**DESIGN OF FAST FIR FILTER USING COMPRESSOR AND CARRY SELECT ADDER**

**Abstract:**

 Speed and area are now a day’s one of the fundamental design issues in digital era. To increase speed, while doing the multiplication or addition operations, has always been a basic requirement of designing of advanced system and application. Carry Select Adder (CSA) is a fastest adder used in many processors to accomplish fast arithmetic function. Many different adder architecture designs have been developed to increase the efficiency of the adder. It is very commonly known that per second any processors performed millions of work functions in semiconductor industry. So when we do designing of multipliers, one of the main standards is performing speed that should be taken in the mind. In this paper, we propose a technique for designing of FIR filter using multiplier based on compressor and carry select adder. Performance of all adder designs is implemented for 16, 32 and 64 bit circuits. These structures are synthesized on Xilinx device family.

**Keywords: -** Ripple Carry Adder (RCA), Carry Select Adder (CSA), Excess-1 converter, Compressor, FIR Filter.

**TOOLS:**

1. **XilinxISE 14.7**

**LANGUAGE:**

1. **VerilogHDL**