Results from a numerical evaluation of LANCELOT B

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Abstract

In this report, we present the results of testing the GALAHAD library package LANCELOT B on the CUTEr test set.

1 Introduction

LANCELOT B is an updated version of our ancient nonlinear programming package LANCELOT A (see Conn, Gould and Toint, 1992) that has just been released as part of the GALAHAD optimization software library (see Gould, Orban and Toint, 2002*b*). New features include

- complete recoding in Fortran 90,
- the automatic allocation of workspace,
- a non-monotone descent strategy (see Toint, 1997, and Conn, Gould and Toint, 2000, §10.1) to be used by default,
- the optional use of Moré and Toraldo (1991)-type projections (see also Lin and Moré, 1999*a*) during the subproblem solution phase,
- an interface to Lin and Moré's (1999*b*) public domain incomplete Cholesky factorization package ICFS for use as a preconditioner, and
- the optional use of structured trust regions to better model structured problems (see Conn, Gould, Sartenaer and Toint, 1996, and Conn et al., 2000, §10.2), and
- more flexibility over the choice of derivatives—derivatives need only be provided for a subset of the element functions from which the problem is built, the remainder being estimated by differences or secant approximations.

In this report, we present the results of testing LANCELOT B on all of the CUTEr (see Gould, Orban and Toint, 2002*a*) test examples (save linear and quadratic programs for which there are much better specialized packages within GALAHAD).

2 Results

All of our experiments were performed on a single processor of a Compaq AlphaServer DS20 with 3.5 Gbytes of RAM, using the Compaq f90 compiler with full, machine specific, optimization. Each run was terminated unsuccessfully after 30 minutes or after 10000 function evaluations. We considered the following options:

1. The default (in which a non-monotone descent strategy, with a history length of 1, a band preconditioner, with semi-bandwidth 5, exact second derivatives) is used.
2. The default, except that a monotone descent strategy is used.
3. The default, except that SR1 approximations to the second derivatives are used.
4. The default, except that the Lin and Moré's (1999*b*) incomplete Cholesky factorization preconditioner, ICFS, with 5 extra work vectors, is used.
5. the default, except that the Moré and Toraldo (1991) projected search, with 5 restarts, is used.
6. The default, except that a structured trust region (see Conn et al., 1996), is used.
7. The default, except that the history length for the non-monotone descent strategy is increased to 5, is used.

By way of a comparison, LANCELOT A, with its defaults (A), is also used.

A (t) indicates that the time limit was exceeded, an (f) indicates that the maximum number of allowed function evaluations was exceeded, an (o) that the algorithm was unable to evaluate a problem function, and an (i) that the algorithm could not find a feasible point.

In Table 2.1, we give the CPU times (in seconds) for each CUTEr problem and all of the above options, while in Table 2.2 we do the same for the number of function evaluations. We refer the reader to Gould et al. (2002*b*) for a graphical interpretation of these results, as well as any conclusions we believe can reasonably be drawn.

Table 2.1: CPU times in seconds for various options.

Problem	Option 1	2	3	4	5	6	7	A
3PK	0.05	0.05	0.06	0.05	0.07	0.05	0.05	0.05
AIRCRFTA	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.02
AIRCRFTB	0.05	0.06	0.05	0.05	0.05	0.08	0.05	0.06
AIRPORT	0.27	0.27	0.27	0.42	0.26	0.32	0.27	0.33
AKIVA	0.02	0.02	(t)	0.02	0.02	0.02	0.02	0.02
ALJAZZAF	0.84	0.86	0.98	38.21	0.83	0.86	0.85	0.65
ALLINIT	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
ALLINITC	0.19	0.19	0.17	0.19	0.19	0.19	0.19	0.20
ALLINITU	0.04	0.04	0.05	0.04	0.04	0.07	0.04	0.04
ALSOTAME	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.04
ARGAUSS	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
ARGLINA	0.73	0.73	0.73	16.80	0.73	0.74	0.73	0.39
ARGLINB	1.42	1.42	1.43	33.55	1.42	1.42	1.43	0.74
ARGLINC	1.39	1.40	1.39	32.59	1.39	1.40	1.38	0.73
ARGTRIG	9.43	8.84	2.20	43.08	9.38	15.03	6.63	4.43
ARTIF	1.60	1.67	0.82	2.24	1.58	3.10	7.35	1.35
ARWHEAD	0.87	0.87	0.86	2.87	0.87	0.91	0.87	0.66
AVION2	(f)	(f)	7.39	(f)	(f)	(f)	(f)	(f)
BARD	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.03
BATCH	29.51	41.95	46.85	15.16	22.18	(t)	6.99	30.59
BDEXP	0.78	0.77	14.57	0.82	0.79	0.87	0.79	0.69
BDQRTIC	1.36	1.38	1.39	23.20	1.37	1.49	1.36	1.09
BDVALUE	0.24	0.24	0.25	0.24	0.24	0.24	0.24	0.40
BEALE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	(t)
BIGBANK	372.25	371.91	388.49	199.90	180.89	540.86	372.02	385.59
BIGGS3	0.04	0.04	0.06	0.04	0.04	0.05	0.04	0.03
BIGGS5	0.16	0.11	0.11	0.12	0.16	0.14	0.21	0.14
BIGGS6	0.14	0.19	0.15	0.18	0.14	0.26	0.12	0.18
BLEACHNG	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
BOOTH	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
BOX2	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.02
BOX3	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.03
BRAINPC0	103.53	118.43	106.60	(t)	38.94	190.37	215.05	55.43
BRAINPC1	6.53	5.75	6.19	712.67	114.91	11.08	6.54	5.81
BRAINPC2	490.17	685.17	844.52	(t)	391.89	496.12	367.16	489.24
BRAINPC3	132.56	110.66	267.79	1513.80	35.32	65.20	444.61	67.26
BRAINPC4	229.60	126.41	115.10	(t)	38.84	67.50	533.26	63.39
BRAINPC5	172.34	221.46	110.38	(t)	74.36	248.94	172.03	65.98
BRAINPC6	272.59	65.70	218.49	1256.65	67.80	60.39	176.86	62.61
BRAINPC7	191.61	156.69	210.25	(t)	105.10	76.18	563.10	65.91
BRAINPC8	117.55	165.31	226.58	1628.12	100.44	52.47	561.01	80.61

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
BRAINPC9	584.31	59.79	138.31	899.81	156.23	63.96	581.40	52.61
BRATU1D	0.80	0.53	(t)	0.47	(t)	0.41	0.60	0.85
BRATU2D	6.01	6.01	6.33	2.02	6.32	6.31	5.95	5.48
BRATU2DT	8.36	8.35	8.37	3.72	8.27	13.03	8.37	(t)
BRATU3D	1.11	1.12	1.12	1.28	1.11	1.11	1.11	1.13
BRIDGEND	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
BRITGAS	(t)	10.42	3.73	3.51	14.70	(f)	3.09	8.02
BRKMCC	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
BROWNAL	1.08	1.07	1.07	16.78	1.08	1.09	1.08	0.56
BROWNBS	0.03	0.03	0.09	0.03	0.03	0.02	0.03	0.03
BROWNDEN	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.03
BROYDN3D	0.38	0.38	0.36	0.47	0.39	0.41	0.39	0.50
BROYDN7D	8.47	9.53	9.63	17.49	7.65	44.86	8.47	14.69
BROYDNBD	1.90	1.83	1.77	2.52	1.90	2.36	1.89	1.50
BRYBND	1.81	1.76	1.68	2.43	1.83	2.24	1.79	1.43
BT10	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07
BT1	0.08	0.13	0.08	0.08	0.08	0.11	0.08	0.15
BT11	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
BT12	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.04
BT13	1.49	10.95	1.52	0.05	1.60	3.69	0.20	9.04
BT2	0.13	0.11	0.11	0.09	0.14	0.17	0.14	0.11
BT3	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03
BT4	0.08	0.08	0.08	0.08	0.08	0.11	0.08	0.08
BT5	0.05	0.06	0.06	0.05	0.05	0.06	0.05	0.06
BT6	0.11	0.08	0.10	0.09	0.11	0.11	0.11	(t)
BT7	0.13	0.13	0.15	0.14	0.14	0.15	0.13	0.14
BT8	0.08	0.08	0.08	0.09	0.08	0.09	0.08	0.09
BT9	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
BYRDSPHR	0.10	0.13	0.11	0.07	0.10	0.10	0.08	0.12
CAMEL6	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02
CAMSHAPE	(t)	(t)	1710.17	(t)	494.72	(t)	1789.61	(t)
CANTILVR	0.08	0.08	0.09	0.08	0.08	0.09	0.08	0.08
CAR2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
CATENA	126.84	136.03	136.55	186.71	130.21	165.35	74.07	67.52
CATENARY	544.16	505.20	545.74	330.44	489.55	622.84	468.94	356.92
CATMIX	270.11	290.80	344.77	1278.77	15.16	361.17	267.08	176.23
CB2	0.06	0.06	0.06	0.06	0.07	0.06	0.05	0.05
CB3	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.06
CBRATU2D	1.95	1.94	1.95	0.99	1.97	2.26	1.95	1.92
CBRATU3D	0.47	0.47	0.46	0.77	0.48	0.49	0.46	0.51
CHACONN1	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.04
CHACONN2	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
CHAIN	42.52	55.76	58.31	(t)	36.50	(f)	(f)	29.16
CHAINWOO	6.62	6.76	6.53	12.78	6.10	14.94	4.63	6.29
CHANDHEQ	1.10	1.10	1.17	7.69	1.10	1.14	1.10	0.68
CHANNEL	176.06	168.19	186.32	1083.94	131.06	(f)	208.62	134.33
CHARDIS0	182.80	183.67	198.74	280.28	182.73	183.85	183.09	(t)
CHARDIS1	221.91	263.29	792.97	1161.26	216.68	248.88	223.00	(t)
CHEBYQAD	10.13	12.93	11.64	49.04	8.91	25.13	9.03	8.47
CHEMRCTA	(t)	(t)	(t)	1632.86	(t)	(t)	(t)	(t)
CHEMRCTB	1.26	2.75	1.20	253.75	1.30	1.65	1.67	1.56
CHNROSNB	0.20	0.18	0.17	0.17	0.20	0.24	0.14	(t)
CLIFF	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
CLNLBEAM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
CLPLATEA	1.77	1.77	1.77	0.98	1.75	24.80	1.78	1.64
CLPLATEB	1.47	1.48	1.47	1.07	1.46	10.53	1.47	1.39
CLPLATEC	33.06	33.07	33.10	0.56	27.57	22.06	33.16	25.81
CLUSTER	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.05
CONCON	0.78	1.50	0.38	0.34	1.46	0.64	0.14	1.54
CONGIGMZ	0.09	0.12	0.08	0.09	0.08	0.11	0.09	0.12
CONT6-QQ	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
COOLHANS	0.72	0.17	0.21	0.11	0.72	0.26	2.62	0.18
CORE1	4.82	7.74	4.03	11.66	2.45	13.05	2.48	27.17
CORE2	11.44	18.11	8.65	35.70	5.64	54.15	10.16	17.87
CORKSCRW	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
COSHFUN	(t)	(t)	(t)	(t)	961.77	(t)	(t)	(t)
COSINE	0.70	0.66	0.72	0.91	0.68	0.71	0.67	0.94
CRAGGLVY	0.83	0.83	0.80	1.05	0.83	0.97	0.84	0.84
C-RELOAD	1036.20	1231.24	(f)	(t)	219.49	(t)	575.49	1559.07
CRESC100	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
CRESC132	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
CRESC4	(f)	(f)	(f)	17.28	23.72	(f)	12.30	(f)
CRESC50	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
CSFI1	0.41	0.44	0.24	0.61	0.39	0.45	0.36	0.44
CSFI2	0.41	0.37	(t)	(t)	(t)	(t)	(t)	0.35
CUBE	0.06	0.13	0.05	0.06	0.06	0.08	0.06	0.11
CURLY10	226.88	212.59	226.22	7.47	221.31	(t)	213.38	197.87
CURLY20	533.15	536.62	534.38	32.70	562.93	1270.81	535.60	387.57
CURLY30	947.40	944.71	946.33	68.65	929.38	1308.84	943.08	581.63
DALLASL	52.94	53.03	51.38	16.12	42.87	51.10	53.00	62.08
DALLASM	3.33	3.19	3.09	1.35	2.49	3.11	3.35	2.84
DALLASS	0.49	0.54	0.58	0.27	0.47	0.57	0.54	0.53
DECONVB	0.13	0.18	0.15	0.45	0.14	0.31	0.12	0.13
DECONVC	0.39	0.36	0.26	0.50	0.15	0.31	0.39	0.21

