

Table 1: Performance of `sdpt3.m`. In the table,  $\text{err} = [\text{pinfeas}, \text{dinfeas}, \text{relgap}, \text{relgap2}]$ , where  $\text{relgap2}$  is the same as  $\text{relgap}$  but with the numerator replaced by  $|(c, x) - b^T y|$ , and  $\text{normXZ} = \max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P$  ( $g_D$ ) is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m$   $n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P$   $g_D$   $\text{normXZ}$
arch0	174   161; ; 174;	26   -5.66517270-1   -5.66517274-1	5.4 -9   1.6-11   1.9 -9   1.8 -9	03	1.97 4   2.03 6   5.9 2
arch2	174   161; ; 174;	24   -6.71515400-1   -6.71515409-1	4.2-10   3.0-11   4.0 -9   3.7 -9	03	1.97 4   2.01 6   5.7 2
arch4	174   161; ; 174;	22   -9.72627409-1   -9.72627419-1	7.3-10   1.9-11   3.8 -9   3.7 -9	03	1.97 4   1.96 6   9.1 2
arch8	174   161; ; 174;	23   -7.05698002 0   -7.05698004 0	9.7 -9   2.9-11   1.5 -9   1.2 -9	03	1.97 4   1.83 6   6.3 3
control1	21   15; ; ;	17   -1.77846268 1   -1.77846267 1	3.1 -9   2.7-11   1.8 -9   3.2-10	00	9.31 4   4.98 3   5.7 5
control2	66   30; ; ;	21   -8.30000039 0   -8.29999999 0	7.1 -9   3.0-11   9.4-11   2.3 -8	01	3.03 5   1.47 4   6.5 5
control3	136   45; ; ;	22   -1.36332647 1   -1.36332672 1	1.9 -7   8.7-11   1.0 -7   8.9 -8	02	7.67 5   3.16 4   2.1 6
control4	231   60; ; ;	21   -1.97942325 1   -1.97942308 1	1.9 -7   1.5-10   1.7 -8   4.1 -8	04	1.34 6   4.92 4   3.8 6
control5	351   75; ; ;	23   -1.68835936 1   -1.68836010 1	4.3 -7   1.6-10   2.5 -7   2.1 -7	11	2.02 6   6.22 4   4.9 6
control6	496   90; ; ;	21   -3.73043648 1   -3.73044273 1	2.2 -7   5.8-10   8.1 -7   8.3 -7	22	3.12 6   9.21 4   1.4 7
control7	666   105; ; ;	22   -2.06250581 1   -2.06250778 1	5.9 -8   4.9-10   4.7 -7   4.7 -7	43	4.09 6   1.15 5   1.2 7
control8	861   120; ; ;	23   -2.02863478 1   -2.02863653 1	2.0 -7   4.8-10   4.0 -7   4.2 -7	1:23	5.53 6   1.40 5   1.3 7
control9	1081   135; ; ;	23   -1.46754157 1   -1.46754284 1	2.7 -7   4.7-10   4.6 -7   4.2 -7	2:24	6.98 6   1.72 5   1.3 7
control10	1326   150; ; ;	25   -3.85328687 1   -3.85330582 1	5.0 -7   1.4 -9   2.3 -6   2.4 -6	45	8.32 6   2.00 5   3.7 7
control11	1596   165; ; ;	24   -3.19586090 1   -3.19586862 1	5.9 -7   1.3 -9   8.7 -7   1.2 -6	1:07	1.02 7   2.31 5   3.4 7
gpp100	101   100; ; ;	14   4.49435479 1   4.49435489 1	2.7-10   6.2-11   9.8 -9   1.1 -8	00	$\infty$   1.88 2   6.2 4
gpp124-1	125   124; ; ;	17   7.34307525 0   7.34307571 0	3.6-11   7.1-12   7.6 -9   2.9 -8	01	$\infty$   1.92 2   1.7 5
gpp124-2	125   124; ; ;	15   4.68622933 1   4.68622939 1	1.1-10   2.2-11   6.1 -9   6.3 -9	01	$\infty$   2.37 2   1.1 5
gpp124-3	125   124; ; ;	14   1.53014123 2   1.53014124 2	4.2-10   8.5-11   4.1 -9   5.1 -9	01	$\infty$   2.83 2   6.9 4
gpp124-4	125   124; ; ;	15   4.18987595 2   4.18987610 2	5.6-10   7.1-11   6.3-10   1.8 -8	01	$\infty$   3.48 2   2.9 5
gpp250-1	251   250; ; ;	18   1.54449168 1   1.54449168 1	1.3-12   1.5-12   2.9 -9   8.7-11	02	$\infty$   4.01 2   1.0 6
gpp250-2	251   250; ; ;	15   8.18689562 1   8.18689574 1	1.3-10   2.6-11   1.2 -9   7.4 -9	02	$\infty$   4.76 2   1.6 5
gpp250-3	251   250; ; ;	15   3.03539317 2   3.03539320 2	3.3-10   6.7-11   2.1 -9   5.2 -9	02	$\infty$   5.91 2   1.9 5
gpp250-4	251   250; ; ;	14   7.47328306 2   7.47328305 2	2.2-10   5.3-11   4.6 -9   5.8-10	02	$\infty$   7.20 2   4.0 5
gpp500-1	501   500; ; ;	20   2.53205508 1   2.53205436 1	1.6-12   2.6-12   1.4 -7   1.4 -7	12	$\infty$   7.88 2   1.3 7
gpp500-2	501   500; ; ;	19   1.56060387 2   1.56060387 2	3.1-12   6.9-12   6.4-10   7.7-11	11	$\infty$   9.57 2   1.6 6
gpp500-3	501   500; ; ;	16   5.13017610 2   5.13017602 2	4.3-12   2.0-12   7.7 -9   7.5 -9	10	$\infty$   1.17 3   1.0 6
gpp500-4	501   500; ; ;	17   1.56701879 3   1.56701879 3	8.8-12   3.8-12   9.2-10   8.2-10	10	$\infty$   1.50 3   7.7 5
hinf1	13   14; ; ;	23   -2.03272656 0   -2.03267445 0	1.3 -7   4.1 -8   3.4 -6   1.0 -5	00	$\infty$   7.62 1   9.2 3
hinf2	13   16; ; ;	16   -1.09692535 1   -1.09681526 1	3.3 -6   1.5-11   2.6 -9   4.8 -5	00	1.51 5   5.05 3   4.6 2
hinf3	13   16; ; ;	21   -5.69679134 1   -5.69543438 1	7.1 -6   8.1-12   3.1 -9   1.2 -4	00	$\infty$   1.48 4   4.4 3
hinf4	13   16; ; ;	21   -2.74765722 2   -2.74764791 2	7.9 -8   1.5 -9   2.3 -8   1.7 -6	00	$\infty$   1.76 3   4.6 4
hinf5	13   16; ; ;	21   -3.62897352 2   -3.62557102 2	1.5 -4   1.3 -9   4.3 -7   4.7 -4	00	$\infty$   1.04 5   2.0 4
hinf6	13   16; ; ;	22   -4.48972738 2   -4.48952353 2	1.5 -5   1.3 -8   3.6 -6   2.3 -5	00	$\infty$   6.76 4   1.2 5
hinf7	13   16; ; ;	18   -3.90826676 2   -3.90819918 2	9.6 -6   1.8-10   1.1 -6   8.6 -6	00	$\infty$   3.55 5   2.7 4
hinf8	13   16; ; ;	21   -1.16191071 2   -1.16168510 2	2.8 -5   1.0-11   3.3 -9   9.7 -5	00	$\infty$   1.63 4   2.5 4
hinf9	13   16; ; ;	21   -2.36249277 2   -2.36249258 2	1.0 -6   1.4-14   4.1-10   3.9 -8	00	3.09 2   1.01 6   7.5 4
hinf10	21   18; ; ;	28   -1.08833666 2   -1.08781552 2	1.3 -7   6.8 -8   6.0 -5   2.4 -4	00	$\infty$   1.60 3   1.7 6
hinf11	31   22; ; ;	25   -6.59349948 1   -6.59169026 1	3.7 -7   1.7 -7   4.5 -4   1.4 -4	01	$\infty$   1.26 3   1.1 6
hinf12	43   24; ; ;	60   -6.92650138-5   -5.39089136-5	8.9-12   3.0 -6   4.8 -5   1.5 -5	01	$\infty$   1.42 3   4.1 11
hinf13	57   30; ; ;	32   -4.43539604 1   -4.43495652 1	5.1 -5   3.1 -7   2.0 -4   4.9 -5	01	$\infty$   9.37 4   1.8 7
hinf14	73   34; ; ;	29   -1.29900752 1   -1.29900668 1	3.5 -7   1.9 -7   2.5 -5   3.1 -7	01	$\infty$   3.28 3   8.0 5
hinf15	91   37; ; ;	30   -2.40107940 1   -2.40066089 1	3.2 -5   3.5 -6   4.0 -3   8.5 -5	01	$\infty$   1.78 5   1.2 6
infd1	10   30; ; ;	11   -4.25720801 0   1.5422863919	primal infeasible	00	
infd2	10   30; ; ;	11   5.26001444 0   2.0993105820	primal infeasible	00	
infp1	10   30; ; ;	31   -9.4170967815   -9.56504509 0	dual infeasible	00	
infp2	10   30; ; ;	31   -3.0046017715   -7.56587983 0	dual infeasible	00	
mcp100	100   100; ; ;	12   -2.26157351 2   -2.26157352 2	1.2-11   1.0-12   2.0 -9   2.0 -9	00	1.00 2   1.92 2   5.0 1
mcp124-1	124   124; ; ;	12   -1.41990475 2   -1.41990477 2	3.6-12   1.0-12   7.5 -9   7.5 -9	00	1.24 2   1.91 2   6.5 1
mcp124-2	124   124; ; ;	13   -2.69880170 2   -2.69880171 2	2.0-13   1.1-12   4.1-10   4.1-10	01	1.24 2   2.35 2   6.3 1
mcp124-3	124   124; ; ;	12   -4.67750110 2   -4.67750114 2	6.5-13   1.0-12   4.9 -9   4.9 -9	01	1.24 2   2.82 2   6.1 1
mcp124-4	124   124; ; ;	13   -8.64411863 2   -8.64411864 2	3.2-12   1.5-12   4.0-10   4.0-10	01	1.24 2   3.53 2   6.5 1
mcp250-1	250   250; ; ;	14   -3.17264340 2   -3.17264340 2	6.7-13   1.0-12   9.7-10   9.7-10	01	2.50 2   4.02 2   1.3 2
mcp250-2	250   250; ; ;	13   -5.31930081 2   -5.31930084 2	1.4-11   1.0-12   2.6 -9   2.6 -9	01	2.50 2   4.76 2   1.1 2
mcp250-3	250   250; ; ;	13   -9.81172566 2   -9.81172572 2	6.9-12   1.0-12   2.8 -9   2.8 -9	01	2.50 2   5.90 2   1.0 2
mcp250-4	250   250; ; ;	14   -1.68196010 3   -1.68196011 3	1.8-13   1.0-12   4.5 -9   4.5 -9	01	2.50 2   7.21 2   1.1 2
mcp500-1	500   500; ; ;	15   -5.98148516 2   -5.98148517 2	8.5-13   1.0-12   5.5-10   5.5-10	04	5.00 2   7.86 2   2.3 2
