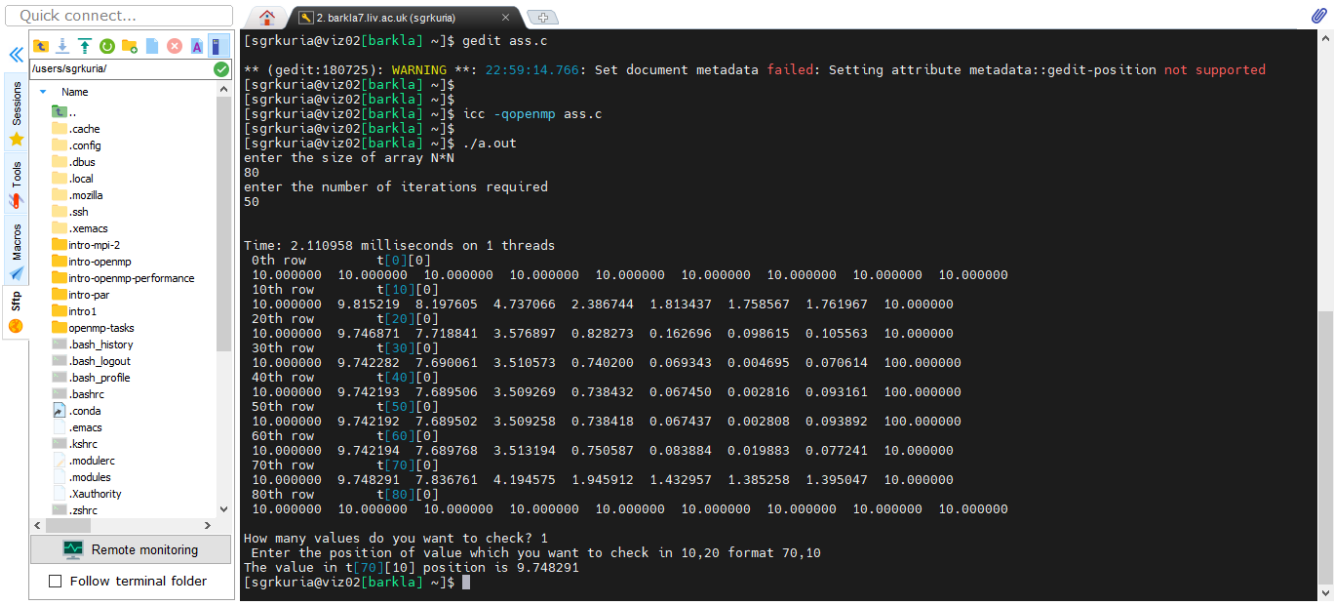
Part 1: Serial Code

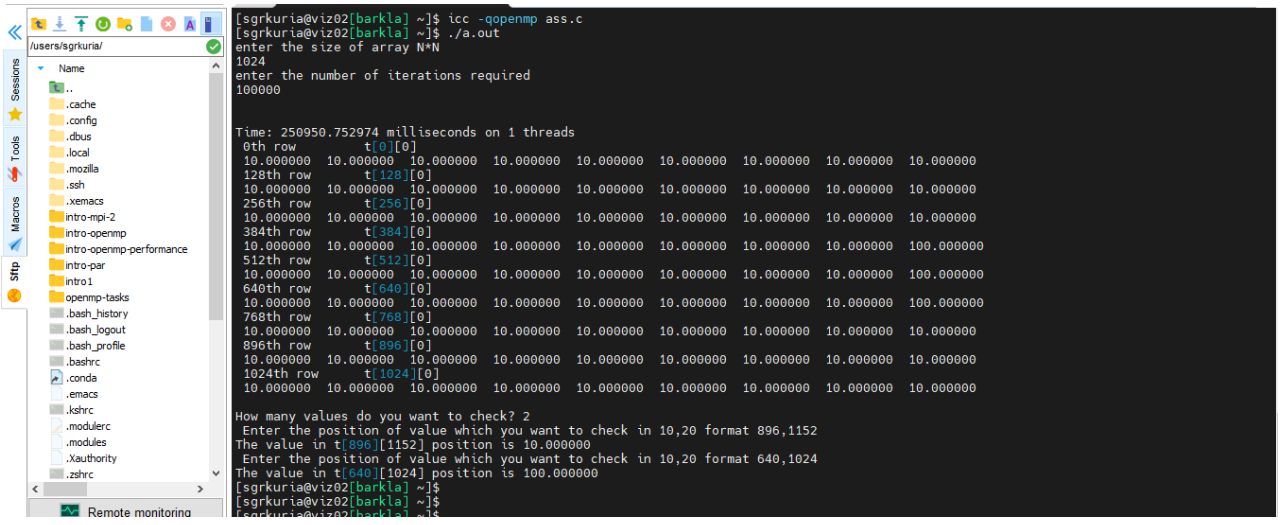
serial.txt

a) Compilation and output for Small value of N (80) and Small value of iteration(50)



