



## TECHNOLOGY

# Post-Forming Extruded Profiles for Heat Transfer Applications Resulting in High Efficiency Cooling

## OVERVIEW

A majority of electronic devices are comprised of circuit boards with multiple heat generating chips of different height. Usually, machined high specification aluminum conduction plates or separate heat sinks are used for each chip. However, machined conduction plates are expensive and the use of separate heat sinks is complicated. Both have high thermal resistance and are inadequate for removing constantly increasing heat loads. Currently, separate liquid cooled heat sinks used for this purpose are even more complicated and expensive. Several liquid connections are prone to leakage and endanger electronics.

Researchers at the University of Maryland have developed an improved electronics circuit board cooling design via a specialized post-formed extruded cooling plate profile which accommodates the configuration of a heat source on the electronics board, etc., and provides high efficiency liquid cooling. Due to precise control of the heat transfer rate at various parts of the electronics board, and more particularly at certain portions of the electronic circuit components, the semiconductor electronics are kept at a substantially uniform temperature. As a result, the temperature uniformity and reliability of the elements increased due to this improved design.

If you would like to review additional information or further discuss the technology with the inventors please contact the Office of Technology Commercialization at 301-405-3947 or [otc@umd.edu](mailto:otc@umd.edu).

## CONTACT INFO

UM Ventures  
0134 Lee Building  
7809 Regents Drive  
College Park, MD 20742  
Email: [umdtechtransfer@umd.edu](mailto:umdtechtransfer@umd.edu)  
Phone: (301) 405-3947 | Fax: (301) 314-9502

## Additional Information

### INSTITUTION

University of Maryland, College Park

### PATENT STATUS

Patent(s) pending

### LICENSE STATUS

Contact OTC for licensing information

### CATEGORIES

- Materials
- Engineering

- Chemical
- Devices

## **EXTERNAL RESOURCES**

PS-2007-058