Industry Meets Makers 2024

Infineon PV Optimizer Implementation

Lóránt Meszlényi

June 26, 2024

Betreuer	Ewald Wasmeier
Vortragtermin	June 27, 2024
Studiengang	Master Informatik

Theory

Theory: Buck-Boost-Converter

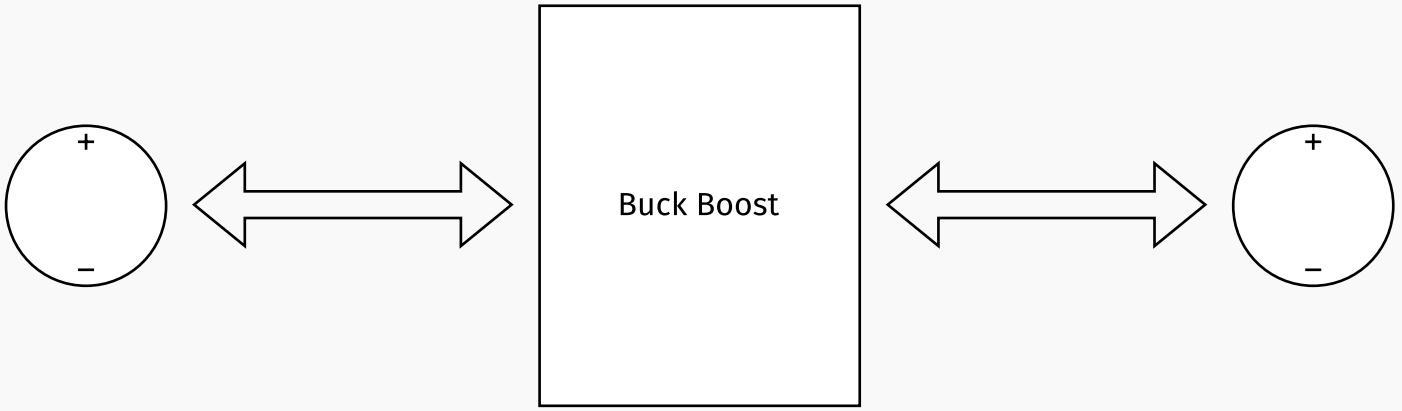

Figure 1: Buck boost converter schematic design.

Theory: Buck-Boost-Converter

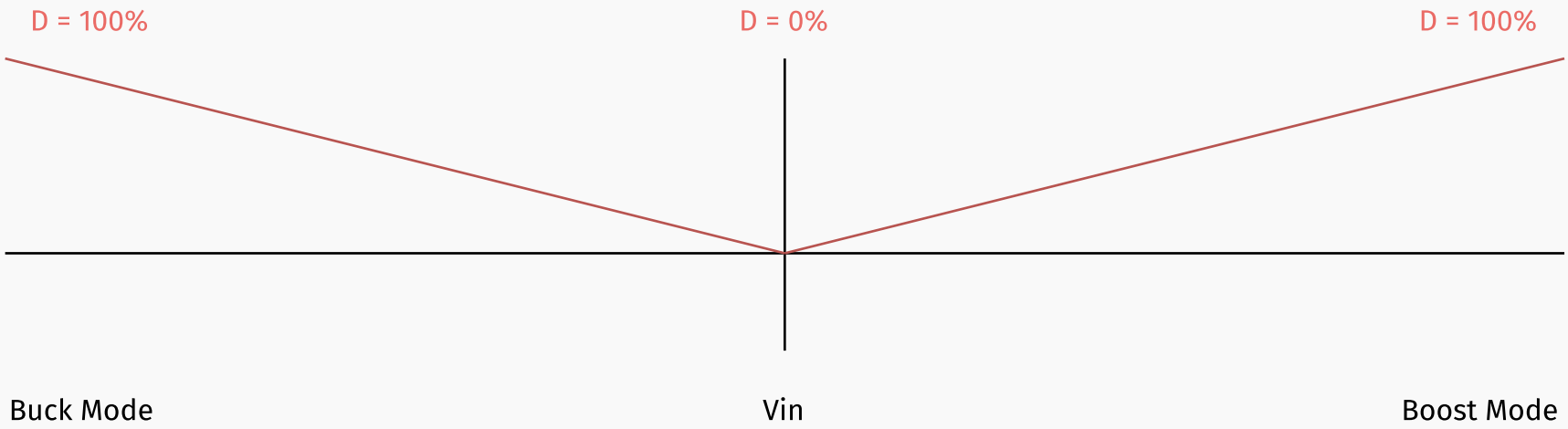

Figure 2: Buck-boost converter operation modes.