mcp500-2	500   500; ; ;	16   -1.07005676 3   -1.07005677 3	4.1-13   1.2-12   1.2 -9   1.2 -9	05	5.00 2   9.59 2   2.1 2
mcp500-3	500   500; ; ;	14   -1.84796999 3   -1.84797002 3	1.1-12   1.0-12   9.2 -9   9.2 -9	05	5.00 2   1.17 3   1.9 2
mcp500-4	500   500; ; ;	13   -3.56673799 3   -3.56673805 3	3.4-12   1.0-12   8.8 -9   8.8 -9	05	5.00 2   1.51 3   1.9 2
qap5	136   26; ; ;	10   4.36600000 2   4.36600000 2	8.3-12   2.7-10   7.5-10   4.4-10	01	$\infty$   1.35 3   8.7 3
qap6	229   37; ; ;	18   3.81393157 2   3.81441616 2	4.6 -7   1.8-10   2.6 -9   3.0 -5	02	$\infty$   3.33 3   5.1 4

Table 1: Performance of `sdpt3.m`. In the table, `err` = [`pinfeas`, `dinfeas`, `relgap`, `relgap2`], where `relgap2` is the same as `relgap` but with the numerator replaced by  $|(c, x) - b^T y|$ , and `normXZ` =  $\max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P$  ( $g_D$ ) is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m \mid n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P \mid g_D \mid \text{normXZ}$	
qap7	358   50; ; ;	16   4.24788135 2   4.24804149 2	3.3 -7   3.0-10   4.2 -9   1.9 -5	01	$\infty$   4.07 3   5.8 4	
qap8	529   65; ; ;	17   7.56841647 2   7.56899243 2	9.1 -7   2.5 -9   3.1 -8   3.8 -5	01	$\infty$   7.07 3   7.8 4	
qap9	748   82; ; ;	17   1.40991866 3   1.40992993 3	5.8 -8   1.7 -9   1.5 -8   4.0 -6	02	$\infty$   1.11 4   2.7 5	
qap10	1021   101; ; ;	17   1.09254045 3   1.09257436 3	2.7 -7   1.9 -9   2.0 -8   1.6 -5	05	$\infty$   1.46 4   1.6 5	
ss30	132   294; ; 132;	22   -2.02395096 1   -2.02395106 1	1.2 -7   5.8-11   3.2 -8   2.4 -8	12	1.02 3   2.40 5   1.8 3	
theta1	104   50; ; ;	11   -2.29999997 1   -2.30000001 1	1.1-11   4.6-12   8.2 -9   8.2 -9	00	5.00 1   1.15 3   2.1 2	
theta2	498   100; ; ;	13   -3.28791689 1   -3.28791690 1	1.2-12   1.3-12   1.4 -9   1.4 -9	01	1.00 2   3.29 3   4.3 2	
theta3	1106   150; ; ;	14   -4.21669813 1   -4.21669815 1	3.5-11   1.0-12   2.6 -9   2.6 -9	02	1.50 2   6.33 3   6.6 2	
theta4	1949   200; ; ;	14   -5.03212213 1   -5.03212220 1	2.4-13   1.0-12   7.0 -9   7.0 -9	08	2.00 2   1.01 4   9.1 2	
theta5	3028   250; ; ;	14   -5.72323069 1   -5.72323073 1	1.8-13   1.0-12   3.5 -9   3.5 -9	24	2.50 2   1.43 4   1.2 3	
theta6	4375   300; ; ;	14   -6.34770870 1   -6.34770872 1	1.4-12   1.0-12   1.5 -9   1.6 -9	59	3.00 2   1.90 4   1.4 3	
truss1	6   12; ; 1;	9   8.99999651 0   8.99999629 0	2.3 -9   9.8-11   6.9 -9   1.2 -8	00	4.56 2   1.30 1   2.4 1	
truss2	58   132; ; 1;	13   1.23380357 2   1.23380356 2	9.3-10   5.7-10   2.2 -9   3.7 -9	00	6.53 4   1.33 2   7.1 2	
truss3	27   30; ; 1;	12   9.10999627 0   9.10999613 0	3.8-14   9.9-13   7.1 -9   7.1 -9	00	1.14 3   3.10 1   2.4 1	
truss4	12   18; ; 1;	11   9.00999645 0   9.00999629 0	3.8 -9   1.1-11   8.2-11   8.2 -9	00	6.79 2   1.90 1   2.4 1	
truss5	208   330; ; 1;	15   1.32635678 2   1.32635678 2	1.5-10   3.3-12   5.8-10   5.7-10	01	1.75 5   3.31 2   7.6 2	
truss6	172   450; ; 1;	25   9.01001427 2   9.01001389 2	5.5 -8   2.3-11   1.4 -8   2.1 -8	01	1.62 6   4.51 2   1.1 4	
truss7	86   300; ; 1;	22   9.00001551 2   9.00001372 2	1.3 -8   1.7-11   1.0 -7   9.9 -8	00	1.08 6   3.01 2   1.1 4	
truss8	496   627; ; 1;	16   1.33114589 2   1.33114589 2	2.2-10   8.4-12   2.8-10   2.8-10	03	3.35 5   6.28 2   7.7 2	
maxG11	800   800; ; ;	15   -6.29164777 2   -6.29164783 2	1.3-12   1.0-12   4.8 -9   4.8 -9	12	8.00 2   1.41 3   3.8 2	
maxG32	2000   2000; ; ;	15   -1.56763961 3   -1.56763964 3	7.0-12   1.0-12   9.9 -9   9.9 -9	1:47	2.00 3   3.56 3   7.7 2	
maxG51	1000   1000; ; ;	17   -4.00625552 3   -4.00625552 3	3.6-13   1.0-12   2.6-10   2.6-10	28	1.00 3   2.05 3   3.2 2	
qpG11	800   1600; ; ;	15   -2.44865909 3   -2.44865913 3	8.6-13   1.0-12   8.4 -9   8.4 -9	12	1.60 3   6.50 3   3.8 2	
qpG51	1000   2000; ; ;	17   -1.18179999 4   -1.18180000 4	1.4-11   1.1-12   2.1 -9   2.1 -9	25	2.00 3   2.56 4   9.9 2	
thetaG11	2401   801; ; ;	18   -3.99999995 2   -4.00000000 2	5.0-12   1.0-12   6.3 -9   6.3 -9	40	2.40 3   9.47 2   8.0 2	
thetaG51	6910   1001; ; ;	39   -3.48999980 2   -3.49000001 2	4.0 -8   2.3-12   1.9 -8   2.9 -8	18:00	3.10 4   1.10 3   7.2 2	
equalG11	801   801; ; ;	17   -6.29155292 2   -6.29155293 2	4.6-12   9.9-13   3.1-10   2.8-10	31	1.60 3   2.21 3   2.6 5	
equalG51	1001   1001; ; ;	18   -4.00560128 3   -4.00560132 3	5.8-11   5.1-12   4.3 -9   4.2 -9	59	2.00 3   3.05 3   4.8 5	
bm1	883   882; ; ;	20   2.34398345 1   2.34398185 1	5.9-12   3.1-12   3.4 -7   3.3 -7	44	$\infty$   1.41 3   1.2 7	
copo14	1275   196; ; 364;	17   3.05271933-10   -8.22282898-10	1.1-13   1.5-12   1.1 -9   1.1 -9	02	7.98 2   8.40 2   7.1 1	
copo23	5820   529; ; 1771;	20   2.21718748-10   -5.46605094-10	7.9-13   1.0-12   7.7-10   7.7-10	57	2.90 3   3.25 3   1.5 2	
hamming-7-	1793   128; ; ;	8   -4.26666661 1   -4.26666668 1	1.0-10   3.7-11   8.3 -9   8.3 -9	03	1.28 2   5.46 3   5.0 2	
hamming-9-	2305   512; ; ;	9   -2.23999998 2   -2.24000001 2	3.4-11   2.2-11   6.1 -9   6.1 -9	10	5.12 2   1.15 5   5.5 3	
minphase	48   48; ; ;	11   5.77209594-1   5.77209579-1	2.6-13   2.3-12   7.0 -9   6.9 -9	00	$\infty$   1.18 3   1.9 2	
torusg3-8	512   512; ; ;	15   -4.83409459 7   -4.83409459 7	2.5-13   1.0-12   1.0 -9   1.0 -9	05	5.12 2   4.70 7   2.6 6	
toruspm3-8	512   512; ; ;	14   -5.27808661 2   -5.27808663 2	4.4-11   1.0-12   2.2 -9   2.2 -9	05	5.12 2   1.04 3   2.1 2	
torusg3-15	3375   3375; ; ;	16   -6.37621845 3   -6.37621855 3	3.7-13   1.0-12   7.4 -9   7.4 -9	9:31	3.38 3   9.70 3   1.1 3	
toruspm3-1	3375   3375; ; ;	16   -3.47513185 3   -3.47513186 3	5.7-13   1.0-12   1.7 -9   1.7 -9	9:39	3.38 3   6.85 3   9.9 2	
filter48	969   48; 49; 931;	41   1.41612915 0   1.41612864 0	9.5 -8   1.2 -9   1.7 -7   1.3 -7	25	1.14 8   2.30 3   4.6 2	
filtinfl	983   49; 49; 945;	34   0.00000000-16   1.20609862 2	primal infeasible		22	
nb	123   ; 2379; 4;	25   -5.07030871-2   -5.07030950-2	1.4-10   5.4-10   7.6 -9   7.1 -9	07	1.59 3   $\infty$   1.7 0	
nb-L1	915   ; 2379; 797;	36   -1.30122706 1   -1.30122707 1	4.0-10   3.8-10   9.0 -9   4.1 -9	14	3.16 3   $\infty$   9.8 1	
nb-L2	123   ; 4191; 4;	19   -1.62897198 0   -1.62897196 0	5.9-11   7.3 -9   1.3 -9   3.0 -9	10	1.68 3   $\infty$   5.8 0	
nb-L2-bess	123   ; 2637; 4;	17   -1.02569503-1   -1.02569511-1	8.0-12   2.4 -9   7.3 -9   6.4 -9	05	1.68 3   $\infty$   5.3 0	
nql30	3680   ; 2700; 3602;	35   -9.46028479-1   -9.46028497-1	1.5 -9   2.2-10   9.2 -9   6.2 -9	03	5.40 3   $\infty$   5.4 1	
nql160	14560   ; 10800; 14402;	42   -9.35052923-1   -9.35052943-1	1.4 -9   1.3-10   6.9 -9   7.1 -9	21	2.16 4   $\infty$   1.1 2	
nql180	130080   ; 97200; 129602;	61   -9.27728615-1   -9.27728621-1	5.7 -9   9.7-12   7.9 -9   2.0 -9	5:07	1.94 5   $\infty$   3.2 2	
qssp30	3691   ; 7564; 2;	22   -6.49667580 0   -6.49667575 0	9.1 -9   4.5-10   6.0-11   3.5 -9	03	3.78 3   $\infty$   6.2 1	
qssp60	14581   ; 29524; 2;	28   -6.56270638 0   -6.56270644 0	6.7 -9   3.2-10   7.4-10   4.2 -9	17	1.48 4   $\infty$   1.2 2	
qssp180	130141   ; 261364; 2;	37   -6.63959903 0   -6.63960691 0	3.5 -7   7.7 -9   1.3 -9   5.5 -7	4:48	1.31 5   $\infty$   3.6 2	
