CLAIMS

1. A system for enhancing stereo audio, the system comprising: a processor configured to limit the audio difference to sum ratio; at least one crossover network configured so as to separate each of left and right audio input signals into at least two frequency bands, and configurable to set the frequency and filter order of the crossover network; at least two compressors configured to produce left and right output signals responsive to the input signals in each of the bands created by the crossover network(s), and with configurable target level, above threshold compression ratio, below threshold compression ratio, and maximum gain; a two channel surround processor configurable to set the amount of perceived sound field spread in multiple dimensions left and right equalizers configured to receive the left and right audio input signals and shape the spectral characteristics as desired; and a soft clipper to limit the perceived distortion of left and right signals that briefly exceed a full scale output.

2. The system of claim 1, wherein the system is configurable to produce desired sound listening modes.

3. The system of claim 1, wherein the filter order of the crossover network is 4.sup.th order.

4. A system for generating perceived additional width, depth and height to a stereo audio signal comprising: a difference channel width adjustment; a difference channel feedback delay loop with output adjusted by a difference delay gain adjustment; a summer to sum the output of the width adjustment and the difference delay gain adjustment, the summer output is summed with one stereo channel and summed, phase reversed (180 degree phase shift) with the other stereo channel; and a sum channel feedback delay loop with output first adjusted by a sum delay gain adjustment and then combined with the left and right channels.

5. The system of claim 4, wherein the system is configurable to produce desired sound listening modes.

6. A compressor architecture for enhancing the low frequency response of a loudspeaker, the architecture comprising: an equalizer configured to shape the

input audio frequency response for the desired amount of bass boost or cut; a crossover network to divide the low band into two bands, the first band being the upper low band and the second band being the lower low band; a compressor for processing the first band configured to produce output signals responsive to the energy level of the low frequency portion of the input audio signal; a compressor for processing the second band configured to produce output signals responsive to the energy level of the lower low frequency portion of the input audio signal; a high pass filter configured to remove frequencies that cannot be reproduced by the loudspeaker; a summer to recombine first and second bands with the middle and high band portion of the audio signal; and a soft clipper to limit brief signal excursions into the distortion region of the loudspeaker.

7. The architecture of claim 6, wherein the architecture is configurable to produce desired sound listening modes.