

Test results for selected optimization problems

1 Performance plots

1.1 For all problems

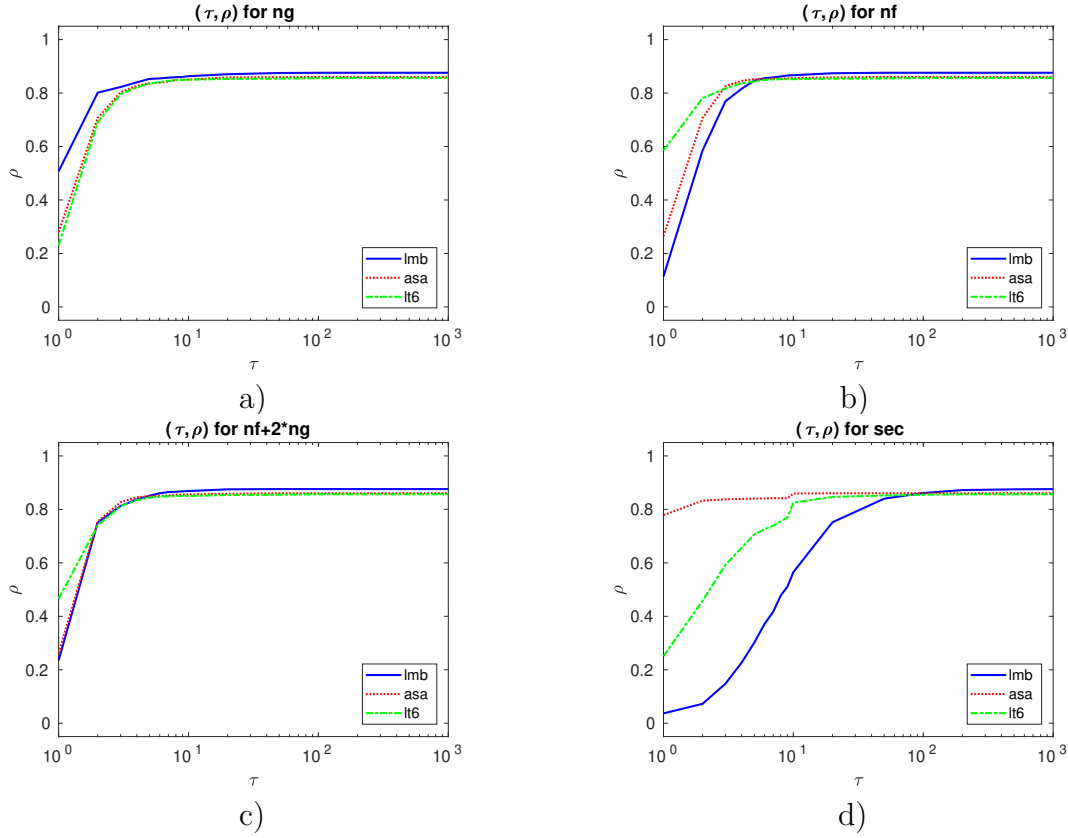


Figure 1: (a)-(e): Performance plots for $\text{ng}/(\text{best ng})$, $\text{nf}/(\text{best nf})$, $\text{nf2g}/(\text{best nf2g})$ and $\text{msec}/(\text{best msec})$, respectively. ρ designates the percentage of problems solved within a factor τ of the best solver. Problem solved by no solver are ignored.

1.2 For unconstrained problems

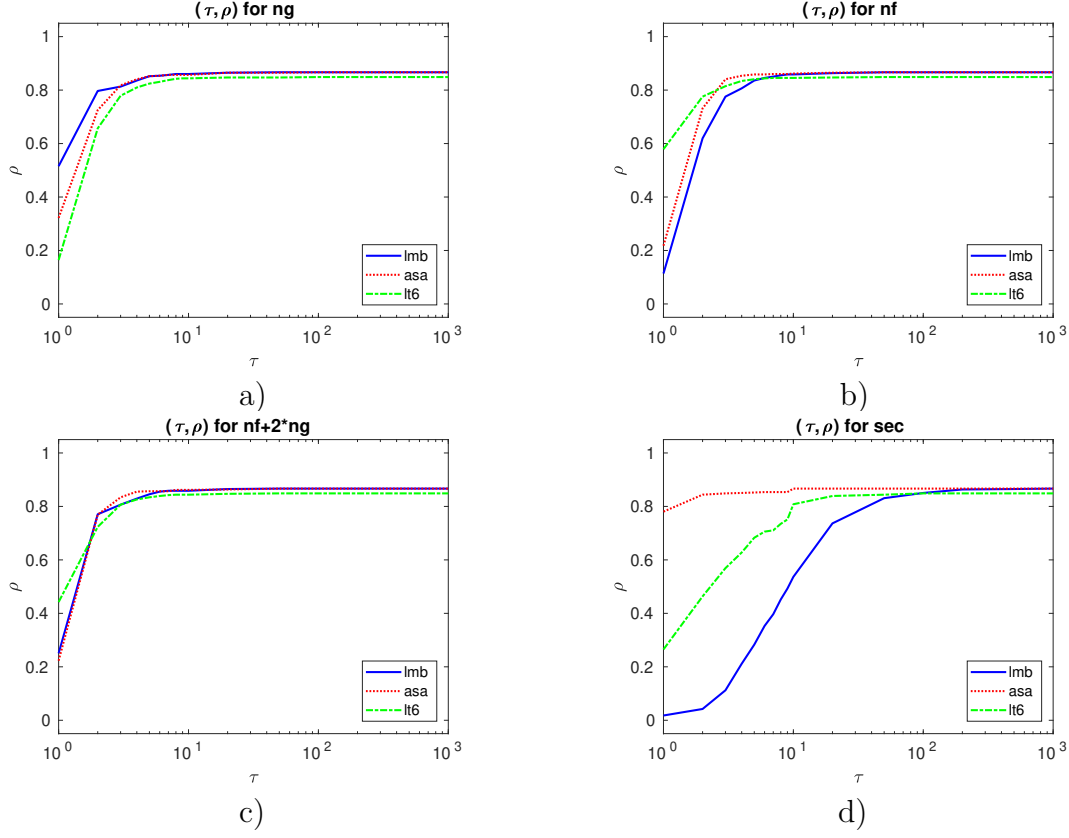


Figure 2: (a)-(e): Performance plots for $\text{ng}/(\text{best ng})$, $\text{nf}/(\text{best nf})$, $\text{nf2g}/(\text{best nf2g})$ and $\text{msec}/(\text{best msec})$, respectively. ρ designates the percentage of problems solved within a factor τ of the best solver. Problem solved by no solver are ignored.

1.3 For bound constrained problems

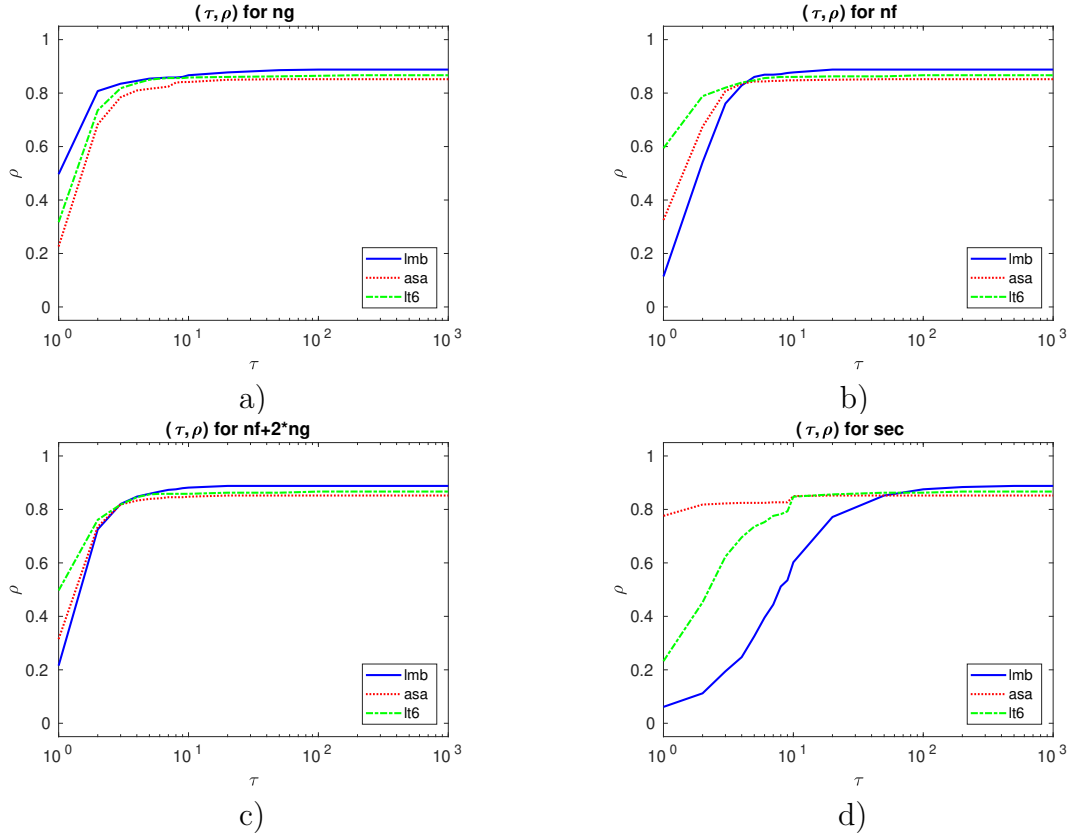


Figure 3: (a)-(e): Performance plots for $\text{ng}/(\text{best ng})$, $\text{nf}/(\text{best nf})$, $\text{nf2g}/(\text{best nf2g})$ and $\text{msec}/(\text{best msec})$, respectively. ρ designates the percentage of problems solved within a factor τ of the best solver. Problem solved by no solver are ignored.

2 Choices

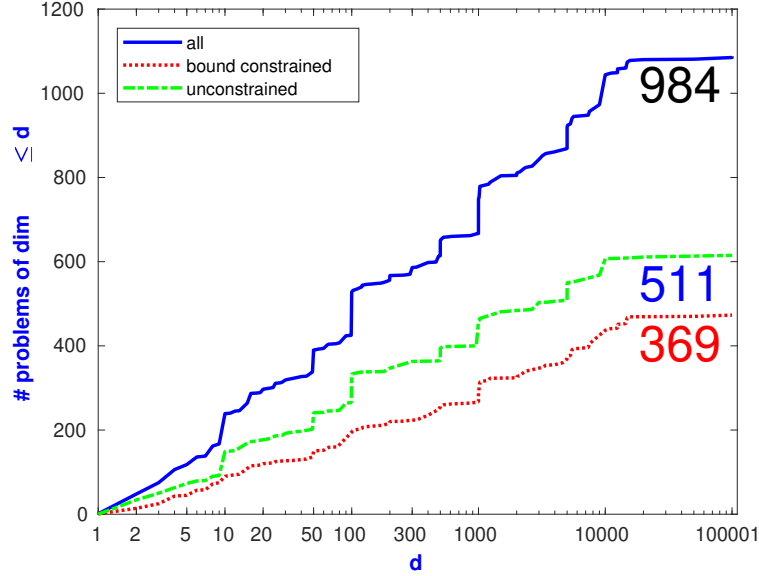


Figure 4: The number of problems with at most d variables solved by at least one solver.

2.1 Solvers compared

lmbopt3, asa and lt6

2.2 Solver type, stopping tests and resdir

`nf`, `ng`, `sec`, `nact` and `resdir` denote the number of function evaluations, the number of gradients evaluations, the time in seconds, the number of active variables, and directory containing result files, respectively.

- `fist-order`
- `gradient accuracy`: $\|g(x_*)\|_\infty \leq 1e-06$
- $nf + 2 * ng \leq 20 * n + 10000$
- $sec \leq 1800$
- `resdir`: `resG1 - 6resN - 20 * n + 10000 - resS1800N`

2.3 Parameters used for problem selection

`name`, `dim` and `con` denote the name, the dimension, and the type of constraints of test problems, respectively.

- Selected range of `name`: A-Z
- Selected range of `dim`: [1,100001]
- Selected kind of `con`: unconstrained and bound constrained
- Sorted by `dim`, `name` and `nact` (DNE)
- Sorted in increasing order

3 Summarizing tables

For a given collection S of solvers, the strength of a solver $so \in S$ – relative to an ideal solver that matches on each problem the best solver – is measured, for any given cost measure c_s by the number, q_{so} defined by

$$q_{so} := \begin{cases} \frac{\min_{s \in S} c_s}{c_{so}}, & \text{if } so \text{ solved by the problem,} \\ 0, & \text{otherwise,} \end{cases}$$

called the **efficiency** of the solver so with respect to this cost measure. In the tables, efficiencies are given in percent. Larger efficiencies in the table imply a better average behavior; a zero efficiency indicates failure. All values are rounded (towards zero) to integers. Mean efficiencies are taken over the 984 problems tried by all solvers and solved by at least one of them, from a total of 1088 problems. In the following tables, #100 and !100 count the number of times we have for nf2g efficiency 100 % or unique efficiency 100 % . T_{mean} is defined by

$$T_{mean} := \frac{\sum \text{ solved}}{\# \text{ solved}} \quad (\text{in msec}).$$

In tables not recording efficiencies, a sign

- n indicates that `nf2g` ≥ 2010020 was reached.
- t indicates that `sec` ≥ 1800 was reached.
- f indicates that the algorithm failed for other reasons.

In times, the (for some problems significant) setup time for CUTEST is not included. Although running times are reported the comparison of times is not very reliable for several reasons:

- The times were obtained under different conditions (solver source code Fortran, C and Matlab).
- In unsuccessful runs, the actual running time depends a lot on when and why the solver was stopped.
- Function and gradient evaluation includes times for computaing various statistics and the interface to CUTEST; cf. Figures 5.

stopping test:		$\ g\ _\infty \leq 1\text{e-}06,$				$\text{sec} \leq 1800,$				$\text{nf} + 2 * \text{ng} \leq 20 * \text{n} + 10000$			
984 of 1088 problems solved									mean efficiency in %				
dim $\in[1,100001]$						# of anomalies			for cost measure				
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec	
<i>LMBOPT</i>	<i>lmb</i>	953	257	227	6969	115	20	0	67	75	52	17	
<i>ASACG</i>	<i>asa</i>	936	286	243	2135	116	1	35	67	65	63	82	
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	932	508	469	6079	134	2	20	71	64	75	48	

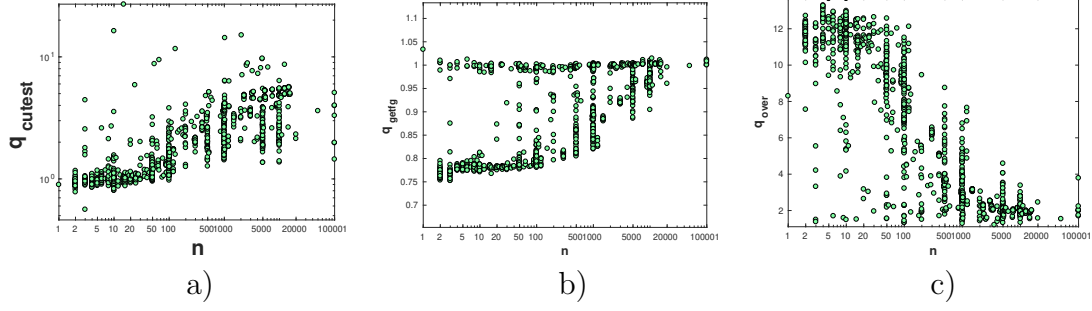


Figure 5: Comparison of $q_{cutest} := \frac{t_g(cutest)}{t_f(cutest)}$, $q_{getfg} := \frac{t_g(getfg)}{t_f(getfg)}$ and $q_{over} := \frac{t_{f2g}(getfg)}{t_{f2g}(cutest)}$ versus dimensions, respectively, where t_f and t_g are considered the time to compute f and g by cutest or getfg and $t_{f2g} := t_f + 2t_g$.

3.1 Classified by constraints

stopping test: $\ g\ _\infty \leq 1e-06,$ $sec \leq 1800,$ $nf + 2 * ng \leq 20 * n + 10000$												
552 of 615 problems without bounds solved									mean efficiency in %			
dim $\in[1,100001]$						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>ASACG</i>	<i>asa</i>	533	137	126	1391	67	1	14	68	67	62	82
<i>LMBOPT</i>	<i>lmb</i>	533	155	153	5677	67	15	0	68	75	53	15
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	522	273	260	3721	87	2	4	69	59	74	47

stopping test: $\ g\ _\infty \leq 1e-06,$ $sec \leq 1800,$ $nf + 2 * ng \leq 20 * n + 10000$												
432 of 473 problems with bounds solved									mean efficiency in %			
dim $\in[1,100001]$						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>LMBOPT</i>	<i>lmb</i>	420	102	74	8608	48	5	0	66	74	50	20
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	410	235	209	9082	47	0	16	73	66	76	48
<i>ASACG</i>	<i>asa</i>	403	149	117	3119	49	0	21	66	61	64	81

3.2 Classified by time

stopping test:		$\ g\ _\infty \leq 1e-06,$				$sec \leq 1800,$		$nf + 2 * ng \leq 20 * n + 10000$				
807 of 807 problems solved									mean efficiency in %			
dim $\in[1,100001]$, best time ≤ 1 sec						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>LMBOPT</i>	<i>lmb</i>	794	198	169	794	12	1	0	74	84	58	16
<i>ASACG</i>	<i>asa</i>	787	271	228	117	14	0	6	79	77	74	93
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	770	404	366	324	34	0	3	78	70	82	52

stopping test: $\ g\ _\infty \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$												
139 of 139 problems solved									mean efficiency in %			
dim $\in[1,100001]$, best time > 1 sec						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>LMBOPT</i>	<i>lmb</i>	133	45	44	12881	5	1	0	78	87	58	33
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	129	83	82	6642	9	0	1	84	73	88	54
<i>ASACG</i>	<i>asa</i>	125	12	12	3719	11	0	3	58	56	55	86

3.3 Classified by dimension

stopping test: $\ g\ _\infty \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$													
116 of 118 problems solved									mean efficiency in %				
dim $\in[1,5]$						# of anomalies			for cost measure				
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec	
<i>LMBOPT</i>	<i>lmb</i>	115	29	22	199	3	0	0	73	84	58	18	
<i>ASACG</i>	<i>asa</i>	110	40	32	25	6	0	2	76	77	69	85	
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	106	61	53	36	12	0	0	77	69	82	58	

stopping test: $\ g\ _\infty \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$													
112 of 121 problems solved									mean efficiency in %				
dim $\in[6,10]$						# of anomalies			for cost measure				
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec	
<i>LMBOPT</i>	<i>lmb</i>	112	34	30	321	9	0	0	69	74	58	17	
<i>ASACG</i>	<i>asa</i>	107	47	42	37	6	0	8	74	70	71	83	
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	94	40	35	110	26	0	1	58	53	62	46	

stopping test: $\ g\ _\infty \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$													
75 of 80 problems solved									mean efficiency in %				
dim $\in[11,30]$						# of anomalies			for cost measure				
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec	
<i>LMBOPT</i>	<i>lmb</i>	74	27	22	291	6	0	0	75	82	59	16	
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	74	28	24	494	5	0	1	70	60	75	69	
<i>ASACG</i>	<i>asa</i>	68	29	20	17	8	0	4	70	67	65	78	

stopping test: $\ g\ _\infty \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$													
194 of 209 problems solved									mean efficiency in %				
dim $\in[31,100]$						# of anomalies			for cost measure				
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec	
<i>LMBOPT</i>	<i>lmb</i>	188	49	46	449	21	0	0	67	76	53	16	
<i>ASACG</i>	<i>asa</i>	184	60	55	117	19	0	6	68	68	63	82	
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	184	93	88	133	23	0	2	71	65	75	59	

stopping test: $\ g\ _\infty \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$													
51 of 58 problems solved									mean efficiency in %				
dim $\in[101,300]$						# of anomalies			for cost measure				
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec	
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	50	24	22	264	5	0	3	72	64	73	56	
<i>ASACG</i>	<i>asa</i>	49	21	19	333	6	0	3	72	72	65	78	
<i>LMBOPT</i>	<i>lmb</i>	48	9	8	1055	10	0	0	64	72	47	15	

stopping test: $\ g\ _\infty \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$													
141 of 163 problems solved									mean efficiency in %				
dim $\in[301,1000]$						# of anomalies			for cost measure				
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec	
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	137	71	67	2004	21	0	5	68	62	72	25	
<i>ASACG</i>	<i>asa</i>	136	42	38	422	24	0	3	65	63	65	83	
<i>LMBOPT</i>	<i>lmb</i>	135	35	32	2549	28	0	0	62	71	47	12	

stopping test: $\ g\ _{\infty} \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$												
81 of 94 problems solved									mean efficiency in %			
dim $\in[1001,3000]$						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>LMBOPT</i>	<i>lmb</i>	79	7	7	11536	15	0	0	63	74	44	12
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	79	67	65	5708	13	0	2	79	72	80	31
<i>ASACG</i>	<i>asa</i>	76	9	7	1458	15	0	3	58	59	51	79

stopping test: $\ g\ _{\infty} \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$												
173 of 201 problems solved									mean efficiency in %			
dim $\in[3001,10000]$						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>ASACG</i>	<i>asa</i>	168	31	25	4790	28	0	5	60	57	59	82
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	168	104	97	13170	28	0	5	72	64	76	44
<i>LMBOPT</i>	<i>lmb</i>	166	49	44	21178	23	12	0	64	72	49	22

stopping test: $\ g\ _{\infty} \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$												
35 of 37 problems solved									mean efficiency in %			
dim $\in[10001,50000]$						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	35	18	18	60050	1	0	1	86	70	91	65
<i>ASACG</i>	<i>asa</i>	32	3	3	10902	4	0	1	57	52	54	81
<i>LMBOPT</i>	<i>lmb</i>	32	14	14	31617	0	5	0	79	84	57	37

stopping test: $\ g\ _{\infty} \leq 1e-06$, $sec \leq 1800$, $nf + 2 * ng \leq 20 * n + 10000$												
6 of 7 problems solved									mean efficiency in %			
dim $\in[50001,100001]$						# of anomalies			for cost measure			
solver		solved	#100	!100	T_{mean}	#n	#t	#f	nf2g	ng	nf	msec
<i>ASACG</i>	<i>asa</i>	6	4	2	105117	0	1	0	67	64	72	79
<i>LMBFG-EIG-MS</i>	<i>lt6</i>	5	2	0	107508	0	2	0	49	44	54	39
<i>LMBOPT</i>	<i>lmb</i>	4	4	2	160765	0	3	0	57	57	53	44

3.4 Failure analysis

104 test problems unsolved by all solvers used for dim $\in [1,100001]$			
BROWNBS	OSCIPATH:5	PALMER7A	PALMER5E
PALMER5B	OSCIGRAD:10	OSCIPATH:10	STRATEC
SBRYBND:10	SCOSINE:10	SCURLY10:10	SCOND1LS
OSCIGRAD:15	SINEALI:20	OSCIGRAD:25	ANTWERP
NONMSQRT:49	HS110:50	SBRYBND:50	SCOND1LS:52
RAYBENDS	RAYBENDL:66	RAYBENDS:66	HYDC20LS
FLETCHBV:100	HS110:100	NONMSQRT:100	OSCIGRAD:100
SBRYBND:100	SCOSINE:100	SCURLY10:100	SCOND1LS:102
Continued on next page			

RAYBENDL:130	RAYBENDS:130	QR3DLS	GRIDGENA:170
DRCV1LQ	HS110:200	SPMSRTLS:499	PENALTY2:500
SBRYBND:500	SSBRYBND:500	SCOND1LS:502	MSQRTALS:529
MSQRTBLS:529	NONMSQRT:529	GRIDGENA	QR3DLS:610
LINVERSE:999	COSINE	CURLY20	CURLY30
CHENHARK	FLETCHBV:1000	PENALTY2:1000	SBRYBND
SCOSINE	SCURLY10	SSCOSINE	SPMSRTLS:1000
SCOND1LS:1002	MSQRTALS:1024	MSQRTBLS:1024	NONMSQRT:1024
RAYBENDL:1026	RAYBENDS:1026	DRCV1LQ:1225	DRCV2LQ:1225
DRCV3LQ:1225	GRIDGENA:1226	RAYBENDL:2050	GRIDGENA:2114
EIGENALS:2550	GRIDGENA:3242	JIMACK	DRCV3LQ:4489
GRIDGENA:4610	MSQRTALS:4900	MSQRTBLS:4900	SPMSRTLS:4999
FLETCHBV3:5000	FLETCHBV:5000	SBRYBND:5000	SCOSINE:5000
SPARSINE:5000	SSCOSINE:5000	SCOND1LS:5002	BRATU1D:5003
GRIDGENA:6218	COSINE:10000	CURLY10:10000	CURLY20:10000
CURLY30:10000	FLETCHBV3:10000	FLETCHBV:10000	NONCVXUN:10000
SCOSINE:10000	SCURLY10:10000	SPARSINE:10000	SPMSRTLS:10000
SSCOSINE:10000	DRCV3LQ:10816	GRIDGENA:12482	SSCOSINE:100000

solver	dim $\in[1,100001]$	problem	error message	# same error
lmb	2	BROWNBS	nf2gmax reached	115
	3549	JIMACK	secmax reached	20
asa	2	BROWNBS	cg: too many secant iterates	31
	2	MDHOLE	unrecognized exit flag	255
	2	OSCIGRAD	nf2gmax reached	116
	5	OSBORNEA	cg: function nan or inf	1
	100	SCOSINE	cg: Wolfe conditions never satisfied	1
	500	PENALTY2	cg: slope negative in line search	1
	100000	SSCOSINE	secmax reached	1
lt6	2	BROWNBS	nf2gmax reached	134
	10	HS110	line search failed	5
	10	NCVXBQP3	unknown	9
	170	GRIDGENA	TR radius too small	15
	100000	OSCIGRAD	secmax reached	2

kind of anomalies	104 test problems unsolved by lmbopt3 for dim $\in [1,100001]$		
n	BROWNBS PALMER7A OSCIGRAD:10 SBRYBND:10 OSBORNEB SINEALI:20 RAYBENDL SBRYBND:50 DECONVU HYDC20LS FLETCHBV:100 NONMSQRT:100 SCOSINE:100 SCOND1LS:102 QR3DLS DRCV1LQ PENALTY2:200 SBRYBND:500 MSQRTALS:529 GRIDGENA BDEXP:1000 CURLY20 FLETCHBV3:1000 PENALTY2:1000 SCOSINE SSCOSINE BRATU1D:1003 NONMSQRT:1024 DRCV1LQ:1225 GRIDGENA:1226 EIGENALS:2550 DRCV1LQ:4489	HIELOW PALMER5E OSCIPATH:10 SCOSINE:10 SCOND1LS OSCIGRAD:25 NONMSQRT:49 SCOND1LS:52 RAYBENDL:66 BDEXP HS110:100 OSCIGRAD:100 SCURLY10:100 RAYBENDL:130 GRIDGENA:170 LINVERSE:199 SPMSRTLS:499 SSBRYBND:500 MSQRTBLS:529 QR3DLS:610 COSINE CURLY30 FLETCHBV:1000 POWELLBC:1000 SCURLY10 SPMSRTLS:1000 MSQRTALS:1024 RAYBENDL:1026 DRCV2LQ:1225 RAYBENDL:2050 EIGENCLS:2652 DRCV2LQ:4489	OSCIPATH:5 PALMER5B STRATEC SCURLY10:10 OSCIGRAD:15 ANTWERP HS110:50 RAYBENDS RAYBENDS:66 EXTROSNB:100 MOREBV:100 SBRYBND:100 SPMSRTLS:100 RAYBENDS:130 DRCV1LQ HS110:200 PENALTY2:500 SCOND1LS:502 NONMSQRT:529 LINVERSE:999 CURLY10 CHENHARK OSCIGRAD:1000 SBRYBND SSBRYBND SCOND1LS:1002 MSQRTBLS:1024 RAYBENDS:1026 DRCV3LQ:1225 GRIDGENA:2114 GRIDGENA:3242 DRCV3LQ:4489
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	GRIDGENA:4610	MSQRTALS:4900	MSQRTBLS:4900
	SPMSRTLS:4999	FLETBV3M:5000	FLETGBV3:5000
	FLETGBV:5000	INDEFM:5000	SBRYBND:5000
	SCOSINE:5000	SPARSINE:5000	SSCOSINE:5000
	SCOND1LS:5002	BRATU1D:5003	GRIDGENA:6218
	CURLY10:10000	OSCIGRAD:10000	SCURLY10:10000
	SPMSRTLS:10000		
t	JIMACK	COSINE:10000	CURLY20:10000
	CURLY30:10000	FLETBV3M:10000	FLETGBV3:10000
	FLETGBV:10000	INDEFM:10000	NONCVXUN:10000
	SCOSINE:10000	SPARSINE:10000	SSCOSINE:10000
	DRCV1LQ:10816	DRCV2LQ:10816	DRCV3LQ:10816
	ODNAMUR	GRIDGENA:12482	INDEFM:100000
	OSCIGRAD:100000	SSCOSINE:100000	

kind of anomalies	104 test problems unsolved by asa for dim $\in [1,100001]$		
n	OSCIGRAD:2	PFIT1LS	PFIT2LS
	PFIT3LS	PFIT4LS	OSCIPATH:5
	PALMER7A	PALMER5E	PALMER5A
	PALMER5B	OSCIGRAD:10	OSCIPATH:10
	OSBORNEB	OSCIGRAD:15	SINEALI:20
	ERRINROS:25	ERRINRSM:25	OSCIGRAD:25
	ANTWERP	X3PK	QR3DLS:40
	MSQRTALS:49	NONMSQRT:49	ERRINROS:50
	HS110:50	PROBPENL:50	SBRYBND:50
	SCOND1LS:52	RAYBENDS	RAYBENDL:66
	HYDC20LS	FLETGBV:100	MOREBV:100
	NONMSQRT:100	OSCIGRAD:100	PROBPENL:100
	SCURLY10:100	SBRYBND:100	SSCOSINE:100
	SCOND1LS:102	NCB20:110	RAYBENDS:130
	QR3DLS	DRCV1LQ	LINVERSE:199
	SPMSRTLS:499	SBRYBND:500	SBRYBND:500
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	SCOND1LS:502	CLPLATEC:529	MSQRTALS:529
	MSQRTBLS:529	NONMSQRT:529	QR3DLS:610
	LINVERSE:999	COSINE	CURLY20
	CURLY30	CHENHARK	FLETCHBV3:1000
	FLETCHBV:1000	POWELLBC:1000	SBRYBND
	SCOSINE	SCURLY10	SSBRYBND
	SSCOSINE	SPMSRTLS:1000	TESTQUAD
	SCOND1LS:1002	CLPLATEC:1024	MSQRTALS:1024
	MSQRTBLS:1024	NONMSQRT:1024	RAYBENDL:1026
	RAYBENDS:1026	DRCV1LQ:1225	DRCV2LQ:1225
	DRCV3LQ:1225	LINVERSE:1999	RAYBENDL:2050
	RAYBENDS:2050	EIGENALS:2550	EIGENCLS:2652
	DRCV1LQ:4489	DRCV2LQ:4489	DRCV3LQ:4489
	MSQRTALS:4900	MSQRTBLS:4900	SPMSRTLS:4999
	CHENHARK:5000	FLETCHBV3:5000	FLETCHBV:5000
	NONCVXUN:5000	SBRYBND:5000	SCOSINE:5000
	SPARSINE:5000	SSCOSINE:5000	SCOND1LS:5002
	CLPLATEC:5041	COSINE:10000	CURLY10:10000
	CURLY20:10000	CURLY30:10000	FLETCHBV3:10000
	FLETCHBV:10000	NONCVXUN:10000	SCOSINE:10000
	SCURLY10:10000	SPARSINE:10000	SPMSRTLS:10000
	SSCOSINE:10000	DRCV1LQ:10816	DRCV2LQ:10816
	DRCV3LQ:10816	ODNAMUR	
t	SSCOSINE:100000		
f	BROWNBS	MDHOLE	ALLINIT
	HATFLDB	HADAMALS	PSPDOC
	OSBORNEA	BIGGS3	MAXLIKA
	PALMER7E	PALMER2E	PALMER3E
	VIBRBEAM	RAYBENDL:10	RAYBENDS:10
	STRATEC	SBRYBND:10	SCOSINE:10
	SCURLY10:10	EXPQUAD:12	QRTQUAD:12
	SCOND1LS	BRATU1D:13	PARKCH
	CLPLATEA:16	CLPLATEB:16	CLPLATEC:16
	HADAMALS:16	LMSURF	NLMSURF:16
	NOBNDTOR:16	TORSION111:16	TORSION1:16
	Continued on next page		

