

Numerical results for SQIC: Software for large-scale quadratic programming*

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July 13, 2014

Supplementary material for the article “Methods for Convex and General Quadratic Programming” is presented in this document. Table 1 lists the values of various tolerances used to obtain the numerical results. Tables 2–13 provide detailed information of the numerical results from the large-scale quadratic programming software package SQIC.

A total of 253 QPs were identified from the CUTEst [6] test set. No linear programs were tested because all of the codes under consideration revert to the simplex method when the objective is linear. The QP problems are grouped into two sets based on the final number of superbasic variables obtained by the default solver SQIC-LUSOL. The final number of superbasics can be slightly different when SQIC is used with other linear solvers. A test problem is included in the “large” set if the final number of superbasics is greater than 1000 or $\frac{1}{2}(m+n)$. The remaining test problems form the “small” set. The CUTEst set contains 173 small and 80 large problems. A time limit of 5000 seconds was imposed in each case. (In practice, the 5000 second limit is not exact since the time limit is checked every twenty iterations.)

Results are presented for SQIC with its default settings using the three linear solvers HSL_MA57 [5, 7], UMFPAK [1, 2, 3, 4] and the included solver LUSOL, on an iMac with a 3.4GHz Intel Core i7 processor and 16GB of memory. The GNU Fortran compiler gfortran version 4.8.2 was used to compile the code with optimization flag “-O”. In addition to the runs with default settings, all problems were run using so-called “forced” block-matrix mode in which the block-matrix method was used to solve every KKT system. Tables 2–7 contain results for the default runs. Tables 8–13 contain results with “forced” block-matrix mode.

For each problem, the tables list the following: the number of linear constraints “m”; the number of variables “n”; the final objective value “Objective”; the number of iterations taken “Itn”; the final number of superbasics “nS”; the number of factors of the block matrix (in block-matrix mode) “bFac”; and the number of factors of the basis matrix (in variable-reduction mode) “nFac”. The penultimate column lists the total number of seconds for the problem to run “Time”.

The last column provides details of any non-optimal exits. An empty entry in the “Exit” column indicates an optimal exit. The letters “i” and “u” mark the problems judged to be infeasible or unbounded, respectively; “d” and “w” indicate a dead point or a weak minimizer; “r” and “n” mark problems that hit the restart iteration limit or total iteration limit, respectively. An asterisk ** denotes problems that failed to run to completion with default settings. In particular, problem UBH1 encountered numerical difficulties in block-matrix mode with HSL_MA57, but was solved successfully with a setting of 10^9 for the bound on the Schur-complement matrix.

*Research supported in part by National Science Foundation grants DMS-0915220 and DMS-1318480, and by Department of Energy grant DE-SC0002349.

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Table 1: SQIC tolerances and their default settings. ϵ_M is the machine precision.

Tolerance	Default Setting
Linear independence test ϵ_{dep}	5×10^{-9}
Feasibility ϵ_{fea}	10^{-6}
Optimality ϵ_{opt}	10^{-6}
Iterative refinement ϵ_{res}	$\epsilon_M^{0.8}$
Upper bound on Schur-complement condition number	10^{16}

Table 2: Results for SQIC-LUSOL on “small” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AOENDNDL	15002	45006	0.0000E+00	7266	0	0	149	16.05	
AOENINDL	15002	45006	0.0000E+00	7220	0	0	149	16.09	
AOENSNDL	15002	45006	5.0268E-11	5468	0	0	113	12.21	w
AOESDNDL	15002	45006	0.0000E+00	6824	0	0	140	16.81	
AOESINDL	15002	45006	0.0000E+00	7162	0	0	147	15.53	
AOESSNDL	15002	45006	4.3383E-11	5331	0	0	110	14.29	w
AONNDNDL	20004	60012	0.0000E+00	49589	0	0	1006	185.08	
AONNDNIL	20004	60012	6.0072E+01	12049	55	0	243	32.63	d
AONNDNSL	20004	60012	-1.6935E-23	33326	0	0	682	100.96	d
AONNSNSL	20004	60012	-1.1039E-08	19824	0	0	405	54.16	d
AONSDSDL	20004	60012	0.0000E+00	30912	0	0	631	113.26	
AONSDSDS	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
AONSDSIL	20004	60012	1.7221E+00	13552	22	0	278	38.30	
AONSDSSL	20004	60012	6.3205E-12	23229	0	0	475	64.69	w
AONSSSSL	20004	60012	1.6312E-18	16845	0	0	345	42.73	d
A2ENDNDL	15002	45006	0.0000E+00	6805	47	0	140	15.05	w
A2ENINDL	15002	45006	0.0000E+00	6703	57	0	138	15.61	w
A2ENSNDL	15002	45006	3.2088E-13	5114	33	0	106	12.87	w
A2ESDNDL	15002	45006	9.4684E-25	6329	74	0	130	15.97	w
A2ESINDL	15002	45006	0.0000E+00	6690	44	0	138	14.90	w
A2ESSNDL	15002	45006	3.2088E-13	4973	26	0	103	12.61	w
A2NNDNDL	20004	60012	5.4561E-10	54819	49	0	1093	205.77	d
A2NNDNIL	20004	60012	5.2190E+04	11717	0	0	241	28.88	i
A2NNDNSL	20004	60012	1.0137E+01	35010	21	0	706	112.66	d
A2NNSNSL	20004	60012	5.8303E-20	22529	0	0	460	57.27	d
A2NSDSDL	20004	60012	4.8243E-11	40497	5	0	827	149.29	w
A2NSDSIL	20004	60012	4.7144E+01	14167	249	0	284	46.68	d
A2NSDSSL	20004	60012	-1.4981E-11	27766	0	0	602	89.78	d
A2NSSSSL	20004	60012	-7.8883E-05	20539	0	0	421	54.24	d
A5ENDNDL	15002	45006	0.0000E+00	5903	230	0	122	14.14	w
A5ENINDL	15002	45006	0.0000E+00	5914	222	0	121	13.81	w
A5ENSNDL	15002	45006	3.2088E-13	4616	129	0	95	10.90	w
A5ESDNDL	15002	45006	0.0000E+00	5674	238	0	117	14.06	w
A5ESINDL	15002	45006	0.0000E+00	5755	197	0	118	13.32	w
A5ESSNDL	15002	45006	-7.5546E-09	4504	54	0	93	7.89	w
A5NNDNDL	20004	60012	1.0364E-08	55587	198	0	1097	231.83	d
A5NNDNIL	20004	60012	8.4150E+04	10259	0	0	211	24.92	i
A5NNDNSL	20004	60012	-5.5762E-23	32401	0	0	714	109.60	d
A5NNSNSL	20004	60012	-4.4698E-05	23059	0	0	553	81.18	d

Table 2: Results for SQIC with LUSOL on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
A5NSDSDL	20004	60012	1.2278E-11	38515	29	0	784	156.78	w
A5NSDSDM	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
A5NSDSIL	20004	60012	9.5868E+00	11773	620	0	228	43.16	d
A5NSDSSL	20004	60012	6.2451E-22	30114	0	0	888	175.36	d
A5NSSNSM	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
A5NSSSSL	20004	60012	-8.0011E-09	19987	0	0	412	58.29	d
AVGASA	10	8	-4.6319E+00	12	3	0	1	0.00	
AVGASB	10	8	-4.4832E+00	10	3	0	1	0.00	
BIGGSC4	7	4	-2.4375E+01	11	1	0	1	0.00	d
BLOCKQP1	5001	10010	-4.9940E+03	5014	9	0	2	2.17	
BLOCKQP2	5001	10010	-4.9928E+03	7515	9	0	104	7.73	d
BLOCKQP3	5001	10010	-2.4950E+03	5014	9	0	2	2.59	
BLOCKQP4	5001	10010	-2.4933E+03	8492	9	0	104	11.82	d
BLOCKQP5	5001	10010	-2.4950E+03	5020	9	0	2	1.53	
BQP1VAR	1	1	0.0000E+00	2	0	0	1	0.00	
CVXBQP1	1	10000	2.2502E+06	10001	0	0	1	1.00	
CVXQP3	7500	10000	1.1571E+08	11352	419	0	194	15.08	w
DEGENQP	125025	50	0.0000E+00	27	0	0	2	0.70	
DUALC1	215	9	6.1553E+03	5	2	0	2	0.00	
DUALC2	229	7	3.5513E+03	4	2	0	2	0.00	
DUALC5	278	8	4.2723E+02	5	4	0	2	0.00	
DUALC8	503	8	1.8309E+04	7	2	0	2	0.00	w
FERRISDC	210	2200	-1.4835E-05	188	96	0	2	0.10	w
GENHS28	8	10	9.2717E-01	1	2	0	2	0.00	
GMNCASE1	300	175	2.6697E-01	52	95	0	1	0.03	w
GMNCASE2	1050	175	-9.9444E-01	56	94	0	2	0.05	
GMNCASE3	1050	175	1.5251E+00	61	93	0	2	0.05	
GMNCASE4	350	175	5.9469E+03	140	0	0	3	0.04	
GOULDQP1	17	32	-3.4853E+03	22	0	0	2	0.00	
GOULDQP2	9999	19999	1.8512E-12	1	0	0	2	0.07	w
HARKERP2	1	1000	-5.0000E-01	1000	1	0	1	4.68	
HATFLDH	7	4	-2.4500E+01	4	0	0	1	0.00	w
HS118	17	15	6.6482E+02	16	0	0	1	0.00	
HS21	1	2	-9.9960E+01	1	1	0	1	0.00	
HS268	5	5	3.6380E-12	2	5	0	1	0.00	
HS3	1	2	0.0000E+00	2	1	0	1	0.00	
HS35	1	3	1.1111E-01	2	2	0	1	0.00	
HS35I	1	3	1.1111E-01	2	2	0	1	0.00	
HS35MOD	1	3	2.5000E-01	1	2	0	1	0.00	
HS3MOD	1	2	0.0000E+00	2	1	0	1	0.00	
HS44	6	4	-1.3000E+01	3	0	0	1	0.00	
HS44NEW	6	4	-1.3000E+01	6	0	0	1	0.00	
HS51	3	5	0.0000E+00	1	2	0	2	0.00	
HS52	3	5	5.3266E+00	1	2	0	2	0.00	
HS53	3	5	4.0930E+00	1	2	0	2	0.00	
HS76	3	4	-4.6818E+00	5	2	0	1	0.00	
HS76I	3	4	-4.6818E+00	5	2	0	1	0.00	
KSIP	1001	20	5.7580E-01	230	18	0	51	0.14	
LEUVEN1	2220	1530	-1.5243E+07	1515	14	0	31	0.35	w
LEUVEN2	2329	1530	-1.4147E+07	610	5	0	12	0.14	d
LEUVEN3	2973	1200	-1.0381E+09	1055	53	0	23	1.66	d
LEUVEN4	2973	1200	-1.4083E+09	1459	53	0	29	2.43	d
LEUVEN5	2973	1200	-1.0381E+09	1055	53	0	23	1.67	d

Table 2: Results for SQIC with LUSOL on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
LEUVEN6	3091	1200	-1.4520E+08	584	31	0	14	1.18	d
LEUVEN7	946	360	6.9455E+02	136	20	0	3	0.07	w
LINCONT	419	1257	0.0000E+00	126	0	0	4	0.03	i
LISWET1	2000	2002	7.2219E+00	1	2	0	1	0.01	
LISWET10	2000	2002	9.8965E+00	34	18	0	2	0.02	w
LISWET11	2000	2002	9.9054E+00	49	29	0	2	0.02	w
LISWET12	2000	2002	3.4752E+02	24	5	0	1	0.01	w
LISWET2	2000	2002	4.9981E+00	37	7	0	1	0.02	
LISWET3	2000	2002	4.9978E+00	153	93	0	2	0.04	
LISWET4	2000	2002	4.9978E+00	165	97	0	2	0.04	
LISWET5	2000	2002	4.9978E+00	160	90	0	2	0.04	
LISWET6	2000	2002	4.9979E+00	129	81	0	2	0.03	
LISWET7	2000	2002	9.9895E+01	1	2	0	1	0.01	
LISWET8	2000	2002	1.4313E+02	28	16	0	2	0.01	w
LISWET9	2000	2002	3.9292E+02	18	7	0	1	0.01	w
LOTSCHD	7	12	2.3984E+03	8	0	0	2	0.00	
MARATOSB	1	2	-1.4400E+06	2	0	0	1	0.00	u
MOSARQP1	700	2500	-3.8214E+03	3305	126	0	23	1.16	w
MPC1	3833	2550	-2.3262E+07	1371	0	0	26	0.36	w
MPC10	2351	1530	-1.5034E+07	1224	11	0	24	0.24	d
MPC11	2351	1530	-1.5030E+07	954	34	0	18	0.20	d
MPC12	2351	1530	-1.5033E+07	1275	19	0	25	0.26	d
MPC13	2351	1530	-1.5034E+07	1164	13	0	23	0.24	d
MPC14	2351	1530	-1.5034E+07	1230	16	0	23	0.25	d
MPC15	2351	1530	-1.5034E+07	1081	15	0	21	0.22	d
MPC16	2351	1530	-1.5034E+07	1081	16	0	20	0.21	d
MPC2	2351	1530	-1.5033E+07	1214	27	0	22	0.25	d
MPC3	2351	1530	-1.5030E+07	1334	32	0	23	0.29	d
MPC4	2351	1530	-1.5033E+07	1357	21	0	25	0.28	d
MPC5	2351	1530	-1.5033E+07	1356	25	0	25	0.28	d
MPC6	2351	1530	-1.5034E+07	1245	18	0	22	0.26	d
MPC7	2351	1530	-1.5034E+07	1133	15	0	22	0.22	d
MPC8	2351	1530	-1.5034E+07	1213	13	0	23	0.24	d
MPC9	2351	1530	-1.5034E+07	1216	11	0	23	0.24	d
NASH	24	72	0.0000E+00	2	0	0	2	0.00	i
NCVXBQP1	1	10000	-1.9855E+10	10009	0	0	1	1.11	
NCVXBQP2	1	10000	-1.3245E+10	11186	51	0	1	1.36	
NCVXBQP3	1	10000	-6.4122E+09	10837	126	0	1	1.31	
NCVXQP1	500	1000	-7.1562E+07	748	0	0	8	0.04	
NCVXQP2	500	1000	-5.7759E+07	991	0	0	15	0.06	d
NCVXQP3	500	1000	-2.9270E+07	1130	20	0	11	0.12	
NCVXQP4	250	1000	-9.4002E+07	789	0	0	4	0.03	
NCVXQP5	250	1000	-6.6231E+07	834	1	0	5	0.04	
NCVXQP6	250	1000	-3.3898E+07	910	53	0	6	0.13	
NCVXQP7	750	1000	-4.3521E+07	656	0	0	11	0.04	
NCVXQP8	750	1000	-3.0098E+07	816	0	0	14	0.05	
NCVXQP9	750	1000	-2.1230E+07	926	11	0	14	0.09	
PENTDI	1	5000	-7.5000E-01	3	2	0	1	0.02	w
PORTSNQP	2	100000	3.3332E+04	108265	257	0	882	17.90	
PORTSQP	1	100000	3.3331E+04	100315	315	0	2	6.77	
POWELL20	5000	5000	6.5120E+09	2502	1	0	52	0.66	w
PRIMALC1	9	230	-6.1553E+03	5	14	0	1	0.00	
PRIMALC2	7	231	-3.5513E+03	4	1	0	1	0.00	

Table 2: Results for SQIC with LUSOL on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
PRIMALC5	8	287	-4.2723E+02	6	5	0	1	0.00	
PRIMALC8	8	520	-1.8309E+04	7	17	0	1	0.00	
QPBAND	25000	50000	-4.9999E+04	149762	67	0	1022	206.74	
QPCBLEND	74	83	-7.8425E-03	77	2	0	3	0.00	
QPCBOEI1	351	384	1.1504E+07	700	113	0	9	0.04	w
QPCBOEI2	166	143	8.1720E+06	203	32	0	4	0.01	w
QPCSTAIR	356	467	6.2044E+06	311	21	0	8	0.02	w
QPNBAND	25000	50000	-2.5000E+05	75000	1	0	512	90.22	
QPNBLEND	74	83	-8.7056E-03	67	3	0	2	0.00	
QPNBOEI1	351	384	6.7367E+06	683	92	0	10	0.03	d
QPNBOEI2	166	143	1.3683E+06	229	27	0	5	0.01	d
QPNSTAIR	356	467	5.1460E+06	349	20	0	6	0.02	d
QUDLIN	1	5000	-1.2500E+09	5000	0	0	1	0.21	w
RDW2D51F	16129	33282	1.1342E-03	853	0	0	16	30.21	
RDW2D52F	49	162	8.6159E-03	71	37	0	3	0.00	w
S268	5	5	3.6380E-12	2	5	0	1	0.00	
SIM2BQP	1	2	0.0000E+00	2	0	0	1	0.00	
SIMBQP	1	2	0.0000E+00	2	1	0	1	0.00	
SOSQP1	2501	5000	-2.4500E-11	2	0	0	2	0.02	w
STATIC3	96	434	-3.4937E+03	59	222	0	2	0.01	u
STEENBRA	108	432	1.6958E+04	87	11	0	3	0.00	w
TAME	1	2	0.0000E+00	2	1	0	2	0.00	
TORSION5	1	5476	-2.8634E+00	953	952	0	1	0.52	
TORSION6	1	5476	-2.8634E+00	9417	952	0	1	23.96	
TORSIONE	1	5476	-2.8502E+00	969	968	0	1	0.54	
TORSIONF	1	5476	-2.8502E+00	9401	968	0	1	24.81	
YAO	2000	2002	1.9770E+02	3	1	0	1	0.01	
ZECEVIC2	2	2	-4.1250E+00	3	1	0	1	0.00	

