialization of the symbol
 probabilities independent on any previously decoded slice;

~~2. Decoder according to claim 1, where the picture is partitioned in coding blocks~~
 25 ~~arranged in rows and columns and having a 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 the slice order;~~

~~3. Decoder according to claim 2, where the decoder is configured to save symbol~~
 30 ~~probabilities as obtained in context adaptive entropy decoding the previously~~
~~decoded slice up to a second coding block in a row in accordance with the raster~~
~~scan order, and, in initializing the symbol probabilities for the context adaptive~~
~~entropy decoding of the current slice in accordance with the first mode, check as to~~
~~whether a first coding block of the continuous subset of coding blocks associated~~
 35 ~~with the current slice is a first coding block in a row in accordance with the raster~~
~~scan order, and, if so, initialize the symbol probabilities for the context adaptive~~
~~entropy decoding of the current slice depending on the saved symbol probabilities~~
~~as obtained in context adaptive entropy decoding the previously decoded slice up to~~

a second coding block in a row in accordance with the raster scan order, and, if not, initialize the symbol probabilities for the context adaptive entropy decoding of the current slice depending on symbol probabilities as obtained in context adaptive entropy decoding the previously decoded slice up to the end of the previously decoded slice.

24. Decoder according to ~~any of claims 1 to 3~~, wherein the 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 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.

53. Decoder according to ~~any of claims 1 to 23~~, wherein the 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, inevitably using a different one of the at least two modes other than the first mode.

64. Decoder according to any of claims 1 to 32, wherein the decoder is configured to according to the first and second modes, inevitably und uninterruptedly continue

continuously updating the symbol probabilities from a beginning to an end of the current slice.

57. Decoder according to any of claims 1 to 42, wherein the decoder is configured to save symbol probabilities as obtained in context adaptive entropy decoding the previously decoded slice up to an end of the previously decoded slice, and, ~~in initializing the symbol probabilities for the context adaptive entropy decoding of the current slice in accordance with the first mode, initialize the symbol probabilities for the context adaptive entropy decoding of the current slice depending on symbol probabilities saved.~~

86. Decoder according to any of claims 1 to 75, wherein the decoder is configured to, in the first and second mode, restrict the predictive decoding within tiles into which the picture is sub-divided.

79. Decoder according to any of 1 to 86, wherein the decoder is configured to, in the first and second mode, read information from current slice revealing a subdivision of the current slice into parallel subsections, cease the context adaptive entropy decoding at the end of the first parallel subsection and resume the context adaptive entropy decoding anew at a beginning of any subsequent parallel subsection including, in the first mode, an initialization of the symbol probabilities depending on saved states of symbol probabilities of the preceding parallel subsection and, in the second mode, an initialization of the symbol probabilities independent from any previously decoded slice and any previously decoded parallel subsection.

~~108.~~ Decoder according to any of 1 to 97, wherein the 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.

~~119.~~ Decoder according to any of the preceding claims, wherein the decoder is configured to reconstruct the picture from the datastream using WPP processing, wherein each slice comprises a start syntax portion indicating a position of a decoding begin of the respective slice within the picture and wherein the decoder is configured to

identify entry points of WPP substreams into which the slices are grouped, by identifying, using the slices' start syntax portions, slices starting at a left hand side of the picture, and

parallel decoding the WPP substreams in a staggered manner with sequentially commencing the decoding of the WPP substreams in accordance with the slice order.

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~~1210.~~ Encoder for encoding a picture into a datastream in units of slices into which the picture is partitioned, wherein the encoder is configured to encode the slices into the datastream in accordance with a slice order and the encoder is configured to

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determine a syntax element portion for, and code same into, a current slice of the slices so that the syntax element portion signals the current slice to be coded in accordance with one of at least two modes, and

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if the current slice is to be coded in accordance with a first of the at least two modes, encode the current slice into the datastream using context adaptive entropy encoding including a derivation of contexts across slice boundaries, a continuous update of symbol probabilities of the contexts and an initialization of the symbol probabilities depending on saved states of symbol probabilities of a previously encoded slice, and

