Exercising D-Wave qbsolve performance by chaining

- num_reads
- num_repeats
- annealing_time

parameters for the densities of 20% and 40%

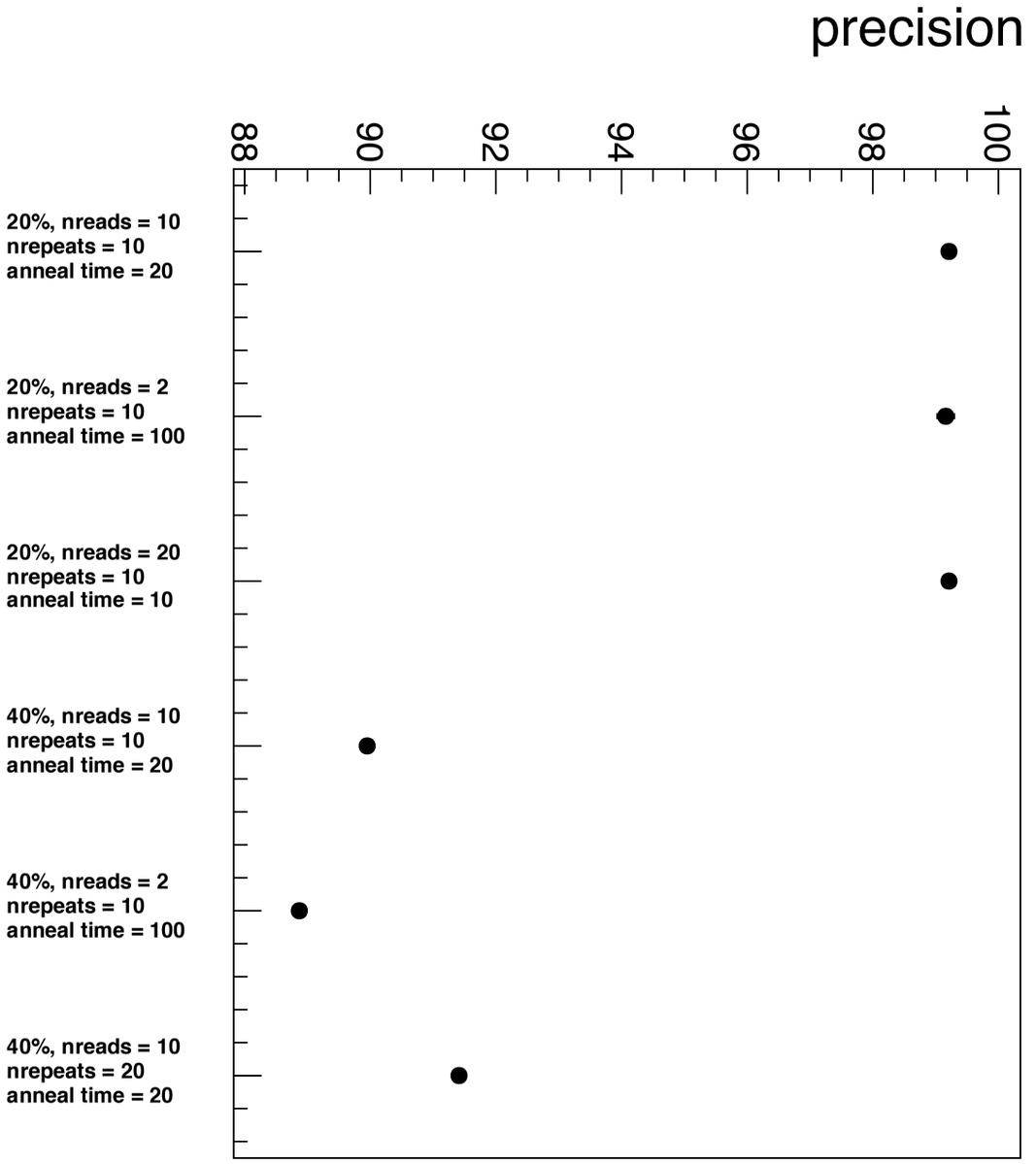
Adding total QPU time using TimingRecord class

