Intensive numerical tests with LANCELOT (Release A): the complete results

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Abstract. This report contains the detailed results of the numerical experiments on the LANCELOT package for nonlinear optimization (Release A). These results constitute the basis on the discussion and analysis presented by the authors in [3].

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1 Introduction

LANCELOT (Release A) [2] is a package for the solution of nonlinear optimization problem of the form

$$\min_{x \in \Re^n} f(x) \tag{1}$$

subject to the constraints

$$c_e(x) = 0, \quad c_i(x) \geq 0, \tag{2}$$

and to the simple bounds

$$l_i \leq x_i \leq u_i, \quad (i = 1, \ldots, n), \tag{3}$$

where f, and c are assumed to be smooth functions from $\Re^n$ into $\Re$ and from $\Re^n$ into $\Re^m$ respectively. *The package is specially intended for problems where n and/or m are large.*

The performance of the package on a set of 943 test problems extracted from the CUTE collection (see [1]) is discussed in detail by the authors in [3], but the detailed results of the many runs involved are not listed in this paper. It is the purpose of the present report to provide, for future reference, the complete set of results on which this discussion is based. The reader is referred to [3] for the definitions of the concepts and algorithms themselves.

The report mainly consists of tables. The first tables (in Section 2) present the problems selected from the CUTE collection with their characteristics. The next set of tables (in Section 3) reports the number of minor iterations required for convergence for each problem and each of the twenty one algorithmic variants tested. Section 4 contains the number of gradients evaluations for each problem and variant, while Section 5 reports the cumulative numbers of cg-iterations. Section 6 finally lists the cpu-times corresponding to all runs.

2 The test problem characteristics

In the tables of this section, we use the following conventions:

- n is the number of problem variables,
- m is the number of general constraints (i.e. constraints of the type 2) present in the problem,
- "pbid" is the number of the considered problem within the CUTE collection,
- n_{fr} is the number of free variables in the problem,
- n_{fx} is the number of fixed variables in the problem,
- n_l is the number of variables of the problem that have lower bounds only,
- n_u is the number of variables of the problem that have upper bounds only,
- n_{lu} is the number of variables of the problem that have both lower and upper bounds,
- n_{lo} is the number of linear groups within the objective function,
- n_{no} is the number of nonlinear groups within the objective function,
- n_{le} is the number of linear equality constraints,
- n_{ne} is the number of nonlinear equality constraints,
- n_{li} is the number of linear inequality constraints,

- n_{ni} is the number of nonlinear inequality constraints,
- "best value" is the lowest value of the objective obtained for a stationary point of the corresponding problem, the minimum being taken on all successful runs.

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
AGG	163	488	C317	0	0	163	0	0	1	0	36	0	452	0	0.1000000D+26
AIRCRFTA	8	5	U1	5	3	0	0	0	0	0	0	5	0	0	0.3723700D-27
AIRCRFTB	8	0	U2	5	3	0	0	0	0	5	0	0	0	0	0.6707000D-22
ALJAZZAF	3	1	C1	0	0	3	0	0	0	1	0	1	0	0	0.7500500D+02
ARGAUSS	3	0	U3	3	0	0	0	0	0	15	0	0	0	0	0.1127900D-07
ARGLINA	10	0	U4	10	0	0	0	0	0	20	0	0	0	0	0.1000000D+02
ARGLINA	100	0	U5	100	0	0	0	0	0	200	0	0	0	0	0.1000000D+03
ARGLINB	10	0	U6	10	0	0	0	0	0	20	0	0	0	0	0.4634100D+01
ARGLINB	50	0	U7	50	0	0	0	0	0	100	0	0	0	0	0.2462700D+02
ARGLINB	100	0	U8	100	0	0	0	0	0	200	0	0	0	0	0.4962600D+02
ARGLINC	10	0	U9	10	0	0	0	0	0	20	0	0	0	0	0.6135100D+01
ARGLINC	50	0	U10	50	0	0	0	0	0	100	0	0	0	0	0.2612700D+02
ARGLINC	100	0	U11	100	0	0	0	0	0	200	0	0	0	0	0.5112600D+02
ARGTRIG	10	0	U12	10	0	0	0	0	0	10	0	0	0	0	0.3664700D-22
ARGTRIG	50	0	U13	50	0	0	0	0	0	50	0	0	0	0	0.2292900D-19
ARGTRIG	100	0	U14	100	0	0	0	0	0	100	0	0	0	0	0.3228900D-20
ARTIF	12	0	U15	10	2	0	0	0	0	10	0	0	0	0	0.5692600D-20
ARTIF	52	0	U16	50	2	0	0	0	0	50	0	0	0	0	0.2685300D-23
ARTIF	102	0	U17	100	2	0	0	0	0	100	0	0	0	0	0.1958200D-21
ARTIF	502	0	U18	500	2	0	0	0	0	500	0	0	0	0	0.2257500D-20
ARTIF	1002	0	U19	1000	2	0	0	0	0	1000	0	0	0	0	0.2564700D-19
ARTIF	5002	0	U20	5000	2	0	0	0	0	5000	0	0	0	0	0.5259700D-19
ARWHEAD	100	0	U21	100	0	0	0	0	99	99	0	0	0	0	0.0000000D+00
ARWHEAD	500	0	U22	500	0	0	0	0	499	499	0	0	0	0	0.0000000D+00
ARWHEAD	1000	0	U23	1000	0	0	0	0	999	999	0	0	0	0	0.0000000D+00
ARWHEAD	5000	0	U24	5000	0	0	0	0	4999	4999	0	0	0	0	0.0000000D+00
BARD	3	0	U25	3	0	0	0	0	0	15	0	0	0	0	0.8214900D-02
BDEXP	100	0	U26	0	0	100	0	0	0	98	0	0	0	0	0.1142700D-04
BDEXP	500	0	U27	0	0	500	0	0	0	498	0	0	0	0	0.5640500D-04
BDEXP	1000	0	U28	0	0	1000	0	0	0	998	0	0	0	0	0.1126300D-03
BDEXP	5000	0	U29	0	0	5000	0	0	0	4998	0	0	0	0	0.5624000D-03
BDQRTIC	100	0	U30	100	0	0	0	0	0	192	0	0	0	0	0.3787700D+03
BDQRTIC	500	0	U31	500	0	0	0	0	0	992	0	0	0	0	0.1981000D+04
BDQRTIC	1000	0	U32	1000	0	0	0	0	0	1992	0	0	0	0	0.3983800D+04
BDVALUE	12	0	U33	10	2	0	0	0	0	10	0	0	0	0	0.2023700D-14
BDVALUE	52	0	U34	50	2	0	0	0	0	50	0	0	0	0	0.8532500D-10
BDVALUE	102	0	U35	100	2	0	0	0	0	100	0	0	0	0	0.1119700D-09
BDVALUE	502	0	U36	500	2	0	0	0	0	500	0	0	0	0	0.1000600D-11
BDVALUE	1002	0	U37	1000	2	0	0	0	0	1000	0	0	0	0	0.1292700D-08
BDVALUE	5002	0	U38	5000	2	0	0	0	0	5000	0	0	0	0	0.1039600D-10
BEALE	2	0	U39	2	0	0	0	0	0	3	0	0	0	0	0.4472500D-17
BIGBANK	2230	1112	C2	0	308	0	0	1922	0	1	1112	0	0	0	-0.4205700D+07
BIGGS3	6	0	U40	3	3	0	0	0	0	13	0	0	0	0	0.4426500D-16
BIGGS5	6	0	U41	5	1	0	0	0	0	13	0	0	0	0	0.1095800D-14
BIGGS6	6	0	U42	6	0	0	0	0	0	13	0	0	0	0	0.8906200D-12
BOOTH	2	0	U43	2	0	0	0	0	0	2	0	0	0	0	0.0000000D+00
BOX2	3	0	U44	2	1	0	0	0	0	10	0	0	0	0	0.3261200D-17
BOX3	3	0	U45	3	0	0	0	0	0	10	0	0	0	0	0.2215800D-14
BQPGAUSS	2003	0	U46	0	0	0	0	2003	0	1	0	0	0	0	-0.3625800D+00
BRATU1D	13	0	U47	11	2	0	0	0	0	34	0	0	0	0	-0.8494500D+01
BRATU1D	77	0	U48	75	2	0	0	0	0	226	0	0	0	0	-0.8518300D+01
BRATU1D	103	0	U49	101	2	0	0	0	0	304	0	0	0	0	-0.8518600D+01
BRATU1D	503	0	U50	501	2	0	0	0	0	1504	0	0	0	0	-0.8518900D+01
BRATU1D	1003	0	U51	1001	2	0	0	0	0	3004	0	0	0	0	-0.8518900D+01
BRATU2D	49	25	U52	25	24	0	0	0	0	0	0	25	0	0	0.7810700D-13
BRATU2D	100	64	U53	64	36	0	0	0	0	0	0	64	0	0	0.4490300D-13
BRATU2D	484	400	U54	400	84	0	0	0	0	0	0	400	0	0	0.3142800D-13
BRATU2D	1024	900	U55	900	124	0	0	0	0	0	0	900	0	0	0.1832400D-12
BRATU2D	5184	4900	U56	4900	284	0	0	0	0	0	0	4900	0	0	0.5640500D-13
BRATU3D	27	1	U57	1	26	0	0	0	0	0	0	1	0	0	0.4977300D-15
BRATU3D	125	27	U58	27	98	0	0	0	0	0	0	27	0	0	0.2138300D-19
BRATU3D	512	216	U59	216	296	0	0	0	0	0	0	216	0	0	0.8016800D-12
BRATU3D	1000	512	U60	512	488	0	0	0	0	0	0	512	0	0	0.2899600D-12
BRATU3D	4913	3375	U61	3375	1538	0	0	0	0	0	0	3375	0	0	0.5535500D-10
BRIDGEND	2734	2727	C168	1423	0	1297	0	14	1	0	1304	1423	0	0	0.5380800D+02

Problem characteristics (1)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
BRITGAS	450	360	C3	0	0	426	0	24	0	1	0	360	0	0	0.0000000D+00
BRKMCC	2	0	U62	2	0	0	0	0	0	4	0	0	0	0	0.1690400D+00
BROWNAL	10	0	U63	10	0	0	0	0	0	10	0	0	0	0	0.7984600D-13
BROWNAL	50	0	U64	50	0	0	0	0	0	50	0	0	0	0	0.1431400D-20
BROWNBS	2	0	U65	2	0	0	0	0	0	3	0	0	0	0	0.0000000D+00
BROWNDEN	4	0	U66	4	0	0	0	0	0	20	0	0	0	0	0.8582200D+05
BROYDN3D	10	0	U67	10	0	0	0	0	0	10	0	0	0	0	0.1645500D-24
BROYDN3D	50	0	U68	50	0	0	0	0	0	50	0	0	0	0	0.1647300D-24
BROYDN3D	100	0	U69	100	0	0	0	0	0	100	0	0	0	0	0.1648800D-24
BROYDN3D	500	0	U70	500	0	0	0	0	0	500	0	0	0	0	0.3095900D-16
BROYDN3D	1000	0	U71	1000	0	0	0	0	0	1000	0	0	0	0	0.3096000D-16
BROYDN3D	5000	0	U72	5000	0	0	0	0	0	5000	0	0	0	0	0.6609800D-22
BROYDN3D	10000	0	U73	10000	0	0	0	0	0	10000	0	0	0	0	0.3096400D-16
BROYDN7D	10	0	U74	10	0	0	0	0	0	15	0	0	0	0	0.1261100D+01
BROYDN7D	50	0	U75	50	0	0	0	0	0	75	0	0	0	0	0.1324200D+02
BROYDN7D	100	0	U76	100	0	0	0	0	0	150	0	0	0	0	0.1330000D+02
BROYDN7D	500	0	U77	500	0	0	0	0	0	750	0	0	0	0	0.1925900D+02
BROYDN7D	1000	0	U78	1000	0	0	0	0	0	1500	0	0	0	0	0.1713700D+02
BROYDNBD	10	10	U79	10	0	0	0	0	0	0	0	10	0	0	0.1748500D-20
BROYDNBD	50	50	U80	50	0	0	0	0	0	0	0	50	0	0	0.1994500D-16
BROYDNBD	100	100	U81	100	0	0	0	0	0	0	0	100	0	0	0.9415400D-21
BROYDNBD	500	500	U82	500	0	0	0	0	0	0	0	500	0	0	0.2415400D-18
BROYDNBD	1000	1000	U83	1000	0	0	0	0	0	0	0	1000	0	0	0.7062900D-26
BROYDNBD	5000	5000	U84	5000	0	0	0	0	0	0	0	5000	0	0	0.5697200D-26
CBRATU2D	32	8	U85	8	24	0	0	0	0	0	0	8	0	0	0.2750200D-16
CBRATU2D	98	50	U86	50	48	0	0	0	0	0	0	50	0	0	0.1708600D-17
CBRATU2D	512	392	U87	392	120	0	0	0	0	0	0	392	0	0	0.8798900D-12
CBRATU2D	1058	882	U88	882	176	0	0	0	0	0	0	882	0	0	0.2810700D-12
CBRATU3D	54	2	U89	2	52	0	0	0	0	0	0	2	0	0	0.4977300D-15
CBRATU3D	128	16	U90	16	112	0	0	0	0	0	0	16	0	0	0.1223800D-19
CBRATU3D	686	250	U91	250	436	0	0	0	0	0	0	250	0	0	0.1057500D-19
CBRATU3D	2000	1024	U92	1024	976	0	0	0	0	0	0	1024	0	0	0.2360200D-12
CHANDHEQ	10	0	U93	0	0	10	0	0	0	10	0	0	0	0	0.1348800D-08
CHANDHEQ	50	0	U94	0	0	50	0	0	0	50	0	0	0	0	0.6997400D-08
CHANDHEQ	100	0	U95	0	0	100	0	0	0	100	0	0	0	0	0.1481800D-07
CHEBYQAD	2	0	U96	0	0	0	0	2	0	2	0	0	0	0	0.6300600D-20
CHEBYQAD	4	0	U97	0	0	0	0	4	0	4	0	0	0	0	0.6410600D-19
CHEBYQAD	5	0	U98	0	0	0	0	5	0	5	0	0	0	0	0.7549600D-31
CHEBYQAD	6	0	U99	0	0	0	0	6	0	6	0	0	0	0	0.1569900D-17
CHEBYQAD	7	0	U100	0	0	0	0	7	0	7	0	0	0	0	0.1157600D-24
CHEBYQAD	8	0	U101	0	0	0	0	8	0	8	0	0	0	0	0.3516900D-02
CHEBYQAD	9	0	U102	0	0	0	0	9	0	9	0	0	0	0	0.2234300D-29
CHEBYQAD	10	0	U103	0	0	0	0	10	0	10	0	0	0	0	0.4772700D-02
CHEBYQAD	20	0	U104	0	0	0	0	20	0	20	0	0	0	0	0.4573000D-02
CHEBYQAD	50	0	U105	0	0	0	0	50	0	50	0	0	0	0	0.5386300D-02
CHEMRCTA	10	10	U106	0	0	10	0	0	0	0	4	6	0	0	0.3758200D-29
CHEMRCTA	50	50	U107	0	0	50	0	0	0	0	4	46	0	0	0.1977300D-26
CHEMRCTA	100	100	U108	0	0	100	0	0	0	0	4	96	0	0	0.3980300D-24
CHEMRCTA	500	500	U109	0	0	500	0	0	0	0	4	496	0	0	0.3335900D-22
CHEMRCTA	1000	1000	U110	0	0	1000	0	0	0	0	4	996	0	0	0.1101700D-18
CHEMRCTA	5000	5000	U111	0	0	5000	0	0	0	0	4	4996	0	0	0.1000000D+26
CHEMRCTB	10	10	U112	0	0	10	0	0	0	0	2	8	0	0	0.1262300D-28
CHEMRCTB	50	50	U113	0	0	50	0	0	0	0	2	48	0	0	0.8993800D-26
CHEMRCTB	100	100	U114	0	0	100	0	0	0	0	2	98	0	0	0.5397800D-26
CHEMRCTB	500	500	U115	0	0	500	0	0	0	0	2	498	0	0	0.5520300D-23
CHEMRCTB	1000	1000	U116	0	0	1000	0	0	0	0	2	998	0	0	0.4603200D-19
CHNROSNB	10	0	U117	10	0	0	0	0	0	18	0	0	0	0	0.3993000D-21
CHNROSNB	25	0	U118	25	0	0	0	0	0	48	0	0	0	0	0.2055100D-20
CHNROSNB	50	0	U119	50	0	0	0	0	0	98	0	0	0	0	0.2103600D-22
CLIFF	2	0	U120	2	0	0	0	0	1	2	0	0	0	0	0.1997900D+00
CLPLATEA	16	0	U121	12	4	0	0	0	1	36	0	0	0	0	-0.6595500D-02
CLPLATEA	49	0	U122	42	7	0	0	0	1	144	0	0	0	0	-0.8200700D-02
CLPLATEA	100	0	U123	90	10	0	0	0	1	324	0	0	0	0	-0.9145200D-02
CLPLATEA	529	0	U124	506	23	0	0	0	1	1936	0	0	0	0	-0.1097400D-01
CLPLATEA	1024	0	U125	992	32	0	0	0	1	3844	0	0	0	0	-0.1154300D-01

Problem characteristics (2)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
CLPLATEA	5041	0	U126	4970	71	0	0	0	1	19600	0	0	0	0	-0.1259200D-01
CLPLATEB	16	0	U127	12	4	0	0	0	1	36	0	0	0	0	-0.9370500D-02
CLPLATEB	49	0	U128	42	7	0	0	0	1	144	0	0	0	0	-0.6919400D-02
CLPLATEB	100	0	U129	90	10	0	0	0	1	324	0	0	0	0	-0.6200800D-02
CLPLATEB	529	0	U130	506	23	0	0	0	1	1936	0	0	0	0	-0.5427500D-02
CLPLATEB	1024	0	U131	992	32	0	0	0	1	3844	0	0	0	0	-0.5283500D-02
CLPLATEB	5041	0	U132	4970	71	0	0	0	1	19600	0	0	0	0	-0.5094800D-02
CLPLATEC	16	0	U133	12	4	0	0	0	1	36	0	0	0	0	-0.5147600D-02
CLPLATEC	49	0	U134	42	7	0	0	0	1	144	0	0	0	0	-0.5139900D-02
CLPLATEC	100	0	U135	90	10	0	0	0	1	324	0	0	0	0	-0.5114100D-02
CLPLATEC	529	0	U136	506	23	0	0	0	1	1936	0	0	0	0	-0.5059000D-02
CLPLATEC	1024	0	U137	992	32	0	0	0	1	3844	0	0	0	0	-0.5043900D-02
CLPLATEC	5041	0	U138	4970	71	0	0	0	1	19600	0	0	0	0	-0.5020700D-02
CLUSTER	2	2	U139	2	0	0	0	0	0	0	0	2	0	0	0.1033600D-11
CORKSCRW	96	70	C298	47	9	0	0	40	0	10	60	0	0	10	0.1160100D+01
CORKSCRW	456	350	C299	247	9	0	0	200	0	50	300	0	0	50	0.2648400D+02
CORKSCRW	906	700	C300	497	9	0	0	400	0	100	600	0	0	100	0.4436800D+02
CORKSCRW	4506	3500	C301	2497	9	0	0	2000	0	500	3000	0	0	500	0.1000000D+26
CORKSCRW	9006	7000	C302	4997	9	0	0	4000	0	1000	6000	0	0	1000	0.1000000D+26
CRAGGLVY	4	0	U140	4	0	0	0	0	0	5	0	0	0	0	0.7035800D-08
CRAGGLVY	10	0	U141	10	0	0	0	0	0	20	0	0	0	0	0.1886600D+01
CRAGGLVY	50	0	U142	50	0	0	0	0	0	120	0	0	0	0	0.1537300D+02
CRAGGLVY	100	0	U143	100	0	0	0	0	0	245	0	0	0	0	0.3227000D+02
CRAGGLVY	500	0	U144	500	0	0	0	0	0	1245	0	0	0	0	0.1674500D+03
CRAGGLVY	1000	0	U145	1000	0	0	0	0	0	2495	0	0	0	0	0.3364200D+03
CRAGGLVY	5000	0	U146	5000	0	0	0	0	0	12495	0	0	0	0	0.1688200D+04
CUBE	2	0	U147	2	0	0	0	0	0	2	0	0	0	0	0.7431600D-16
DALLASL	906	667	C4	0	0	0	0	906	0	1	667	0	0	0	-0.2026000D+06
DALLASM	196	151	C5	0	0	0	0	196	0	1	151	0	0	0	-0.4819800D+05
DALLASS	46	31	C6	0	0	0	0	46	0	1	31	0	0	0	-0.3239300D+05
DEGENLPA	20	15	C7	0	0	0	0	20	1	0	15	0	0	0	0.3060400D+01
DEGENLPB	20	15	C8	0	0	0	0	20	1	0	15	0	0	0	-0.3073100D+02
DENSCHNA	2	0	U281	2	0	0	0	0	0	3	0	0	0	0	0.3781800D-15
DENSCHNB	2	0	U282	2	0	0	0	0	0	3	0	0	0	0	0.0000000D+00
DENSCHNC	2	0	U283	2	0	0	0	0	0	2	0	0	0	0	0.1019700D-18
DENSCHND	3	0	U284	3	0	0	0	0	0	3	0	0	0	0	0.1981100D-09
DENSCHNE	3	0	U285	3	0	0	0	0	0	3	0	0	0	0	0.3798400D-19
DENSCHNF	2	0	U286	2	0	0	0	0	0	2	0	0	0	0	0.8775000D-22
DIPIGRI	7	4	C9	7	0	0	0	0	0	1	0	0	0	4	0.6806300D+03
DISC2	29	23	C324	22	0	0	0	7	1	0	0	17	0	6	0.1562500D+01
DISCS	36	66	C316	21	3	12	0	0	1	0	0	18	0	48	0.1200000D+02
DIXCHLNG	10	5	C180	10	0	0	0	0	0	49	0	5	0	0	0.1757800D-12
DIXCHLNV	10	5	C181	0	0	10	0	0	0	49	0	5	0	0	0.1072600D-13
DIXMAANA	15	0	U148	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANA	90	0	U149	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANA	300	0	U150	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANA	1500	0	U151	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANA	3000	0	U152	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANB	15	0	U153	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANB	90	0	U154	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANB	300	0	U155	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANB	1500	0	U156	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANB	3000	0	U157	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANC	15	0	U158	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANC	90	0	U159	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANC	300	0	U160	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANC	1500	0	U161	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANC	3000	0	U162	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAAND	15	0	U163	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAAND	90	0	U164	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAAND	300	0	U165	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAAND	1500	0	U166	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAAND	3000	0	U167	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANE	15	0	U168	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANE	90	0	U169	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01

Problem characteristics (3)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
DIXMAANE	300	0	U170	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANE	1500	0	U171	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANE	3000	0	U172	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANF	15	0	U173	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANF	90	0	U174	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANF	300	0	U175	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANF	1500	0	U176	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANF	3000	0	U177	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANG	15	0	U178	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANG	90	0	U179	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANG	300	0	U180	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANG	1500	0	U181	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANG	3000	0	U182	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANH	15	0	U183	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANH	90	0	U184	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANH	300	0	U185	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANH	1500	0	U186	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANH	3000	0	U187	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANI	15	0	U188	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANI	90	0	U189	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANI	300	0	U190	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANI	1500	0	U191	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANI	3000	0	U192	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANJ	15	0	U193	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANJ	90	0	U194	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANJ	300	0	U195	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANJ	1500	0	U196	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANJ	3000	0	U197	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANK	15	0	U198	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANK	90	0	U199	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANK	300	0	U200	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANK	1500	0	U201	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANK	3000	0	U202	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANL	15	0	U203	15	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANL	90	0	U204	90	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANL	300	0	U205	300	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANL	1500	0	U206	1500	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXMAANL	3000	0	U207	3000	0	0	0	0	0	4	0	0	0	0	0.1000000D+01
DIXON3DQ	10	0	U208	10	0	0	0	0	0	10	0	0	0	0	0.0000000D+00
DIXON3DQ	50	0	U209	50	0	0	0	0	0	50	0	0	0	0	0.0000000D+00
DIXON3DQ	100	0	U210	100	0	0	0	0	0	100	0	0	0	0	0.0000000D+00
DIXON3DQ	500	0	U211	500	0	0	0	0	0	500	0	0	0	0	0.0000000D+00
DIXON3DQ	1000	0	U212	1000	0	0	0	0	0	1000	0	0	0	0	0.0000000D+00
DIXON3DQ	5000	0	U213	5000	0	0	0	0	0	5000	0	0	0	0	0.0000000D+00
DQDRTIC	10	0	U214	10	0	0	0	0	0	24	0	0	0	0	0.0000000D+00
DQDRTIC	50	0	U215	50	0	0	0	0	0	144	0	0	0	0	0.0000000D+00
DQDRTIC	100	0	U216	100	0	0	0	0	0	294	0	0	0	0	0.7868200D-42
DQDRTIC	500	0	U217	500	0	0	0	0	0	1494	0	0	0	0	0.0000000D+00
DQDRTIC	1000	0	U218	1000	0	0	0	0	0	2994	0	0	0	0	0.4942700D-38
DQDRTIC	5000	0	U219	5000	0	0	0	0	0	14994	0	0	0	0	0.1079800D-47
DQRTIC	10	0	U220	10	0	0	0	0	0	10	0	0	0	0	0.7130800D-08
DQRTIC	50	0	U221	50	0	0	0	0	0	50	0	0	0	0	0.1932300D-07
DQRTIC	100	0	U222	100	0	0	0	0	0	100	0	0	0	0	0.5044400D-08
DQRTIC	500	0	U223	500	0	0	0	0	0	500	0	0	0	0	0.3595100D-07
DQRTIC	1000	0	U224	1000	0	0	0	0	0	1000	0	0	0	0	0.8910200D-08
DQRTIC	5000	0	U225	5000	0	0	0	0	0	5000	0	0	0	0	0.1300300D-09
EDENSCH	36	0	U226	36	0	0	0	0	0	106	0	0	0	0	0.2192800D+03
EDENSCH	2000	0	U227	2000	0	0	0	0	0	5998	0	0	0	0	0.1200300D+05
ENGVAL1	2	0	U228	2	0	0	0	0	1	1	0	0	0	0	0.0000000D+00
ENGVAL1	50	0	U229	50	0	0	0	0	49	49	0	0	0	0	0.5358200D+02
ENGVAL1	100	0	U230	100	0	0	0	0	99	99	0	0	0	0	0.1090900D+03
ENGVAL1	1000	0	U231	1000	0	0	0	0	999	999	0	0	0	0	0.1108200D+04
ENGVAL1	5000	0	U232	5000	0	0	0	0	4999	4999	0	0	0	0	0.5548700D+04
ENGVAL2	3	0	U233	3	0	0	0	0	0	5	0	0	0	0	0.1005900D-22
ERRINBAR	18	9	C10	4	0	14	0	0	1	0	0	8	1	0	0.1000000D+26

Problem characteristics (4)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
ERRINROS	10	0	U234	10	0	0	0	0	0	18	0	0	0	0	0.6694600D+01
ERRINROS	25	0	U235	25	0	0	0	0	0	48	0	0	0	0	0.1846100D+02
ERRINROS	50	0	U236	50	0	0	0	0	0	98	0	0	0	0	0.3990400D+02
EXPFIT	2	0	U289	2	0	0	0	0	0	10	0	0	0	0	0.2405100D+00
EXPFITA	5	22	C11	5	0	0	0	0	0	1	0	0	22	0	0.1136600D-02
EXPFITB	5	102	C12	5	0	0	0	0	0	1	0	0	102	0	0.5019300D-02
EXPFITC	5	502	C13	5	0	0	0	0	0	1	0	0	502	0	0.2330200D-01
EXTROSNB	5	0	U237	5	0	0	0	0	0	5	0	0	0	0	0.3110000D-17
EXTROSNB	10	0	U238	10	0	0	0	0	0	10	0	0	0	0	0.6357200D-12
FREUROTH	2	0	U239	2	0	0	0	0	0	2	0	0	0	0	0.4898400D+02
FREUROTH	10	0	U240	10	0	0	0	0	0	18	0	0	0	0	0.1014100D+04
FREUROTH	50	0	U241	50	0	0	0	0	0	98	0	0	0	0	0.5881000D+04
FREUROTH	100	0	U242	100	0	0	0	0	0	198	0	0	0	0	0.1196500D+05
FREUROTH	500	0	U243	500	0	0	0	0	0	998	0	0	0	0	0.6063400D+05
FREUROTH	1000	0	U244	1000	0	0	0	0	0	1998	0	0	0	0	0.1214700D+06
FREUROTH	5000	0	U245	5000	0	0	0	0	0	9998	0	0	0	0	0.6081600D+06
GAUSSELM	14	11	C14	3	1	2	0	8	1	0	0	5	6	0	-0.2250000D+01
GAUSSELM	506	1135	C15	375	1	10	0	120	1	0	0	385	750	0	-0.1069600D+02
GAUSSELM	650	1496	C16	495	1	11	0	143	1	0	0	506	990	0	-0.1196100D+02
GOTTFR	2	0	U246	2	0	0	0	0	0	2	0	0	0	0	0.2849100D-14
GRIDNETA	60	36	C20	26	14	16	0	4	0	1	36	0	0	0	0.7170900D+02
GRIDNETA	180	100	C21	95	48	33	0	4	0	1	100	0	0	0	0.9524200D+02
GRIDNETA	612	324	C22	361	182	65	0	4	0	1	324	0	0	0	0.1021200D+03
GRIDNETA	924	484	C23	559	280	81	0	4	0	1	484	0	0	0	0.1347300D+03
GRIDNETA	3444	1764	C24	2185	1094	161	0	4	0	1	1764	0	0	0	0.1616100D+03
GRIDNETA	7564	3844	C25	4899	2420	241	0	4	0	1	3844	0	0	0	0.4779200D+03
GRIDNETA	13284	6724	C26	8639	4320	321	0	4	0	1	6724	0	0	0	0.3049800D+03
GRIDNETB	60	36	C27	60	0	0	0	0	0	1	36	0	0	0	0.3799700D+02
GRIDNETB	180	100	C28	180	0	0	0	0	0	1	100	0	0	0	0.4726800D+02
GRIDNETB	612	324	C29	612	0	0	0	0	0	1	324	0	0	0	0.6735700D+02
GRIDNETB	924	484	C30	924	0	0	0	0	0	1	484	0	0	0	0.7575800D+02
GRIDNETB	3444	1764	C31	3444	0	0	0	0	0	1	1764	0	0	0	0.1067500D+03
GRIDNETB	7564	3844	C32	7564	0	0	0	0	0	1	3844	0	0	0	0.1276100D+03
GRIDNETB	13284	6724	C33	13284	0	0	0	0	0	1	6724	0	0	0	0.1433000D+03
GRIDNETC	60	36	C34	40	0	20	0	0	0	1	36	0	0	0	0.3864100D+02
GRIDNETC	180	100	C35	120	0	60	0	0	0	1	100	0	0	0	0.4835200D+02
GRIDNETC	612	324	C36	408	0	204	0	0	0	1	324	0	0	0	0.6794600D+02
GRIDNETC	924	484	C37	616	0	308	0	0	0	1	484	0	0	0	0.7642600D+02
GRIDNETC	3444	1764	C38	2296	0	1148	0	0	0	1	1764	0	0	0	0.1080100D+03
GRIDNETC	7564	3844	C39	5043	0	2521	0	0	0	1	3844	0	0	0	0.1618700D+03
GRIDNETD	60	36	C40	26	14	16	0	4	0	1	36	0	0	0	0.7344900D+02
GRIDNETD	180	100	C41	95	48	33	0	4	0	1	100	0	0	0	0.9924800D+02
GRIDNETD	612	324	C42	361	182	65	0	4	0	1	324	0	0	0	0.1116500D+03
GRIDNETD	924	484	C43	559	280	81	0	4	0	1	484	0	0	0	0.1481500D+03
GRIDNETD	3444	1764	C44	2185	1094	161	0	4	0	1	1764	0	0	0	0.2015200D+03
GRIDNETD	7564	3844	C45	4899	2420	241	0	4	0	1	3844	0	0	0	0.5706500D+03
GRIDNETE	60	36	C46	60	0	0	0	0	0	1	36	0	0	0	0.3960500D+02
GRIDNETE	180	100	C47	180	0	0	0	0	0	1	100	0	0	0	0.5060000D+02
GRIDNETE	612	324	C48	612	0	0	0	0	0	1	324	0	0	0	0.7555100D+02
GRIDNETE	924	484	C49	924	0	0	0	0	0	1	484	0	0	0	0.8725900D+02
GRIDNETE	3444	1764	C50	3444	0	0	0	0	0	1	1764	0	0	0	0.1440600D+03
GRIDNETE	7564	3844	C51	7564	0	0	0	0	0	1	3844	0	0	0	0.2064800D+03
GRIDNETF	60	36	C52	40	0	20	0	0	0	1	36	0	0	0	0.4021300D+02
GRIDNETF	180	100	C53	120	0	60	0	0	0	1	100	0	0	0	0.5164800D+02
GRIDNETF	612	324	C54	408	0	204	0	0	0	1	324	0	0	0	0.7607900D+02
GRIDNETF	924	484	C55	616	0	308	0	0	0	1	484	0	0	0	0.8786000D+02
GRIDNETF	3444	1764	C56	2296	0	1148	0	0	0	1	1764	0	0	0	0.1452500D+03
GRIDNETF	7564	3844	C57	5043	0	2521	0	0	0	1	3844	0	0	0	0.2435400D+03
GRIDNETG	60	36	C58	26	14	16	0	4	0	1	36	0	0	0	0.7344900D+02
GRIDNETH	60	36	C59	60	0	0	0	0	0	1	36	0	0	0	0.3960900D+02
GRIDNETI	60	36	C60	40	0	20	0	0	0	1	36	0	0	0	0.4022300D+02
GULF	3	0	U247	3	0	0	0	0	0	99	0	0	0	0	0.4394500D-26
HAGER1	21	10	C270	20	1	0	0	0	0	11	10	0	0	0	0.8809700D+00
HAGER1	101	50	C271	100	1	0	0	0	0	51	50	0	0	0	0.8808000D+00
HAGER1	201	100	C272	200	1	0	0	0	0	101	100	0	0	0	0.8808000D+00

Problem characteristics (5)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
HAGER1	1001	500	C273	1000	1	0	0	0	0	501	500	0	0	0	0.8808000D+00
HAGER1	2001	1000	C274	2000	1	0	0	0	0	1001	1000	0	0	0	0.8808000D+00
HAGER1	10001	5000	C275	10000	1	0	0	0	0	5001	5000	0	0	0	0.8808000D+00
HAGER2	21	10	C276	20	1	0	0	0	0	20	10	0	0	0	0.4325700D+00
HAGER2	101	50	C277	100	1	0	0	0	0	100	50	0	0	0	0.4321000D+00
HAGER2	201	100	C278	200	1	0	0	0	0	200	100	0	0	0	0.4320900D+00
HAGER2	1001	500	C279	1000	1	0	0	0	0	1000	500	0	0	0	0.4320800D+00
HAGER2	2001	1000	C280	2000	1	0	0	0	0	2000	1000	0	0	0	0.4320800D+00
HAGER2	10001	5000	C281	10000	1	0	0	0	0	10000	5000	0	0	0	0.4320800D+00
HAGER3	21	10	C282	20	1	0	0	0	0	20	10	0	0	0	0.1410300D+00
HAGER3	101	50	C283	100	1	0	0	0	0	100	50	0	0	0	0.1409600D+00
HAGER3	201	100	C284	200	1	0	0	0	0	200	100	0	0	0	0.1409600D+00
HAGER3	1001	500	C285	1000	1	0	0	0	0	1000	500	0	0	0	0.1409600D+00
HAGER3	2001	1000	C286	2000	1	0	0	0	0	2000	1000	0	0	0	0.1409600D+00
HAGER3	10001	5000	C287	10000	1	0	0	0	0	10000	5000	0	0	0	0.1409600D+00
HAGER4	21	10	C288	10	1	0	10	0	0	1	10	0	0	0	0.2833900D+01
HAGER4	101	50	C289	50	1	0	50	0	0	1	50	0	0	0	0.2799800D+01
HAGER4	201	100	C290	100	1	0	100	0	0	1	100	0	0	0	0.2796800D+01
HAGER4	1001	500	C291	500	1	0	500	0	0	1	500	0	0	0	0.2794500D+01
HAGER4	2001	1000	C292	1000	1	0	1000	0	0	1	1000	0	0	0	0.2794200D+01
HAGER4	10001	5000	C293	5000	1	0	5000	0	0	1	5000	0	0	0	0.2794000D+01
HAIRY	2	0	U248	2	0	0	0	0	0	1	0	0	0	0	0.2000000D+02
HATFLDA	4	0	U249	0	0	4	0	0	0	4	0	0	0	0	0.2550500D-16
HATFLDB	4	0	U250	0	0	3	0	1	0	4	0	0	0	0	0.5572800D-02
HATFLDC	25	0	U251	1	0	0	0	24	0	25	0	0	0	0	0.1317200D-16
HATFLDD	3	0	U252	3	0	0	0	0	0	10	0	0	0	0	0.6615100D-07
HATFLDE	3	0	U253	3	0	0	0	0	0	21	0	0	0	0	0.5120400D-06
HATFLDF	3	0	U254	3	0	0	0	0	0	3	0	0	0	0	0.9758500D-14
HATFLDG	25	0	U255	25	0	0	0	0	0	25	0	0	0	0	0.8806800D-16
HATFLDH	4	7	C61	0	0	0	0	4	0	1	0	0	7	0	-0.2450000D+02
HELIX	3	0	U256	3	0	0	0	0	0	3	0	0	0	0	0.1104700D-22
HILBERTA	2	0	U257	2	0	0	0	0	0	3	0	0	0	0	0.0000000D+00
HILBERTA	4	0	U258	4	0	0	0	0	0	10	0	0	0	0	0.0000000D+00
HILBERTA	5	0	U259	5	0	0	0	0	0	15	0	0	0	0	0.0000000D+00
HILBERTA	6	0	U260	6	0	0	0	0	0	21	0	0	0	0	0.0000000D+00
HILBERTA	10	0	U261	10	0	0	0	0	0	55	0	0	0	0	0.0000000D+00
HILBERTB	5	0	U262	5	0	0	0	0	0	15	0	0	0	0	0.0000000D+00
HILBERTB	10	0	U263	10	0	0	0	0	0	55	0	0	0	0	0.0000000D+00
HILBERTB	50	0	U264	50	0	0	0	0	0	1275	0	0	0	0	0.0000000D+00
HIMMELBA	2	0	U265	2	0	0	0	0	0	2	0	0	0	0	0.0000000D+00
HIMMELBB	2	0	U266	2	0	0	0	0	0	1	0	0	0	0	0.4585800D-37
HIMMELBC	2	0	U267	2	0	0	0	0	0	2	0	0	0	0	0.4565100D-25
HIMMELBD	2	0	U268	2	0	0	0	0	0	2	0	0	0	0	0.5922600D+01
HIMMELBE	3	0	U269	3	0	0	0	0	0	3	0	0	0	0	0.1109300D-30
HIMMELBF	4	0	U270	4	0	0	0	0	0	7	0	0	0	0	0.3185700D+03
HIMMELBG	2	0	U271	2	0	0	0	0	0	1	0	0	0	0	0.2379300D-17
HIMMELBH	2	0	U272	2	0	0	0	0	0	1	0	0	0	0	-0.1000000D+01
HIMMELBI	100	12	C263	0	0	0	0	100	0	20	0	0	12	0	-0.1735600D+04
HIMMELBJ	45	14	C268	0	2	43	0	0	0	1	14	0	0	0	-0.1910300D+04
HIMMELBK	24	14	C269	0	0	24	0	0	1	0	2	12	0	0	0.5181400D-01
HONG	4	1	U445	0	0	0	0	4	0	1	1	0	0	0	0.2257100D+02
HS1	2	0	U273	1	0	1	0	0	0	2	0	0	0	0	0.1271900D-17
HS10	2	1	C66	2	0	0	0	0	1	0	0	0	0	1	-0.1000000D+01
HS100	7	4	C150	7	0	0	0	0	0	4	0	0	0	4	0.6806300D+03
HS100MOD	7	4	C310	7	0	0	0	0	0	4	0	0	0	4	0.6786800D+03
HS101	7	5	C151	0	0	0	0	7	0	1	0	0	0	5	0.1809800D+04
HS102	7	5	C152	0	0	0	0	7	0	1	0	0	0	5	0.9118800D+03
HS103	7	5	C153	0	0	0	0	7	0	1	0	0	0	5	0.1000000D+26
HS104	8	5	C154	0	0	0	0	8	0	1	0	0	0	5	0.3951200D+01
HS105	8	1	C155	0	0	0	0	8	0	235	0	0	1	0	0.1044600D+04
HS106	8	6	C156	0	0	0	0	8	1	0	0	0	3	3	0.7049200D+04
HS107	9	6	C157	4	0	2	0	3	0	1	0	6	0	0	0.5055000D+04
HS108	9	13	C158	8	0	1	0	0	0	1	0	0	0	13	-0.8660300D+00
HS109	9	10	C159	0	0	2	0	7	0	1	0	6	2	2	0.5362100D+04
HS11	2	1	C67	2	0	0	0	0	0	1	0	0	0	1	-0.8498500D+01

Problem characteristics (6)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
HS110	10	0	U296	0	0	0	0	10	0	21	0	0	0	0	-0.4577800D+02
HS111	10	3	C160	0	0	0	0	10	0	1	0	3	0	0	-0.4776100D+02
HS112	10	3	C161	0	0	10	0	0	0	1	3	0	0	0	-0.4776100D+02
HS113	10	8	C162	10	0	0	0	0	0	1	0	0	3	5	0.2430600D+02
HS114	10	11	C163	0	0	0	0	10	0	1	1	2	4	4	-0.1768800D+04
HS116	13	14	C164	0	0	0	0	13	1	0	0	0	4	10	0.1000000D+26
HS117	15	5	C165	0	0	15	0	0	0	1	0	0	0	5	0.3234900D+02
HS118	15	17	C166	0	0	0	0	15	0	1	0	0	17	0	0.6648200D+03
HS119	16	8	C167	0	0	0	0	16	0	16	8	0	0	0	0.2449000D+03
HS12	2	1	C68	2	0	0	0	0	0	1	0	0	0	1	-0.3000000D+02
HS13	2	1	C69	0	0	2	0	0	0	1	0	0	0	1	0.9587100D+00
HS14	2	2	C70	2	0	0	0	0	0	1	1	0	0	1	0.1393500D+01
HS15	2	2	C71	1	0	0	1	0	0	1	0	0	0	2	0.3065000D+03
HS16	2	2	C72	0	0	0	1	1	0	1	0	0	0	2	0.2500000D+00
HS17	2	2	C73	0	0	0	1	1	0	1	0	0	0	2	0.9999800D+00
HS18	2	2	C74	0	0	0	0	2	0	1	0	0	0	2	0.5000000D+01
HS19	2	2	C75	0	0	0	0	2	0	1	0	0	0	2	-0.6961800D+04
HS2	2	0	U274	1	0	1	0	0	0	2	0	0	0	0	0.4941200D+01
HS20	2	3	C76	1	0	0	0	1	0	1	0	0	0	3	0.4019900D+02
HS21	2	1	C77	0	0	0	0	2	0	1	0	0	0	1	-0.9996000D+02
HS22	2	2	C78	2	0	0	0	0	0	1	0	0	1	1	0.1000000D+01
HS23	2	5	C79	0	0	0	0	2	0	1	0	0	0	5	0.2000000D+01
HS24	2	3	C80	0	0	2	0	0	0	1	0	0	3	0	-0.1000000D+01
HS25	3	0	U278	0	0	0	0	3	0	99	0	0	0	0	0.3283500D+02
HS26	3	1	C81	3	0	0	0	0	0	1	0	1	0	0	0.4453100D-11
HS27	3	1	C82	3	0	0	0	0	0	1	0	1	0	0	0.4000000D-01
HS28	3	1	C83	3	0	0	0	0	0	1	1	0	0	0	0.2218700D-30
HS29	3	1	C84	3	0	0	0	0	0	1	0	0	0	1	-0.2262700D+02
HS3	2	0	U275	1	0	1	0	0	1	1	0	0	0	0	0.0000000D+00
HS30	3	1	C85	0	0	0	0	3	0	1	0	0	0	1	0.1000000D+01
HS31	3	1	C86	0	0	0	0	3	0	1	0	0	0	1	0.6000000D+01
HS32	3	2	C87	0	0	3	0	0	0	1	1	0	0	1	0.9999800D+00
HS33	3	2	C88	0	0	2	0	1	0	1	0	0	0	2	-0.4585800D+01
HS34	3	2	C89	0	0	0	0	3	0	1	0	0	0	2	-0.8340300D+00
HS35	3	1	C90	0	0	3	0	0	0	1	0	0	1	0	0.1111100D+00
HS36	3	1	C91	0	0	0	0	3	0	1	0	0	1	0	-0.3300000D+04
HS37	3	2	C92	0	0	0	0	3	0	1	0	0	2	0	-0.3456000D+04
HS38	4	0	U279	0	0	0	0	4	0	7	0	0	0	0	0.2713200D-18
HS39	4	2	C93	4	0	0	0	0	1	0	0	2	0	0	-0.1000000D+01
HS4	2	0	U276	0	0	2	0	0	1	1	0	0	0	0	0.2666700D+01
HS40	4	3	C94	4	0	0	0	0	0	1	0	3	0	0	-0.2500000D+00
HS41	4	1	C95	0	0	0	0	4	0	1	1	0	0	0	0.1925900D+01
HS42	4	2	C96	4	0	0	0	0	0	1	1	1	0	0	0.1385800D+02
HS43	4	3	C97	4	0	0	0	0	0	1	0	0	0	3	-0.4400000D+02
HS44	4	6	C98	0	0	4	0	0	0	1	0	0	6	0	-0.1500000D+02
HS45	5	0	U280	0	0	0	0	5	0	1	0	0	0	0	0.1000000D+01
HS46	5	2	C99	5	0	0	0	0	0	1	0	2	0	0	0.9976500D-12
HS47	5	3	C100	5	0	0	0	0	0	1	0	3	0	0	-0.2671400D-01
HS48	5	2	C101	5	0	0	0	0	0	1	2	0	0	0	0.9860800D-31
HS49	5	2	C102	5	0	0	0	0	0	1	2	0	0	0	0.9627600D-08
HS5	2	0	U277	0	0	0	0	2	1	2	0	0	0	0	-0.1913200D+01
HS50	5	3	C103	5	0	0	0	0	0	1	3	0	0	0	0.1583800D-12
HS51	5	3	C104	5	0	0	0	0	0	1	3	0	0	0	0.0000000D+00
HS52	5	3	C105	5	0	0	0	0	0	1	3	0	0	0	0.5326600D+01
HS53	5	3	C106	0	0	0	0	5	0	1	3	0	0	0	0.4093000D+01
HS54	6	1	C107	0	0	0	0	6	0	1	1	0	0	0	-0.9080700D+00
HS55	6	6	C108	0	0	4	0	2	0	1	6	0	0	0	0.6666700D+01
HS56	7	4	C109	7	0	0	0	0	0	1	0	4	0	0	-0.3456000D+01
HS57	2	1	C110	0	0	2	0	0	0	1	0	0	0	1	0.2845900D-01
HS59	2	3	C111	0	0	0	0	2	0	1	0	0	0	3	-0.7802800D+01
HS6	2	1	C62	2	0	0	0	0	0	1	0	1	0	0	0.9115000D-20
HS60	3	1	C112	0	0	0	0	3	0	1	0	1	0	0	0.3256800D-01
HS61	3	2	C113	3	0	0	0	0	0	1	0	2	0	0	-0.1436500D+03
HS62	3	1	C114	0	0	0	0	3	0	1	1	0	0	0	-0.2627300D+05
HS63	3	2	C115	0	0	3	0	0	0	1	1	1	0	0	0.9617200D+03

Problem characteristics (7)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
HS64	3	1	C116	0	0	3	0	0	0	1	0	0	0	1	0.6299800D+04
HS65	3	1	C117	0	0	0	0	3	0	3	0	0	0	1	0.9535300D+00
HS66	3	2	C118	0	0	0	0	3	1	0	0	0	0	2	0.5181600D+00
HS67	3	14	C119	0	0	0	0	3	0	1	0	0	0	14	-0.1162100D+04
HS68	4	2	C120	0	0	0	0	4	0	1	0	2	0	0	-0.9203900D+00
HS69	4	2	C121	0	0	0	0	4	0	1	0	2	0	0	-0.9567100D+03
HS7	2	1	C63	2	0	0	0	0	0	1	0	1	0	0	-0.1732100D+01
HS70	4	1	C122	0	0	0	0	4	0	19	0	0	0	1	0.7498500D-02
HS71	4	2	C123	0	0	0	0	4	0	1	0	1	0	1	0.1701400D+02
HS72	4	2	C124	0	0	0	0	4	1	0	0	0	0	2	0.7275900D+03
HS73	4	3	C125	0	0	4	0	0	1	0	1	0	1	1	0.2989400D+02
HS74	4	5	C126	0	0	0	0	4	0	1	0	3	2	0	0.5126500D+04
HS75	4	5	C127	0	0	0	0	4	0	1	0	3	2	0	0.5174400D+04
HS76	4	3	C128	0	0	4	0	0	0	1	0	0	3	0	-0.4681800D+01
HS77	5	2	C129	5	0	0	0	0	0	5	0	2	0	0	0.2415100D+00
HS78	5	3	C130	5	0	0	0	0	0	1	0	3	0	0	-0.2919700D+01
HS79	5	3	C131	0	0	5	0	0	0	1	0	3	0	0	0.7877600D-01
HS8	2	2	C64	2	0	0	0	0	1	0	0	2	0	0	-0.1000000D+01
HS80	5	3	C132	0	0	0	0	5	0	1	0	3	0	0	0.5395000D-01
HS81	5	3	C133	0	0	0	0	5	0	1	0	3	0	0	0.5395000D-01
HS83	5	3	C134	0	0	0	0	5	0	1	0	0	0	3	-0.3066600D+05
HS84	5	3	C135	0	0	0	0	5	0	1	0	0	0	3	0.1000000D+26
HS85	5	21	C136	0	0	0	0	5	0	1	0	0	1	20	-0.2215600D+01
HS86	5	10	C137	0	0	5	0	0	0	1	0	0	10	0	-0.3234900D+02
HS87	6	4	C138	0	0	0	0	6	0	1	0	4	0	0	0.8962000D+04
HS88	2	1	C139	2	0	0	0	0	0	1	0	0	0	1	0.1360100D+01
HS89	3	1	C140	3	0	0	0	0	0	1	0	0	0	1	0.1353100D+01
HS9	2	1	C65	2	0	0	0	0	0	1	1	0	0	0	-0.5000000D+00
HS90	4	1	C141	4	0	0	0	0	0	1	0	0	0	1	0.1360100D+01
HS91	5	1	C142	5	0	0	0	0	0	1	0	0	0	1	0.1360100D+01
HS92	6	1	C143	6	0	0	0	0	0	1	0	0	0	1	0.1360100D+01
HS93	6	2	C144	0	0	6	0	0	0	1	0	0	0	2	0.1000000D+26
HS95	6	4	C145	0	0	0	0	6	1	0	0	0	0	4	0.1562000D-01
HS96	6	4	C146	0	0	0	0	6	1	0	0	0	0	4	0.1562000D-01
HS97	6	4	C147	0	0	0	0	6	1	0	0	0	0	4	0.3135800D+01
HS98	6	4	C148	0	0	0	0	6	1	0	0	0	0	4	0.3135800D+01
HS99	7	2	C149	0	0	0	0	7	0	1	0	2	0	0	0.1000000D+26
HS99EXP	31	21	C311	21	3	0	0	7	0	1	0	21	0	0	0.1000000D+26
HUBFIT	2	0	U288	1	0	1	0	0	0	5	0	0	0	0	0.4717700D-02
HYDCAR20	99	99	C170	99	0	0	0	0	0	0	0	99	0	0	0.5261800D-07
HYDCAR6	29	29	C169	29	0	0	0	0	0	0	0	29	0	0	0.4803800D-07
HYDROELL	1009	1008	C175	0	2	0	0	1007	0	1	0	0	1008	0	-0.3585500D+07
HYDROELM	505	504	C174	0	2	0	0	503	0	1	0	0	504	0	-0.3582000D+07
HYDROELS	169	168	C173	0	2	0	0	167	0	1	0	0	168	0	-0.3582300D+07
HYPCIR	2	0	U297	2	0	0	0	0	0	2	0	0	0	0	0.1668400D-22
INTEGREQ	12	0	U298	10	2	0	0	0	0	10	0	0	0	0	0.3994100D-21
INTEGREQ	52	0	U299	50	2	0	0	0	0	50	0	0	0	0	0.1527400D-20
INTEGREQ	102	0	U300	100	2	0	0	0	0	100	0	0	0	0	0.3003700D-20
JENSMP	2	0	U315	2	0	0	0	0	0	10	0	0	0	0	0.1243600D+03
JNLBRNG1	16	0	U301	0	12	4	0	0	1	18	0	0	0	0	-0.2247400D+00
JNLBRNG1	100	0	U302	0	36	64	0	0	1	162	0	0	0	0	-0.1789600D+00
JNLBRNG1	529	0	U303	0	88	441	0	0	1	968	0	0	0	0	-0.1800500D+00
JNLBRNG1	1024	0	U304	0	124	900	0	0	1	1922	0	0	0	0	-0.1803000D+00
JNLBRNG1	5625	0	U305	0	296	5329	0	0	1	10952	0	0	0	0	-0.1805500D+00
JNLBRNG1	10000	0	U306	0	396	9604	0	0	1	19602	0	0	0	0	-0.1805700D+00
JNLBRNG1	15625	0	U307	0	496	15129	0	0	1	30752	0	0	0	0	-0.1805800D+00
JNLBRNG2	16	0	U308	0	12	4	0	0	1	18	0	0	0	0	-0.4764000D+01
JNLBRNG2	100	0	U309	0	36	64	0	0	1	162	0	0	0	0	-0.3952800D+01
JNLBRNG2	529	0	U310	0	88	441	0	0	1	968	0	0	0	0	-0.4102400D+01
JNLBRNG2	1024	0	U311	0	124	900	0	0	1	1922	0	0	0	0	-0.4124900D+01
JNLBRNG2	5625	0	U312	0	296	5329	0	0	1	10952	0	0	0	0	-0.4146600D+01
JNLBRNG2	10000	0	U313	0	396	9604	0	0	1	19602	0	0	0	0	-0.4148700D+01
JNLBRNG2	15625	0	U314	0	496	15129	0	0	1	30752	0	0	0	0	-0.4149600D+01
KOWOSB	4	0	U316	4	0	0	0	0	0	11	0	0	0	0	0.3078000D-03
LCH	30	1	C264	30	0	0	0	0	0	1	0	1	0	0	-0.3756500D+01

Problem characteristics (8)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
LCH	150	1	C265	150	0	0	0	0	0	1	0	1	0	0	-0.4229600D+01
LCH	300	1	C266	300	0	0	0	0	0	1	0	1	0	0	-0.4288700D+01
LCH	600	1	C267	600	0	0	0	0	0	1	0	1	0	0	-0.4318300D+01
LEAKNET	156	153	C192	80	0	70	0	6	1	0	73	80	0	0	0.8000300D+01
LEWISPOL	6	9	C193	0	0	0	0	6	0	1	3	6	0	0	0.1000000D+26
LIARWHD	36	0	U290	36	0	0	0	0	0	70	0	0	0	0	0.4647200D-18
LIARWHD	100	0	U291	100	0	0	0	0	0	198	0	0	0	0	0.1220300D-29
LIARWHD	500	0	U292	500	0	0	0	0	0	998	0	0	0	0	0.0000000D+00
LIARWHD	1000	0	U293	1000	0	0	0	0	0	1998	0	0	0	0	0.0000000D+00
LIARWHD	5000	0	U294	5000	0	0	0	0	0	9998	0	0	0	0	0.4893100D-21
LIARWHD	10000	0	U295	10000	0	0	0	0	0	19998	0	0	0	0	0.1540500D-21
LINVERSE	19	0	U621	9	0	10	0	0	0	27	0	0	0	0	0.6000000D+01
LINVERSE	199	0	U622	99	0	100	0	0	0	297	0	0	0	0	0.6800000D+02
LINVERSE	999	0	U623	499	0	500	0	0	0	1497	0	0	0	0	0.3400000D+03
LINVERSE	1999	0	U624	999	0	1000	0	0	0	2997	0	0	0	0	0.6810000D+03
LMINSURF	16	0	U317	4	12	0	0	0	0	9	0	0	0	0	0.9000000D+01
LMINSURF	49	0	U318	25	24	0	0	0	0	36	0	0	0	0	0.9000000D+01
LMINSURF	64	0	U319	36	28	0	0	0	0	49	0	0	0	0	0.9000000D+01
LMINSURF	121	0	U320	81	40	0	0	0	0	100	0	0	0	0	0.9000000D+01
LMINSURF	961	0	U321	841	120	0	0	0	0	900	0	0	0	0	0.9000000D+01
LMINSURF	1024	0	U322	900	124	0	0	0	0	961	0	0	0	0	0.9000000D+01
LMINSURF	5625	0	U323	5329	296	0	0	0	0	5476	0	0	0	0	0.9000000D+01
LMINSURF	10000	0	U324	9604	396	0	0	0	0	9801	0	0	0	0	0.9000000D+01
LMINSURF	15625	0	U325	15129	496	0	0	0	0	15376	0	0	0	0	0.9000000D+01
LSQFIT	2	0	U287	1	0	1	0	0	0	5	0	0	0	0	0.9435300D-02
LUBRIF	151	100	C194	51	2	49	0	49	0	1	51	49	0	0	0.1000000D+26
LUBRIF	751	500	C195	251	2	249	0	249	0	1	251	249	0	0	0.1000000D+26
MANCINO	10	0	U326	10	0	0	0	0	0	10	0	0	0	0	0.7585400D-28
MANCINO	20	0	U327	20	0	0	0	0	0	20	0	0	0	0	0.4381200D-25
MANCINO	30	0	U328	30	0	0	0	0	0	30	0	0	0	0	0.4385200D-24
MANCINO	50	0	U329	50	0	0	0	0	0	50	0	0	0	0	0.9999800D-23
MANNE	300	200	C176	0	1	199	0	100	0	1	0	0	100	100	-0.9745700D+00
MANNE	1095	730	C177	0	1	729	0	365	0	1	0	0	365	365	-0.9745700D+00
MARATOS	2	1	U330	2	0	0	0	0	0	1	0	1	0	0	-0.1000000D+01
MARATOSB	2	0	U331	2	0	0	0	0	1	1	0	0	0	0	0.1000000D+01
MATRIX2	6	2	C191	2	0	2	2	0	0	1	0	0	0	2	0.1758700D-17
MAXLIKA	8	0	C197	0	0	0	0	8	0	235	0	0	0	0	0.1136300D+04
MCCORMCK	10	0	U332	0	0	0	0	10	0	9	0	0	0	0	-0.9598000D+01
MCCORMCK	50	0	U333	0	0	0	0	50	0	49	0	0	0	0	-0.4612700D+02
MCCORMCK	100	0	U334	0	0	0	0	100	0	99	0	0	0	0	-0.9178800D+02
MCCORMCK	500	0	U335	0	0	0	0	500	0	499	0	0	0	0	-0.4570800D+03
MCCORMCK	1000	0	U336	0	0	0	0	1000	0	999	0	0	0	0	-0.9136900D+03
MCCORMCK	5000	0	U337	0	0	0	0	5000	0	4999	0	0	0	0	-0.4566600D+04
MCCORMCK	10000	0	U338	0	0	0	0	10000	0	9999	0	0	0	0	-0.9132700D+04
MDHOLE	2	0	U339	1	0	1	0	0	1	1	0	0	0	0	0.0000000D+00
METHANB8	31	31	C172	31	0	0	0	0	0	0	0	31	0	0	0.1843100D-09
METHANL8	31	31	C171	31	0	0	0	0	0	0	0	31	0	0	0.3201300D-08
MEXHAT	2	0	U340	2	0	0	0	0	0	2	0	0	0	0	-0.4001000D-01
MEYER3	3	0	U341	3	0	0	0	0	0	16	0	0	0	0	0.8794600D+02
MINPERM	5	5	C182	0	0	1	0	4	1	0	4	1	0	0	0.4999900D+00
MINPERM	13	10	C183	0	0	4	0	9	1	0	6	4	0	0	0.2222200D+00
MINPERM	27	19	C184	0	0	11	0	16	1	0	8	11	0	0	0.9374900D-01
MINPERM	51	36	C185	0	0	26	0	25	1	0	10	26	0	0	0.3840000D-01
MINPERM	93	69	C186	0	0	57	0	36	1	0	12	57	0	0	0.1543200D-01
MINPERM	169	134	C187	0	0	120	0	49	1	0	14	120	0	0	0.6119400D-02
MINPERM	311	263	C188	0	0	247	0	64	1	0	16	247	0	0	0.2402900D-02
MINPERM	583	520	C189	0	0	502	0	81	1	0	18	502	0	0	0.9364000D-03
MINPERM	1113	1033	C190	0	0	1013	0	100	1	0	20	1013	0	0	0.3628800D-03
MINSURF	64	0	C179	36	28	0	0	0	0	49	0	0	0	0	0.1000000D+01
MISTAKE	9	13	C196	8	0	1	0	0	0	1	0	0	0	13	-0.1000000D+01
MSQRTA	4	0	U342	4	0	0	0	0	0	4	0	0	0	0	0.2929900D-14
MSQRTA	49	0	U343	49	0	0	0	0	0	49	0	0	0	0	0.3193800D-18
MSQRTA	100	0	U344	100	0	0	0	0	0	100	0	0	0	0	0.9358100D-16
MSQRTA	529	0	U345	529	0	0	0	0	0	529	0	0	0	0	0.3011500D-09
MSQRTA	1024	0	U346	1024	0	0	0	0	0	1024	0	0	0	0	0.3176200D-09

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
MSQRTB	9	0	U347	9	0	0	0	0	0	9	0	0	0	0	0.1423200D-14
MSQRTB	49	0	U348	49	0	0	0	0	0	49	0	0	0	0	0.3170400D-13
MSQRTB	100	0	U349	100	0	0	0	0	0	100	0	0	0	0	0.4101300D-12
MSQRTB	529	0	U350	529	0	0	0	0	0	529	0	0	0	0	0.1194200D-09
MSQRTB	1024	0	U351	1024	0	0	0	0	0	1024	0	0	0	0	0.1167400D-09
MWRIGHT	5	3	C203	5	0	0	0	0	0	5	0	3	0	0	0.2727800D+01
NGONE	8	8	C198	0	3	4	0	1	0	1	0	0	2	6	-0.5000000D+00
NGONE	12	19	C199	0	3	8	0	1	0	1	0	0	4	15	-0.6203700D+00
NGONE	50	323	C200	0	3	46	0	1	0	1	0	0	23	300	-0.6431300D+00
NGONE	100	1273	C201	0	3	96	0	1	0	1	0	0	48	1225	-0.6432600D+00
NGONE	500	31373	C202	0	3	496	0	1	0	1	0	0	248	31125	0.1000000D+26
NLMSURF	16	0	U356	4	12	0	0	0	0	9	0	0	0	0	0.3215900D+02
NLMSURF	49	0	U357	25	24	0	0	0	0	36	0	0	0	0	0.3618200D+02
NLMSURF	64	0	U358	36	28	0	0	0	0	49	0	0	0	0	0.3660100D+02
NLMSURF	121	0	U359	81	40	0	0	0	0	100	0	0	0	0	0.3737900D+02
NLMSURF	961	0	U360	841	120	0	0	0	0	900	0	0	0	0	0.3857200D+02
NLMSURF	1024	0	U361	900	124	0	0	0	0	961	0	0	0	0	0.3859100D+02
NLMSURF	5625	0	U362	5329	296	0	0	0	0	5476	0	0	0	0	0.3894900D+02
NLMSURF	10000	0	U363	9604	396	0	0	0	0	9801	0	0	0	0	0.3901600D+02
NLMSURF	15625	0	U364	15129	496	0	0	0	0	15376	0	0	0	0	0.3905600D+02
NONDIA	10	0	U370	10	0	0	0	0	0	18	0	0	0	0	0.4455600D+01
NONDIA	20	0	U371	20	0	0	0	0	0	38	0	0	0	0	0.7959600D+01
NONDIA	30	0	U372	30	0	0	0	0	0	58	0	0	0	0	0.1217200D-22
NONDIA	50	0	U373	50	0	0	0	0	0	98	0	0	0	0	0.8358000D-26
NONDIA	90	0	U374	90	0	0	0	0	0	178	0	0	0	0	0.4110700D-23
NONDIA	100	0	U375	100	0	0	0	0	0	198	0	0	0	0	0.8020700D-27
NONDIA	500	0	U376	500	0	0	0	0	0	998	0	0	0	0	0.1429700D-21
NONDIA	1000	0	U377	1000	0	0	0	0	0	1998	0	0	0	0	0.3585400D-21
NONDIA	5000	0	U378	5000	0	0	0	0	0	9998	0	0	0	0	0.1393000D-17
NONDIA	10000	0	U379	10000	0	0	0	0	0	19998	0	0	0	0	0.7189000D-24
NONDQUAR	100	0	U352	100	0	0	0	0	0	100	0	0	0	0	0.2279000D-08
NONDQUAR	500	0	U353	500	0	0	0	0	0	500	0	0	0	0	0.2204300D-08
NONDQUAR	1000	0	U354	1000	0	0	0	0	0	1000	0	0	0	0	0.7494700D-09
NONDQUAR	5000	0	U355	5000	0	0	0	0	0	5000	0	0	0	0	0.6831200D-09
NONMSQRT	9	0	U365	9	0	0	0	0	0	9	0	0	0	0	0.7518400D+00
NONMSQRT	49	0	U366	49	0	0	0	0	0	49	0	0	0	0	0.1075200D+01
NONMSQRT	100	0	U367	100	0	0	0	0	0	100	0	0	0	0	0.1805500D+02
NONMSQRT	529	0	U368	529	0	0	0	0	0	529	0	0	0	0	0.1000000D+26
NONMSQRT	1024	0	U369	1024	0	0	0	0	0	1024	0	0	0	0	0.1000000D+26
NONSCOMP	25	0	U380	0	0	0	0	25	0	25	0	0	0	0	0.1840500D-17
NONSCOMP	50	0	U381	0	0	0	0	50	0	50	0	0	0	0	0.6439000D-20
NONSCOMP	100	0	U382	0	0	0	0	100	0	100	0	0	0	0	0.1810000D-19
NONSCOMP	500	0	U383	0	0	0	0	500	0	500	0	0	0	0	0.1125000D-18
NONSCOMP	1000	0	U384	0	0	0	0	1000	0	1000	0	0	0	0	0.2302700D-18
NONSCOMP	5000	0	U385	0	0	0	0	5000	0	5000	0	0	0	0	0.1178500D-17
NONSCOMP	10000	0	U386	0	0	0	0	10000	0	10000	0	0	0	0	0.2364500D-17
NYSTROM5	18	20	U619	15	3	0	0	0	0	0	2	18	0	0	0.6118300D-12
OBSTCLAE	16	0	U387	0	12	0	0	4	0	4	0	0	0	0	0.7536600D+00
OBSTCLAE	100	0	U388	0	36	0	0	64	0	64	0	0	0	0	0.1397900D+01
OBSTCLAE	529	0	U389	0	88	0	0	441	0	441	0	0	0	0	0.1678000D+01
OBSTCLAE	1024	0	U390	0	124	0	0	900	0	900	0	0	0	0	0.1748300D+01
OBSTCLAE	5625	0	U391	0	296	0	0	5329	0	5329	0	0	0	0	0.1863000D+01
OBSTCLAE	10000	0	U392	0	396	0	0	9604	0	9604	0	0	0	0	0.1886500D+01
OBSTCLAE	15625	0	U393	0	496	0	0	15129	0	15129	0	0	0	0	0.1000000D+26
OBSTCLAL	16	0	U394	0	12	0	0	4	0	4	0	0	0	0	0.7536600D+00
OBSTCLAL	100	0	U395	0	36	0	0	64	0	64	0	0	0	0	0.1397900D+01
OBSTCLAL	529	0	U396	0	88	0	0	441	0	441	0	0	0	0	0.1678000D+01
OBSTCLAL	1024	0	U397	0	124	0	0	900	0	900	0	0	0	0	0.1748300D+01
OBSTCLAL	5625	0	U398	0	296	0	0	5329	0	5329	0	0	0	0	0.1863000D+01
OBSTCLAL	10000	0	U399	0	396	0	0	9604	0	9604	0	0	0	0	0.1886500D+01
OBSTCLAL	15625	0	U400	0	496	0	0	15129	0	15129	0	0	0	0	0.1901000D+01
OBSTCLBL	16	0	U401	0	12	0	0	4	0	4	0	0	0	0	-0.8110800D-02
OBSTCLBL	100	0	U402	0	36	0	0	64	0	64	0	0	0	0	0.2875000D+01
OBSTCLBL	529	0	U403	0	88	0	0	441	0	441	0	0	0	0	0.6519300D+01
OBSTCLBL	1024	0	U404	0	124	0	0	900	0	900	0	0	0	0	0.6887100D+01

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
OBSTCLBL	5625	0	U405	0	296	0	0	5329	0	5329	0	0	0	0	0.7230900D+01
OBSTCLBL	10000	0	U406	0	396	0	0	9604	0	9604	0	0	0	0	0.7272200D+01
OBSTCLBL	15625	0	U407	0	496	0	0	15129	0	15129	0	0	0	0	0.7295800D+01
OBSTCLBM	16	0	U408	0	12	0	0	4	0	4	0	0	0	0	-0.8110800D-02
OBSTCLBM	100	0	U409	0	36	0	0	64	0	64	0	0	0	0	0.2875000D+01
OBSTCLBM	529	0	U410	0	88	0	0	441	0	441	0	0	0	0	0.6519300D+01
OBSTCLBM	1024	0	U411	0	124	0	0	900	0	900	0	0	0	0	0.6887100D+01
OBSTCLBM	5625	0	U412	0	296	0	0	5329	0	5329	0	0	0	0	0.7230900D+01
OBSTCLBM	10000	0	U413	0	396	0	0	9604	0	9604	0	0	0	0	0.7272200D+01
OBSTCLBM	15625	0	U414	0	496	0	0	15129	0	15129	0	0	0	0	0.7295800D+01
OBSTCLBU	16	0	U415	0	12	0	0	4	0	4	0	0	0	0	-0.8110800D-02
OBSTCLBU	100	0	U416	0	36	0	0	64	0	64	0	0	0	0	0.2875000D+01
OBSTCLBU	529	0	U417	0	88	0	0	441	0	441	0	0	0	0	0.6519300D+01
OBSTCLBU	1024	0	U418	0	124	0	0	900	0	900	0	0	0	0	0.6887100D+01
OBSTCLBU	5625	0	U419	0	296	0	0	5329	0	5329	0	0	0	0	0.7230900D+01
OBSTCLBU	10000	0	U420	0	396	0	0	9604	0	9604	0	0	0	0	0.7272200D+01
OBSTCLBU	15625	0	U421	0	496	0	0	15129	0	15129	0	0	0	0	0.7295800D+01
OPTCNTRL	32	20	C178	9	3	10	0	10	0	1	10	10	0	0	0.5500000D+03
OPTMASS	70	55	C204	66	4	0	0	0	0	1	44	0	0	11	-0.1895400D+00
OPTMASS	610	505	C205	606	4	0	0	0	0	1	404	0	0	101	0.1000000D+26
OPTMASS	1210	1005	C206	1206	4	0	0	0	0	1	804	0	0	201	0.1000000D+26
OPTMASS	3010	2505	C207	3006	4	0	0	0	0	1	2004	0	0	501	0.1000000D+26
ORTHREGA	133	64	C208	133	0	0	0	0	0	128	0	64	0	0	0.3503000D+03
ORTHREGA	517	256	C209	517	0	0	0	0	0	512	0	256	0	0	0.1414100D+04
ORTHREGA	2053	1024	C210	2053	0	0	0	0	0	2048	0	1024	0	0	0.5661400D+04
ORTHREGA	8197	4096	C211	8197	0	0	0	0	0	8192	0	4096	0	0	0.2264800D+05
ORTHREGB	27	6	C212	27	0	0	0	0	0	18	0	6	0	0	0.4398900D-19
ORTHREGC	25	10	C213	25	0	0	0	0	0	20	0	10	0	0	0.3990500D+00
ORTHREGC	105	50	C214	105	0	0	0	0	0	100	0	50	0	0	0.1975500D+01
ORTHREGC	505	250	C215	505	0	0	0	0	0	500	0	250	0	0	0.9581900D+01
ORTHREGC	1005	500	C216	1005	0	0	0	0	0	1000	0	500	0	0	0.1879100D+02
ORTHREGC	5005	2500	C217	5005	0	0	0	0	0	5000	0	2500	0	0	0.9481300D+02
ORTHREGC	10005	5000	C218	10005	0	0	0	0	0	10000	0	5000	0	0	0.1895900D+03
ORTHREGD	23	10	C219	23	0	0	0	0	0	20	0	10	0	0	0.3412100D+01
ORTHREGD	103	50	C220	103	0	0	0	0	0	100	0	50	0	0	0.1559000D+02
ORTHREGD	503	250	C221	503	0	0	0	0	0	500	0	250	0	0	0.7610400D+02
ORTHREGD	1003	500	C222	1003	0	0	0	0	0	1000	0	500	0	0	0.1512400D+03
ORTHREGD	5003	2500	C223	5003	0	0	0	0	0	5000	0	2500	0	0	0.7620600D+03
ORTHREGD	10003	5000	C224	10003	0	0	0	0	0	10000	0	5000	0	0	0.1523900D+04
ORTHREGE	36	20	C225	35	0	1	0	0	0	30	0	20	0	0	0.3390800D+01
ORTHREGF	80	25	C226	78	0	2	0	0	1	75	0	25	0	0	0.9900800D+00
ORTHREGF	152	49	C227	150	0	2	0	0	1	147	0	49	0	0	0.1315000D+01
ORTHREGF	305	100	C228	303	0	2	0	0	1	300	0	100	0	0	0.4515800D+01
ORTHREGF	680	225	C229	678	0	2	0	0	1	675	0	225	0	0	0.9185500D+01
ORTHREGF	1205	400	C230	1203	0	2	0	0	1	1200	0	400	0	0	0.1620000D+02
OSBORNEA	5	0	U422	5	0	0	0	0	0	33	0	0	0	0	0.5464900D-04
OSBORNEB	11	0	U423	11	0	0	0	0	0	65	0	0	0	0	0.4013800D-01
PALMER1	4	0	U424	1	0	3	0	0	0	31	0	0	0	0	0.1175500D+05
PALMER1A	6	0	U425	4	0	2	0	0	0	35	0	0	0	0	0.8988300D-01
PALMER1B	4	0	U426	2	0	2	0	0	0	35	0	0	0	0	0.3447300D+01
PALMER1C	8	0	U427	8	0	0	0	0	0	35	0	0	0	0	0.9760500D-01
PALMER1D	7	0	U428	7	0	0	0	0	0	35	0	0	0	0	0.6526700D+00
PALMER1E	8	0	U429	7	0	1	0	0	0	35	0	0	0	0	0.8352300D-03
PALMER2	4	0	U430	1	0	3	0	0	0	23	0	0	0	0	0.3651100D+04
PALMER2A	6	0	U431	4	0	2	0	0	0	23	0	0	0	0	0.1711000D-01
PALMER2B	4	0	U432	2	0	2	0	0	0	23	0	0	0	0	0.6232700D+00
PALMER2C	8	0	U433	8	0	0	0	0	0	23	0	0	0	0	0.1436900D-01
PALMER2E	8	0	U434	7	0	1	0	0	0	23	0	0	0	0	0.2065000D-03
PALMER3	4	0	U435	1	0	3	0	0	0	23	0	0	0	0	0.2266000D+04
PALMER3A	6	0	U436	4	0	2	0	0	0	23	0	0	0	0	0.2043100D-01
PALMER3B	4	0	U437	2	0	2	0	0	0	23	0	0	0	0	0.4227600D+01
PALMER3C	8	0	U438	8	0	0	0	0	0	23	0	0	0	0	0.1953800D-01
PALMER3E	8	0	U439	7	0	1	0	0	0	23	0	0	0	0	0.5074100D-04
PALMER4	4	0	U440	1	0	3	0	0	0	23	0	0	0	0	0.2285400D+04
PALMER4A	6	0	U441	4	0	2	0	0	0	23	0	0	0	0	0.4060600D-01

