Fpga Based Control Circuit For Single Phase Inverter

Abstract

This paper describes a controller circuit for single phase inverter, which is used to convert DC to AC voltage. Inverter normally comes with various techniques of switching depending on the application as in emergency lighting systems, AC variable speed drives, uninterrupted power supplies and frequency converters. Such techniques include pulse width modulation, modified sinusoidal pulse width modulation and sinusoidal pulse width modulation as utilized in this project. Circuitry of the SPWM inverter is constructed using power MOSFET, though generally it could also be constructed using other power semiconductor devices such as bipolar junction transistor, insulated gate bipolar transistor and etc. Field programmable gate array FPGA chip which is used as the controller unit for SPWM single phase inverter is a programmable logic device developed by Altera. Its high logic density serves as an efficient hardware for rapid prototyping. The implementation of FPGA in the project will thus increase the signal accuracy as well as its economical values.

Author Keywords

FPGA; Single phase inverter,; SPWM