

Modeling of step up dc/dc converters using the switched capacitors method

ali salahshoor delivand*,mahyar nirooei,

Abstract: Power electronics DC/DC converter are used widely in many applications such as photovoltaic systems, fuel cells and other renewable energy sources. In renewable energy sources, the input voltage is low and is not fixed, therefore a step - up DC/DC converter is required to boost the input voltage. PWM switched mode DC/DC converters are suitable candidate in such applications. In other hand, in many applications such as power supply in electronic power supply, laptop and communication systems, the inductor less switched capacitor DC/DC converters are very good candidate. Because they occupy very small space and they can pack in one integrated circuit (IC). However, the output voltage regulation in these converters is poor and the voltage gain is predetermined by the circuit structure. In this thesis, the major PWM DC/DC converters and then switched capacitor converters are reviewed firstly. Then, it is shown that high step - up non - isolated DC/DC converters can be realized by combination the switched mode PWM and switched capacitor cells. Finally a new good voltage regulated switched capacitor converter is proposed. In the proposed converter switched capacitor cells are combined by only one small inductor, therefore the output voltage regulation is not determined by circuit's parameters. In addition, the number of diodes switches and capacitors are decreased. The performance of the proposed converter is verified using simulation results. **Keywords:** PWM DC-DC Converters, Switched capacitor cells, Step up Converters, Control-to-Output transfer function, Right Half Plan Zero (R.H.P.Z)

Keywords : Keywords: PWM DC-DC Converters, Switched capacitor cells, Step up Converters, Control-to-Output transfer function, Right Half Plan Zero (R.H.P.Z)

[Islamic Azad University, Rasht Branch - Thesis Database](#)
[دانشگاه آزاد اسلامی واحد رشت - سامانه بانک اطلاعات پایان نامه ها](#)