

THERMAL TEST VEHICLE FOR ELECTRONICS COOLING SOLUTIONS

Tech ID: 33617 / UC Case 2024-156-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

As the density and performance of electronics continues to increase, thermal challenges have become a primary concern. Removing heat from electronic components can be extremely challenging, given their small size, electrical activity, and mechanical constraints. This necessitates the design of cooling solutions for a wide variety of electronic designs in applications such as datacenters, renewables, aircraft, etc.

To address this problem, researchers at UC Berkeley have developed a thermal test vehicle (TTV) for characterizing the performance of electronics cooling solutions under a wide variety of operating conditions.

All of the TTV circuitry required to perform measurements and temperature estimations can be included on one printed circuit board (PCB). This represents a simple, highly flexible approach for thermal test vehicle design. The overall size of the array can be scaled to any desired amount.

This novel TTV represents a simple, highly flexible approach for thermal test vehicle design. Furthermore, its use of standard commercial electronic components allows for a vast reduction in cost compared to existing commercial solutions.

SUGGESTED USES

- » Thermal test vehicle for electronics cooling solutions
- » High-performance controllable heater
- » Testing equipment for data center comissioning

ADVANTAGES

- » simple and highly flexible approach
- » uses standardized commercial components
- » reduces costs compared to existing commercial options

RELATED MATERIALS

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- [Current-Programmed Modulation of Flying Capacitor Multilevel Converters](#)
- [Multi-Phase Hybrid Power Converter Architecture With Large Conversion Ratios](#)
- [Enabling Partial Soft-Switching Within Regulating Switched Capacitor Converter](#)

CONTACT

Michael Cohen
mcohen@berkeley.edu
tel: 510-643-4218.



INVENTORS

» Pilawa-Podgurski, Robert C.N.

OTHER INFORMATION

KEYWORDS

data center, thermal testing, test equipment

CATEGORIZED AS

- » **Computer**
- » Hardware
- » **Research Tools**
- » Other
- » **Sensors & Instrumentation**
- » Physical Measurement
- » Scientific/Research

RELATED CASES

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University of California, Berkeley Office of Technology Licensing

2150 Shattuck Avenue, Suite 510, Berkeley, CA 94704

Tel: 510.643.7201 | Fax: 510.642.4566

<https://ipira.berkeley.edu/> | otl-feedback@lists.berkeley.edu

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