sched-50-5	2527   ; 2477; 2502;	37   2.66730025 4   2.66730009 4	5.6 -8   3.1 -8   3.1 -8   3.0 -8	02	9.76 6   2.24 6   1.3 5	
sched-100-	4844   ; 4744; 5002;	34   1.81915139 5   1.81884771 5	2.2 -5   1.1 -6   8.4 -5   8.3 -5	04	2.95 7   1.53 6   2.6 5	
sched-100-	8338   ; 8238; 10002;	31   7.17499025 5   7.17362685 5	2.1 -5   2.3 -5   9.5 -5   9.5 -5	09	2.59 8   7.88 7   9.6 5	
sched-200-	18087   ; 17887; 20002;	39   1.41361263 5   1.41360169 5	7.1 -5   2.9 -6   3.9 -6   3.9 -6	39	9.07 7   6.80 6   2.2 5	
sched-50-5	2526   ; 2475; 2502;	28   7.85203852 0   7.85203844 0	3.1 -8   7.6-10   5.0 -9   4.9 -9	02	5.42 3   8.11 5   3.7 1	
sched-100-	4843   ; 4742; 5002;	31   6.71650335 1   6.71650307 1	3.0 -8   2.3-10   2.3 -8   2.0 -8	04	1.59 6   5.70 5   6.0 4	
sched-100-	8337   ; 8236; 10002;	26   2.73307954 1   2.73307853 1	2.4 -8   4.4-10   2.1 -7   1.8 -7	08	1.99 4   3.70 7   1.6 5	
sched-200-	18086   ; 17885; 20002;	32   5.18119621 1   5.18119610 1	2.4 -7   1.2-10   1.1 -8   1.0 -8	33	6.30 4   2.76 6   7.7 4	
biggs	1819   702; ; ;	54   -1.41425840 3   -1.41425840 3	6.2-10   9.8-12   2.1 -9   2.1 -9	1:22	5.79 4   6.06 9   3.5 7	
buck1	36   49; ; 36;	17   -1.46419152 2   -1.46419152 2	3.1-10   1.5-12   5.8-10   5.8-10	01	1.86 2   2.89 4   7.7 2	
buck2	144   193; ; 144;	21   -2.92368264 2   -2.92368296 2	5.3 -8   4.8-10   5.4 -8   5.5 -8	04	4.50 2   1.31 6   1.0 4	
buck3	544   641; ; 544;	31   -6.07601691 2   -6.07606037 2	3.8 -6   2.6 -8   3.5 -6   3.6 -6	15	1.55 3   1.94 7   2.2 5	

Table 1: Performance of `sdpt3.m`. In the table, `err` = [`pinfeas`, `dinfeas`, `relgap`, `relgap2`], where `relgap2` is the same as `relgap` but with the numerator replaced by  $|(c, x) - b^T y|$ , and `normXZ` =  $\max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P$  ( $g_D$ ) is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m$   $n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P$   $g_D$   <code>normXZ</code>
buck4	1200   1345; ; 1200;	37   -4.86141974 2   -4.86141983 2	8.0 -8   7.2-10   9.7 -9   8.7 -9	1:34	3.39 3   1.75 8   2.7 4
buck5	3280   3521; ; 3280;	40   -4.36197041 2   -4.36263509 2	1.3 -6   1.7 -7   7.6 -5   7.6 -5	13:49	8.69 3   9.45 8   6.1 4
cnhil10	5005   220; ; ;	33   0.00000000-16   -1.60338275-4	4.4 -8   7.1 -9   5.6 -5   1.6 -4	44	$\infty$   3.50 2   9.8 4
cnhil8	1716   120; ; ;	31   0.00000000-16   -4.08644723-6	1.9 -8   2.1 -9   3.5 -8   4.1 -6	06	$\infty$   2.08 2   1.3 4
cphil10	5005   220; ; ;	10   0.00000000-16   -2.45483691-10	6.7-16   1.0-12   2.6-10   2.5-10	22	5.00 2   3.50 2   1.4 1
cphil12	12376   364; ; ;	10   0.00000000-16   -2.43524851-9	0.9-15   2.0-12   2.5 -9   2.4 -9	3:13	7.85 2   5.44 2   1.5 1
G40-mb	2001   2000; ; ;	21   -2.86432297 3   -2.86432323 3	1.9-12   4.2-12   4.5 -8   4.5 -8	16:23	$\infty$   4.91 3   7.4 7
G40mc	2000   2000; ; ;	18   -5.72957909 3   -5.72957911 3	4.8-12   1.0-12   1.1 -9   1.1 -9	4:02	2.00 3   7.83 3   6.4 2
G48mc	3000   3000; ; ;	12   -1.20000000 4   -1.20000000 4	2.6-13   3.2-12   3.8-10   3.7-10	4:11	3.00 3   9.00 3   3.0 3
mater-1	103   220; ; 2;	15   1.43465440 2   1.43465438 2	1.9-10   2.3-12   8.1 -9   8.2 -9	00	1.05 5   2.22 2   1.1 3
mater-2	423   1012; ; 2;	17   1.41591867 2   1.41591866 2	3.7-11   7.6-12   1.9 -9   1.9 -9	01	4.72 5   1.01 3   2.4 3
mater-3	1439   3586; ; 2;	18   1.33916257 2   1.33916256 2	1.6-10   2.0-11   5.3 -9   5.3 -9	05	1.58 6   3.59 3   4.2 3
mater-4	4807   12496; ; 2;	21   1.34262717 2   1.34262716 2	8.8-11   1.2-11   5.0 -9   5.0 -9	21	5.52 6   1.25 4   7.9 3
mater-5	10143   26818; ; 2;	23   1.33801640 2   1.33801640 2	1.0-10   1.4-11   2.4 -9   2.5 -9	53	1.18 7   2.68 4   1.1 4
mater-6	20463   54626; ; 2;	29   1.33538715 2   1.33538715 2	4.5-10   4.4-11   2.7 -9   2.7 -9	2:26	2.40 7   5.46 4   1.6 4
neofsbr12	1441   122; ; ;	17   5.29319164 2   5.29319158 2	8.5-11   1.2-12   5.3 -9   5.3 -9	09	1.06 4   8.15 3   7.5 3
prob-1-2-0	100   200; ; ;	25   4.3881330910   4.3881330210	1.4 -8   6.8-15   3.2 -8   7.3 -9	2:14	5.19 2   $\infty$   1.8 7
prob-1-2-1	100   200; ; ;	20   -5.5663592210   -5.5663593310	4.4-14   1.0-12   9.7 -9   9.6 -9	20	9.49 2   <b>1.22 8</b>   9.3 2
prob-2-4-0	200   400; ; ;	27   -6.2807066510   -6.2807074510	3.7 -8   1.9-15   4.9 -8   6.4 -8	3:35	8.80 2   $\infty$   6.7 7
prob-2-4-1	200   400; ; ;	27   9.54281067 9   9.54281051 9	8.0-14   3.2-13   9.0 -9   8.2 -9	8:49	1.77 3   <b>9.51 7</b>   1.9 3
neu1	3003   252; ; 2;	41   -7.26676865-9   -1.99826835-7	6.9-10   4.2-10   4.4 -7   1.9 -7	8:24	$\infty$   $\infty$   1.1 3
neu1g	3002   252; ; ;	33   1.25000007 2   1.24999847 2	7.7-10   1.0 -9   1.7 -6   6.4 -7	7:09	$\infty$   1.64 3   1.8 6
neu2	3003   252; ; 2;	43   -3.96541382-4   -2.23051493-4	4.4 -9   1.5-10   5.0 -4   1.7 -4	8:01	$\infty$   $\infty$   1.5 5
neu2c	3002   1253; ; 2;	65   3.43713381 4   3.38996378 4	3.2 -5   1.2 -6   8.4 -3   6.9 -3	25:45	$\infty$   <b>1.74 10</b>   9.0 8
neu2g	3002   252; ; ;	33   3.41000047 4   3.40998796 4	4.1 -8   3.9 -9   4.1 -6   1.8 -6	6:48	$\infty$   1.64 3   1.0 7
neu3	7364   418; ; 2;	47   3.19225137-10   -2.49655303-9	1.9-12   1.2-12   6.1 -9   2.8 -9	5:36	$\infty$   $\infty$   1.5 3
neu3g	8007   462; ; ;	49   1.58672362-5   -9.13182744-5	5.4-15   3.6 -6   2.4 -4   1.1 -4	7:00	$\infty$   2.55 3   1.1 11
rend11-600	601   600; ; ;	15   -5.57968705 4   -5.57968706 4	1.9-10   5.5-11   2.1 -9   1.3 -9	36	$\infty$   5.64 4   1.2 7
r1-6-0	601   600; ; ;	15   -5.57968705 4   -5.57968706 4	1.9-10   5.5-11   2.1 -9   1.3 -9	44	$\infty$   5.64 4   1.2 7
r1-6-1	601   600; ; ;	14   -5.58043922 4   -5.58043924 4	4.3-11   1.1-12   2.3 -9   2.2 -9	38	3.60 5   5.64 4   2.7 3
r1-6-1e-6	601   600; ; ;	19   -5.57968731 4   -5.57968731 4	1.1 -8   1.9-11   1.3-10   2.8-10	56	$\infty$   5.64 4   7.7 5
rose13	2379   105; ; ;	31   1.20000005 1   1.19999999 1	5.8-10   1.9-11   4.9 -9   2.4 -8	1:13	$\infty$   1.19 2   1.1 4
rose15	3860   135; ; 2;	47   1.40096194-7   -2.71682585-8	4.4 -8   6.5-12   2.6 -8   1.7 -7	8:07	$\infty$   $\infty$   7.1 2
sdmint3	5255   379; 5255; ;	37   -1.28667151 1   -1.28512439 1	7.1 -7   2.7 -7   2.9 -4   5.8 -4	30:52	$\infty$   8.86 4   2.4 5
shmup1	16   81; ; 32;	15   -1.88414829 2   -1.88414833 2	1.8-11   1.7-12   9.6 -9   9.5 -9	01	1.50 2   1.40 6   3.0 3
shmup2	200   881; ; 400;	32   -3.46242679 3   -3.46242683 3	2.9 -9   1.1-12   5.9 -9   5.4 -9	32	1.35 3   3.77 7   2.5 5
shmup3	420   1801; ; 840;	37   -2.09883786 3   -2.09883788 3	5.8 -9   8.6-13   6.0 -9   5.5 -9	3:28	2.74 3   2.91 7   3.3 5
shmup4	800   3361; ; 1600;	55   -7.99255143 3   -7.99255154 3	8.5 -9   1.2-12   8.7 -9   7.4 -9	22:20	5.10 3   6.73 7   4.2 5
taha1a	3002   1680; ; ;	27   -9.99980977-1   -1.00007577 0	6.2 -5   2.9-10   3.6 -5   3.2 -5	11:30	$\infty$   <b>1.07 10</b>   1.4 7
taha1b	8007   1606; ; 3;	33   -7.73287084-1   -7.73322140-1	3.2-11   1.1 -7   1.4 -5   1.4 -5	22:00	$\infty$   2.52 5   1.2 10
trto1	36   25; ; 36;	13   -1.10450000 3   -1.10450000 3	7.3-11   1.5-12   1.4 -9   1.4 -9	00	1.11 2   3.14 4   4.8 3
