A numerical comparison between the LANCELOT and MINOS packages for large-scale nonlinear optimization: the complete results

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A numerical comparison between the LANCELOT and MINOS packages for large-scale nonlinear optimization: the complete results

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Abstract

This report complements another paper by the same authors, "A numerical comparison between the LANCELOT and MINOS packages for large-scale nonlinear optimization". It presents the complete numerical results on which the discussion of the MINOS/LANCELOT comparison is based. It is intended mostly for reference. One set of tables lists the dimensions of 913 test problems from the CUTE collection, and a second set reports the performance of both packages problem by problem.

1 Introduction

In Bongartz, Conn, Gould, Saunders and Toint (1997), the authors have presented a comparison between the default versions of the LANCELOT and MINOS packages on a set of 913 test problems extracted from the CUTE collection (Bongartz, Conn, Gould and Toint, 1995). That contribution describes the algorithms used by the packages and discusses statistical summaries of the results.

Since we believe that complete data should be accessible to interested readers, the present companion report provides full details of the performance of each package on each problem.

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2 The test problems

We begin by describing some details of the problems used in our tests. For each problem, we tabulate the following dimensions:

n	the total number of variables,
m	the total number of constraints excluding the bounds,
n_{fr}	the number of free variables,
n_{fx}	the number of fixed variables,
n_{b}	the number of bounded variables,
n_{lo}	the number of linear objective function groups,
n_{no}	the number of nonlinear objective function groups,
n_{le}	the number of linear equality constraints,
n_{ne}	the number of nonlinear equality constraints,
n_{li}	the number of linear inequality constraints,
n_{ni}	the number of nonlinear inequality constraints.

These quantities allow the problems to be classified into types LP, QP, BC, LC and NC, as defined in the next section. For example, a problem is of type NC (nonlinear constraints) if $n_{\mathrm{ne}} > 0$ or $n_{\mathrm{ni}} > 0$.

Note that the following identities hold for each problem:

$$\begin{aligned} n &= n_{\mathrm{fr}} + n_{\mathrm{fx}} + n_{\mathrm{b}}, \\ m &= n_{\mathrm{le}} + n_{\mathrm{ne}} + n_{\mathrm{li}} + n_{\mathrm{ni}}. \end{aligned}$$

We refer the reader to Conn, Gould and Toint (1992) for a precise description of the objective function groups. Briefly, the nonlinearity of the objective function is more severe if n_{no} is large compared to n_{lo}.

Similar quantities are known for the constraint function groups, but for simplicity they are not listed in the following tables.

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
25FV47	1571	821	0	0	1571	1	0	516	0	305	0
80BAU3B	9799	2262	0	498	9301	1	0	0	0	2262	0
ADLITTLE	97	56	0	0	97	1	0	15	0	41	0
AFIRO	32	27	0	0	32	1	0	8	0	19	0
AGG2	302	516	0	0	302	1	0	60	0	456	0
AGG3	302	516	0	0	302	1	0	60	0	456	0
AGG	163	488	0	0	163	1	0	36	0	452	0
AIRCRFTA	8	5	5	3	0	0	0	0	5	0	0
AIRCRFTB	8	0	5	3	0	0	5	0	0	0	0
AIRPORT	84	42	0	0	84	0	1722	0	0	0	42
AKIVA	2	0	2	0	0	0	1	0	0	0	0
ALJAZZAF	3	1	0	0	3	0	1	0	1	0	0
ALLINITC	4	1	1	1	2	0	12	0	0	0	1
ALLINITU	4	0	4	0	0	0	12	0	0	0	0
ALLINIT	4	0	1	1	2	0	12	0	0	0	0
ALSOTAME	2	1	0	0	2	0	1	0	1	0	0
ARGAUSS	3	15	3	0	0	0	0	0	15	0	0
ARGLINA	10	0	10	0	0	0	20	0	0	0	0
ARGLINA	100	0	100	0	0	0	200	0	0	0	0
ARGLINB	10	0	10	0	0	0	20	0	0	0	0
ARGLINB	100	0	100	0	0	0	200	0	0	0	0
ARGLINC	10	0	10	0	0	0	20	0	0	0	0
ARGLINC	100	0	100	0	0	0	200	0	0	0	0
ARGTRIG	10	10	10	0	0	0	0	0	10	0	0
ARGTRIG	100	100	100	0	0	0	0	0	100	0	0
ARTIF	12	10	10	2	0	0	0	0	10	0	0
ARTIF	502	500	500	2	0	0	0	0	500	0	0
ARWHEAD	100	0	100	0	0	99	99	0	0	0	0
ARWHEAD	5000	0	5000	0	0	4999	4999	0	0	0	0
AUG2DCQP	850	400	0	0	850	0	850	400	0	0	0
AUG2DC	850	400	850	0	0	0	850	400	0	0	0
AUG2DQP	850	400	0	0	850	0	750	400	0	0	0
AUG2D	850	400	850	0	0	0	750	400	0	0	0
AUG3DCQP	464	90	0	0	464	0	464	90	0	0	0
AUG3DC	464	90	464	0	0	0	464	90	0	0	0
AUG3DQP	464	90	0	0	464	0	188	90	0	0	0
AUG3D	464	90	464	0	0	0	188	90	0	0	0
AVION2	49	15	0	0	49	0	17	15	0	0	0
BANDM	472	305	0	0	472	1	0	305	0	0	0
BARD	3	0	3	0	0	0	15	0	0	0	0

Table 1: Problems characteristics (1)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
BDEXP	100	0	0	0	100	0	98	0	0	0	0
BDEXP	1000	0	0	0	1000	0	998	0	0	0	0
BDQRTIC	100	0	100	0	0	0	192	0	0	0	0
BDQRTIC	500	0	500	0	0	0	992	0	0	0	0
BDVALUE	12	10	10	2	0	0	0	0	10	0	0
BDVALUE	5002	5000	5000	2	0	0	0	0	5000	0	0
BEACONFD	262	173	0	0	262	1	0	140	0	33	0
BEALE	2	0	2	0	0	0	3	0	0	0	0
BIGBANK	2230	1112	0	308	1922	0	1	1112	0	0	0
BIGGS3	6	0	3	3	0	0	13	0	0	0	0
BIGGS5	6	0	5	1	0	0	13	0	0	0	0
BIGGS6	6	0	6	0	0	0	13	0	0	0	0
BIGGSB1	1000	0	1	0	999	0	1001	0	0	0	0
BIGGSB1	25	0	1	0	24	0	26	0	0	0	0
BIGGSC4	4	7	0	0	4	0	1	0	0	7	0
BLEND	83	74	0	0	83	1	0	43	0	31	0
BLOCKQP1	2005	1001	0	0	2005	0	1	1000	0	1	0
BLOCKQP1	205	101	0	0	205	0	1	100	0	1	0
BLOCKQP2	2005	1001	0	0	2005	0	1	1000	0	1	0
BLOCKQP2	205	101	0	0	205	0	1	100	0	1	0
BLOCKQP3	2005	1001	0	0	2005	0	1	1000	0	1	0
BLOCKQP3	205	101	0	0	205	0	1	100	0	1	0
BLOCKQP4	2005	1001	0	0	2005	0	1	1000	0	1	0
BLOCKQP4	205	101	0	0	205	0	1	100	0	1	0
BLOCKQP5	2005	1001	0	0	2005	0	1	1000	0	1	0
BLOCKQP5	205	101	0	0	205	0	1	100	0	1	0
BNL1	1175	643	0	0	1175	1	0	232	0	411	0
BNL2	3489	2324	0	0	3489	1	0	1327	0	997	0
BOEING1	384	351	0	0	384	1	0	9	0	342	0
BOEING2	143	166	0	0	143	1	0	4	0	162	0
BOOTH	2	2	2	0	0	0	0	2	0	0	0
BORE3D	315	233	0	1	314	1	0	214	0	19	0
BOX2	3	0	2	1	0	0	10	0	0	0	0
BOX3	3	0	3	0	0	0	10	0	0	0	0
BQP1VAR	1	0	0	0	1	1	1	0	0	0	0
BQPGABIM	50	0	0	4	46	0	1	0	0	0	0
BQPGASIM	50	0	0	0	50	0	1	0	0	0	0
BRANDY	249	220	0	0	249	1	0	166	0	54	0
BRATU1D	1003	0	1001	2	0	0	3004	0	0	0	0
BRATU1D	13	0	11	2	0	0	34	0	0	0	0

Table 2: Problems characteristics (2)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
BRATU2D	1024	900	900	124	0	0	0	0	900	0	0
BRATU2D	49	25	25	24	0	0	0	0	25	0	0
BRATU3D	1000	512	512	488	0	0	0	0	512	0	0
BRATU3D	27	1	1	26	0	0	0	0	1	0	0
BRIDGEND	2734	2727	1423	0	1311	1	0	1304	1423	0	0
BRITGAS	450	360	0	0	450	0	1	0	360	0	0
BRKMCC	2	0	2	0	0	0	4	0	0	0	0
BROWNAL	10	0	10	0	0	0	10	0	0	0	0
BROWNAL	50	0	50	0	0	0	50	0	0	0	0
BROWNBS	2	0	2	0	0	0	3	0	0	0	0
BROWNDEN	4	0	4	0	0	0	20	0	0	0	0
BROYDN3D	10	10	10	0	0	0	0	0	10	0	0
BROYDN3D	500	500	500	0	0	0	0	0	500	0	0
BROYDN7D	10	0	10	0	0	0	15	0	0	0	0
BROYDN7D	500	0	500	0	0	0	750	0	0	0	0
BROYDNBD	10	10	10	0	0	0	0	0	10	0	0
BROYDNBD	500	500	500	0	0	0	0	0	500	0	0
BRYBND	10	0	10	0	0	0	10	0	0	0	0
BRYBND	1000	0	1000	0	0	0	1000	0	0	0	0
BT10	2	2	2	0	0	1	0	0	2	0	0
BT11	5	3	5	0	0	0	1	1	2	0	0
BT12	5	3	5	0	0	0	1	0	3	0	0
BT13	5	1	4	0	1	1	0	0	1	0	0
BT1	2	1	2	0	0	0	1	0	1	0	0
BT2	3	1	3	0	0	0	1	0	1	0	0
BT3	5	3	5	0	0	0	1	3	0	0	0
BT4	3	2	3	0	0	0	1	1	1	0	0
BT5	3	2	3	0	0	0	1	1	1	0	0
BT6	5	2	5	0	0	0	1	0	2	0	0
BT7	5	3	5	0	0	0	2	0	3	0	0
BT8	5	2	5	0	0	0	1	0	2	0	0
BT9	4	2	4	0	0	1	0	0	2	0	0
CANTILVR	5	1	0	0	5	1	0	0	0	0	1
CAPRI	353	271	14	16	323	1	0	142	0	129	0
CATENARY	15	4	11	4	0	1	0	0	4	0	0
CATENARY	501	166	497	4	0	1	0	0	166	0	0
CB2	3	3	3	0	0	1	0	0	0	0	3
CB3	3	3	3	0	0	1	0	0	0	0	3
CBRATU2D	1058	882	882	176	0	0	0	0	882	0	0
CBRATU2D	32	8	8	24	0	0	0	0	8	0	0

Table 3: Problems characteristics (3)

Problem	n	m	$n_{\rm fr}$	$n_{\rm fx}$	$n_{\rm b}$	$n_{\rm lo}$	$n_{\rm no}$	$n_{\rm le}$	$n_{\rm ne}$	$n_{\rm li}$	$n_{\rm ni}$
CBRATU3D	2000	1024	1024	976	0	0	0	0	1024	0	0
CBRATU3D	54	2	2	52	0	0	0	0	2	0	0
CHANDHEQ	10	10	0	0	10	0	0	0	10	0	0
CHANDHEQ	100	100	0	0	100	0	0	0	100	0	0
CHEBYQAD	2	0	0	0	2	0	2	0	0	0	0
CHEBYQAD	50	0	0	0	50	0	50	0	0	0	0
CHEMRCTA	10	10	0	0	10	0	0	4	6	0	0
CHEMRCTA	1000	1000	0	0	1000	0	0	4	996	0	0
CHEMRCTB	10	10	0	0	10	0	0	2	8	0	0
CHEMRCTB	1000	1000	0	0	1000	0	0	2	998	0	0
CHENHARK	100	0	0	0	100	1	102	0	0	0	0
CHNROSNB	10	0	10	0	0	0	18	0	0	0	0
CHNROSNB	50	0	50	0	0	0	98	0	0	0	0
CLIFF	2	0	2	0	0	1	2	0	0	0	0
CLPLATEA	100	0	90	10	0	1	324	0	0	0	0
CLPLATEA	1024	0	992	32	0	1	3844	0	0	0	0
CLPLATEB	100	0	90	10	0	1	324	0	0	0	0
CLPLATEB	1024	0	992	32	0	1	3844	0	0	0	0
CLPLATEC	100	0	90	10	0	1	324	0	0	0	0
CLPLATEC	1024	0	992	32	0	1	3844	0	0	0	0
CLUSTER	2	2	2	0	0	0	0	0	2	0	0
COOLHANS	9	9	9	0	0	0	0	0	9	0	0
CORKSCRW	4506	3500	2497	9	2000	0	500	3000	0	0	500
CORKSCRW	96	70	47	9	40	0	10	60	0	0	10
CRAGGLVY	4	0	4	0	0	0	5	0	0	0	0
CRAGGLVY	500	0	500	0	0	0	1245	0	0	0	0
CRESC132	6	2654	2	0	4	0	1	0	0	0	2654
CRESC4	6	8	2	0	4	0	1	0	0	0	8
CUBE	2	0	2	0	0	0	2	0	0	0	0
CVXBQP1	1000	0	0	0	1000	0	1000	0	0	0	0
CVXBQP1	50	0	0	0	50	0	50	0	0	0	0
CVXQP1	1000	500	0	0	1000	0	1000	500	0	0	0
CVXQP1	50	25	0	0	50	0	50	25	0	0	0
CVXQP2	1000	250	0	0	1000	0	1000	250	0	0	0
CVXQP2	50	12	0	0	50	0	50	12	0	0	0
CVXQP3	1000	750	0	0	1000	0	1000	750	0	0	0
CVXQP3	50	36	0	0	50	0	50	36	0	0	0
CYCLE	2857	1903	7	0	2850	1	0	1389	0	514	0
CZPROB	3523	929	0	229	3294	1	0	890	0	39	0
D2Q06C	5167	2171	0	0	5167	1	0	1507	0	664	0

Table 4: Problems characteristics (4)

