WHAT IS CLAIMED IS:

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

receiving a video stream that includes a current frame composed of a plurality of video blocks, the plurality of video blocks including a current video block;

determining that the current video block is inter-coded based on a prediction block and a motion vector (MV), wherein the MV is to be derived from a reference motion vector (RMV) and a motion vector difference (MVD) for the current video block; and

when the MVD is coded with an adaptive MVD pixel resolution:

determining a nominal MVD pixel precision for the current frame;

identifying a maximum allowed MVD pixel precision for the current video block, wherein the maximum allowed MVD pixel precision is less than the nominal MVD pixel precision;

determining a set of allowable MVD levels for the current video block by restricting the nominal MVD pixel precision according to the maximum allowed MVD pixel precision; and

deriving the MVD having a first precision from the video stream according to at least one MVD parameter signaled in the video stream for the current video block and the set of allowable MVD levels, wherein the first precision is selected from the set of allowable MVD levels.

2. The method of claim 1, wherein the nominal MVD pixel precision for the current video block is signaled at a frame level.

3. The method of claim 2, wherein the nominal MVD pixel precision for the current video block depends on an MVD class associated with the MVD of the current video block.

4. The method of claim 2, wherein the nominal MVD pixel precision for the current video block depends on an MVD magnitude of the MVD of the current video block.

5. The method of claim 1, wherein the maximum allowed MVD pixel precision is predefined.

6. The method of claim 2, further comprising determining a current MVD class from a predefined set of MVD classes, wherein determining the set of allowable MVD levels comprises:

excluding, from a nominal MVD level set determined based on the nominal MVD pixel precision and the current MVD class, MVD levels associated with an MVD pixel precision at or higher than the maximum allowed MVD pixel precision, to determine the set of allowable MVD levels for the current video block.

7. The method of claim 1, wherein the maximum allowed MVD pixel precision is ¼ pixel.

8. The method of claim 1, wherein MVD levels associated with a 1/8 pixel or higher precision are excluded in the set of allowable MVD levels for the current video block.

9. The method of claim 1, further comprising determining a current MVD class from a predefined set of MVD classes wherein:

MVD levels associated with fractional MVD precision are included in the set of allowable MVD levels regardless of the nominal MVD precision when the current MVD class is at or lower than a threshold MVD class.

10. The method of claim 9, wherein the threshold MVD class is a lowest MVD class among the predefined set of MVD classes.

11. The method of claim 1, further comprising determining a magnitude of the MVD, wherein MVD levels associated with an MVD precision higher than a threshold MVD precision are allowed in the set of allowable MVD levels only when the magnitude of the MVD is at or lower than a threshold MVD magnitude.

12. The method of claim 11, wherein the threshold MVD magnitude is 2 pixels or smaller.

13. The method of claim 12, wherein the threshold MVD precision is 1 pixel.

14. The method of claim 11, wherein MVD levels associated with an MVD precision of ¼ pixel or higher are only allowed when the magnitude of the MVD is at or lower than ½ pixel.

15. A method of video encoding, the method comprising:

receiving video data that includes a current frame composed of a plurality of video blocks, the plurality of video blocks including a current video block;

determining that the current video block is to be inter-coded using a prediction block and a motion vector (MV), wherein the MV is to be derived from a reference motion vector (RMV) and a motion vector difference (MVD) for the current video block; and

when the MVD is coded with an adaptive MVD pixel resolution:

determining a nominal MVD pixel precision for the current frame;

identifying a maximum allowed MVD pixel precision for the current video block, wherein the maximum allowed MVD pixel precision is less than the nominal MVD pixel precision;

determining a set of allowable MVD levels for the current video block by restricting the nominal MVD pixel precision according to the maximum allowed MVD pixel precision; and

deriving the MVD having a first precision according to at least one MVD parameter for the current video block and the set of allowable MVD levels, wherein the first precision is selected from the set of allowable MVD levels.

16. The method of claim 15, wherein the nominal MVD pixel precision for the current video block is specified at a frame level.

17. The method of claim 15, wherein the nominal MVD pixel precision depends on an MVD class associated with the MVD of the current video block.

18. The method of claim 15, wherein the nominal MVD pixel precision depends on an MVD magnitude of the MVD of the current video block.

19. A method of processing visual media data, the method comprising:

obtaining a source video sequence;

performing a conversion between the source video sequence and a bitstream of visual media data according to a format rule,

wherein the bitstream comprises:

a plurality of encoded data blocks, including a current video block corresponding to a current frame;

a first indicator indicating a nominal motion vector difference (MVD) pixel precision for the current frame; and

a second indicator indicating a maximum allowed MVD pixel precision for the current video block; and

wherein the format rule specifies that, when the MVD is coded with an adaptive MVD pixel resolution:

a nominal MVD pixel precision is to be determined for the current frame;

a maximum allowed MVD pixel precision is to be identified for the current video block, wherein the maximum allowed MVD pixel precision is less than the nominal MVD pixel precision;

a set of allowable MVD levels are to be determined for the current video block by restricting the nominal MVD pixel precision according to the maximum allowed MVD pixel precision; and

the MVD having a first precision is derived according to the first and second indicators, wherein the first precision is selected from the set of allowable MVD levels.

20. The method of claim 19, wherein the first indicator is signaled at a frame level in the bitstream.

21. The method of claim 19, wherein the nominal MVD pixel precision depends on an MVD class associated with the MVD of the current video block.