ITU-T SG16 WP3 and ISO/IEC JTC1/SC29/WG11, 9th Meeting: Geneva, CH, 27 April - 7 May 2012, JCTVC-I0602_CDTexts_r3.doc, BoG report on integrated text of SAO adoptions on top of JCTVC-I0030,
http://phenix.it-sudparis.eu/jct/doc_end_user/documents/9_Geneva/wg11/JCTVC-I0602-v4.zip

[Summary of Invention]

[Technical Problem]
[0005]

The moving picture coding/decoding processes using the conventional sample offset process require suppression of decrease in the coding efficiency and acceleration of processing or reduction in the processing load.
[0006]

Thus, one or more exemplary embodiments disclosed provide a moving picture coding method and a moving picture decoding method that can accelerate processing or reduce the processing load while suppressing decrease in the coding efficiency in the moving picture coding/decoding processes using the sample offset process.

[Solution to Problem]
[0007]

Disclosed herein is a moving picture coding method for coding an input image, and includes: converting a value of a first parameter into a first binary signal, the first parameter identifying a type of a sample offset process to be applied to a reconstructed image corresponding to the input image; and coding at least a portion of the first binary signal through bypass arithmetic coding using a fixed probability.

[0007a]

According to a first aspect of the present invention, there is provided a moving picture coding method for coding an input image, the method including: converting, using a binarizer, a value of a first parameter into a first binary signal, the first parameter identifying a type of a sample offset process to be applied to a reconstructed image corresponding to the input image; coding a first portion of the first binary signal through context-adaptive arithmetic coding; and coding a second portion of the first binary signal through bypass arithmetic coding using a fixed probability, wherein a variable probability is not used in the bypass arithmetic coding, the first portion of the first binary signal is composed of a head bit of the first binary signal, and the second portion of the first binary signal is composed of one or more remaining bits of the first binary signal.

[0007b]

According to a second aspect of the present invention, there is provided a moving picture coding apparatus that codes an input image, the apparatus including: a binarizer that converts a value of a first parameter into a first binary signal, the first parameter identifying a type of a sample offset process to be applied to a reconstructed image corresponding to the input image; a first coder that codes a first portion of the first binary signal through context-adaptive arithmetic coding; and a second coder that codes a second portion of the first binary signal through bypass arithmetic coding using a fixed probability,wherein a variable probability is not used in the bypass arithmetic coding, the first portion of the first binary signal is composed of a head bit of the first binary signal, and the second portion of the first binary signal is composed of one or more remaining bits of the first binary signal.

[0007c]

According to a third aspect of the present invention, there is provided a moving picture coding and decoding apparatus, including: the above moving picture coding apparatus; and a moving picture

decoding apparatus that decodes a coded image, the moving picture decoding apparatus including: a first decoder that decodes a coded first portion of a first binary signal through context-adaptive arithmetic decoding; and a second decoder that decodes a second coded portion of a first binary signal through bypass arithmetic decoding using a fixed probability, wherein a variable probability is not used in the bypass arithmetic decoding, the first portion of the first binary signal is composed of a head bit of the first binary signal, the second portion of the first binary signal is composed of one or more remaining bits of the first binary signal, the first binary signal corresponding to a value of a first parameter identifying a type of a sample offset process to be applied to a reconstructed image obtained from the coded image, and the moving picture decoding apparatus further includes an inverse binarizer that converts the decoded first binary signal into the value of the first parameter.

[0008]

The general or specific aspects may be implemented by a system, an apparatus, an integrated circuit, a computer program, or a computer-readable recording medium, or by an arbitrary combination of the system, the apparatus, the integrated circuit, the computer program, and the recording medium.

[Advantageous Effects of Invention]

[0009]

The moving picture coding and decoding methods according to embodiments of the present invention can accelerate processing or reduce the processing load while suppressing decrease in the coding efficiency, in the moving picture coding/decoding processes using the sample offset process.

[Brief Description of Drawings]

[0010]

[FIG. 1]

FIG. 1 is a block diagram illustrating a configuration of a moving picture coding apparatus according to Embodiment 1.

[FIG. 2]

FIG. 2 is a flowchart indicating processes performed by the moving picture coding apparatus according to Embodiment 1.

[FIG. 3]

FIG. 3 is a block diagram illustrating an internal configuration of an SAO parameter variable length coding unit according to Embodiment 1.

[FIG. 4]

FIG. 4 is a flowchart indicating processes performed by the SAO parameter variable length coding unit according to Embodiment 1.

[FIG. 5]

FIG. 5 is a block diagram illustrating an internal configuration of an sao_type_idx coding unit according to Embodiment 1.

[FIG. 6]

FIG. 6 is a flowchart indicating processes performed by the sao_type_idx coding unit according to Embodiment 1.

[FIG. 7]

FIG. 7 is a table indicating a correspondence between non-binary signals and binary signals according to Embodiment 1.

[FIG. 8]