Table 3: Results for SQIC-LUSOL on “large” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
ALLINQP	25000	50000	-5.4813E+03	24100	9820	8	74	56.21	w
AUG2D	10000	20200	1.6874E+06	10193	10192	8	2	39.90	w
AUG2DC	10000	20200	1.8184E+06	10201	10200	8	2	40.39	
AUG2DCQP	10000	20200	6.4982E+06	14428	9992	8	82	49.64	
AUG2DQP	10000	20200	6.2370E+06	14528	9800	8	78	50.36	w
AUG3D	8000	27543	2.4561E+04	16910	16909	15	2	91.24	w
AUG3DC	8000	27543	2.7654E+04	19544	19543	17	2	141.28	
AUG3DCQP	8000	27543	6.1560E+04	22216	17665	16	81	115.69	w
AUG3DQP	8000	27543	5.4229E+04	18522	13712	12	82	92.97	w
BIGGSB1	1	5000	1.5000E-02	5002	4998	3	1	9.07	
BLOWEYA	2002	4002	-2.2781E-02	1205	2000	0	2	4.08	
BLOWEYB	2002	4002	-1.5226E-02	805	2000	0	2	3.78	
BLOWEYC	2002	4002	-1.5246E-02	805	2000	0	2	3.78	
BQPGABIM	1	50	-3.7903E-05	11	36	0	1	0.00	
BQPGASIM	1	50	-5.5198E-05	11	40	0	1	0.00	
BQPGAUSS	1	2003	-3.6258E-01	386	1909	0	1	3.06	
CENHARK	1	5000	-2.0000E+00	6998	2997	1	1	5.93	w
CVXQP1	5000	10000	1.0871E+08	11133	1263	0	115	8.59	w
CVXQP2	2500	10000	8.1842E+07	8442	2209	1	24	14.27	w

Table 3: Results for SQIC-LUSOL on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
DIXON3DQ	1	10000	8.8818E-16	10001	10000	8	1	19.58	
DQDRTIC	1	5000	0.0000E+00	5001	5000	3	1	8.85	
DTOC3	2998	4499	2.3522E+02	2	1499	0	2	1.02	
DUAL1	1	85	3.5013E-02	77	62	0	2	0.00	
DUAL2	1	96	3.3734E-02	94	91	0	2	0.00	
DUAL3	1	111	1.3576E-01	111	96	0	2	0.01	
DUAL4	1	75	7.4609E-01	64	61	0	2	0.00	
GOULDQP3	9999	19999	2.3796E-05	5814	4988	3	17	15.03	w
GRIDNETA	3844	7564	4.7798E+02	192	1289	0	2	0.83	
GRIDNETB	3844	7564	1.2761E+02	3722	3721	2	2	9.93	
GRIDNETC	3844	7564	1.6187E+02	1391	2578	1	2	4.83	w
HILBERTA	1	2	0.0000E+00	1	2	0	1	0.00	
HILBERTB	1	10	0.0000E+00	1	10	0	1	0.00	
HUES-MOD	2	5000	3.4824E+07	5317	4719	3	2	9.60	w
HUESTIS	2	5000	1.7412E+11	5316	4719	3	2	9.61	w
JNLBRNG1	1	10000	-1.8057E-01	6495	6494	5	1	14.21	
JNLBRNG2	1	10000	-4.1487E+00	5755	5754	4	1	11.49	
JNLBRNGA	1	10000	-2.7110E-01	6360	6359	5	1	14.04	
JNLBRNGB	1	10000	-6.3007E+00	5384	5383	4	1	11.45	
MOSARQP2	700	2500	-5.0526E+03	2553	1640	0	6	2.88	
NOBNDTOR	1	5476	-4.4993E-01	4323	4318	3	1	9.00	
OBSTCLAE	1	10000	1.8865E+00	14063	5131	11	1	38.00	
OBSTCLAL	1	10000	1.8865E+00	5132	5131	3	1	11.29	
OBSTCLBL	1	10000	7.2722E+00	10992	7057	7	1	23.05	
OBSTCLBM	1	10000	7.2722E+00	12672	7057	6	1	23.86	
OBSTCLBU	1	10000	7.2722E+00	8218	7057	5	1	15.66	
ODNAMUR	1	11130	9.2366E+03	6456	4518	3	1	168.04	w
OSLBQP	1	8	6.2500E+00	1	6	0	1	0.00	
PALMER1C	1	8	9.7605E-02	1	8	0	1	0.00	
PALMER1D	1	7	6.5267E-01	1	7	0	1	0.00	
PALMER2C	1	8	1.4369E-02	1	8	0	1	0.00	
PALMER3C	1	8	1.9538E-02	1	8	0	1	0.00	
PALMER4C	1	8	5.0311E-02	1	8	0	1	0.00	
PRIMAL1	85	325	-3.5013E-02	70	262	0	2	0.03	
PRIMAL2	96	649	-3.3734E-02	97	557	0	2	0.12	
PRIMAL3	111	745	-1.3576E-01	102	648	0	3	0.36	w
PRIMAL4	75	1489	-7.4609E-01	63	1427	0	2	0.92	
RDW2D51U	3969	8450	8.3625E-04	10314	2540	7	19	172.37	w
RDW2D52U	3969	8450	1.1314E-02	6230	3967	4	11	148.31	w
SOSQP2	2501	5000	-1.2487E+03	4777	1251	0	37	9.92	w
STCQP1	4095	8193	3.6710E+05	7276	5717	4	18	11.83	
STCQP2	4095	8193	3.7189E+04	7694	3970	2	66	9.21	
STNQP1	4095	8193	-3.1170E+05	7283	5277	4	18	11.34	
STNQP2	4095	8193	-5.7497E+05	7250	2640	1	66	6.01	
TESTQUAD	1	5000	0.0000E+00	5001	5000	3	1	8.85	
TOINTQOR	1	50	1.1755E+03	1	50	0	1	0.00	
TORSION1	1	5476	-4.3028E-01	3561	3560	2	1	6.86	
TORSION2	1	5476	-4.3028E-01	6809	3560	4	1	15.71	
TORSION3	1	5476	-1.2170E+00	1801	1800	0	1	3.08	
TORSION4	1	5476	-1.2170E+00	8569	1800	4	1	22.19	
TORSIONA	1	5476	-4.1830E-01	3625	3624	2	1	7.05	
TORSIONB	1	5476	-4.1830E-01	6745	3624	4	1	16.76	
TORSIONC	1	5476	-1.2042E+00	1833	1832	0	1	3.26	

Table 3: Results for SQIC-LUSOL on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
TORSIOND	1	5476	-1.2042E+00	8537	1832	4	1	23.09	
TRIDIA	1	5000	-1.1102E-15	5000	4999	3	1	8.95	w
UBH1	6000	9009	1.1160E+00	6318	2997	2	44	23.71	
WALL10	1	1461	-4.5595E+05	70	1101	0	1	0.27	
WALL100	1	149624	-8.9544E+03	124198	110712	123	1	2975.11	
WALL20	1	5924	-5.2210E+06	5304	4277	3	1	13.74	
WALL50	1	37311	-9.5450E+06	55585	25834	51	2	312.09	w
ZANGWIL2	1	2	-1.8200E+01	1	2	0	1	0.00	

Table 4: Results for SQIC-MA57 on “small” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AOENDNDL	15002	45006	0.0000E+00	7266	0	0	149	16.05	
AOENINDL	15002	45006	0.0000E+00	7220	0	0	149	16.09	
AOENSNDL	15002	45006	5.0268E-11	5468	0	0	113	12.22	w
AOESDNDL	15002	45006	0.0000E+00	6824	0	0	140	16.82	
AOESINDL	15002	45006	0.0000E+00	7162	0	0	147	15.52	
AOESSNDL	15002	45006	4.3383E-11	5331	0	0	110	14.71	w
AONNDNDL	20004	60012	0.0000E+00	49589	0	0	1006	185.08	
AONNDNIL	20004	60012	6.0072E+01	12049	55	0	243	32.64	d
AONNDNSL	20004	60012	-1.6935E-23	33326	0	0	682	100.93	d
AONNSNSL	20004	60012	-1.1039E-08	19824	0	0	405	54.27	d
AONSDSDL	20004	60012	0.0000E+00	30912	0	0	631	113.29	
AONSDSDS	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
AONSDSIL	20004	60012	1.7221E+00	13552	22	0	278	38.29	
AONSDSSL	20004	60012	6.3205E-12	23229	0	0	475	64.70	w
AONSSSSL	20004	60012	1.6312E-18	16845	0	0	345	42.76	d
A2ENDNDL	15002	45006	0.0000E+00	6805	47	0	140	15.04	w
A2ENINDL	15002	45006	0.0000E+00	6703	57	0	138	15.62	w
A2ENSNDL	15002	45006	3.2088E-13	5114	33	0	106	12.86	w
A2ESDNDL	15002	45006	9.4684E-25	6329	74	0	130	15.98	w
A2ESINDL	15002	45006	0.0000E+00	6690	44	0	138	14.93	w
A2ESSNDL	15002	45006	3.2088E-13	4973	26	0	103	12.60	w
A2NNDNDL	20004	60012	5.4561E-10	54819	49	0	1093	205.63	d
A2NNDNIL	20004	60012	5.2190E+04	11717	0	0	241	28.89	i
A2NNDNSL	20004	60012	1.0137E+01	35010	21	0	706	112.65	d
A2NNSNSL	20004	60012	5.8303E-20	22529	0	0	460	57.03	d
A2NSDSDL	20004	60012	4.8243E-11	40497	5	0	827	149.13	w
A2NSDSIL	20004	60012	4.7144E+01	14167	249	0	284	46.67	d
A2NSDSSL	20004	60012	-1.4981E-11	27766	0	0	602	89.82	d
A2NSSSSL	20004	60012	-7.8883E-05	20539	0	0	421	54.33	d
A5ENDNDL	15002	45006	0.0000E+00	5903	230	0	122	14.13	w
A5ENINDL	15002	45006	0.0000E+00	5914	222	0	121	13.82	w
A5ENSNDL	15002	45006	3.2088E-13	4616	129	0	95	10.90	w
A5ESDNDL	15002	45006	0.0000E+00	5674	238	0	117	14.07	w
A5ESINDL	15002	45006	0.0000E+00	5755	197	0	118	13.33	w
A5ESSNDL	15002	45006	-7.5546E-09	4504	54	0	93	7.96	w
A5NNDNDL	20004	60012	1.0364E-08	55587	198	0	1097	231.96	d
A5NNDNIL	20004	60012	8.4150E+04	10259	0	0	211	24.90	i
A5NNDNSL	20004	60012	-5.5762E-23	32401	0	0	714	109.64	d
A5NNSNSL	20004	60012	-4.4698E-05	23059	0	0	553	81.22	d

Table 4: Results for SQIC with HSL_MA57 on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
A5NSDSDL	20004	60012	1.2278E-11	38515	29	0	784	156.69	w
A5NSDSDM	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
A5NSDSIL	20004	60012	9.5868E+00	11773	620	0	228	43.22	d
A5NSDSSL	20004	60012	6.2451E-22	30114	0	0	888	175.38	d
A5NSSNSM	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
A5NSSSSL	20004	60012	-8.0011E-09	19987	0	0	412	58.41	d
AVGASA	10	8	-4.6319E+00	12	3	0	1	0.00	
AVGASB	10	8	-4.4832E+00	10	3	0	1	0.00	
BIGGSC4	7	4	-2.4375E+01	11	1	0	1	0.00	d
BLOCKQP1	5001	10010	-4.9940E+03	5014	9	1	2	2.12	
BLOCKQP2	5001	10010	-4.9938E+03	5008	9	3	2	48.65	
BLOCKQP3	5001	10010	-2.4950E+03	5014	9	1	2	2.59	
BLOCKQP4	5001	10010	-2.4958E+03	5509	9	3	13	50.93	
BLOCKQP5	5001	10010	-2.4950E+03	5020	9	1	2	1.49	
BQP1VAR	1	1	0.0000E+00	2	0	0	1	0.00	
CVXBQP1	1	10000	2.2502E+06	10001	0	2	1	30.42	
CVXQP3	7500	10000	1.1571E+08	11352	419	0	194	15.10	w
DEGENQP	125025	50	0.0000E+00	27	0	0	2	0.66	
DUALC1	215	9	6.1553E+03	5	2	0	2	0.00	
DUALC2	229	7	3.5513E+03	4	2	0	2	0.00	
DUALC5	278	8	4.2723E+02	5	4	0	2	0.00	
DUALC8	503	8	1.8309E+04	7	2	0	2	0.00	w
FERRISDC	210	2200	-1.4835E-05	188	96	0	2	0.10	w
GENHS28	8	10	9.2717E-01	1	2	0	2	0.00	
GMNCASE1	300	175	2.6697E-01	52	95	0	1	0.03	w
GMNCASE2	1050	175	-9.9444E-01	56	94	0	2	0.05	
GMNCASE3	1050	175	1.5251E+00	61	93	0	2	0.05	
GMNCASE4	350	175	5.9469E+03	140	0	0	3	0.04	
GOULDQP1	17	32	-3.4853E+03	22	0	0	2	0.00	
GOULDQP2	9999	19999	1.8512E-12	1	0	0	2	0.07	w
HARKERP2	1	1000	-5.0000E-01	1000	1	0	1	4.68	
HATFLDH	7	4	-2.4500E+01	4	0	0	1	0.00	w
HS118	17	15	6.6482E+02	16	0	0	1	0.00	
HS21	1	2	-9.9960E+01	1	1	0	1	0.00	
HS268	5	5	3.6380E-12	2	5	0	1	0.00	
HS3	1	2	0.0000E+00	2	1	0	1	0.00	
HS35	1	3	1.1111E-01	2	2	0	1	0.00	
HS35I	1	3	1.1111E-01	2	2	0	1	0.00	
HS35MOD	1	3	2.5000E-01	1	2	0	1	0.00	
HS3MOD	1	2	0.0000E+00	2	1	0	1	0.00	
HS44	6	4	-1.3000E+01	3	0	0	1	0.00	
HS44NEW	6	4	-1.3000E+01	6	0	0	1	0.00	
HS51	3	5	0.0000E+00	1	2	0	2	0.00	
HS52	3	5	5.3266E+00	1	2	0	2	0.00	
HS53	3	5	4.0930E+00	1	2	0	2	0.00	
HS76	3	4	-4.6818E+00	5	2	0	1	0.00	
HS76I	3	4	-4.6818E+00	5	2	0	1	0.00	
KSIP	1001	20	5.7580E-01	230	18	0	51	0.14	
LEUVEN1	2220	1530	-1.5243E+07	1515	14	0	31	0.35	w
LEUVEN2	2329	1530	-1.4147E+07	610	5	0	12	0.14	d
LEUVEN3	2973	1200	-1.0381E+09	1055	53	0	23	1.67	d
LEUVEN4	2973	1200	-1.4083E+09	1459	53	0	29	2.43	d
LEUVEN5	2973	1200	-1.0381E+09	1055	53	0	23	1.66	d