Time taken: 2.110958 milliseconds

b) Compilation and output for N=1024 and 100000 number of iterations

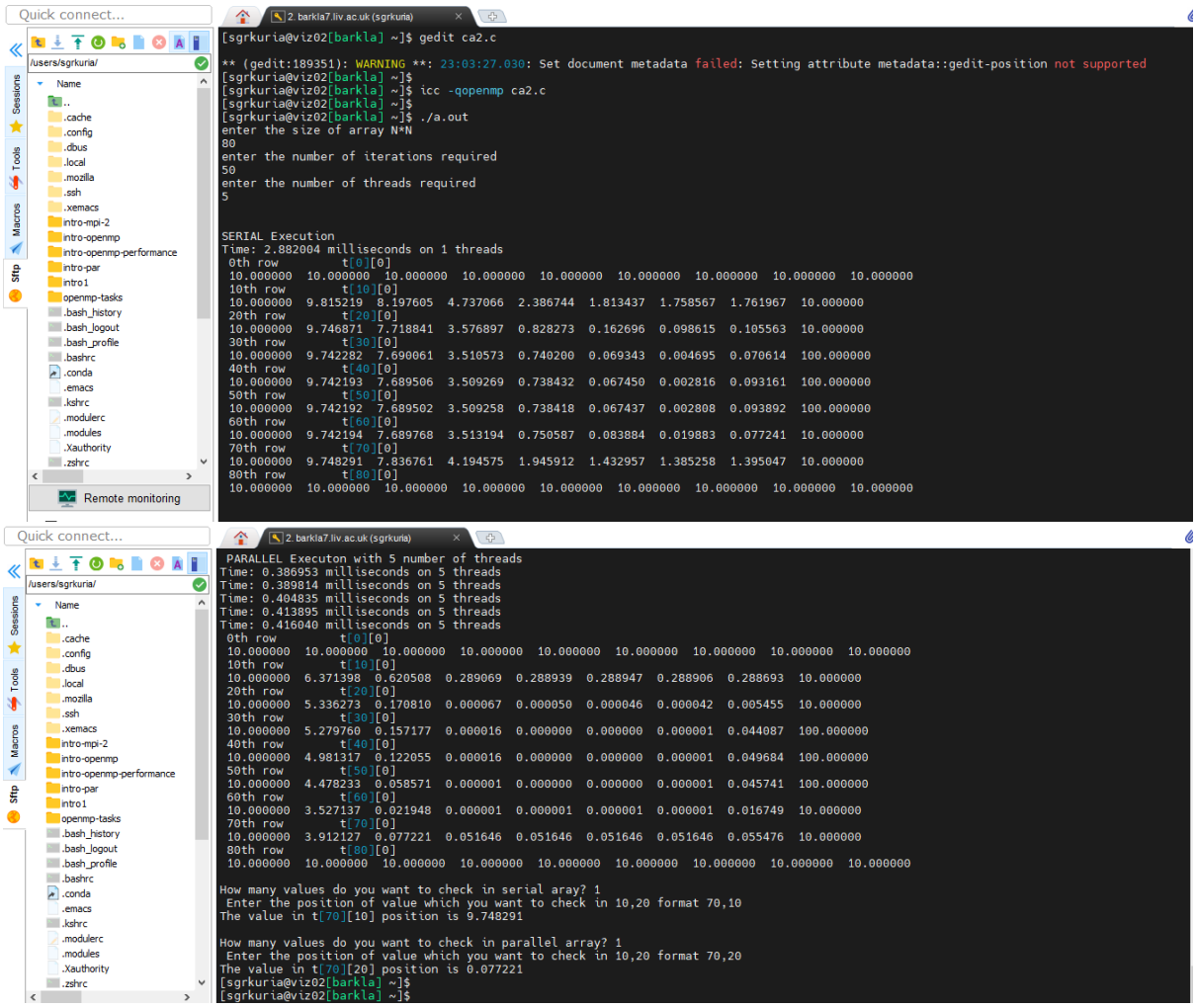


Time taken: 250950.752974 milliseconds

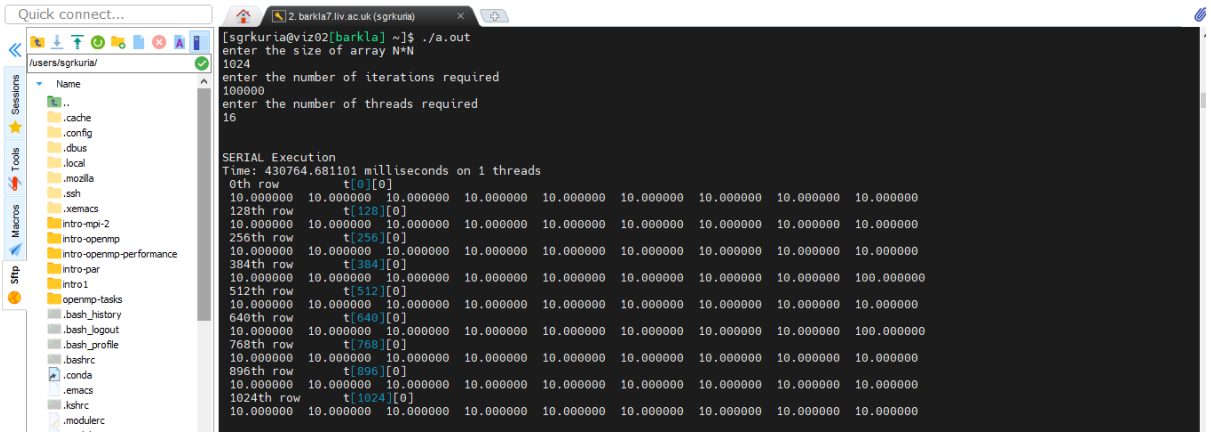