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
PALMER4B	4	0	U442	2	0	2	0	0	0	23	0	0	0	0	0.6835100D+01
PALMER4C	8	0	U443	8	0	0	0	0	0	23	0	0	0	0	0.5031100D-01
PALMER4E	8	0	U444	7	0	1	0	0	0	23	0	0	0	0	0.1480000D-03
PENALTY1	4	0	U446	4	0	0	0	0	0	5	0	0	0	0	0.2250000D-04
PENALTY1	10	0	U447	10	0	0	0	0	0	11	0	0	0	0	0.7090500D-04
PENALTY1	50	0	U448	50	0	0	0	0	0	51	0	0	0	0	0.4317900D-03
PENALTY1	100	0	U449	100	0	0	0	0	0	101	0	0	0	0	0.9024900D-03
PENALTY1	500	0	U450	500	0	0	0	0	0	501	0	0	0	0	0.4778800D-02
PENALTY1	1000	0	U451	1000	0	0	0	0	0	1001	0	0	0	0	0.9686200D-02
PENALTY2	4	0	U452	4	0	0	0	0	0	8	0	0	0	0	0.9407500D-05
PENALTY2	10	0	U453	10	0	0	0	0	0	20	0	0	0	0	0.2936600D-03
PENALTY2	50	0	U454	50	0	0	0	0	0	100	0	0	0	0	0.4296100D+01
PENALTY2	100	0	U455	100	0	0	0	0	0	200	0	0	0	0	0.9709600D+05
PENALTY3	50	0	U456	50	0	0	0	0	1	5	0	0	0	0	0.1000000D-02
PENALTY3	100	0	U457	100	0	0	0	0	1	5	0	0	0	0	0.9999400D-03
PENTAGON	6	15	C231	6	0	0	0	0	0	1	0	0	15	0	0.1365200D-03
POWELLBS	2	0	U458	2	0	0	0	0	0	2	0	0	0	0	0.2667600D-21
POWELLSG	4	0	U472	4	0	0	0	0	0	4	0	0	0	0	0.2394200D-09
POWELLSG	8	0	U473	8	0	0	0	0	0	8	0	0	0	0	0.1109100D-08
POWELLSG	16	0	U474	16	0	0	0	0	0	16	0	0	0	0	0.2845300D-08
POWELLSG	20	0	U475	20	0	0	0	0	0	20	0	0	0	0	0.3712700D-08
POWELLSG	36	0	U476	36	0	0	0	0	0	36	0	0	0	0	0.7180700D-08
POWELLSG	40	0	U477	40	0	0	0	0	0	40	0	0	0	0	0.8047600D-08
POWELLSG	60	0	U478	60	0	0	0	0	0	60	0	0	0	0	0.1238100D-07
POWELLSG	80	0	U479	80	0	0	0	0	0	80	0	0	0	0	0.1671500D-07
POWELLSG	100	0	U480	100	0	0	0	0	0	100	0	0	0	0	0.2104800D-07
POWELLSG	500	0	U481	500	0	0	0	0	0	500	0	0	0	0	0.1076500D-06
POWELLSG	1000	0	U482	1000	0	0	0	0	0	1000	0	0	0	0	0.2159100D-06
POWELLSG	5000	0	U483	5000	0	0	0	0	0	5000	0	0	0	0	0.6095000D-06
POWELLSG	10000	0	U484	10000	0	0	0	0	0	10000	0	0	0	0	0.1219300D-05
POWELLSQ	2	0	U485	2	0	0	0	0	0	2	0	0	0	0	0.5520700D-30
POWER	10	0	U459	10	0	0	0	0	0	1	0	0	0	0	0.2716600D-08
POWER	20	0	U460	20	0	0	0	0	0	1	0	0	0	0	0.2212900D-08
POWER	30	0	U461	30	0	0	0	0	0	1	0	0	0	0	0.2267400D-08
POWER	50	0	U462	50	0	0	0	0	0	1	0	0	0	0	0.1280300D-08
POWER	75	0	U463	75	0	0	0	0	0	1	0	0	0	0	0.1604600D-08
POWER	100	0	U464	100	0	0	0	0	0	1	0	0	0	0	0.1328200D-08
POWER	500	0	U465	500	0	0	0	0	0	1	0	0	0	0	0.1507800D-08
POWER	1000	0	U466	1000	0	0	0	0	0	1	0	0	0	0	0.4750600D-08
PROBPENL	10	0	U467	0	0	0	0	10	0	10	0	0	0	0	-0.2648900D+06
PROBPENL	50	0	U468	0	0	0	0	50	0	50	0	0	0	0	0.3918400D-05
PROBPENL	100	0	U469	0	0	0	0	100	0	100	0	0	0	0	0.1979800D-05
PROBPENL	500	0	U470	0	0	0	0	500	0	500	0	0	0	0	0.3992000D-06
PRODPL0	60	29	C318	0	0	60	0	0	1	0	20	0	5	4	0.5879000D+02
PRODPL1	60	29	C319	0	0	60	0	0	1	0	20	0	5	4	0.3573900D+02
PSPDOC	4	0	U471	3	0	0	1	0	0	2	0	0	0	0	0.2414200D+01
QUARTC	25	0	U486	25	0	0	0	0	0	25	0	0	0	0	0.1386500D-07
QUARTC	100	0	U487	100	0	0	0	0	0	100	0	0	0	0	0.5044400D-08
QUARTC	500	0	U488	500	0	0	0	0	0	500	0	0	0	0	0.3595100D-07
QUARTC	1000	0	U489	1000	0	0	0	0	0	1000	0	0	0	0	0.8910200D-08
QUARTC	5000	0	U490	5000	0	0	0	0	0	5000	0	0	0	0	0.1300300D-09
QUARTC	10000	0	U491	10000	0	0	0	0	0	10000	0	0	0	0	0.6338900D-11
READING1	202	100	C321	0	1	0	0	201	0	100	0	100	0	0	-0.1604900D+00
READING2	303	200	C322	100	2	0	0	201	1	0	200	0	0	0	-0.1257500D-01
READING3	202	101	C323	0	0	0	0	202	0	100	1	100	0	0	-0.1526200D+00
RECIPE	3	0	U492	3	0	0	0	0	0	3	0	0	0	0	0.6922200D-08
ROSENBR	2	0	U493	2	0	0	0	0	0	2	0	0	0	0	0.1107200D-20
S277-280	4	4	C232	0	0	4	0	0	1	0	0	0	4	0	0.5076200D+01
S277-280	6	6	C233	0	0	6	0	0	1	0	0	0	6	0	0.7838500D+01
S277-280	8	8	C234	0	0	8	0	0	1	0	0	0	8	0	0.1060600D+02
S277-280	10	10	C235	0	0	10	0	0	1	0	0	0	10	0	0.1337500D+02
S308	2	0	U620	2	0	0	0	0	0	3	0	0	0	0	0.7732000D+00
S316-322	2	1	C303	2	0	0	0	0	0	2	0	1	0	0	0.3343100D+03
S316-322	2	1	C304	2	0	0	0	0	0	2	0	1	0	0	0.3724700D+03
S316-322	2	1	C305	2	0	0	0	0	0	2	0	1	0	0	0.3343100D+03

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
S316-322	2	1	C306	2	0	0	0	0	0	2	0	1	0	0	0.4127500D+03
S316-322	2	1	C307	2	0	0	0	0	0	2	0	1	0	0	0.3724700D+03
S316-322	2	1	C308	2	0	0	0	0	0	2	0	1	0	0	0.4127500D+03
S316-322	2	1	C309	2	0	0	0	0	0	2	0	1	0	0	0.4961100D+03
SCHMVETT	3	0	U494	3	0	0	0	0	0	1	0	0	0	0	-0.3000000D+01
SCHMVETT	10	0	U495	10	0	0	0	0	0	8	0	0	0	0	-0.2400000D+02
SCHMVETT	100	0	U496	100	0	0	0	0	0	98	0	0	0	0	-0.2940000D+03
SCHMVETT	500	0	U497	500	0	0	0	0	0	498	0	0	0	0	-0.1494000D+04
SCHMVETT	1000	0	U498	1000	0	0	0	0	0	998	0	0	0	0	-0.2994000D+04
SCHMVETT	5000	0	U499	5000	0	0	0	0	0	4998	0	0	0	0	-0.1499400D+05
SCHMVETT	10000	0	U500	10000	0	0	0	0	0	9998	0	0	0	0	-0.2999400D+05
SEMICON1	12	10	U501	0	2	0	0	10	0	0	0	10	0	0	0.7715400D-16
SEMICON1	52	50	U502	0	2	0	0	50	0	0	0	50	0	0	0.1794400D-19
SEMICON1	102	100	U503	0	2	0	0	100	0	0	0	100	0	0	0.7526100D-15
SEMICON1	502	500	U504	0	2	0	0	500	0	0	0	500	0	0	0.8341200D-22
SEMICON2	12	10	U505	0	2	0	0	10	0	0	0	10	0	0	0.1091000D-21
SEMICON2	52	50	U506	0	2	0	0	50	0	0	0	50	0	0	0.7517000D-24
SEMICON2	102	100	U507	0	2	0	0	100	0	0	0	100	0	0	0.1836600D-17
SEMICON2	502	500	U508	0	2	0	0	500	0	0	0	500	0	0	0.3611200D-12
SEMICON2	1002	1000	U509	0	2	0	0	1000	0	0	0	1000	0	0	0.2754000D-16
SIMPLLPA	2	2	C243	0	0	2	0	0	1	0	0	0	2	0	0.1000000D+01
SIMPLLPB	2	3	C244	0	0	2	0	0	1	0	0	0	3	0	0.1100000D+01
SINQUAD	5	0	U510	5	0	0	0	0	0	5	0	0	0	0	0.2456000D-10
SINQUAD	50	0	U511	50	0	0	0	0	0	50	0	0	0	0	0.1598800D-09
SINQUAD	100	0	U512	100	0	0	0	0	0	100	0	0	0	0	0.1797900D-09
SINQUAD	500	0	U513	500	0	0	0	0	0	500	0	0	0	0	0.5119500D-08
SINQUAD	1000	0	U514	1000	0	0	0	0	0	1000	0	0	0	0	0.4707600D-08
SINQUAD	5000	0	U515	5000	0	0	0	0	0	5000	0	0	0	0	0.2314800D-08
SINQUAD	10000	0	U516	10000	0	0	0	0	0	10000	0	0	0	0	0.1467400D-09
SISSER	2	0	U517	2	0	0	0	0	0	3	0	0	0	0	0.6116900D-09
SNAIL	2	0	U518	2	0	0	0	0	0	1	0	0	0	0	0.3160900D-19
SPANHYD	97	33	C320	0	16	0	0	81	0	1	33	0	0	0	0.2397400D+03
SPMSQRT	28	0	U519	28	0	0	0	0	0	44	0	0	0	0	0.7253300D-17
SPMSQRT	100	0	U520	100	0	0	0	0	0	164	0	0	0	0	0.2469000D-16
SPMSQRT	499	0	U521	499	0	0	0	0	0	829	0	0	0	0	0.1647400D-15
SPMSQRT	1000	0	U522	1000	0	0	0	0	0	1664	0	0	0	0	0.4356700D-15
SPMSQRT	4999	0	U523	4999	0	0	0	0	0	8329	0	0	0	0	0.1859500D-14
SPMSQRT	10000	0	U524	10000	0	0	0	0	0	16664	0	0	0	0	0.3759500D-14
SROSENBR	10	0	U525	10	0	0	0	0	0	10	0	0	0	0	0.4674800D-16
SROSENBR	50	0	U526	50	0	0	0	0	0	50	0	0	0	0	0.2337400D-15
SROSENBR	100	0	U527	100	0	0	0	0	0	100	0	0	0	0	0.4674800D-15
SROSENBR	500	0	U528	500	0	0	0	0	0	500	0	0	0	0	0.2337400D-14
SROSENBR	1000	0	U529	1000	0	0	0	0	0	1000	0	0	0	0	0.4674800D-14
SROSENBR	5000	0	U530	5000	0	0	0	0	0	5000	0	0	0	0	0.2337400D-13
SROSENBR	10000	0	U531	10000	0	0	0	0	0	10000	0	0	0	0	0.2034100D-15
SSEBLIN	194	72	C245	0	2	24	0	168	1	0	48	0	24	0	0.1617100D+08
SSEBNLN	194	96	C246	0	2	24	0	168	1	0	48	24	24	0	0.1617100D+08
STEENBRA	432	108	C236	0	0	432	0	0	0	1	108	0	0	0	0.1695800D+05
STEENBRB	468	108	C237	0	0	468	0	0	0	1	108	0	0	0	0.9075900D+04
STEENBRC	540	126	C238	0	0	540	0	0	0	1	126	0	0	0	0.2750500D+05
STEENBRD	468	108	C239	0	0	468	0	0	0	1	108	0	0	0	0.9030100D+04
STEENBRE	540	126	C240	0	0	540	0	0	0	1	126	0	0	0	0.2745900D+05
STEENBRF	468	108	C241	0	0	468	0	0	0	1	108	0	0	0	0.8991800D+04
STEENBRG	540	126	C242	0	0	540	0	0	0	1	126	0	0	0	0.2742100D+05
SVANBERG	10	10	C247	0	0	0	0	10	0	10	0	0	0	10	0.1573200D+02
SVANBERG	20	20	C248	0	0	0	0	20	0	20	0	0	0	20	0.3242800D+02
SVANBERG	30	30	C249	0	0	0	0	30	0	30	0	0	0	30	0.4914300D+02
SVANBERG	40	40	C250	0	0	0	0	40	0	40	0	0	0	40	0.6586100D+02
SVANBERG	50	50	C251	0	0	0	0	50	0	50	0	0	0	50	0.8258200D+02
SVANBERG	60	60	C252	0	0	0	0	60	0	60	0	0	0	60	0.9930400D+02
SVANBERG	70	70	C253	0	0	0	0	70	0	70	0	0	0	70	0.1160300D+03
SVANBERG	80	80	C254	0	0	0	0	80	0	80	0	0	0	80	0.1327500D+03
SVANBERG	90	90	C255	0	0	0	0	90	0	90	0	0	0	90	0.1494700D+03
SVANBERG	100	100	C256	0	0	0	0	100	0	100	0	0	0	100	0.1662000D+03
SVANBERG	500	500	C257	0	0	0	0	500	0	500	0	0	0	500	0.8351900D+03

Problem characteristics (13)

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
SVANBERG	1000	1000	C258	0	0	0	0	1000	0	1000	0	0	0	1000	0.1671400D+04
SVANBERG	5000	5000	C259	0	0	0	0	5000	0	5000	0	0	0	5000	0.1000000D+26
TAME	2	1	C260	0	0	2	0	0	0	1	1	0	0	0	0.0000000D+00
TENBARS1	18	9	C312	4	0	14	0	0	1	0	0	8	1	0	0.2295400D+04
TENBARS2	18	8	C313	4	0	14	0	0	1	0	0	8	0	0	0.2277900D+04
TENBARS3	18	8	C314	6	0	12	0	0	1	0	0	8	0	0	0.2247100D+04
TENBARS4	18	9	C315	8	0	10	0	0	1	0	0	8	1	0	0.1000000D+26
TOINTGOR	50	0	U549	50	0	0	0	0	0	83	0	0	0	0	0.1373900D+04
TOINTGSS	10	0	U553	10	0	0	0	0	0	8	0	0	0	0	0.1000000D+02
TOINTGSS	50	0	U554	50	0	0	0	0	0	48	0	0	0	0	0.1000000D+02
TOINTGSS	100	0	U555	100	0	0	0	0	0	98	0	0	0	0	0.1000000D+02
TOINTGSS	500	0	U556	500	0	0	0	0	0	498	0	0	0	0	0.1000000D+02
TOINTGSS	1000	0	U557	1000	0	0	0	0	0	998	0	0	0	0	0.1000000D+02
TOINTGSS	5000	0	U558	5000	0	0	0	0	0	4998	0	0	0	0	0.1000000D+02
TOINTGSS	10000	0	U559	10000	0	0	0	0	0	9998	0	0	0	0	0.1000000D+02
TOINTPSP	50	0	U551	50	0	0	0	0	0	83	0	0	0	0	0.2255600D+03
TOINTQOR	50	0	U550	50	0	0	0	0	0	83	0	0	0	0	0.1175500D+04
TORSIONA	16	0	U560	0	12	0	0	4	1	18	0	0	0	0	-0.3086400D+00
TORSIONA	100	0	U561	0	36	0	0	64	1	162	0	0	0	0	-0.4057000D+00
TORSIONA	484	0	U562	0	84	0	0	400	1	882	0	0	0	0	-0.4161100D+00
TORSIONA	1024	0	U563	0	124	0	0	900	1	1922	0	0	0	0	-0.4174000D+00
TORSIONA	5476	0	U564	0	292	0	0	5184	1	10658	0	0	0	0	-0.4183000D+00
TORSIONA	10000	0	U565	0	396	0	0	9604	1	19602	0	0	0	0	-0.4183900D+00
TORSIONA	14884	0	U566	0	484	0	0	14400	1	29282	0	0	0	0	-0.4184200D+00
TORSIONB	16	0	U567	0	12	0	0	4	1	18	0	0	0	0	-0.3086400D+00
TORSIONB	100	0	U568	0	36	0	0	64	1	162	0	0	0	0	-0.4057000D+00
TORSIONB	484	0	U569	0	84	0	0	400	1	882	0	0	0	0	-0.4161100D+00
TORSIONB	1024	0	U570	0	124	0	0	900	1	1922	0	0	0	0	-0.4174000D+00
TORSIONB	5476	0	U571	0	292	0	0	5184	1	10658	0	0	0	0	-0.4183000D+00
TORSIONB	10000	0	U572	0	396	0	0	9604	1	19602	0	0	0	0	-0.4183900D+00
TORSIONB	14884	0	U573	0	484	0	0	14400	1	29282	0	0	0	0	-0.4184200D+00
TORSIONC	16	0	U574	0	12	0	0	4	1	18	0	0	0	0	-0.1037000D+01
TORSIONC	100	0	U575	0	36	0	0	64	1	162	0	0	0	0	-0.1176600D+01
TORSIONC	484	0	U576	0	84	0	0	400	1	882	0	0	0	0	-0.1199500D+01
TORSIONC	1024	0	U577	0	124	0	0	900	1	1922	0	0	0	0	-0.1202300D+01
TORSIONC	5476	0	U578	0	292	0	0	5184	1	10658	0	0	0	0	-0.1204200D+01
TORSIONC	10000	0	U579	0	396	0	0	9604	1	19602	0	0	0	0	-0.1204400D+01
TORSIONC	14884	0	U580	0	484	0	0	14400	1	29282	0	0	0	0	-0.1204500D+01
TORSIOND	16	0	U581	0	12	0	0	4	1	18	0	0	0	0	-0.1037000D+01
TORSIOND	100	0	U582	0	36	0	0	64	1	162	0	0	0	0	-0.1176600D+01
TORSIOND	484	0	U583	0	84	0	0	400	1	882	0	0	0	0	-0.1199500D+01
TORSIOND	1024	0	U584	0	124	0	0	900	1	1922	0	0	0	0	-0.1202300D+01
TORSIOND	5476	0	U585	0	292	0	0	5184	1	10658	0	0	0	0	-0.1204200D+01
TORSIOND	10000	0	U586	0	396	0	0	9604	1	19602	0	0	0	0	-0.1204400D+01
TORSIOND	14884	0	U587	0	484	0	0	14400	1	29282	0	0	0	0	-0.1204500D+01
TORSIONE	16	0	U588	0	12	0	0	4	1	18	0	0	0	0	-0.2518500D+01
TORSIONE	100	0	U589	0	36	0	0	64	1	162	0	0	0	0	-0.2798400D+01
TORSIONE	484	0	U590	0	84	0	0	400	1	882	0	0	0	0	-0.2840600D+01
TORSIONE	1024	0	U591	0	124	0	0	900	1	1922	0	0	0	0	-0.2846100D+01
TORSIONE	5476	0	U592	0	292	0	0	5184	1	10658	0	0	0	0	-0.2850200D+01
TORSIONE	10000	0	U593	0	396	0	0	9604	1	19602	0	0	0	0	-0.2850700D+01
TORSIONE	14884	0	U594	0	484	0	0	14400	1	29282	0	0	0	0	-0.2850800D+01
TORSIONF	16	0	U595	0	12	0	0	4	1	18	0	0	0	0	-0.2518500D+01
TORSIONF	100	0	U596	0	36	0	0	64	1	162	0	0	0	0	-0.2798400D+01
TORSIONF	484	0	U597	0	84	0	0	400	1	882	0	0	0	0	-0.2840600D+01
TORSIONF	1024	0	U598	0	124	0	0	900	1	1922	0	0	0	0	-0.2846100D+01
TORSIONF	5476	0	U599	0	292	0	0	5184	1	10658	0	0	0	0	-0.2850200D+01
TORSIONF	10000	0	U600	0	396	0	0	9604	1	19602	0	0	0	0	-0.2850700D+01
TORSIONF	14884	0	U601	0	484	0	0	14400	1	29282	0	0	0	0	-0.2850800D+01
TQUARTIC	5	0	U532	5	0	0	0	0	0	5	0	0	0	0	0.1232600D-31
TQUARTIC	10	0	U533	10	0	0	0	0	0	10	0	0	0	0	0.0000000D+00
TQUARTIC	50	0	U534	50	0	0	0	0	0	50	0	0	0	0	0.0000000D+00
TQUARTIC	100	0	U535	100	0	0	0	0	0	100	0	0	0	0	0.3155400D-29
TQUARTIC	500	0	U536	500	0	0	0	0	0	500	0	0	0	0	0.1232600D-31
TQUARTIC	1000	0	U537	1000	0	0	0	0	0	1000	0	0	0	0	0.1970700D-27

Problem	n	m	pbid	problem variables					objective function		equality constraints		inequality constraints		best value
				n_{fr}	n_{fx}	n_l	n_u	n_{lu}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}	
TQUARTIC	5000	0	U538	5000	0	0	0	0	0	5000	0	0	0	0	0.9871100D-27
TQUARTIC	10000	0	U539	10000	0	0	0	0	0	10000	0	0	0	0	0.3157300D-25
TRIDIA	10	0	U540	10	0	0	0	0	0	10	0	0	0	0	0.3855800D-31
TRIDIA	20	0	U541	20	0	0	0	0	0	20	0	0	0	0	0.0000000D+00
TRIDIA	30	0	U542	30	0	0	0	0	0	30	0	0	0	0	0.1656300D-31
TRIDIA	50	0	U543	50	0	0	0	0	0	50	0	0	0	0	0.2600000D-32
TRIDIA	100	0	U544	100	0	0	0	0	0	100	0	0	0	0	0.1352000D-31
TRIDIA	500	0	U545	500	0	0	0	0	0	500	0	0	0	0	0.4044500D-32
TRIDIA	1000	0	U546	1000	0	0	0	0	0	1000	0	0	0	0	0.1155600D-32
TRIDIA	5000	0	U547	5000	0	0	0	0	0	5000	0	0	0	0	0.4188900D-32
TRIDIA	10000	0	U548	10000	0	0	0	0	0	10000	0	0	0	0	0.5345100D-32
TRIGGER	7	6	U552	6	1	0	0	0	0	0	3	3	0	0	0.2659900D-15
VARDIM	10	0	U602	10	0	0	0	0	0	12	0	0	0	0	0.1595000D-25
VARDIM	50	0	U603	50	0	0	0	0	0	52	0	0	0	0	0.1264100D-26
VARDIM	100	0	U604	100	0	0	0	0	0	102	0	0	0	0	0.5171000D-25
VAREIGVL	10	0	U605	10	0	0	0	0	0	10	0	0	0	0	0.1453800D-10
VAREIGVL	50	0	U606	50	0	0	0	0	0	50	0	0	0	0	0.5898000D-10
VAREIGVL	100	0	U607	100	0	0	0	0	0	100	0	0	0	0	0.6576900D-10
VAREIGVL	500	0	U608	500	0	0	0	0	0	500	0	0	0	0	0.1794800D-09
VAREIGVL	1000	0	U609	1000	0	0	0	0	0	1000	0	0	0	0	0.6378700D-11
VAREIGVL	5000	0	U610	5000	0	0	0	0	0	5000	0	0	0	0	0.7193100D-09
WATSON	12	0	U611	12	0	0	0	0	0	31	0	0	0	0	0.2892700D-09
WATSON	31	0	U612	31	0	0	0	0	0	31	0	0	0	0	0.2639500D-09
WOODS	4	0	U613	4	0	0	0	0	0	6	0	0	0	0	0.1789900D-21
WOODS	100	0	U614	100	0	0	0	0	0	150	0	0	0	0	0.1544300D-21
WOODS	1000	0	U615	1000	0	0	0	0	0	1500	0	0	0	0	0.3982000D-19
WOODS	10000	0	U616	10000	0	0	0	0	0	15000	0	0	0	0	0.3982000D-18
ZANGWIL2	2	0	U617	2	0	0	0	0	0	1	0	0	0	0	-0.1820000D+02
ZANGWIL3	3	0	U618	3	0	0	0	0	0	3	0	0	0	0	0.0000000D+00
ZIGZAG	64	50	C294	28	6	0	0	30	0	10	40	0	0	10	0.1800000D+01
ZIGZAG	304	250	C295	148	6	0	0	150	0	50	200	0	0	50	0.3378700D+02
ZIGZAG	604	500	C296	298	6	0	0	300	0	100	400	0	0	100	0.5230500D+02
ZIGZAG	3004	2500	C297	1498	6	0	0	1500	0	500	2000	0	0	500	0.8639500D+02

Problem characteristics (15)

3 Number of minor iterations

This section presents the number of minor iterations required by the twenty one algorithmic variants of LANCELOT described in [3] for convergence. The column headings in the tables refer to these variants, using the terminology of the paper.

The following additional conventions were used.

- "—E—" means that the run was terminated on an arithmetic error,
- "—M—" means that the run was abandoned because it required too large a workspace (over three million integers and/or double precision numbers),
- "—F—" means that the calculation was terminated because no feasible point could be found for the problem by the considered algorithmic variant,
- "—I—" means that the calculation was terminated because the maximum number of iterations (1000) was reached without convergence,
- "—S—" means that the considered run was stopped because the step was comparable to machine precision,
- "—T—" means that the considered run was terminated without convergence after 18000 seconds of cpu-time on a DECstation 5000/200.

These five termination cases are considered as unsuccessful for the corresponding problem and variant.

Brackets around numbers indicate that the algorithmic variant terminate successfully, but at a point where the objective value was different (with a relative tolerance of 0.01%) from the "best value" reported in Section 2. The number between the brackets indicate the relevant statistic for this successfully terminated run.

Number of minor iterations (1)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
AGG	163	488	—T—	—T—	—I—	—I—	—T—	—I—	—S—	—S—	—T—	—I—	—S—	—I—	—T—	—S—	—I—	—S—	—T—	—T—	—T—	—T—	—T—
AIRCRFTA	8	5	4	4	4	4	4	42	5	5	4	4	16	4	4	4	4	4	4	6	4	4	4
AIRCRFTB	8	0	18	18	17	17	20	11	22	19	18	19	17	17	17	10	15	20	20	—S—	17	18	19
ALJAZZAF	3	1	23	23	24	24	24	—I—	24	23	23	24	23	23	23	23	23	23	31	—I—	31	31	32
ARGAUSS	3	0	2	2	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ARGLINA	10	0	2	2	2	2	2	3	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
ARGLINA	100	0	2	2	2	2	2	3	2	2	2	2	2	2	2	2	5	2	2	2	2	2	2
ARGLINB	10	0	1	1	1	1	1	417	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1
ARGLINB	50	0	2	—S—	2	2	2	—I—	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
ARGLINB	100	0	2	—S—	2	2	2	—I—	2	2	2	2	2	7	2	—S—	—S—	2	2	2	2	2	2
ARGLINC	10	0	1	1	1	1	1	357	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1
ARGLINC	50	0	2	—S—	2	2	2	—I—	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
ARGLINC	100	0	2	—S—	2	2	2	—I—	2	2	2	2	2	10	2	—S—	—S—	2	2	2	2	2	2
ARGTRIG	10	0	8	8	11	7	11	17	8	9	9	7	9	7	8	7	6	7	5	5	8	8	8
ARGTRIG	50	0	8	8	13	4	6	13	18	18	6	6	4	5	7	8	14	6	5	5	6	6	6
ARGTRIG	100	0	13	13	8	4	6	10	16	21	11	5	4	5	6	13	14	7	5	5	5	5	5
ARTIF	12	0	14	9	16	13	14	15	15	14	14	15	13	15	15	16	18	13	6	6	8	8	8
ARTIF	52	0	20	23	26	18	36	18	22	20	20	26	25	26	29	17	25	19	13	13	12	12	12
ARTIF	102	0	33	42	39	22	191	108	28	32	33	55	43	55	32	37	34	22	37	37	22	22	22
ARTIF	502	0	33	39	85	23	43	53	29	33	33	56	44	56	34	29	31	24	44	44	22	22	22
ARTIF	1002	0	33	42	140	23	44	63	29	33	33	47	45	47	34	29	26	24	41	41	22	22	22
ARTIF	5002	0	33	46	316	—T—	43	68	29	33	33	66	43	66	33	33	39	24	43	43	21	21	21
ARWHEAD	100	0	5	5	5	5	5	29	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5
ARWHEAD	500	0	5	5	5	5	5	61	5	5	5	5	5	5	5	5	5	5	5	5	5	5	12
ARWHEAD	1000	0	5	5	5	5	5	85	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4
ARWHEAD	5000	0	5	5	5	5	5	188	5	5	5	5	5	5	5	5	5	5	5	5	5	5	7
BARD	3	0	7	8	12	9	13	9	13	12	7	12	10	8	12	7	7	7	11	—I—	8	9	9
BDEXP	100	0	10	10	10	10	10	14	10	10	10	10	10	10	10	10	12	10	17	18	16	23	23
BDEXP	500	0	(10)	(10)	(10)	(10)	(10)	11	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(13)	(10)	17	18	(16)	28	(26)
BDEXP	1000	0	(10)	(10)	(10)	(10)	(10)	11	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(14)	(10)	(17)	18	(16)	(26)	(25)
BDEXP	5000	0	(10)	(10)	(10)	(10)	(10)	(11)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(15)	(10)	(17)	18	(16)	(26)	(27)
BDQRTIC	100	0	11	8	11	11	12	101	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10
BDQRTIC	500	0	11	10	11	11	12	222	11	11	11	11	11	11	11	11	13	11	10	10	10	10	14
BDQRTIC	1000	0	11	10	37	37	12	313	12	11	11	11	11	11	11	11	13	11	11	11	11	11	—S—
BDVALUE	12	0	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2
BDVALUE	52	0	1	1	1	1	10	7	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1
BDVALUE	102	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BDVALUE	502	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BDVALUE	1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BDVALUE	5002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BEALE	2	0	7	—E—	7	7	5	127	9	7	7	9	7	7	8	7	7	7	15	16	12	13	13
BIGBANK	2230	1112	—T—	—T—	133	25	—T—	—I—	—T—	—T—	—T—	—T—	39	39	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
BIGGS3	6	0	11	10	11	11	11	9	11	11	11	10	11	11	11	11	11	11	18	—S—	11	16	16
BIGGS5	6	0	48	53	—I—	34	19	35	46	(49)	48	33	39	57	46	48	51	45	44	—I—	(262)	34	40
BIGGS6	6	0	111	50	219	69	23	—I—	55	26	111	37	124	86	(84)	91	82	107	(160)	—I—	86	55	83
BOOTH	2	0	3	3	3	3	2	10	5	3	3	5	3	3	3	3	3	3	3	3	3	3	3
BOX2	3	0	6	21	5	5	5	23	6	6	6	6	5	5	5	6	6	6	6	6	6	6	6
BOX3	3	0	7	17	7	7	7	6	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8
BQPGAUSS	2003	0	8	—S—	—I—	8	7	8	11	12	10	213	7	7	7	9	10	7	—I—	—S—	53	19	—I—
BRATU1D	13	0	5	5	5	5	6	13	6	5	5	5	5	5	5	5	5	5	—S—	—S—	15	12	441
BRATU1D	77	0	7	7	7	7	8	187	8	7	7	7	7	7	7	7	9	7	—I—	—I—	17	14	—I—
BRATU1D	103	0	8	7	8	8	9	—I—	10	8	8	8	8	8	8	8	10	8	—I—	—I—	15	13	—I—
BRATU1D	503	0	10	8	10	—E—	12	—I—	14	10	10	11	10	10	10	10	13	10	—E—	—I—	—E—	14	—E—
BRATU1D	1003	0	11	—E—	11	11	13	—I—	15	11	11	11	11	11	11	11	15	11	—E—	—I—	—E—	15	—E—
BRATU2D	49	25	4	4	3	3	3	4	3	4	3	3	3	3	3	4	5	4	4	4	4	4	4
BRATU2D	100	64	3	4	3	3	3	4	3	4	3	3	3	3	3	3	4	3	3	3	3	3	3
BRATU2D	484	400	3	5	2	2	2	4	3	3	3	2	2	2	3	3	5	3	3	3	3	3	3
BRATU2D	1024	900	2	5	2	2	2	4	3	2	2	2	2	2	3	2	4	2	2	2	2	2	2
BRATU2D	5184	4900	2	5	—F—	—F—	—F—	4	2	2	2	—F—	—F—	—F—	2	2	5	2	2	2	2	2	2

Number of minor iterations (2)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
BRATU3D	27	1	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
BRATU3D	125	27	4	4	4	4	4	7	4	4	5	4	4	4	4	4	5	5	5	5	5	5	5
BRATU3D	512	216	4	4	3	3	3	7	4	4	4	3	3	3	4	4	6	4	4	4	4	4	4
BRATU3D	1000	512	3	4	3	3	3	7	4	4	3	3	3	3	4	3	6	4	3	3	3	3	4
BRATU3D	4913	3375	3	5	3	3	3	7	3	3	3	3	3	3	4	3	7	4	3	3	3	3	3
BRIDGEND	2734	2727	—T—	—I—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—I—	—T—	222	—T—	—T—	—T—	—T—	—I—	—I—	—T—	—T—	—I—
BRITGAS	450	360	111	125	—I—	—I—	70	48	65	103	98	467	177	56	79	116	107	58	—I—	—I—	113	161	—I—
BRKMCC	2	0	3	4	3	3	4	6	4	3	3	4	3	3	3	3	3	3	3	3	3	3	3
BROWNAL	10	0	5	5	4	4	4	10	4	5	4	5	4	4	4	5	8	6	5	5	5	5	5
BROWNAL	50	0	3	3	3	3	3	8	3	3	3	3	5	3	3	3	6	4	4	4	4	4	4
BROWNBS	2	0	34	34	—I—	—I—	24	45	22	34	34	22	39	38	39	34	37	29	76	—I—	41	34	33
BROWNDEN	4	0	11	11	77	81	11	—I—	13	13	11	12	11	11	11	11	10	11	14	69	13	11	—I—
BROYDN3D	10	0	5	5	5	5	5	8	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4
BROYDN3D	50	0	5	5	5	5	5	8	6	5	5	5	5	5	5	5	5	5	4	4	4	4	4
BROYDN3D	100	0	5	5	5	5	5	8	6	5	5	5	5	5	5	5	5	5	4	4	4	4	4
BROYDN3D	500	0	5	5	5	5	5	8	6	5	5	5	5	5	5	5	6	5	4	4	8	8	8
BROYDN3D	1000	0	5	5	5	5	5	8	6	5	5	5	5	5	5	5	6	5	4	4	8	8	8
BROYDN3D	5000	0	5	5	5	5	5	8	6	6	5	5	5	5	5	5	8	5	4	4	8	8	8
BROYDN3D	10000	0	5	5	5	5	5	8	6	6	5	5	5	5	5	5	8	5	4	4	7	7	7
BROYDN7D	10	0	16	16	(21)	18	21	(29)	(18)	18	16	23	18	(16)	(19)	22	21	18	(53)	(53)	23	23	23
BROYDN7D	50	0	(26)	(26)	(41)	(14)	(19)	(22)	(18)	29	(26)	(27)	(19)	(28)	(29)	(21)	(21)	(13)	(52)	(52)	(24)	(24)	(24)
BROYDN7D	100	0	(27)	(27)	(48)	(13)	(21)	(27)	(23)	43	(27)	(41)	(26)	(41)	(41)	(30)	(43)	(14)	(62)	(62)	(31)	(31)	(31)
BROYDN7D	500	0	(78)	(78)	(108)	(13)	(81)	(101)	(88)	58	(78)	(122)	(32)	(110)	(113)	(67)	(71)	(16)	(126)	(126)	(55)	(55)	(65)
BROYDN7D	1000	0	(124)	(124)	(146)	(15)	(136)	(220)	(153)	58	(124)	(202)	(39)	(89)	(27)	(120)	(127)	(15)	(221)	(221)	(107)	(111)	(109)
BROYDNBD	10	10	11	18	13	12	11	18	12	12	11	11	12	12	12	11	10	12	12	12	12	12	12
BROYDNBD	50	50	12	12	19	13	10	18	12	9	11	15	15	15	15	12	14	11	15	15	15	15	15
BROYDNBD	100	100	12	12	18	10	10	18	9	11	14	17	13	17	13	12	12	11	12	12	12	12	12
BROYDNBD	500	500	15	15	25	13	10	18	12	10	14	18	10	18	15	12	15	11	14	14	14	14	14
BROYDNBD	1000	1000	16	16	33	12	13	18	12	12	14	33	11	33	16	14	13	12	14	14	14	14	14
BROYDNBD	5000	5000	31	31	21	16	18	18	8	13	25	42	12	42	20	—F—	47	12	13	13	13	13	13
CBRATU2D	32	8	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CBRATU2D	98	50	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CBRATU2D	512	392	3	4	3	3	3	5	3	3	3	3	3	3	3	3	5	3	3	3	3	3	3
CBRATU2D	1058	882	3	5	3	3	3	5	3	3	3	3	3	3	3	3	5	3	3	3	3	3	3
CBRATU3D	54	2	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CBRATU3D	128	16	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CBRATU3D	686	250	4	4	4	4	4	8	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4
CBRATU3D	2000	1024	3	4	3	3	3	7	4	4	3	3	3	3	4	4	6	4	3	3	3	3	3
CHANDHEQ	10	0	13	13	12	12	12	13	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13
CHANDHEQ	50	0	13	13	13	13	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	14
CHANDHEQ	100	0	13	13	13	13	13	13	13	13	13	13	13	13	13	13	14	13	13	13	13	13	14
CHEBYQAD	2	0	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	5	5	5	5	5
CHEBYQAD	4	0	7	7	7	7	7	7	8	7	7	8	8	8	8	7	10	7	7	7	7	7	8
CHEBYQAD	5	0	7	10	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8
CHEBYQAD	6	0	13	13	13	9	8	8	11	12	13	12	11	10	14	13	12	11	7	7	12	12	12
CHEBYQAD	7	0	10	17	15	10	9	8	10	10	10	9	13	11	12	11	10	9	20	20	14	14	14
CHEBYQAD	8	0	22	22	24	20	12	14	13	14	24	22	16	22	22	23	20	16	60	60	11	11	11
CHEBYQAD	9	0	18	26	22	12	10	13	10	9	14	8	17	21	13	18	16	13	29	29	21	21	21
CHEBYQAD	10	0	20	20	(26)	19	(13)	(17)	(13)	(14)	17	25	16	17	19	20	14	(16)	118	118	20	20	20
CHEBYQAD	20	0	29	29	57	24	20	101	15	26	26	62	29	29	40	25	27	26	86	88	28	28	27
CHEBYQAD	50	0	58	83	158	901	30	84	30	43	56	152	69	95	155	56	53	32	—I—	—I—	50	50	50
CHEMRCTA	10	10	9	7	7	6	6	72	8	13	6	7	6	6	6	9	9	7	9	10	9	9	9
CHEMRCTA	50	50	19	10	20	19	—F—	—F—	—F—	239	25	15	40	22	—F—	19	24	18	26	18	13	20	20
CHEMRCTA	100	100	53	40	804	33	—F—	—F—	—F—	—S—	50	24	—F—	50	—F—	51	48	51	24	27	23	25	25
CHEMRCTA	500	500	—T—	—F—	—F—	—F—	—T—	—F—	—T—	—T—	—T—	161	—F—	130	—T—	—F—	—F—	—T—	—E—	—T—	—F—	—F—	—T—
CHEMRCTA	1000	1000	—T—	—F—	—F—	—F—	—T—	—T—	—T—	—T—	—T—	297	959	270	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTA	5000	5000	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTB	10	10	8	8	8	9	10	—F—	31	21	8	8	8	8	8	8	9	9	13	7	13	13	13
CHEMRCTB	50	50	20	54	24	—F—	—F—	—F—	—F—	554	20	24	31	24	72	20	16	15	22	20	22	22	22

Number of minor iterations (3)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
CHEMRCTB	100	100	20	29	42	61	—F—	—F—	—F—	—S—	20	42	42	42	—F—	20	27	19	28	31	28	28	28
CHEMRCTB	500	500	70	72	154	—F—	—T—	—T—	—T—	—T—	70	154	154	154	—F—	70	67	70	72	72	72	72	69
CHEMRCTB	1000	1000	119	—S—	416	—F—	—T—	—T—	—T—	—T—	119	285	314	285	—F—	120	122	115	—S—	—S—	—S—	—S—	—S—
CHNROSNB	10	0	29	32	29	29	36	53	32	29	29	29	29	29	29	29	33	25	35	35	28	28	28
CHNROSNB	25	0	44	40	49	39	52	730	60	44	44	56	50	56	52	44	48	38	63	63	43	43	43
CHNROSNB	50	0	76	71	77	61	78	116	74	76	76	76	80	76	83	76	74	69	92	92	69	69	60
CLIFF	2	0	27	27	27	27	28	—I—	28	27	27	29	27	27	27	27	27	27	27	27	27	27	27
CLPLATEA	16	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CLPLATEA	49	0	3	5	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3
CLPLATEA	100	0	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CLPLATEA	529	0	5	13	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CLPLATEA	1024	0	6	15	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
CLPLATEA	5041	0	8	17	14	6	7	11	7	8	8	14	14	14	15	12	16	6	8	8	8	8	8
CLPLATEB	16	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CLPLATEB	49	0	2	4	2	2	2	2	3	2	2	2	2	2	2	2	3	3	2	2	2	2	2
CLPLATEB	100	0	2	5	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2
CLPLATEB	529	0	2	4	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
CLPLATEB	1024	0	2	4	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
CLPLATEB	5041	0	2	5	2	2	2	2	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2
CLPLATEC	16	0	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2
CLPLATEC	49	0	3	4	2	2	2	2	3	3	2	2	2	2	2	3	3	3	3	3	3	3	3
CLPLATEC	100	0	3	4	1	1	2	3	3	3	1	1	1	1	2	3	3	3	3	3	3	3	3
CLPLATEC	529	0	4	4	1	1	2	5	3	4	4	1	1	1	2	4	4	4	4	4	4	4	4
CLPLATEC	1024	0	4	4	1	1	2	6	4	4	4	1	1	1	3	4	4	4	4	4	4	4	4
CLPLATEC	5041	0	3	4	1	1	2	13	4	3	3	1	1	1	3	3	7	3	3	3	3	3	3
CLUSTER	2	2	11	11	11	11	9	9	9	11	11	9	11	11	5	11	11	9	12	20	13	12	12
CORKSCRW	96	70	39	39	276	62	34	55	42	46	44	33	61	41	71	41	36	39	47	476	42	70	78
CORKSCRW	456	350	128	160	—I—	92	—T—	635	143	148	126	106	85	76	95	129	128	92	268	—I—	147	194	177
CORKSCRW	906	700	—T—	350	—I—	—I—	—T—	—I—	—T—	—T—	—S—	123	—S—	113	123	—T—	—T—	—T—	—T—	—I—	—T—	—T—	—T—
CORKSCRW	4506	3500	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CORKSCRW	9006	7000	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CRAGGLVY	4	0	16	20	16	16	17	34	17	16	16	17	16	16	16	16	18	16	16	16	16	16	16
CRAGGLVY	10	0	14	15	14	14	14	55	16	14	14	14	14	14	14	14	13	14	14	13	14	14	14
CRAGGLVY	50	0	14	14	14	14	13	55	16	14	14	14	14	14	15	14	14	14	14	14	14	14	14
CRAGGLVY	100	0	14	14	14	14	13	55	16	14	14	14	14	14	15	14	14	14	14	14	14	14	14
CRAGGLVY	500	0	14	15	14	14	13	55	16	14	14	14	14	14	15	14	15	14	14	14	14	14	14
CRAGGLVY	1000	0	14	15	14	14	13	43	16	14	14	14	14	14	15	14	15	14	14	14	14	14	19
CRAGGLVY	5000	0	14	15	14	14	13	39	15	14	14	14	14	14	15	14	16	14	14	14	14	14	—S—
CUBE	2	0	36	67	31	33	42	488	47	36	36	47	48	46	45	36	46	47	41	29	32	32	32
DALLASL	906	667	91	—T—	430	45	119	—I—	110	110	82	66	47	47	84	84	97	67	93	—I—	93	118	(159)
DALLASM	196	151	83	—I—	42	48	336	—I—	382	190	74	63	42	42	79	82	87	66	88	—I—	87	87	85
DALLASS	46	31	79	—S—	42	42	97	—I—	107	124	93	63	41	41	62	88	87	59	90	—I—	90	93	119
DEGENLPA	20	15	25	20	—I—	21	116	—I—	39	44	18	40	22	20	45	—S—	26	—S—	29	—S—	28	29	28
DEGENLPB	20	15	—S—	—S—	—I—	16	149	—I—	—S—	43	—S—	35	—S—	17	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
DENSCHNA	2	0	5	5	5	5	5	7	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
DENSCHNB	2	0	3	3	3	3	5	5	3	3	3	3	3	3	3	3	5	3	2	2	2	2	2
DENSCHNC	2	0	9	11	9	9	9	50	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9
DENSCHND	3	0	33	40	45	64	28	—I—	32	33	33	31	41	37	54	35	32	30	42	—I—	36	35	36
DENSCHNE	3	0	11	—E—	11	12	16	21	11	11	11	10	10	10	14	12	15	11	11	10	11	11	11
DENSCHNF	2	0	6	6	6	6	6	32	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6
DIPIGRI	7	4	60	57	37	21	29	503	40	54	37	41	33	31	49	58	281	35	56	—I—	45	68	—I—
DISC2	29	23	72	66	—I—	139	79	266	70	108	177	91	82	82	156	83	75	82	112	—I—	80	78	89
DISCS	36	66	715	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—F—	(245)	—I—	(384)	—F—	—I—	—T—	408	280	710	709	—I—
DIXCHLNG	10	5	36	44	40	23	29	570	33	(63)	31	37	36	29	30	43	34	36	79	—I—	30	34	(369)
DIXCHLNV	10	5	15	51	11	12	20	563	18	13	11	14	12	14	35	44	22	14	24	—I—	48	26	26
DIXMAANA	15	0	5	5	5	6	6	6	6	6	5	6	5	5	5	5	5	6	12	2	6	6	27
DIXMAANA	90	0	5	5	5	6	5	6	5	5	5	5	4	5	5	5	6	6	11	2	12	7	2
DIXMAANA	300	0	5	5	5	6	5	6	5	5	5	5	4	5	5	5	7	7	11	2	11	7	2
DIXMAANA	1500	0	5	5	5	6	5	6	5	5	5	5	4	5	5	5	8	6	12	2	11	7	2

Number of minor iterations (4)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXMAANA	3000	0	5	5	5	6	4	6	5	5	5	5	4	5	5	5	8	6	12	2	11	7	2
DIXMAANB	15	0	6	6	6	5	6	9	7	7	6	6	6	6	5	6	8	7	9	2	19	9	32
DIXMAANB	90	0	8	8	9	6	6	9	6	8	8	7	6	7	6	8	9	8	9	2	15	8	22
DIXMAANB	300	0	7	7	6	6	6	9	6	7	7	12	6	10	6	7	9	8	9	2	16	9	22
DIXMAANB	1500	0	7	7	7	6	6	9	6	7	7	7	6	12	6	7	10	8	9	2	15	8	22
DIXMAANB	3000	0	7	7	6	6	6	9	6	7	7	7	6	10	6	7	14	8	9	2	15	8	22
DIXMAANC	15	0	9	9	7	6	7	11	8	10	9	9	7	9	11	9	10	7	14	2	26	9	30
DIXMAANC	90	0	9	9	10	10	7	11	7	9	9	8	8	8	8	9	13	11	13	2	26	9	15
DIXMAANC	300	0	11	11	9	10	7	11	7	11	11	8	9	10	9	11	14	10	12	2	27	9	15
DIXMAANC	1500	0	17	17	11	10	7	11	7	17	17	15	9	15	11	13	13	11	12	2	23	9	15
DIXMAANC	3000	0	14	14	19	10	7	11	7	14	14	15	9	11	11	13	14	11	12	2	26	9	15
DIXMAAND	15	0	9	14	9	11	8	13	8	12	9	12	9	10	12	9	10	11	14	2	42	12	34
DIXMAAND	90	0	10	19	9	11	8	13	8	10	10	11	14	9	11	11	14	12	18	2	31	11	21
DIXMAAND	300	0	10	24	9	11	8	13	8	10	10	13	12	13	21	10	15	12	20	2	31	10	21
DIXMAAND	1500	0	9	23	12	11	8	13	8	9	9	16	13	16	13	9	15	12	26	2	35	11	21
DIXMAAND	3000	0	11	13	12	11	8	13	8	11	11	10	15	15	23	12	15	11	29	2	34	10	21
DIXMAANE	15	0	6	8	6	6	7	8	6	6	6	6	5	6	5	6	6	8	9	2	17	9	29
DIXMAANE	90	0	6	13	11	8	8	10	6	6	6	6	5	6	5	6	11	9	11	2	50	10	33
DIXMAANE	300	0	6	12	8	8	8	10	6	6	6	6	6	6	5	6	8	9	52	2	62	13	85
DIXMAANE	1500	0	6	12	8	8	8	11	6	6	6	6	6	6	5	6	13	9	36	2	74	20	188
DIXMAANE	3000	0	6	13	9	8	8	11	6	6	6	6	6	6	6	6	16	9	52	2	70	17	261
DIXMAANF	15	0	10	6	10	11	10	9	8	9	10	12	10	9	9	10	8	10	11	2	41	10	32
DIXMAANF	90	0	10	26	12	15	13	10	11	10	10	14	11	13	12	10	25	12	19	2	199	16	24
DIXMAANF	300	0	19	16	22	14	14	12	12	19	19	16	20	14	18	11	18	14	20	2	340	16	75
DIXMAANF	1500	0	25	20	23	19	16	22	15	25	25	26	24	19	37	37	50	18	29	2	418	24	265
DIXMAANF	3000	0	26	89	19	17	16	20	19	26	26	32	25	36	11	45	25	20	31	2	46	17	462
DIXMAANG	15	0	11	14	11	12	11	11	8	9	11	9	13	10	14	11	12	13	20	2	48	12	33
DIXMAANG	90	0	16	28	15	17	16	12	12	16	16	14	13	12	16	11	12	14	25	2	107	16	44
DIXMAANG	300	0	24	42	33	15	12	13	13	24	24	16	29	17	41	16	36	15	21	2	327	25	138
DIXMAANG	1500	0	21	110	35	24	15	15	15	21	21	40	32	32	42	26	28	21	31	2	444	24	528
DIXMAANG	3000	0	50	188	31	19	19	15	15	50	50	37	27	42	27	52	28	21	30	2	—I—	40	924
DIXMAANH	15	0	13	21	14	11	12	14	9	10	13	12	11	12	12	12	12	11	14	2	65	17	45
DIXMAANH	90	0	19	28	18	15	14	15	13	19	19	15	16	18	30	11	23	15	29	2	142	15	88
DIXMAANH	300	0	23	33	22	20	18	16	13	23	23	26	25	29	33	28	21	20	34	2	—I—	21	238
DIXMAANH	1500	0	38	99	33	22	17	18	16	38	38	38	29	24	31	28	25	21	33	2	—I—	29	872
DIXMAANH	3000	0	39	184	54	—T—	19	24	15	39	39	40	46	38	48	31	67	20	130	2	—I—	40	—I—
DIXMAANI	15	0	5	19	8	9	7	14	6	6	5	6	5	5	6	5	6	7	11	2	52	14	32
DIXMAANI	90	0	6	13	10	8	7	13	6	6	6	6	5	5	6	6	9	8	13	2	86	10	—I—
DIXMAANI	300	0	6	16	14	7	7	16	6	6	6	6	5	6	6	6	15	8	21	2	106	13	—I—
DIXMAANI	1500	0	7	17	16	7	7	18	6	7	7	6	5	7	6	7	19	7	38	2	161	13	3
DIXMAANI	3000	0	7	17	22	7	7	18	6	7	7	6	6	7	6	7	10	7	113	2	172	15	2
DIXMAANJ	15	0	12	0	10	14	12	11	8	13	12	14	15	13	6	12	12	14	17	2	333	14	39
DIXMAANJ	90	0	20	0	23	14	17	16	10	20	20	16	18	27	26	20	36	15	30	2	283	20	690
DIXMAANJ	300	0	21	0	32	14	21	25	14	21	21	38	34	27	38	29	20	16	32	2	121	42	—I—
DIXMAANJ	1500	0	34	0	341	20	28	30	25	31	34	63	38	49	28	31	27	20	25	2	124	43	2
DIXMAANJ	3000	0	40	0	794	—T—	43	27	14	38	39	79	49	50	27	30	49	21	27	2	50	40	2
DIXMAANK	15	0	16	22	16	12	12	13	9	9	16	18	12	16	10	16	17	15	44	2	139	13	59
DIXMAANK	90	0	18	177	58	13	17	25	15	18	18	23	17	19	23	25	22	20	36	2	196	25	—I—
DIXMAANK	300	0	24	107	44	22	23	26	12	24	24	39	41	32	33	34	29	19	29	2	191	30	—I—
DIXMAANK	1500	0	35	271	84	21	36	27	20	40	35	55	50	70	31	31	41	22	31	2	100	42	2
DIXMAANK	3000	0	32	241	184	—T—	39	29	20	32	32	59	28	61	24	39	86	21	28	2	81	43	2
DIXMAANL	15	0	15	23	16	15	12	15	10	10	15	14	15	15	15	16	12	14	21	2	126	19	65
DIXMAANL	90	0	42	65	41	18	20	20	11	42	42	32	33	29	18	18	39	17	83	—I—	349	20	—I—
DIXMAANL	300	0	25	107	82	19	30	35	15	25	25	44	47	51	29	43	43	18	33	—E—	607	35	—I—
DIXMAANL	1500	0	43	223	178	18	34	31	19	39	43	75	36	67	39	55	54	19	29	—T—	107	49	2
DIXMAANL	3000	0	47	160	254	—T—	36	28	17	52	47	74	79	74	26	57	43	35	36	—T—	83	48	2
DIXON3DQ	10	0	2	2	2	2	3	6	3	2	2	2	2	2	2	2	4	2	2	2	2	2	2
DIXON3DQ	50	0	2	2	2	2	4	9	5	2	2	2	2	2	2	2	5	2	2	2	2	2	2
DIXON3DQ	100	0	2	2	2	2	4	9	5	2	2	2	2	2	2	2	5	2	2	2	2	2	2

Number of minor iterations (5)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXON3DQ	500	0	2	2	2	2	5	11	5	2	2	2	2	2	2	2	6	2	2	2	2	2	2
DIXON3DQ	1000	0	2	2	2	2	5	12	5	2	2	2	2	2	2	2	7	2	2	2	2	2	2
DIXON3DQ	5000	0	2	2	2	2	5	14	5	2	2	2	2	2	3	2	8	2	2	2	2	2	2
DQDRTIC	10	0	2	3	2	2	2	25	2	2	2	2	2	2	2	4	4	2	2	2	2	2	2
DQDRTIC	50	0	2	3	2	2	2	25	2	2	2	2	2	2	2	4	5	2	2	2	2	2	2
DQDRTIC	100	0	2	3	2	2	2	25	2	2	2	2	2	2	2	4	5	2	2	2	2	2	2
DQDRTIC	500	0	2	3	2	2	2	25	2	2	2	2	2	2	2	4	7	2	2	2	2	2	2
DQDRTIC	1000	0	2	3	2	2	2	25	2	2	2	2	2	2	2	4	7	2	2	2	2	2	2
DQDRTIC	5000	0	2	3	2	2	2	25	2	2	2	2	2	2	2	4	8	2	2	2	2	2	2
DQRTIC	10	0	17	18	17	17	17	121	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
DQRTIC	50	0	24	29	23	23	24	—I—	24	24	24	24	24	24	24	24	25	24	24	24	24	24	24
DQRTIC	100	0	26	34	26	26	26	—I—	26	26	26	26	26	26	26	26	28	26	26	26	26	26	26
DQRTIC	500	0	33	41	32	32	33	—I—	33	33	33	33	33	33	33	33	36	33	33	33	33	33	33
DQRTIC	1000	0	35	45	35	35	35	—I—	35	35	35	35	35	35	35	35	39	35	35	35	35	35	35
DQRTIC	5000	0	42	54	41	41	42	—I—	42	42	42	42	42	42	42	42	47	42	42	42	42	42	42
EDENSCH	36	0	12	11	14	12	13	88	13	12	12	13	14	13	13	12	17	12	41	—I—	15	12	12
EDENSCH	2000	0	12	11	14	12	14	88	12	12	12	14	14	14	13	12	21	12	57	—I—	14	12	12
ENGVAL1	2	0	7	7	7	7	7	12	7	7	7	7	7	7	7	7	7	7	7	21	7	7	7
ENGVAL1	50	0	7	7	7	7	7	14	8	7	7	7	7	7	7	7	9	7	7	26	7	7	7
ENGVAL1	100	0	7	7	7	7	7	14	8	7	7	7	7	7	7	7	10	7	7	26	7	7	7
ENGVAL1	1000	0	7	12	7	7	7	14	8	7	7	7	7	7	7	7	11	7	7	27	7	7	7
ENGVAL1	5000	0	7	12	7	7	7	14	8	7	7	7	7	7	7	7	12	7	7	—S—	7	7	7
ENGVAL2	3	0	18	18	20	17	17	62	21	20	18	21	19	18	19	20	19	20	19	19	19	20	20
ERRINBAR	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
ERRINROS	10	0	53	—S—	47	44	75	(62)	77	53	53	47	49	47	50	53	53	70	111	111	42	42	49
ERRINROS	25	0	52	76	64	50	76	(51)	108	52	52	59	50	59	61	59	55	74	108	108	46	46	82
ERRINROS	50	0	74	67	68	46	78	(103)	93	74	74	62	65	62	47	71	73	72	103	103	47	47	141
EXPFIT	2	0	13	13	—E—	—E—	13	—E—	13	13	13	14	13	15	13	11	13	13	12	—I—	10	14	14
EXPFITA	5	22	17	30	—I—	14	32	439	22	28	20	18	14	16	16	17	21	17	44	—I—	74	80	70
EXPFITB	5	102	63	53	—I—	27	52	916	57	64	66	23	29	29	30	62	345	61	116	—I—	224	90	163
EXPFITC	5	502	88	—S—	—T—	44	87	—I—	89	89	83	54	43	45	55	88	599	81	149	—I—	280	115	—I—
EXTROSNB	5	0	63	64	68	62	75	198	95	63	63	63	63	63	63	63	70	62	70	70	63	63	63
EXTROSNB	10	0	521	471	532	474	387	—I—	650	521	521	492	492	492	492	521	502	462	617	617	499	499	499
FREUROTH	2	0	9	6	9	9	9	48	11	9	9	11	9	9	9	9	9	10	15	34	8	8	8
FREUROTH	10	0	11	6	11	11	10	49	14	11	11	11	8	11	11	13	11	12	21	40	14	14	14
FREUROTH	50	0	10	6	12	12	10	49	14	10	10	10	11	10	11	10	10	11	20	38	10	10	—I—
FREUROTH	100	0	10	6	12	12	10	49	14	10	10	10	11	10	11	10	9	11	20	45	10	10	—I—
FREUROTH	500	0	10	6	12	12	10	49	—S—	10	10	10	11	10	11	11	11	11	—S—	—S—	10	10	25
FREUROTH	1000	0	10	6	12	12	—S—	49	—S—	10	10	10	11	10	11	10	12	11	35	—S—	10	10	—S—
FREUROTH	5000	0	10	6	12	12	10	49	—S—	10	10	10	11	10	11	12	—S—	11	—S—	—S—	10	10	—S—
GAUSSELM	14	11	32	—E—	62	(10)	(6)	(11)	(32)	(20)	(29)	38	25	(19)	37	37	41	24	84	—I—	30	27	27
GAUSSELM	506	1135	—T—	—E—	—I—	(656)	(9)	—I—	262	(388)	—T—	—I—	(455)	(371)	(295)	(405)	(322)	—T—	—I—	—I—	(312)	(217)	(858)
GAUSSELM	650	1496	—T—	—E—	—I—	(235)	(8)	—I—	—T—	205	(188)	—I—	(390)	(577)	(358)	(273)	—T—	—T—	—I—	—I—	—T—	—T—	(687)
GOTTFR	2	0	30	30	15	19	16	367	15	30	30	29	16	16	15	30	27	18	11	10	16	14	14
GRIDNETA	60	36	23	26	9	8	16	53	23	24	8	8	8	8	18	22	24	21	23	443	22	23	23
GRIDNETA	180	100	25	37	13	13	19	84	25	25	26	13	13	13	27	25	27	25	25	286	25	25	25
GRIDNETA	612	324	28	40	12	13	20	96	29	28	28	12	12	12	26	26	31	28	28	385	28	28	28
GRIDNETA	924	484	36	50	22	22	27	179	36	37	36	22	22	22	36	37	41	37	37	316	37	37	37
GRIDNETA	3444	1764	35	51	—I—	17	28	148	38	38	35	18	18	18	33	33	40	31	35	433	35	35	36
GRIDNETA	7564	3844	56	—T—	—I—	30	—T—	—T—	—T—	—T—	—T—	30	30	30	—T—	56	—T—	—T—	58	—T—	—T—	58	—T—
GRIDNETA	13284	6724	—T—	—T—	—I—	61	—T—	—T—	—T—	—T—	—T—	62	62	62	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETB	60	36	19	19	7	7	14	41	18	21	20	7	7	7	17	20	21	20	20	—I—	19	20	19
GRIDNETB	180	100	21	21	8	8	14	58	21	21	21	8	8	8	21	21	24	22	21	—I—	21	21	21
GRIDNETB	612	324	22	22	8	8	14	84	22	23	22	8	8	8	22	22	25	22	22	—I—	21	22	29
GRIDNETB	924	484	26	26	9	9	16	93	25	26	26	9	9	9	25	25	29	25	25	—I—	25	25	25
GRIDNETB	3444	1764	26	26	9	9	16	116	26	29	26	9	9	9	28	26	32	26	26	—I—	26	26	26
GRIDNETB	7564	3844	27	27	9	9	16	123	27	29	27	9	9	9	27	27	33	27	27	—I—	27	27	27
GRIDNETB	13284	6724	27	27	9	9	16	127	27	29	—T—	9	9	9	27	27	35	27	27	—I—	27	27	27
GRIDNETC	60	36	20	32	350	8	15	41	21	22	21	8	8	8	15	19	24	20	20	—I—	20	20	20

Number of minor iterations (6)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
GRIDNETC	180	100	23	32	365	7	15	58	21	22	22	7	7	7	22	22	25	23	21	—I—	22	22	22
GRIDNETC	612	324	23	33	—I—	10	17	83	25	24	23	11	11	11	22	22	25	23	24	—I—	23	24	23
GRIDNETC	924	484	28	34	—I—	11	19	92	26	26	28	11	11	11	26	27	29	28	26	—I—	28	26	29
GRIDNETC	3444	1764	30	43	—I—	15	19	105	29	31	30	15	15	15	28	32	33	30	33	—I—	32	33	31
GRIDNETC	7564	3844	—T—	—T—	—I—	28	—T—	—T—	—T—	—T—	—T—	27	27	27	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETD	60	36	22	30	9	8	16	54	23	23	8	9	8	8	19	23	24	23	23	364	22	24	72
GRIDNETD	180	100	24	31	11	11	17	84	22	23	23	13	11	11	24	24	26	22	25	210	25	25	77
GRIDNETD	612	324	27	32	12	12	20	97	28	27	27	13	12	12	28	27	31	29	27	267	27	49	95
GRIDNETD	924	484	35	45	36	20	25	178	35	33	35	21	20	20	35	35	39	34	34	236	34	51	118
GRIDNETD	3444	1764	41	55	—I—	16	29	145	42	39	41	19	17	17	35	38	43	—S—	40	329	38	68	119
GRIDNETD	7564	3844	—T—	—T—	—T—	33	—T—	—T—	—T—	—T—	—T—	35	33	33	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETE	60	36	20	20	7	7	14	41	18	20	20	7	7	7	17	20	21	19	20	—I—	19	23	307
GRIDNETE	180	100	21	21	8	8	14	58	21	21	21	8	8	8	22	21	23	22	21	—I—	21	30	—I—
GRIDNETE	612	324	22	22	8	8	14	83	22	23	22	8	8	8	22	22	25	22	23	—I—	22	47	—I—
GRIDNETE	924	484	25	25	9	9	16	93	25	26	25	9	9	9	26	25	28	25	25	—I—	25	43	—I—
GRIDNETE	3444	1764	26	26	11	11	16	113	26	29	26	11	11	11	36	26	33	26	26	—I—	27	62	—I—
GRIDNETE	7564	3844	27	27	11	11	16	120	27	29	27	11	11	11	27	27	33	27	27	—I—	27	62	—I—
GRIDNETF	60	36	19	33	80	7	14	40	21	21	20	8	7	7	16	20	23	20	20	—I—	18	20	153
GRIDNETF	180	100	22	32	544	9	15	61	21	22	21	10	9	9	23	22	24	22	23	—I—	22	36	497
GRIDNETF	612	324	23	35	—I—	9	15	81	23	24	23	11	9	9	23	23	25	23	22	—I—	24	50	245
GRIDNETF	924	484	25	38	—I—	12	18	89	26	26	25	12	10	10	27	26	30	26	28	—I—	28	54	—I—
GRIDNETF	3444	1764	29	40	—I—	13	20	102	29	31	29	14	13	13	28	30	35	30	34	—I—	32	77	—I—
GRIDNETF	7564	3844	—T—	—T—	—T—	26	—T—	—T—	—T—	—T—	—T—	29	28	28	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETG	60	36	22	23	8	7	16	58	23	23	8	8	7	7	17	21	23	22	21	331	23	21	21
GRIDNETH	60	36	20	20	7	7	14	41	18	21	22	8	7	7	12	20	22	21	19	—I—	18	18	18
GRIDNETI	60	36	19	19	76	7	14	41	18	21	20	8	7	7	11	20	23	20	19	758	18	19	19
GULF	3	0	35	39	42	37	40	—E—	44	55	35	45	46	40	41	36	42	35	157	—I—	41	39	42
HAGER1	21	10	7	7	5	4	7	64	12	7	10	6	4	4	4	7	8	7	7	7	7	7	7
HAGER1	101	50	9	10	12	6	6	484	17	9	9	8	3	3	5	9	9	6	9	9	9	9	9
HAGER1	201	100	10	8	23	11	6	—I—	20	10	10	10	3	3	16	10	9	6	10	10	10	10	10
HAGER1	1001	500	12	7	106	49	8	—I—	26	12	12	11	3	3	18	12	11	6	12	12	12	12	12
HAGER1	2001	1000	12	9	211	98	7	—I—	30	12	12	14	3	3	15	12	11	6	12	12	12	12	12
HAGER1	10001	5000	11	8	—M—	—T—	—T—	—T—	—T—	11	11	13	22	—M—	23	11	22	7	11	11	11	11	11
HAGER2	21	10	8	12	6	5	5	61	11	8	10	7	5	5	5	8	9	8	8	17	8	8	8
HAGER2	101	50	9	12	12	6	6	463	16	9	9	9	3	3	5	9	11	8	9	18	9	9	9
HAGER2	201	100	10	9	23	12	5	—I—	16	10	10	11	4	4	15	10	11	8	10	16	10	10	10
HAGER2	1001	500	11	15	105	50	7	—I—	26	11	11	13	4	4	17	11	12	7	10	18	10	10	10
HAGER2	2001	1000	11	10	—T—	99	6	—I—	24	11	11	—T—	4	—T—	14	11	12	6	11	13	11	11	11
HAGER2	10001	5000	10	—S—	—M—	—I—	—T—	—T—	—T—	10	10	—E—	21	—M—	15	10	28	5	8	(9)	8	8	8
HAGER3	21	10	7	12	3	3	6	70	12	7	9	6	3	3	3	7	9	7	10	12	9	8	8
HAGER3	101	50	10	12	4	4	5	511	16	10	10	10	4	4	6	10	10	7	11	12	11	10	10
HAGER3	201	100	11	10	5	5	5	—I—	17	11	11	11	4	4	16	11	11	6	12	14	12	11	12
HAGER3	1001	500	12	12	17	17	7	—I—	24	12	12	13	4	4	17	12	12	6	12	13	11	12	12
HAGER3	2001	1000	12	10	—T—	32	6	—I—	28	12	12	—T—	4	—T—	15	12	9	6	14	19	12	12	12
HAGER3	10001	5000	8	—S—	—M—	—I—	—T—	—T—	—T—	8	8	—M—	20	—M—	14	8	21	6	9	14	8	8	8
HAGER4	21	10	9	15	12	6	8	275	14	10	7	8	7	7	7	7	8	6	15	22	16	15	24
HAGER4	101	50	12	15	52	9	10	—I—	27	12	12	8	6	6	8	10	12	10	14	32	15	15	32
HAGER4	201	100	12	14	105	12	10	—I—	54	12	12	7	6	6	11	11	15	10	14	22	17	14	36
HAGER4	1001	500	13	19	—T—	45	9	—I—	—T—	13	13	8	8	8	23	13	15	12	12	34	13	13	42
HAGER4	2001	1000	9	28	—T—	83	—T—	—I—	—T—	9	9	9	8	—T—	20	12	16	11	13	41	13	12	45
HAGER4	10001	5000	—T—	—T—	—M—	—T—	—T—	—I—	—T—	12	—T—	—T—	16	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
HAIRY	2	0	102	116	74	87	102	95	140	102	102	97	87	96	108	89	91	72	77	—S—	107	101	121
HATFLDA	4	0	23	23	32	24	29	28	30	23	23	30	23	32	24	24	24	24	38	38	36	35	35
HATFLDB	4	0	20	20	20	21	26	25	27	20	20	27	20	21	21	20	20	21	30	30	33	32	32
HATFLDC	25	0	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
HATFLDD	3	0	19	19	15	16	14	26	21	14	19	19	10	13	28	20	33	21	30	—I—	19	22	19
HATFLDE	3	0	22	22	23	18	15	21	21	15	22	17	11	14	24	22	22	19	28	—I—	27	23	17
HATFLDF	3	0	27	86	44	41	61	18	13	28	27	38	40	43	32	30	24	42	29	—I—	27	16	16
HATFLDG	25	0	16	16	14	14	15	11	13	16	15	13	14	12	16	16	15	14	23	—I—	13	13	14