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
DECONVU	0.25	0.34	0.37	2.36	0.54	0.49	0.26	0.21
DEMBO7	6.67	(f)	2.58	8.44	1.11	(f)	2.00	6.50
DEMYMALO	0.06	0.08	0.07	0.07	0.07	0.07	0.06	0.08
DENSCHNA	0.02	0.03	0.03	0.03	0.02	0.03	0.03	0.02
DENSCHNB	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.03
DENSCHNC	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03
DENSCHND	0.13	0.10	0.16	0.12	0.13	0.11	0.13	0.10
DENSCHNE	0.05	0.05	0.06	0.05	0.04	0.05	0.05	0.04
DENSCHNF	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
DIPIGRI	0.13	0.16	0.17	0.10	0.14	0.17	0.13	0.16
DISC2	0.21	0.32	0.25	0.24	0.20	0.30	0.31	0.29
DISCS	(i)	(i)	(i)	3.72	(t)	(t)	(t)	(t)
DITTERT	(t)	(t)	(t)	(t)	(t)	(t)	4.97	(t)
DIXCHLNG	0.17	0.13	0.11	0.12	0.16	0.16	0.16	0.13
DIXCHLNV	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
DIXMAANA	0.32	0.28	0.22	0.26	0.33	0.35	0.33	0.33
DIXMAANB	1.63	1.63	0.30	0.85	1.76	0.33	1.61	0.53
DIXMAANC	0.32	0.32	0.60	0.74	0.32	0.51	0.31	0.38
DIXMAAND	1.43	0.83	0.45	0.48	1.54	0.77	1.43	0.46
DIXMAANE	0.72	0.37	0.84	0.65	0.72	0.27	0.72	0.36
DIXMAANF	2.13	3.80	2.16	2.41	2.25	2.33	3.87	0.50
DIXMAANG	3.33	3.30	2.99	0.77	3.57	1.44	3.78	0.74
DIXMAANH	2.67	2.98	2.87	1.97	2.86	1.85	2.87	0.58
DIXMAANI	0.30	0.30	1.50	0.40	0.30	0.34	0.30	0.40
DIXMAANJ	1.92	1.90	1.97	2.81	2.28	2.94	1.82	0.93
DIXMAANK	0.06	0.05	0.06	0.04	0.06	0.03	0.17	0.04
DIXMAANL	2.99	4.11	4.50	2.97	3.20	1.67	2.13	1.04
DJTL	0.35	0.36	0.36	0.35	0.35	0.28	0.35	0.35
DNIEPER	0.26	0.32	0.26	0.40	0.17	0.25	0.26	0.52
DQRTIC	0.79	0.80	0.80	0.95	0.80	0.89	0.80	0.91
DRCAV1LQ	295.60	320.04	226.16	61.75	266.23	172.43	298.02	146.26
DRCAV2LQ	396.94	283.13	258.11	146.76	289.47	372.29	388.03	188.73
DRCAV3LQ	1021.31	1184.24	877.35	769.85	983.18	1785.74	1165.12	1085.65
DRCAVTY1	293.90	317.55	224.87	62.11	263.63	171.39	293.20	148.10
DRCAVTY2	390.43	279.18	253.13	146.43	284.16	369.34	383.71	191.80
DRCAVTY3	1007.27	1176.99	871.53	775.01	979.49	1774.57	1151.87	1112.76
DRUGDIS	(t)	(t)	(t)	(t)	228.39	(t)	(t)	(t)
DRUGDISE	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
DTOC1L	0.86	0.86	0.87	1.16	0.85	3.58	0.87	2.01
DTOC1NA	1.96	1.96	2.93	2.15	1.93	10.04	1.95	2.85
DTOC1NB	2.19	2.18	3.22	2.33	2.19	4.38	2.18	3.37
DTOC1NC	2.61	2.62	3.23	6.00	2.60	2.85	2.58	3.90

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
DTOC1ND	3.69	3.04	3.34	6.36	3.73	4.65	3.69	4.19
DTOC2	7.93	7.93	15.24	32.45	7.85	8.80	7.92	9.49
DTOC4	1.31	1.31	1.68	0.86	1.30	1.38	1.30	2.74
DTOC5	2.68	2.68	3.07	2.88	2.68	2.85	2.68	6.11
DTOC6	148.39	202.55	160.56	6.94	151.44	151.91	148.60	273.10
EDENSCH	0.28	0.29	0.31	0.33	0.27	0.32	0.28	0.33
EG1	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03
EG2	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.09
EG3	(t)	(t)	(t)	(t)	(i)	(t)	(t)	(t)
EIGENA2	42.78	61.77	35.81	44.11	33.20	69.65	40.51	(t)
EIGENA	47.16	42.20	55.93	46.25	49.32	954.88	77.73	(t)
EIGENACO	158.90	133.76	123.05	143.39	158.36	1151.93	147.57	(t)
EIGENALS	149.57	211.42	146.19	207.85	148.39	(t)	218.34	(t)
EIGENB	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENB2	582.25	893.24	548.69	(t)	585.40	(t)	389.95	649.10
EIGENBCO	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENBLS	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENC	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENC2	1228.29	(t)	1339.58	(t)	1413.52	(t)	629.10	630.21
EIGENCCO	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENCLS	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGMAXA	0.05	0.05	0.05	0.13	0.06	0.06	0.05	0.08
EIGMAXB	0.37	0.46	0.24	0.97	0.38	(i)	0.30	0.27
EIGMAXC	0.10	0.10	0.09	0.76	0.10	0.10	0.10	0.13
EIGMINA	0.05	0.05	0.06	0.15	0.06	0.05	0.05	0.06
EIGMINB	1.89	2.78	2.11	3.39	1.75	12.81	0.92	2.44
EIGMINC	0.10	0.10	0.11	0.97	2.18	0.10	0.10	0.12
ELATTAR	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ELEC	40.01	39.94	361.59	581.53	42.56	212.68	53.63	26.22
ENGVAL1	0.38	0.39	0.41	0.46	0.38	0.44	0.38	0.55
ENGVAL2	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.06
EQC	(i)	(i)	(i)	(i)	(i)	(i)	(i)	(i)
ERRINBAR	(o)	(o)	(o)	(o)	(o)	(o)	(o)	6.85
ERRINROS	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EXPFIT	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03
EXPFITA	0.11	0.11	0.26	0.20	0.14	0.11	0.11	0.13
EXPFITB	0.41	0.42	0.54	0.67	0.39	0.40	0.42	0.37
EXPFITC	3.07	3.07	3.22	5.00	1.01	2.84	3.11	2.92
EXPLIN	0.26	0.26	0.42	0.31	0.13	0.26	0.26	0.25
EXPLIN2	0.13	0.12	0.34	0.13	0.11	0.12	0.12	0.14
EXPQUAD	3.36	52.36	18.06	2.01	2.01	5.55	3.05	5.32
EXTROSNB	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
FCCU	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.06
FEEDLOC	133.61	133.68	228.32	277.69	91.85	429.13	60.29	145.79
FLETCBV2	0.15	0.15	0.14	0.14	0.14	0.15	0.15	0.33
FLETCBV3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLETCHBV	(t)	(t)	(f)	(t)	(t)	(f)	(t)	(t)
FLETCHCR	11.87	20.86	11.95	14.16	11.82	16.34	11.84	13.43
FLETCHER	0.09	0.08	0.13	0.09	0.09	0.09	0.08	0.08
FLOSP2HH	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLOSP2HL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLOSP2HM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLOSP2TH	(t)	(t)	(t)	(t)	1177.42	(t)	(t)	(t)
FLOSP2TL	(t)	(t)	(t)	1663.33	(t)	(t)	(t)	(t)
FLOSP2TM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FMINSRF2	159.03	56.41	189.77	13.52	157.39	416.31	314.47	14.31
FMINSURF	(t)	463.02	(t)	(t)	(t)	778.25	(t)	247.67
FREUROTH	0.59	0.60	0.73	0.64	0.59	7.84	0.60	0.71
GASOIL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GAUSSELM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GENHUMPS	(f)	(f)	(f)	135.45	(f)	(f)	(f)	(f)
GENROSE	1.45	3.47	1.45	2.63	1.47	4.67	0.97	2.40
GIGOMEZ1	0.06	0.09	0.07	0.06	0.07	0.07	0.06	0.10
GIGOMEZ2	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.07
GIGOMEZ3	0.07	0.07	0.06	0.06	0.06	0.07	0.07	0.06
GILBERT	32.37	32.35	32.39	(t)	32.37	32.48	32.37	16.43
GLIDER	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GOTTFR	0.06	0.05	0.06	0.06	0.06	0.07	0.06	0.04
GPP	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GRIDGENA	2.66	2.69	(t)	1.62	2.64	2.78	2.66	2.09
GRIDNETD	133.38	133.38	185.72	61.41	164.89	126.89	133.21	125.27
GRIDNETE	36.76	36.71	45.56	14.97	37.29	37.48	36.78	35.51
GRIDNETF	583.32	582.97	(t)	626.57	(t)	540.75	583.70	481.10
GRIDNETG	231.17	230.50	349.74	70.24	353.68	235.24	230.76	217.06
GRIDNETH	37.79	37.84	53.63	15.17	37.79	38.47	37.67	35.95
GRIDNETI	528.30	528.75	(t)	645.02	(t)	552.53	528.27	581.96
GROUPING	(i)	(i)	(i)	(i)	(i)	(i)	(i)	(i)
GROWTH	(t)	0.41	(t)	(t)	(t)	(t)	(t)	(t)
GROWTHLS	(t)	0.42	(t)	(t)	(t)	(t)	(t)	(t)
GULF	0.11	0.18	0.11	0.13	0.11	3.52	0.11	0.13
HADAMALS	14.21	14.22	12.61	7.38	1.80	19.42	14.23	11.99
HADAMARD	360.02	1102.43	1416.22	(t)	332.03	(t)	586.91	730.64
HAGER1	0.27	0.28	0.26	7.77	0.26	0.28	0.26	0.70
HAGER2	1.14	1.14	0.58	9.14	1.15	0.59	1.14	1.79

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
HAGER3	1.51	1.51	0.51	14.59	1.51	1.19	1.50	1.87
HAGER4	48.96	49.17	58.12	849.95	13.04	48.83	49.00	51.59
HAIFAL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HAIFAM	131.64	157.04	96.20	214.29	228.59	48.54	152.88	140.21
HAIFAS	0.10	0.11	0.11	0.11	0.09	0.08	0.09	0.09
HAIRY	0.13	0.20	0.16	0.11	0.13	0.24	0.28	0.17
HALDMADS	0.39	0.31	0.32	0.58	0.34	0.59	0.52	0.37
HANGING	(t)	(t)	(t)	(t)	518.94	(t)	(t)	(t)
HART6	0.04	0.04	0.03	0.04	0.04	0.04	0.03	0.03
HATFLDA	0.09	0.09	0.07	0.08	0.08	0.10	0.09	0.08
HATFLDB	0.08	0.08	0.07	0.08	0.08	0.08	0.08	0.08
HATFLDC	0.03	0.03	0.02	0.03	0.02	0.02	0.03	0.02
HATFLDD	0.08	0.08	0.07	0.08	0.08	0.10	0.08	0.09
HATFLDE	0.09	0.08	0.08	0.08	0.08	0.12	0.08	0.08
HATFLDF	0.11	0.12	0.06	0.08	0.11	0.12	0.10	0.11
HATFLDG	0.06	0.06	0.06	0.05	0.05	0.06	0.06	0.04
HEART6	4.90	0.30	0.73	2.71	5.02	2.83	1.65	5.92
HEART6LS	4.94	0.29	0.72	2.71	4.94	2.76	1.62	5.88
HEART8	0.75	1.41	1.02	0.68	1.56	2.46	0.40	0.69
HEART8LS	0.72	1.38	1.06	0.68	1.56	2.55	0.40	0.69
HELIX	0.06	0.05	0.08	0.06	0.06	0.06	0.06	0.05
HELSBY	(t)	(t)	(t)	417.56	1534.47	(t)	(t)	(t)
HET-Z	0.44	0.44	0.45	2.47	0.37	0.48	0.44	0.99
HIELOW	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HIMMELBA	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
HIMMELBB	0.04	0.05	0.04	0.06	0.04	0.06	0.04	0.05
HIMMELBC	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.03
HIMMELBD	0.04	0.13	0.05	0.04	0.04	0.04	0.04	(t)
HIMMELBE	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
HIMMELBF	0.12	1.41	0.12	0.25	0.13	(f)	0.12	0.82
HIMMELBG	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02
HIMMELBH	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
HIMMELBI	4.62	7.28	2.18	5.36	1.78	(f)	1.83	14.85
HIMMELBJ	(f)	(f)	(f)	0.98	3.90	(f)	(f)	(f)
HIMMELBK	0.69	0.98	0.67	0.67	0.70	0.99	0.54	1.00
HIMMELP1	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
HIMMELP2	0.31	0.37	0.32	0.73	0.32	0.30	0.31	0.44
HIMMELP3	4.98	4.29	1.41	0.23	4.73	1.49	0.38	1.66
HIMMELP4	0.86	1.28	2.16	0.34	0.79	1.24	1.73	1.38
HIMMELP5	0.51	0.67	0.51	0.57	0.57	0.47	0.41	0.87
HIMMELP6	0.54	0.81	0.55	0.48	0.49	0.57	0.41	0.91
HONG	0.06	0.06	0.10	0.06	0.06	0.06	0.06	0.06

