A NX Switched-Capacitor DC-DC Converter

**Objectives:**
- Develop a magnetic-less dc-dc converter, suitable for high temperature operation.
- High power density, compact design, and easy integration with other power converters and/or systems.

**Topology selection:**
- This new proposed multilevel switched capacitor topology has similar characteristics to those on the multilevel modular capacitor clamped dc-dc converter, but the output voltage per module is doubled.

**Topology:**

- Two symmetric charging paths to build up the output voltage

![Diagram of an 8X bi-directional dc-dc converter](image)

**Experimental Data Results:**

**A 6X Boost Mode Experimental Data**

- Stage Voltages
- Input and Output Currents and Voltages

![Graphs showing experimental data](image)

**Soft-Switching:**

- Zero-current-switching can be achieved by using the design’s stray inductances. These inductances resonate with the converter’s capacitors to smoothen the switch currents.