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Dynamic Voltage Scaling for Portable Systems

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- [SimunicBeniniAcquavivaGMicheli01.pdf](#)

Portable systems require long battery lifetime while still delivering high performance. Dynamic voltage scaling (DVS) algorithms reduce energy consumption by changing processor speed and voltage at run-time depending on the needs of the applications running. Dynamic power management (DPM) policies trade off the performance for the power consumption by selectively placing components into low-power states. In this work we extend the DPM model presented in [2, 3] with a DVS algorithm, thus enabling larger power savings. We test our approach on MPEG video and MP3 audio algorithms running on the SmartBadge portable device [1]. Our results show savings of a factor of three in energy consumption for combined DVS and DPM approaches.

1. G. Q. Maguire, M. Smith and H. W Peter: Beadle "SmartBadges": a wearable computer and communication system, *6th International Workshop on Hardware/Software Codesign*, 1998
2. T. Simunic, H. Vikalo, P. W. Glynn, and G. DeMicheli: Energy Efficient Design of Portable Wireless Systems, *ISLPED 2000*, 49-54
3. T. Simunic, H. Vikalo, P. W. Glynn, and G. DeMicheli: Dynamic Power Management of Portable Systems, *MOBICOM 2000*, 11-19