TORSION2:16	TORSIONA:16	TORSIONB:16
TORSIONC:16	TORSIOND:16	LINVERSE
RAYBENDL:24	RAYBENDS:24	HATFLDC
NONSCOMP	HADAMALS:36	RAYBENDL
CLPLATEA	CLPLATEB	CLPLATEC
LMSURF:49	NLMSURF:49	BQPGABIM
BQPGASIM	NONSCOMP:50	SBRYBND:50
DECONVU	DECONVB	HADAMALS:64
LMSURF:64	MINSURF	NLMSURF:64
RAYBENDS:66	BRATU1D	BIGGSB1:100
CLPLATEA:100	CLPLATEB:100	CLPLATEC:100
HADAMALS:100	HS110:100	NOBNDTOR:100
NONSCOMP:100	SBRYBND:100	SCOSINE:100
TORSIONA:100	TORSIONB:100	TORSION111:100
TORSION1:100	TORSION2:100	TORSIONC:100
TORSIOND:100	TORSION3:100	TORSION4:100
TORSIONE:100	TORSIONF:100	TORSION5:100
TORSION6:100	BRATU1D:103	EXPQUAD
QRTQUAD	LMSURF:121	NLMSURF:121
RAYBENDL:130	HADAMALS:144	GRIDGENA:170
DRCV2LQ	DRCV3LQ	HADAMALS:196
HS110:200	HADAMALS:256	ODC:288
SSC:288	HADAMALS:324	HADAMALS:400
JNLBRNG1:400	JNLBRNGA:400	JNLBRNG2:400
JNLBRNGB:400	OBSTCLBL:400	OBSTCLBM:400
OBSTCLBU:400	OBSTCLAE:400	OBSTCLAL:400
NOBNDTOR:484	TORSIONA:484	TORSIONB:484
TORSION111:484	TORSION1:484	TORSION2:484
TORSIONC:484	TORSIOND:484	TORSION3:484
TORSION4:484	TORSIONE:484	TORSIONF:484
TORSION5:484	TORSION6:484	NONSCOMP:500
PENALTY2:500	BRATU1D:503	CLPLATEA:529
CLPLATEB:529	GRIDGENA	ODC
SSC	LMSURF:961	NLMSURF:961
BIGGSB1:1000	JNLBRNG1:1000	JNLBRNGA:1000
Continued on next page		

JNLBRNG2:1000	JNLBRNGB:1000	NONSCOMP:1000
OBSTCLBL	OBSTCLBM	OBSTCLBU
OBSTCLAL	OBSTCLAE:1000	PENALTY2:1000
BRATU1D:1003	CLPLATEA:1024	CLPLATEB:1024
HADAMALS:1024	LMSURF:1024	NLMSURF
NOBNDTOR:1024	TORSIONA:1024	TORSIONB:1024
TORSION111:1024	TORSION1:1024	TORSION2:1024
TORSIONC:1024	TORSIOND:1024	TORSION3:1024
TORSION4:1024	TORSIONE:1024	TORSIONF:1024
TORSION5:1024	TORSION6:1024	EXPQUAD:1200
QRTQUAD:1200	GRIDGENA:1226	BQPGAUSS
GRIDGENA:2114	JNLBRNG1:2300	JNLBRNGA:2300
JNLBRNGB:2300	JNLBRNG2:2300	OBSTCLBL:2300
OBSTCLBM:2300	OBSTCLBU:2300	OBSTCLAE:2300
OBSTCLAL:2300	ODC:2376	SSC:2376
JNLBRNG1:3200	JNLBRNGA:3200	JNLBRNG2:3200
JNLBRNGB:3200	OBSTCLBL:3200	OBSTCLBM:3200
OBSTCLBU:3200	OBSTCLAE:3200	OBSTCLAL:3200
GRIDGENA:3242	JNLBRNG1:3400	JNLBRNGA:3400
JNLBRNG2:3400	JNLBRNGB:3400	JIMACK
HADAMALS:4096	GRIDGENA:4610	BIGGSB1:5000
NONSCOMP:5000	QRTQUAD:5000	BRATU1D:5003
CLPLATEA:5041	CLPLATEB:5041	ODC:5184
SSC:5184	MINSURFO:5306	NOBNDTOR:5476
TORSIONA:5476	TORSIONB:5476	TORSION111:5476
TORSION1:5476	TORSION2:5476	TORSIONC:5476
TORSIOND:5476	TORSION3:5476	TORSION4:5476
TORSIONE:5476	TORSIONF:5476	TORSION5:5476
TORSION6:5476	LMSURF:5625	NLMSURF:5625
GRIDGENA:6218	ODC:7344	SSC:7344
JNLBRNG1:7500	JNLBRNGA:7500	JNLBRNG2:7500
JNLBRNGB:7500	OBSTCLBL:7500	OBSTCLBM:7500
OBSTCLBU:7500	OBSTCLAE	OBSTCLAL:7500
JNLBRNG1:10000	JNLBRNGA:10000	JNLBRNG2:10000
JNLBRNGB:10000	LMSURF:10000	NLMSURF:10000
Continued on next page		

NOBNDTOR:10000	NONSCOMP:10000	OBSTCLBL:10000
OBSTCLBM:10000	OBSTCLBU:10000	OBSTCLAE:10000
OBSTCLAL:10000	TORSIONA:10000	TORSIONB:10000
TORSION111:10000	TORSION1:10000	TORSION2:10000
TORSIONC:10000	TORSIOND:10000	TORSION3:10000
TORSION4:10000	TORSIONE:10000	TORSIONF:10000
GRIDGENA:12482	JNLBRNG1:12500	JNLBRNGA:12500
JNLBRNG2:12500	JNLBRNGB:12500	OBSTCLBL:12500
OBSTCLBM:12500	OBSTCLBU:12500	OBSTCLAE:12500
OBSTCLAL:12500	ODC:14544	SSC:14544
NOBNDTOR:14884	TORSIONA:14884	TORSIONB:14884
TORSION111:14884	TORSION1:14884	TORSION2:14884
TORSIONC:14884	TORSIOND:14884	TORSION3:14884
TORSION4:14884	TORSIONE:14884	TORSIONF:14884
TORSION5:14884	TORSION6:14884	LMINSURF:15625
NLMSURF:15625		

kind of anomalies	104 test problems unsolved by lt6 for dim $\in [1,100001]$		
n	BROWNBS	DJTL	JENSMP
	KOEBHELB	MEYER3	PFIT1LS
	PFIT2LS	PFIT3LS	PFIT4LS
	OSCIGRAD:5	OSCIPATH:5	OSBORNEA
	PALMER7A	PALMER1D	PALMER5E
	PALMER6C	PALMER7C	PALMER8C
	PALMER1C	PALMER1E	PALMER2C
	PALMER3C	PALMER4C	PALMER4E
	PALMER5A	PALMER7E	PALMER2E
	PALMER3E	VIBRBEAM	NONMSQRT
	PALMER5B	OSCIGRAD:10	OSCIPATH:10
	STRATEC	SBRYBND:10	SCOSINE:10
	SCURLY10:10	SSCOSINE:10	SCOND1LS
	OSCIGRAD:15	SINEALI:20	OSCIGRAD:25
	Continued on next page		

	X3PK	WATSON:31	NONMSQRT:49
	PROBPENL:50	SBRYBND:50	SSBRYBND:50
	SCOND1LS:52	RAYBENDS	DECONVB
	RAYBENDL:66	RAYBENDS:66	HYDC20LS
	BDEXP	COSINE:100	FLETCHBV:100
	NONMSQRT:100	OSCIGRAD:100	PROBPENL:100
	SBRYBND:100	SCOSINE:100	SCURLY10:100
	SPMSRTLS:100	SSBRYBND:100	SSCOSINE:100
	SCOND1LS:102	RAYBENDL:130	RAYBENDS:130
	QR3DLS	DRCV1LQ	SPMSRTLS:499
	SBRYBND:500	SSBRYBND:500	SCOND1LS:502
	MSQRTALS:529	MSQRTBLS:529	NONMSQRT:529
	QR3DLS:610	LINVERSE:999	COSINE
	CURLY20	CURLY30	CHENHARK
	FLETCHBV:1000	NONCVXUN	OSCIGRAD:1000
	SBRYBND	SCOSINE	SCURLY10
	SSCOSINE	SPMSRTLS:1000	SCOND1LS:1002
	MSQRTALS:1024	MSQRTBLS:1024	NONMSQRT:1024
	RAYBENDL:1026	RAYBENDS:1026	DRCV1LQ:1225
	DRCV2LQ:1225	DRCV3LQ:1225	LINVERSE:1999
	RAYBENDL:2050	RAYBENDS:2050	EIGENALS:2550
	DRCV3LQ:4489	MSQRTALS:4900	MSQRTBLS:4900
	SPMSRTLS:4999	FLETCHBV3:5000	FLETCHBV:5000
	INDEF:5000	NONCVXUN:5000	NONDIA:5000
	QRTQUAD:5000	SBRYBND:5000	SCOSINE:5000
	SPARSINE:5000	SSCOSINE:5000	SCOND1LS:5002
	COSINE:10000	CURLY10:10000	CURLY20:10000
	CURLY30:10000	FLETCHBV3:10000	FLETCHBV:10000
	NONCVXUN:10000	OSCIGRAD:10000	SCOSINE:10000
	SCURLY10:10000	SPARSINE:10000	SPMSRTLS:10000
	SSCOSINE:10000	DRCV3LQ:10816	
t	OSCIGRAD:100000	SSCOSINE:100000	
f	HS110	NCVXBQP3:10	QUDLIN
	TORSION3:16	TORSION4:16	ANTWERP
	HS110:50	HS110:100	QUDLIN:120
	Continued on next page		

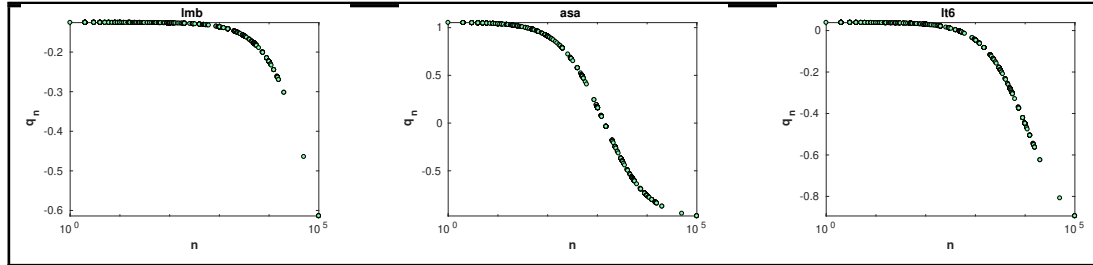
GRIDGENA:170	HS110:200	PENALTY3:200
BDEXP:500	PENALTY2:500	GRIDGENA
BDEXP:1000	INDEF	NCVXBQP3
PENALTY2:1000	QUDLIN:1200	GRIDGENA:1226
GRIDGENA:2114	GRIDGENA:3242	JIMACK
GRIDGENA:4610	BRATU1D:5003	GRIDGENA:6218
NCVXBQP3:10000	GRIDGENA:12482	

3.5 Timing analysis

$x_i \geq 0$, for $i = 1, 2, 3, 4$, are obtained by at least squares fit of

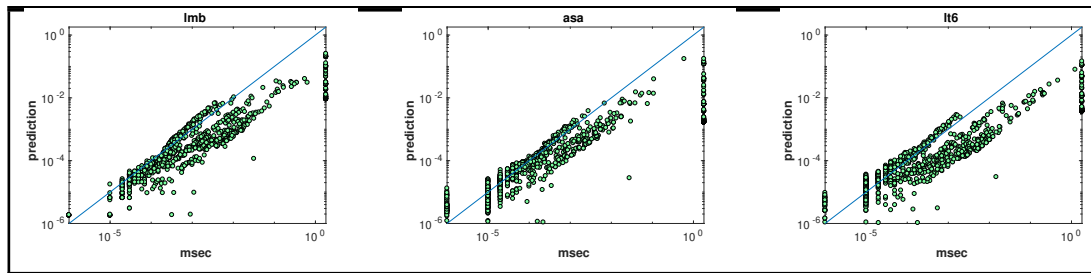
$$msec = (x_1 + x_2 * dim) * nf + (x_3 + x_4 * dim) * ng.$$

Comparison of $q_n := \frac{x_3 + dim * x_4}{x_1 + dim * x_2}$ versus dimension:



solver	x_1	x_2	x_3	x_4
lmb	9.6954e-07	1.2261e-11	8.4777e-07	0
asa	1.0859e-07	8.196e-11	2.2306e-07	0
lt6	3.6036e-07	3.1784e-11	3.7421e-07	0

Comparison of predicted time versus actual time used:



3.6 nf2g efficiency for accuracy 1e-06

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
BQP1VAR	1	1	3	100	100	100
AKIVA	2	—	70	89	79	100
BEALE	2	—	49	79	96	100
BRKMCC	2	—	24	100	89	71
CAMEL6	2	—	25	44	66	100
CLIFF	2	—	73	42	41	100
CUBE	2	—	114	77	77	100
CHEBYQAD:2	2	—	38	45	84	100
DENSCHNA	2	—	28	76	90	100
DENSCHNB	2	—	28	85	72	100
DENSCHNC	2	—	40	74	85	100
DENSCHNF	2	—	36	77	68	100
DJTL	2	—	317	100	26	—
ENGVAL1	2	—	25	68	83	100
EXPFIT	2	—	53	82	78	100
FREUROTH	2	—	43	55	100	78
HUMPS	2	—	135	60	44	100
HAIRY	2	—	58	49	59	100
HIMMELBB	2	—	22	49	58	100
HIMMELBG	2	—	35	95	100	92
HIMMELBH	2	—	22	76	71	100
HS1	2	—	98	100	83	94
HS5	2	—	26	49	90	100
HILBERTA:2	2	—	11	85	100	39
HIMMELP1	2	1	22	88	92	100
HS2	2	1	32	91	100	91
HS3MOD	2	1	4	22	100	25
HS3	2	1	4	25	100	40
HS4	2	2	3	100	100	100
JENSMP	2	—	152	60	100	—
LOGHAIRY	2	—	81	78	64	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
LOGROS	2	—	182	43	81	100
MARATOSB	2	—	3169	76	44	100
MEXHAT	2	—	330	83	54	100
MODBEALE	2	—	49	79	96	100
MDHOLE	2	1	9	100	100	90
OSCIGRAD:2	2	—	5382	100	—	100
OSCIPATH:2	2	—	202	79	59	100
ROSENBR	2	—	98	100	78	94
S308	2	—	28	85	80	100
SINEVAL	2	—	47	96	100	96
SISSER	2	—	35	43	100	67
SNAIL	2	—	25	76	93	100
SENSORS:2	2	—	31	94	100	82
SIMBQP	2	1	4	44	100	40
SIM2BQP	2	2	3	100	100	100
ZANGWIL2	2	—	11	85	100	50
BARD	3	—	174	63	100	72
BOX3	3	—	23	68	100	82
BOX2	3	1	113	93	100	44
DENSCHND	3	—	84	93	90	100
DENSCHNE	3	—	27	52	100	96
ENGVAL2	3	—	97	100	91	80
EG1	3	1	81	65	100	98
GROWTHLS	3	—	104	72	52	100
GULF	3	—	4	14	100	2
HATFLDD	3	—	71	54	100	56
HATFLDE	3	—	74	95	56	100
HATFLDFL	3	—	405	53	63	100
HELIX	3	—	43	88	100	70
HIELOW	3	—	74	—	85	100
HS25	3	—	20	100	57	5
KOEBHELB	3	—	195	50	100	—

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
MEYER3	3	—	3180	73	100	—
PFIT1LS	3	—	52	100	—	—
PFIT2LS	3	—	52	100	—	—
PFIT3LS	3	—	52	100	—	—
PFIT4LS	3	—	52	100	—	—
SCHMVETT	3	—	53	100	98	80
SENSORS:3	3	—	97	79	97	100
SPECAN:3	3	3	3	100	100	100
WEEDS	3	1	72	67	29	100
YFIT	3	—	225	50	100	62
YFITU	3	—	364	82	79	100
ALLINITU	4	—	31	53	89	100
ALLINIT	4	2	41	47	80	100
BROWNDEN	4	—	72	90	100	85
CRAGGLVY	4	—	134	78	86	100
CHAINWOO:4	4	—	98	68	100	90
CHEBYQAD:4	4	—	48	74	44	100
HATFLDA	4	—	67	46	58	100
HIMMELBF	4	—	244	100	83	62
HS38	4	—	102	79	100	94
HILBERTA:4	4	—	19	90	100	26
HATFLDB	4	1	109	87	100	82
HADAMALS	4	3	37	70	100	74
KOWOSB	4	—	198	82	100	72
MSQRTALS	4	—	63	75	100	97
MODBEALE:4	4	—	80	100	78	78
PENALTY2	4	—	1538	52	93	100
POWELLSG	4	—	115	100	96	96
PALMER1B	4	—	196	60	51	100
PALMER2B	4	—	221	50	59	100
PALMER3B	4	—	103	35	25	100
PALMER4B	4	—	135	45	44	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
PALMER5D	4	—	21	100	88	22
PENALTY1:4	4	—	391	58	98	100
PSPDOC	4	1	25	100	78	68
PALMER1	4	1	116	72	37	100
PALMER2	4	1	79	74	66	100
PALMER3	4	1	77	44	83	100
PALMER4	4	1	59	100	60	65
POWELLBC:4	4	4	4	50	100	100
SINEALI:4	4	—	115	100	36	42
WOODS:4	4	—	90	100	88	83
CHEBYQAD:5	5	2	61	49	82	100
EXTROSNB	5	—	322	65	85	100
GENHUMPS:5	5	—	243	100	72	96
GENROSE:5	5	—	137	67	77	100
HILBERTB	5	—	19	90	100	100
HILBERTA:5	5	—	23	92	100	16
HS45	5	5	3	100	100	100
OSCIGRAD:5	5	—	4823	100	87	—
OSBORNEA	5	5	405	100	—	—
SINQUAD	5	—	50	81	78	100
TQUARTIC	5	—	54	87	79	100
BIGGS6	6	—	494	6	100	25
BIGGS5	6	1	216	43	94	100
BIGGS3	6	3	76	71	86	100
CHEBYQAD:6	6	2	62	91	100	67
EIGENALS:6	6	—	109	99	84	100
EIGENBLS:6	6	—	101	90	65	100
HEART6LS	6	—	3316	89	100	85
HILBERTA:6	6	—	23	92	100	16
HART6	6	2	62	81	84	100
PALMER6A	6	—	1688	89	100	95

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
PALMER8A	6	—	301	18	53	100
PALMER1A	6	—	1036	61	100	91
PALMER2A	6	—	727	69	100	69
PALMER3A	6	—	796	44	64	100
PALMER4A	6	—	590	55	73	100
PALMER5C	6	—	27	93	100	53
SPECAN:6	6	6	3	100	100	100
CHEBYQAD:7	7	1	104	100	97	65
PALMER1D	7	—	33	100	60	—
AIRCRFTB	8	3	250	59	49	100
CHEBYQAD:8	8	2	96	91	100	56
HEART8LS	8	—	688	25	14	100
MAXLIKA	8	7	22	61	100	50
OSLBQP	8	7	4	44	57	100
PALMER6C	8	—	37	100	51	—
PALMER6E	8	—	70	6	100	1
PALMER7C	8	—	37	100	51	—
PALMER8C	8	—	37	100	71	—
PALMER8E	8	—	84	10	100	1
PALMER1C	8	—	37	100	45	—
PALMER1E	8	—	1295	52	100	—
PALMER2C	8	—	37	100	47	—
PALMER3C	8	—	37	100	65	—
PALMER4C	8	—	37	100	65	—
PALMER4E	8	—	1174	100	36	—
PALMER5A	8	—	85	100	—	—
POWELLSG:8	8	—	203	86	100	68
PALMER7E	8	1	85	100	—	—
PALMER2E	8	1	1801	100	—	—
PALMER3E	8	1	1778	100	—	—

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
S368:8	8	6	36	77	100	59
VIBRBEAM	8	—	2681	100	—	—
CHEBYQAD:9	9	2	87	100	89	42
MSQRTBLS	9	—	100	88	88	100
NONMSQRT	9	—	833	20	100	—
SPECAN:9	9	9	3	100	100	100
ARGLINA:10	10	—	7	78	100	58
ARGLINB:10	10	—	7	54	100	54
ARGLINC:10	10	—	7	54	100	50
BROWNAL	10	—	74	100	99	67
BRYBND	10	—	83	100	31	30
BOXPOWER:10	10	—	21	100	49	46
BOX:10	10	—	41	100	87	79
BROYDN7D:10	10	—	94	59	82	100
CHNROSNB	10	—	217	75	96	100
CHNRSNBM	10	—	231	60	99	100
CHARDIS0:10	10	—	4	44	100	40
COSINE:10	10	—	124	99	100	83
CRAGGLVY:10	10	—	133	74	98	100
CHEBYQAD	10	2	63	60	100	39
CHENHARK:10	10	3	61	87	77	100
CVXBQP1:10	10	10	3	100	100	100
DIXON3DQ	10	—	45	100	96	54
DQDRTIC	10	—	23	92	100	38
DQRTIC:10	10	—	83	62	77	100
ERRINROS:10	10	—	370	80	100	96
ERRINRSM:10	10	—	761	100	98	63
EXTROSNB:10	10	—	3234	50	100	95
FLETBV3M	10	—	37	59	79	100
FLETCBV2	10	—	47	96	100	73
FLETCBV3	10	—	67	26	64	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
FLETCHBV	10	—	112	20	45	100
FLETCHCR	10	—	229	55	91	100
FREUROTH:10	10	—	75	86	100	82
GENHUMPS:10	10	—	480	63	65	100
GENROSE:10	10	—	232	65	90	100
HS110	10	—	35	35	100	—
HILBERTA:10	10	—	23	92	100	14
HILBERTB:10	10	—	19	90	100	100
HARKERP2:10	10	10	3	100	100	100
INDEFM:10	10	—	148	17	100	97
INDEF:10	10	10	53	55	100	71
MOREBV	10	—	71	86	100	51
MANCINO:10	10	—	26	90	96	100
MODBEALE:10	10	—	135	100	84	17
MCCORMCK	10	1	54	92	100	60
NONCVXU2:10	10	—	75	77	79	100
NONCVXUN:10	10	—	73	100	92	91
NONDIA:10	10	—	106	80	82	100
NCVXBQP1:10	10	10	13	23	46	100
NCVXBQP2:10	10	10	11	21	42	100
NCVXBQP3:10	10	10	33	63	100	31
POWER	10	—	67	56	89	100
PENALTY1:10	10	—	313	75	83	100
PENALTY2:10	10	—	1469	76	81	100
PROBPENL:10	10	4	376	100	45	9
POWELLBC:10	10	7	17	14	23	100
RAYBENDL:10	10	4	90	68	100	92
RAYBENDS:10	10	4	154	71	66	100
SINEALI	10	—	1215	100	33	33
SROSENBR	10	—	181	77	100	56

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
SCHMVETT:10	10	—	90	87	100	89
SENSORS:10	10	—	68	100	61	97
SPARSINE:10	10	—	53	100	84	47
SPARSQUR:10	10	—	34	38	100	51
SSBRYBND:10	10	—	737	81	100	8
SSCOSINE:10	10	—	365	100	77	—
TOINTGSS	10	—	130	94	100	84
TQUARTIC:10	10	—	82	73	100	95
TRIDIA:10	10	—	45	100	96	54
VARDIM	10	—	67	60	100	75
VAREIGVL:10	10	—	46	78	84	100
OSBORNEB	11	—	3847	—	—	100
EXPQUAD:12	12	4	118	89	100	66
QRTQUAD:12	12	3	168	100	75	38
QUDLIN	12	12	15	100	71	48
WATSON:12	12	—	238	80	100	73
BRATU1D:13	13	2	64	100	86	63
DIXMAANA	15	—	19	76	100	100
DIXMAANB	15	—	19	76	100	100
DIXMAANC	15	—	19	66	83	100
DIXMAAND	15	—	25	86	93	100
DIXMAANE	15	—	61	94	60	100
DIXMAANF	15	—	61	94	73	100
DIXMAANG	15	—	64	98	74	100
DIXMAANH	15	—	61	94	70	100
DIXMAANI	15	—	113	100	60	85
DIXMAANJ	15	—	124	100	64	97