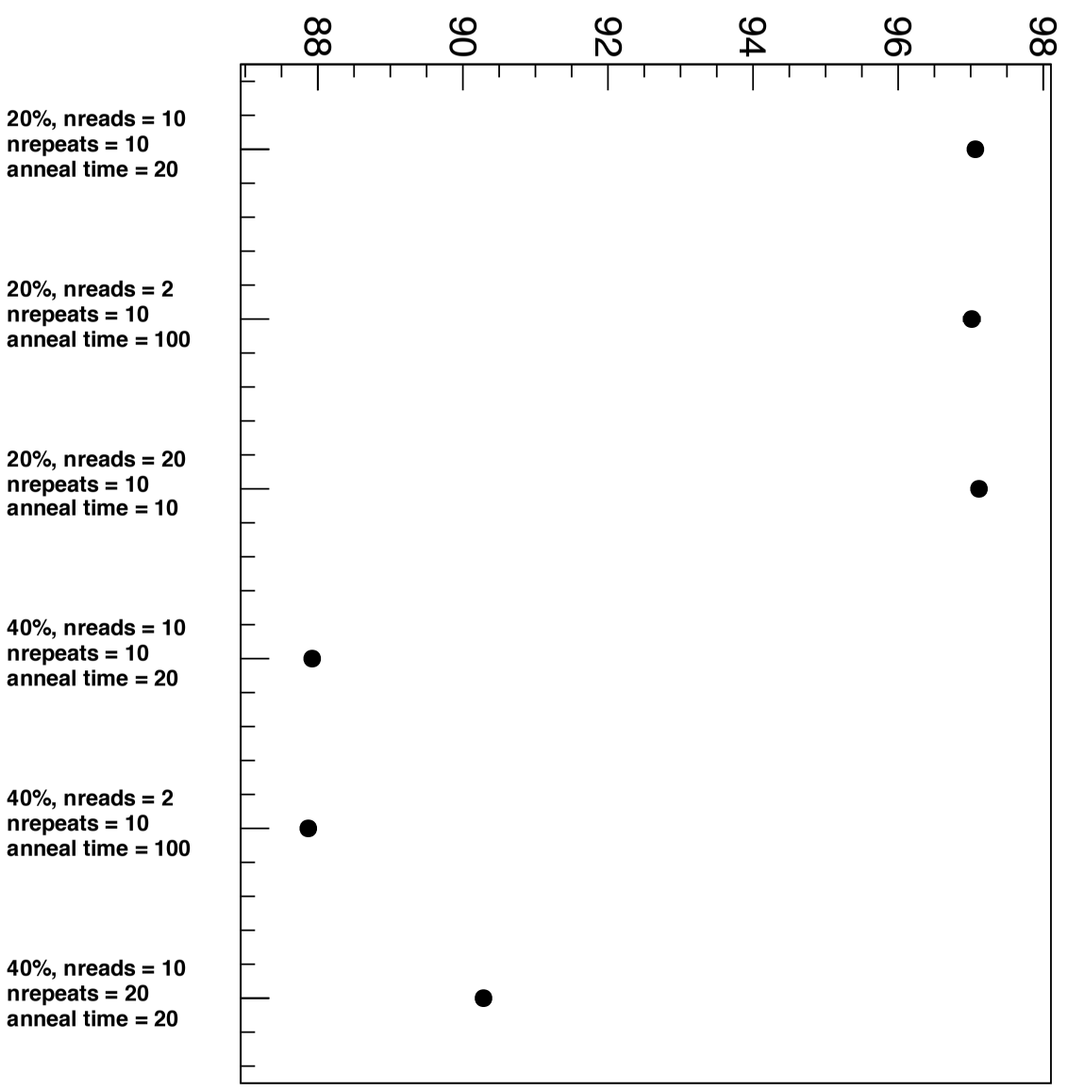
Procedure:

