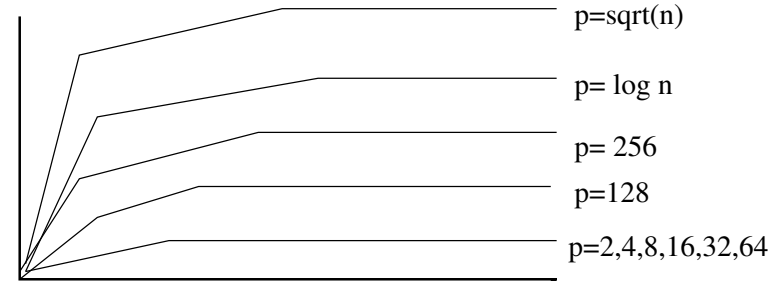


## EXPERIMENTS for project in PPP

Each `parfor(i=0;i<N;i++){ ... }`  
 should be replaced by  
`parfor(ii=0;ii<N;ii+=N/p)`  
`for(i=ii;i<ii+N/P;i+=1){....}`

open-mp/parc

$$SP = \frac{T_1}{T_p}$$



N  
 for I7 with 4-cores X 2-Hardware threads

- 1) Obtain a sequential version of your program  $T_{seq}$  (input size is a parameter) such that it can be executed with any value of N.
- 2) Create the “Naive” parallel OpenMP, ParC versions of your program (using the above PF).
- 3) Compute four diagrams like the above one for the following combinations (for several values of N):
  - OpenMP +  $SP = T_1/T_p$
  - OpenMP +  $SP = T_{seq}/T_p$
  - ParC +  $SP = T_{seq}/T_p$
  - ParC +  $SP = T_1/T_p$

$p'$  is the p obtained minimal execution time

- 4) Apply some basic optimizations as explained in the course to the current versions (e.g., copy from shared variables to local copies in each thread).
- 5) Again, compute the four diagrams for the improved versions.
- 6) Apply Vtune or Oprofile and collect statistics for  $p'$  (cache misses, branch-mispredictions...)
- 7) Based on the statistics locate another limiting factor and improve it (if-possible)
- 8) Again, compute the four diagrams for the final improved versions.
- 9) Report the results in an English word document with xls diagrams