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
DIXMAANK	15	—	133	100	67	98
DIXMAANL	15	—	113	100	58	90
DIXMAANM	15	—	93	100	51	62
DIXMAANN	15	—	113	100	63	86
DIXMAANO	15	—	115	98	56	100
DIXMAANP	15	—	131	86	69	100
PARKCH	15	—	642	100	—	9
CLPLATEA:16	16	4	81	93	100	94
CLPLATEB:16	16	4	83	99	98	100
CLPLATEC:16	16	4	69	100	85	53
FMINSURF	16	—	65	100	78	97
FMINSRF2:16	16	—	82	85	80	100
HADAMALS:16	16	8	109	63	100	50
LMINSURF	16	12	41	82	100	100
NLMSURF:16	16	12	49	68	94	100
NOBNDTOR:16	16	13	36	92	100	48
POWELLSG:16	16	—	382	100	58	79
TORSION111:16	16	14	22	100	100	45
TORSION1:16	16	14	22	100	100	45
TORSION2:16	16	14	22	100	100	45
TORSIONA:16	16	14	22	85	100	69
TORSIONB:16	16	14	22	85	100	69
TORSIONC:16	16	14	22	100	100	88
TORSIOND:16	16	14	22	100	100	88
TORSION3:16	16	16	7	58	100	23
TORSION4:16	16	16	7	58	100	23
TORSION5:16	16	16	4	33	100	80
TORSION6:16	16	16	4	33	100	80
TORSIONE:16	16	16	4	44	100	29
TORSIONF:16	16	16	4	44	100	29
CHARDIS0:18	18	—	4	44	100	40

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
LINVERSE	19	8	240	93	100	50
CHEBYQAD:20	20	3	127	34	100	70
MANCINO:20	20	—	31	84	100	100
NONDIA:20	20	—	147	80	100	93
POWELLSG:20	20	—	552	100	92	82
POWER:20	20	—	79	56	66	100
POWELLBC:20	20	13	117	61	100	55
TRIDIA:20	20	—	85	100	83	56
NCB20B	21	—	224	100	44	91
NCB20B:22	22	—	207	100	32	29
RAYBENDL:24	24	4	1152	52	—	100
RAYBENDS:24	24	4	3570	49	—	100
BIGGSB1	25	2	120	100	38	66
CHNROSNB:25	25	—	383	61	48	100
CHNRSNBM:25	25	—	632	73	69	100
ERRINROS:25	25	—	452	85	—	100
ERRINRSM:25	25	—	955	100	—	31
HATFLDC	25	12	49	88	71	100
NONSCOMP	25	12	333	41	100	80
OSCIPATH:25	25	—	182	72	81	100
QUARTC	25	—	39	25	100	41
SPMSRTLS	28	—	175	83	73	100
X3PK	30	1	6749	100	—	—
EIGENCLS:30	30	—	545	99	89	100
MANCINO:30	30	—	32	86	91	100
NONDIA:30	30	—	146	100	77	66
POWER:30	30	—	79	50	62	100
TRIDIA	30	—	133	100	82	59
WATSON:31	31	—	1681	100	28	—

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
EDENSCH	36	—	70	82	71	100
HADAMALS:36	36	24	192	49	100	59
LIARWHD	36	—	73	73	71	100
POWELLSG:36	36	—	448	100	59	43
CHARDIS0:40	40	—	4	44	100	40
POWELLSG:40	40	—	559	100	76	67
QR3DLS:40	40	1	5101	100	—	71
RAYBENDL	44	4	8754	—	—	100
CLPLATEA	49	7	143	72	57	100
CLPLATEB	49	7	137	76	57	100
CLPLATEC	49	7	288	100	71	53
FMINSRF2:49	49	—	142	93	90	100
FMINSURF:49	49	—	112	90	77	100
LMINSURF:49	49	24	96	67	72	100
MSQRTALS:49	49	—	733	86	—	100
MSQRTBLS:49	49	—	590	85	65	100
NLMSURF:49	49	24	381	77	60	100
ARGLINA:50	50	—	7	78	100	54
ARGLINB:50	50	—	7	54	100	41
ARGLINC:50	50	—	7	54	100	41
BROYDN7D:50	50	—	290	79	59	100
BRYBND:50	50	—	67	75	85	100
BQPGABIM	50	26	120	82	100	73
BQPGASIM	50	27	114	100	96	61
CHNROSNB:50	50	—	730	70	63	100
CHNRSNBM:50	50	—	1013	72	91	100
CRAGGLVY:50	50	—	256	74	75	100
CHEBYQAD:50	50	6	196	47	15	100
CVXBQP1:50	50	50	3	100	100	100
DQDRTIC:50	50	—	23	92	100	18
DQRTIC:50	50	—	43	20	100	41

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
ENGVAL1:50	50	—	60	72	78	100
ERRINROS:50	50	—	445	69	—	100
ERRINRSM:50	50	—	836	100	8	26
FREUROTH:50	50	—	79	95	88	100
HILBERTB:50	50	—	19	90	100	86
INDEFM:50	50	—	202	67	74	100
INDEF:50	50	50	56	30	100	26
MANCINO:50	50	—	37	76	95	100
MOREBV:50	50	—	1539	52	100	29
MCCORMCK:50	50	1	56	95	100	55
NCB20B:50	50	—	1006	100	23	45
NONDIA:50	50	—	132	100	66	48
NONSCOMP:50	50	25	266	60	91	100
NCVXBQP3:50	50	49	52	34	100	40
NCVXBQP1:50	50	50	14	16	50	100
NCVXBQP2:50	50	50	38	25	100	32
PENALTY3	50	—	1179	53	72	100
PENALTY1:50	50	—	234	62	76	100
PENALTY2:50	50	—	353	100	48	71
POWER:50	50	—	91	58	85	100
PROBPENL:50	50	—	1066	100	—	—
PENTDI:50	50	37	28	82	88	100
SINQUAD:50	50	—	93	100	75	89
SPARSINE:50	50	—	469	100	58	78
SPARSQUR:50	50	—	24	21	100	36
SROSENBR:50	50	—	205	70	100	55
SSBRYBND:50	50	—	6559	100	—	—
S368:50	50	32	9	15	20	100
TOINTGOR	50	—	396	86	77	100
TOINTPSP	50	—	347	86	53	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
TOINTQOR	50	—	113	100	80	85
TOINTGSS:50	50	—	135	86	70	100
TQUARTIC:50	50	—	125	100	56	62
TRIDIA:50	50	—	213	100	82	74
VAREIGVL	50	—	64	79	81	100
VARDIM:50	50	—	101	59	100	68
CHARDIS0:60	60	—	4	44	100	40
POWELLSG:60	60	—	490	100	69	48
DECONVU	61	10	8236	—	78	100
DECONVB	61	41	483	64	100	—
FMINSRF2	64	—	184	85	94	100
FMINSURF:64	64	—	153	89	96	100
HADAMALS:64	64	34	177	38	100	52
LMINSURF:64	64	28	127	55	82	100
MINSURF	64	28	85	73	93	100
NLMSURF:64	64	28	482	71	69	100
POWER:75	75	—	109	62	74	100
BRATU1D	77	2	1035	92	67	100
POWELLSG:80	80	—	488	100	60	54
DIXMAANA:90	90	—	15	71	100	94
DIXMAANB:90	90	—	19	76	100	100
DIXMAANC:90	90	—	22	76	96	100
DIXMAAND:90	90	—	25	86	93	100
DIXMAANE:90	90	—	158	96	74	100
DIXMAANF:90	90	—	172	100	86	98
DIXMAANG:90	90	—	144	83	75	100
DIXMAANH:90	90	—	172	91	90	100
DIXMAANI:90	90	—	529	100	72	73

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
DIXMAANJ:90	90	—	600	100	83	82
DIXMAANK:90	90	—	653	100	97	85
DIXMAANL:90	90	—	592	100	92	81
DIXMAANM:90	90	—	501	100	76	62
DIXMAANN:90	90	—	720	95	73	100
DIXMAANO:90	90	—	853	98	90	100
DIXMAANP:90	90	—	690	87	70	100
NONDIA:90	90	—	166	100	39	35
ARGLINA:100	100	—	7	78	100	54
ARGLINB:100	100	—	13	100	38	48
ARGLINC:100	100	—	44	100	60	56
ARWHEAD:100	100	—	57	88	76	100
BDQRTIC	100	—	133	92	45	100
BOXPOWER:100	100	—	27	96	100	49
BOX:100	100	—	70	100	76	68
BROWNAL:100	100	—	81	100	72	28
BROYDN7D:100	100	—	415	75	71	100
BRYBND:100	100	—	64	67	77	100
BDEXP	100	2	315	—	100	—
BIGGSB1:100	100	3	904	78	48	100
CHARDIS0	100	—	4	44	100	40
CHAINWOO:100	100	—	1049	46	100	87
COSINE:100	100	—	2591	26	100	—
CRAGGLVY:100	100	—	257	71	64	100
CURLY10:100	100	—	3726	82	86	100
CURLY20:100	100	—	3012	100	38	75
CURLY30:100	100	—	2452	100	28	61
CHEBYQAD:100	100	4	293	42	5	100
CLPLATEA:100	100	10	203	92	72	100
CLPLATEB:100	100	10	208	86	80	100
CLPLATEC:100	100	10	705	100	93	73

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
CHENHARK:100	100	30	5420	58	100	78
CVXBP1	100	100	3	100	100	100
DIXON3DQ:100	100	—	405	100	81	39
DQDRTIC:100	100	—	23	92	100	62
DQRTIC:100	100	—	51	25	100	46
ENGVAL1:100	100	—	61	79	74	100
EXTROSNB:100	100	—	4860	—	48	100
FLETBV3M:100	100	—	89	53	100	100
FLETGBV2:100	100	—	660	100	88	74
FLETGBV3:100	100	—	469	6	5	100
FLETCHCR:100	100	—	1782	58	71	100
FREUROTH:100	100	—	86	91	72	100
GENHUMPS:100	100	—	1024	91	55	100
GENROSE:100	100	—	1756	58	72	100
HADAMALS:100	100	76	372	50	38	100
HARKERP2	100	100	3	100	100	100
INDEFM:100	100	—	262	5	28	100
INDEF:100	100	100	51	28	100	22
LIARWHD:100	100	—	85	88	83	100
MANCINO:100	100	—	42	59	98	100
MOREBV:100	100	—	11645	—	—	100
MSQRTALS:100	100	—	1276	46	37	100
MSQRTBLS:100	100	—	2164	56	55	100
MCCORMCK:100	100	1	56	95	100	79
NONDQUAR	100	—	566	100	47	48
NCB20B:100	100	—	3126	100	32	90
NONCVXU2:100	100	—	1483	72	100	96
NONCVXUN:100	100	—	567	85	100	84
NONDIA:100	100	—	198	100	29	39

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
NOBNDTOR:100	100	49	157	93	100	95
NONSCOMP:100	100	50	240	65	100	95
NCVXBQP3:100	100	98	58	33	100	52
NCVXBQP1:100	100	100	14	12	50	100
NCVXBQP2:100	100	100	37	26	100	38
OSCIPTH:100	100	—	228	90	100	93
PENALTY1:100	100	—	217	69	82	100
PENALTY2:100	100	—	265	68	45	100
PENALTY3:100	100	—	2686	62	84	100
POWELLSG:100	100	—	601	100	90	66
POWER:100	100	—	112	58	85	100
PROBPENL:100	100	—	2968	100	—	—
PENTDI:100	100	74	30	64	100	41
QUARTC:100	100	—	51	25	100	46
SCHMVETT:100	100	—	156	60	78	100
SENSORS:100	100	—	85	41	82	100
SINEALI:100	100	—	219	56	37	100
SINQUAD:100	100	—	90	100	93	85
SPARSINE:100	100	—	820	100	69	88
SPARSQUR:100	100	—	27	30	100	39
SPMSRTLS:100	100	—	1449	—	100	—
SROSENBR:100	100	—	183	53	100	42
SSBRYBND:100	100	—	9583	100	—	—
SSCOSINE:100	100	—	3535	100	—	—
S368:100	100	73	10	16	16	100
TOINTGSS:100	100	—	103	75	66	100
TQUARTIC:100	100	—	218	75	79	100
TRIDIA:100	100	—	341	100	82	65

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
TORSIONA:100	100	54	118	66	100	92
TORSIONB:100	100	54	118	66	100	92
TORSION111:100	100	58	102	63	93	100
TORSION1:100	100	58	102	63	93	100
TORSION2:100	100	58	102	63	93	100
TORSIONC:100	100	67	82	99	100	86
TORSIOND:100	100	67	82	99	100	86
TORSION3:100	100	71	80	87	100	68
TORSION4:100	100	71	80	87	100	68
TORSIONE:100	100	84	50	85	100	70
TORSIONF:100	100	84	50	85	100	70
TORSION5:100	100	86	46	74	100	94
TORSION6:100	100	86	46	74	100	94
VARDIM:100	100	—	122	62	100	74
VAREIGVL:100	100	—	73	86	84	100
WOODS:100	100	—	198	100	45	38
EXPLIN:101	101	95	166	57	100	52
EXPLIN2:101	101	101	7	58	100	32
BRATU1D:103	103	2	1084	53	52	100
EIGENALS	110	—	4266	84	88	100
EIGENBLS	110	—	2141	59	100	92
NCB20:110	110	—	633	100	—	20
EXPQUAD	120	7	214	69	100	88
EXPLIN	120	70	566	62	76	100
EXPLIN2	120	101	215	28	100	54
QRTQUAD	120	5	332	100	83	64
QUDLIN:120	120	120	15	100	71	21
FMINSRF2:121	121	—	214	96	95	100
FMINSURF:121	121	—	176	89	93	100
LMINSURF:121	121	40	170	69	79	100
NLMSURF:121	121	40	946	78	66	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
HADAMALS:144	144	79	287	41	100	84
HOLMES	180	180	3	100	100	100
NCB20B:180	180	—	1298	77	44	100
DRCV2LQ	196	96	4966	99	100	97
DRCV3LQ	196	96	9829	—	100	88
HADAMALS:196	196	161	468	60	100	91
LINVERSE:199	199	43	9567	—	—	100
ARGLINA:200	200	—	7	78	100	50
ARGLINB:200	200	—	28	97	100	97
ARGLINC:200	200	—	23	17	82	100
BROWNAL:200	200	—	108	100	96	25
CHARDIS0:200	200	—	4	44	100	40
MODBEALE:200	200	—	644	67	100	37
PENALTY2:200	200	—	550	—	57	100
PENALTY3:200	200	—	6757	78	100	—
POWELLBC:200	200	104	2761	62	30	100
VARDIM:200	200	—	120	60	100	62
HADAMALS:256	256	135	502	58	100	72
ODC:288	288	148	606	67	46	100
SSC:288	288	148	390	89	83	100
DIXMAANA:300	300	—	15	88	100	94
DIXMAANB:300	300	—	19	76	100	100
DIXMAANC:300	300	—	22	76	96	100
DIXMAAND:300	300	—	25	86	93	100
DIXMAANE:300	300	—	277	100	81	96
DIXMAANF:300	300	—	236	74	75	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
DIXMAANG:300	300	—	239	89	79	100
DIXMAANH:300	300	—	233	79	76	100
DIXMAANI:300	300	—	1781	100	64	76
DIXMAANJ:300	300	—	1452	91	85	100
DIXMAANK:300	300	—	1397	90	84	100
DIXMAANL:300	300	—	1248	79	89	100
DIXMAANM:300	300	—	1761	100	63	86
DIXMAANN:300	300	—	1904	94	100	89
DIXMAANO:300	300	—	1952	97	100	93
DIXMAANP:300	300	—	1868	100	96	79
HADAMALS:324	324	256	499	46	100	88
CHARDIS0:400	400	—	4	31	100	40
HADAMALS:400	400	306	545	32	51	100
JNLBRNG1:400	400	253	274	90	60	100
JNLBRNGA:400	400	253	317	91	71	100
JNLBRNG2:400	400	278	295	77	81	100
JNLBRNGB:400	400	302	417	99	86	100
OBSTCLBL:400	400	263	28	60	100	30
OBSTCLBM:400	400	263	28	60	100	30
OBSTCLBU:400	400	263	28	60	100	30
OBSTCLAE:400	400	398	9	100	47	29
OBSTCLAL:400	400	398	9	100	47	29
EIGENCLS	462	—	7572	61	61	100
NOBNDTOR:484	484	143	192	59	55	100
TORSIONA:484	484	161	202	73	75	100
TORSIONB:484	484	161	202	73	75	100
TORSION111:484	484	186	184	68	51	100
TORSION1:484	484	186	184	68	51	100
TORSION2:484	484	186	184	68	51	100
TORSIONC:484	484	254	154	68	87	100
TORSIOND:484	484	254	154	68	87	100
TORSION3:484	484	267	194	82	100	99

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
TORSION4:484	484	267	194	82	100	99
TORSIONE:484	484	362	107	61	86	100
TORSIONF:484	484	362	107	61	86	100
TORSION5:484	484	368	116	65	92	100
TORSION6:484	484	368	116	65	92	100
ARWHEAD:500	500	—	68	91	100	79
BDQRTIC:500	500	—	147	100	32	74
BROYDN7D:500	500	—	538	71	76	100
BRYBND:500	500	—	64	70	77	100
BDEXP:500	500	2	1514	17	100	—
CRAGGLVY:500	500	—	290	84	68	100
DQRTIC	500	—	59	23	100	43
DQDRTIC:500	500	—	23	92	100	51
FREUROTH:500	500	—	96	94	100	72
GENHUMPS:500	500	—	953	68	55	100
GENROSE:500	500	—	8466	57	95	100
HARKERP2:500	500	500	3	100	100	100
LIARWHD:500	500	—	101	100	64	99
MOREBV:500	500	—	1489	91	55	100
MCCORMCK:500	500	1	56	85	100	71
NCB20B:500	500	—	1251	100	41	90
NONDIA:500	500	—	371	100	31	39
NONDQUAR:500	500	—	551	100	50	57
NONSCOMP:500	500	250	266	28	100	99
OSCIPATH:500	500	—	211	91	95	100
PENALTY1:500	500	—	169	70	77	100
POWELLSG:500	500	—	688	100	90	74
POWER:500	500	—	255	90	93	100
PROBPENL:500	500	—	7	78	100	50
PENTDI:500	500	376	28	85	100	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
QUARTC:500	500	—	59	23	100	43
SCHMVETT:500	500	—	159	19	69	100
SINQUAD:500	500	—	110	100	71	56
SROSENBR:500	500	—	286	63	100	74
TOINTGSS:500	500	—	109	93	81	100
TQUARTIC:500	500	—	321	100	67	65
TRIDIA:500	500	—	857	100	81	64
VAREIGVL:500	500	—	73	78	84	100
BRATU1D:503	503	2	6081	66	39	100
CLPLATEA:529	529	23	552	81	76	100
CLPLATEB:529	529	23	428	80	76	100
CLPLATEC:529	529	23	901	46	—	100
ODC	864	164	576	84	67	100
SSC	864	164	397	90	71	100
FMINSRF2:961	961	—	271	43	87	100
FMINSURF:961	961	—	315	100	75	83
LMINSURF:961	961	120	607	56	73	100
NLMSURF:961	961	120	4301	93	68	100
ARWHEAD:1000	1000	—	64	74	100	66
BDQRTIC:1000	1000	—	183	100	40	56
BOXPOWER:1000	1000	—	32	100	76	41
BOX:1000	1000	—	95	100	67	48
BROWNAL:1000	1000	—	102	100	94	57

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
BROYDN7D:1000	1000	—	526	69	71	100
BRYBND:1000	1000	—	64	70	77	100
BDEXP:1000	1000	2	3017	—	100	—
BIGGSB1:1000	1000	3	7917	84	53	100
CHAINWOO	1000	—	925	100	81	74
CURLY10	1000	—	25995	—	95	100
CHARDIS0:1000	1000	—	4	31	100	40
CRAGGLVY:1000	1000	—	271	73	64	100
CVXBQP1:1000	1000	1000	3	100	100	100
DIXON3DQ:1000	1000	—	4005	100	80	36
DQDRTIC:1000	1000	—	23	92	100	39
DQRTIC:1000	1000	—	63	27	100	44
EG2	1000	—	338	100	54	53
ENGVAL1:1000	1000	—	66	69	90	100
EXTROSNB:1000	1000	—	4970	32	47	100
FLETBV3M:1000	1000	—	52	10	100	59
FLETCBV2:1000	1000	—	4009	100	44	62
FLETCBV3:1000	1000	—	14177	—	—	100
FLETCHCR:1000	1000	—	16834	57	98	100
FREUROTH:1000	1000	—	76	77	80	100
GENHUMPS	1000	—	1097	92	68	100
HARKERP2:1000	1000	1000	3	100	100	100
INDEFM	1000	—	381	100	56	68
INDEF	1000	1000	53	35	100	17
JNLBRNG1:1000	1000	366	278	77	62	100
JNLBRNGA:1000	1000	385	329	70	60	100
JNLBRNG2:1000	1000	524	505	69	54	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
JNLBRNGB:1000	1000	560	1347	90	68	100
LIARWHD:1000	1000	—	110	100	83	72
MOREBV:1000	1000	—	1468	65	50	100
MCCORMCK:1000	1000	1	59	89	100	94
NONCVXU2	1000	—	5628	94	100	73
NONCVXUN	1000	—	10021	90	100	—
NONDIA	1000	—	957	100	47	71
NCB20B:1000	1000	—	1306	100	42	86
NONDQUAR:1000	1000	—	599	100	79	74
NONSCOMP:1000	1000	500	255	100	90	93
NCVXBQP3	1000	983	104	12	100	69
NCVXBQP2	1000	993	80	39	100	61
NCVXBQP1	1000	1000	16	10	57	100
OSCIGRAD:1000	1000	—	1486	—	100	—
OBSTCLBL	1000	680	170	93	100	81
OBSTCLBM	1000	680	170	93	100	81
OBSTCLBU	1000	680	170	93	100	81
OBSTCLAL	1000	696	72	44	100	73
OBSTCLAE:1000	1000	696	72	44	100	73
PENALTY1:1000	1000	—	151	69	83	100
POWELLSG:1000	1000	—	742	100	77	74
POWER:1000	1000	—	348	91	92	100
POWELLBC:1000	1000	501	10829	—	—	100
PENTDI	1000	751	25	76	89	100
QUARTC:1000	1000	—	63	27	100	44
SPARSINE	1000	—	13980	100	71	79
SPARSQUR	1000	—	31	27	100	42
SSBRYBND	1000	—	22765	—	—	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
SCHMVETT:1000	1000	—	185	40	84	100
SENSORS:1000	1000	—	111	69	57	100
SINEALI:1000	1000	—	192	74	38	100
SINQUAD:1000	1000	—	145	95	79	100
SROSENBR:1000	1000	—	359	96	100	70
TESTQUAD	1000	—	3704	100	—	27
TOINTGSS:1000	1000	—	99	76	78	100
TQUARTIC:1000	1000	—	258	100	38	47
TRIDIA:1000	1000	—	1237	100	80	57
VAREIGVL:1000	1000	—	73	78	84	100
WOODS:1000	1000	—	366	100	83	66
BRATU1D:1003	1003	1003	20170	—	—	100
NCB20	1010	—	481	100	3	44
CLPLATEA:1024	1024	32	870	76	70	100
CLPLATEB:1024	1024	32	529	83	84	100
CLPLATEC:1024	1024	32	1406	38	—	100
FMINSRF2:1024	1024	—	283	85	85	100
FMINSURF:1024	1024	—	370	90	92	100
HADAMALS:1024	1024	801	583	27	35	100
LMINSURF:1024	1024	124	662	70	74	100
NLMSURF	1024	124	4388	90	65	100
NOBNDTOR:1024	1024	235	319	79	59	100
TORSIONA:1024	1024	281	278	80	60	100
TORSIONB:1024	1024	281	278	80	60	100
TORSION111:1024	1024	323	242	66	45	100
TORSION1:1024	1024	323	242	66	45	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
TORSION2:1024	1024	323	242	66	45	100
TORSIONC:1024	1024	493	153	53	57	100
TORSIOND:1024	1024	493	153	53	57	100
TORSION3:1024	1024	515	185	66	54	100
TORSION4:1024	1024	515	185	66	54	100
TORSIONE:1024	1024	761	160	79	88	100
TORSIONF:1024	1024	761	160	79	88	100
TORSION5:1024	1024	768	157	74	86	100
TORSION6:1024	1024	768	157	74	86	100
EXPQUAD:1200	1200	81	1126	44	97	100
EXPLIN:1200	1200	1150	623	73	84	100
EXPLIN2:1200	1200	1181	197	25	100	53
QRTQUAD:1200	1200	50	1524	100	23	25
QUDLIN:1200	1200	1200	25	100	83	19
DIXMAANA:1500	1500	—	15	88	100	94
DIXMAANB:1500	1500	—	19	76	100	100
DIXMAANC:1500	1500	—	22	76	96	100
DIXMAAND:1500	1500	—	25	86	93	100
DIXMAANE:1500	1500	—	557	99	78	100
DIXMAANF:1500	1500	—	461	86	84	100
DIXMAANG:1500	1500	—	431	83	89	100
DIXMAANH:1500	1500	—	395	84	75	100
DIXMAANI:1500	1500	—	5665	94	62	100
DIXMAANJ:1500	1500	—	2451	73	100	95
DIXMAANK:1500	1500	—	2325	100	79	97
DIXMAANL:1500	1500	—	1010	55	46	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
DIXMAANM:1500	1500	—	5348	93	59	100
DIXMAANN:1500	1500	—	2478	70	82	100
DIXMAANO:1500	1500	—	2290	73	85	100
DIXMAANP:1500	1500	—	1963	62	67	100
LINVERSE:1999	1999	378	42455	100	—	—
CHARDIS0:2000	2000	—	4	31	100	40
EDENSCH:2000	2000	—	75	82	71	100
MODBEALE:2000	2000	—	771	93	100	39
NCB20B:2000	2000	—	1176	96	46	100
BQPGAUSS	2003	134	16618	36	44	100
RAYBENDS:2050	2050	4	9611	100	—	—
JNLBRNG1:2300	2300	809	348	76	58	100
JNLBRNGA:2300	2300	847	396	77	59	100
JNLBRNGB:2300	2300	1052	1878	86	61	100
JNLBRNG2:2300	2300	1077	623	82	56	100
OBSTCLBL:2300	2300	993	299	86	90	100
OBSTCLBM:2300	2300	993	299	86	90	100
OBSTCLBU:2300	2300	993	299	86	90	100
OBSTCLAE:2300	2300	1276	176	60	70	100
OBSTCLAL:2300	2300	1276	176	60	70	100
ODC:2376	2376	206	608	90	59	100
SSC:2376	2376	206	352	100	69	93
EIGENBLS:2550	2550	—	27925	65	93	100
EIGENCLS:2652	2652	—	44261	—	—	100
DIXMAANA:3000	3000	—	15	88	100	94
DIXMAANB:3000	3000	—	19	76	100	100
DIXMAANC:3000	3000	—	22	76	96	100
DIXMAAND:3000	3000	—	25	76	93	100
DIXMAANE:3000	3000	—	715	96	66	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
DIXMAANF:3000	3000	—	592	90	100	99
DIXMAANG:3000	3000	—	517	87	86	100
DIXMAANH:3000	3000	—	508	89	91	100
DIXMAANI:3000	3000	—	3768	70	46	100
DIXMAANJ:3000	3000	—	932	20	48	100
DIXMAANK:3000	3000	—	714	49	35	100
DIXMAANL:3000	3000	—	1169	47	70	100
DIXMAANM:3000	3000	—	3679	60	52	100
DIXMAANN:3000	3000	—	3220	79	94	100
DIXMAANO:3000	3000	—	2603	79	88	100
DIXMAANP:3000	3000	—	2042	77	42	100
JNLBRNG1:3200	3200	1130	378	79	67	100
JNLBRNGA:3200	3200	1168	433	70	60	100
JNLBRNG2:3200	3200	1400	723	62	51	100
JNLBRNGB:3200	3200	1446	2485	100	71	77
OBSTCLBL:3200	3200	1252	254	79	85	100
OBSTCLBM:3200	3200	1252	254	79	85	100
OBSTCLBU:3200	3200	1252	254	79	85	100
OBSTCLAE:3200	3200	1813	228	62	73	100
OBSTCLAL:3200	3200	1813	228	62	73	100
JNLBRNG1:3400	3400	1195	446	75	77	100
JNLBRNGA:3400	3400	1233	448	76	59	100
JNLBRNG2:3400	3400	1500	689	67	62	100
JNLBRNGB:3400	3400	1545	2710	100	60	80
CHAINWOO:4000	4000	—	994	55	56	100
CHARDIS0:4000	4000	—	4	31	100	40
WOODS:4000	4000	—	349	100	47	38
HADAMALS:4096	4096	3282	795	17	11	100
DRCV1LQ:4489	4489	520	24450	—	—	100
DRCV2LQ:4489	4489	520	61355	—	—	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
ARWHEAD:5000	5000	—	83	100	83	58
BDQRTIC:5000	5000	—	168	100	36	22
BROYDN7D:5000	5000	—	628	51	77	100
BRYBND:5000	5000	—	64	67	77	100
BIGGSB1:5000	5000	3	32608	100	87	85
BDEXP:5000	5000	5000	3	100	100	100
CRAGGLVY:5000	5000	—	302	81	61	100
CHENHARK:5000	5000	2010	25190	100	—	48
DQDRTIC:5000	5000	—	23	92	100	40
DQRTIC:5000	5000	—	71	23	100	43
ENGVAL1:5000	5000	—	63	83	79	100
FLETBV3M:5000	5000	—	89	—	100	75
FLETCBV2:5000	5000	—	20005	100	60	82
FREUROTH:5000	5000	—	90	87	95	100
GENHUMPS:5000	5000	—	931	74	64	100
HARKERP2:5000	5000	5000	3	100	100	100
INDEFM:5000	5000	—	247	—	100	39
INDEF:5000	5000	5000	56	48	100	—
LIARWHD:5000	5000	—	109	100	77	48
MOREBV:5000	5000	—	1358	60	46	100
MCCORMCK:5000	5000	1	62	89	95	100
NCB20B:5000	5000	—	1327	49	30	100
NONCVXU2:5000	5000	—	21305	100	90	51
NONCVXUN:5000	5000	—	44454	100	—	—
NONDIA:5000	5000	—	1220	100	35	—

