

CS 550 Background Quiz

Name (please print) _____

Please answer the questions below; this quiz is closed book/notes.

Q1: Describe Moore's Law.

Q2: Describe Amdahl's Law.

Q3: What is the primary reason processors have not gotten any faster clock speeds since about 2002, and have since focused on improving performance by adding parallelism?

Q4: Today's commodity processors have 1 to 12 cores, with some more exotic processors boasting many dozens of cores/threads. About how many cores/threads are expected to be in future processors in 10 years from now?

Q5: Describe what a core and hardware thread is on a modern processor, and the difference between them? What type of workloads are hardware threads trying to improve performance for?

Q6: Describe what shared address space and message passing is, and the difference between them? In what environments would one be used over the other?

Q7: Describe what a process and a thread is, and the difference between them?

Q8: Why are synchronization locks needed with threads? Why is this not the case with processes?