trto2	144   97; ; 144;	21   -1.27999961 4   -1.28000008 4	7.6 -7   6.0 -9   1.9 -7   1.8 -7	02	2.97 2   1.37 6   1.0 5
trto3	544   321; ; 544;	25   -1.27999912 4   -1.28000052 4	1.7 -5   5.7 -8   5.4 -7   5.5 -7	08	1.05 3   9.69 6   2.7 5
trto4	1200   673; ; 1200;	33   -1.27658074 4   -1.27658288 4	3.8 -6   8.8 -8   9.2 -7   8.4 -7	46	2.29 3   3.74 7   5.3 5
trto5	3280   1761; ; 3280;	35   -1.27996987 4   -1.28000014 4	8.9 -5   6.7 -7   1.3 -5   1.2 -5	10:45	5.99 3   2.39 8   1.3 6
vibra1	36   49; ; 36;	13   -4.08190123 1   -4.08190124 1	1.5-11   1.0-12   1.8 -9   1.8 -9	00	1.85 2   1.63 4   1.0 3
vibra2	144   193; ; 144;	25   -1.66015334 2   -1.66015365 2	3.9 -8   7.3-10   1.0 -7   9.2 -8	05	4.50 2   1.34 6   3.3 4
vibra3	544   641; ; 544;	32   -1.72612806 2   -1.72613080 2	3.8 -6   2.1 -9   8.8 -7   7.9 -7	15	1.55 3   1.62 7   1.5 5
vibra4	1200   1345; ; 1200;	35   -1.27658137 4   -1.27658264 4	5.9 -6   1.0 -7   6.3 -7   4.9 -7	1:32	3.39 3   7.43 7   5.3 5
vibra5	3280   3521; ; 3280;	66   -1.65900646 2   -1.65903463 2	9.7 -6   1.7 -8   9.3 -6   8.5 -6	35:15	8.69 3   <b>1.12 9</b>   5.4 5
yalscdp	5051   300; ; ;	13   -1.79212672 0   -1.79212675 0	2.1-10   2.1-12   5.9 -9   6.4 -9	8:42	2.59 3   4.99 3   3.9 2
checker-1	3970   3970; ; ;	23   3.30388456 3   3.30388454 3	1.2-12   1.0-12   2.9 -9   2.9 -9	17:12	3.97 3   1.82 4   2.9 3
foot	2209   2208; ; ;	25   -5.85293968 5   -5.85298171 5	3.2 -6   7.9 -8   3.6 -6   3.6 -6	13:10	$\infty$   5.90 5   3.7 8
hand	1297   1296; ; ;	17   -2.47477790 4   -2.47477791 4	1.1-11   7.6-11   1.9 -9   1.9 -9	4:37	$\infty$   2.48 4   2.1 7
inc-600	2515   600; ; 2514;	32   -6.68278108-1   -6.68550231-1	4.5 -8   1.7 -9   1.2 -4   1.2 -4	2:33	$\infty$   2.67 5   2.4 7
inc-1200	5175   1200; ; 5174;	44   -1.15738763 0   -1.15747045 0	5.0 -8   1.6 -9   3.2 -5   2.5 -5	10:25	$\infty$   6.25 5   9.6 7
tiger-text	1802   1801; ; ;	36   3.44842540 2   3.44360815 2	7.3 -8   1.6 -8   1.0 -3   7.0 -4	6:59	$\infty$   3.33 3   1.0 9
butcher	6434   330; ; 22512;	53   -1.39999895 1   -1.39999999 1	3.0 -6   6.4-10   1.4 -7   3.6 -7	34:56	2.28 4   $\infty$   4.3 3
rabmo	5004   220; ; 6006;	37   -3.72725267 0   -3.72724667 0	4.0 -7   7.5 -8   8.7 -7   7.1 -7	6:40	6.83 3   $\infty$   4.8 2
chs-500	9974   4980; ; ;	24   7.18222801-10   -6.43232980-9	1.2-15   1.0-12   7.3 -9   7.2 -9	12	7.35 7   6.97 3   2.2 1
nonc-500	4990   2998; ; ;	23   6.25761441-2   6.25594864-2	5.0-10   5.9-11   1.5 -5   1.5 -5	03	2.26 4   6.00 3   6.6 1
ros-500	4988   2992; ; ;	17   2.49499944 0   2.49499939 0	8.2-10   3.4-12   7.1 -9   7.8 -9	02	3.18 5   4.49 3   1.3 2

Table 1: Performance of `sdpt3.m`. In the table, `err` = [`pinfeas`, `dinfeas`, `relgap`, `relgap2`], where `relgap2` is the same as `relgap` but with the numerator replaced by  $|(c, x) - b^T y|$ , and `normXZ` =  $\max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P$  ( $g_D$ ) is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m$   $n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P$   $g_D$   <code>normXZ</code>
fp210	1000   176; ; ; 66	25   3.75000000-1   3.75000001-1	2.9-11  1.3 -9  1.2-10  7.4-10	09	$\infty$   $\infty$   1.5 1
fp22	14   15; ; ;	12   -7.99999999 0   -8.00000002 0	2.1-11  1.3-11  2.1 -9  1.7 -9	00	1.14 2  1.12 5  6.7 1
fp23	209   119; ; ;	27   2.13000000 2   2.13000000 2	5.5-12  4.2-12  1.4 -9  1.2 -9	01	$\infty$   2.95 3  2.3 5
fp24	2379   595; ; ;	22   1.95000000 2   1.94999998 2	1.7-11  1.0-12  7.8 -9  7.3 -9	52	$\infty$   8.15 3  9.6 4
fp25	209   133; ; ;	18   1.10000000 1   1.10000000 1	9.9-13  9.9-13  1.4 -9  1.3 -9	01	$\infty$   5.94 3  6.9 3
fp26	1000   407; ; ;	22   2.68014632 2   2.68014630 2	1.5-10  1.1-11  5.5 -9  4.5 -9	09	$\infty$   5.18 5  3.3 5
fp27	1000   341; ; ;	22   3.90000002 1   3.89999996 1	7.4-11  6.4-12  7.5 -9  6.5 -9	08	$\infty$   2.43 5  8.4 5
fp32	3002   1155; ; ;	43   -7.04918382 0   -7.04983121 0	5.4 -4  6.6-10  6.1 -5  4.3 -5	7:38	$\infty$   $\infty$   1.1 8
fp33	125   117; ; ;	42   -1.01265905 4   -1.01266044 4	1.7 -7  2.3 -9  8.6 -7  6.9 -7	01	$\infty$   3.30 10  3.4 9
fp34	209   140; ; ;	22   1.72000000 2   1.72000000 2	7.5-13  1.0-12  7.7-10  6.4-10	01	$\infty$   1.08 4  2.6 4
fp35	164   195; ; ;	19   3.99999999 0   3.99999999 0	1.3 -9  2.2-12  2.2 -9  6.7-10	03	$\infty$   2.85 5  5.4 4
fp410	14   18; ; ; 1	17   1.67388932 1   1.67388932 1	2.9 -9  3.1 -9  3.1-10  3.2-10	00	$\infty$   $\infty$   1.6 1
fp42	6   10; ; ;	10   7.58731237 0   7.58731236 0	2.2-12  2.5-11  8.5-10  7.8-10	00	7.19 1  9.78 1  5.5 1
fp43	50   76; ; ;	16   6.63500060 2   6.63500124 2	2.7 -9  1.9-10  4.2-10  4.9 -8	01	3.44 3  $\infty$   9.1 2
fp44	6   10; ; ;	21   4.43671688 2   4.43671704 2	4.8 -9  2.4-10  2.4 -9  1.7 -8	00	$\infty$   1.22 3  6.8 4
fp45	4   7; ; ;	12   2.32020677-9   -8.03431099-10	8.1-11  2.5-11  4.2 -9  3.1 -9	00	8.30 1  2.96 1  1.9 1
fp46	27   22; ; ;	20   5.45358326-10   -2.96042821-9	2.8-11  1.1-11  3.9 -9  3.5 -9	00	$\infty$   1.49 2  2.3 3
fp47	6   10; ; ;	13   2.42999995 2   2.42999999 2	1.6 -9  2.2 -9  9.3 -9  8.5 -9	00	1.52 3  7.99 1  9.6 2
fp48	4   7; ; ;	9   7.50000001 0   7.49999999 0	4.7-11  4.3-11  9.1-10  8.5-10	00	9.68 1  2.96 1  1.5 1
fp49	14   18; ; ; 1	17   1.67388932 1   1.67388932 1	2.9 -9  3.1 -9  3.1-10  3.2-10	00	$\infty$   $\infty$   1.6 1
l1	14   6; ; ;	9   4.92634655-1   4.92634654-1	9.9-13  1.5-12  5.6-10  5.5-10	00	1.49 1  9.00 0  5.7 0
l2	14   6; ; ;	8   1.14580631 1   1.14580631 1	2.4-11  3.9-10  1.4 -9  1.1 -9	00	6.83 1  9.00 0  1.4 1
l4	152   45; ; ;	21   3.70371192-2   3.70377081-2	7.3-11  4.9-11  5.1 -7  5.5 -7	01	$\infty$   1.06 4  7.9 3
l5	14   15; ; ;	12   -7.99999999 0   -8.00000002 0	2.1-11  1.3-11  2.1 -9  1.7 -9	00	1.14 2  1.12 5  6.7 1
5n	31   26; ; ;	9   2.24000001 0   2.23999998 0	9.1-11  1.0-11  5.4 -9  5.3 -9	00	2.82 1  2.60 1  1.1 1
a12	793   79; ; ;	12   2.10000000 1   2.10000000 1	1.1-11  1.5-12  1.3 -9  1.2 -9	02	1.00 2  7.90 1  4.4 1
aw29	465   130; ; ;	11   3.00000000 0   3.00000000 0	4.7-12  2.9-11  4.5-10  4.4-10	07	1.33 2  1.30 2  2.1 1
c5	31   26; ; ;	8   1.50000000 0   1.50000000 0	3.0-12  3.4-12  4.2-10  4.2-10	00	2.75 1  2.60 1  8.6 0
fp1131	847   176; ; ;	11   4.50000001 0   4.49999995 0	3.9-11  1.0-12  6.3 -9  6.2 -9	17	1.81 2  1.76 2  6.2 1
fp1132	847   176; ; ;	12   1.55000000 1   1.54999999 1	1.0-11  7.8-12  4.6 -9  4.6 -9	18	1.92 2  1.76 2  1.4 2
fp1133	847   176; ; ;	12   1.75000000 1   1.74999999 1	8.2-12  4.4-12  2.2 -9  2.2 -9	18	1.94 2  1.76 2  1.4 2
fp1134	847   176; ; ;	12   1.95000000 1   1.94999998 1	3.8-11  1.0-12  7.0 -9  6.9 -9	18	1.96 2  1.76 2  1.4 2
fp1135	847   176; ; ;	12   2.20000000 1   2.19999999 1	9.4-12  3.9-12  1.9 -9  1.8 -9	22	1.98 2  1.76 2  5.8 1
fp1136	847   176; ; ;	12   1.45000000 1   1.44999999 1	9.0-12  3.8-12  3.5 -9  3.5 -9	19	1.91 2  1.76 2  1.4 2
fp1137	847   176; ; ;	12   1.65000000 1   1.64999999 1	7.8-12  7.5-12  3.0 -9  3.0 -9	19	1.93 2  1.76 2  1.1 2
fp1138	847   176; ; ;	12   1.75000000 1   1.74999997 1	4.6-11  1.0-12  8.6 -9  8.4 -9	18	1.94 2  1.76 2  1.4 2
fp1139	847   176; ; ;	12   2.30000000 1   2.29999998 1	7.2-12  6.6-12  4.7 -9  4.7 -9	18	1.99 2  1.76 2  8.5 1
