Amended Set of Claims

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

determining timing information for the video data, the timing information including an integer value for the video data;

determining a difference value between a presentation time of a first picture and a presentation time of a second picture such that the difference value is equal to the integer value multiplied by a clock tick value; and

presenting the first picture at a first time and presenting the second picture at a second time, such that a difference between the second time and the first time is the determined difference value.

2. The method of claim 1, further comprising determining that a temporal layer including the first picture and the second picture has a constant picture rate, wherein determining the integer value comprises, based on the determination that the temporal layer has the constant picture rate, decoding data defining the integer value.

3. The method of claim 2, wherein determining that the temporal layer has the constant picture rate comprises determining that a fixed_pic_rate_flag has a value indicating that the temporal layer has the constant picture rate.

4. The method of claim 2, further comprising:

determining, for each temporal layer having a respective constant picture rate, an individually signaled integer value; and

presenting pictures of each of the temporal layers having respective constant picture rates according to respective integer values multiplied by the clock tick value and differences between presentation times of the pictures.

5. The method of claim 1, wherein determining the clock tick value includes determining the clock tick value such that the clock tick value is based, at least in part, on a time scale value, wherein the time scale value is based on a clock frequency.

6. The method of claim 1, wherein the first picture and the second picture are included in a highest temporal layer, the method further comprising:

determining a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value; and

presenting pictures of the lower temporal layer based on the second difference value.

7. The method of claim 1, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

8. A device for presenting video data, the device comprising a processor configured to determine timing information for the video data, the timing information including an integer value for the video data, determine a difference value between a presentation time of a first picture and a presentation time of a second picture such that the difference value is equal to the integer value multiplied by a clock tick value, and present the first picture at a first time and present the second picture at a second time, such that a difference between the second time and the first time is the determined difference value.

9. The device of claim 8, wherein to determine the integer value, the processor is configured to determine that a temporal layer including the first picture and the second picture has a constant picture rate, and, based on the determination that the temporal layer has the constant picture rate, decode data defining the integer value.

10. The device of claim 9, wherein the processor is configured to determine that a fixed_pic_rate_flag has a value indicating that the temporal layer has the constant picture rate.

11. The device of claim 9, wherein the processor is further configured to determine, for each temporal layer having a respective constant picture rate, an individually signaled integer value, and present pictures of each of the temporal layers having respective constant picture rates according to respective integer values multiplied by the clock tick value and differences between presentation times of the pictures.

12. The device of claim 8, wherein the first picture and the second picture are included in a highest temporal layer, and wherein the processor is further configured to determine a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value, and present pictures of the lower temporal layer based on the second difference value.

13. The device of claim 8, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

14. A device for presenting video data, the device comprising:

means for determining timing information for the video data, the timing information including an integer value for the video data;

means for determining a difference value between a presentation time of a first picture and a presentation time of a second picture such that the difference value is equal to an integer value multiplied by a clock tick value; and

means for presenting the first picture at a first time and presenting the second picture at a second time, such that a difference between the second time and the first time is the determined difference value.

15. The device of claim 14, further comprising means for determining that a temporal layer including the first picture and the second picture has a constant picture rate, wherein the means for determining the integer value comprise means for decoding, based on the determination that the temporal layer has the constant picture rate, data defining the integer value.

16. The device of claim 15, wherein the means for determining that the temporal layer has the constant picture rate comprises means for determining that a fixed_pic_rate_flag has a value indicating that the temporal layer has the constant picture rate.

17. The device of claim 15, further comprising:

means for determining, for each temporal layer having a respective constant picture rate, an individually signaled integer value; and

means for presenting pictures of each of the temporal layers having respective constant picture rates according to respective integer values multiplied by the clock tick value and differences between presentation times of the pictures.

18. The device of claim 14, wherein the first picture and the second picture are included in a highest temporal layer, the device further comprising:

means for determining a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value; and

means for presenting pictures of the lower temporal layer based on the second difference value.

19. The device of claim 14, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

20. A computer-readable storage medium having stored thereon instructions that, when executed, cause a processor to:

determine timing information for the video data, the timing information including an integer value for the video data;

determine a difference value between a presentation time of a first picture and a presentation time of a second picture such that the difference value is equal to the integer value multiplied by a clock tick value; and

present the first picture at a first time and present the second picture at a second time, such that a difference between the second time and the first time is the determined difference value.

21. The computer-readable storage medium of claim 20, further comprising instructions that cause the processor to determine that a temporal layer including the first picture and the second picture has a constant picture rate, wherein the instructions that cause the processor to determine the integer value comprise instructions that cause the processor to decode, based on the determination that the temporal layer has the constant picture rate, data defining the integer value.

22. The computer-readable storage medium of claim 21, wherein determining that the temporal layer has the constant picture rate comprises determining that a fixed_pic_rate_flag has a value indicating that the temporal layer has the constant picture rate.