Problem	n	m	$n_{\rm fr}$	$n_{\rm fx}$	$n_{\rm b}$	$n_{\rm lo}$	$n_{\rm no}$	$n_{\rm le}$	$n_{\rm ne}$	$n_{\rm li}$	$n_{\rm ni}$
D6CUBE	6184	415	0	0	6184	1	0	415	0	0	0
DALLASL	906	667	0	0	906	0	1	667	0	0	0
DALLASM	196	151	0	0	196	0	1	151	0	0	0
DALLASS	46	31	0	0	46	0	1	31	0	0	0
DEGEN2	534	444	0	0	534	1	0	221	0	223	0
DEGEN3	1818	1503	0	0	1818	1	0	717	0	786	0
DEGENLPA	20	15	0	0	20	1	0	15	0	0	0
DEGENLPB	20	15	0	0	20	1	0	15	0	0	0
DEMBO7	16	20	0	0	16	0	1	0	0	0	20
DENSCHNA	2	0	2	0	0	0	3	0	0	0	0
DENSCHNB	2	0	2	0	0	0	3	0	0	0	0
DENSCHNC	2	0	2	0	0	0	2	0	0	0	0
DENSCHND	3	0	3	0	0	0	3	0	0	0	0
DENSCHNE	3	0	3	0	0	0	3	0	0	0	0
DENSCHNF	2	0	2	0	0	0	2	0	0	0	0
DIPIGRI	7	4	7	0	0	0	1	0	0	0	4
DISC2	29	23	22	0	7	1	0	0	17	0	6
DISCS	36	66	21	3	12	1	0	0	18	0	48
DITTERT	1133	1034	0	0	1133	1	2	21	1013	0	0
DITTERT	19	11	0	0	19	1	2	7	4	0	0
DIXCHLNG	10	5	10	0	0	0	49	0	5	0	0
DIXCHLNV	10	5	0	0	10	0	49	0	5	0	0
DIXMAANA	15	0	15	0	0	0	4	0	0	0	0
DIXMAANA	300	0	300	0	0	0	4	0	0	0	0
DIXMAANB	15	0	15	0	0	0	4	0	0	0	0
DIXMAANB	300	0	300	0	0	0	4	0	0	0	0
DIXMAANC	15	0	15	0	0	0	4	0	0	0	0
DIXMAANC	300	0	300	0	0	0	4	0	0	0	0
DIXMAAND	15	0	15	0	0	0	4	0	0	0	0
DIXMAAND	300	0	300	0	0	0	4	0	0	0	0
DIXMAANE	15	0	15	0	0	0	4	0	0	0	0
DIXMAANE	300	0	300	0	0	0	4	0	0	0	0
DIXMAANF	15	0	15	0	0	0	4	0	0	0	0
DIXMAANF	300	0	300	0	0	0	4	0	0	0	0
DIXMAANG	15	0	15	0	0	0	4	0	0	0	0
DIXMAANG	300	0	300	0	0	0	4	0	0	0	0
DIXMAANH	15	0	15	0	0	0	4	0	0	0	0
DIXMAANH	300	0	300	0	0	0	4	0	0	0	0
DIXMAANI	15	0	15	0	0	0	4	0	0	0	0
DIXMAANI	300	0	300	0	0	0	4	0	0	0	0

Table 5: Problems characteristics (5)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
DIXMAANJ	15	0	15	0	0	0	4	0	0	0	0
DIXMAANJ	300	0	300	0	0	0	4	0	0	0	0
DIXMAANK	15	0	15	0	0	0	4	0	0	0	0
DIXMAANK	300	0	300	0	0	0	4	0	0	0	0
DIXMAANL	15	0	15	0	0	0	4	0	0	0	0
DIXMAANL	300	0	300	0	0	0	4	0	0	0	0
DIXON3DQ	10	0	10	0	0	0	10	0	0	0	0
DIXON3DQ	500	0	500	0	0	0	500	0	0	0	0
DNIEPER	61	24	1	4	56	0	1	0	24	0	0
DQDRTIC	10	0	10	0	0	0	24	0	0	0	0
DQDRTIC	500	0	500	0	0	0	1494	0	0	0	0
DQRTIC	10	0	10	0	0	0	10	0	0	0	0
DQRTIC	1000	0	1000	0	0	0	1000	0	0	0	0
DRCAVTY1	1225	961	961	264	0	0	0	0	961	0	0
DRCAVTY1	196	100	100	96	0	0	0	0	100	0	0
DRCAVTY2	1225	961	961	264	0	0	0	0	961	0	0
DRCAVTY2	196	100	100	96	0	0	0	0	100	0	0
DRCAVTY3	1225	961	961	264	0	0	0	0	961	0	0
DRCAVTY3	196	100	100	96	0	0	0	0	100	0	0
DTOC2	118	76	114	4	0	0	20	0	76	0	0
DTOC2	2998	1996	2994	4	0	0	500	0	1996	0	0
DTOC3	149	98	147	2	0	0	49	98	0	0	0
DTOC3	1499	998	1497	2	0	0	499	998	0	0	0
DTOC4	149	98	147	2	0	0	1	49	49	0	0
DTOC4	2999	1998	2997	2	0	0	1	999	999	0	0
DTOC5	19	9	18	1	0	0	1	0	9	0	0
DTOC5	1999	999	1998	1	0	0	1	0	999	0	0
E226	282	223	0	0	282	1	0	33	0	190	0
EDENSCH	36	0	36	0	0	0	106	0	0	0	0
EG2	1000	0	1000	0	0	0	1000	0	0	0	0
EIGENALS	110	0	110	0	0	0	110	0	0	0	0
EIGENALS	930	0	930	0	0	0	930	0	0	0	0
EIGENBLS	110	0	110	0	0	0	110	0	0	0	0
EIGENBLS	930	0	930	0	0	0	930	0	0	0	0
EIGENCLS	462	0	462	0	0	0	462	0	0	0	0
EIGENCLS	992	0	992	0	0	0	992	0	0	0	0
ENGVAL1	100	0	100	0	0	99	99	0	0	0	0
ENGVAL1	2	0	2	0	0	1	1	0	0	0	0
ERRINBAR	18	9	4	0	14	1	0	0	8	1	0
ERRINROS	10	0	10	0	0	0	18	0	0	0	0

Table 6: Problems characteristics (6)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
ERRINROS	50	0	50	0	0	0	98	0	0	0	0
ETAMACRO	688	400	0	82	606	1	0	272	0	128	0
EXPFITA	5	22	5	0	0	0	1	0	0	22	0
EXPFITB	5	102	5	0	0	0	1	0	0	102	0
EXPFITC	5	502	5	0	0	0	1	0	0	502	0
EXPFIT	2	0	2	0	0	0	10	0	0	0	0
EXPLIN2	120	0	0	0	120	0	1	0	0	0	0
EXPLIN	120	0	0	0	120	0	1	0	0	0	0
EXPQUAD	120	0	110	0	10	0	1	0	0	0	0
EXTRASIM	2	1	1	0	1	1	0	1	0	0	0
EXTROSNB	1000	0	1000	0	0	0	1000	0	0	0	0
EXTROSNB	5	0	5	0	0	0	5	0	0	0	0
FCCU	19	8	0	0	19	0	19	8	0	0	0
FFFFF800	854	524	0	0	854	1	0	350	0	174	0
FINNIS	614	497	0	45	569	1	0	47	0	450	0
FIT1D	1026	24	0	0	1026	1	0	1	0	23	0
FIT1P	1677	627	0	0	1677	1	0	627	0	0	0
FIT2P	13525	3000	0	0	13525	1	0	3000	0	0	0
FLETCBV2	100	0	100	0	0	100	201	0	0	0	0
FLETCHBV	10	0	10	0	0	10	21	0	0	0	0
FLETCHBV	100	0	100	0	0	100	201	0	0	0	0
FLETCHCR	10	0	10	0	0	0	18	0	0	0	0
FLETCHCR	100	0	100	0	0	0	198	0	0	0	0
FMINSURF	121	0	121	0	0	0	101	0	0	0	0
FMINSURF	5625	0	5625	0	0	0	5477	0	0	0	0
FORPLAN	421	161	0	3	418	1	0	90	0	71	0
FREUROTH	2	0	2	0	0	0	2	0	0	0	0
FREUROTH	500	0	500	0	0	0	998	0	0	0	0
GANGES	1681	1309	0	0	1681	1	0	1284	0	25	0
GAUSSELM	14	11	3	1	10	1	0	0	5	6	0
GAUSSELM	650	1496	495	1	154	1	0	0	506	990	0
GENHS28	10	8	10	0	0	0	1	8	0	0	0
GENROSE	10	0	10	0	0	0	19	0	0	0	0
GENROSE	500	0	500	0	0	0	999	0	0	0	0
GFRD-PNC	1092	616	0	0	1092	1	0	548	0	68	0
GILBERT	10	1	9	0	1	0	10	0	1	0	0
GILBERT	1000	1	999	0	1	0	1000	0	1	0	0
GOFFIN	51	50	51	0	0	1	0	0	0	50	0
GOTTFR	2	2	2	0	0	0	0	0	2	0	0
GOULDQP2	699	349	0	0	699	0	348	349	0	0	0

Table 7: Problems characteristics (7)

Problem	n	m	$n_{\rm fr}$	$n_{\rm fx}$	$n_{\rm b}$	$n_{\rm lo}$	$n_{\rm no}$	$n_{\rm le}$	$n_{\rm ne}$	$n_{\rm li}$	$n_{\rm ni}$
GOULDQP2	99	49	0	0	99	0	48	49	0	0	0
GOULDQP3	699	349	0	0	699	0	697	349	0	0	0
GOULDQP3	99	49	0	0	99	0	97	49	0	0	0
GREENBEA	5405	2392	0	103	5302	1	0	2199	0	193	0
GREENBEB	5405	2392	4	115	5286	1	0	2199	0	193	0
GRIDNETA	180	100	95	48	37	0	1	100	0	0	0
GRIDNETA	7564	3844	4899	2420	245	0	1	3844	0	0	0
GRIDNETB	180	100	180	0	0	0	1	100	0	0	0
GRIDNETB	7564	3844	7564	0	0	0	1	3844	0	0	0
GRIDNETC	180	100	120	0	60	0	1	100	0	0	0
GRIDNETC	924	484	616	0	308	0	1	484	0	0	0
GRIDNETD	180	100	95	48	37	0	1	100	0	0	0
GRIDNETD	924	484	559	280	85	0	1	484	0	0	0
GRIDNETE	180	100	180	0	0	0	1	100	0	0	0
GRIDNETE	924	484	924	0	0	0	1	484	0	0	0
GRIDNETF	180	100	120	0	60	0	1	100	0	0	0
GRIDNETF	924	484	616	0	308	0	1	484	0	0	0
GRIDNETG	60	36	26	14	20	0	1	36	0	0	0
GRIDNETH	60	36	60	0	0	0	1	36	0	0	0
GRIDNETI	60	36	40	0	20	0	1	36	0	0	0
GROUPING	100	125	0	0	100	0	10	25	100	0	0
GROW15	645	300	0	0	645	1	0	300	0	0	0
GROW22	946	440	0	0	946	1	0	440	0	0	0
GROW7	301	140	0	0	301	1	0	140	0	0	0
GULF	3	0	3	0	0	0	99	0	0	0	0
HADAMALS	1024	0	0	32	992	0	1520	0	0	0	0
HAGER1	1001	500	1000	1	0	0	501	500	0	0	0
HAGER1	21	10	20	1	0	0	11	10	0	0	0
HAGER2	1001	500	1000	1	0	0	1000	500	0	0	0
HAGER2	21	10	20	1	0	0	20	10	0	0	0
HAGER3	1001	500	1000	1	0	0	1000	500	0	0	0
HAGER3	21	10	20	1	0	0	20	10	0	0	0
HAGER4	2001	1000	1000	1	1000	0	1	1000	0	0	0
HAGER4	21	10	10	1	10	0	1	10	0	0	0
HAIRY	2	0	2	0	0	0	1	0	0	0	0
HANGING	1800	1150	1788	12	0	1	0	0	0	0	1150
HANGING	300	180	288	12	0	1	0	0	0	0	180
HARKERP2	10	0	0	0	10	1	20	0	0	0	0
HARKERP2	100	0	0	0	100	1	200	0	0	0	0
HATFLDA	4	0	0	0	4	0	4	0	0	0	0

Table 8: Problems characteristics (8)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
HATFLDB	4	0	0	0	4	0	4	0	0	0	0
HATFLDC	25	0	1	0	24	0	25	0	0	0	0
HATFLDD	3	0	3	0	0	0	10	0	0	0	0
HATFLDE	3	0	3	0	0	0	21	0	0	0	0
HATFLDF	3	3	3	0	0	0	0	0	3	0	0
HATFLDG	25	25	25	0	0	0	0	0	25	0	0
HATFLDH	4	7	0	0	4	0	1	0	0	7	0
HEART6	6	6	6	0	0	0	0	0	6	0	0
HELIX	3	0	3	0	0	0	3	0	0	0	0
HIELOW	3	0	3	0	0	0	1	0	0	0	0
HILBERTA	10	0	10	0	0	0	55	0	0	0	0
HILBERTA	2	0	2	0	0	0	3	0	0	0	0
HILBERTB	5	0	5	0	0	0	15	0	0	0	0
HILBERTB	50	0	50	0	0	0	1275	0	0	0	0
HIMMELBA	2	2	2	0	0	0	0	2	0	0	0
HIMMELBB	2	0	2	0	0	0	1	0	0	0	0
HIMMELBC	2	2	2	0	0	0	0	0	2	0	0
HIMMELBE	3	3	3	0	0	0	0	2	1	0	0
HIMMELBF	4	0	4	0	0	0	7	0	0	0	0
HIMMELBG	2	0	2	0	0	0	1	0	0	0	0
HIMMELBH	2	0	2	0	0	0	1	0	0	0	0
HIMMELBI	100	12	0	0	100	0	20	0	0	12	0
HIMMELBJ	45	14	0	2	43	0	1	14	0	0	0
HIMMELBK	24	14	0	0	24	1	0	2	12	0	0
HIMMELP1	2	0	0	0	2	0	1	0	0	0	0
HIMMELP2	2	1	0	0	2	0	1	0	0	0	1
HIMMELP3	2	2	0	0	2	0	1	0	0	0	2
HIMMELP4	2	3	0	0	2	0	1	0	0	0	3
HIMMELP5	2	3	0	0	2	0	1	0	0	0	3
HIMMELP6	2	5	0	0	2	0	1	0	0	2	3
HONG	4	1	0	0	4	0	1	1	0	0	0
HS100MOD	7	4	7	0	0	0	4	0	0	0	4
HS100	7	4	7	0	0	0	4	0	0	0	4
HS101	7	5	0	0	7	0	1	0	0	0	5
HS102	7	5	0	0	7	0	1	0	0	0	5
HS103	7	5	0	0	7	0	1	0	0	0	5
HS104	8	5	0	0	8	0	1	0	0	0	5
HS105	8	1	0	0	8	0	235	0	0	1	0
HS106	8	6	0	0	8	1	0	0	0	3	3
HS107	9	6	4	0	5	0	1	0	6	0	0

Table 9: Problems characteristics (9)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
HS108	9	13	8	0	1	0	1	0	0	0	13
HS109	9	10	0	0	9	0	1	0	6	2	2
HS10	2	1	2	0	0	1	0	0	0	0	1
HS110	10	0	0	0	10	0	21	0	0	0	0
HS111	10	3	0	0	10	0	1	0	3	0	0
HS112	10	3	0	0	10	0	1	3	0	0	0
HS113	10	8	10	0	0	0	1	0	0	3	5
HS114	10	11	0	0	10	0	1	1	2	4	4
HS116	13	14	0	0	13	1	0	0	0	4	10
HS117	15	5	0	0	15	0	1	0	0	0	5
HS118	15	17	0	0	15	0	1	0	0	17	0
HS119	16	8	0	0	16	0	16	8	0	0	0
HS11	2	1	2	0	0	0	1	0	0	0	1
HS12	2	1	2	0	0	0	1	0	0	0	1
HS13	2	1	0	0	2	0	1	0	0	0	1
HS14	2	2	2	0	0	0	1	1	0	0	1
HS15	2	2	1	0	1	0	1	0	0	0	2
HS16	2	2	0	0	2	0	1	0	0	0	2
HS17	2	2	0	0	2	0	1	0	0	0	2
HS18	2	2	0	0	2	0	1	0	0	0	2
HS19	2	2	0	0	2	0	1	0	0	0	2
HS1	2	0	1	0	1	0	2	0	0	0	0
HS20	2	3	1	0	1	0	1	0	0	0	3
HS21	2	1	0	0	2	0	1	0	0	1	0
HS22	2	2	2	0	0	0	1	0	0	1	1
HS23	2	5	0	0	2	0	1	0	0	0	5
HS24	2	3	0	0	2	0	1	0	0	3	0
HS25	3	0	0	0	3	0	99	0	0	0	0
HS268	5	5	5	0	0	1	1	0	0	5	0
HS26	3	1	3	0	0	0	1	0	1	0	0
HS27	3	1	3	0	0	0	1	0	1	0	0
HS28	3	1	3	0	0	0	1	1	0	0	0
HS29	3	1	3	0	0	0	1	0	0	0	1
HS2	2	0	1	0	1	0	2	0	0	0	0
HS30	3	1	0	0	3	0	1	0	0	0	1
HS31	3	1	0	0	3	0	1	0	0	0	1
HS32	3	2	0	0	3	0	1	1	0	0	1
HS33	3	2	0	0	3	0	1	0	0	0	2
HS34	3	2	0	0	3	1	0	0	0	0	2
HS35MOD	3	1	0	1	2	0	1	0	0	1	0

