Claims

1. Apparatus for encoding an audio signal, comprising:

a controllable windower (102) for windowing the audio signal to provide a sequence of blocks of windowed samples;

a converter (104) for converting the sequence of blocks of windowed samples into a spectral representation comprising a sequence of frames of spectral values;

a transient location detector (106) for identifying a location of a transient within a transient look-ahead region of a frame; and

a controller (108) for controlling the controllable windower (102) to apply a specific window having a specified overlap length to the audio signal in response to an identified location (210-213) of the transient,

wherein the controller (108) is configured to select the specific window from a group of at least three windows comprising a first window (201) having a first overlap length (203), a second window (215) having a second overlap length (218), and a third window (224) having a third overlap length (229) or having no overlap,

wherein the first overlap length (203) is greater than the second overlap length (218), and wherein the second overlap length (218) is greater than the third overlap length (229) or greater than an overlap of zero,

wherein the specific window is selected based on the transient location such that one of two time-adjacent overlapping windows has first window coefficients at the location of the transient and the other of the two time-adjacent overlapping windows has second window coefficients at the location of the transient, wherein the second coefficients are at least nine times greater than the first coefficients.

2. Apparatus of claim 1, wherein the controller (108) is configured to select the specific window so that the first window coefficients are equal to 1 and the second window coefficients are equal to zero.

3. Apparatus of claim 1 or 2, wherein the first overlap length is equal to one quarter or one third or one half of a length of the specific window, wherein the second overlap length is equal to one half or one third of the first overlap length, and wherein the third overlap length is one half or one quarter or one eighth of the second overlap length or less than or equal to 1.25 milliseconds.

4. Apparatus in accordance with one of the preceding claims, further comprising an output interface (114) for associating a window information (112) provided by the controller (108) with an encoded representation of the spectral representation comprising a sequence of encoded blocks of spectral values.

5. Apparatus of one of the preceding claims,

wherein the converter (104) is configured for performing a modified discrete cosine transform or a modified discrete sine transform, wherein a number of spectral values in a block of spectral values is lower than a number of windowed samples in a block of windowed samples.

6. Apparatus of one of the preceding claims, wherein the controller (108) is configured to control the windower (102) in such a way that a constant frame raster is maintained in the sequence of blocks comprising at least five frames, wherein a frame has a length being equal to a length of the first window or being equal to the length of the first window divided by an integer multiple of two, and

wherein the transient look-ahead region extends from a location in the current frame until a location in a next frame, the location being in the middle of the frame or displaced from the middle of the frame by less than or equal to 25% of the samples of a frame.

7. Apparatus in accordance with one of the preceding claims,

wherein the transient location detector (106) is configured to apply the transient look-ahead region extending over a full frame and to distinguish at least four quarters, and wherein the controller (108) is configured to select the first window, when no transient is detected, to select the second window, when a transient is

detected in the first or fourth quarter and to select the third window, when a transient is detected in the second or the third quarter.

8. Apparatus in accordance with one of the preceding claims,

wherein the controller (108) is configured to determine the specific window so that an overlap width is chosen in such a way that only one of two time-adjacent overlapping windows contains the detected transient.

9. Apparatus in accordance with one of the preceding claims,

wherein the transient location detector (106) is configured to detect the location of the transient within the transient look-ahead region so that the transient location coincides with a start or an onset of the transient or coincides with a time location of a maximum amplitude or energy or a center of an energy of the transient.

10. Apparatus of one of the preceding claims,

wherein the transient location detector (106) is configured for using a transient look-ahead region covering a second portion of a current frame and a first portion of a next frame,

wherein the transient location detector (106) is configured to identify eight different transient locations identified by an index from zero to seven,

wherein the controller (108) is configured to select the second window, when the transient index is seven or to select the third window, when the transient index is six.

