Abstract

Power-aware computing has caught the interest of researchers and users of all computing systems. In embedded systems and small devices, better management of energy translates into longer lasting and smaller batteries, which in turn implies smaller and lighter devices. In cloud, distributed, and high performance computing systems, better management of power translates into saving a significant amount of money and natural resources. This paper surveys the different power-aware computing approaches and techniques, focusing mostly on software approaches. It also introduces power-aware computing and why it is very important these days. The paper discusses the ways and challenges of measuring the energy consumption of systems and devices.

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**Index Terms**

Computer Science       Information Sciences

**Keywords**

Power-aware computing   power-aware algorithms   energy consumption
power-aware compilers

power-aware cloud computing

power-aware high performance computing

measurement tools.