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

CLAIMS

1. A method of decoding video data, the method comprising:

determining a block of video data is coded in an inter prediction mode;

determining that a decoder-side motion vector derivation (DMVD) mode is enabled for the block of video data;

determining motion information for the block of video data~~;~~ comprising determining a reference index for the block of video data;

using the motion information, determining a reference block in accordance with the DMVD mode wherein the reference block is further restricted to ~~conserve memory access bandwidth~~be smaller than the block of video data; and

generating a predictive block for the block of video data based on the restricted reference block by determining values of reference pixels outside the restricted reference block by copying pixel values from a nearest horizontal available reference pixel or a nearest vertical available reference pixel.

2.- The method of claim 1, wherein the restricted reference block is reduced in size in at least one dimension.

3.- The method of claim 1, wherein the restricted reference block includes only reference pixels indicated by an original motion vector.

~~4. The method of claim 1, wherein the predictive block is generated by determining values of reference pixels outside the restricted reference block with at least one of: utilizing interpolation filters with shorter taps, copying pixel values from nearby available reference pixels, interpolating pixel values from nearby available reference pixels.~~

~~5~~4. The method of claim 1, wherein the motion information comprises some or all of a motion vector, a motion vector precision, and a reference picture index.

~~6~~5. The method of claim 1, wherein the DMVD mode comprises one of a pattern matched

motion vector derivation mode, a bi-directional optical flow mode, a bilateral template matching mode.

~~7~~6. The method of claim 1, wherein determining that the DMVD mode is enabled for the block of video data comprises determining that the DMVD mode is enabled for the block of video data based on modes used to code one or more neighboring blocks of the block of video data.

~~8~~7. The method of claim ~~7~~6, wherein the one or more neighboring blocks comprises a temporal neighboring block.

~~9.~~ 8. The method of claim 1, wherein determining that the DMVD mode is enabled for the block of video data comprises determining that the DMVD mode is enabled for the block of video data in response to a low-delay condition for a current slice comprising the block of video data being true, wherein the low-delay condition requires all reference pictures of the current slice to be before the current slice in display order.

~~10~~9. The method of claim ~~9~~8, wherein the DMVD mode comprises a frame-rate up conversion (FRUC) template matching mode.

~~11. The method of claim 1, wherein determining the motion information for the block of video data comprises determining a reference index for the block of video data, and wherein determining that the DMVD mode is enabled for the block of video data comprises determining that the DMVD mode is enabled for the block of video data in response to determining that a value of the reference index for the block of video data is equal to zero.~~

~~12~~10. The method of claim 1, wherein the method is performed as part of a decoding loop of a video encoding process.

~~13~~11. A device for decoding video data, the device comprising:

a memory configured to store the video data; and

one or more processors configured to:

determine a block of video data is coded in an inter prediction mode,

determine that a decoder-side motion vector derivation (DMVD) mode is enabled for the block of video data,

determine motion information for the block of video data~~,~~ comprising determining a reference index for the block of video data,

using the motion information, determine a reference block in accordance with the DMVD mode wherein the reference block is further restricted to ~~conserve memory access bandwidth~~be smaller than the block of video data, and

generate a predictive block for the block of video data based on the restricted reference block by determining values of reference pixels outside the restricted reference block by copying pixel values from a nearest horizontal available reference pixel or a nearest vertical available reference pixel.

~~14.~~ 12. The device of claim ~~13~~11, wherein the restricted reference block is reduced in size in at least one dimension.

~~15.~~ 13. The device of claim ~~13~~11, wherein the restricted reference block includes only reference pixels indicated by an original motion vector.

~~16. The device of claim 13, wherein the predictive block is generated by determining values of reference pixels outside the restricted reference block with at least one of: utilizing interpolation filters with shorter taps, copying pixel values from nearby available reference pixels, interpolating pixel values from nearby available reference pixels.~~

~~17. The device of claim 13~~14. The device of claim 11, wherein the motion information comprises some or all of a motion vector, a motion vector precision, and a reference picture index.

~~18.~~ 15. The device of claim ~~13~~11, wherein the DMVD mode comprises one of a pattern matched motion vector derivation mode, a bi-directional optical flow mode, a bilateral template matching mode.

~~19.~~ 16. The device of claim ~~13~~11, wherein determining that the DMVD mode is enabled for the block of video data comprises determining that the DMVD mode is enabled for the block of video data based on modes used to code one or more neighboring blocks of the block of video data.

~~20~~17. The device of claim ~~19~~16, wherein the one or more neighboring blocks comprises a temporal neighboring block.

~~21.~~ 18. The device of claim ~~13~~11, wherein determining that the DMVD mode is enabled for the block of video data comprises determining that the DMVD mode is enabled for the block of video data in response to a low-delay condition for a current slice comprising the block of video data being true, wherein the low-delay condition requires all reference pictures of the current slice to be before the current slice in display order.

~~22~~19. The device of claim ~~21~~18, wherein the DMVD mode comprises a frame-rate up conversion (FRUC) template matching mode.

~~23~~20. The device of claim ~~13, wherein determining the motion information for the block of video data comprises determining a reference index for the block of video data, and wherein determining that the DMVD mode is enabled for the block of video data comprises determining that the DMVD mode is enabled for the block of video data in response to determining that a value of the reference index for the block of video data is equal to zero.~~

~~24. The device of claim 13~~11, wherein the processor executes as part of a decoding loop of a video encoding process.

~~25.~~ 21. A device for decoding video data, the device comprising:

~~a~~ means ~~to store~~for storing the video data; and

~~a~~means for processing in communication with the means for storing, the means for processing configured to:

determine a block of video data is coded in an inter prediction mode,

determine that a decoder-side motion vector derivation (DMVD) mode is enabled for the block of video data,

determine motion information for the block of video data~~,~~ comprising determining a reference index for the block of video data,

using the motion information, determine a reference block in accordance with the DMVD mode wherein the reference block is further restricted to ~~conserve memory access bandwidth~~be smaller than the block of video data, and

generate a predictive block for the block of video data based on the restricted reference block by determining values of reference pixels outside the restricted reference block by copying pixel values from nearby available reference pixels, interpolating pixel values from a nearest horizontal available reference pixel or a nearest vertical available reference pixel.

~~26~~22. A computer-readable non-transitory storage medium storing instructions that when executed by one or more processors cause the one or more processors to execute a process, the process comprising:

determining a block of video data is coded in an inter prediction mode;

determining that a decoder-side motion vector derivation (DMVD) mode is enabled for the block of video data;

determining motion information for the block of video data comprising determining a reference index for the block of video data;

using the motion information, determining a reference block in accordance with the DMVD mode wherein the reference block is further restricted to ~~conserve memory access bandwidth~~be smaller than the block of video data; and

generating a predictive block for the block of video data based on the restricted reference block by determining values of reference pixels outside the restricted reference block by copying pixel values from a nearest horizontal available reference pixel or a nearest vertical available reference pixel.

~~27.~~ 23. The medium of claim ~~26~~22, wherein the restricted reference block is reduced in size in at least one dimension.

~~28.~~ 24. The medium of claim ~~26~~22, wherein the restricted reference block includes only

reference pixels indicated by an original motion vector.

~~29. The medium of claim 26, wherein the predictive block is generated by determining values of reference pixels outside the restricted reference block with at least one of: utilizing interpolation filters with shorter taps, copying pixel values from nearby available reference pixels, interpolating pixel values from nearby available reference pixels.~~

~~30. The medium of claim 26~~25. The medium of claim 22, wherein the motion information comprises some or all of a motion vector, a motion vector precision, and a reference picture index.