Part 2: Comparison of SERIAL and PARALLEL

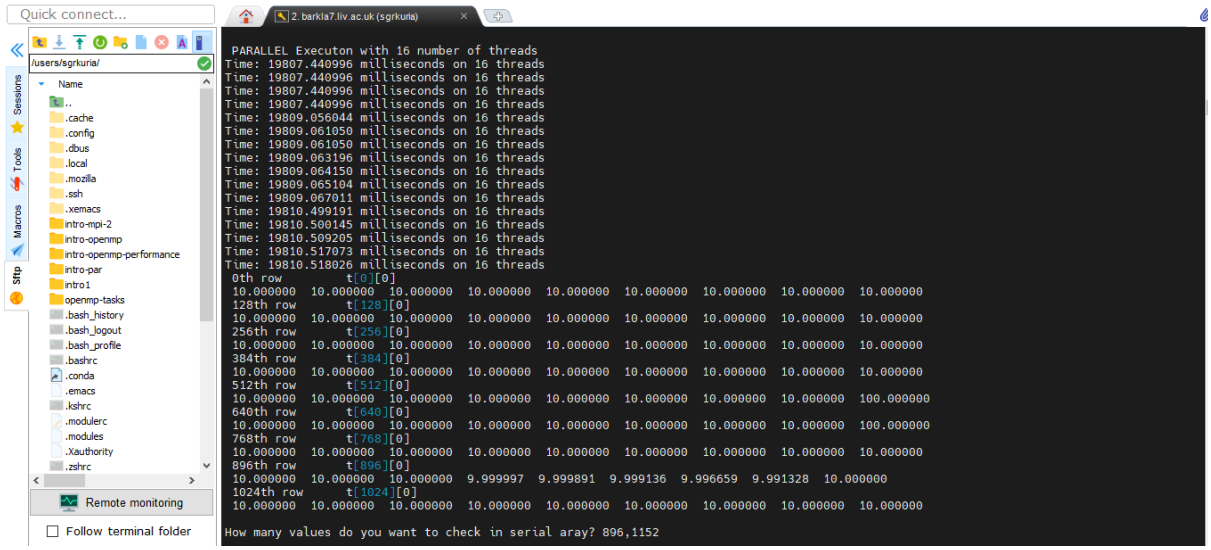
ca2.txt

a) Compilation and output for small N (80) and small number of iteration (50) and 5 number of threads