Table 4: Results for SQIC with HSL_MA57 on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
LEUVEN6	3091	1200	-1.4520E+08	584	31	0	14	1.19	d
LEUVEN7	946	360	6.9455E+02	136	20	0	3	0.07	w
LINCONT	419	1257	0.0000E+00	126	0	0	4	0.03	i
LISWET1	2000	2002	7.2219E+00	1	2	0	1	0.01	
LISWET10	2000	2002	9.8965E+00	34	18	0	2	0.02	w
LISWET11	2000	2002	9.9054E+00	49	29	0	2	0.02	w
LISWET12	2000	2002	3.4752E+02	24	5	0	1	0.01	w
LISWET2	2000	2002	4.9981E+00	37	7	0	1	0.01	
LISWET3	2000	2002	4.9978E+00	153	93	0	2	0.04	
LISWET4	2000	2002	4.9978E+00	165	97	0	2	0.04	
LISWET5	2000	2002	4.9978E+00	160	90	0	2	0.04	
LISWET6	2000	2002	4.9979E+00	129	81	0	2	0.03	
LISWET7	2000	2002	9.9895E+01	1	2	0	1	0.01	
LISWET8	2000	2002	1.4313E+02	28	16	0	2	0.02	w
LISWET9	2000	2002	3.9292E+02	18	7	0	1	0.01	w
LOTSCHD	7	12	2.3984E+03	8	0	0	2	0.00	
MARATOSB	1	2	-1.4400E+06	2	0	0	1	0.00	u
MOSARQP1	700	2500	-3.8214E+03	1497	1021	2	1	2.44	
MPC1	3833	2550	-2.3262E+07	1371	0	0	26	0.36	w
MPC10	2351	1530	-1.5034E+07	1224	11	0	24	0.24	d
MPC11	2351	1530	-1.5030E+07	954	34	0	18	0.20	d
MPC12	2351	1530	-1.5033E+07	1275	19	0	25	0.26	d
MPC13	2351	1530	-1.5034E+07	1164	13	0	23	0.24	d
MPC14	2351	1530	-1.5034E+07	1230	16	0	23	0.25	d
MPC15	2351	1530	-1.5034E+07	1081	15	0	21	0.22	d
MPC16	2351	1530	-1.5034E+07	1081	16	0	20	0.21	d
MPC2	2351	1530	-1.5033E+07	1214	27	0	22	0.25	d
MPC3	2351	1530	-1.5030E+07	1334	32	0	23	0.30	d
MPC4	2351	1530	-1.5033E+07	1357	21	0	25	0.28	d
MPC5	2351	1530	-1.5033E+07	1356	25	0	25	0.28	d
MPC6	2351	1530	-1.5034E+07	1245	18	0	22	0.26	d
MPC7	2351	1530	-1.5034E+07	1133	15	0	22	0.22	d
MPC8	2351	1530	-1.5034E+07	1213	13	0	23	0.24	d
MPC9	2351	1530	-1.5034E+07	1216	11	0	23	0.24	d
NASH	24	72	0.0000E+00	2	0	0	2	0.00	i
NCVXBQP1	1	10000	-1.9855E+10	10009	0	1	1	1.16	
NCVXBQP2	1	10000	-1.3245E+10	11186	51	1	1	1.41	
NCVXBQP3	1	10000	-6.4122E+09	10837	126	2	1	162.60	
NCVXQP1	500	1000	-7.1562E+07	748	0	0	8	0.04	
NCVXQP2	500	1000	-5.7759E+07	991	0	0	15	0.06	d
NCVXQP3	500	1000	-2.9270E+07	1130	20	0	11	0.12	
NCVXQP4	250	1000	-9.4002E+07	789	0	0	4	0.03	
NCVXQP5	250	1000	-6.6231E+07	834	1	0	5	0.04	
NCVXQP6	250	1000	-3.3898E+07	910	53	0	6	0.13	
NCVXQP7	750	1000	-4.3521E+07	656	0	0	11	0.04	
NCVXQP8	750	1000	-3.0098E+07	816	0	0	14	0.05	
NCVXQP9	750	1000	-2.1230E+07	926	11	0	14	0.09	
PENTDI	1	5000	-7.5000E-01	3	2	0	1	0.02	w
PORTSNQP	2	100000	3.3332E+04	108265	257	0	882	17.57	
PORTSQP	1	100000	3.3331E+04	100315	315	0	2	6.68	
POWELL20	5000	5000	6.5120E+09	2500	1	3	1	5.89	w
PRIMALC1	9	230	-6.1553E+03	5	14	0	1	0.00	
PRIMALC2	7	231	-3.5513E+03	4	1	0	1	0.00	

Table 4: Results for SQIC with HSL_MA57 on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
PRIMALC5	8	287	-4.2723E+02	6	5	0	1	0.00	
PRIMALC8	8	520	-1.8309E+04	7	17	0	1	0.00	
QPBAND	25000	50000	-4.9999E+04	149762	67	0	1022	202.84	
QPCBLEND	74	83	-7.8425E-03	77	2	0	3	0.00	
QPCBOEI1	351	384	1.1504E+07	700	113	0	9	0.03	w
QPCBOEI2	166	143	8.1720E+06	203	32	0	4	0.01	w
QPCSTAIR	356	467	6.2044E+06	311	21	0	8	0.02	w
QPNBAND	25000	50000	-2.5000E+05	75000	1	0	512	90.06	
QPNBLEND	74	83	-8.7056E-03	67	3	0	2	0.00	
QPNBOEI1	351	384	6.7367E+06	683	92	0	10	0.03	d
QPNBOEI2	166	143	1.3683E+06	229	27	0	5	0.01	d
QPNSTAIR	356	467	5.1460E+06	349	20	0	6	0.02	d
QUDLIN	1	5000	-1.2500E+09	5000	0	0	1	0.21	w
RDW2D51F	16129	33282	1.1342E-03	853	0	0	16	30.20	
RDW2D52F	49	162	8.6159E-03	71	37	0	3	0.00	w
S268	5	5	3.6380E-12	2	5	0	1	0.00	
SIM2BQP	1	2	0.0000E+00	2	0	0	1	0.00	
SIMBQP	1	2	0.0000E+00	2	1	0	1	0.00	
SOSQP1	2501	5000	-2.4462E-11	2	2499	1	2	0.02	
STATIC3	96	434	-3.4937E+03	59	222	0	2	0.01	u
STEENBRA	108	432	1.6958E+04	87	11	0	3	0.00	w
TAME	1	2	0.0000E+00	2	1	0	2	0.00	
TORSION5	1	5476	-2.8634E+00	953	952	0	1	0.52	
TORSION6	1	5476	-2.8634E+00	4233	952	5	1	13.65	
TORSIONE	1	5476	-2.8502E+00	969	968	0	1	0.54	
TORSIONF	1	5476	-2.8502E+00	4217	968	5	1	13.61	
YAO	2000	2002	1.9770E+02	3	1	0	1	0.01	
ZECEVIC2	2	2	-4.1250E+00	3	1	0	1	0.00	

Table 5: Results for SQIC-MA57 on “large” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
ALLINQP	25000	50000	-5.4813E+03	16957	9820	10	2	91.37	w
AUG2D	10000	20200	1.6874E+06	10193	10192	9	2	52.39	w
AUG2DC	10000	20200	1.8184E+06	1	10200	1	2	0.11	
AUG2DCQP	10000	20200	6.4982E+06	14432	9992	8	82	56.39	
AUG2DQP	10000	20200	6.2370E+06	14532	9800	8	78	57.07	w
AUG3D	8000	27543	2.4561E+04	16910	16909	16	2	129.84	w
AUG3DC	8000	27543	2.7654E+04	1	19543	1	2	0.24	
AUG3DCQP	8000	27543	6.1560E+04	22216	17665	16	81	120.56	w
AUG3DQP	8000	27543	5.4229E+04	18522	13712	12	82	91.13	w
BIGGSB1	1	5000	1.5000E-02	5002	4998	3	1	9.68	
BLOWEYA	2002	4002	-2.2781E-02	1205	2000	0	2	4.09	
BLOWEYB	2002	4002	-1.5226E-02	805	2000	0	2	3.78	
BLOWEYC	2002	4002	-1.5246E-02	805	2000	0	2	3.79	
BQPGABIM	1	50	-3.7903E-05	11	36	0	1	0.00	
BQPGASIM	1	50	-5.5198E-05	11	40	0	1	0.00	
BQPGAUSS	1	2003	-3.6258E-01	386	1909	0	1	3.12	
CHENHARK	1	5000	-2.0000E+00	2017	2984	2	1	10.46	w
CVXQP1	5000	10000	1.0870E+08	10296	1267	4	102	100.27	w
CVXQP2	2500	10000	8.1842E+07	6345	2210	6	6	73.37	

Table 5: Results for SQIC with HSL_MA57 on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
DIXON3DQ	1	10000	0.0000E+00	1	10000	1	1	0.06	
DQDRTIC	1	5000	0.0000E+00	1	5000	1	1	0.03	
DTOC3	2998	4499	2.3522E+02	2	1499	0	2	1.01	
DUAL1	1	85	3.5013E-02	77	62	0	2	0.00	
DUAL2	1	96	3.3734E-02	94	91	0	2	0.00	
DUAL3	1	111	1.3576E-01	111	96	0	2	0.01	
DUAL4	1	75	7.4609E-01	64	61	0	2	0.00	
GOULDQP3	9999	19999	2.3796E-05	5814	4988	3	17	20.83	w
GRIDNETA	3844	7564	4.7798E+02	192	1289	0	2	0.83	
GRIDNETB	3844	7564	1.2761E+02	1	3721	1	2	0.04	
GRIDNETC	3844	7564	1.6187E+02	1391	2578	1	2	4.89	w
HILBERTA	1	2	0.0000E+00	1	2	0	1	0.00	
HILBERTB	1	10	0.0000E+00	1	10	0	1	0.00	
HUES-MOD	2	5000	3.4824E+07	286	4721	1	2	0.21	
HUESTIS	2	5000	1.7412E+11	284	4721	1	2	0.21	
JNLBRNG1	1	10000	-1.8057E-01	1693	6494	2	1	4.08	
JNLBRNG2	1	10000	-4.1487E+00	953	5754	1	1	2.38	
JNLBRNGA	1	10000	-2.7110E-01	6360	6359	5	1	15.64	
JNLBRNGB	1	10000	-6.3007E+00	5384	5383	4	1	12.83	
MOSARQP2	700	2500	-5.0526E+03	850	1640	1	1	1.25	
NOBNDTOR	1	5476	-4.4993E-01	1727	4318	2	1	3.35	
OBSTCLAE	1	10000	1.8865E+00	4474	5131	5	1	18.21	
OBSTCLAL	1	10000	1.8865E+00	5132	5131	3	1	12.05	
OBSTCLBL	1	10000	7.2722E+00	10992	7057	7	1	26.33	
OBSTCLBM	1	10000	7.2722E+00	2548	7057	3	1	9.65	
OBSTCLBU	1	10000	7.2722E+00	8218	7057	5	1	17.51	
ODNAMUR	1	11130	9.2366E+03	3729	5512	3	1	192.82	w
OSLBQP	1	8	6.2500E+00	1	6	0	1	0.00	
PALMER1C	1	8	9.7605E-02	1	8	0	1	0.00	
PALMER1D	1	7	6.5267E-01	1	7	0	1	0.00	
PALMER2C	1	8	1.4369E-02	1	8	0	1	0.00	
PALMER3C	1	8	1.9538E-02	1	8	0	1	0.00	
PALMER4C	1	8	5.0311E-02	1	8	0	1	0.00	
PRIMAL1	85	325	-3.5013E-02	70	262	0	2	0.03	
PRIMAL2	96	649	-3.3734E-02	97	557	0	2	0.12	
PRIMAL3	111	745	-1.3576E-01	102	648	0	3	0.36	w
PRIMAL4	75	1489	-7.4609E-01	63	1427	0	2	0.93	
RDW2D51U	3969	8450	8.3625E-04	127	3969	1	2	0.60	
RDW2D52U	3969	8450	1.1314E-02	127	3969	1	2	0.77	
SOSQP2	2501	5000	-1.2487E+03	4777	1251	0	37	9.99	w
STCQP1	4095	8193	3.6710E+05	1550	5717	1	18	5.04	
STCQP2	4095	8193	3.7189E+04	3279	3970	1	66	1.25	
STNQP1	4095	8193	-3.1170E+05	2134	5276	3	18	13.15	
STNQP2	4095	8193	-5.7497E+05	4997	2640	3	66	58.44	
TESTQUAD	1	5000	0.0000E+00	1	5000	1	1	0.03	
TOINTQOR	1	50	1.1755E+03	1	50	0	1	0.00	
TORSION1	1	5476	-4.3028E-01	3561	3560	2	1	7.13	
TORSION2	1	5476	-4.3028E-01	1625	3560	2	1	4.82	
TORSION3	1	5476	-1.2170E+00	1801	1800	0	1	3.08	
TORSION4	1	5476	-1.2170E+00	3385	1800	4	1	10.78	
TORSIONA	1	5476	-4.1830E-01	3625	3624	2	1	7.26	
TORSIONB	1	5476	-4.1830E-01	1561	3624	2	1	4.56	
TORSIONC	1	5476	-1.2042E+00	1833	1832	0	1	3.31	

Table 5: Results for SQIC with HSL_MA57 on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
TORSIOND	1	5476	-1.2042E+00	3353	1832	4	1	10.70	
TRIDIA	1	5000	-8.8818E-16	1	5000	1	1	0.02	
UBH1	6000	9009	1.1160E+00	6318	2997	3	44	26.69	
WALL10	1	1461	-4.5595E+05	70	1101	0	1	0.27	
WALL100	1	149624	-8.9544E+03	5889	110712	6	1	242.00	
WALL20	1	5924	-5.2210E+06	162	4277	1	1	0.18	
WALL50	1	37311	-9.5450E+06	800	26961	1	1	8.44	
ZANGWIL2	1	2	-1.8200E+01	1	2	0	1	0.00	

Table 6: Results for SQIC-UMFPACK on “small” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AOENDNDL	15002	45006	0.0000E+00	7266	0	0	149	16.05	
AOENINDL	15002	45006	0.0000E+00	7220	0	0	149	16.09	
AOESNDL	15002	45006	5.0268E-11	5468	0	0	113	12.20	w
AOESDNDL	15002	45006	0.0000E+00	6824	0	0	140	16.82	
AOESINDL	15002	45006	0.0000E+00	7162	0	0	147	15.51	
AOESSNDL	15002	45006	4.3383E-11	5331	0	0	110	14.28	w
AONNDNDL	20004	60012	0.0000E+00	49589	0	0	1006	185.09	
AONNDNIL	20004	60012	6.0072E+01	12049	55	0	243	32.63	d
AONNDNSL	20004	60012	-1.6935E-23	33326	0	0	682	100.89	d
AONNSNSL	20004	60012	-1.1039E-08	19824	0	0	405	54.18	d
AONSDSDL	20004	60012	0.0000E+00	30912	0	0	631	113.26	
AONSDSDS	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
AONSDSIL	20004	60012	1.7221E+00	13552	22	0	278	38.28	
AONSDSSL	20004	60012	6.3205E-12	23229	0	0	475	64.72	w
AONSSSSL	20004	60012	1.6312E-18	16845	0	0	345	42.70	d
A2ENDNDL	15002	45006	0.0000E+00	6805	47	0	140	15.18	w
A2ENINDL	15002	45006	0.0000E+00	6703	57	0	138	15.60	w
A2ENSNDL	15002	45006	3.2088E-13	5114	33	0	106	12.85	w
A2ESDNDL	15002	45006	9.4684E-25	6329	74	0	130	16.14	w
A2ESINDL	15002	45006	0.0000E+00	6690	44	0	138	14.88	w
A2ESSNDL	15002	45006	3.2088E-13	4973	26	0	103	12.61	w
A2NNDNDL	20004	60012	5.4561E-10	54819	49	0	1093	205.64	d
A2NNDNIL	20004	60012	5.2190E+04	11717	0	0	241	28.91	i
A2NNDNSL	20004	60012	1.0137E+01	35010	21	0	706	112.63	d
A2NNSNSL	20004	60012	5.8303E-20	22529	0	0	460	57.12	d
A2NSDSDL	20004	60012	4.8243E-11	40497	5	0	827	149.76	w
A2NSDSIL	20004	60012	4.7144E+01	14167	249	0	284	46.86	d
A2NSDSSL	20004	60012	-1.4981E-11	27766	0	0	602	90.12	d
A2NSSSSL	20004	60012	-7.8883E-05	20539	0	0	421	54.50	d
A5ENDNDL	15002	45006	0.0000E+00	5903	230	0	122	14.19	w
A5ENINDL	15002	45006	0.0000E+00	5914	222	0	121	13.94	w
A5ENSNDL	15002	45006	3.2088E-13	4616	129	0	95	10.93	w
A5ESDNDL	15002	45006	0.0000E+00	5674	238	0	117	14.11	w
A5ESINDL	15002	45006	0.0000E+00	5755	197	0	118	13.44	w
A5ESSNDL	15002	45006	-7.5546E-09	4504	54	0	93	7.92	w
A5NNDNDL	20004	60012	1.0364E-08	55587	198	0	1097	232.79	d
A5NNDNIL	20004	60012	8.4150E+04	10259	0	0	211	25.01	i
A5NNDNSL	20004	60012	-5.5762E-23	32401	0	0	714	110.01	d
A5NNSNSL	20004	60012	-4.4698E-05	23059	0	0	553	81.61	d