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
NONDQUAR:5000	5000	—	612	100	64	49
NONSCOMP:5000	5000	2500	264	80	93	100
POWELLSG:5000	5000	—	504	100	63	47
POWER:5000	5000	—	759	90	92	100
PENTDI:5000	5000	3751	28	85	100	100
QUARTC:5000	5000	—	71	23	100	43
QRTQUAD:5000	5000	549	2556	100	8	—
QUDLIN:5000	5000	5000	18	100	67	28
SCHMVETT:5000	5000	—	167	18	62	100
SINQUAD:5000	5000	—	137	79	84	100
SPARSQUR:5000	5000	—	35	24	100	37
SROSENBR:5000	5000	—	399	100	64	53
SSBRYBND:5000	5000	—	25562	87	54	100
TESTQUAD:5000	5000	—	4960	100	14	26
TOINTGSS:5000	5000	—	116	100	98	91
TQUARTIC:5000	5000	—	583	100	52	85
TRIDIA:5000	5000	—	2829	100	80	64
VAREIGVL:5000	5000	—	73	78	84	100
NCB20:5010	5010	—	630	100	14	100
CLPLATEA:5041	5041	71	2190	92	59	100
CLPLATEB:5041	5041	71	1107	91	74	100
CLPLATEC:5041	5041	71	2920	18	—	100
ODC:5184	5184	284	627	65	51	100
SSC:5184	5184	284	381	100	60	81
MINSURFO:5306	5306	1762	3374	100	86	49
NOBNDTOR:5476	5476	801	662	75	52	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
TORSIONA:5476	5476	1096	704	95	44	100
TORSIONB:5476	5476	1096	704	95	44	100
TORSION111:5476	5476	1219	613	76	36	100
TORSION1:5476	5476	1219	613	76	36	100
TORSION2:5476	5476	1219	613	76	36	100
TORSIONC:5476	5476	2328	422	90	95	100
TORSIOND:5476	5476	2328	422	90	95	100
TORSION3:5476	5476	2386	451	100	96	94
TORSION4:5476	5476	2386	451	100	96	94
TORSIONE:5476	5476	3782	218	72	100	59
TORSIONF:5476	5476	3782	218	72	100	59
TORSION5:5476	5476	3805	292	90	64	100
TORSION6:5476	5476	3805	292	90	64	100
FMINSRF2:5625	5625	—	525	83	82	100
FMINSURF:5625	5625	—	540	84	85	100
LMINSURF:5625	5625	296	1579	59	63	100
NLMSURF:5625	5625	296	15218	72	74	100
ODC:7344	7344	344	729	77	46	100
SSC:7344	7344	344	560	100	74	98
JNLBRNG1:7500	7500	2605	992	94	76	100
JNLBRNGA:7500	7500	2676	959	86	67	100
JNLBRNG2:7500	7500	3171	1375	68	51	100
JNLBRNGB:7500	7500	3395	4572	100	64	67
OBSTCLBL:7500	7500	2859	401	72	73	100
OBSTCLBM:7500	7500	2859	401	72	73	100
OBSTCLBU:7500	7500	2859	401	72	73	100
OBSTCLAE	7500	3819	434	79	62	100
OBSTCLAL:7500	7500	3819	434	79	62	100
DIXMAANA:9000	9000	—	15	88	100	94
DIXMAANB:9000	9000	—	19	76	100	100
DIXMAANC:9000	9000	—	22	76	96	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
DIXMAAND:9000	9000	—	25	76	93	100
DIXMAANE:9000	9000	—	956	83	64	100
DIXMAANF:9000	9000	—	788	82	90	100
DIXMAANG:9000	9000	—	804	89	91	100
DIXMAANH:9000	9000	—	750	87	87	100
DIXMAANI:9000	9000	—	1384	34	33	100
DIXMAANJ:9000	9000	—	828	55	80	100
DIXMAANK:9000	9000	—	582	24	62	100
DIXMAANL:9000	9000	—	651	25	74	100
DIXMAANM:9000	9000	—	1680	41	28	100
DIXMAANN:9000	9000	—	1806	46	84	100
DIXMAANO:9000	9000	—	2102	49	81	100
DIXMAANP:9000	9000	—	2219	65	74	100
BOXPOWER	10000	—	27	37	100	27
BOX	10000	—	128	100	63	40
BROYDN7D:10000	10000	—	589	39	74	100
BRYBND:10000	10000	—	64	67	77	100
CHAINWOO:10000	10000	—	1334	83	53	100
CVXBQP1:10000	10000	10000	3	100	100	100
DIXON3DQ:10000	10000	—	40009	100	80	52
FLETBV3M:10000	10000	—	74	—	100	96
FLETCBV2:10000	10000	—	37579	94	75	100
FMINSRF2:10000	10000	—	684	87	83	100
FMINSURF:10000	10000	—	667	85	81	100
HARKERP2:10000	10000	10000	3	100	100	100
INDEFM:10000	10000	—	579	—	40	100

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
JNLBRNG1:10000	10000	3443	1296	100	85	99
JNLBRNGA:10000	10000	3568	1434	97	59	100
JNLBRNG2:10000	10000	4209	1812	76	51	100
JNLBRNGB:10000	10000	4484	6148	100	68	74
LIARWHD:10000	10000	—	112	100	75	61
LMINSURF:10000	10000	396	2289	57	66	100
MCCORMCK:10000	10000	1	53	42	88	100
NONCVXU2:10000	10000	—	28906	98	100	70
NONDIA:10000	10000	—	1873	100	36	65
NONDQUAR:10000	10000	—	842	100	73	65
NLMSURF:10000	10000	396	23680	66	80	100
NOBNDTOR:10000	10000	1299	993	90	46	100
NONSCOMP:10000	10000	5000	237	82	100	81
NCVXBQP3:10000	10000	9808	196	27	69	100
NCVXBQP2:10000	10000	9934	127	21	56	100
NCVXBQP1:10000	10000	10000	18	7	64	100
OSCIGRAD:10000	10000	—	5459	—	100	—
OBSTCLBL:10000	10000	3896	480	86	64	100
OBSTCLBM:10000	10000	3896	480	86	64	100
OBSTCLBU:10000	10000	3896	480	86	64	100
OBSTCLAE:10000	10000	5061	456	69	61	100
OBSTCLAL:10000	10000	5061	456	69	61	100
POWELLSG:10000	10000	—	797	86	100	65
POWER:10000	10000	—	1012	86	86	100
QUARTC:10000	10000	—	75	18	100	43
SCHMVETT:10000	10000	—	174	10	76	100
SINQUAD:10000	10000	—	184	100	87	93
SPARSQUR:10000	10000	—	39	26	100	53

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
SROSENB:10000	10000	—	562	100	52	64
TOINTGSS:10000	10000	—	108	100	96	79
TQUARTIC:10000	10000	—	812	100	62	72
TRIDIA:10000	10000	—	4021	100	80	53
TORSIONA:10000	10000	1839	935	94	66	100
TORSIONB:10000	10000	1839	935	94	66	100
TORSION111:10000	10000	2013	1017	100	48	81
TORSION1:10000	10000	2013	1017	100	48	81
TORSION2:10000	10000	2013	1017	100	48	81
TORSIONC:10000	10000	4105	582	100	50	95
TORSIOND:10000	10000	4105	582	100	50	95
TORSION3:10000	10000	4189	566	88	100	84
TORSION4:10000	10000	4189	566	88	100	84
TORSIONE:10000	10000	6685	351	97	100	88
TORSIONF:10000	10000	6685	351	97	100	88
TORSION5:10000	10000	6720	334	88	100	80
TORSION6:10000	10000	6720	334	88	100	80
WOODS:10000	10000	—	540	83	59	100
DRCV1LQ:10816	10816	816	18017	—	—	100
DRCV2LQ:10816	10816	816	38521	—	—	100
ODNAMUR	11130	5580	216779	—	—	100
JNLBRNG1:12500	12500	4277	1577	100	81	80
JNLBRNGA:12500	12500	4469	1531	86	54	100
JNLBRNG2:12500	12500	5197	2422	86	52	100
JNLBRNGB:12500	12500	5630	6906	100	49	60
OBSTCLBL:12500	12500	4623	558	100	82	90
OBSTCLBM:12500	12500	4623	558	100	82	90
OBSTCLBU:12500	12500	4623	558	100	82	90

problem	dim	nact	nf+2*ng best	nf+2*ng efficiency for solver		
				lmbopt3	asa	lt6
OBSTCLAE:12500	12500	6481	652	88	67	100
OBSTCLAL:12500	12500	6481	652	88	67	100
ODC:14544	14544	544	1609	100	59	94
SSC:14544	14544	544	949	99	70	100
NOBNDTOR:14884	14884	1758	1356	100	34	96
TORSIONA:14884	14884	2618	1014	83	39	100
TORSIONB:14884	14884	2618	1014	83	39	100
TORSION111:14884	14884	2830	1130	99	29	100
TORSION1:14884	14884	2830	1130	99	29	100
TORSION2:14884	14884	2830	1130	99	29	100
TORSIONC:14884	14884	6034	726	100	77	80
TORSIOND:14884	14884	6034	726	100	77	80
TORSION3:14884	14884	6137	619	100	64	86
TORSION4:14884	14884	6137	619	100	64	86
TORSIONE:14884	14884	9868	411	97	100	82
TORSIONF:14884	14884	9868	411	97	100	82
TORSION5:14884	14884	9914	521	100	81	89
TORSION6:14884	14884	9914	521	100	81	89
FMINSRF2:15625	15625	—	794	89	81	100
FMINSURF:15625	15625	—	779	85	79	100
LMSURF:15625	15625	496	2854	61	63	100
NLMSURF:15625	15625	496	32574	64	61	100
BOXPOWER:20000	20000	—	30	64	100	65
MODBEALE:20000	20000	—	762	100	90	45
MCCORMCK:50000	50000	1	54	65	84	100
BOX:100000	100000	—	201	100	50	25
INDEFM:100000	100000	—	898	—	100	39
OSCIGRAD:100000	100000	—	2578	—	100	—
DEGTRID:100001	100001	1	22368	100	24	81
DEGDIAG:100001	100001	100001	3	100	100	100
DEGTRID2:100001	100001	100001	3	100	100	100

3.7 Time in milliseconds, 1e-06

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
BQP1VAR	1	1	3	10	1	10
AKIVA	2	—	70	80	10	10
BEALE	2	—	49	60	10	10
BRKMCC	2	—	24	30	1	10
CAMEL6	2	—	25	70	1	10
CLIFF	2	—	73	190	10	10
CUBE	2	—	114	170	10	20
CHEBYQAD:2	2	—	38	100	10	10
DENSCHNA	2	—	28	30	10	1
DENSCHNB	2	—	28	20	10	1
DENSCHNC	2	—	40	50	10	10
DENSCHNF	2	—	36	60	10	10
DJTL	2	—	317	260	100	—
ENGVAL1	2	—	25	20	1	10
EXPFIT	2	—	53	60	1	10
FREUROTH	2	—	43	70	1	10
HUMPS	2	—	135	220	20	30
HAIRY	2	—	58	140	1	10
HIMMELBB	2	—	22	30	10	1
HIMMELBG	2	—	35	30	1	1
HIMMELBH	2	—	22	20	10	1
HS1	2	—	98	90	20	20
HS5	2	—	26	50	10	1
HILBERTA:2	2	—	11	20	10	10
HIMMELP1	2	1	22	10	1	10
HS2	2	1	32	30	1	10
HS3MOD	2	1	4	20	1	10
HS3	2	1	4	20	1	1
HS4	2	2	3	1	1	10
JENSMP	2	—	152	270	10	—
LOGHAIRY	2	—	81	140	10	20

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
LOGROS	2	—	182	290	10	30
MARATOSB	2	—	3169	2050	520	520
MEXHAT	2	—	330	300	50	50
MODBEALE	2	—	49	50	10	10
MDHOLE	2	1	9	10	10	10
OSCIGRAD:2	2	—	5382	2680	—	910
OSCIPATH:2	2	—	202	210	30	30
ROSENBR	2	—	98	100	10	20
S308	2	—	28	20	1	10
SINEVAL	2	—	47	30	20	10
SISSER	2	—	35	80	1	10
SNAIL	2	—	25	30	1	1
SENSORS:2	2	—	31	30	10	20
SIMBQP	2	1	4	20	10	1
SIM2BQP	2	2	3	1	10	1
ZANGWIL2	2	—	11	10	1	10
BARD	3	—	174	210	20	70
BOX3	3	—	23	40	1	10
BOX2	3	1	113	130	10	40
DENSCHND	3	—	84	70	10	10
DENSCHNE	3	—	27	50	10	1
ENGVAL2	3	—	97	80	20	30
EG1	3	1	81	130	10	10
GROWTHLS	3	—	104	150	10	20
GULF	3	—	4	30	10	30
HATFLDD	3	—	71	120	1	20
HATFLDE	3	—	74	80	10	10
HATFLDFL	3	—	405	460	40	80
HELIX	3	—	43	40	10	10
HIELOW	3	—	74	—	50	50
HS25	3	—	20	30	10	100
KOEBHELB	3	—	195	310	20	—

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
MEYER3	3	—	3180	2200	240	—
PFIT1LS	3	—	52	40	—	—
PFIT2LS	3	—	52	40	—	—
PFIT3LS	3	—	52	30	—	—
PFIT4LS	3	—	52	30	—	—
SCHMVETT	3	—	53	50	10	10
SENSORS:3	3	—	97	110	10	10
SPECAN:3	3	3	3	1	1	10
WEEDS	3	1	72	180	20	20
YFIT	3	—	225	290	20	70
YFITU	3	—	364	290	20	70
ALLINITU	4	—	31	40	1	10
ALLINIT	4	2	41	80	10	10
BROWNDEN	4	—	72	80	10	10
CRAGGLVY	4	—	134	110	20	20
CHAINWOO:4	4	—	98	160	10	20
CHEBYQAD:4	4	—	48	70	20	10
HATFLDA	4	—	67	170	10	10
HIMMELBF	4	—	244	210	30	70
HS38	4	—	102	140	10	20
HILBERTA:4	4	—	19	20	1	10
HATFLDB	4	1	109	140	20	30
HADAMALS	4	3	37	40	10	10
KOWOSB	4	—	198	240	10	60
MSQRTALS	4	—	63	60	10	10
MODBEALE:4	4	—	80	80	10	10
PENALTY2	4	—	1538	1580	170	280
POWELLSG	4	—	115	110	1	20
PALMER1B	4	—	196	270	40	40
PALMER2B	4	—	221	310	30	40
PALMER3B	4	—	103	260	30	10
PALMER4B	4	—	135	240	20	20

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
PALMER5D	4	—	21	30	1	10
PENALTY1:4	4	—	391	440	30	70
PSPDOC	4	1	25	30	1	10
PALMER1	4	1	116	210	20	30
PALMER2	4	1	79	110	20	30
PALMER3	4	1	77	210	10	20
PALMER4	4	1	59	60	20	20
POWELLBC:4	4	4	4	10	1	1
SINEALI:4	4	—	115	160	30	70
WOODS:4	4	—	90	100	10	20
CHEBYQAD:5	5	2	61	150	10	10
EXTROSNB	5	—	322	330	30	60
GENHUMPS:5	5	—	243	220	50	50
GENROSE:5	5	—	137	190	20	30
HILBERTB	5	—	19	20	1	10
HILBERTA:5	5	—	23	30	10	30
HS45	5	5	3	10	1	1
OSCIGRAD:5	5	—	4823	2210	430	—
OSBORNEA	5	5	405	300	—	—
SINQUAD	5	—	50	70	10	10
TQUARTIC	5	—	54	150	20	20
BIGGS6	6	—	494	3770	30	430
BIGGS5	6	1	216	360	10	30
BIGGS3	6	3	76	270	10	30
CHEBYQAD:6	6	2	62	100	10	20
EIGENALS:6	6	—	109	130	10	10
EIGENBLS:6	6	—	101	110	20	10
HEART6LS	6	—	3316	1750	310	630
HILBERTA:6	6	—	23	20	1	10
HART6	6	2	62	130	10	10
PALMER6A	6	—	1688	930	190	330

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
PALMER8A	6	—	301	860	60	40
PALMER1A	6	—	1036	830	110	250
PALMER2A	6	—	727	550	80	250
PALMER3A	6	—	796	890	140	210
PALMER4A	6	—	590	580	80	140
PALMER5C	6	—	27	30	1	20
SPECAN:6	6	6	3	1	1	1
CHEBYQAD:7	7	1	104	140	10	30
PALMER1D	7	—	33	30	10	—
AIRCRFTB	8	3	250	290	40	40
CHEBYQAD:8	8	2	96	140	10	30
HEART8LS	8	—	688	1390	440	170
MAXLIKA	8	7	22	70	10	10
OSLBQP	8	7	4	10	1	10
PALMER6C	8	—	37	30	10	—
PALMER6E	8	—	70	600	10	1070
PALMER7C	8	—	37	30	10	—
PALMER8C	8	—	37	30	10	—
PALMER8E	8	—	84	460	10	1100
PALMER1C	8	—	37	30	10	—
PALMER1E	8	—	1295	1130	160	—
PALMER2C	8	—	37	30	10	—
PALMER3C	8	—	37	40	10	—
PALMER4C	8	—	37	30	10	—
PALMER4E	8	—	1174	610	290	—
PALMER5A	8	—	85	90	—	—
POWELLSG:8	8	—	203	220	20	70
PALMER7E	8	1	85	110	—	—
PALMER2E	8	1	1801	870	—	—
PALMER3E	8	1	1778	830	—	—

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
S368:8	8	6	36	80	10	10
VIBRBEAM	8	—	2681	1310	—	—
CHEBYQAD:9	9	2	87	100	10	40
MSQRTBLS	9	—	100	110	10	10
NONMSQRT	9	—	833	2030	80	—
SPECAN:9	9	9	3	1	10	1
ARGLINA:10	10	—	7	20	1	10
ARGLINB:10	10	—	7	30	10	1
ARGLINC:10	10	—	7	20	1	1
BROWNAL	10	—	74	70	20	10
BRYBND	10	—	83	70	20	50
BOXPOWER:10	10	—	21	20	10	10
BOX:10	10	—	41	30	10	10
BROYDN7D:10	10	—	94	170	10	10
CHNROSNB	10	—	217	240	30	30
CHNRSNBM	10	—	231	260	10	30
CHARDIS0:10	10	—	4	30	1	10
COSINE:10	10	—	124	140	10	30
CRAGGLVY:10	10	—	133	170	10	20
CHEBYQAD	10	2	63	160	20	30
CHENHARK:10	10	3	61	100	10	10
CVXBQP1:10	10	10	3	1	1	1
DIXON3DQ	10	—	45	40	10	20
DQDRTIC	10	—	23	20	1	10
DQRTIC:10	10	—	83	140	10	10
ERRINROS:10	10	—	370	340	30	80
ERRINRSM:10	10	—	761	470	70	240
EXTROSNB:10	10	—	3234	2800	280	650
FLETBV3M	10	—	37	80	10	10
FLETBV2	10	—	47	30	1	20
FLETBV3	10	—	67	250	10	20

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
FLETCHBV	10	—	112	380	20	10
FLETCHCR	10	—	229	290	20	40
FREUROTH:10	10	—	75	80	10	30
GENHUMPS:10	10	—	480	460	70	80
GENROSE:10	10	—	232	260	20	50
HS110	10	—	35	130	1	—
HILBERTA:10	10	—	23	20	1	40
HILBERTB:10	10	—	19	20	1	10
HARKERP2:10	10	10	3	10	10	1
INDEFM:10	10	—	148	620	20	30
INDEF:10	10	10	53	140	1	20
MOREBV	10	—	71	80	1	20
MANCINO:10	10	—	26	20	10	1
MODBEALE:10	10	—	135	120	20	170
MCCORMCK	10	1	54	70	1	20
NONCVXU2:10	10	—	75	100	10	20
NONCVXUN:10	10	—	73	70	10	10
NONDIA:10	10	—	106	160	20	20
NCVXBQP1:10	10	10	13	110	1	1
NCVXBQP2:10	10	10	11	90	1	10
NCVXBQP3:10	10	10	33	80	10	10
POWER	10	—	67	160	10	10
PENALTY1:10	10	—	313	310	20	50
PENALTY2:10	10	—	1469	1070	200	270
PROBPENL:10	10	4	376	340	70	840
POWELLBC:10	10	7	17	200	10	20
RAYBENDL:10	10	4	90	170	10	10
RAYBENDS:10	10	4	154	220	20	30
SINEALI	10	—	1215	610	310	670
SROSENBR	10	—	181	200	20	40

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
SCHMVETT:10	10	—	90	80	10	10
SENSORS:10	10	—	68	80	10	10
SPARSINE:10	10	—	53	30	20	10
SPARSQUR:10	10	—	34	110	1	10
SSBRYBND:10	10	—	737	500	70	1370
SSCOSINE:10	10	—	365	280	40	—
TOINTGSS	10	—	130	150	20	20
TQUARTIC:10	10	—	82	90	10	10
TRIDIA:10	10	—	45	40	1	20
VARDIM	10	—	67	110	10	10
VAREIGVL:10	10	—	46	60	10	10
OSBORNEB	11	—	3847	—	—	740
EXPQUAD:12	12	4	118	80	10	30
QRTQUAD:12	12	3	168	210	20	120
QUDLIN	12	12	15	30	10	10
WATSON:12	12	—	238	250	20	60
BRATU1D:13	13	2	64	50	10	10
DIXMAANA	15	—	19	30	10	1
DIXMAANB	15	—	19	30	1	1
DIXMAANC	15	—	19	30	1	10
DIXMAAND	15	—	25	30	10	10
DIXMAANE	15	—	61	50	10	10
DIXMAANF	15	—	61	40	10	10
DIXMAANG	15	—	64	30	20	10
DIXMAANH	15	—	61	40	20	10
DIXMAANI	15	—	113	90	20	20
DIXMAANJ	15	—	124	90	20	10

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
DIXMAANK	15	—	133	90	20	20
DIXMAANL	15	—	113	80	20	20
DIXMAANM	15	—	93	60	20	20
DIXMAANN	15	—	113	80	30	20
DIXMAANO	15	—	115	80	30	20
DIXMAANP	15	—	131	130	20	20
PARKCH	15	—	642	5710	—	32470
CLPLATEA:16	16	4	81	100	10	10
CLPLATEB:16	16	4	83	60	10	10
CLPLATEC:16	16	4	69	50	10	10
FMINSURF	16	—	65	50	10	10
FMINSRF2:16	16	—	82	60	10	10
HADAMALS:16	16	8	109	220	20	40
LMINSURF	16	12	41	40	10	10
NLMSURF:16	16	12	49	70	20	10
NOBNDTOR:16	16	13	36	50	10	20
POWELLSG:16	16	—	382	250	60	100
TORSION111:16	16	14	22	20	1	10
TORSION1:16	16	14	22	20	10	10
TORSION2:16	16	14	22	30	1	10
TORSIONA:16	16	14	22	40	10	1
TORSIONB:16	16	14	22	30	1	1
TORSIONC:16	16	14	22	30	1	1
TORSIOND:16	16	14	22	30	1	10
TORSION3:16	16	16	7	20	10	10
TORSION4:16	16	16	7	20	1	10
TORSION5:16	16	16	4	20	1	1
TORSION6:16	16	16	4	20	1	1
TORSIONE:16	16	16	4	10	1	1
TORSIONF:16	16	16	4	10	1	1
CHARDIS0:18	18	—	4	30	1	1

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
LINVERSE	19	8	240	240	20	150
CHEBYQAD:20	20	3	127	330	20	30
MANCINO:20	20	—	31	40	1	10
NONDIA:20	20	—	147	200	10	20
POWELLSG:20	20	—	552	310	40	140
POWER:20	20	—	79	130	20	10
POWELLBC:20	20	13	117	200	20	30
TRIDIA:20	20	—	85	50	10	20
NCB20B	21	—	224	200	40	40
NCB20B:22	22	—	207	190	40	90
RAYBENDL:24	24	4	1152	1060	—	260
RAYBENDS:24	24	4	3570	3610	—	660
BIGGSB1	25	2	120	190	30	30
CHNROSNB:25	25	—	383	350	90	40
CHNRSNBM:25	25	—	632	430	90	130
ERRINROS:25	25	—	452	320	—	100
ERRINRSM:25	25	—	955	570	—	520
HATFLDC	25	12	49	30	1	10
NONSCOMP	25	12	333	510	40	80
OSCIPATH:25	25	—	182	200	20	20
QUARTC	25	—	39	200	1	10
SPMSRTLS	28	—	175	210	20	20
X3PK	30	1	6749	2530	—	—
EIGENCLS:30	30	—	545	330	60	80
MANCINO:30	30	—	32	50	1	20
NONDIA:30	30	—	146	170	10	30
POWER:30	30	—	79	170	10	10
TRIDIA	30	—	133	120	20	30
WATSON:31	31	—	1681	820	490	—

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
EDENSCH	36	—	70	80	10	10
HADAMALS:36	36	24	192	370	20	110
LIARWHD	36	—	73	150	10	10
POWELLSG:36	36	—	448	270	80	200
CHARDIS0:40	40	—	4	20	1	1
POWELLSG:40	40	—	559	300	80	170
QR3DLS:40	40	1	5101	2080	—	1110
RAYBENDL	44	4	8754	—	—	1490
CLPLATEA	49	7	143	180	20	20
CLPLATEB	49	7	137	160	20	30
CLPLATEC	49	7	288	230	30	100
FMINSRF2:49	49	—	142	150	20	20
FMINSURF:49	49	—	112	110	10	10
LMINSURF:49	49	24	96	140	10	20
MSQRTALS:49	49	—	733	460	—	170
MSQRTBLS:49	49	—	590	360	120	100
NLMSURF:49	49	24	381	320	50	60
ARGLINA:50	50	—	7	20	1	10
ARGLINB:50	50	—	7	20	1	1
ARGLINC:50	50	—	7	30	1	10
BROYDN7D:50	50	—	290	280	50	40
BRYBND:50	50	—	67	90	10	10
BQPGABIM	50	26	120	220	10	40
BQPGASIM	50	27	114	200	10	30
CHNROSNB:50	50	—	730	540	140	180
CHNRSNBM:50	50	—	1013	650	130	230
CRAGGLVY:50	50	—	256	220	30	30
CHEBYQAD:50	50	6	196	510	460	120
CVXBQP1:50	50	50	3	1	10	1
DQDRTIC:50	50	—	23	30	1	20
DQRTIC:50	50	—	43	220	10	20