Table 10: Problems characteristics (10)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
HS35	3	1	0	0	3	0	1	0	0	1	0
HS36	3	1	0	0	3	0	1	0	0	1	0
HS37	3	2	0	0	3	0	1	0	0	2	0
HS38	4	0	0	0	4	0	7	0	0	0	0
HS39	4	2	4	0	0	1	0	0	2	0	0
HS3MOD	2	0	1	0	1	1	1	0	0	0	0
HS3	2	0	1	0	1	1	1	0	0	0	0
HS40	4	3	4	0	0	0	1	0	3	0	0
HS41	4	1	0	0	4	0	1	1	0	0	0
HS42	4	2	4	0	0	0	1	1	1	0	0
HS43	4	3	4	0	0	0	1	0	0	0	3
HS44NEW	4	6	0	0	4	0	1	0	0	6	0
HS44	4	6	0	0	4	0	1	0	0	6	0
HS45	5	0	0	0	5	0	1	0	0	0	0
HS46	5	2	5	0	0	0	1	0	2	0	0
HS47	5	3	5	0	0	0	1	0	3	0	0
HS48	5	2	5	0	0	0	1	2	0	0	0
HS49	5	2	5	0	0	0	1	2	0	0	0
HS4	2	0	0	0	2	1	1	0	0	0	0
HS50	5	3	5	0	0	0	1	3	0	0	0
HS51	5	3	5	0	0	0	1	3	0	0	0
HS52	5	3	5	0	0	0	1	3	0	0	0
HS53	5	3	0	0	5	0	1	3	0	0	0
HS54	6	1	0	0	6	0	1	1	0	0	0
HS55	6	6	0	0	6	0	1	6	0	0	0
HS56	7	4	7	0	0	0	1	0	4	0	0
HS57	2	1	0	0	2	0	1	0	0	0	1
HS59	2	3	0	0	2	0	1	0	0	0	3
HS5	2	0	0	0	2	1	2	0	0	0	0
HS60	3	1	0	0	3	0	1	0	1	0	0
HS61	3	2	3	0	0	0	1	0	2	0	0
HS62	3	1	0	0	3	0	1	1	0	0	0
HS63	3	2	0	0	3	0	1	1	1	0	0
HS64	3	1	0	0	3	0	1	0	0	0	1
HS65	3	1	0	0	3	0	3	0	0	0	1
HS66	3	2	0	0	3	1	0	0	0	0	2
HS67	3	14	0	0	3	0	1	0	0	0	14
HS68	4	2	0	0	4	0	1	0	2	0	0
HS69	4	2	0	0	4	0	1	0	2	0	0
HS6	2	1	2	0	0	0	1	0	1	0	0

Table 11: Problems characteristics (11)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
HS70	4	1	0	0	4	0	19	0	0	0	1
HS71	4	2	0	0	4	0	1	0	1	0	1
HS72	4	2	0	0	4	1	0	0	0	0	2
HS73	4	3	0	0	4	1	0	1	0	1	1
HS74	4	5	0	0	4	0	1	0	3	2	0
HS75	4	5	0	0	4	0	1	0	3	2	0
HS76	4	3	0	0	4	0	1	0	0	3	0
HS77	5	2	5	0	0	0	5	0	2	0	0
HS78	5	3	5	0	0	0	1	0	3	0	0
HS79	5	3	5	0	0	0	1	0	3	0	0
HS7	2	1	2	0	0	0	1	0	1	0	0
HS80	5	3	0	0	5	0	1	0	3	0	0
HS81	5	3	0	0	5	0	1	0	3	0	0
HS83	5	3	0	0	5	0	1	0	0	0	3
HS84	5	3	0	0	5	0	1	0	0	0	3
HS85	5	21	0	0	5	0	1	0	0	1	20
HS86	5	10	0	0	5	0	1	0	0	10	0
HS87	6	4	0	0	6	0	1	0	4	0	0
HS88	2	1	2	0	0	0	1	0	0	0	1
HS89	3	1	3	0	0	0	1	0	0	0	1
HS8	2	2	2	0	0	1	0	0	2	0	0
HS90	4	1	4	0	0	0	1	0	0	0	1
HS91	5	1	5	0	0	0	1	0	0	0	1
HS92	6	1	6	0	0	0	1	0	0	0	1
HS93	6	2	0	0	6	0	1	0	0	0	2
HS95	6	4	0	0	6	1	0	0	0	0	4
HS96	6	4	0	0	6	1	0	0	0	0	4
HS97	6	4	0	0	6	1	0	0	0	0	4
HS98	6	4	0	0	6	1	0	0	0	0	4
HS99	7	2	0	0	7	0	1	0	2	0	0
HS9	2	1	2	0	0	0	1	1	0	0	0
HUBFIT	2	0	1	0	1	0	5	0	0	0	0
HUESTIS	1000	2	0	0	1000	0	1	2	0	0	0
HUESTIS	50	2	0	0	50	0	1	2	0	0	0
HYDCAR20	99	99	99	0	0	0	0	0	99	0	0
HYDCAR6	29	29	29	0	0	0	0	0	29	0	0
HYDROELL	1009	1008	0	2	1007	0	1	0	0	1008	0
HYDROELM	505	504	0	2	503	0	1	0	0	504	0
HYDROELS	169	168	0	2	167	0	1	0	0	168	0
HYPCIR	2	2	2	0	0	0	0	0	2	0	0

Table 12: Problems characteristics (12)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
INTEGREQ	102	100	100	2	0	0	0	0	100	0	0
INTEGREQ	12	10	10	2	0	0	0	0	10	0	0
ISRAEL	142	174	0	0	142	1	0	0	0	174	0
JENSMP	2	0	2	0	0	0	10	0	0	0	0
JIMACK	3549	0	3549	0	0	0	1	0	0	0	0
JNLBRNG1	100	0	0	36	64	1	162	0	0	0	0
JNLBRNG1	1024	0	0	124	900	1	1922	0	0	0	0
JNLBRNG2	100	0	0	36	64	1	162	0	0	0	0
JNLBRNG2	1024	0	0	124	900	1	1922	0	0	0	0
JNLBRNGA	100	0	0	36	64	0	64	0	0	0	0
JNLBRNGA	1024	0	0	124	900	0	900	0	0	0	0
JNLBRNGB	100	0	0	36	64	0	64	0	0	0	0
JNLBRNGB	1024	0	0	124	900	0	900	0	0	0	0
KB2	41	43	0	0	41	1	0	16	0	27	0
KOWOSB	4	0	4	0	0	0	11	0	0	0	0
KSIP	20	1001	20	0	0	0	1	0	0	1001	0
LAUNCH	25	28	0	0	25	1	4	6	3	12	7
LCH	30	1	30	0	0	0	1	0	1	0	0
LCH	600	1	600	0	0	0	1	0	1	0	0
LEAKNET	156	153	80	0	76	1	0	73	80	0	0
LEWISPOL	6	9	0	0	6	0	1	3	6	0	0
LIARWHD	36	0	36	0	0	0	72	0	0	0	0
LIARWHD	500	0	500	0	0	0	1000	0	0	0	0
LINCHEM	4	2	0	0	4	0	1	2	0	0	0
LINSPANH	97	33	0	16	81	1	0	33	0	0	0
LINVERSE	19	0	9	0	10	0	27	0	0	0	0
LINVERSE	999	0	499	0	500	0	1497	0	0	0	0
LISWET10	103	100	103	0	0	0	1	0	0	100	0
LISWET10	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET11	103	100	103	0	0	0	1	0	0	100	0
LISWET11	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET12	103	100	103	0	0	0	1	0	0	100	0
LISWET12	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET1	103	100	103	0	0	0	1	0	0	100	0
LISWET1	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET2	103	100	103	0	0	0	1	0	0	100	0
LISWET2	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET3	103	100	103	0	0	0	1	0	0	100	0
LISWET3	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET4	103	100	103	0	0	0	1	0	0	100	0

Table 13: Problems characteristics (13)

Problem	n	m	$n_{\rm fr}$	$n_{\rm fx}$	$n_{\rm b}$	$n_{\rm lo}$	$n_{\rm no}$	$n_{\rm le}$	$n_{\rm ne}$	$n_{\rm li}$	$n_{\rm ni}$
LISWET4	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET5	103	100	103	0	0	0	1	0	0	100	0
LISWET5	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET6	103	100	103	0	0	0	1	0	0	100	0
LISWET6	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET7	103	100	103	0	0	0	1	0	0	100	0
LISWET7	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET8	103	100	103	0	0	0	1	0	0	100	0
LISWET8	2002	2000	2002	0	0	0	1	0	0	2000	0
LISWET9	103	100	103	0	0	0	1	0	0	100	0
LISWET9	2002	2000	2002	0	0	0	1	0	0	2000	0
LMINSURF	1024	0	900	124	0	0	961	0	0	0	0
LMINSURF	121	0	81	40	0	0	100	0	0	0	0
LOOTSMA	3	2	0	0	3	0	1	0	0	0	2
LOTFI	308	153	0	0	308	1	0	95	0	58	0
LOTSCHD	12	7	0	0	12	0	6	7	0	0	0
LSQFIT	2	0	1	0	1	0	5	0	0	0	0
LUBRIF	151	100	51	2	98	0	1	51	49	0	0
MADSEN	3	6	3	0	0	1	0	0	0	0	6
MAKELA4	21	40	21	0	0	1	0	0	0	40	0
MANCINO	10	0	10	0	0	0	10	0	0	0	0
MANCINO	100	0	100	0	0	0	100	0	0	0	0
MANNE	1095	730	0	1	1094	0	1	0	0	365	365
MANNE	300	200	0	1	299	0	1	0	0	100	100
MARATOSB	2	0	2	0	0	1	1	0	0	0	0
MARATOS	2	1	2	0	0	0	1	0	1	0	0
MAROS	1443	846	0	35	1408	1	0	323	0	523	0
MATRIX2	6	2	2	0	4	0	1	0	0	0	2
MAXLIKA	8	0	0	0	8	0	235	0	0	0	0
MCCORMCK	10	0	0	0	10	0	9	0	0	0	0
MCCORMCK	1000	0	0	0	1000	0	999	0	0	0	0
MDHOLE	2	0	1	0	1	1	1	0	0	0	0
METHANB8	31	31	31	0	0	0	0	0	31	0	0
METHANL8	31	31	31	0	0	0	0	0	31	0	0
MEXHAT	2	0	2	0	0	0	2	0	0	0	0
MEYER3	3	0	3	0	0	0	16	0	0	0	0
MINC44	1113	1033	0	10	1103	1	0	20	1013	0	0
MINC44	13	10	0	3	10	1	0	6	4	0	0
MINMAXRB	3	4	3	0	0	1	0	0	0	2	2
MINPERM	13	10	0	0	13	1	0	6	4	0	0

Table 14: Problems characteristics (14)

Problem	n	m	$n_{\rm fr}$	$n_{\rm fx}$	$n_{\rm b}$	$n_{\rm lo}$	$n_{\rm no}$	$n_{\rm le}$	$n_{\rm ne}$	$n_{\rm li}$	$n_{\rm ni}$
MINPERM	583	520	0	0	583	1	0	18	502	0	0
MINSURF	64	0	36	28	0	0	49	0	0	0	0
MISTAKE	9	13	8	0	1	0	1	0	0	0	13
MODEL	1831	339	0	1759	72	1	0	324	0	15	0
MOREBV	10	0	10	0	0	0	10	0	0	0	0
MOREBV	5000	0	5000	0	0	0	5000	0	0	0	0
MOSARQP1	36	10	0	0	36	0	1	0	0	10	0
MOSARQP1	900	90	0	0	900	0	1	0	0	90	0
MOSARQP2	36	10	0	0	36	0	1	0	0	10	0
MOSARQP2	900	90	0	0	900	0	1	0	0	90	0
MRIBASIS	36	55	0	12	24	1	0	1	8	43	3
MSQRTALS	4	0	4	0	0	0	4	0	0	0	0
MSQRTALS	529	0	529	0	0	0	529	0	0	0	0
MSQRTA	4	4	4	0	0	0	0	0	4	0	0
MSQRTA	529	529	529	0	0	0	0	0	529	0	0
MSQRTBLS	529	0	529	0	0	0	529	0	0	0	0
MSQRTBLS	9	0	9	0	0	0	9	0	0	0	0
MSQRTB	529	529	529	0	0	0	0	0	529	0	0
MSQRTB	9	9	9	0	0	0	0	0	9	0	0
MWRIGHT	5	3	5	0	0	0	5	0	3	0	0
NCB20B	21	0	21	0	0	0	21	0	0	0	0
NCB20B	500	0	500	0	0	0	500	0	0	0	0
NCB20	110	0	110	0	0	0	101	0	0	0	0
NCVXBQP1	1000	0	0	0	1000	0	1000	0	0	0	0
NCVXBQP1	50	0	0	0	50	0	50	0	0	0	0
NCVXBQP2	1000	0	0	0	1000	0	1000	0	0	0	0
NCVXBQP2	50	0	0	0	50	0	50	0	0	0	0
NCVXBQP3	1000	0	0	0	1000	0	1000	0	0	0	0
NCVXBQP3	50	0	0	0	50	0	50	0	0	0	0
NCVXQP1	1000	500	0	0	1000	0	1000	500	0	0	0
NCVXQP1	50	25	0	0	50	0	50	25	0	0	0
NCVXQP2	1000	500	0	0	1000	0	1000	500	0	0	0
NCVXQP2	50	25	0	0	50	0	50	25	0	0	0
NCVXQP3	1000	500	0	0	1000	0	1000	500	0	0	0
NCVXQP3	50	25	0	0	50	0	50	25	0	0	0
NCVXQP4	1000	250	0	0	1000	0	1000	250	0	0	0
NCVXQP4	50	12	0	0	50	0	50	12	0	0	0
NCVXQP5	1000	250	0	0	1000	0	1000	250	0	0	0
NCVXQP5	50	12	0	0	50	0	50	12	0	0	0
NCVXQP6	1000	250	0	0	1000	0	1000	250	0	0	0

Table 15: Problems characteristics (15)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
NCVXQP6	50	12	0	0	50	0	50	12	0	0	0
NCVXQP7	1000	750	0	0	1000	0	1000	750	0	0	0
NCVXQP7	50	36	0	0	50	0	50	36	0	0	0
NCVXQP8	1000	750	0	0	1000	0	1000	750	0	0	0
NCVXQP8	50	36	0	0	50	0	50	36	0	0	0
NCVXQP9	1000	750	0	0	1000	0	1000	750	0	0	0
NCVXQP9	50	36	0	0	50	0	50	36	0	0	0
NESM	2923	662	0	175	2748	1	0	480	0	182	0
NGONE	100	1273	0	3	97	0	1	0	0	48	1225
NGONE	8	8	0	3	5	0	1	0	0	2	6
NLMSURF	1024	0	900	124	0	0	961	0	0	0	0
NLMSURF	121	0	81	40	0	0	100	0	0	0	0
NOBNDTOR	1024	0	0	124	900	0	900	0	0	0	0
NONDIA	10	0	10	0	0	0	18	0	0	0	0
NONDIA	10000	0	10000	0	0	0	10000	0	0	0	0
NONDQUAR	100	0	100	0	0	0	100	0	0	0	0
NONDQUAR	10000	0	10000	0	0	0	10000	0	0	0	0
NONMSQRT	100	0	100	0	0	0	100	0	0	0	0
NONMSQRT	9	0	9	0	0	0	9	0	0	0	0
NONSCOMP	1000	0	0	0	1000	0	1000	0	0	0	0
NONSCOMP	25	0	0	0	25	0	25	0	0	0	0
NYSTROM5	18	20	15	3	0	0	0	2	18	0	0
OBSTCLAE	100	0	0	36	64	0	64	0	0	0	0
OBSTCLAE	1024	0	0	124	900	0	900	0	0	0	0
OBSTCLAL	100	0	0	36	64	0	64	0	0	0	0
OBSTCLAL	1024	0	0	124	900	0	900	0	0	0	0
OBSTCLBL	100	0	0	36	64	0	64	0	0	0	0
OBSTCLBL	1024	0	0	124	900	0	900	0	0	0	0
OBSTCLBM	100	0	0	36	64	0	64	0	0	0	0
OBSTCLBM	1024	0	0	124	900	0	900	0	0	0	0
OBSTCLBU	100	0	0	36	64	0	64	0	0	0	0
OBSTCLBU	1024	0	0	124	900	0	900	0	0	0	0
ODC	1122	0	992	130	0	0	2112	0	0	0	0
ODC	16	0	4	12	0	0	18	0	0	0	0
OET1	3	1002	3	0	0	1	0	0	0	1002	0
OET3	4	1002	4	0	0	1	0	0	0	1002	0
OPTCNTRL	32	20	9	3	20	0	1	10	10	0	0
OPTMASS	3010	2505	3006	4	0	0	1	2004	0	0	501
OPTMASS	70	55	66	4	0	0	1	44	0	0	11
ORTHRDM2	203	100	203	0	0	0	200	0	100	0	0

