Simplified digital signal processing of compressed MPEG-1 audio files producing high signal-to-noise ratios (SNR) for mp3 files

Efficient digital signal processing of compressed audio files is vital for back-end applications needed for to meet the high consumer consumption of mp3-based media. Traditional Digital Signal Processors (DSPs) require complex and expensive audio circuits to process the MPEG1 encoding of audio files. This technology utilizes simplified DSPs to process audio files while maintaining a high signal to noise ratio (SNR). This can be used to build low cost audio circuits.

**DSPs exploit intrinsic MPEG1 encoding and distortion masking to utilize low resolution processing to achieve high signal to noise ratio audio files**

Traditional signal processing methods completely decode MPEG1 files before processing using high-resolution methods. These methods require complex, costly circuits. This technology exploits the intrinsic MPEG1 encoding to process the compressed audio signal without first decoding. Additionally this technology utilizes low-resolution DSP methods to process the audio signal. The signal distortion resulting from the low-resolution methods is effectively masked by the MPEG1, rendering it inaudible. As such, a simplified DSP audio processing system with a high SNR is achieved.

This technology was implemented and tested using simulations in Matlab/Simulink.

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**Applications:**

- Portable MPEG players
- Portable mp3 players
- Digital video broadcasters (DVB)
- Digital signal processors (DSP)
Advantages:

• Simplifies audio processing.
• DSP system leads to cheaper audio circuits.
• Masks noise distortion.
• Achieves high SNR.

Patent information:

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Related Publications:


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