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
ENGVAL1:50	50	—	60	80	1	10
ERRINROS:50	50	—	445	380	—	100
ERRINRSM:50	50	—	836	530	770	630
FREUROTH:50	50	—	79	90	10	20
HILBERTB:50	50	—	19	30	10	10
INDEFM:50	50	—	202	300	30	50
INDEF:50	50	50	56	240	1	80
MANCINO:50	50	—	37	60	20	10
MOREBV:50	50	—	1539	1120	160	780
MCCORMCK:50	50	1	56	50	10	20
NCB20B:50	50	—	1006	490	410	380
NONDIA:50	50	—	132	170	20	50
NONSCOMP:50	50	25	266	310	30	50
NCVXBQP3:50	50	49	52	250	10	20
NCVXBQP1:50	50	50	14	200	1	10
NCVXBQP2:50	50	50	38	240	10	20
PENALTY3	50	—	1179	1560	290	340
PENALTY1:50	50	—	234	320	30	30
PENALTY2:50	50	—	353	270	80	70
POWER:50	50	—	91	200	10	20
PROBPENL:50	50	—	1066	680	—	—
PENTDI:50	50	37	28	30	10	10
SINQUAD:50	50	—	93	160	10	10
SPARSINE:50	50	—	469	310	70	80
SPARSQUR:50	50	—	24	110	10	10
SROSENBR:50	50	—	205	250	10	90
SSBRYBND:50	50	—	6559	2450	—	—
S368:50	50	32	9	80	10	1
TOINTGOR	50	—	396	270	40	60
TOINTPSP	50	—	347	290	70	40

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
TOINTQOR	50	—	113	100	20	20
TOINTGSS:50	50	—	135	170	20	20
TQUARTIC:50	50	—	125	180	20	40
TRIDIA:50	50	—	213	190	30	30
VAREIGVL	50	—	64	90	10	10
VARDIM:50	50	—	101	170	10	20
CHARDIS0:60	60	—	4	30	1	1
POWELLSG:60	60	—	490	280	60	210
DECONVU	61	10	8236	—	740	1210
DECONVB	61	41	483	560	40	—
FMINSRF2	64	—	184	190	20	30
FMINSURF:64	64	—	153	170	20	20
HADAMALS:64	64	34	177	390	20	90
LMINSURF:64	64	28	127	210	20	20
MINSURF	64	28	85	110	10	20
NLMSURF:64	64	28	482	370	50	70
POWER:75	75	—	109	180	10	20
BRATU1D	77	2	1035	510	170	200
POWELLSG:80	80	—	488	300	90	220
DIXMAANA:90	90	—	15	30	1	10
DIXMAANB:90	90	—	19	30	1	1
DIXMAANC:90	90	—	22	30	1	1
DIXMAAND:90	90	—	25	20	10	10
DIXMAANE:90	90	—	158	130	10	30
DIXMAANF:90	90	—	172	130	20	20
DIXMAANG:90	90	—	144	170	20	20
DIXMAANH:90	90	—	172	160	10	30
DIXMAANI:90	90	—	529	290	50	110

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
DIXMAANJ:90	90	—	600	310	90	90
DIXMAANK:90	90	—	653	320	60	130
DIXMAANL:90	90	—	592	310	70	120
DIXMAANM:90	90	—	501	280	40	120
DIXMAANN:90	90	—	720	370	110	100
DIXMAANO:90	90	—	853	420	120	190
DIXMAANP:90	90	—	690	370	120	150
NONDIA:90	90	—	166	160	30	100
ARGLINA:100	100	—	7	20	1	10
ARGLINB:100	100	—	13	20	1	10
ARGLINC:100	100	—	44	90	10	10
ARWHEAD:100	100	—	57	70	1	20
BDQRTIC	100	—	133	170	20	20
BOXPOWER:100	100	—	27	40	1	10
BOX:100	100	—	70	70	10	10
BROWNAL:100	100	—	81	60	10	60
BROYDN7D:100	100	—	415	360	70	50
BRYBND:100	100	—	64	90	1	20
BDEXP	100	2	315	—	20	—
BIGGSB1:100	100	3	904	710	250	280
CHARDIS0	100	—	4	20	1	1
CHAINWOO:100	100	—	1049	1000	130	240
COSINE:100	100	—	2591	3680	280	—
CRAGGLVY:100	100	—	257	240	50	30
CURLY10:100	100	—	3726	1760	390	540
CURLY20:100	100	—	3012	1190	640	590
CURLY30:100	100	—	2452	1020	690	620
CHEBYQAD:100	100	4	293	1550	4920	360
CLPLATEA:100	100	10	203	210	20	30
CLPLATEB:100	100	10	208	200	20	30
CLPLATEC:100	100	10	705	340	70	150

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
CHENHARK:100	100	30	5420	3610	390	1030
CVXBQP1	100	100	3	10	10	1
DIXON3DQ:100	100	—	405	280	40	200
DQDRTIC:100	100	—	23	30	1	20
DQRTIC:100	100	—	51	200	20	10
ENGVAL1:100	100	—	61	70	10	10
EXTROSNB:100	100	—	4860	—	770	1060
FLETBV3M:100	100	—	89	220	20	20
FLETGBV2:100	100	—	660	330	90	160
FLETGBV3:100	100	—	469	4880	860	160
FLETCHCR:100	100	—	1782	1420	260	370
FREUROTH:100	100	—	86	100	20	30
GENHUMPS:100	100	—	1024	640	210	250
GENROSE:100	100	—	1756	1380	280	360
HADAMALS:100	100	76	372	590	130	110
HARKERP2	100	100	3	10	1	10
INDEFM:100	100	—	262	3990	110	40
INDEF:100	100	100	51	220	10	80
LIARWHD:100	100	—	85	90	10	10
MANCINO:100	100	—	42	250	90	70
MOREBV:100	100	—	11645	—	—	1570
MSQRTALS:100	100	—	1276	1110	380	240
MSQRTBLS:100	100	—	2164	1490	400	370
MCCORMCK:100	100	1	56	70	1	10
NONDQUAR	100	—	566	330	130	260
NCB20B:100	100	—	3126	1300	900	530
NONCVXU2:100	100	—	1483	830	210	260
NONCVXUN:100	100	—	567	380	60	90
NONDIA:100	100	—	198	220	60	90

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
NOBNDTOR:100	100	49	157	220	20	50
NONSCOMP:100	100	50	240	280	20	30
NCVXBQP3:100	100	98	58	250	10	20
NCVXBQP1:100	100	100	14	240	1	10
NCVXBQP2:100	100	100	37	240	10	20
OSCIPTH:100	100	—	228	210	20	50
PENALTY1:100	100	—	217	260	20	30
PENALTY2:100	100	—	265	320	40	40
PENALTY3:100	100	—	2686	4370	1180	1410
POWELLSG:100	100	—	601	330	60	220
POWER:100	100	—	112	190	20	10
PROBPENL:100	100	—	2968	1600	—	—
PENTDI:100	100	74	30	60	10	20
QUARTC:100	100	—	51	200	10	10
SCHMVETT:100	100	—	156	210	20	30
SENSORS:100	100	—	85	620	210	190
SINEALI:100	100	—	219	270	40	30
SINQUAD:100	100	—	90	100	10	20
SPARSINE:100	100	—	820	410	140	200
SPARSQUR:100	100	—	27	80	1	20
SPMSRTLS:100	100	—	1449	—	170	—
SROSENBR:100	100	—	183	290	20	150
SSBRYBND:100	100	—	9583	3490	—	—
SSCOSINE:100	100	—	3535	1370	—	—
S368:100	100	73	10	120	30	10
TOINTGSS:100	100	—	103	160	20	20
TQUARTIC:100	100	—	218	240	20	30
TRIDIA:100	100	—	341	220	30	80

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
TORSIONA:100	100	54	118	250	10	30
TORSIONB:100	100	54	118	220	10	30
TORSION111:100	100	58	102	200	10	30
TORSION1:100	100	58	102	250	10	40
TORSION2:100	100	58	102	210	10	20
TORSIONC:100	100	67	82	120	10	20
TORSIOND:100	100	67	82	150	20	30
TORSION3:100	100	71	80	140	10	40
TORSION4:100	100	71	80	160	10	30
TORSIONE:100	100	84	50	80	20	20
TORSIONF:100	100	84	50	90	10	10
TORSION5:100	100	86	46	100	10	10
TORSION6:100	100	86	46	100	10	10
VARDIM:100	100	—	122	190	20	20
VAREIGVL:100	100	—	73	120	10	10
WOODS:100	100	—	198	230	60	100
EXPLIN:101	101	95	166	250	20	100
EXPLIN2:101	101	101	7	30	1	10
BRATU1D:103	103	2	1084	970	210	210
EIGENALS	110	—	4266	2140	510	690
EIGENBLS	110	—	2141	1560	260	380
NCB20:110	110	—	633	380	—	500
EXPQUAD	120	7	214	280	30	40
EXPLIN	120	70	566	640	110	160
EXPLIN2	120	101	215	550	20	140
QRTQUAD	120	5	332	310	30	140
QUDLIN:120	120	120	15	30	10	10
FMINSRF2:121	121	—	214	200	20	30
FMINSURF:121	121	—	176	180	10	20
LMINSURF:121	121	40	170	240	20	50
NLMSURF:121	121	40	946	600	150	200

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
HADAMALS:144	144	79	287	640	30	90
HOLMES	180	180	3	10	10	1
NCB20B:180	180	—	1298	840	400	320
DRCV2LQ	196	96	4966	2040	430	760
DRCV3LQ	196	96	9829	—	780	1680
HADAMALS:196	196	161	468	650	90	110
LINVERSE:199	199	43	9567	—	—	1970
ARGLINA:200	200	—	7	20	10	10
ARGLINB:200	200	—	28	60	10	10
ARGLINC:200	200	—	23	210	10	10
BROWNAL:200	200	—	108	160	20	150
CHARDIS0:200	200	—	4	20	10	1
MODBEALE:200	200	—	644	500	90	450
PENALTY2:200	200	—	550	—	130	70
PENALTY3:200	200	—	6757	24180	8830	—
POWELLBC:200	200	104	2761	3030	1700	1160
VARDIM:200	200	—	120	180	10	30
HADAMALS:256	256	135	502	980	100	250
ODC:288	288	148	606	530	210	160
SSC:288	288	148	390	300	50	70
DIXMAANA:300	300	—	15	20	1	10
DIXMAANB:300	300	—	19	30	1	1
DIXMAANC:300	300	—	22	30	1	1
DIXMAAND:300	300	—	25	50	1	10
DIXMAANE:300	300	—	277	300	30	80
DIXMAANF:300	300	—	236	260	40	30

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
DIXMAANG:300	300	—	239	230	30	30
DIXMAANH:300	300	—	233	260	30	40
DIXMAANI:300	300	—	1781	860	250	460
DIXMAANJ:300	300	—	1452	720	220	320
DIXMAANK:300	300	—	1397	750	240	260
DIXMAANL:300	300	—	1248	760	180	260
DIXMAANM:300	300	—	1761	820	250	400
DIXMAANN:300	300	—	1904	870	230	420
DIXMAANO:300	300	—	1952	950	270	400
DIXMAANP:300	300	—	1868	1010	240	520
HADAMALS:324	324	256	499	1270	130	250
CHARDIS0:400	400	—	4	80	1	10
HADAMALS:400	400	306	545	1520	240	560
JNLBRNG1:400	400	253	274	270	40	150
JNLBRNGA:400	400	253	317	250	30	190
JNLBRNG2:400	400	278	295	320	30	190
JNLBRNGB:400	400	302	417	310	40	270
OBSTCLBL:400	400	263	28	60	20	60
OBSTCLBM:400	400	263	28	60	1	50
OBSTCLBU:400	400	263	28	50	10	60
OBSTCLAE:400	400	398	9	20	10	10
OBSTCLAL:400	400	398	9	20	10	10
EIGENCLS	462	—	7572	9400	2630	7860
NOBNDTOR:484	484	143	192	490	60	140
TORSIONA:484	484	161	202	390	50	230
TORSIONB:484	484	161	202	390	40	230
TORSION111:484	484	186	184	350	50	180
TORSION1:484	484	186	184	390	50	190
TORSION2:484	484	186	184	380	50	200
TORSIONC:484	484	254	154	350	30	150
TORSIOND:484	484	254	154	350	30	140
TORSION3:484	484	267	194	310	20	210

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
TORSION4:484	484	267	194	300	30	200
TORSIONE:484	484	362	107	290	30	100
TORSIONF:484	484	362	107	280	20	90
TORSION5:484	484	368	116	290	20	90
TORSION6:484	484	368	116	280	30	100
ARWHEAD:500	500	—	68	120	10	40
BDQRTIC:500	500	—	147	160	40	130
BROYDN7D:500	500	—	538	630	170	480
BRYBND:500	500	—	64	80	20	20
BDEXP:500	500	2	1514	8870	260	—
CRAGGLVY:500	500	—	290	360	70	190
DQRTIC	500	—	59	330	10	70
DQDRTIC:500	500	—	23	30	10	10
FREUROTH:500	500	—	96	100	10	100
GENHUMPS:500	500	—	953	1290	240	790
GENROSE:500	500	—	8466	10350	880	7460
HARKERP2:500	500	500	3	1	1	1
LIARWHD:500	500	—	101	200	20	50
MOREBV:500	500	—	1489	800	260	990
MCCORMCK:500	500	1	56	70	1	50
NCB20B:500	500	—	1251	1040	650	1360
NONDIA:500	500	—	371	390	170	760
NONDQUAR:500	500	—	551	460	150	800
NONSCOMP:500	500	250	266	1040	30	270
OSCIPATH:500	500	—	211	230	20	150
PENALTY1:500	500	—	169	350	20	100
POWELLSG:500	500	—	688	500	100	780
POWER:500	500	—	255	250	20	200
PROBPENL:500	500	—	7	20	1	1
PENTDI:500	500	376	28	30	1	10

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
QUARTC:500	500	—	59	300	10	60
SCHMVETT:500	500	—	159	710	30	90
SINQUAD:500	500	—	110	180	20	160
SROSENBR:500	500	—	286	420	30	300
TOINTGSS:500	500	—	109	200	10	60
TQUARTIC:500	500	—	321	480	50	500
TRIDIA:500	500	—	857	530	110	920
VAREIGVL:500	500	—	73	80	10	40
BRATU1D:503	503	2	6081	5600	1420	4310
CLPLATEA:529	529	23	552	440	120	370
CLPLATEB:529	529	23	428	370	70	300
CLPLATEC:529	529	23	901	1080	—	670
ODC	864	164	576	1610	220	620
SSC	864	164	397	1150	130	450
FMINSRF2:961	961	—	271	1280	50	240
FMINSURF:961	961	—	315	770	80	340
LMINSURF:961	961	120	607	2110	170	590
NLMSURF:961	961	120	4301	9900	870	3920
ARWHEAD:1000	1000	—	64	210	10	80
BDQRTIC:1000	1000	—	183	480	80	270
BOXPOWER:1000	1000	—	32	110	10	50
BOX:1000	1000	—	95	310	20	170
BROWNAL:1000	1000	—	102	610	350	710

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
BROYDN7D:1000	1000	—	526	1920	240	740
BRYBND:1000	1000	—	64	250	20	50
BDEXP:1000	1000	2	3017	—	530	—
BIGGSB1:1000	1000	3	7917	21420	1220	7450
CHAINWOO	1000	—	925	1990	210	1210
CURLY10	1000	—	25995	—	2760	21240
CHARDIS0:1000	1000	—	4	190	30	40
CRAGGLVY:1000	1000	—	271	890	100	250
CVXBQP1:1000	1000	1000	3	1	1	1
DIXON3DQ:1000	1000	—	4005	7450	440	9110
DQDRTIC:1000	1000	—	23	70	1	40
DQRTIC:1000	1000	—	63	540	1	100
EG2	1000	—	338	750	140	630
ENGVAL1:1000	1000	—	66	190	10	50
EXTROSNB:1000	1000	—	4970	27440	1120	5710
FLETBV3M:1000	1000	—	52	1230	10	120
FLETCBV2:1000	1000	—	4009	8480	1090	6450
FLETCBV3:1000	1000	—	14177	—	—	21200
FLETCHCR:1000	1000	—	16834	53310	2000	17990
FREUROTH:1000	1000	—	76	330	20	50
GENHUMPS	1000	—	1097	2390	330	1240
HARKERP2:1000	1000	1000	3	10	10	10
INDEFM	1000	—	381	870	180	820
INDEF	1000	1000	53	420	10	560
JNLBRNG1:1000	1000	366	278	850	100	260
JNLBRNGA:1000	1000	385	329	1160	100	310
JNLBRNG2:1000	1000	524	505	1600	220	540

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
JNLBRNGB:1000	1000	560	1347	3300	320	1300
LIARWHD:1000	1000	—	110	260	10	150
MOREBV:1000	1000	—	1468	4450	310	1230
MCCORMCK:1000	1000	1	59	150	20	50
NONCVXU2	1000	—	5628	12880	930	7530
NONCVXUN	1000	—	10021	23410	1500	—
NONDIA	1000	—	957	1640	290	1380
NCB20B:1000	1000	—	1306	3620	1090	2350
NONDQUAR:1000	1000	—	599	1130	120	880
NONSCOMP:1000	1000	500	255	540	40	350
NCVXBQP3	1000	983	104	1940	10	110
NCVXBQP2	1000	993	80	580	10	80
NCVXBQP1	1000	1000	16	480	1	10
OSCIGRAD:1000	1000	—	1486	—	220	—
OBSTCLBL	1000	680	170	480	30	250
OBSTCLBM	1000	680	170	480	30	260
OBSTCLBU	1000	680	170	470	40	260
OBSTCLAL	1000	696	72	400	20	170
OBSTCLAE:1000	1000	696	72	450	20	110
PENALTY1:1000	1000	—	151	540	20	130
POWELLSG:1000	1000	—	742	1430	170	1210
POWER:1000	1000	—	348	780	60	270
POWELLBC:1000	1000	501	10829	—	—	48620
PENTDI	1000	751	25	70	10	10
QUARTC:1000	1000	—	63	540	10	100
SPARSINE	1000	—	13980	29140	2260	17390
SPARSQUR	1000	—	31	310	10	50
SSBRYBND	1000	—	22765	—	—	22110

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
SCHMVETT:1000	1000	—	185	1170	50	190
SENSORS:1000	1000	—	111	31740	27550	14650
SINEALI:1000	1000	—	192	660	90	150
SINQUAD:1000	1000	—	145	400	30	130
SROSENBR:1000	1000	—	359	810	30	550
TESTQUAD	1000	—	3704	6690	—	11130
TOINTGSS:1000	1000	—	99	350	30	80
TQUARTIC:1000	1000	—	258	570	110	710
TRIDIA:1000	1000	—	1237	2340	210	1860
VAREIGVL:1000	1000	—	73	260	20	50
WOODS:1000	1000	—	366	750	70	620
BRATU1D:1003	1003	1003	20170	—	—	21290
NCB20	1010	—	481	1300	5460	1810
CLPLATEA:1024	1024	32	870	2530	230	900
CLPLATEB:1024	1024	32	529	1380	150	630
CLPLATEC:1024	1024	32	1406	7870	—	1370
FMINSRF2:1024	1024	—	283	770	60	240
FMINSURF:1024	1024	—	370	950	80	320
HADAMALS:1024	1024	801	583	6640	750	1210
LMINSURF:1024	1024	124	662	1970	190	630
NLMSURF	1024	124	4388	10080	940	4080
NOBNDTOR:1024	1024	235	319	1060	160	560
TORSIONA:1024	1024	281	278	950	150	430
TORSIONB:1024	1024	281	278	910	160	430
TORSION111:1024	1024	323	242	1000	150	380
TORSION1:1024	1024	323	242	1030	190	370

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
TORSION2:1024	1024	323	242	860	160	360
TORSIONC:1024	1024	493	153	710	70	190
TORSIOND:1024	1024	493	153	860	80	190
TORSION3:1024	1024	515	185	760	100	260
TORSION4:1024	1024	515	185	720	100	270
TORSIONE:1024	1024	761	160	590	50	230
TORSIONF:1024	1024	761	160	640	40	210
TORSION5:1024	1024	768	157	520	40	270
TORSION6:1024	1024	768	157	670	40	230
EXPQUAD:1200	1200	81	1126	5680	220	1460
EXPLIN:1200	1200	1150	623	1810	110	740
EXPLIN2:1200	1200	1181	197	1680	20	530
QRTQUAD:1200	1200	50	1524	3360	730	5740
QUDLIN:1200	1200	1200	25	70	10	60
DIXMAANA:1500	1500	—	15	60	10	10
DIXMAANB:1500	1500	—	19	70	10	10
DIXMAANC:1500	1500	—	22	70	1	10
DIXMAAND:1500	1500	—	25	60	10	20
DIXMAANE:1500	1500	—	557	1300	120	530
DIXMAANF:1500	1500	—	461	1280	130	360
DIXMAANG:1500	1500	—	431	1200	100	330
DIXMAANH:1500	1500	—	395	1110	110	350
DIXMAANI:1500	1500	—	5665	12640	1010	4510
DIXMAANJ:1500	1500	—	2451	7200	390	2230
DIXMAANK:1500	1500	—	2325	4950	480	2080
DIXMAANL:1500	1500	—	1010	3920	350	830

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
DIXMAANM:1500	1500	—	5348	12020	980	4490
DIXMAANN:1500	1500	—	2478	7650	480	2030
DIXMAANO:1500	1500	—	2290	6880	420	1920
DIXMAANP:1500	1500	—	1963	6920	480	1640
LINVERSE:1999	1999	378	42455	135950	—	—
CHARDIS0:2000	2000	—	4	360	60	140
EDENSCH:2000	2000	—	75	340	20	70
MODBEALE:2000	2000	—	771	2650	270	3160
NCB20B:2000	2000	—	1176	4320	1620	2540
BQPGAUSS	2003	134	16618	111600	6830	21130
RAYBENDS:2050	2050	4	9611	66730	—	—
JNLBRNG1:2300	2300	809	348	1530	230	560
JNLBRNGA:2300	2300	847	396	1650	230	720
JNLBRNGB:2300	2300	1052	1878	6560	760	2370
JNLBRNG2:2300	2300	1077	623	2560	340	910
OBSTCLBL:2300	2300	993	299	1070	180	580
OBSTCLBM:2300	2300	993	299	1170	180	580
OBSTCLBU:2300	2300	993	299	1190	160	630
OBSTCLAE:2300	2300	1276	176	1000	110	210
OBSTCLAL:2300	2300	1276	176	860	120	210
ODC:2376	2376	206	608	2310	480	960
SSC:2376	2376	206	352	1210	240	710
EIGENBLS:2550	2550	—	27925	347140	76450	119480
EIGENCLS:2652	2652	—	44261	—	—	201720
DIXMAANA:3000	3000	—	15	110	10	20
DIXMAANB:3000	3000	—	19	130	10	10
DIXMAANC:3000	3000	—	22	140	10	30
DIXMAAND:3000	3000	—	25	150	40	30
DIXMAANE:3000	3000	—	715	2270	260	970

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
DIXMAANF:3000	3000	—	592	2040	190	910
DIXMAANG:3000	3000	—	517	1900	200	700
DIXMAANH:3000	3000	—	508	1780	200	700
DIXMAANI:3000	3000	—	3768	15750	1280	5040
DIXMAANJ:3000	3000	—	932	13720	480	1220
DIXMAANK:3000	3000	—	714	4340	460	1040
DIXMAANL:3000	3000	—	1169	7390	390	1500
DIXMAANM:3000	3000	—	3679	17580	1110	5010
DIXMAANN:3000	3000	—	3220	11820	730	4300
DIXMAANO:3000	3000	—	2603	9520	680	3340
DIXMAANP:3000	3000	—	2042	7790	990	2700
JNLBRNG1:3200	3200	1130	378	2350	460	940
JNLBRNGA:3200	3200	1168	433	2760	530	950
JNLBRNG2:3200	3200	1400	723	5150	950	1780
JNLBRNGB:3200	3200	1446	2485	10140	2070	8890
OBSTCLBL:3200	3200	1252	254	1570	280	840
OBSTCLBM:3200	3200	1252	254	1620	280	790
OBSTCLBU:3200	3200	1252	254	1590	270	830
OBSTCLAE:3200	3200	1813	228	1640	290	680
OBSTCLAL:3200	3200	1813	228	1540	310	690
JNLBRNG1:3400	3400	1195	446	2800	510	1330
JNLBRNGA:3400	3400	1233	448	2720	690	1200
JNLBRNG2:3400	3400	1500	689	4570	770	1560
JNLBRNGB:3400	3400	1545	2710	11560	2870	9430
CHAINWOO:4000	4000	—	994	8060	1160	2300
CHARDIS0:4000	4000	—	4	1110	220	550
WOODS:4000	4000	—	349	1500	450	1950
HADAMALS:4096	4096	3282	795	41960	29820	4360
DRCV1LQ:4489	4489	520	24450	—	—	70480
DRCV2LQ:4489	4489	520	61355	—	—	178060

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
ARWHEAD:5000	5000	—	83	580	100	330
BDQRTIC:5000	5000	—	168	1170	520	2040
BROYDN7D:5000	5000	—	628	9230	1700	2490
BRYBND:5000	5000	—	64	680	110	160
BIGGSB1:5000	5000	3	32608	165410	18730	92500
BDEXP:5000	5000	5000	3	1	1	1
CRAGGLVY:5000	5000	—	302	2440	690	970
CHENHARK:5000	5000	2010	25190	119750	—	129040
DQDRTIC:5000	5000	—	23	180	20	150
DQRTIC:5000	5000	—	71	1500	50	400
ENGVAL1:5000	5000	—	63	460	60	120
FLETBV3M:5000	5000	—	89	—	190	520
FLETGBV2:5000	5000	—	20005	109420	28870	72710
FREUROTH:5000	5000	—	90	740	110	240
GENHUMPS:5000	5000	—	931	7570	1710	3000
HARKERP2:5000	5000	5000	3	320	50	100
INDEFM:5000	5000	—	247	—	400	2240
INDEF:5000	5000	5000	56	810	100	—
LIARWHD:5000	5000	—	109	720	130	660
MOREBV:5000	5000	—	1358	10520	1880	3110
MCCORMCK:5000	5000	1	62	580	100	180
NCB20B:5000	5000	—	1327	22030	10980	6220
NONCVXU2:5000	5000	—	21305	122300	28310	118690
NONCVXUN:5000	5000	—	44454	254720	—	—
NONDIA:5000	5000	—	1220	6240	2800	—

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
NONDQUAR:5000	5000	—	612	2930	760	2900
NONSCOMP:5000	5000	2500	264	1750	300	740
POWELLSG:5000	5000	—	504	2240	630	2750
POWER:5000	5000	—	759	3400	550	1740
PENTDI:5000	5000	3751	28	190	30	50
QUARTC:5000	5000	—	71	1500	50	400
QRTQUAD:5000	5000	549	2556	13500	18330	—
QUDLIN:5000	5000	5000	18	120	20	90
SCHMVETT:5000	5000	—	167	7150	540	600
SINQUAD:5000	5000	—	137	1290	300	460
SPARSQUR:5000	5000	—	35	970	40	350
SROSENBR:5000	5000	—	399	1940	490	2080
SSBRYBND:5000	5000	—	25562	168380	51600	78000
TESTQUAD:5000	5000	—	4960	19010	18310	34540
TOINTGSS:5000	5000	—	116	870	140	450
TQUARTIC:5000	5000	—	583	3020	890	1880
TRIDIA:5000	5000	—	2829	11840	2000	8950
VAREIGVL:5000	5000	—	73	650	130	210
NCB20:5010	5010	—	630	5530	11350	3160
CLPLATEA:5041	5041	71	2190	13240	3120	6510
CLPLATEB:5041	5041	71	1107	6860	1330	3160
CLPLATEC:5041	5041	71	2920	87610	—	8300
ODC:5184	5184	284	627	6720	1530	2370
SSC:5184	5184	284	381	2640	760	1790
MINSURFO:5306	5306	1762	3374	22860	5190	31830
NOBNDTOR:5476	5476	801	662	6360	1650	3040

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
TORSIONA:5476	5476	1096	704	5750	2610	3220
TORSIONB:5476	5476	1096	704	5700	2610	3190
TORSION111:5476	5476	1219	613	5920	2640	2490
TORSION1:5476	5476	1219	613	6000	2670	2530
TORSION2:5476	5476	1219	613	5870	2640	2510
TORSIONC:5476	5476	2328	422	3520	710	2050
TORSIOND:5476	5476	2328	422	3470	710	1990
TORSION3:5476	5476	2386	451	3230	750	2390
TORSION4:5476	5476	2386	451	3290	730	2420
TORSIONE:5476	5476	3782	218	2110	440	1840
TORSIONF:5476	5476	3782	218	2060	440	1790
TORSION5:5476	5476	3805	292	2170	830	1290
TORSION6:5476	5476	3805	292	2180	860	1290
FMINSRF2:5625	5625	—	525	3930	830	1620
FMINSURF:5625	5625	—	540	4180	870	1800
LMINSURF:5625	5625	296	1579	16550	2150	4390
NLMSURF:5625	5625	296	15218	128380	16610	44320
ODC:7344	7344	344	729	8030	2590	3310
SSC:7344	7344	344	560	4790	1190	2670
JNLBRNG1:7500	7500	2605	992	9750	2460	5720
JNLBRNGA:7500	7500	2676	959	9640	2100	4900
JNLBRNG2:7500	7500	3171	1375	16290	3950	7650
JNLBRNGB:7500	7500	3395	4572	36210	9630	34240
OBSTCLBL:7500	7500	2859	401	5210	1240	2560
OBSTCLBM:7500	7500	2859	401	5210	1250	2630
OBSTCLBU:7500	7500	2859	401	5240	1230	2560
OBSTCLAE	7500	3819	434	5110	1420	2240
OBSTCLAL:7500	7500	3819	434	4980	1390	2270
DIXMAANA:9000	9000	—	15	170	20	80
DIXMAANB:9000	9000	—	19	220	40	60
DIXMAANC:9000	9000	—	22	320	40	70