k5	31   31; ; ;	8   1.00000000 0   9.99999999-1	8.5-13  2.6-12  1.1 -9  1.1 -9	00	3.20 1  3.10 1  7.0 0
p10	847   176; ; ;	11   4.50000001 0   4.49999995 0	4.1-11  1.0-12  6.3 -9  6.2 -9	16	1.81 2  1.76 2  6.2 1
bifur	454   84; ; ; 1661	28   -3.37301696-1   -3.37301694-1	2.2 -9  1.4 -9  3.6 -9  9.1-10	07	3.41 3  $\infty$   4.1 1
boom	3002   210; ; ; 8764	36   -3.23707245 2   -3.23707245 2	4.8 -9  7.0-10  1.0-10  2.8-10	4:57	1.77 4  6.72 11  2.8 2
brown	461   56; ; ; 925	27   2.09326284-10   0.00000000-16	2.2-11  3.6 -9  2.1-10  2.1-10	04	$\infty$   $\infty$   5.7 1
butcher	6434   330; ; ; 11256	59   -1.39999999 1   -1.40000000 1	2.1 -6  7.8-12  9.4-10  2.1 -9	30:44	2.28 4  1.91 8  2.7 3
camerals	209   28; ; ; 168	44   -1.78686514 4   -1.78686513 4	1.9 -6  3.8-11  3.6-11  4.8 -9	01	3.64 2  $\infty$   1.3 4
caprasse	209   35; ; ; 60	16   -2.36780177-1   -2.36780177-1	1.2 -9  6.1-10  7.2-12  1.5-10	02	1.55 2  $\infty$   4.4 0
cdpm5	125   21; ; ; 5	14   4.50956437-12   6.11518578-9	2.8 -9  5.0 -9  1.2-10  6.1 -9	00	3.10 1  $\infty$   3.9 0
chemequ	461   56; ; ; 525	16   -2.77820337 7   -1.62704475 7	dual infeasible	04	
chemequ	125   21; ; ; 45	9   -5.75312872 8   -6.24933457 6	dual infeasible	00	
cohn2	209   35; ; ; 4	36   4.57937090-9   1.29980577-7	3.8 -7  6.9 -7  1.4 -7  1.3 -7	06	4.30 1  $\infty$   3.9 0
cohn3	209   35; ; ; 4	35   7.86066516-9   8.98299495-9	2.1 -6  3.4 -7  2.3 -7  1.1 -9	06	4.30 1  $\infty$   4.2 0
comb3000	1000   66; ; ; 595	25   -4.80138795-10   1.17568288-9	6.3-12  4.8 -9  3.2-10  1.7 -9	09	1.26 3  4.88 9  6.5 0
conform1	83   20; ; ; 30	9   -1.69723199 7   -1.79353139 6	dual infeasible	01	
conform3	285   56; ; ; 630	21   1.01682942-13   0.00000000-16	2.0-13  3.6-10  2.2-11  1.0-13	02	$\infty$   $\infty$   2.5 0
conform4	454   84; ; ; 1890	21   4.05675465-11   0.00000000-16	3.4-11  4.5 -9  4.4-10  4.1-11	06	$\infty$   $\infty$   9.3 0
des22-24	1000   66; ; ; 660	37   -6.74166365 3   -6.74166365 3	2.0 -8  4.1-12  2.1-13  1.4-12	14	1.39 3  2.27 10  6.7 3
discret3	44   9; ; ; 8	24   -3.70033109 1   -3.70033091 1	2.4 -7  1.5 -8  4.0-10  2.4 -8	00	2.50 1  $\infty$   6.9 2
eco5	461   56; ; ; 525	26   -1.20463311 3   -1.20463311 3	3.2 -9  5.8 -9  1.4-10  1.2-10	03	1.11 3  5.21 10  1.2 3
eco6	923   84; ; ; 924	37   -1.00281559 4   -1.00281559 4	6.5 -9  1.3 -9  1.4-10  9.8-11	14	1.93 3  5.76 10  1.0 4
eco7	1715   120; ; ; 1512	37   -3.91531047 3   -3.91531047 3	5.3 -9  2.8 -9  1.7-10  4.2-12	47	3.14 3  1.28 11  3.9 3
eco8	3002   165; ; ; 2340	37   -5.82038418 3   -5.82038418 3	5.2 -9  3.3 -9  1.2-10  2.6-11	4:19	4.85 3  2.96 11  5.8 3
fourbar	69   15; ; ; 4	14   1.01084283-12   1.17629630-9	1.9-10  7.4-10  1.9-11  1.2 -9	00	2.30 1  $\infty$   3.3 0
geneig	923   84; ; ; 546	25   -2.52663014 0   -2.52663014 0	2.2-10  2.3 -9  3.6-10  2.5-10	09	1.18 3  1.38 11  8.9 0

Table 1: Performance of `sdpt3.m`. In the table, `err` = [`pinfeas`, `dinfeas`, `relgap`, `relgap2`], where `relgap2` is the same as `relgap` but with the numerator replaced by  $|(c, x) - b^T y|$ , and `normXZ` =  $\max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P$  ( $g_D$ ) is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m \mid n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P \mid g_D \mid \text{normXZ}$
heart	3002   165; ; ; 4320	32   -8.70927420 1   -8.70927421 1	7.2 -9   3.7 -9   2.8-10   4.9-10	3:41	8.81 3   <b>2.79 11</b>   1.4 2
i1	1000   66; ; ; 10	17   -1.66775272 0   -1.66775269 0	3.2 -9   5.1 -9   7.8-10   6.2 -9	06	8.60 1   $\infty$   9.4 0
ipp	494   45; ; ; 360	22   -1.31158853 1   -1.31158853 1	4.2 -9   5.8 -9   2.4-10   3.1-11	02	7.65 2   $\infty$   1.7 1
katsura5	209   28; ; ; 168	20   -8.16044579-2   -8.16044568-2	2.3-10   1.3 -9   9.7-11   9.1-10	01	3.64 2   $\infty$   5.4 0
kinema	714   55; ; ; 495	37   -4.19683963 4   -4.19683963 4	1.2 -7   2.9-12   1.7-12   2.6-13	07	1.05 3   $\infty$   4.2 4
ku10	1000   66; ; ; 660	34   -7.13900000 3   -7.13900000 3	1.5 -7   3.8-10   2.8-11   1.5-10	12	1.39 3   $\infty$   7.1 3
lorentz	69   15; ; ; 60	17   -5.00000000 0   -4.99999997 0	8.1-10   6.3 -9   7.7-11   2.0 -9	00	1.35 2   $\infty$   6.1 0
manocha	90   28; ; ; 42	36   -2.46011903-1   -2.46013262-1	3.0 -5   7.5 -9   3.3 -8   9.1 -7	02	1.12 2   $\infty$   1.4 3
noon3	83   20; ; ; 30	18   -2.08695033 1   -2.08695033 1	1.1 -9   1.0 -9   2.3-11   4.7-12	01	8.00 1   $\infty$   2.6 1
noon4	209   35; ; ; 60	18   -1.71283759 1   -1.71283759 1	9.6-10   1.1 -9   2.6-11   7.3-11	01	1.55 2   $\infty$   1.9 1
noon5	461   56; ; ; 105	18   -1.58524243 1   -1.58524243 1	7.5-10   1.5 -9   1.9-11   3.9-11	02	2.66 2   $\infty$   1.7 1
proddeco	69   15; ; ; 4	18   1.29678458-11   4.63789541-10	1.8-10   8.9-10   1.5-10   4.5-10	00	2.30 1   $\infty$   3.3 0
puma	3002   165; ; ; 8280	31   -3.05299489 1   -3.05299489 1	2.9 -9   9.8-11   5.5-11   3.8-10	3:38	1.67 4   <b>9.28 11</b>   3.4 1
quadfor2	209   35; ; ; 270	19   -6.18518518 0   -6.18518518 0	1.3 -9   7.9-10   4.1-11   1.1-10	03	5.75 2   $\infty$   1.9 1
quadgrid	461   56; ; ; 505	17   -1.08801588 7   -8.42937324 6	dual infeasible		02
rabmo	5004   220; ; ; 3303	42   -3.72725305 0   -3.72725176 0	6.7 -8   1.7 -8   1.1 -7   1.5 -7	7:09	6.83 3   $\infty$   4.5 2
rbpl	923   84; ; ; 546	26   -7.94063377 0   -7.94063377 0	2.6 -9   7.5-10   6.7-11   2.3-10	10	1.18 3   $\infty$   3.1 1
redco5	20   6; ; ; 5	13   -2.53906248-1   -2.53906249-1	2.3 -9   7.6-10   4.6-11   8.9-10	00	1.60 1   $\infty$   2.4 0
redco6	27   7; ; ; 6	13   -2.01599999-1   -2.01599999-1	1.5 -9   7.7-10   2.8-11   4.2-10	00	1.90 1   $\infty$   2.6 0
redco7	35   8; ; ; 7	13   -1.67438272-1   -1.67438268-1	7.4-11   5.9 -9   9.1-11   2.3 -9	00	2.20 1   $\infty$   2.7 0
redco8	44   9; ; ; 8	13   -1.43273635-1   -1.43273635-1	1.6 -9   6.1-10   1.5-11   3.0-10	00	2.50 1   $\infty$   2.9 0
rediff3	9   4; ; ; 3	16   7.61297271-13   3.66436581-9	1.1 -9   2.5 -9   8.4-12   3.7 -9	00	1.00 1   $\infty$   1.7 0
rose	679   120; ; ; 2281	53   -1.74379054 0   -1.74376346 0	<b>2.5 -4</b>   4.7 -9   <b>1.2 -4</b>   <b>6.0 -6</b>	29	4.68 3   $\infty$   2.8 5
s9-1	494   45; ; ; 360	22   -4.27369563 0   -4.27369564 0	5.5 -9   1.6 -9   4.3-10   1.4 -9	02	7.65 2   $\infty$   9.4 0
sendra	65   21; ; ; 12	21   -2.37687542 1   -2.37687542 1	5.9 -9   4.4-10   1.6-11   9.2-11	01	4.50 1   $\infty$   4.3 1
solotarev	69   15; ; ; 32	18   -5.88961333 0   -5.88961333 0	5.7-10   3.1-10   7.7-12   9.8-11	01	7.90 1   $\infty$   1.1 1
stewart1	714   55; ; ; 495	28   -8.76585278 0   -8.76585278 0	8.6 -9   2.0-10   1.1-11   3.0-11	05	1.05 3   $\infty$   2.1 1
stewart2	1819   91; ; ; 910	28   -1.27531385 1   -1.27531386 1	9.9 -9   7.6-10   2.3-10   1.8 -9	34	1.91 3   $\infty$   1.8 1
trinks	209   28; ; ; 141	27   -2.43523491-1   -2.43523224-1	6.2 -9   8.8 -9   1.0 -8   1.8 -7	01	3.10 2   $\infty$   2.8 1
visasoro	44   9; ; ; 8	15   1.73075654-13   1.66876819-9	1.0 -9   6.8-10   4.7-12   1.7 -9	00	2.50 1   $\infty$   2.8 0
wood	69   15; ; ; 32	18   -6.64233344-2   -6.64233342-2	1.4-11   1.4 -9   1.5-11   1.7-10	01	7.90 1   $\infty$   3.7 0