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
HS100	0.14	0.13	0.16	0.11	0.13	0.15	0.12	0.15
HS10	0.06	0.06	0.10	0.06	0.06	0.06	0.06	0.06
HS1	0.07	0.10	0.03	0.08	0.08	0.03	0.04	0.09
HS100LNP	0.09	0.12	0.11	0.09	0.09	0.15	0.09	0.09
HS100MOD	2.43	2.65	2.91	0.15	3.75	2.46	2.34	0.74
HS101	22.93	(f)	(f)	(f)	(f)	(f)	(f)	(f)
HS102	21.55	25.23	18.10	27.13	14.09	18.55	12.66	21.53
HS103	19.20	(f)	25.60	12.30	14.57	(t)	15.47	(f)
HS104	0.16	0.18	0.30	0.16	0.15	0.16	0.16	0.19
HS105	0.17	0.18	1.06	0.18	0.14	0.17	0.17	0.12
HS106	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
HS107	0.14	0.15	0.17	0.11	0.11	0.16	0.15	0.15
HS108	0.08	0.14	0.08	0.07	0.07	0.07	0.08	0.12
HS109	(f)	(f)	(f)	1.78	3.97	(f)	26.66	(f)
HS110	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03
HS11	0.06	0.05	0.05	0.05	0.06	0.06	0.05	0.05
HS111	0.16	0.17	0.40	0.15	0.16	0.24	0.16	0.14
HS111LNP	0.17	0.18	0.41	0.15	0.17	0.23	0.18	0.18
HS112	0.16	0.15	0.14	0.14	0.14	0.15	0.16	0.15
HS113	0.23	0.34	0.19	0.19	0.17	0.27	0.17	0.32
HS114	1.42	2.63	1.82	1.46	1.38	1.39	1.09	2.49
HS116	9.10	11.53	16.87	(f)	(f)	(f)	4.81	12.18
HS117	0.20	0.23	0.27	0.11	0.16	0.21	0.25	0.16
HS119	0.16	0.15	0.17	0.15	0.20	0.16	0.16	0.14
HS12	0.06	0.07	0.10	0.06	0.07	0.14	0.06	0.08
HS13	0.18	0.18	0.24	0.19	0.17	0.18	0.18	0.23
HS14	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
HS15	0.13	0.13	0.22	0.14	0.12	0.15	0.13	0.14
HS16	0.04	0.06	0.12	0.04	0.05	0.09	0.03	0.06
HS17	0.06	0.06	0.12	0.06	0.05	0.06	0.06	0.06
HS18	0.27	0.25	0.27	0.21	0.26	0.35	0.16	0.31
HS19	0.10	0.09	0.10	0.10	0.10	0.10	0.09	0.12
HS20	0.08	0.08	0.08	0.08	0.08	0.09	0.08	0.08
HS2	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.03
HS21MOD	0.03	0.03	0.03	0.02	0.04	0.03	0.03	0.03
HS22	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.04
HS23	0.13	0.18	0.11	0.15	0.16	0.14	0.10	0.17
HS24	0.05	0.05	0.07	0.07	0.05	0.05	0.05	0.05
HS25	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.01
HS26	0.12	0.12	0.14	0.13	0.12	0.15	0.12	0.12
HS27	0.12	0.11	0.13	0.10	0.12	0.10	0.09	0.09
HS28	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
HS29	0.08	0.08	0.10	0.07	0.08	0.08	0.08	0.07
HS30	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
HS31	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
HS32	0.06	0.06	0.07	0.06	0.04	(f)	0.06	0.05
HS33	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
HS34	0.06	0.06	0.07	0.07	0.06	0.08	0.07	0.07
HS36	0.04	0.03	0.05	0.04	0.03	0.04	0.04	0.03
HS37	0.05	0.06	0.12	0.06	0.05	0.05	0.06	0.05
HS38	0.14	0.13	0.05	0.14	0.14	0.14	0.10	0.14
HS39	0.07	0.07	0.10	0.07	0.07	0.07	0.07	0.07
HS40	0.04	0.04	0.05	0.04	0.04	0.05	0.04	0.05
HS4	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
HS41	0.04	0.04	0.05	0.04	0.03	0.04	0.04	0.04
HS42	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
HS43	0.09	0.10	0.09	0.07	0.07	0.19	0.08	0.08
HS45	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
HS46	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS47	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS48	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
HS49	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS50	0.04	0.04	0.06	0.04	0.04	0.04	0.04	0.04
HS5	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.02
HS54	0.17	0.18	0.18	0.25	0.17	0.12	0.21	0.18
HS55	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03
HS56	0.06	0.06	0.09	0.05	0.06	0.05	0.05	0.05
HS57	0.03	0.03	0.03	0.14	0.03	0.03	0.03	0.02
HS59	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS60	0.06	0.06	0.07	0.11	0.06	0.09	0.06	0.06
HS6	0.12	0.18	0.14	0.13	0.12	0.13	0.08	0.17
HS61	0.05	0.06	0.07	0.05	0.05	0.05	0.05	0.06
HS62	0.11	0.11	0.17	0.11	0.11	0.11	0.11	0.11
HS63	0.05	0.05	0.06	0.06	0.05	0.06	0.06	0.07
HS64	0.11	0.11	0.15	0.12	0.12	0.12	0.11	0.12
HS65	0.09	0.14	0.09	0.08	0.07	0.10	0.08	0.12
HS66	0.04	0.04	0.04	0.04	0.04	0.05	0.04	0.04
HS67	0.17	0.15	0.16	0.12	0.18	0.24	0.14	0.18
HS68	0.20	0.23	0.43	0.21	0.20	0.20	0.21	0.23
HS69	0.13	0.11	0.20	0.12	0.12	0.12	0.12	0.11
HS70	0.16	0.15	0.15	0.15	0.16	0.35	0.16	0.14
HS7	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08
HS71	0.06	0.06	0.09	0.05	0.06	0.06	0.06	0.07
HS72	0.19	0.19	0.24	0.20	0.19	0.20	0.19	0.20

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
HS73	0.06	0.06	0.06	0.09	0.08	0.06	0.06	0.06
HS74	0.06	0.06	0.07	0.05	0.06	0.06	0.06	0.05
HS75	0.32	0.37	0.33	0.24	0.31	0.49	0.32	0.39
HS77	0.08	0.09	0.08	0.09	0.09	(i)	0.09	0.08
HS78	0.04	0.04	0.06	0.04	0.04	0.04	0.04	0.04
HS79	0.06	0.05	0.06	0.05	0.06	0.06	0.06	0.05
HS80	0.08	0.05	0.09	0.04	0.08	0.06	0.08	0.05
HS8	0.04	0.04	0.04	0.04	0.04	0.06	0.04	0.04
HS81	0.08	0.06	0.09	0.05	0.08	0.06	0.08	0.05
HS83	0.08	0.09	0.09	0.10	0.06	(f)	0.09	0.09
HS84	0.33	0.64	0.40	0.22	0.08	(f)	0.60	0.68
HS85	0.55	0.79	(i)	22.68	(f)	13.81	0.60	15.54
HS86	0.07	0.07	0.08	0.09	0.06	0.07	0.07	0.07
HS87	1.36	0.86	1.12	(f)	1.40	(f)	(f)	1.05
HS88	0.17	0.17	0.28	0.18	0.17	0.18	0.17	0.18
HS89	0.19	0.19	0.28	0.19	0.19	0.22	0.18	0.21
HS90	0.23	0.21	0.31	0.19	0.23	0.21	0.24	0.21
HS9	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
HS91	0.23	0.22	0.37	0.23	0.22	0.24	0.22	0.25
HS92	0.25	0.25	0.42	0.30	0.25	0.24	0.27	0.25
HS93	(i)	(i)	(i)	(i)	(i)	(i)	(i)	(i)
HS95	0.05	0.06	0.07	0.12	0.06	0.05	0.05	0.06
HS96	0.05	0.05	0.09	0.10	0.06	0.05	0.05	0.06
HS97	0.07	0.08	0.07	0.08	0.04	0.07	0.07	0.09
HS98	0.08	0.17	0.07	0.08	0.05	0.09	0.08	0.19
HS99	(i)	(i)	(i)	(i)	0.35	(i)	(i)	(i)
HS99EXP	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
HUBFIT	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
HUMPS	1.57	7.89	0.48	1.27	1.58	(f)	3.27	12.05
HVYCRASH	(t)	(t)	(t)	(t)	100.97	(t)	(t)	(t)
HYDC20LS	(f)	(f)	(f)	(f)	(f)	(t)	(f)	(f)
HYDCAR20	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
HYDCAR6	(f)	(f)	5.94	28.57	(f)	11.51	2.27	9.14
HYDROELL	129.70	129.71	646.40	179.86	166.47	106.13	130.20	128.38
HYDROELM	34.09	34.10	123.44	37.75	66.36	27.41	34.14	29.77
HYDROELS	2.30	2.31	8.34	2.57	2.30	2.20	2.31	2.39
HYPCIR	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
INDEF	(f)	(t)	(f)	(t)	(f)	(f)	(f)	(f)
INTEGREQ	20.11	20.11	14.59	926.73	20.28	20.60	20.33	10.11
JANNSON3	530.93	899.94	583.85	(t)	530.56	584.27	530.86	346.83
JANNSON4	115.21	136.75	106.85	(t)	115.38	128.42	111.08	74.73
JENSMP	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
JIMACK	14.60	28.73	635.94	27.07	14.65	18.21	26.46	21.96
JUNKTURN	296.95	308.38	354.82	(t)	298.06	77.63	290.70	311.59
KISSING2	60.35	84.57	127.20	241.02	27.52	93.72	39.74	50.46
KISSING	347.02	141.80	87.28	447.76	29.73	162.86	100.50	121.26
KIWCRESC	0.06	0.08	0.07	0.06	0.07	0.07	0.06	0.08
KOWOSB	0.04	0.05	0.04	0.05	0.04	0.06	0.04	0.04
KTMODEL	(t)	(t)	0.16	(t)	(t)	(t)	(t)	(t)
LAKES	18.14	23.13	(f)	29.45	3.53	6.42	15.42	19.32
LAUNCH	(f)	(f)	(f)	11.10	(f)	(f)	(f)	(f)
LCH	9.58	10.76	31.09	(t)	9.58	9.90	10.40	5.25
LEAKNET	18.70	21.52	22.45	4.13	16.31	13.71	18.84	15.06
LEWISPOL	(i)	(i)	(i)	(i)	(i)	(i)	(i)	(i)
LIARWHD	0.60	0.61	0.65	16.99	0.61	0.70	0.61	0.70
LIN	0.06	0.06	0.10	0.06	0.06	0.06	0.06	0.06
LINVERSE	43.79	16.67	15.16	84.37	16.60	104.33	45.40	46.79
LMINSURF	645.91	156.27	456.17	79.66	683.72	675.56	(f)	62.25
LOADBAL	0.42	0.41	0.41	0.46	0.34	(f)	0.42	0.33
LOGHAIRY	15.57	21.93	1.37	11.41	10.85	25.00	4.97	21.67
LOGROS	0.12	0.15	0.37	0.11	0.11	0.13	0.12	0.14
LOOTSMA	(i)	(i)	(i)	(i)	(i)	(i)	(i)	(i)
LSNNODOC	0.04	0.04	0.06	0.04	0.05	0.04	0.04	0.04
LSQFIT	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04
LUBRIF	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUBRIFC	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE10	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE11	10.22	3.96	8.55	14.86	10.29	10.21	(i)	6.70
LUKVLE12	(t)	(t)	(t)	(i)	(t)	(f)	(t)	(t)
LUKVLE13	6.00	10.01	6.97	9.02	6.13	12.76	5.84	9.41
LUKVLE14	96.50	140.10	95.28	286.24	105.07	(t)	49.79	82.53
LUKVLE15	8.80	7.38	6.35	6.94	8.77	13.65	16.75	11.87
LUKVLE16	3.29	3.57	3.44	4.33	3.26	28.09	4.71	5.38
LUKVLE17	66.05	139.96	33.85	16.35	33.25	282.92	23.36	128.59
LUKVLE18	16.63	20.48	18.85	17.09	17.22	34.35	14.82	23.72
LUKVLE2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	32.67
LUKVLE3	1.51	1.48	2.88	2.13	1.48	1.82	1.46	2.91
LUKVLE4	33.14	56.82	(t)	(t)	32.23	134.81	(t)	(t)
LUKVLE5	6.31	10.34	(i)	15.69	6.34	(f)	8.71	10.17
LUKVLE6	9.78	13.32	(t)	13.50	9.93	11.14	9.85	15.68
LUKVLE7	4.92	13.46	37.71	6.42	5.03	6.33	6.06	7.15
LUKVLE8	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE9	8.60	19.00	10.68	(t)	6.87	(t)	7.63	22.36