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
DIXMAAND:9000	9000	—	25	280	50	150
DIXMAANE:9000	9000	—	956	8390	2210	3770
DIXMAANF:9000	9000	—	788	6740	1650	3180
DIXMAANG:9000	9000	—	804	6440	1670	3280
DIXMAANH:9000	9000	—	750	6090	1610	3000
DIXMAANI:9000	9000	—	1384	29740	6030	5280
DIXMAANJ:9000	9000	—	828	10530	1890	3270
DIXMAANK:9000	9000	—	582	16610	1760	2270
DIXMAANL:9000	9000	—	651	18550	1670	2400
DIXMAANM:9000	9000	—	1680	28470	8380	6850
DIXMAANN:9000	9000	—	1806	27300	3870	7310
DIXMAANO:9000	9000	—	2102	30280	4610	8490
DIXMAANP:9000	9000	—	2219	23840	5340	8710
BOXPOWER	10000	—	27	560	50	400
BOX	10000	—	128	1200	620	1670
BROYDN7D:10000	10000	—	589	16060	3000	3410
BRYBND:10000	10000	—	64	1000	350	360
CHAINWOO:10000	10000	—	1334	13800	6340	6610
CVXBQP1:10000	10000	10000	3	10	10	20
DIXON3DQ:10000	10000	—	40009	269780	56000	288530
FLETBV3M:10000	10000	—	74	—	250	440
FLETCBV2:10000	10000	—	37579	351280	107290	197670
FMINSRF2:10000	10000	—	684	6900	2270	3340
FMINSURF:10000	10000	—	667	6910	2320	3270
HARKERP2:10000	10000	10000	3	910	160	180
INDEFM:10000	10000	—	579	—	4450	3460

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
JNLBRNG1:10000	10000	3443	1296	14700	3870	9090
JNLBRNGA:10000	10000	3568	1434	15500	5440	8730
JNLBRNG2:10000	10000	4209	1812	25020	6380	9940
JNLBRNGB:10000	10000	4484	6148	57710	13850	51190
LIARWHD:10000	10000	—	112	940	370	810
LMINSURF:10000	10000	396	2289	34760	4780	10860
MCCORMCK:10000	10000	1	53	1420	230	310
NONCVXU2:10000	10000	—	28906	263600	83510	206770
NONDIA:10000	10000	—	1873	14370	8410	11920
NONDQUAR:10000	10000	—	842	5890	1850	5490
NLMSURF:10000	10000	396	23680	310870	39390	115790
NOBNDTOR:10000	10000	1299	993	12100	6230	6520
NONSCOMP:10000	10000	5000	237	2240	500	1380
NCVXBQP3:10000	10000	9808	196	5730	610	1010
NCVXBQP2:10000	10000	9934	127	4850	440	590
NCVXBQP1:10000	10000	10000	18	2300	60	50
OSCIGRAD:10000	10000	—	5459	—	9890	—
OBSTCLBL:10000	10000	3896	480	6510	2290	3320
OBSTCLBM:10000	10000	3896	480	6020	2290	3150
OBSTCLBU:10000	10000	3896	480	6230	2280	3270
OBSTCLAE:10000	10000	5061	456	7290	2430	3000
OBSTCLAL:10000	10000	5061	456	7220	2420	2950
POWELLSG:10000	10000	—	797	6410	1250	5230
POWER:10000	10000	—	1012	7420	1520	3450
QUARTC:10000	10000	—	75	3050	120	550
SCHMVETT:10000	10000	—	174	18980	800	990
SINQUAD:10000	10000	—	184	1990	670	1000
SPARSQUR:10000	10000	—	39	1530	130	320

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
SROSENB:10000	10000	—	562	4030	1650	3930
TOINTGSS:10000	10000	—	108	1010	320	700
TQUARTIC:10000	10000	—	812	6150	2190	5440
TRIDIA:10000	10000	—	4021	26160	5450	26200
TORSIONA:10000	10000	1839	935	12290	4090	6220
TORSIONB:10000	10000	1839	935	11210	4140	6040
TORSION111:10000	10000	2013	1017	10690	5610	8300
TORSION1:10000	10000	2013	1017	11250	5730	8390
TORSION2:10000	10000	2013	1017	10710	5490	8280
TORSIONC:10000	10000	4105	582	6840	3740	4710
TORSIOND:10000	10000	4105	582	6380	3750	4560
TORSION3:10000	10000	4189	566	6840	1600	4620
TORSION4:10000	10000	4189	566	6740	1690	4590
TORSIONE:10000	10000	6685	351	4050	1190	2780
TORSIONF:10000	10000	6685	351	4010	1190	2840
TORSION5:10000	10000	6720	334	4210	1070	2960
TORSION6:10000	10000	6720	334	3870	1090	2960
WOODS:10000	10000	—	540	4760	1630	2180
DRCV1LQ:10816	10816	816	18017	—	—	98010
DRCV2LQ:10816	10816	816	38521	—	—	213970
ODNAMUR	11130	5580	216779	—	—	1230820
JNLBRNG1:12500	12500	4277	1577	18680	7380	16910
JNLBRNGA:12500	12500	4469	1531	22320	8590	12060
JNLBRNG2:12500	12500	5197	2422	31950	13150	18280
JNLBRNGB:12500	12500	5630	6906	76240	38170	86080
OBSTCLBL:12500	12500	4623	558	6710	2780	5580
OBSTCLBM:12500	12500	4623	558	7190	2790	5640
OBSTCLBU:12500	12500	4623	558	6780	2760	5640

problem	dim	nact	nf+2*ng best	time in milliseconds for solver		
				lmbopt3	asa	lt6
OBSTCLAE:12500	12500	6481	652	9720	4550	5390
OBSTCLAL:12500	12500	6481	652	9140	4600	5470
ODC:14544	14544	544	1609	18690	8030	11870
SSC:14544	14544	544	949	11170	3350	7420
NOBNDTOR:14884	14884	1758	1356	17860	17620	12440
TORSIONA:14884	14884	2618	1014	16360	11360	8840
TORSIONB:14884	14884	2618	1014	16690	11500	8860
TORSION111:14884	14884	2830	1130	16650	17470	10260
TORSION1:14884	14884	2830	1130	16520	17550	10380
TORSION2:14884	14884	2830	1130	15510	17590	10120
TORSIONC:14884	14884	6034	726	10070	4660	8490
TORSIOND:14884	14884	6034	726	10100	4590	8500
TORSION3:14884	14884	6137	619	8460	4350	6890
TORSION4:14884	14884	6137	619	8920	4380	6750
TORSIONE:14884	14884	9868	411	5400	2120	4900
TORSIONF:14884	14884	9868	411	5790	2110	5050
TORSION5:14884	14884	9914	521	6580	3040	5390
TORSION6:14884	14884	9914	521	6930	2950	5350
FMINSRF2:15625	15625	—	794	9070	4110	5290
FMINSURF:15625	15625	—	779	10120	4110	5080
LMINSURF:15625	15625	496	2854	49880	9480	18400
NLMSURF:15625	15625	496	32574	550470	108840	221950
BOXPOWER:20000	20000	—	30	560	120	260
MODBEALE:20000	20000	—	762	9430	4230	14850
MCCORMCK:50000	50000	1	54	1780	530	550
BOX:100000	100000	—	201	6380	4360	17670
INDEFM:100000	100000	—	898	—	11810	52380
OSCIGRAD:100000	100000	—	2578	—	21030	—
DEGTRID:100001	100001	1	22368	636620	593440	467410
DEGDIAG:100001	100001	100001	3	30	20	30
DEGTRID2:100001	100001	100001	3	30	40	50

3.8 Effort $n_f + 2n_g$ for accuracy 1e-06

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
BQP1VAR	1	1	3	3	3	3
AKIVA	2	—	70	79	89	70
BEALE	2	—	49	62	51	49
BRKMCC	2	—	24	24	27	34
CAMEL6	2	—	25	57	38	25
CLIFF	2	—	73	174	179	73
CUBE	2	—	114	149	149	114
CHEBYQAD:2	2	—	38	85	45	38
DENSCHNA	2	—	28	37	31	28
DENSCHNB	2	—	28	33	39	28
DENSCHNC	2	—	40	54	47	40
DENSCHNF	2	—	36	47	53	36
DJTL	2	—	317	317	1228	—
ENGVAL1	2	—	25	37	30	25
EXPFIT	2	—	53	65	68	53
FREUROTH	2	—	43	78	43	55
HUMPS	2	—	135	225	305	135
HAIRY	2	—	58	118	98	58
HIMMELBB	2	—	22	45	38	22
HIMMELBG	2	—	35	37	35	38
HIMMELBH	2	—	22	29	31	22
HS1	2	—	98	98	118	104
HS5	2	—	26	53	29	26
HILBERTA:2	2	—	11	13	11	28
HIMMELP1	2	1	22	25	24	22
HS2	2	1	32	35	32	35
HS3MOD	2	1	4	18	4	16
HS3	2	1	4	16	4	10
HS4	2	2	3	3	3	3
JENSMP	2	—	152	253	152	—
LOGHAIRY	2	—	81	104	127	81

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
LOGROS	2	—	182	420	226	182
MARATOSB	2	—	3169	4190	7146	3169
MEXHAT	2	—	330	398	613	330
MODBEALE	2	—	49	62	51	49
MDHOLE	2	1	9	9	9	10
OSCIGRAD:2	2	—	5382	5401	—	5382
OSCIPATH:2	2	—	202	257	340	202
ROSENBR	2	—	98	98	125	104
S308	2	—	28	33	35	28
SINEVAL	2	—	47	49	47	49
SISSER	2	—	35	81	35	52
SNAIL	2	—	25	33	27	25
SENSORS:2	2	—	31	33	31	38
SIMBQP	2	1	4	9	4	10
SIM2BQP	2	2	3	3	3	3
ZANGWIL2	2	—	11	13	11	22
BARD	3	—	174	277	174	242
BOX3	3	—	23	34	23	28
BOX2	3	1	113	121	113	257
DENSCHND	3	—	84	90	93	84
DENSCHNE	3	—	27	52	27	28
ENGVAL2	3	—	97	97	107	122
EG1	3	1	81	125	81	83
GROWTHLS	3	—	104	144	200	104
GULF	3	—	4	28	4	182
HATFLDD	3	—	71	132	71	127
HATFLDE	3	—	74	78	131	74
HATFLDFL	3	—	405	762	638	405
HELIX	3	—	43	49	43	61
HIELOW	3	—	74	—	87	74
HS25	3	—	20	20	35	386
KOEBHELB	3	—	195	393	195	—

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
MEYER3	3	—	3180	4350	3180	—
PFIT1LS	3	—	52	52	—	—
PFIT2LS	3	—	52	52	—	—
PFIT3LS	3	—	52	52	—	—
PFIT4LS	3	—	52	52	—	—
SCHMVETT	3	—	53	53	54	66
SENSORS:3	3	—	97	123	100	97
SPECAN:3	3	3	3	3	3	3
WEEDS	3	1	72	107	252	72
YFIT	3	—	225	452	225	364
YFITU	3	—	364	445	461	364
ALLINITU	4	—	31	58	35	31
ALLINIT	4	2	41	87	51	41
BROWNDEN	4	—	72	80	72	85
CRAGGLVY	4	—	134	171	155	134
CHAINWOO:4	4	—	98	145	98	109
CHEBYQAD:4	4	—	48	65	108	48
HATFLDA	4	—	67	145	115	67
HIMMELBF	4	—	244	244	293	391
HS38	4	—	102	129	102	109
HILBERTA:4	4	—	19	21	19	73
HATFLDB	4	1	109	126	109	133
HADAMALS	4	3	37	53	37	50
KOWOSB	4	—	198	242	198	276
MSQRTALS	4	—	63	84	63	65
MODBEALE:4	4	—	80	80	103	103
PENALTY2	4	—	1538	2966	1649	1538
POWELLSG	4	—	115	115	120	120
PALMER1B	4	—	196	328	388	196
PALMER2B	4	—	221	441	376	221
PALMER3B	4	—	103	295	408	103
PALMER4B	4	—	135	301	309	135

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
PALMER5D	4	—	21	21	24	94
PENALTY1:4	4	—	391	673	397	391
PSPDOC	4	1	25	25	32	37
PALMER1	4	1	116	161	317	116
PALMER2	4	1	79	107	119	79
PALMER3	4	1	77	176	93	77
PALMER4	4	1	59	59	98	91
POWELLBC:4	4	4	4	8	4	4
SINEALI:4	4	—	115	115	320	272
WOODS:4	4	—	90	90	102	109
CHEBYQAD:5	5	2	61	124	74	61
EXTROSNB	5	—	322	496	381	322
GENHUMPS:5	5	—	243	243	336	254
GENROSE:5	5	—	137	204	178	137
HILBERTB	5	—	19	21	19	19
HILBERTA:5	5	—	23	25	23	148
HS45	5	5	3	3	3	3
OSCIGRAD:5	5	—	4823	4823	5555	—
OSBORNEA	5	5	405	405	—	—
SINQUAD	5	—	50	62	64	50
TQUARTIC	5	—	54	62	68	54
BIGGS6	6	—	494	7626	494	1981
BIGGS5	6	1	216	508	229	216
BIGGS3	6	3	76	107	88	76
CHEBYQAD:6	6	2	62	68	62	93
EIGENALS:6	6	—	109	110	129	109
EIGENBLS:6	6	—	101	112	155	101
HEART6LS	6	—	3316	3732	3316	3888
HILBERTA:6	6	—	23	25	23	147
HART6	6	2	62	77	74	62
PALMER6A	6	—	1688	1888	1688	1777

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
PALMER8A	6	—	301	1668	573	301
PALMER1A	6	—	1036	1697	1036	1136
PALMER2A	6	—	727	1060	727	1052
PALMER3A	6	—	796	1797	1240	796
PALMER4A	6	—	590	1075	808	590
PALMER5C	6	—	27	29	27	51
SPECAN:6	6	6	3	3	3	3
CHEBYQAD:7	7	1	104	104	107	160
PALMER1D	7	—	33	33	55	—
AIRCRFTB	8	3	250	423	508	250
CHEBYQAD:8	8	2	96	105	96	172
HEART8LS	8	—	688	2778	5090	688
MAXLIKA	8	7	22	36	22	44
OSLBQP	8	7	4	9	7	4
PALMER6C	8	—	37	37	72	—
PALMER6E	8	—	70	1229	70	6263
PALMER7C	8	—	37	37	72	—
PALMER8C	8	—	37	37	52	—
PALMER8E	8	—	84	865	84	6432
PALMER1C	8	—	37	37	83	—
PALMER1E	8	—	1295	2483	1295	—
PALMER2C	8	—	37	37	78	—
PALMER3C	8	—	37	37	57	—
PALMER4C	8	—	37	37	57	—
PALMER4E	8	—	1174	1174	3271	—
PALMER5A	8	—	85	85	—	—
POWELLSG:8	8	—	203	235	203	300
PALMER7E	8	1	85	85	—	—
PALMER2E	8	1	1801	1801	—	—
PALMER3E	8	1	1778	1778	—	—

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
S368:8	8	6	36	47	36	61
VIBRBEAM	8	—	2681	2681	—	—
CHEBYQAD:9	9	2	87	87	98	209
MSQRTBLS	9	—	100	113	114	100
NONMSQRT	9	—	833	4248	833	—
SPECAN:9	9	9	3	3	3	3
ARGLINA:10	10	—	7	9	7	12
ARGLINB:10	10	—	7	13	7	13
ARGLINC:10	10	—	7	13	7	14
BROWNAL	10	—	74	74	75	110
BRYBND	10	—	83	83	269	273
BOXPOWER:10	10	—	21	21	43	46
BOX:10	10	—	41	41	47	52
BROYDN7D:10	10	—	94	160	114	94
CHNROSNB	10	—	217	290	225	217
CHNRSNBM	10	—	231	382	234	231
CHARDIS0:10	10	—	4	9	4	10
COSINE:10	10	—	124	125	124	150
CRAGGLVY:10	10	—	133	180	136	133
CHEBYQAD	10	2	63	105	63	162
CHENHARK:10	10	3	61	70	79	61
CVXBQP1:10	10	10	3	3	3	3
DIXON3DQ	10	—	45	45	47	84
DQDRTIC	10	—	23	25	23	61
DQRTIC:10	10	—	83	133	108	83
ERRINROS:10	10	—	370	461	370	384
ERRINRSM:10	10	—	761	761	777	1215
EXTROSNB:10	10	—	3234	6484	3234	3406
FLETBV3M	10	—	37	63	47	37
FLETGBV2	10	—	47	49	47	64
FLETGBV3	10	—	67	261	104	67

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
FLETCHBV	10	—	112	551	250	112
FLETCHCR	10	—	229	414	253	229
FREUROTH:10	10	—	75	87	75	91
GENHUMPS:10	10	—	480	764	736	480
GENROSE:10	10	—	232	356	259	232
HS110	10	—	35	100	35	—
HILBERTA:10	10	—	23	25	23	164
HILBERTB:10	10	—	19	21	19	19
HARKERP2:10	10	10	3	3	3	3
INDEFM:10	10	—	148	846	148	152
INDEF:10	10	10	53	96	53	75
MOREBV	10	—	71	83	71	140
MANCINO:10	10	—	26	29	27	26
MODBEALE:10	10	—	135	135	161	773
MCCORMCK	10	1	54	59	54	90
NONCVXU2:10	10	—	75	98	95	75
NONCVXUN:10	10	—	73	73	79	80
NONDIA:10	10	—	106	132	130	106
NCVXBQP1:10	10	10	13	57	28	13
NCVXBQP2:10	10	10	11	52	26	11
NCVXBQP3:10	10	10	33	52	33	106
POWER	10	—	67	120	75	67
PENALTY1:10	10	—	313	420	378	313
PENALTY2:10	10	—	1469	1929	1824	1469
PROBPENL:10	10	4	376	376	831	4268
POWELLBC:10	10	7	17	121	73	17
RAYBENDL:10	10	4	90	133	90	98
RAYBENDS:10	10	4	154	216	233	154
SINEALI	10	—	1215	1215	3666	3726
SROSENBR	10	—	181	234	181	325

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
SCHMVETT:10	10	—	90	104	90	101
SENSORS:10	10	—	68	68	111	70
SPARSINE:10	10	—	53	53	63	113
SPARSQUR:10	10	—	34	89	34	67
SSBRYBND:10	10	—	737	908	737	9650
SSCOSINE:10	10	—	365	365	477	—
TOINTGSS	10	—	130	138	130	154
TQUARTIC:10	10	—	82	113	82	86
TRIDIA:10	10	—	45	45	47	83
VARDIM	10	—	67	112	67	89
VAREIGVL:10	10	—	46	59	55	46
OSBORNEB	11	—	3847	—	—	3847
EXPQUAD:12	12	4	118	133	118	180
QRTQUAD:12	12	3	168	168	224	441
QUDLIN	12	12	15	15	21	31
WATSON:12	12	—	238	297	238	324
BRATU1D:13	13	2	64	64	74	102
DIXMAANA	15	—	19	25	19	19
DIXMAANB	15	—	19	25	19	19
DIXMAANC	15	—	19	29	23	19
DIXMAAND	15	—	25	29	27	25
DIXMAANE	15	—	61	65	101	61
DIXMAANF	15	—	61	65	83	61
DIXMAANG	15	—	64	65	87	64
DIXMAANH	15	—	61	65	87	61
DIXMAANI	15	—	113	113	187	133
DIXMAANJ	15	—	124	124	195	128

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
DIXMAANK	15	—	133	133	199	136
DIXMAANL	15	—	113	113	195	126
DIXMAANM	15	—	93	93	183	149
DIXMAANN	15	—	113	113	179	131
DIXMAANO	15	—	115	117	207	115
DIXMAANP	15	—	131	153	191	131
PARKCH	15	—	642	642	—	6787
CLPLATEA:16	16	4	81	87	81	86
CLPLATEB:16	16	4	83	84	85	83
CLPLATEC:16	16	4	69	69	81	131
FMINSURF	16	—	65	65	83	67
FMINSRF2:16	16	—	82	96	103	82
HADAMALS:16	16	8	109	172	109	216
LMINSURF	16	12	41	50	41	41
NLMSURF:16	16	12	49	72	52	49
NOBNDTOR:16	16	13	36	39	36	75
POWELLSG:16	16	—	382	382	663	486
TORSION111:16	16	14	22	22	22	49
TORSION1:16	16	14	22	22	22	49
TORSION2:16	16	14	22	22	22	49
TORSIONA:16	16	14	22	26	22	32
TORSIONB:16	16	14	22	26	22	32
TORSIONC:16	16	14	22	22	22	25
TORSIOND:16	16	14	22	22	22	25
TORSION3:16	16	16	7	12	7	30
TORSION4:16	16	16	7	12	7	30
TORSION5:16	16	16	4	12	4	5
TORSION6:16	16	16	4	12	4	5
TORSIONE:16	16	16	4	9	4	14
TORSIONF:16	16	16	4	9	4	14
CHARDIS0:18	18	—	4	9	4	10

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
LINVERSE	19	8	240	258	240	477
CHEBYQAD:20	20	3	127	372	127	182
MANCINO:20	20	—	31	37	31	31
NONDIA:20	20	—	147	183	147	158
POWELLSG:20	20	—	552	552	599	677
POWER:20	20	—	79	142	120	79
POWELLBC:20	20	13	117	193	117	211
TRIDIA:20	20	—	85	85	102	152
NCB20B	21	—	224	224	510	247
NCB20B:22	22	—	207	207	651	706
RAYBENDL:24	24	4	1152	2217	—	1152
RAYBENDS:24	24	4	3570	7268	—	3570
BIGGSB1	25	2	120	120	312	183
CHNROSNB:25	25	—	383	629	795	383
CHNRSNB:25	25	—	632	871	920	632
ERRINROS:25	25	—	452	533	—	452
ERRINRSM:25	25	—	955	955	—	3111
HATFLDC	25	12	49	56	69	49
NONSCOMP	25	12	333	822	333	416
OSCIPATH:25	25	—	182	254	224	182
QUARTC	25	—	39	154	39	94
SPMSRTLS	28	—	175	211	239	175
X3PK	30	1	6749	6749	—	—
EIGENCLS:30	30	—	545	550	613	545
MANCINO:30	30	—	32	37	35	32
NONDIA:30	30	—	146	146	190	220
POWER:30	30	—	79	157	128	79
TRIDIA	30	—	133	133	162	224
WATSON:31	31	—	1681	1681	5959	—

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
EDENSCH	36	—	70	85	99	70
HADAMALS:36	36	24	192	394	192	324
LIARWHD	36	—	73	100	103	73
POWELLSG:36	36	—	448	448	755	1049
CHARDIS0:40	40	—	4	9	4	10
POWELLSG:40	40	—	559	559	739	837
QR3DLS:40	40	1	5101	5101	—	7155
RAYBENDL	44	4	8754	—	—	8754
CLPLATEA	49	7	143	200	249	143
CLPLATEB	49	7	137	181	241	137
CLPLATEC	49	7	288	288	405	543
FMINSRF2:49	49	—	142	153	158	142
FMINSURF:49	49	—	112	125	146	112
LMINSURF:49	49	24	96	143	133	96
MSQRTALS:49	49	—	733	853	—	733
MSQRTBLS:49	49	—	590	691	912	590
NLMSURF:49	49	24	381	496	639	381
ARGLINA:50	50	—	7	9	7	13
ARGLINB:50	50	—	7	13	7	17
ARGLINC:50	50	—	7	13	7	17
BROYDN7D:50	50	—	290	365	491	290
BRYBND:50	50	—	67	89	79	67
BQPGABIM	50	26	120	147	120	165
BQPGASIM	50	27	114	114	119	188
CHNROSNB:50	50	—	730	1041	1163	730
CHNRSNBM:50	50	—	1013	1402	1115	1013
CRAGGLVY:50	50	—	256	348	341	256
CHEBYQAD:50	50	6	196	417	1288	196
CVXBQP1:50	50	50	3	3	3	3
DQDRTIC:50	50	—	23	25	23	128
DQRTIC:50	50	—	43	212	43	104

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
ENGVAL1:50	50	—	60	83	77	60
ERRINROS:50	50	—	445	642	—	445
ERRINRSM:50	50	—	836	836	10100	3182
FREUROTH:50	50	—	79	83	90	79
HILBERTB:50	50	—	19	21	19	22
INDEFM:50	50	—	202	300	274	202
INDEF:50	50	50	56	185	56	216
MANCINO:50	50	—	37	49	39	37
MOREBV:50	50	—	1539	2960	1539	5333
MCCORMCK:50	50	1	56	59	56	101
NCB20B:50	50	—	1006	1006	4291	2245
NONDIA:50	50	—	132	132	199	273
NONSCOMP:50	50	25	266	441	293	266
NCVXBQP3:50	50	49	52	154	52	129
NCVXBQP1:50	50	50	14	88	28	14
NCVXBQP2:50	50	50	38	153	38	118
PENALTY3	50	—	1179	2240	1641	1179
PENALTY1:50	50	—	234	379	309	234
PENALTY2:50	50	—	353	353	733	497
POWER:50	50	—	91	158	107	91
PROBPENL:50	50	—	1066	1066	—	—
PENTDI:50	50	37	28	34	32	28
SINQUAD:50	50	—	93	93	124	104
SPARSINE:50	50	—	469	469	813	600
SPARSQUR:50	50	—	24	117	24	67
SROSENBR:50	50	—	205	292	205	373
SSBRYBND:50	50	—	6559	6559	—	—
S368:50	50	32	9	59	46	9
TOINTGOR	50	—	396	458	517	396
TOINTPSP	50	—	347	404	653	347

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
TOINTQOR	50	—	113	113	142	133
TOINTGSS:50	50	—	135	157	194	135
TQUARTIC:50	50	—	125	125	225	201
TRIDIA:50	50	—	213	213	259	286
VAREIGVL	50	—	64	81	79	64
VARDIM:50	50	—	101	172	101	148
CHARDIS0:60	60	—	4	9	4	10
POWELLSG:60	60	—	490	490	711	1026
DECONVU	61	10	8236	—	10590	8236
DECONVB	61	41	483	752	483	—
FMINSRF2	64	—	184	217	195	184
FMINSURF:64	64	—	153	172	159	153
HADAMALS:64	64	34	177	472	177	343
LMINSURF:64	64	28	127	229	155	127
MINSURF	64	28	85	117	91	85
NLMSURF:64	64	28	482	683	696	482
POWER:75	75	—	109	175	147	109
BRATU1D	77	2	1035	1131	1546	1035
POWELLSG:80	80	—	488	488	811	900
DIXMAANA:90	90	—	15	21	15	16
DIXMAANB:90	90	—	19	25	19	19
DIXMAANC:90	90	—	22	29	23	22
DIXMAAND:90	90	—	25	29	27	25
DIXMAANE:90	90	—	158	165	213	158
DIXMAANF:90	90	—	172	172	199	176
DIXMAANG:90	90	—	144	173	191	144
DIXMAANH:90	90	—	172	189	191	172
DIXMAANI:90	90	—	529	529	738	723

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
DIXMAANJ:90	90	—	600	600	724	729
DIXMAANK:90	90	—	653	653	676	769
DIXMAANL:90	90	—	592	592	643	730
DIXMAANM:90	90	—	501	501	655	802
DIXMAANN:90	90	—	720	761	984	720
DIXMAANO:90	90	—	853	867	952	853
DIXMAANP:90	90	—	690	792	979	690
NONDIA:90	90	—	166	166	430	473
ARGLINA:100	100	—	7	9	7	13
ARGLINB:100	100	—	13	13	34	27
ARGLINC:100	100	—	44	44	73	79
ARWHEAD:100	100	—	57	65	75	57
BDQRTIC	100	—	133	144	296	133
BOXPOWER:100	100	—	27	28	27	55
BOX:100	100	—	70	70	92	103
BROWNAL:100	100	—	81	81	112	293
BROYDN7D:100	100	—	415	557	586	415
BRYBND:100	100	—	64	96	83	64
BDEXP	100	2	315	—	315	—
BIGGSB1:100	100	3	904	1162	1877	904
CHARDIS0	100	—	4	9	4	10
CHAINWOO:100	100	—	1049	2277	1049	1207
COSINE:100	100	—	2591	9790	2591	—
CRAGGLVY:100	100	—	257	361	401	257
CURLY10:100	100	—	3726	4548	4314	3726
CURLY20:100	100	—	3012	3012	7841	4001
CURLY30:100	100	—	2452	2452	8826	4006
CHEBYQAD:100	100	4	293	704	5527	293
CLPLATEA:100	100	10	203	221	281	203
CLPLATEB:100	100	10	208	242	261	208
CLPLATEC:100	100	10	705	705	757	964

