

Student Name: _____

This question will explore your understanding of performance, power, and energy consumption trade-offs in modern processors. It will probably help you to write down the basic equations that calculate the execution time (T), consumed power (P), and consumed energy (E) when running some application on a processor:

T = Execution Time =

P = Power Consumption =

E = Energy Consumption =

- a) What is the impact of decreasing the processor clock frequency on T, P, and E? What is the impact of decreasing the processor power supply on T, P, and E? Explain briefly.
- b) Assume an application that is easily parallelizable and that you are not interested in performance improvement. How can the use of two processors (parallel processing) help you achieve significant reductions in P and E? Explain briefly.