Number of minor iterations (7)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HATFLDH	4	7	11	10	62	18	10	34	15	15	9	13	9	9	10	9	11	11	121	—I—	18	12	13
HELIX	3	0	12	—S—	13	13	14	67	13	12	12	13	11	14	11	14	14	11	20	—I—	19	19	19
HILBERTA	2	0	2	2	2	2	2	4	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
HILBERTA	4	0	2	2	2	2	2	4	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
HILBERTA	5	0	2	2	2	2	2	4	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2
HILBERTA	6	0	2	2	2	2	2	4	2	2	2	2	2	2	2	3	4	2	2	2	2	2	2
HILBERTA	10	0	2	2	2	2	2	3	2	2	2	2	2	2	2	5	7	2	2	2	2	2	2
HILBERTB	5	0	2	2	2	2	2	12	2	2	2	2	2	2	2	4	5	2	2	2	2	2	2
HILBERTB	10	0	2	2	2	2	2	12	2	2	2	2	2	2	2	5	6	2	2	2	2	2	2
HILBERTB	50	0	2	6	2	2	2	12	2	2	2	2	2	2	2	4	7	2	2	2	2	2	2
HIMMELBA	2	0	2	2	2	2	2	5	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
HIMMELBB	2	0	12	6	17	20	20	164	14	12	12	21	23	22	12	12	12	12	11	11	22	16	16
HIMMELBC	2	0	8	8	8	8	8	12	8	8	8	8	8	8	8	10	7	8	8	7	8	8	8
HIMMELBD	2	0	38	36	45	34	37	—I—	41	38	38	41	38	38	38	—S—	58	41	37	—S—	37	37	38
HIMMELBE	3	0	3	3	3	3	5	5	5	5	3	5	3	3	3	4	5	3	3	3	3	3	3
HIMMELBF	4	0	217	367	—I—	321	341	—I—	440	214	217	351	283	181	125	487	187	151	308	—S—	94	44	61
HIMMELBG	2	0	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	11	31	10	10	11
HIMMELBH	2	0	1	1	1	1	1	23	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1
HIMMELBI	100	12	36	40	—I—	76	25	—I—	31	28	39	36	17	—E—	21	34	318	26	131	—E—	335	145	120
HIMMELBJ	45	14	—I—	—I—	795	919	—I—	557	—I—	—I—	—I—	—I—	—S—	139	—I—	—I—	—I—	276	—I—	—I—	—I—	—I—	—I—
HIMMELBK	24	14	130	(11)	—I—	220	126	—I—	140	137	(16)	136	(16)	112	112	141	150	105	270	—I—	195	160	160
HONG	4	1	16	16	15	15	17	27	22	20	16	20	16	16	16	16	17	17	26	112	26	26	26
HS1	2	0	33	57	32	33	30	79	40	33	33	39	35	34	35	33	36	33	35	35	26	26	26
HS10	2	1	17	17	20	20	18	—I—	21	17	17	20	17	17	17	17	19	20	43	44	33	27	37
HS100	7	4	52	52	37	21	31	503	40	54	37	41	33	31	49	54	288	30	72	—I—	56	48	—I—
HS100MOD	7	4	143	—S—	49	—I—	106	—I—	—S—	—S—	—S—	109	88	47	115	—S—	—I—	54	156	—I—	156	—S—	—I—
HS101	7	5	—I—	122	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS102	7	5	—I—	135	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS103	7	5	—I—	—S—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS104	8	5	56	46	63	32	53	162	45	79	40	72	33	30	39	56	56	44	122	—I—	79	70	125
HS105	8	1	(12)	26	(12)	19	25	(23)	(11)	(12)	(17)	19	(11)	(11)	16	(12)	(10)	(17)	—I—	—I—	921	(119)	—E—
HS106	8	6	—I—	70	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS107	9	6	30	37	39	32	—S—	376	34	33	22	34	22	23	22	30	31	30	—S—	—I—	41	46	46
HS108	9	13	24	24	62	20	19	36	24	23	41	21	16	29	20	24	23	19	50	—I—	31	32	32
HS109	9	10	—I—	242	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS11	2	1	15	15	14	14	15	87	16	15	15	15	15	15	15	14	15	16	15	46	15	15	15
HS110	10	0	6	6	6	6	6	6	6	6	6	6	6	6	6	6	4	6	21	21	8	8	8
HS111	10	3	47	47	50	36	51	82	56	54	47	73	41	59	55	52	48	48	—I—	—I—	—I—	169	—I—
HS112	10	3	42	42	38	37	44	52	56	43	38	47	38	38	38	42	43	41	57	—I—	56	58	75
HS113	10	8	88	58	47	36	49	599	66	101	83	74	38	38	38	80	822	45	78	—I—	76	97	—I—
HS114	10	11	805	131	—I—	—I—	—I—	—I—	—S—	735	784	577	—S—	329	—I—	847	—S—	405	—I—	—I—	—I—	900	—I—
HS116	13	14	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS117	15	5	66	61	—I—	—I—	71	507	53	36	102	64	40	49	46	49	89	60	523	—I—	84	67	—I—
HS118	15	17	16	16	—I—	8	17	256	17	15	16	15	8	8	14	16	18	13	16	16	16	16	15
HS119	16	8	29	35	53	43	23	128	30	32	28	28	27	27	27	29	29	29	99	—I—	39	41	58
HS12	2	1	23	23	22	21	21	533	22	26	23	23	23	23	23	23	101	21	41	—I—	32	28	40
HS13	2	1	58	54	58	58	58	64	58	58	58	58	58	58	58	58	57	58	267	262	87	87	87
HS14	2	2	12	12	12	12	12	23	14	12	12	13	12	12	12	12	12	12	13	14	13	13	13
HS15	2	2	46	46	57	54	39	487	47	46	46	44	47	47	46	46	47	46	93	133	54	78	123
HS16	2	2	16	16	13	14	18	24	20	17	16	18	17	17	18	16	19	14	29	58	30	29	31
HS17	2	2	19	19	15	18	20	28	20	20	19	21	20	18	18	19	19	18	28	—S—	32	37	40
HS18	2	2	91	113	76	69	148	819	154	147	91	172	78	78	78	91	97	92	128	—I—	111	97	112
HS19	2	2	34	—S—	36	34	30	—I—	36	35	34	35	42	34	34	34	97	34	36	34	35	35	43
HS2	2	0	6	12	6	6	6	39	6	6	6	6	6	6	6	6	6	6	5	5	4	4	4
HS20	2	3	23	23	26	24	23	52	29	27	23	26	23	23	23	23	22	23	21	37	22	21	21
HS21	2	1	1	1	1	1	1	4	1	1	1	1	1	1	1	1	4	1	17	19	17	17	17
HS22	2	2	9	9	9	9	9	17	10	9	9	10	9	9	9	9	9	9	12	11	12	12	12
HS23	2	5	43	22	55	57	68	266	59	73	43	73	56	50	48	43	82	60	41	42	41	41	41
HS24	2	3	7	7	8	8	7	20	9	10	7	9	7	7	7	7	8	7	20	20	13	13	13

Number of minor iterations (8)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS25	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HS26	3	1	39	42	41	40	30	83	25	33	39	31	33	32	36	39	31	28	32	—I—	31	26	26
HS27	3	1	16	25	16	18	22	25	16	17	16	19	15	15	16	16	12	18	33	113	39	24	31
HS28	3	1	3	3	3	3	3	22	3	3	3	3	3	3	3	3	3	3	3	30	3	3	3
HS29	3	1	30	30	29	29	19	133	35	41	30	35	26	31	31	29	66	28	39	54	35	43	45
HS3	2	0	4	4	4	4	4	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
HS30	3	1	7	7	7	7	8	8	8	8	7	8	7	7	7	7	7	7	10	30	10	10	10
HS31	3	1	13	13	12	12	12	13	13	13	13	13	13	13	13	13	14	14	45	—I—	27	21	28
HS32	3	2	10	13	11	5	10	27	12	9	10	11	10	10	10	10	7	5	12	12	12	12	12
HS33	3	2	(12)	(14)	(13)	(12)	(13)	(27)	(13)	(15)	(12)	(15)	(12)	(12)	(12)	(12)	(12)	(14)	(12)	(12)	(12)	(12)	30
HS34	3	2	19	19	16	18	18	27	21	19	19	16	18	18	21	19	18	22	23	23	21	21	21
HS35	3	1	6	6	5	4	6	7	5	7	6	7	6	6	6	6	6	6	44	—I—	17	9	50
HS36	3	1	11	11	15	11	12	213	11	11	11	11	11	11	11	11	16	11	18	17	17	15	15
HS37	3	2	16	16	20	17	19	478	22	20	16	22	16	17	17	17	49	17	67	364	53	44	86
HS38	4	0	58	58	57	78	58	189	72	63	58	56	57	59	59	57	50	51	—I—	—I—	56	57	27
HS39	4	2	20	18	20	19	19	39	23	19	20	22	20	20	20	20	20	22	513	513	34	34	34
HS4	2	0	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
HS40	4	3	10	10	9	9	10	9	12	9	10	10	10	10	10	10	10	10	14	99	15	15	19
HS41	4	1	6	6	6	5	6	8	6	6	6	6	5	5	5	6	5	6	11	15	13	11	11
HS42	4	2	12	11	10	10	11	10	13	12	12	11	12	12	12	12	10	12	12	31	12	12	12
HS43	4	3	22	22	28	20	23	43	26	27	21	30	22	22	23	25	157	20	490	—I—	33	33	33
HS44	4	6	6	6	(15)	(43)	10	(73)	(12)	(11)	6	(12)	(6)	(7)	(6)	6	26	6	32	—I—	9	8	8
HS45	5	0	2	2	2	2	2	1	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2
HS46	5	2	26	26	34	21	18	22	22	31	26	24	17	22	28	27	26	21	27	48	17	24	23
HS47	5	3	(21)	80	79	77	(23)	(20)	(26)	(23)	(21)	(23)	(21)	(21)	(22)	(21)	(22)	(23)	(25)	(37)	(23)	(23)	(23)
HS48	5	2	3	3	3	3	6	22	8	3	3	3	3	3	3	3	3	3	3	33	3	3	3
HS49	5	2	15	15	15	15	16	64	19	19	15	18	15	15	15	15	15	15	24	52	24	24	48
HS5	2	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4
HS50	5	3	12	13	12	10	14	240	13	14	12	14	12	12	12	11	10	10	18	42	18	18	18
HS51	5	3	2	2	2	2	7	12	9	10	2	2	2	2	2	2	2	2	2	39	2	2	2
HS52	5	3	6	6	6	6	10	34	13	12	6	10	6	6	6	6	7	6	10	43	10	10	10
HS53	5	3	6	6	6	6	10	30	12	10	6	11	6	6	6	6	7	6	11	13	11	11	11
HS54	6	1	(2)	—S—	(2)	(2)	(2)	34	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(39)	(39)	(2)	(2)	(2)	(2)	(2)	(2)
HS55	6	6	6	6	5	5	8	7	8	6	6	6	6	6	7	6	6	6	7	7	7	7	7
HS56	7	4	19	16	18	23	25	22	13	20	13	29	21	18	16	18	13	13	—I—	—I—	40	35	83
HS57	2	1	(1)	13	13	—I—	(3)	9	16	(4)	(1)	12	16	12	12	(1)	(1)	(1)	(13)	(45)	(10)	(10)	(10)
HS59	2	3	387	70	(421)	(267)	470	—I—	437	441	387	443	421	413	400	396	—I—	(349)	480	—I—	394	405	607
HS6	2	1	56	56	45	54	53	85	59	56	56	59	57	49	49	53	53	62	57	57	46	46	46
HS60	3	1	15	19	31	11	16	39	26	23	15	20	15	27	24	14	14	10	23	38	25	22	22
HS61	3	2	19	19	19	17	16	92	22	20	19	21	18	19	19	20	18	17	17	47	17	17	17
HS62	3	1	34	34	40	34	34	305	35	34	34	35	34	34	34	34	33	34	—I—	—I—	60	60	60
HS63	3	2	14	14	25	13	13	113	15	17	14	15	18	16	21	14	17	12	65	54	21	22	22
HS64	3	1	50	46	49	49	51	603	50	51	50	50	50	50	50	50	50	—T—	63	65	63	63	65
HS65	3	1	28	28	36	33	37	103	45	61	28	42	29	29	30	28	46	42	37	28	37	37	37
HS66	3	2	9	14	8	7	11	7	10	9	9	10	7	9	9	9	8	9	13	25	13	13	13
HS67	3	14	56	39	—I—	72	105	36	41	43	40	41	50	30	45	56	55	60	—I—	—I—	193	62	—S—
HS68	4	2	92	—I—	75	81	115	492	116	103	92	113	88	94	90	92	93	95	—I—	—I—	143	136	—I—
HS69	4	2	35	97	34	34	35	—S—	52	—S—	35	43	35	42	35	35	—S—	35	—I—	—I—	104	—S—	—I—
HS7	2	1	18	18	17	17	19	101	17	18	18	18	18	18	18	18	17	18	23	38	27	27	27
HS70	4	1	30	27	(25)	22	28	(322)	21	25	30	16	21	39	27	27	23	26	—I—	—I—	46	45	41
HS71	4	2	15	15	20	14	15	46	18	17	15	16	15	15	15	15	15	15	41	—I—	21	24	30
HS72	4	2	89	89	89	88	236	96	89	91	89	90	89	89	88	89	97	—T—	111	112	111	111	111
HS73	4	3	15	15	—I—	20	16	454	23	18	15	24	21	23	22	15	110	15	18	17	18	18	18
HS74	4	5	27	25	19	19	22	—I—	21	30	27	24	19	19	23	27	27	24	—S—	52	27	27	55
HS75	4	5	—S—	27	—S—	—I—	—I—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
HS76	4	3	6	6	11	6	7	16	8	7	6	6	6	6	6	6	6	6	35	—I—	12	19	33
HS77	5	2	24	15	29	17	20	(120)	24	18	24	37	19	22	26	24	23	26	34	—I—	23	24	24
HS78	5	3	11	11	10	10	9	15	14	15	11	11	11	10	12	13	13	10	25	40	16	13	49
HS79	5	3	13	12	16	12	10	22	11	13	13	12	8	10	10	13	14	10	12	34	12	16	16

Number of minor iterations (9)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS8	2	2	11	11	11	10	10	49	10	11	11	10	9	9	10	8	10	10	10	8	9	9	9
HS80	5	3	15	15	19	11	12	20	15	17	15	20	12	11	21	15	17	13	17	26	10	16	35
HS81	5	3	17	(183)	18	11	12	19	14	18	17	17	13	11	19	17	18	16	854	44	26	25	37
HS83	5	3	23	19	49	23	22	224	23	24	23	24	23	28	23	22	22	25	31	32	24	24	34
HS84	5	3	—S—	—S—	—I—	—I—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—
HS85	5	21	—I—	44	—I—	—I—	—I—	—I—	—S—	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—S—	—S—	—I—
HS86	5	10	—S—	17	—I—	86	14	97	14	14	16	14	15	18	18	—S—	30	18	482	—I—	41	21	91
HS87	6	4	109	—S—	—I—	—S—	—S—	—I—	—S—	—S—	126	—S—	—S—	—S—	31	138	33	37	—I—	—I—	47	153	—S—
HS88	2	1	53	53	54	53	47	55	54	53	53	54	55	55	55	54	54	54	97	165	108	95	83
HS89	3	1	(64)	(64)	(58)	(62)	(59)	(55)	(57)	(64)	(64)	(63)	63	(62)	(61)	(62)	(108)	—T—	(166)	(199)	(111)	(101)	(110)
HS9	2	1	4	4	5	4	6	39	6	4	4	6	4	4	4	4	5	6	10	12	10	10	10
HS90	4	1	—E—	—E—	—E—	—E—	—E—	58	—E—	—E—	—E—	57	—E—	—E—	—E—	57	58	57	—E—	161	—E—	—E—	—E—
HS91	5	1	—E—	—E—	101	—E—	61	—E—	—E—	(95)	—E—	—E—	—E—	—E—	—E—	(113)	(69)	59	—E—	—I—	—E—	—E—	—E—
HS92	6	1	—E—	—E—	—E—	—E—	—E—	957	—E—	—E—	—E—	—E—	56	61	—E—	59	55	58	—E—	—I—	—E—	—E—	—E—
HS93	6	2	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HS95	6	4	7	26	—I—	18	6	112	10	15	7	5	14	6	10	7	9	27	14	11	5	16	11
HS96	6	4	7	23	—I—	21	30	100	10	15	17	5	14	6	4	7	10	16	14	11	6	6	10
HS97	6	4	20	(25)	(481)	(7)	(6)	(159)	(6)	(20)	22	(14)	(5)	(15)	(34)	20	(48)	(5)	(51)	—I—	(25)	(22)	(56)
HS98	6	4	16	52	—I—	(7)	(5)	(159)	(6)	(32)	21	(10)	(5)	(7)	(32)	25	(41)	(5)	(15)	(32)	(21)	(21)	(43)
HS99	7	2	—I—	—S—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—I—	—I—	—E—	—F—	—I—
HS99EXP	31	21	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—I—	—F—	—I—	—I—	—E—	—I—	—I—	—I—	—I—	—I—	—I—
HUBFIT	2	0	1	1	2	2	2	3	3	1	1	3	1	1	1	1	1	1	1	1	1	1	1
HYDCAR20	99	99	—F—	—E—	—F—	154	70	—E—	—F—	—F—	—F—	116	149	196	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDCAR6	29	29	—F—	—E—	—F—	62	—F—	100	—F—	—F—	—F—	42	79	83	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDROELL	1009	1008	127	246	—I—	—I—	138	—I—	133	127	127	129	139	125	135	131	—I—	126	—I—	—I—	766	993	—I—
HYDROELM	505	504	78	193	—I—	—I—	82	—I—	75	78	78	71	67	66	74	77	—I—	72	—I—	—I—	511	—I—	—I—
HYDROELS	169	168	37	143	—I—	—I—	36	—I—	36	37	37	29	31	28	35	34	—I—	34	—I—	—I—	660	—I—	—I—
HYPCIR	2	0	8	14	8	8	8	8	8	8	8	8	8	8	8	8	5	8	6	6	6	8	6
INTEGREQ	12	0	3	5	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3
INTEGREQ	52	0	3	6	3	3	3	3	3	2	3	2	3	3	3	3	3	3	2	2	2	2	2
INTEGREQ	102	0	3	—S—	3	3	3	3	3	3	3	2	3	3	3	3	3	3	2	2	2	2	2
JENSMP	2	0	9	9	9	9	9	93	9	9	9	9	9	9	9	9	9	9	8	—I—	8	8	8
JNLBRNG1	16	0	1	1	2	1	1	2	1	1	1	1	1	1	2	1	1	1	2	15	2	2	2
JNLBRNG1	100	0	3	5	1	1	3	4	3	3	1	1	1	1	2	3	5	4	4	40	4	4	4
JNLBRNG1	529	0	5	—S—	4	4	5	5	5	5	5	4	4	4	4	5	7	6	6	309	6	6	6
JNLBRNG1	1024	0	6	7	5	5	6	6	6	6	6	5	5	5	5	6	7	6	7	583	7	7	7
JNLBRNG1	5625	0	14	17	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	—I—	15	15	15
JNLBRNG1	10000	0	19	20	19	19	19	19	19	19	19	19	19	19	19	19	19	19	20	—T—	20	20	20
JNLBRNG1	15625	0	24	—I—	24	24	24	24	24	24	24	24	24	24	24	24	24	24	25	—T—	25	25	25
JNLBRNG2	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	12	3	3	3
JNLBRNG2	100	0	3	5	2	2	3	4	3	3	2	2	2	2	3	3	4	4	4	90	4	4	4
JNLBRNG2	529	0	4	—S—	2	2	4	4	4	4	4	2	2	2	4	4	5	5	4	791	4	4	4
JNLBRNG2	1024	0	4	6	3	3	4	4	4	4	4	3	3	3	4	4	6	5	5	964	5	5	5
JNLBRNG2	5625	0	9	10	9	9	9	9	9	9	9	9	9	9	9	9	10	9	10	—I—	10	10	10
JNLBRNG2	10000	0	11	13	11	11	11	11	11	11	11	11	11	11	11	11	12	11	12	—I—	12	12	12
JNLBRNG2	15625	0	14	—I—	14	14	14	14	14	14	14	14	14	14	14	14	15	14	15	—T—	15	15	15
KOWOSB	4	0	10	15	15	11	15	13	9	11	10	13	12	8	11	10	9	13	16	—S—	11	26	26
LCH	30	1	28	—F—	—I—	19	(22)	(36)	(20)	28	25	29	28	26	33	28	31	32	—I—	—I—	57	86	83
LCH	150	1	28	—F—	(21)	545	(23)	194	34	31	29	28	28	27	28	29	35	30	—I—	—I—	53	80	76
LCH	300	1	33	—F—	33	564	(24)	417	38	34	32	28	30	27	28	32	31	33	—I—	—I—	54	123	128
LCH	600	1	35	—F—	—T—	—T—	(26)	917	39	37	36	32	38	33	40	34	35	39	—I—	—I—	62	92	90
LEAKNET	156	153	—S—	—F—	—I—	—I—	—I—	—I—	—S—	—I—	—S—	99	68	69	—I—	—S—	(429)	—S—	—I—	—I—	—S—	—S—	—I—
LEWISPOL	6	9	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
LIARWHD	36	0	12	28	15	14	10	116	11	12	15	15	10	10	10	16	22	12	12	15	12	12	12
LIARWHD	100	0	19	32	18	18	14	156	17	16	18	18	15	15	15	19	22	17	19	14	19	19	19
LIARWHD	500	0	16	39	23	19	15	265	18	19	20	18	16	16	16	26	19	19	16	17	16	16	16
LIARWHD	1000	0	20	57	23	19	15	346	19	23	20	19	22	22	22	25	26	19	20	16	20	20	20
LIARWHD	5000	0	36	64	22	19	18	679	19	(23)	21	19	22	22	22	37	50	19	36	(19)	36	36	36
LIARWHD	10000	0	(23)	58	22	18	18	928	19	(51)	39	19	22	22	22	54	29	18	(23)	(65)	(23)	(23)	(23)

Number of minor iterations (10)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
LINVERSE	19	0	16	55	(325)	18	14	17	15	(10)	16	15	22	20	20	15	15	27	—I—	—I—	33	13	—I—
LINVERSE	199	0	13	53	—I—	20	11	12	12	14	13	71	28	32	29	19	25	12	—I—	—I—	22	17	—I—
LINVERSE	999	0	27	(99)	129	45	18	33	24	21	27	64	42	31	30	26	44	16	—I—	—S—	51	29	853
LINVERSE	1999	0	32	—S—	831	—T—	(13)	25	14	28	32	97	130	47	45	29	52	22	—I—	—S—	57	26	—I—
LMINSURF	16	0	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	33	6	6	6
LMINSURF	49	0	22	17	12	9	17	13	9	9	12	12	12	12	14	18	30	9	18	128	18	17	18
LMINSURF	64	0	19	28	12	8	18	15	19	22	12	12	12	12	16	18	20	8	24	276	26	24	—I—
LMINSURF	121	0	48	56	11	10	49	36	39	51	11	11	11	11	23	43	45	11	49	596	49	49	48
LMINSURF	961	0	232	260	21	20	521	167	229	232	232	21	21	21	41	261	273	22	269	—I—	313	276	262
LMINSURF	1024	0	277	369	21	26	477	188	312	268	281	21	21	21	67	330	277	25	282	—I—	283	287	—I—
LMINSURF	5625	0	—I—	—I—	38	—T—	—I—	764	—I—	—I—	—I—	38	38	38	421	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
LMINSURF	10000	0	—I—	—I—	39	—T—	—I—	—I—	—I—	—I—	—I—	39	39	39	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—I—
LMINSURF	15625	0	—T—	—T—	44	—T—	—I—	—I—	—T—	—T—	—T—	44	44	44	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
LSQFIT	2	0	1	1	2	2	2	2	3	1	1	3	1	1	1	1	1	1	1	1	1	1	1
LUBRIF	151	100	—F—	—I—	—I—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—I—	—F—	—F—	—F—	—I—	—I—	—I—	—F—	—I—
LUBRIF	751	500	—T—	—T—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
MANCINO	10	0	7	—S—	5	5	4	371	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
MANCINO	20	0	9	—S—	7	7	7	—I—	9	9	9	9	8	8	8	9	10	9	9	9	9	9	9
MANCINO	30	0	10	—S—	8	8	8	—I—	11	10	10	10	8	8	8	10	12	12	10	10	10	10	10
MANCINO	50	0	12	—S—	10	10	9	—I—	12	12	12	12	11	11	11	12	14	13	12	12	11	11	11
MANNE	300	200	6	11	—I—	10	7	10	12	11	6	19	8	801	6	7	7	7	92	92	8	8	8
MANNE	1095	730	—S—	143	—S—	78	11	8	—S—	15	—S—	—T—	10	—E—	8	11	11	6	45	45	11	11	—S—
MARATOS	2	1	7	9	7	7	7	6	7	7	7	7	7	7	7	7	7	8	8	29	8	8	8
MARATOSB	2	0	—I—	—I—	—I—	—I—	—I—	305	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
MATRIX2	6	2	10	10	10	10	10	14	9	10	10	10	10	10	10	10	10	10	13	43	13	13	13
MAXLIKA	8	0	(9)	42	45	24	26	29	(7)	23	22	25	22	(8)	23	(9)	(8)	(6)	—I—	—S—	609	164	560
MCCORMCK	10	0	4	4	4	4	4	4	5	4	4	4	4	4	4	4	5	4	6	37	6	6	6
MCCORMCK	50	0	4	7	4	4	4	5	5	4	4	4	4	4	4	4	6	4	6	39	6	6	6
MCCORMCK	100	0	4	7	4	4	4	5	5	4	4	4	4	4	4	4	6	4	6	37	6	6	6
MCCORMCK	500	0	4	7	4	4	4	5	5	4	4	4	4	4	4	4	7	4	6	42	6	6	6
MCCORMCK	1000	0	4	7	4	4	4	5	5	4	4	4	4	4	4	4	8	4	6	39	6	6	6
MCCORMCK	5000	0	4	5	4	4	4	5	5	4	4	4	4	4	4	4	9	4	6	44	6	6	6
MCCORMCK	10000	0	4	5	4	4	4	5	5	4	4	4	4	4	4	4	9	4	6	39	6	6	6
MDHOLE	2	0	63	63	65	58	61	161	62	63	63	68	66	54	66	63	53	59	67	58	59	59	59
METHANB8	31	31	—I—	—E—	8	8	8	29	—F—	—F—	54	12	8	8	—F—	—I—	—I—	—S—	—S—	—F—	—I—	—S—	—S—
METHANL8	31	31	—F—	—E—	599	214	82	—E—	—F—	—F—	—F—	149	192	78	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
MEXHAT	2	0	19	19	19	19	30	—I—	18	19	19	18	19	19	19	19	18	18	25	484	19	24	19
MEYER3	3	0	467	—S—	—I—	—I—	453	—I—	—S—	469	467	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	585	—S—	—I—
MINPERM	5	5	6	6	6	6	6	8	6	12	6	10	6	6	6	6	6	6	6	6	6	6	6
MINPERM	13	10	13	13	35	13	7	7	9	14	13	11	17	16	19	13	13	11	24	—I—	23	14	14
MINPERM	27	19	16	16	38	24	9	9	10	14	15	13	36	42	65	16	15	16	28	—I—	17	15	15
MINPERM	51	36	18	18	88	24	10	9	11	17	20	38	29	83	48	18	18	18	37	—I—	21	17	17
MINPERM	93	69	17	17	294	23	9	10	14	22	26	157	49	126	64	17	17	19	85	—I—	16	22	22
MINPERM	169	134	103	103	—I—	80	15	14	16	29	34	318	297	450	147	98	30	91	541	—T—	25	30	29
MINPERM	311	263	57	57	—I—	59	14	13	17	23	36	405	157	588	340	63	54	50	128	—T—	49	56	56
MINPERM	583	520	356	356	—T—	—T—	16	16	20	20	29	—T—	—T—	—I—	406	318	39	49	—I—	—T—	39	41	45
MINPERM	1113	1033	49	49	—T—	—T—	18	16	21	25	25	—T—	—T—	—T—	43	76	87	50	93	—I—	92	61	74
MINSURF	64	0	10	11	8	1	8	8	8	9	8	8	8	8	9	12	10	3	11	57	11	11	10
MISTAKE	9	13	32	32	109	28	26	18	36	39	56	38	33	32	21	31	33	27	70	—I—	40	39	39
MSQRTA	4	0	15	15	13	13	15	19	15	15	15	15	15	15	15	15	16	15	17	18	15	15	14
MSQRTA	49	0	17	—I—	26	21	17	16	17	15	18	20	19	22	23	17	18	16	21	—I—	16	23	18
MSQRTA	100	0	17	22	69	23	21	20	19	19	18	23	39	32	47	23	18	19	41	—I—	15	14	16
MSQRTA	529	0	42	42	—T—	—T—	35	51	38	40	45	—T—	—T—	—T—	—T—	73	55	37	247	—I—	43	40	93
MSQRTA	1024	0	44	44	—T—	—T—	—T—	78	40	39	35	—T—	—T—	—T—	—T—	—T—	40	—T—	—T—	—T—	37	39	—T—
MSQRTB	9	0	14	15	12	13	12	12	14	12	13	14	12	13	13	15	11	13	20	—I—	9	9	12
MSQRTB	49	0	18	42	0	19	18	15	16	16	21	18	23	25	28	(390)	16	17	24	—I—	15	17	17
MSQRTB	100	0	22	32	0	25	20	22	22	22	21	22	51	34	62	26	19	25	35	—I—	19	19	24
MSQRTB	529	0	44	44	—T—	—T—	44	48	42	38	36	48	—T—	—T—	—T—	82	51	43	171	—I—	41	35	98
MSQRTB	1024	0	31	31	—T—	—T—	32	60	32	33	35	—T—	—T—	—T—	—T—	63	32	29	—T—	—T—	33	30	—T—

Number of minor iterations (11)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
MWRIGHT	5	3	(19)	24	(20)	(18)	(20)	(37)	(23)	(20)	(19)	(22)	(19)	(19)	(20)	(19)	(18)	(18)	(550)	(645)	(28)	(28)	(31)
NGONE	8	8	17	23	66	14	15	22	19	17	16	18	13	17	18	20	18	19	149	—I—	31	32	32
NGONE	12	19	39	57	212	33	—E—	39	34	42	36	32	37	36	39	38	40	40	98	—I—	45	37	34
NGONE	50	323	—I—	—I—	—I—	—I—	(805)	—I—	—I—	(204)	—I—	—I—	(84)	351	—I—	—I—	—I—	—I—	—I—	—I—	—I—	(964)	—I—
NGONE	100	1273	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—T—	983	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
NGONE	500	31373	—T—	—T—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—M—	—M—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NLMSURF	16	0	10	10	10	11	10	9	10	10	10	10	10	10	10	11	10	11	10	68	10	10	9
NLMSURF	49	0	46	77	23	10	44	37	26	36	23	23	23	23	36	38	75	10	41	752	59	59	123
NLMSURF	64	0	48	76	13	11	64	56	49	46	13	13	13	13	47	48	72	11	52	—I—	52	52	138
NLMSURF	121	0	110	146	16	11	166	93	127	129	16	16	16	16	111	123	182	11	128	—I—	138	138	438
NLMSURF	961	0	678	845	18	16	—I—	596	764	688	693	18	18	18	153	820	697	18	731	—I—	817	740	924
NLMSURF	1024	0	837	806	19	18	—I—	653	784	774	833	19	19	19	201	830	772	18	690	—I—	784	722	827
NLMSURF	5625	0	—I—	—I—	23	25	—I—	—I—	—I—	—I—	—I—	23	23	23	—I—	—I—	—I—	24	—I—	—I—	—I—	—I—	—I—
NLMSURF	10000	0	—I—	—I—	22	—T—	—I—	—I—	—I—	—I—	—I—	22	22	22	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—E—
NLMSURF	15625	0	—T—	—T—	27	—T—	—I—	—I—	—T—	—T—	—T—	27	27	27	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONDIA	10	0	29	22	24	23	20	33	29	26	17	39	25	30	20	27	29	19	25	25	14	14	14
NONDIA	20	0	35	28	28	27	24	46	24	35	32	38	30	27	31	29	37	30	30	30	20	20	20
NONDIA	30	0	58	41	42	40	32	82	107	38	69	47	40	37	34	76	51	44	40	40	34	34	34
NONDIA	50	0	70	41	42	46	30	104	217	44	138	137	34	51	44	51	69	48	50	50	69	69	58
NONDIA	90	0	105	64	49	53	29	138	74	143	150	65	53	53	50	170	71	54	111	111	181	181	179
NONDIA	100	0	139	55	54	55	33	145	129	54	71	216	52	53	50	98	67	48	107	107	142	142	137
NONDIA	500	0	329	61	51	61	43	319	169	254	264	147	49	49	52	106	62	53	46	46	323	323	306
NONDIA	1000	0	265	47	49	60	44	450	245	236	300	282	45	45	51	79	64	57	78	78	77	77	73
NONDIA	5000	0	113	(88)	46	—T—	44	—I—	156	194	82	189	46	46	46	163	75	—T—	99	99	159	159	110
NONDIA	10000	0	144	119	51	—T—	44	—I—	304	81	69	272	49	49	47	137	62	—T—	99	99	97	97	92
NONDQUAR	100	0	15	15	15	15	66	23	105	15	15	15	15	15	15	15	15	15	15	15	15	15	15
NONDQUAR	500	0	16	16	16	16	80	17	116	16	16	18	16	16	16	16	18	16	16	16	16	16	16
NONDQUAR	1000	0	17	17	17	17	91	19	174	17	17	17	17	17	17	17	17	17	17	17	17	17	17
NONDQUAR	5000	0	18	18	18	18	82	19	140	18	18	28	18	18	18	18	21	18	18	18	18	18	18
NONMSQRT	9	0	114	206	—I—	—I—	(90)	—I—	(100)	(120)	114	(104)	(404)	107	111	103	(131)	(87)	—I—	—S—	115	88	—I—
NONMSQRT	49	0	—I—	—I—	—I—	—I—	(214)	—I—	(438)	—I—	(997)	268	—I—	290	(645)	—I—	—I—	—T—	—I—	—S—	—I—	—I—	—I—
NONMSQRT	100	0	—T—	—T—	—I—	—I—	342	—I—	(690)	—T—	—I—	—S—	—T—	—S—	—I—	—T—	—T—	—T—	—I—	—S—	—T—	—T—	—I—
NONMSQRT	529	0	—T—	—T—	—I—	—I—	—T—	—I—	—T—	—T—	—T—	—S—	—T—	—S—	—T—	—T—	—T—	—T—	—E—	—I—	—T—	—T—	—T—
NONMSQRT	1024	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONSCOMP	25	0	8	9	8	8	8	30	8	8	8	8	8	8	8	8	9	8	5	5	8	8	8
NONSCOMP	50	0	8	9	8	8	8	29	8	8	8	8	8	8	8	8	10	8	5	5	8	8	8
NONSCOMP	100	0	8	9	8	8	8	29	9	8	8	8	8	8	8	8	10	8	5	5	8	8	8
NONSCOMP	500	0	8	9	8	8	8	29	9	8	8	8	8	8	8	8	11	8	5	5	8	8	8
NONSCOMP	1000	0	8	9	8	8	8	30	9	8	8	8	8	8	8	8	12	8	5	5	8	8	8
NONSCOMP	5000	0	8	9	8	8	8	31	9	8	8	8	8	8	8	8	13	8	5	5	8	8	8
NONSCOMP	10000	0	8	9	8	8	8	31	8	8	8	8	8	8	8	8	13	8	5	5	8	8	8
NYSTROM5	18	20	—F—	—F—	—F—	38	17	76	19	28	—F—	40	46	—F—	60	—F—	—F—	20	92	—F—	47	—F—	—F—
OBSTCLAE	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OBSTCLAE	100	0	3	4	12	2	3	4	3	3	2	2	2	2	2	3	5	4	5	41	5	5	5
OBSTCLAE	529	0	3	7	84	2	3	5	3	3	3	2	2	2	3	3	7	4	4	146	4	4	4
OBSTCLAE	1024	0	3	6	163	3	3	6	4	3	3	2	2	2	2	3	7	4	4	257	4	4	4
OBSTCLAE	5625	0	5	8	833	—T—	5	5	4	5	5	2	2	2	2	5	9	5	6	—I—	6	6	6
OBSTCLAE	10000	0	5	5	—T—	—T—	5	6	5	5	—T—	—T—	—T—	—T—	—T—	5	10	4	7	—T—	7	7	7
OBSTCLAE	15625	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
OBSTCLAL	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLAL	100	0	4	5	3	3	4	4	4	4	3	3	3	3	3	4	4	4	7	44	7	7	7
OBSTCLAL	529	0	7	9	6	6	7	7	7	7	7	6	6	6	6	7	7	7	10	125	10	10	36
OBSTCLAL	1024	0	8	10	7	7	8	8	8	8	8	7	7	7	7	8	8	8	10	214	10	10	11
OBSTCLAL	5625	0	16	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	18	—I—	18	18	18
OBSTCLAL	10000	0	19	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	22	—I—	22	22	48
OBSTCLAL	15625	0	24	26	24	24	24	24	24	24	24	24	24	24	24	24	24	24	27	—T—	27	27	34
OBSTCLBL	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OBSTCLBL	100	0	2	3	3	2	3	3	2	3	2	2	2	2	2	2	2	2	4	38	4	4	4
OBSTCLBL	529	0	5	6	18	5	5	5	5	5	5	5	5	5	5	5	7	6	6	210	6	6	6

Number of minor iterations (12)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
OBSTCLBL	1024	0	7	8	43	5	6	7	7	7	7	5	5	5	6	6	8	7	7	452	7	7	7
OBSTCLBL	5625	0	12	—S—	168	12	12	13	12	12	12	11	11	11	12	13	13	13	13	—I—	13	13	85
OBSTCLBL	10000	0	16	—S—	349	15	15	15	15	16	15	15	15	15	29	15	16	15	15	—T—	15	22	52
OBSTCLBL	15625	0	18	—S—	—T—	17	18	18	18	18	18	17	17	17	—T—	18	19	18	19	—T—	19	27	95
OBSTCLBM	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OBSTCLBM	100	0	1	2	2	1	2	3	2	2	1	1	1	1	2	1	1	1	2	32	2	2	2
OBSTCLBM	529	0	3	5	3	2	3	3	3	3	3	2	2	2	2	4	3	4	4	108	4	4	4
OBSTCLBM	1024	0	4	5	7	3	4	3	4	4	4	3	3	3	3	4	4	4	4	352	4	4	4
OBSTCLBM	5625	0	5	6	27	4	4	5	5	5	5	4	4	4	4	6	5	5	5	—I—	5	5	5
OBSTCLBM	10000	0	4	6	49	4	4	5	5	4	5	4	4	4	—T—	6	6	5	6	—T—	6	6	7
OBSTCLBM	15625	0	5	—T—	91	5	5	6	5	5	5	5	5	5	—T—	6	5	5	6	—T—	6	6	6
OBSTCLBU	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLBU	100	0	1	1	1	1	2	3	4	3	1	1	1	1	2	1	2	1	3	39	3	3	3
OBSTCLBU	529	0	6	8	7	6	6	6	6	6	6	6	6	6	6	6	7	6	6	250	6	6	6
OBSTCLBU	1024	0	7	8	9	6	7	7	7	7	7	6	6	6	6	7	8	7	8	390	8	8	12
OBSTCLBU	5625	0	13	15	23	13	13	13	13	13	13	13	13	13	13	13	14	13	13	—I—	13	13	15
OBSTCLBU	10000	0	16	18	31	16	16	16	16	16	16	16	16	16	16	16	17	16	16	—T—	16	16	47
OBSTCLBU	15625	0	19	21	24	19	19	19	19	19	19	19	19	19	20	19	20	19	21	—T—	21	21	57
OPTCNTRL	32	20	23	18	43	25	25	400	33	33	24	23	25	25	25	23	28	23	23	28	23	23	23
OPTMASS	70	55	—I—	378	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
OPTMASS	610	505	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	1210	1005	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	3010	2505	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—E—	—I—	—I—	—I—	—I—	—I—
ORTHREGA	133	64	124	—S—	145	—I—	—S—	—I—	99	113	152	131	72	113	158	127	128	103	—I—	—I—	247	164	—I—
ORTHREGA	517	256	160	269	—T—	—I—	149	—I—	123	170	170	163	92	—T—	322	160	148	122	—I—	—I—	268	215	—I—
ORTHREGA	2053	1024	185	—S—	—M—	—I—	247	—I—	154	182	—S—	—T—	138	—E—	—T—	197	189	132	—I—	—I—	283	249	—I—
ORTHREGA	8197	4096	—S—	—S—	—M—	—T—	189	—I—	186	—S—	242	—E—	—T—	—E—	—T—	222	239	—T—	—I—	—I—	—S—	—S—	—T—
ORTHREGB	27	6	95	312	—I—	70	10	—I—	399	83	70	265	106	170	135	104	175	138	167	—I—	119	86	201
ORTHREGC	25	10	42	77	(81)	31	26	(241)	57	44	39	39	27	—I—	43	39	44	(39)	—I—	—I—	(53)	(89)	(75)
ORTHREGC	105	50	(88)	149	77	(330)	34	—I—	50	(58)	(79)	62	38	48	(109)	(71)	36	(49)	—I—	—I—	84	91	225
ORTHREGC	505	250	(57)	127	281	(164)	32	—I—	42	(66)	(60)	50	32	61	43	46	42	(50)	—I—	—I—	67	104	356
ORTHREGC	1005	500	45	—S—	348	(90)	30	—I—	49	55	48	71	40	94	41	45	50	(65)	—I—	—I—	(63)	(88)	(458)
ORTHREGC	5005	2500	55	—T—	—T—	—T—	51	—I—	59	48	53	95	64	—M—	51	55	56	—T—	—I—	—I—	76	117	—I—
ORTHREGC	10005	5000	51	—T—	—M—	—T—	54	—I—	61	46	—S—	—T—	49	—M—	—T—	52	50	—T—	—T—	—T—	82	115	—T—
ORTHREGD	23	10	415	—F—	160	115	31	—I—	471	403	317	170	63	87	136	499	292	77	336	500	327	298	274
ORTHREGD	103	50	538	—F—	694	442	44	—I—	901	591	542	262	92	—S—	106	—S—	—S—	115	302	—I—	285	304	314
ORTHREGD	503	250	362	—F—	—I—	—I—	41	—I—	—I—	280	325	222	71	302	84	—S—	—S—	90	187	—S—	165	—S—	—I—
ORTHREGD	1003	500	260	—F—	—I—	—I—	50	—I—	—I—	297	264	310	99	—S—	65	—S—	—S—	88	137	—S—	148	160	—I—
ORTHREGD	5003	2500	163	—F—	—T—	—T—	53	—I—	423	147	—S—	654	126	—T—	43	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—I—
ORTHREGD	10003	5000	105	—F—	—M—	—T—	58	—T—	—S—	75	109	—T—	—T—	—E—	—T—	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—T—
ORTHREGE	36	20	—S—	(176)	(181)	—I—	49	—I—	—S—	—S—	(234)	(102)	—I—	—I—	—I—	—S—	(126)	—S—	—I—	—I—	—I—	—S—	—I—
ORTHREGF	80	25	61	277	111	36	29	98	71	64	57	32	41	39	50	56	60	42	94	—I—	51	77	74
ORTHREGF	152	49	62	—I—	68	33	21	65	84	97	66	33	44	50	43	63	68	38	291	—I—	94	142	99
ORTHREGF	305	100	(72)	—I—	(127)	41	29	(205)	(96)	(85)	(87)	(75)	35	64	(60)	(105)	(77)	(45)	—I—	—I—	(54)	(80)	(72)
ORTHREGF	680	225	(150)	(279)	139	(44)	35	(263)	(133)	(130)	(94)	(91)	41	74	(54)	(126)	(187)	44	—I—	—I—	(100)	(96)	(363)
ORTHREGF	1205	400	—S—	—S—	(334)	(50)	44	(485)	(198)	(155)	(460)	(102)	45	84	43	(214)	(187)	(50)	—I—	—I—	(108)	(140)	(137)
OSBORNEA	5	0	37	—E—	44	13	59	—I—	66	70	37	58	31	43	35	37	52	49	119	—S—	76	60	60
OSBORNEB	11	0	19	23	16	22	29	—E—	17	13	30	23	20	19	11	25	(52)	20	83	—I—	21	45	36
PALMER1	4	0	29	—S—	307	29	29	209	32	28	29	37	29	29	39	30	39	28	36	—S—	48	31	—S—
PALMER1A	6	0	67	71	126	—S—	150	—I—	—S—	101	67	92	65	94	67	71	71	64	176	—I—	75	111	124
PALMER1B	4	0	38	43	195	38	37	—I—	38	43	38	35	36	36	34	39	36	36	76	—S—	44	60	60
PALMER1C	8	0	16	13	12	9	66	—I—	26	—S—	31	17	10	10	17	18	22	12	16	16	16	16	16
PALMER1D	7	0	14	8	12	9	47	—I—	13	14	13	17	8	8	16	15	16	10	14	14	14	14	14
PALMER1E	8	0	242	226	—I—	64	234	—I—	225	146	274	127	693	724	235	199	193	118	—I—	—I—	223	186	192
PALMER2	4	0	20	49	102	54	26	126	31	22	20	46	20	20	20	20	25	29	127	—S—	37	26	35
PALMER2A	6	0	156	161	117	74	95	381	110	189	156	153	120	99	112	155	178	144	471	—I—	156	179	215
PALMER2B	4	0	100	100	143	30	35	—I—	81	105	100	70	100	100	100	19	19	29	95	—S—	94	110	—S—
PALMER2C	8	0	12	—S—	7	7	35	—I—	27	17	11	14	7	7	14	34	18	9	12	12	12	12	12
PALMER2E	8	0	107	118	298	70	145	—I—	249	281	322	179	335	283	302	157	134	143	—I—	—I—	175	244	181

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
PALMER3	4	0	37	52	53	43	(30)	107	(39)	41	37	(31)	35	44	56	58	16	43	(69)	—I—	(47)	(62)	136
PALMER3A	6	0	146	156	146	102	143	—I—	120	169	146	174	128	98	103	158	176	137	—I—	—S—	180	175	185
PALMER3B	4	0	65	65	105	28	25	86	38	94	65	33	49	68	28	19	40	24	45	—S—	28	21	21
PALMER3C	8	0	12	17	8	8	13	—I—	19	18	11	10	7	7	12	14	12	9	12	12	12	12	12
PALMER3E	8	0	74	(103)	35	40	114	—I—	186	158	239	87	45	39	206	84	64	110	—I—	—I—	131	145	160
PALMER4	4	0	40	45	(40)	49	(30)	86	(35)	44	40	(31)	44	61	44	39	23	49	—I—	—S—	(64)	43	—S—
PALMER4A	6	0	47	73	143	74	71	—I—	60	77	47	99	92	56	78	69	66	69	110	—I—	77	113	105
PALMER4B	4	0	34	34	51	28	34	88	34	86	34	32	64	39	39	—S—	35	25	25	—I—	33	26	26
PALMER4C	8	0	39	32	8	8	42	—I—	20	16	27	15	7	7	16	21	30	10	39	39	39	39	39
PALMER4E	8	0	53	65	28	32	77	—I—	92	71	104	70	60	21	147	56	109	59	—I—	—I—	62	178	229
PENALTY1	4	0	36	48	36	36	28	69	33	39	36	36	36	36	36	27	31	40	35	47	35	35	35
PENALTY1	10	0	40	66	39	43	38	265	48	49	39	39	39	39	39	38	45	43	49	32	49	49	49
PENALTY1	50	0	66	188	48	47	50	—I—	53	59	62	48	49	48	48	48	53	50	60	89	60	60	98
PENALTY1	100	0	52	127	47	50	49	—I—	50	60	46	47	47	47	47	56	58	45	48	100	48	48	53
PENALTY1	500	0	55	116	54	53	56	—I—	55	83	57	54	54	54	54	64	59	52	61	110	61	61	59
PENALTY1	1000	0	63	80	—T—	—T—	55	—I—	51	51	61	—T—	—T—	—T—	—T—	56	58	56	63	78	63	63	77
PENALTY2	4	0	8	71	69	69	6	6	6	6	8	52	49	49	10	8	12	12	7	5	7	7	7
PENALTY2	10	0	96	303	39	77	15	152	61	17	107	108	65	65	108	104	108	43	94	27	94	94	94
PENALTY2	50	0	39	48	32	30	34	78	34	70	57	46	34	33	38	54	34	38	48	91	48	48	46
PENALTY2	100	0	19	22	20	20	18	168	21	21	21	20	19	19	19	19	19	19	21	92	20	21	20
PENALTY3	50	0	22	—S—	—S—	—S—	19	—I—	—S—	24	—S—	21	23	28	—S—	(375)	—S—	24	—I—	—S—	—S—	109	—S—
PENALTY3	100	0	—S—	—S—	—S—	—S—	25	—I—	25	—S—	24	30	—S—	32	—S—	—I—	27	—S—	—I—	—T—	—S—	124	—S—
PENTAGON	6	15	10	71	69	10	8	16	10	9	15	14	7	6	7	10	10	10	29	—I—	33	30	30
POWELLBS	2	0	47	47	46	43	47	477	45	47	47	51	44	42	47	47	47	47	47	47	47	48	—S—
POWELLSG	4	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	8	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	16	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	20	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	36	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	40	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	60	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	80	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	100	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
POWELLSG	500	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	16	15	15	15	15	15	15
POWELLSG	1000	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	17	15	15	15	15	15	15
POWELLSG	5000	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	18	15	15	15	15	15	15
POWELLSG	10000	0	15	17	15	15	15	31	15	15	15	15	15	15	15	15	18	15	15	15	15	15	15
POWELLSQ	2	0	4	21	4	4	4	71	4	4	4	4	4	4	4	4	22	4	12	14	20	20	20
POWER	10	0	16	17	16	16	16	36	16	16	16	16	16	16	16	16	16	16	16	13	16	16	16
POWER	20	0	17	19	18	18	18	73	18	18	17	17	18	18	18	17	18	17	17	14	17	17	17
POWER	30	0	18	20	19	19	19	119	19	19	18	18	19	19	19	18	19	18	18	15	18	18	18
POWER	50	0	19	21	20	20	20	235	20	20	20	19	20	20	20	19	20	19	20	16	20	20	20
POWER	75	0	20	22	21	21	22	413	21	21	20	20	21	21	21	20	22	20	21	17	21	21	21
POWER	100	0	22	23	22	22	22	623	22	22	21	21	22	22	22	22	23	21	22	18	22	22	22
POWER	500	0	26	27	27	27	26	—I—	26	26	26	25	26	26	26	26	28	26	25	21	25	25	25
POWER	1000	0	27	28	—T—	—T—	28	—I—	27	27	27	—T—	—T—	—T—	—T—	27	30	27	27	22	27	27	27
PROBPENL	10	0	102	102	(2)	—I—	(45)	(6)	(2)	(2)	(19)	(3)	(2)	(3)	(53)	99	(2)	(38)	(3)	(3)	(2)	(2)	(2)
PROBPENL	50	0	1	1	1	1	1	7	1	1	1	1	1	1	1	1	3	1	3	3	2	2	2
PROBPENL	100	0	1	1	1	1	1	7	1	1	1	1	1	1	1	1	3	1	3	3	2	2	2
PROBPENL	500	0	1	—S—	1	1	1	8	1	1	1	1	1	1	1	1	4	1	3	3	2	2	2
PRODPL0	60	29	—S—	—S—	—I—	937	34	120	31	35	—S—	36	46	53	40	35	—S—	—S—	42	684	—S—	41	81
PRODPL1	60	29	65	65	—I—	—I—	63	280	61	70	61	65	72	53	73	71	68	62	66	—I—	75	69	162
PSPDOC	4	0	6	6	6	2	6	5	5	6	6	5	6	6	6	7	8	2	2	2	2	2	6
QUARTC	25	0	21	24	21	21	21	927	21	21	21	21	21	21	21	21	22	21	21	21	21	21	21
QUARTC	100	0	26	34	26	26	26	—I—	26	26	26	26	26	26	26	26	28	26	26	26	26	26	26
QUARTC	500	0	33	41	32	32	33	—I—	33	33	33	33	33	33	33	33	36	33	33	33	33	33	33
QUARTC	1000	0	35	45	35	35	35	—I—	35	35	35	35	35	35	35	35	39	35	35	35	35	35	35
QUARTC	5000	0	42	54	41	41	42	—I—	42	42	42	42	42	42	42	42	47	42	42	42	42	42	42
QUARTC	10000	0	45	57	(44)	(44)	45	—I—	45	45	45	45	45	45	45	45	50	45	45	45	45	45	45

Number of minor iterations (14)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
READING1	202	100	768	—F—	—I—	—I—	302	217	—I—	—I—	664	391	—I—	414	—I—	746	674	322	—I—	—I—	793	—I—	—I—
READING2	303	200	20	372	—I—	—I—	—T—	46	16	15	20	34	38	34	12	17	28	10	20	20	20	20	20
READING3	202	101	—I—	—S—	—I—	—I—	615	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	521	—I—	—I—	—I—	—I—	—I—
RECIPE	3	0	16	16	16	16	16	50	16	16	16	16	16	16	16	16	16	16	42	—I—	22	14	14
ROSENBR	2	0	10	10	10	10	9	34	15	10	10	15	10	10	10	10	11	11	(2)	(2)	(2)	(2)	(2)
S277-280	4	4	16	16	22	11	10	48	9	8	16	12	10	11	18	12	14	17	16	16	16	16	16
S277-280	6	6	20	20	—I—	155	11	52	15	13	10	12	12	14	14	14	17	16	20	20	20	20	20
S277-280	8	8	9	9	—I—	16	11	31	11	10	10	20	13	12	19	16	19	9	9	9	9	9	9
S277-280	10	10	18	15	—I—	8	9	27	8	11	12	19	12	798	16	19	21	13	18	18	18	18	18
S308	2	0	10	10	10	10	9	17	10	10	10	10	10	10	10	10	9	10	19	18	10	9	11
S316-322	2	1	23	23	23	23	23	(57)	23	23	23	23	23	23	23	23	26	23	23	25	23	23	23
S316-322	2	1	27	27	26	26	27	(58)	30	27	27	29	27	27	27	27	27	28	28	67	28	28	28
S316-322	2	1	(30)	(30)	(27)	(27)	(28)	59	(31)	(30)	(30)	(30)	(30)	(30)	(30)	(30)	(31)	(30)	(30)	(83)	(30)	(30)	(30)
S316-322	2	1	(30)	(30)	(28)	(28)	(29)	(60)	(31)	(30)	(30)	31	(30)	(30)	(30)	(31)	(32)	31	(30)	(104)	(30)	(30)	(30)
S316-322	2	1	(32)	(32)	(28)	(28)	(29)	63	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(32)	(31)	(31)	(111)	(31)	(31)	(31)
S316-322	2	1	(34)	(34)	(33)	(29)	(30)	64	(35)	(34)	(34)	(35)	(34)	(34)	(34)	(33)	(33)	(33)	(33)	(122)	(33)	(33)	(33)
S316-322	2	1	(34)	(34)	(34)	(32)	(31)	(70)	35	(34)	(34)	(35)	(34)	(34)	(34)	(34)	(37)	(35)	34	—I—	34	34	34
SCHMVETT	3	0	3	3	3	3	3	4	3	4	3	3	3	3	3	3	3	3	8	40	13	7	7
SCHMVETT	10	0	3	3	3	3	3	4	4	4	3	3	3	3	3	3	3	3	6	59	16	10	10
SCHMVETT	100	0	3	3	3	3	3	4	4	4	3	3	3	3	3	3	5	3	6	—S—	45	10	17
SCHMVETT	500	0	3	3	3	3	3	5	4	3	3	3	3	3	3	3	5	3	11	—E—	28	10	43
SCHMVETT	1000	0	3	3	3	3	3	5	4	4	3	3	3	3	3	3	12	3	18	—S—	28	11	12
SCHMVETT	5000	0	3	3	3	3	3	5	4	3	3	3	3	3	3	3	7	3	21	—T—	26	12	26
SCHMVETT	10000	0	3	3	3	3	3	5	4	3	3	3	3	3	3	3	7	3	21	—T—	31	11	13
SEMICON1	12	10	117	—S—	—S—	—S—	—F—	—F—	—S—	—S—	117	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—F—	—S—	—S—	—S—
SEMICON1	52	50	491	219	391	225	—F—	—F—	436	486	491	702	324	702	551	—F—	—F—	258	—F—	—F—	476	528	—F—
SEMICON1	102	100	986	456	—F—	294	—F—	—F—	814	945	984	652	589	652	873	—F—	—F—	335	—F—	—F—	745	956	—F—
SEMICON1	502	500	763	763	—F—	506	—F—	—F—	—F—	—F—	763	729	846	729	—F—	—F—	—F—	473	—F—	—F—	958	791	—F—
SEMICON2	12	10	39	—S—	38	48	281	855	75	39	39	38	38	38	38	54	77	49	167	237	65	65	65
SEMICON2	52	50	93	70	94	78	478	—F—	191	194	93	90	103	90	96	133	96	77	—F—	—F—	100	100	—F—
SEMICON2	102	100	118	95	110	97	359	—F—	171	245	118	118	118	118	118	160	117	98	—F—	—F—	122	122	122
SEMICON2	502	500	117	114	117	117	—T—	—F—	—T—	216	117	117	117	117	117	136	124	117	—F—	—F—	180	180	—F—
SEMICON2	1002	1000	134	100	134	134	—T—	—F—	—T—	163	134	134	134	134	134	134	147	134	—F—	—F—	201	201	201
SIMPLLPA	2	2	4	4	4	4	4	10	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
SIMPLLPB	2	3	3	3	4	3	4	10	4	3	3	5	3	3	6	3	3	3	3	3	3	3	3
SINQUAD	5	0	11	11	11	11	19	33	12	23	11	26	11	11	11	11	11	11	11	11	11	11	11
SINQUAD	50	0	38	38	11	11	26	17	44	44	39	44	11	11	11	42	40	34	54	51	41	41	41
SINQUAD	100	0	56	56	11	11	35	22	59	62	69	75	11	11	11	63	62	63	70	64	66	66	66
SINQUAD	500	0	97	97	11	11	48	43	112	106	104	91	11	11	32	113	111	(63)	108	97	110	110	116
SINQUAD	1000	0	131	131	11	11	73	61	135	131	138	124	11	11	36	121	120	118	147	151	149	149	137
SINQUAD	5000	0	(175)	(175)	11	11	(105)	—I—	251	245	257	206	12	12	51	228	228	—T—	246	209	237	237	207
SINQUAD	10000	0	270	270	18	16	149	—I—	302	342	237	—T—	18	17	—T—	299	338	—T—	322	278	321	321	314
SISSER	2	0	12	14	12	12	12	13	12	12	12	12	12	12	12	12	12	12	12	15	12	12	10
SNAIL	2	0	90	90	83	84	92	84	86	90	90	98	90	82	83	89	66	78	133	—I—	102	261	287
SPANHYD	97	33	34	108	—I—	105	19	—I—	33	29	26	—I—	38	607	38	22	30	28	130	—I—	—I—	146	—I—
SPMSQRT	28	0	12	17	14	13	12	16	12	12	12	14	12	14	12	15	12	13	13	—I—	10	11	13
SPMSQRT	100	0	14	30	16	15	12	13	13	13	14	16	16	17	14	17	15	14	19	—I—	12	15	48
SPMSQRT	499	0	19	43	19	14	16	24	17	23	19	21	20	20	18	—I—	21	14	24	—S—	22	18	63
SPMSQRT	1000	0	21	50	24	14	17	24	15	18	21	22	19	23	19	—I—	22	14	23	—I—	19	19	150
SPMSQRT	4999	0	21	—T—	34	20	19	—T—	24	20	21	27	23	26	19	—T—	29	17	54	—I—	17	23	72
SPMSQRT	10000	0	24	—T—	50	—T—	20	—T—	27	28	24	29	21	36	19	—T—	34	—T—	48	—T—	23	34	140
SROSENBR	10	0	6	6	6	6	10	10	7	6	6	6	6	6	6	6	6	7	19	19	13	13	13
SROSENBR	50	0	6	6	6	6	10	10	6	6	6	6	6	6	6	6	6	6	19	19	13	13	13
SROSENBR	100	0	6	6	6	6	10	10	6	6	6	6	6	6	6	6	6	6	19	19	13	13	13
SROSENBR	500	0	10	10	6	6	10	10	6	10	10	10	10	10	10	10	7	10	19	19	13	13	13
SROSENBR	1000	0	10	10	6	6	10	10	6	10	10	10	10	10	10	10	6	10	19	19	13	13	13
SROSENBR	5000	0	10	10	6	6	10	10	10	10	10	10	10	10	10	10	7	10	19	19	13	13	13
SROSENBR	10000	0	10	10	6	6	10	10	10	10	10	10	10	10	10	10	9	—T—	24	24	13	13	13
SSEBLIN	194	72	64	66	—I—	—I—	52	—I—	69	70	64	—I—	68	—I—	55	63	67	62	66	65	63	64	65

Number of minor iterations (15)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
SSEBNLN	194	96	65	61	—I—	—I—	52	—I—	68	69	65	104	66	92	57	63	67	64	65	65	67	66	65
STEENBRA	432	108	51	58	—I—	—I—	30	—I—	52	48	52	—I—	31	—I—	—I—	61	54	31	57	50	45	56	—I—
STEENBRB	468	108	—I—	—I—	—I—	461	—I—	(855)	414	151	385	—E—	116	—I—	351	143	—I—	399	—I—	—I—	—I—	622	—I—
STEENBRC	540	126	—I—	—I—	—I—	—I—	—I—	(343)	—I—	—I—	—I—	—E—	(115)	—I—	289	—I—	—I—	99	—I—	—I—	—I—	615	—I—
STEENBRD	468	108	—I—	507	—I—	—I—	—I—	(560)	(184)	—I—	—I—	—E—	(141)	—E—	747	—I—	—I—	(110)	—I—	—I—	(912)	(535)	—I—
STEENBRE	540	126	740	—I—	—I—	—I—	—I—	(705)	—I—	—I—	—I—	—I—	168	—E—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	679	—I—
STEENBRF	468	108	—I—	—I—	—I—	830	—I—	(318)	111	156	—I—	—E—	124	(237)	192	789	—I—	82	—I—	—I—	516	537	—I—
STEENBRG	540	126	—I—	—I—	—I—	—I—	—I—	(488)	—I—	—I—	—I—	—E—	193	—E—	455	—I—	—I—	119	—I—	—I—	—I—	(813)	—I—
SVANBERG	10	10	53	53	—I—	34	36	26	38	48	43	65	59	44	42	51	102	42	56	110	56	56	57
SVANBERG	20	20	56	56	110	35	41	26	57	47	59	57	76	55	67	52	63	41	52	139	52	52	52
SVANBERG	30	30	74	74	277	37	46	27	55	55	55	52	117	75	93	54	170	45	75	255	75	75	63
SVANBERG	40	40	69	69	122	43	49	28	51	46	51	60	90	65	94	51	130	50	62	271	62	62	62
SVANBERG	50	50	63	63	—I—	46	39	29	45	53	68	89	93	82	89	69	114	48	75	406	73	73	68
SVANBERG	60	60	68	68	763	47	37	30	51	49	62	66	133	63	92	71	69	49	60	447	62	60	58
SVANBERG	70	70	70	70	235	46	43	30	50	55	67	81	119	91	86	50	181	47	78	522	71	75	73
SVANBERG	80	80	68	68	462	49	48	33	53	53	66	65	86	76	80	72	105	51	57	540	60	59	61
SVANBERG	90	90	61	61	223	49	51	34	50	73	71	71	106	83	95	69	195	51	59	517	64	60	56
SVANBERG	100	100	75	75	967	53	51	37	69	78	82	82	107	73	92	79	140	55	69	503	68	69	70
SVANBERG	500	500	84	84	—I—	—T—	54	40	59	76	101	88	129	119	100	95	209	64	103	950	103	97	105
SVANBERG	1000	1000	100	100	—I—	—T—	—T—	41	77	—T—	137	112	155	135	81	73	155	69	111	768	103	94	153
SVANBERG	5000	5000	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
TAME	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TENBARS1	18	9	797	500	—I—	—I—	491	—I—	—S—	473	—S—	914	—I—	318	551	—S—	472	—S—	—I—	—I—	333	—S—	—I—
TENBARS2	18	8	365	539	—I—	—I—	270	—I—	553	328	480	331	—I—	351	588	—S—	337	336	609	—I—	360	308	—I—
TENBARS3	18	8	238	395	—I—	—I—	180	—I—	431	220	395	254	—I—	321	546	195	252	359	437	—I—	238	237	—I—
TENBARS4	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
TOINTGOR	50	0	9	11	8	8	8	56	9	9	9	9	8	8	9	9	11	9	9	9	9	9	9
TOINTGSS	10	0	2	2	0	2	14	22	(10)	2	2	2	2	2	2	14	(11)	2	2	2	2	2	2
TOINTGSS	50	0	2	2	2	2	(12)	8	(9)	2	2	2	2	2	2	12	(11)	2	2	2	2	2	2
TOINTGSS	100	0	2	2	2	2	(8)	(12)	(12)	2	2	2	2	2	2	(7)	(13)	2	2	2	2	2	2
TOINTGSS	500	0	2	2	2	2	(8)	(10)	(6)	2	2	2	2	2	2	11	(13)	2	2	2	2	2	2
TOINTGSS	1000	0	2	2	2	2	(8)	(9)	(6)	2	2	2	2	2	2	13	(12)	2	2	2	2	2	2
TOINTGSS	5000	0	2	2	2	2	(8)	(10)	(5)	2	2	2	2	2	2	13	(13)	2	2	2	2	2	2
TOINTGSS	10000	0	2	2	2	2	8	(11)	(5)	2	2	2	2	2	2	7	12	2	2	2	2	2	2
TOINTPSP	50	0	23	23	25	24	38	30	29	26	23	29	25	25	25	32	39	25	23	23	23	23	23
TOINTQOR	50	0	6	8	4	4	5	18	6	6	6	6	4	4	5	6	8	7	6	6	6	6	6
TORSIONA	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	12	3	3	3
TORSIONA	100	0	3	4	2	2	3	3	3	3	2	2	2	2	3	3	3	4	6	52	6	6	6
TORSIONA	484	0	7	8	6	6	7	7	7	7	7	6	6	6	7	7	7	7	11	290	11	11	11
TORSIONA	1024	0	10	11	9	9	10	10	10	10	10	9	9	9	10	10	10	10	10	946	10	10	12
TORSIONA	5476	0	23	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	25	—I—	25	25	25
TORSIONA	10000	0	31	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	35	—I—	35	35	35
TORSIONA	14884	0	37	40	37	37	37	37	37	37	37	37	37	37	37	37	37	37	42	—T—	42	42	40
TORSIONB	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	13	2	2	2
TORSIONB	100	0	4	5	3	3	4	4	4	4	3	3	3	3	3	4	4	5	5	46	5	5	5
TORSIONB	484	0	5	6	11	4	4	5	5	5	5	4	4	4	4	4	5	5	7	226	7	7	7
TORSIONB	1024	0	5	7	23	5	5	5	5	5	5	5	5	5	5	5	4	5	9	499	9	9	9
TORSIONB	5476	0	9	11	145	9	9	9	9	9	9	9	9	9	10	4	5	10	17	—I—	17	17	17
TORSIONB	10000	0	12	14	248	12	12	12	12	12	12	12	12	12	12	7	7	13	23	—I—	23	23	23
TORSIONB	14884	0	15	17	—T—	—I—	15	15	15	15	15	14	14	14	—T—	—T—	—T—	15	27	—T—	27	27	27
TORSIONC	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONC	100	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	15	4	4	4
TORSIONC	484	0	4	5	3	3	4	4	4	4	3	3	3	3	4	4	4	4	5	81	5	5	7
TORSIONC	1024	0	5	6	4	4	5	5	5	5	5	4	4	4	5	5	5	5	8	154	8	8	8
TORSIONC	5476	0	11	13	11	11	11	11	11	11	11	11	11	11	11	11	11	12	14	—I—	14	14	14
TORSIONC	10000	0	15	17	15	15	15	15	15	15	15	15	15	15	15	15	15	15	20	—I—	20	20	20
TORSIONC	14884	0	19	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	25	—I—	25	25	23
TORSIOND	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TORSIOND	100	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	16	3	3	3

Number of minor iterations (16)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
TORSIOND	484	0	4	5	5	3	4	4	4	4	3	3	3	3	4	4	4	4	5	76	5	5	5
TORSIOND	1024	0	5	6	9	4	5	5	5	5	5	4	4	4	4	5	4	5	6	234	6	6	6
TORSIOND	5476	0	9	11	33	9	9	9	9	9	9	9	9	9	9	5	6	9	10	—I—	10	10	10
TORSIOND	10000	0	11	14	78	11	11	11	11	11	11	11	11	11	11	5	—T—	11	13	—I—	13	13	13
TORSIOND	14884	0	14	16	117	14	14	14	14	14	14	14	14	14	14	—T—	—T—	14	15	—I—	15	15	15
TORSIONE	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONE	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONE	484	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	4	21	4	4	4
TORSIONE	1024	0	3	4	2	2	3	3	3	3	2	2	2	2	3	3	3	3	6	103	6	6	6
TORSIONE	5476	0	6	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	270	6	6	10
TORSIONE	10000	0	8	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	13	758	13	13	13
TORSIONE	14884	0	9	11	9	9	9	9	9	9	9	9	9	9	9	9	9	9	13	—I—	13	13	12
TORSIONF	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TORSIONF	100	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
TORSIONF	484	0	2	2	2	2	2	2	2	3	2	2	2	2	3	2	5	2	3	19	3	3	3
TORSIONF	1024	0	3	5	3	3	3	3	3	3	3	3	3	3	3	3	5	4	4	85	4	4	4
TORSIONF	5476	0	5	7	11	5	5	5	5	5	5	5	5	5	5	5	4	5	7	539	7	7	7
TORSIONF	10000	0	7	9	13	7	7	7	7	7	7	7	7	7	7	6	9	7	8	807	8	8	8
TORSIONF	14884	0	7	11	29	7	7	7	7	8	7	7	7	7	7	—T—	—T—	7	9	—I—	9	9	9
TQUARTIC	5	0	1	1	9	9	9	2	1	4	1	4	1	1	1	1	12	1	1	1	1	1	1
TQUARTIC	10	0	5	5	17	11	10	3	1	5	1	5	1	1	1	5	13	6	5	5	5	5	5
TQUARTIC	50	0	10	10	11	11	9	8	1	7	19	19	1	1	1	20	13	5	10	9	10	10	10
TQUARTIC	100	0	12	12	13	13	11	13	1	9	16	15	1	1	1	12	14	7	12	10	12	12	12
TQUARTIC	500	0	15	15	14	10	12	30	1	12	13	1	1	1	1	15	14	7	15	15	15	15	15
TQUARTIC	1000	0	12	12	13	11	13	43	1	18	15	1	1	1	1	12	11	7	12	13	12	12	12
TQUARTIC	5000	0	20	20	11	—T—	12	98	1	12	18	1	1	1	1	20	28	13	19	18	19	19	19
TQUARTIC	10000	0	18	18	13	—T—	12	139	1	12	23	1	1	1	1	18	66	13	18	19	18	18	18
TRIDIA	10	0	1	1	1	1	5	11	5	1	1	1	1	1	1	1	2	1	1	1	1	1	1
TRIDIA	20	0	2	1	2	2	4	15	6	2	2	2	2	2	2	2	3	2	2	2	2	2	2
TRIDIA	30	0	2	1	2	2	4	19	6	2	2	2	2	2	2	1	3	2	2	2	2	2	2
TRIDIA	50	0	2	1	2	2	4	24	6	2	2	2	2	2	2	1	4	2	2	2	2	2	2
TRIDIA	100	0	2	1	2	2	4	33	6	2	2	2	2	2	2	1	4	2	2	2	2	2	2
TRIDIA	500	0	2	1	2	2	4	72	6	2	2	2	2	2	2	2	5	2	2	2	2	2	2
TRIDIA	1000	0	2	1	2	2	4	101	6	2	2	2	2	2	2	2	6	2	2	2	2	2	2
TRIDIA	5000	0	2	1	2	2	4	226	6	2	2	2	2	2	5	2	7	2	2	2	2	2	2
TRIDIA	10000	0	2	1	2	2	4	318	6	2	2	2	2	2	2	2	7	2	2	2	2	2	2
TRIGGER	7	6	21	—F—	35	17	—S—	—I—	—I—	—I—	21	21	18	32	36	21	—S—	20	19	14	22	22	22
VARDIM	10	0	14	16	14	14	14	279	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
VARDIM	50	0	22	26	22	22	22	—I—	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
VARDIM	100	0	25	31	25	25	25	—I—	25	25	25	25	25	25	25	25	26	25	25	25	25	25	25
VAREIGVL	10	0	21	21	25	15	10	28	13	16	17	14	34	21	12	17	14	14	21	6	16	17	18
VAREIGVL	50	0	13	16	13	13	11	26	15	15	13	13	13	13	12	13	13	13	10	7	12	15	17
VAREIGVL	100	0	12	13	12	12	11	15	12	12	12	12	12	12	12	12	19	12	11	—I—	11	12	29
VAREIGVL	500	0	12	14	12	12	12	15	12	12	12	12	12	12	12	12	14	12	17	—I—	11	11	21
VAREIGVL	1000	0	12	14	12	12	12	15	12	12	12	12	12	12	12	12	15	13	16	—I—	12	12	16
VAREIGVL	5000	0	13	14	—M—	—M—	13	18	13	13	13	—M—	—M—	—M—	—M—	13	17	13	12	—T—	12	12	22
WATSON	12	0	8	11	—I—	10	9	8	9	8	8	11	26	8	7	8	7	9	159	159	21	18	19
WATSON	31	0	10	466	—I—	94	9	122	11	11	9	25	11	57	9	10	11	10	14	14	16	20	20
WOODS	4	0	22	30	21	23	23	282	21	26	22	21	22	22	22	28	23	22	15	15	22	22	22
WOODS	100	0	22	30	28	21	25	282	21	26	22	22	22	22	22	26	25	21	14	14	22	22	22
WOODS	1000	0	25	27	33	21	23	282	22	22	25	25	25	25	25	26	21	24	14	14	25	25	25
WOODS	10000	0	25	27	28	—T—	23	282	22	22	25	25	25	25	25	22	25	—T—	16	16	25	25	25
ZANGWIL2	2	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1
ZANGWIL3	3	0	7	7	7	7	7	245	7	10	7	7	7	7	7	7	7	7	7	7	7	7	7
ZIGZAG	64	50	35	35	—I—	173	28	60	38	42	42	37	36	35	46	39	35	35	39	45	36	45	37
ZIGZAG	304	250	81	275	—I—	—I—	191	478	86	82	97	97	78	—I—	79	84	86	80	217	218	89	83	82
ZIGZAG	604	500	90	—I—	—I—	—I—	—T—	948	117	128	95	103	85	—I—	92	90	90	89	—S—	—S—	94	90	87
ZIGZAG	3004	2500	—T—	—T—	—T—	—T—	—T—	—I—	—T—	—T—	164	—T—	90	—T—	103	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—

4 Number of gradient evaluations

This section presents the number of gradient evaluations required by the 21 algorithmic variants for convergence. The column headings in the tables refer to these variants, using the terminology of the paper. Other conventions are as in the previous section.