wright	20   6; ; ; 5	17   -2.00000000 1   -1.99999999 1	2.0 -9   6.2 -9   1.3 -9   1.1 -9	00	1.60 1   $\infty$   2.1 1
nql30o	3680   ; 2700; 3602;	37   -9.46028486-1   -9.46028499-1	1.0 -9   1.6-10   7.1 -9   4.4 -9	04	5.40 3   $\infty$   5.4 1
nql60o	14560   ; 10800; 14402;	42   -9.35052921-1   -9.35052943-1	1.4 -9   1.4-10   8.2 -9   7.6 -9	27	2.16 4   $\infty$   1.1 2
nql90o	32640   ; 24300; 32402;	49   -9.31383156-1   -9.31383163-1	5.1-10   3.2-11   6.7 -9   2.4 -9	1:01	4.86 4   $\infty$   1.6 2
nql120o	57920   ; 43200; 57602;	51   -9.29550226-1   -9.29550233-1	4.9 -9   2.5-11   7.4 -9   2.4 -9	2:03	8.64 4   $\infty$   2.1 2
nql180o	130080   ; 97200; 129602;	60   -9.27728615-1   -9.27728621-1	5.1 -9   1.0-11   7.6 -9   2.0 -9	5:07	1.94 5   $\infty$   3.2 2
qs30o	1861   ; 3844; 2;	22   -6.29531577 0   -6.29531562 0	2.6 -8   1.2 -9   2.0-12   1.1 -8	02	1.92 3   $\infty$   4.4 1
qs60o	7321   ; 14884; 2;	28   -6.38210431 0   -6.38210377 0	5.0 -8   2.2 -9   1.1-10   3.9 -8	10	7.44 3   $\infty$   8.7 1
qs90o	16381   ; 33124; 2;	30   -6.42377450 0   -6.42377361 0	5.7 -8   2.4 -9   5.5-10   6.5 -8	27	1.66 4   $\infty$   1.3 2
qs120o	29041   ; 58564; 2;	31   -6.45014648 0   -6.45014399 0	1.3 -7   5.1 -9   2.5-10   1.8 -7	53	2.93 4   $\infty$   1.7 2
qs180o	65161   ; 131044; 2;	34   -6.48351741 0   -6.48351169 0	2.0 -7   7.9 -9   2.5-10   4.1 -7	2:36	6.55 4   <b>1.33 11</b>   2.6 2
q30o	7482   ; 11163; 2;	35   -9.36404974-1   -9.36405064-1	5.5 -9   5.2-10   1.1 -8   3.1 -8	29	7.44 3   $\infty$   7.8 1
q60o	29362   ; 43923; 2;	44   -9.44560086-10   -2.85627290-6	2.6 -7   6.8 -9   7.9 -9   <b>2.9 -6</b>	3:25	2.93 4   $\infty$   1.3 2
dsNRL	406   ; 15897; ;	35   -5.57425079-5   -5.57492923-5	3.3-12   1.0-12   6.8 -9   6.8 -9	10:56	1.05 4   2.10 4   1.9 2
firL1Linfa	6224   ; 35532; ;	30   -2.56478569-3   -2.56479294-3	1.8-11   3.3-12   7.2 -9   7.2 -9	17:40	1.18 5   2.38 4   1.5 0
firL1Linfe	5685   ; 11172; 1;	42   -3.31229666-3   -3.31231116-3	1.1-12   3.6-12   1.4 -8   1.4 -8	48	1.53 4   3.64 4   5.7 0
firL1	6223   ; 17766; ;	22   -2.92575478-4   -2.92580521-4	1.1-11   1.6-12   5.0 -9   5.0 -9	7:44	2.41 4   1.18 4   4.7 -1
firL2a	2002   ; 2003; ;	7   -5.07008269-4   -5.07012684-4	7.4-14   9.5-10   5.9 -9   4.4 -9	3:00	2.00 0   2.00 0   1.4 0
firL2L1alp	5868   ; 9611; 1;	15   -5.76343274-5   -5.76374679-5	7.1-12   3.9-12   3.1 -9   3.1 -9	23	1.19 4   3.85 3   1.8 0
firL2L1eps	8303   ; 24108; ;	23   -5.35470923-4   -5.35471575-4	2.3-13   1.0-12   6.5-10   6.5-10	19:06	3.90 4   1.58 4   3.1 -1
firL2Linfa	303   ; 13629; ;	27   -6.79117295-3   -6.79117919-3	5.2-12   1.2-12   6.2 -9   6.2 -9	4:05	1.78 4   8.93 3   7.7 -1
firL2Linfe	6086   ; 14711; ;	17   -1.48919871-3   -1.48920537-3	9.4-11   5.2-12   7.0 -9   6.6 -9	1:53	5.89 3   5.83 5   1.1 2
firL2	102   ; 103; ;	7   -3.11866437-3   -3.11866351-3	4.7-14   8.8-10   4.7-10   8.6-10	00	2.00 0   2.00 0   1.4 0
firLinfe	402   ; 11886; ;	23   -1.00681681-2   -1.00681770-2	8.6-10   3.8-11   8.7 -9   8.7 -9	5:20	7.92 3   7.96 3   8.1 -1
wbNRL	460   ; 1578; 17177;	30   -4.15006324-5   -4.15040502-5	1.9-11   1.0-12   3.4 -9   3.4 -9	14:14	1.72 4   6.51 5   7.3 0
BeH-2Sigma	948   1406; ; ;	30   1.66935640 1   1.66935639 1	1.4-12   1.0-12   3.6 -9   3.6 -9	3:29	1.43 3   <b>1.34 10</b>   2.4 1
BH-1Sigma+	948   1406; ; ;	30   2.72063377 1   2.72063375 1	7.0-12   1.2-12   4.0 -9   3.9 -9	3:28	1.44 3   <b>3.71 10</b>   2.5 1
BH2-2A1-ST	1743   2166; ; ;	30   3.04301167 1   3.04301166 1	3.7-10   1.6-11   1.0 -9   9.1-10	15:16	2.20 3   <b>4.79 9</b>   2.1 2
BH+-2Sigma	948   1406; ; ;	29   2.69796660 1   2.69796657 1	1.6-12   1.0-12   4.7 -9   4.7 -9	3:23	1.44 3   <b>1.34 10</b>   2.4 1
CH+-1Sigma	948   1406; ; ;	29   4.06927879 1   4.06927873 1	2.4-12   1.0-12   7.9 -9   7.9 -9	3:22	1.45 3   <b>3.71 10</b>   2.6 1
CH2-1A1-ST	1743   2166; ; ;	28   4.48537630 1   4.48537625 1	4.6-10   1.3-10   5.8 -9   5.2 -9	14:17	2.21 3   <b>4.95 9</b>   6.2 1

Table 1: Performance of `sdpt3.m`. In the table,  $\text{err} = [\text{pinfeas}, \text{dinfeas}, \text{relgap}, \text{relgap2}]$ , where  $\text{relgap2}$  is the same as  $\text{relgap}$  but with the numerator replaced by  $|(c, x) - b^T y|$ , and  $\text{normXZ} = \max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P(g_D)$  is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m \mid n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P \mid g_D \mid \text{normXZ}$
CH2-3B1-ST	1743   2166; ; ;	29   4.50291329 1   4.50291327 1	2.8-10   3.8-11   1.7 -9   1.5 -9	14:45	2.22 3   4.73 9   1.3 2
CH-2Pi-STO	948   1406; ; ;	28   4.10222178 1   4.10222176 1	2.6-11   4.4-12   2.3 -9   2.2 -9	3:18	1.45 3   1.59 10   4.4 1
CH-3Sigma	948   1406; ; ;	28   4.09070913 1   4.09070909 1	8.4-12   1.5-12   5.5 -9   5.5 -9	3:16	1.45 3   1.66 10   3.2 1
H2O-1A1-ST	1743   2166; ; ;	28   8.49236907 1   8.49236900 1	3.7-12   2.0-12   3.9 -9   3.9 -9	14:15	2.24 3   6.09 9   4.4 1
H2O+-2B1-S	1743   2166; ; ;	29   8.42163764 1   8.42163759 1	4.6-11   1.1-11   2.8 -9   2.8 -9	14:47	2.24 3   5.49 9   6.7 1
HF-1Sigma+	948   1406; ; ;	27   1.04720454 2   1.04720452 2	2.5-12   1.0-12   8.7 -9   8.7 -9	3:08	1.49 3   1.74 9   3.7 1
HF+-2Pi-ST	948   1406; ; ;	26   1.03885668 2   1.03885666 2	3.2-11   1.0-12   9.4 -9   9.5 -9	3:01	1.49 3   1.75 10   3.2 1
LiH-1Sigma	948   1406; ; ;	29   8.96721198 0   8.96721180 0	9.1-12   2.5-12   9.2 -9   9.2 -9	3:23	1.43 3   3.71 10   2.2 1
NH2-2B1-ST	1743   2166; ; ;	29   6.29798018 1   6.29798015 1	7.5-11   1.7-11   2.7 -9   2.7 -9	14:49	2.23 3   5.49 9   6.8 1
NH+-2Pi-ST	948   1406; ; ;	28   5.78593622 1   5.78593619 1	7.1-12   5.0-12   2.4 -9   2.4 -9	3:16	1.46 3   1.59 10   4.0 1
NH-2Pi-ST	948   1406; ; ;	28   5.80546396 1   5.80546388 1	9.7-11   1.0-12   6.9 -9   6.9 -9	3:15	1.46 3   1.75 10   3.2 1
NH-3Sigma-	948   1406; ; ;	27   5.83910025 1   5.83910016 1	3.4-11   1.6-12   7.7 -9   7.7 -9	3:08	1.46 3   1.66 10   3.2 1
OH-1Sigma	948   1406; ; ;	29   7.91680602 1   7.91680586 1	1.5-12   1.5-12   1.0 -8   1.0 -8	3:23	1.48 3   1.74 9   3.7 1
OH-2Pi-STO	948   1406; ; ;	27   7.94670771 1   7.94670763 1	2.3-12   1.0-12   5.4 -9   5.4 -9	3:10	1.48 3   1.75 10   3.2 1
OH+-3Sigma	948   1406; ; ;	27   7.88863798 1   7.88863789 1	1.8-11   1.5-12   5.6 -9   5.6 -9	3:09	1.48 3   1.66 10   3.2 1
Li.2S.STO6	465   780; ; ; 35	35   7.40023852 0   7.40023828 0	4.1 -9   5.4-10   2.4 -8   1.5 -8	46	7.86 2   $\infty$   1.6 1
Be.1S.STO6	465   780; ; ; 35	38   1.45560898 1   1.45560885 1	4.7 -8   7.9-10   4.1 -8   4.1 -8	53	7.87 2   $\infty$   2.4 1
BeH+-1Sigm	948   1312; ; ; 47	40   1.64575096 1   1.64575071 1	8.3 -8   8.4-10   1.0 -7   7.4 -8	4:17	1.32 3   $\infty$   5.8 1
H3.2A1.DZ	948   1312; ; ; 47	38   3.36465433 0   3.36464799 0	5.2 -8   5.1 -9   1.6 -6   8.2 -7	3:59	1.32 3   $\infty$   4.9 1
FH2+-1A1.S	1743   2044; ; ; 61	42   1.09990409 2   1.09990401 2	3.1 -8   3.5-10   5.1 -8   3.4 -8	20:37	2.06 3   $\infty$   1.7 2
NH2-1A1.S	1743   2044; ; ; 61	41   6.27062174 1   6.27062139 1	2.7 -8   2.9-10   5.0 -8   2.7 -8	20:15	2.06 3   $\infty$   1.2 2