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
CHENHARK:100	100	30	5420	9383	5420	6982
CVXBQP1	100	100	3	3	3	3
DIXON3DQ:100	100	—	405	405	497	1029
DQDRTIC:100	100	—	23	25	23	37
DQRTIC:100	100	—	51	201	51	112
ENGVAL1:100	100	—	61	77	82	61
EXTROSNB:100	100	—	4860	—	10090	4860
FLETBV3M:100	100	—	89	167	89	89
FLETGBV2:100	100	—	660	660	747	897
FLETGBV3:100	100	—	469	8261	10167	469
FLETCHCR:100	100	—	1782	3070	2505	1782
FREUROTH:100	100	—	86	95	120	86
GENHUMPS:100	100	—	1024	1128	1852	1024
GENROSE:100	100	—	1756	3052	2444	1756
HADAMALS:100	100	76	372	741	980	372
HARKERP2	100	100	3	3	3	3
INDEFM:100	100	—	262	5780	935	262
INDEF:100	100	100	51	180	51	228
LIARWHD:100	100	—	85	97	103	85
MANCINO:100	100	—	42	71	43	42
MOREBV:100	100	—	11645	—	—	11645
MSQRTALS:100	100	—	1276	2785	3471	1276
MSQRTBLS:100	100	—	2164	3858	3951	2164
MCCORMCK:100	100	1	56	59	56	71
NONDQUAR	100	—	566	566	1198	1191
NCB20B:100	100	—	3126	3126	9868	3475
NONCVXU2:100	100	—	1483	2070	1483	1549
NONCVXUN:100	100	—	567	671	567	676
NONDIA:100	100	—	198	198	674	510

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
NOBNDTOR:100	100	49	157	168	157	166
NONSCOMP:100	100	50	240	367	240	252
NCVXBQP3:100	100	98	58	175	58	111
NCVXBQP1:100	100	100	14	119	28	14
NCVXBQP2:100	100	100	37	141	37	98
OSCIPATH:100	100	—	228	253	228	245
PENALTY1:100	100	—	217	313	264	217
PENALTY2:100	100	—	265	392	585	265
PENALTY3:100	100	—	2686	4316	3205	2686
POWELLSG:100	100	—	601	601	671	910
POWER:100	100	—	112	193	131	112
PROBPENL:100	100	—	2968	2968	—	—
PENTDI:100	100	74	30	47	30	74
QUARTC:100	100	—	51	201	51	112
SCHMVETT:100	100	—	156	262	201	156
SENSORS:100	100	—	85	209	104	85
SINEALI:100	100	—	219	389	595	219
SINQUAD:100	100	—	90	90	97	106
SPARSINE:100	100	—	820	820	1191	936
SPARSQUR:100	100	—	27	89	27	70
SPMSRTLS:100	100	—	1449	—	1449	—
SROSENBR:100	100	—	183	348	183	435
SSBRYBND:100	100	—	9583	9583	—	—
SSCOSINE:100	100	—	3535	3535	—	—
S368:100	100	73	10	63	63	10
TOINTGSS:100	100	—	103	137	157	103
TQUARTIC:100	100	—	218	292	277	218
TRIDIA:100	100	—	341	341	417	527

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
TORSIONA:100	100	54	118	180	118	128
TORSIONB:100	100	54	118	180	118	128
TORSION111:100	100	58	102	162	110	102
TORSION1:100	100	58	102	162	110	102
TORSION2:100	100	58	102	162	110	102
TORSIONC:100	100	67	82	83	82	95
TORSIOND:100	100	67	82	83	82	95
TORSION3:100	100	71	80	92	80	118
TORSION4:100	100	71	80	92	80	118
TORSIONE:100	100	84	50	59	50	71
TORSIONF:100	100	84	50	59	50	71
TORSION5:100	100	86	46	62	46	49
TORSION6:100	100	86	46	62	46	49
VARDIM:100	100	—	122	198	122	165
VAREIGVL:100	100	—	73	85	87	73
WOODS:100	100	—	198	198	439	526
EXPLIN:101	101	95	166	292	166	318
EXPLIN2:101	101	101	7	12	7	22
BRATU1D:103	103	2	1084	2057	2095	1084
EIGENALS	110	—	4266	5098	4854	4266
EIGENBLS	110	—	2141	3648	2141	2327
NCB20:110	110	—	633	633	—	3151
EXPQUAD	120	7	214	310	214	244
EXPLIN	120	70	566	906	742	566
EXPLIN2	120	101	215	764	215	400
QRTQUAD	120	5	332	332	398	515
QUDLIN:120	120	120	15	15	21	71
FMINSRF2:121	121	—	214	222	226	214
FMINSURF:121	121	—	176	197	190	176
LMINSURF:121	121	40	170	247	216	170
NLMSURF:121	121	40	946	1206	1436	946

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
HADAMALS:144	144	79	287	707	287	343
HOLMES	180	180	3	3	3	3
NCB20B:180	180	—	1298	1684	2953	1298
DRCV2LQ	196	96	4966	5010	4966	5139
DRCV3LQ	196	96	9829	—	9829	11140
HADAMALS:196	196	161	468	782	468	516
LINVERSE:199	199	43	9567	—	—	9567
ARGLINA:200	200	—	7	9	7	14
ARGLINB:200	200	—	28	29	28	29
ARGLINC:200	200	—	23	139	28	23
BROWNAL:200	200	—	108	108	112	436
CHARDIS0:200	200	—	4	9	4	10
MODBEALE:200	200	—	644	963	644	1748
PENALTY2:200	200	—	550	—	957	550
PENALTY3:200	200	—	6757	8685	6757	—
POWELLBC:200	200	104	2761	4422	9133	2761
VARDIM:200	200	—	120	201	120	194
HADAMALS:256	256	135	502	866	502	694
ODC:288	288	148	606	902	1317	606
SSC:288	288	148	390	436	469	390
DIXMAANA:300	300	—	15	17	15	16
DIXMAANB:300	300	—	19	25	19	19
DIXMAANC:300	300	—	22	29	23	22
DIXMAAND:300	300	—	25	29	27	25
DIXMAANE:300	300	—	277	277	342	289
DIXMAANF:300	300	—	236	317	315	236

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
DIXMAANG:300	300	—	239	269	304	239
DIXMAANH:300	300	—	233	296	308	233
DIXMAANI:300	300	—	1781	1781	2794	2336
DIXMAANJ:300	300	—	1452	1604	1703	1452
DIXMAANK:300	300	—	1397	1553	1671	1397
DIXMAANL:300	300	—	1248	1581	1400	1248
DIXMAANM:300	300	—	1761	1761	2787	2049
DIXMAANN:300	300	—	1904	2028	1904	2140
DIXMAANO:300	300	—	1952	2016	1952	2099
DIXMAANP:300	300	—	1868	1868	1948	2378
HADAMALS:324	324	256	499	1080	499	564
CHARDIS0:400	400	—	4	13	4	10
HADAMALS:400	400	306	545	1704	1061	545
JNLBRNG1:400	400	253	274	306	459	274
JNLBRNGA:400	400	253	317	350	444	317
JNLBRNG2:400	400	278	295	381	366	295
JNLBRNGB:400	400	302	417	423	484	417
OBSTCLBL:400	400	263	28	47	28	93
OBSTCLBM:400	400	263	28	47	28	93
OBSTCLBU:400	400	263	28	47	28	93
OBSTCLAE:400	400	398	9	9	19	31
OBSTCLAL:400	400	398	9	9	19	31
EIGENCLS	462	—	7572	12496	12459	7572
NOBNDTOR:484	484	143	192	326	347	192
TORSIONA:484	484	161	202	275	268	202
TORSIONB:484	484	161	202	275	268	202
TORSION111:484	484	186	184	271	359	184
TORSION1:484	484	186	184	271	359	184
TORSION2:484	484	186	184	271	359	184
TORSIONC:484	484	254	154	227	178	154
TORSIOND:484	484	254	154	227	178	154
TORSION3:484	484	267	194	236	194	196

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
TORSION4:484	484	267	194	236	194	196
TORSIONE:484	484	362	107	174	124	107
TORSIONF:484	484	362	107	174	124	107
TORSION5:484	484	368	116	178	126	116
TORSION6:484	484	368	116	178	126	116
ARWHEAD:500	500	—	68	75	68	86
BDQRTIC:500	500	—	147	147	457	200
BROYDN7D:500	500	—	538	757	711	538
BRYBND:500	500	—	64	92	83	64
BDEXP:500	500	2	1514	8872	1514	—
CRAGGLVY:500	500	—	290	346	426	290
DQRTIC	500	—	59	258	59	136
DQDRTIC:500	500	—	23	25	23	45
FREUROTH:500	500	—	96	102	96	133
GENHUMPS:500	500	—	953	1410	1721	953
GENROSE:500	500	—	8466	14811	8937	8466
HARKERP2:500	500	500	3	3	3	3
LIARWHD:500	500	—	101	101	158	102
MOREBV:500	500	—	1489	1636	2687	1489
MCCORMCK:500	500	1	56	66	56	79
NCB20B:500	500	—	1251	1251	3052	1390
NONDIA:500	500	—	371	371	1191	950
NONDQUAR:500	500	—	551	551	1096	965
NONSCOMP:500	500	250	266	939	266	269
OSCIPATH:500	500	—	211	231	223	211
PENALTY1:500	500	—	169	240	220	169
POWELLSG:500	500	—	688	688	763	933
POWER:500	500	—	255	284	275	255
PROBPENL:500	500	—	7	9	7	14
PENTDI:500	500	376	28	33	28	28

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
QUARTC:500	500	—	59	258	59	136
SCHMVETT:500	500	—	159	827	232	159
SINQUAD:500	500	—	110	110	155	195
SROSENBR:500	500	—	286	453	286	384
TOINTGSS:500	500	—	109	117	134	109
TQUARTIC:500	500	—	321	321	481	494
TRIDIA:500	500	—	857	857	1062	1329
VAREIGVL:500	500	—	73	93	87	73
BRATU1D:503	503	2	6081	9151	15486	6081
CLPLATEA:529	529	23	552	683	729	552
CLPLATEB:529	529	23	428	533	565	428
CLPLATEC:529	529	23	901	1972	—	901
ODC	864	164	576	682	865	576
SSC	864	164	397	440	556	397
FMINSRF2:961	961	—	271	626	310	271
FMINSURF:961	961	—	315	315	422	379
LMINSURF:961	961	120	607	1084	826	607
NLMSURF:961	961	120	4301	4602	6339	4301
ARWHEAD:1000	1000	—	64	86	64	97
BDQRTIC:1000	1000	—	183	183	459	326
BOXPOWER:1000	1000	—	32	32	42	78
BOX:1000	1000	—	95	95	141	199
BROWNAL:1000	1000	—	102	102	108	180

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
BROYDN7D:1000	1000	—	526	767	736	526
BRYBND:1000	1000	—	64	92	83	64
BDEXP:1000	1000	2	3017	—	3017	—
BIGGSB1:1000	1000	3	7917	9440	14979	7917
CHAINWOO	1000	—	925	925	1140	1243
CURLY10	1000	—	25995	—	27410	25995
CHARDIS0:1000	1000	—	4	13	4	10
CRAGGLVY:1000	1000	—	271	369	423	271
CVXBQP1:1000	1000	1000	3	3	3	3
DIXON3DQ:1000	1000	—	4005	4005	4997	11134
DQDRTIC:1000	1000	—	23	25	23	59
DQRTIC:1000	1000	—	63	235	63	144
EG2	1000	—	338	338	622	632
ENGVAL1:1000	1000	—	66	95	73	66
EXTROSNB:1000	1000	—	4970	15544	10534	4970
FLETBV3M:1000	1000	—	52	540	52	88
FLETGBV2:1000	1000	—	4009	4009	9207	6471
FLETGBV3:1000	1000	—	14177	—	—	14177
FLETCHCR:1000	1000	—	16834	29416	17254	16834
FREUROTH:1000	1000	—	76	99	95	76
GENHUMPS	1000	—	1097	1187	1614	1097
HARKERP2:1000	1000	1000	3	3	3	3
INDEFM	1000	—	381	381	685	558
INDEF	1000	1000	53	150	53	305
JNLBRNG1:1000	1000	366	278	361	452	278
JNLBRNGA:1000	1000	385	329	470	548	329
JNLBRNG2:1000	1000	524	505	737	941	505

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
JNLBRNGB:1000	1000	560	1347	1494	1976	1347
LIARWHD:1000	1000	—	110	110	133	152
MOREBV:1000	1000	—	1468	2252	2925	1468
MCCORMCK:1000	1000	1	59	66	59	63
NONCVXU2	1000	—	5628	6017	5628	7723
NONCVXUN	1000	—	10021	11180	10021	—
NONDIA	1000	—	957	957	2052	1340
NCB20B:1000	1000	—	1306	1306	3101	1514
NONDQUAR:1000	1000	—	599	599	755	807
NONSCOMP:1000	1000	500	255	255	282	274
NCVXBQP3	1000	983	104	835	104	151
NCVXBQP2	1000	993	80	207	80	132
NCVXBQP1	1000	1000	16	154	28	16
OSCIGRAD:1000	1000	—	1486	—	1486	—
OBSTCLBL	1000	680	170	183	170	209
OBSTCLBM	1000	680	170	183	170	209
OBSTCLBU	1000	680	170	183	170	209
OBSTCLAL	1000	696	72	164	72	99
OBSTCLAE:1000	1000	696	72	164	72	99
PENALTY1:1000	1000	—	151	220	182	151
POWELLSG:1000	1000	—	742	742	967	1002
POWER:1000	1000	—	348	382	379	348
POWELLBC:1000	1000	501	10829	—	—	10829
PENTDI	1000	751	25	33	28	25
QUARTC:1000	1000	—	63	235	63	144
SPARSINE	1000	—	13980	13980	19749	17808
SPARSQUR	1000	—	31	114	31	73
SSBRYBND	1000	—	22765	—	—	22765

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
SCHMVETT:1000	1000	—	185	459	219	185
SENSORS:1000	1000	—	111	160	196	111
SINEALI:1000	1000	—	192	260	501	192
SINQUAD:1000	1000	—	145	152	184	145
SROSENBR:1000	1000	—	359	373	359	513
TESTQUAD	1000	—	3704	3704	—	13949
TOINTGSS:1000	1000	—	99	130	127	99
TQUARTIC:1000	1000	—	258	258	679	547
TRIDIA:1000	1000	—	1237	1237	1542	2163
VAREIGVL:1000	1000	—	73	93	87	73
WOODS:1000	1000	—	366	366	439	557
BRATU1D:1003	1003	1003	20170	—	—	20170
NCB20	1010	—	481	481	17300	1094
CLPLATEA:1024	1024	32	870	1138	1241	870
CLPLATEB:1024	1024	32	529	637	633	529
CLPLATEC:1024	1024	32	1406	3652	—	1406
FMINSRF2:1024	1024	—	283	332	334	283
FMINSURF:1024	1024	—	370	410	402	370
HADAMALS:1024	1024	801	583	2167	1670	583
LMINSURF:1024	1024	124	662	940	895	662
NLMSURF	1024	124	4388	4857	6702	4388
NOBNDTOR:1024	1024	235	319	402	545	319
TORSIONA:1024	1024	281	278	349	463	278
TORSIONB:1024	1024	281	278	349	463	278
TORSION111:1024	1024	323	242	367	533	242
TORSION1:1024	1024	323	242	367	533	242

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
TORSION2:1024	1024	323	242	367	533	242
TORSIONC:1024	1024	493	153	288	267	153
TORSIOND:1024	1024	493	153	288	267	153
TORSION3:1024	1024	515	185	282	342	185
TORSION4:1024	1024	515	185	282	342	185
TORSIONE:1024	1024	761	160	202	181	160
TORSIONF:1024	1024	761	160	202	181	160
TORSION5:1024	1024	768	157	213	183	157
TORSION6:1024	1024	768	157	213	183	157
EXPQUAD:1200	1200	81	1126	2579	1158	1126
EXPLIN:1200	1200	1150	623	859	742	623
EXPLIN2:1200	1200	1181	197	784	197	374
QRTQUAD:1200	1200	50	1524	1524	6677	6114
QUDLIN:1200	1200	1200	25	25	30	135
DIXMAANA:1500	1500	—	15	17	15	16
DIXMAANB:1500	1500	—	19	25	19	19
DIXMAANC:1500	1500	—	22	29	23	22
DIXMAAND:1500	1500	—	25	29	27	25
DIXMAANE:1500	1500	—	557	560	717	557
DIXMAANF:1500	1500	—	461	536	548	461
DIXMAANG:1500	1500	—	431	521	483	431
DIXMAANH:1500	1500	—	395	469	528	395
DIXMAANI:1500	1500	—	5665	6020	9162	5665
DIXMAANJ:1500	1500	—	2451	3357	2451	2575
DIXMAANK:1500	1500	—	2325	2325	2951	2387
DIXMAANL:1500	1500	—	1010	1823	2187	1010

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
DIXMAANM:1500	1500	—	5348	5751	9097	5348
DIXMAANN:1500	1500	—	2478	3549	3004	2478
DIXMAANO:1500	1500	—	2290	3136	2688	2290
DIXMAANP:1500	1500	—	1963	3184	2944	1963
LINVERSE:1999	1999	378	42455	42455	—	—
CHARDIS0:2000	2000	—	4	13	4	10
EDENSCH:2000	2000	—	75	92	106	75
MODBEALE:2000	2000	—	771	826	771	1968
NCB20B:2000	2000	—	1176	1220	2560	1176
BQPGAUSS	2003	134	16618	45980	37467	16618
RAYBENDS:2050	2050	4	9611	9611	—	—
JNLBRNG1:2300	2300	809	348	457	596	348
JNLBRNGA:2300	2300	847	396	511	671	396
JNLBRNGB:2300	2300	1052	1878	2175	3057	1878
JNLBRNG2:2300	2300	1077	623	762	1119	623
OBSTCLBL:2300	2300	993	299	349	334	299
OBSTCLBM:2300	2300	993	299	349	334	299
OBSTCLBU:2300	2300	993	299	349	334	299
OBSTCLAE:2300	2300	1276	176	295	253	176
OBSTCLAL:2300	2300	1276	176	295	253	176
ODC:2376	2376	206	608	679	1033	608
SSC:2376	2376	206	352	352	507	379
EIGENBLS:2550	2550	—	27925	43171	30065	27925
EIGENCLS:2652	2652	—	44261	—	—	44261
DIXMAANA:3000	3000	—	15	17	15	16
DIXMAANB:3000	3000	—	19	25	19	19
DIXMAANC:3000	3000	—	22	29	23	22
DIXMAAND:3000	3000	—	25	33	27	25
DIXMAANE:3000	3000	—	715	741	1087	715

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
DIXMAANF:3000	3000	—	592	661	592	598
DIXMAANG:3000	3000	—	517	593	600	517
DIXMAANH:3000	3000	—	508	573	556	508
DIXMAANI:3000	3000	—	3768	5413	8162	3768
DIXMAANJ:3000	3000	—	932	4717	1952	932
DIXMAANK:3000	3000	—	714	1465	2015	714
DIXMAANL:3000	3000	—	1169	2513	1680	1169
DIXMAANM:3000	3000	—	3679	6101	7072	3679
DIXMAANN:3000	3000	—	3220	4077	3412	3220
DIXMAANO:3000	3000	—	2603	3285	2972	2603
DIXMAANP:3000	3000	—	2042	2669	4812	2042
JNLBRNG1:3200	3200	1130	378	480	567	378
JNLBRNGA:3200	3200	1168	433	618	724	433
JNLBRNG2:3200	3200	1400	723	1161	1422	723
JNLBRNGB:3200	3200	1446	2485	2485	3524	3247
OBSTCLBL:3200	3200	1252	254	320	298	254
OBSTCLBM:3200	3200	1252	254	320	298	254
OBSTCLBU:3200	3200	1252	254	320	298	254
OBSTCLAE:3200	3200	1813	228	370	311	228
OBSTCLAL:3200	3200	1813	228	370	311	228
JNLBRNG1:3400	3400	1195	446	593	577	446
JNLBRNGA:3400	3400	1233	448	593	764	448
JNLBRNG2:3400	3400	1500	689	1028	1115	689
JNLBRNGB:3400	3400	1545	2710	2710	4498	3387
CHAINWOO:4000	4000	—	994	1811	1762	994
CHARDIS0:4000	4000	—	4	13	4	10
WOODS:4000	4000	—	349	349	750	916
HADAMALS:4096	4096	3282	795	4670	7325	795
DRCV1LQ:4489	4489	520	24450	—	—	24450
DRCV2LQ:4489	4489	520	61355	—	—	61355

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
ARWHEAD:5000	5000	—	83	83	100	144
BDQRTIC:5000	5000	—	168	168	466	765
BROYDN7D:5000	5000	—	628	1243	814	628
BRYBND:5000	5000	—	64	96	83	64
BIGGSB1:5000	5000	3	32608	32608	37586	38398
BDEXP:5000	5000	5000	3	3	3	3
CRAGGLVY:5000	5000	—	302	372	493	302
CHENHARK:5000	5000	2010	25190	25190	—	52586
DQDRTIC:5000	5000	—	23	25	23	58
DQRTIC:5000	5000	—	71	311	71	165
ENGVAL1:5000	5000	—	63	76	80	63
FLETBV3M:5000	5000	—	89	—	89	119
FLETGBV2:5000	5000	—	20005	20005	33497	24454
FREUROTH:5000	5000	—	90	103	95	90
GENHUMPS:5000	5000	—	931	1261	1446	931
HARKERP2:5000	5000	5000	3	3	3	3
INDEFM:5000	5000	—	247	—	247	626
INDEF:5000	5000	5000	56	116	56	—
LIARWHD:5000	5000	—	109	109	141	227
MOREBV:5000	5000	—	1358	2252	2927	1358
MCCORMCK:5000	5000	1	62	70	65	62
NCB20B:5000	5000	—	1327	2687	4447	1327
NONCVXU2:5000	5000	—	21305	21305	23699	41714
NONCVXUN:5000	5000	—	44454	44454	—	—
NONDIA:5000	5000	—	1220	1220	3453	—

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
NONDQUAR:5000	5000	—	612	612	952	1239
NONSCOMP:5000	5000	2500	264	332	285	264
POWELLSG:5000	5000	—	504	504	803	1082
POWER:5000	5000	—	759	841	828	759
PENTDI:5000	5000	3751	28	33	28	28
QUARTC:5000	5000	—	71	311	71	165
QRTQUAD:5000	5000	549	2556	2556	32853	—
QUDLIN:5000	5000	5000	18	18	27	64
SCHMVETT:5000	5000	—	167	945	271	167
SINQUAD:5000	5000	—	137	173	164	137
SPARSQUR:5000	5000	—	35	143	35	94
SROSENBR:5000	5000	—	399	399	624	754
SSBRYBND:5000	5000	—	25562	29275	47365	25562
TESTQUAD:5000	5000	—	4960	4960	35467	18835
TOINTGSS:5000	5000	—	116	116	118	127
TQUARTIC:5000	5000	—	583	583	1123	686
TRIDIA:5000	5000	—	2829	2829	3537	4428
VAREIGVL:5000	5000	—	73	93	87	73
NCB20:5010	5010	—	630	630	4474	633
CLPLATEA:5041	5041	71	2190	2378	3697	2190
CLPLATEB:5041	5041	71	1107	1214	1497	1107
CLPLATEC:5041	5041	71	2920	15872	—	2920
ODC:5184	5184	284	627	963	1225	627
SSC:5184	5184	284	381	381	637	469
MINSURFO:5306	5306	1762	3374	3374	3937	6897
NOBNDTOR:5476	5476	801	662	880	1280	662

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
TORSIONA:5476	5476	1096	704	742	1600	704
TORSIONB:5476	5476	1096	704	742	1600	704
TORSION111:5476	5476	1219	613	811	1693	613
TORSION1:5476	5476	1219	613	811	1693	613
TORSION2:5476	5476	1219	613	811	1693	613
TORSIONC:5476	5476	2328	422	471	444	422
TORSIOND:5476	5476	2328	422	471	444	422
TORSION3:5476	5476	2386	451	451	470	478
TORSION4:5476	5476	2386	451	451	470	478
TORSIONE:5476	5476	3782	218	302	218	367
TORSIONF:5476	5476	3782	218	302	218	367
TORSION5:5476	5476	3805	292	323	457	292
TORSION6:5476	5476	3805	292	323	457	292
FMINSRF2:5625	5625	—	525	630	637	525
FMINSURF:5625	5625	—	540	640	638	540
LMINSURF:5625	5625	296	1579	2662	2501	1579
NLMSURF:5625	5625	296	15218	21249	20488	15218
ODC:7344	7344	344	729	947	1573	729
SSC:7344	7344	344	560	560	755	569
JNLBRNG1:7500	7500	2605	992	1060	1309	992
JNLBRNGA:7500	7500	2676	959	1112	1428	959
JNLBRNG2:7500	7500	3171	1375	2022	2680	1375
JNLBRNGB:7500	7500	3395	4572	4572	7179	6779
OBSTCLBL:7500	7500	2859	401	556	553	401
OBSTCLBM:7500	7500	2859	401	556	553	401
OBSTCLBU:7500	7500	2859	401	556	553	401
OBSTCLAE	7500	3819	434	549	695	434
OBSTCLAL:7500	7500	3819	434	549	695	434
DIXMAANA:9000	9000	—	15	17	15	16
DIXMAANB:9000	9000	—	19	25	19	19
DIXMAANC:9000	9000	—	22	29	23	22

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
DIXMAAND:9000	9000	—	25	33	27	25
DIXMAANE:9000	9000	—	956	1145	1492	956
DIXMAANF:9000	9000	—	788	957	876	788
DIXMAANG:9000	9000	—	804	905	879	804
DIXMAANH:9000	9000	—	750	863	860	750
DIXMAANI:9000	9000	—	1384	4089	4252	1384
DIXMAANJ:9000	9000	—	828	1501	1030	828
DIXMAANK:9000	9000	—	582	2388	943	582
DIXMAANL:9000	9000	—	651	2570	875	651
DIXMAANM:9000	9000	—	1680	4089	5972	1680
DIXMAANN:9000	9000	—	1806	3916	2147	1806
DIXMAANO:9000	9000	—	2102	4313	2603	2102
DIXMAANP:9000	9000	—	2219	3417	3015	2219
BOXPOWER	10000	—	27	73	27	99
BOX	10000	—	128	128	202	322
BROYDN7D:10000	10000	—	589	1518	795	589
BRYBND:10000	10000	—	64	96	83	64
CHAINWOO:10000	10000	—	1334	1614	2532	1334
CVXBQP1:10000	10000	10000	3	3	3	3
DIXON3DQ:10000	10000	—	40009	40009	50002	76220
FLETBV3M:10000	10000	—	74	—	74	77
FLETCBV2:10000	10000	—	37579	40005	50022	37579
FMINSRF2:10000	10000	—	684	783	823	684
FMINSURF:10000	10000	—	667	783	823	667
HARKERP2:10000	10000	10000	3	3	3	3
INDEFM:10000	10000	—	579	—	1433	579

