



## TECHNOLOGY

# Novel Configuration of Thermoelectric Coolers to Cool High-Heat-Flux Hot Spots

## OVERVIEW

Every effort that miniaturizes the integrated circuit (IC) comes with motivation for innovative on-chip thermal management systems. This is because smaller ICs have corresponding increases in transistor densities leading to corresponding increases in heat flux.

Researchers at the University of Maryland have developed a thermal management device that is deployed in localized regions of elevated heat flux that are adjacent to regions of lesser heat flux in the IC. The inventors have shown that using their approach, regional hot spot temperatures can be reduced from 147 degrees C to 113 degrees C, 19 degrees lower than the same circuit (a conventional chip package) without the thermal management device.

For additional technical and licensing information please contact the Office of Technology commercialization, of the University of Maryland, 301 405 3947.

## 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

## CATEGORIES

- Industrial Processing

## EXTERNAL RESOURCES

- [US Patent 7,290,596](#)

PS-2004-108