quadknap-1	5984   189; ; 5814;	45   1.20467277 3   1.20467277 3	1.6 -8   1.2-13   2.1-10   1.6-10	9:21	1.61 4   $\infty$   2.1 4
quadknap-1	5984   189; ; 5814;	35   4.92735912 3   4.92736806 3	8.9 -7   4.8 -8   3.5 -6   9.1 -7	7:26	1.59 4   $\infty$   1.9 4
quadknap-1	5984   189; ; 5814;	37   4.84881498 3   4.84882347 3	9.5 -7   3.8 -8   2.5 -6   8.8 -7	11:18	1.61 4   $\infty$   2.1 4
quadknap-1	5984   189; ; 5814;	44   7.88501507 2   7.88501506 2	7.7 -8   1.9-13   5.7-10   3.1-10	12:07	1.70 4   $\infty$   3.2 4
quadknap-1	5984   189; ; 5814;	39   5.37514786 3   5.37515599 3	7.9 -7   3.8 -8   1.6 -6   7.6 -7	11:56	1.70 4   $\infty$   1.9 4
quadknap-1	5984   189; ; 5814;	39   2.40839711 3   2.40839758 3	2.5 -7   1.3 -8   3.3 -7   9.8 -8	8:13	1.51 4   $\infty$   7.9 3
quadknap-1	5984   189; ; 5814;	39   8.04800002 3   8.04800000 3	5.4 -8   1.2-11   4.3-10   9.6-10	8:17	1.87 4   $\infty$   1.1 4
quadknap-1	5984   189; ; 5814;	38   5.85100008 3   5.85100000 3	2.9 -8   5.8-11   7.7-10   6.5 -9	8:02	1.58 4   $\infty$   9.3 3
quadknap-1	5984   189; ; 5814;	37   5.13259190 3   5.13259584 3	2.0 -7   6.2 -8   3.7 -7   3.8 -7	7:46	1.63 4   $\infty$   2.1 4
quadknap-1	5984   189; ; 5814;	40   6.77500003 3   6.77500000 3	1.5 -6   3.6-11   9.6-10   1.8 -9	8:22	1.94 4   $\infty$   1.8 4
stable-17-	5984   477; ; 342;	29   -1.42857143-1   -1.42857142-1	3.6-10   6.2-10   1.3 -9   3.2-10	6:20	$\infty$   $\infty$   6.9 1
stable-17-	5984   477; ; 342;	30   -1.98434223-1   -1.98434223-1	7.5-11   1.9-11   3.4-10   7.7-11	6:33	$\infty$   $\infty$   1.1 2
stable-17-	5984   477; ; 342;	28   -1.66666666-1   -1.66666666-1	2.6-10   7.2-10   1.2 -9   6.5-10	6:13	$\infty$   $\infty$   6.8 1
stable-17-	5984   477; ; 342;	36   -1.66131915-1   -1.66131921-1	4.2 -9   2.8-11   9.9 -9   3.9 -9	7:48	$\infty$   $\infty$   1.6 2
stable-17-	5984   477; ; 342;	34   -1.95961595-1   -1.95961595-1	7.6-10   4.7-12   6.1-10   1.2-12	7:15	$\infty$   $\infty$   1.6 2
stable-17-	5984   477; ; 342;	36   -1.95658388-1   -1.95658390-1	7.8-10   1.9-11   3.8 -9   1.4 -9	7:36	$\infty$   $\infty$   1.8 2
stable-17-	5984   477; ; 342;	39   -1.66561011-1   -1.66561013-1	2.8 -8   6.6-13   5.1-10   1.3 -9	9:03	$\infty$   $\infty$   1.7 2
stable-17-	5984   477; ; 342;	28   -1.66666667-1   -1.66666666-1	1.2-10   3.9-10   5.3-10   4.0-10	6:04	$\infty$   $\infty$   6.6 1
stable-17-	5984   477; ; 342;	32   -1.66138271-1   -1.66138271-1	9.8-11   1.6-11   6.8-10   2.5-10	7:01	$\infty$   $\infty$   1.4 2
stable-17-	5984   477; ; 342;	29   -1.66138270-1   -1.66138270-1	6.6-10   8.8-10   4.9 -9   3.5-10	6:05	$\infty$   $\infty$   9.9 1
MaxCut-100	6252   1850; ; 4188;	35   1.46072620 2   1.46067965 2	1.2 -5   2.9 -6   8.7 -5   1.6 -5	50	9.59 3   $\infty$   1.7 3
MaxCut-100	6252   1850; ; 4188;	35   1.46072620 2   1.46067965 2	1.2 -5   2.9 -6   8.7 -5   1.6 -5	50	9.59 3   $\infty$   1.7 3
MaxCut-100	7767   2134; ; 4590;	44   1.48043435 2   1.48043439 2	5.8 -6   3.9-10   3.7 -9   1.2 -8	3:00	1.09 4   $\infty$   1.1 3
MaxCut-100	5679   1775; ; 3876;	36   1.47065095 2   1.47063793 2	1.4 -5   2.8 -6   3.4 -5   4.4 -6	42	9.03 3   $\infty$   1.7 3
MaxCut-100	6717   1877; ; 4476;	36   1.34059930 2   1.34057081 2	2.1 -5   3.0 -6   7.9 -5   1.1 -5	1:46	9.95 3   $\infty$   2.2 3
MaxCut-100	6059   1759; ; 4044;	34   1.47028456 2   1.47028478 2	4.1 -6   9.3 -7   5.3 -6   7.5 -8	1:21	9.19 3   $\infty$   6.7 2
MaxCut-100	7221   2103; ; 4900;	35   1.48038276 2   1.48036086 2	2.0 -5   4.3 -6   7.2 -5   7.4 -6	1:59	1.10 4   $\infty$   2.8 3
MaxCut-100	7375   2121; ; 4400;	35   1.47051236 2   1.47051241 2	1.7 -6   3.2 -7   2.1 -6   1.6 -8	1:22	1.06 4   $\infty$   7.4 2
MaxCut-100	6495   1937; ; 4328;	35   1.34096796 2   1.34094792 2	1.3 -5   1.9 -6   4.6 -5   7.4 -6	1:37	9.95 3   $\infty$   1.9 3
MaxCut-100	7228   1923; ; 4816;	35   1.45015592 2   1.45011927 2	2.3 -5   3.4 -6   8.8 -5   1.3 -5	2:04	1.05 4   $\infty$   2.3 3
Bex2-1-1.g	251   252; ; 182;	22   3.40000004-1   3.39999990-1	5.1-10   1.9-11   9.6 -9   8.5 -9	02	6.21 2   9.14 4   3.3 1
Bex2-1-2.g	65   80; ; 52;	17   1.06500000 0   1.06500000 0	4.9-13   1.0-12   5.9-10   5.8-10	00	1.75 2   3.34 3   1.0 1
Bex2-1-3.g	134   193; ; 113;	18   1.87500000 0   1.87500000 0	4.0-13   1.0-12   4.9-10   4.8-10	01	4.44 2   7.70 4   2.8 1
Bex2-1-4.g	83   126; ; 61;	17   1.37500001 0   1.37499998 0	1.6-12   1.0-12   7.8 -9   7.8 -9	00	2.59 2   7.77 3   1.5 1
Bex2-1-5.g	285   352; ; 295;	21   2.97794036 0   2.97794034 0	1.1 -9   1.2-11   3.2 -9   3.1 -9	02	9.80 2   5.30 5   7.6 1
Bex2-1-8.g	1789   798; ; 2655; 596	37   -7.85090352-1   -7.85090364-1	5.4-10   1.3 -9   9.0 -9   4.7 -9	25	5.10 3   $\infty$   3.9 1
Bex3-1-1.g	310   300; ; 604;	24   -1.17487427 0   -1.17487491 0	2.9 -7   9.7-12   2.5 -7   1.9 -7	02	1.09 3   2.13 10   4.3 3
Bex3-1-2.g	111   110; ; 212;	19   -9.33357008-1   -9.33357019-1	1.5-10   8.1-12   4.3 -9   3.9 -9	01	3.60 2   4.54 5   5.8 1
Bex3-1-4.g	164   215; ; 73;	21   1.00009958 0   1.00010521 0	1.2 -5   3.9-10   2.6 -6   1.9 -6	03	4.52 2   1.42 6   2.2 3
Bex5-2-2-c	300   212; ; 359; 220	40   8.33333333-2   8.33333333-2	1.1 -8   4.1-15   5.0-13   1.5-13	02	1.15 3   $\infty$   2.3 2
Bex5-2-2-c	300   212; ; 359; 220	36   7.50000087-2   7.50000039-2	2.1 -9   1.4-10   3.8 -9   4.3 -9	02	1.15 3   $\infty$   2.5 2

Table 1: Performance of `sdpt3.m`. In the table, `err` = [`pinfeas`, `dinfeas`, `relgap`, `relgap2`], where `relgap2` is the same as `relgap` but with the numerator replaced by  $|(c, x) - b^T y|$ , and `normXZ` =  $\max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P(g_D)$  is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m \mid n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P \mid g_D \mid \text{normXZ}$
Bex5-2-2-c	300   212; ; 359; 220	27   1.92307719-1   1.923077733-1	9.6 -9   5.0 -9   2.0 -9   1.0 -8	02	1.15 3   $\infty$   6.7 1
Bex5-3-2.g	1131   495; ; 1637; 530	46   -1.30519579-1   -1.30523903-1	2.3 -5   6.0 -8   2.0 -5   3.4 -6	06	3.60 3   $\infty$   5.8 3
Bex5-4-2.g	310   300; ; 604;	28   -7.51223010-1   -7.51223017-1	4.2 -8   6.2-14   2.9 -9   2.7 -9	02	1.09 3   2.02 8   4.2 3
Bex9-1-1.g	489   368; ; 548; 699	29   2.166666669-1   2.166666667-1	1.0 -9   8.9 -9   3.7 -9   1.0 -9	04	2.53 3   $\infty$   1.7 1
Bex9-1-2.g	241   223; ; 227; 310	28   1.066666667 0   1.066666667 0	2.7 -9   1.6-10   5.1-11   2.3 -9	01	1.20 3   1.59 10   1.5 1
Bex9-1-4.g	241   223; ; 227; 310	24   6.60872427-1   6.60872425-1	6.5-10   2.6 -9   4.4-10   6.6-10	02	1.20 3   $\infty$   2.2 1
Bex9-1-5.g	489   368; ; 548; 700	28   2.01411716-2   2.01411716-2	3.6-11   2.6-10   4.4-11   3.2-11	04	2.52 3   $\infty$   1.8 1
Bex9-1-8.g	402   330; ; 434; 522	29   6.50000034-1   6.50000005-1	1.3 -8   1.9 -8   6.5 -9   1.2 -8	03	2.01 3   4.42 10   1.7 1
Bex9-2-1.g	241   223; ; 227; 310	25   4.59183756-2   4.59183697-2	4.4 -9   5.8 -9   1.9 -9   5.4 -9	02	1.18 3   $\infty$   1.3 1
Bex9-2-2.g	137   156; ; 109; 168	42   2.87494906-6   2.25999495-6	1.7 -6   1.1 -8   1.4 -6   6.1 -7	02	6.86 2   1.08 11   5.1 2
Bex9-2-3.g	866   549; ; 1408; 1176	35   -1.199999994 0   -1.20000000 0	1.4-10   5.8-10   1.7 -9   1.7 -8	11	6.15 3   3.31 10   4.4 2