b) Compilation and output for N=1024 and 100000 number of iterations

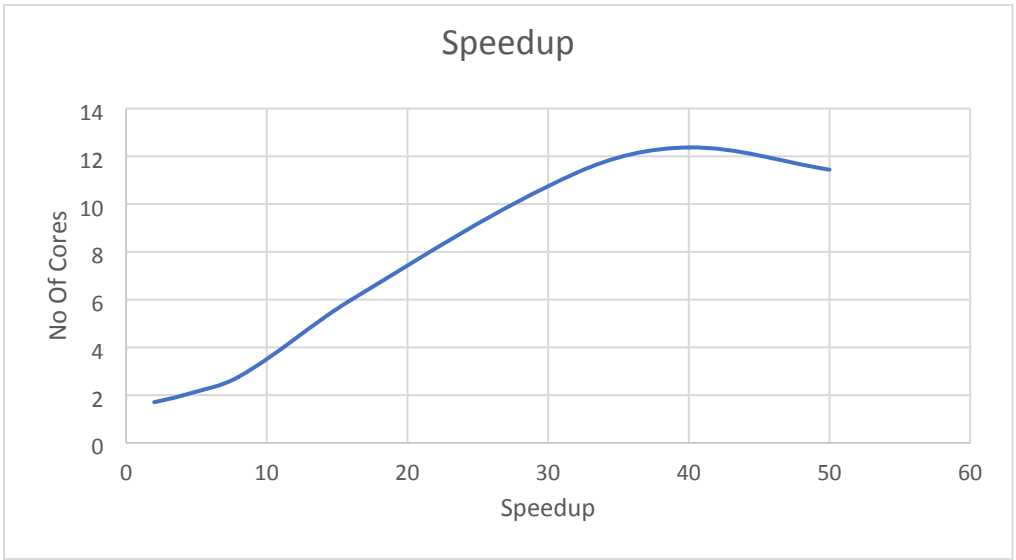




Serial time: 430764.681101 milliseconds

Time taken for Parallel execution:

No.of cores	Runtime(millisec)	Runtime(s)	Speedup	Efficiency(%)
0				
1	176371.5019	1763.715019		
2	103529.6659	1035.296659	1.70358	85.1792094
4	88901.03984	889.0103984	1.98391	49.59770499
8	63751.53899	637.5153899	2.76655	34.58181259
16	29442.17801	294.4217801	5.99044	37.440229
32	15601.53198	156.0153198	11.3048	35.32736042
40	14256.75988	142.5675988	12.3711	30.92769734
50	15417.2678	154.172678	11.4399	22.87973514



Maximum number of cores before speedup curve flattens out is around 40.

Minimum runtime is at 40 which is 142.5675988 sec.

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0				
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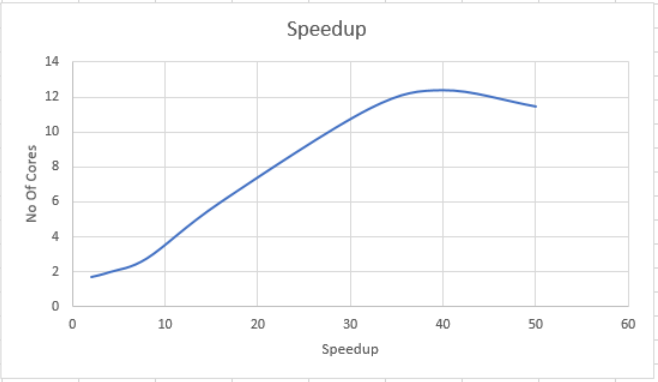
50	15417.2678	154.172678	11.4399	22.87973514



CA2.xlsx