I claim:

1. In a computing system that implements a video decoder, a method comprising:
receiving and parsing one or more syntax elements that indicate a constraint on frame reordering latency; wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of a video sequence in output order but follow that frame in coded order;
determining the constraint on frame reordering latency based upon the one or more syntax elements;
receiving encoded data for plural frames of the video sequence;
with the video decoder, decoding at least some of the encoded data to reconstruct one of the plural frames; and
outputting the reconstructed frame, wherein the constraint is used to determine when the reconstructed frame is ready for output.

2. The method of claim 1 further comprising:
using the constraint on frame reordering latency to determine when the reconstructed frame is ready for output in terms of output order of the plural frames of the video sequence.

3. The method of claim 2 wherein the plural frames of the video sequence are organized according to a temporal hierarchy, wherein different syntax elements indicate different constraints on frame reordering latencies for different temporal layers of the temporal hierarchy, the method further comprising selecting one of the different constraints on frame reordering latencies depending on temporal resolution of the output.

4. The method of claim 1 wherein the constraint on frame reordering latency defines a maximum difference between coded order and output order for any frame in the video sequence.

5. The method of claim 1 wherein the one or more syntax elements and the encoded data are signaled as part of syntax for a coded video bitstream , the method further comprising :

receiving and parsing a buffer size syntax element that indicates maximum size of a decoded picture buffer,

wherein the buffer size syntax element is different than the one or more syntax elements that indicate the constraint on frame reordering latency.

6. The method of claim 1 wherein the one or more syntax elements are signaled as part of a sequence parameter set, a picture parameter set, syntax for a media storage file that also includes the encoded data, syntax for a media transmission stream that also includes the encoded data, a media properties negotiation protocol, media system information multiplexed with the encoded data or media metadata relating to the encoded data.

7. The method of claim 1 further comprising :

receiving a flag that indicates presence or absence of the one or more syntax elements,

wherein if the flag indicates the one or more syntax elements are absent then the constraint on frame reordering latency is undefined or has a default value.

8. The method of claim 1 wherein one possible value of the one or more syntax elements indicates the constraint on frame reordering latency is undefined or has a default value, and wherein other possible values of the one or more syntax elements indicate an integer count for the constraint on frame reordering latency.

9. The method of claim 1 wherein a value of the one or more syntax elements indicates an integer count for the constraint on frame reordering latency relative to a maximum size of

frame memory for reordering, the maximum size of frame memory for reordering being indicated with a different syntax element.

10. In a computing system that implements a video encoder, a method comprising:

setting one or more syntax elements that indicate a constraint on frame reordering latency consistent with inter-frame dependencies between plural frames of a video sequence;

wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of the video sequence in output order but follow that frame in coded order;

with the video encoder, encoding the plural frames to produce encoded data, wherein the encoding uses the inter-frame dependencies that are consistent with the constraint on frame reordering latency; and

outputting the one or more syntax elements, thereby facilitating determination of when reconstructed frames are ready for output in terms of output order of the plural frames.

11. The method of claim 10 further comprising:

before the encoding, receiving the plural frames of the video sequence; and

after the encoding , outputting the encoded data for storage or transmission.

12. The method of claim 10 wherein the one or more syntax elements and encoded data are output as part of syntax for a coded video bitstream, the method further comprising:

outputting a buffer size syntax element that indicates maximum size of a decoded picture buffer, wherein the buffer size syntax element is different than the one or more syntax elements that indicate the constraint on frame reordering latency.

13. The method of claim 10 wherein the one or more syntax elements are output as part of a sequence parameter set, a picture parameter set, syntax for a media storage file that also includes encoded data for the plural frames, syntax for a media transmission stream that also includes encoded data for the plural frames, a media properties negotiation protocol, media system information multiplexed with encoded data for the plural frames or media metadata relating to encoded data for the plural frames.

14.. The method of claim 10 wherein the method further comprises:

outputting a flag that indicates presence or absence of the one or more syntax elements, wherein if the flag indicates the one or more syntax elements are absent then the constraint on frame reordering latency is undefined or has a default value.

15. The method of claim 10 wherein one possible value of the one or more syntax elements indicates the constraint on frame reordering latency is undefined or has a default value, and wherein other possible values of the one or more syntax elements indicate an integer count for the constraint on frame reordering latency.

16. The method of claim 10 wherein a value of the one or more syntax elements indicate an integer count for the constraint on frame reordering latency relative to a maximum size of frame memory for reordering, the maximum size of frame memory for reordering being indicated with a different syntax element.

17. A video decoding system comprising :

memory configured to receive one or more syntax elements that indicate a constraint on frame reordering latency and to receive encoded data for plural frames of a video sequence;

a decoder configured to :

determine the constraint on frame reordering latency based upon the one or more syntax

elements, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede a given frame in output order but follow the given frame in coded order; and

decode at least some of the encoded data to reconstruct one of the plural frames; and

a frame buffer configured to store the reconstructed frame, wherein the video decoding system is configured to use the constraint on frame reordering latency to determine when the reconstructed frame is ready for output in terms of output order of the plural frames of the video sequence.

18. The video decoding system of claim 17 wherein the one or more syntax elements are signaled as part of a sequence parameter set or media metadata relating to the encoded data for the plural frames.

19. The video decoding system of claim 17 wherein a value of the one or more syntax elements indicates an integer count for the constraint on frame reordering latency relative to a maximum size of frame memory for reordering. .

20. The video decoding system of claim 19 wherein the constraint on frame reordering latency can be determined as a maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

21. A video encoding system comprising :

frame buffers configured to receive plural frames of a video sequence;

an encoder configured to :

set one or more syntax elements that indicate a constraint on frame reordering latency

consistent with inter-frame dependencies between the plural frames of the video sequence, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of the video sequence in output order but follow that frame in coded order;

encode the plural frames to produce encoded data, wherein the encoding uses the inter-frame dependencies that are consistent with the constraint on frame reordering latency; and

memory configured to buffer the encoded data and the one or more syntax elements for output, thereby facilitating determination of when reconstructed frames are ready for output in terms of output order of the plural frames.

22. The video encoding system of claim 21 wherein the one or more syntax elements are signaled as part of a sequence parameter set or media metadata relating to the encoded data for the plural frames.

23. The video encoding system of claim 21 wherein a value of the one or more syntax elements indicates an integer count for the constraint on frame reordering latency relative to a maximum size of frame memory for reordering.

24. The video encoding system of claim 23 wherein the constraint on frame reordering latency can be determined as a maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

25. The method of claim 9 wherein the constraint on frame reordering latency can be determined as a maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

26. The method of claim 16 wherein the constraint on frame reordering latency can

be determined as a maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.