11. Apparatus of one of the preceding claims,

wherein the transient location detector (106) is configured for using a transient look-ahead region covering a second portion of a current frame and a first portion of a next frame,

wherein the transient location detector (106) is configured to identify eight different transient locations identified by an index from zero to seven,

wherein the controller is configured to select the first window, when no transient is detected, to select the second window, when the transient index is equal to zero, one, six, seven, or to select the third window, when the transient index is equal to two, three, four, five.

12. Apparatus of one of the preceding claims,

wherein the controller (108) is configured to select a number of specific windows for a frame so that a number of spectral values obtained by a plurality of windows for a frame is equal to the number of spectral values obtained by converting a window function having the first window size,

wherein the first to third windows have an identical first window size, and wherein a frame is defined by the identical window size, and wherein the group comprises a fourth window and a fifth window, the fourth window and the fifth window having an identical second window size, the second window size being an integer fraction of the first window size, and wherein the fourth window has a fourth overlap length and the fifth window has a fifth overlap length lower than the fourth overlap length.

13. Apparatus of one of the preceding claims,

wherein the controller (1085) is configured to determine, based on the transient location, an overlap width information (602) and a short/long transform information (600),

wherein the overlap width information (602) is determined to have a first value indicating a maximum overlap width, a second value indicating a medium overlap width and a third value indicating a minimum overlap width,

wherein the short/long transform information (600) comprises an identification for a long window or a short window for a frame having more than one transforms, and

wherein the controller (108) is configured to determine a single window for a frame or a sequence of two, three or four windows for the frame (608) based on the overlap width (602) information and the short/long transform information (600).

14. Apparatus of one of the preceding claims,

wherein the controller (108) is configured to determine a number of transforms and corresponding lengths of the transforms for a frame in response to an identified transient location (605),

wherein the controller (108) is configured to determine the number and lengths of the transform for a frame such that a number of spectral values obtained by the transforms for the frame is equal to a number of spectral values obtained by a longest transform length associated with a maximum overlap window function.

15. Apparatus of one of the preceding claims,

wherein the controller (108) is configured to determine a length and number of transforms or to select a specific window so that a multi-overlap region extending over a plurality of samples is obtained within the frame so that the plurality of samples are windowed by at least three overlapping windows (1500, 1502, 1503).

16. Apparatus of one of the preceding claims,

wherein the controller (108) is configured to determine the length and number of transforms or to select the specific window so that the multi-overlap region is determined, wherein a transient is located at a location of the transient look-ahead region corresponding to a region extending by 30% of the samples of the frame around the middle of the frame.

17. Decoder for decoding an audio signal comprising a sequence of blocks of converted windowed samples and associated window information (160) identifying a specific window function for a block out of at least three different window functions, comprising:

a processor (156) for providing a sequence of blocks of spectral values;

a controllable converter (158) for converting the sequence of blocks of spectral values into a time domain representation using an overlap-add processing,

wherein the controllable converter (158) is controlled by the window information to apply window functions indicated by the window information to the corresponding block to calculate a decoded audio signal,

wherein the window is selected from a group of at least three windows comprising a first window (201) having a first overlap length (203), a second window (215) having a second overlap length (218), and a third window (224) having a third overlap length (229) or having no overlap, wherein the first overlap length (203) is greater than the second overlap length (218), and wherein the second overlap length (218) is greater than the third overlap length (229) or greater than an overlap of zero.

18. Decoder of claim 17, wherein the controllable converter (158) comprises:

a frequency-time converter (170) for converting the blocks of spectral values into a time representation;

a synthesis windower (172) for applying a synthesis window function to the time representation of the block of spectral values; and

an overlap-adder (174) for overlapping and adding time-adjacent window time representations to obtain the decoded audio signal,

wherein the synthesis windower (172), the overlap-adder (174) or the frequency-time converter (170) are controlled by the associated window information to apply the synthesis window and an overlap as indicated by the window information (160).

