

Implementation of Fast Discrete Wavelet Transform for Vibration Analysis on an FPGA

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Abstract

The wavelet transform is very important algorithm in signal processing. By using this technique, time-frequency information can be used for analyzing all signals. This paper explains the realization of discrete wavelet transform (DWT) processor for analyzing the vibration signal. The implementation was made on a Field Programmable Gate Array (FPGA) because it can achieve higher computing speed than digital signal processors (DSPs), and also can achieve cost effectively ASIC-like performance with lower development time, and risks. The processor has been developed using hardware description language VHDL and simulated on an Altera Cyclone-IV EP4CE22F17C6N chip.

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