~~**WHAT IS CLAIMED IS:**~~**CLAIMS**

~~1. A decoder, the decoder comprising circuitry configured to:~~

~~receive a bitstream;~~

~~identify, as a function of the bitstream, a current frame, and a cropped sub-frame of the current frame;~~

~~determine, as a function of the bitstream, a scaling constant associated with the cropped sub-frame; and~~

~~reconstruct pixel data of the cropped sub-frame using the scaling constant.~~

~~2. The decoder of claim 1, wherein the cropped sub-frame is signaled in the bitstream.~~

~~3. The decoder of claim 2, wherein the cropped sub-frame is signaled in a sequence parameter set (SPS).~~

~~4. The decoder of claim 2, wherein the cropped sub-frame is signaled using at least a vertical offset and at least a horizontal offset.~~

~~5. The decoder of claim 4, wherein:~~

~~the at least a vertical offset includes an sps_conf_win_top_offset and an sps_conf_win_bottom offset; and~~

~~the at least a horizontal offset includes an sps_conf_win_left_offset and an sps_conf_win_right_offset.~~

~~6. The decoder of claim 1, wherein the scaling constant includes a vertical scaling component and a horizontal scaling component.~~

~~7. The decoder of claim 1, wherein the scaling constant is signaled within the bit stream.~~

~~8. The decoder of claim 7, wherein the scaling constant is signaled in a picture parameter set (PPS).~~

~~9. The decoder of claim 7, wherein the scaling constant is signaled as a function of a pps_pic_width_in_luma_samples parameter, a pps_scaling_win_right_offset parameter, and a pps_scaling_win_left_offset parameter.~~

10. The decoder of claim 1, wherein the decoder is configured to scale the cropped sub-frame by interpolating pixel values.

11. A method, the method comprising:

receiving, by a decoder, a bitstream;

identifying, by the decoder and as a function of the bitstream, a current frame, and a cropped sub-frame of the current frame;

determining, by the decoder and as a function of the bitstream, a scaling constant associated with the cropped sub-frame; and

reconstructing, by the decoder, pixel data of the cropped sub-frame using the scaling constant.

12. The method of claim 11, wherein the cropped sub-frame is signaled in the bitstream.

13. The method of claim 12, wherein the cropped sub-frame is signaled in a sequence parameter set (SPS).

14. The method of claim 12, wherein the cropped sub-frame is signaled using at least a vertical offset and at least a horizontal offset.

15. The method of claim 14, wherein:

the at least a vertical offset includes an sps_conf_win_top_offset and an sps_conf_win_bottom offset; and

the at least a horizontal offset includes an sps_conf_win_left_offset and an sps_conf_win_right_offset.

16. The method of claim 11, wherein the scaling constant includes a vertical scaling component and a horizontal scaling component.

17. The method of claim 11, wherein the scaling constant is signaled within the bit stream.

18. The method of claim 17, wherein the scaling constant is signaled in a picture parameter set (PPS).

19. The method of claim 17, wherein the scaling constant is signaled as a function of a pps_pic_width_in_luma_samples parameter, a pps_scaling_win_right_offset parameter, and a pps_scaling_win_left_offset parameter.

~~20. The method of claim 11, wherein the decoder is configured to scale the cropped sub-frame by interpolating pixel values.~~

1. A decoder, the decoder comprising circuitry configured to:

receive a bitstream the bitstream including:

a first coded picture,

a second coded picture,

a sequence parameter set associated with both the first and second coded pictures, the sequence parameter set including a first set of parameters defining a first cropping window,

a first picture parameter set associated with the first picture, and

a second picture parameter set associated with the second picture;

decode the first coded picture and store the first picture as a reference picture;

determine a scaling factor from at least one parameter in the sequence parameter set defining the first cropping window;

determine a predictor for the second picture from the reference picture and the scaling factor;

decode the second coded picture using the predictor; and

output for display the first picture as cropped in accordance with the first set of parameters defining the first cropping window in the sequence parameter set.

2. The decoder of claim 1, wherein:

the second picture parameter set includes a second set of parameters different from the first set of parameters and defining a second cropping window;

the second picture is decoded and stored as a second reference picture;

a second scaling factor is determined from at least one parameter in the second set of parameters; and

a second predictor is determined from the second reference picture and the second scaling factor.

3. The decoder of claim 1, wherein the first set of parameters comprise a plurality of values from which four corners of a rectangular cropping window can be determined.

4. The decoder of claim 1, wherein the first set of parameters defining a first cropping window comprise a top offset, a bottom offset, a left offset and a right offset.

5. The decoder of claim 1, wherein the first coded picture has a first resolution, the second coded picture has a second resolution, and the first resolution is smaller than the second resolution.

6. The decoder of claim 1, wherein the first coded picture has a first resolution, the second coded picture has a second resolution, and the first resolution is larger than the second resolution.

7. The decoder of claim 1, further comprising:

an entropy decoder processor configured to receive the bit stream and decode the bitstream into quantized coefficients;

an inverse quantization and inverse transformation processor configured to process the quantized coefficients including performing an inverse discrete cosine;

a deblocking filter;

a frame buffer; and

an intra prediction processor.