19. Decoder of claim 18,

wherein the window information (603) comprises a transform length information (600) and an overlap information (602),

wherein a controller (180) is configured to determine an overlap and a window for a block of spectral values based on a previous window information (606) and a current window information (607),

wherein a current window information (607) either indicates a first transform having a first transform length or two second transforms each having a second transform length, or a second transform having the second transform length and two third transforms each having a third transform length or four transforms having the third transform length,

wherein the first transform length is double the size of the second transform length, and wherein the second transform length is double the size of the third transform length.

20. Decoder of one of claims 17 to 19,

wherein the window information (603) comprises a previous overlap information (606) indicating an overlap of a later portion of a previous window function, and wherein the window information comprises a current overlap information (607) indicating an overlap of a later portion, wherein the controller (180) is configured to determine an earlier portion of a window immediately following the previous window in accordance with the overlap information of the later portion of the previous window.

21. Decoder of one of the preceding claims,

wherein the window information for a current frame indicating a transform length information (600) requiring a second transform length being smaller than a first transform length defining the frame,

wherein the controllable converter (158) is configured to apply a sequence of two or four windows associated with a third transform length, wherein an overlap between two time-adjacent windows associated with the third transform length is the third overlap length, and wherein the third transform length is lower than the second transform length.

22. Decoder of one of claims 17 to 21,

wherein the first window, the second window and the third window have associated the same transform size defining a frame.

wherein the first overlap length is one quarter or one third or one half of a length of the first window, wherein the second overlap length is one half or one third of the first overlap length, and wherein the third overlap length is one half or one quarter or one eighth of the second overlap length or less than or equal to 1.25 milliseconds.

23. Decoder of claim 22,

wherein the controllable converter (158) is configured to apply, in response to the window information, a fourth window having the first overlap length, wherein the fourth window has associated a transform size being half of the transform size of the first to third windows, or

wherein the controllable converter (158) is configured to apply, in response to the window information, a fifth window having the second overlap length and a sixth window having the third overlap length, wherein the fifth window and the sixth window have associated the same transform size being a quarter of the transform size of the first to third windows.

24. Decoder of claim 23,

wherein the controllable converter (158) is configured to apply, in response to the window information, either a sequence of a single fourth window and two sixth windows, wherein the two sixth windows have the third overlap length in overlapping window portions.

25. Decoder of claim 23,

wherein the controllable converter (158) is configured to apply, in response to the window information (603), a sequence of windows comprising, in the order:

a first window, a fourth window, a sixth window and a fifth window (708),

a first window, a fourth window and two sixth windows (710),

a second window, a fifth window, two sixth windows and a fifth window (704),

a third window and four sixth windows (706);

a third window, two sixth windows, and a fourth window (700),

a third window, three sixth windows, and a fifth window (702);

a first window and a second window, or vice versa,

a first window, a third window or vice versa, or

a second window and a third window, or vice versa.

26. Decoder of one of the claims 17 to 25,

wherein the window indication (603) is associated with each frame of the encoded audio signal, wherein a frame is defined by a transform associated with the first window,

wherein the window indication (603) is a variable length code having a bit for a transform length (600) and a single or 2 bits for an overlap length (602),

wherein the controllable converter (158) is configured to apply a sequence of windows defined by an overlap length of a previous window indication (606) and by an overlap length and a transform length of a current window indication (607) immediately following the previous window indication (606) in the encoded audio signal.

27. Decoder of one of claims 17 to 26,

wherein the controllable converter (158) is configured to perform an inverse modified discrete cosine transform or an inverse modified discrete sine transform or any other aliasing reducing transform with an overlap and add functionality.

28. Decoder of one of claims 17 to 27,

wherein the first overlap length comprises 256 samples or about 10 ms, wherein the second overlap length comprises 128 samples or about 5 ms and wherein the third overlap length comprises 16 samples or about 0.6 ms, and wherein the frame length comprises 512 samples or about 20 ms.