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
LUKVLI1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI10	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI11	601.66	413.58	859.42	(t)	64.85	(t)	837.30	843.13
LUKVLI12	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI13	519.30	835.36	403.24	(t)	23.18	1257.38	530.42	832.95
LUKVLI14	659.18	914.86	698.00	(t)	154.42	1395.99	547.21	1432.03
LUKVLI15	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI16	(t)	(t)	(t)	(t)	31.44	(t)	(t)	(t)
LUKVLI17	(t)	(t)	(t)	(t)	33.43	(t)	(t)	(t)
LUKVLI18	(t)	(t)	(t)	(t)	38.03	(t)	(t)	(t)
LUKVLI2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	668.41
LUKVLI3	1.96	2.00	1.87	3.73	1.83	17.65	1.93	2.95
LUKVLI4	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI5	110.24	139.11	1492.62	(t)	41.49	(t)	133.64	152.04
LUKVLI6	141.79	190.39	(t)	(t)	10.89	140.18	143.49	(t)
LUKVLI7	13.67	15.98	44.47	12.70	19.76	(f)	11.45	29.53
LUKVLI8	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI9	358.89	(f)	210.30	(t)	234.04	(f)	66.15	300.37
MADSEN	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.08
MADSSCHJ	(t)	(t)	(t)	(t)	1493.37	(t)	324.78	(t)
MAKELA1	0.06	0.07	0.06	0.06	0.06	0.08	0.06	0.06
MAKELA2	0.07	0.08	0.07	0.07	0.08	0.09	0.07	0.08
MAKELA3	0.42	0.44	0.39	0.29	0.28	0.26	0.19	0.48
MANCINO	1.54	1.77	0.97	8.16	1.55	1.83	1.55	(t)
MANNE	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
MARATOS	0.03	0.04	0.05	0.04	0.04	0.04	0.04	0.04
MARINE	920.78	765.95	943.74	(t)	1087.10	1008.02	950.09	781.34
MATRIX2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
MAXLIKA	0.13	0.12	0.67	0.13	0.30	0.12	0.13	0.08
MCCORMCK	0.47	0.48	0.65	0.53	0.49	0.76	0.49	0.49
MCONCON	0.57	1.78	0.57	0.38	0.26	(f)	0.15	1.31
MDHOLE	0.13	0.16	0.13	0.16	0.14	0.13	0.09	0.16
MESH	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
METHANB8	18.46	12.67	18.54	12.95	18.99	2.92	1.47	1.14
METHANL8	(f)	(f)	(f)	20.97	(f)	(f)	6.99	2.60
METHANOL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
MEXHAT	0.07	0.12	0.09	0.07	0.07	0.07	0.07	0.12
MEYER3	0.53	0.82	0.73	0.41	0.52	1.86	0.34	1.17
MIFFLIN1	0.05	0.07	0.06	0.04	0.05	0.05	0.05	0.06
MIFFLIN2	0.10	0.12	0.08	0.10	0.10	0.10	0.08	0.13
MINC44	4.88	7.73	5.77	11.15	4.00	11.39	3.47	6.86
MINMAXBD	1.49	2.35	2.07	0.72	1.60	2.75	1.37	1.59

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
MINMAXRB	0.19	0.23	0.11	0.22	0.19	0.15	0.12	0.20
MINPERM	4.85	5.33	6.95	9.98	5.68	5.58	4.86	7.04
MINSURF	0.06	0.05	0.06	0.06	0.06	0.06	0.06	0.04
MINSURFO	2.39	2.41	7.39	3.27	2.30	9.48	2.40	1.49
MISTAKE	0.11	0.15	0.15	0.13	0.10	0.15	0.10	0.14
MOREBV	0.48	0.50	0.51	0.65	0.49	0.54	0.50	0.60
MRIBASIS	1.24	0.97	51.63	0.87	1.34	(i)	(i)	0.98
MSQRTA	49.93	69.58	65.59	(t)	46.24	100.52	164.56	68.39
MSQRTALS	48.26	68.70	61.77	(t)	45.34	98.17	155.77	67.64
MSQRTB	41.07	57.89	61.43	(t)	40.49	62.86	211.15	47.81
MSQRTBLS	38.76	56.68	61.50	(t)	40.89	61.61	206.24	46.00
MWRIGHT	0.07	0.07	0.08	0.07	0.07	0.08	0.08	0.06
NCB20	31.67	39.89	115.54	46.04	28.66	118.55	30.31	(t)
NCB20B	71.36	50.62	(t)	21.99	79.17	112.45	71.43	(t)
NET1	0.25	0.26	0.23	0.39	0.21	0.25	0.24	0.26
NET2	0.99	0.94	1.07	1.02	0.69	1.44	0.96	1.08
NET3	(t)	(t)	(t)	44.09	(t)	625.31	(t)	1523.41
NGONE	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
NLMSURF	(f)	574.09	(f)	524.70	(f)	1196.52	(f)	180.34
NONCVXU2	406.24	322.35	(t)	814.88	378.38	553.89	654.03	156.06
NONCVXUN	(t)	(t)	(f)	(t)	(t)	(t)	(t)	(t)
NONDIA	0.26	0.26	0.26	15.09	0.27	0.28	0.26	(t)
NONDQUAR	0.59	0.59	0.60	16.51	0.60	0.67	0.59	0.72
NONMSQRT	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
NONSCOMP	0.37	0.35	0.33	0.45	0.37	0.40	0.36	0.51
NUFFIELD	(t)	(t)	(t)	(t)	(f)	(t)	(t)	(t)
NYSTROM5	0.24	0.30	0.11	0.23	0.24	0.61	0.21	(t)
ODC	10.06	10.11	11.61	4.32	10.05	10.51	10.05	5.87
ODFITS	0.15	0.15	0.12	0.04	0.11	0.13	0.15	0.16
OET2	(t)	(t)	3.31	(t)	(t)	(t)	(t)	(t)
OET4	4.84	4.81	7.41	16.64	1.08	5.58	5.49	7.67
OET5	128.04	267.69	177.62	280.20	39.99	943.41	101.95	339.18
OET6	(t)	(t)	25.05	(t)	(t)	(t)	(t)	(t)
OET7	(t)	(t)	156.49	(t)	(t)	(t)	(t)	(t)
OPTCDEG2	529.44	559.02	529.10	(t)	(t)	591.00	529.21	610.79
OPTCDEG3	277.26	277.56	261.53	(t)	105.65	272.04	277.48	303.04
OPTCNTRL	0.08	0.08	0.08	0.14	0.08	0.08	0.08	0.10
OPTCTRL3	4.81	5.40	5.19	77.49	4.84	11.33	4.86	7.19
OPTCTRL6	4.82	5.41	5.19	77.55	4.84	11.33	4.87	7.24
OPTMASS	(t)	(f)	(t)	(t)	(f)	(t)	(t)	(t)
OPTPRLOC	2.45	3.77	3.01	6.34	2.25	2.70	1.19	3.46
ORBIT2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
ORTHRDM2	13.62	18.27	19.87	(t)	13.81	135.39	13.70	16.28
ORTHRDS2	72.16	46.77	76.13	(t)	70.14	470.07	78.67	37.20
ORTHREGA	38.26	45.92	59.16	(t)	39.75	42.18	34.98	39.04
ORTHREGB	1.53	0.91	1.03	0.25	1.64	0.92	0.98	0.30
ORTHREGC	7.51	6.71	11.49	245.43	7.61	7.73	9.19	6.43
ORTHREGD	53.08	40.11	75.74	(t)	57.63	84.59	39.42	42.50
ORTHREGE	47.15	72.93	81.38	(t)	69.58	(i)	45.33	96.22
ORTHREGF	9.71	11.29	9.20	396.09	10.07	108.51	11.00	13.06
ORTHRGDM	18.32	28.25	32.06	(t)	18.28	190.73	18.28	20.02
ORTHRGDS	62.10	55.32	74.24	(t)	63.46	158.24	42.74	43.80
OSBORNEA	(t)	(t)	0.11	0.16	(t)	(t)	(t)	(t)
OSBORNEB	0.13	0.12	0.12	0.09	0.13	0.11	0.14	0.10
PALMER1	0.13	0.13	0.12	0.13	0.13	0.12	0.13	0.07
PALMER1A	0.20	0.22	0.25	0.24	0.20	0.56	0.20	0.23
PALMER1B	0.16	0.16	0.10	0.16	0.16	0.11	0.16	0.12
PALMER1E	0.46	0.49	0.31	0.34	0.76	1.27	0.11	0.65
PALMER2	0.08	0.09	0.15	0.09	0.08	0.22	0.09	0.07
PALMER2A	0.20	0.40	0.36	0.23	0.28	0.81	0.30	0.44
PALMER2B	0.11	0.13	0.05	0.08	0.08	0.11	0.10	0.14
PALMER2E	0.61	0.59	0.64	0.95	1.90	0.51	0.27	0.36
PALMER3	0.23	0.12	0.14	0.08	0.16	0.25	0.22	0.17
PALMER3A	0.22	0.35	0.27	0.20	0.21	0.68	0.22	0.36
PALMER3B	0.16	0.09	0.06	0.07	0.16	0.08	0.16	0.08
PALMER3E	0.18	0.22	1.29	1.62	0.40	0.04	0.49	0.37
PALMER4	0.10	0.09	0.30	0.16	0.10	0.13	0.10	0.15
PALMER4A	0.22	0.21	0.17	0.27	0.18	0.40	0.22	0.17
PALMER4B	0.12	0.17	0.10	0.09	0.12	0.09	0.10	0.19
PALMER4E	0.14	0.23	3.17	0.30	0.21	0.04	0.13	0.17
PALMER5A	4.86	5.23	5.14	15.37	(f)	6.29	1.48	5.20
PALMER5B	1.27	2.31	1.45	0.38	2.66	1.64	0.63	2.87
PALMER5C	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
PALMER5D	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
PALMER5E	0.03	0.03	0.05	0.04	0.02	0.02	0.03	0.03
PALMER6A	0.27	0.57	0.36	0.25	0.37	0.91	0.37	0.68
PALMER6C	0.06	0.06	0.07	0.02	(f)	0.06	0.06	0.06
PALMER6E	0.12	0.08	0.22	0.46	0.11	0.31	0.19	0.23
PALMER7A	5.29	6.45	5.75	8.28	21.99	5.57	4.72	8.23
PALMER7C	0.06	0.07	0.06	0.02	9.05	0.06	0.07	0.06
PALMER7E	2.81	5.16	3.19	(f)	1.05	9.28	1.13	6.21
PALMER8A	0.14	0.18	0.04	0.13	0.15	0.12	0.13	0.13
PALMER8C	0.04	0.05	0.05	0.02	6.85	0.05	0.05	0.04
PALMER8E	0.14	0.18	0.21	0.36	0.46	0.34	0.12	0.13

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
PARKCH	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
PENALTY1	1.80	2.35	1.96	314.01	1.82	1.84	1.81	2.08
PENALTY2	0.11	0.10	(t)	0.87	0.11	0.11	0.10	0.08
PENALTY3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
PENTAGON	0.10	0.10	0.10	0.10	0.10	0.09	0.10	0.10
PFIT1	0.62	0.92	(t)	0.67	0.62	1.50	0.23	1.09
PFIT1LS	0.63	0.92	(t)	0.66	0.63	1.51	0.24	1.11
PFIT2	0.31	1.06	3.06	0.71	0.32	0.41	0.10	0.52
PFIT2LS	0.32	1.10	3.12	0.69	0.31	0.40	0.10	0.52
PFIT3	0.10	0.87	4.11	0.08	0.10	0.70	0.23	0.69
PFIT3LS	0.10	0.90	4.13	0.08	0.10	0.69	0.22	0.68
PFIT4	0.32	0.86	(t)	0.47	0.32	(t)	0.07	0.76
PFIT4LS	0.32	0.87	(t)	0.47	0.31	(t)	0.08	0.75
PINENE	(t)	(t)	(t)	719.52	(t)	(t)	(t)	(t)
POLAK1	0.10	0.12	0.10	0.09	0.11	(f)	0.07	0.10
POLAK2	(t)	(t)	0.23	0.06	(t)	0.05	(t)	(t)
POLAK3	(t)	(t)	0.32	(t)	(t)	(t)	(t)	(t)
POLAK4	0.06	0.06	0.06	0.05	0.06	0.06	0.06	0.06
POLAK5	0.04	0.04	0.03	0.04	0.04	2.38	0.04	0.03
POLAK6	0.80	1.18	0.75	0.27	0.56	2.34	0.24	1.27
POLYGON	327.20	453.44	460.36	1345.91	(t)	950.19	245.12	(t)
POROUS1	65.83	66.63	70.22	21.45	67.94	170.93	68.91	51.93
POROUS2	27.66	27.77	26.82	16.64	27.51	46.41	26.51	21.74
PORTFL1	0.09	0.09	0.09	0.08	0.07	0.09	0.09	0.10
PORTFL2	0.10	0.10	0.10	0.08	0.07	(f)	0.10	0.09
PORTFL3	0.08	0.12	0.08	0.06	0.06	0.08	0.08	0.11
PORTFL4	0.09	0.09	0.09	0.06	0.07	0.09	0.09	0.11
PORTFL6	0.11	0.12	0.12	0.06	0.07	(f)	0.12	0.09
POWELLBS	0.07	0.13	0.07	0.07	0.07	0.07	0.07	0.12
POWELLSG	0.47	0.47	0.47	0.61	0.47	0.52	0.47	0.60
POWELLSQ	0.04	0.06	0.04	0.05	0.04	0.03	0.04	0.07
POWER	141.38	141.25	141.38	(t)	141.39	141.48	141.25	74.24
PROBPENL	0.06	0.05	0.09	2.15	0.05	0.06	0.06	0.05
PRODPL0	0.28	0.29	0.31	0.38	0.17	0.28	0.29	0.30
PRODPL1	0.51	0.61	0.37	0.64	4.52	0.77	0.40	0.53
PSPDOC	0.04	0.03	0.04	0.04	0.04	0.04	0.03	0.03
QC	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
QCNEW	(i)	(i)	(i)	(i)	(i)	(i)	(i)	(i)
QR3D	39.59	63.41	48.97	1211.84	38.33	113.10	38.85	60.00
QR3DBD	6.93	10.63	8.12	179.69	6.92	25.85	4.84	8.81
QR3DLS	39.56	63.36	48.90	1200.01	38.19	113.13	38.79	60.33
QRTQUAD	(t)	1043.81	(t)	205.99	66.54	(t)	1399.10	(t)

