

*Book review*

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**Frank P. Incropera: Liquid Cooling of Electronic Devices by Single-phase Convection**  
**Wiley –Interscience Publication, 1999, New York – Chichester – Weinheim – Brisbane**  
**– Singapore – Toronto**

This book comprises part of the series Thermal Management of Microelectronic and Electronic Systems, edited by Allan D. Kraus and Avram Bar-Cohen.

In the near future, thermal management will be critical for the success of the next generation of products. As circuits become denser and faster and computer system chips are clustered in ever closer proximity, electronic cooling systems that maintain low device temperatures while increasing heat rates will be critical to the electronic package and device field. This book offers the first comprehensive and in-depth coverage of liquid convection as it applies to state-of-the-art thermal management systems.

The book reviews the fundamentals of heat transfer and fluid flow. It discusses natural convection, and single-phase convection in channel and jet impingement flows. The author considers conditions relating to mixed convection and also those associated with flow through microchannels machined in a chip or heat sink.

Frank P. Incropera is an eminent authority in the area of thermodynamics and heat transfer, and Dean of Engineering at the University of Notre Dame's College of Engineering, Indiana, USA. Two of his other acknowledged Wiley books are: Fundamentals of Heat and Mass Transfer and Introduction to Heat Transfer. The title of the chapters in this book: Introduction, Fundamentals of heat transfer and fluid flow, Natural convection, Channel flows, Jet impingement cooling and Heat transfer enhancement.

The 285 pages are well illustrated, the author cites more than 200 references, and he culls ten years of research results for mechanical and electrical engineers, electronic packaging engineers and technical staff.

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