CLAIMS:

1. A method comprising:

determining, using a hardware processor, minimum depth (Zmin), and maximum depth (Zmax), residuals and Zmin/Zmax-index selection mask for depth offset compression;

transforming unneeded bits allocated for one compression function to a different compression function; and

detecting whether an index mask is all ones or zeros, and, if so, using unneeded bits of Zmin or Zmax to improve precision of the reference value or to redistribute the unneeded bits among the residuals.

2. The method of claim 1 determining ranges of Zmin and Zmax, determine Zmin and Zmax ranges that overlap, and identifying and reusing redundant bit combinations that arise from overlapping Zmin and Zmax ranges.

3. The method of claim 1 including identifying a Zmin/Zmax pair comprising a Zmin that is related to a Zmax, determining whether the Zmin/Zmax-pair constitutes a redundant combination or is an invalid reference value pair for depth offset compression, and if a Zmin/Zmax pair constitutes either a redundant combination or is an invalid reference value pair, using a different depth offset compression scheme, or a different compression algorithm altogether with the remaining bits.

4. The method of claim 3 including reusing the unneeded bits to extend residuals with one bit per sample.

5. The method of claim 1 including determining whether Zmin is greater than Zmax and, if so, swapping bits for Zmin with bits for Zmax and adding an extra bit to Zmin to improve precision of Zmin.

6. The method of claim 1 including, if Zmin is greater than Zmax, then using the next W by H bits as a clear mask to indicate whether the pixel is cleared or not, where W is a tile's width and H is a tile's height.

7. The method of claim 6 including, depending on how many non-cleared depths exist, storing depths in uncompressed form.

8. The method of claim 1 including for a tile being compressed, determining more than two depth values per tile.

9. The method of claim 8 including breaking a tile into subtiles and assigning one or more reference depth values to each of the said subtiles.

10. The method of claim 1 including transforming unneeded bits of color data allocated to one compression function to a different compression function.

11. One or more non-transitory computer readable media storing instructions executed by a processor to perform a sequence comprising:

determining, using a hardware processor, minimum depth (Zmin) and maximum depth, (Zmax) for depth offset compression;

determining residual bits per depth with respect to at least one of Zmin or Zmax that are unused for depth offset compression;

transforming unneeded bits allocated for one compression function to a different compression function; and

identifying a Zmin/Zmax pair comprising a Zmin that is related to a Zmax, determining whether Zmin is equal to Zmax, and if a Zmin/Zmax pair constitutes either a redundant combination or is an invalid reference value pair, using a different depth offset compression scheme, or a different compression algorithm altogether with the remaining bits.

12. The media of claim 11, determining ranges of Zmin and Zmax, determine Zmin and Zmax ranges that overlap, and said sequence including identifying and using redundant bit combinations that arise from overlapping Zmin and Zmax ranges.

13. The media of claim 11, said sequence including reusing the unneeded bits to extend residuals with one bit per sample.

14. The media of claim 11, said sequence including determining whether Zmin is greater than Zmax and, if so, swapping bits for Zmin with bits for Zmax and adding an extra bit to Zmin to improve precision of Zmin.

15. The media of claim 11, said sequence including, if Zmin is greater than Zmax, then using the next W by H bits as a clear mask to indicate whether the pixel is cleared or not, where W is a tile's width and H is a tile's height.

16. The media of claim 15, said sequence including, depending on how many non-cleared depths exist, storing depths in uncompressed form.

17. The media of claim 11, said sequence including detecting whether an index mask is all ones or zeros, and, if so, using unneeded bits of Zmin or Zmax to improve precision of reference values that, or to redistribute the unneeded bits among the residuals.

18. The media of claim 11, said sequence including for a tile being compressed, determining more than two depth values per tile.

19. The media of claim 18, said sequence including breaking a tile into subtiles and assigning depth values to each of said subtiles.

20. The media of claim 11 including transforming unneeded bits of color data allocated to one compression function to a different compression function.

