CLAIMS

1. A video entropy decoding method comprising:

determining a bin string and a bin index for a maximum coding unit that is obtained from a bitstream;

determining a value of a syntax element by comparing the determined bin string to bin strings that are assignable to the syntax element in the bin index;

storing context variables for the maximum coding unit when the syntax element is a last syntax element in the maximum coding unit, a dependent slice segment is includable in a picture in which the maximum coding unit is included, and the maximum coding unit is a last maximum coding unit in a slice segment; and

restoring symbols of the maximum coding unit by using the determined value of the syntax element.

2. The video entropy decoding method of claim 1, wherein the storing of the context variables comprises storing the context variables for the maximum coding unit when the dependent slice segment is includable in the picture, irrespective of whether the slice segment is an independent slice segment or the dependent slice segment.

3. The video entropy decoding method of claim 1, further comprising using the stored context variables for entropy decoding of a context variable of a first maximum coding unit of the dependent slice segment,

wherein the dependent slice segment is among slice segments included in the picture and is located next to the slice segment.

4. The video entropy decoding method of claim 1, further comprising:

determining whether the dependent slice segment is includable in the picture based on first information that is obtained from a picture parameter set of the bitstream;

determining whether the maximum coding unit is the last maximum coding unit in the slice segment based on second information that is obtained from data about the maximum coding unit, wherein the data about the maximum coding unit is included among data corresponding to slice segments of the bitstream; and

obtaining the bin string from the data about the maximum coding unit.

5. The video entropy decoding method of claim 1, further comprising:

determining a number of entry points of subsets that are included in the slice segment based on third information that is obtained from a slice segment header of the bitstream;

determining a position of each of the entry points by using an offset and a number indicated by fourth information, wherein the offset is a number that is greater than the number indicated by the fourth information by 1, and the fourth information is obtained from the slice segment header of the bitstream and indicates an offset according to each entry point,

wherein the number of entry points and the positions of the entry points are determined when a tile is includable in a slice segment that is included in the picture or a synchronization operation is performable for context variables of a maximum coding unit that is included in the picture.

6. A video entropy encoding method comprising:

generating a bit string of symbols that are determined by encoding a maximum coding unit;

determining a context variable according to each bin index of a syntax element value corresponding to the symbols;

determining a bin string indicating the syntax element value based on a context value of a syntax element; and

storing context variables for the maximum coding unit when the syntax element is a last syntax element in the maximum coding unit, a dependent slice segment is includable in a picture in which the maximum coding unit is included, and the maximum coding unit is a last maximum coding unit in a slice segment., .

7. The video entropy encoding method of claim 6, wherein the storing of the context variables comprises storing the context variables for the maximum coding unit when the dependent slice segment is includable in the picture, irrespective of whether the slice segment is an independent slice segment or the dependent slice segment.

8. The video entropy encoding method of claim 6, further comprising using the stored context variables for entropy encoding of a context variable of a first maximum coding unit of the dependent slice segment is among slice segments included in the picture and is located next to the slice segment.,

9. The video entropy encoding method of claim 6, further comprising:

including, in a picture parameter set, first information indicating whether the dependent slice segment is includable in the picture;

including, in data about the maximum coding unit from among data according to slice segments of the picture, second information indicating whether the maximum coding unit is a last maximum coding unit in the slice segment and the bin string; and

generating a bitstream comprising the picture parameter set and the data according to slice segments.

10. The video entropy encoding method of claim 6, further comprising:

when a tile is includable in a slice segment that is included in the picture or a synchronization operation is performable for context variables of a maximum coding unit that is included in the picture, including, in a slice segment header, third information and fourth information wherein the third information indicates a number of entry points of subsets included in the slice segment and the fourth information indicates a number that is less by 1 than an offset according to each entry point; and

generating a bitstream comprising the slice segment header.

11. A video entropy decoding apparatus comprising:

a context initializer that determines a bin string and a bin index for a maximum coding unit that is obtained from a bitstream, and determines a value of a syntax element by comparing the determined bin string with bin strings that are assignable to the syntax element in the bin index;

a context storage unit that stores context variables for the maximum coding unit when the syntax element is a last syntax element in the maximum coding unit, a dependent slice segment is includable in a picture in which the maximum coding unit is included, and the maximum coding unit is a last maximum coding unit in a slice segment; and

a symbol restoration unit that restores symbols of the maximum coding unit by using the determined value of the syntax element.

12. A video entropy encoding apparatus comprising:

a binarizer that generates a bit string of symbols that are determined by performing encoding on a maximum coding unit;

a bin string determiner that determines a context value according to each bin index of a syntax element value corresponding to the symbols and determines a bin string indicating the syntax element value based on a context variable of a syntax element; and

a context storage unit that stores context variables for the maximum coding unit when the syntax element is a last syntax element in the maximum coding unit, a dependent slice segment is includable in a picture in which the maximum coding unit is included, and the maximum coding unit is a last maximum coding unit in a slice segment.

13. A computer-readable recording medium having embodied thereon a program, which, when executed by a computer, performs the video entropy decoding method of claim 1.

14. A computer-readable recording medium having embodied thereon a program, which, when executed by a computer, performs the video entropy decoding method of claim 6.

Claims

1. A video decoding apparatus comprising:

an obtaining unit configured for obtaining, from a bitstream, information about a maximum size of a coding unit and first information indicating whether a dependent slice segment is permitted to be included in a picture; and

a decoder configured for determining at least one maximum coding unit included in a first slice segment, based on a maximum coding unit size which is determined by using the information about the maximum size;

wherein the obtaining unit further configured for obtaining, from the bitstream, second information indicating whether a current maximum coding unit is at an end of the first slice segment or not; and

wherein the decoder further configured for storing a context variable of the first slice segment if the first information indicates that a dependent slice segment is permitted to be included in the picture and the second information indicates that a current maximum coding unit is at an end of the first slice segment.

2. The video decoding apparatus of claim 1, wherein the decoder configured for storing context variables of the current maximum coding unit if a dependent slice segment is permitted to be included in the picture .

3. The video decoding apparatus of claim 1, the decoder configured for storing a context variable of the current maximum coding unit finally decoded in the first slice segment if the second information indicates that the current maximum coding unit is at the end of the first slice segment.

4. The video decoding apparatus of claim 1, the decoder further configured for determining whether a dependent slice segment of the picture can be included or not based on the first information obtained from a picture parameter set of the bitstream, determining whether the current maximum coding unit is a final maximum coding unit or not based on the second information obtained from data of the current maximum coding unit among data of each of slice segments of the bitstream, and obtaining a bin string from the data of the current maximum coding unit.

5. The video decoding apparatus of claim 1, the decoder further configured for determining a number of entry points of subsets, which are included in the slice segment, based on third information obtained from a slice segment header of the bitstream and determining positions of entry points by using an offset which is 1 larger than a number which fourth information indicates,

wherein the number and the positions of the entry points are determined if a tile can be included in a slice segment of the picture or synchronization can be performed for context variables of the current maximum coding unit included in the picture.