Number of gradient evaluations (1)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
AGG	163	488	—T—	—T—	—I—	—I—	—T—	—I—	—S—	—S—	—T—	—I—	—S—	—I—	—T—	—S—	—I—	—S—	—T—	—T—	—T—	—T—	—T—
AIRCRFTA	8	5	5	5	5	5	5	39	6	6	5	5	14	5	5	5	5	5	5	7	5	5	5
AIRCRFTB	8	0	16	16	16	16	19	12	20	18	16	18	16	16	16	10	14	19	18	—S—	14	15	16
ALJAZZAF	3	1	24	24	25	25	25	—I—	25	24	24	25	24	24	24	24	24	24	32	—I—	32	32	33
ARGAUSS	3	0	3	3	2	2	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
ARGLINA	10	0	3	3	3	3	3	4	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
ARGLINA	100	0	3	3	3	3	3	4	3	3	3	3	3	3	3	3	6	3	3	3	3	3	3
ARGLINB	10	0	2	2	2	2	2	418	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2
ARGLINB	50	0	3	—S—	3	3	3	—I—	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
ARGLINB	100	0	3	—S—	3	3	3	—I—	3	3	3	3	3	3	4	3	—S—	—S—	3	3	3	3	3
ARGLINC	10	0	2	2	2	2	2	358	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2
ARGLINC	50	0	3	—S—	3	3	3	—I—	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
ARGLINC	100	0	3	—S—	3	3	3	—I—	3	3	3	3	3	5	3	—S—	—S—	3	3	3	3	3	3
ARGTRIG	10	0	8	8	10	7	10	16	8	8	9	7	9	7	8	7	6	7	6	6	8	8	8
ARGTRIG	50	0	8	8	11	5	6	9	16	16	7	7	5	6	6	8	12	6	6	6	6	6	6
ARGTRIG	100	0	12	12	9	5	6	11	15	20	10	6	5	6	7	12	13	7	6	6	6	6	6
ARTIF	12	0	11	8	13	10	11	8	12	11	11	12	11	12	12	13	15	10	7	7	9	9	9
ARTIF	52	0	17	20	22	13	28	12	19	17	17	20	19	20	21	16	19	14	11	11	9	9	9
ARTIF	102	0	25	32	29	16	185	78	21	24	25	41	31	41	27	28	25	16	30	30	17	17	17
ARTIF	502	0	25	30	67	17	36	23	22	25	25	43	31	43	30	22	26	18	36	36	18	18	18
ARTIF	1002	0	25	32	111	17	37	33	22	25	25	38	32	38	30	22	23	18	35	35	18	18	18
ARTIF	5002	0	25	38	274	—T—	36	38	22	25	25	53	30	53	29	25	32	18	36	36	17	17	17
ARWHEAD	100	0	6	6	6	6	6	30	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6
ARWHEAD	500	0	6	6	6	6	6	62	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
ARWHEAD	1000	0	6	6	6	6	6	86	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5
ARWHEAD	5000	0	6	6	6	6	6	189	6	6	6	6	6	6	6	6	6	6	6	6	6	6	8
BARD	3	0	8	9	12	9	13	10	13	12	8	12	10	9	11	8	8	8	11	—I—	9	10	10
BDEXP	100	0	11	11	11	11	11	13	11	11	11	11	11	11	11	11	13	11	18	19	17	19	19
BDEXP	500	0	(11)	(11)	(11)	(11)	(11)	12	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(14)	(11)	18	19	(17)	18	(18)
BDEXP	1000	0	(11)	(11)	(11)	(11)	(11)	12	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(15)	(11)	(18)	19	(17)	(18)	(17)
BDEXP	5000	0	(11)	(11)	(11)	(11)	(11)	(12)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(16)	(11)	(18)	19	(17)	(20)	(20)
BDQRTIC	100	0	12	9	12	12	13	102	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11
BDQRTIC	500	0	12	11	12	12	13	223	12	12	12	12	12	12	12	12	14	12	11	11	11	11	11
BDQRTIC	1000	0	12	11	38	38	13	314	13	12	12	12	12	12	12	12	14	12	12	12	12	12	—S—
BDVALUE	12	0	3	3	3	3	3	3	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3
BDVALUE	52	0	2	2	2	2	11	8	7	3	2	2	2	2	2	2	2	2	2	2	2	2	2
BDVALUE	102	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
BDVALUE	502	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
BDVALUE	1002	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BDVALUE	5002	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BEALE	2	0	8	—E—	8	8	6	45	9	8	8	9	8	8	8	8	8	8	15	15	12	13	13
BIGBANK	2230	1112	—T—	—T—	137	28	—T—	—I—	—T—	—T—	—T—	—T—	40	40	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
BIGGS3	6	0	11	10	11	11	11	10	11	11	11	10	11	11	11	11	11	11	18	—S—	11	15	15
BIGGS5	6	0	40	43	—I—	30	18	31	38	(41)	40	30	33	50	38	40	43	36	38	—I—	(224)	29	34
BIGGS6	6	0	90	42	180	59	20	—I—	44	22	90	31	104	70	(70)	77	70	87	(134)	—I—	70	48	71
BOOTH	2	0	4	4	4	4	3	11	6	4	4	6	4	4	4	4	4	4	4	4	4	4	4
BOX2	3	0	7	18	6	6	6	16	7	7	7	7	6	6	6	7	7	7	7	7	7	7	7
BOX3	3	0	8	16	8	8	8	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9
BQPGAUSS	2003	0	9	—S—	—I—	9	8	9	12	13	11	214	8	8	8	10	11	8	—I—	—S—	43	18	—I—
BRATU1D	13	0	6	6	6	6	7	14	7	6	6	6	6	6	6	6	6	6	—S—	—S—	14	12	351
BRATU1D	77	0	8	8	8	8	9	188	9	8	8	8	8	8	8	8	10	8	—I—	—I—	16	13	—I—
BRATU1D	103	0	9	8	9	9	10	—I—	11	9	9	9	9	9	9	9	11	9	—I—	—I—	15	13	—I—
BRATU1D	503	0	11	9	11	—E—	13	—I—	15	11	11	12	11	11	11	11	14	11	—E—	—I—	—E—	14	—E—
BRATU1D	1003	0	12	—E—	12	12	14	—I—	16	12	12	12	12	12	12	12	16	12	—E—	—I—	—E—	15	—E—
BRATU2D	49	25	5	5	4	4	4	5	4	5	4	4	4	4	4	5	6	5	5	5	5	5	5
BRATU2D	100	64	4	5	4	4	4	5	4	5	4	4	4	4	4	4	5	4	4	4	4	4	4
BRATU2D	484	400	4	6	3	3	3	5	4	4	4	3	3	3	4	4	6	4	4	4	4	4	4
BRATU2D	1024	900	3	6	3	3	3	5	4	3	3	3	3	3	4	3	5	3	3	3	3	3	3
BRATU2D	5184	4900	3	6	—F—	—F—	—F—	5	3	3	3	—F—	—F—	—F—	3	3	6	3	3	3	3	3	3

Number of gradient evaluations (2)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
BRATU3D	27	1	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
BRATU3D	125	27	5	5	5	5	5	8	5	5	6	5	5	5	5	5	6	6	6	6	6	6	6
BRATU3D	512	216	5	5	4	4	4	8	5	5	5	4	4	4	5	5	7	5	5	5	5	5	5
BRATU3D	1000	512	4	5	4	4	4	8	5	5	4	4	4	4	5	4	7	5	4	4	4	4	5
BRATU3D	4913	3375	4	6	4	4	4	8	4	4	4	4	4	4	5	4	8	5	4	4	4	4	4
BRIDGEND	2734	2727	—T—	—I—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—I—	—T—	201	—T—	—T—	—T—	—T—	—I—	—I—	—T—	—T—	—I—
BRITGAS	450	360	93	109	—I—	—I—	58	42	57	91	82	377	154	48	70	102	92	53	—I—	—I—	97	123	—I—
BRKMCC	2	0	4	5	4	4	5	7	5	4	4	5	4	4	4	4	4	4	4	4	4	4	4
BROWNAL	10	0	6	6	5	5	5	10	5	6	5	6	5	5	5	6	9	7	6	6	6	6	6
BROWNAL	50	0	4	4	4	4	4	9	4	4	4	4	6	4	4	4	7	5	5	5	5	5	5
BROWNBS	2	0	34	34	—I—	—I—	25	46	23	34	34	23	39	38	39	35	38	29	66	—I—	41	34	33
BROWNDEN	4	0	12	12	78	82	12	—I—	14	14	12	13	12	12	12	12	11	12	15	70	14	12	—I—
BROYDN3D	10	0	6	6	6	6	6	9	7	7	6	6	6	6	6	6	6	6	5	5	5	5	5
BROYDN3D	50	0	6	6	6	6	6	9	7	6	6	6	6	6	6	6	6	6	5	5	5	5	5
BROYDN3D	100	0	6	6	6	6	6	9	7	6	6	6	6	6	6	6	6	6	5	5	5	5	5
BROYDN3D	500	0	6	6	6	6	6	9	7	6	6	6	6	6	6	6	7	6	5	5	8	8	8
BROYDN3D	1000	0	6	6	6	6	6	9	7	6	6	6	6	6	6	6	7	6	5	5	8	8	8
BROYDN3D	5000	0	6	6	6	6	6	9	7	7	6	6	6	6	6	6	9	6	5	5	8	8	8
BROYDN3D	10000	0	6	6	6	6	6	9	7	7	6	6	6	6	6	6	9	6	5	5	7	7	7
BROYDN7D	10	0	16	16	(19)	17	19	(29)	(16)	17	16	19	17	(15)	(17)	20	20	17	(54)	(54)	20	20	20
BROYDN7D	50	0	(22)	(22)	(35)	(14)	(18)	(22)	(18)	26	(22)	(24)	(18)	(25)	(25)	(20)	(19)	(13)	(37)	(37)	(22)	(22)	(22)
BROYDN7D	100	0	(24)	(24)	(41)	(13)	(20)	(27)	(22)	37	(24)	(34)	(21)	(35)	(36)	(26)	(35)	(14)	(48)	(48)	(25)	(25)	(25)
BROYDN7D	500	0	(61)	(61)	(89)	(12)	(67)	(98)	(74)	47	(61)	(89)	(26)	(88)	(89)	(53)	(60)	(16)	(95)	(95)	(48)	(48)	(54)
BROYDN7D	1000	0	(98)	(98)	(117)	(14)	(116)	(214)	(131)	49	(98)	(175)	(32)	(72)	(23)	(94)	(106)	(15)	(176)	(176)	(90)	(93)	(88)
BROYDNBD	10	10	11	17	13	12	11	19	12	12	11	11	12	12	12	11	11	12	12	12	12	12	12
BROYDNBD	50	50	12	12	16	12	9	19	11	9	11	13	13	13	13	12	14	10	14	14	14	14	14
BROYDNBD	100	100	12	12	17	11	10	19	10	11	13	15	13	15	13	12	12	11	12	12	12	12	12
BROYDNBD	500	500	14	14	21	13	10	19	12	10	13	17	10	17	14	12	15	11	13	13	13	13	13
BROYDNBD	1000	1000	14	14	29	12	12	19	12	11	13	28	11	28	14	14	14	11	13	13	13	13	13
BROYDNBD	5000	5000	26	26	19	15	16	19	9	13	23	35	12	35	16	—F—	37	11	13	13	13	13	13
CBRATU2D	32	8	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CBRATU2D	98	50	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CBRATU2D	512	392	4	5	4	4	4	6	4	4	4	4	4	4	4	4	6	4	4	4	4	4	4
CBRATU2D	1058	882	4	6	4	4	4	6	4	4	4	4	4	4	4	4	6	4	4	4	4	4	4
CBRATU3D	54	2	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CBRATU3D	128	16	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CBRATU3D	686	250	5	5	5	5	5	9	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5
CBRATU3D	2000	1024	4	5	4	4	4	8	5	5	4	4	4	4	5	5	7	5	4	4	4	4	4
CHANDHEQ	10	0	14	14	13	13	13	14	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14
CHANDHEQ	50	0	14	14	14	14	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15
CHANDHEQ	100	0	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	15
CHEBYQAD	2	0	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6
CHEBYQAD	4	0	7	7	7	7	7	7	8	7	7	8	8	8	8	7	9	7	7	7	7	7	7
CHEBYQAD	5	0	7	9	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8
CHEBYQAD	6	0	12	12	11	8	7	8	10	11	12	11	10	8	12	12	11	10	7	7	11	11	11
CHEBYQAD	7	0	8	15	12	8	8	8	9	9	9	8	12	10	11	9	9	8	15	15	11	11	11
CHEBYQAD	8	0	18	18	19	17	10	14	12	12	20	16	14	18	18	19	18	14	45	45	10	10	10
CHEBYQAD	9	0	16	24	19	11	9	13	9	9	13	8	15	18	12	16	14	12	24	24	17	17	17
CHEBYQAD	10	0	17	17	(21)	15	(11)	(16)	(11)	(12)	14	20	14	14	15	17	13	(13)	95	95	17	17	17
CHEBYQAD	20	0	24	24	47	21	17	100	13	21	21	47	25	25	31	20	23	22	70	74	23	23	22
CHEBYQAD	50	0	46	66	128	890	25	82	24	35	46	120	57	78	124	45	42	27	—I—	—I—	40	40	38
CHEMRCTA	10	10	9	7	7	6	7	73	8	13	6	7	6	6	6	9	9	7	9	10	9	9	9
CHEMRCTA	50	50	19	9	19	18	—F—	—F—	—F—	239	24	14	34	19	—F—	19	23	17	25	17	13	19	19
CHEMRCTA	100	100	49	35	795	30	—F—	—F—	—F—	—S—	46	23	—F—	43	—F—	48	45	46	23	26	22	24	24
CHEMRCTA	500	500	—T—	—F—	—F—	—F—	—T—	—F—	—T—	—T—	—T—	139	—F—	109	—T—	—F—	—F—	—T—	—E—	—T—	—F—	—F—	—T—
CHEMRCTA	1000	1000	—T—	—F—	—F—	—F—	—T—	—T—	—T—	—T—	—T—	257	799	228	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTA	5000	5000	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTB	10	10	8	8	8	9	10	—F—	26	22	8	8	8	8	8	8	9	9	12	7	12	12	12
CHEMRCTB	50	50	19	49	22	—F—	—F—	—F—	—F—	553	19	22	29	22	60	19	15	14	20	18	20	20	20

Number of gradient evaluations (3)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
CHEMRCTB	100	100	19	28	39	54	—F—	—F—	—F—	—S—	19	39	39	39	—F—	19	25	18	26	29	26	26	26
CHEMRCTB	500	500	65	64	151	—F—	—T—	—T—	—T—	—T—	65	151	151	151	—F—	65	63	63	65	65	65	65	63
CHEMRCTB	1000	1000	105	—S—	407	—F—	—T—	—T—	—T—	—T—	105	282	311	282	—F—	106	109	103	—S—	—S—	—S—	—S—	—S—
CHNROSNB	10	0	27	28	27	25	30	54	28	27	27	27	27	27	27	27	29	24	30	30	27	27	27
CHNROSNB	25	0	39	37	42	36	46	729	49	39	39	46	44	46	44	39	40	35	51	51	37	37	37
CHNROSNB	50	0	62	62	62	50	64	117	61	62	62	61	63	61	66	62	61	56	82	82	59	59	51
CLIFF	2	0	28	28	28	28	29	—I—	29	28	28	30	28	28	28	28	28	28	28	28	28	28	28
CLPLATEA	16	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CLPLATEA	49	0	4	6	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4
CLPLATEA	100	0	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
CLPLATEA	529	0	6	12	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
CLPLATEA	1024	0	7	14	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
CLPLATEA	5041	0	7	16	11	6	7	11	7	7	7	11	11	11	12	11	15	6	7	7	7	7	7
CLPLATEB	16	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
CLPLATEB	49	0	3	5	3	3	3	3	4	3	3	3	3	3	3	3	4	4	3	3	3	3	3
CLPLATEB	100	0	3	6	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3
CLPLATEB	529	0	3	5	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
CLPLATEB	1024	0	3	5	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
CLPLATEB	5041	0	3	6	3	3	3	3	3	3	3	3	3	3	3	3	5	3	3	3	3	3	3
CLPLATEC	16	0	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3
CLPLATEC	49	0	4	5	3	3	3	3	4	4	3	3	3	3	3	4	4	4	4	4	4	4	4
CLPLATEC	100	0	4	5	2	2	3	4	4	4	2	2	2	2	3	4	4	4	4	4	4	4	4
CLPLATEC	529	0	5	5	2	2	3	6	4	5	5	2	2	2	3	5	5	5	5	5	5	5	5
CLPLATEC	1024	0	5	5	2	2	3	7	5	5	5	2	2	2	4	5	5	5	5	5	5	5	5
CLPLATEC	5041	0	4	5	2	2	3	14	5	4	4	2	2	2	4	4	8	4	4	4	4	4	4
CLUSTER	2	2	11	11	11	11	10	10	10	11	11	10	11	11	6	11	11	10	10	16	12	12	12
CORKSCRW	96	70	36	40	242	52	31	54	40	43	42	35	51	35	59	40	37	36	46	362	41	60	67
CORKSCRW	456	350	129	151	—I—	99	—T—	636	143	149	119	101	82	72	94	129	127	91	269	—I—	143	184	168
CORKSCRW	906	700	—T—	318	—I—	—I—	—T—	—I—	—T—	—T—	—S—	120	—S—	107	119	—T—	—T—	—T—	—T—	—I—	—T—	—T—	—T—
CORKSCRW	4506	3500	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CORKSCRW	9006	7000	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CRAGGLVY	4	0	16	20	16	16	17	34	17	16	16	17	16	16	16	16	18	16	16	16	16	16	16
CRAGGLVY	10	0	15	16	15	15	15	56	17	15	15	15	15	15	15	15	14	15	15	14	15	15	15
CRAGGLVY	50	0	15	15	15	15	14	56	17	15	15	15	15	15	16	15	15	15	15	15	15	15	15
CRAGGLVY	100	0	15	15	15	15	14	56	17	15	15	15	15	15	16	15	15	15	15	15	15	15	15
CRAGGLVY	500	0	15	16	15	15	14	56	17	15	15	15	15	15	16	15	16	15	15	15	15	15	15
CRAGGLVY	1000	0	15	16	15	15	14	44	17	15	15	15	15	15	16	15	16	15	15	15	15	15	16
CRAGGLVY	5000	0	15	16	15	15	14	40	16	15	15	15	15	15	16	15	17	15	15	15	15	15	—S—
CUBE	2	0	33	58	29	29	37	488	39	33	33	39	41	40	39	33	40	41	34	26	30	30	30
DALLASL	906	667	92	—T—	431	46	120	—I—	111	111	81	67	48	48	84	85	97	66	94	—I—	94	113	(131)
DALLASM	196	151	83	—I—	44	49	337	—I—	377	191	74	62	43	43	78	83	86	67	89	—I—	88	88	86
DALLASS	46	31	80	—S—	40	40	98	—I—	108	124	94	64	39	39	63	87	88	59	88	—I—	88	91	115
DEGENLPA	20	15	26	21	—I—	26	122	—I—	40	47	19	35	24	21	50	—S—	27	—S—	33	—S—	33	33	33
DEGENLPB	20	15	—S—	—S—	—I—	21	144	—I—	—S—	39	—S—	27	—S—	18	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
DENSCHNA	2	0	6	6	6	6	6	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
DENSCHNB	2	0	4	4	4	4	6	6	4	4	4	4	4	4	4	4	6	4	3	3	3	3	3
DENSCHNC	2	0	10	12	10	10	10	51	10	10	10	10	10	10	10	10	10	10	10	9	10	10	10
DENSCHND	3	0	33	38	45	64	29	—I—	32	32	33	31	39	35	49	33	32	31	41	—I—	34	34	34
DENSCHNE	3	0	11	—E—	11	12	16	16	11	11	11	11	10	11	13	12	14	11	11	10	11	11	11
DENSCHNF	2	0	7	7	7	7	7	33	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7
DIPIGRI	7	4	52	52	33	21	27	501	38	50	35	39	30	29	45	51	281	33	45	—I—	41	60	—I—
DISC2	29	23	63	56	—I—	133	67	258	58	91	142	77	71	69	129	71	66	71	93	—I—	68	67	74
DISCS	36	66	616	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—F—	(208)	—I—	(315)	—F—	—I—	—T—	352	241	611	615	—I—
DIXCHLNG	10	5	33	40	35	22	27	571	31	(60)	28	32	32	26	26	37	31	32	64	—I—	27	31	(274)
DIXCHLNV	10	5	15	52	12	12	19	564	19	14	12	15	12	15	36	44	22	15	25	—I—	49	27	27
DIXMAANA	15	0	6	6	6	6	7	7	7	7	6	7	6	6	6	6	6	7	13	3	7	7	17
DIXMAANA	90	0	6	6	6	6	6	7	6	6	6	6	5	6	6	6	7	7	12	3	13	8	3
DIXMAANA	300	0	6	6	6	6	6	7	6	6	6	6	5	6	6	6	8	7	12	3	12	8	3
DIXMAANA	1500	0	6	6	6	6	6	7	6	6	6	6	5	6	6	6	9	6	13	3	12	8	3

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXMAANA	3000	0	6	6	6	6	5	7	6	6	6	6	5	6	6	6	9	6	13	3	12	8	3
DIXMAANB	15	0	7	7	7	6	7	10	8	8	7	7	7	7	6	7	9	8	10	3	20	9	20
DIXMAANB	90	0	9	9	9	7	7	10	7	9	9	7	7	8	7	9	9	9	10	3	16	9	16
DIXMAANB	300	0	8	8	7	7	7	10	7	8	8	12	7	10	7	8	10	9	10	3	17	9	16
DIXMAANB	1500	0	8	8	8	7	7	10	7	8	8	8	7	12	7	8	11	9	10	3	16	9	16
DIXMAANB	3000	0	8	8	7	7	7	10	7	8	8	8	7	10	7	8	14	9	10	3	16	9	16
DIXMAANC	15	0	9	9	8	7	8	12	9	10	9	8	8	9	11	9	10	8	15	3	27	10	19
DIXMAANC	90	0	9	9	10	10	8	12	8	9	9	8	8	8	8	9	13	11	14	3	27	10	12
DIXMAANC	300	0	11	11	10	10	8	12	8	11	11	8	9	10	10	11	14	10	13	3	28	10	12
DIXMAANC	1500	0	16	16	12	10	8	12	8	16	16	15	9	15	11	13	13	11	13	3	24	10	12
DIXMAANC	3000	0	14	14	18	10	8	12	8	14	14	14	9	11	11	13	14	11	13	3	27	10	12
DIXMAAND	15	0	9	14	9	11	9	14	9	11	9	11	9	10	12	9	10	11	15	3	42	11	22
DIXMAAND	90	0	10	18	9	11	9	14	9	10	10	11	13	9	11	11	14	12	19	3	32	11	22
DIXMAAND	300	0	10	21	9	11	9	14	9	10	10	13	12	12	19	10	14	12	21	3	32	11	22
DIXMAAND	1500	0	9	20	12	11	9	14	9	9	9	14	12	13	12	9	15	12	27	3	36	11	22
DIXMAAND	3000	0	10	12	12	11	9	14	9	10	10	10	14	14	20	11	15	11	30	3	35	11	22
DIXMAANE	15	0	7	8	7	7	8	8	7	7	7	7	6	7	6	7	7	8	10	3	17	9	19
DIXMAANE	90	0	7	13	11	8	8	10	7	7	7	7	6	7	6	7	11	9	12	3	51	10	28
DIXMAANE	300	0	7	12	8	8	8	10	7	7	7	7	7	7	6	7	9	9	53	3	63	13	74
DIXMAANE	1500	0	7	12	9	8	8	11	7	7	7	7	7	7	6	7	13	9	37	3	75	16	186
DIXMAANE	3000	0	7	13	10	8	8	11	7	7	7	7	7	7	7	7	16	9	53	3	71	15	259
DIXMAANF	15	0	10	7	10	11	10	10	9	10	10	12	10	9	9	10	9	10	12	3	41	11	21
DIXMAANF	90	0	10	24	12	14	13	11	11	10	10	13	11	12	12	10	22	12	20	3	200	14	25
DIXMAANF	300	0	17	14	19	13	14	13	11	17	17	15	18	13	16	11	16	13	21	3	341	14	76
DIXMAANF	1500	0	21	19	20	17	15	16	15	21	21	22	21	17	32	32	42	17	30	3	417	22	266
DIXMAANF	3000	0	23	77	17	16	15	16	18	23	23	27	22	30	11	36	23	18	32	3	40	16	463
DIXMAANG	15	0	10	14	10	12	11	12	9	9	10	10	12	10	12	10	12	12	21	3	48	12	25
DIXMAANG	90	0	15	25	14	15	15	13	12	15	15	13	12	12	15	11	11	13	26	3	107	15	45
DIXMAANG	300	0	21	36	29	14	12	14	13	21	21	15	25	16	37	15	31	14	22	3	328	22	139
DIXMAANG	1500	0	19	92	30	21	14	16	14	19	19	32	27	26	35	23	24	19	32	3	444	22	529
DIXMAANG	3000	0	41	162	26	17	18	16	15	41	41	32	24	36	23	44	26	19	31	3	—I—	32	925
DIXMAANH	15	0	12	19	13	11	12	15	10	10	12	11	11	12	12	11	12	11	15	3	64	16	28
DIXMAANH	90	0	18	25	17	14	14	16	13	18	18	14	15	16	27	11	21	14	30	3	141	14	89
DIXMAANH	300	0	20	28	19	18	17	17	13	20	20	23	22	25	28	25	19	18	35	3	—I—	17	239
DIXMAANH	1500	0	31	88	28	20	16	19	16	31	31	31	26	21	29	24	22	19	34	3	—I—	23	870
DIXMAANH	3000	0	34	153	46	—T—	18	21	15	34	34	34	39	32	42	26	56	18	131	3	—I—	35	—I—
DIXMAANI	15	0	6	17	8	9	8	12	7	7	6	7	6	6	7	6	7	8	12	3	53	13	21
DIXMAANI	90	0	7	12	10	8	8	11	7	7	7	7	6	6	7	7	10	9	14	3	86	10	—I—
DIXMAANI	300	0	7	15	14	8	8	12	7	7	7	7	6	7	7	7	15	9	22	3	106	12	—I—
DIXMAANI	1500	0	8	16	15	8	8	13	7	8	8	7	6	8	7	8	18	8	39	3	161	12	4
DIXMAANI	3000	0	8	16	21	8	8	13	7	8	8	7	7	8	7	8	11	8	114	3	172	15	3
DIXMAANJ	15	0	11	1	10	14	12	12	9	13	11	13	13	12	7	11	12	13	18	3	333	14	27
DIXMAANJ	90	0	18	1	21	13	16	14	11	18	18	14	16	23	22	18	31	14	31	3	283	18	691
DIXMAANJ	300	0	20	1	27	13	19	16	14	20	20	32	29	22	33	25	18	15	33	3	122	32	—I—
DIXMAANJ	1500	0	28	1	284	19	25	19	23	26	28	50	33	40	25	27	24	18	26	3	124	36	3
DIXMAANJ	3000	0	34	1	657	—T—	37	18	14	32	33	65	42	41	24	27	42	19	28	3	49	34	3
DIXMAANK	15	0	14	19	15	12	12	14	10	9	14	16	11	15	10	14	16	14	45	3	139	14	41
DIXMAANK	90	0	17	150	49	13	16	18	14	17	17	20	16	17	22	22	21	18	37	3	196	22	—I—
DIXMAANK	300	0	22	89	36	19	21	19	13	22	22	32	36	26	29	29	25	17	30	3	192	25	—I—
DIXMAANK	1500	0	30	228	69	19	31	19	19	33	30	44	44	59	28	27	35	20	32	3	101	35	3
DIXMAANK	3000	0	29	199	149	—T—	33	19	18	29	29	48	25	51	22	34	73	19	29	3	82	36	3
DIXMAANL	15	0	13	20	15	14	12	16	10	10	13	13	13	14	14	13	12	13	21	3	126	16	42
DIXMAANL	90	0	35	55	35	16	19	19	12	35	35	26	28	26	16	16	35	15	84	—I—	348	18	—I—
DIXMAANL	300	0	23	91	67	17	26	24	15	23	23	37	40	42	26	37	36	16	34	—E—	608	30	—I—
DIXMAANL	1500	0	35	196	146	16	30	22	16	32	35	61	30	55	35	45	46	17	30	—T—	106	42	3
DIXMAANL	3000	0	39	134	209	—T—	31	23	16	43	39	59	67	58	24	47	38	30	37	—T—	81	41	3
DIXON3DQ	10	0	3	3	3	3	4	7	4	3	3	3	3	3	3	3	5	3	3	3	3	3	3
DIXON3DQ	50	0	3	3	3	3	5	10	6	3	3	3	3	3	3	3	6	3	3	3	3	3	3
DIXON3DQ	100	0	3	3	3	3	5	10	6	3	3	3	3	3	3	3	6	3	3	3	3	3	3

Number of gradient evaluations (4)

Number of gradient evaluations (5)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXON3DQ	500	0	3	3	3	3	6	12	6	3	3	3	3	3	3	3	7	3	3	3	3	3	3
DIXON3DQ	1000	0	3	3	3	3	6	13	6	3	3	3	3	3	3	3	8	3	3	3	3	3	3
DIXON3DQ	5000	0	3	3	3	3	6	15	6	3	3	3	3	3	4	3	9	3	3	3	3	3	3
DQDRTIC	10	0	3	4	3	3	3	26	3	3	3	3	3	3	3	5	5	3	3	3	3	3	3
DQDRTIC	50	0	3	4	3	3	3	26	3	3	3	3	3	3	3	5	6	3	3	3	3	3	3
DQDRTIC	100	0	3	4	3	3	3	26	3	3	3	3	3	3	3	5	6	3	3	3	3	3	3
DQDRTIC	500	0	3	4	3	3	3	26	3	3	3	3	3	3	3	5	8	3	3	3	3	3	3
DQDRTIC	1000	0	3	4	3	3	3	26	3	3	3	3	3	3	3	5	8	3	3	3	3	3	3
DQDRTIC	5000	0	3	4	3	3	3	26	3	3	3	3	3	3	3	5	9	3	3	3	3	3	3
DQRTIC	10	0	18	19	18	18	18	122	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
DQRTIC	50	0	25	30	24	24	25	—I—	25	25	25	25	25	25	25	25	26	25	25	25	25	25	25
DQRTIC	100	0	27	35	27	27	27	—I—	27	27	27	27	27	27	27	27	29	27	27	27	27	27	27
DQRTIC	500	0	34	42	33	33	34	—I—	34	34	34	34	34	34	34	34	37	34	34	34	34	34	34
DQRTIC	1000	0	36	46	36	36	36	—I—	36	36	36	36	36	36	36	36	40	36	36	36	36	36	36
DQRTIC	5000	0	43	55	42	42	43	—I—	43	43	43	43	43	43	43	43	48	43	43	43	43	43	43
EDENSCH	36	0	13	12	14	13	13	89	14	13	13	14	14	14	13	13	17	13	30	—I—	15	13	13
EDENSCH	2000	0	13	12	15	13	15	89	13	13	13	15	15	15	14	13	21	13	46	—I—	15	13	13
ENGVAL1	2	0	8	8	8	8	8	13	8	8	8	8	8	8	8	8	8	8	8	14	8	8	8
ENGVAL1	50	0	8	8	8	8	8	15	9	8	8	8	8	8	8	8	10	8	8	18	8	8	8
ENGVAL1	100	0	8	8	8	8	8	15	9	8	8	8	8	8	8	8	11	8	8	18	8	8	8
ENGVAL1	1000	0	8	13	8	8	8	15	9	8	8	8	8	8	8	8	12	8	8	19	8	8	8
ENGVAL1	5000	0	8	13	8	8	8	15	9	8	8	8	8	8	8	8	13	8	8	—S—	8	8	8
ENGVAL2	3	0	17	17	19	17	17	63	20	19	17	20	18	17	18	19	19	20	18	18	18	19	19
ERRINBAR	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
ERRINROS	10	0	47	—S—	43	41	64	(46)	67	47	47	41	42	41	44	47	47	59	90	90	40	40	44
ERRINROS	25	0	48	66	56	45	65	(44)	92	48	48	52	46	52	53	52	50	62	84	84	43	43	73
ERRINROS	50	0	64	57	59	42	66	(83)	80	64	64	54	57	54	43	62	64	60	79	79	42	42	112
EXPFIT	2	0	12	12	—E—	—E—	12	—E—	12	12	12	13	12	13	12	10	12	12	12	—I—	10	12	12
EXPFITA	5	22	18	31	—I—	16	33	440	23	29	21	19	15	17	17	18	22	18	45	—I—	73	74	66
EXPFITB	5	102	64	53	—I—	28	53	917	58	64	67	24	30	30	31	63	346	62	117	—I—	205	89	150
EXPFITC	5	502	89	—S—	—T—	45	88	—I—	90	90	84	55	44	46	56	88	600	82	150	—I—	264	114	—I—
EXTROSNB	5	0	55	56	58	55	67	198	82	55	55	55	55	55	55	55	60	56	58	58	56	56	56
EXTROSNB	10	0	441	418	432	374	321	—I—	563	441	441	430	430	430	430	441	417	370	496	496	425	425	425
FREUROTH	2	0	10	7	10	10	10	49	12	10	10	12	10	10	10	10	10	11	16	29	9	9	9
FREUROTH	10	0	11	6	11	11	10	50	14	11	11	11	9	11	11	13	11	12	21	31	13	13	13
FREUROTH	50	0	10	6	11	11	10	50	14	10	10	10	10	10	10	10	10	11	20	29	10	10	—I—
FREUROTH	100	0	10	6	11	11	10	50	14	10	10	10	10	10	10	10	10	11	20	33	10	10	—I—
FREUROTH	500	0	10	6	11	11	10	50	—S—	10	10	10	10	10	10	10	12	11	—S—	—S—	10	10	21
FREUROTH	1000	0	10	6	11	11	—S—	50	—S—	10	10	10	10	10	10	10	12	11	27	—S—	10	10	—S—
FREUROTH	5000	0	10	6	11	11	10	50	—S—	10	10	10	10	10	10	12	—S—	11	—S—	—S—	10	10	—S—
GAUSSELM	14	11	29	—E—	56	(11)	(7)	(9)	(28)	(19)	(27)	34	24	(18)	34	33	36	24	82	—I—	27	25	25
GAUSSELM	506	1135	—T—	—E—	—I—	(631)	(10)	—I—	236	(342)	—T—	—I—	(378)	(290)	(246)	(350)	(281)	—T—	—I—	—I—	(270)	(192)	(641)
GAUSSELM	650	1496	—T—	—E—	—I—	(203)	(9)	—I—	—T—	185	(167)	—I—	(327)	(493)	(296)	(237)	—T—	—T—	—I—	—I—	—T—	—T—	(509)
GOTTFR	2	0	26	26	13	17	14	366	13	26	26	26	14	14	13	26	24	16	11	9	14	13	13
GRIDNETA	60	36	24	27	10	9	17	54	24	25	9	9	9	9	19	23	25	22	24	388	23	24	24
GRIDNETA	180	100	26	38	14	14	20	85	26	26	27	14	14	14	28	26	28	26	26	216	26	26	26
GRIDNETA	612	324	29	41	13	14	21	97	30	29	29	13	13	13	27	27	32	29	29	309	29	29	29
GRIDNETA	924	484	37	51	23	23	28	180	37	38	37	23	23	23	37	38	42	38	38	241	38	38	38
GRIDNETA	3444	1764	36	53	—I—	18	29	149	39	39	36	19	19	19	34	34	41	32	36	372	36	36	37
GRIDNETA	7564	3844	57	—T—	—I—	31	—T—	—T—	—T—	—T—	—T—	32	32	32	—T—	58	—T—	—T—	59	—T—	—T—	59	—T—
GRIDNETA	13284	6724	—T—	—T—	—I—	62	—T—	—T—	—T—	—T—	—T—	63	63	63	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETB	60	36	20	20	8	8	15	42	19	22	21	8	8	8	18	21	22	21	21	—I—	20	21	20
GRIDNETB	180	100	22	22	9	9	15	59	22	22	22	9	9	9	22	22	25	23	22	—I—	22	22	22
GRIDNETB	612	324	23	23	9	9	15	85	23	24	23	9	9	9	23	23	26	23	23	—I—	22	23	27
GRIDNETB	924	484	27	27	10	10	17	94	26	27	27	10	10	10	26	26	30	26	26	—I—	26	26	26
GRIDNETB	3444	1764	27	27	10	10	17	117	27	30	27	10	10	10	29	27	33	27	27	—I—	27	27	27
GRIDNETB	7564	3844	28	28	10	10	17	124	28	30	28	10	10	10	28	28	34	28	28	—I—	28	28	28
GRIDNETB	13284	6724	28	28	10	10	17	128	28	30	—T—	10	10	10	28	28	36	28	28	—I—	28	28	28
GRIDNETC	60	36	21	33	351	9	16	42	22	23	22	9	9	9	16	20	25	21	21	—I—	21	21	21

Number of gradient evaluations (6)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
GRIDNETC	180	100	24	33	370	8	16	59	22	23	23	8	8	8	23	23	26	24	22	—I—	23	23	23
GRIDNETC	612	324	24	35	—I—	11	18	84	26	25	24	12	12	12	24	23	26	24	26	—I—	25	26	25
GRIDNETC	924	484	29	36	—I—	12	20	93	27	28	29	13	13	13	27	29	30	30	27	—I—	30	27	30
GRIDNETC	3444	1764	32	45	—I—	16	21	106	30	33	32	16	16	16	29	33	34	33	35	—I—	34	35	32
GRIDNETC	7564	3844	—T—	—T—	—I—	29	—T—	—T—	—T—	—T—	—T—	28	28	28	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETD	60	36	23	32	10	9	17	55	24	24	9	10	9	9	20	24	25	24	24	313	23	24	70
GRIDNETD	180	100	25	32	12	12	18	85	23	24	24	14	12	12	25	25	27	23	26	154	26	25	71
GRIDNETD	612	324	28	33	13	13	21	98	29	28	28	14	13	13	29	28	32	30	28	205	28	41	79
GRIDNETD	924	484	36	46	37	21	26	179	36	34	36	22	21	21	36	36	40	35	35	172	35	44	96
GRIDNETD	3444	1764	42	56	—I—	17	30	146	44	40	42	20	18	18	36	39	44	—S—	41	264	39	58	103
GRIDNETD	7564	3844	—T—	—T—	—T—	34	—T—	—T—	—T—	—T—	—T—	36	34	34	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETE	60	36	21	21	8	8	15	42	19	21	21	8	8	8	18	21	22	20	21	—I—	20	23	258
GRIDNETE	180	100	22	22	9	9	15	59	22	22	22	9	9	9	23	22	24	23	22	—I—	22	26	—I—
GRIDNETE	612	324	23	23	9	9	15	84	23	24	23	9	9	9	23	23	26	23	24	—I—	23	38	—I—
GRIDNETE	924	484	26	26	10	10	17	94	26	27	26	10	10	10	27	26	29	26	26	—I—	26	37	—I—
GRIDNETE	3444	1764	27	27	12	12	17	114	27	30	27	12	12	12	29	27	34	27	27	—I—	28	51	—I—
GRIDNETE	7564	3844	28	28	12	12	17	121	28	30	28	12	12	12	28	28	34	28	28	—I—	28	51	—I—
GRIDNETF	60	36	20	34	81	8	15	41	22	22	21	9	8	8	17	21	24	21	21	—I—	19	21	121
GRIDNETF	180	100	23	33	546	10	16	62	22	23	22	11	10	10	24	23	25	23	24	—I—	23	33	448
GRIDNETF	612	324	24	36	—I—	10	16	82	24	25	24	12	10	10	24	24	26	25	23	—I—	25	41	202
GRIDNETF	924	484	26	39	—I—	13	19	90	27	27	26	13	11	11	28	27	31	28	29	—I—	30	45	—I—
GRIDNETF	3444	1764	31	41	—I—	14	21	104	30	33	31	15	14	14	29	33	38	33	36	—I—	34	63	—I—
GRIDNETF	7564	3844	—T—	—T—	—T—	27	—T—	—T—	—T—	—T—	—T—	30	29	29	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETG	60	36	23	24	9	8	17	59	24	24	9	9	8	8	18	22	24	23	22	282	24	22	22
GRIDNETH	60	36	21	21	8	8	15	42	19	22	23	9	8	8	13	21	23	22	20	—I—	19	19	19
GRIDNETI	60	36	20	20	77	8	15	42	19	22	21	9	8	8	12	21	24	21	20	722	19	20	20
GULF	3	0	32	36	38	33	36	—E—	38	48	32	40	40	36	36	32	37	32	141	—I—	38	36	38
HAGER1	21	10	8	8	6	5	8	65	13	8	11	7	5	5	5	8	9	8	8	8	8	8	8
HAGER1	101	50	10	11	13	7	7	485	18	10	10	9	4	4	6	10	10	7	10	10	10	10	10
HAGER1	201	100	11	9	24	12	7	—I—	21	11	11	11	4	4	17	11	10	7	11	11	11	11	11
HAGER1	1001	500	13	8	107	50	9	—I—	27	13	13	12	4	4	19	13	12	7	13	13	13	13	13
HAGER1	2001	1000	13	10	212	99	8	—I—	31	13	13	15	4	4	16	13	12	7	13	13	13	13	13
HAGER1	10001	5000	12	9	—M—	—T—	—T—	—T—	—T—	12	12	14	23	—M—	15	12	23	8	12	12	12	12	12
HAGER2	21	10	9	13	7	6	6	62	12	9	11	8	6	6	6	9	10	9	9	18	9	9	9
HAGER2	101	50	10	13	13	7	7	464	17	10	10	10	4	4	6	10	12	9	10	19	10	10	10
HAGER2	201	100	11	10	24	13	6	—I—	17	11	11	12	5	5	16	11	12	9	11	17	11	11	11
HAGER2	1001	500	12	16	106	51	8	—I—	27	12	12	14	5	5	18	12	13	8	11	19	11	11	11
HAGER2	2001	1000	12	11	—T—	100	7	—I—	25	12	12	—T—	5	—T—	15	12	13	7	12	14	12	12	12
HAGER2	10001	5000	11	—S—	—M—	—I—	—T—	—T—	—T—	11	11	—E—	22	—M—	15	11	28	6	9	(10)	9	9	9
HAGER3	21	10	8	13	4	4	7	71	13	8	10	7	4	4	4	8	10	8	11	13	10	9	9
HAGER3	101	50	11	13	5	5	6	512	17	11	11	11	5	5	7	11	11	8	12	13	12	11	11
HAGER3	201	100	12	11	6	6	6	—I—	18	12	12	12	5	5	17	12	12	7	13	15	13	12	13
HAGER3	1001	500	13	13	18	18	8	—I—	25	13	13	14	5	5	18	13	13	7	13	14	12	13	13
HAGER3	2001	1000	13	11	—T—	33	7	—I—	29	13	13	—T—	5	—T—	15	13	10	7	15	20	13	13	13
HAGER3	10001	5000	9	—S—	—M—	—I—	—T—	—T—	—T—	9	9	—M—	21	—M—	15	9	22	6	10	15	9	9	9
HAGER4	21	10	10	17	13	7	9	276	15	11	8	9	8	8	8	8	9	7	16	23	17	16	18
HAGER4	101	50	13	16	53	10	11	—I—	28	13	13	9	7	7	9	11	13	11	15	23	16	16	23
HAGER4	201	100	13	15	106	13	11	—I—	55	13	13	8	7	7	12	12	16	11	15	18	18	15	25
HAGER4	1001	500	14	20	—T—	46	10	—I—	—T—	14	14	9	9	9	24	14	16	13	13	26	14	14	35
HAGER4	2001	1000	11	23	—T—	85	—T—	—I—	—T—	11	11	11	10	—T—	22	13	18	13	15	35	15	14	37
HAGER4	10001	5000	—T—	—T—	—M—	—T—	—T—	—I—	—T—	13	—T—	—T—	18	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
HAIRY	2	0	85	94	63	69	83	96	112	85	85	81	70	83	91	73	75	60	67	—S—	89	81	96
HATFLDA	4	0	24	24	32	24	29	29	30	24	24	30	24	32	25	25	25	24	29	29	29	28	28
HATFLDB	4	0	21	21	21	22	26	26	27	21	21	27	21	22	22	21	21	22	23	23	26	25	25
HATFLDC	25	0	5	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HATFLDD	3	0	20	20	15	16	15	27	21	14	20	19	11	13	26	21	30	20	28	—I—	20	22	18
HATFLDE	3	0	21	21	22	18	16	22	20	14	21	17	12	15	23	21	21	19	24	—I—	25	22	16
HATFLDF	3	0	23	72	39	37	53	15	12	23	23	34	33	37	28	26	22	37	24	—I—	23	13	13
HATFLDG	25	0	15	15	13	13	14	11	13	15	14	13	13	11	15	15	14	13	20	—I—	13	13	14

Number of gradient evaluations (7)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HATFLDH	4	7	12	11	63	19	11	35	16	16	10	14	10	10	11	10	12	12	103	—I—	19	13	14
HELIX	3	0	12	—S—	13	13	13	68	13	12	12	13	11	13	11	14	14	11	20	—I—	19	19	19
HILBERTA	2	0	3	3	3	3	3	5	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
HILBERTA	4	0	3	3	3	3	3	5	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
HILBERTA	5	0	3	3	3	3	3	5	3	3	3	3	3	3	3	3	5	3	3	3	3	3	3
HILBERTA	6	0	3	3	3	3	3	5	3	3	3	3	3	3	3	4	5	3	3	3	3	3	3
HILBERTA	10	0	3	3	3	3	3	4	3	3	3	3	3	3	3	6	8	3	3	3	3	3	3
HILBERTB	5	0	3	3	3	3	3	13	3	3	3	3	3	3	3	5	6	3	3	3	3	3	3
HILBERTB	10	0	3	3	3	3	3	13	3	3	3	3	3	3	3	6	7	3	3	3	3	3	3
HILBERTB	50	0	3	7	3	3	3	13	3	3	3	3	3	3	3	5	8	3	3	3	3	3	3
HIMMELBA	2	0	3	3	3	3	3	6	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
HIMMELBB	2	0	12	6	16	19	20	144	14	12	12	19	22	19	12	12	12	12	12	12	23	15	15
HIMMELBC	2	0	8	8	8	8	8	13	8	8	8	8	8	8	8	9	7	8	8	7	8	8	8
HIMMELBD	2	0	34	31	38	30	32	—I—	36	34	34	36	34	34	34	—S—	50	36	33	—S—	33	33	34
HIMMELBE	3	0	4	4	4	4	6	6	6	6	4	6	4	4	4	5	6	4	4	4	4	4	4
HIMMELBF	4	0	196	351	—I—	300	292	—I—	391	186	196	305	270	166	120	480	172	149	272	—S—	80	33	50
HIMMELBG	2	0	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	20	10	9	10
HIMMELBH	2	0	2	2	2	2	2	19	2	2	2	2	2	2	2	2	5	2	2	2	2	2	2
HIMMELBI	100	12	38	41	—I—	80	26	—I—	32	29	40	37	18	—E—	22	35	319	27	132	—E—	335	128	106
HIMMELBJ	45	14	—I—	—I—	799	923	—I—	560	—I—	—I—	—I—	—I—	—S—	144	—I—	—I—	—I—	283	—I—	—I—	—I—	—I—	—I—
HIMMELBK	24	14	118	(13)	—I—	202	111	—I—	124	123	(16)	116	(15)	93	96	123	131	96	228	—I—	167	138	140
HONG	4	1	18	18	17	17	19	28	24	22	18	22	18	18	18	18	19	19	25	70	25	25	25
HS1	2	0	29	49	28	30	28	80	35	29	29	34	31	30	31	29	30	30	28	28	24	24	24
HS10	2	1	18	18	21	21	19	—I—	22	18	18	21	18	18	18	18	20	21	31	27	24	20	23
HS100	7	4	47	48	33	21	29	501	38	50	35	39	30	29	45	48	288	29	59	—I—	47	43	—I—
HS100MOD	7	4	138	—S—	45	—I—	103	—I—	—S—	—S—	—S—	101	78	43	111	—S—	—I—	52	147	—I—	147	—S—	—I—
HS101	7	5	—I—	114	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS102	7	5	—I—	130	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS103	7	5	—I—	—S—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS104	8	5	54	42	58	33	48	161	44	70	37	64	31	27	36	54	53	43	115	—I—	67	63	118
HS105	8	1	(14)	24	(14)	17	24	(13)	(13)	(14)	(12)	17	(13)	(13)	16	(14)	(11)	(20)	—I—	—I—	477	(89)	—E—
HS106	8	6	—I—	72	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS107	9	6	31	38	40	33	—S—	378	35	34	23	35	23	24	23	31	32	31	—S—	—I—	37	42	42
HS108	9	13	23	23	51	18	18	36	23	21	35	19	14	24	16	23	22	19	35	—I—	26	26	26
HS109	9	10	—I—	203	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS11	2	1	16	16	15	15	16	88	17	16	16	16	16	16	16	15	16	17	16	27	16	16	16
HS110	10	0	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	17	17	8	8	8
HS111	10	3	46	46	46	36	48	51	54	53	46	65	40	51	51	50	46	47	—I—	—I—	—I—	145	—I—
HS112	10	3	43	43	39	38	45	53	58	44	39	48	39	39	39	43	44	42	57	—I—	46	48	58
HS113	10	8	75	52	44	33	45	600	59	87	72	64	35	35	35	69	822	40	68	—I—	67	84	—I—
HS114	10	11	711	123	—I—	—I—	—I—	—I—	—S—	647	701	494	—S—	278	—I—	750	—S—	369	—I—	—I—	—I—	789	—I—
HS116	13	14	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS117	15	5	60	53	—I—	—I—	64	508	46	33	86	58	37	45	42	46	83	53	471	—I—	67	58	—I—
HS118	15	17	17	17	—I—	10	18	257	18	16	17	16	9	9	15	17	19	14	17	17	17	17	16
HS119	16	8	30	36	55	44	24	130	31	33	29	29	28	28	28	30	30	30	100	—I—	40	40	59
HS12	2	1	22	22	21	20	20	533	21	24	22	21	22	22	22	22	101	20	31	—I—	25	22	28
HS13	2	1	58	54	58	58	58	64	58	57	58	58	58	58	58	58	57	58	170	166	68	68	68
HS14	2	2	13	13	13	13	13	24	15	13	13	14	13	13	13	13	13	13	14	15	14	14	14
HS15	2	2	45	45	56	53	38	488	46	45	45	44	46	46	45	45	46	45	81	112	50	69	91
HS16	2	2	15	15	13	14	17	25	19	16	15	17	15	16	16	15	17	14	24	47	28	26	29
HS17	2	2	18	18	16	18	20	29	20	20	18	21	19	18	18	18	18	18	28	—S—	30	33	36
HS18	2	2	80	101	67	62	133	820	143	133	80	157	69	69	69	80	87	82	112	—I—	96	85	94
HS19	2	2	34	—S—	36	34	29	—I—	35	35	34	34	33	34	34	34	97	34	36	33	35	35	37
HS2	2	0	7	12	7	7	7	40	7	7	7	7	7	7	7	7	7	7	6	6	5	5	5
HS20	2	3	22	22	25	23	22	53	28	26	22	25	22	22	22	22	21	22	21	31	22	21	21
HS21	2	1	2	2	2	2	2	5	2	2	2	2	2	2	2	2	5	2	8	9	8	8	8
HS22	2	2	10	10	10	10	10	18	11	10	10	11	10	10	10	10	10	10	13	12	13	13	13
HS23	2	5	42	22	52	52	58	267	54	65	42	65	53	46	48	42	83	54	40	41	40	40	40
HS24	2	3	8	8	9	10	8	21	10	11	8	10	8	8	8	8	9	8	21	21	14	14	14

Number of gradient evaluations (8)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS25	3	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HS26	3	1	34	38	37	36	28	82	25	31	34	31	30	29	31	34	29	28	31	—I—	31	27	27
HS27	3	1	16	23	16	17	21	24	15	16	16	17	15	15	16	16	13	17	27	93	25	21	25
HS28	3	1	4	4	4	4	4	23	4	4	4	4	4	4	4	4	4	4	4	15	4	4	4
HS29	3	1	27	27	26	27	19	134	31	35	27	31	24	26	28	26	65	27	27	36	28	31	30
HS3	2	0	5	5	5	5	5	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HS30	3	1	8	8	8	8	9	9	9	9	8	9	8	8	8	8	8	8	10	14	10	10	10
HS31	3	1	13	13	12	12	11	14	13	13	13	13	13	13	13	13	14	14	27	—I—	18	15	22
HS32	3	2	12	17	12	7	11	29	14	11	11	13	12	11	11	12	9	7	13	14	13	13	13
HS33	3	2	(12)	(13)	(13)	(12)	(12)	(28)	(12)	(14)	(12)	(14)	(12)	(12)	(12)	(12)	(13)	(13)	(12)	(11)	(12)	(12)	26
HS34	3	2	19	19	17	17	17	28	20	19	19	17	18	18	19	19	18	20	22	22	20	20	20
HS35	3	1	7	7	6	5	7	8	6	8	7	8	7	7	7	7	7	7	45	—I—	18	10	30
HS36	3	1	12	12	16	12	13	214	12	12	12	12	12	12	12	12	17	12	19	18	18	16	16
HS37	3	2	17	17	21	19	20	479	23	21	17	23	17	18	18	18	50	18	56	319	44	37	66
HS38	4	0	51	51	49	73	51	190	60	54	51	50	49	50	51	50	42	45	—I—	—I—	47	50	25
HS39	4	2	21	19	21	20	20	40	24	20	21	23	21	21	21	21	21	23	476	476	27	27	27
HS4	2	0	3	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
HS40	4	3	11	11	10	10	11	10	13	10	11	11	11	11	11	11	11	11	14	64	15	15	18
HS41	4	1	7	7	7	6	7	9	7	7	7	7	6	6	6	7	6	7	12	16	14	12	12
HS42	4	2	13	11	11	11	12	11	14	13	13	12	13	13	13	13	11	13	13	18	13	13	13
HS43	4	3	21	21	26	20	23	44	26	27	21	30	21	21	22	23	156	20	440	—I—	27	27	27
HS44	4	6	7	7	(15)	(44)	11	(74)	(13)	(12)	7	(13)	(7)	(8)	(7)	7	27	7	29	—I—	10	9	9
HS45	5	0	3	3	3	3	3	2	3	3	3	3	3	3	3	4	4	3	3	3	3	3	3
HS46	5	2	24	24	27	21	18	17	22	30	24	23	17	21	24	24	20	19	25	39	16	23	22
HS47	5	3	(21)	74	72	71	(22)	(21)	(25)	(23)	(21)	(22)	(21)	(21)	(22)	(21)	(22)	(23)	(24)	(29)	(23)	(23)	(23)
HS48	5	2	4	4	4	4	7	23	9	4	4	4	4	4	4	4	4	4	4	19	4	4	4
HS49	5	2	16	16	16	16	17	65	20	20	16	19	16	16	16	16	16	16	25	31	25	25	35
HS5	2	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5
HS50	5	3	13	14	13	11	15	241	14	15	13	15	13	13	13	12	11	11	19	26	19	19	19
HS51	5	3	3	3	3	3	8	13	10	11	3	3	3	3	3	3	3	3	3	24	3	3	3
HS52	5	3	7	7	7	7	11	35	14	13	7	11	7	7	7	7	8	7	11	27	11	11	11
HS53	5	3	7	7	7	7	11	31	13	11	7	12	7	7	7	7	8	7	12	14	12	12	12
HS54	6	1	(3)	—S—	(3)	(3)	(3)	21	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(40)	(40)	(3)	(3)	(3)	(3)	(3)	(3)
HS55	6	6	7	7	6	6	9	8	9	7	7	7	7	7	8	7	7	7	8	8	9	9	9
HS56	7	4	17	16	16	21	22	23	14	19	13	26	19	17	15	16	12	13	—I—	—I—	29	25	60
HS57	2	1	(2)	14	14	—I—	(4)	10	17	(5)	(2)	13	17	13	13	(2)	(2)	(2)	(10)	(24)	(7)	(7)	(7)
HS59	2	3	335	64	(355)	(238)	398	—I—	371	378	335	390	328	320	310	335	—I—	(305)	460	—I—	330	350	513
HS6	2	1	49	49	41	47	46	86	53	49	49	53	49	44	44	47	48	54	42	42	40	40	40
HS60	3	1	15	18	27	11	15	40	23	22	15	18	14	23	21	14	14	11	22	25	24	17	17
HS61	3	2	18	18	18	17	16	93	21	20	18	20	18	18	18	19	18	17	17	28	17	17	17
HS62	3	1	33	33	38	33	33	306	34	33	33	34	33	33	33	33	33	33	—I—	—I—	48	48	48
HS63	3	2	14	14	24	14	14	114	14	17	14	14	17	16	21	14	17	12	45	36	19	20	20
HS64	3	1	51	47	50	50	52	604	51	52	51	51	51	51	51	51	51	—T—	64	66	64	64	65
HS65	3	1	27	27	33	29	34	104	38	54	27	35	27	28	29	27	47	38	33	26	33	33	33
HS66	3	2	9	13	9	9	11	8	11	9	9	10	8	9	9	9	8	9	11	16	11	11	11
HS67	3	14	52	28	—I—	68	100	21	39	40	39	38	46	30	42	52	52	56	—I—	—I—	166	60	—S—
HS68	4	2	81	—I—	71	74	99	485	101	89	81	98	78	83	78	81	81	83	—I—	—I—	123	117	—I—
HS69	4	2	34	84	34	33	34	—S—	41	—S—	34	36	34	35	34	34	—S—	34	—I—	—I—	79	—S—	—I—
HS7	2	1	18	18	17	17	19	102	17	18	18	18	18	18	18	18	17	18	19	24	19	19	19
HS70	4	1	28	28	(23)	21	27	(314)	21	24	28	16	21	35	26	26	23	25	—I—	—I—	35	37	35
HS71	4	2	15	15	20	14	15	47	17	17	15	16	15	15	15	15	15	15	27	—I—	18	21	23
HS72	4	2	90	90	90	89	237	97	90	92	90	91	90	90	89	90	98	—T—	112	113	112	112	112
HS73	4	3	16	17	—I—	20	17	455	24	19	16	24	21	23	22	16	111	16	19	18	19	19	19
HS74	4	5	28	28	20	20	23	—I—	22	29	28	25	20	20	24	28	27	25	—S—	44	28	28	50
HS75	4	5	—S—	29	—S—	—I—	—I—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
HS76	4	3	7	7	13	7	8	17	9	8	7	7	7	7	7	7	7	7	23	—I—	10	14	19
HS77	5	2	22	15	27	18	20	(121)	24	19	22	34	19	21	25	22	22	23	30	—I—	22	24	24
HS78	5	3	11	11	10	10	9	16	14	14	11	11	11	10	12	12	12	10	15	22	13	13	30
HS79	5	3	13	13	14	12	11	23	12	14	13	13	9	10	10	13	13	10	13	19	13	15	15

Number of gradient evaluations (9)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS8	2	2	11	11	11	10	10	50	10	11	11	10	9	9	10	9	10	10	10	9	9	9	9
HS80	5	3	14	14	18	11	13	21	16	15	14	19	12	11	18	13	15	11	17	17	11	15	23
HS81	5	3	16	(183)	17	11	13	20	15	17	16	16	13	11	17	15	16	14	823	32	16	18	26
HS83	5	3	24	20	50	24	23	225	24	25	24	25	24	28	24	23	23	26	32	31	25	25	30
HS84	5	3	—S—	—S—	—I—	—I—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—
HS85	5	21	—I—	45	—I—	—I—	—I—	—I—	—S—	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—S—	—S—	—I—
HS86	5	10	—S—	18	—I—	55	15	98	15	15	17	15	16	19	19	—S—	31	19	413	—I—	36	22	77
HS87	6	4	88	—S—	—I—	—S—	—S—	—I—	—S—	—S—	104	—S—	—S—	—S—	31	114	33	36	—I—	—I—	45	125	—S—
HS88	2	1	53	53	52	52	46	54	53	53	53	52	53	53	53	53	53	53	98	154	93	79	70
HS89	3	1	(61)	(61)	(56)	(60)	(57)	(53)	(55)	(60)	(61)	(60)	55	(59)	(56)	(58)	(98)	—T—	(167)	(183)	(94)	(84)	(91)
HS9	2	1	5	5	6	5	7	40	7	5	5	7	5	5	5	5	6	7	11	12	11	11	11
HS90	4	1	—E—	—E—	—E—	—E—	—E—	57	—E—	—E—	—E—	54	—E—	—E—	—E—	57	56	57	—E—	147	—E—	—E—	—E—
HS91	5	1	—E—	—E—	76	—E—	57	—E—	—E—	(85)	—E—	—E—	—E—	—E—	—E—	(102)	(66)	57	—E—	—I—	—E—	—E—	—E—
HS92	6	1	—E—	—E—	—E—	—E—	—E—	951	—E—	—E—	—E—	—E—	55	57	—E—	57	54	55	—E—	—I—	—E—	—E—	—E—
HS93	6	2	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HS95	6	4	8	26	—I—	19	7	115	10	16	8	6	15	7	12	8	10	25	15	13	6	17	13
HS96	6	4	8	23	—I—	22	29	103	10	16	16	6	15	7	5	8	11	17	15	13	7	7	12
HS97	6	4	20	(23)	(484)	(10)	(8)	(161)	(8)	(18)	23	(15)	(7)	(17)	(32)	20	(50)	(7)	(42)	—I—	(25)	(21)	(49)
HS98	6	4	17	46	—I—	(9)	(7)	(161)	(8)	(28)	21	(13)	(7)	(9)	(30)	24	(43)	(7)	(16)	(35)	(20)	(20)	(38)
HS99	7	2	—I—	—S—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—I—	—I—	—E—	—F—	—I—
HS99EXP	31	21	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—I—	—F—	—I—	—I—	—E—	—I—	—I—	—I—	—I—	—I—	—I—
HUBFIT	2	0	2	2	3	3	3	4	4	2	2	4	2	2	2	2	2	2	2	2	2	2	2
HYDCAR20	99	99	—F—	—E—	—F—	128	64	—E—	—F—	—F—	—F—	97	121	161	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDCAR6	29	29	—F—	—E—	—F—	52	—F—	28	—F—	—F—	—F—	36	66	70	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDROELL	1009	1008	129	247	—I—	—I—	140	—I—	135	129	129	130	140	126	136	132	—I—	128	—I—	—I—	654	828	—I—
HYDROELM	505	504	80	194	—I—	—I—	84	—I—	76	80	80	73	68	67	75	78	—I—	73	—I—	—I—	413	—I—	—I—
HYDROELS	169	168	38	144	—I—	—I—	37	—I—	37	38	38	31	32	29	36	35	—I—	35	—I—	—I—	469	—I—	—I—
HYPCIR	2	0	8	13	8	8	8	8	8	8	8	8	8	8	8	8	6	8	7	7	7	8	7
INTEGREQ	12	0	4	6	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4
INTEGREQ	52	0	4	7	4	4	4	4	4	3	4	3	4	4	4	4	4	4	3	3	3	3	3
INTEGREQ	102	0	4	—S—	4	4	4	4	4	4	4	3	4	4	4	4	4	4	3	3	3	3	3
JENSMP	2	0	10	10	10	10	10	94	10	10	10	10	10	10	10	10	10	10	9	—I—	9	9	9
JNLBRNG1	16	0	2	2	3	2	2	3	2	2	2	2	2	2	3	2	2	2	3	9	3	3	3
JNLBRNG1	100	0	4	6	2	2	4	5	4	4	2	2	2	2	3	4	6	5	5	26	5	5	5
JNLBRNG1	529	0	6	—S—	5	5	6	6	6	6	6	5	5	5	5	6	8	7	7	282	7	7	7
JNLBRNG1	1024	0	7	8	6	6	7	7	7	7	7	6	6	6	6	7	8	7	8	553	8	8	8
JNLBRNG1	5625	0	15	18	15	15	15	15	15	15	15	15	15	15	15	15	15	16	16	—I—	16	16	16
JNLBRNG1	10000	0	20	21	20	20	20	20	20	20	20	20	20	20	20	20	20	20	21	—T—	21	21	21
JNLBRNG1	15625	0	25	—I—	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	—T—	26	26	26
JNLBRNG2	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	6	3	3	3
JNLBRNG2	100	0	4	6	3	3	4	5	4	4	3	3	3	3	4	4	5	5	5	70	5	5	5
JNLBRNG2	529	0	5	—S—	3	3	5	5	5	5	5	3	3	3	5	5	6	6	5	757	5	5	5
JNLBRNG2	1024	0	5	7	4	4	5	5	5	5	5	4	4	4	5	5	7	6	6	912	6	6	6
JNLBRNG2	5625	0	10	11	10	10	10	10	10	10	10	10	10	10	10	10	11	10	11	—I—	11	11	11
JNLBRNG2	10000	0	12	14	12	12	12	12	12	12	12	12	12	12	12	12	13	12	13	—I—	13	13	13
JNLBRNG2	15625	0	15	—I—	15	15	15	15	15	15	15	15	15	15	15	15	16	15	16	—T—	16	16	16
KOWOSB	4	0	8	13	14	10	14	10	9	10	8	12	10	8	9	8	9	11	13	—S—	11	22	22
LCH	30	1	28	—F—	—I—	20	(22)	(37)	(21)	28	26	29	27	25	30	28	31	32	—I—	—I—	45	67	65
LCH	150	1	29	—F—	(22)	546	(23)	193	33	31	30	28	29	27	29	30	34	31	—I—	—I—	45	64	62
LCH	300	1	33	—F—	34	565	(25)	416	37	34	32	29	31	28	29	33	32	33	—I—	—I—	44	89	90
LCH	600	1	35	—F—	—T—	—T—	(27)	916	37	37	36	33	38	33	39	34	36	39	—I—	—I—	50	71	68
LEAKNET	156	153	—S—	—F—	—I—	—I—	—I—	—I—	—S—	—I—	—S—	96	68	69	—I—	—S—	(427)	—S—	—I—	—I—	—S—	—S—	—I—
LEWISPOL	6	9	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
LIARWHD	36	0	12	25	15	14	11	117	11	12	15	15	11	11	11	16	20	12	12	15	12	12	12
LIARWHD	100	0	18	28	17	17	14	157	16	16	17	17	15	15	15	19	20	16	18	14	18	18	18
LIARWHD	500	0	16	35	20	18	15	266	17	18	19	17	15	15	15	24	19	18	16	17	16	16	16
LIARWHD	1000	0	19	50	20	18	15	347	18	21	19	18	19	19	19	23	24	18	19	16	19	19	19
LIARWHD	5000	0	33	58	19	18	17	680	18	(22)	20	18	19	19	19	34	47	18	33	(19)	33	33	33
LIARWHD	10000	0	(23)	54	19	17	17	929	18	(47)	36	18	19	19	19	49	26	17	(23)	(60)	(23)	(23)	(23)

