WHAT IS CLAIMED IS:

1. An image processing device, comprising:

a frame buffer compressor configured to compress source data into compressed data having cyclic redundancy check (CRC) bits appended thereto, and further configured to decompress the compressed data into output data and use the CRC bits to check for errors in the output data,

wherein said frame buffer compressor comprises:

an encoder configured to compress the source data into the compressed data with the CRC bits appended thereto, and

wherein said encoder comprises:

a prediction module configured to generate prediction data including reference data and residual data, from the source data;

an entropy encoding module configured to compress the prediction data according to a k value by entropy encoding the prediction data to thereby generate first compressed data; and

a CRC module configured to generate the CRC bits in response to the source data and append the CRC bits to the first compressed data,

wherein said frame buffer compressor determines a first position of the CRC bits in the first compressed data using a first method in a first mode, and a second position of the CRC bits in the first compressed data using a second method different from the first method in a second mode.

2. The image processing device of claim 1, further comprising a multimedia device configured to generate the source data in response to raw data, and a memory device configured to store the compressed data.

3. The image processing device of claim 1 or claim 2, wherein said frame buffer compressor further comprises:

~~an encoder configured to compress the source data into the compressed data with the CRC bits appended thereto; and~~

a decoder configured to decompress the compressed data into the output data.

~~4. The image processing device of claim 3, wherein said encoder comprises:~~

~~a prediction module configured to generate prediction data including reference data and residual data, from the source data;~~

~~an entropy encoding module configured to compress the prediction data according to a k value by entropy encoding the prediction data to thereby generate first compressed data; and~~

~~a CRC module configured to generate the CRC bits in response to the source data and append the CRC bits to the first compressed data.~~

~~5~~4. The image processing device of claim ~~4~~3, wherein said encoder further comprises:

a first mode selector configured to select whether the source data is to be compressed in a lossy mode or a lossless mode; and

a quantization module configured to quantize the prediction data using a predetermined quantization parameter.

~~6~~5. The image processing device of claim ~~5~~4, wherein the prediction data is transmitted to the quantization module and then to the entropy encoding module when the source data is being compressed in the lossy mode, but skips the quantization module when the source data is being compressed in the lossless mode.

~~7~~6. The image processing device of claim ~~6~~5, wherein said encoder further comprises a compression rate check module configured to check a compression rate of the first compressed data and record a header index in a header of the compressed data when the source data is being compressed in the lossless~~lossy~~ mode.

~~8~~7. The image processing device of claim ~~7~~6, wherein the CRC module is configured to determine a position of the CRC bit with reference to the header index, when the source data is being compressed in the lossless mode.

~~9~~8. The image processing device of claim ~~7~~ 6 or claim ~~8~~7, wherein said encoder further comprises a shift module configured to compress the source data at

a predetermined compression rate through a bit-shift calculation in the lossy mode ~~perform a shift at a reference compression rate~~ when the compression rate of the first compressed data checked by the compression rate check module is smaller than a reference compression rate.

~~10~~9. An image processing device, comprising:

a multimedia device configured to generate source data by processing raw data, and further configured to receive and use output data;

a frame buffer compressor configured to compress the source data into compressed data having a cyclic redundancy check (CRC) bit appended thereto, and further configured to decompress the compressed data into the output data and verify an error(s) in the output data; and

a memory device configured to store the compressed data, and be accessible by the multimedia device,

wherein the frame buffer compressor comprises:

an encoder configured to compress the source data into the compressed data, and

wherein the encoder comprises:

a prediction module configured to represent prediction data including reference data and residual data as the source data;

an entropy encoding module configured to compress the prediction data according to a k value by entropy encoding the prediction data and output first compressed data; and

a CRC module configured to generate the CRC bit by performing a calculation on the source data and add the CRC bit to an end of the first compressed data,

wherein said frame buffer compressor determines a first position of the CRC bits in the first compressed data using a first method in a first mode, and a second position of the CRC bits in the first compressed data using a second method different from the first method in a second mode.

~~11~~10. The image processing device of claim ~~10~~9, wherein the frame buffer compressor further comprises:

~~an encoder configured to compress the source data into the compressed data; and~~

a decoder configured to decompress the compressed data into the output data.