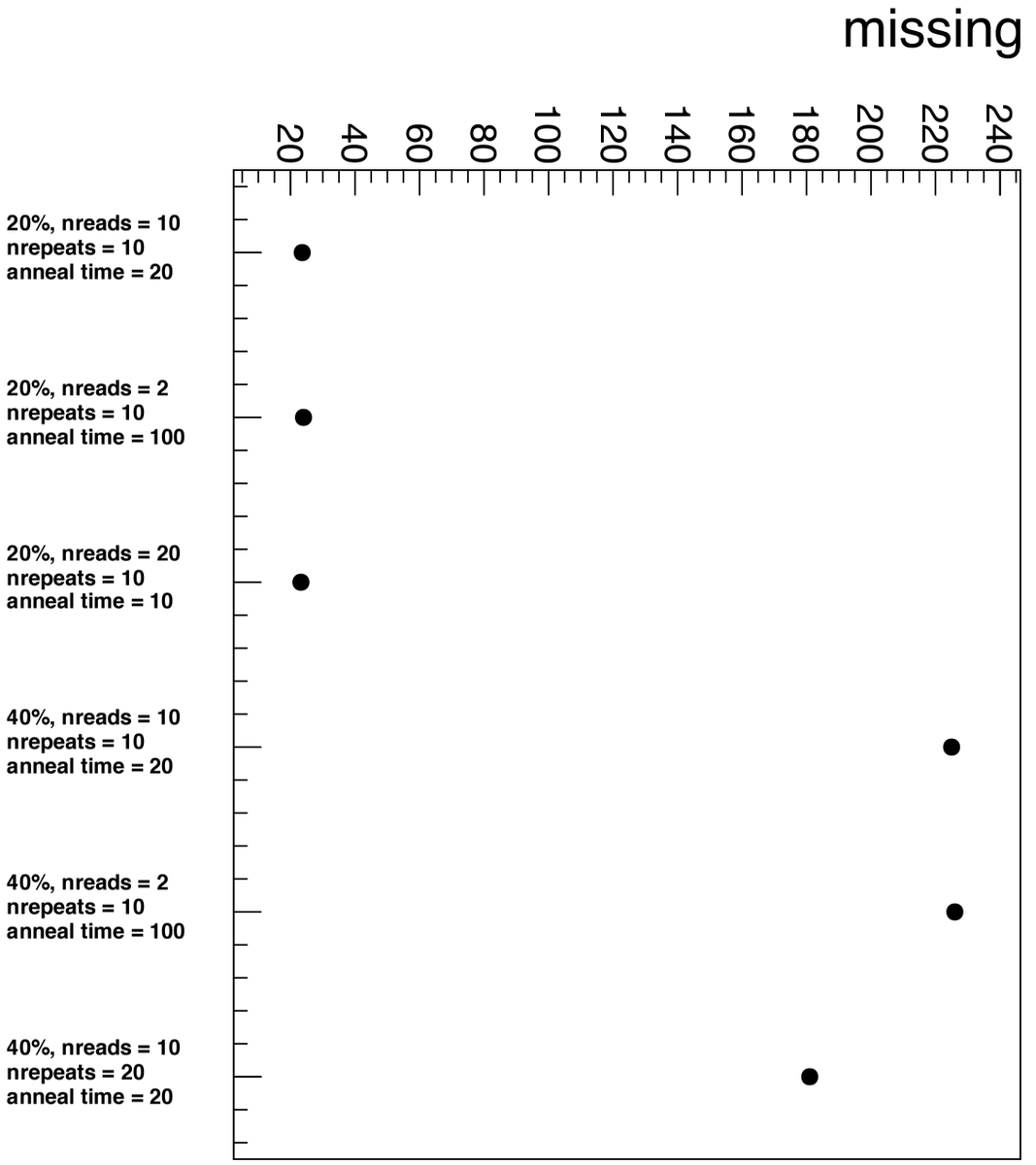
- run 5 experiments for each setting
- use fixed seed for QUBO sampling
- calculate the average value and its error from 5 results for each setting