Number of gradient evaluations (10)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
LINVERSE	19	0	15	46	(300)	16	13	14	14	(9)	15	12	18	18	18	14	14	24	—I—	—I—	27	11	—I—
LINVERSE	199	0	12	45	—I—	18	11	11	11	13	12	57	23	27	24	15	21	11	—I—	—I—	15	15	—I—
LINVERSE	999	0	24	(84)	116	37	16	20	21	19	24	49	35	25	27	24	37	13	—I—	—S—	42	25	553
LINVERSE	1999	0	28	—S—	675	—T—	(12)	18	13	23	28	78	109	34	38	25	43	19	—I—	—S—	41	22	—I—
LMINSURF	16	0	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	24	7	7	7
LMINSURF	49	0	19	16	11	10	14	11	10	10	11	11	11	11	13	16	28	10	17	111	17	16	18
LMINSURF	64	0	18	25	11	9	17	12	18	19	11	11	11	11	15	17	18	9	21	257	22	21	—I—
LMINSURF	121	0	43	44	11	10	39	21	34	44	11	11	11	11	20	39	37	11	43	565	43	43	42
LMINSURF	961	0	185	206	18	17	481	104	183	185	185	18	18	18	34	209	215	19	212	—I—	254	220	204
LMINSURF	1024	0	218	300	18	20	424	123	243	210	220	18	18	18	51	261	218	21	223	—I—	229	224	—I—
LMINSURF	5625	0	—I—	—I—	32	—T—	—I—	431	—I—	—I—	—I—	32	32	32	333	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
LMINSURF	10000	0	—I—	—I—	31	—T—	—I—	—I—	—I—	—I—	—I—	31	31	31	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—I—
LMINSURF	15625	0	—T—	—T—	36	—T—	—I—	—I—	—T—	—T—	—T—	36	36	36	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
LSQFIT	2	0	2	2	3	3	3	3	4	2	2	4	2	2	2	2	2	2	2	2	2	2	2
LUBRIF	151	100	—F—	—I—	—I—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—I—	—F—	—F—	—F—	—I—	—I—	—I—	—F—	—I—
LUBRIF	751	500	—T—	—T—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
MANCINO	10	0	8	—S—	6	6	5	372	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
MANCINO	20	0	10	—S—	8	8	8	—I—	10	10	10	10	9	9	9	10	11	10	10	10	10	10	10
MANCINO	30	0	11	—S—	9	9	9	—I—	12	11	11	11	9	9	9	11	13	13	11	11	11	11	11
MANCINO	50	0	13	—S—	11	11	10	—I—	13	13	13	13	12	12	12	13	15	14	13	13	12	12	12
MANNE	300	200	7	14	—I—	12	10	13	17	14	7	21	9	548	7	9	8	8	79	79	8	8	8
MANNE	1095	730	—S—	131	—S—	81	13	10	—S—	21	—S—	—T—	13	—E—	10	13	14	9	38	38	12	12	—S—
MARATOS	2	1	8	10	8	8	8	7	8	8	8	8	8	8	8	8	8	9	9	16	9	9	9
MARATOSB	2	0	—I—	—I—	—I—	—I—	—I—	306	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
MATRIX2	6	2	11	11	11	11	11	15	10	11	11	11	11	11	11	11	11	11	13	23	13	12	12
MAXLIKA	8	0	(10)	35	42	22	24	16	(8)	21	21	22	21	(9)	21	(10)	(9)	(7)	—I—	—S—	321	127	426
MCCORMCK	10	0	5	5	5	5	5	5	6	5	5	5	5	5	5	5	6	5	7	21	7	7	7
MCCORMCK	50	0	5	7	5	5	5	6	6	5	5	5	5	5	5	5	7	5	7	22	7	7	7
MCCORMCK	100	0	5	7	5	5	5	6	6	5	5	5	5	5	5	5	7	5	7	21	7	7	7
MCCORMCK	500	0	5	7	5	5	5	6	6	5	5	5	5	5	5	5	8	5	7	25	7	7	7
MCCORMCK	1000	0	5	7	5	5	5	6	6	5	5	5	5	5	5	5	9	5	7	23	7	7	7
MCCORMCK	5000	0	5	6	5	5	5	6	6	5	5	5	5	5	5	5	10	5	7	25	7	7	7
MCCORMCK	10000	0	5	6	5	5	5	6	6	5	5	5	5	5	5	5	10	5	7	24	7	7	7
MDHOLE	2	0	54	54	55	52	53	160	54	54	54	58	57	49	57	54	48	52	57	50	52	52	52
METHANB8	31	31	—I—	—E—	9	9	9	9	—F—	—F—	55	12	9	9	—F—	—I—	—I—	—S—	—S—	—F—	—I—	—S—	—S—
METHANL8	31	31	—F—	—E—	490	177	76	—E—	—F—	—F—	—F—	124	158	66	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
MEXHAT	2	0	20	20	20	20	27	—I—	19	20	20	19	20	20	20	20	19	19	26	481	20	22	20
MEYER3	3	0	407	—S—	—I—	—I—	394	—I—	—S—	407	407	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	501	—S—	—I—
MINPERM	5	5	7	7	7	7	7	9	7	13	7	11	7	7	7	7	7	7	7	7	7	7	7
MINPERM	13	10	14	14	29	13	8	8	10	15	13	12	15	15	17	14	14	12	25	—I—	24	15	15
MINPERM	27	19	17	17	32	21	10	10	11	15	16	14	31	36	55	17	16	17	29	—I—	18	16	16
MINPERM	51	36	19	19	80	23	11	10	12	18	21	35	25	67	41	19	19	19	38	—I—	22	18	18
MINPERM	93	69	18	18	251	24	10	11	15	23	27	127	41	101	57	18	18	20	86	—I—	17	23	23
MINPERM	169	134	92	92	—I—	75	16	15	17	27	30	255	247	359	131	88	30	79	539	—T—	25	28	27
MINPERM	311	263	51	51	—I—	46	15	14	18	22	34	329	128	469	302	56	49	42	127	—T—	42	48	48
MINPERM	583	520	308	308	—T—	—T—	17	18	21	22	27	—T—	—T—	—I—	367	280	34	44	—I—	—T—	37	36	39
MINPERM	1113	1033	45	45	—T—	—T—	19	17	22	26	26	—T—	—T—	—T—	39	63	76	44	92	—I—	77	53	63
MINSURF	64	0	9	10	8	2	8	8	8	8	8	8	8	8	9	10	9	4	9	42	9	9	9
MISTAKE	9	13	29	29	98	24	24	19	31	34	50	33	30	31	21	28	32	26	59	—I—	33	37	37
MSQRTA	4	0	15	15	13	12	15	16	15	15	15	15	15	15	15	15	15	15	17	18	15	15	14
MSQRTA	49	0	15	—I—	23	19	15	16	15	15	17	17	16	19	20	15	16	15	19	—I—	15	19	16
MSQRTA	100	0	16	20	58	18	17	20	18	17	17	20	33	26	40	21	17	17	34	—I—	14	13	15
MSQRTA	529	0	35	35	—T—	—T—	30	50	33	34	38	—T—	—T—	—T—	—T—	60	47	32	194	—I—	37	34	65
MSQRTA	1024	0	36	36	—T—	—T—	—T—	77	34	33	29	—T—	—T—	—T—	—T—	—T—	34	—T—	—T—	—T—	31	33	—T—
MSQRTB	9	0	12	14	11	12	11	11	12	11	11	12	10	12	12	13	10	12	17	—I—	9	9	11
MSQRTB	49	0	17	35	0	17	15	15	15	15	19	17	20	22	24	(377)	14	15	20	—I—	14	16	16
MSQRTB	100	0	20	27	0	21	18	22	20	20	19	19	44	30	51	21	17	22	29	—I—	16	16	20
MSQRTB	529	0	37	37	—T—	—T—	35	47	36	31	31	38	—T—	—T—	—T—	68	43	36	135	—I—	34	31	66
MSQRTB	1024	0	27	27	—T—	—T—	26	59	26	28	28	—T—	—T—	—T—	—T—	52	28	26	—T—	—T—	28	26	—T—

Number of gradient evaluations (11)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
MWRIGHT	5	3	(19)	24	(20)	(18)	(20)	(38)	(23)	(20)	(19)	(21)	(19)	(19)	(20)	(19)	(18)	(18)	(491)	(582)	(24)	(24)	(27)
NGONE	8	8	16	23	62	13	15	18	18	17	16	16	13	16	18	19	17	19	117	—I—	22	23	23
NGONE	12	19	35	48	209	31	—E—	35	32	37	33	29	31	31	33	33	37	36	77	—I—	37	33	31
NGONE	50	323	—I—	—I—	—I—	—I—	(670)	—I—	—I—	(171)	—I—	—I—	(70)	291	—I—	—I—	—I—	—I—	—I—	—I—	—I—	(799)	—I—
NGONE	100	1273	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—T—	816	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
NGONE	500	31373	—T—	—T—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—M—	—M—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NLMSURF	16	0	11	11	11	11	11	10	11	11	11	11	11	11	11	11	11	11	11	50	11	11	10
NLMSURF	49	0	38	61	20	11	39	22	22	29	20	20	20	20	29	32	67	11	34	686	47	47	77
NLMSURF	64	0	40	62	13	12	53	34	42	39	13	13	13	13	40	42	58	12	43	—I—	43	43	88
NLMSURF	121	0	89	114	15	12	133	58	102	107	15	15	15	15	98	104	163	12	102	—I—	113	113	262
NLMSURF	961	0	534	648	17	15	—I—	338	604	545	556	17	17	17	129	660	551	16	599	—I—	657	599	757
NLMSURF	1024	0	715	634	17	16	—I—	371	601	658	717	17	17	17	156	695	608	16	548	—I—	639	576	679
NLMSURF	5625	0	—I—	—I—	20	22	—I—	—I—	—I—	—I—	—I—	20	20	20	—I—	—I—	—I—	21	—I—	—I—	—I—	—I—	—I—
NLMSURF	10000	0	—I—	—I—	20	—T—	—I—	—I—	—I—	—I—	—I—	20	20	20	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—E—
NLMSURF	15625	0	—T—	—T—	23	—T—	—I—	—I—	—T—	—T—	—T—	23	23	23	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONDIA	10	0	26	21	22	21	18	34	25	24	17	35	23	26	19	24	27	18	24	24	14	14	14
NONDIA	20	0	32	26	27	24	22	47	23	32	29	34	27	26	28	27	34	27	29	29	19	19	19
NONDIA	30	0	53	38	38	36	30	83	94	35	61	42	35	33	31	67	45	38	38	38	31	31	31
NONDIA	50	0	64	38	39	40	28	105	194	40	121	120	32	46	40	46	63	42	45	45	61	61	52
NONDIA	90	0	91	57	45	44	28	139	67	128	131	59	46	46	44	151	62	47	98	98	163	163	161
NONDIA	100	0	124	48	48	46	30	146	116	49	62	192	46	47	45	86	60	41	94	94	124	124	121
NONDIA	500	0	298	55	46	53	37	320	153	228	231	128	44	44	46	93	55	46	42	42	288	288	273
NONDIA	1000	0	236	42	45	52	38	451	221	212	267	255	41	41	47	71	57	49	72	72	69	69	67
NONDIA	5000	0	101	(79)	42	—T—	39	—I—	141	174	73	167	42	42	42	146	68	—T—	89	89	141	141	100
NONDIA	10000	0	131	108	47	—T—	39	—I—	272	72	62	243	45	45	42	123	58	—T—	88	88	89	89	82
NONDQUAR	100	0	16	16	16	16	54	18	84	16	16	16	16	16	16	16	16	16	16	16	16	16	16
NONDQUAR	500	0	17	17	17	17	65	18	91	17	17	18	17	17	17	17	19	17	17	17	17	17	17
NONDQUAR	1000	0	18	18	18	18	75	19	139	18	18	18	18	18	18	18	18	18	18	18	18	18	18
NONDQUAR	5000	0	19	19	19	19	68	20	108	19	19	23	19	19	19	19	22	19	19	19	19	19	19
NONMSQRT	9	0	101	182	—I—	—I—	(79)	—I—	(90)	(111)	101	(93)	(362)	92	98	94	(113)	(81)	—I—	—S—	103	81	—I—
NONMSQRT	49	0	—I—	—I—	—I—	—I—	(193)	—I—	(421)	—I—	(988)	238	—I—	253	(625)	—I—	—I—	—T—	—I—	—S—	—I—	—I—	—I—
NONMSQRT	100	0	—T—	—T—	—I—	—I—	296	—I—	(674)	—T—	—I—	—S—	—T—	—S—	—I—	—T—	—T—	—T—	—I—	—S—	—T—	—T—	—I—
NONMSQRT	529	0	—T—	—T—	—I—	—I—	—T—	—I—	—T—	—T—	—T—	—S—	—T—	—S—	—T—	—T—	—T—	—T—	—E—	—I—	—T—	—T—	—T—
NONMSQRT	1024	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONSCOMP	25	0	9	10	9	9	9	31	9	9	9	9	9	9	9	9	10	9	6	6	9	9	9
NONSCOMP	50	0	9	10	9	9	9	30	9	9	9	9	9	9	9	9	11	9	6	6	9	9	9
NONSCOMP	100	0	9	10	9	9	9	30	10	9	9	9	9	9	9	9	11	9	6	6	9	9	9
NONSCOMP	500	0	9	10	9	9	9	30	10	9	9	9	9	9	9	9	12	9	6	6	9	9	9
NONSCOMP	1000	0	9	10	9	9	9	31	10	9	9	9	9	9	9	9	13	9	6	6	9	9	9
NONSCOMP	5000	0	9	10	9	9	9	32	10	9	9	9	9	9	9	9	14	9	6	6	9	9	9
NONSCOMP	10000	0	9	10	9	9	9	32	9	9	9	9	9	9	9	9	14	9	6	6	9	9	9
NYSTROM5	18	20	—F—	—F—	—F—	33	15	36	17	25	—F—	35	38	—F—	50	—F—	—F—	18	77	—F—	41	—F—	—F—
OBSTCLAE	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
OBSTCLAE	100	0	4	5	13	3	4	5	4	4	3	3	3	3	3	4	6	5	6	24	6	6	6
OBSTCLAE	529	0	4	8	85	3	4	6	4	4	4	3	3	3	4	4	8	5	5	125	5	5	5
OBSTCLAE	1024	0	4	7	164	4	4	7	5	4	4	3	3	3	3	4	8	5	5	239	5	5	5
OBSTCLAE	5625	0	6	9	834	—T—	6	6	5	6	6	3	3	3	3	6	10	6	7	—I—	7	7	7
OBSTCLAE	10000	0	6	6	—T—	—T—	6	7	6	6	—T—	—T—	—T—	—T—	—T—	6	11	5	8	—T—	8	8	8
OBSTCLAE	15625	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
OBSTCLAL	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OBSTCLAL	100	0	5	6	4	4	5	5	5	5	4	4	4	4	4	5	5	5	6	27	6	6	6
OBSTCLAL	529	0	8	10	7	7	8	8	8	8	8	7	7	7	7	8	8	8	9	105	9	9	22
OBSTCLAL	1024	0	9	11	8	8	9	9	9	9	9	8	8	8	8	9	9	9	10	199	10	10	10
OBSTCLAL	5625	0	17	18	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	—I—	17	17	17
OBSTCLAL	10000	0	20	22	20	20	20	20	20	20	20	20	20	20	20	20	20	20	21	—I—	21	21	35
OBSTCLAL	15625	0	25	27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	—T—	26	26	30
OBSTCLBL	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
OBSTCLBL	100	0	3	4	4	3	4	4	3	4	3	3	3	3	3	3	3	3	4	20	4	4	4
OBSTCLBL	529	0	6	7	19	6	6	6	6	6	6	6	6	6	6	6	8	7	7	190	7	7	7

Number of gradient evaluations (12)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
OBSTCLBL	1024	0	8	9	44	6	7	8	8	8	8	6	6	6	7	7	9	8	8	426	8	8	8
OBSTCLBL	5625	0	13	—S—	169	13	13	14	13	13	13	12	12	12	13	14	14	14	14	—I—	14	14	56
OBSTCLBL	10000	0	17	—S—	350	16	16	16	16	17	16	16	16	16	26	16	17	16	16	—T—	16	20	40
OBSTCLBL	15625	0	19	—S—	—T—	18	19	19	19	19	19	18	18	18	—T—	19	20	19	19	—T—	19	23	62
OBSTCLBM	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
OBSTCLBM	100	0	2	3	3	2	3	4	3	3	2	2	2	2	3	2	2	2	3	17	3	3	3
OBSTCLBM	529	0	4	6	4	3	4	4	4	4	4	3	3	3	3	5	4	5	5	93	5	5	5
OBSTCLBM	1024	0	5	6	8	4	5	4	5	5	5	4	4	4	4	5	5	5	5	328	5	5	5
OBSTCLBM	5625	0	6	7	28	5	5	6	6	6	6	5	5	5	5	7	6	6	6	—I—	6	6	6
OBSTCLBM	10000	0	5	7	50	5	5	6	6	5	6	5	5	5	—T—	7	7	6	7	—T—	7	7	8
OBSTCLBM	15625	0	6	—T—	92	6	6	7	6	6	6	6	6	6	—T—	7	6	6	7	—T—	7	7	7
OBSTCLBU	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OBSTCLBU	100	0	2	2	2	2	3	4	5	4	2	2	2	2	3	2	3	2	4	21	4	4	4
OBSTCLBU	529	0	7	9	8	7	7	7	7	7	7	7	7	7	7	7	8	7	7	229	7	7	7
OBSTCLBU	1024	0	8	9	10	7	8	8	8	8	8	7	7	7	7	8	9	8	9	369	9	9	9
OBSTCLBU	5625	0	14	16	24	14	14	14	14	14	14	14	14	14	14	14	15	14	14	—I—	14	14	14
OBSTCLBU	10000	0	17	19	32	17	17	17	17	17	17	17	17	17	17	17	18	17	17	—T—	17	17	36
OBSTCLBU	15625	0	20	22	25	20	20	20	20	20	20	20	20	20	20	20	21	20	21	—T—	21	21	46
OPTCNTRL	32	20	24	19	46	29	26	401	34	34	25	24	26	26	26	24	29	24	24	29	24	24	24
OPTMASS	70	55	—I—	325	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
OPTMASS	610	505	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	1210	1005	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	3010	2505	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—E—	—I—	—I—	—I—	—I—
ORTHREGA	133	64	115	—S—	133	—I—	—S—	—I—	90	106	137	116	65	97	153	116	121	97	—I—	—I—	209	144	—I—
ORTHREGA	517	256	152	253	—T—	—I—	141	—I—	105	163	159	145	84	—T—	316	152	146	116	—I—	—I—	230	184	—I—
ORTHREGA	2053	1024	177	—S—	—M—	—I—	240	—I—	127	176	—S—	—T—	114	—E—	—T—	189	183	125	—I—	—I—	251	226	—I—
ORTHREGA	8197	4096	—S—	—S—	—M—	—T—	182	—I—	156	—S—	226	—E—	—T—	—E—	—T—	215	237	—T—	—I—	—I—	—S—	—S—	—T—
ORTHREGB	27	6	83	266	—I—	62	10	—I—	333	72	62	221	87	135	111	88	140	117	135	—I—	97	72	173
ORTHREGC	25	10	36	67	(68)	27	23	(240)	47	37	34	35	23	—I—	37	33	36	(34)	—I—	—I—	(40)	(66)	(54)
ORTHREGC	105	50	(72)	134	65	(321)	31	—I—	44	(49)	(66)	54	33	41	(94)	(59)	34	(43)	—I—	—I—	67	67	178
ORTHREGC	505	250	(50)	107	239	(155)	29	—I—	39	(56)	(51)	45	29	54	39	41	39	(41)	—I—	—I—	49	76	273
ORTHREGC	1005	500	40	—S—	303	(81)	28	—I—	44	49	43	60	36	81	38	40	44	(57)	—I—	—I—	(51)	(70)	(353)
ORTHREGC	5005	2500	47	—T—	—T—	—T—	47	—I—	53	43	46	80	56	—M—	47	47	49	—T—	—I—	—I—	58	93	—I—
ORTHREGC	10005	5000	45	—T—	—M—	—T—	50	—I—	56	42	—S—	—T—	43	—M—	—T—	45	45	—T—	—T—	—T—	65	87	—T—
ORTHREGD	23	10	354	—F—	149	112	29	—I—	402	351	278	152	55	71	117	423	243	72	286	403	279	257	230
ORTHREGD	103	50	467	—F—	627	438	39	—I—	737	500	455	221	83	—S—	92	—S—	—S—	104	260	—I—	248	261	276
ORTHREGD	503	250	309	—F—	—I—	—I—	38	—I—	—I—	243	284	192	65	262	77	—S—	—S—	81	160	—S—	144	—S—	—I—
ORTHREGD	1003	500	225	—F—	—I—	—I—	44	—I—	—I—	260	223	266	87	—S—	59	—S—	—S—	77	120	—S—	128	139	—I—
ORTHREGD	5003	2500	144	—F—	—T—	—T—	48	—I—	364	132	—S—	556	110	—T—	41	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—I—
ORTHREGD	10003	5000	92	—F—	—M—	—T—	42	—T—	—S—	60	88	—T—	—T—	—E—	—T—	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—T—
ORTHREGE	36	20	—S—	(142)	(150)	—I—	42	—I—	—S—	—S—	(198)	(84)	—I—	—I—	—I—	—S—	(106)	—S—	—I—	—I—	—I—	—S—	—I—
ORTHREGF	80	25	51	234	91	31	27	84	58	53	48	29	34	34	42	49	50	38	69	—I—	42	54	55
ORTHREGF	152	49	54	—I—	59	31	21	49	71	80	55	31	38	42	38	53	60	35	236	—I—	79	103	74
ORTHREGF	305	100	(61)	—I—	(106)	36	27	(160)	(77)	(70)	(72)	(63)	32	54	(51)	(88)	(64)	(39)	—I—	—I—	(46)	(63)	(58)
ORTHREGF	680	225	(127)	(232)	110	(39)	32	(185)	(109)	(105)	(76)	(74)	36	63	(46)	(106)	(158)	38	—I—	—I—	(84)	(76)	(215)
ORTHREGF	1205	400	—S—	—S—	(270)	(44)	39	(383)	(159)	(128)	(367)	(80)	39	72	39	(177)	(155)	(44)	—I—	—I—	(92)	(115)	(104)
OSBORNEA	5	0	35	—E—	39	12	52	—I—	59	64	35	53	28	38	32	35	46	45	114	—S—	69	55	55
OSBORNEB	11	0	18	21	16	19	26	—E—	17	14	26	21	19	18	12	22	(43)	19	65	—I—	19	37	31
PALMER1	4	0	27	—S—	305	27	27	210	30	26	27	35	27	27	34	28	35	26	33	—S—	42	29	—S—
PALMER1A	6	0	58	64	118	—S—	140	—I—	—S—	88	58	82	58	83	59	59	63	57	157	—I—	67	97	106
PALMER1B	4	0	36	40	192	36	35	—I—	36	41	36	33	34	34	32	36	35	34	61	—S—	42	55	55
PALMER1C	8	0	17	14	13	10	67	—I—	27	—S—	32	18	11	11	18	19	23	13	17	17	17	17	17
PALMER1D	7	0	15	9	13	10	48	—I—	14	15	14	18	9	9	17	16	17	11	15	15	15	15	15
PALMER1E	8	0	222	208	—I—	57	227	—I—	205	137	250	113	587	603	209	180	173	110	—I—	—I—	207	169	176
PALMER2	4	0	19	43	95	49	24	123	27	21	19	39	19	19	19	19	23	27	106	—S—	29	21	25
PALMER2A	6	0	139	137	102	65	84	382	96	165	139	129	104	87	95	133	156	120	456	—I—	135	149	185
PALMER2B	4	0	76	76	117	27	30	—I—	63	81	76	55	76	76	76	19	19	26	72	—S—	74	83	—S—
PALMER2C	8	0	13	—S—	8	8	36	—I—	28	18	12	15	8	8	15	35	19	10	13	13	13	13	13
PALMER2E	8	0	101	110	256	62	138	—I—	212	245	282	157	277	237	269	144	126	121	—I—	—I—	157	217	167

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
PALMER3	4	0	33	45	47	37	(28)	73	(36)	35	33	(28)	31	39	49	50	16	37	(58)	—I—	(39)	(52)	90
PALMER3A	6	0	126	133	121	89	129	—I—	102	149	126	149	105	84	87	138	153	118	—I—	—S—	158	148	158
PALMER3B	4	0	56	56	90	26	24	87	34	77	56	31	44	59	26	19	35	23	39	—S—	25	20	20
PALMER3C	8	0	13	18	9	9	14	—I—	20	19	12	11	8	8	13	15	13	10	13	13	13	13	13
PALMER3E	8	0	68	(93)	32	35	109	—I—	164	139	207	71	43	35	182	78	61	93	—I—	—I—	119	125	138
PALMER4	4	0	35	39	(37)	40	(28)	80	(32)	40	35	(28)	37	53	37	36	21	39	—I—	—S—	(51)	37	—S—
PALMER4A	6	0	42	64	124	65	62	—I—	54	68	42	89	81	49	68	60	57	60	92	—I—	67	94	91
PALMER4B	4	0	31	31	44	26	31	89	32	73	31	30	53	35	35	—S—	31	24	23	—I—	31	23	23
PALMER4C	8	0	40	33	9	9	43	—I—	21	17	28	16	8	8	17	22	31	11	40	40	40	40	40
PALMER4E	8	0	47	59	26	29	75	—I—	82	65	90	62	52	20	131	50	98	49	—I—	—I—	58	155	203
PENALTY1	4	0	32	42	32	31	25	63	29	32	32	32	32	32	32	24	29	36	30	39	30	30	30
PENALTY1	10	0	35	56	34	38	34	254	43	42	34	34	34	34	34	36	39	37	42	28	42	42	42
PENALTY1	50	0	59	155	44	42	45	—I—	47	53	53	44	45	44	43	44	48	44	53	74	53	53	79
PENALTY1	100	0	48	107	42	44	44	—I—	46	53	43	42	42	42	42	50	51	41	45	85	45	45	48
PENALTY1	500	0	51	102	48	49	51	—I—	50	73	53	48	48	48	48	57	54	48	55	96	55	55	55
PENALTY1	1000	0	57	73	—T—	—T—	51	—I—	48	47	56	—T—	—T—	—T—	—T—	51	54	50	57	66	57	57	69
PENALTY2	4	0	9	59	47	47	7	7	7	7	9	42	36	36	9	9	11	11	8	6	8	8	8
PENALTY2	10	0	84	234	32	66	14	107	53	16	89	91	53	53	88	85	93	40	82	23	82	82	82
PENALTY2	50	0	36	43	29	28	32	77	32	59	51	41	31	30	33	47	32	33	42	73	42	42	41
PENALTY2	100	0	20	23	20	20	19	165	21	21	21	20	20	20	20	20	20	20	21	73	20	21	20
PENALTY3	50	0	21	—S—	—S—	—S—	19	—I—	—S—	22	—S—	21	22	26	—S—	(324)	—S—	22	—I—	—S—	—S—	75	—S—
PENALTY3	100	0	—S—	—S—	—S—	—S—	22	—I—	24	—S—	22	28	—S—	28	—S—	—I—	26	—S—	—I—	—T—	—S—	93	—S—
PENTAGON	6	15	11	69	70	11	9	16	11	10	14	12	9	7	8	11	11	11	31	—I—	33	29	29
POWELLBS	2	0	42	42	42	38	42	115	40	42	42	46	40	39	42	42	42	42	42	42	42	43	—S—
POWELLSG	4	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	8	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	16	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	20	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	36	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	40	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	60	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	80	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	100	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
POWELLSG	500	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	17	16	16	16	16	16	16
POWELLSG	1000	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	18	16	16	16	16	16	16
POWELLSG	5000	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	19	16	16	16	16	16	16
POWELLSG	10000	0	16	18	16	16	16	32	16	16	16	16	16	16	16	16	19	16	16	16	16	16	16
POWELLSQ	2	0	5	18	5	5	5	72	5	5	5	5	5	5	5	5	18	5	12	13	17	17	17
POWER	10	0	17	18	17	17	17	37	17	17	17	17	17	17	17	17	17	17	17	14	17	17	17
POWER	20	0	18	20	19	19	19	74	19	19	18	18	19	19	19	18	19	18	18	15	18	18	18
POWER	30	0	19	21	20	20	20	120	20	20	19	19	20	20	20	19	20	19	19	16	19	19	19
POWER	50	0	20	22	21	21	21	236	21	21	21	20	21	21	21	20	21	20	21	17	21	21	21
POWER	75	0	21	23	22	22	23	414	22	22	21	21	22	22	22	21	23	21	22	18	22	22	22
POWER	100	0	23	24	23	23	23	624	23	23	22	22	23	23	23	23	24	22	23	19	23	23	23
POWER	500	0	27	28	28	28	27	—I—	27	27	27	26	27	27	27	27	29	27	26	22	26	26	26
POWER	1000	0	28	29	—T—	—T—	29	—I—	28	28	28	—T—	—T—	—T—	—T—	28	31	28	28	23	28	28	28
PROBPENL	10	0	89	89	(3)	—I—	(40)	(7)	(3)	(3)	(19)	(3)	(3)	(3)	(48)	89	(3)	(35)	(4)	(4)	(3)	(3)	(3)
PROBPENL	50	0	2	2	2	2	2	8	2	2	2	2	2	2	2	2	4	2	4	4	3	3	3
PROBPENL	100	0	2	2	2	2	2	8	2	2	2	2	2	2	2	2	4	2	4	4	3	3	3
PROBPENL	500	0	2	—S—	2	2	2	9	2	2	2	2	2	2	2	2	5	2	4	4	3	3	3
PRODPL0	60	29	—S—	—S—	—I—	942	33	121	31	34	—S—	36	44	51	38	35	—S—	—S—	41	681	—S—	38	75
PRODPL1	60	29	60	60	—I—	—I—	57	281	58	65	57	62	65	49	67	64	64	56	64	—I—	69	62	142
PSPDOC	4	0	7	7	7	3	7	6	6	7	7	6	7	7	7	8	8	3	3	3	3	3	7
QUARTC	25	0	22	25	22	22	22	928	22	22	22	22	22	22	22	22	23	22	22	22	22	22	22
QUARTC	100	0	27	35	27	27	27	—I—	27	27	27	27	27	27	27	27	29	27	27	27	27	27	27
QUARTC	500	0	34	42	33	33	34	—I—	34	34	34	34	34	34	34	34	37	34	34	34	34	34	34
QUARTC	1000	0	36	46	36	36	36	—I—	36	36	36	36	36	36	36	36	40	36	36	36	36	36	36
QUARTC	5000	0	43	55	42	42	43	—I—	43	43	43	43	43	43	43	43	48	43	43	43	43	43	43
QUARTC	10000	0	46	58	(45)	(45)	46	—I—	46	46	46	46	46	46	46	46	51	46	46	46	46	46	46

Number of gradient evaluations (14)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
READING1	202	100	691	—F—	—I—	—I—	260	217	—I—	—I—	598	323	—I—	343	—I—	677	598	294	—I—	—I—	717	—I—	—I—
READING2	303	200	23	375	—I—	—I—	—T—	47	19	18	23	36	41	36	15	20	31	12	23	23	23	23	23
READING3	202	101	—I—	—S—	—I—	—I—	571	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	450	—I—	—I—	—I—	—I—	—I—
RECIPE	3	0	17	17	17	17	17	50	17	17	17	17	17	17	17	17	17	17	37	—I—	22	14	14
ROSENBR	2	0	10	10	10	10	9	35	14	10	10	14	10	10	10	10	11	11	(3)	(3)	(3)	(3)	(3)
S277-280	4	4	17	17	23	13	11	49	10	9	17	13	11	12	19	13	15	18	17	17	17	17	17
S277-280	6	6	21	21	—I—	157	12	53	16	14	11	13	13	15	15	15	18	17	21	21	21	21	21
S277-280	8	8	10	10	—I—	18	12	32	12	11	11	21	14	13	20	17	20	10	10	10	10	10	10
S277-280	10	10	19	16	—I—	10	10	28	9	12	13	20	13	544	17	20	22	14	19	19	19	19	19
S308	2	0	10	10	10	10	10	18	10	10	10	10	10	10	10	10	9	10	20	19	10	10	12
S316-322	2	1	24	24	24	24	24	(58)	24	24	24	24	24	24	24	24	27	24	24	26	24	24	24
S316-322	2	1	28	28	27	27	28	(59)	31	28	28	30	28	28	28	28	28	29	29	68	29	29	29
S316-322	2	1	(31)	(31)	(28)	(28)	(29)	60	(32)	(31)	(31)	(31)	(31)	(31)	(31)	(31)	(32)	(31)	(31)	(84)	(31)	(31)	(31)
S316-322	2	1	(31)	(31)	(29)	(29)	(29)	(61)	(32)	(31)	(31)	32	(31)	(31)	(31)	(32)	(32)	32	(31)	(103)	(31)	(31)	(31)
S316-322	2	1	(33)	(33)	(29)	(29)	(30)	64	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(32)	(32)	(81)	(32)	(32)	(32)
S316-322	2	1	(34)	(34)	(33)	(30)	(31)	65	(35)	(34)	(34)	(35)	(34)	(34)	(34)	(33)	(34)	(34)	(33)	(79)	(33)	(33)	(33)
S316-322	2	1	(34)	(34)	(34)	(32)	(31)	(70)	35	(34)	(34)	(35)	(34)	(34)	(34)	(34)	(35)	(35)	34	—I—	34	34	34
SCHMVETT	3	0	4	4	4	4	4	5	4	5	4	4	4	4	4	4	4	4	9	28	13	8	8
SCHMVETT	10	0	4	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	7	57	15	9	9
SCHMVETT	100	0	4	4	4	4	4	5	5	5	4	4	4	4	4	4	6	4	7	—S—	33	10	15
SCHMVETT	500	0	4	4	4	4	4	6	5	4	4	4	4	4	4	4	6	4	12	—E—	21	10	31
SCHMVETT	1000	0	4	4	4	4	4	6	5	5	4	4	4	4	4	4	11	4	19	—S—	22	10	11
SCHMVETT	5000	0	4	4	4	4	4	6	5	4	4	4	4	4	4	4	8	4	22	—T—	21	11	20
SCHMVETT	10000	0	4	4	4	4	4	6	5	4	4	4	4	4	4	4	8	4	22	—T—	24	10	11
SEMICON1	12	10	102	—S—	—S—	—S—	—F—	—F—	—S—	—S—	102	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—F—	—S—	—S—	—S—
SEMICON1	52	50	423	188	343	195	—F—	—F—	374	410	423	592	278	592	478	—F—	—F—	227	—F—	—F—	407	455	—F—
SEMICON1	102	100	823	393	—F—	251	—F—	—F—	698	776	819	551	499	551	751	—F—	—F—	288	—F—	—F—	637	806	—F—
SEMICON1	502	500	652	651	—F—	440	—F—	—F—	—F—	—F—	652	643	738	643	—F—	—F—	—F—	414	—F—	—F—	860	730	—F—
SEMICON2	12	10	37	—S—	36	45	227	856	68	37	37	36	36	36	36	48	66	46	166	225	59	59	59
SEMICON2	52	50	84	64	85	70	417	—F—	165	162	84	81	92	81	86	116	87	71	—F—	—F—	95	95	—F—
SEMICON2	102	100	108	87	102	89	315	—F—	152	209	108	108	108	108	108	143	107	91	—F—	—F—	119	119	119
SEMICON2	502	500	116	111	116	116	—T—	—F—	—T—	183	116	116	116	116	116	131	123	116	—F—	—F—	179	179	—F—
SEMICON2	1002	1000	133	98	133	133	—T—	—F—	—T—	136	133	133	133	133	133	133	144	133	—F—	—F—	201	201	201
SIMPLLPA	2	2	5	5	5	5	5	11	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
SIMPLLPB	2	3	4	4	5	4	5	11	5	4	4	6	4	4	7	4	4	4	4	4	4	4	4
SINQUAD	5	0	12	12	12	12	17	33	13	22	12	25	12	12	12	12	12	12	12	12	12	12	12
SINQUAD	50	0	35	35	12	12	24	18	41	40	36	41	12	12	12	38	35	32	46	45	38	38	38
SINQUAD	100	0	50	50	12	12	30	23	49	53	58	65	12	12	12	53	53	51	59	54	56	56	56
SINQUAD	500	0	83	83	12	12	44	44	93	88	90	77	12	12	27	95	95	(51)	91	82	94	94	100
SINQUAD	1000	0	112	112	12	12	65	62	116	111	120	106	12	12	33	105	100	102	127	126	125	125	117
SINQUAD	5000	0	(143)	(143)	12	12	(96)	—I—	208	202	212	172	13	13	44	195	200	—T—	210	179	198	198	173
SINQUAD	10000	0	229	229	17	15	130	—I—	265	295	207	—T—	17	17	—T—	255	294	—T—	272	239	276	276	269
SISSER	2	0	13	15	13	13	13	14	13	13	13	13	13	13	13	13	13	13	13	14	13	13	11
SNAIL	2	0	77	77	73	72	78	69	77	77	77	85	76	70	71	76	63	67	109	—I—	93	214	233
SPANHYD	97	33	35	96	—I—	110	20	—I—	34	31	28	—I—	37	334	36	26	33	31	109	—I—	—I—	114	—I—
SPMSQRT	28	0	11	16	12	12	11	12	11	11	11	12	11	12	11	13	11	12	12	—I—	10	10	12
SPMSQRT	100	0	13	26	14	14	11	11	12	12	13	14	13	15	13	15	13	13	16	—I—	11	13	30
SPMSQRT	499	0	16	35	16	13	14	21	14	20	16	17	16	17	15	—I—	19	13	20	—S—	19	15	40
SPMSQRT	1000	0	18	42	19	13	15	18	13	15	18	20	16	20	15	—I—	19	13	19	—I—	16	16	92
SPMSQRT	4999	0	18	—T—	29	18	16	—T—	20	18	18	23	20	23	17	—T—	26	15	39	—I—	15	20	52
SPMSQRT	10000	0	20	—T—	41	—T—	18	—T—	23	24	20	24	19	29	17	—T—	29	—T—	36	—T—	20	28	89
SROSENBR	10	0	7	7	7	7	10	11	8	7	7	7	7	7	7	7	7	8	17	17	13	13	13
SROSENBR	50	0	7	7	7	7	10	11	7	7	7	7	7	7	7	7	7	7	17	17	13	13	13
SROSENBR	100	0	7	7	7	7	10	11	7	7	7	7	7	7	7	7	7	7	17	17	13	13	13
SROSENBR	500	0	10	10	7	7	10	11	7	10	10	10	10	10	10	10	8	10	17	17	13	13	13
SROSENBR	1000	0	10	10	7	7	10	11	7	10	10	10	10	10	10	10	7	10	17	17	13	13	13
SROSENBR	5000	0	10	10	7	7	10	11	10	10	10	10	10	10	10	10	8	10	17	17	13	13	13
SROSENBR	10000	0	10	10	7	7	10	11	10	10	10	10	10	10	10	10	10	—T—	20	20	13	13	13
SSEBLIN	194	72	65	67	—I—	—I—	54	—I—	71	72	65	—I—	70	—I—	57	64	69	63	67	66	64	65	67

Number of gradient evaluations (15)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
SSEBNLN	194	96	66	62	—I—	—I—	53	—I—	69	70	67	106	68	94	58	64	69	65	66	66	68	67	66
STEENBRA	432	108	52	59	—I—	—I—	31	—I—	53	50	53	—I—	32	—I—	—I—	63	56	34	58	52	48	57	—I—
STEENBRB	468	108	—I—	—I—	—I—	431	—I—	(329)	346	144	328	—E—	109	—I—	315	130	—I—	349	—I—	—I—	—I—	517	—I—
STEENBRC	540	126	—I—	—I—	—I—	—I—	—I—	(116)	—I—	—I—	—I—	—E—	(110)	—I—	279	—I—	—I—	98	—I—	—I—	—I—	526	—I—
STEENBRD	468	108	—I—	448	—I—	—I—	—I—	(278)	(158)	—I—	—I—	—E—	(128)	—E—	625	—I—	—I—	(107)	—I—	—I—	(771)	(459)	—I—
STEENBRE	540	126	636	—I—	—I—	—I—	—I—	(208)	—I—	—I—	—I—	—I—	152	—E—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	595	—I—
STEENBRF	468	108	—I—	—I—	—I—	712	—I—	(165)	102	145	—I—	—E—	116	(209)	180	654	—I—	83	—I—	—I—	413	458	—I—
STEENBRG	540	126	—I—	—I—	—I—	—I—	—I—	(177)	—I—	—I—	—I—	—E—	173	—E—	418	—I—	—I—	117	—I—	—I—	—I—	(685)	—I—
SVANBERG	10	10	46	46	—I—	30	33	27	35	42	39	53	48	39	36	44	99	39	47	82	47	47	48
SVANBERG	20	20	49	49	97	33	36	27	48	43	49	49	65	46	57	46	62	38	45	103	45	45	44
SVANBERG	30	30	61	61	263	34	39	28	48	49	48	45	98	64	78	45	167	41	58	197	58	58	50
SVANBERG	40	40	59	59	112	40	45	29	45	42	47	52	77	55	78	46	129	45	54	219	54	54	55
SVANBERG	50	50	55	55	—I—	43	37	30	40	48	58	74	79	68	76	60	111	43	62	342	62	62	59
SVANBERG	60	60	59	59	745	43	35	31	45	44	55	55	112	54	80	62	67	43	51	381	52	51	50
SVANBERG	70	70	61	61	215	42	40	31	45	49	60	69	99	76	72	46	178	42	62	415	59	61	62
SVANBERG	80	80	57	57	440	45	44	34	47	48	60	57	74	67	68	63	103	46	50	451	53	52	53
SVANBERG	90	90	55	55	202	45	47	35	44	64	62	61	91	70	80	62	190	47	53	433	58	54	51
SVANBERG	100	100	65	65	941	49	48	38	60	68	71	73	91	63	80	69	138	50	62	409	62	63	62
SVANBERG	500	500	75	75	—I—	—T—	48	41	53	68	91	77	110	99	84	86	206	58	86	800	88	81	87
SVANBERG	1000	1000	85	85	—I—	—T—	—T—	42	70	—T—	120	98	129	114	71	67	138	64	90	653	85	79	117
SVANBERG	5000	5000	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
TAME	2	1	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TENBARS1	18	9	711	444	—I—	—I—	431	—I—	—S—	421	—S—	782	—I—	260	473	—S—	423	—S—	—I—	—I—	304	—S—	—I—
TENBARS2	18	8	321	468	—I—	—I—	232	—I—	476	288	419	288	—I—	291	500	—S—	297	298	518	—I—	312	271	—I—
TENBARS3	18	8	210	346	—I—	—I—	157	—I—	376	192	345	216	—I—	264	467	171	220	311	370	—I—	211	209	—I—
TENBARS4	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
TOINTGOR	50	0	10	12	9	9	9	57	10	10	10	10	9	9	10	10	12	10	10	10	10	10	10
TOINTGSS	10	0	3	3	0	3	13	21	(10)	3	3	3	3	3	3	13	(11)	3	3	3	3	3	3
TOINTGSS	50	0	3	3	3	3	(11)	9	(9)	3	3	3	3	3	3	11	(11)	3	3	3	3	3	3
TOINTGSS	100	0	3	3	3	3	(8)	(10)	(9)	3	3	3	3	3	3	(7)	(11)	3	3	3	3	3	3
TOINTGSS	500	0	3	3	3	3	(8)	(10)	(7)	3	3	3	3	3	3	11	(12)	3	3	3	3	3	3
TOINTGSS	1000	0	3	3	3	3	(8)	(9)	(7)	3	3	3	3	3	3	12	(12)	3	3	3	3	3	3
TOINTGSS	5000	0	3	3	3	3	(8)	(9)	(6)	3	3	3	3	3	3	12	(13)	3	3	3	3	3	3
TOINTGSS	10000	0	3	3	3	3	8	(9)	(6)	3	3	3	3	3	3	7	13	3	3	3	3	3	3
TOINTPSP	50	0	21	21	22	21	30	30	25	23	21	24	22	22	22	28	28	22	21	21	21	21	21
TOINTQOR	50	0	7	9	5	5	6	19	7	7	7	7	5	5	6	7	9	8	7	7	7	7	7
TORSIONA	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	8	3	3	3
TORSIONA	100	0	4	5	3	3	4	4	4	4	3	3	3	3	4	4	4	5	5	36	5	5	5
TORSIONA	484	0	8	9	7	7	8	8	8	8	8	7	7	7	8	8	8	8	9	273	9	9	9
TORSIONA	1024	0	11	12	10	10	11	11	11	11	11	10	10	10	11	11	11	11	11	929	11	11	11
TORSIONA	5476	0	24	25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	—I—	24	24	24
TORSIONA	10000	0	32	33	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	—I—	32	32	32
TORSIONA	14884	0	38	41	38	38	38	38	38	38	38	38	38	38	38	38	38	38	39	—T—	39	39	39
TORSIONB	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	9	3	3	3
TORSIONB	100	0	5	6	4	4	5	5	5	5	4	4	4	4	4	5	5	6	6	31	6	6	6
TORSIONB	484	0	6	7	12	5	5	6	6	6	6	5	5	5	5	5	6	6	8	211	8	8	8
TORSIONB	1024	0	6	8	24	6	6	6	6	6	6	6	6	6	6	6	5	6	10	485	10	10	10
TORSIONB	5476	0	10	12	146	10	10	10	10	10	10	10	10	10	11	5	6	11	18	—I—	18	18	18
TORSIONB	10000	0	13	15	249	13	13	13	13	13	13	13	13	13	13	8	8	14	24	—I—	24	24	24
TORSIONB	14884	0	16	18	—T—	—I—	16	16	16	16	16	15	15	15	—T—	—T—	—T—	16	28	—T—	28	28	28
TORSIONC	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TORSIONC	100	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	8	3	3	3
TORSIONC	484	0	5	6	4	4	5	5	5	5	4	4	4	4	5	5	5	5	6	64	6	6	6
TORSIONC	1024	0	6	7	5	5	6	6	6	6	6	5	5	5	6	6	6	6	7	131	7	7	7
TORSIONC	5476	0	12	14	12	12	12	12	12	12	12	12	12	12	12	12	12	13	13	—I—	13	13	13
TORSIONC	10000	0	16	18	16	16	16	16	16	16	16	16	16	16	16	16	16	16	17	—I—	17	17	17
TORSIONC	14884	0	20	22	20	20	20	20	20	20	20	20	20	20	20	20	20	20	21	—I—	21	21	21
TORSIOND	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TORSIOND	100	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	9	4	4	4

Number of gradient evaluations (16)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
TORSIOND	484	0	5	6	6	4	5	5	5	5	4	4	4	4	5	5	5	5	6	60	6	6	6
TORSIOND	1024	0	6	7	10	5	6	6	6	6	6	5	5	5	5	6	5	6	7	216	7	7	7
TORSIOND	5476	0	10	12	34	10	10	10	10	10	10	10	10	10	10	6	7	10	11	—I—	11	11	11
TORSIOND	10000	0	12	15	79	12	12	12	12	12	12	12	12	12	12	6	—T—	12	14	—I—	14	14	14
TORSIOND	14884	0	15	17	118	15	15	15	15	15	15	15	15	15	15	—T—	—T—	15	16	—I—	16	16	16
TORSIONE	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TORSIONE	100	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TORSIONE	484	0	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	3	10	3	3	3
TORSIONE	1024	0	4	5	3	3	4	4	4	4	3	3	3	3	4	4	4	4	5	88	5	5	5
TORSIONE	5476	0	7	9	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	244	7	7	8
TORSIONE	10000	0	9	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	711	10	10	10
TORSIONE	14884	0	10	12	10	10	10	10	10	10	10	10	10	10	10	10	10	10	11	—I—	11	11	11
TORSIONF	16	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
TORSIONF	100	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
TORSIONF	484	0	3	3	3	3	3	3	3	4	3	3	3	3	4	3	6	3	4	10	4	4	4
TORSIONF	1024	0	4	6	4	4	4	4	4	4	4	4	4	4	4	4	6	5	5	70	5	5	5
TORSIONF	5476	0	6	8	12	6	6	6	6	6	6	6	6	6	6	6	5	6	8	517	8	8	8
TORSIONF	10000	0	8	10	14	8	8	8	8	8	8	8	8	8	8	7	10	8	9	775	9	9	9
TORSIONF	14884	0	8	12	30	8	8	8	8	9	8	8	8	8	8	—T—	—T—	8	10	—I—	10	10	10
TQUARTIC	5	0	2	2	9	9	9	3	2	5	2	5	2	2	2	2	11	2	2	2	2	2	2
TQUARTIC	10	0	6	6	16	11	10	4	2	6	2	6	2	2	2	6	12	7	6	6	6	6	6
TQUARTIC	50	0	9	9	11	11	9	9	2	7	17	17	2	2	2	18	13	6	9	9	9	9	9
TQUARTIC	100	0	12	12	13	13	11	14	2	9	16	15	2	2	2	12	15	8	12	10	12	12	12
TQUARTIC	500	0	14	14	14	10	12	31	2	11	13	2	2	2	2	14	14	8	14	14	14	14	14
TQUARTIC	1000	0	12	12	13	11	13	44	2	17	15	2	2	2	2	12	12	8	12	13	12	12	12
TQUARTIC	5000	0	19	19	11	—T—	12	99	2	11	17	2	2	2	2	19	26	13	18	17	18	18	18
TQUARTIC	10000	0	17	17	13	—T—	12	140	2	11	21	2	2	2	2	17	59	13	17	18	17	17	17
TRIDIA	10	0	2	2	2	2	6	12	6	2	2	2	2	2	2	2	3	2	2	2	2	2	2
TRIDIA	20	0	3	2	3	3	5	16	7	3	3	3	3	3	3	3	4	3	3	3	3	3	3
TRIDIA	30	0	3	2	3	3	5	20	7	3	3	3	3	3	3	2	4	3	3	3	3	3	3
TRIDIA	50	0	3	2	3	3	5	25	7	3	3	3	3	3	3	2	5	3	3	3	3	3	3
TRIDIA	100	0	3	2	3	3	5	34	7	3	3	3	3	3	3	2	5	3	3	3	3	3	3
TRIDIA	500	0	3	2	3	3	5	73	7	3	3	3	3	3	3	3	6	3	3	3	3	3	3
TRIDIA	1000	0	3	2	3	3	5	102	7	3	3	3	3	3	3	3	7	3	3	3	3	3	3
TRIDIA	5000	0	3	2	3	3	5	227	7	3	3	3	3	3	6	3	8	3	3	3	3	3	3
TRIDIA	10000	0	3	2	3	3	5	319	7	3	3	3	3	3	3	3	8	3	3	3	3	3	3
TRIGGER	7	6	20	—F—	30	16	—S—	—I—	—I—	—I—	20	19	17	29	33	20	—S—	19	18	13	21	21	21
VARDIM	10	0	15	17	15	15	15	280	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
VARDIM	50	0	23	27	23	23	23	—I—	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
VARDIM	100	0	26	32	26	26	26	—I—	26	26	26	26	26	26	26	26	27	26	26	26	26	26	26
VAREIGVL	10	0	16	16	22	12	10	16	11	13	15	13	27	17	12	13	12	12	19	7	14	14	15
VAREIGVL	50	0	14	15	14	14	12	18	15	15	14	14	14	14	13	14	14	14	11	8	13	14	14
VAREIGVL	100	0	13	14	13	13	12	16	13	13	13	13	13	13	13	13	18	13	12	—I—	12	13	25
VAREIGVL	500	0	13	15	13	13	13	16	13	13	13	13	13	13	13	13	15	13	16	—I—	12	12	17
VAREIGVL	1000	0	13	15	13	13	13	16	13	13	13	13	13	13	13	13	16	14	14	—I—	13	13	15
VAREIGVL	5000	0	14	15	—M—	—M—	14	19	14	14	14	—M—	—M—	—M—	—M—	14	18	14	13	—T—	13	13	18
WATSON	12	0	9	12	—I—	10	10	9	10	9	9	11	24	9	8	9	8	10	137	137	17	14	15
WATSON	31	0	11	435	—I—	95	10	33	12	12	10	24	12	51	10	11	12	11	14	14	16	18	18
WOODS	4	0	21	27	20	21	21	280	20	23	21	20	21	21	21	25	22	21	14	14	21	21	21
WOODS	100	0	21	27	25	20	22	280	20	23	21	21	21	21	21	24	23	20	13	13	21	21	21
WOODS	1000	0	23	25	30	20	21	280	21	21	23	23	23	23	23	24	21	22	13	13	23	23	23
WOODS	10000	0	23	25	25	—T—	21	280	21	21	23	23	23	23	23	21	24	—T—	14	14	23	23	23
ZANGWIL2	2	0	2	2	2	2	2	3	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2
ZANGWIL3	3	0	8	8	8	8	8	246	8	11	8	8	8	8	8	8	8	8	8	8	8	8	8
ZIGZAG	64	50	34	34	—I—	173	28	63	37	39	38	35	34	32	39	35	37	33	35	42	35	42	36
ZIGZAG	304	250	83	247	—I—	—I—	192	479	85	82	96	96	79	—I—	79	86	87	81	214	214	89	83	85
ZIGZAG	604	500	90	—I—	—I—	—I—	—T—	949	113	127	91	99	85	—I—	90	90	87	86	—S—	—S—	92	86	85
ZIGZAG	3004	2500	—T—	—T—	—T—	—T—	—T—	—I—	—T—	—T—	146	—T—	83	—T—	93	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—

5 Number of conjugate gradient iterations

This section presents the number of cumulated conjugate gradient iterations required by the 21 algorithmic variants for convergence. The column headings in the tables refer to these variants, using the terminology of the paper. Other conventions are as in the previous section.

Number of cg-iterations (1)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
AGG	163	488	—T—	—T—	—I—	—I—	—T—	—I—	—S—	—S—	—T—	—I—	—S—	—I—	—T—	—S—	—I—	—S—	—T—	—T—	—T—	—T—	—T—
AIRCRFTA	8	5	2	3	0	0	9	78	9	9	2	2	12	2	2	2	2	2	2	4	2	2	2
AIRCRFTB	8	0	14	17	0	0	43	45	43	40	14	25	10	10	12	15	15	21	19	—S—	16	14	15
ALJAZZAF	3	1	4	4	0	0	7	—I—	3	4	4	3	4	4	4	4	4	4	5	—I—	5	5	5
ARGAUSS	3	0	1	1	0	0	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ARGLINA	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
ARGLINA	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0
ARGLINB	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
ARGLINB	50	0	0	—S—	0	0	0	—I—	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0
ARGLINB	100	0	0	—S—	0	0	0	—I—	0	0	0	0	0	6	0	—S—	—S—	0	0	0	0	0	0
ARGLINC	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
ARGLINC	50	0	0	—S—	0	0	0	—I—	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
ARGLINC	100	0	0	—S—	0	0	0	—I—	0	0	0	0	0	9	0	—S—	—S—	0	0	0	0	0	0
ARGTRIG	10	0	11	11	0	0	61	23	9	10	9	7	9	7	7	9	6	14	6	6	11	11	11
ARGTRIG	50	0	13	13	0	0	212	21	36	51	9	8	4	5	7	13	18	20	6	6	8	8	8
ARGTRIG	100	0	23	23	0	0	562	21	29	41	15	6	4	5	7	23	25	23	6	6	5	5	5
ARTIF	12	0	13	9	0	0	50	19	15	13	13	13	12	13	13	16	17	41	6	6	5	5	5
ARTIF	52	0	20	21	0	0	322	19	23	20	20	27	25	27	27	17	25	247	13	13	12	12	12
ARTIF	102	0	34	40	0	0	47438	220	37	34	34	55	43	55	38	40	37	570	47	47	25	25	25
ARTIF	502	0	38	40	0	0	1316	130	39	38	38	54	44	54	42	34	31	801	54	54	27	27	27
ARTIF	1002	0	38	44	0	0	1160	173	38	38	38	46	45	46	45	34	28	812	47	47	27	27	27
ARTIF	5002	0	38	48	0	—T—	1205	196	38	38	38	63	43	63	45	37	41	812	51	51	25	25	25
ARWHEAD	100	0	2	2	0	0	4	27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ARWHEAD	500	0	1	1	0	0	2	55	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
ARWHEAD	1000	0	1	1	0	0	2	80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ARWHEAD	5000	0	1	1	0	0	2	67	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
BARD	3	0	6	6	0	0	31	14	28	30	6	19	9	7	11	6	6	6	11	—I—	8	9	9
BDEXP	100	0	12	26	0	0	19	11	66	137	12	10	10	10	10	12	11	15	17	18	16	24	23
BDEXP	500	0	(12)	(26)	(0)	(0)	(19)	6	(66)	(143)	(12)	(10)	(10)	(10)	(10)	(12)	(12)	(15)	17	18	(16)	31	(29)
BDEXP	1000	0	(12)	(26)	(0)	(0)	(19)	3	(66)	(143)	(12)	(10)	(10)	(10)	(10)	(12)	(12)	(15)	(17)	18	(16)	(29)	(28)
BDEXP	5000	0	(12)	(26)	(0)	(0)	(19)	(14)	(66)	(143)	(12)	(10)	(10)	(10)	(10)	(12)	(11)	(15)	(17)	18	(16)	(133)	(33)
BDQRTIC	100	0	12	8	0	0	56	102	18	17	12	12	9	9	9	12	13	12	13	13	13	13	13
BDQRTIC	500	0	13	8	0	0	66	207	18	17	13	13	9	9	9	13	14	13	13	13	13	13	21
BDQRTIC	1000	0	13	10	0	0	66	298	17	17	13	13	9	9	11	13	14	13	13	13	13	13	—S—
BDVALUE	12	0	2	2	0	0	20	20	28	18	2	2	2	2	2	2	2	2	2	2	2	2	2
BDVALUE	52	0	1	1	0	0	1406	1050	847	74	1	1	1	1	1	1	1	1	1	1	1	1	1
BDVALUE	102	0	1	1	0	0	300	300	289	91	1	1	1	1	1	1	1	1	1	1	1	1	1
BDVALUE	502	0	1	1	0	0	19	32	1	80	1	1	1	1	2	1	1	1	1	1	1	1	1
BDVALUE	1002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BDVALUE	5002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BEALE	2	0	7	—E—	0	0	7	225	10	7	7	7	7	7	7	7	6	7	6	10	7	8	8
BIGBANK	2230	1112	—T—	—T—	0	0	—T—	—I—	—T—	—T—	—T—	—T—	59	59	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
BIGGS3	6	0	9	10	0	0	25	24	22	21	9	11	9	9	9	11	10	13	17	—S—	9	11	11
BIGGS5	6	0	55	57	—I—	0	52	154	172	(134)	55	60	45	57	47	55	63	141	44	—I—	(411)	38	46
BIGGS6	6	0	113	51	0	0	71	—I—	208	90	113	68	123	84	(89)	93	82	289	(280)	—I—	86	58	90
BOOTH	2	0	1	1	0	0	2	7	4	1	1	3	1	1	1	2	1	1	1	1	1	1	1
BOX2	3	0	6	9	0	0	2	15	5	6	6	4	1	3	3	6	6	6	6	6	6	6	6
BOX3	3	0	6	14	0	0	14	16	17	16	6	12	7	6	6	6	6	7	9	9	9	9	9
BQPGAUSS	2003	0	2227	—S—	—I—	0	9878	8568	2928	2910	2528	1829	182	196	489	2708	2257	2623	—I—	—S—	3871	2646	—I—
BRATU1D	13	0	5	5	0	0	51	89	51	5	5	5	5	5	5	5	5	6	—S—	—S—	11	9	437
BRATU1D	77	0	7	7	0	0	350	1130	333	7	7	8	7	7	7	7	9	7	—I—	—I—	12	9	—I—
BRATU1D	103	0	7	7	0	0	471	—I—	438	7	7	7	7	7	7	7	8	9	—I—	—I—	12	10	—I—
BRATU1D	503	0	8	8	0	—E—	2482	—I—	2469	8	8	9	8	8	8	7	13	9	—E—	—I—	—E—	8	—E—
BRATU1D	1003	0	7	—E—	0	0	4904	—I—	5465	7	7	7	7	7	7	7	13	10	—E—	—I—	—E—	8	—E—
BRATU2D	49	25	36	40	0	0	18	23	18	24	3	8	3	3	5	36	41	35	36	36	36	36	33
BRATU2D	100	64	38	40	0	0	39	53	37	38	58	3	3	3	6	38	47	38	38	38	38	38	38
BRATU2D	484	400	177	273	0	0	142	294	142	196	177	2	2	2	79	176	196	180	177	177	177	177	173
BRATU2D	1024	900	264	490	0	0	297	609	300	277	264	2	2	2	143	264	392	263	264	264	264	264	264
BRATU2D	5184	4900	1092	1906	—F—	—F—	—F—	2117	1451	1214	1092	—F—	—F—	—F—	107	1093	1794	1092	1093	1093	1093	1093	1093

Number of cg-iterations (2)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
BRATU3D	27	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRATU3D	125	27	17	17	0	0	16	22	15	18	23	4	4	4	6	17	18	18	17	17	17	17	17
BRATU3D	512	216	58	58	0	0	40	74	36	46	31	3	3	3	17	58	70	68	58	58	58	58	57
BRATU3D	1000	512	70	95	0	0	81	126	71	71	49	3	3	3	23	70	82	75	70	70	70	70	70
BRATU3D	4913	3375	224	241	0	0	267	386	240	224	224	3	3	3	44	230	249	226	224	224	224	224	224
BRIDGEND	2734	2727	—T—	—I—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—I—	—T—	991	—T—	—T—	—T—	—T—	—I—	—I—	—T—	—T—	—I—
BRITGAS	450	360	9775	8915	—I—	—I—	25466	4908	2506	4355	6250	7497	2548	434	2915	5867	4802	5608	—I—	—I—	5990	20346	—I—
BRKMCC	2	0	2	3	0	0	5	7	5	2	2	3	2	2	2	2	2	2	2	2	2	2	2
BROWNAL	10	0	37	37	0	0	6	13	6	47	3	8	3	3	3	38	40	32	27	26	34	34	34
BROWNAL	50	0	37	37	0	0	5	5	5	52	38	6	5	2	2	36	41	38	53	41	36	38	40
BROWNBS	2	0	16	16	—I—	—I—	29	5	15	16	16	14	23	17	26	17	21	29	45	—I—	18	16	17
BROWNDEN	4	0	9	11	0	0	24	—I—	31	15	9	24	9	9	9	10	10	11	12	66	11	9	—I—
BROYDN3D	10	0	5	5	0	0	24	39	21	9	5	5	5	5	5	5	5	5	4	4	4	4	4
BROYDN3D	50	0	5	5	0	0	26	42	23	11	5	5	5	5	5	5	5	5	4	4	4	4	4
BROYDN3D	100	0	5	5	0	0	27	39	24	11	5	5	5	5	5	5	5	5	4	4	4	4	4
BROYDN3D	500	0	5	5	0	0	29	39	25	10	5	5	5	5	5	5	5	5	4	4	8	8	8
BROYDN3D	1000	0	5	5	0	0	30	39	25	10	5	5	5	5	5	5	6	5	4	4	8	8	8
BROYDN3D	5000	0	5	5	0	0	29	37	23	9	5	5	5	5	5	5	6	5	4	4	8	8	8
BROYDN3D	10000	0	5	5	0	0	28	37	20	8	5	5	5	5	5	5	5	5	4	4	7	7	7
BROYDN7D	10	0	16	16	(0)	0	78	(87)	(54)	33	16	27	18	(16)	(21)	23	24	40	(52)	(52)	23	23	23
BROYDN7D	50	0	(36)	(36)	(0)	(0)	(83)	(67)	(53)	77	(36)	(32)	(20)	(28)	(32)	(25)	(24)	(79)	(70)	(70)	(26)	(26)	(26)
BROYDN7D	100	0	(33)	(33)	(0)	(0)	(90)	(83)	(63)	132	(33)	(45)	(26)	(41)	(42)	(35)	(42)	(144)	(91)	(91)	(35)	(35)	(35)
BROYDN7D	500	0	(86)	(86)	(0)	(0)	(250)	(192)	(173)	432	(86)	(126)	(31)	(110)	(124)	(74)	(61)	(713)	(178)	(178)	(57)	(57)	(75)
BROYDN7D	1000	0	(132)	(132)	(0)	(0)	(434)	(355)	(297)	356	(132)	(204)	(42)	(89)	(29)	(127)	(117)	(1420)	(294)	(294)	(113)	(119)	(122)
BROYDNBD	10	10	25	32	0	0	70	69	41	38	10	28	11	11	11	25	24	28	25	25	25	25	25
BROYDNBD	50	50	25	25	0	0	109	72	38	30	10	13	15	13	13	30	29	33	32	32	32	32	32
BROYDNBD	100	100	26	26	0	0	100	71	26	33	12	18	12	18	11	24	27	127	25	25	25	25	25
BROYDNBD	500	500	28	28	0	0	110	67	32	32	13	17	12	17	14	27	30	31	26	26	25	26	26
BROYDNBD	1000	1000	30	30	0	0	180	63	35	38	12	32	12	32	15	24	22	411	28	28	28	28	28
BROYDNBD	5000	5000	56	56	0	0	221	53	29	26	27	46	11	46	19	—F—	59	34	24	24	24	24	24
CBRATU2D	32	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CBRATU2D	98	50	30	30	0	0	23	27	24	24	46	10	4	4	6	30	28	27	29	29	29	29	29
CBRATU2D	512	392	102	135	0	0	118	236	111	111	102	3	3	3	40	101	134	102	102	102	102	102	105
CBRATU2D	1058	882	211	292	0	0	244	407	237	237	211	3	3	3	71	211	289	211	211	211	211	211	211
CBRATU3D	54	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CBRATU3D	128	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CBRATU3D	686	250	42	42	0	0	36	54	31	31	33	4	4	4	13	42	35	42	35	35	35	35	35
CBRATU3D	2000	1024	70	95	0	0	81	118	71	71	70	3	3	3	22	71	82	75	70	70	70	70	70
CHANDHEQ	10	0	38	38	0	0	66	43	40	43	13	16	13	13	13	38	37	37	38	38	38	38	79
CHANDHEQ	50	0	48	51	0	0	98	39	39	45	48	17	13	13	13	48	49	48	51	50	51	50	102
CHANDHEQ	100	0	49	47	0	0	122	39	41	41	55	18	13	13	13	49	49	49	50	48	50	50	73
CHEBYQAD	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0	0
CHEBYQAD	4	0	9	9	0	0	12	12	12	11	9	9	8	10	9	9	11	11	6	6	7	7	7
CHEBYQAD	5	0	9	14	0	0	12	10	12	13	9	11	9	8	9	8	8	9	6	6	6	6	7
CHEBYQAD	6	0	21	21	0	0	25	23	24	26	21	18	16	14	21	22	14	33	9	9	16	16	16
CHEBYQAD	7	0	25	35	0	0	23	24	24	33	16	23	17	14	24	27	21	40	30	30	26	26	26
CHEBYQAD	8	0	59	59	0	0	38	36	30	45	31	43	23	29	28	57	49	101	114	114	34	34	34
CHEBYQAD	9	0	76	99	0	0	30	33	36	47	24	27	24	27	18	75	64	80	100	100	68	68	67
CHEBYQAD	10	0	68	68	(0)	0	(46)	(57)	(47)	(62)	28	68	25	27	27	62	56	(128)	186	186	61	61	62
CHEBYQAD	20	0	145	145	0	0	172	293	110	176	98	198	53	44	54	142	148	358	391	399	141	141	134
CHEBYQAD	50	0	744	1126	0	0	441	512	367	775	782	268	259	139	307	761	626	763	—I—	—I—	568	562	619
CHEMRCTA	10	10	17	20	0	0	52	850	57	200	11	20	17	13	10	17	17	34	17	18	17	17	17
CHEMRCTA	50	50	201	236	0	0	—F—	—F—	—F—	30409	175	36	101	28	—F—	210	175	167	207	205	226	224	217
CHEMRCTA	100	100	694	429	0	0	—F—	—F—	—F—	—S—	674	83	—F—	52	—F—	636	625	935	611	681	543	598	606
CHEMRCTA	500	500	—T—	—F—	—F—	—F—	—T—	—F—	—T—	—T—	—T—	486	—F—	142	—T—	—F—	—F—	—T—	—E—	—T—	—F—	—F—	—T—
CHEMRCTA	1000	1000	—T—	—F—	—F—	—F—	—T—	—T—	—T—	—T—	—T—	922	1092	294	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTA	5000	5000	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTB	10	10	8	8	0	0	89	—F—	224	564	8	8	8	8	8	8	9	13	15	9	15	15	15
CHEMRCTB	50	50	27	76	0	—F—	—F—	—F—	—F—	81348	27	26	35	26	86	27	22	35	28	25	28	28	28

Number of cg-iterations (3)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
CHEMRCTB	100	100	27	42	0	0	—F—	—F—	—F—	—S—	27	42	42	42	—F—	27	37	37	35	38	35	35	35
CHEMRCTB	500	500	161	161	0	—F—	—T—	—T—	—T—	—T—	161	155	155	155	—F—	164	152	279	164	162	164	164	160
CHEMRCTB	1000	1000	300	—S—	0	—F—	—T—	—T—	—T—	—T—	300	298	323	298	—F—	302	305	472	—S—	—S—	—S—	—S—	—S—
CHNROSNB	10	0	29	32	0	0	167	133	130	29	29	29	29	29	29	29	31	32	35	35	27	27	27
CHNROSNB	25	0	44	39	0	0	297	3128	221	44	44	56	50	56	52	44	48	67	62	62	42	42	42
CHNROSNB	50	0	76	69	0	0	508	290	330	76	76	76	80	76	83	76	73	163	90	90	68	68	62
CLIFF	2	0	3	3	0	0	6	—I—	6	3	3	3	3	3	4	3	3	3	3	3	3	3	3
CLPLATEA	16	0	3	3	0	0	19	20	16	17	3	3	3	3	3	3	3	3	3	3	3	3	3
CLPLATEA	49	0	26	26	0	0	42	46	35	26	3	3	3	3	3	26	25	24	26	26	26	26	26
CLPLATEA	100	0	39	40	0	0	61	76	53	39	4	4	4	4	4	39	39	40	39	39	39	39	39
CLPLATEA	529	0	104	99	0	0	171	209	157	104	104	5	5	5	12	104	91	94	104	104	104	104	104
CLPLATEA	1024	0	143	137	0	0	220	303	157	143	143	5	5	5	24	143	133	168	143	143	143	143	143
CLPLATEA	5041	0	319	314	0	0	752	607	432	319	319	13	13	13	41	327	390	423	319	319	319	319	319
CLPLATEB	16	0	3	3	0	0	22	21	20	17	3	3	3	3	3	3	3	3	3	3	3	3	3
CLPLATEB	49	0	23	34	0	0	34	30	30	23	2	2	2	2	3	23	23	23	23	23	23	23	23
CLPLATEB	100	0	34	50	0	0	50	46	44	34	2	2	2	2	3	34	34	34	34	34	34	34	34
CLPLATEB	529	0	76	107	0	0	113	111	102	76	76	2	2	2	10	76	90	76	76	76	76	76	76
CLPLATEB	1024	0	107	126	0	0	154	152	139	107	107	2	2	2	15	107	118	107	107	107	107	107	107
CLPLATEB	5041	0	214	340	0	0	326	318	299	214	214	2	2	2	26	214	263	214	214	214	214	214	214
CLPLATEC	16	0	2	2	0	0	24	24	23	29	2	2	2	2	2	2	2	2	2	2	2	2	2
CLPLATEC	49	0	60	89	0	0	82	78	85	60	2	2	2	2	3	60	61	72	60	60	60	60	60
CLPLATEC	100	0	168	200	0	0	165	202	166	168	1	1	1	1	10	168	162	162	168	168	168	168	168
CLPLATEC	529	0	743	701	0	0	719	908	810	743	743	1	1	1	63	743	758	743	743	743	743	743	743
CLPLATEC	1024	0	1273	1279	0	0	1403	2465	1115	1273	1273	1	1	1	90	1273	1273	1273	1273	1273	1273	1273	1273
CLPLATEC	5041	0	3932	4032	0	0	5632	15127	4226	3932	3932	1	1	1	472	3932	6903	3932	3932	3932	3932	3932	3932
CLUSTER	2	2	9	9	0	0	7	3	7	9	9	7	9	9	5	10	10	7	7	9	8	6	6
CORKSCRW	96	70	636	614	0	0	638	761	587	669	278	205	184	90	215	682	581	1032	704	3940	599	843	701
CORKSCRW	456	350	76609	23227	—I—	0	—T—	152025	78307	83029	14146	5512	3279	1690	9830	71044	72785	71802	97475	—I—	77453	80626	78851
CORKSCRW	906	700	—T—	113552	—I—	—I—	—T—	—I—	—T—	—T—	—S—	7687	—S—	4337	20465	—T—	—T—	—T—	—T—	—I—	—T—	—T—	—T—
CORKSCRW	4506	3500	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CORKSCRW	9006	7000	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CRAGGLVY	4	0	14	19	0	0	50	62	49	14	14	25	14	14	14	16	18	16	14	14	14	14	14
CRAGGLVY	10	0	11	13	0	0	82	216	53	11	11	11	11	11	11	11	10	11	11	11	11	11	11
CRAGGLVY	50	0	11	13	0	0	121	194	70	11	11	11	11	11	12	11	11	11	11	12	11	11	11
CRAGGLVY	100	0	11	13	0	0	164	196	70	11	11	11	11	11	12	11	12	11	11	12	11	11	11
CRAGGLVY	500	0	11	14	0	0	166	176	68	11	11	11	11	11	12	11	12	11	11	12	11	11	11
CRAGGLVY	1000	0	11	14	0	0	166	156	71	11	11	11	11	11	12	11	12	11	12	12	12	12	17
CRAGGLVY	5000	0	12	15	0	0	166	118	68	12	12	12	12	12	13	12	14	12	12	12	12	12	—S—
CUBE	2	0	35	41	0	0	71	775	65	35	35	61	45	38	39	35	41	57	33	22	24	24	24
DALLASL	906	667	64893	—T—	0	0	177772	—I—	92082	112090	27521	1682	63	63	16144	45249	48561	59946	67111	—I—	62804	74410	(66202)
DALLASM	196	151	13763	—I—	0	0	169005	—I—	127379	58503	7568	486	43	43	7465	13172	13624	12585	13978	—I—	14124	14604	12680
DALLASS	46	31	3037	—S—	0	0	7646	—I—	6520	7098	5385	749	43	43	768	3680	3467	4114	3665	—I—	3799	4198	4447
DEGENLPA	20	15	136	84	—I—	0	3613	—I—	292	275	43	147	44	50	208	—S—	135	—S—	159	—S—	158	159	158
DEGENLPB	20	15	—S—	—S—	—I—	0	5503	—I—	—S—	373	—S—	130	—S—	35	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
DENSCHNA	2	0	4	4	0	0	6	8	6	4	4	4	4	4	4	4	4	4	3	3	3	3	3
DENSCHNB	2	0	2	2	0	0	3	0	2	2	2	2	2	2	2	2	4	3	0	0	0	0	0
DENSCHNC	2	0	4	10	0	0	8	8	8	4	4	6	4	4	4	4	4	4	5	4	5	5	5
DENSCHND	3	0	30	34	0	0	61	—I—	71	59	30	48	36	36	46	33	30	26	38	—I—	31	30	34
DENSCHNE	3	0	5	—E—	0	0	7	0	5	5	5	4	5	4	4	6	9	10	5	6	5	5	5
DENSCHNF	2	0	6	6	0	0	10	6	8	6	6	6	6	6	6	6	6	6	4	4	4	4	4
DIPIGRI	7	4	283	333	0	0	165	1223	145	176	51	139	29	28	90	269	1130	374	350	—I—	217	302	—I—
DISC2	29	23	660	865	—I—	0	1302	1571	670	911	864	593	293	100	467	722	674	1675	820	—I—	494	574	662
DISCS	36	66	28516	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—F—	(591)	—I—	(829)	—F—	—I—	—T—	10299	7067	27867	27984	—I—
DIXCHLNG	10	5	44	56	0	0	91	1904	72	(281)	28	53	35	27	28	54	48	89	95	—I—	32	51	(1835)
DIXCHLNV	10	5	21	85	0	0	102	2832	67	22	10	18	12	13	12	30	28	25	29	—I—	29	14	33
DIXMAANA	15	0	4	4	0	0	8	2	8	8	4	8	3	5	4	4	5	5	8	0	4	5	14
DIXMAANA	90	0	9	9	0	0	9	2	9	9	9	8	4	5	4	9	3	9	8	0	14	5	0
DIXMAANA	300	0	9	9	0	0	9	2	9	9	9	8	4	5	5	9	4	13	10	0	15	6	0
DIXMAANA	1500	0	10	10	0	0	9	2	10	10	10	9	4	5	5	10	6	15	15	0	17	7	0

