IMPLEMENTATION OF OPTIMIZED DIGITAL FILTER USING HAN CARSLON ADDER

ABSTRACT

In Digital era, filters can be used as memory elements to store data. The most commonly used adders to implement digital filters, are the full adders. Here in this project the implementation of digital filter is done with PPA. Among various PPA, the sklansky adder is more efficient than others. When implementing kogge stone adder, it experiences a larger hardware complexity. So that it is necessary to reduce the hardware complexity the architecture of sklansky adder has been introduced using Xilinx ISE. The comparative analysis made among various parameters such as numbers of logic gates and delay. The above proposed architecture tends to reduce the hardware complexity using various parameters.

Brent kung adder is also used in digital filters one of the drawback is fan-out so by replacing the Brent kung adder Han Carlson adder is used. The Han-Carlson is the family of networks between Kogge-Stone and Brent-Kung. Han-Carlson adder can be viewed of Kogge-Stone adder. This adder is different from Kogge-Stone adder in the sense that these performs carry-merge operations on even bits and generate/propagate operation on odd bits. At the end, these odd bits recombine with even bits carry signals to produce the true carry bits.

OUTCOMES

- These project aim is to reduce delay of the digital filter by replacing another type of parallel prefix adder(PPA).To implement these project eda playground is used. Verification of the code is done by using testbench code. Digital filters can be used for
- Reduce noise or interference in a signal
- Extract features or information from a signal
- Modify or transform a signal
- Combine or separate signals