Project Title: SiC Based Power Electronic Driver for Electric Vehicle Traction

Objectives: To develop an integrated, efficient, compact inverter with multiphase Electric Machine for EV Applications

Task No. BP5-4.45
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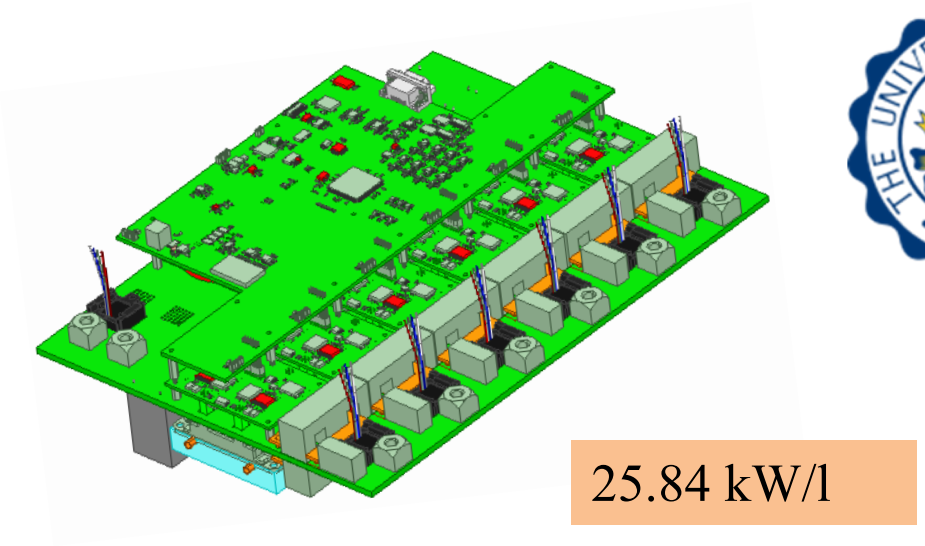

25.84 kW/l

WBG Technology Impact

1. Enabling high frequency and high torque density electric machines for vehicle applications through WBG devices.
2. **Market segments impacted:** Electric Vehicles, Motor Drives
3. **Timeframe for commercialization:**

Year 1: Prototype Development
Year 2: Customer Interaction Vehicle Interface
Year 3: Vehicle Installations, Road Tests

4. Improved power density, efficiency and fault tolerance with an integrated motor drive system

Accomplishments/Outcomes

- Integrated SIC inverter is designed to achieve 25.84 kW/l volumetric power density for the multiphase 210 kW electric machine drive
- Based on the detailed circuit simulations, 98.3 % efficiency is expected to be achieved achieved at rated conditions for the inverter using SiC power devices