Bex9-2-4.g	146   149; ; 276; 215	26   1.75001038-4   1.75000009-4	2.9-10   6.5-10   2.6 -9   1.0 -9	02	9.09 2   $\infty$   1.4 1
Bex9-2-5.g	137   147; ; 109; 168	24   8.00000007-2   8.00000001-2	5.1-10   1.8-10   2.1-11   5.7-10	01	6.66 2   $\infty$   8.9 0
Bex9-2-6.g	402   317; ; 434; 522	28   2.42789755-5   2.42661365-5	6.9 -9   1.5 -9   1.9 -9   1.3 -8	03	1.96 3   $\infty$   1.8 1
Bex9-2-7.g	241   223; ; 227; 310	26   4.59183796-2   4.59183677-2	7.6 -9   2.5 -9   1.3 -9   1.1 -8	01	1.18 3   1.57 10   1.3 1
Balkyl.gms	834   572; ; 1640; 310	32   5.89807109-2   5.89807733-2	2.7 -9   4.3-10   4.4 -9   5.6 -8	05	3.09 3   7.12 10   4.9 1
Bst-bpaf1a	195   245; ; 205;	31   1.13449275-1   1.13449275-1	1.2-10   1.1-14   3.9-10   3.4-10	02	6.07 2   3.64 8   2.2 3
Bst-bpaf1b	195   245; ; 205;	28   1.07406396-1   1.07406388-1	2.7-10   1.3-13   7.4 -9   6.5 -9	01	6.08 2   3.64 8   4.1 3
Bst-e05.gm	40   44; ; 70; 22	23   -1.94462048-1   -1.94462044-1	8.7-10   7.0-10   2.4-10   3.4 -9	00	1.77 2   $\infty$   2.1 1
Bst-e07.gm	178   161; ; 189; 82	25   3.76913266-1   3.76913266-1	1.6-10   2.7 -9   5.4-10   1.8-10	01	6.45 2   $\infty$   1.2 1
Bst-jcbpaf	285   374; ; 295;	25   7.94855924-2   7.94855883-2	1.1-11   2.0-12   3.6 -9   3.5 -9	02	8.76 2   6.54 5   1.7 1
Bhaverly.g	274   206; ; 331; 154	46   8.00000000-2   8.00000000-2	2.4 -7   1.6-14   5.5-12   1.6-13	02	9.82 2   $\infty$   6.0 2
alkylation	530   457; ; 1040; 155	44   1.18826559-2   1.18824854-2	3.1 -7   7.0-11   6.7 -9   1.7 -7	06	2.00 3   5.95 10   2.8 2
Bst-bpk1.g	34   55; ; 30;	14   1.30000000 1   1.30000000 1	7.5-13   1.0-12   1.6 -9   1.6 -9	00	7.01 2   3.28 2   1.6 2
Bst-bpk2.g	34   55; ; 30;	14   1.30000000 1   1.30000000 1	7.5-13   1.0-12   1.6 -9   1.6 -9	00	7.01 2   3.28 2   1.6 2
Bst-bpv1.g	29   56; ; 17;	13   -3.70370361-2   -3.70370407-2	4.6-10   1.7-12   6.7 -9   4.3 -9	00	1.01 2   $\infty$   5.7 2
Bst-bpv2.g	25   52; ; 14;	14   4.00000003-1   3.99999993-1	1.1-13   1.0-12   5.7 -9   5.7 -9	00	8.66 1   2.28 3   5.9 0
Bst-e42.gm	104   78; ; 103; 56	33   -1.87841999-1   -1.87842000-1	1.3 -8   1.8 -9   5.4 -9   2.3 -9	01	$\infty$   $\infty$   9.8 3
Bst-robot.	494   189; ; 972; 360	23   2.25821389-4   2.25821334-4	1.3-12   6.5-10   8.1-11   5.4-11	02	1.98 3   1.63 11   4.3 1
Eprolog.gm	833   533; ; 1023;	91   5.22890377-4   -2.14756935-6	9.8-13   1.6 -7   6.7 -4   5.2 -4	14	$\infty$   3.95 5   3.3 10
st-cqpjk2.	19   32; ; 8;	13   8.33333343-1   8.33333317-1	1.2-11   1.0-12   9.9 -9   9.9 -9	00	5.61 1   5.32 2   4.9 0
st-e01.gms	12   19; ; 8;	18   1.11111113 0   1.11111112 0	4.9-13   1.0-12   4.0 -9   4.0 -9	00	3.50 1   6.33 2   3.9 0
st-e09.gms	25   38; ; 12;	14   2.50000000-1   2.50000000-1	1.8-11   1.0-12   3.9-10   3.5-10	00	6.76 1   2.30 4   2.6 0
st-e10.gms	10   16; ; 3; 1	17   6.97453884-1   6.97453928-1	2.0 -9   5.7 -9   4.7-10   1.8 -8	00	2.94 1   $\infty$   7.8 0
st-e20.gms	111   84; ; 210; 72	23   2.67968679-1   2.67968687-1	1.6 -9   2.9 -9   6.9-10   4.9 -9	01	4.84 2   $\infty$   1.1 1
st-e23.gms	9   21; ; 3;	14   4.33333353-2   4.33333298-2	2.5-11   1.5-12   5.1 -9   5.1 -9	00	2.87 1   2.90 4   1.0 1
st-e34.gms	164   125; ; 187;	20   -3.62873428-3   -3.62873545-3	2.6-14   1.0-12   1.2 -9   1.2 -9	01	4.43 2   4.57 3   9.3 0
st-e42.gms	104   78; ; 103; 56	33   -1.87841999-1   -1.87842000-1	1.3 -8   1.8 -9   5.4 -9   2.3 -9	02	$\infty$   $\infty$   9.8 3
st-fp5.gms	285   352; ; 295;	21   2.97794036 0   2.97794034 0	1.1 -9   1.2-11   3.2 -9   3.1 -9	02	9.80 2   5.30 5   7.6 1
st-glmp-fp	34   55; ; 14; 30	19   -9.999999994 0   -9.999999992 0	1.7 -9   5.5 -9   6.6-10   9.9-10	00	6.94 2   $\infty$   2.1 2
st-glmp-fp	125   180; ; 36; 140	29   -7.34454541 0   -7.34454542 0	1.0-10   3.7-10   4.2-10   3.8-10	02	1.66 4   $\infty$   4.7 3
st-glmp-fp	34   55; ; 14; 30	20   1.20000000 1   1.20000000 1	1.4 -9   3.2-10   1.4-11   1.6-10	00	1.09 3   $\infty$   9.5 1
st-glmp-kk	40   44; ; 14; 36	20   -3.00000000 0   -2.999999999 0	4.9-10   7.4-10   2.7-11   1.4 -9	01	6.17 2   $\infty$   5.5 1
st-glmp-kk	34   55; ; 14; 30	20   1.20000000 1   1.20000000 1	2.3 -9   2.2 -9   1.7-10   6.4-10	00	7.31 2   $\infty$   1.7 2
st-glmp-kk	69   62; ; 14; 70	29   2.50000003 0   2.50000005 0	2.4 -9   1.8-10   4.6 -9   2.6 -9	01	8.30 3   $\infty$   6.2 2
st-glmp-ss	40   64; ; 14; 36	21   2.45714286 1   2.45714286 1	1.6 -9   7.2-10   7.0-11   1.0-10	00	4.06 3   $\infty$   3.9 2
st-glmp-ss	40   49; ; 14; 36	20   -2.999999996 0   -2.999999996 0	5.8 -9   1.9 -9   1.7-10   2.6-10	00	1.28 3   $\infty$   6.5 1
st-iqpbk1.	164   216; ; 312;	19   4.15321990 0   4.15321989 0	4.5-13   1.0-12   6.2-10   6.1-10	01	6.94 2   1.76 4   5.4 1
st-iqpbk2.	164   216; ; 312;	19   3.99367031 0   3.99367031 0	3.4-13   1.0-12   7.3-10   7.3-10	01	6.94 2   1.76 4   5.4 1
st-jcbpaf2.	285   374; ; 295;	25   7.94855924-2   7.94855883-2	1.1-11   2.0-12   3.6 -9   3.5 -9	02	8.76 2   6.54 5   1.7 1
st-jcbpafe.	9   21; ; 3;	14   4.33333353-2   4.33333298-2	2.5-11   1.5-12   5.1 -9   5.1 -9	00	2.87 1   2.90 4   1.0 1
qp5.gms	108   ; ; 109; 30	23   -4.31455897-1   -4.31455880-1	1.5 -9   9.2-10   6.3-10   9.5 -9	00	1.77 2   $\infty$   4.0 1
Rosenbrock	1988   1195; ; 3;	18   9.95000004-1   9.949999991-1	1.4-10   1.4-12   5.8-10   1.8 -9	01	1.28 5   2.35 3   8.5 1
BroydenBan	923   84; ; ;	17   2.40000000-1   2.399999999-1	7.4-12   1.0-12   4.9-10   4.9-10	06	5.16 2   1.54 2   5.7 0
BroydenTri	3974   1984; ; 3;	16   1.11111111 1   1.11111111 1	4.3-12   3.3-12   4.8-10   4.8-10	03	1.75 4   3.34 3   6.1 1
ChainedSin	3974   1980; ; ;	24   2.88480646-10   -2.56585137-9	4.5-14   1.0-12   2.9 -9   2.9 -9	03	2.92 7   2.77 3   1.4 1
ChainedWoo	899   697; ; ;	11   1.09421053 1   1.09421052 1	3.5-12   1.0-12   6.4 -9   6.4 -9	00	4.43 5   9.79 2   5.0 1
nondquar(2	3974   1980; ; ;	24   2.34095452-6   -1.86415946-6	2.5 -9   2.2-10   8.1 -6   4.2 -6	04	$\infty$   2.77 3   1.1 5
nonscomp(8	110   138; ; 204;	23   1.56250002-2   1.56249998-2	1.4 -9   7.6-12   7.5-10   3.9-10	01	4.47 2   5.12 3   1.6 1
optControl	2682   533; ; 682	25   3.30330643-1   3.30330643-1	5.3-11   3.1-10   4.2-10   7.5-11	32	3.95 3   $\infty$   7.8 0
optControl	4759   1587; ; 1986	36   -3.06689479 2   -3.06689479 2	1.1 -7   2.2-10   8.8-11   1.3-10	06	$\infty$   $\infty$   4.9 3

Table 1: Performance of `sdpt3.m`. In the table, `err` = [`pinfeas,dinfeas,relgap,relgap2`], where `relgap2` is the same as `relgap` but with the numerator replaced by  $|\langle c, x \rangle - b^T y|$ , and `normXZ` =  $\max\{\|x^*\|, \|z^*\|\}$ . We declare that  $g_P$  ( $g_D$ ) is  $\infty$  if the computed number is larger than  $10^{12}$ .

problem	$m$   $n_s; n_q; n_l; n_u$	it.   primal obj   dual obj	err	time	$g_P$   $g_D$   normXZ
randomUnco	264   130; ; ;	17   6.33323683-4   6.33323351-4	2.7-14  1.0-12  3.4-10  3.3-10	01	2.14 2  1.88 2  4.2 0
randomCons	650   298; ; ;	17   3.94559182 0   3.94559180 0	2.2-12  1.0-12  2.1 -9  2.1 -9	01	4.27 2  9.57 3  2.7 1
randomwith	430   130; ; ; 395	22   3.13274316-4   3.13274418-4	7.5-13  3.8-10  1.6-11  1.0-10	01	9.99 2  $\infty$   4.2 0