29. Decoder of one of claims 17 to 28,

wherein a first transform length comprises 512 MDCT or MDST coefficients, wherein a second transform length comprises 256 MDCT or MDST coefficients, and wherein a third transform length comprises 128 MDCT or MDST coefficients.

30. Decoder of one of claims 17 to 26, further comprising:

an apparatus for encoding an audio signal of one of claims 1 to 16.

31. Decoder of claim 30,

wherein windows used in the apparatus for encoding are identical to corresponding windows used in the decoder, and

wherein the decoder has a read-only memory (197), in which only a single set of windows is stored for usage in the apparatus for encoding and the decoder.

32. Method for encoding an audio signal, comprising:

windowing (102) the audio signal to provide a sequence of blocks of windowed samples;

converting (104) the sequence of blocks of windowed samples into a spectral representation comprising a sequence of frames of spectral values;

identifying (106) a location of a transient within a transient look-ahead region of a frame; and

controlling (108) the windowing (102) to apply a specific window having a specified overlap length to the audio signal in response to an identified location (210-213) of the transient, wherein the specific window is selected from a group of at least three windows comprising a first window (201) having a first overlap length (203), a second window (215) having a second overlap length (218), and a third window (224) having a third overlap length (229) or having no overlap,

wherein the first overlap length (203) is greater than the second overlap length (218), and wherein the second overlap length (218) is greater than the third overlap length (229) or greater than an overlap of zero,

wherein the specific window is selected based on the transient location such that one of two time-adjacent overlapping windows has first window coefficients at the location of the transient and the other of the two time-adjacent overlapping windows has second window coefficients at the location of the transient, wherein the second coefficients are at least nine times greater than the first coefficients.

33. Method for decoding an audio signal comprising a sequence of blocks of converted windowed samples and associated window information (160) identifying a specific window function for a block out of at least three different window functions, comprising:

providing (156) a sequence of blocks of spectral values;

converting (158) the sequence of blocks of spectral values into a time domain representation using an overlap-add processing,

wherein the converting (158) is controlled by the window information to apply window functions indicated by the window information to the corresponding block to calculate a decoded audio signal,

wherein the window is selected from a group of at least three windows comprising a first window (201) having a first overlap length (203), a second window (215) having a second overlap length (218), and a third window (224) having a third overlap length (229) or having no overlap, wherein the first overlap length (203) is greater than the second overlap length (218), and wherein the second overlap length (218) is greater than the third overlap length (229) or greater than an overlap of zero.

34. Computer program for performing, when running on a computer or a processor, the method of claim 32 or the method of claim 33.

Claims

1. Apparatus for encoding an audio signal, comprising:

a controllable windower for windowing the audio signal to provide a sequence of blocks of windowed samples;

a converter for converting the sequence of blocks of windowed samples into a spectral representation comprising a sequence of frames of spectral values;

a transient location detector for identifying a location of a transient within a transient look-ahead region of a frame; and

a controller for controlling the controllable windower to apply a specific window having a specified overlap length to the audio signal in response to an identified location of the transient,

wherein the controller is configured to select the specific window from a group of at least three windows comprising a first window having a first overlap length, a second window having a second overlap length, and a third window having a third overlap length or having no overlap,

wherein the first overlap length is greater than the second overlap length, and wherein the second overlap length is greater than the third overlap length or greater than an overlap of zero,

wherein the specific window is selected based on the transient location such that one of two time-adjacent overlapping windows has first window coefficients at the location of the transient and the other of the two time-adjacent overlapping windows has second window coefficients at the location of the transient, wherein the second coefficients are at least nine times greater than the first coefficients.

2. Apparatus of claim 1, wherein the controller is configured to select the specific window so that the first window coefficients are equal to 1 and the second window coefficients are equal to zero.

3. Apparatus of claim 1 or 2, wherein the first overlap length is equal to one quarter or one third or one half of a length of the specific window, wherein the second overlap length is equal to one half or one third of the first overlap length, and wherein the third overlap length is one half or one quarter or one eighth of the second overlap length or less than or equal to 1.25 milliseconds.