Table 16: Problems characteristics (16)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
ORTHRDM2	4003	2000	4003	0	0	0	4000	0	2000	0	0
ORTHRDS2	203	100	203	0	0	0	200	0	100	0	0
ORTHREGA	133	64	133	0	0	0	128	0	64	0	0
ORTHREGA	2053	1024	2053	0	0	0	2048	0	1024	0	0
ORTHREGB	27	6	27	0	0	0	18	0	6	0	0
ORTHREGC	1005	500	1005	0	0	0	1000	0	500	0	0
ORTHREGC	25	10	25	0	0	0	20	0	10	0	0
ORTHREGD	1003	500	1003	0	0	0	1000	0	500	0	0
ORTHREGD	23	10	23	0	0	0	20	0	10	0	0
ORTHREGE	36	20	35	0	1	0	30	0	20	0	0
ORTHREGF	1205	400	1203	0	2	1	1200	0	400	0	0
ORTHREGF	80	25	78	0	2	1	75	0	25	0	0
OSBORNEA	5	0	5	0	0	0	33	0	0	0	0
OSBORNEB	11	0	11	0	0	0	65	0	0	0	0
OSLBQP	8	0	0	0	8	0	1	0	0	0	0
PALMER1A	6	0	4	0	2	0	35	0	0	0	0
PALMER1B	4	0	2	0	2	0	35	0	0	0	0
PALMER1C	8	0	8	0	0	0	35	0	0	0	0
PALMER1D	7	0	7	0	0	0	35	0	0	0	0
PALMER1E	8	0	7	0	1	0	35	0	0	0	0
PALMER1	4	0	1	0	3	0	31	0	0	0	0
PALMER2A	6	0	4	0	2	0	23	0	0	0	0
PALMER2B	4	0	2	0	2	0	23	0	0	0	0
PALMER2C	8	0	8	0	0	0	23	0	0	0	0
PALMER2E	8	0	7	0	1	0	23	0	0	0	0
PALMER2	4	0	1	0	3	0	23	0	0	0	0
PALMER3A	6	0	4	0	2	0	23	0	0	0	0
PALMER3B	4	0	2	0	2	0	23	0	0	0	0
PALMER3C	8	0	8	0	0	0	23	0	0	0	0
PALMER3E	8	0	7	0	1	0	23	0	0	0	0
PALMER3	4	0	1	0	3	0	23	0	0	0	0
PALMER4A	6	0	4	0	2	0	23	0	0	0	0
PALMER4B	4	0	2	0	2	0	23	0	0	0	0
PALMER4C	8	0	8	0	0	0	23	0	0	0	0
PALMER4E	8	0	7	0	1	0	23	0	0	0	0
PALMER4	4	0	1	0	3	0	23	0	0	0	0
PARKCH	15	0	15	0	0	0	1	0	0	0	0
PENALTY1	4	0	4	0	0	0	5	0	0	0	0
PENALTY1	500	0	500	0	0	0	501	0	0	0	0
PENALTY2	100	0	100	0	0	0	200	0	0	0	0

Table 17: Problems characteristics (17)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
PENALTY2	4	0	4	0	0	0	8	0	0	0	0
PENALTY3	100	0	100	0	0	1	5	0	0	0	0
PENALTY3	50	0	50	0	0	1	5	0	0	0	0
PENTAGON	6	15	6	0	0	0	1	0	0	15	0
PENTDI	1000	0	0	0	1000	1	2	0	0	0	0
PENTDI	50	0	0	0	50	1	2	0	0	0	0
PEROLD	1376	625	88	64	1224	1	0	495	0	130	0
PILOT-JA	1988	940	88	311	1589	1	0	661	0	279	0
PILOT-WE	2789	722	80	78	2631	1	0	583	0	139	0
PILOT4	1000	410	88	30	882	1	0	287	0	123	0
PILOT87	4883	2030	0	180	4703	1	0	233	0	1797	0
PILOTNOV	2172	975	0	204	1968	1	0	701	0	274	0
PILOT	3652	1441	0	167	3485	1	0	233	0	1208	0
POROUS1	1024	900	900	124	0	0	0	0	900	0	0
POROUS1	5184	4900	4900	284	0	0	0	0	4900	0	0
POROUS2	1024	900	900	124	0	0	0	0	900	0	0
POROUS2	5184	4900	4900	284	0	0	0	0	4900	0	0
POWELL20	10	10	10	0	0	0	1	0	0	10	0
POWELL20	1000	1000	1000	0	0	0	1	0	0	1000	0
POWELLBS	2	2	2	0	0	0	0	0	2	0	0
POWELLSG	1000	0	1000	0	0	0	1000	0	0	0	0
POWELLSG	4	0	4	0	0	0	4	0	0	0	0
POWER	10	0	10	0	0	0	1	0	0	0	0
POWER	500	0	500	0	0	0	1	0	0	0	0
PROBPENL	10	0	0	0	10	0	10	0	0	0	0
PROBPENL	500	0	0	0	500	0	500	0	0	0	0
PRODPL0	60	29	0	0	60	1	0	20	0	5	4
PRODPL1	60	29	0	0	60	1	0	20	0	5	4
PSPDOC	4	0	3	0	1	0	2	0	0	0	0
PT	2	501	2	0	0	1	0	0	0	501	0
QPCBLEND	83	74	0	0	83	0	1	43	0	31	0
QPCBOEI1	384	351	0	0	384	0	1	9	0	342	0
QPCBOEI2	143	166	0	0	143	0	1	4	0	162	0
QPCSTAIR	467	356	6	82	379	0	1	209	0	147	0
QPNBLEND	83	74	0	0	83	0	1	43	0	31	0
QPNBOEI1	384	351	0	0	384	0	1	9	0	342	0
QPNBOEI2	143	166	0	0	143	0	1	4	0	162	0
QPNSTAIR	467	356	6	82	379	0	1	209	0	147	0
QR3DBD	37	40	32	0	5	0	0	0	40	0	0
QR3DBD	457	610	437	0	20	0	0	0	610	0	0

Table 18: Problems characteristics (18)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
QR3DLS	610	0	590	0	20	0	610	0	0	0	0
QR3D	40	40	35	0	5	0	0	0	40	0	0
QR3D	610	610	590	0	20	0	0	0	610	0	0
QRTQUAD	12	0	6	0	6	0	1	0	0	0	0
QRTQUAD	120	0	110	0	10	0	1	0	0	0	0
QUARTC	100	0	100	0	0	0	100	0	0	0	0
QUARTC	25	0	25	0	0	0	25	0	0	0	0
QUDLIN	12	0	0	0	12	0	1	0	0	0	0
RAYBENDL	10	0	6	4	0	0	4	0	0	0	0
RAYBENDL	130	0	126	4	0	0	64	0	0	0	0
RAYBENDS	10	0	6	4	0	0	6	0	0	0	0
RAYBENDS	54	0	50	4	0	0	28	0	0	0	0
READING1	202	100	0	1	201	0	100	0	100	0	0
READING2	303	200	100	2	201	1	0	200	0	0	0
READING3	202	101	0	0	202	0	100	1	100	0	0
RECIPELP	180	91	0	24	156	1	0	67	0	24	0
RECIPE	3	3	3	0	0	0	0	1	2	0	0
ROBOT	14	2	0	7	7	0	1	0	2	0	0
ROSENBR	2	0	2	0	0	0	2	0	0	0	0
ROTDISC	905	1081	180	13	712	1	0	360	360	361	0
S268	5	5	5	0	0	1	1	0	0	5	0
S277-280	10	10	0	0	10	1	0	0	0	10	0
S308	2	0	2	0	0	0	3	0	0	0	0
S368	100	0	0	0	100	0	20000	0	0	0	0
S368	8	0	0	0	8	0	128	0	0	0	0
SC105	103	105	0	0	103	1	0	45	0	60	0
SC205	203	205	0	0	203	1	0	91	0	114	0
SC50A	48	50	0	0	48	1	0	20	0	30	0
SC50B	48	50	0	0	48	1	0	20	0	30	0
SCAGR25	500	471	0	0	500	1	0	300	0	171	0
SCAGR7	140	129	0	0	140	1	0	84	0	45	0
SCFXM1	457	330	0	0	457	1	0	187	0	143	0
SCFXM2	914	660	0	0	914	1	0	374	0	286	0
SCFXM3	1371	990	0	0	1371	1	0	561	0	429	0
SCHMVETT	3	0	3	0	0	0	1	0	0	0	0
SCHMVETT	500	0	500	0	0	0	498	0	0	0	0
SCORPION	358	388	0	0	358	1	0	280	0	108	0
SCRS8	1169	490	0	0	1169	1	0	384	0	106	0
SCSD1	760	77	0	0	760	1	0	77	0	0	0
SCSD6	1350	147	0	0	1350	1	0	147	0	0	0

Table 19: Problems characteristics (19)

Problem	n	m	$n_{\rm fr}$	$n_{\rm fx}$	$n_{\rm b}$	$n_{\rm lo}$	$n_{\rm no}$	$n_{\rm le}$	$n_{\rm ne}$	$n_{\rm li}$	$n_{\rm ni}$
SCSD8	2750	397	0	0	2750	1	0	397	0	0	0
SCTAP1	480	300	0	0	480	1	0	120	0	180	0
SCTAP2	1880	1090	0	0	1880	1	0	470	0	620	0
SCTAP3	2480	1480	0	0	2480	1	0	620	0	860	0
SEBA	1028	515	0	0	1028	1	0	507	0	8	0
SEMICON1	12	10	0	2	10	0	0	0	10	0	0
SEMICON1	502	500	0	2	500	0	0	0	500	0	0
SEMICON2	12	10	0	2	10	0	0	0	10	0	0
SEMICON2	502	500	0	2	500	0	0	0	500	0	0
SHARE1B	225	117	0	0	225	1	0	89	0	28	0
SHARE2B	79	96	0	0	79	1	0	13	0	83	0
SHELL	1775	536	0	250	1525	1	0	534	0	2	0
SHIP04L	2118	402	0	0	2118	1	0	354	0	48	0
SHIP04S	1458	402	0	0	1458	1	0	354	0	48	0
SHIP08L	4283	778	0	0	4283	1	0	698	0	80	0
SHIP08S	2387	778	0	0	2387	1	0	698	0	80	0
SHIP12L	5427	1151	0	0	5427	1	0	1045	0	106	0
SHIP12S	2763	1151	0	0	2763	1	0	1045	0	106	0
SIERRA	2036	1227	0	0	2036	1	0	528	0	699	0
SIM2BQP	2	0	0	1	1	1	2	0	0	0	0
SIMBQP	2	0	1	0	1	1	2	0	0	0	0
SIMPLLPA	2	2	0	0	2	1	0	0	0	2	0
SIMPLLPB	2	3	0	0	2	1	0	0	0	3	0
SINEALI	20	0	0	0	20	0	20	0	0	0	0
SINQUAD	5	0	5	0	0	0	5	0	0	0	0
SINQUAD	500	0	500	0	0	0	500	0	0	0	0
SIPOW1M	2	2000	2	0	0	1	0	0	0	2000	0
SIPOW1	2	2000	2	0	0	1	0	0	0	2000	0
SIPOW2M	2	2000	2	0	0	1	0	0	0	2000	0
SIPOW2	2	2000	2	0	0	1	0	0	0	2000	0
SIPOW3	4	2000	4	0	0	1	0	0	0	2000	0
SIPOW4	4	2000	4	0	0	1	0	0	0	2000	0
SISSER	2	0	2	0	0	0	3	0	0	0	0
SNAIL	2	0	2	0	0	0	1	0	0	0	0
SOSQP1	20	11	0	0	20	0	1	11	0	0	0
SOSQP1	2000	1001	0	0	2000	0	1	1001	0	0	0
SOSQP2	20	11	0	0	20	0	1	11	0	0	0
SOSQP2	2000	1001	0	0	2000	0	1	1001	0	0	0
SPANHYD	97	33	0	16	81	0	1	33	0	0	0
SPECAN	6	0	0	0	6	0	10000	0	0	0	0

Table 20: Problems characteristics (20)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
SPECAN	9	0	0	0	9	0	15000	0	0	0	0
SPIRAL	3	2	3	0	0	1	0	0	0	0	2
SPMSQRT	28	44	28	0	0	0	0	0	44	0	0
SPMSQRT	499	829	499	0	0	0	0	0	829	0	0
SPMSRTLS	28	0	28	0	0	0	44	0	0	0	0
SPMSRTLS	499	0	499	0	0	0	829	0	0	0	0
SROSENBR	10	0	10	0	0	0	10	0	0	0	0
SROSENBR	1000	0	1000	0	0	0	1000	0	0	0	0
SSC	1122	0	992	130	0	0	2112	0	0	0	0
SSC	16	0	4	12	0	0	18	0	0	0	0
SSEBLIN	194	72	0	2	192	1	0	48	0	24	0
SSEBNLN	194	96	0	2	192	1	0	48	24	24	0
SSNLBEAM	1503	1000	501	2	1000	0	1	500	500	0	0
SSNLBEAM	3003	2000	1001	2	2000	0	1	1000	1000	0	0
STAIR	467	356	6	82	379	1	0	209	0	147	0
STANDATA	1075	359	0	16	1059	1	0	160	0	199	0
STANDMPS	1075	467	0	16	1059	1	0	268	0	199	0
STATIC3	434	96	290	0	144	1	1	96	0	0	0
STEENBRA	432	108	0	0	432	0	1	108	0	0	0
STEENBRB	468	108	0	0	468	0	1	108	0	0	0
STEENBRC	540	126	0	0	540	0	1	126	0	0	0
STEENBRD	468	108	0	0	468	0	1	108	0	0	0
STEENBRE	540	126	0	0	540	0	1	126	0	0	0
STEENBRF	468	108	0	0	468	0	1	108	0	0	0
STEENBRG	540	126	0	0	540	0	1	126	0	0	0
STOCFOR1	111	117	0	0	111	1	0	63	0	54	0
STOCFOR2	2031	2157	0	0	2031	1	0	1143	0	1014	0
STRATEC	10	0	10	0	0	0	1	0	0	0	0
SUPERSIM	2	2	1	0	1	1	0	2	0	0	0
SVANBERG	10	10	0	0	10	0	10	0	0	0	10
SVANBERG	1000	1000	0	0	1000	0	1000	0	0	0	1000
SWOPF	83	92	73	0	10	1	0	43	35	0	14
TAME	2	1	0	0	2	0	1	1	0	0	0
TENBARS1	18	9	4	0	14	1	0	0	8	1	0
TENBARS2	18	8	4	0	14	1	0	0	8	0	0
TENBARS3	18	8	6	0	12	1	0	0	8	0	0
TENBARS4	18	9	8	0	10	1	0	0	8	1	0
TFI1	3	1001	3	0	0	0	1	0	0	0	1001
TFI2	3	1001	3	0	0	1	0	0	0	1001	0
TFI3	3	1001	3	0	0	0	1	0	0	1001	0

