# Single Inductor Dual Output DC-DC Boost Converter with Serial Control

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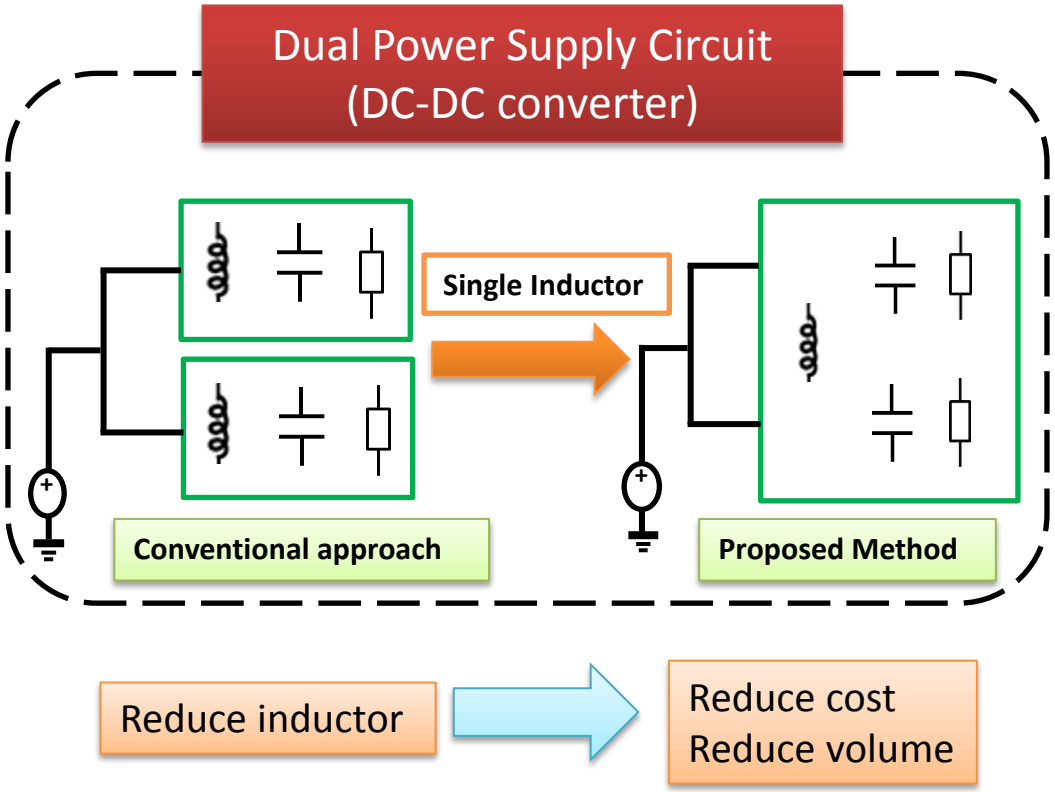
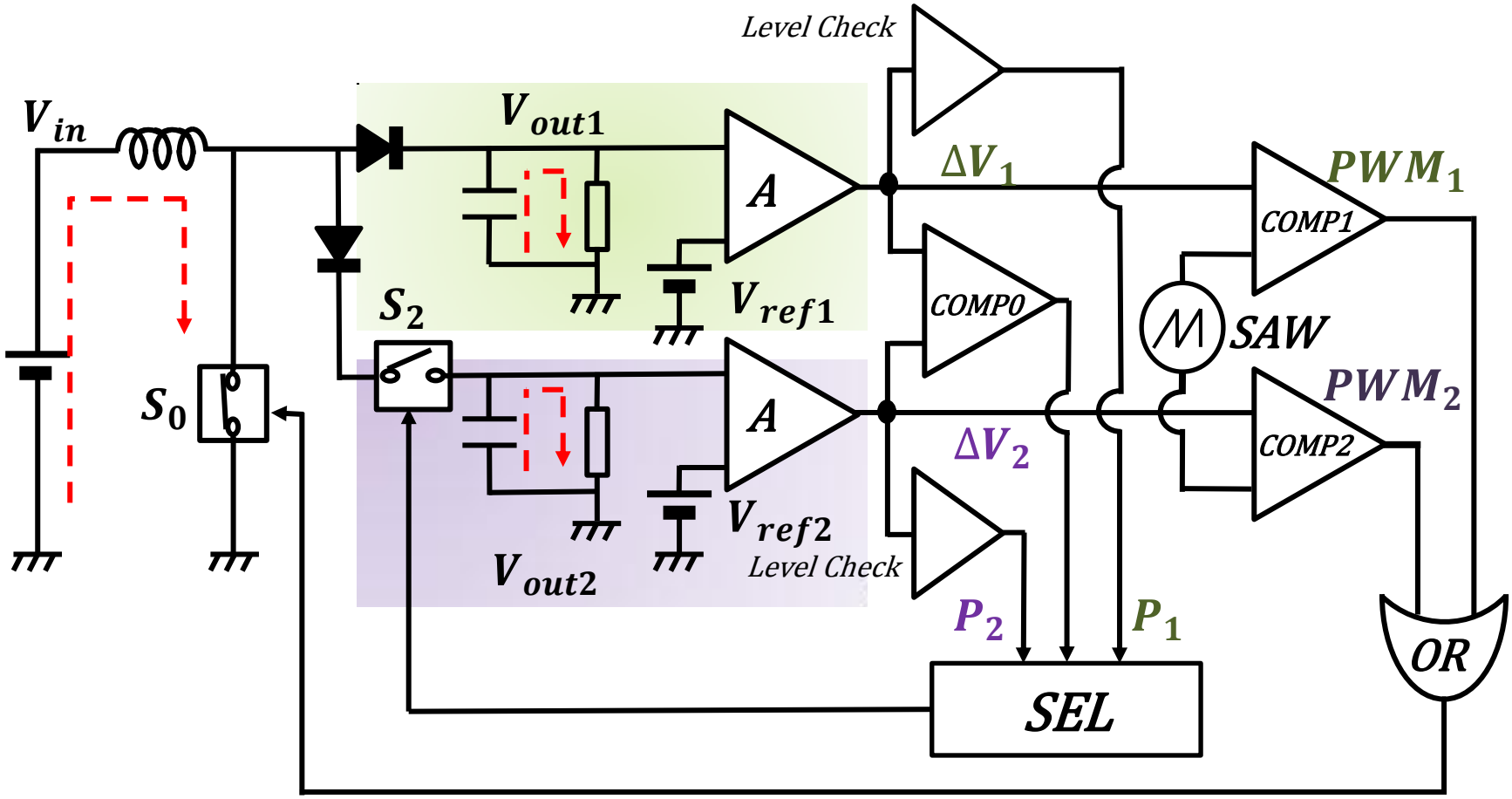



