Design and Implentation of Buck-Boost converter with PWM Generator

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***Abstract*—This paper focuses on designing a high efficient buck-boost converter which steps up or steps down the voltage using PWM generator as a gate driver circuit.This model is simulated using esim and skywater 130 nm PDK**

Buck-boost converter which is the analog block is simulated using esim and the PWM generator will act as gate driver is the digital block which is simulated using Verilog HDL using makerchip

***Keywords*—buck-boost converter , PWM generator**

I.INTRODUCTION

There are many electrical devices and circuits across a variety of applications that require a lower or higher voltage than provided by the power source. In such cases, we require a circuit to transforming or change the level of the electrical voltage input received.

Before the invention of DC to DC converters, the use of vibrators, rectifiers, and transformers- step up or step down- had become common. And while they worked, they were highly inefficient and wasted a lot of energy in the form of excess heat.So inorder to have a highly efficient model , DC-DC converter was introduced

II. CIRCUIT DIAGRAM

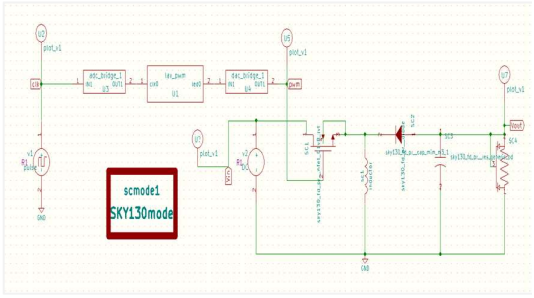

Fig1: Circuit Diagram of buck-boost converter

III. WAVEFORMS

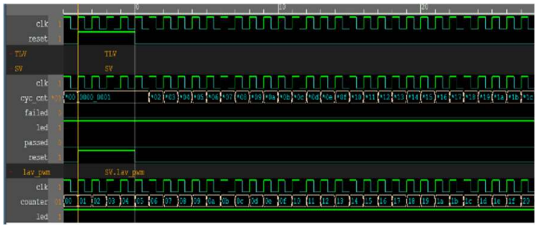

Fig2: PWM output in makerchip using verilog

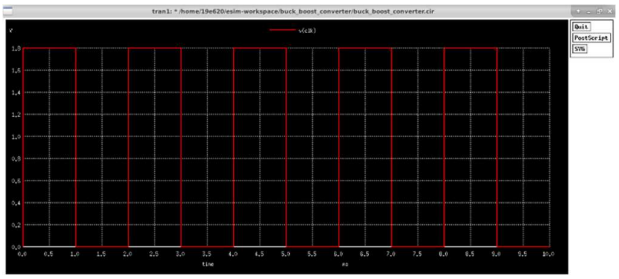

Fig3:clock pulse

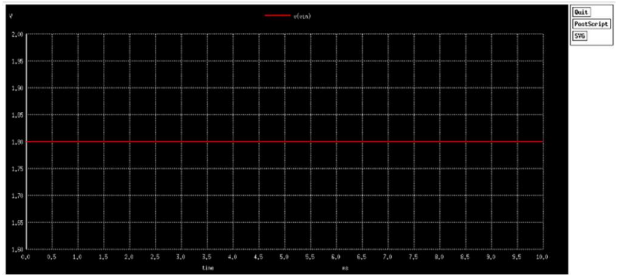

Fig4:Iutput Voltage Waveform

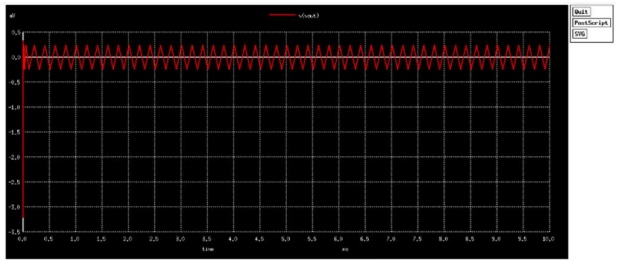

Fig5:Output Voltage Waveform

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IV. REFERENCES

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