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
QUARTC	0.82	0.82	0.82	0.97	0.83	0.90	0.82	0.95
RAYBENDL	(f)	9.21	76.62	(f)	(f)	(f)	(f)	2.44
RAYBENDS	(t)	(t)	235.49	(t)	(t)	(f)	(t)	(t)
READING1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING4	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING5	(t)	(t)	(t)	31.29	(t)	(t)	(t)	(t)
READING6	(f)	6.71	(f)	(f)	(f)	(f)	(f)	5.74
READING7	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING8	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING9	(t)	(t)	(t)	(t)	(f)	(t)	(t)	(t)
RECIPE	0.06	0.06	0.05	0.07	0.06	0.05	0.07	0.05
RES	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
RK23	0.14	0.20	0.19	0.22	0.18	0.30	0.15	0.18
ROBOT	0.08	0.10	0.07	0.16	0.08	0.25	0.08	0.10
ROBOTARM	(i)	(t)	(t)	(t)	(i)	(t)	(i)	(t)
ROCKET	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ROSENBR	0.07	0.08	0.07	0.08	0.07	0.06	0.07	0.07
ROSENMMX	0.45	0.54	0.45	0.17	0.27	0.83	0.27	0.54
ROTDISC	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
S308	0.03	0.04	0.04	0.03	0.03	0.04	0.04	0.03
S316-322	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
S365	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
S365MOD	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
S368	0.02	0.02	0.05	0.02	0.02	0.07	0.02	0.02
SARO	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SAROMM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SAWPATH	(i)	(i)	(i)	(i)	(i)	(i)	(i)	(i)
SBRYBND	(f)	(f)	(f)	4.76	(f)	(f)	(f)	(f)
SCHMVETT	0.48	0.48	13.82	0.53	0.47	0.53	0.47	0.49
SCOND1LS	26.76	65.91	36.49	38.48	25.81	77.11	24.38	40.67
SCOSINE	(f)	472.00	(f)	59.98	(f)	(t)	(f)	362.66
SCURLY10	(t)	(t)	(t)	39.21	(t)	(t)	(t)	(t)
SCURLY20	(t)	(t)	(t)	122.04	(t)	(t)	(f)	(t)
SCURLY30	(t)	(t)	(t)	252.78	(t)	(t)	(t)	(t)
SEMICON1	27.02	66.23	36.90	38.74	25.99	77.79	24.40	(t)
SEMICON2	4.66	4.60	7.29	6.55	4.51	6.19	4.56	(t)
SENSORS	0.76	0.66	0.90	1.66	0.76	1.85	0.76	0.70
SINEALI	0.21	0.16	0.22	0.21	0.22	0.12	0.22	0.11
SINEVAL	0.14	0.23	0.18	0.14	0.14	0.14	0.14	0.17
SINQUAD	2.30	1.99	2.13	7.32	2.31	67.23	2.31	10.52
SINROSNB	1.81	16.11	1.99	25.63	7.62	105.24	2.35	1.51

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
SISSER	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04
SMBANK	3.17	3.17	2.16	1.64	2.22	(f)	3.16	2.56
SMMPSF	(t)	1674.01	(t)	(t)	(t)	(t)	(t)	(t)
SNAIL	0.15	0.15	0.27	0.15	0.15	0.12	0.13	0.14
SNAKE	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
SPANHYD	0.29	0.56	1.39	0.85	0.63	0.41	0.85	0.28
SPARSINE	717.82	684.20	350.19	342.96	678.43	946.37	621.59	570.98
SPARSQUR	6.21	6.19	6.27	16.82	6.55	6.83	6.18	5.49
SPECAN	6.36	6.28	6.64	6.54	6.45	8.72	6.36	2.86
SPIRAL	0.20	0.24	0.86	0.26	0.22	0.21	0.20	0.25
SPMSQRT	6.30	6.28	6.85	8.26	6.33	16.69	15.05	1.77
SPMSRTLS	6.20	6.13	6.73	8.13	6.24	16.50	14.68	1.66
SREADIN3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SROSENBR	0.25	0.32	0.32	0.28	0.24	0.26	0.24	0.56
SSC	3.52	3.47	4.81	1.94	3.46	3.72	3.48	2.11
SSEBNLN	2.13	2.13	2.12	1.59	0.63	(f)	2.11	2.43
SSNLBEAM	63.86	63.91	78.62	520.16	78.88	151.16	63.92	172.43
STANCMIN	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.04
STEENBRB	29.64	(f)	362.38	6.41	4.55	37.26	24.29	(t)
STEENBRC	525.48	(f)	(f)	18.04	6.08	(f)	(f)	(f)
STEENBRD	866.44	(f)	(f)	5.55	4.28	(f)	248.29	(f)
STEENBRE	(f)	(f)	(f)	6.35	7.29	(f)	(f)	(f)
STEENBRF	7.54	(f)	338.36	6.83	7.84	26.14	8.42	(f)
STEENBRG	(f)	(f)	(f)	198.69	6.74	(f)	(f)	(f)
STEERING	219.07	489.89	288.32	740.69	171.99	724.64	165.72	308.96
STRATEC	(t)	(t)	1.64	(t)	(t)	(t)	(t)	(t)
SVANBERG	(t)	(t)	(t)	(t)	136.09	(t)	(t)	(t)
SWOPF	0.98	2.03	1.34	0.73	0.88	3.12	0.57	1.52
SYNTHES1	0.06	0.06	0.11	0.05	0.05	0.06	0.06	0.06
SYNTHES2	0.09	0.09	0.18	0.11	0.09	0.09	0.09	0.09
SYNTHES3	0.10	0.10	0.21	0.14	0.11	0.10	0.10	0.11
TENBARS1	1.44	1.73	0.72	0.98	1.79	(f)	0.92	1.81
TENBARS2	1.44	1.98	1.18	1.19	1.49	2.27	1.25	1.69
TENBARS3	1.27	1.57	0.91	1.00	1.14	1.39	0.83	1.57
TENBARS4	4.35	5.18	4.40	3.38	8.53	5.49	3.07	6.13
TFI1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
TFI3	0.15	0.17	0.17	0.24	0.11	0.17	0.17	0.19
TOINTGOR	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.04
TOINTGSS	0.17	0.18	0.26	0.20	0.18	0.19	0.18	0.33
TOINTPSP	0.13	0.13	0.13	0.08	0.13	0.14	0.23	0.11
TQUARTIC	1.09	1.10	1.10	20.93	1.10	71.94	1.10	0.83
TRAINF	340.49	341.51	380.50	1491.15	29.04	330.58	340.13	354.66

Table 2.1: CPU times in seconds for various options (continued).

Problem	1	2	3	4	5	6	7	A
TRAINH	(t)	(t)	(t)	(t)	200.83	(t)	(t)	(t)
TRIGGER	0.06	0.07	(t)	(t)	0.06	0.08	0.06	(t)
TRIMLOSS	76.24	115.17	81.50	1075.98	(f)	(t)	(t)	365.93
TRUSPYR1	1.16	2.12	1.14	2.12	1.46	1.36	1.04	2.17
TRUSPYR2	2.80	5.22	2.59	2.92	19.86	(f)	2.53	5.25
TRY-B	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.05
TWIRIBG1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
TWIRIMD1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
TWIRISM1	230.69	417.39	(f)	1282.05	122.85	(t)	228.97	310.51
TWOBARS	0.05	0.05	0.08	0.05	0.05	0.04	0.05	0.04
UBH5	38.85	58.14	39.59	(t)	59.96	41.90	37.73	48.62
VANDERM1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VANDERM2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VANDERM3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VANDERM4	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VARDIM	0.21	0.21	0.21	3.44	0.21	0.22	0.21	0.15
VAREIGVL	0.15	0.09	0.14	0.18	0.15	0.08	0.09	(t)
VIBRBEAM	0.34	0.34	(f)	0.36	0.35	0.36	0.35	0.31
WATER	0.16	0.14	0.16	0.25	0.13	0.18	0.29	0.14
WATSON	0.05	0.05	0.08	0.10	0.05	0.05	0.05	0.04
WEEDS	0.09	0.10	0.13	0.10	0.09	0.11	0.09	0.08
WOMFLET	0.13	0.15	0.16	0.17	0.19	0.20	0.13	0.11
WOODS	2.04	1.78	0.85	1.48	2.07	19.85	0.86	1.57
YFIT	0.12	0.26	0.12	0.15	0.12	1.51	0.08	0.22
YFITU	0.12	0.25	0.12	0.15	0.12	1.52	0.08	0.22
YORKNET	(i)	(f)	(i)	175.33	(f)	(f)	(i)	13.87
ZAMB2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ZAMB2-10	8.25	31.42	(t)	512.70	(t)	(f)	10.51	19.63
ZAMB2-11	4.74	13.05	(f)	(f)	(t)	(f)	3.66	12.14
ZAMB2-8	1.13	1.65	1.62	2.76	0.45	(f)	0.99	1.34
ZAMB2-9	1.95	4.57	(f)	52.54	(t)	(f)	2.00	3.98
ZANGWIL3	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
ZECEVIC3	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07
ZECEVIC4	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05
ZIGZAG	482.74	583.59	456.28	832.58	369.59	689.18	471.83	654.86
ZY2	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.04

Table 2.2: Numbers of function evaluations for various options.

	Option							
Problem	1	2	3	4	5	6	7	A
3PK	8	8	8	7	15	8	8	8
AIRCRFTA	4	4	4	4	4	4	4	4
AIRCRFTB	17	17	15	15	17	27	17	19
AIRPORT	42	42	41	41	42	43	42	53
AKIVA	6	6	(t)	6	6	6	6	6
ALJAZZAF	33	33	38	34	32	33	33	33
ALLINIT	10	10	9	10	10	11	10	11
ALLINITC	67	68	59	67	67	67	67	68
ALLINITU	12	12	15	10	12	23	12	13
ALSOTAME	12	13	12	12	12	13	12	10
ARGAUSS	2	2	2	2	2	2	2	2
ARGLINA	1	1	1	1	1	1	1	1
ARGLINB	2	2	2	2	2	2	2	2
ARGLINC	2	2	2	2	2	2	2	2
ARGTRIG	23	22	5	5	23	37	16	21
ARTIF	36	39	15	41	36	70	204	31
ARWHEAD	5	5	4	5	5	5	5	5
AVION2	(f)	(t)	1053	(t)	(t)	(t)	(t)	(t)
BARD	7	7	10	12	7	7	7	7
BATCH	2809	4978	3620	1296	3373	(t)	352	3544
BDEXP	10	10	64	10	10	10	10	10
BDQRTIC	10	10	10	10	10	10	10	10
BDVALUE	0	0	0	0	0	0	0	0
BEALE	11	12	13	11	11	10	11	(t)
BIGBANK	69	69	80	61	80	3843	69	67
BIGGS3	10	10	17	10	10	15	10	9
BIGGS5	58	37	38	40	58	50	80	51
BIGGS6	49	71	54	64	49	94	44	67
BLEACHNG	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
BOOTH	2	2	2	2	2	2	2	2
BOX2	5	5	6	5	5	5	5	5
BOX3	7	7	8	7	7	7	7	7
BRAINPC0	53	95	34	(t)	128	92	101	51
BRAINPC1	10	9	13	48	306	31	10	9
BRAINPC2	91	106	152	(t)	373	105	43	134
BRAINPC3	65	114	38	88	128	30	110	54
BRAINPC4	82	158	40	(t)	136	34	112	53
BRAINPC5	63	177	33	(t)	230	232	63	52
BRAINPC6	65	53	85	74	145	37	59	64
BRAINPC7	68	162	69	(t)	290	52	110	58
BRAINPC8	50	244	100	98	239	31	91	85