## Research Objective

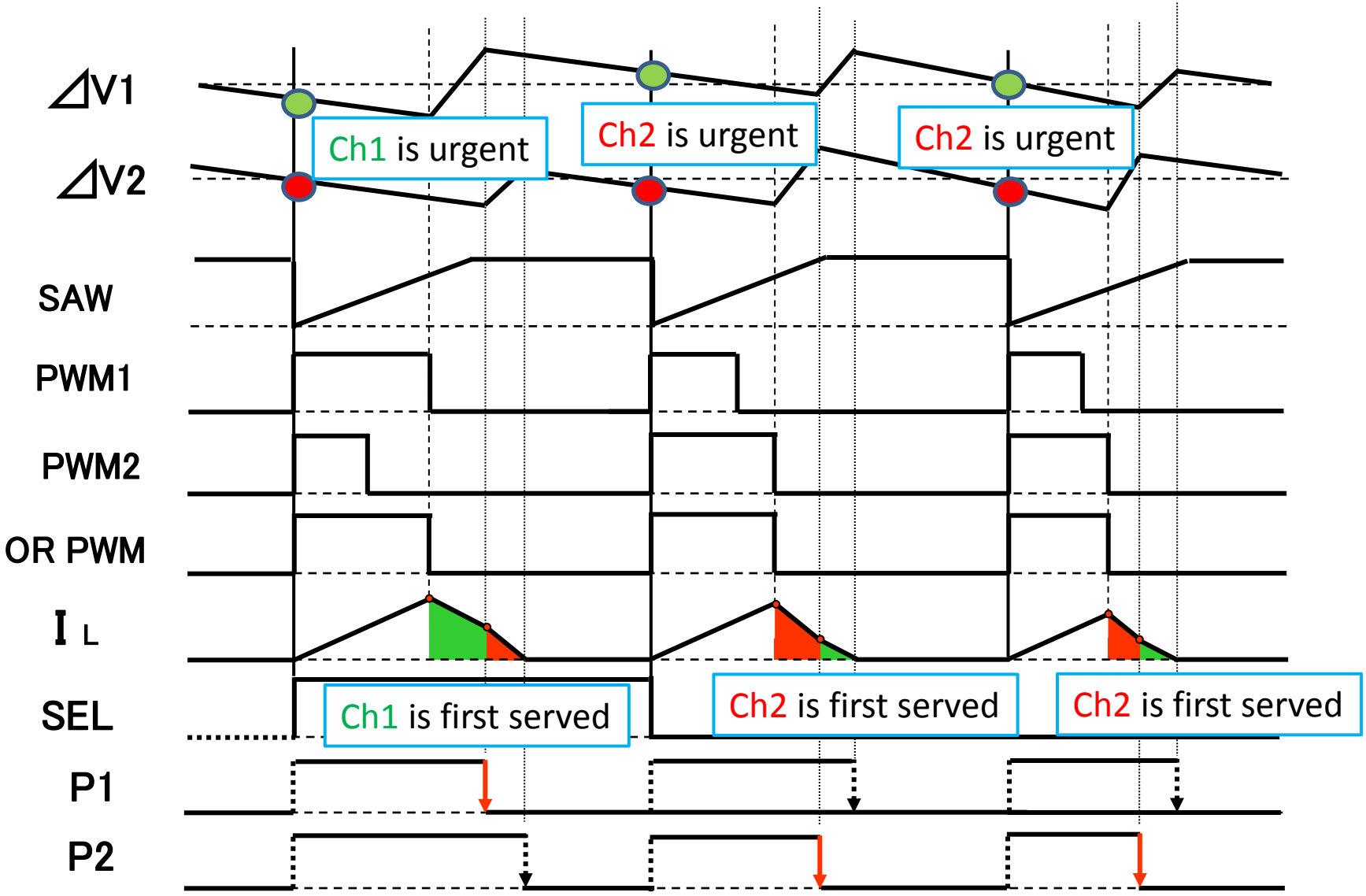
- **S**ingle **I**nductor **D**ual **O**utput converter
  - ➢Development of simple, low cost control method
- Serial control
  - ➢Both ch1 and ch2 control serially in one period, first served for urgent one.
  - ➢Only a few additional components
  - ➢No current sensor