Table 21: Problems characteristics (21)

Problem	n	m	$n_{\rm fr}$	$n_{\rm fx}$	$n_{\rm b}$	$n_{\rm lo}$	$n_{\rm no}$	$n_{\rm le}$	$n_{\rm ne}$	$n_{\rm li}$	$n_{\rm ni}$
TOINTGOR	50	0	50	0	0	0	83	0	0	0	0
TOINTGSS	10	0	10	0	0	0	8	0	0	0	0
TOINTGSS	1000	0	1000	0	0	0	998	0	0	0	0
TOINTPSP	50	0	50	0	0	0	83	0	0	0	0
TOINTQOR	50	0	50	0	0	0	83	0	0	0	0
TORSION1	1024	0	0	124	900	0	900	0	0	0	0
TORSION2	1024	0	0	124	900	0	900	0	0	0	0
TORSION3	1024	0	0	124	900	0	900	0	0	0	0
TORSION4	1024	0	0	124	900	0	900	0	0	0	0
TORSION5	1024	0	0	124	900	0	900	0	0	0	0
TORSION6	1024	0	0	124	900	0	900	0	0	0	0
TORSIONA	100	0	0	36	64	1	162	0	0	0	0
TORSIONA	1024	0	0	124	900	1	1922	0	0	0	0
TORSIONB	100	0	0	36	64	1	162	0	0	0	0
TORSIONB	1024	0	0	124	900	1	1922	0	0	0	0
TORSIONC	100	0	0	36	64	1	162	0	0	0	0
TORSIONC	1024	0	0	124	900	1	1922	0	0	0	0
TORSIOND	100	0	0	36	64	1	162	0	0	0	0
TORSIOND	1024	0	0	124	900	1	1922	0	0	0	0
TORSIONE	100	0	0	36	64	1	162	0	0	0	0
TORSIONE	1024	0	0	124	900	1	1922	0	0	0	0
TORSIONF	100	0	0	36	64	1	162	0	0	0	0
TORSIONF	1024	0	0	124	900	1	1922	0	0	0	0
TQUARTIC	5	0	5	0	0	0	5	0	0	0	0
TQUARTIC	500	0	500	0	0	0	500	0	0	0	0
TRAINF	2008	1002	1000	8	1000	0	1	501	501	0	0
TRAINF	48	22	20	8	20	0	1	11	11	0	0
TRIDIA	10	0	10	0	0	0	10	0	0	0	0
TRIDIA	1000	0	1000	0	0	0	1000	0	0	0	0
TRIGGER	7	6	6	1	0	0	0	3	3	0	0
TRUSS	8806	1000	0	0	8806	1	0	1000	0	0	0
TUFF	587	333	2	3	582	1	0	292	0	41	0
TWOBARS	2	2	0	0	2	0	1	0	0	0	2
UBH1	909	600	594	12	303	0	1	600	0	0	0
UBH1	99	60	54	12	33	0	1	60	0	0	0
UBH5	1010	700	694	13	303	1	0	600	100	0	0
UBH5	110	70	64	13	33	1	0	60	10	0	0
VANDERM1	10	19	10	0	0	0	0	0	10	9	0
VANDERM1	100	199	100	0	0	0	0	0	100	99	0
VANDERM2	10	19	10	0	0	0	0	0	10	9	0

Table 22: Problems characteristics (22)

Problem	n	m	n_{fr}	n_{fx}	n_{b}	n_{lo}	n_{no}	n_{le}	n_{ne}	n_{li}	n_{ni}
VANDERM2	100	199	100	0	0	0	0	0	100	99	0
VANDERM3	10	19	10	0	0	0	0	0	10	9	0
VANDERM3	100	199	100	0	0	0	0	0	100	99	0
VANDERM4	2	3	2	0	0	0	0	0	2	1	0
VANDERM4	9	17	9	0	0	0	0	0	9	8	0
VARDIM	10	0	10	0	0	0	12	0	0	0	0
VARDIM	500	0	500	0	0	0	502	0	0	0	0
VAREIGVL	10	0	10	0	0	0	10	0	0	0	0
VAREIGVL	500	0	500	0	0	0	500	0	0	0	0
VIBRBEAM	8	0	8	0	0	0	30	0	0	0	0
VTP-BASE	203	198	1	18	184	1	0	55	0	143	0
WATER	31	10	0	0	31	1	8	10	0	0	0
WATSON	12	0	12	0	0	0	31	0	0	0	0
WATSON	31	0	31	0	0	0	31	0	0	0	0
WEEDS	3	0	0	0	3	0	12	0	0	0	0
WOMFLET	3	3	3	0	0	1	0	0	0	0	3
WOOD1P	2594	244	0	0	2594	1	0	243	0	1	0
WOODS	100	0	100	0	0	0	151	0	0	0	0
WOODS	4	0	4	0	0	0	7	0	0	0	0
WOODW	8405	1098	0	0	8405	1	0	1085	0	13	0
YAO	2002	2000	1999	2	1	0	2002	0	0	2000	0
YAO	22	20	19	2	1	0	22	0	0	20	0
YFIT	3	0	2	0	1	0	17	0	0	0	0
YORKNET	312	256	112	0	200	41	15	136	120	0	0
ZANGWIL2	2	0	2	0	0	0	1	0	0	0	0
ZANGWIL3	3	3	3	0	0	0	0	3	0	0	0
ZECEVIC2	2	2	0	0	2	0	1	0	0	2	0
ZECEVIC3	2	2	0	0	2	0	1	0	0	0	2
ZECEVIC4	2	2	0	0	2	0	1	0	0	1	1
ZIGZAG	3004	2500	1498	6	1500	0	500	2000	0	0	500
ZIGZAG	64	50	28	6	30	0	10	40	0	0	10

Table 23: Problems characteristics (23)

3 Numerical results

In the next set of tables, we present detailed results for the *default versions* of LANCELOT and MINOS on each problem. As discussed in Bongartz et al. (1997), the problems are classified into the following types:

LP the problem is a linear program,

QP the problem is a quadratic program,

BC the problem is unconstrained or has bound constraints only,

LC the problem has a non-quadratic objective and linear constraints only ,

NC the problem has nonlinear constraints.

If either LANCELOT or MINOS terminated abnormally (before reaching a local optimum), the following error codes are used for each package:

P no further progress could be made,

T the maximum cpu-time (12000 seconds) elapsed before termination,

E an arithmetic error occurred at run-time, causing the package to fail,

F no feasible solution could be found,

W optimality was wrongly reported.

Times are cpu-seconds on a 333MHz DEC Alphastation 500 running Digital Unix 4.0A with the default options of the f77 compiler.

Otherwise, the tables should be self-explanatory.

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
25FV47	1571	LP	– T –	7146	– T –	14.53
80BAU3B	9799	LP	– T –	9077	– T –	30.61
ADLITTLE	97	LP	106	101	3.80	0.04
AFIRO	32	LP	25	10	0.23	0.01
AGG	163	LP	355	118	190.63	0.19
AGG2	302	LP	180	154	143.06	0.24
AGG3	302	LP	151	162	100.85	0.26
AIRCRFTA	8	BC	5	10	0.03	0.01
AIRCRFTB	8	BC	19	65	0.08	0.01
AIRPORT	84	NC	63	525	0.89	1.32
AKIVA	2	BC	7	21	0.02	0.01
ALJAZZAF	3	NC	24	65	0.16	0.02
ALLINIT	4	BC	6	28	0.03	0.01
ALLINITC	4	NC	69	54	0.38	0.03
ALLINITU	4	BC	10	19	0.04	0.01
ALSOTAME	2	NC	7	11	0.05	0.01
ARGAUSS	3	BC	1	6	0.01	0.01
ARGLINA	10	QP	3	25	0.02	0.01
ARGLINA	100	QP	3	205	0.20	0.65
ARGLINB	10	QP	2	7	0.01	0.01
ARGLINB	100	QP	3	43	0.40	0.15
ARGLINC	10	QP	2	7	0.01	0.01
ARGLINC	100	QP	3	35	0.39	0.13
ARGTRIG	10	BC	9	9	0.04	0.01
ARGTRIG	100	BC	14	8	1.44	0.19
ARTIF	12	BC	15	– E –	0.07	– E –
ARTIF	502	BC	34	– E –	0.52	– E –
ARWHEAD	100	BC	6	11	0.05	0.02
ARWHEAD	5000	BC	6	11	1.71	0.84
AUG2D	850	QP	22	2294	1.81	10.60
AUG2DC	850	QP	26	2260	1.85	10.56
AUG2DCQP	850	QP	32	1771	2.66	7.26
AUG2DQP	850	QP	28	1511	6.05	5.16
AUG3D	464	QP	10	843	0.37	0.94
AUG3DC	464	QP	12	1662	0.40	5.71
AUG3DCQP	464	QP	16	798	0.73	1.64
AUG3DQP	464	QP	16	337	1.19	0.25
AVION2	49	LC	– P –	23	– P –	0.02
BANDM	472	LP	2399	477	1721.68	0.46
BARD	3	BC	8	35	0.05	0.01

Table 24: Performance of the default versions of LANCELOT and MINOS (1)

Problem	n	type	Functions evals.		Cpu-time	
			LANCELOT	MINOS	LANCELOT	MINOS
BDEXP	100	BC	11	77	0.07	0.04
BDEXP	1000	BC	11	677	0.36	3.24
BDQRTIC	100	BC	12	633	0.08	0.33
BDQRTIC	500	BC	12	3213	0.26	11.40
BDVALUE	12	BC	3	6	0.02	0.01
BDVALUE	5002	BC	1	– P –	0.96	– P –
BEACONFD	262	LP	– T –	46	– T –	0.10
BEALE	2	BC	8	– W –	0.04	– W –
BIGBANK	2230	LC	50	7966	1188.11	100.46
BIGGS3	6	BC	12	30	0.07	0.01
BIGGS5	6	BC	49	37	0.24	0.01
BIGGS6	6	BC	112	118	0.49	0.02
BIGGSB1	25	QP	14	107	0.07	0.02
BIGGSB1	1000	QP	501	59948	5.80	957.71
BIGGSC4	4	QP	15	15	0.09	0.01
BLEND	83	LP	160	79	7.33	0.05
BLOCKQP1	205	QP	14	120	0.44	0.09
BLOCKQP1	2005	QP	15	1020	24.60	4.53
BLOCKQP2	205	QP	12	126	0.44	0.13
BLOCKQP2	2005	QP	12	1042	15.83	8.19
BLOCKQP3	205	QP	18	176	0.67	0.11
BLOCKQP3	2005	QP	29	1633	33.25	5.48
BLOCKQP4	205	QP	15	162	0.88	0.15
BLOCKQP4	2005	QP	22	1392	43.07	10.29
BLOCKQP5	205	QP	20	177	0.68	0.10
BLOCKQP5	2005	QP	25	1604	36.60	4.98
BNL1	1175	LP	– T –	1225	– T –	1.53
BNL2	3489	LP	– T –	5733	– T –	21.44
BOEING1	384	LP	– T –	541	– T –	0.44
BOEING2	143	LP	236	184	43.36	0.11
BOOTH	2	BC	4	2	0.02	0.01
BORE3D	315	LP	– T –	135	– T –	0.14
BOX2	3	BC	7	9	0.03	0.01
BOX3	3	BC	8	14	0.04	0.01
BQP1VAR	1	QP	2	4	0.02	0.01
BQPGABIM	50	QP	4	106	0.03	0.04
BQPGASIM	50	QP	4	120	0.03	0.04
BRANDY	249	LP	– T –	322	– T –	0.24
BRATU1D	13	BC	6	54	0.02	0.01
BRATU1D	1003	BC	12	– E –	0.42	– E –

Table 25: Performance of the default versions of LANCELOT and MINOS (2)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
BRATU2D	49	BC	5	7	0.04	0.02
BRATU2D	1024	BC	3	10	0.83	1.06
BRATU3D	27	BC	5	8	0.04	0.01
BRATU3D	1000	BC	4	9	0.30	1.31
BRIDGEND	2734	NC	– T –	– P –	– T –	– P –
BRITGAS	450	NC	113	– E –	19.64	– E –
BRKMCC	2	BC	4	12	0.03	0.01
BROWNAL	10	BC	6	76	0.04	0.01
BROWNAL	50	BC	4	431	0.08	0.22
BROWNBS	2	BC	35	34	0.19	0.01
BROWNDEN	4	BC	12	40	0.07	0.01
BROYDN3D	10	BC	6	9	0.04	0.01
BROYDN3D	500	BC	6	– E –	0.20	– E –
BROYDN7D	10	BC	17	128	0.08	0.02
BROYDN7D	500	BC	79	3703	1.11	23.46
BROYDNBD	10	BC	12	11	0.06	0.01
BROYDNBD	500	BC	16	– E –	0.47	– E –
BRYBND	10	BC	12	138	0.06	0.02
BRYBND	1000	BC	17	8906	0.81	84.14
BT1	2	NC	54	89	0.25	0.02
BT10	2	NC	18	13	0.11	0.01
BT11	5	NC	20	58	0.13	0.02
BT12	5	NC	19	50	0.11	0.02
BT13	5	NC	3725	212	15.93	0.03
BT2	3	NC	28	292	0.16	0.04
BT3	5	LC	10	11	0.07	0.01
BT4	3	NC	24	52	0.14	0.02
BT5	3	NC	19	172	0.10	0.03
BT6	5	NC	25	137	0.19	0.05
BT7	5	NC	49	– E –	0.27	– E –
BT8	5	NC	29	21	0.14	0.02
BT9	4	NC	21	77	0.12	0.02
CANTILVR	5	NC	23	183	0.16	0.03
CAPRI	353	LP	5107	258	5379.08	0.20
CATENARY	15	NC	48	236	0.27	0.04
CATENARY	501	NC	835	– E –	27.65	– E –
CB2	3	NC	14	81	0.08	0.02
CB3	3	NC	14	74	0.09	0.02
CBRATU2D	32	BC	5	8	0.03	0.02
CBRATU2D	1058	BC	4	9	0.72	0.58

Table 26: Performance of the default versions of LANCELOT and MINOS (3)

			Functions evals.		Cpu-time	
Problem	n	type	LANCELOT	MINOS	LANCELOT	MINOS
CBRATU3D	54	BC	5	8	0.03	0.02
CBRATU3D	2000	BC	4	9	0.57	1.76
CHANDHEQ	10	BC	14	15	0.08	0.02
CHANDHEQ	100	BC	14	14	2.09	0.43
CHEBYQAD	2	BC	7	21	0.03	0.01
CHEBYQAD	50	BC	59	752	2.43	5.10
CHEMRCTA	10	BC	10	7	0.05	0.01
CHEMRCTA	1000	BC	– T –	242	– T –	6.27
CHEMRCTB	10	BC	9	– E –	0.06	– E –
CHEMRCTB	1000	BC	122	231	3.26	1.84
CHENHARK	100	QP	2	397	0.04	0.13
CHNROSNB	10	BC	28	116	0.02	0.03
CHNROSNB	50	BC	63	459	0.71	0.36
CLIFF	2	BC	28	45	0.11	0.01
CLPLATEA	100	BC	5	227	0.05	0.16
CLPLATEA	1024	BC	7	21990	0.66	336.93
CLPLATEB	100	BC	3	217	0.04	0.16
CLPLATEB	1024	BC	3	22818	0.48	354.46
CLPLATEC	100	BC	4	320	0.08	0.21
CLPLATEC	1024	BC	5	97660	3.61	1829.16
CLUSTER	2	BC	12	24	0.05	0.01
COOLHANS	9	NC	– F –	25	– F –	0.02
CORKSCRW	96	NC	37	802	0.43	0.29
CORKSCRW	4506	NC	170	3149	10694.04	85.57
CRAGGLVY	4	BC	17	99	0.08	0.01
CRAGGLVY	500	BC	15	4728	0.24	28.77
CRESC132	6	NC	– P –	1921	– P –	124.38
CRESC4	6	NC	– P –	181	– P –	0.05
CUBE	2	BC	36	56	0.19	0.01
CVXBQP1	50	QP	2	54	0.02	0.02
CVXBQP1	1000	QP	2	1004	0.16	1.87
CVXQP1	50	QP	33	71	0.29	0.03
CVXQP1	1000	QP	80	1235	59.24	3.50
CVXQP2	50	QP	23	81	0.21	0.03
CVXQP2	1000	QP	61	1298	6.43	4.05
CVXQP3	50	QP	36	27	0.50	0.02
CVXQP3	1000	QP	260	600	861.35	2.61
CYCLE	2857	LP	– T –	2734	– T –	8.73
CZPROB	3523	LP	1108	1395	8361.24	2.61
D2Q06C	5167	LP	– T –	44119	– T –	216.46