Table 6: Results for SQIC with UMFPACK on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
A5NSDSL	20004	60012	1.2278E-11	38515	29	0	784	157.33	w
A5NSDSM	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
A5NSDSL	20004	60012	9.5868E+00	11773	620	0	228	43.49	d
A5NSDSL	20004	60012	6.2451E-22	30114	0	0	888	176.12	d
A5NSSSM	2004	6012	-4.8905E-09	1430	0	0	30	0.22	w
A5NSSSL	20004	60012	-8.0011E-09	19987	0	0	412	58.53	d
AVGASA	10	8	-4.6319E+00	12	3	0	1	0.00	
AVGASB	10	8	-4.4832E+00	10	3	0	1	0.00	
BIGGSC4	7	4	-2.4375E+01	11	1	0	1	0.00	d
BLOCKQP1	5001	10010	-4.9940E+03	5014	9	0	2	2.11	
BLOCKQP2	5001	10010	-4.9928E+03	7515	9	0	104	7.69	d
BLOCKQP3	5001	10010	-2.4950E+03	5014	9	0	2	2.57	
BLOCKQP4	5001	10010	-2.4933E+03	8492	9	0	104	11.53	d
BLOCKQP5	5001	10010	-2.4950E+03	5020	9	0	2	1.48	
BQP1VAR	1	1	0.0000E+00	2	0	0	1	0.00	
CVXBQP1	1	10000	2.2502E+06	10001	0	0	1	0.99	
CVXQP3	7500	10000	1.1571E+08	11352	419	0	194	15.08	w
DEGENQP	125025	50	0.0000E+00	27	0	0	2	0.68	
DUALC1	215	9	6.1553E+03	5	2	0	2	0.00	
DUALC2	229	7	3.5513E+03	4	2	0	2	0.00	
DUALC5	278	8	4.2723E+02	5	4	0	2	0.00	
DUALC8	503	8	1.8309E+04	7	2	0	2	0.00	w
FERRISDC	210	2200	-1.4835E-05	188	96	0	2	0.09	w
GENHS28	8	10	9.2717E-01	1	2	0	2	0.00	
GMNCASE1	300	175	2.6697E-01	52	95	0	1	0.03	w
GMNCASE2	1050	175	-9.9444E-01	56	94	0	2	0.05	
GMNCASE3	1050	175	1.5251E+00	61	93	0	2	0.05	
GMNCASE4	350	175	5.9469E+03	140	0	0	3	0.04	
GOULDQP1	17	32	-3.4853E+03	22	0	0	2	0.00	
GOULDQP2	9999	19999	1.8512E-12	1	0	0	2	0.07	w
HARKERP2	1	1000	-5.0000E-01	1000	1	0	1	4.59	
HATFLDH	7	4	-2.4500E+01	4	0	0	1	0.00	w
HS118	17	15	6.6482E+02	16	0	0	1	0.00	
HS21	1	2	-9.9960E+01	1	1	0	1	0.00	
HS268	5	5	3.6380E-12	2	5	0	1	0.00	
HS3	1	2	0.0000E+00	2	1	0	1	0.00	
HS35	1	3	1.1111E-01	2	2	0	1	0.00	
HS35I	1	3	1.1111E-01	2	2	0	1	0.00	
HS35MOD	1	3	2.5000E-01	1	2	0	1	0.00	
HS3MOD	1	2	0.0000E+00	2	1	0	1	0.00	
HS44	6	4	-1.3000E+01	3	0	0	1	0.00	
HS44NEW	6	4	-1.3000E+01	6	0	0	1	0.00	
HS51	3	5	0.0000E+00	1	2	0	2	0.00	
HS52	3	5	5.3266E+00	1	2	0	2	0.00	
HS53	3	5	4.0930E+00	1	2	0	2	0.00	
HS76	3	4	-4.6818E+00	5	2	0	1	0.00	
HS76I	3	4	-4.6818E+00	5	2	0	1	0.00	
KSIP	1001	20	5.7580E-01	230	18	0	51	0.14	
LEUVEN1	2220	1530	-1.5243E+07	1515	14	0	31	0.35	w
LEUVEN2	2329	1530	-1.4147E+07	610	5	0	12	0.14	d
LEUVEN3	2973	1200	-1.0381E+09	1055	53	0	23	1.66	d
LEUVEN4	2973	1200	-1.4083E+09	1459	53	0	29	2.44	d
LEUVEN5	2973	1200	-1.0381E+09	1055	53	0	23	1.67	d

Table 6: Results for SQIC with UMFPACK on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
LEUVEN6	3091	1200	-1.4520E+08	584	31	0	14	1.18	d
LEUVEN7	946	360	6.9455E+02	136	20	0	3	0.07	w
LINCONT	419	1257	0.0000E+00	126	0	0	4	0.03	i
LISWET1	2000	2002	7.2219E+00	1	2	0	1	0.01	
LISWET10	2000	2002	9.8965E+00	34	18	0	2	0.02	w
LISWET11	2000	2002	9.9054E+00	49	29	0	2	0.02	w
LISWET12	2000	2002	3.4752E+02	24	5	0	1	0.01	w
LISWET2	2000	2002	4.9981E+00	37	7	0	1	0.01	
LISWET3	2000	2002	4.9978E+00	153	93	0	2	0.04	
LISWET4	2000	2002	4.9978E+00	165	97	0	2	0.04	
LISWET5	2000	2002	4.9978E+00	160	90	0	2	0.04	
LISWET6	2000	2002	4.9979E+00	129	81	0	2	0.03	
LISWET7	2000	2002	9.9895E+01	1	2	0	1	0.01	
LISWET8	2000	2002	1.4313E+02	28	16	0	2	0.02	w
LISWET9	2000	2002	3.9292E+02	18	7	0	1	0.01	w
LOTSCHD	7	12	2.3984E+03	8	0	0	2	0.00	
MARATOSB	1	2	-1.4400E+06	2	0	0	1	0.00	u
MOSARQP1	700	2500	-3.8214E+03	3305	126	0	23	1.16	w
MPC1	3833	2550	-2.3262E+07	1371	0	0	26	0.36	w
MPC10	2351	1530	-1.5034E+07	1224	11	0	24	0.24	d
MPC11	2351	1530	-1.5030E+07	954	34	0	18	0.20	d
MPC12	2351	1530	-1.5033E+07	1275	19	0	25	0.26	d
MPC13	2351	1530	-1.5034E+07	1164	13	0	23	0.24	d
MPC14	2351	1530	-1.5034E+07	1230	16	0	23	0.25	d
MPC15	2351	1530	-1.5034E+07	1081	15	0	21	0.22	d
MPC16	2351	1530	-1.5034E+07	1081	16	0	20	0.21	d
MPC2	2351	1530	-1.5033E+07	1214	27	0	22	0.25	d
MPC3	2351	1530	-1.5030E+07	1334	32	0	23	0.30	d
MPC4	2351	1530	-1.5033E+07	1357	21	0	25	0.28	d
MPC5	2351	1530	-1.5033E+07	1356	25	0	25	0.28	d
MPC6	2351	1530	-1.5034E+07	1245	18	0	22	0.26	d
MPC7	2351	1530	-1.5034E+07	1133	15	0	22	0.22	d
MPC8	2351	1530	-1.5034E+07	1213	13	0	23	0.24	d
MPC9	2351	1530	-1.5034E+07	1216	11	0	23	0.24	d
NASH	24	72	0.0000E+00	2	0	0	2	0.00	i
NCVXBQP1	1	10000	-1.9855E+10	10009	0	0	1	1.11	
NCVXBQP2	1	10000	-1.3245E+10	11186	51	0	1	1.36	
NCVXBQP3	1	10000	-6.4122E+09	10837	126	0	1	1.33	
NCVXQP1	500	1000	-7.1562E+07	748	0	0	8	0.04	
NCVXQP2	500	1000	-5.7759E+07	991	0	0	15	0.06	d
NCVXQP3	500	1000	-2.9270E+07	1130	20	0	11	0.12	
NCVXQP4	250	1000	-9.4002E+07	789	0	0	4	0.03	
NCVXQP5	250	1000	-6.6231E+07	834	1	0	5	0.04	
NCVXQP6	250	1000	-3.3898E+07	910	53	0	6	0.13	
NCVXQP7	750	1000	-4.3521E+07	656	0	0	11	0.04	
NCVXQP8	750	1000	-3.0098E+07	816	0	0	14	0.05	
NCVXQP9	750	1000	-2.1230E+07	926	11	0	14	0.09	
PENTDI	1	5000	-7.5000E-01	3	2	0	1	0.02	w
PORTSNQP	2	100000	3.3332E+04	108265	257	0	882	17.58	
PORTSQP	1	100000	3.3331E+04	100315	315	0	2	6.69	
POWELL20	5000	5000	6.5120E+09	2502	1	0	52	0.66	w
PRIMALC1	9	230	-6.1553E+03	5	14	0	1	0.00	
PRIMALC2	7	231	-3.5513E+03	4	1	0	1	0.00	

Table 6: Results for SQIC with UMFPACK on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
PRIMALC5	8	287	-4.2723E+02	6	5	0	1	0.00	
PRIMALC8	8	520	-1.8309E+04	7	17	0	1	0.00	
QPBAND	25000	50000	-4.9999E+04	149762	67	0	1022	204.05	
QPCBLEND	74	83	-7.8425E-03	77	2	0	3	0.00	
QPCBOEI1	351	384	1.1504E+07	700	113	0	9	0.03	w
QPCBOEI2	166	143	8.1720E+06	203	32	0	4	0.01	w
QPCSTAIR	356	467	6.2044E+06	311	21	0	8	0.02	w
QPNBAND	25000	50000	-2.5000E+05	75000	1	0	512	90.30	
QPNBLEND	74	83	-8.7056E-03	67	3	0	2	0.00	
QPNBOEI1	351	384	6.7367E+06	683	92	0	10	0.03	d
QPNBOEI2	166	143	1.3683E+06	229	27	0	5	0.01	d
QPNSTAIR	356	467	5.1460E+06	349	20	0	6	0.02	d
QUDLIN	1	5000	-1.2500E+09	5000	0	0	1	0.21	w
RDW2D51F	16129	33282	1.1342E-03	853	0	0	16	30.37	
RDW2D52F	49	162	8.6159E-03	71	37	0	3	0.00	w
S268	5	5	3.6380E-12	2	5	0	1	0.00	
SIM2BQP	1	2	0.0000E+00	2	0	0	1	0.00	
SIMBQP	1	2	0.0000E+00	2	1	0	1	0.00	
SOSQP1	2501	5000	-2.4500E-11	2	0	0	2	0.02	w
STATIC3	96	434	-3.4937E+03	59	222	0	2	0.01	u
STEENBRA	108	432	1.6958E+04	87	11	0	3	0.00	w
TAME	1	2	0.0000E+00	2	1	0	2	0.00	
TORSION5	1	5476	-2.8634E+00	953	952	0	1	0.53	
TORSION6	1	5476	-2.8634E+00	9417	952	0	1	24.10	
TORSIONE	1	5476	-2.8502E+00	969	968	0	1	0.54	
TORSIONF	1	5476	-2.8502E+00	9401	968	0	1	24.86	
YAO	2000	2002	1.9770E+02	3	1	0	1	0.01	
ZECEVIC2	2	2	-4.1250E+00	3	1	0	1	0.00	

Table 7: Results for SQIC-UMFPACK on “large” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
ALLINQP	25000	50000	-5.4813E+03	24100	9820	8	74	61.68	w
AUG2D	10000	20200	1.6874E+06	10193	10192	8	2	43.65	w
AUG2DC	10000	20200	1.8184E+06	10201	10200	8	2	44.48	
AUG2DCQP	10000	20200	6.4982E+06	14432	9992	8	82	51.02	
AUG2DQP	10000	20200	6.2370E+06	14530	9800	8	78	52.07	w
AUG3D	8000	27543	2.4561E+04	16910	16909	15	2	86.79	w
AUG3DC	8000	27543	2.7654E+04	19544	19543	17	2	114.81	
AUG3DCQP	8000	27543	6.1560E+04	22216	17665	16	81	102.77	w
AUG3DQP	8000	27543	5.4229E+04	18521	13712	12	82	78.87	w
BIGGSB1	1	5000	1.5000E-02	5002	4998	3	1	9.25	
BLOWEYA	2002	4002	-2.2781E-02	1205	2000	0	2	4.08	
BLOWEYB	2002	4002	-1.5226E-02	805	2000	0	2	3.81	
BLOWEYC	2002	4002	-1.5246E-02	805	2000	0	2	3.79	
BQPGABIM	1	50	-3.7903E-05	11	36	0	1	0.00	
BQPGASIM	1	50	-5.5198E-05	11	40	0	1	0.00	
BQPGAUSS	1	2003	-3.6258E-01	386	1909	0	1	3.05	
CENHARK	1	5000	-2.0000E+00	6998	2997	1	1	5.99	w
CVXQP1	5000	10000	1.0871E+08	11133	1263	0	115	8.67	w
CVXQP2	2500	10000	8.1842E+07	8442	2209	1	24	15.85	w

Table 7: Results for SQIC-UMFPACK on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
DIXON3DQ	1	10000	0.0000E+00	10001	10000	8	1	20.44	
DQDRTIC	1	5000	0.0000E+00	5001	5000	3	1	8.97	
DTOC3	2998	4499	2.3522E+02	2	1499	0	2	1.01	
DUAL1	1	85	3.5013E-02	77	62	0	2	0.00	
DUAL2	1	96	3.3734E-02	94	91	0	2	0.00	
DUAL3	1	111	1.3576E-01	111	96	0	2	0.01	
DUAL4	1	75	7.4609E-01	64	61	0	2	0.00	
GOULDQP3	9999	19999	2.3796E-05	5814	4988	3	17	16.46	w
GRIDNETA	3844	7564	4.7798E+02	192	1289	0	2	0.84	
GRIDNETB	3844	7564	1.2761E+02	3722	3721	2	2	9.82	
GRIDNETC	3844	7564	1.6187E+02	1391	2578	1	2	4.78	w
HILBERTA	1	2	0.0000E+00	1	2	0	1	0.00	
HILBERTB	1	10	0.0000E+00	1	10	0	1	0.00	
HUES-MOD	2	5000	3.4824E+07	5317	4719	3	2	9.67	w
HUESTIS	2	5000	1.7412E+11	5316	4719	3	2	9.66	w
JNLBRNG1	1	10000	-1.8057E-01	6495	6494	5	1	14.53	
JNLBRNG2	1	10000	-4.1487E+00	5755	5754	4	1	11.80	
JNLBRNGA	1	10000	-2.7110E-01	6360	6359	5	1	14.13	
JNLBRNGB	1	10000	-6.3007E+00	5384	5383	4	1	11.62	
MOSARQP2	700	2500	-5.0526E+03	2553	1640	0	6	2.92	
NOBNDTOR	1	5476	-4.4993E-01	4323	4318	3	1	9.18	
OBSTCLAE	1	10000	1.8865E+00	14063	5131	11	1	39.37	
OBSTCLAL	1	10000	1.8865E+00	5132	5131	3	1	11.71	
OBSTCLBL	1	10000	7.2722E+00	10992	7057	7	1	24.56	
OBSTCLBM	1	10000	7.2722E+00	12672	7057	6	1	24.90	
OBSTCLBU	1	10000	7.2722E+00	8218	7057	5	1	16.44	
ODNAMUR	1	11130	9.2366E+03	6456	4518	3	1	144.70	w
OSLBQP	1	8	6.2500E+00	1	6	0	1	0.00	
PALMER1C	1	8	9.7605E-02	1	8	0	1	0.00	
PALMER1D	1	7	6.5267E-01	1	7	0	1	0.00	
PALMER2C	1	8	1.4369E-02	1	8	0	1	0.00	
PALMER3C	1	8	1.9538E-02	1	8	0	1	0.00	
PALMER4C	1	8	5.0311E-02	1	8	0	1	0.00	
PRIMAL1	85	325	-3.5013E-02	70	262	0	2	0.03	
PRIMAL2	96	649	-3.3734E-02	97	557	0	2	0.12	
PRIMAL3	111	745	-1.3576E-01	102	648	0	3	0.36	w
PRIMAL4	75	1489	-7.4609E-01	63	1427	0	2	0.92	
RDW2D51U	3969	8450	8.3625E-04	4183	3963	3	10	67.14	w
RDW2D52U	3969	8450	1.1314E-02	4220	3967	3	2	59.14	w
SOSQP2	2501	5000	-1.2487E+03	4777	1251	0	37	9.99	w
STCQP1	4095	8193	3.6710E+05	7276	5717	4	18	12.88	
STCQP2	4095	8193	3.7189E+04	7694	3970	2	66	9.77	
STNQP1	4095	8193	-3.1170E+05	7283	5277	4	18	12.35	
STNQP2	4095	8193	-5.7497E+05	7250	2640	1	66	6.13	
TESTQUAD	1	5000	0.0000E+00	5001	5000	3	1	8.95	
TOINTQOR	1	50	1.1755E+03	1	50	0	1	0.00	
TORSION1	1	5476	-4.3028E-01	3561	3560	2	1	6.95	
TORSION2	1	5476	-4.3028E-01	6809	3560	4	1	15.96	
TORSION3	1	5476	-1.2170E+00	1801	1800	0	1	3.08	
TORSION4	1	5476	-1.2170E+00	8569	1800	4	1	22.36	
TORSIONA	1	5476	-4.1830E-01	3625	3624	2	1	7.08	
TORSIONB	1	5476	-4.1830E-01	6745	3624	4	1	16.97	
TORSIONC	1	5476	-1.2042E+00	1833	1832	0	1	3.30	