4. Apparatus in accordance with one of the preceding claims, further comprising an output interface for associating a window information provided by the controller with an encoded representation of the spectral representation comprising a sequence of encoded blocks of spectral values.

5. Apparatus of one of the preceding claims,

wherein the converter is configured for performing a modified discrete cosine transform or a modified discrete sine transform, wherein a number of spectral values in a block of spectral values is lower than a number of windowed samples in a block of windowed samples.

6. Apparatus of one of the preceding claims, wherein the controller is configured to control the windower in such a way that a constant frame raster is maintained in the sequence of blocks comprising at least five frames, wherein a frame has a length being equal to a length of the first window or being equal to the length of the first window divided by an integer multiple of two, and

wherein the transient look-ahead region extends from a location in the current frame until a location in a next frame, the location being in the middle of the frame or displaced from the middle of the frame by less than or equal to 25% of the samples of a frame.

7. Apparatus in accordance with one of the preceding claims,

wherein the transient location detector is configured to apply the transient look-ahead region extending over a full frame and to distinguish at least four quarters, and wherein the controller is configured to select the first window, when no transient is detected, to select the second window, when a transient is

detected in the first or fourth quarter and to select the third window, when a transient is detected in the second or the third quarter.

8. Apparatus in accordance with one of the preceding claims,

wherein the controller is configured to determine the specific window so that an overlap width is chosen in such a way that only one of two time-adjacent overlapping windows contains the detected transient.

9. Apparatus in accordance with one of the preceding claims,

wherein the transient location detector is configured to detect the location of the transient within the transient look-ahead region so that the transient location coincides with a start or an onset of the transient or coincides with a time location of a maximum amplitude or energy or a center of an energy of the transient.

10. Apparatus of one of the preceding claims,

wherein the transient location detector is configured for using a transient look-ahead region covering a second portion of a current frame and a first portion of a next frame,

wherein the transient location detector is configured to identify eight different transient locations identified by an index from zero to seven,

wherein the controller is configured to select the second window, when the transient index is seven or to select the third window, when the transient index is six.

11. Apparatus of one of the preceding claims,

wherein the transient location detector is configured for using a transient look-ahead region covering a second portion of a current frame and a first portion of a next frame,

wherein the transient location detector is configured to identify eight different transient locations identified by an index from zero to seven,

wherein the controller is configured to select the first window, when no transient is detected, to select the second window, when the transient index is equal to zero, one, six, seven, or to select the third window, when the transient index is equal to two, three, four, five.

12. Apparatus of one of the preceding claims,

wherein the controller is configured to select a number of specific windows for a frame so that a number of spectral values obtained by a plurality of windows for a frame is equal to the number of spectral values obtained by converting a window function having the first window size,

wherein the first to third windows have an identical first window size, and wherein a frame is defined by the identical window size, and wherein the group comprises a fourth window and a fifth window, the fourth window and the fifth window having an identical second window size, the second window size being an integer fraction of the first window size, and wherein the fourth window has a fourth overlap length and the fifth window has a fifth overlap length lower than the fourth overlap length.

13. Apparatus of one of the preceding claims,

wherein the controller is configured to determine, based on the transient location, an overlap width information and a short/long transform information,

wherein the overlap width information is determined to have a first value indicating a maximum overlap width, a second value indicating a medium overlap width and a third value indicating a minimum overlap width,

wherein the short/long transform information comprises an identification for a long window or a short window for a frame having more than one transforms, and

wherein the controller is configured to determine a single window for a frame or a sequence of two, three or four windows for the frame based on the overlap width information and the short/long transform information.

14. Apparatus of one of the preceding claims,

wherein the controller is configured to determine a number of transforms and corresponding lengths of the transforms for a frame in response to an identified transient location,

wherein the controller is configured to determine the number and lengths of the transform for a frame such that a number of spectral values obtained by the transforms for the frame is equal to a number of spectral values obtained by a longest transform length associated with a maximum overlap window function.

