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SINE WAVE GENERATION USING NUMERICALLY CONTROLLED OSCILLATOR MODULE

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ABSTRACT

A Numerically Controlled Oscillator (NCO) is a digital signal generator which creates a synchronous i.e. clocked, discrete-time, discrete-valued representation of a waveform, usually sinusoidal [1]. NCOs are often used in combination with a digital to analog converter (DAC) at the output to create a direct digital synthesizer (DDS).NCOs are used in many communications systems such as software radio systems &digital up/down converters used in 3G wireless, RADAR systems, digital PLLs, drivers for optical or acoustic transmissions & multilevel FSK/PSK modulators/ demodulators[2]. The NCO Design is first simulated & optimized on the software tool Xilinx 10.1 & then VHDL for hardware Realization. The designs are tested on Xilinx Spartan2 FPGA Development Platform.This paper presents the implementation of Sine Wave Generation using NCO module which improves the performance, reduces the power & area requirement

KEYWORDS: Numerically Controlled Oscillator, FPGA, DDS

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