



Sharif University of Technology
Department of Computer Engineering

Low Power Digital System Design

Introduction

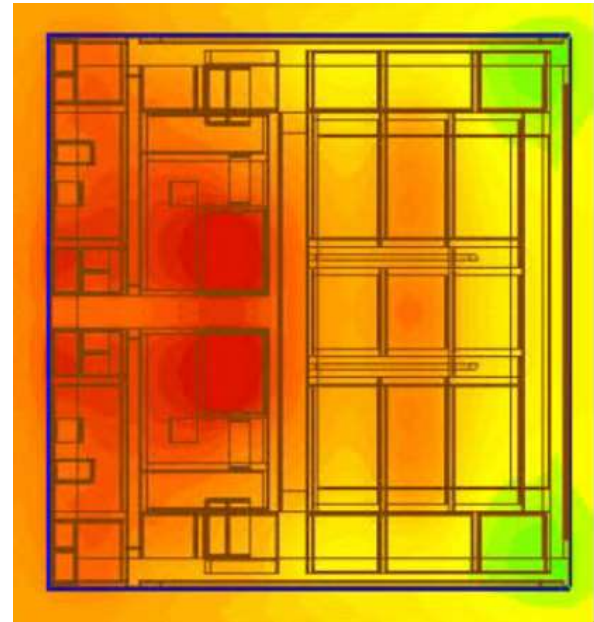
A. Ejlali

Why Low Power?

- Battery Powered Systems
- Higher Integration
- Cost of Packaging and Fans
- Reliability (Component Wear-out)
- Low Power Test
- Hot Spots (Thermal Management)
- Energy Harvesters

Design Objectives of LPD

- Energy Management
 - Battery Life
 - Energy Harvesters
- Power Management
 - Thermal Management
 - Reducing Peak Power
 - Reducing Sustaining Power
- Reducing Power Density
 - Avoiding Hot Spots



Barriers to Low Power Design

- The main barrier to LPD: it often requires compromising other design objectives:
 - Performance
 - Reliability (External Disturbance)
 - Area
- The art of LPD: Providing techniques which have less interfere with other key objectives.

Power Reduction Design Space