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
BRAINPC9	110	59	50	41	391	50	110	47
BRATU1D	16	8	(t)	5	(t)	4	10	17
BRATU2D	7	7	7	7	7	7	7	7
BRATU2DT	8	8	8	9	8	11	8	(t)
BRATU3D	4	4	4	4	4	4	4	4
BRIDGEND	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
BRITGAS	(f)	129	88	52	328	(t)	75	115
BRKMCC	3	3	3	3	3	3	3	3
BROWNAL	3	3	3	2	3	3	3	3
BROWNBS	6	6	30	6	6	4	6	6
BROWNDEN	8	8	10	8	8	8	8	8
BROYDN3D	5	5	4	5	5	5	5	5
BROYDN7D	203	243	222	196	193	1043	203	471
BROYDNBD	18	18	18	13	18	21	18	18
BRYBND	18	18	18	13	18	21	18	18
BT10	19	19	19	19	19	19	19	19
BT11	20	20	21	20	20	22	20	21
BT12	10	10	13	10	10	10	10	10
BT1	25	47	27	25	25	40	25	56
BT13	620	4612	626	17	661	1488	74	3621
BT2	51	41	39	29	51	68	53	35
BT3	5	5	10	5	5	5	5	5
BT4	25	25	26	25	25	39	25	24
BT5	15	19	19	15	15	17	15	19
BT6	40	26	36	31	40	41	40	(t)
BT7	48	45	53	46	48	54	46	48
BT8	27	29	28	28	27	31	27	29
BT9	21	21	21	21	21	21	21	21
BYRDSPHR	35	49	41	21	35	34	27	42
CAMEL6	5	5	11	5	5	5	5	5
CAMSHAPE	(t)	(t)	427	(t)	833	(t)	413	(t)
CANTILVR	26	26	31	25	26	28	26	26
CAR2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
CATENA	4288	4650	4524	4463	4376	5306	2466	4016
CATENARY	2098	2636	2722	63	2230	5566	807	3857
CATMIX	88	89	140	150	90	118	88	93
CB2	15	17	18	15	16	15	15	15
CB3	19	19	16	21	19	20	19	17
CBRATU2D	7	7	7	7	7	8	7	7
CBRATU3D	4	4	4	4	4	4	4	4
CHACONN1	8	8	14	8	10	8	8	11
CHACONN2	14	15	13	15	13	14	14	15

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
CHAIN	2027	2943	2068	(f)	1836	(t)	(t)	2082
CHAINWOO	202	203	192	303	185	399	142	221
CHANDHEQ	13	13	13	13	13	13	13	13
CHANNEL	1368	1178	1348	2500	952	(f)	1614	1163
CHARDIS0	1	1	5	1	1	1	1	(t)
CHARDIS1	9	17	41	9	8	10	9	(t)
CHEBYQAD	104	138	120	78	91	290	92	128
CHEMRCTA	(t)	(t)	(t)	1853	(t)	(t)	(t)	(t)
CHEMRCTB	28	72	26	1175	28	28	40	39
CHNROSNB	67	63	57	55	67	95	46	(t)
CLIFF	27	27	27	27	27	27	27	27
CLNLBEAM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
CLPLATEA	8	8	8	7	8	171	8	8
CLPLATEB	8	8	8	8	8	138	8	8
CLPLATEC	8	8	8	5	7	5	8	8
CLUSTER	11	11	15	10	11	11	11	17
CONCON	276	528	126	115	539	205	37	523
CONGIGMZ	29	39	24	28	26	35	29	38
CONT6-QQ	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
COOLHANS	261	60	74	37	261	95	959	64
CORE1	766	1454	646	1464	627	1327	349	5194
CORE2	777	1308	570	1418	704	1108	705	1178
CORKSCRW	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
COSHFUN	(t)	(t)	(t)	(t)	1748	(t)	(t)	(t)
COSINE	9	9	9	10	9	9	9	9
CRAGGLVY	14	14	13	14	14	14	14	14
C-RELOAD	3483	4757	(t)	(t)	430	(t)	1664	7465
CRESC100	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
CRESC132	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
CRESC4	(f)	(t)	(t)	5927	8663	(t)	4377	(t)
CRESC50	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
CSFI1	156	169	88	233	148	172	135	166
CSFI2	159	140	(t)	(t)	(t)	(t)	(t)	128
CUBE	18	51	17	18	18	28	18	40
CURLY10	16	20	16	11	16	(t)	15	22
CURLY20	22	22	22	18	23	121	22	21
CURLY30	21	21	21	17	22	152	21	22
DALLASL	59	59	70	62	101	62	59	69
DALLASM	65	66	69	49	97	62	65	67
DALLASS	67	74	79	48	104	68	67	77
DECONVB	14	20	16	33	18	39	14	18
DECONVC	44	41	28	39	21	37	44	28

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
DECONVU	37	55	62	195	76	82	38	46
DEMBO7	1511	(f)	518	1307	280	(t)	380	1410
DEMYMALO	18	26	23	20	21	22	18	26
DENSCHNA	5	5	5	5	5	5	5	5
DENSCHNB	6	6	5	6	6	6	6	6
DENSCHNC	10	10	9	10	10	10	10	10
DENSCHND	50	36	61	46	50	41	50	36
DENSCHNE	14	14	18	17	14	14	14	14
DENSCHNF	6	6	6	6	6	6	6	6
DIPIGRI	40	54	57	34	47	58	40	54
DISC2	56	94	67	51	57	79	89	84
DISCS	(t)	(t)	(t)	216	(t)	(t)	(t)	(t)
DITTERT	(t)	(t)	(t)	(t)	(t)	(t)	16	(t)
DIXCHLNG	58	44	33	38	58	55	56	43
DIXCHLNV	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
DIXMAANA	12	10	6	6	12	11	12	8
DIXMAANB	11	11	8	18	11	10	11	16
DIXMAANC	11	11	22	18	11	16	11	9
DIXMAAND	17	12	15	10	17	27	17	13
DIXMAANE	29	13	10	19	29	7	29	8
DIXMAANF	50	72	61	44	50	60	106	14
DIXMAANG	39	16	50	18	39	40	75	26
DIXMAANH	37	29	38	46	37	46	55	21
DIXMAANI	8	8	22	11	8	8	8	9
DIXMAANJ	48	37	57	68	63	71	43	36
DIXMAANK	27	23	27	13	27	10	91	15
DIXMAANL	47	47	122	73	47	44	33	38
DJTL	144	147	144	144	144	120	144	138
DNIEPER	34	42	36	38	47	33	34	75
DQRTIC	32	32	32	32	32	32	32	32
DRCAV1LQ	14	15	18	16	15	60	14	19
DRCAV2LQ	46	45	32	46	42	220	49	56
DRCAV3LQ	195	287	181	245	191	766	176	273
DRCAVTY1	14	15	18	16	15	60	14	19
DRCAVTY2	46	45	32	46	42	220	49	56
DRCAVTY3	195	287	181	245	191	766	176	273
DRUGDIS	(t)	(t)	(t)	(t)	2267	(t)	(t)	(t)
DRUGDISE	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
DTOC1L	10	10	10	10	10	67	10	10
DTOC1NA	10	10	16	10	10	80	10	10
DTOC1NB	12	12	19	11	12	30	12	12
DTOC1NC	14	14	15	28	14	14	14	14

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
DTOC1ND	23	18	17	33	23	27	23	18
DTOC2	33	33	135	36	33	60	33	34
DTOC4	18	18	21	14	18	18	18	18
DTOC5	35	35	39	29	35	33	35	35
DTOC6	128	232	140	66	129	119	128	252
EDENSCH	12	12	14	12	12	12	12	12
EG1	7	7	7	6	7	10	7	7
EG2	3	3	3	3	3	3	3	3
EG3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENA2	66	96	54	58	50	100	62	(t)
EIGENA	66	59	72	63	69	1279	110	(t)
EIGENACO	69	57	50	56	69	504	63	(t)
EIGENALS	64	94	62	81	64	(t)	96	(t)
EIGENB	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENB2	363	526	317	(t)	372	(t)	250	557
EIGENBCO	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENBLS	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENC2	1158	(t)	1090	(t)	1178	(t)	515	1024
EIGENC	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENCCO	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGENCLS	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EIGMAXA	6	6	7	6	6	6	6	6
EIGMAXB	81	105	45	39	83	(i)	65	57
EIGMAXC	10	10	9	8	10	10	10	10
EIGMINA	7	7	9	7	8	7	7	7
EIGMINB	415	597	436	190	384	2945	190	579
EIGMINC	9	9	11	10	196	9	9	9
ELATTAR	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ELEC	116	115	1129	104	116	612	158	139
ENGVAL1	7	7	7	7	7	7	7	7
ENGVAL2	15	15	15	15	15	21	15	19
EQC	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ERRINBAR	(o)	(t)	(t)	(t)	(t)	(t)	(t)	1989
ERRINROS	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
EXPFIT	12	13	10	12	12	12	12	10
EXPFITA	27	27	68	40	37	25	27	25
EXPFITB	66	66	86	49	71	60	66	60
EXPFITC	105	105	125	83	83	98	105	96
EXPLIN	13	13	33	13	12	13	13	13
EXPLIN2	9	9	62	9	9	9	9	9
EXPQUAD	124	1771	734	36	97	189	114	217
EXTROSNB	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
FCCU	13	13	13	7	13	13	13	13
FEEDLOC	1727	1806	4984	3256	1814	2125	653	1807
FLETCBV2	0	0	0	0	0	0	0	0
FLETCBV3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLETCHBV	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLETCHCR	1351	2524	1351	1347	1351	1633	1317	2131
FLETCHER	28	28	47	31	28	32	28	27
FLOSP2HH	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLOSP2HL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLOSP2HM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FLOSP2TH	(t)	(t)	(t)	(t)	254	(t)	(t)	(t)
FLOSP2TL	(t)	(t)	(t)	42	(t)	(t)	(t)	(t)
FLOSP2TM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
FMINSRF2	1707	573	1951	81	1681	519	3392	266
FMINSURF	(t)	334	(t)	(t)	(t)	532	(t)	377
FREUROTH	12	12	15	11	12	162	12	13
GASOIL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GAUSSELM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GENHUMPS	(f)	(t)	(t)	3031	(t)	(t)	(t)	(t)
GENROSE	259	646	260	405	260	796	162	510
GIGOMEZ1	19	31	19	17	20	22	19	34
GIGOMEZ2	16	21	18	16	16	14	16	19
GIGOMEZ3	19	19	17	17	19	20	19	17
GILBERT	31	31	31	(t)	31	31	31	31
GLIDER	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GOTTFR	19	16	17	20	19	25	20	14
GPP	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GRIDGENA	4	4	(t)	4	4	4	4	4
GRIDNETD	51	51	106	49	51	47	51	50
GRIDNETE	25	25	68	25	25	25	25	25
GRIDNETF	47	47	(t)	47	(t)	45	47	44
GRIDNETG	50	50	119	47	47	49	50	50
GRIDNETH	25	25	70	25	25	25	25	25
GRIDNETI	44	44	(t)	43	(t)	44	44	49
GROUPING	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
GROWTH	(t)	161	(t)	(t)	(t)	(t)	(t)	(t)
GROWTHLS	(t)	161	(t)	(t)	(t)	(t)	(t)	(t)
GULF	30	52	29	36	30	1027	31	40
HADAMALS	27	27	25	9	20	39	27	27
HADAMARD	524	1473	1766	(t)	710	(t)	657	1086
HAGER1	3	3	3	14	3	3	3	3
HAGER2	31	31	11	15	31	10	31	31

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
HAGER3	26	26	6	18	26	17	26	26
HAGER4	10	12	15	40	155	10	10	10
HAIFAL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HAIFAM	3138	3684	2326	4066	4389	1296	3525	3228
HAIFAS	28	32	32	32	26	24	27	25
HAIRY	70	112	86	55	70	129	158	101
HALDMADS	64	54	52	65	91	126	130	60
HANGING	(t)	(t)	(t)	(t)	541	(t)	(t)	(t)
HART6	8	11	8	8	8	11	8	8
HATFLDA	28	28	22	27	28	31	28	28
HATFLDB	25	25	19	24	25	28	25	25
HATFLDC	4	4	4	4	4	4	4	4
HATFLDD	24	29	22	25	24	32	24	32
HATFLDE	27	25	24	26	27	38	27	28
HATFLDF	39	39	20	24	39	42	37	41
HATFLDG	14	14	14	13	14	16	14	12
HEART6	1887	106	263	999	1866	1021	611	2331
HEART6LS	1887	106	263	999	1866	1021	611	2331
HEART8	260	486	368	238	548	846	139	259
HEART8LS	260	486	368	238	548	846	139	259
HELIX	18	14	24	19	18	20	18	15
HELSBY	(t)	(t)	(t)	375	1394	(t)	(t)	(t)
HET-Z	35	35	35	32	26	35	35	35
HIELOW	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HIMMELBA	3	3	3	3	3	3	3	2
HIMMELBB	13	13	13	20	13	22	13	16
HIMMELBC	10	9	10	10	10	7	10	9
HIMMELBD	12	46	13	12	12	12	12	(t)
HIMMELBE	6	6	6	6	6	6	6	6
HIMMELBF	42	535	41	89	42	(f)	42	307
HIMMELBG	5	5	8	5	5	5	5	5
HIMMELBH	5	5	6	5	5	5	5	5
HIMMELBI	251	432	123	140	304	(f)	80	835
HIMMELBJ	(f)	(t)	(t)	134	634	(t)	(t)	(t)
HIMMELBK	123	178	117	99	146	160	93	204
HIMMELP1	14	14	18	14	14	16	14	15
HIMMELP2	116	137	120	278	116	111	116	163
HIMMELP3	1954	1739	559	86	1817	565	140	655
HIMMELP4	334	502	841	128	306	469	652	537
HIMMELP5	188	253	188	212	213	170	155	331
HIMMELP6	205	310	206	179	181	206	151	348
HONG	16	16	30	16	16	16	16	16