Table 7: Results for SQIC-UMFPACK on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
TORSIOND	1	5476	-1.2042E+00	8537	1832	4	1	23.28	
TRIDIA	1	5000	-1.1102E-15	5000	4999	3	1	9.14	w
UBH1	6000	9009	1.1160E+00	6318	2997	2	44	25.62	
WALL10	1	1461	-4.5595E+05	70	1101	0	1	0.27	
WALL100	1	149624	-8.9544E+03	123513	110712	116	1	2511.57	
WALL20	1	5924	-5.2210E+06	5303	4276	3	1	14.03	w
WALL50	1	37311	-9.5450E+06	33691	26958	30	1	203.54	w
ZANGWIL2	1	2	-1.8200E+01	1	2	0	1	0.00	

Table 8: Results for SQIC in block-matrix mode with LUSOL on “small” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AOENDNDL	15002	45006	0.0000E+00	7276	0	1	140	15.74	
AOENINDL	15002	45006	0.0000E+00	7228	0	1	140	15.49	
AOENSNDL	15002	45006	5.0266E-11	5780	0	1	105	12.19	w
AOESDNDL	15002	45006	0.0000E+00	7195	0	2	128	16.30	
AOESINDL	15002	45006	0.0000E+00	7165	0	1	139	15.10	
AOESSNDL	15002	45006	-2.2526E-09	5864	0	2	98	14.63	w
AONNDNDL	20004	60012	0.0000E+00	61965	0	17	961	257.12	
AONNDNIL	20004	60012	4.8858E+01	12156	61	1	238	31.89	
AONNDNSL	20004	60012	1.0322E-11	39410	0	47	646	135.98	d
AONNSNSL	20004	60012	-1.1017E-08	21122	0	2	365	64.23	d
AONSDSDL	20004	60012	0.0000E+00	30798	0	2	618	105.15	
AONSDSDS	2004	6012	-3.8323E-09	1652	0	33	27	0.45	d
AONSDSIL	20004	60012	0.0000E+00	13756	0	4	273	37.96	
AONSDSSL	20004	60012	-6.3818E-11	23318	0	1	469	63.81	d
AONSSSSL	20004	60012	-3.5855E-09	17172	0	1	338	43.53	d
A2ENDNDL	15002	45006	0.0000E+00	7151	0	8	132	16.03	w
A2ENINDL	15002	45006	0.0000E+00	7123	2	4	129	14.68	w
A2ENSNDL	15002	45006	3.0251E-13	5573	1	3	96	13.73	w
A2ESDNDL	15002	45006	0.0000E+00	7034	8	2	119	15.79	w
A2ESINDL	15002	45006	0.0000E+00	7092	4	15	130	16.05	w
A2ESSNDL	15002	45006	3.1694E-13	5436	0	2	93	12.57	w
A2NNDNDL	20004	60012	1.8744E-10	72055	40	32	1039	315.49	d
A2NNDNIL	20004	60012	5.2190E+04	11717	0	0	241	28.91	i
A2NNDNSL	20004	60012	3.0645E-13	44221	0	124	645	192.49	d
A2NNSNSL	20004	60012	-3.0894E-14	22764	0	1	451	57.68	d
A2NSDSDL	20004	60012	-1.3974E-12	50818	6	46	798	203.61	w
A2NSDSIL	20004	60012	5.1650E+01	14737	252	2	247	42.50	d
A2NSDSSL	20004	60012	-1.0645E-11	29692	0	101	523	109.44	d
A2NSSSSL	20004	60012	2.8120E-21	20530	0	4	406	53.02	d
A5ENDNDL	15002	45006	0.0000E+00	6607	17	2	115	15.08	w
A5ENINDL	15002	45006	3.5840E-13	6618	3	2	115	15.03	w
A5ENSNDL	15002	45006	3.1461E-13	5123	1	1	89	11.55	w
A5ESDNDL	15002	45006	0.0000E+00	6480	5	5	109	15.05	w
A5ESINDL	15002	45006	0.0000E+00	6467	3	8	112	13.74	w
A5ESSNDL	15002	45006	-1.1320E-09	4784	0	1	86	8.35	w
A5NNDNDL	20004	60012	3.8603E+01	65140	183	120	999	292.51	
A5NNDNIL	20004	60012	8.4150E+04	10259	0	0	211	25.00	i
A5NNDNSL	20004	60012	-1.2321E-09	42177	0	165	596	185.62	d

Table 8: Results for SQIC in block-matrix mode with LUSOL on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
A5NNSNSL	20004	60012	-1.6101E-04	25948	0	11	407	86.49	d
A5NSDSL	20004	60012	-4.2961E-12	73026	13	1232	742	706.36	w
A5NSDSM	2004	6012	-3.8323E-09	1652	0	33	27	0.46	d
A5NSDSL	20004	60012	1.2654E+01	12305	615	4	192	40.63	d
A5NSDSSL	20004	60012	-2.2078E-09	45012	0	537	496	300.51	d
A5NSSNSM	2004	6012	-3.8323E-09	1652	0	33	27	0.45	d
A5NSSSSL	20004	60012	3.6312E-11	22595	0	66	366	80.37	d
AVGASA	10	8	-4.6319E+00	13	3	1	1	0.00	
AVGASB	10	8	-4.4832E+00	11	3	1	1	0.00	
BIGGSC4	7	4	-2.4375E+01	11	1	1	1	0.00	d
BLOCKQP1	5001	10010	-4.9940E+03	5014	9	1	2	1.77	
BLOCKQP2	5001	10010	-4.9928E+03	7516	9	10	2	25.55	w
BLOCKQP3	5001	10010	-2.4950E+03	5014	9	1	2	1.77	
BLOCKQP4	5001	10010	-2.4933E+03	8492	9	10	2	32.93	d
BLOCKQP5	5001	10010	-2.4950E+03	5020	9	1	2	1.78	
BQP1VAR	1	1	0.0000E+00	1	0	1	1	0.00	
CVXBQP1	1	10000	2.2502E+06	10000	0	1	1	1.06	
CVXQP3	7500	10000	1.1571E+08	30375	430	61	410	142.96	w
DEGENQP	125025	50	0.0000E+00	27	0	1	2	1.17	
DUALC1	215	9	6.1553E+03	5	2	1	2	0.00	
DUALC2	229	7	3.5513E+03	4	2	1	2	0.00	
DUALC5	278	8	4.2723E+02	5	4	1	2	0.00	
DUALC8	503	8	1.8309E+04	7	2	1	2	0.00	w
FERRISDC	210	2200	0.0000E+00	0	0	1	2	0.02	w
GENHS28	8	10	9.2717E-01	3	2	1	2	0.00	
GMNCASE1	300	175	2.6697E-01	102	53	1	1	0.03	w
GMNCASE2	1050	175	-9.9444E-01	104	46	1	1	0.05	w
GMNCASE3	1050	175	1.5251E+00	107	48	1	1	0.05	w
GMNCASE4	350	175	5.9469E+03	140	0	1	1	0.08	
GOULDQP1	17	32	-3.4853E+03	21	0	1	2	0.00	
GOULDQP2	9999	19999	1.8512E-12	0	0	1	2	0.07	w
HARKERP2	1	1000	-5.0000E-01	999	0	1	1	0.04	w
HATFLDH	7	4	-2.4500E+01	4	0	2	1	0.00	w
HS118	17	15	6.6482E+02	22	0	1	1	0.00	
HS21	1	2	-9.9960E+01	1	1	1	1	0.00	
HS268	5	5	3.6380E-12	11	5	1	1	0.00	
HS3	1	2	0.0000E+00	2	1	1	1	0.00	
HS35	1	3	1.1111E-01	4	2	1	1	0.00	
HS35I	1	3	1.1111E-01	4	2	1	1	0.00	
HS35MOD	1	3	2.5000E-01	1	1	1	1	0.00	w
HS3MOD	1	2	0.0000E+00	2	1	1	1	0.00	
HS44	6	4	-1.3000E+01	2	0	3	1	0.00	
HS44NEW	6	4	-1.3000E+01	5	0	5	1	0.00	
HS51	3	5	0.0000E+00	3	2	1	2	0.00	
HS52	3	5	5.3266E+00	3	2	1	2	0.00	
HS53	3	5	4.0930E+00	3	2	1	2	0.00	
HS76	3	4	-4.6818E+00	4	2	1	1	0.00	
HS76I	3	4	-4.6818E+00	4	2	1	1	0.00	
KSIP	1001	20	5.7580E-01	5734	18	1952	16	10.01	
LEUVEN1	2220	1530	-1.5243E+07	1515	12	1	18	0.60	w
LEUVEN2	2329	1530	-1.4147E+07	608	2	1	9	0.16	d
LEUVEN3	2973	1200	-1.0381E+09	1098	50	55	2	5.10	d

Table 8: Results for SQIC in block-matrix mode with LUSOL on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
LEUVEN4	2973	1200	-1.4083E+09	1498	50	7	2	3.70	d
LEUVEN5	2973	1200	-1.0381E+09	1098	50	55	2	5.11	d
LEUVEN6	3091	1200	-1.4533E+08	573	30	5	3	1.65	d
LEUVEN7	946	360	6.9455E+02	208	19	6	1	0.14	w
LINCONT	419	1257	0.0000E+00	126	0	0	4	0.03	i
LISWET1	2000	2002	7.2219E+00	4	2	1	1	0.01	
LISWET10	2000	2002	9.8965E+00	44	17	2	1	0.02	w
LISWET11	2000	2002	9.9054E+00	67	29	2	1	0.03	w
LISWET12	2000	2002	3.4752E+02	29	6	1	1	0.02	w
LISWET2	2000	2002	4.9981E+00	40	7	2	1	0.02	
LISWET3	2000	2002	4.9978E+00	156	93	2	1	0.05	
LISWET4	2000	2002	4.9978E+00	168	97	2	1	0.05	
LISWET5	2000	2002	4.9978E+00	163	90	2	1	0.05	
LISWET6	2000	2002	4.9979E+00	132	81	2	1	0.04	
LISWET7	2000	2002	9.9895E+01	4	2	1	1	0.01	
LISWET8	2000	2002	1.4313E+02	27	14	2	1	0.02	w
LISWET9	2000	2002	3.9292E+02	23	6	2	1	0.02	w
LOTSCHD	7	12	2.3984E+03	8	0	1	2	0.00	
MARATOSB	1	2	-1.4400E+06	1	0	1	1	0.00	u
MOSARQP1	700	2500	-3.8214E+03	3270	1021	5	1	2.70	
MPC1	3833	2550	-2.3262E+07	1362	0	1	17	1.12	w
MPC10	2351	1530	-1.5034E+07	1153	11	1	14	0.70	d
MPC11	2351	1530	-1.5030E+07	929	34	1	11	0.47	d
MPC12	2351	1530	-1.5033E+07	1156	19	1	13	0.76	d
MPC13	2351	1530	-1.5034E+07	1094	13	1	13	0.63	d
MPC14	2351	1530	-1.5034E+07	1184	16	1	14	0.61	d
MPC15	2351	1530	-1.5034E+07	1003	15	1	12	0.57	d
MPC16	2351	1530	-1.5034E+07	1048	16	1	12	0.60	d
MPC2	2351	1530	-1.5033E+07	1193	27	1	13	0.75	d
MPC3	2351	1530	-1.5030E+07	1227	32	1	15	0.51	d
MPC4	2351	1530	-1.5033E+07	1287	21	1	15	0.56	d
MPC5	2351	1530	-1.5033E+07	1358	25	1	17	0.54	d
MPC6	2351	1530	-1.5034E+07	1180	18	2	13	0.48	d
MPC7	2351	1530	-1.5034E+07	1078	15	1	13	0.57	d
MPC8	2351	1530	-1.5034E+07	1130	13	1	12	0.63	d
MPC9	2351	1530	-1.5034E+07	1166	11	1	13	0.76	d
NASH	24	72	0.0000E+00	2	0	0	2	0.00	i
NCVXBQP1	1	10000	-1.9855E+10	10008	0	1	1	1.18	
NCVXBQP2	1	10000	-1.3245E+10	11185	51	2	1	1.37	
NCVXBQP3	1	10000	-6.4122E+09	10836	126	3	1	1.25	
NCVXQP1	500	1000	-7.1562E+07	748	0	1	4	0.09	
NCVXQP2	500	1000	-5.7752E+07	1030	0	1	4	0.42	d
NCVXQP3	500	1000	-2.9886E+07	1206	19	1	3	0.53	
NCVXQP4	250	1000	-9.3995E+07	787	0	1	2	0.06	
NCVXQP5	250	1000	-6.6257E+07	823	0	1	2	0.09	
NCVXQP6	250	1000	-3.4172E+07	925	49	2	2	0.21	
NCVXQP7	750	1000	-4.3521E+07	656	0	1	8	0.10	
NCVXQP8	750	1000	-3.0098E+07	817	0	1	9	0.16	
NCVXQP9	750	1000	-2.1230E+07	949	11	1	8	0.25	
PENTDI	1	5000	-7.5000E-01	2	2	1	1	0.02	w
PORTSNQP	2	100000	3.3332E+04	108265	257	4	882	17.41	
PORTSQP	1	100000	3.3331E+04	100316	315	4	2	6.49	

Table 8: Results for SQIC in block-matrix mode with LUSOL on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
POWELL20	5000	5000	6.5120E+09	2502	1	5	1	8.19	w
PRIMALC1	9	230	-6.1553E+03	18	14	1	1	0.00	
PRIMALC2	7	231	-3.5513E+03	3	1	1	1	0.00	
PRIMALC5	8	287	-4.2723E+02	9	5	1	1	0.00	
PRIMALC8	8	520	-1.8309E+04	20	17	1	1	0.00	
QPBAND	25000	50000	-4.9999E+04	149931	67	95	1	501.40	
QPCBLEND	74	83	-7.8425E-03	77	2	1	2	0.00	
QPCBOEI1	351	384	1.1504E+07	700	113	1	6	0.10	w
QPCBOEI2	166	143	8.1720E+06	203	32	1	3	0.01	w
QPCSTAIR	356	467	6.2044E+06	312	21	5	4	0.03	w
QPNBAND	25000	50000	-2.5000E+05	75000	1	48	1	299.24	
QPNBLEND	74	83	-8.7056E-03	67	3	1	2	0.00	
QPNBOEI1	351	384	6.7367E+06	683	92	1	7	0.08	d
QPNBOEI2	166	143	1.3683E+06	229	27	1	4	0.01	d
QPNSTAIR	356	467	5.1460E+06	350	20	2	5	0.03	d
QUDLIN	1	5000	-1.2500E+09	4999	0	1	1	0.24	w
RDW2D51F	16129	33282	1.1342E-03	852	0	1	16	469.55	
RDW2D52F	49	162	8.6159E-03	71	37	1	3	0.00	w
S268	5	5	3.6380E-12	11	5	1	1	0.00	
SIM2BQP	1	2	0.0000E+00	1	0	1	1	0.00	
SIMBQP	1	2	0.0000E+00	2	1	1	1	0.00	
SQSQP1	2501	5000	-2.4500E-11	1	0	1	2	0.02	w
STATIC3	96	434	-3.0892E+02	2	1	1	2	0.00	u
STEENBRA	108	432	1.6958E+04	87	11	1	2	0.01	w
TAME	1	2	0.0000E+00	2	1	1	2	0.00	
TORSION5	1	5476	-2.8634E+00	952	952	6	1	0.19	
TORSION6	1	5476	-2.8634E+00	9416	952	19	1	9.17	
TORSIONE	1	5476	-2.8502E+00	968	968	6	1	0.20	
TORSIONF	1	5476	-2.8502E+00	9400	968	19	1	9.30	
YAO	2000	2002	1.9770E+02	3	1	1	1	0.01	
ZECEVIC2	2	2	-4.1250E+00	2	1	2	1	0.00	

Table 9: Results for SQIC in block-matrix mode with LUSOL on “large” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
ALLINQP	25000	50000	-5.4813E+03	24100	9820	17	2	69.76	w
AUG2D	10000	20200	1.6874E+06	10193	10192	10	2	43.62	w
AUG2DC	10000	20200	1.8184E+06	10201	10200	10	2	45.44	
AUG2DCQP	10000	20200	6.4981E+06	14608	9994	17	6	63.80	
AUG2DQP	10000	20200	6.2370E+06	14388	9801	17	6	63.23	w
AUG3D	8000	27543	2.4561E+04	16910	16909	17	2	99.08	w
AUG3DC	8000	27543	2.7654E+04	19544	19543	19	2	146.17	
AUG3DCQP	8000	27543	6.1560E+04	22160	17665	24	17	123.79	w
AUG3DQP	8000	27543	5.4229E+04	18464	13712	20	17	98.55	w
BIGGSB1	1	5000	1.5000E-02	5002	4998	11	1	5.43	
BLOWEYA	2002	4002	-2.2781E-02	2002	2000	2	2	4.28	
BLOWEYB	2002	4002	-1.5226E-02	2002	2000	2	2	4.20	
BLOWEYC	2002	4002	-1.5246E-02	2001	2000	2	2	4.37	
BQPGABIM	1	50	-3.7903E-05	40	36	1	1	0.00	
BQPGASIM	1	50	-5.5198E-05	44	40	1	1	0.00	

