1. Record Nr. UNINA9910782299603321 Autore Paik Philip Y. Titolo Adaptive cooling of integrated circuits using digital microfluidics / / Philip Y. Paik, Krishnendu Chakrabarty, Vamsee K. Pamula Norwood, Massachusetts: .: Artech House, . ©2007 Pubbl/distr/stampa [Piscatagay, New Jersey]:,: IEEE Xplore,, [2007] **ISBN** 1-59693-139-6 Descrizione fisica 1 online resource (203 p.) Collana Artech House integrated microsystems series Altri autori (Persone) ChakrabartyKrishnendu PamulaVamsee K Disciplina 620.106 621.3815 Soggetti Integrated circuits - Cooling Integrated circuits - Design and construction Microfluidics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Adaptive Cooling of Integrated Circuits Using Digital Microfluidics; Contents 5; Preface 11; Chapter 1 Thermal Management of Integrated Circuits 15; Chapter 2 Cooling Devices for Integrated Circuits 33; Chapter 3 Adaptive Hot-Spot Cooling Principles and Design 49; Chapter 4 Technology Development 77; Chapter 5 Thermal Effects of Digital Microfluidic Devices 105; Chapter 6 Flow-Through-Based Adaptive Cooling 117; Chapter 7 Programmable Thermal Switch-Based Adaptive Cooling 145; Chapter 8 Concluding Remarks 161; Appendix A Image Analysis Software Using MATLAB 167. Sommario/riassunto Thanks to increasing power consumption and component density, localized?hot spots? are becoming a serious challenge in IC (integrated circuit) chip design? so serious, in fact, that Intel recently had to yank a circuit because it was literally burning. For IC engineers grappling with high power dissipation and thermal issues, new droplet-based cooling techniques using digital microfluidics technology could provide the solution. This definitive guide paves the way, with design and implementation methodologies and prototypes for utilizing this

groundbreaking technology. After reviewing cooling.