HW Chap. 4

Multiprocessors

1. Suppose the number of cores in processors continues to increase by a factor of 4 each year, moving from today's quad-core chips to a system with 1024 cores within 5 years. Suppose further that you have tuned your favorite application so that it is 99% parallelizable.

    a. Fill in the table below, giving the upper bound on the speedup of your program (as predicted by Amdahl's Law)

    b. Calculate the efficiency of each multicore processor (Efficiency = Speedup / # Cores)

    c. Discuss the ramifications of your results.

# Cores	Speedup$_{Amdahl}$	Efficiency
4		
16		
64		
256		
1024		