Table 27: Performance of the default versions of LANCELOT and MINOS (4)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
D6CUBE	6184	LP	105	96722	799.18	165.36
DALLASL	906	LC	89	2112	118.96	12.12
DALLASM	196	LC	82	454	6.56	0.53
DALLASS	46	LC	81	146	1.11	0.05
DEGEN2	534	LP	49	830	30.84	0.89
DEGEN3	1818	LP	65	6234	1993.02	23.44
DEGENLPA	20	LP	29	16	0.22	0.01
DEGENLPB	20	LP	– P –	16	– P –	0.01
DEMBO7	16	NC	256	118	1.63	0.05
DENSCHNA	2	BC	6	22	0.03	0.01
DENSCHNB	2	BC	4	16	0.02	0.01
DENSCHNC	2	BC	10	– W –	0.05	– W –
DENSCHND	3	BC	34	110	0.16	0.01
DENSCHNE	3	BC	12	33	0.05	0.01
DENSCHNF	2	BC	7	20	0.04	0.01
DIPIGRI	7	NC	57	155	0.28	0.03
DISC2	29	NC	73	644	0.53	0.13
DISCS	36	NC	1430	– E –	35.77	– E –
DITTERT	19	NC	35	228	0.21	0.05
DITTERT	1133	NC	– E –	– E –	– E –	– E –
DIXCHLNG	10	NC	37	– E –	0.19	– E –
DIXCHLNV	10	NC	16	88	0.11	0.03
DIXMAANA	15	BC	7	57	0.03	0.01
DIXMAANA	300	BC	8	813	0.10	2.34
DIXMAANB	15	BC	8	62	0.03	0.01
DIXMAANB	300	BC	8	771	0.11	1.66
DIXMAANC	15	BC	11	69	0.04	0.01
DIXMAANC	300	BC	13	829	0.15	2.12
DIXMAAND	15	BC	10	71	0.05	0.01
DIXMAAND	300	BC	15	851	0.15	2.20
DIXMAANE	15	BC	8	59	0.02	0.01
DIXMAANE	300	BC	8	835	0.12	2.29
DIXMAANF	15	BC	11	74	0.05	0.01
DIXMAANF	300	BC	13	868	0.15	2.18
DIXMAANG	15	BC	11	80	0.04	0.02
DIXMAANG	300	BC	16	811	0.16	2.07
DIXMAANH	15	BC	12	75	0.05	0.01
DIXMAANH	300	BC	26	1019	0.26	2.96
DIXMAANI	15	BC	10	68	0.03	0.01
DIXMAANI	300	BC	8	1082	0.10	3.14

Table 28: Performance of the default versions of LANCELOT and MINOS (5)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
DIXMAANJ	15	BC	14	79	0.06	0.01
DIXMAANJ	300	BC	35	1503	0.33	4.94
DIXMAANK	15	BC	13	86	0.04	0.01
DIXMAANK	300	BC	26	1657	0.25	5.86
DIXMAANL	15	BC	12	86	0.05	0.02
DIXMAANL	300	BC	41	1655	0.41	5.84
DIXON3DQ	10	QP	3	42	0.01	0.01
DIXON3DQ	500	QP	3	2003	0.09	10.50
DNIEPER	61	NC	64	48	0.45	0.04
DQDRTIC	10	QP	3	25	0.02	0.01
DQDRTIC	500	QP	3	1006	0.09	6.05
DQRTIC	10	BC	18	274	0.09	0.02
DQRTIC	1000	BC	36	54812	0.76	645.17
DRCAVTY1	196	BC	49	– T –	1.53	– T –
DRCAVTY1	1225	BC	55	– T –	131.45	– T –
DRCAVTY2	196	BC	– F –	– T –	– F –	– T –
DRCAVTY2	1225	BC	97	– T –	162.02	– T –
DRCAVTY3	196	BC	– F –	– T –	– F –	– T –
DRCAVTY3	1225	BC	– F –	– T –	– F –	– T –
DTOC2	118	NC	24	188	0.31	0.19
DTOC2	2998	NC	34	1884	11.07	51.36
DTOC3	149	QP	23	200	0.24	0.11
DTOC3	1499	QP	29	1764	1.69	14.30
DTOC4	149	NC	17	227	0.23	0.19
DTOC4	2999	NC	16	8890	3.79	213.76
DTOC5	19	NC	14	65	0.10	0.03
DTOC5	1999	NC	25	8327	2.33	134.03
E226	282	LP	– T –	460	– T –	0.30
EDENSCH	36	BC	13	306	0.07	0.07
EG2	1000	BC	4	9	0.18	0.15
EIGENALS	110	BC	25	237	0.40	0.26
EIGENALS	930	BC	52	1361	30.20	45.19
EIGENBLS	110	BC	172	1352	5.48	2.12
EIGENBLS	930	BC	653	29133	1039.41	1443.74
EIGENCLS	462	BC	697	2701	200.81	25.63
EIGENCLS	992	BC	940	8573	1409.74	488.50
ENGVAL1	2	BC	8	20	0.04	0.01
ENGVAL1	100	BC	8	604	0.07	0.32
ERRINBAR	18	NC	3659	– E –	19.06	– E –
ERRINROS	10	BC	48	154	0.03	0.03

Table 29: Performance of the default versions of LANCELOT and MINOS (6)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
ERRINROS	50	BC	65	644	0.55	0.59
ETAMACRO	688	LP	– T –	572	– T –	0.50
EXPFIT	2	BC	14	27	0.06	0.01
EXPFITA	5	LC	17	27	0.14	0.01
EXPFITB	5	LC	63	32	0.84	0.04
EXPFITC	5	LC	85	136	4.60	0.39
EXPLIN	120	BC	12	165	0.07	0.04
EXPLIN2	120	BC	11	143	0.07	0.04
EXPQUAD	120	BC	16	319	0.11	0.18
EXTRASIM	2	LP	3	1	0.02	0.01
EXTROSNB	5	BC	56	164	0.04	0.02
EXTROSNB	1000	BC	698	– E –	11.73	– E –
FCCU	19	LC	17	47	0.10	0.01
FFFFF800	854	LP	– T –	469	– T –	0.65
FINNIS	614	LP	183	487	294.22	0.48
FIT1D	1026	LP	985	2412	77.94	0.74
FIT1P	1677	LP	56	844	21.16	2.00
FIT2P	13525	LP	59	15008	1021.03	202.68
FLETCBV2	100	BC	2	381	0.02	0.27
FLETCHBV	10	BC	349	376	1.66	0.04
FLETCHBV	100	BC	– T –	– P –	– T –	– P –
FLETCHCR	10	BC	35	167	0.15	0.02
FLETCHCR	100	BC	228	1258	1.49	0.59
FMINSURF	121	BC	84	757	0.72	0.33
FMINSURF	5625	BC	167	12056	402.51	284.17
FORPLAN	421	LP	– T –	324	– T –	0.24
FREUROTH	2	BC	10	20	0.05	0.01
FREUROTH	500	BC	11	3761	0.22	12.90
GANGES	1681	LP	208	693	1450.10	1.51
GAUSSELM	14	NC	33	54	0.18	0.02
GAUSSELM	650	NC	195	– P –	133.95	– P –
GENHS28	10	QP	7	11	0.05	0.01
GENROSE	10	BC	42	177	0.21	0.02
GENROSE	500	BC	586	6574	7.41	38.47
GILBERT	10	NC	24	283	0.14	0.05
GILBERT	1000	NC	31	– E –	3.40	– E –
GOFFIN	51	LP	19	26	0.52	0.04
GOTTFR	2	BC	31	12	0.14	0.01
GOULDQP2	99	QP	26	251	0.27	0.09
GOULDQP2	699	QP	113	1037	4.58	1.98

Table 30: Performance of the default versions of LANCELOT and MINOS (7)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
GOULDQP3	99	QP	5	104	0.08	0.05
GOULDQP3	699	QP	11	954	0.54	1.82
GREENBEA	5405	LP	– T –	23170	– T –	104.71
GREENBEB	5405	LP	– T –	13171	– T –	60.29
GRIDNETA	180	QP	26	98	0.47	0.08
GRIDNETA	7564	QP	57	1778	283.16	29.53
GRIDNETB	180	QP	22	343	0.42	0.20
GRIDNETB	7564	QP	28	96154	104.40	2997.74
GRIDNETC	180	QP	24	358	0.51	0.19
GRIDNETC	924	QP	29	1944	6.34	8.13
GRIDNETD	180	LC	25	98	0.58	0.10
GRIDNETD	924	LC	36	448	6.61	1.70
GRIDNETE	180	LC	22	354	0.49	0.31
GRIDNETE	924	LC	26	2105	4.09	13.75
GRIDNETF	180	LC	23	368	0.69	0.31
GRIDNETF	924	LC	27	2061	7.25	11.99
GRIDNETG	60	LC	23	39	0.25	0.03
GRIDNETH	60	LC	21	118	0.25	0.05
GRIDNETI	60	LC	20	108	0.22	0.05
GROUPING	100	NC	– F –	5	– F –	0.04
GROW15	645	LP	92	286	74.29	0.48
GROW22	946	LP	199	417	185.81	0.86
GROW7	301	LP	90	112	15.98	0.15
GULF	3	BC	36	684	0.23	0.41
HADAMALS	1024	BC	26	2571	63.22	52.84
HAGER1	21	LC	8	44	0.07	0.01
HAGER1	1001	LC	13	2502	0.62	11.73
HAGER2	21	LC	9	52	0.06	0.01
HAGER2	1001	LC	12	3001	0.65	14.78
HAGER3	21	LC	8	52	0.07	0.01
HAGER3	1001	LC	13	3002	0.75	16.47
HAGER4	21	LC	10	31	0.06	0.01
HAGER4	2001	LC	12	5145	14.81	22.06
HAIRY	2	BC	103	58	0.31	0.01
HANGING	300	NC	103	5166	3.34	7.53
HANGING	1800	NC	1274	– E –	770.10	– E –
HARKERP2	10	QP	7	13	0.04	0.01
HARKERP2	100	QP	9	103	0.38	0.12
HATFLDA	4	BC	24	43	0.12	0.01
HATFLDB	4	BC	21	31	0.11	0.01

Table 31: Performance of the default versions of LANCELOT and MINOS (8)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
HATFLDC	25	BC	5	69	0.03	0.02
HATFLDD	3	BC	20	47	0.10	0.01
HATFLDE	3	BC	23	35	0.12	0.01
HATFLDF	3	BC	28	14	0.11	0.01
HATFLDG	25	BC	17	14	0.09	0.02
HATFLDH	4	QP	11	7	0.06	0.01
HEART6	6	NC	1691	120	7.89	0.03
HELIX	3	BC	13	52	0.06	0.01
HIELOW	3	BC	11	28	0.24	0.27
HILBERTA	2	QP	3	10	0.01	0.01
HILBERTA	10	QP	3	53	0.02	0.01
HILBERTB	5	QP	3	17	0.02	0.01
HILBERTB	50	QP	3	110	0.04	0.20
HIMMELBA	2	QP	3	1	0.02	0.01
HIMMELBB	2	BC	13	15	0.05	0.01
HIMMELBC	2	BC	9	10	0.05	0.01
HIMMELBE	3	BC	4	5	0.02	0.01
HIMMELBF	4	BC	219	46	1.14	0.01
HIMMELBG	2	BC	9	16	0.03	0.01
HIMMELBH	2	BC	2	9	0.01	0.01
HIMMELBI	100	LC	33	358	0.64	0.11
HIMMELBJ	45	LC	– P –	– E –	– P –	– E –
HIMMELBK	24	NC	158	203	1.33	0.10
HIMMELP1	2	BC	11	19	0.04	0.01
HIMMELP2	2	BC	142	139	0.76	0.02
HIMMELP3	2	BC	646	97	3.01	0.02
HIMMELP4	2	BC	555	128	2.54	0.02
HIMMELP5	2	BC	323	67	1.48	0.02
HIMMELP6	2	BC	340	83	1.62	0.02
HONG	4	BC	17	28	0.09	0.01
HS1	2	BC	34	8	0.15	0.01
HS10	2	NC	18	61	0.09	0.02
HS100	7	NC	56	155	0.33	0.03
HS100MOD	7	NC	121	179	0.73	0.03
HS101	7	NC	27359	3732	116.35	1.17
HS102	7	NC	6461	6627	26.49	2.03
HS103	7	NC	4511	1630	18.01	0.51
HS104	8	NC	57	84	0.33	0.03
HS105	8	LC	13	71	0.23	0.15
HS106	8	NC	– P –	611	– P –	0.07

Table 32: Performance of the default versions of LANCELOT and MINOS (9)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
HS107	9	NC	31	31	0.19	0.02
HS108	9	NC	34	163	0.21	0.04
HS109	9	NC	4154	245	21.85	0.08
HS11	2	NC	16	48	0.07	0.01
HS110	10	BC	7	42	0.02	0.01
HS111	10	NC	48	420	0.26	0.12
HS112	10	LC	44	86	0.25	0.02
HS113	10	NC	73	153	0.43	0.03
HS114	10	NC	757	86	3.88	0.03
HS116	13	NC	8080	97	44.13	0.03
HS117	15	NC	67	145	0.39	0.04
HS118	15	QP	17	40	0.13	0.01
HS119	16	LC	30	28	0.26	0.02
HS12	2	NC	24	146	0.14	0.02
HS13	2	NC	59	52	0.31	0.02
HS14	2	NC	13	9	0.06	0.01
HS15	2	NC	47	84	0.24	0.02
HS16	2	NC	17	9	0.11	0.01
HS17	2	NC	20	11	0.11	0.01
HS18	2	NC	92	89	0.42	0.02
HS19	2	NC	35	61	0.18	0.02
HS2	2	BC	7	11	0.05	0.01
HS20	2	NC	24	8	0.13	0.01
HS21	2	QP	2	7	0.02	0.01
HS22	2	NC	10	47	0.07	0.01
HS23	2	NC	44	41	0.21	0.02
HS24	2	LC	8	7	0.06	0.01
HS25	3	BC	1	4	0.01	0.01
HS26	3	NC	40	76	0.21	0.02
HS268	5	QP	18	35	0.11	0.01
HS27	3	NC	17	131	0.11	0.02
HS28	3	LC	4	11	0.03	0.01
HS29	3	NC	31	228	0.17	0.03
HS3	2	QP	5	11	0.02	0.01
HS30	3	NC	8	51	0.06	0.02
HS31	3	NC	14	28	0.08	0.01
HS32	3	NC	6	15	0.04	0.01
HS33	3	NC	13	27	0.07	0.01
HS34	3	NC	20	35	0.13	0.01
HS35	3	QP	7	11	0.04	0.01