15. Apparatus of one of the preceding claims,

wherein the controller is configured to determine a length and number of transforms or to select a specific window so that a multi-overlap region extending over a plurality of samples is obtained within the frame so that the plurality of samples are windowed by at least three overlapping windows.

16. Apparatus of one of the preceding claims,

wherein the controller is configured to determine the length and number of transforms or to select the specific window so that the multi-overlap region is determined, wherein a transient is located at a location of the transient look-ahead region corresponding to a region extending by 30% of the samples of the frame around the middle of the frame.

17. Decoder for decoding an audio signal comprising a sequence of blocks of converted windowed samples and associated window information identifying a specific window function for a block out of at least three different window functions, comprising:

a processor for providing a sequence of blocks of spectral values;

a controllable converter for converting the sequence of blocks of spectral values into a time domain representation using an overlap-add processing,

wherein the controllable converter is controlled by the window information to apply window functions indicated by the window information to the corresponding block to calculate a decoded audio signal,

wherein the window is selected from a group of at least three windows comprising a first window having a first overlap length, a second window having a second overlap length, and a third window having a third overlap length or having no overlap, wherein the first overlap length is greater than the second overlap length, and wherein the second overlap length is greater than the third overlap length or greater than an overlap of zero.

18. Decoder of claim 17, wherein the controllable converter comprises:

a frequency-time converter for converting the blocks of spectral values into a time representation;

a synthesis windower for applying a synthesis window function to the time representation of the block of spectral values; and

an overlap-adder for overlapping and adding time-adjacent window time representations to obtain the decoded audio signal,

wherein the synthesis windower , the overlap-adder or the frequency-time converter are controlled by the associated window information to apply the synthesis window and an overlap as indicated by the window information.

19. Decoder of claim 18,

wherein the window information comprises a transform length information and an overlap information,

wherein a controller is configured to determine an overlap and a window for a block of spectral values based on a previous window information and a current window information,

wherein a current window information either indicates a first transform having a first transform length or two second transforms each having a second transform length, or a second transform having the second transform length and two third transforms each having a third transform length or four transforms having the third transform length,

wherein the first transform length is double the size of the second transform length, and wherein the second transform length is double the size of the third transform length.

20. Decoder of one of claims 17 to 19,

wherein the window information comprises a previous overlap information indicating an overlap of a later portion of a previous window function, and wherein the window information comprises a current overlap information indicating an overlap of a later portion, wherein the controller is configured to determine an earlier portion of a window immediately following the previous window in accordance with the overlap information of the later portion of the previous window.

21. Decoder of one of the preceding claims,

wherein the window information for a current frame indicating a transform length information requiring a second transform length being smaller than a first transform length defining the frame,

wherein the controllable converter is configured to apply a sequence of two or four windows associated with a third transform length, wherein an overlap between two time-adjacent windows associated with the third transform length is the third overlap length, and wherein the third transform length is lower than the second transform length.

22. Decoder of one of claims 17 to 21,

wherein the first window, the second window and the third window have associated the same transform size defining a frame.

wherein the first overlap length is one quarter or one third or one half of a length of the first window, wherein the second overlap length is one half or one third of the first overlap length, and wherein the third overlap length is one half or one quarter or one eighth of the second overlap length or less than or equal to 1.25 milliseconds.

23. Decoder of claim 22,

wherein the controllable converter is configured to apply, in response to the window information, a fourth window having the first overlap length, wherein the fourth window has associated a transform size being half of the transform size of the first to third windows, or

wherein the controllable converter is configured to apply, in response to the window information, a fifth window having the second overlap length and a sixth window having the third overlap length, wherein the fifth window and the sixth window have associated the same transform size being a quarter of the transform size of the first to third windows.

24. Decoder of claim 23,

wherein the controllable converter is configured to apply, in response to the window information, either a sequence of a single fourth window and two sixth windows, wherein the two sixth windows have the third overlap length in overlapping window portions.