Number of cg-iterations (4)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXMAANA	3000	0	10	10	0	0	8	2	10	10	10	9	4	5	5	10	7	15	15	0	17	7	0
DIXMAANB	15	0	5	5	0	0	13	3	5	9	5	6	5	5	4	5	6	21	6	0	17	4	14
DIXMAANB	90	0	10	10	0	0	14	2	6	10	10	7	5	6	6	10	7	85	8	0	16	7	10
DIXMAANB	300	0	6	6	0	0	13	2	6	6	6	8	6	6	7	6	9	342	8	0	18	8	10
DIXMAANB	1500	0	7	7	0	0	13	2	8	7	7	6	6	10	7	7	6	1744	8	0	17	7	10
DIXMAANB	3000	0	7	7	0	0	13	3	10	7	7	6	6	5	7	7	12	3495	8	0	18	7	10
DIXMAANC	15	0	6	6	0	0	14	3	9	6	6	8	6	7	7	7	9	26	9	0	24	8	27
DIXMAANC	90	0	7	7	0	0	14	3	9	7	7	8	8	8	7	8	11	123	10	0	43	9	10
DIXMAANC	300	0	9	9	0	0	15	3	9	9	9	9	7	7	8	11	10	405	10	0	44	10	10
DIXMAANC	1500	0	11	11	0	0	15	3	11	11	11	13	8	10	10	12	8	3487	10	0	37	9	10
DIXMAANC	3000	0	13	13	0	0	15	3	12	13	13	12	8	10	10	16	13	7487	11	0	47	10	10
DIXMAAND	15	0	7	13	0	0	17	6	10	12	7	12	8	9	9	7	6	42	11	0	40	10	28
DIXMAAND	90	0	11	24	0	0	17	6	12	11	11	10	11	7	9	12	10	223	17	0	62	14	25
DIXMAAND	300	0	10	27	0	0	18	5	12	10	10	11	10	12	17	11	14	747	18	0	63	14	25
DIXMAAND	1500	0	12	24	0	0	19	5	14	12	12	17	13	17	12	12	13	3751	22	0	77	14	25
DIXMAAND	3000	0	13	15	0	0	18	5	16	13	13	10	13	14	17	14	13	7505	24	0	72	13	25
DIXMAANE	15	0	6	10	0	0	29	16	9	9	6	8	5	7	5	6	6	28	8	0	17	8	22
DIXMAANE	90	0	10	16	0	0	61	24	10	10	10	9	5	7	5	10	20	156	25	0	206	15	40
DIXMAANE	300	0	10	16	0	0	109	24	10	10	10	9	6	7	5	10	12	495	43	0	324	20	100
DIXMAANE	1500	0	11	20	0	0	211	33	11	11	11	10	6	7	5	11	19	2454	57	0	358	26	209
DIXMAANE	3000	0	11	17	0	0	276	38	11	11	11	10	6	7	6	11	25	4896	78	0	409	26	263
DIXMAANF	15	0	10	6	0	0	33	7	12	9	10	8	8	9	8	11	8	34	10	0	41	9	29
DIXMAANF	90	0	11	20	0	0	70	10	19	11	11	14	10	14	10	11	21	191	20	0	223	17	24
DIXMAANF	300	0	21	16	0	0	114	17	24	21	21	16	19	15	17	13	18	742	23	0	375	17	70
DIXMAANF	1500	0	24	21	0	0	183	53	32	24	24	27	27	19	37	37	43	3713	37	0	429	26	254
DIXMAANF	3000	0	24	46	0	0	230	43	37	24	24	36	25	39	11	46	23	7464	34	0	62	21	446
DIXMAANG	15	0	11	13	0	0	38	9	11	10	11	11	13	12	14	11	9	47	13	0	47	11	26
DIXMAANG	90	0	17	29	0	0	71	11	18	17	17	12	13	12	15	13	11	252	21	0	202	21	43
DIXMAANG	300	0	24	44	0	0	110	16	20	24	24	15	29	15	40	17	37	845	25	0	504	30	124
DIXMAANG	1500	0	21	110	0	0	175	23	24	21	21	42	32	35	45	28	26	4102	34	0	506	25	483
DIXMAANG	3000	0	52	157	0	0	264	28	26	52	52	36	26	41	45	58	28	8254	36	0	—I—	46	845
DIXMAANH	15	0	13	18	0	0	36	9	14	11	13	15	10	14	10	12	12	43	13	0	63	14	38
DIXMAANH	90	0	21	28	0	0	72	12	22	21	21	16	16	17	26	13	23	266	37	0	310	20	66
DIXMAANH	300	0	24	37	0	0	130	18	23	24	24	26	25	29	33	30	18	881	40	0	—I—	25	184
DIXMAANH	1500	0	41	92	0	0	221	27	27	41	41	39	31	24	74	30	22	4544	43	0	—I—	34	674
DIXMAANH	3000	0	38	182	0	—T—	285	51	29	38	38	40	47	39	82	32	55	9095	93	0	—I—	45	—I—
DIXMAANI	15	0	6	21	0	0	55	23	9	9	6	9	5	6	6	6	7	25	10	0	51	13	29
DIXMAANI	90	0	9	23	0	0	286	27	9	9	9	8	5	6	6	9	15	192	54	0	367	20	—I—
DIXMAANI	300	0	9	21	0	0	962	31	9	9	9	8	5	7	10	9	23	612	65	0	691	22	—I—
DIXMAANI	1500	0	16	27	0	0	3023	45	9	16	16	8	5	8	25	16	39	3019	96	0	1497	27	1
DIXMAANI	3000	0	22	40	0	0	5633	63	9	22	22	8	6	8	45	22	23	6033	157	0	1757	37	1
DIXMAANJ	15	0	12	0	0	0	72	14	12	14	12	13	16	16	6	12	11	44	16	0	332	14	34
DIXMAANJ	90	0	22	0	0	0	284	40	17	22	22	16	18	28	25	22	35	255	31	0	358	23	610
DIXMAANJ	300	0	22	0	0	0	669	69	28	22	22	40	33	28	43	36	16	795	35	0	236	53	—I—
DIXMAANJ	1500	0	44	0	0	0	3069	82	45	37	44	67	38	51	137	41	56	4482	53	0	305	50	1
DIXMAANJ	3000	0	61	0	0	—T—	4083	85	29	52	56	82	52	52	63	41	81	9456	114	0	165	47	1
DIXMAANK	15	0	16	23	0	0	54	16	18	11	16	21	11	16	10	17	16	50	16	0	138	12	49
DIXMAANK	90	0	19	149	0	0	200	63	31	19	19	24	18	19	29	28	23	320	37	0	308	28	—I—
DIXMAANK	300	0	25	109	0	0	564	71	20	25	25	42	40	35	49	39	27	1177	36	0	307	34	—I—
DIXMAANK	1500	0	48	243	0	0	1838	77	36	49	47	59	54	74	251	38	80	5734	67	0	346	52	1
DIXMAANK	3000	0	37	250	0	—T—	3073	88	47	35	37	63	33	65	684	55	157	10888	95	0	218	51	1
DIXMAANL	15	0	14	24	0	0	57	15	18	11	14	12	13	16	12	16	10	54	20	0	124	19	35
DIXMAANL	90	0	46	62	0	0	221	38	14	46	46	31	37	31	17	25	39	380	54	—I—	449	27	—I—
DIXMAANL	300	0	38	96	0	0	980	101	28	38	38	43	54	52	69	45	45	1235	42	—E—	874	42	—I—
DIXMAANL	1500	0	67	184	0	0	1344	82	52	59	67	79	42	71	596	86	59	5988	111	—T—	382	59	1
DIXMAANL	3000	0	69	161	0	—T—	3071	81	39	70	69	76	81	78	1304	130	413	14506	170	—T—	365	55	1
DIXON3DQ	10	0	2	2	0	0	24	25	22	2	2	2	2	2	2	2	3	2	2	2	2	2	2
DIXON3DQ	50	0	2	2	0	0	69	155	129	2	2	2	2	2	2	2	4	2	2	2	2	2	2
DIXON3DQ	100	0	2	2	0	0	216	310	255	2	2	2	2	2	2	2	4	2	2	2	2	2	2

Number of cg-iterations (5)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXON3DQ	500	0	2	2	0	0	776	1341	839	2	2	2	2	2	2	2	5	2	2	2	2	2	2
DIXON3DQ	1000	0	2	2	0	0	1427	2672	2104	2	2	2	2	2	2	2	6	2	2	2	2	2	2
DIXON3DQ	5000	0	2	2	0	0	7487	12518	6766	2	2	2	2	2	4	2	7	2	2	2	2	2	2
DQDRTIC	10	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0
DQDRTIC	50	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0
DQDRTIC	100	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0
DQDRTIC	500	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0
DQDRTIC	1000	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0
DQDRTIC	5000	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0
DQRTIC	10	0	15	18	0	0	28	0	15	15	15	15	15	15	15	17	17	15	15	15	15	15	15
DQRTIC	50	0	20	27	0	0	57	—I—	20	20	20	20	20	20	20	22	24	20	20	20	20	20	20
DQRTIC	100	0	21	41	0	0	90	—I—	21	21	21	21	21	21	21	23	25	21	21	21	21	21	21
DQRTIC	500	0	26	125	0	0	162	—I—	26	26	26	26	26	26	26	27	31	26	26	26	26	26	26
DQRTIC	1000	0	27	278	0	0	223	—I—	27	27	27	27	27	27	27	28	33	27	27	27	27	27	27
DQRTIC	5000	0	31	1559	0	0	368	—I—	31	31	31	31	31	31	31	33	42	31	31	31	31	31	31
EDENSCH	36	0	9	10	0	0	33	13	19	9	9	10	9	10	10	10	14	9	38	—I—	14	11	11
EDENSCH	2000	0	9	10	0	0	36	8	22	9	9	8	8	8	10	10	13	9	49	—I—	12	11	11
ENGVAL1	2	0	5	5	0	0	10	4	6	5	5	6	5	5	5	5	5	5	5	16	5	5	5
ENGVAL1	50	0	7	7	0	0	20	11	14	7	7	7	7	7	7	7	8	7	7	25	7	7	7
ENGVAL1	100	0	7	7	0	0	20	9	14	7	7	7	7	7	7	7	9	7	7	26	7	7	7
ENGVAL1	1000	0	7	8	0	0	20	8	13	7	7	7	7	7	7	7	10	7	7	26	7	7	7
ENGVAL1	5000	0	7	8	0	0	20	8	14	7	7	7	7	7	7	7	9	7	7	—S—	7	7	7
ENGVAL2	3	0	14	14	0	0	30	79	37	31	14	33	15	14	15	19	16	13	15	11	15	16	14
ERRINBAR	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
ERRINROS	10	0	55	—S—	0	0	446	(314)	207	55	55	46	46	46	45	55	53	87	128	128	32	32	45
ERRINROS	25	0	50	73	0	0	630	(213)	283	50	50	51	42	51	60	60	50	123	117	117	37	37	85
ERRINROS	50	0	73	61	0	0	804	(350)	268	73	73	59	62	59	45	73	70	144	106	106	44	44	149
EXPFIT	2	0	7	7	—E—	—E—	12	—E—	11	7	7	10	7	10	7	10	11	8	8	—I—	3	10	10
EXPFITA	5	22	203	286	—I—	0	685	2898	217	327	343	243	21	22	188	202	254	216	660	—I—	918	785	733
EXPFITB	5	102	891	713	—I—	0	1904	5565	851	1012	898	305	51	50	372	848	1991	895	1492	—I—	2455	1141	2023
EXPFITC	5	502	1770	—S—	—T—	0	5142	—I—	2263	2149	1758	1193	179	188	880	1611	4982	1940	2862	—I—	5005	2430	—I—
EXTROSNB	5	0	62	63	0	0	315	812	329	62	62	62	62	62	62	62	70	87	77	77	63	63	63
EXTROSNB	10	0	700	642	0	0	3029	—I—	3902	700	700	491	491	491	491	700	661	829	962	962	661	661	661
FREUROTH	2	0	5	5	0	0	12	46	10	5	5	8	5	5	5	6	7	9	13	23	7	7	7
FREUROTH	10	0	6	5	0	0	27	44	14	6	6	6	7	6	6	10	9	9	15	36	10	10	10
FREUROTH	50	0	7	5	0	0	28	32	14	7	7	7	8	7	8	7	6	10	16	35	8	8	—I—
FREUROTH	100	0	7	5	0	0	28	31	14	7	7	7	8	7	8	7	5	9	16	40	8	8	—I—
FREUROTH	500	0	7	5	0	0	28	31	—S—	7	7	7	8	7	8	8	8	9	—S—	—S—	8	8	24
FREUROTH	1000	0	7	5	0	0	—S—	31	—S—	7	7	7	8	7	8	8	10	9	16	—S—	8	8	—S—
FREUROTH	5000	0	7	5	0	0	28	31	—S—	7	7	7	8	7	8	8	—S—	9	—S—	—S—	8	8	—S—
GAUSSELM	14	11	99	—E—	0	(0)	(37)	(117)	(132)	(112)	(80)	158	55	(40)	64	122	161	167	340	—I—	127	105	105
GAUSSELM	506	1135	—T—	—E—	—I—	(0)	(1422)	—I—	41856	(61879)	—T—	—I—	(5820)	(3534)	(7123)	(62826)	(47642)	—T—	—I—	—I—	(56103)	(41055)	(30170)
GAUSSELM	650	1496	—T—	—E—	—I—	(0)	(1715)	—I—	—T—	30669	(22923)	—I—	(3177)	(5299)	(9943)	(50059)	—T—	—T—	—I—	—I—	—T—	—T—	(26439)
GOTTFR	2	0	25	25	0	0	21	726	17	25	25	24	12	11	10	27	23	18	9	7	12	11	11
GRIDNETA	60	36	320	650	0	0	431	515	472	518	10	10	10	10	116	309	329	272	325	4876	311	325	330
GRIDNETA	180	100	767	1668	0	0	902	1120	900	1060	913	13	13	13	335	736	726	739	760	7084	758	760	760
GRIDNETA	612	324	1289	3835	0	0	2350	2653	1911	2164	1289	12	12	12	774	1280	1383	1382	1302	10661	1325	1302	1340
GRIDNETA	924	484	2801	7802	0	0	4159	4702	3780	4518	2801	23	23	23	1734	2892	2757	2865	2843	17711	2849	2843	2889
GRIDNETA	3444	1764	3680	10036	—I—	0	6740	7029	5444	6120	3680	25	25	25	2250	3707	3771	3847	3776	19405	3777	3775	3874
GRIDNETA	7564	3844	17260	—T—	—I—	0	—T—	—T—	—T—	—T—	—T—	52	52	52	—T—	17048	—T—	—T—	17517	—T—	—T—	17517	—T—
GRIDNETA	13284	6724	—T—	—T—	—I—	0	—T—	—T—	—T—	—T—	—T—	79	79	79	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETB	60	36	288	288	0	0	203	283	196	401	542	6	6	6	121	316	298	314	290	—I—	290	290	320
GRIDNETB	180	100	483	483	0	0	660	923	594	858	566	7	7	7	617	471	510	483	500	—I—	493	500	484
GRIDNETB	612	324	998	998	0	0	1621	2244	1522	1608	998	7	7	7	1119	986	951	986	1015	—I—	981	1031	1049
GRIDNETB	924	484	1403	1403	0	0	2418	3168	2140	2252	1403	8	8	8	1690	1453	1385	1430	1411	—I—	1461	1421	1447
GRIDNETB	3444	1764	3309	3309	0	0	5469	6048	4105	4601	3309	8	8	8	3092	3309	3208	3360	3257	—I—	3275	3298	3210
GRIDNETB	7564	3844	5255	5255	0	0	8155	8382	5986	6826	5255	8	8	8	4890	5077	5370	5176	5274	—I—	5318	5193	5313
GRIDNETB	13284	6724	6864	6864	0	0	10162	11300	7486	8135	—T—	8	8	8	6373	6807	6924	6824	6796	—I—	6906	6977	6875
GRIDNETC	60	36	333	1042	0	0	475	468	412	493	386	11	11	11	101	301	391	343	350	—I—	360	350	359

Number of cg-iterations (6)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
GRIDNETC	180	100	692	1643	0	0	1108	1348	903	970	774	21	21	21	651	746	699	679	759	—I—	752	731	696
GRIDNETC	612	324	1731	4350	—I—	0	3150	3588	2808	2294	1731	104	104	104	1528	1698	1768	1723	1774	—I—	1633	1774	1712
GRIDNETC	924	484	2339	5880	—I—	0	3917	4508	3125	2940	2339	131	131	131	2108	2362	2320	2413	2277	—I—	2298	2277	2342
GRIDNETC	3444	1764	8358	20833	—I—	0	12700	14813	10364	10087	8358	565	565	565	6293	8206	9211	7903	8433	—I—	8022	8537	8259
GRIDNETC	7564	3844	—T—	—T—	—I—	0	—T—	—T—	—T—	—T—	—T—	1908	1908	1908	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETD	60	36	299	896	0	0	462	591	466	467	10	11	10	10	85	321	313	317	331	4062	308	343	1267
GRIDNETD	180	100	735	2208	0	0	1059	1091	932	1066	882	13	11	11	325	708	689	720	780	4910	777	738	2342
GRIDNETD	612	324	1271	5197	0	0	2166	2594	1793	2027	1271	13	12	12	856	1262	1315	1311	1294	8034	1258	1320	3906
GRIDNETD	924	484	2764	12726	0	0	4965	5115	3983	4247	2764	24	23	23	2001	2794	2786	2751	2812	14648	2845	2963	9646
GRIDNETD	3444	1764	4244	17878	—I—	0	7376	7737	5486	6193	4244	35	33	33	2580	3860	4089	—S—	4115	17046	4023	4453	11013
GRIDNETD	7564	3844	—T—	—T—	—T—	0	—T—	—T—	—T—	—T—	—T—	100	98	98	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETE	60	36	301	301	0	0	273	364	265	383	543	7	7	7	137	321	294	289	306	—I—	298	311	2857
GRIDNETE	180	100	459	459	0	0	809	1078	705	826	543	8	8	8	566	447	449	465	458	—I—	448	580	—I—
GRIDNETE	612	324	905	905	0	0	1670	2242	1463	1542	905	8	8	8	1209	885	869	884	937	—I—	918	1019	—I—
GRIDNETE	924	484	1239	1239	0	0	2415	2880	2070	2065	1239	9	9	9	1347	1251	1246	1222	1230	—I—	1242	1820	—I—
GRIDNETE	3444	1764	2880	2880	0	0	5019	5517	3854	4218	2880	11	11	11	3236	2864	3027	2935	2952	—I—	2976	3677	—I—
GRIDNETE	7564	3844	4479	4479	0	0	7250	8436	5539	5978	4479	11	11	11	4954	4547	4494	4534	4535	—I—	4495	4567	—I—
GRIDNETF	60	36	303	897	0	0	398	431	415	463	423	11	10	10	114	320	357	311	333	—I—	309	321	1874
GRIDNETF	180	100	666	2087	0	0	1153	1412	1009	1026	696	23	22	22	614	677	656	655	726	—I—	657	819	6685
GRIDNETF	612	324	1398	4096	—I—	0	2614	3029	2382	2127	1398	70	67	67	1304	1434	1537	1506	1408	—I—	1420	2160	5902
GRIDNETF	924	484	2057	10370	—I—	0	3636	4424	3289	2872	2057	115	116	116	1868	2118	2170	2092	2127	—I—	2120	3487	—I—
GRIDNETF	3444	1764	7181	20450	—I—	0	11372	13132	9267	8755	7181	433	429	429	5398	6999	8233	6452	7526	—I—	7079	12959	—I—
GRIDNETF	7564	3844	—T—	—T—	—T—	0	—T—	—T—	—T—	—T—	—T—	1585	1587	1587	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETG	60	36	292	349	0	0	454	696	471	498	9	9	8	8	115	290	308	291	307	3651	334	303	302
GRIDNETH	60	36	323	323	0	0	335	378	299	446	545	8	7	7	102	335	320	325	335	—I—	301	304	306
GRIDNETI	60	36	299	299	0	0	436	520	425	469	436	11	10	10	97	326	363	319	337	4727	318	305	305
GULF	3	0	32	35	0	0	84	—E—	87	109	32	76	47	38	52	33	39	58	244	—I—	40	35	38
HAGER1	21	10	14	15	0	0	74	431	95	14	84	30	4	4	4	14	15	17	14	14	14	14	14
HAGER1	101	50	17	16	0	0	261	6234	1224	17	17	14	3	3	7	17	14	14	17	17	17	17	17
HAGER1	201	100	18	18	0	0	521	—I—	2686	18	18	15	3	3	504	18	14	14	18	18	18	18	18
HAGER1	1001	500	20	13	0	0	3972	—I—	21228	20	20	17	3	3	634	20	17	14	20	20	20	20	20
HAGER1	2001	1000	20	14	0	0	5121	—I—	43667	20	20	23	3	3	500	20	16	14	20	20	20	20	20
HAGER1	10001	5000	19	10	—M—	—T—	—T—	—T—	—T—	19	19	17	56	—M—	418	19	31	17	19	19	19	19	19
HAGER2	21	10	15	34	0	0	53	410	109	15	65	27	5	5	5	15	16	19	15	48	15	15	15
HAGER2	101	50	18	38	0	0	261	5775	1114	18	18	72	3	3	7	18	19	19	16	44	16	16	16
HAGER2	201	100	18	36	0	0	409	—I—	2474	18	18	100	4	4	514	18	21	19	15	38	15	15	15
HAGER2	1001	500	19	37	0	0	2622	—I—	26048	19	19	960	4	4	594	19	21	17	16	41	16	16	16
HAGER2	2001	1000	18	19	—T—	0	4122	—I—	42684	18	18	—T—	4	—T—	593	18	20	1030	21	26	21	21	21
HAGER2	10001	5000	20	—S—	—M—	—I—	—T—	—T—	—T—	20	20	—E—	42	—M—	380	20	42	5487	15	(18)	15	15	15
HAGER3	21	10	16	34	0	0	65	457	103	16	73	69	3	3	3	16	17	16	31	41	26	20	20
HAGER3	101	50	17	55	0	0	211	6896	1067	17	17	154	4	4	8	17	21	15	25	48	26	21	21
HAGER3	201	100	18	41	0	0	410	—I—	3194	18	18	241	4	4	442	18	20	16	32	28	27	18	21
HAGER3	1001	500	20	40	0	0	2804	—I—	23857	20	20	3143	4	4	624	20	19	15	25	51	18	20	20
HAGER3	2001	1000	20	20	—T—	0	4963	—I—	51003	20	20	—T—	4	—T—	671	20	14	17	71	445	21	22	22
HAGER3	10001	5000	13	—S—	—M—	—I—	—T—	—T—	—T—	13	13	—M—	47	—M—	370	13	31	14	19	785	15	13	13
HAGER4	21	10	36	63	0	0	117	1474	187	34	12	23	11	11	11	34	19	17	30	33	32	26	40
HAGER4	101	50	90	109	0	0	917	—I—	4003	90	90	75	31	30	94	103	96	63	126	240	118	120	228
HAGER4	201	100	165	205	0	0	2457	—I—	16848	165	165	148	56	55	478	185	171	95	216	290	218	204	400
HAGER4	1001	500	1029	1166	—T—	0	58599	—I—	—T—	1029	1029	745	508	507	7019	1115	1039	901	1106	1841	1128	1086	1490
HAGER4	2001	1000	2281	2737	—T—	0	—T—	—I—	—T—	2281	2281	1682	1006	—T—	16087	2319	2277	2267	2367	4266	2504	2299	4197
HAGER4	10001	5000	—T—	—T—	—M—	—T—	—T—	—I—	—T—	8132	—T—	—T—	6995	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
HAIRY	2	0	61	92	0	0	98	51	112	61	61	85	58	60	52	85	83	67	57	—S—	69	54	53
HATFLDA	4	0	17	17	0	0	70	101	59	17	17	38	17	24	16	18	18	18	16	16	16	16	16
HATFLDB	4	0	15	15	0	0	52	85	43	15	15	37	15	17	14	15	15	14	10	10	14	14	14
HATFLDC	25	0	4	4	0	0	29	30	21	4	4	4	4	4	4	4	4	4	4	3	4	4	4
HATFLDD	3	0	18	18	0	0	34	65	43	28	18	26	10	13	27	20	30	33	30	—I—	17	22	19
HATFLDE	3	0	21	21	0	0	35	48	42	34	21	28	11	14	24	21	19	24	28	—I—	37	23	15
HATFLDF	3	0	25	86	0	0	157	48	20	55	25	41	38	43	29	28	22	60	29	—I—	25	14	14
HATFLDG	25	0	31	31	0	0	63	40	53	48	28	18	13	11	15	31	27	49	36	—I—	27	29	29

Number of cg-iterations (7)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HATFLDH	4	7	53	53	0	0	77	96	92	108	16	75	19	18	19	51	52	62	231	—I—	84	52	60
HELIX	3	0	11	—S—	0	0	32	76	24	25	11	21	11	13	11	13	14	14	20	—I—	19	18	18
HILBERTA	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0
HILBERTA	4	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0
HILBERTA	5	0	0	0	0	0	0	8	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0
HILBERTA	6	0	0	0	0	0	0	9	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0
HILBERTA	10	0	0	0	0	0	0	6	0	0	0	0	0	0	0	12	18	0	0	0	0	0	0
HILBERTB	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0
HILBERTB	10	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	5	0	0	0	0	0	0
HILBERTB	50	0	0	6	0	0	0	3	0	0	0	0	0	0	0	4	6	0	0	0	0	0	0
HIMMELBA	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0
HIMMELBB	2	0	3	3	0	0	2	33	3	3	3	8	7	8	4	3	4	3	0	0	7	5	5
HIMMELBC	2	0	5	5	0	0	9	6	9	5	5	8	5	5	5	10	7	6	5	4	5	5	5
HIMMELBD	2	0	19	23	0	0	42	—I—	40	19	19	39	19	19	19	—S—	28	37	21	—S—	21	21	22
HIMMELBE	3	0	2	2	0	0	9	8	8	9	2	7	2	2	2	3	4	2	2	2	2	2	2
HIMMELBF	4	0	425	663	—I—	0	1171	—I—	822	582	425	636	370	187	270	585	368	590	537	—S—	167	48	107
HIMMELBG	2	0	3	3	0	0	4	1	3	3	3	4	3	3	3	8	7	3	5	0	6	4	3
HIMMELBH	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
HIMMELBI	100	12	1590	1779	—I—	0	1090	—I—	1212	1353	1584	1142	785	—E—	846	1574	6902	2383	5159	—E—	9056	2331	2370
HIMMELBJ	45	14	—I—	—I—	0	0	—I—	41405	—I—	—I—	—I—	—I—	—S—	451	—I—	—I—	—I—	422760	—I—	—I—	—I—	—I—	—I—
HIMMELBK	24	14	1116	(116)	—I—	0	1516	—I—	1325	1439	(100)	1007	(89)	475	297	1262	1390	1788	2035	—I—	1798	1284	1397
HONG	4	1	15	15	0	0	48	38	41	56	15	36	15	15	15	15	15	15	22	100	22	22	22
HS1	2	0	28	37	0	0	49	113	55	28	28	53	28	26	27	28	27	34	32	32	24	24	24
HS10	2	1	8	8	0	0	18	—I—	12	8	8	13	8	8	8	10	12	9	30	39	23	20	27
HS100	7	4	229	301	0	0	176	1210	145	176	51	140	29	28	90	242	1163	265	340	—I—	302	219	—I—
HS100MOD	7	4	2198	—S—	0	—I—	1474	—I—	—S—	—S—	—S—	794	99	33	1969	—S—	—I—	3045	2452	—I—	2534	—S—	—I—
HS101	7	5	—I—	911	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS102	7	5	—I—	1569	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS103	7	5	—I—	—S—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS104	8	5	164	202	0	0	237	1042	205	378	52	191	52	34	47	164	163	165	479	—I—	304	219	496
HS105	8	1	(23)	38	(0)	0	102	(92)	(29)	(39)	(20)	63	(15)	(13)	27	(21)	(19)	(32)	—I—	—I—	469	(83)	—E—
HS106	8	6	—I—	69	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS107	9	6	97	96	0	0	—S—	1642	180	168	25	136	26	28	26	99	99	97	—S—	—I—	111	121	121
HS108	9	13	92	92	0	0	181	131	112	97	127	67	20	40	29	93	105	169	319	—I—	142	148	148
HS109	9	10	—I—	1289	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS11	2	1	5	5	0	0	13	51	10	5	5	8	5	5	5	5	6	5	6	37	6	6	6
HS110	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	6	0	0	0	0	0
HS111	10	3	130	130	0	0	217	505	187	166	62	185	35	51	98	142	128	166	—I—	—I—	—I—	318	—I—
HS112	10	3	121	121	0	0	294	398	219	203	36	128	36	36	36	120	128	129	236	—I—	192	180	237
HS113	10	8	521	289	0	0	539	2947	528	683	401	472	47	46	47	519	2976	659	546	—I—	489	510	—I—
HS114	10	11	3957	810	—I—	—I—	—I—	—I—	—S—	6068	2849	2359	—S—	441	—I—	4249	—S—	3319	—I—	—I—	—I—	4576	—I—
HS116	13	14	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS117	15	5	567	584	—I—	—I—	821	3888	473	321	381	560	184	218	234	490	708	967	3048	—I—	664	546	—I—
HS118	15	17	170	170	—I—	0	350	1459	271	291	218	158	25	25	67	170	180	270	169	182	169	169	164
HS119	16	8	212	245	0	0	199	408	247	240	61	153	53	53	53	213	206	221	803	—I—	283	280	450
HS12	2	1	16	16	0	0	31	688	27	34	16	28	16	16	16	18	88	24	28	—I—	20	19	32
HS13	2	1	5	9	0	0	6	12	5	9	5	5	5	5	5	8	8	6	5	7	5	5	5
HS14	2	2	11	11	0	0	21	18	20	11	11	16	11	11	11	11	11	11	11	12	11	11	11
HS15	2	2	38	38	0	0	74	379	72	40	38	69	37	36	37	39	39	45	71	96	45	52	80
HS16	2	2	20	20	0	0	50	56	44	34	20	41	20	22	23	20	22	24	24	32	29	24	27
HS17	2	2	21	21	0	0	40	55	43	27	21	46	22	19	18	21	22	27	26	—S—	26	32	34
HS18	2	2	122	147	0	0	385	1840	267	303	122	201	72	72	72	124	126	140	165	—I—	137	129	153
HS19	2	2	26	—S—	0	0	51	—I—	47	35	26	45	26	26	26	26	62	28	29	26	25	25	33
HS2	2	0	1	6	0	0	3	40	3	1	1	3	1	1	1	1	1	1	2	2	3	3	3
HS20	2	3	20	20	0	0	48	74	50	39	20	34	20	20	20	21	22	21	21	26	22	21	21
HS21	2	1	1	1	0	0	2	8	2	1	1	2	1	1	1	1	3	1	16	17	16	16	16
HS22	2	2	6	6	0	0	13	22	12	6	6	10	6	6	6	6	7	6	9	9	9	9	9
HS23	2	5	37	34	0	0	300	1452	166	234	37	224	43	41	31	37	139	123	36	38	36	36	36
HS24	2	3	9	9	0	0	29	63	28	27	9	23	10	9	9	9	10	11	21	21	16	16	16

Number of cg-iterations (8)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS25	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HS26	3	1	35	40	0	0	63	186	37	52	35	34	29	25	31	35	25	24	29	—I—	27	22	22
HS27	3	1	16	24	0	0	50	49	26	29	16	38	16	15	16	16	12	22	26	95	30	17	24
HS28	3	1	3	3	0	0	8	32	7	6	3	7	3	3	3	3	3	5	3	26	3	3	3
HS29	3	1	24	24	0	0	33	305	40	69	24	38	23	26	25	24	61	40	34	46	30	36	41
HS3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0
HS30	3	1	6	6	0	0	12	12	11	11	6	11	6	6	6	7	6	7	7	15	7	7	7
HS31	3	1	11	8	0	0	16	3	16	10	11	13	11	11	11	12	12	13	35	—I—	21	15	19
HS32	3	2	14	15	0	0	24	66	31	17	14	23	14	14	14	14	9	9	17	19	17	17	17
HS33	3	2	(12)	(14)	(0)	(0)	(30)	(58)	(31)	(27)	(12)	(27)	(12)	(12)	(12)	(13)	(13)	(21)	(12)	(14)	(12)	(12)	35
HS34	3	2	20	20	0	0	56	98	53	37	20	15	24	20	24	21	19	33	26	26	22	22	22
HS35	3	1	5	5	0	0	12	19	10	16	5	8	5	5	5	5	6	5	41	—I—	17	6	50
HS36	3	1	13	13	0	0	19	153	22	21	13	22	13	13	13	16	22	16	16	16	15	15	15
HS37	3	2	16	16	0	0	44	269	42	62	16	53	17	16	17	18	46	26	63	315	49	43	80
HS38	4	0	55	55	0	0	177	232	193	109	55	138	65	56	55	55	50	68	—I—	—I—	54	54	21
HS39	4	2	17	18	0	0	34	53	51	26	17	39	17	17	17	17	17	18	512	512	38	38	38
HS4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0
HS40	4	3	9	9	0	0	33	32	33	23	9	18	9	9	9	9	9	9	12	83	14	13	17
HS41	4	1	7	7	0	0	9	8	10	15	7	7	5	7	6	7	2	7	10	11	11	10	10
HS42	4	2	9	8	0	0	19	20	20	9	9	13	9	9	9	9	8	9	10	30	10	10	10
HS43	4	3	34	34	0	0	80	146	82	99	22	82	25	24	26	34	125	39	501	—I—	44	44	44
HS44	4	6	13	13	(0)	(0)	47	(181)	(35)	(38)	10	(33)	(16)	(10)	(12)	13	30	15	38	—I—	16	15	15
HS45	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
HS46	5	2	24	24	0	0	53	89	57	88	24	29	17	19	31	28	28	31	26	44	17	24	22
HS47	5	3	(19)	74	0	0	(76)	(74)	(77)	(68)	(19)	(53)	(19)	(19)	(23)	(20)	(20)	(21)	(22)	(33)	(20)	(20)	(20)
HS48	5	2	3	3	0	0	17	40	24	8	3	8	3	3	3	3	3	5	2	30	2	2	2
HS49	5	2	15	15	0	0	56	176	54	60	15	45	15	15	17	15	15	17	23	48	23	23	29
HS5	2	0	2	2	0	0	4	5	4	2	2	3	2	2	2	2	2	2	2	2	2	2	2
HS50	5	3	12	13	0	0	46	641	40	40	12	36	12	12	12	11	9	17	17	39	17	17	17
HS51	5	3	2	2	0	0	24	38	27	28	2	5	2	2	2	2	2	4	2	36	2	2	2
HS52	5	3	5	6	0	0	32	86	44	32	5	25	5	5	5	5	7	5	9	39	9	9	9
HS53	5	3	5	5	0	0	33	79	38	26	5	24	5	5	5	6	7	5	10	12	10	10	10
HS54	6	1	(0)	—S—	(0)	(0)	(0)	214	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(74)	(74)	(0)	(0)	(0)	(0)	(0)	(0)
HS55	6	6	4	4	0	0	27	25	27	18	4	18	4	4	7	4	4	4	6	6	6	6	6
HS56	7	4	31	28	0	0	72	49	37	65	12	68	19	14	13	30	24	47	—I—	—I—	57	51	97
HS57	2	1	(1)	10	0	—I—	(2)	23	31	(4)	(1)	14	17	11	11	(1)	(1)	(1)	(11)	(32)	(9)	(9)	(9)
HS59	2	3	426	65	(0)	(0)	1460	—I—	1081	1125	426	1085	305	303	293	426	—I—	(1289)	680	—I—	455	448	624
HS6	2	1	37	37	0	0	86	149	79	37	37	77	43	32	33	38	40	67	42	42	33	33	33
HS60	3	1	14	18	0	0	36	37	45	35	14	36	12	23	21	15	14	16	17	33	19	19	19
HS61	3	2	15	15	0	0	27	89	26	21	15	24	14	15	15	18	15	15	11	41	11	11	11
HS62	3	1	29	29	0	0	70	325	68	60	29	66	29	29	29	30	27	32	—I—	—I—	50	50	50
HS63	3	2	12	12	0	0	31	110	38	44	12	36	20	17	21	14	16	16	66	61	22	25	25
HS64	3	1	36	40	0	0	72	41	56	60	36	43	36	36	36	42	41	—T—	48	51	48	48	48
HS65	3	1	26	26	0	0	82	273	79	131	26	72	26	26	27	26	42	83	35	24	35	35	35
HS66	3	2	15	20	0	0	32	23	22	13	15	12	9	12	11	15	12	17	18	31	18	16	18
HS67	3	14	171	86	—I—	0	734	275	126	123	99	114	65	47	81	171	164	281	—I—	—I—	533	181	—S—
HS68	4	2	74	—I—	0	0	251	1413	209	172	74	89	68	73	72	80	74	87	—I—	—I—	149	136	—I—
HS69	4	2	26	105	0	0	78	—S—	78	—S—	26	63	28	26	26	30	—S—	29	—I—	—I—	90	—S—	—I—
HS7	2	1	8	8	0	0	24	25	14	8	8	14	8	8	8	8	10	8	17	31	21	21	21
HS70	4	1	28	26	(0)	0	85	(1890)	50	68	28	28	20	37	30	27	22	55	—I—	—I—	66	50	44
HS71	4	2	23	23	0	0	60	115	64	63	23	51	23	23	23	23	22	24	83	—I—	34	32	44
HS72	4	2	67	67	0	0	253	89	132	127	67	85	63	64	64	85	93	—T—	87	88	87	87	87
HS73	4	3	23	25	—I—	0	57	1617	64	42	23	66	31	30	27	22	121	25	22	22	22	24	24
HS74	4	5	68	56	0	0	91	—I—	69	104	68	65	19	19	51	68	64	90	—S—	169	70	70	176
HS75	4	5	—S—	71	—S—	—I—	—I—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
HS76	4	3	9	9	0	0	40	50	33	34	9	23	9	9	9	9	9	11	37	—I—	15	22	34
HS77	5	2	19	15	0	0	56	(206)	58	52	19	65	16	18	20	19	19	34	30	—I—	16	14	14
HS78	5	3	9	9	0	0	23	34	31	23	9	20	9	7	12	13	12	8	24	39	14	12	50
HS79	5	3	18	14	0	0	42	55	45	50	18	40	10	13	15	18	14	26	12	34	12	18	18

Number of cg-iterations (9)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS8	2	2	4	4	0	0	11	11	10	4	4	7	4	5	6	7	9	7	6	6	6	5	7
HS80	5	3	15	15	0	0	37	47	28	43	15	45	12	11	20	16	17	21	17	26	10	18	33
HS81	5	3	16	(923)	0	0	36	49	27	37	16	38	12	11	19	16	17	22	851	62	29	27	51
HS83	5	3	29	23	0	0	76	398	60	65	29	57	26	41	34	31	30	32	39	40	33	31	51
HS84	5	3	—S—	—S—	—I—	—I—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—
HS85	5	21	—I—	777	—I—	—I—	—I—	—I—	—S—	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—S—	—S—	—I—
HS86	5	10	—S—	132	—I—	0	174	562	134	151	53	120	49	45	52	—S—	141	128	956	—I—	288	151	779
HS87	6	4	192	—S—	—I—	—S—	—S—	—I—	—S—	—S—	276	—S—	—S—	—S—	92	249	105	167	—I—	—I—	149	261	—S—
HS88	2	1	47	47	0	0	77	78	81	47	47	67	48	46	46	49	48	52	55	81	71	62	48
HS89	3	1	(48)	(48)	(0)	(0)	(85)	(92)	(78)	(51)	(48)	(78)	41	(53)	(49)	(51)	(79)	—T—	(47)	(127)	(72)	(68)	(66)
HS9	2	1	4	4	0	0	8	76	8	4	4	7	4	4	4	4	5	5	9	9	9	9	9
HS90	4	1	—E—	—E—	—E—	—E—	—E—	121	—E—	—E—	—E—	97	—E—	—E—	—E—	64	72	70	—E—	104	—E—	—E—	—E—
HS91	5	1	—E—	—E—	0	—E—	103	—E—	—E—	(104)	—E—	—E—	—E—	—E—	—E—	(87)	(63)	81	—E—	—I—	—E—	—E—	—E—
HS92	6	1	—E—	—E—	—E—	—E—	—E—	90	—E—	—E—	—E—	—E—	44	53	—E—	74	72	92	—E—	—I—	—E—	—E—	—E—
HS93	6	2	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HS95	6	4	39	194	—I—	0	36	641	64	110	41	35	46	23	52	39	50	340	83	77	32	108	63
HS96	6	4	37	177	—I—	0	213	869	67	109	112	33	46	32	18	39	57	123	83	77	35	33	61
HS97	6	4	156	(167)	(0)	(0)	(59)	(830)	(42)	(136)	161	(88)	(23)	(64)	(160)	165	(211)	(38)	(209)	—I—	(149)	(114)	(291)
HS98	6	4	135	388	—I—	(0)	(46)	(844)	(42)	(178)	160	(54)	(23)	(34)	(140)	176	(213)	(40)	(97)	(164)	(119)	(111)	(197)
HS99	7	2	—I—	—S—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—I—	—I—	—E—	—F—	—I—
HS99EXP	31	21	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—I—	—F—	—I—	—I—	—E—	—I—	—I—	—I—	—I—	—I—	—I—
HUBFIT	2	0	1	1	0	0	2	3	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1
HYDCAR20	99	99	—F—	—E—	—F—	0	8404	—E—	—F—	—F—	—F—	130	469	197	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDCAR6	29	29	—F—	—E—	—F—	0	—F—	2607	—F—	—F—	—F—	90	112	88	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDROELL	1009	1008	16663	53128	—I—	—I—	51854	—I—	37492	16663	16663	2362	6801	3830	36006	22624	—I—	18632	—I—	—I—	32851	31591	—I—
HYDROELM	505	504	24867	27608	—I—	—I—	28894	—I—	16813	24867	24867	1975	1886	1881	15999	18108	—I—	22399	—I—	—I—	19299	—I—	—I—
HYDROELS	169	168	3186	6709	—I—	—I—	3731	—I—	2318	3186	3186	680	1046	496	2654	3339	—I—	3431	—I—	—I—	8452	—I—	—I—
HYPCIR	2	0	6	7	0	0	12	9	9	6	6	7	6	6	6	7	5	8	4	4	3	6	4
INTEGREQ	12	0	3	5	0	0	3	3	3	3	2	2	2	2	2	3	3	3	2	2	2	2	2
INTEGREQ	52	0	3	9	0	0	3	3	3	3	3	2	2	2	2	3	3	3	4	4	4	4	4
INTEGREQ	102	0	3	—S—	0	0	5	3	3	3	4	2	2	2	2	3	3	4	3	3	3	3	3
JENSMP	2	0	5	5	0	0	14	41	10	5	5	9	5	5	5	5	5	5	5	—I—	5	5	5
JNLBRNG1	16	0	2	2	0	0	2	3	2	2	2	2	2	2	3	2	2	2	1	1	1	1	1
JNLBRNG1	100	0	21	23	0	0	24	37	22	21	1	1	1	1	3	21	31	21	24	63	24	24	25
JNLBRNG1	529	0	70	—S—	0	0	93	157	72	70	70	4	4	4	7	68	72	68	213	501	213	213	222
JNLBRNG1	1024	0	115	119	0	0	158	256	120	115	115	5	5	5	12	115	91	115	402	993	402	402	413
JNLBRNG1	5625	0	687	463	0	0	928	1508	723	687	687	14	14	14	60	687	520	568	2442	—I—	2442	2442	2439
JNLBRNG1	10000	0	1201	747	0	0	1719	2612	1242	1201	1201	19	19	19	114	1212	1018	968	4227	—T—	4227	4227	4234
JNLBRNG1	15625	0	2002	—I—	0	0	2497	4056	1979	2002	2002	24	24	24	868	1972	1773	1613	1891	—T—	1891	1891	1868
JNLBRNG2	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JNLBRNG2	100	0	15	20	0	0	28	27	16	15	2	2	2	2	4	15	16	15	18	85	18	18	19
JNLBRNG2	529	0	44	—S—	0	0	108	109	47	44	44	2	2	2	7	44	42	43	80	781	79	80	82
JNLBRNG2	1024	0	68	84	0	0	187	146	71	68	68	3	3	3	10	66	59	66	101	1077	101	101	103
JNLBRNG2	5625	0	320	267	0	0	966	954	342	320	320	9	9	9	30	315	241	310	567	—I—	567	567	624
JNLBRNG2	10000	0	570	441	0	0	1697	1471	583	570	570	11	11	11	46	570	430	532	832	—I—	832	832	833
JNLBRNG2	15625	0	958	—I—	0	0	2867	2295	1042	958	958	14	14	14	737	948	838	792	1989	—T—	1989	1989	2013
KOWOSB	4	0	10	15	0	0	45	42	26	30	10	22	13	8	11	10	8	33	21	—S—	11	27	27
LCH	30	1	139	—F—	—I—	0	(153)	(185)	(101)	139	84	111	23	24	97	139	131	156	—I—	—I—	383	200	276
LCH	150	1	133	—F—	(0)	0	(452)	1495	386	333	84	108	65	23	96	135	149	123	—I—	—I—	361	212	195
LCH	300	1	140	—F—	0	0	(840)	2844	618	550	94	101	80	22	109	129	134	139	—I—	—I—	376	239	216
LCH	600	1	144	—F—	—T—	—T—	(1298)	5047	889	933	108	106	83	28	112	135	141	160	—I—	—I—	374	228	227
LEAKNET	156	153	—S—	—F—	—I—	—I—	—I—	—I—	—S—	—I—	—S—	288	162	163	—I—	—S—	(68596)	—S—	—I—	—I—	—S—	—S—	—I—
LEWISPOL	6	9	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
LIARWHD	36	0	23	46	0	0	16	93	14	23	26	23	8	8	8	24	38	21	23	25	23	23	23
LIARWHD	100	0	22	55	0	0	13	58	13	24	21	25	6	6	6	27	38	22	22	24	22	22	22
LIARWHD	500	0	25	55	0	0	14	44	16	29	26	25	7	7	7	39	26	24	25	24	25	25	25
LIARWHD	1000	0	31	73	0	0	14	42	16	31	29	27	11	11	11	43	42	25	31	21	31	31	31
LIARWHD	5000	0	41	65	0	0	16	80	16	(31)	26	24	11	11	11	48	64	26	41	(30)	41	41	41
LIARWHD	10000	0	(30)	58	0	0	16	191	16	(48)	41	26	11	11	11	49	46	25	(30)	(62)	(30)	(30)	(30)

Number of cg-iterations (10)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
LINVERSE	19	0	30	155	(0)	0	44	115	32	(21)	30	31	26	46	30	20	19	95	—I—	—I—	65	16	—I—
LINVERSE	199	0	114	605	—I—	0	180	1197	115	158	114	204	228	293	400	274	104	501	—I—	—I—	187	166	—I—
LINVERSE	999	0	948	(3862)	0	0	2033	16610	435	780	948	1426	580	713	613	1353	512	2680	—I—	—S—	1152	734	1888
LINVERSE	1999	0	2027	—S—	0	—T—	(1626)	23668	837	1885	2027	1821	1405	1209	1546	1504	2787	5494	—I—	—S—	1725	1440	—I—
LMINSURF	16	0	5	5	0	0	11	8	15	13	5	5	5	5	5	7	6	5	4	10	4	4	4
LMINSURF	49	0	35	31	0	0	64	53	47	46	12	12	12	12	15	36	50	81	33	115	33	32	38
LMINSURF	64	0	72	68	0	0	65	52	76	70	12	12	12	12	18	65	84	132	82	260	82	82	—I—
LMINSURF	121	0	108	145	0	0	138	138	107	139	11	11	11	11	26	126	108	252	108	579	108	108	117
LMINSURF	961	0	469	467	0	0	1257	610	463	469	469	21	21	21	116	472	506	1774	546	—I—	555	518	467
LMINSURF	1024	0	551	599	0	0	1148	586	583	560	504	21	21	21	123	631	554	2055	497	—I—	541	525	—I—
LMINSURF	5625	0	—I—	—I—	0	—T—	—I—	2159	—I—	—I—	—I—	38	38	38	771	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
LMINSURF	10000	0	—I—	—I—	0	—T—	—I—	—I—	—I—	—I—	—I—	39	39	39	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—I—
LMINSURF	15625	0	—T—	—T—	0	—T—	—I—	—I—	—T—	—T—	—T—	44	44	44	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
LSQFIT	2	0	1	1	0	0	2	2	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1
LUBRIF	151	100	—F—	—I—	—I—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—I—	—F—	—F—	—F—	—I—	—I—	—I—	—F—	—I—
LUBRIF	751	500	—T—	—T—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
MANCINO	10	0	0	—S—	0	0	3	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANCINO	20	0	1	—S—	0	0	3	—I—	2	2	1	1	1	1	1	1	2	1	1	1	1	1	1
MANCINO	30	0	2	—S—	0	0	3	—I—	1	2	2	2	1	1	1	2	4	0	2	2	2	2	2
MANCINO	50	0	4	—S—	0	0	8	—I—	5	5	4	4	3	3	3	6	10	7	4	4	4	4	4
MANNE	300	200	69	254	—I—	0	495	371	514	290	69	137	120	1418	84	74	54	70	308	308	102	102	102
MANNE	1095	730	—S—	7891	—S—	0	9674	1271	—S—	781	—S—	—T—	210	—E—	367	223	242	336	522	522	250	250	—S—
MARATOS	2	1	3	7	0	0	6	6	5	3	3	4	3	3	3	3	3	3	4	26	4	4	4
MARATOSB	2	0	—I—	—I—	—I—	—I—	—I—	0	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
MATRIX2	6	2	9	9	0	0	26	38	22	14	9	14	9	9	9	9	10	11	12	37	12	12	12
MAXLIKA	8	0	(17)	65	0	0	122	138	(19)	61	36	79	33	(12)	42	(16)	(17)	(21)	—I—	—S—	338	161	1014
MCCORMCK	10	0	4	5	0	0	8	8	6	4	4	4	4	4	4	4	4	4	5	29	5	5	5
MCCORMCK	50	0	4	8	0	0	9	9	6	4	4	4	4	4	4	4	3	4	5	27	5	5	5
MCCORMCK	100	0	4	8	0	0	9	8	6	4	4	4	4	4	4	4	6	4	5	28	5	5	5
MCCORMCK	500	0	4	9	0	0	9	7	7	4	4	4	4	4	4	4	6	4	5	36	5	5	5
MCCORMCK	1000	0	4	9	0	0	9	7	6	4	4	4	4	4	4	4	7	4	5	33	5	5	5
MCCORMCK	5000	0	4	4	0	0	9	7	6	4	4	4	4	4	4	4	4	4	5	37	5	5	5
MCCORMCK	10000	0	4	4	0	0	9	6	6	4	4	4	4	4	4	4	5	4	5	32	5	5	5
MDHOLE	2	0	62	62	0	0	108	287	96	62	62	87	58	46	55	65	42	62	60	54	53	53	53
METHANB8	31	31	—I—	—E—	0	0	58	1674	—F—	—F—	351	12	8	8	—F—	—I—	—I—	—S—	—S—	—F—	—I—	—S—	—S—
METHANL8	31	31	—F—	—E—	0	0	1250	—E—	—F—	—F—	—F—	360	460	81	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
MEXHAT	2	0	6	6	0	0	34	—I—	8	6	6	6	6	6	6	6	4	4	11	350	8	10	8
MEYER3	3	0	796	—S—	—I—	—I—	889	—I—	—S—	801	796	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	1021	—S—	—I—
MINPERM	5	5	5	5	0	0	10	10	10	29	5	20	5	5	5	5	5	5	5	5	5	5	5
MINPERM	13	10	55	55	0	0	21	20	21	68	25	30	25	22	36	55	55	44	105	—I—	116	67	67
MINPERM	27	19	94	94	0	0	32	34	29	88	107	58	83	71	211	94	89	88	329	—I—	141	99	99
MINPERM	51	36	123	123	0	0	44	32	32	140	123	222	42	196	155	123	123	117	574	—I—	287	122	109
MINPERM	93	69	63	63	0	0	51	47	44	210	221	1059	116	364	655	63	63	64	1594	—I—	74	107	106
MINPERM	169	134	1054	1054	—I—	0	81	65	64	369	242	1325	999	1278	1497	1009	318	1916	8224	—T—	467	398	383
MINPERM	311	263	649	649	—I—	0	92	77	67	187	248	1444	527	1981	3098	692	541	3556	8335	—T—	859	790	812
MINPERM	583	520	11987	11987	—T—	—T—	105	90	73	134	163	—T—	—T—	—I—	6709	16066	877	3112	—I—	—T—	1426	2378	1209
MINPERM	1113	1033	1680	1680	—T—	—T—	135	109	98	179	89	—T—	—T—	—T—	183	3249	3350	3751	12205	—I—	11228	4175	4801
MINSURF	64	0	25	22	0	0	21	20	23	19	8	8	8	8	9	25	21	26	21	53	21	21	19
MISTAKE	9	13	183	183	0	0	220	206	234	178	188	182	49	49	30	180	175	297	462	—I—	346	178	177
MSQRTA	4	0	20	20	0	0	35	44	35	36	20	22	20	20	20	22	22	22	14	15	12	12	12
MSQRTA	49	0	84	—I—	0	0	154	140	129	101	125	81	15	18	19	113	142	123	121	—I—	100	156	94
MSQRTA	100	0	230	278	0	0	471	320	241	307	212	219	36	29	44	240	239	358	301	—I—	223	226	305
MSQRTA	529	0	5392	5392	—T—	—T—	5127	4301	5686	5976	5224	—T—	—T—	—T—	—T—	5571	6215	8396	8667	—I—	5943	5423	5764
MSQRTA	1024	0	6036	6036	—T—	—T—	—T—	6176	6006	3938	5815	—T—	—T—	—T—	—T—	—T—	4679	—T—	—T—	—T—	4991	4679	—T—
MSQRTB	9	0	27	30	0	0	34	35	41	28	13	29	11	10	13	27	20	30	26	—I—	20	24	24
MSQRTB	49	0	147	292	0	0	241	236	191	175	169	99	22	22	27	(45258)	174	226	176	—I—	130	139	121
MSQRTB	100	0	292	358	0	0	403	455	312	320	264	187	50	31	60	317	246	529	359	—I—	282	301	300
MSQRTB	529	0	4451	4451	—T—	—T—	7611	4306	4614	5406	4447	1926	—T—	—T—	—T—	5874	4842	11328	5743	—I—	4076	3582	4550
MSQRTB	1024	0	3325	3325	—T—	—T—	3906	3447	3763	3651	4074	—T—	—T—	—T—	—T—	4403	2886	4598	—T—	—T—	2439	3263	—T—

Number of cg-iterations (11)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
MWRIGHT	5	3	(19)	22	(0)	(0)	(78)	(93)	(78)	(58)	(19)	(62)	(19)	(19)	(21)	(19)	(18)	(21)	(550)	(626)	(28)	(28)	(31)
NGONE	8	8	37	67	0	0	85	74	71	60	26	42	17	26	23	37	39	50	224	—I—	79	81	81
NGONE	12	19	257	502	0	0	—E—	231	255	323	184	158	59	68	63	282	260	377	757	—I—	423	282	247
NGONE	50	323	—I—	—I—	—I—	—I—	(43101)	—I—	—I—	(4018)	—I—	—I—	(705)	1015	—I—	—I—	—I—	—I—	—I—	—I—	—I—	(23443)	—I—
NGONE	100	1273	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—T—	5222	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
NGONE	500	31373	—T—	—T—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—M—	—M—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NLMSURF	16	0	7	7	0	0	19	13	21	20	7	7	7	7	7	11	10	9	7	55	7	7	6
NLMSURF	49	0	126	130	0	0	159	181	113	116	22	22	22	22	38	88	127	159	113	641	132	132	151
NLMSURF	64	0	122	156	0	0	215	218	155	146	13	13	13	13	52	122	157	213	140	—I—	139	139	161
NLMSURF	121	0	260	277	0	0	527	436	330	280	16	16	16	16	127	292	335	465	299	—I—	356	356	490
NLMSURF	961	0	1471	1685	0	0	—I—	2454	1944	1657	1477	18	18	18	320	1780	1593	1799	1565	—I—	1758	1590	1977
NLMSURF	1024	0	1761	1736	0	0	—I—	2656	2113	1606	1719	19	19	19	388	1814	1643	1771	1520	—I—	1620	1564	1665
NLMSURF	5625	0	—I—	—I—	0	0	—I—	—I—	—I—	—I—	—I—	23	23	23	—I—	—I—	—I—	5148	—I—	—I—	—I—	—I—	—I—
NLMSURF	10000	0	—I—	—I—	0	—T—	—I—	—I—	—I—	—I—	—I—	22	22	22	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—E—
NLMSURF	15625	0	—T—	—T—	0	—T—	—I—	—I—	—T—	—T—	—T—	27	27	27	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONDIA	10	0	34	32	0	0	34	12	33	34	9	37	17	23	14	37	34	37	44	44	18	18	18
NONDIA	20	0	41	39	0	0	33	21	23	47	40	46	20	16	22	32	43	68	42	42	21	21	21
NONDIA	30	0	81	55	0	0	44	77	148	58	99	57	29	25	25	106	79	145	42	42	48	48	48
NONDIA	50	0	82	70	0	0	37	101	229	66	162	160	21	31	26	77	90	125	61	61	94	94	79
NONDIA	90	0	128	84	0	0	32	133	88	161	162	71	29	29	43	190	102	148	123	123	170	170	170
NONDIA	100	0	149	79	0	0	41	140	130	62	90	219	29	29	37	121	86	161	118	118	163	163	150
NONDIA	500	0	284	70	0	0	51	284	170	230	276	176	24	24	39	119	80	122	53	53	311	311	287
NONDIA	1000	0	249	80	0	0	51	389	231	211	294	237	25	25	36	87	78	153	73	73	77	77	72
NONDIA	5000	0	127	(103)	0	—T—	46	—I—	134	198	91	181	22	22	37	171	109	—T—	114	114	192	192	129
NONDIA	10000	0	165	135	0	—T—	45	—I—	279	99	77	237	25	25	38	135	86	—T—	126	126	113	113	89
NONDQUAR	100	0	22	22	0	0	676	1753	461	21	23	17	12	12	12	22	24	21	22	22	22	22	22
NONDQUAR	500	0	20	20	0	0	813	4188	491	20	21	17	11	11	11	20	24	20	20	20	20	20	20
NONDQUAR	1000	0	19	19	0	0	853	6717	675	19	20	17	12	12	12	19	21	19	19	19	19	19	19
NONDQUAR	5000	0	19	19	0	0	776	23256	580	19	19	25	11	11	11	19	23	18	19	19	19	19	19
NONMSQRT	9	0	380	650	—I—	—I—	(525)	—I—	(479)	(1250)	380	(300)	(3227)	313	421	341	(477)	(509)	—I—	—S—	226	165	—I—
NONMSQRT	49	0	—I—	—I—	—I—	—I—	(6149)	—I—	(27878)	—I—	(97803)	1284	—I—	1354	(55766)	—I—	—I—	—T—	—I—	—S—	—I—	—I—	—I—
NONMSQRT	100	0	—T—	—T—	—I—	—I—	19933	—I—	(90412)	—T—	—I—	—S—	—T—	—S—	—I—	—T—	—T—	—T—	—I—	—S—	—T—	—T—	—I—
NONMSQRT	529	0	—T—	—T—	—I—	—I—	—T—	—I—	—T—	—T—	—T—	—S—	—T—	—S—	—T—	—T—	—T—	—T—	—E—	—I—	—T—	—T—	—T—
NONMSQRT	1024	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONSCOMP	25	0	8	9	0	0	34	87	28	8	8	8	8	8	8	8	8	10	7	7	7	7	7
NONSCOMP	50	0	8	9	0	0	45	79	34	8	8	8	8	8	8	8	8	10	5	5	7	7	7
NONSCOMP	100	0	8	9	0	0	46	71	33	8	8	8	8	8	8	8	9	10	4	4	7	7	7
NONSCOMP	500	0	8	9	0	0	40	62	32	8	8	8	8	8	8	8	10	10	4	4	7	7	7
NONSCOMP	1000	0	8	9	0	0	40	66	36	8	8	8	8	8	8	8	9	10	4	4	7	7	7
NONSCOMP	5000	0	8	9	0	0	41	63	33	8	8	8	8	8	8	8	10	10	5	5	7	7	7
NONSCOMP	10000	0	8	9	0	0	42	58	27	8	8	8	8	8	8	8	11	10	5	5	7	7	7
NYSTROM5	18	20	—F—	—F—	—F—	0	99	679	131	205	—F—	56	51	—F—	60	—F—	—F—	464	568	—F—	574	—F—	—F—
OBSTCLAE	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
OBSTCLAE	100	0	34	42	0	0	39	54	39	35	27	27	27	27	28	34	34	34	60	91	60	60	60
OBSTCLAE	529	0	177	218	0	0	203	191	184	177	177	180	180	180	178	177	203	177	207	533	207	207	207
OBSTCLAE	1024	0	359	438	0	0	396	352	338	359	360	386	386	386	380	353	379	361	405	965	405	405	406
OBSTCLAE	5625	0	2517	2549	0	—T—	2610	3244	2553	2517	2517	2429	2429	2429	2412	2517	2531	2474	2630	—I—	2630	2630	2625
OBSTCLAE	10000	0	4654	4645	—T—	—T—	4775	5813	4757	4654	—T—	—T—	—T—	—T—	—T—	4654	4667	4604	4841	—T—	4841	4841	4835
OBSTCLAE	15625	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
OBSTCLAL	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLAL	100	0	9	15	0	0	15	15	14	10	3	3	3	3	3	9	9	9	13	41	13	13	16
OBSTCLAL	529	0	33	48	0	0	52	51	44	35	30	6	6	6	6	33	32	31	36	125	36	36	107
OBSTCLAL	1024	0	55	71	0	0	90	82	73	55	54	7	7	7	11	55	48	47	59	217	59	59	56
OBSTCLAL	5625	0	243	198	0	0	394	343	327	243	240	16	16	16	38	243	194	189	259	—I—	259	259	259
OBSTCLAL	10000	0	413	373	0	0	652	547	567	413	409	19	19	19	59	413	336	307	381	—I—	381	381	402
OBSTCLAL	15625	0	604	509	0	0	991	798	824	604	604	24	24	24	79	604	481	447	527	—T—	527	527	484
OBSTCLBL	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
OBSTCLBL	100	0	6	2	0	0	8	11	9	11	6	6	6	6	6	7	2	6	8	42	8	8	8
OBSTCLBL	529	0	84	190	0	0	97	87	89	84	81	69	69	69	69	92	45	86	78	219	78	78	78

Number of cg-iterations (12)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
OBSTCLBL	1024	0	178	364	0	0	201	203	202	177	181	151	151	151	151	183	116	172	139	468	139	139	139
OBSTCLBL	5625	0	720	—S—	0	0	842	886	818	723	723	613	613	613	618	749	1200	697	546	—I—	546	546	789
OBSTCLBL	10000	0	1349	—S—	0	0	1699	1573	1622	1349	1352	1115	1115	1115	3851	1372	2244	1294	1019	—T—	1019	1089	1434
OBSTCLBL	15625	0	2083	—S—	—T—	0	2657	2331	2522	2083	2101	1651	1651	1651	—T—	2105	3414	1977	2095	—T—	2094	2154	2158
OBSTCLBM	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
OBSTCLBM	100	0	3	24	0	0	5	5	6	6	3	3	3	3	4	6	3	3	2	25	2	2	2
OBSTCLBM	529	0	49	114	0	0	57	59	56	49	48	30	30	30	31	30	47	47	36	132	36	36	36
OBSTCLBM	1024	0	109	349	0	0	126	114	120	109	109	88	88	88	88	49	108	108	90	371	90	90	90
OBSTCLBM	5625	0	488	1731	0	0	531	510	528	488	488	415	415	415	417	182	459	486	338	—I—	338	338	339
OBSTCLBM	10000	0	795	2914	0	0	861	863	872	795	791	675	675	675	—T—	296	972	785	705	—T—	705	705	718
OBSTCLBM	15625	0	1378	—T—	0	0	1497	1496	1484	1378	1396	1188	1188	1188	—T—	506	2632	1384	870	—T—	870	870	870
OBSTCLBU	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLBU	100	0	1	1	0	0	6	5	5	6	1	1	1	1	2	1	2	1	6	38	6	6	6
OBSTCLBU	529	0	37	57	0	0	57	52	47	37	36	11	11	11	14	37	36	31	74	271	74	74	74
OBSTCLBU	1024	0	53	121	0	0	78	66	70	53	52	15	15	15	17	56	51	49	122	383	122	122	151
OBSTCLBU	5625	0	247	766	0	0	353	295	330	248	247	72	72	72	85	239	348	227	304	—I—	304	304	326
OBSTCLBU	10000	0	415	1230	0	0	639	566	575	439	416	88	88	88	114	411	773	349	528	—T—	528	528	583
OBSTCLBU	15625	0	621	1938	0	0	1000	789	834	628	612	129	129	129	792	686	1350	512	827	—T—	824	827	965
OPTCNTRL	32	20	59	78	0	0	390	2913	423	403	70	57	45	45	45	59	60	76	62	75	62	62	62
OPTMASS	70	55	—I—	4970	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
OPTMASS	610	505	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	1210	1005	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	3010	2505	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—E—	—I—	—I—	—I—	—I—
ORTHREGA	133	64	689	—S—	0	—I—	—S—	—I—	848	831	837	2793	75	113	527	668	675	2201	—I—	—I—	1194	754	—I—
ORTHREGA	517	256	731	1995	—T—	—I—	1688	—I—	1119	1123	799	5128	106	—T—	1016	720	736	5963	—I—	—I—	1120	838	—I—
ORTHREGA	2053	1024	804	—S—	—M—	—I—	2493	—I—	1158	1154	—S—	—T—	194	—E—	—T—	854	837	15781	—I—	—I—	1190	972	—I—
ORTHREGA	8197	4096	—S—	—S—	—M—	—T—	2557	—I—	1259	—S—	925	—E—	—T—	—E—	—T—	906	955	—T—	—I—	—I—	—S—	—S—	—T—
ORTHREGB	27	6	475	1319	—I—	0	44	—I—	2918	489	399	956	105	172	530	554	759	4847	360	—I—	481	361	1023
ORTHREGC	25	10	137	282	(0)	0	191	(1821)	291	171	140	154	28	—I—	41	149	136	(425)	—I—	—I—	(206)	(212)	(202)
ORTHREGC	105	50	(277)	3800	0	(0)	496	—I—	391	(221)	(293)	261	46	47	(1059)	(241)	136	(751)	—I—	—I—	282	214	1027
ORTHREGC	505	250	(236)	756	0	(0)	456	—I—	358	(327)	(275)	340	45	59	149	148	139	(2844)	—I—	—I—	220	201	692
ORTHREGC	1005	500	186	—S—	0	(0)	489	—I—	427	259	200	485	55	94	141	187	179	(6392)	—I—	—I—	(397)	(331)	(1506)
ORTHREGC	5005	2500	363	—T—	—T—	—T—	1134	—I—	807	405	311	1982	381	—M—	354	367	364	—T—	—I—	—I—	455	394	—I—
ORTHREGC	10005	5000	428	—T—	—M—	—T—	1070	—I—	815	408	—S—	—T—	115	—M—	—T—	483	425	—T—	—T—	—T—	600	502	—T—
ORTHREGD	23	10	1385	—F—	0	0	112	—I—	1690	1321	1512	438	65	70	348	1723	1021	908	1031	1390	1132	1008	903
ORTHREGD	103	50	2010	—F—	0	0	180	—I—	3406	2103	2071	469	78	—S—	221	—S—	—S—	3385	1122	—I—	1026	1086	1133
ORTHREGD	503	250	1156	—F—	—I—	—I—	147	—I—	—I—	1076	976	250	65	219	215	—S—	—S—	7814	680	—S—	542	—S—	—I—
ORTHREGD	1003	500	796	—F—	—I—	—I—	181	—I—	—I—	1070	940	325	94	—S—	229	—S—	—S—	13062	527	—S—	520	561	—I—
ORTHREGD	5003	2500	559	—F—	—T—	—T—	211	—I—	6190	568	—S—	545	131	—T—	120	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—I—
ORTHREGD	10003	5000	445	—F—	—M—	—T—	195	—T—	—S—	350	410	—T—	—T—	—E—	—T—	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—T—
ORTHREGE	36	20	—S—	(1716)	(0)	—I—	381	—I—	—S—	—S—	(3489)	(397)	—I—	—I—	—I—	—S—	(1406)	—S—	—I—	—I—	—I—	—S—	—I—
ORTHREGF	80	25	119	755	0	0	191	505	226	257	133	67	45	39	48	106	115	432	210	—I—	156	185	153
ORTHREGF	152	49	136	—I—	0	0	146	379	304	316	143	79	44	49	42	145	142	900	406	—I—	176	268	195
ORTHREGF	305	100	(134)	—I—	(0)	0	238	(904)	(380)	(583)	(142)	(117)	39	61	(71)	(177)	(134)	(1789)	—I—	—I—	(116)	(162)	(153)
ORTHREGF	680	225	(211)	(928)	0	(0)	303	(1324)	(413)	(636)	(138)	(142)	49	74	(131)	(182)	(245)	3027	—I—	—I—	(181)	(173)	(331)
ORTHREGF	1205	400	—S—	—S—	(0)	(0)	449	(3796)	(466)	(812)	(525)	(137)	53	80	87	(281)	(244)	(4158)	—I—	—I—	(181)	(215)	(234)
OSBORNEA	5	0	49	—E—	0	0	212	—I—	210	213	49	75	24	35	92	49	88	104	260	—S—	130	115	114
OSBORNEB	11	0	59	73	0	0	194	—E—	70	66	30	77	18	18	11	71	(206)	90	190	—I—	50	109	86
PALMER1	4	0	14	—S—	0	0	35	105	24	21	14	27	14	14	45	29	32	29	30	—S—	45	17	—S—
PALMER1A	6	0	64	60	0	—S—	660	—I—	—S—	317	64	263	59	79	60	67	65	105	276	—I—	63	106	116
PALMER1B	4	0	28	33	0	0	68	—I—	54	64	28	53	22	22	22	43	31	38	81	—S—	33	45	45
PALMER1C	8	0	90	110	0	0	1354	—I—	231	—S—	388	46	7	7	102	109	179	408	90	90	90	90	90
PALMER1D	7	0	42	37	0	0	683	—I—	41	52	42	33	7	7	82	43	40	65	42	42	42	42	42
PALMER1E	8	0	2525	1397	—I—	0	3577	—I—	1784	1104	1698	639	708	744	1055	1732	1087	1681	—I—	—I—	2646	1206	1399
PALMER2	4	0	9	31	0	0	28	62	43	18	9	54	9	9	10	16	23	38	105	—S—	29	16	24
PALMER2A	6	0	246	268	0	0	430	1259	361	685	246	332	116	93	113	240	266	305	660	—I—	249	272	358
PALMER2B	4	0	66	66	0	0	50	—I—	77	94	66	73	66	66	66	18	16	30	64	—S—	68	77	—S—
PALMER2C	8	0	85	—S—	0	0	666	—I—	301	147	90	64	6	6	99	372	115	228	85	85	85	85	85
PALMER2E	8	0	1267	1335	0	0	1676	—I—	1578	1755	1199	661	334	284	1587	1509	1466	2937	—I—	—I—	815	1959	2008