Table 33: Performance of the default versions of LANCELOT and MINOS (10)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
HS35MOD	3	QP	2	5	0.01	0.01
HS36	3	LC	12	7	0.06	0.01
HS37	3	LC	17	14	0.10	0.01
HS38	4	BC	59	87	0.30	0.01
HS39	4	NC	21	77	0.13	0.02
HS3MOD	2	QP	5	12	0.03	0.01
HS4	2	BC	3	6	0.02	0.01
HS40	4	NC	11	21	0.08	0.01
HS41	4	LC	7	– W –	0.05	– W –
HS42	4	NC	13	23	0.08	0.01
HS43	4	NC	23	141	0.13	0.03
HS44	4	QP	7	9	0.04	0.01
HS44NEW	4	QP	7	9	0.04	0.01
HS45	5	BC	3	13	0.01	0.01
HS46	5	NC	25	134	0.14	0.04
HS47	5	NC	20	3037	0.12	0.43
HS48	5	LC	4	15	0.03	0.01
HS49	5	LC	16	16	0.01	0.01
HS5	2	BC	5	12	0.03	0.01
HS50	5	LC	13	23	0.09	0.01
HS51	5	QP	3	11	0.02	0.01
HS52	5	QP	7	10	0.04	0.01
HS53	5	QP	7	11	0.05	0.01
HS54	6	LC	3	19	0.02	0.01
HS55	6	LC	7	6	0.04	0.01
HS56	7	NC	20	58	0.09	0.02
HS57	2	NC	2	31	0.01	0.01
HS59	2	NC	336	111	2.35	0.03
HS6	2	NC	57	90	0.34	0.02
HS60	3	NC	16	118	0.08	0.02
HS61	3	NC	20	79	0.12	0.02
HS62	3	LC	35	17	0.18	0.01
HS63	3	NC	15	72	0.08	0.02
HS64	3	NC	51	97	0.25	0.02
HS65	3	NC	29	180	0.13	0.03
HS66	3	NC	10	24	0.06	0.01
HS67	3	NC	57	130	0.30	0.04
HS68	4	NC	93	70	0.45	0.02
HS69	4	NC	44	68	0.24	0.02
HS7	2	NC	19	65	0.10	0.02

Table 34: Performance of the default versions of LANCELOT and MINOS (11)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
HS70	4	NC	31	– E –	0.17	– E –
HS71	4	NC	16	56	0.10	0.02
HS72	4	NC	90	152	0.48	0.02
HS73	4	NC	16	18	0.09	0.01
HS74	4	NC	28	26	0.16	0.01
HS75	4	NC	143	17	0.71	0.01
HS76	4	QP	7	12	0.05	0.01
HS77	5	NC	25	123	0.13	0.02
HS78	5	NC	12	57	0.07	0.02
HS79	5	NC	10	51	0.07	0.02
HS8	2	NC	12	10	0.08	0.01
HS80	5	NC	16	60	0.08	0.02
HS81	5	NC	18	59	0.11	0.02
HS83	5	NC	23	11	0.15	0.01
HS84	5	NC	74	45	0.33	0.01
HS85	5	NC	– F –	523	– F –	0.33
HS86	5	LC	18	12	0.12	0.01
HS87	6	NC	123	252	0.64	0.03
HS88	2	NC	54	68	0.36	0.19
HS89	3	NC	65	225	0.45	1.00
HS9	2	LC	5	10	0.04	0.01
HS90	4	NC	58	119	0.49	0.66
HS91	5	NC	69	226	0.57	1.63
HS92	6	NC	56	115	0.56	1.13
HS93	6	NC	– F –	– E –	– F –	– E –
HS95	6	NC	8	10	0.05	0.01
HS96	6	NC	8	10	0.05	0.01
HS97	6	NC	21	104	0.13	0.02
HS98	6	NC	18	– E –	0.13	– E –
HS99	7	NC	– F –	217	– F –	0.04
HUBFIT	2	BC	2	11	0.01	0.01
HUESTIS	50	QP	191	267	1.36	0.05
HUESTIS	1000	QP	198	5579	77.34	61.98
HYDCAR20	99	NC	– T –	– P –	– T –	– P –
HYDCAR6	29	NC	– T –	– E –	– T –	– E –
HYDROELL	1009	LC	144	2778	84.65	5.70
HYDROELM	505	LC	76	1413	36.43	1.50
HYDROELS	169	LC	37	476	2.88	0.21
HYPCIR	2	BC	9	10	0.04	0.01
INTEGREQ	12	BC	4	7	0.03	0.01

Table 35: Performance of the default versions of LANCELOT and MINOS (12)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
INTEGREQ	102	BC	4	7	0.38	0.17
ISRAEL	142	LP	– T –	282	– T –	0.19
JENSMP	2	BC	10	54	0.06	0.01
JIMACK	3549	BC	66	– T –	81.05	– T –
JNLBRNG1	100	QP	4	144	0.04	0.08
JNLBRNG1	1024	QP	7	2599	0.65	36.08
JNLBRNG2	100	QP	4	133	0.03	0.08
JNLBRNG2	1024	QP	5	1651	0.45	15.25
JNLBRNGA	100	QP	4	144	0.04	0.06
JNLBRNGA	1024	QP	8	2388	0.62	29.65
JNLBRNGB	100	QP	5	112	0.04	0.05
JNLBRNGB	1024	QP	6	2055	0.36	17.21
KB2	41	LP	2810	52	48.10	0.03
KOWOSB	4	BC	11	38	0.05	0.01
KSIP	20	QP	70	11422	23.52	24.71
LAUNCH	25	NC	209414	1261	3532.75	0.69
LCH	30	NC	29	40	0.19	0.02
LCH	600	NC	36	– P –	1.57	– P –
LEAKNET	156	NC	477	36	37.02	0.11
LEWISPOL	6	NC	– F –	– E –	– F –	– E –
LIARWHD	36	BC	11	312	0.06	0.06
LIARWHD	500	BC	16	– W –	0.28	– W –
LINCHEM	4	NC	17	– P –	0.12	– P –
LINSPANH	97	LP	10	16	0.15	0.03
LINVERSE	19	BC	15	55	0.08	0.01
LINVERSE	999	BC	27	1224	5.33	7.87
LISWET1	103	QP	35	– W –	0.60	– W –
LISWET1	2002	QP	– P –	– W –	– P –	– W –
LISWET10	103	QP	26	233	0.46	0.08
LISWET10	2002	QP	29	– W –	19.05	– W –
LISWET11	103	QP	60	– W –	0.95	– W –
LISWET11	2002	QP	37	– W –	28.79	– W –
LISWET12	103	QP	– P –	– W –	– P –	– W –
LISWET12	2002	QP	– P –	– W –	– P –	– W –
LISWET2	103	QP	44	118	0.59	0.06
LISWET2	2002	QP	31	127	21.44	1.00
LISWET3	103	QP	34	119	0.53	0.06
LISWET3	2002	QP	27	1426	18.30	5.59
LISWET4	103	QP	33	145	0.58	0.06
LISWET4	2002	QP	29	1570	20.35	6.05

Table 36: Performance of the default versions of LANCELOT and MINOS (13)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
LISWET5	103	QP	34	132	0.56	0.06
LISWET5	2002	QP	30	– P –	19.29	– P –
LISWET6	103	QP	32	112	0.52	0.05
LISWET6	2002	QP	30	1315	19.32	5.01
LISWET7	103	QP	38	138	0.67	0.07
LISWET7	2002	QP	23	– W –	15.82	– W –
LISWET8	103	QP	34	167	0.59	0.07
LISWET8	2002	QP	26	– W –	17.51	– W –
LISWET9	103	QP	– P –	– W –	– P –	– W –
LISWET9	2002	QP	– P –	– W –	– P –	– W –
LMINSURF	121	BC	49	611	0.34	0.37
LMINSURF	1024	BC	270	10172	8.60	140.11
LOOTSMA	3	NC	– F –	– E –	– F –	– E –
LOTFI	308	LP	– T –	201	– T –	0.14
LOTSCHD	12	QP	22	4	0.13	0.01
LSQFIT	2	BC	2	11	0.01	0.01
LUBRIF	151	NC	– F –	– E –	– F –	– E –
MADSEN	3	NC	29	71	0.16	0.02
MAKELA4	21	LP	8	2	0.10	0.01
MANCINO	10	BC	7	29	0.01	0.19
MANCINO	100	BC	14	210	1.94	334.40
MANNE	300	NC	7	13	0.31	0.11
MANNE	1095	NC	10	13	2.10	0.36
MARATOS	2	BC	8	20	0.05	0.01
MARATOSB	2	BC	1716	184	6.72	0.01
MAROS	1443	LP	– T –	2089	– T –	3.41
MATRIX2	6	NC	11	73	0.08	0.02
MAXLIKA	8	NC	10	124	0.17	0.30
MCCORMCK	10	BC	5	36	0.02	0.01
MCCORMCK	1000	BC	5	2114	0.23	13.73
MDHOLE	2	BC	64	120	0.28	0.01
METHANB8	31	NC	6923	7	34.39	0.05
METHANL8	31	NC	– F –	9	– F –	0.05
MEXHAT	2	BC	20	49	0.06	0.01
MEYER3	3	BC	468	754	2.26	0.07
MINC44	13	QP	11	32	0.08	0.02
MINC44	1113	QP	89	– T –	19.68	– T –
MINMAXRB	3	NC	87	114	0.39	0.02
MINPERM	13	NC	14	112	0.10	0.02
MINPERM	583	NC	339	– T –	44.71	– T –

Table 37: Performance of the default versions of LANCELOT and MINOS (14)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
MINSURF	64	NC	11	198	0.08	0.07
MISTAKE	9	NC	33	213	0.20	0.04
MODEL	1831	LP	134	41	3.30	0.31
MOREBV	10	BC	3	45	0.02	0.01
MOREBV	5000	BC	2	179	0.74	2.71
MOSARQP1	36	QP	12	63	0.10	0.02
MOSARQP1	900	QP	14	1481	1.47	5.17
MOSARQP2	36	QP	9	92	0.11	0.03
MOSARQP2	900	QP	11	1539	1.18	5.75
MRIBASIS	36	NC	– F –	88	– F –	0.06
MSQRTA	4	BC	16	11	0.08	0.01
MSQRTA	529	BC	47	10	86.68	20.56
MSQRTALS	4	BC	16	37	0.08	0.01
MSQRTALS	529	BC	47	131171	87.22	3374.86
MSQRTB	9	BC	14	11	0.07	0.01
MSQRTB	529	BC	45	11	66.06	23.29
MSQRTBLS	9	BC	14	62	0.09	0.01
MSQRTBLS	529	BC	45	146310	65.68	3751.63
MWRIGHT	5	NC	21	37	0.12	0.01
NCB20	110	BC	58	854	1.09	1.90
NCB20B	21	BC	5	84	0.02	0.02
NCB20B	500	BC	25	3485	9.37	55.12
NCVXBQP1	50	QP	5	102	0.03	0.02
NCVXBQP1	1000	QP	5	1962	0.24	3.12
NCVXBQP2	50	QP	5	94	0.04	0.02
NCVXBQP2	1000	QP	6	1743	0.26	2.86
NCVXBQP3	50	QP	5	78	0.04	0.02
NCVXBQP3	1000	QP	6	1165	0.24	2.12
NCVXQP1	50	QP	38	31	0.32	0.02
NCVXQP1	1000	QP	– P –	– P –	– P –	– P –
NCVXQP2	50	QP	44	31	0.32	0.02
NCVXQP2	1000	QP	– P –	– P –	– P –	– P –
NCVXQP3	50	QP	34	33	0.25	0.02
NCVXQP3	1000	QP	– P –	1668	– P –	4.49
NCVXQP4	50	QP	21	42	0.14	0.02
NCVXQP4	1000	QP	58	– P –	2.04	– P –
NCVXQP5	50	QP	22	44	0.16	0.02
NCVXQP5	1000	QP	85	796	2.67	1.75
NCVXQP6	50	QP	24	58	0.14	0.02
NCVXQP6	1000	QP	60	– P –	3.78	– P –

Table 38: Performance of the default versions of LANCELOT and MINOS (15)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
NCVXQP7	50	QP	43	21	0.29	0.02
NCVXQP7	1000	QP	181	398	42.32	1.97
NCVXQP8	50	QP	42	25	0.33	0.02
NCVXQP8	1000	QP	– P –	– P –	– P –	– P –
NCVXQP9	50	QP	51	42	0.44	0.03
NCVXQP9	1000	QP	– P –	885	– P –	3.62
NESM	2923	LP	– T –	3318	– T –	4.18
NGONE	8	NC	18	77	0.12	0.02
NGONE	100	NC	2222	615	545.38	5.44
NLMSURF	121	BC	112	962	0.78	0.60
NLMSURF	1024	BC	843	35554	24.89	553.66
NOBNDTOR	1024	QP	10	2288	0.76	30.73
NONDIA	10	BC	13	– W –	0.09	– W –
NONDIA	10000	BC	55	– W –	13.59	– W –
NONDQUAR	100	BC	16	1356	0.11	0.64
NONDQUAR	10000	BC	20	5185	4.37	98.26
NONMSQRT	9	BC	129	1730	0.62	0.11
NONMSQRT	100	BC	– T –	– P –	– T –	– P –
NONSCOMP	25	BC	9	199	0.05	0.03
NONSCOMP	1000	BC	9	2760	0.29	24.26
NYSTROM5	18	BC	– F –	– E –	– F –	– E –
OBSTCLAE	100	QP	4	221	0.04	0.10
OBSTCLAE	1024	QP	4	2318	2.08	32.20
OBSTCLAL	100	QP	5	89	0.04	0.05
OBSTCLAL	1024	QP	9	1123	0.44	10.20
OBSTCLBL	100	QP	3	86	0.03	0.05
OBSTCLBL	1024	QP	8	1715	0.95	20.31
OBSTCLBM	100	QP	2	92	0.02	0.05
OBSTCLBM	1024	QP	5	1648	0.73	14.19
OBSTCLBU	100	QP	2	73	0.02	0.04
OBSTCLBU	1024	QP	8	1276	0.46	11.91
ODC	16	BC	2	20	0.02	0.01
ODC	1122	BC	13	7999	1.60	168.38
OET1	3	LP	39	103	4.20	0.35
OET3	4	LP	27	81	2.85	0.28
OPTCNTRL	32	NC	24	10	0.17	0.02
OPTMASS	70	NC	– T –	5	– T –	0.03
OPTMASS	3010	NC	– T –	395	– T –	2.92
ORTHRDM2	203	NC	442	– E –	5.39	– E –
ORTHRDM2	4003	NC	134	– E –	25.79	– E –

Table 39: Performance of the default versions of LANCELOT and MINOS (16)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
ORTHRDS2	203	NC	– P –	– E –	– P –	– E –
ORTHREGA	133	NC	115	– E –	1.27	– E –
ORTHREGA	2053	NC	– P –	– E –	– P –	– E –
ORTHREGB	27	NC	100	690	0.65	0.14
ORTHREGC	25	NC	43	516	0.26	0.13
ORTHREGC	1005	NC	46	– E –	2.60	– E –
ORTHREGD	23	NC	438	905	2.39	0.17
ORTHREGD	1003	NC	232	– E –	10.14	– E –
ORTHREGE	36	NC	– P –	– E –	– P –	– E –
ORTHREGF	80	NC	62	659	0.49	0.43
ORTHREGF	1205	NC	220	– E –	8.32	– E –
OSBORNEA	5	BC	38	126	0.20	0.03
OSBORNEB	11	BC	20	– W –	0.19	– W –
OSLBQP	8	QP	2	10	0.01	0.01
PALMER1	4	QP	30	38	0.15	0.01
PALMER1A	6	QP	68	200	0.33	0.03
PALMER1B	4	QP	39	60	0.22	0.01
PALMER1C	8	QP	21	60	0.13	0.01
PALMER1D	7	QP	15	49	0.12	0.01
PALMER1E	8	QP	225	151	1.37	0.03
PALMER2	4	QP	21	31	0.11	0.01
PALMER2A	6	QP	157	187	0.76	0.03
PALMER2B	4	QP	101	60	0.48	0.01
PALMER2C	8	QP	20	61	0.13	0.01
PALMER2E	8	QP	124	336	0.73	0.05
PALMER3	4	QP	38	32	0.18	0.01
PALMER3A	6	QP	147	157	0.73	0.02
PALMER3B	4	QP	66	50	0.28	0.01
PALMER3C	8	QP	12	60	0.07	0.01
PALMER3E	8	QP	75	266	0.43	0.04
PALMER4	4	QP	41	31	0.20	0.01
PALMER4A	6	QP	48	169	0.22	0.02
PALMER4B	4	QP	35	48	0.14	0.01
PALMER4C	8	QP	25	60	0.14	0.01
PALMER4E	8	QP	55	201	0.30	0.03
PARKCH	15	BC	20	132	4.01	3.61
PENALTY1	4	BC	37	261	0.27	0.02
PENALTY1	500	BC	56	4313	2.32	42.14
PENALTY2	4	BC	9	528	0.05	0.04
PENALTY2	100	BC	20	672	0.17	0.62