23. The computer-readable storage medium of claim 21, further comprising instructions that cause the processor to:

determine, for each temporal layer having a respective constant picture rate, an individually signaled integer value; and

present pictures of each of the temporal layers having respective constant picture rates according to respective integer values multiplied by the clock tick value and differences between presentation times of the pictures.

24. The computer-readable storage medium of claim 20, wherein the first picture and the second picture are included in a highest temporal layer, further comprising instructions that cause the processor to:

determine a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value; and

present pictures of the lower temporal layer based on the second difference value.

25. The computer-readable storage medium of claim 20, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

26. A method of generating a bitstream including video data, the method comprising:

generating data indicating whether a difference between a presentation time of a first picture and a presentation time of a second picture is an integer multiple of a clock tick value; and

when the data indicates that the difference is the integer multiple of the clock tick value, generating data representative of the integer multiple.

27. The method of claim 26, further comprising determining that a temporal layer including the first picture and the second picture has a constant picture rate, wherein generating the data indicating whether the difference is the integer multiple comprises generating the data to indicate that the difference is the integer multiple based on the determination that the temporal layer has the constant picture rate.

28. The method of claim 27, wherein generating the data indicating whether the difference is the integer multiple comprises generating a fixed_pic_rate_flag syntax element.

29. The method of claim 27, further comprising:

determining respective constant picture rates for various temporal layers; and

signaling, for each of the temporal layers, data representative of the respective constant picture rates.

30. The method of claim 26, wherein the first picture and the second picture are included in a highest temporal layer, the method further comprising:

determining a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value; and

generating data representative of the second integer value.

31. The method of claim 26, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

32. A device for generating a bitstream including video data, the device comprising a processor configured to generate data indicating whether a difference between a presentation time of a first picture and a presentation time of a second picture is an integer multiple of a clock tick value, and, when the data indicates that the difference is the integer multiple of the clock tick value, generate data representative of the integer multiple.

33. The device of claim 32, wherein the processor is further configured to determine that a temporal layer including the first picture and the second picture has a constant picture rate, and wherein the processor is configured to generate the data to indicate that the difference is the integer multiple based on the determination that the temporal layer has the constant picture rate.

34. The device of claim 33, wherein to generate the data indicating whether the difference is the integer multiple, the processor is configured to generate a value for a fixed_pic_rate_flag syntax element.

35. The device of claim 33, wherein the processor is further configured to determine respective constant picture rates for various temporal layers, and signal, for each of the temporal layers, data representative of the respective constant picture rates.

36. The device of claim 32, wherein the first picture and the second picture are included in a highest temporal layer, and wherein the processor is further configured to determine a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value, and generate data representative of the second integer value.

37. The device of claim 32, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

38. A device for generating a bitstream including video data, the device comprising:

means for generating data indicating whether a difference between a presentation time of a first picture and a presentation time of a second picture is an integer multiple of a clock tick value; and

means for generating, when the data indicates that the difference is the integer multiple of the clock tick value, data representative of the integer multiple.

39. The device of claim 38, further comprising means for determining that a temporal layer including the first picture and the second picture has a constant picture rate, wherein generating the data indicating whether the difference is the integer multiple comprises generating the data to indicate that the difference is the integer multiple based on the determination that the temporal layer has the constant picture rate.

40. The device of claim 39, wherein the means for generating the data indicating whether the difference is the integer multiple comprises means for generating a fixed_pic_rate_flag syntax element.

41. The device of claim 39, further comprising:

means for determining respective constant picture rates for various temporal layers; and

means for signaling, for each of the temporal layers, data representative of the respective constant picture rates.

42. The device of claim 38, wherein the first picture and the second picture are included in a highest temporal layer, further comprising:

means for determining a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value; and

means for generating data representative of the second integer value.

43. The device of claim 38, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

44. A computer-readable storage medium having stored thereon instructions that, when executed, cause a processor to:

generate data indicating whether a difference between a presentation time of a first picture and a presentation time of a second picture is an integer multiple of a clock tick value; and

when the data indicates that the difference is the integer multiple of the clock tick value, generate data representative of the integer multiple.

45. The computer-readable storage medium of claim 44, further comprising instructions that cause the processor to determine that a temporal layer including the first picture and the second picture has a constant picture rate, wherein the instructions that cause the processor to generate the data indicating whether the difference is the integer multiple comprise instructions that cause the processor to generate the data to indicate that the difference is the integer multiple based on the determination that the temporal layer has the constant picture rate.

46. The computer-readable storage medium of claim 45, wherein the instructions that cause the processor to generate the data indicating whether the difference is the integer multiple comprise instructions that cause the processor to generate a fixed_pic_rate_flag syntax element.

47. The computer-readable storage medium of claim 45, further comprising instructions that cause the processor to:

determine respective constant picture rates for various temporal layers; and

signal, for each of the temporal layers, data representative of the respective constant picture rates.