Number of cg-iterations (13)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
PALMER3	4	0	24	32	0	0	(27)	163	(25)	33	24	(25)	18	18	24	63	15	41	(39)	—I—	(33)	(38)	98
PALMER3A	6	0	239	274	0	0	654	—I—	390	564	239	296	133	98	112	258	274	353	—I—	—S—	283	283	297
PALMER3B	4	0	46	46	0	0	49	74	52	84	46	50	27	41	17	16	32	27	33	—S—	16	9	9
PALMER3C	8	0	84	124	0	0	100	—I—	170	210	81	33	6	6	100	91	83	322	84	84	84	84	84
PALMER3E	8	0	554	(312)	0	0	1175	—I—	1221	1124	917	278	45	40	1103	796	703	1643	—I—	—I—	569	1005	1054
PALMER4	4	0	23	37	(0)	0	(28)	54	(23)	28	23	(24)	24	28	23	48	16	41	—I—	—S—	(51)	36	—S—
PALMER4A	6	0	46	68	0	0	327	—I—	162	278	46	208	84	52	77	68	64	85	125	—I—	70	101	92
PALMER4B	4	0	19	19	0	0	71	67	48	75	19	44	46	18	21	—S—	31	29	14	—I—	22	16	16
PALMER4C	8	0	368	297	0	0	814	—I—	241	140	310	103	6	6	166	152	260	361	368	368	368	368	368
PALMER4E	8	0	284	476	0	0	910	—I—	642	454	478	350	65	20	780	352	714	826	—I—	—I—	540	789	929
PENALTY1	4	0	28	48	0	0	36	71	53	67	28	28	28	28	28	19	23	55	29	40	29	29	29
PENALTY1	10	0	129	183	0	0	50	92	108	159	27	27	27	27	27	122	128	271	125	82	125	125	125
PENALTY1	50	0	473	594	0	0	59	—I—	172	652	298	29	30	29	29	359	286	1045	431	397	431	431	544
PENALTY1	100	0	610	545	0	0	51	—I—	190	877	503	26	25	25	25	530	431	1355	587	512	587	587	594
PENALTY1	500	0	527	440	0	0	52	—I—	104	1104	553	28	25	25	25	489	382	3482	591	543	591	591	568
PENALTY1	1000	0	432	356	—T—	—T—	44	—I—	72	447	424	—T—	—T—	—T—	—T—	453	414	5834	432	512	432	432	539
PENALTY2	4	0	5	72	0	0	7	16	6	6	5	49	47	47	13	5	8	8	4	3	4	4	4
PENALTY2	10	0	260	785	0	0	34	737	158	61	109	129	64	64	108	289	292	255	260	77	260	260	260
PENALTY2	50	0	149	131	0	0	117	110	74	273	173	298	30	27	48	180	115	391	149	198	149	149	137
PENALTY2	100	0	68	95	0	0	150	100	49	74	67	74	19	19	19	68	71	61	78	225	74	78	75
PENALTY3	50	0	43	—S—	—S—	—S—	60	—I—	—S—	35	—S—	206	69	61	—S—	(790)	—S—	104	—I—	—S—	—S—	103	—S—
PENALTY3	100	0	—S—	—S—	—S—	—S—	111	—I—	55	—S—	37	386	—S—	60	—S—	—I—	35	—S—	—I—	—T—	—S—	120	—S—
PENTAGON	6	15	55	834	0	0	66	165	68	61	81	39	19	17	24	55	55	55	221	—I—	289	234	234
POWELLBS	2	0	50	50	0	0	58	925	54	50	50	29	26	24	53	52	52	58	52	52	52	52	—S—
POWELLSG	4	0	15	15	0	0	57	77	50	37	15	32	15	15	13	15	15	15	15	15	15	15	15
POWELLSG	8	0	15	15	0	0	57	76	50	37	15	21	15	15	14	15	14	15	15	15	15	15	15
POWELLSG	16	0	15	15	0	0	58	76	50	37	15	15	15	15	14	15	15	15	15	15	15	15	15
POWELLSG	20	0	15	15	0	0	58	76	50	37	15	15	15	15	14	15	15	15	15	15	15	15	15
POWELLSG	36	0	15	15	0	0	58	76	51	40	15	15	15	15	14	15	14	15	15	15	15	15	15
POWELLSG	40	0	15	15	0	0	58	76	51	40	15	15	15	15	14	15	15	15	15	15	15	15	15
POWELLSG	60	0	15	15	0	0	58	76	51	40	15	15	15	15	14	15	14	15	15	15	15	15	15
POWELLSG	80	0	15	15	0	0	58	76	51	40	15	15	15	15	14	15	14	15	15	15	15	15	15
POWELLSG	100	0	15	15	0	0	59	76	53	40	15	15	15	15	14	15	15	16	15	15	15	15	15
POWELLSG	500	0	15	15	0	0	59	76	54	40	15	15	15	15	16	15	14	16	15	15	15	15	15
POWELLSG	1000	0	15	15	0	0	60	76	57	41	15	15	15	15	16	15	18	18	15	15	15	15	15
POWELLSG	5000	0	17	18	0	0	60	76	58	44	17	15	15	15	17	17	15	18	17	17	17	17	17
POWELLSG	10000	0	17	18	0	0	62	76	58	44	17	15	15	15	17	17	14	18	17	17	17	17	17
POWELLSQ	2	0	2	1	0	0	2	1	2	2	2	2	2	2	2	2	16	2	0	0	0	0	0
POWER	10	0	24	39	0	0	51	32	33	35	15	16	15	15	15	24	24	21	25	12	25	25	25
POWER	20	0	28	42	0	0	78	36	36	36	27	20	18	18	18	28	28	22	30	24	30	30	30
POWER	30	0	32	44	0	0	98	39	37	38	28	21	19	19	19	32	34	25	37	29	37	37	37
POWER	50	0	35	61	0	0	121	41	39	41	33	22	20	20	20	35	40	29	44	35	44	44	44
POWER	75	0	38	62	0	0	135	42	41	42	35	23	21	21	21	38	44	33	45	39	45	45	45
POWER	100	0	44	65	0	0	185	40	42	44	40	25	22	22	22	44	47	38	46	39	46	46	46
POWER	500	0	52	74	0	0	427	—I—	50	50	53	29	26	26	26	52	53	50	50	43	50	50	50
POWER	1000	0	53	78	—T—	—T—	613	—I—	52	52	54	—T—	—T—	—T—	—T—	53	55	52	52	44	52	52	52
PROBPENL	10	0	237	236	(0)	—I—	(100)	(0)	(0)	(0)	(48)	(2)	(0)	(2)	(83)	239	(1)	(168)	(4)	(4)	(1)	(1)	(1)
PROBPENL	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	5	3	3	3
PROBPENL	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	3	2	2	2
PROBPENL	500	0	0	—S—	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	2	2	2	2
PRODPL0	60	29	—S—	—S—	—I—	0	801	862	638	724	—S—	404	277	420	213	598	—S—	—S—	698	21833	—S—	700	1324
PRODPL1	60	29	1127	1127	—I—	—I—	1528	2453	1023	1221	624	615	699	298	481	1242	1331	2245	1206	—I—	1283	1271	2546
PSPDOC	4	0	6	6	0	0	16	13	13	6	6	11	6	6	6	7	8	3	2	2	2	2	6
QUARTC	25	0	18	22	0	0	34	0	18	18	18	18	18	18	18	20	21	18	18	18	18	18	18
QUARTC	100	0	21	41	0	0	90	—I—	21	21	21	21	21	21	21	23	25	21	21	21	21	21	21
QUARTC	500	0	26	125	0	0	162	—I—	26	26	26	26	26	26	26	27	31	26	26	26	26	26	26
QUARTC	1000	0	27	278	0	0	223	—I—	27	27	27	27	27	27	27	28	33	27	27	27	27	27	27
QUARTC	5000	0	31	1559	0	0	368	—I—	31	31	31	31	31	31	31	33	42	31	31	31	31	31	31
QUARTC	10000	0	33	3078	(0)	(0)	466	—I—	33	33	33	33	33	33	33	35	46	33	33	33	33	33	33

Number of cg-iterations (14)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
READING1	202	100	18888	—F—	—I—	—I—	107273	167365	—I—	—I—	16288	7152	—I—	7791	—I—	17539	11689	29115	—I—	—I—	16507	—I—	—I—
READING2	303	200	1800	147570	—I—	—I—	—T—	210598	14002	13975	1800	721	2935	721	2809	2052	2224	2102	1800	1800	1800	1800	1800
READING3	202	101	—I—	—S—	—I—	—I—	436165	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	74671	—I—	—I—	—I—	—I—	—I—
RECIPE	3	0	1	11	0	0	2	14	1	1	1	1	1	1	1	9	10	1	23	—I—	14	9	9
ROSENBR	2	0	8	8	0	0	15	31	20	8	8	19	8	8	8	8	9	9	(0)	(0)	(0)	(0)	(0)
S277-280	4	4	26	26	0	0	20	232	15	22	26	15	15	15	42	24	21	34	26	26	26	26	26
S277-280	6	6	109	109	—I—	0	44	361	49	51	17	19	27	29	38	40	56	71	108	109	109	108	109
S277-280	8	8	27	27	—I—	0	46	202	49	28	19	59	36	60	80	75	97	27	27	27	27	27	27
S277-280	10	10	99	130	—I—	0	21	173	20	41	43	65	55	1450	44	123	113	94	99	99	99	99	99
S308	2	0	6	6	0	0	10	12	11	6	6	9	6	6	6	7	5	7	11	14	5	4	6
S316-322	2	1	0	0	0	0	0	(36)	0	0	0	0	0	0	0	7	6	0	0	0	0	0	0
S316-322	2	1	10	10	0	0	21	(39)	16	10	10	13	10	10	10	16	17	10	10	52	10	10	10
S316-322	2	1	(13)	(13)	(0)	(0)	(36)	1	(25)	(13)	(13)	(32)	(13)	(13)	(13)	(19)	(18)	(25)	(13)	(69)	(13)	(13)	(13)
S316-322	2	1	(19)	(19)	(0)	(0)	(46)	(33)	(37)	(19)	(19)	19	(19)	(19)	(19)	(23)	(25)	14	(20)	(91)	(20)	(20)	(20)
S316-322	2	1	(15)	(15)	(0)	(0)	(27)	22	(28)	(15)	(15)	(24)	(15)	(15)	(15)	(20)	(23)	(20)	(15)	(96)	(15)	(15)	(15)
S316-322	2	1	(22)	(22)	(0)	(0)	(31)	30	(38)	(22)	(22)	(34)	(22)	(22)	(22)	(27)	(23)	(16)	(25)	(95)	(25)	(25)	(25)
S316-322	2	1	(26)	(26)	(0)	(0)	(52)	(32)	40	(26)	(26)	(36)	(26)	(26)	(26)	(30)	(31)	(31)	21	—I—	21	21	21
SCHMVETT	3	0	3	3	0	0	8	11	9	9	3	7	3	3	3	3	3	3	7	30	10	5	5
SCHMVETT	10	0	3	3	0	0	25	28	25	22	3	3	3	3	3	3	3	3	6	387	15	10	10
SCHMVETT	100	0	3	3	0	0	46	34	28	61	3	3	3	3	3	3	4	3	6	—S—	48	10	18
SCHMVETT	500	0	3	3	0	0	47	41	27	160	3	3	3	3	3	3	3	3	10	—E—	33	10	49
SCHMVETT	1000	0	3	3	0	0	47	39	27	303	3	3	3	3	3	3	11	3	18	—S—	33	11	12
SCHMVETT	5000	0	3	3	0	0	46	38	27	1203	3	3	3	3	3	3	5	3	21	—T—	30	13	23
SCHMVETT	10000	0	3	3	0	0	47	37	28	2446	3	3	3	3	3	3	5	3	21	—T—	34	13	15
SEMICON1	12	10	159	—S—	—S—	—S—	—F—	—F—	—S—	—S—	159	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—F—	—S—	—S—	—S—
SEMICON1	52	50	1187	1551	0	0	—F—	—F—	1671	1291	1187	667	319	667	1550	—F—	—F—	2547	—F—	—F—	1216	1251	—F—
SEMICON1	102	100	841	2580	—F—	0	—F—	—F—	5626	1811	847	591	530	591	3828	—F—	—F—	2166	—F—	—F—	704	880	—F—
SEMICON1	502	500	854	844	—F—	0	—F—	—F—	—F—	—F—	854	687	787	687	—F—	—F—	—F—	11073	—F—	—F—	881	757	—F—
SEMICON2	12	10	50	—S—	0	0	958	2302	131	52	50	38	38	38	51	66	84	68	175	247	67	67	67
SEMICON2	52	50	98	70	0	0	19276	—F—	1047	411	98	93	109	93	101	141	89	201	—F—	—F—	97	97	—F—
SEMICON2	102	100	109	101	0	0	29706	—F—	3741	1077	109	109	109	109	109	116	111	369	—F—	—F—	115	115	115
SEMICON2	502	500	111	116	0	0	—T—	—F—	—T—	5294	111	111	111	111	111	120	123	114	—F—	—F—	172	172	—F—
SEMICON2	1002	1000	127	100	0	0	—T—	—F—	—T—	5067	127	127	127	127	127	129	140	136	—F—	—F—	196	196	196
SIMPLLPA	2	2	2	2	0	0	4	20	4	2	2	4	2	2	2	3	2	2	2	2	2	2	2
SIMPLLPB	2	3	3	3	0	0	12	31	12	8	3	11	3	4	5	3	3	3	3	3	3	3	3
SINQUAD	5	0	11	11	0	0	46	77	28	67	11	47	11	11	11	11	11	11	11	11	11	11	11
SINQUAD	50	0	104	104	0	0	56	57	86	105	115	97	11	11	13	123	121	117	175	157	111	111	111
SINQUAD	100	0	152	152	0	0	72	74	138	163	211	139	11	11	14	185	184	417	214	198	189	189	187
SINQUAD	500	0	252	252	0	0	92	145	237	293	290	181	11	11	35	305	302	(444)	279	262	297	297	302
SINQUAD	1000	0	341	341	0	0	132	198	290	339	365	262	11	11	38	324	317	1004	379	391	376	376	345
SINQUAD	5000	0	(387)	(387)	0	0	(150)	—I—	528	586	640	413	12	12	47	531	575	—T—	577	469	557	557	474
SINQUAD	10000	0	589	589	0	0	224	—I—	599	786	523	—T—	17	15	—T—	683	831	—T—	744	607	723	723	719
SISSER	2	0	7	9	0	0	5	0	11	7	7	7	7	7	7	7	7	7	7	12	7	8	5
SNAIL	2	0	71	71	0	0	151	132	133	71	71	133	80	71	72	84	61	96	111	—I—	92	174	168
SPANHYD	97	33	688	5304	—I—	0	580	—I—	1564	648	276	—I—	614	1983	554	386	689	803	1438	—I—	—I—	1403	—I—
SPMSQRT	28	0	10	18	0	0	44	66	36	34	10	12	10	12	10	15	11	31	12	—I—	10	12	13
SPMSQRT	100	0	12	30	0	0	73	87	51	56	12	14	14	15	12	16	14	65	19	—I—	11	15	34
SPMSQRT	499	0	17	42	0	0	113	131	94	130	17	19	19	18	16	—I—	20	330	28	—S—	21	18	53
SPMSQRT	1000	0	22	52	0	0	146	171	94	150	22	22	19	22	18	—I—	16	725	27	—I—	18	19	113
SPMSQRT	4999	0	22	—T—	0	0	293	—T—	133	220	22	27	24	27	19	—T—	21	4382	63	—I—	17	24	70
SPMSQRT	10000	0	26	—T—	0	—T—	264	—T—	128	223	26	29	27	36	19	—T—	29	—T—	59	—T—	25	44	121
SROSENBR	10	0	4	4	0	0	20	12	4	4	4	4	4	4	4	4	4	3	12	12	13	13	13
SROSENBR	50	0	4	4	0	0	20	12	6	4	4	4	4	4	4	4	4	4	12	12	13	13	13
SROSENBR	100	0	4	4	0	0	20	12	6	4	4	4	4	4	4	4	4	4	14	14	13	13	13
SROSENBR	500	0	10	10	0	0	20	12	8	10	10	10	10	10	10	10	4	11	14	14	13	13	13
SROSENBR	1000	0	10	10	0	0	20	12	8	10	10	10	10	10	10	10	4	11	14	14	13	13	13
SROSENBR	5000	0	10	10	0	0	20	12	20	10	10	10	10	10	10	10	5	11	14	14	13	13	13
SROSENBR	10000	0	10	10	0	0	20	12	20	10	10	10	10	10	10	10	9	—T—	22	22	13	13	13
SSEBLIN	194	72	1360	1463	—I—	—I—	2986	—I—	3177	3583	1246	—I—	1151	—I—	1119	1309	1325	1816	1352	1384	1340	1360	1413

Number of cg-iterations (15)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
SSEBNLN	194	96	1349	1418	—I—	—I—	3080	—I—	2981	3575	1361	1103	1143	1071	1231	1565	1338	2184	1340	1521	1445	1408	1398
STEENBRA	432	108	2792	3186	—I—	—I—	2022	—I—	2623	2576	2675	—I—	1013	—I—	—I—	3021	3105	3211	3010	2756	2584	2927	—I—
STEENBRB	468	108	—I—	—I—	—I—	0	—I—	(95076)	7784	4463	7431	—E—	1245	—I—	5706	3157	—I—	10535	—I—	—I—	—I—	20895	—I—
STEENBRC	540	126	—I—	—I—	—I—	—I—	—I—	(44738)	—I—	—I—	—I—	—E—	(3630)	—I—	19723	—I—	—I—	23704	—I—	—I—	—I—	35992	—I—
STEENBRD	468	108	—I—	31039	—I—	—I—	—I—	(97627)	(4927)	—I—	—I—	—E—	(1349)	—E—	9484	—I—	—I—	(14764)	—I—	—I—	(26770)	(19607)	—I—
STEENBRE	540	126	34908	—I—	—I—	—I—	—I—	(113266)	—I—	—I—	—I—	—I—	2503	—E—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	42614	—I—
STEENBRF	468	108	—I—	—I—	—I—	0	—I—	(63237)	1966	3873	—I—	—E—	1287	(3727)	3360	12934	—I—	5397	—I—	—I—	16194	21044	—I—
STEENBRG	540	126	—I—	—I—	—I—	—I—	—I—	(103381)	—I—	—I—	—I—	—E—	1924	—E—	24894	—I—	—I—	21763	—I—	—I—	—I—	(42188)	—I—
SVANBERG	10	10	395	395	—I—	0	433	607	295	419	236	319	71	52	54	394	482	663	372	721	371	372	367
SVANBERG	20	20	492	492	0	0	1241	1079	639	587	496	380	104	82	106	482	470	977	575	998	560	560	569
SVANBERG	30	30	737	737	0	0	2257	1553	702	1102	473	460	212	110	204	602	601	1378	902	1497	902	902	743
SVANBERG	40	40	972	972	0	0	3363	1978	792	1370	700	579	202	138	181	521	844	1809	802	1667	824	824	835
SVANBERG	50	50	904	904	—I—	0	4026	2321	818	1627	755	739	338	156	261	928	826	1980	1097	2398	993	970	896
SVANBERG	60	60	914	914	0	0	4322	2650	896	1886	710	760	354	121	319	844	684	2331	892	2566	910	892	798
SVANBERG	70	70	996	996	0	0	5438	2870	1266	2684	842	867	334	214	219	690	954	2564	1298	3288	1142	1208	1252
SVANBERG	80	80	1133	1133	0	0	6635	3252	1134	2649	1189	739	425	154	267	1239	944	3091	955	3345	1086	1024	1052
SVANBERG	90	90	1179	1179	0	0	8444	3556	1274	4716	1046	752	305	235	281	1130	1292	3157	1105	3821	1199	1145	1091
SVANBERG	100	100	1673	1673	0	0	9993	4410	1725	4476	1279	779	381	264	298	1443	1250	3298	1375	4291	1396	1407	1405
SVANBERG	500	500	3226	3226	—I—	—T—	24061	11940	3706	27251	3013	1579	1273	1025	1301	3784	2737	13547	3803	12304	3937	3672	3658
SVANBERG	1000	1000	5340	5340	—I—	—T—	—T—	20183	6828	—T—	4225	2213	2588	1376	2425	3626	3863	24325	6273	15584	6180	5556	6627
SVANBERG	5000	5000	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
TAME	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TENBARS1	18	9	8179	6337	—I—	—I—	5606	—I—	—S—	3493	—S—	5814	—I—	550	2752	—S—	4815	—S—	—I—	—I—	3972	—S—	—I—
TENBARS2	18	8	2661	4555	—I—	—I—	2596	—I—	4157	2378	2421	1912	—I—	585	2836	—S—	2410	5248	4494	—I—	2574	2233	—I—
TENBARS3	18	8	1517	3376	—I—	—I—	1441	—I—	3128	1558	2003	1581	—I—	498	2641	1206	1567	7062	2913	—I—	1473	1642	—I—
TENBARS4	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
TOINTGOR	50	0	75	104	0	0	117	138	107	102	79	41	7	7	38	76	84	97	75	75	75	75	75
TOINTGSS	10	0	2	2	0	0	55	52	(26)	2	2	2	2	2	2	14	(9)	2	2	2	2	2	2
TOINTGSS	50	0	2	2	0	0	(29)	29	(23)	2	2	2	2	2	2	12	(7)	2	2	2	2	2	2
TOINTGSS	100	0	2	2	0	0	(19)	(59)	(17)	2	2	2	2	2	2	(7)	(13)	2	2	2	2	2	2
TOINTGSS	500	0	2	2	0	0	(15)	(22)	(8)	2	2	2	2	2	2	10	(10)	2	2	2	2	2	2
TOINTGSS	1000	0	2	2	0	0	(15)	(14)	(7)	2	2	2	2	2	2	13	(7)	2	2	2	2	2	2
TOINTGSS	5000	0	2	2	0	0	(13)	(16)	(6)	2	2	2	2	2	2	14	(10)	2	2	2	2	2	2
TOINTGSS	10000	0	2	2	0	0	13	(15)	(6)	2	2	2	2	2	2	8	10	2	2	2	2	2	2
TOINTPSP	50	0	65	65	0	0	85	86	76	74	64	37	14	14	14	74	78	141	65	65	65	65	65
TOINTQOR	50	0	24	30	0	0	34	53	27	30	16	12	4	4	7	24	25	35	24	24	24	24	24
TORSIONA	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONA	100	0	8	9	0	0	12	12	11	10	2	2	2	2	3	8	8	8	15	48	15	15	17
TORSIONA	484	0	40	55	0	0	62	56	57	42	35	6	6	6	7	40	41	41	43	287	43	43	45
TORSIONA	1024	0	83	91	0	0	131	116	116	84	77	9	9	9	13	83	73	77	96	959	95	95	64
TORSIONA	5476	0	442	319	0	0	691	593	592	444	434	23	23	23	66	442	330	313	250	—I—	251	244	251
TORSIONA	10000	0	784	465	0	0	1243	1044	1067	786	776	31	31	31	117	784	577	553	429	—I—	429	427	429
TORSIONA	14884	0	1147	1015	0	0	1830	1508	1532	1149	1139	37	37	37	175	1147	827	775	508	—T—	508	507	507
TORSIONB	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONB	100	0	14	14	0	0	17	16	15	15	3	3	3	3	10	11	12	13	17	39	15	17	17
TORSIONB	484	0	70	90	0	0	72	73	68	70	70	26	26	26	52	87	109	72	65	243	65	65	65
TORSIONB	1024	0	124	141	0	0	137	106	124	117	124	74	74	74	101	205	292	114	143	533	143	143	143
TORSIONB	5476	0	655	711	0	0	741	526	677	655	655	491	491	491	606	1439	1618	611	545	—I—	545	545	545
TORSIONB	10000	0	1323	1258	0	0	1385	855	1251	1309	1323	871	871	871	986	2693	3005	1286	994	—I—	994	994	994
TORSIONB	14884	0	2025	1970	—T—	—I—	2266	1503	2092	1970	2025	1377	1377	1377	—T—	—T—	—T—	1940	1541	—T—	1541	1541	1541
TORSIONC	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONC	100	0	1	1	0	0	2	2	2	2	1	1	1	1	1	1	1	1	3	5	3	3	3
TORSIONC	484	0	12	19	0	0	18	17	17	14	3	3	3	3	4	12	13	13	48	83	49	48	32
TORSIONC	1024	0	22	31	0	0	35	31	32	23	17	4	4	4	5	22	22	23	43	163	43	43	45
TORSIONC	5476	0	128	102	0	0	195	173	174	130	120	11	11	11	20	128	102	100	204	—I—	202	203	205
TORSIONC	10000	0	230	157	0	0	355	307	312	232	222	15	15	15	36	230	178	167	144	—I—	144	144	144
TORSIONC	14884	0	332	293	0	0	519	446	457	334	325	19	19	19	52	332	252	237	397	—I—	397	397	396
TORSIOND	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
TORSIOND	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	1	5	1	1	1

Number of cg-iterations (16)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
TORSIOND	484	0	20	24	0	0	24	21	22	19	7	5	5	5	19	93	198	19	17	89	17	17	17
TORSIOND	1024	0	42	43	0	0	54	44	50	41	38	13	13	13	36	258	619	38	49	259	49	49	50
TORSIOND	5476	0	202	212	0	0	280	190	237	199	203	59	59	59	138	2862	3387	164	286	—I—	286	286	286
TORSIOND	10000	0	381	329	0	0	518	317	445	386	382	149	149	149	245	5294	—T—	310	298	—I—	298	298	298
TORSIOND	14884	0	652	551	0	0	759	445	658	652	652	315	315	315	445	—T—	—T—	551	452	—I—	452	452	452
TORSIONE	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONE	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONE	484	0	1	1	0	0	2	3	2	2	1	1	1	1	1	1	1	1	3	10	3	3	3
TORSIONE	1024	0	7	10	0	0	12	11	11	9	2	2	2	2	3	7	7	7	8	75	8	8	8
TORSIONE	5476	0	41	39	0	0	63	56	56	43	35	6	6	6	6	41	36	31	63	304	62	63	40
TORSIONE	10000	0	70	54	0	0	107	95	95	72	62	8	8	8	8	70	59	57	59	764	60	59	62
TORSIONE	14884	0	93	73	0	0	145	127	130	95	87	9	9	9	13	93	79	69	369	—I—	386	370	401
TORSIONF	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
TORSIONF	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
TORSIONF	484	0	2	2	0	0	3	4	3	4	2	2	2	2	10	28	24	2	1	8	1	1	1
TORSIONF	1024	0	12	15	0	0	17	14	16	13	3	3	3	3	10	169	305	11	10	99	10	10	10
TORSIONF	5476	0	54	49	0	0	83	57	73	54	54	12	12	12	38	1952	3202	43	65	494	65	65	65
TORSIONF	10000	0	111	101	0	0	143	85	120	110	112	30	30	30	55	4280	1524	86	90	791	90	90	91
TORSIONF	14884	0	154	149	0	0	207	127	180	154	155	69	69	69	107	—T—	—T—	124	136	—I—	136	136	136
TQUARTIC	5	0	1	1	0	0	8	3	2	8	1	6	1	1	1	1	12	1	1	1	1	1	1
TQUARTIC	10	0	14	14	0	0	8	5	2	11	1	10	1	1	1	14	25	13	14	11	14	14	14
TQUARTIC	50	0	25	25	0	0	8	16	2	17	29	29	1	1	1	34	22	14	25	18	25	25	25
TQUARTIC	100	0	23	23	0	0	10	26	2	17	21	21	1	1	1	24	23	12	22	17	22	22	22
TQUARTIC	500	0	27	27	0	0	14	60	2	21	24	3	1	1	1	27	34	13	27	26	27	27	27
TQUARTIC	1000	0	24	24	0	0	14	86	2	32	28	3	1	1	1	24	25	13	24	23	24	24	24
TQUARTIC	5000	0	31	31	0	—T—	12	196	2	24	34	3	1	1	1	31	60	27	32	29	32	32	32
TQUARTIC	10000	0	26	26	0	—T—	12	278	2	24	44	3	1	1	1	26	143	27	26	25	26	26	26
TRIDIA	10	0	1	1	0	0	24	54	24	1	1	1	1	1	1	1	2	1	1	1	1	1	1
TRIDIA	20	0	1	1	0	0	46	69	25	1	1	1	1	1	1	2	3	1	1	1	1	1	1
TRIDIA	30	0	1	1	0	0	57	96	25	1	1	1	1	1	1	1	2	1	1	1	1	1	1
TRIDIA	50	0	1	1	0	0	75	121	25	1	1	1	1	1	1	1	3	1	1	1	1	1	1
TRIDIA	100	0	1	1	0	0	91	140	25	1	1	1	1	1	1	1	2	1	1	1	1	1	1
TRIDIA	500	0	1	1	0	0	91	99	25	1	1	1	1	1	1	1	3	1	1	1	1	1	1
TRIDIA	1000	0	1	1	0	0	91	473	25	1	1	1	1	1	1	1	4	1	1	1	1	1	1
TRIDIA	5000	0	1	1	0	0	91	242	25	1	1	1	1	1	4	1	3	1	1	1	1	1	1
TRIDIA	10000	0	1	1	0	0	91	330	25	1	1	1	1	1	2	1	3	1	1	1	1	1	1
TRIGGER	7	6	22	—F—	0	0	—S—	—I—	—I—	—I—	22	17	13	22	75	22	—S—	42	24	20	24	24	24
VARDIM	10	0	0	44	0	0	0	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VARDIM	50	0	0	184	0	0	0	—I—	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
VARDIM	100	0	0	324	0	0	0	—I—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VAREIGVL	10	0	75	75	0	0	53	166	58	61	28	26	37	23	29	69	40	81	40	21	55	54	49
VAREIGVL	50	0	66	67	0	0	109	248	113	104	36	17	13	13	31	66	58	63	35	30	60	82	64
VAREIGVL	100	0	72	62	0	0	81	186	79	93	35	15	12	12	31	72	88	67	52	—I—	70	84	105
VAREIGVL	500	0	51	70	0	0	98	101	68	66	31	14	11	11	22	51	49	47	44	—I—	45	48	98
VAREIGVL	1000	0	58	67	0	0	124	77	67	60	30	16	12	12	25	58	51	57	56	—I—	55	59	84
VAREIGVL	5000	0	46	67	—M—	—M—	102	72	59	56	26	—M—	—M—	—M—	—M—	46	46	41	47	—T—	51	59	95
WATSON	12	0	35	73	—I—	0	41	46	42	36	29	31	29	8	11	36	29	40	859	859	84	65	73
WATSON	31	0	47	5935	—I—	0	46	2542	46	64	47	35	13	65	36	47	55	88	107	107	73	56	54
WOODS	4	0	17	27	0	0	47	297	36	25	17	35	17	17	17	25	18	23	10	10	17	17	17
WOODS	100	0	20	29	0	0	76	298	37	28	20	20	20	20	20	25	22	23	10	10	20	20	20
WOODS	1000	0	24	27	0	0	72	298	54	30	24	24	24	24	24	25	18	35	10	10	24	24	24
WOODS	10000	0	24	27	0	—T—	73	298	58	35	24	24	24	24	24	22	21	—T—	13	13	24	24	24
ZANGWIL2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ZANGWIL3	3	0	2	2	0	0	3	24	3	7	2	3	2	2	2	6	5	2	2	2	2	2	2
ZIGZAG	64	50	659	659	—I—	0	750	681	756	607	393	262	215	112	246	797	658	990	672	878	729	1009	871
ZIGZAG	304	250	16021	25554	—I—	—I—	154079	33440	21384	21043	7952	4215	2472	—I—	2934	16034	16476	17208	30048	31810	17227	15902	16233
ZIGZAG	604	500	30548	—I—	—I—	—I—	—T—	185582	62820	83197	10160	4498	4598	—I—	5685	29846	29638	32123	—S—	—S—	30888	29425	29882
ZIGZAG	3004	2500	—T—	—T—	—T—	—T—	—T—	—I—	—T—	—T—	10699	—T—	12860	—T—	16220	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—

6 Computational effort

This section presents the cpu-times for the 21 algorithmic variants on all test problems. The times were measured on a DECstation 5000/200 under the f77 (version 3.0-2) compiler without optimization. They are rounded to the nearest second. The column headings in the tables refer to these variants, using the terminology of the paper. Other conventions are as in the previous sections.

Cputimes (in seconds) (1)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
AGG	163	488	—T—	—T—	—I—	—I—	—T—	—I—	—S—	—S—	—T—	—I—	—S—	—I—	—T—	—S—	—I—	—S—	—T—	—T—	—T—	—T—	—T—
AIRCRFTA	8	5	0	0	0	0	1	4	1	1	0	1	2	1	1	0	0	0	1	1	0	0	1
AIRCRFTB	8	0	1	1	2	2	2	1	2	2	2	2	2	2	2	1	1	1	2	—S—	2	2	2
ALJAZZAF	3	1	2	2	2	1	2	—I—	3	2	2	2	3	3	2	2	1	1	3	—I—	3	3	3
ARGAUSS	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARGLINA	10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
ARGLINA	100	0	11	11	2	2	2	4	10	10	12	24	121	122	123	18	30	11	11	11	11	11	11
ARGLINB	10	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARGLINB	50	0	4	—S—	3	3	3	—I—	4	4	4	5	11	11	11	3	5	4	4	4	4	4	4
ARGLINB	100	0	25	—S—	16	17	16	—I—	24	24	26	39	136	735	137	—S—	—S—	25	25	25	25	25	25
ARGLINC	10	0	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARGLINC	50	0	3	—S—	2	2	2	—I—	4	3	4	5	10	10	10	3	4	4	4	3	4	3	3
ARGLINC	100	0	24	—S—	16	16	16	—I—	23	23	25	38	127	1025	128	—S—	—S—	24	24	24	24	24	24
ARGTRIG	10	0	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ARGTRIG	50	0	10	9	62	21	21	9	20	22	8	16	22	27	37	10	16	9	6	6	7	7	8
ARGTRIG	100	0	82	82	509	263	196	27	95	131	74	122	257	320	387	83	88	52	32	32	32	32	33
ARTIF	12	0	1	1	1	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1
ARTIF	52	0	2	2	3	5	6	2	3	3	3	4	4	4	4	2	2	5	2	2	2	2	1
ARTIF	102	0	6	6	7	15	507	16	4	5	7	12	10	12	7	6	5	19	7	6	4	4	4
ARTIF	502	0	18	20	60	1155	81	23	13	16	24	43	34	44	24	16	15	133	25	24	13	13	13
ARTIF	1002	0	34	42	188	4296	147	53	24	29	45	70	67	70	47	31	26	385	45	43	24	24	25
ARTIF	5002	0	162	224	2147	—T—	766	277	115	140	219	480	312	478	218	164	185	4330	226	214	111	110	115
ARWHEAD	100	0	1	1	1	1	1	5	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
ARWHEAD	500	0	3	3	4	5	3	29	3	3	5	5	10	10	6	4	3	4	4	4	4	4	7
ARWHEAD	1000	0	7	7	10	10	6	76	6	7	9	13	30	31	18	8	7	8	7	7	7	7	7
ARWHEAD	5000	0	70	69	181	180	61	738	65	66	80	206	651	650	350	72	69	73	74	73	72	72	88
BARD	3	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	—I—	1	1	1
BDEXP	100	0	2	2	2	2	1	2	2	3	2	2	2	2	2	2	2	2	3	3	3	4	5
BDEXP	500	0	(6)	(7)	(8)	(8)	(4)	5	(9)	(14)	(8)	(9)	(9)	(8)	(7)	(6)	(7)	(7)	12	12	(11)	16	(18)
BDEXP	1000	0	(12)	(14)	(15)	(18)	(8)	8	(18)	(28)	(18)	(17)	(17)	(16)	(14)	(13)	(15)	(14)	(22)	23	(20)	(29)	(33)
BDEXP	5000	0	(59)	(71)	(75)	(77)	(37)	(46)	(81)	(140)	(98)	(82)	(81)	(80)	(69)	(62)	(71)	(69)	(106)	112	(99)	(328)	(177)
BDQRTIC	100	0	3	2	4	4	3	22	3	3	4	4	5	5	5	3	3	3	3	3	3	3	3
BDQRTIC	500	0	12	10	34	34	14	170	11	11	15	20	42	42	34	12	13	13	11	11	11	11	15
BDQRTIC	1000	0	23	21	132	134	29	467	22	22	28	49	134	136	104	26	26	26	25	24	24	24	—S—
BDVALUE	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BDVALUE	52	0	0	0	0	0	9	6	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0
BDVALUE	102	0	0	0	0	0	3	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
BDVALUE	502	0	1	1	1	1	2	2	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1
BDVALUE	1002	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1
BDVALUE	5002	0	4	4	4	4	4	4	4	4	4	4	4	4	4	6	4	4	4	4	4	4	4
BEALE	2	0	1	—E—	0	1	1	9	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
BIGBANK	2230	1112	—T—	—T—	14932	8475	—T—	—I—	—T—	—T—	—T—	—T—	4769	4411	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
BIGGS3	6	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	—S—	1	2	2
BIGGS5	6	0	5	3	—I—	4	2	4	5	(5)	4	4	4	6	5	5	3	3	5	—I—	(27)	3	4
BIGGS6	6	0	10	3	15	8	2	—I—	6	3	11	4	14	10	(9)	9	5	8	(17)	—I—	9	6	9
BOOTH	2	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
BOX2	3	0	1	1	0	1	1	2	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
BOX3	3	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
BQPGAUSS	2003	0	1574	—S—	—I—	249	4722	4063	1592	1687	2343	4882	306	322	443	2068	1670	1989	—I—	—S—	2928	1994	—I—
BRATU1D	13	0	0	0	0	0	1	1	1	0	0	1	0	1	1	0	0	0	—S—	—S—	1	1	38
BRATU1D	77	0	1	1	1	1	6	37	6	1	1	1	1	1	1	1	1	1	—I—	—I—	3	2	—I—
BRATU1D	103	0	2	1	2	2	10	—I—	10	1	2	2	2	2	2	2	2	2	—I—	—I—	3	3	—I—
BRATU1D	503	0	7	6	7	—E—	230	—I—	245	6	9	10	9	9	8	8	9	9	—E—	—I—	—E—	11	—E—
BRATU1D	1003	0	15	—E—	14	15	909	—I—	1075	13	19	18	18	18	16	17	20	20	—E—	—I—	—E—	23	—E—
BRATU2D	49	25	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
BRATU2D	100	64	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BRATU2D	484	400	14	23	5	5	8	16	9	12	18	5	6	5	13	15	17	15	15	15	14	15	15
BRATU2D	1024	900	46	88	15	16	35	71	38	38	59	15	17	15	43	47	71	46	46	46	46	46	55
BRATU2D	5184	4900	1008	1824	—F—	—F—	—F—	1329	966	873	1291	—F—	—F—	—F—	202	1014	1722	1021	1016	1010	1011	1009	1022

Cputimes (in seconds) (2)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
BRATU3D	27	1	0	0	0	0	0	1	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0
BRATU3D	125	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BRATU3D	512	216	4	4	8	9	2	4	3	3	4	9	9	9	8	4	5	5	4	4	4	4	4
BRATU3D	1000	512	10	13	40	44	8	13	8	9	10	41	45	41	20	10	13	11	10	10	10	10	11
BRATU3D	4913	3375	168	190	3588	3846	138	207	135	135	211	3605	3861	3614	202	177	207	176	170	169	169	169	170
BRIDGEND	2734	2727	—T—	—I—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—I—	—T—	895	—T—	—T—	—T—	—T—	—I—	—I—	—T—	—T—	—I—
BRITGAS	450	360	1199	1121	—I—	—I—	1677	338	220	418	1075	2054	780	192	552	762	642	731	—I—	—I—	779	2527	—I—
BRKMCC	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BROWNAL	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROWNAL	50	0	3	3	9	9	1	2	2	4	4	10	23	14	15	3	4	4	5	4	4	4	5
BROWNBS	2	0	3	2	—I—	—I—	2	4	2	3	3	2	4	4	4	3	2	2	7	—I—	3	3	3
BROWNDEN	4	0	1	1	7	7	1	—I—	2	1	1	1	1	1	2	1	1	1	2	7	1	1	—I—
BROYDN3D	10	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	0
BROYDN3D	50	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROYDN3D	100	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BROYDN3D	500	0	3	3	4	4	3	5	4	3	4	5	5	5	4	5	3	3	3	3	5	5	5
BROYDN3D	1000	0	6	6	8	8	7	10	8	5	8	8	9	9	7	9	7	6	5	5	9	9	9
BROYDN3D	5000	0	28	28	38	38	30	45	35	28	38	41	43	41	36	31	36	31	24	24	43	43	46
BROYDN3D	10000	0	56	57	75	78	60	90	66	55	77	82	84	83	72	62	67	61	48	50	76	76	82
BROYDN7D	10	0	1	1	(2)	2	2	(3)	(2)	2	2	2	2	(2)	(2)	2	1	1	(5)	(6)	2	2	2
BROYDN7D	50	0	(4)	(3)	(7)	(3)	(3)	(3)	(3)	4	(4)	(5)	(4)	(5)	(5)	(3)	(2)	(3)	(7)	(8)	(3)	(3)	(3)
BROYDN7D	100	0	(5)	(4)	(13)	(8)	(4)	(5)	(5)	8	(6)	(10)	(8)	(12)	(11)	(6)	(6)	(7)	(12)	(14)	(6)	(6)	(6)
BROYDN7D	500	0	(48)	(46)	(111)	(164)	(43)	(53)	(50)	55	(61)	(107)	(37)	(119)	(99)	(42)	(39)	(118)	(85)	(95)	(36)	(35)	(43)
BROYDN7D	1000	0	(143)	(140)	(284)	(1863)	(141)	(200)	(163)	99	(187)	(347)	(88)	(187)	(47)	(142)	(137)	(424)	(276)	(313)	(130)	(135)	(145)
BROYDNBD	10	10	1	1	1	1	1	2	1	1	1	1	2	2	2	1	1	1	1	2	1	1	1
BROYDNBD	50	50	3	2	4	5	3	4	3	2	2	4	4	4	4	3	3	2	3	4	3	3	3
BROYDNBD	100	100	4	4	7	5	5	7	3	4	5	9	7	9	6	4	4	9	5	5	4	4	5
BROYDNBD	500	500	21	20	45	25	22	24	16	14	19	40	24	40	30	18	20	19	20	22	20	20	23
BROYDNBD	1000	1000	43	42	101	45	66	45	32	33	38	136	51	135	60	39	33	259	40	44	40	39	43
BROYDNBD	5000	5000	393	394	355	260	419	213	114	154	336	896	270	904	396	—F—	528	10457	180	204	179	178	201
CBRATU2D	32	8	0	0	0	0	1	1	0	0	0	1	1	1	1	1	0	0	0	1	1	0	1
CBRATU2D	98	50	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CBRATU2D	512	392	9	12	5	6	7	14	8	8	12	6	6	6	10	10	13	9	10	11	10	10	11
CBRATU2D	1058	882	40	57	15	17	32	52	33	35	50	16	18	16	29	42	56	40	40	43	40	41	46
CBRATU3D	54	2	0	0	0	1	1	1	1	0	0	1	1	1	1	1	0	0	0	1	1	0	0
CBRATU3D	128	16	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
CBRATU3D	686	250	4	4	8	9	3	5	3	3	5	8	9	8	8	5	4	4	4	5	4	4	5
CBRATU3D	2000	1024	21	28	84	96	16	26	18	20	25	86	95	86	41	24	28	24	21	23	21	21	24
CHANDHEQ	10	0	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	3	2	2	2	5
CHANDHEQ	50	0	25	25	68	74	22	15	22	23	26	62	73	71	71	25	24	26	29	32	29	28	53
CHANDHEQ	100	0	137	121	834	857	104	59	112	115	131	698	849	841	850	125	123	129	137	150	137	136	192
CHEBYQAD	2	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1
CHEBYQAD	4	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1
CHEBYQAD	5	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
CHEBYQAD	6	0	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
CHEBYQAD	7	0	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	1	1	1
CHEBYQAD	8	0	2	2	2	2	1	2	1	1	2	3	2	3	3	3	2	2	7	6	1	1	1
CHEBYQAD	9	0	2	2	2	2	1	2	1	1	2	1	2	3	2	2	1	1	4	3	2	2	2
CHEBYQAD	10	0	3	2	(2)	3	(2)	(2)	(2)	(2)	2	3	2	2	3	3	1	(2)	14	13	3	3	3
CHEBYQAD	20	0	9	7	18	9	5	22	5	8	7	22	11	11	15	7	7	11	25	26	9	9	8
CHEBYQAD	50	0	147	205	805	4762	54	91	63	112	140	657	383	500	827	131	114	107	—I—	—I—	112	111	123
CHEMRCTA	10	10	1	1	1	1	1	8	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
CHEMRCTA	50	50	5	4	3	4	—F—	—F—	—F—	271	6	3	10	5	—F—	5	4	4	6	4	4	5	5
CHEMRCTA	100	100	26	15	237	14	—F—	—F—	—F—	—S—	27	8	—F—	17	—F—	22	20	31	17	19	15	17	19
CHEMRCTA	500	500	—T—	—F—	—F—	—F—	—T—	—F—	—T—	—T—	—T—	193	—F—	232	—T—	—F—	—F—	—T—	—E—	—T—	—F—	—F—	—T—
CHEMRCTA	1000	1000	—T—	—F—	—F—	—F—	—T—	—T—	—T—	—T—	—T—	717	5070	1146	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTA	5000	5000	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—F—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CHEMRCTB	10	10	1	1	1	1	1	—F—	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1
CHEMRCTB	50	50	3	5	4	—F—	—F—	—F—	—F—	569	3	4	5	4	11	3	2	2	3	3	3	3	3

Cputimes (in seconds) (3)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
CHEMRCTB	100	100	4	4	10	14	—F—	—F—	—F—	—S—	4	10	10	10	—F—	4	5	4	5	6	5	5	5
CHEMRCTB	500	500	47	46	133	—F—	—T—	—T—	—T—	—T—	63	128	132	129	—F—	47	58	66	53	51	50	51	51
CHEMRCTB	1000	1000	156	—S—	706	—F—	—T—	—T—	—T—	—T—	211	454	513	458	—F—	155	215	219	—S—	—S—	—S—	—S—	—S—
CHNROSNB	10	0	3	2	4	3	4	6	3	3	3	3	3	3	3	3	4	2	3	3	3	2	2
CHNROSNB	25	0	4	3	7	5	6	82	6	4	5	6	6	7	6	4	5	3	6	6	4	4	5
CHNROSNB	50	0	9	6	13	9	12	15	10	8	10	11	12	11	13	9	8	9	11	11	8	9	8
CLIFF	2	0	2	1	3	2	3	—I—	2	2	2	3	3	3	3	2	3	1	2	2	2	2	1
CLPLATEA	16	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
CLPLATEA	49	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CLPLATEA	100	0	2	2	1	1	2	2	1	1	1	1	1	1	1	2	2	1	2	2	2	2	2
CLPLATEA	529	0	14	17	8	8	16	18	15	12	18	8	8	8	7	15	17	13	14	14	14	14	16
CLPLATEA	1024	0	37	43	20	19	40	50	30	30	47	19	20	19	18	38	43	43	38	37	37	37	38
CLPLATEA	5041	0	372	406	308	143	592	496	366	299	471	301	326	304	201	399	562	516	376	372	371	371	380
CLPLATEB	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLPLATEB	49	0	1	1	1	0	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1
CLPLATEB	100	0	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CLPLATEB	529	0	9	14	3	3	9	9	9	8	12	3	4	4	4	10	12	9	10	9	10	9	9
CLPLATEB	1024	0	25	31	6	7	24	25	24	20	31	7	7	7	9	25	29	25	25	25	25	25	25
CLPLATEB	5041	0	238	395	44	48	252	251	272	191	299	47	51	48	56	259	310	240	242	239	238	238	254
CLPLATEC	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLPLATEC	49	0	1	1	0	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1
CLPLATEC	100	0	4	4	0	0	2	3	3	3	0	0	1	0	1	4	3	3	4	4	4	4	3
CLPLATEC	529	0	79	74	2	2	53	70	74	63	99	2	2	2	8	79	82	79	80	79	79	79	80
CLPLATEC	1024	0	265	267	4	4	207	368	197	211	334	4	4	4	24	272	273	265	269	265	264	265	275
CLPLATEC	5041	0	4931	4729	24	26	4311	11571	3647	4039	5908	26	28	27	546	4295	8304	4987	4974	5024	4828	4913	5430
CLUSTER	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	3
CORKSCRW	96	70	17	18	57	21	9	13	12	14	15	11	17	11	16	18	15	25	19	132	17	25	23
CORKSCRW	456	350	5162	1838	—I—	204	—T—	5001	3234	3849	1716	587	410	260	740	4781	5268	5060	6385	—I—	5263	5475	5427
CORKSCRW	906	700	—T—	17025	—I—	—I—	—T—	—I—	—T—	—T—	—S—	1691	—S—	1292	3190	—T—	—T—	—T—	—T—	—I—	—T—	—T—	—T—
CORKSCRW	4506	3500	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CORKSCRW	9006	7000	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
CRAGGLVY	4	0	1	1	1	2	2	3	1	1	1	2	2	2	2	1	1	1	1	2	2	1	3
CRAGGLVY	10	0	1	1	1	1	2	6	2	1	1	2	2	2	2	1	1	1	1	1	1	1	2
CRAGGLVY	50	0	2	2	2	2	2	8	3	2	2	2	2	3	2	2	2	2	2	2	2	2	4
CRAGGLVY	100	0	3	2	3	3	4	12	4	3	3	4	4	3	3	3	2	3	3	3	3	3	5
CRAGGLVY	500	0	10	10	9	10	17	37	13	8	12	13	12	12	13	10	10	10	10	11	10	10	15
CRAGGLVY	1000	0	18	20	18	19	32	59	25	15	24	22	23	22	22	19	19	20	20	20	19	19	33
CRAGGLVY	5000	0	90	96	90	92	160	249	117	75	118	110	110	110	104	92	100	98	95	94	94	94	—S—
CUBE	2	0	3	3	2	3	4	44	4	3	3	4	4	4	4	3	2	3	3	3	3	3	3
DALLASL	906	667	9353	—T—	700	333	14818	—I—	8625	11659	6014	387	92	89	2596	6672	7504	8901	9627	—I—	9243	10796	(9619)
DALLASM	196	151	437	—I—	17	26	3122	—I—	2645	1336	324	43	19	18	241	416	444	401	440	—I—	443	455	401
DALLASS	46	31	36	—S—	7	6	43	—I—	43	52	60	18	7	7	15	37	33	36	38	—I—	38	41	45
DEGENLPA	20	15	4	2	—I—	2	16	—I—	4	5	3	6	4	3	6	—S—	3	—S—	4	—S—	4	4	3
DEGENLPB	20	15	—S—	—S—	—I—	2	22	—I—	—S—	5	—S—	5	—S—	3	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
DENSCHNA	2	0	0	0	1	0	1	1	1	0	0	1	1	1	1	0	0	0	0	0	1	1	0
DENSCHNB	2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DENSCHNC	2	0	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DENSCHND	3	0	3	2	4	3	3	—I—	3	3	3	3	4	4	5	3	2	2	4	—I—	3	3	4
DENSCHNE	3	0	1	—E—	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DENSCHNF	2	0	1	0	1	0	1	3	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
DIPIGRI	7	4	7	4	4	2	3	49	4	5	3	5	4	4	5	6	18	3	6	—I—	4	7	—I—
DISC2	29	23	13	11	—I—	19	14	36	10	16	26	16	14	13	23	14	11	23	18	—I—	12	13	17
DISCS	36	66	778	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—F—	(99)	—I—	(144)	—F—	—I—	—T—	306	214	775	769	—I—
DIXCHLNG	10	5	4	4	3	2	4	70	4	(8)	3	5	5	4	4	5	3	3	9	—I—	4	4	(106)
DIXCHLNV	10	5	2	4	1	1	3	69	2	2	1	2	2	2	4	5	2	1	3	—I—	6	3	3
DIXMAANA	15	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	1	1	3
DIXMAANA	90	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0	2	1	1
DIXMAANA	300	0	2	2	2	6	1	2	2	2	3	2	2	2	2	2	2	9	4	1	5	3	1
DIXMAANA	1500	0	10	10	7	274	6	8	8	8	13	8	7	9	9	10	11	191	22	4	21	13	5

Cputimes (in seconds) (4)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXMAANA	3000	0	20	19	14	1967	11	15	16	16	27	16	14	15	17	20	23	897	45	8	42	26	9
DIXMAANB	15	0	1	0	1	0	0	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	3
DIXMAANB	90	0	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	4	2	0	3	1	5
DIXMAANB	300	0	3	3	2	13	2	3	2	2	4	4	3	4	3	3	3	35	4	1	7	4	9
DIXMAANB	1500	0	12	12	11	561	9	12	9	11	17	12	13	18	13	13	14	768	19	5	30	16	38
DIXMAANB	3000	0	25	24	19	4938	18	24	19	21	33	23	26	32	25	26	42	3133	37	9	60	32	74
DIXMAANC	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	2	1	3
DIXMAANC	90	0	1	1	1	3	1	1	1	1	2	1	1	1	1	1	2	5	2	0	5	2	3
DIXMAANC	300	0	4	4	3	33	2	3	2	3	5	3	4	4	4	4	5	41	5	1	12	4	7
DIXMAANC	1500	0	26	26	14	2548	10	14	11	22	35	23	18	22	21	22	17	1399	24	5	48	18	28
DIXMAANC	3000	0	45	46	51	14802	21	29	22	38	75	44	36	37	41	45	43	5766	48	9	110	37	54
DIXMAAND	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	3	1	3
DIXMAAND	90	0	2	3	1	4	1	2	1	1	2	2	2	1	2	2	2	8	3	0	6	2	6
DIXMAAND	300	0	4	8	3	34	3	4	3	3	5	4	5	5	8	4	5	68	8	1	15	5	11
DIXMAAND	1500	0	16	42	16	2054	12	17	13	13	21	24	25	25	24	17	22	1442	48	4	77	23	43
DIXMAAND	3000	0	37	51	32	9565	24	35	26	31	49	32	57	47	78	41	44	5758	105	9	147	42	84
DIXMAANE	15	0	1	0	1	1	1	1	1	1	1	0	0	1	0	0	1	1	1	0	1	1	3
DIXMAANE	90	0	1	2	1	2	2	1	1	1	1	1	1	1	1	1	2	6	2	0	10	2	8
DIXMAANE	300	0	3	5	2	19	6	3	2	2	3	2	2	2	2	3	3	41	17	1	36	5	41
DIXMAANE	1500	0	12	23	10	1097	46	18	9	10	16	9	9	9	9	11	21	848	62	5	192	34	349
DIXMAANE	3000	0	23	44	21	4831	115	36	18	19	31	19	19	18	20	23	50	3353	171	11	402	60	981
DIXMAANF	15	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	3	1	3
DIXMAANF	90	0	2	4	2	4	2	2	2	1	2	2	2	2	2	2	3	7	3	0	42	3	7
DIXMAANF	300	0	7	7	7	32	8	4	4	6	8	5	8	5	7	4	6	70	9	1	253	7	39
DIXMAANF	1500	0	38	42	31	2409	55	35	23	33	54	37	45	30	65	58	68	1559	56	5	1598	45	473
DIXMAANF	3000	0	80	313	50	9719	129	62	55	66	108	94	92	110	41	137	72	6215	118	11	164	66	1547
DIXMAANG	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	3	1	4
DIXMAANG	90	0	2	5	2	5	3	2	2	2	3	2	2	2	3	2	2	9	4	0	19	3	12
DIXMAANG	300	0	8	17	10	44	8	5	4	7	10	5	12	6	16	6	12	77	9	1	258	10	65
DIXMAANG	1500	0	34	171	44	2540	52	25	21	28	44	57	58	49	74	41	39	1629	59	5	1694	44	876
DIXMAANG	3000	0	167	551	75	13236	152	52	44	122	200	106	97	124	104	163	83	6605	117	11	—I—	140	2912
DIXMAANH	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	5	1	5
DIXMAANH	90	0	3	4	2	4	2	2	2	3	3	2	3	3	4	2	3	10	5	0	27	3	23
DIXMAANH	300	0	8	11	7	42	10	6	4	7	10	9	10	10	13	10	7	81	15	1	—I—	8	108
DIXMAANH	1500	0	58	150	41	1891	64	30	23	49	77	54	55	37	66	46	35	1824	66	5	—I—	52	1466
DIXMAANH	3000	0	117	546	136	—T—	160	78	45	99	155	113	170	112	183	98	175	7489	405	11	—I—	142	—I—
DIXMAANI	15	0	0	1	1	1	1	1	0	0	0	1	0	0	1	0	1	1	1	0	4	1	3
DIXMAANI	90	0	1	2	1	3	4	2	1	1	1	1	1	1	1	1	1	7	3	0	17	2	—I—
DIXMAANI	300	0	2	5	4	21	36	4	2	2	3	2	2	2	2	2	5	52	10	1	67	5	—I—
DIXMAANI	1500	0	14	28	18	1225	546	24	9	12	19	9	8	10	14	14	32	1086	76	5	623	26	8
DIXMAANI	3000	0	31	63	46	5695	2046	54	18	26	41	18	19	20	37	31	37	4306	348	10	1443	62	12
DIXMAANJ	15	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	28	1	4
DIXMAANJ	90	0	3	0	3	4	5	2	1	2	3	2	3	4	4	3	5	10	5	0	65	3	203
DIXMAANJ	300	0	10	0	9	37	33	9	5	6	9	12	14	9	15	10	6	76	13	1	65	16	—I—
DIXMAANJ	1500	0	57	1	434	2462	689	45	35	41	72	90	71	73	79	54	49	1884	56	6	328	76	6
DIXMAANJ	3000	0	131	2	2010	—T—	1876	90	43	100	168	225	180	148	116	100	158	7960	155	11	247	139	12
DIXMAANK	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	0	10	1	7
DIXMAANK	90	0	3	20	7	4	4	4	2	2	3	3	3	3	4	3	3	12	6	0	40	4	—I—
DIXMAANK	300	0	8	34	13	51	29	9	4	7	11	13	17	11	14	12	9	112	13	1	111	12	—I—
DIXMAANK	1500	0	57	396	108	3829	428	45	29	52	75	80	93	105	114	50	71	2389	71	5	263	75	6
DIXMAANK	3000	0	100	707	473	—T—	1412	97	62	82	135	169	108	181	444	128	273	8886	149	11	381	152	12
DIXMAANL	15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0	9	1	7
DIXMAANL	90	0	6	8	5	5	5	3	2	5	7	4	5	4	3	3	5	14	12	—I—	78	3	—I—
DIXMAANL	300	0	9	33	24	55	47	12	5	8	12	14	19	18	13	15	14	114	14	—E—	460	14	—I—
DIXMAANL	1500	0	71	321	230	4446	319	51	31	53	95	107	69	111	217	92	79	2472	82	—T—	280	87	6
DIXMAANL	3000	0	153	468	639	—T—	1412	97	53	136	204	209	292	228	785	217	360	12471	218	—T—	472	167	12
DIXON3DQ	10	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIXON3DQ	50	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIXON3DQ	100	0	0	0	1	1	2	3	3	0	1	1	1	1	1	0	1	0	1	0	0	0	0

Cputimes (in seconds) (5)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
DIXON3DQ	500	0	1	1	1	1	27	48	32	1	2	2	2	2	1	1	2	1	1	1	1	1	1
DIXON3DQ	1000	0	2	2	3	3	101	193	164	2	3	3	3	3	2	2	5	2	2	2	2	2	2
DIXON3DQ	5000	0	10	10	12	12	2723	4644	2739	8	14	12	12	13	15	12	25	11	10	10	10	10	10
DQDRTIC	10	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DQDRTIC	50	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
DQDRTIC	100	0	0	1	1	0	0	4	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0
DQDRTIC	500	0	1	2	1	1	1	10	1	1	1	1	1	1	1	2	3	1	1	1	1	1	1
DQDRTIC	1000	0	2	4	2	2	2	18	2	2	2	2	2	2	2	4	5	2	2	2	2	2	2
DQDRTIC	5000	0	10	17	9	10	9	81	10	12	10	10	10	10	10	20	30	11	10	10	10	10	10
DQRTIC	10	0	2	1	2	2	2	11	2	2	2	2	2	2	2	2	1	1	2	1	2	2	1
DQRTIC	50	0	3	2	3	3	3	—I—	3	3	3	3	3	3	3	3	2	2	3	3	3	3	2
DQRTIC	100	0	4	4	4	4	4	—I—	4	3	4	4	4	4	4	4	3	3	4	4	4	4	3
DQRTIC	500	0	14	19	12	11	14	—I—	10	11	19	14	14	14	12	12	13	14	14	14	14	14	13
DQRTIC	1000	0	26	58	21	21	30	—I—	20	22	37	27	27	27	22	24	26	27	27	27	27	27	26
DQRTIC	5000	0	151	1141	111	115	214	—I—	113	118	209	148	149	147	128	129	156	157	148	151	152	150	151
EDENSCH	36	0	2	1	2	2	2	11	2	2	2	2	2	2	2	2	2	1	5	—I—	2	2	2
EDENSCH	2000	0	31	30	34	34	32	173	30	27	40	43	43	42	36	32	45	35	129	—I—	40	34	37
ENGVAL1	2	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	2	1	1	1
ENGVAL1	50	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1
ENGVAL1	100	0	1	1	2	2	1	2	1	1	2	2	2	2	2	1	2	1	2	5	2	2	2
ENGVAL1	1000	0	9	13	10	10	8	13	9	8	12	11	11	11	10	9	12	9	10	31	10	9	10
ENGVAL1	5000	0	44	65	47	50	35	60	44	35	56	54	53	52	46	45	59	46	46	—S—	46	45	51
ENGVAL2	3	0	2	1	2	1	2	6	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2
ERRINBAR	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
ERRINROS	10	0	5	—S—	4	3	7	(6)	6	5	5	5	6	5	5	5	3	4	9	9	4	4	4
ERRINROS	25	0	5	5	7	4	9	(6)	11	5	6	7	7	7	7	6	4	6	11	10	5	5	7
ERRINROS	50	0	9	6	9	5	13	(13)	12	8	10	10	10	9	7	9	6	8	13	12	6	6	15
EXPFIT	2	0	1	1	—E—	—E—	1	—E—	1	1	1	2	1	2	1	1	1	1	1	—I—	1	1	1
EXPFITA	5	22	4	5	—I—	2	7	59	4	5	5	5	2	3	4	4	4	3	10	—I—	14	14	16
EXPFITB	5	102	45	34	—I—	9	46	255	30	37	51	23	12	48	22	40	115	41	71	—I—	121	55	104
EXPFITC	5	502	384	—S—	—T—	94	536	—I—	302	314	434	1655	116	5983	262	315	1119	384	556	—I—	978	467	—I—
EXTROSNB	5	0	5	3	6	4	7	19	8	5	5	6	7	6	6	5	4	3	6	5	5	5	4
EXTROSNB	10	0	43	25	30	27	39	—I—	59	44	44	48	53	48	48	43	27	26	52	49	43	41	35
FREUROTH	2	0	1	0	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1
FREUROTH	10	0	1	0	1	1	1	5	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1
FREUROTH	50	0	1	1	1	1	2	7	2	1	2	2	2	2	2	1	1	1	3	5	2	2	—I—
FREUROTH	100	0	2	1	2	2	2	9	3	2	2	2	3	2	2	2	1	2	4	9	2	2	—I—
FREUROTH	500	0	7	4	8	8	7	27	—S—	6	8	9	9	8	8	8	7	8	—S—	—S—	7	7	18
FREUROTH	1000	0	13	8	16	20	—S—	50	—S—	11	16	15	17	15	15	14	15	16	43	—S—	14	14	—S—
FREUROTH	5000	0	70	40	77	97	58	236	—S—	57	77	74	81	73	73	77	—S—	79	—S—	—S—	66	66	—S—
GAUSSELM	14	11	3	—E—	6	(1)	(1)	(1)	(3)	(2)	(3)	4	3	(2)	4	4	4	3	8	—I—	3	3	5
GAUSSELM	506	1135	—T—	—E—	—I—	(3207)	(192)	—I—	6833	(10991)	—T—	—I—	(2890)	(1489)	(2908)	(17432)	(13794)	—T—	—I—	—I—	(15027)	(10998)	(8879)
GAUSSELM	650	1496	—T—	—E—	—I—	(2164)	(305)	—I—	—T—	7204	(11825)	—I—	(2962)	(3215)	(5423)	(17779)	—T—	—T—	—I—	—I—	—T—	—T—	(10237)
GOTTFR	2	0	2	1	1	1	1	32	1	2	2	3	2	2	2	2	1	1	1	1	1	1	1
GRIDNETA	60	36	5	9	2	1	4	9	5	6	2	2	2	2	4	5	5	4	6	98	5	6	6
GRIDNETA	180	100	21	46	4	4	15	28	18	21	31	5	5	4	14	21	20	20	24	224	21	21	24
GRIDNETA	612	324	105	327	12	15	109	147	102	124	138	13	14	13	77	104	116	112	119	1018	109	107	127
GRIDNETA	924	484	322	1051	25	27	330	393	289	383	423	27	28	27	209	334	333	335	384	2048	331	331	382
GRIDNETA	3444	1764	1739	5448	—I—	113	1869	2003	1653	2104	2394	116	123	118	1131	1737	1939	1955	1869	9411	1806	1802	2002
GRIDNETA	7564	3844	17428	—T—	—I—	412	—T—	—T—	—T—	—T—	—T—	330	342	330	—T—	17397	—T—	—T—	17870	—T—	—T—	17674	—T—
GRIDNETA	13284	6724	—T—	—T—	—I—	963	—T—	—T—	—T—	—T—	—T—	994	1027	991	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETB	60	36	5	5	2	1	3	7	4	6	10	2	2	2	4	6	5	5	6	—I—	5	6	5
GRIDNETB	180	100	18	17	4	4	14	25	15	22	26	5	5	4	27	18	19	18	19	—I—	18	19	18
GRIDNETB	612	324	105	105	15	18	95	154	101	119	141	16	17	16	146	104	105	106	109	—I—	104	110	115
GRIDNETB	924	484	221	220	27	35	216	316	214	251	296	28	31	28	322	227	227	230	225	—I—	229	225	231
GRIDNETB	3444	1764	1858	1867	142	166	1821	2188	1523	1894	2488	149	163	149	2120	1866	1895	1931	1847	—I—	1844	1868	1824
GRIDNETB	7564	3844	6446	6541	442	499	6015	6576	4884	6177	8842	457	504	458	7235	6237	6900	6470	6517	—I—	6583	6415	6657
GRIDNETB	13284	6724	14958	15402	1006	1136	13173	15491	10668	12975	—T—	1120	1139	1035	16374	14605	15759	14731	14697	—I—	14832	15025	14925
GRIDNETC	60	36	6	14	58	1	5	7	5	6	8	2	2	2	4	6	7	6	7	—I—	7	6	6

Cputimes (in seconds) (6)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
GRIDNETC	180	100	26	58	145	4	21	31	21	25	40	6	5	5	29	29	28	26	30	—I—	29	29	27
GRIDNETC	612	324	218	525	—I—	35	172	221	202	191	307	54	47	45	218	217	242	225	229	—I—	207	226	222
GRIDNETC	924	484	433	1051	—I—	70	329	417	328	361	612	94	83	82	425	437	445	460	433	—I—	429	415	443
GRIDNETC	3444	1764	6219	14477	—I—	1058	3894	4788	4228	4820	9006	1323	1291	1265	5169	6211	8342	5786	6318	—I—	5926	6211	6528
GRIDNETC	7564	3844	—T—	—T—	—I—	5708	—T—	—T—	—T—	—T—	—T—	6866	6930	6845	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETD	60	36	6	13	2	1	5	11	7	7	2	2	2	2	4	7	6	6	7	83	6	7	23
GRIDNETD	180	100	27	69	5	5	24	38	25	29	37	6	5	5	16	26	25	26	28	187	29	27	85
GRIDNETD	612	324	139	524	16	17	156	218	144	172	172	19	18	17	110	137	148	145	146	914	140	182	439
GRIDNETD	924	484	426	1898	60	41	521	633	459	521	529	41	41	39	340	429	442	425	439	2261	443	539	1485
GRIDNETD	3444	1764	2726	11123	—I—	175	2962	3300	2495	3066	3505	200	189	180	1743	2488	2615	—S—	2682	11205	2533	3120	7049
GRIDNETD	7564	3844	—T—	—T—	—T—	1121	—T—	—T—	—T—	—T—	—T—	1078	1091	1027	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETE	60	36	7	6	2	2	4	9	5	7	11	2	2	2	6	7	6	6	7	—I—	7	7	76
GRIDNETE	180	100	22	21	5	5	23	39	23	29	31	5	6	6	33	22	22	24	23	—I—	22	29	—I—
GRIDNETE	612	324	126	126	19	24	150	240	145	166	159	20	22	21	202	124	127	130	136	—I—	130	157	—I—
GRIDNETE	924	484	256	256	35	43	324	482	305	338	323	37	40	37	379	259	267	264	260	—I—	260	383	—I—
GRIDNETE	3444	1764	2120	2139	245	282	2509	3123	2076	2520	2677	258	282	260	3103	2118	2319	2218	2207	—I—	2207	2826	—I—
GRIDNETE	7564	3844	7258	7676	693	784	7990	9823	6561	7787	9068	736	800	726	9541	7310	7548	7353	7368	—I—	7238	7630	—I—
GRIDNETF	60	36	7	15	16	2	5	9	7	7	10	2	2	2	5	7	7	7	8	—I—	7	7	42
GRIDNETF	180	100	33	87	286	6	31	47	32	36	44	8	7	7	37	33	33	33	36	—I—	33	44	369
GRIDNETF	612	324	217	619	—I—	37	221	289	238	237	291	47	43	42	231	221	251	236	222	—I—	221	356	963
GRIDNETF	924	484	474	2218	—I—	90	461	615	499	482	634	103	101	98	521	497	529	491	513	—I—	506	864	—I—
GRIDNETF	3444	1764	6405	17226	—I—	1184	5280	6382	5440	5548	8971	1441	1434	1405	5346	6312	7815	5888	6747	—I—	6428	11919	—I—
GRIDNETF	7564	3844	—T—	—T—	—T—	8249	—T—	—T—	—T—	—T—	—T—	10220	10378	10219	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
GRIDNETG	60	36	7	7	3	3	6	13	7	8	2	3	3	3	8	6	7	6	7	82	7	7	28
GRIDNETH	60	36	7	7	4	4	5	9	6	8	12	4	5	5	10	8	8	7	8	—I—	7	7	24
GRIDNETI	60	36	7	6	42	4	6	10	7	8	11	4	4	4	8	8	9	7	8	166	7	8	25
GULF	3	0	6	5	5	6	7	—E—	8	10	6	9	9	7	8	6	6	5	27	—I—	7	7	9
HAGER1	21	10	1	1	1	1	1	7	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1
HAGER1	101	50	2	2	4	2	3	103	12	2	2	3	1	3	1	2	2	1	2	2	2	2	2
HAGER1	201	100	4	4	20	4	9	—I—	47	3	4	14	1	17	16	3	3	2	3	3	3	3	3
HAGER1	1001	500	17	11	1936	77	292	—I—	1776	12	19	643	5	1881	91	15	16	11	14	15	16	14	14
HAGER1	2001	1000	28	33	15652	367	764	—I—	7339	20	35	5150	10	15299	145	27	31	23	25	25	27	25	25
HAGER1	10001	5000	141	157	—M—	—T—	—T—	—T—	—T—	103	172	134	312	—M—	721	132	239	123	132	127	136	126	127
HAGER2	21	10	1	1	1	1	1	7	2	1	2	1	1	1	1	1	1	1	1	2	1	1	1
HAGER2	101	50	3	3	4	1	4	120	14	2	3	5	1	3	2	2	2	2	2	4	2	2	2
HAGER2	201	100	4	5	25	4	9	—I—	56	3	5	21	2	23	19	4	4	4	4	6	4	4	4
HAGER2	1001	500	18	30	2900	48	265	—I—	2920	13	20	1340	9	2541	105	17	19	14	15	26	15	14	15
HAGER2	2001	1000	32	43	—T—	179	832	—I—	9506	24	38	—T—	17	—T—	204	31	32	530	32	38	32	31	33
HAGER2	10001	5000	151	—S—	—M—	—I—	—T—	—T—	—T—	128	195	—E—	327	—M—	748	159	327	13528	126	(134)	132	124	129
HAGER3	21	10	1	1	1	1	1	9	2	1	2	1	1	1	0	1	1	1	1	2	1	1	1
HAGER3	101	50	3	4	4	1	4	166	18	2	3	8	2	4	2	3	3	2	3	4	3	3	3
HAGER3	201	100	4	6	23	3	12	—I—	95	4	5	30	2	23	21	5	4	4	6	6	6	5	6
HAGER3	1001	500	20	30	2514	16	379	—I—	3465	18	25	2856	10	2510	135	21	21	15	22	29	20	22	24
HAGER3	2001	1000	38	47	—T—	48	1334	—I—	15179	32	48	—T—	21	—T—	284	39	32	32	68	227	44	42	47
HAGER3	10001	5000	149	—S—	—M—	—I—	—T—	—T—	—T—	131	177	—M—	369	—M—	876	156	299	160	178	1774	170	158	174
HAGER4	21	10	1	1	1	1	1	29	2	1	1	1	1	1	1	1	1	1	2	3	2	2	2
HAGER4	101	50	4	5	16	3	9	—I—	44	3	5	3	2	4	4	5	5	3	5	9	5	5	9
HAGER4	201	100	11	13	136	9	42	—I—	351	8	15	8	5	19	23	12	14	7	14	18	14	13	25
HAGER4	1001	500	252	289	—T—	332	4914	—I—	—T—	165	363	300	127	4312	1094	273	295	236	273	435	268	264	369
HAGER4	2001	1000	1062	1361	—T—	2105	—T—	—I—	—T—	696	1534	6705	475	—T—	4995	1084	1284	1063	1090	1904	1156	1068	1841
HAGER4	10001	5000	—T—	—T—	—M—	—T—	—T—	—I—	—T—	12352	—T—	—T—	14069	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
HAIRY	2	0	5	4	2	4	6	6	8	5	5	7	5	6	7	4	3	2	4	—S—	6	5	8
HATFLDA	4	0	2	1	2	2	3	3	3	2	2	3	2	3	3	2	1	1	3	3	3	3	2
HATFLDB	4	0	2	1	1	1	2	2	2	2	2	3	2	2	2	2	1	1	2	2	3	3	2
HATFLDC	25	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
HATFLDD	3	0	2	1	1	1	2	3	2	1	2	2	1	1	3	2	2	1	3	—I—	2	2	2
HATFLDE	3	0	2	2	1	2	2	2	2	2	2	2	1	2	3	2	1	1	3	—I—	3	2	2
HATFLDF	3	0	2	4	2	3	6	2	1	2	2	4	4	4	3	2	1	2	2	—I—	2	1	1
HATFLDG	25	0	2	1	1	2	2	1	2	2	2	2	2	2	2	2	1	2	3	—I—	2	2	2