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if the current slice is to be coded in accordance with a second of the at least two modes, 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;

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~~13.~~ ~~Encoder according to claim 12, wherein~~ the picture is partitioned in coding blocks arranged in rows and columns and having a 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 the slice order;

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~~14.~~ ~~Encoder according to claim 13, wherein~~ the encoder is configured to save symbol probabilities as obtained in context adaptive entropy encoding the previously encoded slice up to a second coding block in a row in accordance with the raster scan order, and, in initializing the symbol probabilities for the context adaptive entropy encoding of the current slice in accordance with the first mode, check as to

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whether a first coding block of the continuous subset of coding blocks associated with the current slice is a first coding block in a row in accordance with the raster scan order, and, if so, initialize the symbol probabilities for the context adaptive entropy encoding of the current slice depending on the saved symbol probabilities as obtained in context adaptive entropy encoding the previously encoded slice up to a second coding block in a row in accordance with the raster scan order, and, if not, initialize the symbol probabilities for the context adaptive entropy encoding of the current slice depending on symbol probabilities as obtained in context adaptive entropy encoding the previously decoded slice up to the end of the previously encoded slice.

~~1511.~~ Encoder according to ~~any of claims 102 to 14,~~ wherein the 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 and a third mode or a second mode, wherein the 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, and

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 encoder distinguishes between the one of the first and third modes using a syntax element.

~~1216.~~ Encoder according to ~~any of claims 120 to 151,~~ wherein the 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.

17. ~~Encoder according to claim 13, where the encoder is configured to according to the first and second modes, inevitably and uninterruptedly continue continuously updating the symbol probabilities from a beginning to an end of the current slice.~~

18. ~~Encoder according to claim 13, where the encoder is configured to save symbol probabilities as obtained in context adaptive entropy encoding the previously encoded slice up to an end of the previously encoded slice, and, in initializing the symbol probabilities for the context adaptive entropy encoding of the current slice in accordance with the first mode, initialize the symbol probabilities for the context adaptive entropy encoding of the current slice depending on symbol probabilities saved.~~

19. ~~Encoder according to claim 15, where the encoder is configured to, in the first and second mode, restrict the predictive encoding within tiles into which the picture is sub-divided.~~

20. ~~Decoder for reconstructing a picture from a datastream into which the picture is coded in units of slices into which the picture is partitioned, using WPP processing, wherein the decoder is configured to decode the slices from the datastream in accordance with a slice order, wherein each slice comprises a start syntax portion indicating a position of a decoding begin of the respective slice within the picture and the decoder is configured to~~

~~identifying entry points of WPP substreams into which the slices are grouped, by identifying, using the slices' start syntax portions, slices starting at a left hand side of the picture,~~

~~parallel decoding the WPP substreams in a staggered manner with sequentially commencing the decoding of the WPP substreams in accordance with the slice order.~~

21. ~~Encoder for coding a picture into a datastream into which the picture is coded in units of slices into which the picture is partitioned, using WPP processing, wherein the encoder is configured to encode the slices into the datastream in accordance~~

~~with a slice order, wherein the encoder is configured to provide each slice with a start syntax portion indicating a position of a coding begin of the respective slice within the picture and the encoder is configured to~~

~~group the slices into WPP substreams so that for each WPP substream, the first slice in slice order starts at a left hand side of the picture, and~~

~~parallel encode the WPP substreams in a staggered manner with sequentially commencing the encoding of the WPP substreams in accordance with the slice order.~~