Table 40: Performance of the default versions of LANCELOT and MINOS (17)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
PENALTY3	50	BC	– P –	621	– P –	3.09
PENALTY3	100	BC	– P –	1180	– P –	28.66
PENTAGON	6	LC	11	10	0.09	0.01
PENTDI	50	QP	2	9	0.01	0.01
PENTDI	1000	QP	2	9	0.14	0.15
PEROLD	1376	LP	– T –	4107	– T –	6.13
PILOT	3652	LP	– T –	19513	– T –	154.10
PILOT-JA	1988	LP	– T –	7048	– T –	14.97
PILOT-WE	2789	LP	– T –	5099	– T –	8.08
PILOT4	1000	LP	– T –	1404	– T –	1.67
PILOT87	4883	LP	– T –	23786	– T –	550.98
PILOTNOV	2172	LP	– T –	2118	– T –	4.68
POROUS1	1024	BC	31	17	6.03	1.61
POROUS1	5184	BC	96	– E –	187.67	– E –
POROUS2	1024	BC	33	15	2.91	1.50
POROUS2	5184	BC	70	– E –	76.91	– E –
POWELL20	10	QP	21	9	0.12	0.01
POWELL20	1000	QP	90	10	11.00	1.14
POWELLBS	2	BC	48	17	0.22	0.01
POWELLSG	4	BC	16	95	0.11	0.01
POWELLSG	1000	BC	16	21045	0.39	217.71
POWER	10	BC	17	161	0.09	0.02
POWER	500	BC	27	1540	0.80	9.76
PROBPENL	10	BC	103	192	0.49	0.02
PROBPENL	500	BC	2	2240	0.11	2.75
PRODPL0	60	NC	36	49	0.34	0.04
PRODPL1	60	NC	67	71	0.58	0.04
PSPDOC	4	BC	7	24	0.03	0.01
PT	2	LP	34	2	1.22	0.09
QPCBLEND	83	QP	– P –	158	– P –	0.07
QPCBOEI1	384	QP	– T –	2012	– T –	2.65
QPCBOEI2	143	QP	614	347	171.76	0.29
QPCSTAIR	467	QP	109	521	56.49	1.10
QPNBLEND	83	QP	127	124	6.01	0.07
QPNBOEI1	384	QP	– T –	2506	– T –	2.93
QPNBOEI2	143	QP	– P –	341	– P –	0.29
QPNSTAIR	467	QP	226	485	163.41	1.03
QR3D	40	BC	33	13	0.24	0.03
QR3D	610	BC	249	104	223.77	2.67
QR3DBD	37	BC	29	93	0.21	0.08

Table 41: Performance of the default versions of LANCELOT and MINOS (18)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
QR3DBD	457	BC	246	219	30.62	7.31
QR3DLS	610	BC	249	1880	222.76	18.32
QRTQUAD	12	BC	22	52	0.08	0.01
QRTQUAD	120	BC	387	340	2.01	0.19
QUARTC	25	BC	22	738	0.10	0.09
QUARTC	100	BC	27	2281	0.19	1.28
QUDLIN	12	QP	5	17	0.02	0.01
RAYBENDL	10	BC	9	50	0.04	0.01
RAYBENDL	130	BC	– P –	2084	– P –	2.11
RAYBENDS	10	BC	9	60	0.09	0.06
RAYBENDS	54	BC	67	1473	2.03	5.93
READING1	202	NC	748	1369	17.85	1.82
READING2	303	LP	21	280	1.73	0.20
READING3	202	NC	1399	1059	24.72	1.25
RECIPE	3	BC	17	24	0.08	0.01
RECIPELP	180	LP	23	28	0.30	0.05
ROBOT	14	NC	33	– E –	0.20	– E –
ROSENBR	2	BC	31	8	0.14	0.01
ROTDISC	905	NC	– T –	– P –	– T –	– P –
S268	5	QP	18	35	0.12	0.01
S277-280	10	LP	16	11	0.13	0.01
S308	2	BC	11	22	0.06	0.01
S365	7	NC	– E –	42	– E –	0.01
S365MOD	7	NC	– E –	– E –	– E –	– E –
S368	8	NC	5	33	0.02	0.01
S368	100	NC	8	239	1.47	10.95
SC105	103	LP	83	28	3.51	0.04
SC205	203	LP	141	53	30.91	0.08
SC50A	48	LP	50	15	0.71	0.02
SC50B	48	LP	50	17	0.65	0.02
SCAGR25	500	LP	1361	536	1618.73	0.54
SCAGR7	140	LP	34346	117	2970.14	0.07
SCFXM1	457	LP	– T –	385	– T –	0.33
SCFXM2	914	LP	– T –	720	– T –	0.96
SCFXM3	1371	LP	– T –	1119	– T –	1.99
SCHMVETT	3	BC	4	23	0.02	0.01
SCHMVETT	500	BC	4	3014	0.14	14.18
SCORPION	358	LP	105	156	13.12	0.21
SCRS8	1169	LP	– T –	739	– T –	0.84
SCSD1	760	LP	29	397	1.41	0.23

Table 42: Performance of the default versions of LANCELOT and MINOS (19)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
SCSD6	1350	LP	47	900	7.71	0.57
SCSD8	2750	LP	60	2495	45.25	3.05
SCTAP1	480	LP	103	244	53.95	0.23
SCTAP2	1880	LP	48	811	56.69	1.60
SCTAP3	2480	LP	46	892	111.28	2.34
SEBA	1028	LP	124	307	210.46	0.43
SEMICON1	12	BC	118	– E –	0.57	– E –
SEMICON1	502	BC	705	– E –	9.78	– E –
SEMICON2	12	BC	40	– E –	0.21	– E –
SEMICON2	502	BC	118	– E –	1.75	– E –
SHARE1B	225	LP	68153	210	10695.75	0.11
SHARE2B	79	LP	– T –	104	– T –	0.05
SHELL	1775	LP	112	339	80.95	0.60
SHIP04L	2118	LP	82	277	45.87	0.58
SHIP04S	1458	LP	130	165	70.13	0.40
SHIP08L	4283	LP	155	444	278.98	1.37
SHIP08S	2387	LP	130	258	234.34	0.79
SHIP12L	5427	LP	144	825	870.06	2.50
SHIP12S	2763	LP	112	411	348.72	1.26
SIERRA	2036	LP	176	1170	732.98	2.32
SIM2BQP	2	QP	2	5	0.01	0.01
SIMBQP	2	QP	5	9	0.02	0.01
SIMPLLPA	2	LP	5	4	0.03	0.01
SIMPLLPB	2	LP	4	2	0.03	0.01
SINEALI	20	BC	58667	102140	270.76	13.68
SINQUAD	5	BC	12	81	0.06	0.01
SINQUAD	500	BC	117	1827	2.24	15.26
SIPOW1	2	LP	41	297	10.00	1.18
SIPOW1M	2	LP	44	298	9.93	1.19
SIPOW2	2	LP	49	150	7.52	0.73
SIPOW2M	2	LP	– T –	336	– T –	1.20
SIPOW3	4	LP	34	60	9.22	0.53
SIPOW4	4	LP	34	29	9.67	0.54
SISSER	2	BC	13	34	0.06	0.01
SNAIL	2	BC	91	170	0.27	0.01
SOSQP1	20	QP	10	6	0.08	0.01
SOSQP1	2000	QP	11	6	12.02	0.41
SOSQP2	20	QP	12	38	0.09	0.01
SOSQP2	2000	QP	17	11807	29.91	53.11
SPANHYD	97	LC	31	110	0.40	0.05

Table 43: Performance of the default versions of LANCELOT and MINOS (20)

Problem	n	type	Functions evals. LANCELOT	Functions evals. MINOS	Cpu-time LANCELOT	Cpu-time MINOS
SPECAN	6	BC	10	44	5.61	1.38
SPECAN	9	BC	10	61	8.47	2.83
SPIRAL	3	NC	86	390	0.39	0.04
SPMSQRT	28	BC	13	11	0.08	0.02
SPMSQRT	499	BC	20	51	0.55	0.53
SPMSRTLS	28	BC	13	185	0.07	0.04
SPMSRTLS	499	BC	20	– W –	0.46	– W –
SROSENBR	10	BC	7	253	0.04	0.02
SROSENBR	1000	BC	11	3950	0.33	14.26
SSC	16	BC	3	18	0.01	0.01
SSC	1122	BC	3	– E –	0.61	– E –
SSEBLIN	194	LP	69	152	1.01	0.06
SSEBNLN	194	NC	66	66	1.17	0.09
SSNLBEAM	1503	NC	116	23107	24.44	384.91
SSNLBEAM	3003	NC	245	– E –	83.23	– E –
STAIR	467	LP	221	513	171.32	0.72
STANDATA	1075	LP	50	103	11.24	0.27
STANDMPS	1075	LP	– P –	275	– P –	0.40
STATIC3	434	QP	– T –	– E –	– T –	– E –
STEENBRA	432	QP	59	125	2.16	0.14
STEENBRB	468	LC	260	3991	5.06	1.75
STEENBRC	540	LC	5031	2120	86.97	1.18
STEENBRD	468	LC	3598	4280	34.53	1.83
STEENBRE	540	LC	2950	2755	51.57	1.47
STEENBRF	468	LC	160	3048	3.60	1.40
STEENBRG	540	LC	7811	1783	152.79	1.09
STOCFOR1	111	LP	285	57	20.73	0.05
STOCFOR2	2031	LP	– T –	1768	– T –	5.84
STRATEC	10	BC	42	120	8.15	4.19
SUPERSIM	2	LP	7	2	0.06	0.01
SVANBERG	10	NC	52	264	0.33	0.07
SVANBERG	1000	NC	101	7739	49.99	130.40
SWOPF	83	NC	278	172	5.32	0.13
TAME	2	QP	2	7	0.02	0.01
TENBARS1	18	NC	– P –	– E –	– P –	– E –
TENBARS2	18	NC	– P –	– E –	– P –	– E –
TENBARS3	18	NC	224	– E –	1.25	– E –
TENBARS4	18	NC	2567	– E –	12.78	– E –
TFI1	3	NC	155	76	9.32	0.67
TFI2	3	LP	32	113	1.90	0.37

Table 44: Performance of the default versions of LANCELOT and MINOS (21)

Problem	n	type	Functions evals. LANCELOT	MINOS	Cpu-time LANCELOT	MINOS
TFI3	3	LC	29	220	2.56	0.74
TOINTGOR	50	BC	10	247	0.07	0.08
TOINTGSS	10	BC	3	– W –	0.02	– W –
TOINTGSS	1000	BC	3	– E –	0.17	– E –
TOINTPSP	50	BC	24	330	0.14	0.08
TOINTQOR	50	QP	7	158	0.05	0.05
TORSION1	1024	QP	11	1294	0.57	13.04
TORSION2	1024	QP	5	2300	0.69	33.29
TORSION3	1024	QP	6	584	0.26	3.06
TORSION4	1024	QP	6	1860	0.32	19.90
TORSION5	1024	QP	4	354	0.20	1.56
TORSION6	1024	QP	4	1775	0.21	12.72
TORSIONA	100	QP	4	102	0.03	0.07
TORSIONA	1024	QP	11	1373	0.61	15.95
TORSIONB	100	QP	5	152	0.04	0.10
TORSIONB	1024	QP	6	2374	0.75	37.38
TORSIONC	100	QP	2	41	0.02	0.04
TORSIONC	1024	QP	6	622	0.28	4.06
TORSIOND	100	QP	3	182	0.04	0.10
TORSIOND	1024	QP	6	1802	0.35	21.82
TORSIONE	100	QP	1	4	0.03	0.02
TORSIONE	1024	QP	4	372	0.22	2.08
TORSIONF	100	QP	2	165	0.03	0.09
TORSIONF	1024	QP	4	1798	0.23	15.23
TQUARTIC	5	BC	2	52	0.01	0.01
TQUARTIC	500	BC	16	2881	0.26	17.77
TRAINF	48	NC	27	18	0.19	0.03
TRAINF	2008	NC	58	292	23.05	6.78
TRIDIA	10	QP	2	39	0.02	0.01
TRIDIA	1000	QP	3	– P –	0.20	– P –
TRIGGER	7	BC	22	23	0.11	0.02
TRUSS	8806	LP	303	11552	4317.72	34.07
TUFF	587	LP	– P –	603	– P –	0.51
TWOBARS	2	NC	13	32	0.07	0.01
UBH1	99	QP	63	128	0.48	0.06
UBH1	909	QP	50	– P –	10.94	– P –
UBH5	110	BC	110	620	1.10	0.19
UBH5	1010	BC	88	30108	47.38	87.94
VANDERM1	10	NC	16	– E –	0.09	– E –
VANDERM1	100	NC	22	– E –	3.35	– E –

Table 45: Performance of the default versions of LANCELOT and MINOS (22)

			Functions evals.		Cpu-time	
Problem	n	type	LANCELOT	MINOS	LANCELOT	MINOS
VANDERM2	10	NC	16	– E –	0.10	– E –
VANDERM2	100	NC	22	– E –	3.37	– E –
VANDERM3	10	NC	17	– E –	0.12	– E –
VANDERM3	100	NC	24	– E –	3.62	– E –
VANDERM4	2	NC	14	23	0.07	0.02
VANDERM4	9	NC	68	– P –	0.41	– P –
VARDIM	10	BC	15	100	0.08	0.01
VARDIM	500	BC	34	7402	1.64	19.63
VAREIGVL	10	BC	16	183	0.02	0.09
VAREIGVL	500	BC	20	4326	1.46	132.11
VIBRBEAM	8	NC	32	107	0.21	0.04
VTP-BASE	203	LP	– T –	153	– T –	0.11
WATER	31	LC	40	27	0.27	0.02
WATSON	12	BC	9	66	0.09	0.02
WATSON	31	BC	11	66	0.12	0.03
WEEDS	3	BC	55	– W –	0.24	– W –
WOMFLET	3	NC	45	128	0.20	0.02
WOOD1P	2594	LP	82	733	662.37	2.19
WOODS	4	BC	46	87	0.20	0.01
WOODS	100	BC	149	776	0.88	0.51
WOODW	8405	LP	– T –	3931	– T –	11.98
YAO	22	QP	15	7	0.13	0.01
YAO	2002	QP	81	– W –	52.96	– W –
YFIT	3	BC	95	129	0.43	0.02
YORKNET	312	NC	– P –	664	– P –	1.16
ZANGWIL2	2	BC	2	10	0.01	0.01
ZANGWIL3	3	BC	8	3	0.05	0.01
ZECEVIC2	2	QP	5	8	0.04	0.01
ZECEVIC3	2	NC	15	56	0.08	0.02
ZECEVIC4	2	NC	16	29	0.07	0.01
ZIGZAG	64	NC	36	212	0.38	0.08
ZIGZAG	3004	NC	114	1988	442.73	42.85

Table 46: Performance of the default versions of LANCELOT and MINOS (23)

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