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HATFLDH	4	7	1	1	6	1	1	4	2	2	1	2	1	1	1	1	1	1	11	—I—	2	1	1
HELIX	3	0	1	—S—	1	1	1	6	1	1	1	1	1	1	1	1	1	1	2	—I—	2	2	2
HILBERTA	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HILBERTA	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HILBERTA	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HILBERTA	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
HILBERTA	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
HILBERTB	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HILBERTB	10	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
HILBERTB	50	0	2	3	1	1	2	7	2	2	2	2	2	2	2	2	3	2	2	2	2	2	5
HIMMELBA	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HIMMELBB	2	0	1	0	1	1	2	14	1	1	1	2	2	2	1	1	1	1	1	1	2	1	1
HIMMELBC	2	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
HIMMELBD	2	0	3	2	2	2	3	—I—	3	3	3	4	4	4	4	—S—	3	2	3	—S—	3	3	3
HIMMELBE	3	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
HIMMELBF	4	0	23	21	—I—	19	34	—I—	39	19	19	36	30	18	13	42	11	10	27	—S—	9	4	7
HIMMELBG	2	0	1	0	0	0	1	1	0	1	0	1	1	1	1	0	0	0	1	1	1	1	1
HIMMELBH	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HIMMELBI	100	12	32	32	—I—	74	10	—I—	14	17	45	48	44	—E—	29	28	235	44	84	—E—	152	52	59
HIMMELBJ	45	14	—I—	—I—	312	369	—I—	510	—I—	—I—	—I—	—I—	—S—	62	—I—	—I—	—I—	16435	—I—	—I—	—I—	—I—	—I—
HIMMELBK	24	14	42	(3)	—I—	48	35	—I—	38	39	(5)	43	(6)	31	30	39	43	43	74	—I—	57	44	48
HONG	4	1	2	1	2	1	2	3	2	2	2	2	2	2	2	2	1	1	3	9	3	3	2
HS1	2	0	3	3	2	2	3	7	3	3	3	4	3	3	3	3	2	2	3	2	2	2	2
HS10	2	1	2	1	2	1	2	—I—	2	2	2	2	2	2	2	2	1	1	3	3	3	2	3
HS100	7	4	5	4	2	2	3	49	4	5	4	5	4	4	5	5	22	3	7	—I—	5	5	—I—
HS100MOD	7	4	17	—S—	5	—I—	12	—I—	—S—	—S—	—S—	13	10	5	15	—S—	—I—	10	18	—I—	18	—S—	—I—
HS101	7	5	—I—	17	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS102	7	5	—I—	22	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS103	7	5	—I—	—S—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS104	8	5	6	4	4	2	6	17	5	8	4	8	4	4	4	6	7	3	12	—I—	8	7	15
HS105	8	1	(10)	18	(8)	12	17	(19)	(9)	(11)	(11)	16	(9)	(9)	13	(9)	(11)	(13)	—I—	—I—	514	(79)	—E—
HS106	8	6	—I—	5	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS107	9	6	3	3	3	2	—S—	41	4	4	2	5	3	3	3	3	5	2	—S—	—I—	5	5	9
HS108	9	13	3	3	6	2	3	4	3	3	5	3	2	3	2	3	3	3	6	—I—	4	4	7
HS109	9	10	—I—	20	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS11	2	1	1	1	1	1	2	8	2	1	1	2	2	2	2	1	1	1	1	3	1	1	1
HS110	10	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1
HS111	10	3	7	6	5	4	8	13	8	8	6	11	6	9	8	7	8	6	—I—	—I—	—I—	22	—I—
HS112	10	3	5	4	4	4	6	7	6	5	5	6	6	5	5	5	7	4	7	—I—	7	7	18
HS113	10	8	9	5	3	3	6	63	7	10	9	9	5	4	5	9	105	5	9	—I—	9	10	—I—
HS114	10	11	79	12	—I—	—I—	—I—	—I—	—S—	75	76	67	—S—	35	—I—	83	—S—	34	—I—	—I—	—I—	89	—I—
HS116	13	14	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
HS117	15	5	9	8	—I—	—I—	9	58	7	5	11	11	6	7	6	7	17	9	60	—I—	10	9	—I—
HS118	15	17	3	2	—I—	1	3	29	3	3	3	3	1	1	2	3	4	3	3	3	3	3	2
HS119	16	8	7	8	7	5	6	25	7	7	5	7	5	5	5	7	9	6	24	—I—	10	10	39
HS12	2	1	2	1	2	1	2	49	2	2	2	2	3	2	2	2	7	1	3	—I—	3	2	3
HS13	2	1	5	3	5	3	6	6	5	5	5	6	6	6	5	5	5	3	19	19	7	7	6
HS14	2	2	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
HS15	2	2	4	3	5	3	4	45	4	4	4	5	5	5	4	4	3	3	8	11	4	6	9
HS16	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	3	5	3	2	3
HS17	2	2	2	1	2	1	2	3	2	2	2	2	2	2	2	2	1	1	2	—S—	3	3	3
HS18	2	2	7	6	6	4	16	75	13	13	8	17	8	7	7	7	6	5	11	—I—	9	8	9
HS19	2	2	3	—S—	3	2	3	—I—	3	3	3	4	4	4	3	3	6	2	3	3	3	3	3
HS2	2	0	1	1	0	0	1	4	1	1	1	1	1	1	1	1	0	0	1	1	0	0	0
HS20	2	3	2	2	3	1	3	5	3	3	2	3	3	2	2	2	2	1	2	3	2	2	2
HS21	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
HS22	2	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HS23	2	5	4	2	5	3	7	26	5	7	4	8	6	5	5	4	5	4	4	4	4	4	3
HS24	2	3	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1

Cputimes (in seconds) (8)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS25	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HS26	3	1	3	3	4	2	3	8	2	4	3	3	3	3	3	3	2	2	3	—I—	3	2	2
HS27	3	1	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	1	3	9	3	2	2
HS28	3	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
HS29	3	1	3	2	3	2	2	12	3	4	3	3	3	3	3	2	4	2	3	4	3	3	4
HS3	2	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0
HS30	3	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
HS31	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	—I—	2	2	3
HS32	3	2	1	1	1	0	1	3	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1
HS33	3	2	(1)	(1)	(1)	(1)	(1)	(3)	(1)	(2)	(1)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2
HS34	3	2	2	1	1	1	2	3	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2
HS35	3	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	4	—I—	2	1	5
HS36	3	1	1	1	1	1	1	20	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2
HS37	3	2	2	1	1	1	2	45	2	2	2	3	2	2	2	2	3	1	6	29	4	4	10
HS38	4	0	5	3	4	4	5	17	6	5	5	5	5	6	5	4	2	3	—I—	—I—	5	5	2
HS39	4	2	2	1	1	1	2	4	2	2	2	2	2	2	2	2	1	1	41	41	3	3	2
HS4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HS40	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	2	2	2
HS41	4	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1
HS42	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
HS43	4	3	2	2	2	1	3	4	3	3	2	3	2	2	2	2	10	1	41	—I—	3	3	2
HS44	4	6	1	1	(1)	(3)	1	(7)	(1)	(1)	1	(2)	(1)	(1)	(1)	1	2	1	3	—I—	1	1	1
HS45	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HS46	5	2	2	2	2	1	2	2	2	3	2	3	2	2	3	2	2	1	2	4	2	2	3
HS47	5	3	(2)	5	5	5	(3)	(2)	(2)	(3)	(2)	(3)	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(3)	(2)	(2)	(3)
HS48	5	2	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0
HS49	5	2	1	1	1	1	2	6	2	2	1	2	2	2	2	2	1	1	2	4	2	2	4
HS5	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HS50	5	3	1	1	1	1	2	21	1	2	1	2	2	1	1	1	1	1	2	3	2	2	2
HS51	5	3	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	3	0	0	0
HS52	5	3	1	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1
HS53	5	3	1	1	1	1	1	3	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2
HS54	6	1	(0)	—S—	(0)	(0)	(0)	3	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4)	(3)	(0)	(0)	(0)	(0)	(0)	(0)
HS55	6	6	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1
HS56	7	4	2	1	1	2	1	1	2	2	1	2	1	1	2	2	1	1	—I—	—I—	3	3	7
HS57	2	1	(0)	1	1	—I—	(0)	1	2	(1)	(0)	1	1	1	1	(0)	(0)	(0)	(1)	(4)	(1)	(1)	(1)
HS59	2	3	33	5	(23)	(15)	47	—I—	37	43	32	44	40	39	34	33	—I—	(22)	43	—I—	33	34	51
HS6	2	1	4	3	4	3	5	8	5	5	4	6	5	5	4	4	3	4	5	5	4	4	3
HS60	3	1	1	1	2	1	2	4	2	2	2	2	2	3	2	1	1	1	2	3	2	2	2
HS61	3	2	2	1	1	1	2	9	2	2	2	2	2	2	2	2	1	1	2	4	2	2	2
HS62	3	1	3	2	2	2	4	29	3	4	3	4	4	4	3	3	2	2	—I—	—I—	5	5	9
HS63	3	2	1	1	2	1	2	11	1	2	1	2	2	2	2	1	1	1	5	4	2	2	2
HS64	3	1	4	3	3	3	6	55	5	5	4	5	5	5	5	4	3	—T—	5	6	6	6	5
HS65	3	1	2	2	2	2	4	10	4	6	2	4	3	3	3	2	3	2	3	2	3	3	3
HS66	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
HS67	3	14	6	3	—I—	6	14	4	4	5	5	5	7	4	5	6	5	6	—I—	—I—	21	7	—S—
HS68	4	2	8	—I—	4	4	11	45	9	10	8	11	9	9	8	8	5	5	—I—	—I—	12	11	—I—
HS69	4	2	3	6	2	2	4	—S—	4	—S—	3	4	4	4	3	3	—S—	2	—I—	—I—	8	—S—	—I—
HS7	2	1	2	1	2	1	2	9	2	2	2	2	2	2	2	2	1	1	2	3	2	2	2
HS70	4	1	4	3	(2)	2	4	(46)	3	4	4	2	3	5	4	3	3	3	—I—	—I—	6	6	6
HS71	4	2	2	1	1	1	2	5	2	2	1	2	2	2	2	1	1	1	3	—I—	2	2	4
HS72	4	2	8	6	5	5	24	9	8	9	8	10	9	9	8	8	6	—T—	10	10	10	10	10
HS73	4	3	2	1	—I—	1	2	42	2	2	1	3	2	3	2	1	7	1	2	2	2	2	2
HS74	4	5	3	2	1	1	3	—I—	2	3	2	3	2	2	2	3	2	2	—S—	4	3	3	5
HS75	4	5	—S—	2	—S—	—I—	—I—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—
HS76	4	3	1	1	1	0	1	2	1	1	1	1	1	1	1	1	1	0	3	—I—	1	2	2
HS77	5	2	2	1	2	1	2	(11)	2	2	2	4	2	2	2	2	2	1	3	—I—	2	2	2
HS78	5	3	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	3	2	1	5
HS79	5	3	1	1	1	1	1	2	1	2	1	2	1	1	1	1	1	1	1	3	1	2	2

Cputimes (in seconds) (9)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
HS8	2	2	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HS80	5	3	1	1	1	1	1	2	2	2	1	2	2	1	2	1	1	1	2	2	1	2	4
HS81	5	3	2	(14)	1	1	1	2	1	2	2	2	2	1	2	2	1	1	74	4	2	2	4
HS83	5	3	2	1	5	2	3	22	2	3	2	3	3	3	2	2	2	2	3	3	2	2	4
HS84	5	3	—S—	—S—	—I—	—I—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	—S—	—S—	—S—
HS85	5	21	—I—	12	—I—	—I—	—I—	—I—	—S—	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—S—	—S—	—I—
HS86	5	10	—S—	2	—I—	6	2	11	2	2	2	2	2	3	2	—S—	3	2	48	—I—	5	3	18
HS87	6	4	9	—S—	—I—	—S—	—S—	—I—	—S—	—S—	11	—S—	—S—	—S—	3	11	2	2	—I—	—I—	4	13	—S—
HS88	2	1	14	15	13	14	11	13	14	16	14	14	14	15	15	8	16	6	21	38	26	22	36
HS89	3	1	(21)	(23)	(15)	(16)	(17)	(19)	(17)	(22)	(21)	(21)	19	(20)	(19)	(11)	(40)	—T—	(34)	(50)	(29)	(29)	(91)
HS9	2	1	0	0	1	0	1	3	1	0	1	1	1	1	0	0	0	0	1	1	1	1	1
HS90	4	1	—E—	—E—	—E—	—E—	—E—	26	—E—	—E—	—E—	25	—E—	—E—	—E—	15	34	12	—E—	51	—E—	—E—	—E—
HS91	5	1	—E—	—E—	32	—E—	40	—E—	—E—	(89)	—E—	—E—	—E—	—E—	—E—	(35)	(61)	14	—E—	—I—	—E—	—E—	—E—
HS92	6	1	—E—	—E—	—E—	—E—	—E—	672	—E—	—E—	—E—	—E—	41	41	—E—	21	67	18	—E—	—I—	—E—	—E—	—E—
HS93	6	2	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HS95	6	4	1	2	—I—	1	1	12	1	2	1	1	2	1	1	1	1	2	2	1	1	2	2
HS96	6	4	1	2	—I—	1	4	11	1	2	2	1	2	1	1	1	1	1	2	1	1	1	2
HS97	6	4	2	(2)	(28)	(1)	(1)	(16)	(1)	(2)	2	(2)	(1)	(2)	(4)	2	(4)	(1)	(5)	—I—	(3)	(2)	(6)
HS98	6	4	2	4	—I—	(1)	(1)	(16)	(1)	(3)	2	(2)	(1)	(1)	(4)	3	(3)	(1)	(2)	(3)	(2)	(2)	(5)
HS99	7	2	—I—	—S—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—I—	—I—	—E—	—F—	—I—
HS99EXP	31	21	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—F—	—I—	—F—	—I—	—I—	—E—	—I—	—I—	—I—	—I—	—I—	—I—
HUBFIT	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
HYDCAR20	99	99	—F—	—E—	—F—	140	422	—E—	—F—	—F—	—F—	93	118	174	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDCAR6	29	29	—F—	—E—	—F—	17	—F—	44	—F—	—F—	—F—	11	19	20	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
HYDROELL	1009	1008	4726	14026	—I—	—I—	5953	—I—	5702	3076	6859	658	1703	1113	7620	6192	—I—	5408	—I—	—I—	9689	9266	—I—
HYDROELM	505	504	3577	3849	—I—	—I—	1678	—I—	1339	2344	5156	264	297	294	1768	2609	—I—	3286	—I—	—I—	3091	—I—	—I—
HYDROELS	169	168	156	336	—I—	—I—	80	—I—	68	103	222	36	50	31	104	170	—I—	176	—I—	—I—	592	—I—	—I—
HYPCIR	2	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
INTEGREQ	12	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
INTEGREQ	52	0	4	7	16	16	2	2	3	3	4	7	16	16	16	4	4	4	3	3	3	3	3
INTEGREQ	102	0	20	—S—	193	201	8	8	20	19	22	80	194	193	193	20	20	21	15	15	15	15	15
JENSMP	2	0	1	1	1	1	1	9	1	1	1	1	1	1	1	1	1	1	1	—I—	1	1	1
JNLBRNG1	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
JNLBRNG1	100	0	1	1	0	0	1	1	1	1	0	0	0	0	0	1	1	1	1	6	1	1	1
JNLBRNG1	529	0	11	—S—	4	4	10	15	9	9	12	4	4	4	4	11	13	12	30	273	30	30	33
JNLBRNG1	1024	0	32	35	10	10	31	48	28	27	37	11	11	11	11	32	29	34	104	1115	104	104	110
JNLBRNG1	5625	0	913	708	191	206	980	1495	800	787	1063	210	225	211	203	907	734	782	3076	—I—	3087	3102	3132
JNLBRNG1	10000	0	2805	1967	544	585	3086	4541	2417	2417	3285	648	637	589	568	2802	2489	2401	9767	—T—	9516	9635	9617
JNLBRNG1	15625	0	7220	—I—	1245	1340	7110	11869	5911	6211	8381	1526	1475	1340	3646	7326	6711	5940	7309	—T—	7324	7347	7457
JNLBRNG2	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
JNLBRNG2	100	0	1	1	0	0	1	1	1	1	0	1	0	0	1	1	1	1	1	13	1	1	1
JNLBRNG2	529	0	7	—S—	2	2	11	11	6	6	8	3	2	2	4	7	7	8	12	566	12	12	13
JNLBRNG2	1024	0	19	24	6	6	34	29	17	17	21	8	7	7	8	18	19	20	28	1384	28	28	31
JNLBRNG2	5625	0	424	375	116	125	933	917	383	372	485	158	137	129	109	419	354	420	793	—I—	796	796	890
JNLBRNG2	10000	0	1303	1111	296	321	2919	2535	1128	1145	1497	411	348	323	264	1293	1060	1275	2049	—I—	2044	2062	2247
JNLBRNG2	15625	0	3548	—I—	665	716	7877	6181	3038	2899	3779	862	778	719	2773	3263	3186	2783	7525	—T—	7616	7592	8105
KOWOSB	4	0	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	—S—	1	3	3
LCH	30	1	5	—F—	—I—	5	(4)	(5)	(3)	4	4	6	6	5	6	4	4	4	—I—	—I—	10	12	16
LCH	150	1	16	—F—	(48)	1491	(18)	81	21	19	14	49	73	63	78	14	16	14	—I—	—I—	30	32	37
LCH	300	1	34	—F—	307	8093	(58)	286	57	53	30	239	436	362	453	28	29	31	—I—	—I—	62	91	116
LCH	600	1	78	—F—	—T—	—T—	(172)	1049	158	168	76	1663	3657	3005	4368	67	74	82	—I—	—I—	147	162	175
LEAKNET	156	153	—S—	—F—	—I—	—I—	—I—	—I—	—S—	—I—	—S—	41	31	30	—I—	—S—	(1979)	—S—	—I—	—I—	—S—	—S—	—I—
LEWISPOL	6	9	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
LIARWHD	36	0	2	2	2	2	1	13	1	2	2	2	1	1	1	2	2	1	2	2	2	2	1
LIARWHD	100	0	4	5	3	3	2	22	3	3	4	3	3	3	3	4	3	3	3	3	4	4	3
LIARWHD	500	0	10	22	18	16	6	98	8	10	16	12	19	18	16	16	11	12	10	11	11	10	13
LIARWHD	1000	0	24	60	51	43	10	231	16	21	31	27	76	77	66	31	29	24	24	19	25	24	25
LIARWHD	5000	0	185	319	795	643	57	2077	73	(100)	152	231	1390	1386	1341	204	254	123	194	(112)	194	193	202
LIARWHD	10000	0	(248)	576	3162	2505	111	5719	146	(399)	539	513	5530	5542	4716	545	312	233	(260)	(663)	(261)	(259)	(271)

Cputimes (in seconds) (10)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
LINVERSE	19	0	2	5	(36)	2	2	3	2	(1)	2	2	3	3	3	2	1	3	—I—	—I—	4	2	—I—
LINVERSE	199	0	15	64	—I—	30	14	68	12	16	17	49	31	40	47	33	18	47	—I—	—I—	25	23	—I—
LINVERSE	999	0	463	(1935)	273	3708	588	4506	178	325	568	740	340	375	302	658	297	1068	—I—	—S—	606	394	2566
LINVERSE	1999	0	1894	—S—	2927	—T—	(999)	12871	618	1468	2373	1858	1730	1253	1471	1536	2614	4129	—I—	—S—	1711	1455	—I—
LMINSURF	16	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	3	1	1	1
LMINSURF	49	0	3	2	2	2	2	2	1	1	2	2	2	2	2	2	3	2	2	16	3	2	3
LMINSURF	64	0	3	3	2	2	3	2	3	3	2	2	2	2	3	3	3	3	4	39	4	4	—I—
LMINSURF	121	0	11	11	4	5	9	8	8	11	3	4	4	4	7	10	9	9	12	133	12	12	12
LMINSURF	961	0	341	363	91	453	517	208	281	296	417	81	87	80	129	373	379	540	416	—I—	473	427	423
LMINSURF	1024	0	431	531	99	531	497	234	408	365	521	87	94	86	209	508	424	677	449	—I—	476	470	—I—
LMINSURF	5625	0	—I—	—I—	1850	—T—	—I—	4997	—I—	—I—	—I—	1777	1976	1768	7931	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
LMINSURF	10000	0	—I—	—I—	4593	—T—	—I—	—I—	—I—	—I—	—I—	4651	5078	4631	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—I—
LMINSURF	15625	0	—T—	—T—	9868	—T—	—I—	—I—	—T—	—T—	—T—	9958	10993	9918	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
LSQFIT	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LUBRIF	151	100	—F—	—I—	—I—	—F—	—F—	—I—	—I—	—F—	—F—	—F—	—F—	—F—	—I—	—F—	—F—	—F—	—I—	—I—	—I—	—F—	—I—
LUBRIF	751	500	—T—	—T—	—I—	—I—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
MANCINO	10	0	1	—S—	1	1	1	55	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MANCINO	20	0	3	—S—	3	3	2	—I—	3	3	4	4	4	4	4	3	3	3	4	4	4	4	4
MANCINO	30	0	8	—S—	6	7	5	—I—	8	8	8	10	10	10	10	8	8	9	8	8	8	8	8
MANCINO	50	0	27	—S—	28	29	17	—I—	26	26	28	38	54	56	54	25	30	31	28	28	27	27	27
MANNE	300	200	9	26	—I—	9	16	14	26	20	13	60	15	1274	10	11	8	10	52	51	12	12	12
MANNE	1095	730	—S—	2573	—S—	285	963	146	—S—	186	—S—	—T—	87	—E—	130	105	94	121	225	225	114	113	—S—
MARATOS	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
MARATOSB	2	0	—I—	—I—	—I—	—I—	—I—	27	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
MATRIX2	6	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1
MAXLIKA	8	0	(7)	30	31	17	20	25	(6)	18	20	21	19	(7)	19	(7)	(7)	(6)	—I—	—S—	423	118	527
MCCORMCK	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1
MCCORMCK	50	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	4	1	1	1
MCCORMCK	100	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1
MCCORMCK	500	0	3	5	3	3	2	3	3	2	3	3	3	3	3	4	3	4	5	25	4	4	5
MCCORMCK	1000	0	5	10	6	6	5	6	5	5	6	6	6	6	6	6	9	6	8	44	8	8	10
MCCORMCK	5000	0	26	33	28	29	21	28	27	22	32	30	30	30	26	28	40	28	40	244	41	41	49
MCCORMCK	10000	0	52	66	55	56	43	54	52	44	63	61	59	59	53	56	83	55	81	435	82	81	96
MDHOLE	2	0	5	3	3	5	5	14	5	5	5	6	6	5	6	5	3	3	5	4	5	5	4
METHANB8	31	31	—I—	—E—	2	2	2	24	—F—	—F—	14	3	2	2	—F—	—I—	—I—	—S—	—S—	—F—	—I—	—S—	—S—
METHANL8	31	31	—F—	—E—	106	47	26	—E—	—F—	—F—	—F—	39	47	18	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—	—F—
MEXHAT	2	0	2	1	1	2	3	—I—	2	2	2	2	2	2	2	2	1	1	2	39	2	2	2
MEYER3	3	0	42	—S—	—I—	—I—	43	—I—	—S—	41	42	—S—	—S—	—S—	—S—	—S—	—I—	—S—	—S—	—S—	57	—S—	—I—
MINPERM	5	5	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
MINPERM	13	10	2	1	3	1	1	1	1	2	2	2	2	2	2	2	1	1	3	—I—	3	2	2
MINPERM	27	19	2	2	5	3	1	1	1	2	3	3	7	8	11	2	2	2	5	—I—	3	2	3
MINPERM	51	36	4	4	26	8	2	2	2	4	5	15	11	31	16	4	4	4	12	—I—	7	4	4
MINPERM	93	69	5	5	246	19	3	3	4	9	13	169	52	132	90	6	5	6	57	—I—	6	8	8
MINPERM	169	134	89	86	—I—	318	8	7	8	25	28	1030	1091	1518	629	85	28	142	605	—T—	35	33	33
MINPERM	311	263	104	102	—I—	1090	15	14	17	31	57	5175	2400	8223	4091	112	92	472	961	—T—	132	126	135
MINPERM	583	520	3247	3285	—T—	—T—	36	35	40	53	87	—T—	—T—	—I—	16976	4570	251	858	—I—	—T—	392	643	358
MINPERM	1113	1033	929	1054	—T—	—T—	92	83	100	145	132	—T—	—T—	—T—	4050	1745	1856	2076	6110	—I—	5867	2169	2568
MINSURF	64	0	2	1	1	0	1	1	1	1	1	2	2	2	2	2	2	1	2	10	2	2	2
MISTAKE	9	13	4	3	13	3	4	3	4	4	8	5	5	5	3	4	3	4	9	—I—	6	5	7
MSQRTA	4	0	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2
MSQRTA	49	0	6	—I—	11	11	7	7	7	6	8	8	10	10	13	7	8	8	9	—I—	7	10	11
MSQRTA	100	0	27	37	165	63	42	31	27	32	28	48	118	74	151	30	27	40	47	—I—	26	26	37
MSQRTA	529	0	4886	5571	—T—	—T—	4420	3790	5154	5453	4938	—T—	—T—	—T—	—T—	5259	5634	7484	9409	—I—	5411	4936	5851
MSQRTA	1024	0	15074	15688	—T—	—T—	—T—	14690	14307	9790	14736	—T—	—T—	—T—	—T—	—T—	11594	—T—	—T—	—T—	12434	11832	—T—
MSQRTB	9	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	—I—	1	1	3
MSQRTB	49	0	8	17	0	10	9	9	8	8	10	8	13	11	17	(1275)	8	11	12	—I—	7	8	14
MSQRTB	100	0	34	45	0	73	37	41	33	34	34	42	165	77	202	37	28	56	47	—I—	32	33	49
MSQRTB	529	0	4116	4255	—T—	—T—	6506	3812	4098	4724	4182	11602	—T—	—T—	—T—	5568	4475	10135	6288	—I—	3828	3346	5131
MSQRTB	1024	0	8454	8812	—T—	—T—	9333	8328	9208	9034	10584	—T—	—T—	—T—	—T—	11605	7272	11329	—T—	—T—	6558	8330	—T—

Cputimes (in seconds) (11)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
MWRIGHT	5	3	(2)	1	(1)	(1)	(2)	(4)	(2)	(2)	(2)	(3)	(2)	(2)	(2)	(2)	(2)	(1)	(45)	(53)	(3)	(2)	(3)
NGONE	8	8	2	2	7	1	2	2	2	2	2	2	2	2	2	2	1	2	14	—I—	3	3	4
NGONE	12	19	6	7	22	5	—E—	4	5	6	7	5	6	6	5	6	5	6	14	—I—	7	6	7
NGONE	50	323	—I—	—I—	—I—	—I—	(2701)	—I—	—I—	(381)	—I—	—I—	(199)	618	—I—	—I—	—I—	—I—	—I—	—I—	—I—	(2629)	—I—
NGONE	100	1273	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—T—	11492	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—I—	—I—
NGONE	500	31373	—T—	—T—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—M—	—M—	—M—	—M—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NLMSURF	16	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1
NLMSURF	49	0	6	7	3	2	6	5	3	5	3	4	4	4	5	5	7	2	6	95	8	7	14
NLMSURF	64	0	7	9	2	3	9	8	7	7	2	3	3	3	8	7	8	4	8	—I—	8	8	19
NLMSURF	121	0	25	27	5	7	32	20	26	26	4	5	5	5	30	28	33	14	30	—I—	34	33	93
NLMSURF	961	0	1018	1216	67	334	—I—	775	997	923	1268	69	75	69	453	1227	1035	502	1157	—I—	1289	1152	1637
NLMSURF	1024	0	1331	1258	76	390	—I—	898	1105	1061	1612	79	85	78	617	1324	1192	537	1173	—I—	1319	1196	1504
NLMSURF	5625	0	—I—	—I—	1058	11020	—I—	—I—	—I—	—I—	—I—	1074	1175	1070	—I—	—I—	—I—	9186	—I—	—I—	—I—	—I—	—I—
NLMSURF	10000	0	—I—	—I—	2600	—T—	—I—	—I—	—I—	—I—	—I—	2633	2865	2617	—T—	—I—	—I—	—T—	—I—	—T—	—I—	—I—	—E—
NLMSURF	15625	0	—T—	—T—	6014	—T—	—I—	—I—	—T—	—T—	—T—	6161	6620	6064	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONDIA	10	0	2	1	3	2	2	3	2	2	2	4	2	3	2	2	2	1	2	2	1	1	1
NONDIA	20	0	3	2	3	3	2	5	2	3	3	4	3	3	3	3	3	2	3	3	2	2	2
NONDIA	30	0	6	3	5	5	3	9	10	4	8	5	5	4	4	8	4	5	4	4	4	4	3
NONDIA	50	0	9	4	6	8	3	12	24	5	19	18	5	7	6	7	7	7	6	7	9	9	7
NONDIA	90	0	17	9	11	18	4	20	11	20	28	11	11	11	9	27	10	19	18	18	29	29	27
NONDIA	100	0	23	8	12	22	5	22	19	8	15	39	12	11	10	17	11	23	19	19	25	24	22
NONDIA	500	0	176	33	48	959	17	135	74	113	196	99	61	60	57	60	40	493	27	27	184	181	176
NONDIA	1000	0	269	54	126	6646	29	344	194	193	421	472	162	161	165	84	77	4603	82	105	83	82	81
NONDIA	5000	0	571	(449)	1992	—T—	135	—I—	577	770	572	1643	3073	3082	2778	819	405	—T—	521	525	859	858	612
NONDIA	10000	0	1461	1203	6881	—T—	269	—I—	2244	665	952	6037	13206	13144	10652	1367	714	—T—	1051	1143	1047	1029	984
NONDQUAR	100	0	3	2	4	4	13	16	16	2	3	4	5	4	4	3	2	2	3	3	3	3	2
NONDQUAR	500	0	8	8	27	27	49	165	52	6	12	21	40	35	24	8	9	8	8	8	8	8	8
NONDQUAR	1000	0	16	18	89	88	101	547	141	12	23	61	128	122	78	16	15	17	16	16	16	16	15
NONDQUAR	5000	0	78	77	2096	2079	453	9817	560	58	115	1344	3102	3090	2005	79	90	85	78	77	78	78	82
NONMSQRT	9	0	12	14	—I—	—I—	(9)	—I—	(10)	(13)	11	(12)	(51)	12	12	10	(9)	(7)	—I—	—S—	11	9	—I—
NONMSQRT	49	0	—I—	—I—	—I—	—I—	(167)	—I—	(704)	—I—	(2830)	95	—I—	101	(1535)	—I—	—I—	—T—	—I—	—S—	—I—	—I—	—I—
NONMSQRT	100	0	—T—	—T—	—I—	—I—	1306	—I—	(5870)	—T—	—I—	—S—	—T—	—S—	—I—	—T—	—T—	—T—	—I—	—S—	—T—	—T—	—I—
NONMSQRT	529	0	—T—	—T—	—I—	—I—	—T—	—I—	—T—	—T—	—T—	—S—	—T—	—S—	—T—	—T—	—T—	—T—	—E—	—I—	—T—	—T—	—T—
NONMSQRT	1024	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
NONSCOMP	25	0	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NONSCOMP	50	0	1	1	1	1	1	4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
NONSCOMP	100	0	1	1	2	2	2	5	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1
NONSCOMP	500	0	4	5	5	5	5	12	5	4	6	6	6	6	5	5	5	5	3	3	5	4	5
NONSCOMP	1000	0	8	9	10	10	8	24	10	6	11	12	10	10	9	9	10	10	6	5	8	8	9
NONSCOMP	5000	0	39	42	46	48	40	113	48	30	54	57	51	50	43	42	52	50	28	28	40	39	42
NONSCOMP	10000	0	76	85	91	97	81	220	81	60	108	111	100	98	84	82	109	99	55	55	79	78	85
NYSTROM5	18	20	—F—	—F—	—F—	5	3	12	3	5	—F—	6	7	—F—	9	—F—	—F—	6	15	—F—	10	—F—	—F—
OBSTCLAE	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLAE	100	0	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	1	2	7	2	2	3
OBSTCLAE	529	0	33	41	88	36	19	20	22	24	43	50	42	42	31	33	40	34	39	157	39	39	41
OBSTCLAE	1024	0	126	152	369	208	74	71	78	93	167	211	180	180	122	124	144	134	144	545	143	143	149
OBSTCLAE	5625	0	4846	4953	15566	—T—	2782	3561	3234	3574	6739	7633	7572	7522	4333	4845	5020	4860	5080	—I—	5036	5023	5134
OBSTCLAE	10000	0	16010	16202	—T—	—T—	9153	11461	10861	11680	—T—	—T—	—T—	—T—	—T—	16229	16488	16070	16740	—T—	16589	16768	16684
OBSTCLAE	15625	0	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
OBSTCLAL	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLAL	100	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	2
OBSTCLAL	529	0	7	9	4	4	7	7	7	6	7	5	5	5	4	7	8	7	9	83	8	8	34
OBSTCLAL	1024	0	17	22	9	9	18	19	18	15	19	10	10	10	10	17	21	17	23	277	23	22	30
OBSTCLAL	5625	0	305	277	127	133	370	351	347	275	343	138	149	139	146	308	283	268	388	—I—	383	385	427
OBSTCLAL	10000	0	849	824	278	299	1049	944	969	774	957	306	320	306	337	854	735	698	982	—I—	969	965	1404
OBSTCLAL	15625	0	1900	1767	590	624	2438	2094	2168	1715	2153	644	676	642	682	1907	1603	1542	2018	—T—	1990	1985	2128
OBSTCLBL	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLBL	100	0	0	0	1	0	1	1	0	1	1	1	1	1	0	1	0	0	1	4	1	1	1
OBSTCLBL	529	0	12	26	13	6	9	9	10	10	14	11	11	11	10	13	9	14	13	141	13	13	14

CPUtimes (in seconds) (12)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
OBSTCLBL	1024	0	50	97	65	22	36	39	42	40	63	43	43	43	40	51	39	50	43	621	42	42	46
OBSTCLBL	5625	0	1159	—S—	1899	670	842	912	940	902	1499	1168	1172	1170	1003	1219	2082	1154	972	—I—	965	965	1977
OBSTCLBL	10000	0	3881	—S—	7839	2367	2983	2836	3285	2988	5009	4030	4026	3995	12075	3941	6894	3817	3266	—T—	3049	3302	4990
OBSTCLBL	15625	0	9456	—S—	—T—	6136	7384	6685	8156	7234	12420	9856	9884	9833	—T—	9580	16530	9209	9052	—T—	9120	9438	11178
OBSTCLBM	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLBM	100	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	3	0	0	1
OBSTCLBM	529	0	8	20	3	4	6	7	7	7	10	6	6	6	6	6	8	9	7	77	7	7	8
OBSTCLBM	1024	0	36	121	12	19	25	23	29	29	46	33	33	33	30	17	37	41	30	494	29	29	32
OBSTCLBM	5625	0	879	3651	320	714	561	553	655	666	1151	977	979	974	795	308	853	907	561	—I—	562	565	583
OBSTCLBM	10000	0	2619	10888	1138	2530	1648	1676	1947	1955	3463	3169	3141	3135	—T—	838	3375	2640	2110	—T—	2122	2082	2183
OBSTCLBM	15625	0	7307	—T—	3666	8557	4525	4580	5267	5408	9809	9502	9602	9439	—T—	2308	15096	7525	3968	—T—	3982	3958	4060
OBSTCLBU	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OBSTCLBU	100	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	4	1	1	1
OBSTCLBU	529	0	7	10	5	5	7	7	7	6	8	5	6	5	5	7	7	8	13	166	13	13	15
OBSTCLBU	1024	0	18	32	12	10	17	18	18	16	21	11	12	11	11	19	18	22	41	524	41	40	55
OBSTCLBU	5625	0	379	1033	229	183	379	351	397	329	456	219	231	218	205	373	544	422	536	—I—	535	531	619
OBSTCLBU	10000	0	1255	3027	572	433	1172	1096	1174	980	1376	507	521	504	479	1091	2027	1110	1604	—T—	1606	1598	2258
OBSTCLBU	15625	0	2602	7488	734	927	2824	2372	2810	2140	3250	1088	1118	1084	3931	2881	5344	2634	3816	—T—	3816	3809	5389
OPTCNTRL	32	20	3	2	4	2	4	47	5	5	3	4	4	4	3	3	2	2	3	4	3	3	3
OPTMASS	70	55	—I—	89	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
OPTMASS	610	505	—I—	—F—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	1210	1005	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—E—	—I—	—I—	—I—	—I—
OPTMASS	3010	2505	—I—	—F—	—T—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—T—	—I—	—I—	—I—	—T—	—E—	—I—	—I—	—I—	—I—
ORTHREGA	133	64	58	—S—	533	—I—	—S—	—I—	49	54	82	174	37	572	111	58	56	145	—I—	—I—	116	75	—I—
ORTHREGA	517	256	242	540	—T—	—I—	282	—I—	228	272	311	3024	213	—T—	1630	242	234	1286	—I—	—I—	424	321	—I—
ORTHREGA	2053	1024	1069	—S—	—M—	—I—	1689	—I—	992	1114	—S—	—T—	2547	—E—	—T—	1141	1122	12052	—I—	—I—	1790	1472	—I—
ORTHREGA	8197	4096	—S—	—S—	—M—	—T—	6672	—I—	4685	—S—	6458	—E—	—T—	—E—	—T—	5114	5616	—T—	—I—	—I—	—S—	—S—	—T—
ORTHREGB	27	6	14	34	—I—	14	2	—I—	63	12	12	46	19	30	26	15	19	56	21	—I—	17	12	35
ORTHREGC	25	10	5	8	(8)	5	4	(37)	8	6	6	6	5	—I—	6	5	4	(7)	—I—	—I—	(7)	(11)	(10)
ORTHREGC	105	50	(27)	143	27	(150)	18	—I—	22	(17)	(30)	25	16	20	(79)	(23)	12	(41)	—I—	—I—	29	27	87
ORTHREGC	505	250	(81)	210	729	(898)	73	—I—	79	(89)	(106)	105	76	166	191	61	59	(600)	—I—	—I—	94	119	439
ORTHREGC	1005	500	129	—S—	3725	(3550)	152	—I—	175	146	164	294	239	844	566	130	142	(2657)	—I—	—I—	(233)	(247)	(1272)
ORTHREGC	5005	2500	1031	—T—	—T—	—T—	1674	—I—	1467	919	1101	4406	6012	—M—	14422	1163	1057	—T—	—I—	—I—	1398	1610	—I—
ORTHREGC	10005	5000	2333	—T—	—M—	—T—	3349	—I—	3113	1967	—S—	—T—	16014	—M—	—T—	2574	2397	—T—	—T—	—T—	3488	3655	—T—
ORTHREGD	23	10	50	—F—	14	12	4	—I—	54	47	44	23	9	12	19	62	28	13	42	60	41	37	52
ORTHREGD	103	50	165	—F—	167	71	11	—I—	240	163	195	78	33	—S—	43	—S—	—S—	142	97	—I—	91	96	148
ORTHREGD	503	250	420	—F—	—I—	—I—	33	—I—	—I—	320	468	246	142	700	249	—S—	—S—	1428	243	—S—	208	—S—	—I—
ORTHREGD	1003	500	588	—F—	—I—	—I—	78	—I—	—I—	638	773	685	525	—S—	593	—S—	—S—	4531	359	—S—	374	404	—I—
ORTHREGD	5003	2500	2003	—F—	—T—	—T—	502	—I—	8968	1664	—S—	11647	10672	—T—	7288	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—I—
ORTHREGD	10003	5000	3130	—F—	—M—	—T—	1239	—T—	—S—	2208	3662	—T—	—T—	—E—	—T—	—S—	—S—	—T—	—S—	—I—	—S—	—S—	—T—
ORTHREGE	36	20	—S—	(28)	(29)	—I—	8	—I—	—S—	—S—	(61)	(18)	—I—	—I—	—I—	—S—	(22)	—S—	—I—	—I—	—I—	—S—	—I—
ORTHREGF	80	25	12	49	26	18	7	21	14	13	14	9	13	12	17	13	10	18	19	—I—	14	16	20
ORTHREGF	152	49	20	—I—	29	47	8	23	26	30	26	15	23	25	30	23	20	58	86	—I—	36	44	35
ORTHREGF	305	100	(39)	—I—	(112)	101	20	(110)	(53)	(62)	(56)	(51)	38	66	(106)	(56)	(40)	(209)	—I—	—I—	(37)	(46)	(45)
ORTHREGF	680	225	(157)	(365)	380	(231)	50	(307)	(140)	(170)	(125)	(130)	112	204	(356)	(135)	(190)	724	—I—	—I—	(137)	(112)	(427)
ORTHREGF	1205	400	—S—	—S—	(2001)	(1286)	121	(1246)	(331)	(367)	(983)	(283)	263	519	755	(383)	(332)	(1740)	—I—	—I—	(242)	(272)	(291)
OSBORNEA	5	0	4	—E—	5	1	7	—I—	8	9	4	8	4	6	5	4	5	5	15	—S—	10	7	8
OSBORNEB	11	0	7	7	5	7	10	—E—	6	5	8	9	7	7	4	8	(17)	8	28	—I—	8	15	13
PALMER1	4	0	3	—S—	29	2	3	25	3	3	3	5	4	4	5	3	3	2	4	—S—	5	3	—S—
PALMER1A	6	0	7	6	9	—S—	19	—I—	—S—	12	7	13	9	12	9	8	6	6	21	—I—	9	12	14
PALMER1B	4	0	4	3	12	3	4	—I—	4	5	4	4	4	4	4	4	3	3	8	—S—	5	6	6
PALMER1C	8	0	2	2	1	1	11	—I—	4	—S—	5	2	2	2	3	3	3	3	2	2	2	2	2
PALMER1D	7	0	2	1	1	1	7	—I—	1	2	2	2	1	1	2	2	1	1	2	2	2	2	1
PALMER1E	8	0	42	27	—I—	7	42	—I—	33	22	41	20	104	107	41	33	22	23	—I—	—I—	42	29	31
PALMER2	4	0	2	3	6	4	3	14	3	2	2	5	2	2	2	2	2	3	13	—S—	4	3	4
PALMER2A	6	0	15	11	9	6	11	43	11	20	16	18	14	11	13	16	13	12	50	—I—	17	18	22
PALMER2B	4	0	9	6	8	2	4	—I—	7	9	9	7	10	10	10	2	1	2	9	—S—	9	10	—S—
PALMER2C	8	0	2	—S—	1	1	5	—I—	4	2	2	2	1	1	2	5	2	2	2	2	2	2	1
PALMER2E	8	0	16	14	26	7	20	—I—	30	34	38	25	43	36	45	23	16	24	—I—	—I—	23	33	29

Cputimes (in seconds) (13)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
PALMER3	4	0	4	3	3	3	(3)	11	(4)	4	4	(4)	4	5	6	6	1	3	(7)	—I—	(5)	(6)	13
PALMER3A	6	0	15	11	10	9	16	—I—	12	18	15	21	15	12	12	17	12	11	—I—	—S—	20	18	19
PALMER3B	4	0	6	4	6	2	3	9	4	8	6	4	5	7	3	2	2	2	4	—S—	3	2	2
PALMER3C	8	0	2	2	1	1	2	—I—	2	2	1	1	1	1	2	2	1	2	2	2	2	2	1
PALMER3E	8	0	10	(9)	3	4	15	—I—	22	20	28	12	6	5	30	12	8	16	—I—	—I—	17	18	21
PALMER4	4	0	4	3	(4)	4	(3)	9	(3)	4	4	(3)	5	7	5	4	2	4	—I—	—S—	(7)	4	—S—
PALMER4A	6	0	5	5	16	6	8	—I—	6	8	5	12	11	7	9	7	5	5	11	—I—	8	11	10
PALMER4B	4	0	3	2	5	2	4	9	3	8	3	4	7	4	4	—S—	2	2	2	—I—	3	2	2
PALMER4C	8	0	5	3	1	1	6	—I—	3	2	4	2	1	1	3	3	3	2	5	5	5	5	4
PALMER4E	8	0	7	7	4	3	11	—I—	11	9	13	10	8	3	22	7	11	8	—I—	—I—	9	21	27
PENALTY1	4	0	3	2	3	2	3	6	3	3	3	3	4	3	3	2	2	2	4	4	3	3	2
PENALTY1	10	0	4	4	2	4	2	14	4	4	3	4	4	4	4	3	3	3	5	3	5	4	4
PENALTY1	50	0	12	21	15	26	6	—I—	7	10	11	17	20	19	20	8	7	18	11	14	11	10	15
PENALTY1	100	0	19	27	54	122	7	—I—	11	20	20	65	85	81	84	18	15	45	20	26	19	18	19
PENALTY1	500	0	133	183	4484	12500	45	—I—	93	189	161	5425	8116	7789	7890	114	104	482	149	208	148	147	146
PENALTY1	1000	0	430	404	—T—	—T—	150	—I—	310	354	469	—T—	—T—	—T—	—T—	287	316	1710	439	512	436	433	517
PENALTY2	4	0	1	4	4	3	1	1	1	1	1	5	4	5	1	1	1	1	1	1	1	1	1
PENALTY2	10	0	9	19	3	5	2	15	5	2	10	12	7	7	12	10	7	4	9	3	9	9	8
PENALTY2	50	0	8	7	12	12	5	15	5	12	12	22	16	15	18	10	6	12	9	16	9	9	8
PENALTY2	100	0	6	7	34	33	6	60	6	6	8	24	40	37	39	7	6	6	8	28	7	7	7
PENALTY3	50	0	72	—S—	—S—	—S—	55	—I—	—S—	75	—S—	135	111	124	—S—	(1058)	—S—	110	—I—	—S—	—S—	335	—S—
PENALTY3	100	0	—S—	—S—	—S—	—S—	361	—I—	371	—S—	344	942	—S—	714	—S—	—I—	352	—S—	—I—	—T—	—S—	1504	—S—
PENTAGON	6	15	1	8	5	2	1	2	2	1	2	2	1	1	1	2	1	1	4	—I—	6	4	5
POWELLBS	2	0	4	3	4	2	4	33	4	4	4	5	4	4	4	4	2	2	4	4	5	4	—S—
POWELLSG	4	0	1	1	1	1	2	3	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1
POWELLSG	8	0	1	1	1	1	2	3	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1
POWELLSG	16	0	2	1	1	2	2	3	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1
POWELLSG	20	0	1	1	1	2	2	3	2	1	2	2	2	2	2	1	1	1	2	1	2	2	1
POWELLSG	36	0	2	1	1	2	2	3	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1
POWELLSG	40	0	2	1	1	2	2	4	2	2	2	2	2	2	2	2	1	1	2	2	2	2	1
POWELLSG	60	0	2	2	1	2	2	4	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1
POWELLSG	80	0	2	2	2	2	2	4	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2
POWELLSG	100	0	2	2	2	3	2	3	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2
POWELLSG	500	0	7	7	7	10	6	11	6	6	10	8	8	8	8	7	6	12	7	10	7	7	6
POWELLSG	1000	0	12	13	13	28	10	20	12	11	18	15	15	15	14	13	13	36	12	18	12	12	12
POWELLSG	5000	0	60	67	62	1044	48	91	56	56	90	72	73	71	68	61	59	1251	60	60	60	60	59
POWELLSG	10000	0	118	133	124	5994	97	181	112	111	180	142	146	142	135	123	119	6449	119	119	120	119	118
POWELLSQ	2	0	0	1	0	0	0	7	0	0	0	1	1	1	1	0	1	0	1	1	2	2	1
POWER	10	0	2	2	2	1	2	4	1	2	2	2	2	2	2	2	1	1	2	1	2	2	1
POWER	20	0	2	3	3	2	2	8	2	2	2	2	3	3	3	2	1	1	2	1	2	2	2
POWER	30	0	2	3	4	3	2	14	2	2	2	3	4	4	4	2	2	2	2	2	2	2	2
POWER	50	0	3	4	8	8	3	36	2	2	3	6	9	8	9	3	2	2	3	2	3	3	3
POWER	75	0	3	5	18	18	3	86	3	3	4	14	22	20	21	3	3	3	4	3	4	4	3
POWER	100	0	5	5	36	43	4	177	4	4	5	26	45	42	44	5	4	5	5	4	5	5	5
POWER	500	0	37	50	3037	3438	23	—I—	33	33	44	2217	4554	4309	4531	37	37	38	37	32	37	36	37
POWER	1000	0	124	139	—T—	—T—	61	—I—	115	117	138	—T—	—T—	—T—	—T—	124	133	139	126	102	127	125	128
PROBPENL	10	0	9	6	(0)	—I—	(4)	(1)	(0)	(0)	(2)	(0)	(0)	(0)	(5)	9	(0)	(2)	(0)	(0)	(0)	(0)	(0)
PROBPENL	50	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	1	1	0	0	0
PROBPENL	100	0	0	0	0	0	0	1	0	0	0	1	2	2	2	0	1	0	1	1	1	1	1
PROBPENL	500	0	2	—S—	1	1	1	4	2	2	2	103	173	164	169	2	6	2	5	5	3	3	4
PRODPL0	60	29	—S—	—S—	—I—	97	7	17	6	8	—S—	8	10	14	7	9	—S—	—S—	11	191	—S—	10	24
PRODPL1	60	29	17	15	—I—	—I—	12	40	11	14	15	14	18	12	14	18	18	26	17	—I—	19	19	43
PSPDOC	4	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1
QUARTC	25	0	2	2	1	1	2	91	2	2	2	3	2	2	2	2	1	2	2	2	2	2	1
QUARTC	100	0	4	4	3	3	4	—I—	3	3	5	4	4	4	4	4	3	3	4	4	4	4	3
QUARTC	500	0	14	19	10	10	14	—I—	10	11	19	14	14	14	12	13	13	14	14	13	14	13	13
QUARTC	1000	0	27	58	20	20	30	—I—	20	21	37	27	26	27	22	24	25	28	27	26	27	26	26
QUARTC	5000	0	150	1137	109	113	216	—I—	112	117	213	149	147	149	127	129	156	167	153	165	146	151	149
QUARTC	10000	0	319	4301	(235)	(232)	510	—I—	241	243	453	319	313	315	265	273	333	354	321	322	319	322	312

Cputimes (in seconds) (14)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
READING1	202	100	1051	—F—	—I—	—I—	2627	3395	—I—	—I—	1189	427	—I—	477	—I—	967	667	1575	—I—	—I—	936	—I—	—I—
READING2	303	200	109	6338	—I—	—I—	—T—	3410	403	470	160	141	166	142	167	121	134	126	109	109	110	110	109
READING3	202	101	—I—	—S—	—I—	—I—	8355	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	4353	—I—	—I—	—I—	—I—	—I—
RECIPE	3	0	1	1	1	1	2	5	1	1	1	2	2	2	1	1	1	1	3	—I—	2	1	1
ROSENBR	2	0	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	(0)	(0)	(0)	(0)	(0)
S277-280	4	4	2	1	1	2	1	5	1	1	2	2	1	1	2	1	1	1	2	2	2	2	1
S277-280	6	6	2	2	—I—	18	1	6	2	2	1	2	2	2	2	2	1	1	2	2	3	2	2
S277-280	8	8	1	1	—I—	2	2	4	1	1	1	3	2	2	3	2	2	1	1	1	1	1	1
S277-280	10	10	2	2	—I—	1	1	3	1	1	2	3	2	79	2	3	2	2	3	3	3	3	2
S308	2	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1
S316-322	2	1	2	1	2	1	2	(5)	2	2	2	3	3	2	2	2	2	1	2	2	2	2	2
S316-322	2	1	3	2	3	2	3	(6)	3	2	2	3	3	3	3	3	2	2	3	6	3	3	2
S316-322	2	1	(3)	(2)	(3)	(2)	(3)	6	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(2)	(2)	(3)	(7)	(3)	(3)	(2)
S316-322	2	1	(3)	(2)	(3)	(2)	(3)	(6)	(3)	(3)	(3)	3	(3)	(3)	(3)	(3)	(2)	2	(3)	(9)	(3)	(3)	(2)
S316-322	2	1	(3)	(2)	(3)	(2)	(3)	6	(3)	(3)	(3)	(3)	(4)	(3)	(3)	(3)	(2)	(2)	(3)	(9)	(3)	(3)	(2)
S316-322	2	1	(3)	(2)	(3)	(2)	(3)	6	(3)	(3)	(3)	(4)	(4)	(4)	(3)	(3)	(2)	(2)	(3)	(9)	(3)	(3)	(2)
S316-322	2	1	(3)	(2)	(3)	(2)	(3)	(6)	3	(3)	(3)	(4)	(4)	(3)	(3)	(3)	(2)	(2)	3	—I—	3	3	3
SCHMVETT	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1
SCHMVETT	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	1	1
SCHMVETT	100	0	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	—S—	10	2	5
SCHMVETT	500	0	3	3	4	4	7	8	6	21	4	4	4	4	4	3	4	4	11	—E—	26	10	46
SCHMVETT	1000	0	6	6	7	7	13	14	12	75	7	8	8	8	7	7	19	7	35	—S—	51	20	28
SCHMVETT	5000	0	30	31	36	36	65	71	58	1404	36	38	38	38	34	32	53	35	195	—T—	228	112	268
SCHMVETT	10000	0	60	61	71	72	132	139	118	5669	72	76	77	76	69	65	106	71	389	—T—	548	203	286
SEMICON1	12	10	10	—S—	—S—	—S—	—F—	—F—	—S—	—S—	10	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—S—	—F—	—S—	—S—	—S—
SEMICON1	52	50	66	33	42	31	—F—	—F—	57	62	76	114	53	112	88	—F—	—F—	58	—F—	—F—	70	72	—F—
SEMICON1	102	100	166	105	—F—	73	—F—	—F—	189	155	196	153	138	152	228	—F—	—F—	114	—F—	—F—	137	168	—F—
SEMICON1	502	500	492	486	—F—	1007	—F—	—F—	—F—	—F—	624	656	765	645	—F—	—F—	—F—	2128	—F—	—F—	753	621	—F—
SEMICON2	12	10	4	—S—	2	3	26	88	6	4	3	4	4	4	4	5	5	3	15	21	6	6	5
SEMICON2	52	50	12	7	11	10	177	—F—	28	25	14	15	17	15	14	17	11	10	—F—	—F—	14	13	—F—
SEMICON2	102	100	21	14	19	21	424	—F—	75	53	25	29	29	28	26	28	19	26	—F—	—F—	24	23	23
SEMICON2	502	500	70	66	82	84	—T—	—F—	—T—	480	93	101	102	100	88	80	70	74	—F—	—F—	119	117	—F—
SEMICON2	1002	1000	150	111	181	189	—T—	—F—	—T—	884	204	220	223	218	191	151	156	166	—F—	—F—	251	247	298
SIMPLLPA	2	2	0	0	0	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0
SIMPLLPB	2	3	0	0	0	0	1	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
SINQUAD	5	0	1	1	1	1	2	3	1	2	1	3	1	1	1	1	1	1	1	1	1	1	1
SINQUAD	50	0	6	5	2	2	4	3	6	6	7	9	2	2	2	7	5	5	9	9	7	7	7
SINQUAD	100	0	14	12	3	3	7	5	12	13	20	22	4	4	4	16	14	27	18	16	17	17	17
SINQUAD	500	0	88	86	26	26	28	33	79	84	120	137	28	28	72	103	102	(284)	102	92	107	105	118
SINQUAD	1000	0	230	226	90	90	77	89	184	195	307	488	92	91	270	214	215	2638	270	273	273	269	270
SINQUAD	5000	0	(1495)	(1508)	1949	1984	(555)	—I—	1728	1793	2807	10645	2147	2142	8270	1966	2011	—T—	2191	1841	2142	2157	1994
SINQUAD	10000	0	4710	4727	13022	11756	1709	—I—	4216	5093	5238	—T—	13126	12405	—T—	5439	6045	—T—	5876	5045	5882	5829	6212
SISSER	2	0	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
SNAIL	2	0	5	3	3	3	5	5	5	5	5	7	6	5	5	6	2	3	9	—I—	6	13	17
SPANHYD	97	33	16	93	—I—	29	7	—I—	18	11	11	—I—	21	150	18	10	15	14	42	—I—	—I—	41	—I—
SPMSQRT	28	0	2	2	1	2	2	2	2	2	2	3	2	2	2	2	1	2	2	—I—	1	1	2
SPMSQRT	100	0	4	6	4	5	4	5	4	4	4	6	5	5	4	5	3	6	5	—I—	4	4	13
SPMSQRT	499	0	18	39	20	48	24	33	25	35	21	29	25	24	22	—I—	18	70	25	—S—	24	19	70
SPMSQRT	1000	0	40	90	51	190	56	70	47	66	46	58	48	55	44	—I—	33	266	48	—I—	41	39	323
SPMSQRT	4999	0	200	—T—	370	12838	465	—T—	332	439	227	354	278	307	221	—T—	216	7330	528	—I—	184	233	762
SPMSQRT	10000	0	457	—T—	1063	—T—	870	—T—	684	972	516	782	525	844	442	—T—	519	—T—	929	—T—	484	694	3150
SROSENBR	10	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	2	2	1	1	1
SROSENBR	50	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
SROSENBR	100	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	2	2	3
SROSENBR	500	0	5	4	2	3	4	4	2	4	7	6	5	5	5	5	3	48	8	8	6	6	8
SROSENBR	1000	0	9	8	4	5	6	6	4	7	13	11	10	9	9	9	5	255	14	14	11	11	13
SROSENBR	5000	0	41	40	22	24	28	29	33	31	61	50	45	44	41	43	26	17925	68	67	54	54	61
SROSENBR	10000	0	82	82	43	48	55	57	66	74	121	99	89	88	82	86	74	—T—	172	186	108	107	124
SSEBLIN	194	72	44	44	—I—	—I—	29	—I—	44	57	57	—I—	42	—I—	35	43	50	56	44	44	44	44	45

Cputimes (in seconds) (15)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCF	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
SSEBNLN	194	96	44	45	—I—	—I—	32	—I—	44	62	61	78	41	72	39	56	52	78	45	50	49	46	48
STEENBRA	432	108	117	123	—I—	—I—	34	—I—	62	72	142	—I—	229	—I—	—I—	113	115	116	120	113	108	119	—I—
STEENBRB	468	108	—I—	—I—	—I—	1088	—I—	(1423)	217	130	406	—E—	154	—I—	255	136	—I—	442	—I—	—I—	—I—	983	—I—
STEENBRC	540	126	—I—	—I—	—I—	—I—	—I—	(669)	—I—	—I—	—I—	—E—	(414)	—I—	762	—I—	—I—	820	—I—	—I—	—I—	1592	—I—
STEENBRD	468	108	—I—	1185	—I—	—I—	—I—	(1437)	(125)	—I—	—I—	—E—	(215)	—E—	566	—I—	—I—	(532)	—I—	—I—	(1043)	(835)	—I—
STEENBRE	540	126	1367	—I—	—I—	—I—	—I—	(1750)	—I—	—I—	—I—	—I—	314	—E—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	1728	—I—
STEENBRF	468	108	—I—	—I—	—I—	1788	—I—	(923)	68	120	—I—	—E—	200	(576)	154	540	—I—	223	—I—	—I—	847	945	—I—
STEENBRG	540	126	—I—	—I—	—I—	—I—	—I—	(1621)	—I—	—I—	—I—	—E—	326	—E—	1014	—I—	—I—	895	—I—	—I—	—I—	(1778)	—I—
SVANBERG	10	10	8	6	—I—	6	6	6	5	7	6	11	11	8	6	8	13	8	8	15	9	8	8
SVANBERG	20	20	13	12	25	14	15	12	13	12	15	16	23	16	16	13	14	18	14	28	14	14	13
SVANBERG	30	30	25	23	86	27	33	23	18	24	20	22	53	33	32	20	39	36	28	63	28	27	23
SVANBERG	40	40	37	35	58	50	60	36	23	34	31	34	57	39	40	23	50	62	31	84	32	31	33
SVANBERG	50	50	41	40	—I—	75	85	51	28	49	45	57	79	63	50	44	54	84	50	148	47	46	43
SVANBERG	60	60	51	49	478	108	109	69	35	65	49	58	130	58	62	49	41	117	47	186	49	47	44
SVANBERG	70	70	61	59	207	142	158	86	52	102	65	80	138	102	61	44	86	150	76	254	70	72	74
SVANBERG	80	80	75	73	507	200	219	110	55	116	95	77	127	95	70	84	77	207	64	295	70	67	71
SVANBERG	90	90	83	82	271	237	307	134	65	220	97	91	163	128	88	84	130	236	79	338	87	82	79
SVANBERG	100	100	128	126	1059	295	400	182	97	240	131	110	187	128	98	116	123	264	106	391	109	109	111
SVANBERG	500	500	1116	1118	—I—	—T—	4814	2434	899	6435	1347	854	1872	1813	948	1315	1111	4861	1261	4514	1308	1249	1281
SVANBERG	1000	1000	3671	3658	—I—	—T—	—T—	8228	3223	—T—	4227	2450	6102	4698	2856	2400	2825	17164	4040	10934	3998	3545	4334
SVANBERG	5000	5000	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—
TAME	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TENBARS1	18	9	112	64	—I—	—I—	64	—I—	—S—	57	—S—	135	—I—	42	75	—S—	53	—S—	—I—	—I—	50	—S—	—I—
TENBARS2	18	8	46	58	—I—	—I—	34	—I—	66	40	60	47	—I—	48	80	—S—	32	50	76	—I—	46	39	—I—
TENBARS3	18	8	29	46	—I—	—I—	22	—I—	52	27	49	37	—I—	44	76	23	24	61	55	—I—	29	30	—I—
TENBARS4	18	9	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—S—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—	—I—
TOINTGOR	50	0	2	2	1	2	2	7	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
TOINTGSS	10	0	0	0	0	0	1	1	(1)	0	0	0	0	0	0	1	(1)	0	0	0	0	0	0
TOINTGSS	50	0	0	0	0	0	(1)	1	(1)	0	0	0	0	0	0	1	(1)	0	0	0	0	0	1
TOINTGSS	100	0	0	0	0	0	(1)	(2)	(2)	0	0	0	0	0	0	(1)	(2)	0	0	1	0	0	1
TOINTGSS	500	0	2	1	1	1	(3)	(5)	(3)	1	2	1	2	1	1	7	(6)	2	2	2	2	2	2
TOINTGSS	1000	0	3	2	3	3	(5)	(8)	(6)	2	3	3	3	3	3	14	(10)	3	3	2	3	3	4
TOINTGSS	5000	0	14	12	12	13	(28)	(43)	(24)	12	15	14	14	13	14	68	(60)	14	15	11	15	14	19
TOINTGSS	10000	0	27	24	25	26	56	(89)	(48)	25	31	26	28	26	28	86	111	28	29	23	29	29	37
TOINTPSP	50	0	3	2	2	4	4	4	4	3	3	5	4	4	3	4	4	4	3	3	3	3	3
TOINTQOR	50	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
TORSIONA	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
TORSIONA	100	0	1	1	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	8	1	1	2
TORSIONA	484	0	7	9	4	4	7	8	8	7	8	4	4	4	5	8	8	8	10	206	10	10	14
TORSIONA	1024	0	27	30	12	13	30	29	29	24	29	14	14	14	16	28	29	28	34	1451	34	33	36
TORSIONA	5476	0	620	491	202	214	737	662	666	548	706	226	237	227	250	619	558	483	497	—I—	499	484	677
TORSIONA	10000	0	1879	1266	541	576	2334	2073	2133	1686	2145	605	645	604	695	1882	1670	1513	1462	—I—	1464	1448	1823
TORSIONA	14884	0	4009	3745	1022	1092	5021	4400	4479	3600	4610	1136	1224	1136	1432	4055	3637	3007	2402	—T—	2408	2388	2618
TORSIONB	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
TORSIONB	100	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	1	1	2
TORSIONB	484	0	12	14	10	6	7	9	9	10	14	8	8	8	10	15	24	12	10	163	10	10	12
TORSIONB	1024	0	39	45	49	25	28	25	30	31	49	40	40	40	41	74	114	38	41	790	41	40	45
TORSIONB	5476	0	1054	1143	2294	997	754	575	770	827	1347	1374	1396	1376	1010	2829	3381	1025	695	—I—	695	692	735
TORSIONB	10000	0	3713	3640	8281	4121	2501	1660	2538	2916	4714	4628	4684	5340	2916	9571	11668	3701	2231	—I—	2255	2462	2368
TORSIONB	14884	0	8652	8900	—T—	—I—	6084	4258	6359	6816	11024	11407	11400	11508	—T—	—T—	—T—	8408	4843	—T—	4846	4840	5139
TORSIONC	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONC	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1
TORSIONC	484	0	3	4	2	2	3	3	3	3	2	2	2	2	2	3	3	3	7	40	7	7	7
TORSIONC	1024	0	8	11	4	5	8	9	9	8	8	5	5	5	6	9	8	9	15	165	15	15	18
TORSIONC	5476	0	156	157	63	64	186	181	176	146	165	70	73	70	77	158	135	149	319	—I—	288	291	325
TORSIONC	10000	0	473	489	169	167	584	551	542	445	510	183	188	183	210	482	400	401	467	—I—	417	416	490
TORSIONC	14884	0	987	1101	321	326	1248	1162	1150	929	1075	356	368	363	417	997	810	813	1596	—I—	1507	1507	1630
TORSIOND	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIOND	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	1	1	1

Cputimes (in seconds) (16)

Problem	n	m	default	scaling	mltf	semltf	noprc	diagonal	band(0)	band(1)	band(10)	expband	seprc	gmpsprc	munksg	appGCP	l2norm	accBQP	bfgs	dfp	psb	sr1	fdg
TORSIOND	484	0	4	5	3	2	3	4	4	3	3	2	2	3	4	16	35	4	4	39	4	4	5
TORSIOND	1024	0	12	13	11	6	11	12	12	11	12	8	8	8	11	85	203	12	15	259	15	15	18
TORSIOND	5476	0	214	232	225	81	233	187	217	196	242	122	125	128	175	4695	6085	191	336	—I—	335	335	362
TORSIOND	10000	0	671	643	1054	225	738	527	687	623	751	422	427	422	495	16349	—T—	599	573	—I—	573	572	646
TORSIOND	14884	0	1658	1481	2537	609	1602	1070	1477	1492	1846	1165	1175	1196	1227	—T—	—T—	1470	1227	—I—	1229	1222	1359
TORSIONE	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONE	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONE	484	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	7	2	2	3
TORSIONE	1024	0	4	6	3	3	4	5	4	4	3	3	3	3	4	5	5	5	6	89	6	6	8
TORSIONE	5476	0	56	61	29	31	63	67	62	55	55	33	33	33	32	59	59	55	79	1334	78	78	86
TORSIONE	10000	0	150	138	71	70	175	182	171	146	149	78	79	93	76	158	151	160	171	6939	172	170	215
TORSIONE	14884	0	276	260	115	116	340	342	325	268	282	131	132	145	140	287	277	287	1030	—I—	1067	1025	1173
TORSIONF	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONF	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TORSIONF	484	0	2	2	2	2	2	2	2	2	2	2	2	2	2	5	6	2	2	7	2	2	3
TORSIONF	1024	0	5	7	4	4	5	6	6	5	4	4	4	4	5	49	108	7	6	81	7	6	9
TORSIONF	5476	0	65	69	57	33	76	69	73	63	67	39	39	39	54	2942	5854	63	87	2642	88	85	105
TORSIONF	10000	0	197	200	121	77	220	175	200	190	208	109	109	111	133	11697	6126	180	188	7399	190	188	227
TORSIONF	14884	0	372	410	394	125	428	328	395	367	389	240	238	236	292	—T—	—T—	336	389	—I—	382	380	445
TQUARTIC	5	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
TQUARTIC	10	0	1	0	1	1	1	0	0	1	0	1	0	0	0	1	1	0	1	1	1	1	1
TQUARTIC	50	0	1	1	1	1	1	1	0	1	3	3	0	0	0	3	1	1	2	1	2	1	2
TQUARTIC	100	0	3	2	2	4	2	2	0	2	4	4	0	0	0	2	2	1	2	2	2	2	3
TQUARTIC	500	0	10	9	14	216	5	14	1	6	11	2	2	2	2	10	10	6	10	10	10	10	11
TQUARTIC	1000	0	16	16	40	1035	11	37	3	18	26	4	7	6	6	17	16	12	17	17	17	17	20
TQUARTIC	5000	0	148	147	670	—T—	79	418	50	98	182	62	121	121	110	151	207	141	150	142	150	148	174
TQUARTIC	10000	0	358	358	2327	—T—	243	1218	186	302	525	220	478	478	425	363	930	369	368	398	368	365	422
TRIDIA	10	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRIDIA	20	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRIDIA	30	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRIDIA	50	0	0	0	0	0	1	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
TRIDIA	100	0	0	0	0	0	1	6	1	0	1	1	1	1	1	0	1	0	0	0	0	0	0
TRIDIA	500	0	1	1	1	1	4	29	3	1	2	2	1	1	1	1	2	1	1	1	1	1	1
TRIDIA	1000	0	3	1	2	2	9	88	5	2	3	3	3	3	3	3	4	3	3	3	3	3	3
TRIDIA	5000	0	11	7	11	11	44	797	25	10	13	13	13	12	23	13	21	15	11	11	11	11	13
TRIDIA	10000	0	22	13	22	22	88	2143	49	20	26	26	25	24	24	25	43	30	21	21	22	22	24
TRIGGER	7	6	2	—F—	2	2	—S—	—I—	—I—	—I—	2	3	2	3	4	2	—S—	1	2	1	2	2	2
VARDIM	10	0	1	1	1	1	1	27	1	1	1	2	2	2	2	1	1	1	2	1	1	1	1
VARDIM	50	0	3	4	2	2	2	—I—	3	3	3	8	11	11	11	3	2	2	3	3	3	3	2
VARDIM	100	0	6	10	3	3	3	—I—	5	5	6	35	64	61	63	6	5	5	6	6	6	6	5
VAREIGVL	10	0	2	2	3	2	1	3	1	2	2	2	4	2	1	2	1	1	2	1	2	2	2
VAREIGVL	50	0	3	3	6	6	2	5	3	3	3	6	6	6	6	3	2	2	2	1	3	3	3
VAREIGVL	100	0	4	4	23	25	3	6	4	4	4	20	25	24	26	4	5	4	4	—I—	4	5	9
VAREIGVL	500	0	24	29	1823	1949	13	33	23	23	25	1507	2078	1993	2032	24	25	24	33	—I—	23	23	44
VAREIGVL	1000	0	71	83	15363	15887	30	112	66	66	71	11413	15904	15295	15416	72	71	77	91	—I—	72	74	99
VAREIGVL	5000	0	1324	1452	—M—	—M—	167	3243	1306	1313	1336	—M—	—M—	—M—	—M—	1351	1429	1330	1242	—T—	1277	1254	2254
WATSON	12	0	3	5	—I—	3	3	3	3	3	3	4	9	3	3	3	3	4	65	65	8	7	10
WATSON	31	0	6	422	—I—	91	4	118	5	6	6	23	12	59	11	6	6	8	10	10	9	10	14
WOODS	4	0	2	2	2	1	2	26	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2
WOODS	100	0	4	5	5	4	4	40	3	4	4	4	4	5	4	4	3	4	2	2	4	4	3
WOODS	1000	0	23	30	30	441	18	181	18	17	32	28	28	28	24	25	18	201	12	12	23	23	24
WOODS	10000	0	216	254	241	—T—	166	1676	179	166	308	260	264	262	231	199	205	—T—	130	131	223	221	232
ZANGWIL2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ZANGWIL3	3	0	1	0	1	0	1	22	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0
ZIGZAG	64	50	13	12	—I—	34	7	11	10	10	14	9	10	8	10	15	15	17	14	18	14	18	16
ZIGZAG	304	250	864	1496	—I—	—I—	3225	794	632	719	732	277	185	—I—	174	871	929	933	1572	1718	945	891	917
ZIGZAG	604	500	3318	—I—	—I—	—I—	—T—	8047	3635	5438	1726	657	663	—I—	656	3465	3566	3603	—S—	—S—	3336	3204	3327
ZIGZAG	3004	2500	—T—	—T—	—T—	—T—	—T—	—I—	—T—	—T—	11883	—T—	9936	—T—	10194	—T—	—T—	—T—	—T—	—T—	—T—	—T—	—T—

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