عنوان مقاله:

Using FPGA for Z-Source Inverter Voltage Control Algorithm Implementation

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خلاصه مقاله:

Capability of voltage increase in impedance source inverters cause voltage source with low voltage could also be used in high voltage applications. Impedance source inverters combine the capabilities of common inventors with benefits of confirmatory converters DC-DC and then this new approach may offer in order to achieve full and efficient structures. But changes in structure and output voltage mean changes in the way of switching performance, circuit complexity and as a result accuracy and speed in system control. In this research, Z-source inverter voltage control algorithm implementation has performed on FPGA so that it has better abilities (such as fast processing; more flexibility architecturally, controlling several process at the same time and etc.) than micro-controllers and DSPs and this new alternative help complex algorithm implementations in system control and also it has been dramatically successful in improving the reliability. Control plan in FPGA Spartan6 has been implemented by using Xilinx ISE Tools application. Also, system checks operation has been simulated by using MATLAB/SIMULINK application. Finally, simulation and practical results were presented and also discussed.

کلمات کلیدی:

FPGA, Z-Source inverter, Voltage source inverter, Current source inverter, Voltage control

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