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An Improved Distributed Multiplier-Less Approach for Radix-2 FFT

Operations with complex numbers are widely used in DSP applications. In today's technologies, the real and imaginary parts of complex numbers are processed separately, and then combined to form the final result. With CBNS, complex numbers can be represented as a single entity. We propose a technique that combines the efficiency of the Distributed Arithmetic (DA) and the high performance of the Complex Binary Number System (CBNS) to transform the FFT algorithm into a multiplier-less structure and Further, the proposed architecture replaces multipliers with the use of adders and shifters, which considerably decrease the design area.

Domain: Front End Domains / DSP Core
Technology: VLSI