Computer Architecture Homework 1

Anastasia Starks

1.12

a) graph speedup

|  |  |
| --- | --- |
| Percentage of encryption | Speed Up |
| 0 |  |
| 25 |  |
| 50 |  |
| 75 |  |
| 100 |  |

b) find f is speedup is 2

c) what percentage of time in new execution will be spent on encryption if speedup of 2

d) 2 encryption units with 50% able to be encrypted and 90% parallelizable

4 encryption units with 50% able to be encrypted and 90% parallelizable

1.13

a) Originally, the unenhanced part would take normal time (50%) but enhanced part would take 10 times as long 10(50%) = 500% so original execution time without enhancement would take 550%. So 0

b) find f

1.16

a) n processors if 80% parallelizable

b) 8 processors with 0.5% communication overhead

c) 8 processors, every time number is doubled communication overhead is 0.5%