a current picture. A reference picture may be previous in time when compared to a current picture and/or from the future when compared to the current picture.

SUMMARY OF THE DISCLOSURE

An aspect of the invention is defined in the independent claim. Some optional features of the invention are defined in the dependent claims. In an exemplary arrangement, a decoder includes circuitry configured to receive a reference frame, determine, for a current block, a scaling constant, determine a scaled reference block using the reference frame and the scaling constant, determine a scaled prediction block using the scaled reference block, and reconstructing pixel data of the current block and using the rescaled prediction block.

In another exemplary arrangement, a method includes receiving a reference frame, determining, for a current block, a scaling constant, determining a scaled reference block using the reference frame and the scaling constant, determining a scaled prediction block using the scaled reference block, and reconstructing pixel data of the current block and using the rescaled prediction block.

The details of one or more variations of the subject matter described herein are set forth in the accompanying drawings and the description below. Other features and advantages of the subject matter described herein will be apparent from the description and drawings, and from the claims.

DESCRIPTION OF DRAWINGS

For the purpose of illustrating the invention, the drawings show aspects of one or more embodiments of the invention. However, it should be understood that the present invention is not limited to the precise arrangements and instrumentalities shown in the drawings, wherein:

FIG. 1 is an illustration of an example reference frame and example predicted frames of various resolution scales;

FIG. 2 is an illustration depicting an example reference frame, an example rescaled reference frame, and an example subsequent block prediction process;

FIG. 3 is an illustration depicting an example reference block position before and after the scaling process;

FIG. 4 is an illustration depicting an example motion vector scaling including the reference block, predicted block, scaled reference block, and scaled predicted block;

FIG. 5 is a process flow diagram illustrating an example process according to some implementations of the current subject matter;

WHAT IS CLAIMED IS:

1. A decoder configured to:

receive a bitstream comprising a reference picture, a current picture having a resolution different from the reference picture and including a first block and a second block, and information useful for determining a scaling constant;

determine a scaling constant using the information in the bitstream;

determine a scaled prediction block from the reference picture by:

determining a location of the scaled prediction block by scaling a motion vector component using the scaling constant; and

scaling the resolution of a block of the reference picture using the scaling constant and applying a filter determined specifically for the prediction block and not determined for the whole reference picture;

decode the current picture including reconstructing the first block using the scaled prediction block and reconstructing the second block without using a scaled prediction block.

2. The decoder of claim 1 wherein, the information in the bitstream useful for determining a scaling constant includes an index to a set of predetermined values and said index is utilized to determine the scaling constant.

3. A decoder configured to:

receive a bit stream including a current coded picture comprising a first plurality of coded blocks and a second plurality of coded blocks;

decode each block of the first plurality of coded blocks by:

determining a scaling constant using information in the bitstream; and

determining a scaled prediction block from a reference picture having a different resolution than the current coded picture, by scaling a motion vector component to determine the location of the scaled prediction block, scaling a block from the reference picture using the scaling constant, and applying a filter determined individually for the prediction block;

decoding each block of the first plurality of coded blocks using its scaled prediction block; and

decode each block of the second plurality of coded blocks without using a scaled prediction block of a reference picture and without applying a resolution changing filter specifically determined for a block of a reference picture.

4. The decoder of claim 3 wherein, the information in the bitstream includes an index to a set of predetermined values and said index is utilized to determine the scaling constant.