# Proposed Serial Control of SIDO DC-DC Boost Converter

## Circuit Configuration



# Timing Chart of Proposed Serial Control of SIDO DC-DC Boost Converter



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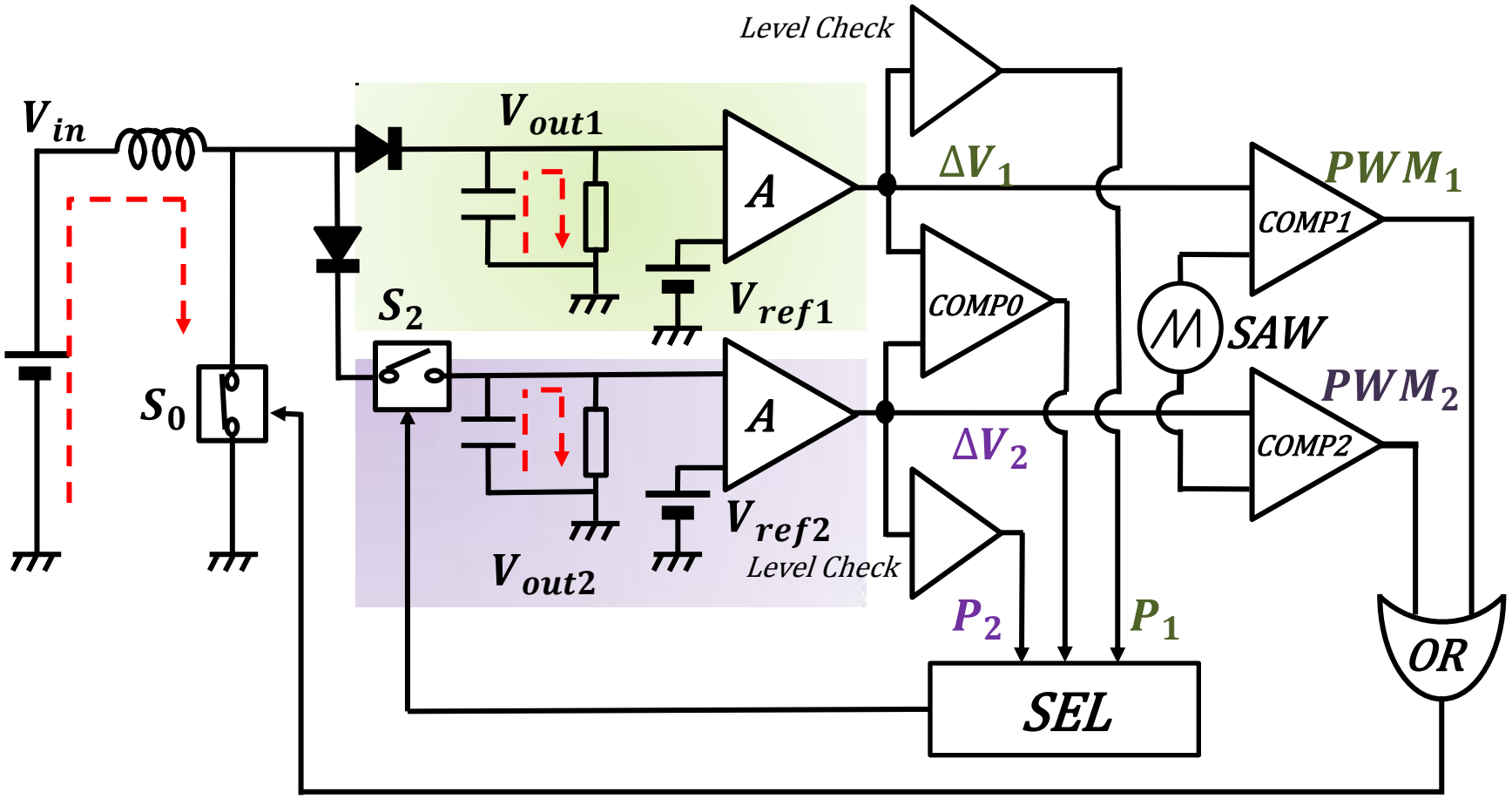
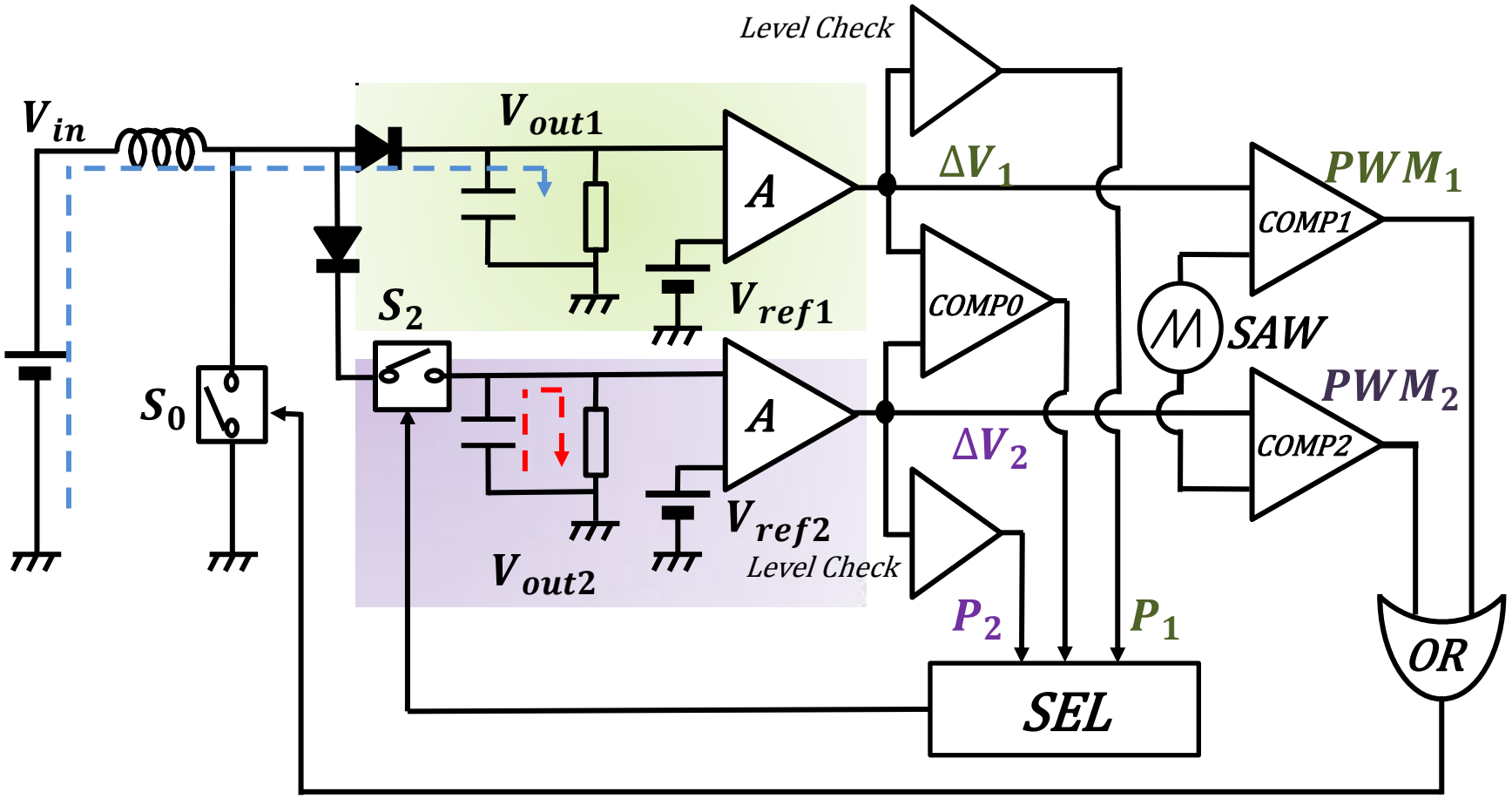



