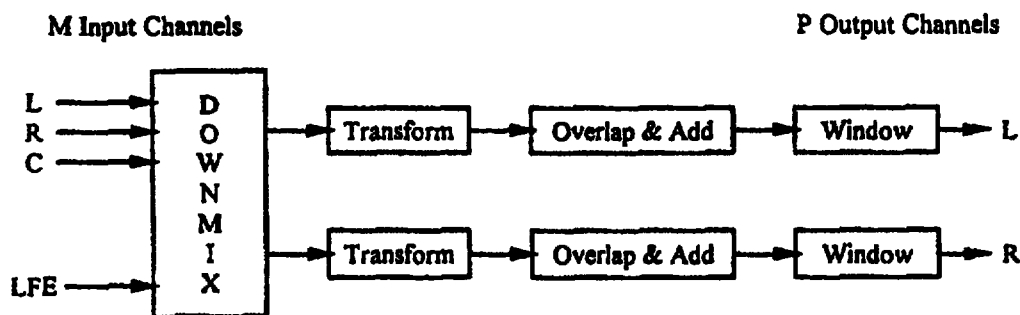


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(54) Title: METHOD AND APPARATUS FOR FREQUENCY-DOMAIN DOWNMIXING WITH BLOCK-SWITCH FORCING FOR AUDIO DECODING FUNCTIONS

**Block Diagram of Block Switch Forcing Method**

(57) Abstract

An audio decoder solution is here provided where a reduction in computing power is required. The proposed method consists of forcing the multiple output channels to only one type of inverse transformation format. A format of long transform length is more suitable for input signals whose spectrum remains stationary or quasi-stationary. This provides a greater frequency resolution, improved coding performance and a reduction of computing power required. Another format of two or more short transform lengths, possessing greater time resolution, is more desirable for rapidly changing signals with time. The computer power required for two or more short transforms should be higher than for only one transformation. The time versus frequency resolution trade-off should be considered when selecting a transform block length. Advantage is taken of human hearing behaviour to reduce the computing power of a processing engine (e.g. DSP) when downmixing from an M-channel input to a P-channel output is required. The encoder provides spectral information concerning the transmitted audio signal frame. This information corresponds to signals which are stationary/quasi-stationary or changing rapidly with time. Some analysis is required to decide which input channels are forced to long or short block conversion prior to frequency-domain downmixing and transformation.