Design of Multiplier-Less MDFT Filter Banks with Perfect Reconstruction using ABC Algorithm

Abstract

In this paper the design of a totally multiplier-less M-Channel Modified Discrete Fourier Transform (MDFT) Filter bank with Perfect reconstruction has been proposed. Canonic Sign Digit (CSD) based Finite Impulse Response (FIR) prototype filter with low implementation complexity is designed. The performance of the MDFT filter bank designed with this filter is optimized using Artificial Bee Colony (ABC) algorithm. This design leads to very low implementation complexity and hence low power dissipation and low chip area, which are desirable in upcoming applications such as software defined radio, wireless communication and portable computing systems.

References

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