2213. Method for reconstructing a picture from a datastream into which the picture is coded in units of slices into which the picture is partitioned, wherein the method comprises decoding the slices from the datastream in accordance with a slice order and the method is responsive to a syntax element portion within a current slice of the slices, so as to decode the current slice in accordance with one of at least two modes, wherein

in accordance with a first of the at least two modes, the current slice is decoded from the datastream using context adaptive entropy decoding including a derivation of contexts across slice boundaries, a continuous update of symbol probabilities of the contexts and an initialization of the symbol probabilities depending on saved states of symbol probabilities of a previously decoded slice, and

in accordance with a second of the at least two modes, the current slice is decoded 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;

wherein the picture is partitioned in coding blocks arranged in rows and columns and having a raster scan order defined among each other, and the method 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 the slice order, and

wherein the method comprises saving symbol probabilities as obtained in context adaptive entropy decoding the previously decoded slice up to a second coding block

in a row in accordance with the raster scan order, and, in initializing the symbol probabilities for the context adaptive entropy decoding of the current slice in accordance with the first mode, checking as to whether a first coding block of the continuous subset of coding blocks associated with the current slice is a first coding block in a row in accordance with the raster scan order, and, if so, initializing the symbol probabilities for the context adaptive entropy decoding of the current slice depending on the saved symbol probabilities as obtained in context adaptive entropy decoding the previously decoded slice up to a second coding block in a row in accordance with the raster scan order, and, if not, initializing the symbol probabilities for the context adaptive entropy decoding of the current slice depending on symbol probabilities as obtained in context adaptive entropy decoding the previously decoded slice up to the end of the previously decoded slice.

2314. Method for encoding a picture into a datastream in units of slices into which the picture is partitioned, wherein the method comprises encoding the slices into the datastream in accordance with a slice order and the method comprises

determining a syntax element portion for, and code same into, a current slice of the slices so that the syntax element portion signals the current slice to be coded in accordance with one of at least two modes, and

if the current slice is to be coded in accordance with a first of the at least two modes, encoding the current slice into the datastream using context adaptive entropy encoding including a derivation of contexts across slice boundaries, a continuous update of symbol probabilities of the contexts and an initialization of the symbol probabilities depending on saved states of symbol probabilities of a previously encoded slice, and

if the current slice is to be coded in accordance with a second of the at least two modes, encoding 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;

wherein the picture is partitioned in coding blocks arranged in rows and columns and having a raster scan order defined among each other, and the method 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 the slice order, and

wherein the method further comprises saving symbol probabilities as obtained in context adaptive entropy encoding the previously encoded slice up to a second coding block in a row in accordance with the raster scan order, and, in initializing the symbol probabilities for the context adaptive entropy encoding of the current slice in accordance with the first mode, checking as to whether a first coding block of the continuous subset of coding blocks associated with the current slice is a first coding block in a row in accordance with the raster scan order, and, if so, initialize the symbol probabilities for the context adaptive entropy encoding of the current slice depending on the saved symbol probabilities as obtained in context adaptive entropy encoding the previously encoded slice up to a second coding block in a row in accordance with the raster scan order, and, if not, initializing the symbol probabilities for the context adaptive entropy encoding of the current slice depending on symbol probabilities as obtained in context adaptive entropy encoding the previously decoded slice up to the end of the previously encoded slice.

~~24. Method for reconstructing a picture from a datastream into which the picture is coded in units of slices into which the picture is partitioned, using WPP processing, wherein the method comprises decoding the slices from the datastream in accordance with a slice order, wherein each slice comprises a start syntax portion indicating a position of a decoding begin of the respective slice within the picture and the method further comprises~~

~~identifying entry points of WPP substreams into which the slices are grouped, by identifying, using the slices' start syntax portions, slices starting at a left hand side of the picture,~~

~~parallel decoding the WPP substreams in a staggered manner with sequentially commencing the decoding of the WPP substreams in accordance with the slice order.~~

~~25. Method for coding a picture into a datastream into which the picture is coded in units of slices into which the picture is partitioned, using WPP processing, wherein the method comprises encoding the slices into the datastream in accordance with a slice order, and providing each slice with a start syntax portion indicating a position of a coding begin of the respective slice within the picture and further~~

~~grouping the slices into WPP substreams so that for each WPP substream, the first slice in slice order starts at a left hand side of the picture, and~~

5 ~~parallel encoding the WPP substreams in a staggered manner with sequentially commencing the encoding of the WPP substreams in accordance with the slice order.~~

10 ~~2615.~~ Computer program having a program code for performing, when running on a computer, a method according to claim ~~22~~13 or ~~25~~14.