Table 9: Results for SQIC in block-matrix mode with LUSOL on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
BQPGAUSS	1	2003	-3.6258E-01	2235	1909	8	1	1.11	
CENHARK	1	5000	-2.0000E+00	6997	2997	9	1	1.95	w
CVXQP1	5000	10000	1.0870E+08	14665	1262	20	102	42.92	w
CVXQP2	2500	10000	8.1842E+07	8443	2209	4	6	17.20	w
DIXON3DQ	1	10000	0.0000E+00	10000	10000	16	1	16.34	
DQDR TIC	1	5000	0.0000E+00	5000	5000	11	1	5.24	
DTOC3	2998	4499	2.3522E+02	1501	1499	2	2	6.88	
DUAL1	1	85	3.5013E-02	77	62	2	2	0.00	
DUAL2	1	96	3.3734E-02	95	91	3	2	0.01	
DUAL3	1	111	1.3576E-01	111	96	2	2	0.01	
DUAL4	1	75	7.4609E-01	64	61	2	2	0.00	
GOULDQP3	9999	19999	2.3796E-05	5814	4988	7	2	15.20	w
GRIDNETA	3844	7564	4.7798E+02	535	510	1	2	0.72	w
GRIDNETB	3844	7564	1.2761E+02	3722	3721	4	2	12.13	
GRIDNETC	3844	7564	1.6187E+02	2631	2578	3	2	7.42	w
HILBERTA	1	2	0.0000E+00	2	2	1	1	0.00	
HILBERTB	1	10	0.0000E+00	10	10	1	1	0.00	
HUES-MOD	2	5000	3.4824E+07	5317	4719	11	2	6.95	w
HUESTIS	2	5000	1.7412E+11	5316	4719	11	2	6.96	w
JNLBRNG1	1	10000	-1.8057E-01	6494	6494	12	1	10.88	
JNLBRNG2	1	10000	-4.1487E+00	5754	5754	12	1	8.42	
JNLBRNGA	1	10000	-2.7110E-01	6359	6359	12	1	10.16	
JNLBRNGB	1	10000	-6.3007E+00	5383	5383	11	1	7.72	
MOSARQP2	700	2500	-5.0526E+03	2553	1640	3	1	2.54	
NOBNDTOR	1	5476	-4.4993E-01	4322	4318	10	1	5.62	
OBSTCLAE	1	10000	1.8865E+00	14062	5131	19	1	32.71	
OBSTCLAL	1	10000	1.8865E+00	5131	5131	11	1	7.04	
OBSTCLBL	1	10000	7.2722E+00	10991	7057	14	1	19.67	
OBSTCLBM	1	10000	7.2722E+00	12671	7057	16	1	16.88	
OBSTCLBU	1	10000	7.2722E+00	8217	7057	13	1	11.84	
ODNAMUR	1	11130	9.2366E+03	6455	4518	11	1	136.86	w
OSLBQP	1	8	6.2500E+00	6	6	1	1	0.00	
PALMER1C	1	8	9.7605E-02	8	8	1	1	0.00	
PALMER1D	1	7	6.5267E-01	7	7	1	1	0.00	
PALMER2C	1	8	1.4369E-02	8	8	1	1	0.00	
PALMER3C	1	8	1.9538E-02	8	8	1	1	0.00	
PALMER4C	1	8	5.0311E-02	8	8	1	1	0.00	
PRIMAL1	85	325	-3.5013E-02	216	133	3	1	0.03	w
PRIMAL2	96	649	-3.3734E-02	407	302	4	1	0.08	w
PRIMAL3	111	745	-1.3576E-01	710	572	4	1	0.20	w
PRIMAL4	75	1489	-7.4609E-01	1222	1140	6	1	0.40	w
RDW2D51U	3969	8450	8.3625E-04	11146	3938	50	12	238.56	w
RDW2D52U	3969	8450	1.1314E-02	10835	3963	26	11	251.55	w
SOSQP2	2501	5000	-1.2487E+03	3986	1250	3	2	5.15	w
STCQP1	4095	8193	3.6710E+05	7276	5717	6	18	11.12	
STCQP2	4095	8193	3.7189E+04	7694	3970	4	66	9.22	
STNQP1	4095	8193	-3.1170E+05	7283	5277	6	18	10.84	
STNQP2	4095	8193	-5.7497E+05	7250	2640	3	66	5.35	
TESTQUAD	1	5000	0.0000E+00	5000	5000	11	1	5.30	
TOINTQOR	1	50	1.1755E+03	50	50	2	1	0.00	
TORSION1	1	5476	-4.3028E-01	3560	3560	10	1	4.15	
TORSION2	1	5476	-4.3028E-01	6808	3560	12	1	11.73	

Table 9: Results for SQIC in block-matrix mode with LUSOL on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
TORSION3	1	5476	-1.2170E+00	1800	1800	8	1	0.70	
TORSION4	1	5476	-1.2170E+00	8568	1800	15	1	13.24	
TORSIONA	1	5476	-4.1830E-01	3624	3624	10	1	4.18	
TORSIONB	1	5476	-4.1830E-01	6744	3624	12	1	11.93	
TORSIONC	1	5476	-1.2042E+00	1832	1832	8	1	0.73	
TORSIOND	1	5476	-1.2042E+00	8536	1832	15	1	13.53	
TRIDIA	1	5000	-1.1102E-15	4999	4999	11	1	5.28	w
UBH1	6000	9009	1.1160E+00	4672	2997	10	8	12.38	
WALL10	1	1461	-4.5595E+05	1459	1101	7	1	0.33	
WALL100	1	149624	-8.9544E+03	123505	110712	126	1	2960.60	
WALL20	1	5924	-5.2210E+06	5303	4276	12	1	8.89	w
WALL50	1	37311	-9.5450E+06	58130	23978	73	3	341.81	w
ZANGWIL2	1	2	-1.8200E+01	2	2	1	1	0.00	

Table 10: Results for SQIC in block-matrix mode with HSL_MA57 on “small” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AOENDNDL	15002	45006	0.0000E+00	7266	0	1	140	14.59	
AOENINDL	15002	45006	0.0000E+00	7220	0	1	140	14.50	
AOENSNDL	15002	45006	9.8316E-09	5780	0	3	105	61.55	w
AOESDNDL	15002	45006	0.0000E+00	6824	0	1	128	14.25	
AOESINDL	15002	45006	0.0000E+00	7162	0	1	139	14.33	
AOESSNDL	15002	45006	-2.2560E-09	5864	0	4	98	53.16	w
AONNDNDL	20004	60012	0.0000E+00	49589	0	3	961	186.03	
AONNDNIL	20004	60012	8.6977E+01	12138	81	3	238	134.60	
AONNDNSL	20004	60012	-6.2630E-12	39410	0	49	646	232.64	d
AONNSNSL	20004	60012	-1.0825E-08	21122	0	4	365	176.27	d
AONSDSDL	20004	60012	0.0000E+00	30910	0	4	618	106.07	
AONSDSDS	2004	6012	-3.8604E-09	1652	0	35	27	0.83	d
AONSDSIL	20004	60012	5.5921E+00	13529	40	3	273	138.09	
AONSDSSL	20004	60012	-7.4908E-11	23318	0	3	469	154.29	d
AONSSSSL	20004	60012	7.5873E-11	17174	0	5	338	149.31	d
A2ENDNDL	15002	45006	0.0000E+00	6804	48	1	132	13.60	w
A2ENINDL	15002	45006	0.0000E+00	6703	57	1	129	13.59	w
A2ENSNDL	15002	45006	-6.2313E-11	5573	1	5	96	53.11	w
A2ESDNDL	15002	45006	0.0000E+00	6328	74	1	119	13.15	w
A2ESINDL	15002	45006	0.0000E+00	6690	43	1	130	13.60	w
A2ESSNDL	15002	45006	-2.9798E-09	5436	0	4	93	53.05	w
A2NNDNDL	20004	60012	4.0510E-10	54794	48	4	1039	207.97	d
A2NNDNIL	20004	60012	5.2190E+04	11717	0	0	241	28.89	i
A2NNDNSL	20004	60012	2.8328E-14	44221	0	126	645	277.00	d
A2NNSNSL	20004	60012	-4.2639E-11	22764	0	3	451	165.34	d
A2NSDSDL	20004	60012	6.9010E-12	40397	5	36	798	142.77	w
A2NSDSIL	20004	60012	6.0896E+01	13545	254	4	247	142.81	d
A2NSDSSL	20004	60012	-1.6461E-11	29692	0	103	523	190.88	d
A2NSSSSL	20004	60012	3.5582E-12	20531	0	8	406	159.30	d
A5ENDNDL	15002	45006	0.0000E+00	5903	229	1	115	11.81	w
A5ENINDL	15002	45006	0.0000E+00	5914	222	1	115	11.72	w
A5ENSNDL	15002	45006	2.9365E-13	5123	1	3	89	50.68	w

Table 10: Results for SQIC in block-matrix mode with HSL_MA57 on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
A5ESDNDL	15002	45006	0.0000E+00	5673	238	1	109	11.35	w
A5ESINDL	15002	45006	0.0000E+00	5755	197	1	112	11.50	w
A5ESSNDL	15002	45006	-1.1314E-09	4784	0	3	86	45.05	w
A5NNDNDL	20004	60012	9.6941E-09	55435	208	6	999	228.95	d
A5NNDNIL	20004	60012	8.4150E+04	10259	0	0	211	24.97	i
A5NNDNSL	20004	60012	-1.2108E-09	42175	0	166	596	279.49	d
A5NNSNSL	20004	60012	-7.2983E-09	24205	0	7	408	194.11	d
A5NSDSDL	20004	60012	1.2582E-11	38374	20	80	742	156.37	w
A5NSDSDM	2004	6012	-3.8604E-09	1652	0	35	27	0.83	d
A5NSDSIL	20004	60012	8.9305E+00	11706	605	6	192	144.29	d
A5NSDSSL	20004	60012	-1.9625E-09	45006	0	522	496	340.47	d
A5NSSNSM	2004	6012	-3.8604E-09	1652	0	35	27	0.84	d
A5NSSSSL	20004	60012	3.2685E-12	22595	0	67	366	185.29	d
AVGASA	10	8	-4.6319E+00	12	3	1	1	0.00	
AVGASB	10	8	-4.4832E+00	10	3	1	1	0.00	
BIGGSC4	7	4	-2.4375E+01	11	1	1	1	0.00	d
BLOCKQP1	5001	10010	-4.9940E+03	5014	9	2	2	3.00	
BLOCKQP2	5001	10010	-4.9938E+03	5008	9	3	2	48.64	
BLOCKQP3	5001	10010	-2.4950E+03	5014	9	2	2	3.11	
BLOCKQP4	5001	10010	-2.4958E+03	5509	9	3	2	52.67	
BLOCKQP5	5001	10010	-2.4950E+03	5020	9	2	2	2.93	
BQP1VAR	1	1	0.0000E+00	1	0	1	1	0.00	
CVXBP1	1	10000	2.2502E+06	10000	0	3	1	30.78	
CVXQP3	7500	10000	1.1571E+08	87331	433	156	1334	1870.05	w
DEGENQP	125025	50	-2.1309E-12	27	0	1	2	1.96	
DUALC1	215	9	6.1553E+03	5	2	1	2	0.00	
DUALC2	229	7	3.5513E+03	4	2	1	2	0.00	
DUALC5	278	8	4.2723E+02	5	4	1	2	0.00	
DUALC8	503	8	1.8309E+04	7	2	1	2	0.00	w
FERRISDC	210	2200	0.0000E+00	0	1	1	2	0.03	w
GENHS28	8	10	9.2717E-01	1	2	1	2	0.00	
GMNCASE1	300	175	2.6697E-01	54	95	3	1	0.11	w
GMNCASE2	1050	175	-9.9444E-01	56	94	1	1	0.06	
GMNCASE3	1050	175	1.5251E+00	61	93	1	1	0.06	
GMNCASE4	350	175	5.9469E+03	140	0	1	1	0.12	
GOULDQP1	17	32	-3.4853E+03	24	0	3	2	0.00	
GOULDQP2	9999	19999	1.8512E-12	0	0	1	2	0.08	w
HARKERP2	1	1000	-5.0000E-01	1000	1	4	1	5.82	
HATFLDH	7	4	-2.4500E+01	5	0	5	1	0.00	w
HS118	17	15	6.6482E+02	16	0	1	1	0.00	
HS21	1	2	-9.9960E+01	1	1	1	1	0.00	
HS268	5	5	-9.0949E-12	2	5	1	1	0.00	
HS3	1	2	0.0000E+00	2	1	2	1	0.00	
HS35	1	3	1.1111E-01	2	2	1	1	0.00	
HS35I	1	3	1.1111E-01	2	2	1	1	0.00	
HS35MOD	1	3	2.5000E-01	1	2	1	1	0.00	
HS3MOD	1	2	5.4375E+00	1	2	2	1	0.00	
HS44	6	4	-1.3000E+01	2	0	3	1	0.00	
HS44NEW	6	4	-1.3000E+01	5	0	7	1	0.00	
HS51	3	5	1.7764E-15	1	2	1	2	0.00	
HS52	3	5	5.3266E+00	1	2	1	2	0.00	
HS53	3	5	4.0930E+00	1	2	1	2	0.00	

Table 10: Results for SQIC in block-matrix mode with HSL_MA57 on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
HS76	3	4	-4.6818E+00	5	2	1	1	0.00	
HS76I	3	4	-4.6818E+00	5	2	1	1	0.00	
KSIP	1001	20	5.7580E-01	274	18	94	1	0.66	
LEUVEN1	2220	1530	-1.5243E+07	1515	14	1	18	1.43	w
LEUVEN2	2329	1530	-1.4147E+07	625	2	6	11	0.45	d
LEUVEN3	2973	1200	-1.0381E+09	1121	50	47	3	8.90	d
LEUVEN4	2973	1200	-1.4080E+09	1376	51	20	5	11.36	d
LEUVEN5	2973	1200	-1.0381E+09	1121	50	47	3	8.90	d
LEUVEN6	3091	1200	-1.4533E+08	591	30	7	4	6.04	d
LEUVEN7	946	360	6.9455E+02	208	19	7	1	0.28	w
LINCONT	419	1257	0.0000E+00	126	0	0	4	0.03	i
LISWET1	2000	2002	7.2219E+00	1	2	1	1	0.01	
LISWET10	2000	2002	9.8965E+00	33	18	1	1	0.03	w
LISWET11	2000	2002	9.9054E+00	47	28	1	1	0.03	w
LISWET12	2000	2002	3.4752E+02	24	5	1	1	0.02	w
LISWET2	2000	2002	4.9981E+00	36	7	1	1	0.02	
LISWET3	2000	2002	4.9978E+00	153	93	2	1	0.13	
LISWET4	2000	2002	4.9978E+00	165	97	2	1	0.14	
LISWET5	2000	2002	4.9978E+00	160	90	2	1	0.13	
LISWET6	2000	2002	4.9979E+00	129	81	2	1	0.10	
LISWET7	2000	2002	9.9895E+01	1	2	1	1	0.01	
LISWET8	2000	2002	1.4313E+02	27	16	1	1	0.03	w
LISWET9	2000	2002	3.9292E+02	18	7	1	1	0.02	w
LOTSCHD	7	12	2.3984E+03	8	0	1	2	0.00	
MARATOSB	1	2	-1.4400E+06	2	2	2	1	0.00	u
MOSARQP1	700	2500	-3.8214E+03	1497	1021	2	1	2.43	
MPC1	3833	2550	-2.3262E+07	1373	0	1	17	2.17	w
MPC10	2351	1530	-1.5034E+07	1161	11	1	14	1.46	d
MPC11	2351	1530	-1.5030E+07	975	34	3	12	0.85	d
MPC12	2351	1530	-1.5033E+07	1143	19	1	13	1.51	d
MPC13	2351	1530	-1.5034E+07	1095	13	5	14	1.26	d
MPC14	2351	1530	-1.5034E+07	1203	16	1	14	1.23	d
MPC15	2351	1530	-1.5034E+07	1054	15	3	12	1.25	d
MPC16	2351	1530	-1.5034E+07	1076	16	2	12	0.79	d
MPC2	2351	1530	-1.5033E+07	1241	27	1	13	1.53	d
MPC3	2351	1530	-1.5030E+07	1272	32	1	15	1.02	d
MPC4	2351	1530	-1.5033E+07	1320	21	3	15	1.41	d
MPC5	2351	1530	-1.5033E+07	1331	25	1	17	0.92	d
MPC6	2351	1530	-1.5034E+07	1286	18	1	13	1.52	d
MPC7	2351	1530	-1.5034E+07	1124	15	1	13	1.24	d
MPC8	2351	1530	-1.5034E+07	1147	13	3	12	1.43	d
MPC9	2351	1530	-1.5034E+07	1172	11	1	13	1.34	d
NASH	24	72	0.0000E+00	2	0	0	2	0.00	i
NCVXBQP1	1	10000	-1.9855E+10	10008	0	2	1	1.24	
NCVXBQP2	1	10000	-1.3245E+10	11185	51	3	1	1.42	
NCVXBQP3	1	10000	-6.4122E+09	10836	126	5	1	162.53	
NCVXQP1	500	1000	-7.1562E+07	748	0	2	4	0.23	
NCVXQP2	500	1000	-5.7759E+07	1000	0	2	4	0.73	d
NCVXQP3	500	1000	-3.0841E+07	1209	15	9	6	1.08	
NCVXQP4	250	1000	-9.3995E+07	787	0	2	2	0.09	
NCVXQP5	250	1000	-6.6257E+07	823	0	2	2	0.12	
NCVXQP6	250	1000	-3.4076E+07	1128	52	10	7	0.84	

