



Industry Meets Makers 2024

Infineon PV Optimizer Implementation

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June 26, 2024

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Vortragstermin June 27, 2024

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Theory



Theory: Buck-Boost-Converter

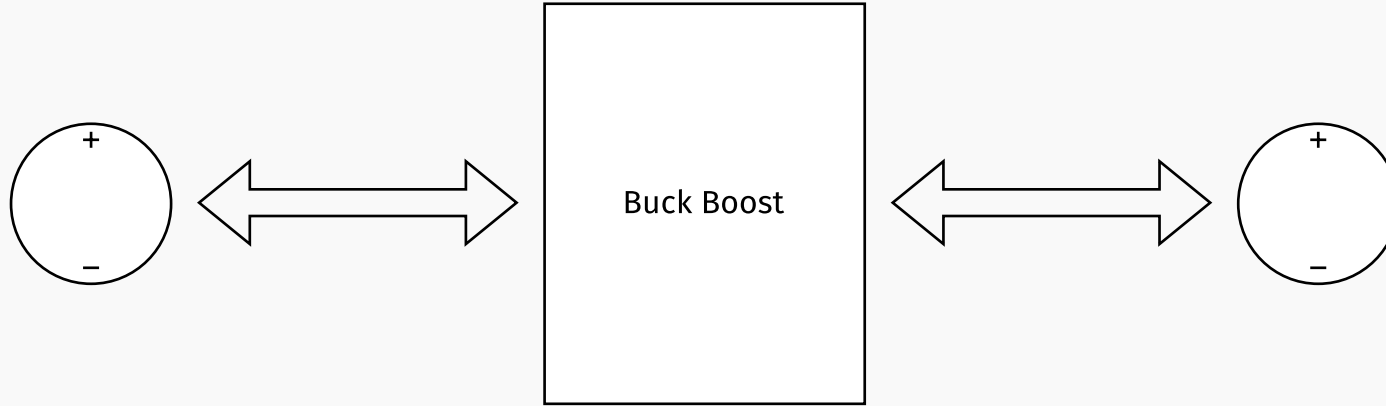


Figure 1: Buck boost converter schematic design.

Theory: Buck-Boost-Converter

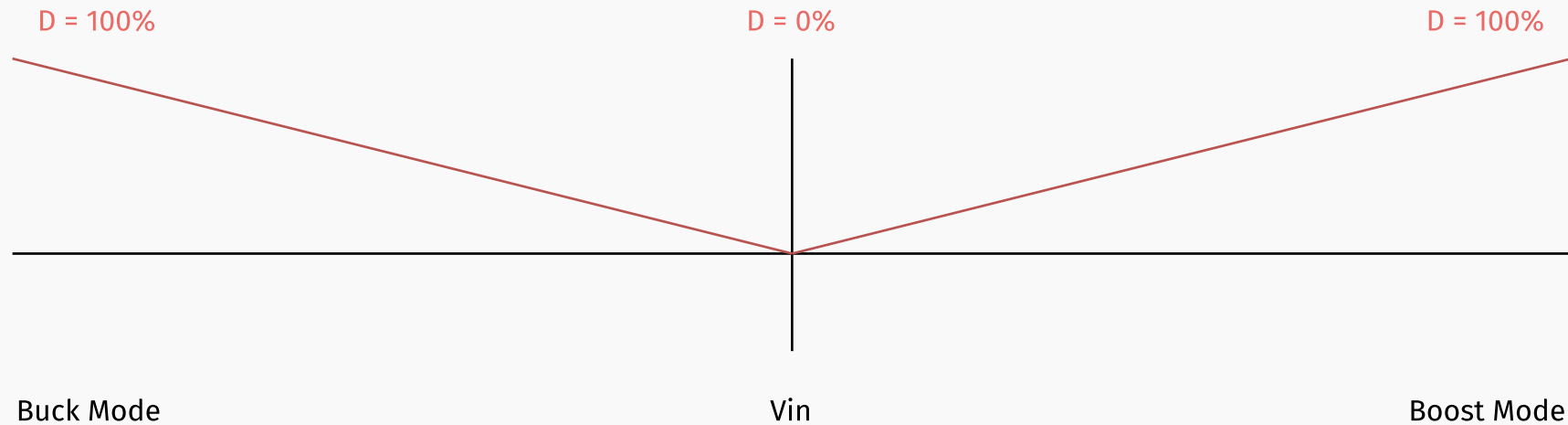


Figure 2: Buck-boost converter operation modes.