~~12. The image processing device of claim 11, wherein the encoder comprises:~~

~~a prediction module configured to represent prediction data including reference data and residual data as the source data;~~

~~an entropy encoding module configured to compress the prediction data according to a k value by entropy encoding the prediction data and output first compressed data; and~~

~~a CRC module configured to generate the CRC bit by performing a calculation on the source data and add the CRC bit to an end of the first compressed data.~~

~~13~~11. The image processing device of claim ~~12~~10, wherein the encoder further comprises:

a first mode selector configured to determine whether to compress the source data in a lossy mode or a lossless mode; and

a quantization module configured to quantize the prediction data using a preset quantization parameter, and

wherein the prediction data is transmitted to the quantization module and then the entropy encoding module in the lossy mode and is transmitted directly to the entropy encoding module in the lossless mode.

~~14~~12. The image processing device of claim ~~13~~11, wherein the encoder further comprises a compression rate check module configured to check a compression rate of the first compressed data and record a header index in a header of the compressed data in the lossless~~lossy~~ mode.

~~15~~13. The image processing device of claim ~~14~~12, wherein the CRC module determines a position of the CRC bit with reference to the header index in the lossless mode.

~~16~~14. The image processing device of claim ~~14~~ 12 or claim ~~15~~13, wherein the encoder further comprises a shift module configured to compress the source data at a predetermined compression rate through a bit-shift calculation in the lossy mode ~~perform a shift at a reference compression rate~~ when the compression rate of the first compressed data checked by the compression rate check module is smaller than the reference compression rate.

~~17~~15. The image processing device of any one of claims ~~13~~ 11 to ~~16~~14, wherein the decoder comprises:

a second mode selector configured to determine whether the compressed data has been compressed in the lossy mode or the lossless mode;

an entropy decoding module configured to entropy decode the compressed data according to the k value and output first output data;

a prediction compensation module configured to restore the output data using the reference data and the residual data included in the first output data; and

a CRC check module configured to generate a comparative CRC bit by performing a calculation on the output data.

~~18~~16. The image processing device of claim ~~17~~15, wherein the second mode selector separates a first CRC bit from the compressed data and transmits the first CRC bit to the CRC check module, and

wherein the CRC check module compares the first CRC bit with the comparative CRC bit and makes an error mark on the output data when the first CRC bit differ from the comparative CRC bit.

~~19~~17. An image processing device comprising:

a multimedia device~~Intellectual property (IP)~~ configured to generate source data by processing raw data and receive and use output data;

a frame buffer compressor configured to compress the source data into compressed data and decompress the compressed data into the output data; and

a memory configured to store the compressed data and be accessed by the multimedia device~~IP~~,

wherein the frame buffer compressor operates in a lossy mode or a lossless mode,

wherein the compressed data compressed in the lossless mode includes a first payload and a first header in which a header index indicating a compression rate of the first payload is recorded,

wherein the compressed data compressed in the lossy mode includes only a second payload compressed according to a fixed compression rate,

wherein the first and second payloads include first and second CRC bits, respectively,

wherein a position of the first CRC bits varies according to the header index, and

wherein a position of the second CRC bits is fixed,

wherein the frame buffer compressor comprises:

an encoder configured to compress the source data into the compressed data with the first CRC bits appended thereto in the lossless mode, and compress the source data into the compressed data with the second CRC bits appended thereto in the lossy mode, and

wherein said encoder comprises:

a prediction module configured to generate prediction data including reference data and residual data, from the source data;

an entropy encoding module configured to compress the prediction data according to a k value by entropy encoding the prediction data to thereby generate first compressed data; and

a CRC module configured to generate the first CRC bits in response to the source data and append the first CRC bits to the first compressed data in the lossless mode, and generate the second CRC bits in response to the source data and append the second CRC bits to the first compressed data in the lossy mode.

~~20~~18. The image processing device of claim ~~19~~17, wherein ~~a size of the first payload is n times (where n is an integer) a burst length and,~~

~~wherein~~ the position of the first CRC bits is h×BL-N,

where h is the header index, BL is ~~the~~ a burst length, and N is a size of the first CRC bits.