Thesis Title	A High Conversion Ratio V6 DC/DC Converter using a CPLD
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Abstract

Nowadays, the energy obtained from renewable energy sources is converted from a low DC voltage level to a higher DC voltage level. The higher DC voltage is then converted to AC mains for general electrical equipment. Typically, the boost converter is used. These circuits have poor performance and efficiency. To maximize energy utilization, a topology of V6 DC/DC converter is proposed in this thesis which has higher voltage conversion ratio and efficiency. The proposed converter can be controlled easily by a CPLD (Complex Programmable Logic Device), which its high switching frequency (50 kHz) is beyond the operating frequency of a typical microcontroller. The validity of all the theoretical results is verified by simulations and experiments. As can be seen, the prototype circuitry has 96.0% efficiency at 950 watt rated power.

Keywords: DC-DC Converter/ V6 Converter/ High Efficiency DC-DC Converter/ High Conversion Ratio DC-DC Converter.