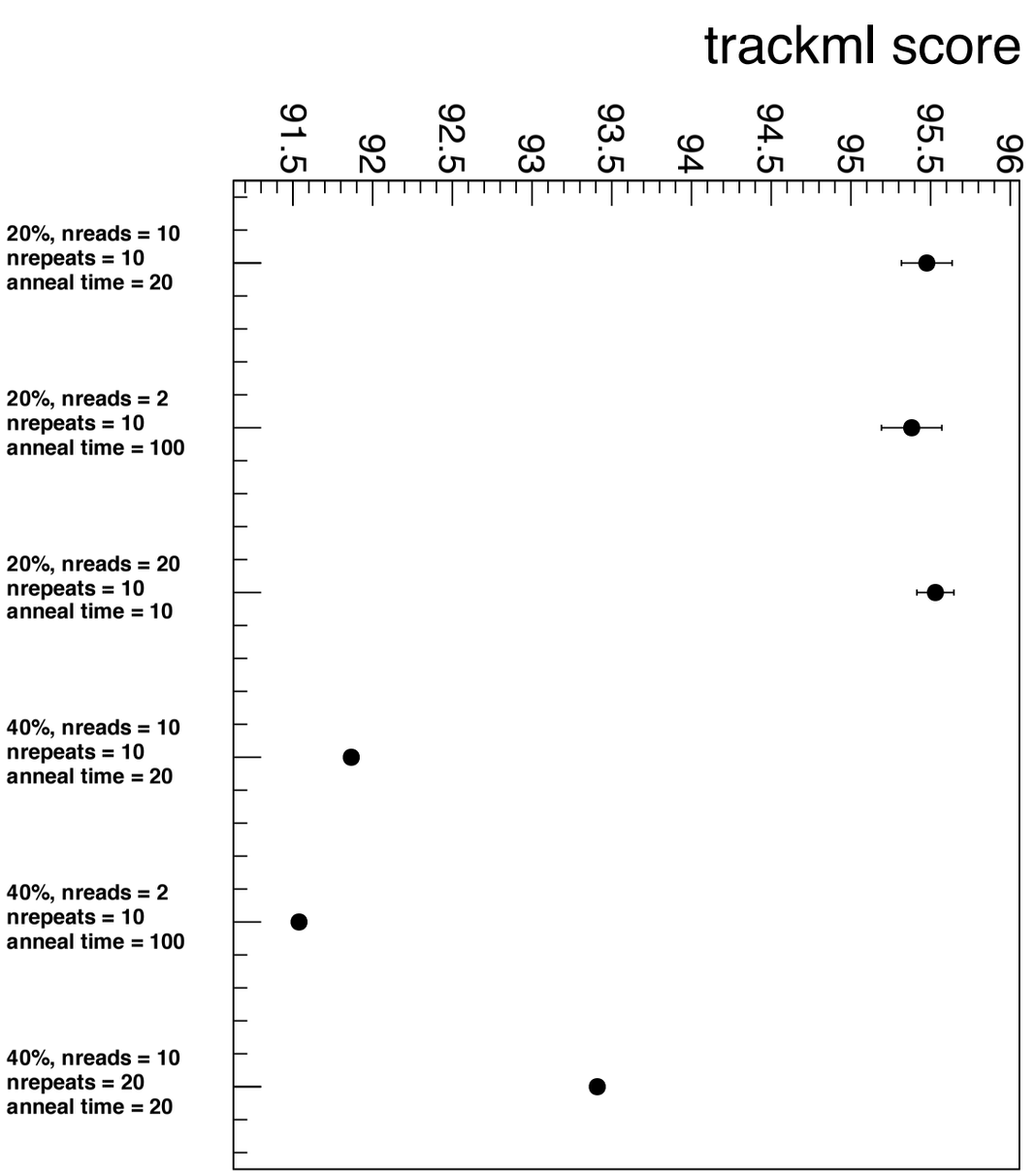
NOTE: only 1 experiment for 40% density

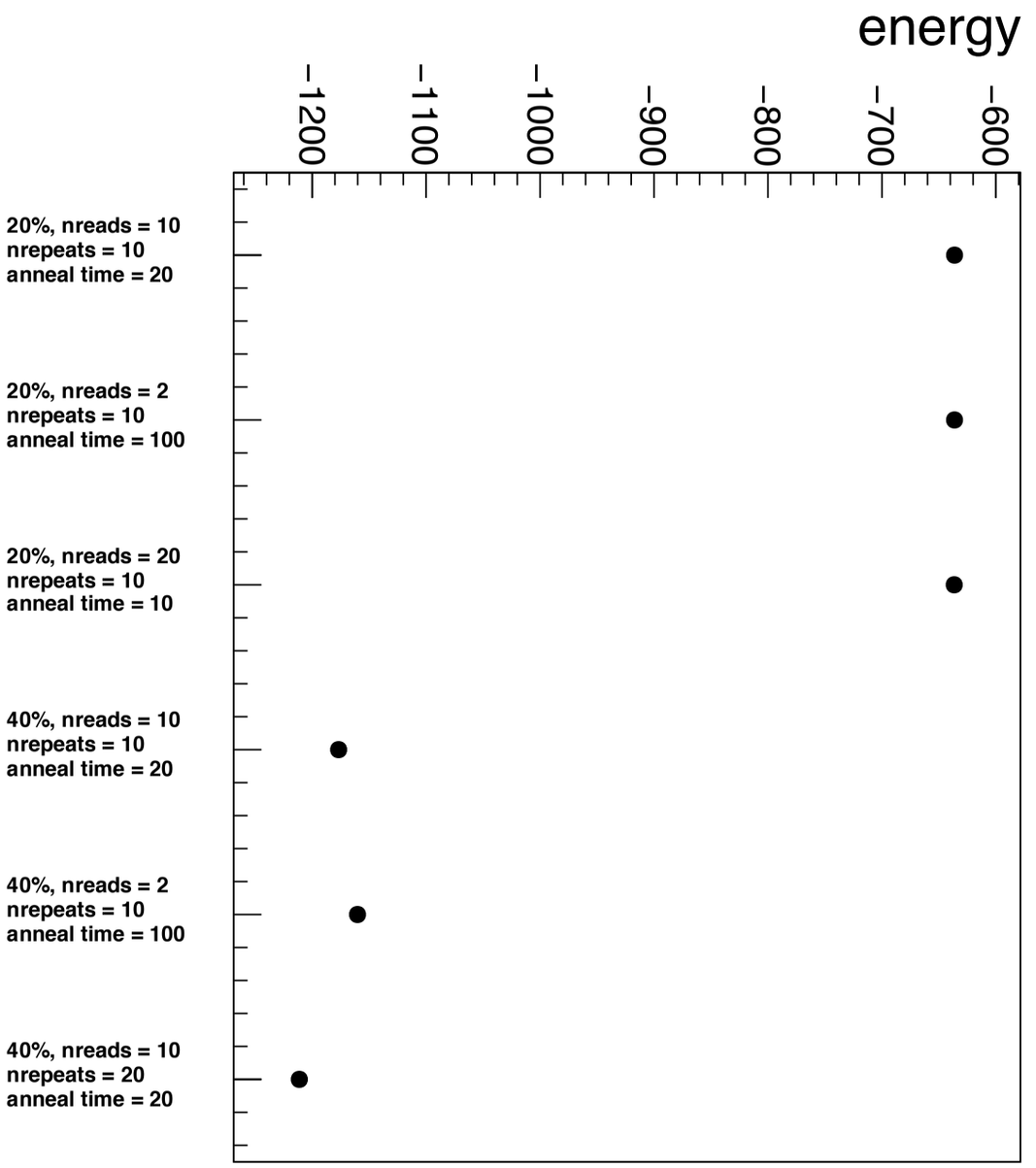
Use only results for experiments where
“NO improvement RepeatPass=num_repeats” is reached