48. The computer-readable storage medium of claim 44, wherein the first picture and the second picture are included in a highest temporal layer, further comprising instructions that cause the processor to:

determine a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer based on a temporal layer identification value associated with the highest temporal layer, a second integer value for the lower temporal layer, and the clock tick value; and

generate data representative of the second integer value.

49. The computer-readable storage medium of claim 44, wherein the presentation time for the first picture comprises a first picture order count (POC) value, and wherein the presentation time for the second picture comprises a second POC value.

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CLAIMS

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

based on a determination that a temporal layer, including a first picture and a second picture, has a constant picture rate, decoding timing information for the video data, the timing information including an integer value for the video data;

determining a difference value between a presentation time of the first picture and a presentation time of the second picture such that the difference value is equal to the integer value multiplied by a clock tick value wherein the first picture and second picture are consecutive in output order; and

presenting the first picture at a first time and presenting the second picture at a second time, such that a difference between the second time and the first time is the determined difference value.

2. The method of claim 1, further comprising displaying, by a display device, the presented video data.

3. The method of claim 1, further comprising determining that the temporal layer including the first picture and the second picture has the constant picture rate, wherein the timing information includes data defining the integer value, wherein decoding the timing information for the video data includes determining the integer value, and wherein determining the integer value comprises, based on the determination that the temporal layer has the constant picture rate, decoding the data defining the integer value.

4. The method of claim 3, wherein determining that the temporal layer has the constant picture rate comprises determining that a fixed_pic_rate_flag has a value indicating that the temporal layer has the constant picture rate.

5. The method of claim 3, further comprising:

determining, for each temporal layer having a respective constant picture rate, a respective signaled integer value; and

presenting pictures of each temporal layer having a respective constant picture rate according to the respective integer values multiplied by the clock tick value.

6. The method of claim 1, wherein decoding the timing information for the video data includes determining the clock tick value, wherein determining the clock tick value includes determining the clock tick value such that the clock tick value is based, at least in part, on a time scale value, wherein the time scale value is based on a clock frequency.

7. The method of claim 1, wherein the temporal layer includes a highest temporal layer, the method further comprising:

determining a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer having a temporal layer identification value that is lower than a temporal identification value that is associated with the highest temporal layer, a second integer value associated with the lower temporal layer, and the clock tick value; and

presenting pictures of the lower temporal layer based on the second difference value.

8. The method of claim 1, wherein the presentation time for the first picture comprises a first picture order count, POC, value, and wherein the presentation time for the second picture comprises a second POC value.

9. A device for presenting video data, the device comprising:

means for decoding timing information for the video data wherein the timing information is determined based on a determination that a temporal layer, including a first picture and a second picture, has a constant picture rate, the timing information including an integer value for the video data;

means for determining a difference value between a presentation time of the first picture and a presentation time of the second picture such that the difference value is equal to an integer value multiplied by a clock tick value wherein the first picture and second picture are consecutive in output order; and

means for presenting the first picture at a first time and presenting the second picture at a second time, such that a difference between the second time and the first time is the determined difference value.

10. The device of claim 9, further comprising means for determining that the temporal layer including the first picture and the second picture has the constant picture rate, wherein the timing information includes data defining the integer value, wherein the means for decoding the timing information for the video data includes means for determining the integer value, and wherein the means for determining the integer value comprise means for decoding, based on the determination that the temporal layer has the constant picture rate, the data defining the integer value.

11. The device of claim 10, wherein the means for determining that the temporal layer has the constant picture rate comprises means for determining that a fixed_pic_rate_flag has a value indicating that the temporal layer has the constant picture rate.

12. The device of claim 10, further comprising:

means for determining, for each temporal layer having a respective constant picture rate, a respective signaled integer value; and

means for presenting pictures of each temporal layer having a respective constant picture rate according to the respective integer values multiplied by the clock tick value.

13. The device of claim 9, wherein the temporal layer includes a highest temporal layer, the device further comprising:

means for determining a second difference value between a presentation time of a third picture and a presentation time of a fourth picture in a lower temporal layer having a temporal layer identification value that is lower than a temporal identification value that is associated with the highest temporal layer, a second integer value associated with the lower temporal layer, and the clock tick value; and

means for presenting pictures of the lower temporal layer based on the second difference value.

14. The device of claim 9, wherein the presentation time for the first picture comprises a first picture order count, POC, value, and wherein the presentation time for the second picture comprises a second POC value.

15. A computer-readable storage medium having stored thereon instructions that, when executed, cause a processor to:

decode, based on a determination that a temporal layer, including a first picture and a second picture, has a constant picture rate, timing information for the video data, the timing information including an integer value for the video data;

determine a difference value between a presentation time of the first picture and a presentation time of the second picture such that the difference value is equal to the integer value multiplied by a clock tick value wherein the first picture and second picture are consecutive in output order; and present the first picture at a first time and present the second picture at a second time, such that a difference between the second time and the first time is the determined difference value.