**In one period:**

1. Inductor charge, $S_0$ ON

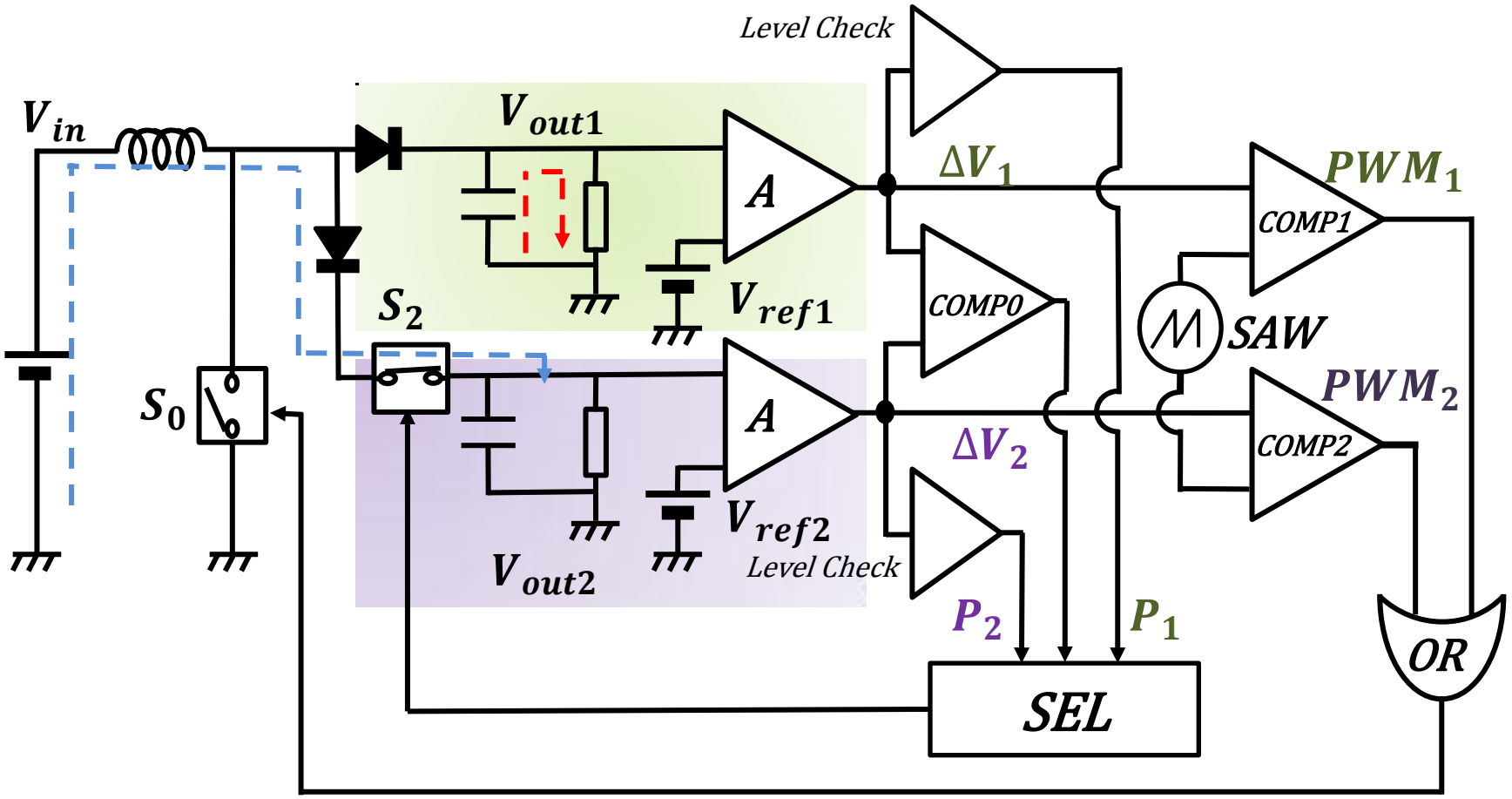
# Proposed Serial Control of SIDO DC-DC Boost Converter