Theory: Buck-Boost-Converter

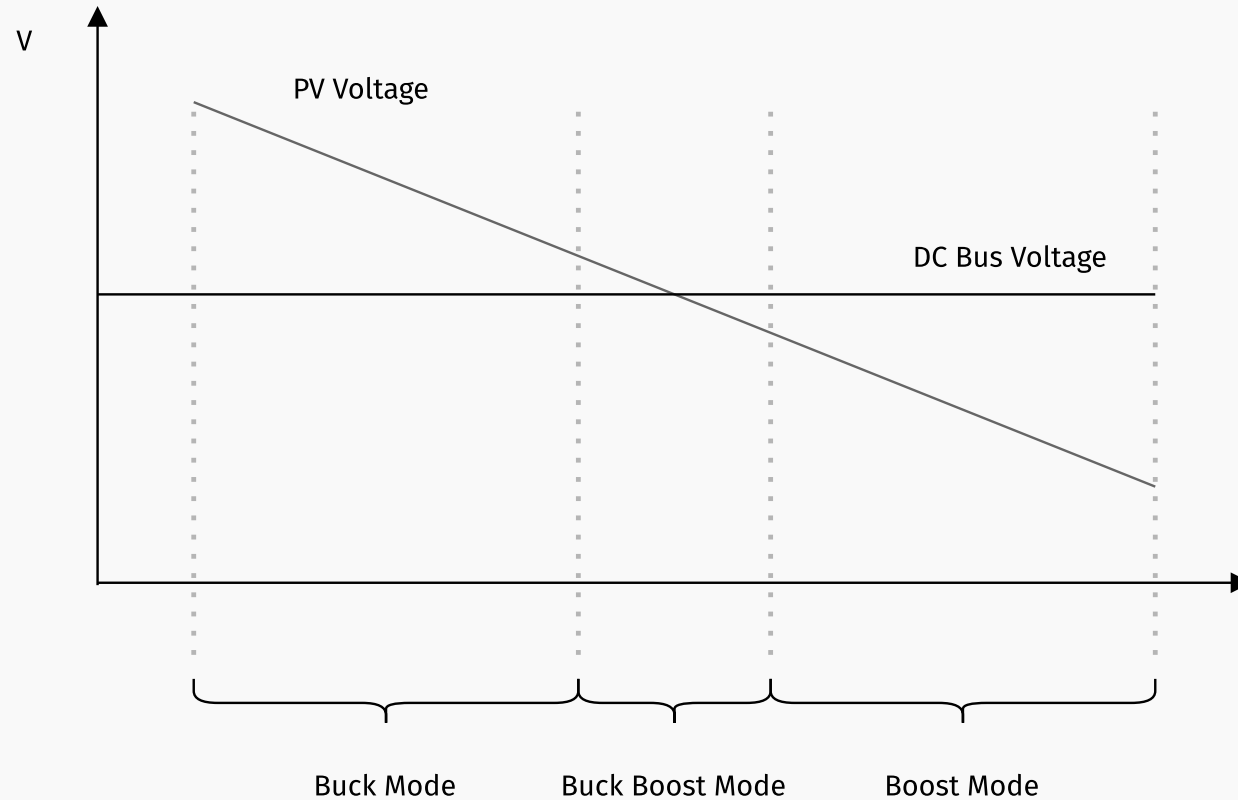


Figure 3: Buck-boost converter operation modes over the entire voltage range.

Implementation

Results & Challenges

Results & Challenges: Results

- ✓ All peripherals are configured
- ✓ PWM Peripheral works
- ✓ ADC works most of the time
- ✓ Started to implement “Perturb and Optimize MPPT”

Results & Challenges: TODOs

- ✗ Test and verify synchronous PWM
- ✗ UART
- ✗ ADC filtering
- ✗ Efficiency measurements

Results & Challenges: Challenges

- Debugger not working
- Semihosting not working
- ⇒ debugging only over PWM
- No test points on PCB
- ⇒ Hard to measure anything