21. An apparatus comprising:

determine, using a hardware processor, minimum depth (Zmin) and maximum depth (Zmax) for depth offset compression, determine residual bits per depth with respect to at least one of Zmin or Zmax that are unused for depth offset compression, transform unneeded bits allocated for one function compression to a different compression function, determine whether Zmin is greater than Zmax and, if so, swapping bits for Zmin with bits for Zmax and add an extra bit to Zmin to improve precision of Zmin; and

a storage coupled to said processor.

22. The apparatus of claim 21, said processor to determine ranges of Zmin and Zmax, determine Zmin and Zmax ranges that overlap, and identify and use redundant bit combinations that arise from overlapping Zmin and Zmax ranges.

23. The apparatus of claim 21, said processor to identify a Zmin/Zmax pair comprising a Zmin that is related to a Zmax, determine whether Zmin is equal to Zmax, and if a Zmin/Zmax pair constitutes either a redundant combination or is an invalid reference value pair, use a different depth offset compression scheme, or a different compression algorithm altogether with the remaining bits.

24. The apparatus of claim 21, said processor to reuse the unneeded bits to extend residuals with one bit per sample.

25. The apparatus of claim 21, said processor to, if Zmin is greater than Zmax, then using the next W by H bits as a clear mask to indicate whether the pixel is cleared or not, where W is a tile's width and H is a tile's height.

26. The apparatus of claim 21, said processor to depend on how many non-cleared depths exist, store depths in uncompressed form.

27. The apparatus of claim 21, said processor to detect whether an index mask is all ones or zeros, and, if so, use unneeded bits of Zmin or Zmax to improve precision of reference values that, or to redistribute the unneeded bits among the residuals.

28. An apparatus for depth testing comprising:

means for determining, using a hardware processor, minimum depth (Zmin), and maximum depth(Zmax), residuals and Zmin/Zmax-index selection mask for depth offset compression;

means for transforming unneeded bits allocated for one compression function to a different compression function;

means for detecting whether an index mask is all ones or zeros, and, if so, using unneeded bits of Zmin or Zmax to improve precision of the reference value or to redistribute the unneeded bits among the residuals; and means for using the next W by H bits as a clear mask to indicate whether the pixel is cleared or not, where W is a tile's width and H is a tile's height if Zmin is greater than Zmax.

29. The apparatus of claim 28 including means for determining ranges of Zmin and Zmax, determine Zmin and Zmax ranges that overlap, and identifying and reusing redundant bit combinations that arise from overlapping Zmin and Zmax ranges.

30. The apparatus of claim 28 including means for identifying a Zmin/Zmax pair comprising a Zmin that is related to a Zmax, determining whether the Zmin/Zmax-pair constitutes a redundant combination or is an invalid reference value pair for depth offset compression, and if a Zmin/Zmax pair constitutes either a redundant combination or is an invalid reference value pair, using a different depth offset compression scheme, or a different compression algorithm altogether with the remaining bits.

31. The apparatus of claim 30 including means for reusing the unneeded bits to extend residuals with one bit per sample.

32. The apparatus of claim 28 including means for determining whether Zmin is greater than Zmax and, if so, swapping bits for Zmin with bits for Zmax and adding an extra bit to Zmin to improve precision of Zmin.

33. The apparatus of claim 28 including means for storing depths in uncompressed form depending on how many non-cleared depths exist.

34. The apparatus of claim 28 including means for detecting whether an index mask is all ones or zeros, and, if so, using unneeded bits of Zmin or Zmax to improve precision of the reference value or to redistribute the unneeded bits among the residuals.

35. The apparatus of claim 28 including for a tile being compressed, means for determining more than two depth values per tile.

36. The apparatus of claim 35 including means for breaking a tile into subtiles and assigning one or more reference depth values to each of the said subtiles.

37. The apparatus of claim 28 including means for transforming unneeded bits of color data allocated to one compression function to a different compression function.