Table 10: Results for SQIC in block-matrix mode with HSL_MA57 on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
NCVXQP7	750	1000	-4.3521E+07	655	0	2	8	0.31	
NCVXQP8	750	1000	-3.0098E+07	817	0	2	9	0.48	
NCVXQP9	750	1000	-2.1230E+07	1318	11	9	17	0.90	
PENTDI	1	5000	-7.5000E-01	2	2	1	1	0.02	w
PORTSNQP	2	100000	3.3332E+04	108265	257	4	882	17.41	
PORTSQP	1	100000	3.3331E+04	100315	315	4	2	6.48	
POWELL20	5000	5000	6.5120E+09	2500	1	3	1	5.90	w
PRIMALC1	9	230	-6.1553E+03	4	14	1	1	0.00	
PRIMALC2	7	231	-3.5513E+03	3	1	1	1	0.00	
PRIMALC5	8	287	-4.2723E+02	5	5	1	1	0.00	
PRIMALC8	8	520	-1.8309E+04	6	17	1	1	0.00	
QPBAND	25000	50000	-4.9999E+04	149931	67	95	1	940.37	
QPCBLEND	74	83	-7.8425E-03	77	2	1	2	0.00	
QPCBOEI1	351	384	1.1504E+07	701	113	1	6	0.13	w
QPCBOEI2	166	143	8.1720E+06	222	32	6	6	0.02	w
QPCSTAIR	356	467	6.2044E+06	312	21	5	4	0.04	w
QPNBAND	25000	50000	-2.5000E+05	75000	1	48	1	447.48	
QPNBLEND	74	83	-8.7056E-03	67	3	1	2	0.00	
QPNBOEI1	351	384	6.7367E+06	674	92	1	7	0.10	d
QPNBOEI2	166	143	1.3683E+06	230	27	1	4	0.01	d
QPNSTAIR	356	467	5.1460E+06	350	20	2	5	0.04	d
QUDLIN	1	5000	-1.2500E+09	4999	0	1	1	0.25	w
RDW2D51F	16129	33282	1.1342E-03	852	0	1	16	32.07	
RDW2D52F	49	162	8.6159E-03	71	37	1	3	0.00	w
S268	5	5	-9.0949E-12	2	5	1	1	0.00	
SIM2BQP	1	2	0.0000E+00	1	0	1	1	0.00	
SIMBQP	1	2	0.0000E+00	2	1	1	1	0.00	
SOSQP1	2501	5000	-2.4462E-11	2	2499	1	2	0.02	
STATIC3	96	434	-2.5298E+03	13	256	2	2	0.01	u
STEENBRA	108	432	1.6958E+04	88	11	1	2	0.01	w
TAME	1	2	0.0000E+00	2	1	1	2	0.00	
TORSION5	1	5476	-2.8634E+00	952	952	6	1	0.21	
TORSION6	1	5476	-2.8634E+00	4233	952	5	1	13.64	
TORSIONE	1	5476	-2.8502E+00	968	968	6	1	0.22	
TORSIONF	1	5476	-2.8502E+00	4217	968	5	1	13.57	
YAO	2000	2002	1.9770E+02	3	1	1	1	0.01	
ZECEVIC2	2	2	-4.1250E+00	2	1	3	1	0.00	

Table 11: Results for SQIC in block-matrix mode with HSL_MA57 on “large” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
ALLINQP	25000	50000	-5.4813E+03	16957	9820	10	2	94.49	w
AUG2D	10000	20200	1.6874E+06	10193	10192	11	2	54.90	w
AUG2DC	10000	20200	1.8184E+06	1	10200	1	2	0.11	
AUG2DCQP	10000	20200	6.4981E+06	14380	9994	17	6	79.70	
AUG2DQP	10000	20200	6.2370E+06	14286	9801	16	6	78.02	w
AUG3D	8000	27543	2.4561E+04	16910	16909	18	2	130.62	w
AUG3DC	8000	27543	2.7654E+04	1	19543	1	2	0.24	
AUG3DCQP	8000	27543	6.1560E+04	22082	17665	23	17	130.77	w

Table 11: Results for SQIC in block-matrix mode with HSL.MA57 on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AUG3DQP	8000	27543	5.4229E+04	18284	13712	20	17	103.24	w
BIGGSB1	1	5000	1.5000E-02	5002	4998	11	1	6.13	
BLOWEYA	2002	4002	-2.2781E-02	1205	2000	2	2	2.92	
BLOWEYB	2002	4002	-1.5226E-02	805	2000	1	2	1.46	
BLOWEYC	2002	4002	-1.5246E-02	805	2000	1	2	1.43	
BQPGABIM	1	50	-3.7903E-05	11	36	1	1	0.00	
BQPGASIM	1	50	-5.5198E-05	11	40	1	1	0.00	
BQPGAUSS	1	2003	-3.6258E-01	299	1909	3	1	0.75	
CHENHARK	1	5000	-2.0000E+00	2017	2984	2	1	10.45	w
CVXQP1	5000	10000	1.0870E+08	18207	1267	93	230	313.16	w
CVXQP2	2500	10000	8.1842E+07	6345	2210	6	6	73.45	
DIXON3DQ	1	10000	0.0000E+00	1	10000	1	1	0.06	
DQDRTIC	1	5000	0.0000E+00	1	5000	1	1	0.03	
DTOC3	2998	4499	2.3522E+02	2	1499	1	2	0.02	
DUAL1	1	85	3.5013E-02	77	62	2	2	0.00	
DUAL2	1	96	3.3734E-02	94	91	2	2	0.00	
DUAL3	1	111	1.3576E-01	111	96	2	2	0.01	
DUAL4	1	75	7.4609E-01	64	61	2	2	0.00	
GOULDQP3	9999	19999	2.3796E-05	5814	4988	7	2	30.33	w
GRIDNETA	3844	7564	4.7798E+02	193	1288	1	2	0.31	
GRIDNETB	3844	7564	1.2761E+02	1	3721	1	2	0.04	
GRIDNETC	3844	7564	1.6187E+02	1391	2578	2	2	5.85	w
HILBERTA	1	2	0.0000E+00	1	2	1	1	0.00	
HILBERTB	1	10	0.0000E+00	1	10	1	1	0.00	
HUES-MOD	2	5000	3.4824E+07	286	4721	1	2	0.21	
HUESTIS	2	5000	1.7412E+11	284	4721	1	2	0.21	
JNLBRNG1	1	10000	-1.8057E-01	1693	6494	2	1	4.17	
JNLBRNG2	1	10000	-4.1487E+00	953	5754	1	1	2.40	
JNLBRNGA	1	10000	-2.7110E-01	6359	6359	12	1	11.96	
JNLBRNGB	1	10000	-6.3007E+00	5383	5383	11	1	9.25	
MOSARQP2	700	2500	-5.0526E+03	850	1640	1	1	1.23	
NOBNDTOR	1	5476	-4.4993E-01	1727	4318	2	1	3.41	
OBSTCLAE	1	10000	1.8865E+00	4474	5131	5	1	18.23	
OBSTCLAL	1	10000	1.8865E+00	5131	5131	11	1	7.83	
OBSTCLBL	1	10000	7.2722E+00	10991	7057	14	1	23.13	
OBSTCLBM	1	10000	7.2722E+00	2548	7057	3	1	9.65	
OBSTCLBU	1	10000	7.2722E+00	8217	7057	13	1	13.98	
ODNAMUR	1	11130	9.2366E+03	3729	5512	3	1	192.86	w
OSLBQP	1	8	6.2500E+00	1	6	1	1	0.00	
PALMER1C	1	8	9.7605E-02	1	8	1	1	0.00	
PALMER1D	1	7	6.5267E-01	1	7	1	1	0.00	
PALMER2C	1	8	1.4369E-02	1	8	1	1	0.00	
PALMER3C	1	8	1.9538E-02	1	8	1	1	0.00	
PALMER4C	1	8	5.0311E-02	1	8	1	1	0.00	
PRIMAL1	85	325	-3.5013E-02	69	262	1	1	0.02	
PRIMAL2	96	649	-3.3734E-02	96	557	1	1	0.03	
PRIMAL3	111	745	-1.3576E-01	101	648	1	1	0.07	w
PRIMAL4	75	1489	-7.4609E-01	62	1427	1	1	0.05	
RDW2D51U	3969	8450	8.3625E-04	127	3969	1	2	0.59	
RDW2D52U	3969	8450	1.1314E-02	127	3969	1	2	0.77	
SQSQP2	2501	5000	-1.2487E+03	4777	1251	4	2	15.34	w
STCQP1	4095	8193	3.6710E+05	1550	5717	1	18	5.05	

Table 11: Results for SQIC in block-matrix mode with HSL.MA57 on “large” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
STCQP2	4095	8193	3.7189E+04	3279	3970	1	66	1.26	
STNQP1	4095	8193	-3.1170E+05	2134	5276	3	18	12.91	
STNQP2	4095	8193	-5.7497E+05	4997	2640	3	66	58.28	
TESTQUAD	1	5000	0.0000E+00	1	5000	1	1	0.03	
TOINTQOR	1	50	1.1755E+03	1	50	1	1	0.00	
TORSION1	1	5476	-4.3028E-01	3560	3560	10	1	4.52	
TORSION2	1	5476	-4.3025E-01	1577	3607	2	1	4.68	
TORSION3	1	5476	-1.2170E+00	1800	1800	8	1	0.79	
TORSION4	1	5476	-1.2170E+00	3361	1823	4	1	10.77	
TORSIONA	1	5476	-4.1830E-01	3624	3624	10	1	4.64	
TORSIONB	1	5476	-4.1826E-01	1489	3695	2	1	4.39	
TORSIONC	1	5476	-1.2042E+00	1832	1832	8	1	0.81	
TORSIOND	1	5476	-1.2042E+00	3321	1863	4	1	10.69	
TRIDIA	1	5000	-8.8818E-16	1	5000	1	1	0.02	
UBH1**	6000	9009	1.1160E+00	4672	2997	25	8	19.04	
WALL10	1	1461	-4.5595E+05	70	1101	1	1	0.02	
WALL100	1	149624	-8.9544E+03	5889	110712	6	1	242.99	
WALL20	1	5924	-5.2210E+06	162	4277	1	1	0.18	
WALL50	1	37311	-9.5450E+06	800	26961	1	1	8.47	
ZANGWIL2	1	2	-1.8200E+01	1	2	1	1	0.00	

Table 12: Results for SQIC in block-matrix mode with UMFPACK on “small” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AOENDNDL	15002	45006	0.0000E+00	7276	0	1	140	16.16	
AOENINDL	15002	45006	0.0000E+00	7228	0	1	140	15.89	
AOENSNDL	15002	45006	5.0256E-11	5780	0	1	105	12.49	w
AOESDNDL	15002	45006	0.0000E+00	7195	0	2	128	16.90	
AOESINDL	15002	45006	0.0000E+00	7165	0	1	139	15.49	
AOESSNDL	15002	45006	-2.2526E-09	5864	0	2	98	15.05	w
AONNDNDL	20004	60012	0.0000E+00	61967	0	17	961	268.80	
AONNDNIL	20004	60012	4.8858E+01	12156	61	1	238	32.63	
AONNDNSL	20004	60012	-2.4789E-12	39410	0	47	646	143.05	d
AONNSNSL	20004	60012	-1.1019E-08	21122	0	2	365	65.93	d
AONSDSDL	20004	60012	0.0000E+00	30798	0	2	618	106.35	
AONSDSDS	2004	6012	-3.8599E-09	1652	0	33	27	0.51	d
AONSDSIL	20004	60012	0.0000E+00	13756	0	4	273	39.11	
AONSDSSL	20004	60012	-6.4303E-11	23318	0	1	469	64.16	d
AONSSSSL	20004	60012	-4.2129E-11	17173	0	2	338	43.60	d
A2ENDNDL	15002	45006	0.0000E+00	7151	0	8	132	16.68	w
A2ENINDL	15002	45006	0.0000E+00	7123	2	4	129	15.45	w
A2ENSNDL	15002	45006	3.1888E-13	5573	1	3	96	13.93	w
A2ESDNDL	15002	45006	0.0000E+00	7034	8	2	119	16.44	w
A2ESINDL	15002	45006	0.0000E+00	7092	4	15	130	17.17	w
A2ESSNDL	15002	45006	-3.9725E-15	5436	0	2	93	12.92	w
A2NNDNDL	20004	60012	2.1544E-10	72025	40	33	1039	338.68	d
A2NNDNIL	20004	60012	5.2190E+04	11717	0	0	241	28.89	i
A2NNDNSL	20004	60012	-1.4253E-11	44221	0	124	645	199.24	d
A2NNSNSL	20004	60012	-1.1203E-13	22764	0	1	451	58.12	d

Table 12: Results for SQIC in block-matrix mode with UMFPACK on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
A2NSDSDL	20004	60012	-1.3974E-12	50819	6	29	798	215.49	w
A2NSDSIL	20004	60012	5.1650E+01	14737	252	2	247	45.55	d
A2NSDSSL	20004	60012	-3.4427E-11	29690	0	101	523	116.74	d
A2NSSSSL	20004	60012	1.5333E-17	20530	0	4	406	53.19	d
A5ENDNDL	15002	45006	0.0000E+00	6607	17	2	115	15.79	w
A5ENINDL	15002	45006	3.5840E-13	6618	3	2	115	15.59	w
A5ENSNDL	15002	45006	2.9836E-13	5123	1	1	89	11.61	w
A5ESDNDL	15002	45006	0.0000E+00	6480	5	5	109	15.88	w
A5ESINDL	15002	45006	0.0000E+00	6467	3	8	112	14.62	w
A5ESSNDL	15002	45006	-1.1309E-09	4784	0	1	86	8.41	w
A5NNDNDL	20004	60012	3.8603E+01	65140	183	120	999	326.36	
A5NNDNIL	20004	60012	8.4150E+04	10259	0	0	211	24.91	i
A5NNDNSL	20004	60012	-1.2181E-09	42175	0	163	596	206.79	d
A5NNSNSL	20004	60012	-1.6101E-04	25948	0	11	407	90.39	d
A5NSDSDL	20004	60012	2.5545E-13	73015	16	1192	742	943.61	w
A5NSSDM	2004	6012	-3.8599E-09	1652	0	33	27	0.51	d
A5NSDSIL	20004	60012	1.2654E+01	12305	615	4	192	44.70	d
A5NSDSSL	20004	60012	-2.0196E-09	45003	0	537	496	329.82	d
A5NSSNSM	2004	6012	-3.8599E-09	1652	0	33	27	0.51	d
A5NSSSSL	20004	60012	-2.4449E-12	22598	0	68	366	76.62	d
AVGASA	10	8	-4.6319E+00	13	3	1	1	0.01	
AVGASB	10	8	-4.4832E+00	11	3	1	1	0.00	
BIGGSC4	7	4	-2.4375E+01	11	1	1	1	0.01	d
BLOCKQP1	5001	10010	-4.9940E+03	5014	9	1	2	1.87	
BLOCKQP2	5001	10010	-4.9928E+03	7515	9	10	2	27.24	w
BLOCKQP3	5001	10010	-2.4950E+03	5014	9	1	2	1.88	
BLOCKQP4	5001	10010	-2.4933E+03	8492	9	10	2	33.18	d
BLOCKQP5	5001	10010	-2.4950E+03	5020	9	1	2	1.87	
BQP1VAR	1	1	0.0000E+00	1	0	1	1	0.00	
CVXBQP1	1	10000	2.2502E+06	10000	0	1	1	1.07	
CVXQP3	7500	10000	1.2647E+08	44218	0	259	648	5001.55	t
DEGENQP	125025	50	-3.9252E-15	27	0	1	2	1.14	
DUALC1	215	9	6.1553E+03	5	2	1	2	0.00	
DUALC2	229	7	3.5513E+03	4	2	1	2	0.00	
DUALC5	278	8	4.2723E+02	5	4	1	2	0.00	
DUALC8	503	8	1.8309E+04	7	2	1	2	0.01	w
FERRISDC	210	2200	0.0000E+00	0	0	1	2	0.02	w
GENHS28	8	10	9.2717E-01	3	2	1	2	0.00	
GMNCASE1	300	175	2.6697E-01	102	53	1	1	0.04	w
GMNCASE2	1050	175	-9.9444E-01	104	46	1	1	0.05	w
GMNCASE3	1050	175	1.5251E+00	107	48	1	1	0.05	w
GMNCASE4	350	175	5.9469E+03	140	0	1	1	0.08	
GOULDQP1	17	32	-3.4853E+03	21	0	1	2	0.01	
GOULDQP2	9999	19999	1.8512E-12	0	0	1	2	0.07	w
HARKERP2	1	1000	-5.0000E-01	999	0	1	1	0.06	w
HATFLDH	7	4	-2.4500E+01	4	0	2	1	0.00	w
HS118	17	15	6.6482E+02	22	0	1	1	0.00	
HS21	1	2	-9.9960E+01	1	1	1	1	0.00	
HS268	5	5	-5.4570E-12	11	5	1	1	0.01	
HS3	1	2	0.0000E+00	2	1	1	1	0.00	
HS35	1	3	1.1111E-01	4	2	1	1	0.00	
HS35I	1	3	1.1111E-01	4	2	1	1	0.00	