Theory: Buck-Boost-Converter

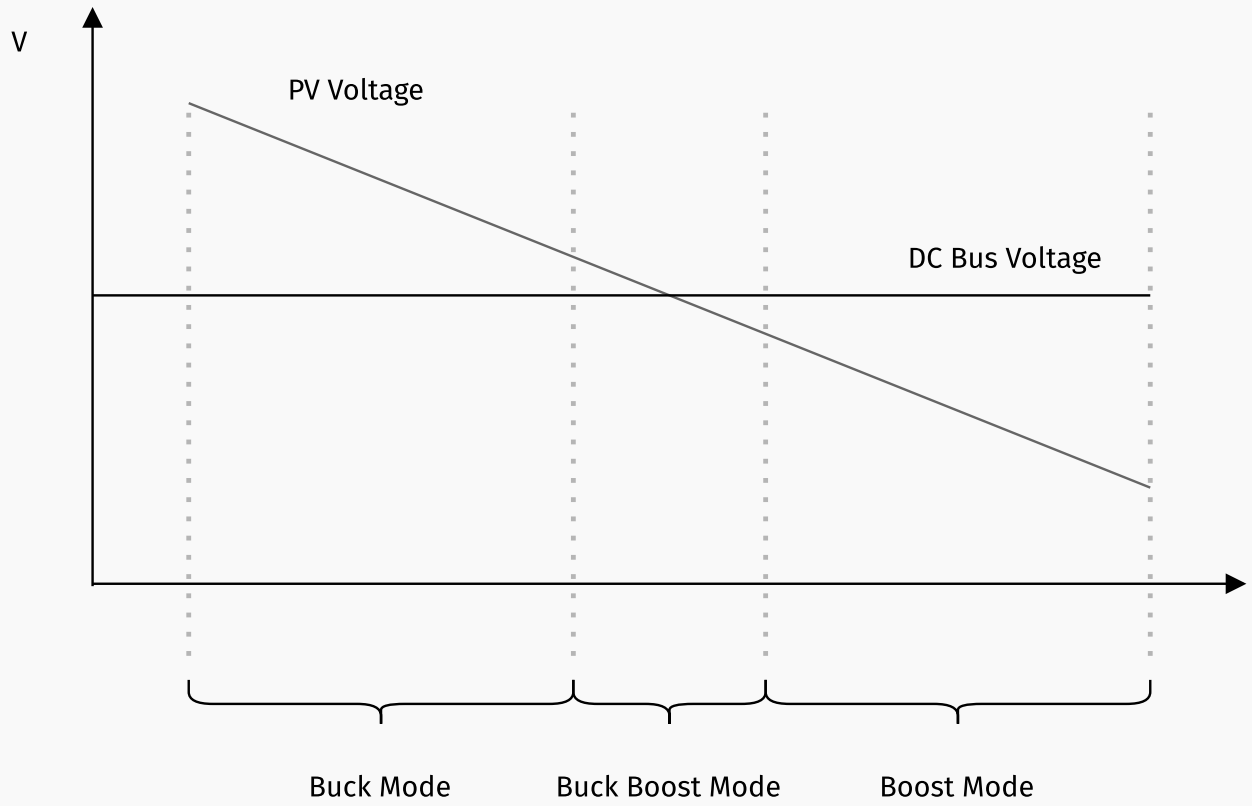

Figure 3: Buck-boost converter operation modes over the entire voltage range.

Implementation

Implementation: DAVE IDE

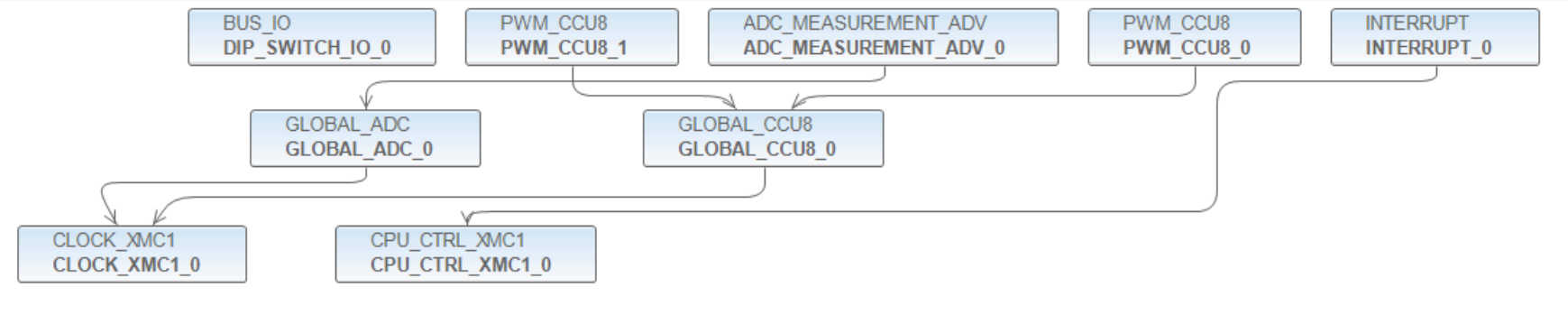

Figure 4: Instantiated hardware peripherals.

Results & Challenges

Results & Challenges: Results

- ✓ All peripherials are configured
- ✓ PWM Peripherial 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