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
HS100	43	44	51	34	41	47	36	48
HS100LNP	29	41	35	27	29	52	29	31
HS100MOD	603	613	668	47	1329	597	580	218
HS10	17	17	36	17	17	18	17	17
HS101	7907	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS102	7263	8961	6182	8667	5031	6175	4355	7628
HS103	6324	(t)	8442	4004	5221	(t)	5383	(t)
HS104	49	56	101	48	49	50	49	61
HS105	12	12	122	11	11	11	12	12
HS106	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS107	41	44	53	30	30	47	41	43
HS108	19	34	17	15	16	15	20	31
HS109	(t)	(t)	(t)	609	1307	(t)	6646	(t)
HS110	1	1	1	1	1	1	1	1
HS111	45	48	130	43	45	69	45	45
HS11	15	15	14	15	15	15	15	15
HS111LNP	50	53	130	43	50	68	52	56
HS112	45	45	41	37	40	44	45	45
HS113	63	100	52	48	55	76	46	98
HS114	386	713	533	380	483	387	314	759
HS116	1913	2667	3547	(t)	(t)	(t)	963	2947
HS117	47	52	66	21	40	50	55	41
HS119	29	29	33	35	44	28	29	29
HS12	19	23	31	19	20	49	19	24
HS1	25	36	6	25	25	8	9	32
HS13	60	60	92	60	58	59	60	80
HS14	12	12	13	12	12	12	12	12
HS15	42	43	81	44	41	51	42	47
HS16	11	17	39	11	11	29	7	18
HS17	16	16	38	16	15	16	16	18
HS18	101	92	100	77	101	130	57	116
HS19	30	30	30	30	31	30	30	44
HS20	23	23	22	22	23	28	23	22
HS21MOD	6	6	6	3	6	4	6	6
HS22	9	9	12	9	9	9	9	9
HS23	43	65	36	46	43	47	31	62
HS24	14	14	18	18	14	13	14	14
HS25	0	0	0	0	0	0	0	0
HS26	40	40	47	42	40	50	40	40
HS2	6	6	4	6	6	6	6	6
HS27	37	37	44	31	37	32	26	29
HS28	3	3	4	3	3	3	3	3

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
HS29	24	25	33	20	24	24	24	21
HS30	8	8	10	8	8	8	8	8
HS31	13	13	15	13	13	14	13	11
HS32	16	16	19	16	8	(f)	16	14
HS33	14	13	13	14	13	13	14	13
HS34	18	18	21	18	18	24	18	19
HS36	6	6	12	6	6	6	6	6
HS37	14	14	38	17	12	14	14	14
HS38	52	48	14	52	52	51	32	52
HS39	21	21	32	21	21	21	21	21
HS40	10	10	15	10	10	10	10	10
HS4	1	1	1	1	1	1	1	1
HS41	8	8	12	6	6	8	8	8
HS42	12	12	12	12	12	12	12	12
HS43	25	30	26	20	21	63	25	25
HS45	8	8	8	8	8	8	8	8
HS46	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS47	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS48	2	2	2	2	2	2	2	2
HS49	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS50	10	10	17	10	10	10	10	10
HS54	60	60	63	86	58	39	60	58
HS5	5	5	5	5	5	6	5	5
HS55	6	6	7	6	6	6	6	6
HS56	15	17	26	11	15	13	15	15
HS57	4	4	5	43	4	4	4	4
HS59	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS60	17	17	21	36	17	30	17	17
HS61	13	17	20	13	13	16	13	18
HS62	33	33	59	33	36	33	33	36
HS63	15	15	16	15	15	17	15	20
HS64	37	37	50	37	37	37	37	37
HS6	44	67	47	47	44	46	26	62
HS65	29	49	30	22	21	33	22	40
HS66	9	9	10	9	8	11	9	9
HS67	43	47	47	35	59	78	43	58
HS68	72	87	147	73	72	73	72	84
HS69	43	38	74	42	42	41	43	34
HS70	49	45	48	46	49	114	49	43
HS71	16	20	30	12	14	16	16	22
HS7	20	23	18	20	20	20	20	25
HS72	64	64	85	64	64	64	64	64

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
HS73	16	16	17	27	23	16	16	16
HS74	15	15	17	11	15	15	15	15
HS75	113	132	115	86	114	172	113	137
HS77	27	30	26	30	27	(i)	28	24
HS78	11	11	16	11	11	12	11	11
HS79	16	14	15	11	16	17	18	14
HS80	25	12	30	10	25	18	24	12
HS81	25	20	28	12	25	17	23	16
HS83	23	23	24	30	16	(t)	23	25
HS84	116	246	147	76	23	(f)	216	260
HS85	167	271	(f)	5686	(t)	3805	188	4342
HS86	15	15	17	22	14	15	15	15
HS87	532	330	411	(t)	554	(t)	(t)	410
HS88	53	53	95	54	53	55	53	55
HS89	55	56	89	54	55	65	55	60
HS8	9	9	9	10	9	16	9	12
HS90	64	60	92	52	64	57	66	57
HS91	57	57	102	57	57	61	57	61
HS9	21	21	21	21	21	21	21	21
HS92	59	58	103	73	59	56	65	57
HS93	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HS95	10	12	17	33	13	10	10	15
HS96	10	12	21	24	13	10	10	15
HS97	15	20	16	19	8	15	15	22
HS98	20	53	16	18	9	25	20	61
HS99	(i)	(t)	(t)	(t)	124	(t)	(t)	(t)
HS99EXP	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HUBFIT	8	8	8	8	8	7	8	8
HUMPS	927	4825	264	731	933	(f)	2025	7624
HVYCRASH	(t)	(t)	(t)	(t)	1641	(t)	(t)	(t)
HYDC20LS	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HYDCAR20	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
HYDCAR6	(f)	(t)	1656	6925	(t)	2776	463	1345
HYDROELL	168	168	625	147	295	150	168	168
HYDROELM	108	108	405	91	214	92	108	109
HYDROELS	43	43	397	38	60	43	43	43
HYPCIR	6	6	6	6	6	6	6	10
INDEF	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
INTEGREQ	3	3	2	3	3	3	3	3
JANNSON3	10	17	11	(t)	10	11	10	12
JANNSON4	30	36	28	(t)	30	33	29	37
JENSMP	9	9	8	9	9	9	9	9

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
JIMACK	33	78	1930	29	33	45	56	60
JUNKTURN	660	621	980	(t)	687	373	644	664
KISSING2	192	292	322	225	164	249	110	241
KISSING	995	612	281	500	236	532	372	509
KIWCRESC	17	24	20	17	20	18	17	26
KOWOSB	9	12	12	14	9	20	9	12
KTMODEL	(t)	(t)	9	(t)	(t)	(t)	(t)	(t)
LAKES	5296	7019	(f)	5661	940	1600	4339	6245
LAUNCH	(f)	(t)	(t)	1824	(t)	(t)	(t)	(t)
LCH	44	49	148	(t)	44	46	48	45
LEAKNET	521	586	697	246	1286	367	521	438
LEWISPOL	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LIARWHD	12	12	12	12	12	12	12	12
LIN	16	16	34	16	16	16	16	16
LINVERSE	48	36	27	55	49	98	45	51
LMINSURF	6967	1388	4596	521	7436	2984	(f)	1261
LOADBAL	117	117	113	82	104	(f)	117	83
LOGHAIRY	6333	8888	547	4564	4431	9869	2027	8804
LOGROS	38	54	141	38	38	49	42	55
LOOTSMA	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LSNNODOC	10	10	14	10	12	10	10	10
LSQFIT	7	7	7	7	8	7	7	7
LUBRIF	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUBRIFC	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE10	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE11	123	35	80	107	123	83	(t)	41
LUKVLE1	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE12	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE13	62	78	76	61	62	126	62	82
LUKVLE14	849	1244	840	749	927	(t)	462	907
LUKVLE15	112	92	76	60	112	140	109	139
LUKVLE16	40	43	40	39	40	350	62	38
LUKVLE17	703	1466	375	163	359	2959	261	1444
LUKVLE18	204	253	218	149	204	340	180	259
LUKVLE2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	92
LUKVLE3	19	19	45	19	19	19	19	19
LUKVLE4	138	238	(t)	(t)	139	674	(t)	(t)
LUKVLE5	30	46	(f)	52	30	(t)	43	51
LUKVLE6	34	48	(t)	30	34	34	34	73
LUKVLE7	85	93	86	95	86	101	86	105
LUKVLE8	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLE9	164	355	201	(t)	131	(t)	147	426

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
LUKVLI10	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI11	51	35	92	(t)	87	(t)	115	62
LUKVLI1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI12	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI13	47	127	64	(t)	84	84	42	70
LUKVLI14	731	2038	851	(t)	592	2240	293	2573
LUKVLI15	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI16	(t)	(t)	(t)	(t)	65	(t)	(t)	(t)
LUKVLI17	(t)	(t)	(t)	(t)	65	(t)	(t)	(t)
LUKVLI18	(t)	(t)	(t)	(t)	53	(t)	(t)	(t)
LUKVLI2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	63
LUKVLI3	21	21	19	34	21	218	21	26
LUKVLI4	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI5	65	76	133	(t)	67	(t)	75	88
LUKVLI6	34	46	(t)	(t)	34	34	34	(t)
LUKVLI7	149	138	159	185	145	(f)	122	446
LUKVLI8	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
LUKVLI9	5445	(f)	3063	(t)	3539	(t)	949	4393
MADSEN	19	23	24	18	20	18	19	24
MADSSCHJ	(t)	(t)	(t)	(t)	1680	(t)	229	(t)
MAKELA1	17	20	18	17	17	27	17	18
MAKELA2	20	25	19	19	23	26	20	26
MAKELA3	80	100	79	51	83	52	41	119
MANCINO	14	16	8	14	14	18	14	(t)
MANNE	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
MARATOS	8	8	12	8	8	8	8	8
MARINE	712	513	631	(t)	753	682	908	546
MATRIX2	12	12	13	12	11	12	12	12
MAXLIKA	8	8	74	8	28	8	8	8
MCCORMCK	6	6	6	6	6	8	6	6
MCONCON	193	628	191	124	89	(f)	46	479
MDHOLE	51	61	48	59	51	46	29	63
MESH	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
METHANB8	5189	3576	5146	2776	5355	620	343	168
METHANL8	(f)	(t)	(t)	4878	(t)	(t)	1565	430
METHANOL	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
MEXHAT	22	47	32	22	22	22	22	47
MEYER3	196	316	275	153	196	712	129	465
MIFFLIN1	13	19	15	10	12	14	13	17
MIFFLIN2	33	42	25	33	33	36	25	49
MINC44	64	96	67	24	54	116	48	95
MINMAXBD	458	736	630	178	502	846	411	503

