

A Appendix: Detailed Experimental Results

All of the tests were carried out with the username `ppar`.

Tabella 1: Baseline Sequential Run

N	NP	Nodi	Threads	Partitions	Fill Time	Probe Time	Solutions
20	1	1	1	1	0.129s	0.251s	k1=c72ed, k2=1a6ce
21	1	1	1	1	0.268s	0.504s	k1=118da0, k2=d986f
22	1	1	1	1	0.663s	1.094s	k1=1700a3, k2=2e561d
23	1	1	1	1	1.663s	2.444s	k1=25c499, k2=304c59
24	1	1	1	1	3.779s	5.541s	k1=4e151c, k2=d09349
25	1	1	1	1	8.082s	12.021s	k1=c2bdbb, k2=1e2f58b
26	1	1	1	1	16.623s	25.054s	k1=1922aa7, k2=26c984c
27	1	1	1	1	33.800s	51.200s	k1=81056a, k2=2a8e250
28	1	1	1	1	68.636s	104.526s	k1=85acec8, k2=6c48b0c
29	1	1	1	1	139.253s	211.243s	k1=e980698, k2=7397b2a
30	1	1	1	1	281.511s	428.044s	k1=7a3f106, k2=2ce169ba
31	1	1	1	1	567.747s	864.387s	k1=7d240482, k2=47eccf23
32	1	1	1	1	1042.443s	1215.337s	k1=a7413f3d, k2=95900609

Tabella 2: OpenMP Strong Scaling (Single Node)

N	NP	Nodi	Threads	Partitions	Fill Time	Probe Time	Solutions
28	1	1	1	1	78.905s	129.633s	k1=85acec8, k2=6c48b0c
28	1	1	2	1	40.467s	71.042s	k1=85acec8, k2=6c48b0c
28	1	1	4	1	20.798s	36.188s	k1=85acec8, k2=6c48b0c
28	1	1	8	1	10.731s	33.447s	k1=85acec8, k2=6c48b0c
28	1	1	16	1	7.723s	29.762s	k1=85acec8, k2=6c48b0c
28	1	1	26	1	3.697s	16.866s	k1=85acec8, k2=6c48b0c
29	1	1	1	1	160.158s	262.358s	k1=e980698, k2=7397b2a
29	1	1	2	1	82.159s	144.185s	k1=e980698, k2=7397b2a
29	1	1	4	1	51.809s	83.096s	k1=e980698, k2=7397b2a
29	1	1	8	1	28.572s	64.983s	k1=e980698, k2=7397b2a
29	1	1	16	1	15.671s	60.346s	k1=e980698, k2=7397b2a
29	1	1	26	1	7.561s	37.160s	k1=e980698, k2=7397b2a
30	1	1	1	1	324.153s	529.463s	k1=7a3f106, k2=2ce169ba
30	1	1	2	1	166.352s	275.162s	k1=7a3f106, k2=2ce169ba
30	1	1	4	1	85.382s	149.501s	k1=7a3f106, k2=2ce169ba
30	1	1	8	1	44.115s	84.260s	k1=7a3f106, k2=2ce169ba
30	1	1	16	1	22.581s	68.420s	k1=7a3f106, k2=2ce169ba
30	1	1	26	1	15.186s	126.229s	k1=7a3f106, k2=2ce169ba

Tabella 3: Distributed Strong Scaling

N	NP	Nodi	Threads	Partitions	Fill Time	Probe Time	Solutions
28	2	1	26	1	28.031s	43.944s	k1=85acec8, k2=6c48b0c (rank 0)
28	4	2	26	1	15.059s	26.109s	k1=85acec8, k2=6c48b0c (rank 0)
28	8	4	26	1	8.925s	14.687s	k1=85acec8, k2=6c48b0c (rank 0)
28	16	8	26	1	4.769s	7.420s	k1=85acec8, k2=6c48b0c (rank 0)
28	32	16	26	1	2.442s	3.584s	k1=85acec8, k2=6c48b0c (rank 0)

Tabella 4: Distributed Weak Scaling

N	NP	Nodi	Threads	Partitions	Fill Time	Probe Time	Solutions
29	2	1	26	1	57.081s	89.614s	k1=e980698, k2=7397b2a (rank 0)
30	4	2	26	1	62.404s	106.180s	k1=7a3f106, k2=2ce169ba (rank 3)
31	8	4	26	1	75.755s	125.888s	k1=7d240482, k2=47eccf23 (rank 2)
32	16	8	26	1	78.374s	96.662s	k1=a7413f3d, k2=95900609 (rank 7)
33	32	16	26	1	89.943s	107.758s	k1=629869b, k2=1da9ad39a (rank 18)

Tabella 5: Running until OOM

N	NP	Nodi	Threads	Partitions	Fill Time	Probe Time	Solutions
33	36	18	26	1	72.427s	87.480s	k1=629869b, k2=1da9ad39a (rank 30)
34	36	18	26	1	147.908s	179.270s	k1=1c7f5a4e8, k2=34b6cceef (rank 2)
35	36	18	26	1	298.328s	358.674s	k1=70a23cb73, k2=87eea083 (rank 2)
36	36	18	26	1	603.656s	729.998s	k1=dc1edb9c0, k2=c95eb83b7 (rank 27)
37	36	18	26	1	1230.990s	1481.183s	k1=194843a4bb, k2=13ca02d470 (rank 31)
38	36	18	26	1	2512.619s	3006.199s	k1=3d4bdf4d77, k2=2f9bd24c41 (rank 9)
39	36	18	26	1	OOM	OOM	OOM
40	36	18	26	1	OOM	OOM	OOM

Tabella 6: Time-Memory Tradeoff via Partitioning

N	NP	Nodi	Threads	Partitions	Fill Time	Probe Time	Solutions
39	36	18	26	2	4824.49s	8980.895s	k1=478ad38aa0, k2=666f0b5d3f (rank 33, partition 1/2)
40	36	18	26	4	9515.384s	14447.991s	k1=cfabb5e696, k2=5c9cecd007 (rank 33, partition 3/4)