Abstract

In this paper, a new number system "Single Digit Triple Base Number System (SDTBNS)" using 2, 3 and 5 as the bases have been introduced. Advantages of SDTBNS over Single Digit Double Base Number System (SDDBNS) have been discussed here. Dynamic range of the numbers represented in SDTBNS has also been dealt with in details. Analysis on complexity of the multiplication unit and execution time reveal the novelty of the proposed number system. Application of this number system in digital signal processing (DSP) has been explored and an efficient implementation of linear convolution has been presented.

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**Index Terms**

Computer Science  
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SDTBNS  SDDBNS  DSP  FIR Filter  DFT  DIT  Linear Convolution  FFT