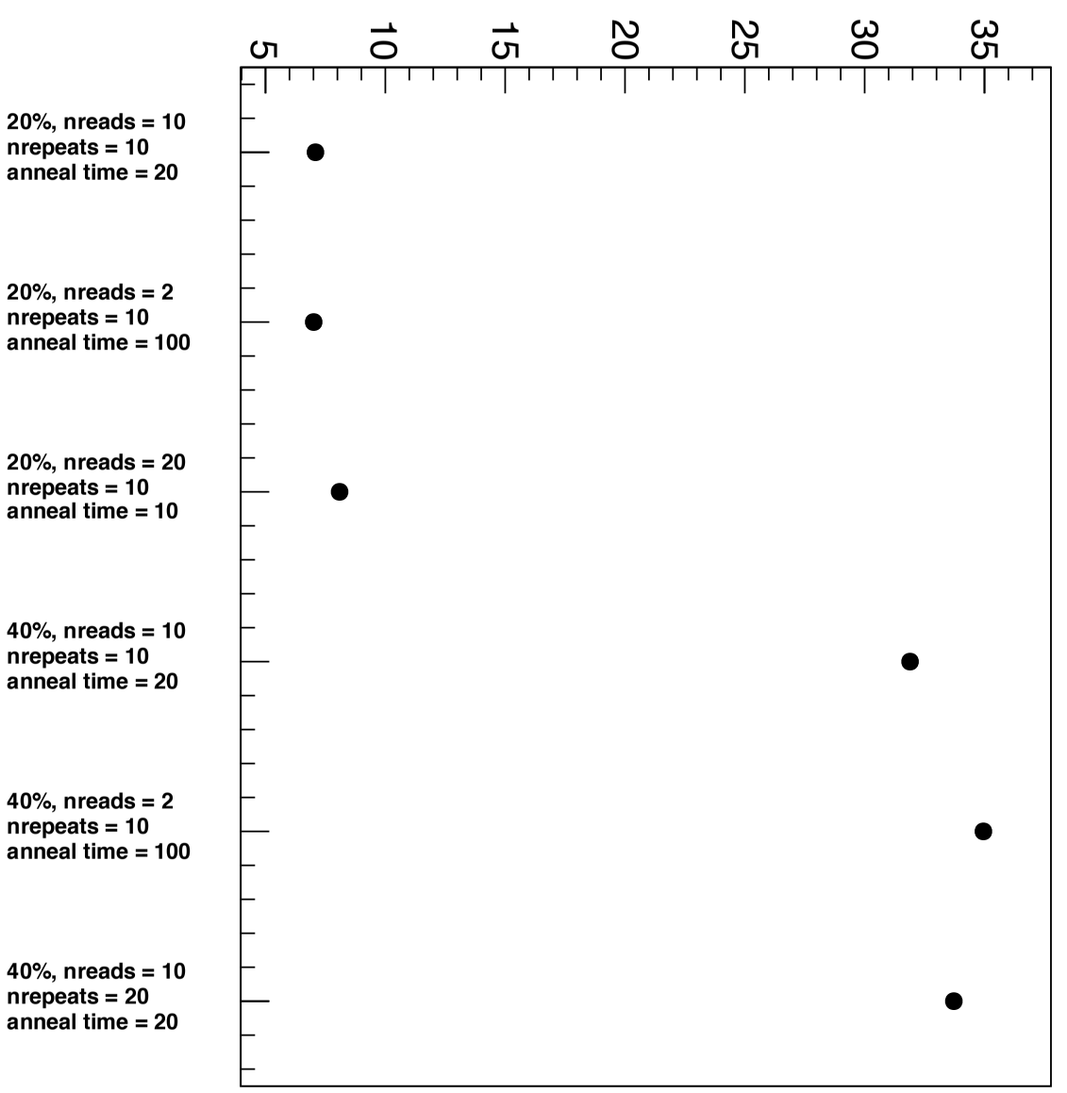

precision
88
90
92
94
96
98
100
20%, nreads = 10
nrepeats = 10
anneal time = 20
20%, nreads = 2
nrepeats = 10
anneal time = 100
20%, nreads = 20
nrepeats = 10
anneal time = 10
40%, nreads = 10
nrepeats = 10
anneal time = 20
40%, nreads = 2
nrepeats = 10
anneal time = 100
40%, nreads = 10
nrepeats = 20
anneal time = 20


recall
88
90
92
94
96
98
20%, nreads = 10
nrepeats = 10
anneal time = 20
20%, nreads = 2
nrepeats = 10
anneal time = 100
20%, nreads = 20
nrepeats = 10
anneal time = 10
40%, nreads = 10
nrepeats = 10
anneal time = 20
40%, nreads = 2
nrepeats = 10
anneal time = 100
40%, nreads = 10
nrepeats = 20
anneal time = 20


missing
20
40
60
80
100
120
140
160
180
200
220
240
20%, nreads = 10
nrepeats = 10
anneal time = 20
20%, nreads = 2
nrepeats = 10
anneal time = 100
20%, nreads = 20
nrepeats = 10
anneal time = 10
40%, nreads = 10
nrepeats = 10
anneal time = 20
40%, nreads = 2
nrepeats = 10
anneal time = 100
40%, nreads = 10
nrepeats = 20
anneal time = 20


trackml score
91.5
92
92.5
93
93.5
94
94.5
95
95.5
96
20%, nreads = 10
nrepeats = 10
anneal time = 20
20%, nreads = 2
nrepeats = 10
anneal time = 100
20%, nreads = 20
nrepeats = 10
anneal time = 10
40%, nreads = 10
nrepeats = 10
anneal time = 20
40%, nreads = 2
nrepeats = 10
anneal time = 100
40%, nreads = 10
nrepeats = 20
anneal time = 20


energy
−1200
−1100
−1000
−900
−800
−700
−600
20%, nreads = 10
nrepeats = 10
anneal time = 20
20%, nreads = 2
nrepeats = 10
anneal time = 100
20%, nreads = 20
nrepeats = 10
anneal time = 10
40%, nreads = 10
nrepeats = 10
anneal time = 20
40%, nreads = 2
nrepeats = 10
anneal time = 100
40%, nreads = 10
nrepeats = 20
anneal time = 20


total qpu time [s]
5
10
15
20
25
30
35
20%, nreads = 10
nrepeats = 10
anneal time = 20
20%, nreads = 2
nrepeats = 10
anneal time = 100
20%, nreads = 20
nrepeats = 10
anneal time = 10
40%, nreads = 10
nrepeats = 10
anneal time = 20
40%, nreads = 2
nrepeats = 10
anneal time = 100
40%, nreads = 10
nrepeats = 20
anneal time = 20