**In one period:**

2. Inductor uncharge, $S_0$ turn OFF .
   If $\Delta V_1 < \Delta V_2 < 0$, $S_2$ OFF, $P_1$ and $P_2$ both are High.

# Proposed Serial Control of SIDO DC-DC Boost Converter




**In one period:**

3. Inductor uncharge, $S_0$ keep OFF .
   $\Delta V_1 > 0$, $\Delta V_2 < 0$, $P_1$ Low , $S_2$ turn ON, $P_2$ keep High

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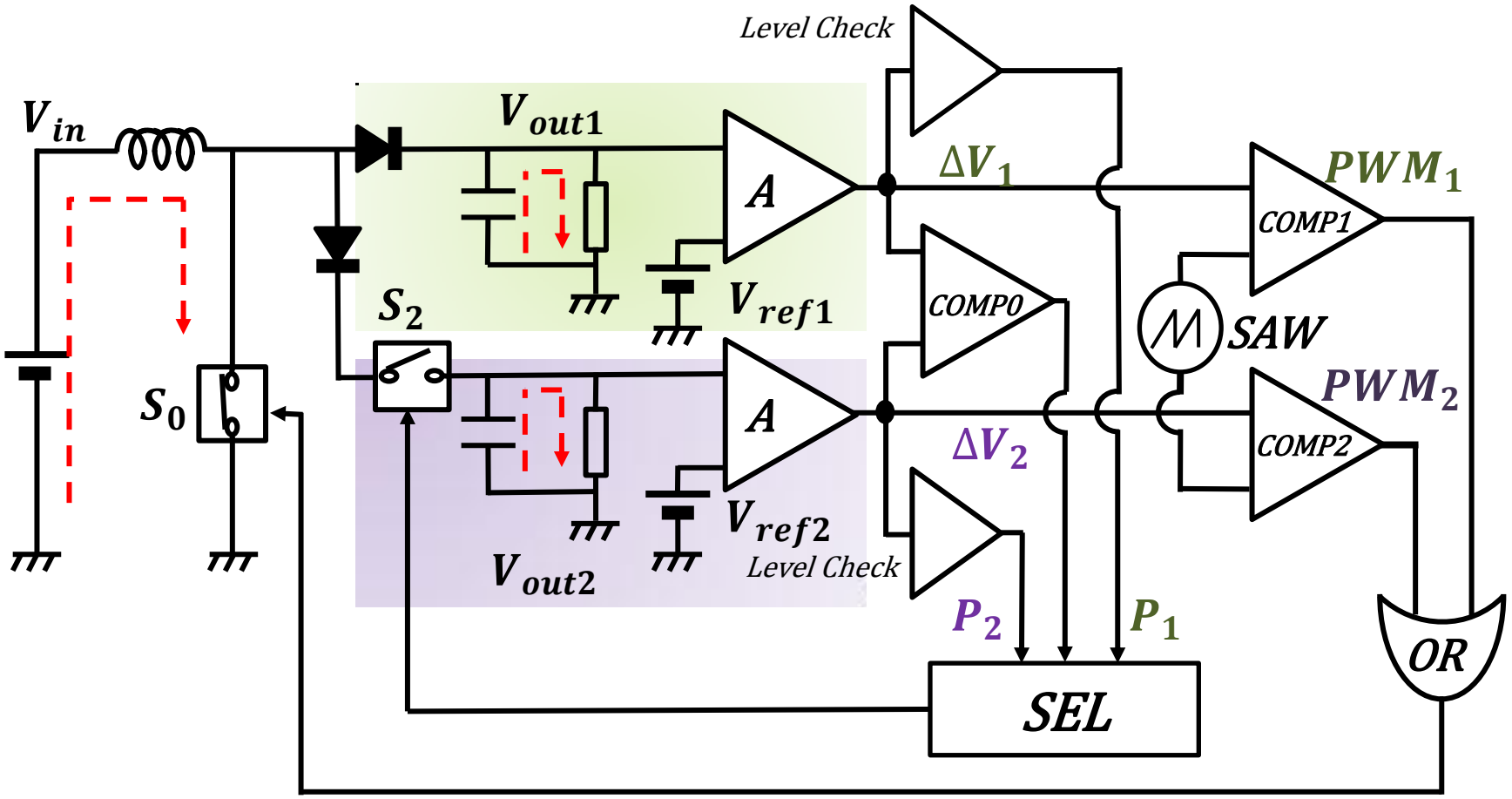


**In one period:** Next period, $S_0$ turn ON