

## **An FPGA implementation and performance analysis between radix-2 and radix-4 of 4096 point FFT**

### **ABSTRACT**

The rapid growth in wireless 4G and 5G technology has pushed the edge to high input data processing. High input data processing requires advanced Orthogonal Frequency Division Multiplexing (OFDM). The main block in any OFDM transceiver is the Fast Fourier Transform (FFT). FFT considers the transformation bridge between the time and frequency domains. In this research, an implementation and direct analysis between radix-2 and radix-4 FFT algorithms are presented. Memory-based architecture is adopted for all algorithms. The entire algorithm is designed by Altera Quartus II and synthesized for Altera DE2-70 field programmable gate arrays (FPGA) board, in order to investigate and determine the desired algorithm based on the application used for and the system requirements.

**Keyword:** FFT; Radix-2; Radix-4; FPGA; Memory-based architecture