Table 12: Results for SQIC in block-matrix mode with UMFPACK on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
HS35MOD	1	3	2.5000E-01	1	1	1	1	0.00	w
HS3MOD	1	2	0.0000E+00	2	1	1	1	0.00	
HS44	6	4	-1.3000E+01	2	0	3	1	0.00	
HS44NEW	6	4	-1.3000E+01	5	0	5	1	0.00	
HS51	3	5	0.0000E+00	3	2	1	2	0.00	
HS52	3	5	5.3266E+00	3	2	1	2	0.00	
HS53	3	5	4.0930E+00	3	2	1	2	0.00	
HS76	3	4	-4.6818E+00	4	2	1	1	0.00	
HS76I	3	4	-4.6818E+00	4	2	1	1	0.00	
KSIP	1001	20	5.7580E-01	2527	18	878	1	1.40	
LEUVEN1	2220	1530	-1.5243E+07	1515	12	1	18	0.77	w
LEUVEN2	2329	1530	-1.4147E+07	608	2	1	9	0.23	d
LEUVEN3	2973	1200	-1.0381E+09	1100	50	29	2	2.57	d
LEUVEN4	2973	1200	-1.4083E+09	1498	50	7	2	3.47	d
LEUVEN5	2973	1200	-1.0381E+09	1100	50	29	2	2.59	d
LEUVEN6	3091	1200	-1.4533E+08	574	30	5	3	1.47	d
LEUVEN7	946	360	6.9455E+02	208	19	6	1	0.13	w
LINCONT	419	1257	0.0000E+00	126	0	0	4	0.03	i
LISWET1	2000	2002	7.2219E+00	4	2	1	1	0.01	
LISWET10	2000	2002	9.8965E+00	44	17	2	1	0.02	w
LISWET11	2000	2002	9.9054E+00	67	29	2	1	0.04	w
LISWET12	2000	2002	3.4752E+02	29	6	1	1	0.02	w
LISWET2	2000	2002	4.9981E+00	40	7	2	1	0.02	
LISWET3	2000	2002	4.9978E+00	156	93	2	1	0.10	
LISWET4	2000	2002	4.9978E+00	168	97	2	1	0.10	
LISWET5	2000	2002	4.9978E+00	163	90	2	1	0.10	
LISWET6	2000	2002	4.9979E+00	132	81	2	1	0.08	
LISWET7	2000	2002	9.9895E+01	4	2	1	1	0.01	
LISWET8	2000	2002	1.4313E+02	27	14	2	1	0.02	w
LISWET9	2000	2002	3.9292E+02	23	6	2	1	0.02	w
LOTSCHD	7	12	2.3984E+03	8	0	1	2	0.00	
MARATOSB	1	2	-1.4400E+06	1	0	1	1	0.00	u
MOSARQP1	700	2500	-3.8214E+03	3270	1021	5	1	2.81	
MPC1	3833	2550	-2.3262E+07	1362	0	1	17	1.59	w
MPC10	2351	1530	-1.5034E+07	1153	11	1	14	0.82	d
MPC11	2351	1530	-1.5030E+07	928	34	1	11	0.64	d
MPC12	2351	1530	-1.5033E+07	1161	19	1	13	0.94	d
MPC13	2351	1530	-1.5034E+07	1087	13	1	13	0.84	d
MPC14	2351	1530	-1.5034E+07	1184	16	1	14	0.82	d
MPC15	2351	1530	-1.5034E+07	1025	15	1	12	0.80	d
MPC16	2351	1530	-1.5034E+07	1051	16	1	12	0.78	d
MPC2	2351	1530	-1.5033E+07	1193	27	1	13	0.86	d
MPC3	2351	1530	-1.5030E+07	1219	32	1	15	0.73	d
MPC4	2351	1530	-1.5033E+07	1281	21	2	15	0.65	d
MPC5	2351	1530	-1.5033E+07	1357	25	1	17	0.71	d
MPC6	2351	1530	-1.5034E+07	1184	18	2	13	0.69	d
MPC7	2351	1530	-1.5034E+07	1079	15	1	13	0.65	d
MPC8	2351	1530	-1.5034E+07	1082	13	1	12	0.81	d
MPC9	2351	1530	-1.5034E+07	1159	11	1	13	0.97	d
NASH	24	72	0.0000E+00	2	0	0	2	0.00	i
NCVXBQP1	1	10000	-1.9855E+10	10008	0	1	1	1.19	
NCVXBQP2	1	10000	-1.3245E+10	11185	51	2	1	1.37	

Table 12: Results for SQIC in block-matrix mode with UMFPACK on “small” CUTEst QPs (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
NCVXBQP3	1	10000	-6.4122E+09	10836	126	3	1	1.28	
NCVXQP1	500	1000	-7.1562E+07	748	0	1	4	0.18	
NCVXQP2	500	1000	-5.7752E+07	1042	0	1	4	0.65	d
NCVXQP3	500	1000	-2.8846E+07	1182	18	1	3	0.74	
NCVXQP4	250	1000	-9.3995E+07	787	0	1	2	0.06	
NCVXQP5	250	1000	-6.6257E+07	823	0	1	2	0.09	
NCVXQP6	250	1000	-3.4172E+07	925	49	2	2	0.21	
NCVXQP7	750	1000	-4.3521E+07	682	0	1	8	0.37	
NCVXQP8	750	1000	-3.0098E+07	817	0	1	9	0.43	
NCVXQP9	750	1000	-2.1230E+07	943	11	1	8	0.58	
PENTDI	1	5000	-7.5000E-01	2	2	1	1	0.02	w
PORTSNQP	2	100000	3.3332E+04	108265	257	4	882	17.42	
PORTSQP	1	100000	3.3331E+04	100316	315	4	2	6.48	
POWELL20	5000	5000	6.5120E+09	2502	1	5	1	8.68	w
PRIMALC1	9	230	-6.1553E+03	18	14	1	1	0.00	
PRIMALC2	7	231	-3.5513E+03	3	1	1	1	0.00	
PRIMALC5	8	287	-4.2723E+02	9	5	1	1	0.00	
PRIMALC8	8	520	-1.8309E+04	20	17	1	1	0.00	
QPBAND	25000	50000	-4.9999E+04	149931	67	95	1	565.93	
QPCBLEND	74	83	-7.8425E-03	77	2	1	2	0.00	
QPCBOEI1	351	384	1.1504E+07	700	113	1	6	0.10	w
QPCBOEI2	166	143	8.1720E+06	210	32	1	3	0.01	w
QPCSTAIR	356	467	6.2044E+06	312	21	5	4	0.04	w
QPNBAND	25000	50000	-2.5000E+05	75000	1	48	1	339.41	
QPNBLEND	74	83	-8.7056E-03	67	3	1	2	0.01	
QPNBOEI1	351	384	6.7367E+06	683	92	1	7	0.09	d
QPNBOEI2	166	143	1.3683E+06	229	27	1	4	0.01	d
QPNSTAIR	356	467	5.1460E+06	349	20	1	5	0.03	d
QUDLIN	1	5000	-1.2500E+09	4999	0	1	1	0.24	w
RDW2D51F	16129	33282	1.1342E-03	852	0	1	16	33.61	
RDW2D52F	49	162	8.6159E-03	71	37	1	3	0.01	w
S268	5	5	-5.4570E-12	11	5	1	1	0.00	
SIM2BQP	1	2	0.0000E+00	1	0	1	1	0.00	
SIMBQP	1	2	0.0000E+00	2	1	1	1	0.00	
SOSQP1	2501	5000	-2.4500E-11	1	0	1	2	0.02	w
STATIC3	96	434	-3.0892E+02	2	1	1	2	0.00	u
STEENBRA	108	432	1.6958E+04	88	11	1	2	0.01	w
TAME	1	2	0.0000E+00	2	1	1	2	0.00	
TORSION5	1	5476	-2.8634E+00	952	952	6	1	0.20	
TORSION6	1	5476	-2.8634E+00	9416	952	19	1	9.46	
TORSIONE	1	5476	-2.8502E+00	968	968	6	1	0.21	
TORSIONF	1	5476	-2.8502E+00	9400	968	19	1	9.52	
YAO	2000	2002	1.9770E+02	3	1	1	1	0.01	
ZECEVIC2	2	2	-4.1250E+00	2	1	2	1	0.00	

Table 13: Results for SQIC in block-matrix mode with UMFPACK on “large” CUTEst QPs

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
ALLINQP	25000	50000	-5.4813E+03	24100	9820	17	2	81.28	w

Table 13: Results for SQIC in block-matrix mode with UMFPACK on “large” CUTEst QP (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
AUG2D	10000	20200	1.6874E+06	10193	10192	10	2	48.40	w
AUG2DC	10000	20200	1.8184E+06	10201	10200	10	2	50.08	
AUG2DCQP	10000	20200	6.4981E+06	14426	9994	17	6	67.18	
AUG2DQP	10000	20200	6.2370E+06	14233	9801	16	6	65.13	w
AUG3D	8000	27543	2.4561E+04	16910	16909	17	2	90.75	w
AUG3DC	8000	27543	2.7654E+04	19544	19543	19	2	122.21	
AUG3DCQP	8000	27543	6.1560E+04	22152	17665	23	17	111.67	w
AUG3DQP	8000	27543	5.4229E+04	18456	13712	20	17	86.66	w
BIGGSB1	1	5000	1.5000E-02	5002	4998	11	1	5.65	
BLOWEYA	2002	4002	-2.2781E-02	2002	2000	2	2	11.31	
BLOWEYB	2002	4002	-1.5226E-02	2002	2000	2	2	11.27	
BLOWEYC	2002	4002	-1.5246E-02	2001	2000	2	2	11.85	
BQPGABIM	1	50	-3.7903E-05	40	36	1	1	0.00	
BQPGASIM	1	50	-5.5198E-05	44	40	1	1	0.00	
BQPGAUSS	1	2003	-3.6258E-01	2235	1909	8	1	1.18	
CENHARK	1	5000	-2.0000E+00	6997	2997	9	1	2.08	w
CVXQP1	5000	10000	1.0870E+08	11324	1262	6	65	186.41	w
CVXQP2	2500	10000	8.1842E+07	8443	2209	4	6	24.63	w
DIXON3DQ	1	10000	0.0000E+00	10000	10000	16	1	17.39	
DQDRTIC	1	5000	0.0000E+00	5000	5000	11	1	5.36	
DTOC3	2998	4499	2.3522E+02	1501	1499	2	2	8.15	
DUAL1	1	85	3.5013E-02	77	62	2	2	0.01	
DUAL2	1	96	5.4821E-02	50	49	2	2	0.00	
DUAL3	1	111	1.3576E-01	111	96	2	2	0.01	
DUAL4	1	75	7.4609E-01	64	61	2	2	0.00	
GOULDQP3	9999	19999	2.3796E-05	5814	4988	7	2	17.37	w
GRIDNETA	3844	7564	4.7798E+02	535	510	1	2	0.75	w
GRIDNETB	3844	7564	1.2761E+02	3722	3721	4	2	12.15	
GRIDNETC	3844	7564	1.6187E+02	2631	2578	3	2	7.58	w
HILBERTA	1	2	0.0000E+00	2	2	1	1	0.00	
HILBERTB	1	10	0.0000E+00	10	10	1	1	0.00	
HUES-MOD	2	5000	3.4824E+07	5317	4719	11	2	6.98	w
HUESTIS	2	5000	1.7412E+11	5316	4719	11	2	6.99	w
JNLBRNG1	1	10000	-1.8057E-01	6494	6494	12	1	11.25	
JNLBRNG2	1	10000	-4.1487E+00	5754	5754	12	1	8.72	
JNLBRNGA	1	10000	-2.7110E-01	6359	6359	12	1	10.39	
JNLBRNGB	1	10000	-6.3007E+00	5383	5383	11	1	7.97	
MOSARQP2	700	2500	-5.0526E+03	2553	1640	3	1	2.57	
NOBNDTOR	1	5476	-4.4993E-01	4322	4318	10	1	5.71	
OBSTCLAE	1	10000	1.8865E+00	14062	5131	19	1	34.26	
OBSTCLAL	1	10000	1.8865E+00	5131	5131	11	1	7.40	
OBSTCLBL	1	10000	7.2722E+00	10991	7057	14	1	21.26	
OBSTCLBM	1	10000	7.2722E+00	12671	7057	16	1	18.07	
OBSTCLBU	1	10000	7.2722E+00	8217	7057	13	1	12.77	
ODNAMUR	1	11130	9.2366E+03	6455	4518	11	1	108.06	w
OSLBQP	1	8	6.2500E+00	6	6	1	1	0.00	
PALMER1C	1	8	9.7605E-02	8	8	1	1	0.00	
PALMER1D	1	7	6.5267E-01	7	7	1	1	0.00	
PALMER2C	1	8	1.4369E-02	8	8	1	1	0.00	
PALMER3C	1	8	1.9538E-02	8	8	1	1	0.00	
PALMER4C	1	8	5.0311E-02	8	8	1	1	0.00	
PRIMAL1	85	325	-3.5013E-02	216	133	3	1	0.04	w

Table 13: Results for SQIC in block-matrix mode with UMFPACK on “large” CUTEst QP (continued)

Name	m	n	Objective	Itn	nS	bFac	nFac	Time	Exit
PRIMAL2	96	649	-3.3734E-02	407	302	4	1	0.09	w
PRIMAL3	111	745	-1.3576E-01	710	572	4	1	0.23	w
PRIMAL4	75	1489	-7.4609E-01	1222	1140	6	1	0.46	w
RDW2D51U	3969	8450	8.3625E-04	4181	3963	9	2	60.03	w
RDW2D52U	3969	8450	1.1314E-02	4219	3967	5	2	75.05	w
SOSQP2	2501	5000	-1.2487E+03	3986	1250	3	2	5.29	w
STCQP1	4095	8193	3.6710E+05	7276	5717	6	18	12.83	
STCQP2	4095	8193	3.7189E+04	7698	3970	4	66	10.10	
STNQP1	4095	8193	-3.1170E+05	7283	5277	6	18	12.44	
STNQP2	4095	8193	-5.7497E+05	7250	2640	3	66	5.90	
TESTQUAD	1	5000	0.0000E+00	5000	5000	11	1	5.36	
TOINTQOR	1	50	1.1755E+03	50	50	2	1	0.00	
TORSSION1	1	5476	-4.3028E-01	3560	3560	10	1	4.27	
TORSSION2	1	5476	-4.3028E-01	6808	3560	12	1	12.04	
TORSSION3	1	5476	-1.2170E+00	1800	1800	8	1	0.75	
TORSSION4	1	5476	-1.2170E+00	8568	1800	15	1	13.72	
TORSIONA	1	5476	-4.1830E-01	3624	3624	10	1	4.29	
TORSIONB	1	5476	-4.1830E-01	6744	3624	12	1	12.30	
TORSIONC	1	5476	-1.2042E+00	1832	1832	8	1	0.77	
TORSIOND	1	5476	-1.2042E+00	8536	1832	15	1	13.89	
TRIDIA	1	5000	-1.1102E-15	4999	4999	11	1	5.51	w
UBH1	6000	9009	1.1160E+00	4672	2997	10	8	16.21	
WALL10	1	1461	-4.5595E+05	1459	1101	7	1	0.35	
WALL100	1	149624	-8.9544E+03	123516	110712	125	1	2506.70	
WALL20	1	5924	-5.2210E+06	5302	4276	11	1	9.34	w
WALL50	1	37311	-9.5450E+06	33928	26958	39	1	198.46	w
ZANGWIL2	1	2	-1.8200E+01	2	2	1	1	0.00	

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