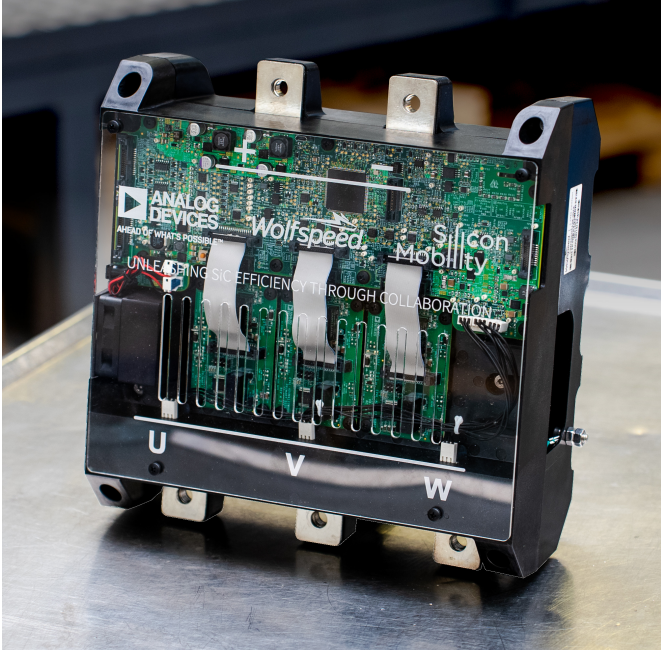


300 kW SiC INVERTER Platform



- OLEA® T222 FPCU controller chip + OLEA® APP - T222 INVERTER control software
- EAB450M12XM3 auto Qual. power modules
- ADuM4177 gate drivers
- ADI power, sensing, and isolation
- Current sensors, DC-Link capacitance, casing, chassis, and cooling
- E-motor interface (temperature and position sensors) vehicle interface (CAN/USB/UART/GPIOs)



Unleashing SiC efficiency through collaboration

Three visionary companies have joined forces to drive groundbreaking advancements in EV traction technology. By seamlessly integrating ADI's cutting-edge gate drivers, power solutions, isolation technology, and signal chain expertise with Wolfspeed's highly efficient SiC MOSFET technology, all driven by Silicon Mobility's state-of-the-art controller chip OLEA® T222 FPCU and OLEA® APP-T222 INVERTER application software, a new era of electric vehicle innovation is unfolding.

The OLEA® APP - T222 INVERTER runs on the OLEA® T222 FPCU parallel architecture, enabling extremely high-performance, real-time and safe control of advanced power electronics and electric motors.

These collaborative breakthroughs in traction inverters are pushing the boundaries of achievable range for electric vehicles, ensuring that our shared commitment to reducing carbon emissions aligns with our evolving transportation demands, be they substantial or modest.

Specifications

- Up to 800 V bus nominal (900Vmax)
- 360Arms output
- 32kW/L
- Automotive-grade control software
- 80 kHz maximum switching frequency
- Up to 100 kHz FoC closed-loop; speed and torque control
- Frequency scaling SVPWM and DPWM modulations
- Optimized dead time compensation
- Resolver/hall/magnetic position sensors supported
- Supports 3-phase PMSM and WRSM

Wolfspeed



Silicon Mobility



Analog Devices



Top-notch capabilities - ready to use

The system has been proven on an inductive bench as well as on a dynamic motor bench using an axial flux PMSM motor from Magelec.

300 kW SiC-Based Inverter Platform for 800 V Systems

This inverter platform enables automotive tier 1s and car manufacturers to evaluate and prototype EV traction systems using the best technology from Silicon Mobility, Analog Devices and Wolfspeed.

Peak performances:

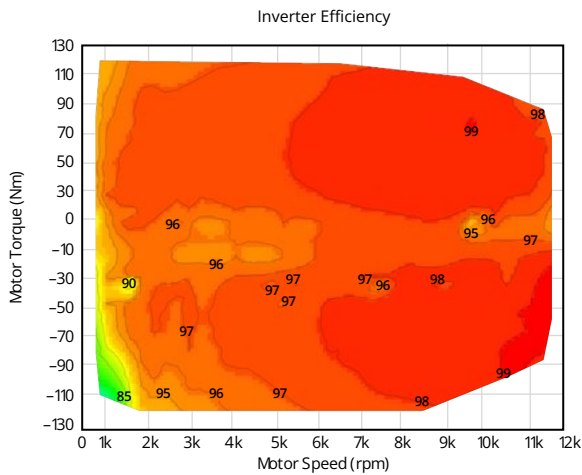
Inductive Bench–Peak Results

V_{in} (V)	80
I_{in} (A)	340
P_{in} (kW)	272

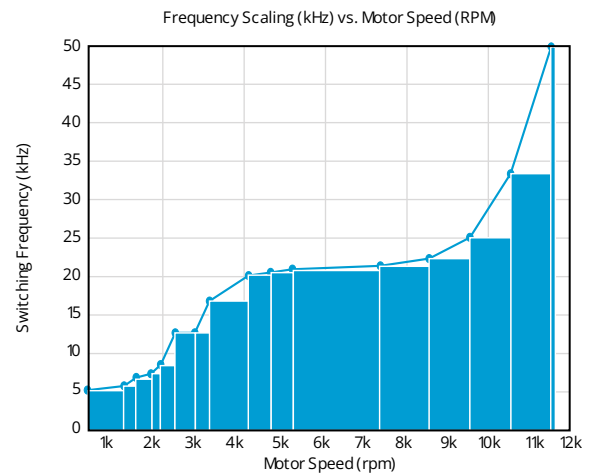
Motor-bench-peak results:

Motor Bench–Peak Results:

V_{in} (V)	80
I_{in} (A)	340
P_{in} (kW)	272
Speed (rpm)	12,000
Torque (Nm)	190



- Up to 99.5% efficiency at 50 kHz switching
- Frequency scaling SVPWM from 5 kHz to 50 kHz
- Field oriented control synchronous to switching frequency



- Lower switching frequency at low motor speed increased the inverter efficiency
- Higher switching frequency at high motor speed improved motor regulation (better THD and less NVH)

Explore more possibilities on our platform

- Slew rate control
- ~400 parameters of configuration and calibration
- Additional possible switching modulation: DPWM, Optimized Pulse Patterns (OPP)

What's included

- All design files
- Comprehensive test reports
- User guide
- Platform with GUI for calibration
 - Motor and sensors parameters
 - Real-time calibration via high speed bandwidth trace
 - Support for automatic tests with standard protocol and tool (CAN XP + ETAS INCA)