CLAIMS

1. A method of processing video data, comprising:

determining, for a conversion between a current video block of a video and a bitstream of the video, a first prediction block in a first domain from at least one reference picture using an unrefined motion information, wherein the current video block is a luma block;

applying, at least based on the first prediction block, a motion information refinement process on the unrefined motion information to obtain a motion offset information;

generating a second prediction block from samples in the at least one reference picture using the motion offset information;

converting, based on a forward mapping process, the second prediction block from the first domain to the second domain in which samples of the second prediction block are mapped into particular values; and

generating reconstructed samples of the current video block based on the second prediction block in the second domain;

wherein a piecewise linear model is used to map the samples of the second prediction block into the particular values during the forward mapping process; and

wherein scale coefficients of the piecewise linear model are determined based on first variables which are determined based on syntax elements included in an adaptation parameter set and second variables which are determined based on a bit depth.

2. The method of claim 1, wherein in the motion information refinement process, the motion offset information is generated based on a bilinear interpolation process and a cost calculation, and the motion offset information is further used for a temporal motion vector prediction for the subsequent blocks.

3. The method of claim 1, wherein in the motion information refinement process, the motion offset information is generated based on gradient calculations in different directions based on samples in the first domain.

4. The method of claim 2, wherein the cost calculation comprises a sum of absolute differences (SAD) or a mean-removed sum of absolute differences (MR-SAD).

5. The method of anyone of claims 1-4, wherein the reconstructed samples of the current video block are converted into the first domain based on an inverse mapping process.

6. The method of claim 5, wherein a filtering process is applied on the converted reconstructed samples in the first domain.

7. The method of anyone of claims 1-6, wherein residual samples of a chroma block corresponding to the current video block are derived by applying a scaling process based on reconstructed samples in the second domain of a luma component of a picture which the current video block belongs to.

~~8. The method of anyone of claims 1-7, wherein a piecewise linear model is used to map the samples of the second prediction block into the particular values during the forward mapping process.~~

~~9. The method of claim 8, wherein scale coefficients of the piecewise linear model is determined base on first variables which are determined base on syntax elements included in a adaptation parameter set and a second variable which are determined base on bit depth.~~

~~10~~8. The method of anyone of claims 1-~~9~~7, wherein the motion information refinement process comprises at least one of a decoder-side motion vector refinement process, a frame-rate up conversion or a bi-directional optical flow process.

~~11~~9. The method of anyone of claims 1-~~10~~9, wherein applying the motion information refinement process on the unrefined motion information to obtain the motion offset information comprises:

checking multiple motion vectors derived based on the unrefined motion information and selecting one with lowest cost to derived the motion offset information .

~~12~~10. The method of anyone of claims 1-~~11~~9, wherein the conversion includes encoding the current video block into the bitstream.

~~13~~11. The method of anyone of claims 1-~~11~~9, wherein the conversion includes decoding the current video block from the bitstream.

~~14~~12. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

determine, for a conversion between a current video block of a video and a bitstream of the video, a first prediction block in a first domain from at least one reference picture using an unrefined motion information, wherein the current video block is a luma block;

apply, at least based on the first prediction block, a motion information refinement process on the unrefined motion information to obtain a motion offset information;

generate a second prediction block from samples in the at least one reference picture using the motion offset information;

convert, based on a forward mapping process, the second prediction block from the first domain to the second domain in which samples of the second prediction block are mapped into particular values; and

generate reconstructed samples of the current video block based on the second prediction block in the second domain;

wherein a piecewise linear model is used to map the samples of the second prediction block into the particular values during the forward mapping process; and

wherein scale coefficients of the piecewise linear model are determined based on first variables which are determined based on syntax elements included in an adaptation parameter set and second variables which are determined based on a bit depth.

~~15~~13. The apparatus of claim ~~14~~12, wherein in the motion information refinement process, the motion offset information is generated based on a bilinear interpolation process and a cost calculation, and the motion offset information is further used for a temporal motion vector prediction for the subsequent blocks.

~~16~~14. The apparatus of claim ~~14~~12, wherein in the motion information refinement process, the motion offset information is generated based on gradient calculations in different directions based on samples in the first domain.

15. The apparatus of claim 13, wherein the cost calculation comprises a sum of absolute differences (SAD) or a mean-removed sum of absolute differences (MR-SAD).

16. The apparatus of claim 12, wherein residual samples of a chroma block corresponding to the current video block are derived by applying a scaling process based on reconstructed samples in the second domain of a luma component of a picture which the current video block belongs to.

17. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

determine, for a conversion between a current video block of a video and a bitstream of the video, a first prediction block in a first domain from at least one reference picture using an unrefined motion information, wherein the current video block is a luma block;

apply, at least based on the first prediction block, a motion information refinement process on the unrefined motion information to obtain a motion offset information;

generate a second prediction block from samples in the at least one reference picture using the motion offset information;

convert, based on a forward mapping process, the second prediction block from the first domain to the second domain in which samples of the second prediction block are mapped into particular values; and

generate reconstructed samples of the current video block based on the second prediction block in the second domain;

wherein a piecewise linear model is used to map the samples of the second prediction block into the particular values during the forward mapping process; and

wherein scale coefficients of the piecewise linear model are determined based on first variables which are determined based on syntax elements included in an adaptation parameter set and second variables which are determined based on a bit depth.

18. The non-transitory computer-readable storage medium of claim 17, wherein in the motion information refinement process, the motion offset information is generated based on a bilinear interpolation process and a cost calculation, and the motion offset information is further used for a temporal motion vector prediction for the subsequent blocks.

19. A non-transitory computer-readable recording medium storing a bitstream of a video which is generated by a method performed by a video processing apparatus, wherein the method comprises:

determining, for a current video block of a video, a first prediction block in a first domain from at least one reference picture using an unrefined motion information, wherein the current video block is a luma block;

applying, at least based on the first prediction block, a motion information refinement process on the unrefined motion information to obtain a motion offset information;

generating a second prediction block from samples in the at least one reference picture using the motion offset information;

converting, based on a forward mapping process, the second prediction block from the first domain to the second domain in which samples of the second prediction block are mapped into particular values;

generating the bitstream based on the second prediction block in the second domain;

wherein reconstructed samples of the current video block are generated based on the second prediction block in the second domain;

wherein a piecewise linear model is used to map the samples of the second prediction block into the particular values during the forward mapping process; and

wherein scale coefficients of the piecewise linear model are determined based on first variables which are determined based on syntax elements included in an adaptation parameter set and second variables which are determined based on a bit depth.

20. The non-transitory computer-readable storage medium of claim 19, wherein in the motion information refinement process, the motion offset information is generated based on a bilinear interpolation process and a cost calculation, and the motion offset

information is further used for a temporal motion vector prediction for the subsequent blocks.