

# Homework 1

## Assumption for all questions:

- Fixed power budget
- Total power is proportional to square of frequency
- Performance is proportional to frequency

## Question:

Assume the 90% program can be perfectly parallelized, 10% of the program remains sequential. If the performance of this program on a single core is 1 solution/s

- What is the performance of this program on a dual-core chip with the same power budget?  
(Hint: use frequency as the bridge to estimate power and performance)
- What is the performance of this program on a quad-core chip with the same power budget?

You should submit a report with the calculation process.