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
MINMAXRB	67	85	35	80	68	52	42	75
MINPERM	51	57	73	22	56	55	51	79
MINSURF	11	10	12	12	12	13	12	9
MINSURFO	8	8	15	8	9	44	8	8
MISTAKE	28	40	40	34	27	41	24	39
MOREBV	11	11	11	11	11	11	11	11
MRIBASIS	115	104	8229	77	144	(i)	(t)	126
MSQRTA	25	45	39	(t)	25	58	127	41
MSQRTALS	25	45	39	(t)	25	58	127	41
MSQRTB	31	42	61	(t)	31	69	157	35
MSQRTBLS	31	42	61	(t)	31	69	157	35
MWRIGHT	24	20	27	21	24	26	24	19
NCB20	85	110	283	55	80	293	83	(t)
NCB20B	32	24	(t)	23	31	133	32	(t)
NET1	53	60	52	63	54	54	53	55
NET2	85	87	94	88	83	109	82	89
NET3	(t)	(t)	(t)	304	(t)	996	(t)	2230
NGONE	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
NLMSURF	(f)	5783	(t)	3589	(t)	7236	(t)	3493
NONCVXU2	3423	2347	(t)	3524	3323	3113	6739	2335
NONCVXUN	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
NONDIA	4	4	4	4	4	4	4	(t)
NONDQUAR	18	18	18	18	18	18	18	18
NONMSQRT	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
NONSCOMP	8	8	6	8	8	8	8	8
NUFFIELD	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
NYSTROM5	69	89	28	69	70	176	62	(t)
ODC	20	20	86	20	20	20	20	20
ODFITS	51	51	39	11	34	43	51	51
OET2	(t)	(t)	56	(t)	(t)	(t)	(t)	(t)
OET4	48	65	50	65	50	51	50	52
OET5	2061	1373	1651	672	2203	8648	1138	3190
OET6	(t)	(t)	173	(t)	(t)	(t)	(t)	(t)
OET7	(t)	(t)	823	(t)	(t)	(t)	(t)	(t)
OPTCDEG2	85	91	86	(t)	(t)	93	85	92
OPTCDEG3	51	51	48	(t)	398	50	51	52
OPTCNTRL	17	17	18	28	22	17	17	17
OPTCTRL3	137	155	149	101	137	346	138	186
OPTCTRL6	137	155	149	101	137	346	138	186
OPTMASS	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
OPTPRLOC	507	806	655	684	509	402	238	800
ORBIT2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
ORTHRDM2	51	77	63	(t)	52	703	48	108
ORTHRDS2	386	328	393	(t)	378	3940	403	313
ORTHREGA	208	237	291	(t)	213	199	185	235
ORTHREGB	510	312	349	66	565	306	329	99
ORTHREGC	67	59	117	61	68	65	91	49
ORTHREGD	281	239	392	(t)	292	495	186	352
ORTHREGE	166	393	379	(i)	251	(t)	138	714
ORTHREGF	127	159	116	123	133	776	147	290
ORTHRGDM	38	86	106	(t)	39	682	38	85
ORTHRGDS	307	303	383	(t)	327	1089	195	329
OSBORNEA	(t)	(t)	34	56	(t)	(t)	(t)	(t)
OSBORNEB	29	24	25	14	29	21	32	23
PALMER1	47	49	45	46	47	45	47	26
PALMER1A	72	76	91	84	73	204	73	88
PALMER1B	57	59	33	58	57	38	57	46
PALMER1E	146	152	99	106	241	369	33	225
PALMER2	30	31	58	29	30	83	30	27
PALMER2A	75	154	135	87	105	302	114	171
PALMER2B	39	48	13	25	25	39	36	55
PALMER2E	208	195	216	336	665	169	84	122
PALMER3	86	45	52	26	58	95	86	66
PALMER3A	82	133	101	72	80	255	81	140
PALMER3B	62	30	18	23	62	26	62	29
PALMER3E	56	67	422	572	132	9	170	132
PALMER4	35	32	114	61	36	46	35	58
PALMER4A	83	79	61	96	68	153	82	66
PALMER4B	43	66	34	28	43	32	37	75
PALMER4E	42	76	1101	101	71	9	44	59
PALMER5A	1714	1926	1841	5794	(f)	2348	563	1969
PALMER5B	464	857	521	132	968	584	221	1083
PALMER5C	1	1	1	1	1	1	1	1
PALMER5D	2	2	2	2	2	2	2	2
PALMER5E	5	5	13	9	3	4	5	7
PALMER6A	99	228	137	91	147	330	143	272
PALMER6C	17	17	17	2	(f)	17	17	17
PALMER6E	40	25	79	170	35	109	65	83
PALMER7A	2019	2472	2163	3217	8541	2087	1778	3110
PALMER7C	16	16	16	2	3336	15	16	16
PALMER7E	1054	1933	1204	(f)	383	3406	410	2405
PALMER8A	52	66	10	45	54	45	48	47
PALMER8C	11	11	11	2	2472	11	11	11
PALMER8E	49	62	76	130	169	117	41	46

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
PARKCH	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
PENALTY1	35	45	37	35	35	35	35	62
PENALTY2	11	11	(t)	10	11	11	11	11
PENALTY3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
PENTAGON	29	29	29	25	29	25	29	29
PFIT1	257	375	(t)	268	257	602	92	464
PFIT1LS	257	375	(t)	268	257	602	92	464
PFIT2	125	446	1247	284	125	158	35	209
PFIT2LS	125	446	1247	284	125	158	35	209
PFIT3	37	364	1667	29	37	283	86	281
PFIT3LS	37	364	1667	29	37	283	86	281
PFIT4	125	356	(t)	189	125	(t)	26	307
PFIT4LS	125	356	(t)	189	125	(t)	26	307
PINENE	(t)	(t)	(t)	130	(t)	(t)	(t)	(t)
POLAK1	37	41	34	28	37	(f)	22	36
POLAK2	(t)	(t)	85	15	(t)	11	(t)	(t)
POLAK3	(t)	(t)	83	(t)	(t)	(t)	(t)	(t)
POLAK4	18	18	21	15	18	18	18	18
POLAK5	11	11	4	8	11	956	11	6
POLAK6	303	453	282	94	213	881	83	490
POLYGON	136	180	189	209	(t)	300	105	(t)
POROUS1	102	132	102	82	102	540	94	83
POROUS2	82	83	77	80	82	220	83	81
PORTFL1	19	19	19	13	15	18	19	26
PORTFL2	21	21	21	13	14	(f)	21	21
PORTFL3	17	27	17	9	13	17	17	27
PORTFL4	18	18	18	8	13	18	18	28
PORTFL6	26	26	26	9	14	(f)	26	22
POWELLBS	23	49	23	24	23	23	23	46
POWELLSG	15	15	15	15	15	15	15	15
POWELLSQ	13	20	13	13	13	9	13	25
POWER	33	33	33	(t)	33	33	33	33
PROBPENL	1	1	3	1	1	1	1	1
PRODPL0	31	38	39	40	37	30	31	37
PRODPL1	66	85	45	74	586	105	50	75
PSPDOC	9	9	9	9	9	9	9	9
QC	2	2	2	2	2	2	2	2
QCNEW	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
QR3D	120	224	142	371	125	493	98	260
QR3DBD	121	201	136	87	121	531	82	238
QR3DLS	120	224	142	371	125	493	98	260
QRTQUAD	(t)	2284	(t)	80	275	(t)	948	(t)

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
QUARTC	32	32	32	32	32	32	32	32
RAYBENDL	(f)	499	3649	(t)	(t)	(t)	(t)	193
RAYBENDS	(t)	(t)	2577	(t)	(t)	(t)	(t)	(t)
READING1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING4	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING5	(t)	(t)	(t)	306	(t)	(t)	(t)	(t)
READING6	(f)	384	(t)	(t)	(t)	(t)	(t)	563
READING7	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING8	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
READING9	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
RECIPE	22	19	16	25	22	16	23	16
RES	2	2	2	2	2	2	2	2
RK23	45	64	63	70	63	93	45	57
ROBOT	26	35	21	57	26	92	26	34
ROBOTARM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ROCKET	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ROSENBR	25	29	25	26	25	19	25	27
ROSENMMX	169	203	172	61	100	310	99	203
ROTDISC	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
S308	9	9	9	9	9	14	9	10
S316-322	21	21	20	21	21	21	21	21
S365	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
S365MOD	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
S368	5	5	18	5	5	28	5	5
SARO	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SAROMM	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SAWPATH	(i)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SBRYBND	(f)	(t)	(t)	24	(t)	(t)	(t)	(t)
SCHMVETT	3	3	131	3	3	3	3	3
SCOND1LS	745	2002	960	732	709	1071	668	1433
SCOSINE	(f)	6180	(t)	1450	(t)	(t)	(t)	2253
SCURLY10	(t)	(t)	(t)	76	(t)	(t)	(t)	(t)
SCURLY20	(t)	(t)	(t)	69	(t)	(t)	(t)	(t)
SCURLY30	(t)	(t)	(t)	59	(t)	(t)	(t)	(t)
SEMICON1	745	2002	960	732	709	1071	668	(t)
SEMICON2	112	113	183	112	112	129	112	(t)
SENSORS	13	10	15	21	13	28	13	16
SINEALI	13	15	13	17	13	10	13	8
SINEVAL	56	94	60	53	56	53	56	67
SINQUAD	19	14	16	17	19	568	19	211
SINROSNB	109	1066	111	1157	489	6990	151	104

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
SISSER	12	12	12	12	12	12	12	12
SMBANK	176	176	159	124	210	(f)	176	174
SMMPSF	(t)	3092	(t)	(t)	(t)	(t)	(t)	(t)
SNAIL	85	82	163	84	85	66	76	79
SNAKE	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SPANHYD	24	46	159	47	77	25	61	26
SPARSINE	120	147	12	70	126	437	129	50
SPARSQUR	19	19	19	18	19	19	19	19
SPECAN	15	14	16	15	15	38	15	14
SPIRAL	74	92	336	91	85	74	72	95
SPMSQRT	20	19	29	31	20	128	162	23
SPMSRTLS	20	19	29	31	20	128	162	23
SREADIN3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
SROSENBR	5	8	8	5	5	5	5	12
SSC	7	7	12	7	7	7	7	7
SSEBNLN	53	53	53	45	55	(f)	53	52
SSNLBEAM	81	81	88	235	397	196	81	177
STANCMIN	9	9	14	8	8	9	9	9
STEENBRB	375	(t)	6425	75	480	422	320	(t)
STEENBRC	7039	(f)	(t)	160	278	(t)	(t)	(t)
STEENBRD	9495	(f)	(t)	89	373	(t)	2273	(t)
STEENBRE	(f)	(t)	(t)	109	368	(t)	(t)	(t)
STEENBRF	123	(f)	6653	80	1121	450	129	(t)
STEENBRG	(f)	(t)	(t)	729	415	(t)	(t)	(t)
STEERING	460	857	698	613	454	547	258	570
STRATEC	(t)	(t)	109	(t)	(t)	(t)	(t)	(t)
SVANBERG	(t)	(t)	(t)	(t)	71	(t)	(t)	(t)
SWOPF	122	239	163	70	125	391	65	184
SYNTHES1	15	15	35	12	13	15	15	15
SYNTHES2	23	23	41	26	24	23	23	23
SYNTHES3	20	20	43	29	25	20	20	24
TENBARS1	393	473	191	249	556	(f)	247	551
TENBARS2	401	557	322	317	450	611	358	514
TENBARS3	356	446	251	268	340	373	229	481
TENBARS4	1179	1447	1224	958	2595	1427	822	1858
TFI1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
TFI3	25	25	25	27	23	25	25	25
TOINTGOR	7	7	7	6	7	7	7	7
TOINTGSS	1	1	3	1	1	1	1	1
TOINTPSP	41	41	41	24	41	43	78	35
TQUARTIC	12	12	11	12	12	1925	12	12
TRAINF	74	74	66	81	244	73	74	73

Table 2.2: Numbers of function evaluations for various options (continued).

Problem	1	2	3	4	5	6	7	A
TRAINH	(t)	(t)	(t)	(t)	579	(t)	(t)	(t)
TRIGGER	20	25	(t)	(t)	20	30	20	(t)
TRIMLOSS	1115	2511	1188	3642	(t)	(t)	(t)	8072
TRUSPYR1	402	740	399	699	526	464	359	785
TRUSPYR2	767	1432	738	729	6835	(f)	658	1429
TRY-B	12	12	13	12	12	12	12	12
TWIRIBG1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
TWIRIMD1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
TWIRISM1	518	1097	(t)	1747	242	(t)	564	852
TWOBARS	12	12	26	12	12	12	12	12
UBH5	42	70	43	(t)	46	35	35	60
VANDERM1	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VANDERM2	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VANDERM3	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VANDERM4	(t)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
VARDIM	28	28	28	28	28	28	28	28
VAREIGVL	38	21	36	22	38	16	22	(t)
VIBRBEAM	89	89	(f)	92	90	100	89	89
WATER	33	30	33	43	33	37	57	30
WATSON	9	9	17	19	9	9	9	9
WEEDS	31	37	47	34	33	38	31	30
WOMFLET	45	54	60	59	71	75	45	37
WOODS	88	76	33	48	88	825	34	71
YFIT	44	97	42	55	44	590	27	86
YFITU	44	97	42	55	44	590	27	86
YORKNET	(i)	(t)	(t)	1039	(t)	(t)	(t)	285
ZAMB2-10	166	677	(t)	5166	(t)	(t)	201	433
ZAMB2-11	104	307	(f)	(t)	(t)	(t)	76	267
ZAMB2	(f)	(t)	(t)	(t)	(t)	(t)	(t)	(t)
ZAMB2-8	86	169	121	108	69	(f)	75	100
ZAMB2-9	104	363	(f)	1838	(t)	(t)	110	270
ZANGWIL3	2	2	2	2	2	2	2	2
ZECEVIC3	18	20	18	18	18	19	18	23
ZECEVIC4	14	16	15	14	14	18	14	13
ZIGZAG	95	125	93	92	334	137	95	123
ZY2	9	9	10	12	9	10	9	9

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