# Hardware Design of a Integrated Modular Motor Drive (IMMD)

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#### Introduction

- 1.1 Motivation
- 1.1.1 Reliability and Redundancy
- 1.1.2 EMI Containment
- 1.2 Previous Research

#### **Abstract Design**

- 2.1 Control Topology
- 2.1.1 Non-synchronized PWM
- 2.1.2 Fault Management
- 2.2 DC-Link Design
- 2.2.1 Interconnect Design
- 2.2.2 Capacitor Sizing
- 2.3 Peak Ratings

## **Detailed Design**

- 3.1 Gate Drivers
- 3.2 Power Module
- 3.3 Current Sensing
- 3.4 **DSP**
- 3.5 Communications

#### Discussion

- 4.1 Hardware Performance
- 4.2 Scaling

#### **Conclusions**

- **5.1** Future Work
- 5.1.1 Multi-phase IMMD
- 5.1.2 EMI analysis
- 5.1.3 Control Development
- 5.1.4 High-temperature Testing