25. Decoder of claim 23,

wherein the controllable converter is configured to apply, in response to the window information, a sequence of windows comprising, in the order:

a first window, a fourth window, a sixth window and a fifth window,

a first window, a fourth window and two sixth windows,

a second window, a fifth window, two sixth windows and a fifth window,

a third window and four sixth windows;

a third window, two sixth windows, and a fourth window ,

a third window, three sixth windows, and a fifth window;

a first window and a second window, or vice versa,

a first window, a third window or vice versa, or

a second window and a third window, or vice versa.

26. Decoder of one of the claims 17 to 25,

wherein the window indication is associated with each frame of the encoded audio signal, wherein a frame is defined by a transform associated with the first window,

wherein the window indication is a variable length code having a bit for a transform length and a single or 2 bits for an overlap length,

wherein the controllable converter is configured to apply a sequence of windows defined by an overlap length of a previous window indication and by an overlap length and a transform length of a current window indication immediately following the previous window indication in the encoded audio signal.

27. Decoder of one of claims 17 to 26,

wherein the controllable converter is configured to perform an inverse modified discrete cosine transform or an inverse modified discrete sine transform or any other aliasing reducing transform with an overlap and add functionality.

28. Decoder of one of claims 17 to 27,

wherein the first overlap length comprises 256 samples or about 10 ms, wherein the second overlap length comprises 128 samples or about 5 ms and wherein the third overlap length comprises 16 samples or about 0.6 ms, and wherein the frame length comprises 512 samples or about 20 ms.

29. Decoder of one of claims 17 to 28,

wherein a first transform length comprises 512 MDCT or MDST coefficients, wherein a second transform length comprises 256 MDCT or MDST coefficients, and wherein a third transform length comprises 128 MDCT or MDST coefficients.

30. Decoder of one of claims 17 to 26, further comprising:

an apparatus for encoding an audio signal of one of claims 1 to 16.

31. Decoder of claim 30,

wherein windows used in the apparatus for encoding are identical to corresponding windows used in the decoder, and

wherein the decoder has a read-only memory, in which only a single set of windows is stored for usage in the apparatus for encoding and the decoder.

32. Method for encoding an audio signal, comprising:

windowing the audio signal to provide a sequence of blocks of windowed samples;

converting the sequence of blocks of windowed samples into a spectral representation comprising a sequence of frames of spectral values;

identifying a location of a transient within a transient look-ahead region of a frame; and

controlling the windowing to apply a specific window having a specified overlap length to the audio signal in response to an identified location of the transient, wherein the specific window is selected from a group of at least three windows comprising a first window having a first overlap length, a second window having a second overlap length, and a third window having a third overlap length or having no overlap,

wherein the first overlap length is greater than the second overlap length, and wherein the second overlap length is greater than the third overlap length or greater than an overlap of zero,

wherein the specific window is selected based on the transient location such that one of two time-adjacent overlapping windows has first window coefficients at the location of the transient and the other of the two time-adjacent overlapping windows has second window coefficients at the location of the transient, wherein the second coefficients are at least nine times greater than the first coefficients.

33. Method for decoding an audio signal comprising a sequence of blocks of converted windowed samples and associated window information identifying a specific window function for a block out of at least three different window functions, comprising:

providing a sequence of blocks of spectral values;

converting the sequence of blocks of spectral values into a time domain representation using an overlap-add processing,

wherein the converting is controlled by the window information to apply window functions indicated by the window information to the corresponding block to calculate a decoded audio signal,

wherein the window is selected from a group of at least three windows comprising a first window having a first overlap length, a second window having a second overlap length, and a third window having a third overlap length or having no overlap, wherein the first overlap length is greater than the second overlap length, and wherein the second overlap length is greater than the third overlap length or greater than an overlap of zero,

34. Computer program for performing, when running on a computer or a processor, the method of claim 32 or the method of claim 33.