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
JNLBRNG1:10000	10000	3443	1296	1296	1520	1304
JNLBRNGA:10000	10000	3568	1434	1477	2415	1434
JNLBRNG2:10000	10000	4209	1812	2395	3572	1812
JNLBRNGB:10000	10000	4484	6148	6148	9024	8343
LIARWHD:10000	10000	—	112	112	150	185
LMINSURF:10000	10000	396	2289	4000	3491	2289
MCCORMCK:10000	10000	1	53	125	60	53
NONCVXU2:10000	10000	—	28906	29540	28906	41448
NONDIA:10000	10000	—	1873	1873	5248	2888
NONDQUAR:10000	10000	—	842	842	1146	1287
NLMSURF:10000	10000	396	23680	35968	29544	23680
NOBNDTOR:10000	10000	1299	993	1101	2172	993
NONSCOMP:10000	10000	5000	237	290	237	291
NCVXBQP3:10000	10000	9808	196	721	285	196
NCVXBQP2:10000	10000	9934	127	609	226	127
NCVXBQP1:10000	10000	10000	18	268	28	18
OSCIGRAD:10000	10000	—	5459	—	5459	—
OBSTCLBL:10000	10000	3896	480	555	750	480
OBSTCLBM:10000	10000	3896	480	555	750	480
OBSTCLBU:10000	10000	3896	480	555	750	480
OBSTCLAE:10000	10000	5061	456	660	747	456
OBSTCLAL:10000	10000	5061	456	660	747	456
POWELLSG:10000	10000	—	797	931	797	1218
POWER:10000	10000	—	1012	1177	1176	1012
QUARTC:10000	10000	—	75	417	75	173
SCHMVETT:10000	10000	—	174	1798	229	174
SINQUAD:10000	10000	—	184	184	211	197
SPARSQUR:10000	10000	—	39	149	39	73

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
SROSENB:10000	10000	—	562	562	1080	881
TOINTGSS:10000	10000	—	108	108	113	136
TQUARTIC:10000	10000	—	812	812	1306	1129
TRIDIA:10000	10000	—	4021	4021	5017	7560
TORSIONA:10000	10000	1839	935	993	1409	935
TORSIONB:10000	10000	1839	935	993	1409	935
TORSION111:10000	10000	2013	1017	1017	2103	1263
TORSION1:10000	10000	2013	1017	1017	2103	1263
TORSION2:10000	10000	2013	1017	1017	2103	1263
TORSIONC:10000	10000	4105	582	582	1173	615
TORSIOND:10000	10000	4105	582	582	1173	615
TORSION3:10000	10000	4189	566	641	566	676
TORSION4:10000	10000	4189	566	641	566	676
TORSIONE:10000	10000	6685	351	361	351	399
TORSIONF:10000	10000	6685	351	361	351	399
TORSION5:10000	10000	6720	334	378	334	416
TORSION6:10000	10000	6720	334	378	334	416
WOODS:10000	10000	—	540	652	910	540
DRCV1LQ:10816	10816	816	18017	—	—	18017
DRCV2LQ:10816	10816	816	38521	—	—	38521
ODNAMUR	11130	5580	216779	—	—	216779
JNLBRNG1:12500	12500	4277	1577	1577	1949	1981
JNLBRNGA:12500	12500	4469	1531	1774	2853	1531
JNLBRNG2:12500	12500	5197	2422	2821	4614	2422
JNLBRNGB:12500	12500	5630	6906	6906	13960	11550
OBSTCLBL:12500	12500	4623	558	558	684	618
OBSTCLBM:12500	12500	4623	558	558	684	618
OBSTCLBU:12500	12500	4623	558	558	684	618

problem	dim	nact	nf+2*ng best	nf+2*ng for solver		
				lmbopt3	asa	lt6
OBSTCLAE:12500	12500	6481	652	745	977	652
OBSTCLAL:12500	12500	6481	652	745	977	652
ODC:14544	14544	544	1609	1609	2725	1705
SSC:14544	14544	544	949	960	1359	949
NOBNDTOR:14884	14884	1758	1356	1356	4025	1413
TORSIONA:14884	14884	2618	1014	1217	2600	1014
TORSIONB:14884	14884	2618	1014	1217	2600	1014
TORSION111:14884	14884	2830	1130	1137	3913	1130
TORSION1:14884	14884	2830	1130	1137	3913	1130
TORSION2:14884	14884	2830	1130	1137	3913	1130
TORSIONC:14884	14884	6034	726	726	945	903
TORSIOND:14884	14884	6034	726	726	945	903
TORSION3:14884	14884	6137	619	619	962	716
TORSION4:14884	14884	6137	619	619	962	716
TORSIONE:14884	14884	9868	411	423	411	501
TORSIONF:14884	14884	9868	411	423	411	501
TORSION5:14884	14884	9914	521	521	640	587
TORSION6:14884	14884	9914	521	521	640	587
FMINSRF2:15625	15625	—	794	897	985	794
FMINSURF:15625	15625	—	779	913	985	779
LMSURF:15625	15625	496	2854	4699	4533	2854
NLMSURF:15625	15625	496	32574	50938	53588	32574
BOXPOWER:20000	20000	—	30	47	30	46
MODBEALE:20000	20000	—	762	762	849	1704
MCCORMCK:50000	50000	1	54	83	64	54
BOX:100000	100000	—	201	201	403	804
INDEFM:100000	100000	—	898	—	898	2276
OSCIGRAD:100000	100000	—	2578	—	2578	—
DEGTRID:100001	100001	1	22368	22368	94042	27508
DEGDIAG:100001	100001	100001	3	3	3	3
DEGTRID2:100001	100001	100001	3	3	3	3

3.9 Number of gradients evaluations, accuracy 1e-06

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
BQP1VAR	1	1	3	1	1	1
AKIVA	2	—	70	17	26	22
BEALE	2	—	49	15	13	16
BRKMCC	2	—	24	5	7	11
CAMEL6	2	—	25	12	10	8
CLIFF	2	—	73	43	55	24
CUBE	2	—	114	33	40	37
CHEBYQAD:2	2	—	38	18	12	12
DENSCHNA	2	—	28	9	8	9
DENSCHNB	2	—	28	8	10	9
DENSCHNC	2	—	40	12	12	13
DENSCHNF	2	—	36	11	15	11
DJTL	2	—	317	62	395	—
ENGVAL1	2	—	25	9	8	8
EXPFIT	2	—	53	15	20	17
FREUROTH	2	—	43	17	11	18
HUMPS	2	—	135	48	87	44
HAIRY	2	—	58	26	27	18
HIMMELBB	2	—	22	11	11	7
HIMMELBG	2	—	35	9	9	12
HIMMELBH	2	—	22	7	8	7
HS1	2	—	98	23	32	34
HS5	2	—	26	10	8	8
HILBERTA:2	2	—	11	3	3	9
HIMMELP1	2	1	22	6	7	7
HS2	2	1	32	8	9	11
HS3MOD	2	1	4	4	1	5
HS3	2	1	4	3	1	3
HS4	2	2	3	1	1	1
JENSMP	2	—	152	60	45	—
LOGHAIRY	2	—	81	24	37	25

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
LOGROS	2	—	182	95	64	59
MARATOSB	2	—	3169	984	2159	1017
MEXHAT	2	—	330	96	185	109
MODBEALE	2	—	49	15	13	16
MDHOLE	2	1	9	2	3	3
OSCIGRAD:2	2	—	5382	1295	—	1719
OSCIPATH:2	2	—	202	58	97	66
ROSENBR	2	—	98	23	34	34
S308	2	—	28	8	9	9
SINEVAL	2	—	47	12	13	16
SISSER	2	—	35	20	9	17
SNAIL	2	—	25	8	7	8
SENSORS:2	2	—	31	8	9	12
SIMBQP	2	1	4	2	1	3
SIM2BQP	2	2	3	1	1	1
ZANGWIL2	2	—	11	3	3	6
BARD	3	—	174	68	46	69
BOX3	3	—	23	8	6	9
BOX2	3	1	113	30	29	80
DENSCHND	3	—	84	22	24	27
DENSCHNE	3	—	27	12	7	9
ENGVAL2	3	—	97	23	27	39
EG1	3	1	81	28	22	26
GROWTHLS	3	—	104	33	59	33
GULF	3	—	4	7	1	59
HATFLDD	3	—	71	32	18	41
HATFLDE	3	—	74	19	36	24
HATFLDFL	3	—	405	172	179	127
HELIX	3	—	43	12	11	20
HIELOW	3	—	74	—	25	24
HS25	3	—	20	5	11	119
KOEBHELB	3	—	195	92	58	—

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
MEYER3	3	—	3180	971	941	—
PFIT1LS	3	—	52	13	—	—
PFIT2LS	3	—	52	13	—	—
PFIT3LS	3	—	52	13	—	—
PFIT4LS	3	—	52	13	—	—
SCHMVETT	3	—	53	13	15	21
SENSORS:3	3	—	97	30	27	32
SPECAN:3	3	3	3	1	1	1
WEEDS	3	1	72	24	68	21
YFIT	3	—	225	103	65	115
YFITU	3	—	364	105	128	115
ALLINITU	4	—	31	12	9	10
ALLINIT	4	2	41	21	15	13
BROWNDEN	4	—	72	19	19	27
CRAGGLVY	4	—	134	41	41	44
CHAINWOO:4	4	—	98	34	26	35
CHEBYQAD:4	4	—	48	14	31	15
HATFLDA	4	—	67	35	32	22
HIMMELBF	4	—	244	56	84	125
HS38	4	—	102	30	27	35
HILBERTA:4	4	—	19	5	5	24
HATFLDB	4	1	109	30	30	40
HADAMALS	4	3	37	12	11	16
KOWOSB	4	—	198	54	53	85
MSQRTALS	4	—	63	20	16	21
MODBEALE:4	4	—	80	19	27	34
PENALTY2	4	—	1538	674	451	500
POWELLSG	4	—	115	27	31	39
PALMER1B	4	—	196	78	112	61
PALMER2B	4	—	221	101	109	70
PALMER3B	4	—	103	69	117	33
PALMER4B	4	—	135	70	89	42

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
PALMER5D	4	—	21	5	7	30
PENALTY1:4	4	—	391	152	107	125
PSPDOC	4	1	25	6	9	12
PALMER1	4	1	116	35	93	35
PALMER2	4	1	79	24	33	24
PALMER3	4	1	77	40	26	23
PALMER4	4	1	59	14	26	28
POWELLBC:4	4	4	4	2	1	1
SINEALI:4	4	—	115	25	85	88
WOODS:4	4	—	90	21	27	35
CHEBYQAD:5	5	2	61	28	22	19
EXTROSNB	5	—	322	115	98	103
GENHUMPS:5	5	—	243	57	92	82
GENROSE:5	5	—	137	45	48	45
HILBERTB	5	—	19	5	5	6
HILBERTA:5	5	—	23	6	6	46
HS45	5	5	3	1	1	1
OSCIGRAD:5	5	—	4823	1093	1559	—
OSBORNEA	5	5	405	88	—	—
SINQUAD	5	—	50	14	17	16
TQUARTIC	5	—	54	15	18	17
BIGGS6	6	—	494	1729	131	624
BIGGS5	6	1	216	120	60	70
BIGGS3	6	3	76	25	26	25
CHEBYQAD:6	6	2	62	15	18	29
EIGENALS:6	6	—	109	26	34	35
EIGENBLS:6	6	—	101	26	41	33
HEART6LS	6	—	3316	851	908	1250
HILBERTA:6	6	—	23	6	6	48
HART6	6	2	62	18	22	20
PALMER6A	6	—	1688	439	451	564

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
PALMER8A	6	—	301	385	155	95
PALMER1A	6	—	1036	377	282	360
PALMER2A	6	—	727	247	202	327
PALMER3A	6	—	796	419	326	256
PALMER4A	6	—	590	250	213	186
PALMER5C	6	—	27	7	7	15
SPECAN:6	6	6	3	1	1	1
CHEBYQAD:7	7	1	104	24	31	51
PALMER1D	7	—	33	8	18	—
AIRCRFTB	8	3	250	96	137	81
CHEBYQAD:8	8	2	96	23	25	54
HEART8LS	8	—	688	628	1388	221
MAXLIKA	8	7	22	9	7	1
OSLBQP	8	7	4	2	2	1
PALMER6C	8	—	37	9	24	—
PALMER6E	8	—	70	294	16	1966
PALMER7C	8	—	37	9	24	—
PALMER8C	8	—	37	9	17	—
PALMER8E	8	—	84	208	22	2015
PALMER1C	8	—	37	9	28	—
PALMER1E	8	—	1295	584	344	—
PALMER2C	8	—	37	9	26	—
PALMER3C	8	—	37	9	19	—
PALMER4C	8	—	37	9	19	—
PALMER4E	8	—	1174	280	885	—
PALMER5A	8	—	85	20	—	—
POWELLSG:8	8	—	203	58	51	95
PALMER7E	8	1	85	21	—	—
PALMER2E	8	1	1801	429	—	—
PALMER3E	8	1	1778	422	—	—

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
S368:8	8	6	36	11	11	10
VIBRBEAM	8	—	2681	609	—	—
CHEBYQAD:9	9	2	87	20	28	67
MSQRTBLS	9	—	100	27	29	33
NONMSQRT	9	—	833	970	222	—
SPECAN:9	9	9	3	1	1	1
ARGLINA:10	10	—	7	2	2	3
ARGLINB:10	10	—	7	3	2	3
ARGLINC:10	10	—	7	3	2	3
BROWNAL	10	—	74	18	19	36
BRYBND	10	—	83	19	69	85
BOXPOWER:10	10	—	21	5	13	15
BOX:10	10	—	41	10	12	17
BROYDN7D:10	10	—	94	38	29	31
CHNROSNB	10	—	217	69	57	71
CHNRSNBM	10	—	231	91	59	75
CHARDIS0:10	10	—	4	2	1	3
COSINE:10	10	—	124	30	33	47
CRAGGLVY:10	10	—	133	43	35	44
CHEBYQAD	10	2	63	23	17	51
CHENHARK:10	10	3	61	16	22	20
CVXBQP1:10	10	10	3	1	1	1
DIXON3DQ	10	—	45	11	15	27
DQDRTIC	10	—	23	6	6	20
DQRTIC:10	10	—	83	32	29	26
ERRINROS:10	10	—	370	107	97	123
ERRINRSM:10	10	—	761	175	203	385
EXTROSNB:10	10	—	3234	1545	839	1076
FLETBV3M	10	—	37	15	13	8
FLETGBV2	10	—	47	12	12	21
FLETGBV3	10	—	67	59	28	17

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
FLETCHBV	10	—	112	124	69	30
FLETCHCR	10	—	229	98	64	75
FREUROTH:10	10	—	75	21	20	29
GENHUMPS:10	10	—	480	172	195	153
GENROSE:10	10	—	232	80	69	75
HS110	10	—	35	18	10	—
HILBERTA:10	10	—	23	6	6	51
HILBERTB:10	10	—	19	5	5	6
HARKERP2:10	10	10	3	1	1	1
INDEFM:10	10	—	148	185	40	45
INDEF:10	10	10	53	23	17	1
MOREBV	10	—	71	20	18	45
MANCINO:10	10	—	26	7	7	8
MODBEALE:10	10	—	135	33	42	252
MCCORMCK	10	1	54	14	15	28
NONCVXU2:10	10	—	75	24	25	24
NONCVXUN:10	10	—	73	17	20	26
NONDIA:10	10	—	106	30	33	35
NCVXBQP1:10	10	10	13	14	8	1
NCVXBQP2:10	10	10	11	13	8	1
NCVXBQP3:10	10	10	33	13	10	8
POWER	10	—	67	27	21	22
PENALTY1:10	10	—	313	95	102	102
PENALTY2:10	10	—	1469	439	486	468
PROBPENL:10	10	4	376	80	252	1372
POWELLBC:10	10	7	17	27	20	1
RAYBENDL:10	10	4	90	32	24	32
RAYBENDS:10	10	4	154	51	62	48
SINEALI	10	—	1215	282	948	1196
SROSENBR	10	—	181	56	46	105

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
SCHMVETT:10	10	—	90	25	24	33
SENSORS:10	10	—	68	16	31	21
SPARSINE:10	10	—	53	13	16	37
SPARSQUR:10	10	—	34	22	10	22
SSBRYBND:10	10	—	737	215	201	3109
SSCOSINE:10	10	—	365	83	136	—
TOINTGSS	10	—	130	33	34	50
TQUARTIC:10	10	—	82	27	21	28
TRIDIA:10	10	—	45	11	15	27
VARDIM	10	—	67	27	17	29
VAREIGVL:10	10	—	46	14	14	15
OSBORNEB	11	—	3847	—	—	1213
EXPQUAD:12	12	4	118	30	33	54
QRTQUAD:12	12	3	168	34	57	137
QUDLIN	12	12	15	3	7	7
WATSON:12	12	—	238	70	61	104
BRATU1D:13	13	2	64	15	20	33
DIXMAANA	15	—	19	6	5	6
DIXMAANB	15	—	19	6	5	6
DIXMAANC	15	—	19	7	6	6
DIXMAAND	15	—	25	7	7	8
DIXMAANE	15	—	61	16	33	20
DIXMAANF	15	—	61	16	21	20
DIXMAANG	15	—	64	16	22	21
DIXMAANH	15	—	61	16	22	20
DIXMAANI	15	—	113	28	47	43
DIXMAANJ	15	—	124	31	49	42

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
DIXMAANK	15	—	133	33	50	45
DIXMAANL	15	—	113	28	49	41
DIXMAANM	15	—	93	23	58	48
DIXMAANN	15	—	113	28	45	42
DIXMAANO	15	—	115	29	52	38
DIXMAANP	15	—	131	38	48	43
PARKCH	15	—	642	151	—	2216
CLPLATEA:16	16	4	81	21	21	28
CLPLATEB:16	16	4	83	20	22	27
CLPLATEC:16	16	4	69	17	21	43
FMINSURF	16	—	65	15	21	22
FMINSRF2:16	16	—	82	23	26	27
HADAMALS:16	16	8	109	39	32	70
LMINSURF	16	12	41	12	11	12
NLMSURF:16	16	12	49	17	14	14
NOBNDTOR:16	16	13	36	9	10	23
POWELLSG:16	16	—	382	94	167	152
TORSION111:16	16	14	22	5	7	15
TORSION1:16	16	14	22	5	7	15
TORSION2:16	16	14	22	5	7	15
TORSIONA:16	16	14	22	6	7	10
TORSIONB:16	16	14	22	6	7	10
TORSIONC:16	16	14	22	5	7	8
TORSIOND:16	16	14	22	5	7	8
TORSION3:16	16	16	7	3	2	9
TORSION4:16	16	16	7	3	2	9
TORSION5:16	16	16	4	2	1	1
TORSION6:16	16	16	4	2	1	1
TORSIONE:16	16	16	4	2	1	4
TORSIONF:16	16	16	4	2	1	4
CHARDIS0:18	18	—	4	2	1	3

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
LINVERSE	19	8	240	59	65	152
CHEBYQAD:20	20	3	127	85	35	57
MANCINO:20	20	—	31	9	8	9
NONDIA:20	20	—	147	43	38	52
POWELLSG:20	20	—	552	135	150	214
POWER:20	20	—	79	32	32	26
POWELLBC:20	20	13	117	44	31	64
TRIDIA:20	20	—	85	21	37	50
NCB20B	21	—	224	54	156	77
NCB20B:22	22	—	207	50	211	231
RAYBENDL:24	24	4	1152	512	—	376
RAYBENDS:24	24	4	3570	1671	—	1166
BIGGSB1	25	2	120	28	92	57
CHNROSNB:25	25	—	383	152	199	127
CHNRSNBM:25	25	—	632	213	234	207
ERRINROS:25	25	—	452	128	—	144
ERRINRSM:25	25	—	955	219	—	991
HATFLDC	25	12	49	13	19	16
NONSCOMP	25	12	333	178	85	131
OSCIPATH:25	25	—	182	60	60	60
QUARTC	25	—	39	37	10	29
SPMSRTLS	28	—	175	52	61	57
X3PK	30	1	6749	1677	—	—
EIGENCLS:30	30	—	545	132	155	179
MANCINO:30	30	—	32	9	9	9
NONDIA:30	30	—	146	35	49	71
POWER:30	30	—	79	36	33	26
TRIDIA	30	—	133	33	61	74
WATSON:31	31	—	1681	405	1538	—

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
EDENSCH	36	—	70	21	28	22
HADAMALS:36	36	24	192	90	57	101
LIARWHD	36	—	73	24	26	24
POWELLSG:36	36	—	448	110	190	344
CHARDIS0:40	40	—	4	2	1	3
POWELLSG:40	40	—	559	137	185	270
QR3DLS:40	40	1	5101	1258	—	2343
RAYBENDL	44	4	8754	—	—	2841
CLPLATEA	49	7	143	49	63	47
CLPLATEB	49	7	137	45	61	45
CLPLATEC	49	7	288	72	102	180
FMINSRF2:49	49	—	142	38	40	47
FMINSURF:49	49	—	112	31	37	37
LMINSURF:49	49	24	96	35	34	30
MSQRTALS:49	49	—	733	210	—	243
MSQRTBLS:49	49	—	590	171	229	196
NLMSURF:49	49	24	381	121	170	124
ARGLINA:50	50	—	7	2	2	3
ARGLINB:50	50	—	7	3	2	3
ARGLINC:50	50	—	7	3	2	3
BROYDN7D:50	50	—	290	88	133	96
BRYBND:50	50	—	67	21	20	22
BQPGABIM	50	26	120	35	38	53
BQPGASIM	50	27	114	27	34	60
CHNROSNB:50	50	—	730	254	291	242
CHNRSNBM:50	50	—	1013	342	291	336
CRAGGLVY:50	50	—	256	86	94	85
CHEBYQAD:50	50	6	196	95	357	64
CVXBQP1:50	50	50	3	1	1	1
DQDRTIC:50	50	—	23	6	6	38
DQRTIC:50	50	—	43	47	11	32

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
ENGVAL1:50	50	—	60	20	22	19
ERRINROS:50	50	—	445	155	—	146
ERRINRSM:50	50	—	836	194	2728	1010
FREUROTH:50	50	—	79	20	25	25
HILBERTB:50	50	—	19	5	5	7
INDEFM:50	50	—	202	70	78	65
INDEF:50	50	50	56	45	17	71
MANCINO:50	50	—	37	11	10	10
MOREBV:50	50	—	1539	740	484	1756
MCCORMCK:50	50	1	56	14	16	31
NCB20B:50	50	—	1006	250	1364	739
NONDIA:50	50	—	132	32	51	90
NONSCOMP:50	50	25	266	98	74	82
NCVXBQP3:50	50	49	52	37	16	16
NCVXBQP1:50	50	50	14	21	8	1
NCVXBQP2:50	50	50	38	37	11	12
PENALTY3	50	—	1179	513	443	378
PENALTY1:50	50	—	234	84	85	74
PENALTY2:50	50	—	353	81	198	161
POWER:50	50	—	91	38	27	30
PROBPENL:50	50	—	1066	237	—	—
PENTDI:50	50	37	28	8	9	9
SINQUAD:50	50	—	93	22	38	33
SPARSINE:50	50	—	469	117	261	198
SPARSQUR:50	50	—	24	28	6	22
SROSENBR:50	50	—	205	69	53	118
SSBRYBND:50	50	—	6559	1632	—	—
S368:50	50	32	9	14	14	1
TOINTGOR	50	—	396	114	150	130
TOINTPSP	50	—	347	95	188	114

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
TOINTQOR	50	—	113	28	53	43
TOINTGSS:50	50	—	135	38	53	44
TQUARTIC:50	50	—	125	30	60	62
TRIDIA:50	50	—	213	53	100	95
VAREIGVL	50	—	64	20	20	21
VARDIM:50	50	—	101	42	29	48
CHARDIS0:60	60	—	4	2	1	3
POWELLSG:60	60	—	490	120	179	331
DECONVU	61	10	8236	—	2652	2698
DECONVB	61	41	483	173	129	—
FMINSRF2	64	—	184	53	49	61
FMINSURF:64	64	—	153	42	40	50
HADAMALS:64	64	34	177	108	54	110
LMINSURF:64	64	28	127	54	40	42
MINSURF	64	28	85	28	24	28
NLMSURF:64	64	28	482	167	185	159
POWER:75	75	—	109	41	37	36
BRATU1D	77	2	1035	279	438	344
POWELLSG:80	80	—	488	120	203	287
DIXMAANA:90	90	—	15	5	4	5
DIXMAANB:90	90	—	19	6	5	6
DIXMAANC:90	90	—	22	7	6	7
DIXMAAND:90	90	—	25	7	7	8
DIXMAANE:90	90	—	158	41	76	52
DIXMAANF:90	90	—	172	43	50	58
DIXMAANG:90	90	—	144	43	48	47
DIXMAANH:90	90	—	172	47	48	56
DIXMAANI:90	90	—	529	132	276	239

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
DIXMAANJ:90	90	—	600	150	181	242
DIXMAANK:90	90	—	653	163	169	254
DIXMAANL:90	90	—	592	148	161	241
DIXMAANM:90	90	—	501	125	254	264
DIXMAANN:90	90	—	720	190	246	239
DIXMAANO:90	90	—	853	216	238	280
DIXMAANP:90	90	—	690	198	245	228
NONDIA:90	90	—	166	40	113	153
ARGLINA:100	100	—	7	2	2	3
ARGLINB:100	100	—	13	3	11	6
ARGLINC:100	100	—	44	9	24	23
ARWHEAD:100	100	—	57	15	19	17
BDQRTIC	100	—	133	35	91	43
BOXPOWER:100	100	—	27	6	8	18
BOX:100	100	—	70	17	24	34
BROWNAL:100	100	—	81	20	30	93
BROYDN7D:100	100	—	415	136	161	138
BRYBND:100	100	—	64	23	21	21
BDEXP	100	2	315	—	102	—
BIGGSB1:100	100	3	904	282	633	297
CHARDIS0	100	—	4	2	1	3
CHAINWOO:100	100	—	1049	550	280	396
COSINE:100	100	—	2591	2427	757	—
CRAGGLVY:100	100	—	257	89	111	85
CURLY10:100	100	—	3726	1117	1284	1234
CURLY20:100	100	—	3012	740	2322	1322
CURLY30:100	100	—	2452	603	2749	1322
CHEBYQAD:100	100	4	293	158	1479	96
CLPLATEA:100	100	10	203	55	71	67
CLPLATEB:100	100	10	208	60	66	69
CLPLATEC:100	100	10	705	176	190	319

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
CHENHARK:100	100	30	5420	2338	1985	2302
CVXBQP1	100	100	3	1	1	1
DIXON3DQ:100	100	—	405	101	195	339
DQDRTIC:100	100	—	23	6	6	12
DQRTIC:100	100	—	51	47	13	34
ENGVAL1:100	100	—	61	18	24	19
EXTROSNB:100	100	—	4860	—	2577	1526
FLETBV3M:100	100	—	89	36	25	25
FLETGBV2:100	100	—	660	165	187	297
FLETGBV3:100	100	—	469	1951	2632	146
FLETCHCR:100	100	—	1782	735	629	587
FREUROTH:100	100	—	86	22	35	27
GENHUMPS:100	100	—	1024	262	467	338
GENROSE:100	100	—	1756	726	627	578
HADAMALS:100	100	76	372	171	273	120
HARKERP2	100	100	3	1	1	1
INDEFM:100	100	—	262	1300	261	85
INDEF:100	100	100	51	43	16	75
LIARWHD:100	100	—	85	23	26	28
MANCINO:100	100	—	42	16	11	11
MOREBV:100	100	—	11645	—	—	3838
MSQRTALS:100	100	—	1276	693	869	422
MSQRTBLS:100	100	—	2164	960	989	717
MCCORMCK:100	100	1	56	14	16	21
NONDQUAR	100	—	566	139	301	381
NCB20B:100	100	—	3126	780	3341	1146
NONCVXU2:100	100	—	1483	516	393	512
NONCVXUN:100	100	—	567	166	151	223
NONDIA:100	100	—	198	47	178	161

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
NOBNDTOR:100	100	49	157	39	49	52
NONSCOMP:100	100	50	240	82	62	80
NCVXBQP3:100	100	98	58	41	18	8
NCVXBQP1:100	100	100	14	28	8	1
NCVXBQP2:100	100	100	37	33	10	5
OSCIPATH:100	100	—	228	61	62	79
PENALTY1:100	100	—	217	73	71	69
PENALTY2:100	100	—	265	94	177	88
PENALTY3:100	100	—	2686	996	884	853
POWELLSG:100	100	—	601	148	168	297
POWER:100	100	—	112	47	33	37
PROBPENL:100	100	—	2968	681	—	—
PENTDI:100	100	74	30	11	9	23
QUARTC:100	100	—	51	47	13	34
SCHMVETT:100	100	—	156	64	56	50
SENSORS:100	100	—	85	48	30	25
SINEALI:100	100	—	219	91	192	71
SINQUAD:100	100	—	90	21	28	32
SPARSINE:100	100	—	820	205	382	307
SPARSQUR:100	100	—	27	22	7	23
SPMSRTLS:100	100	—	1449	—	368	—
SROSENBR:100	100	—	183	83	46	133
SSBRYBND:100	100	—	9583	2390	—	—
SSCOSINE:100	100	—	3535	878	—	—
S368:100	100	73	10	15	19	1
TOINTGSS:100	100	—	103	32	42	34
TQUARTIC:100	100	—	218	69	74	71
TRIDIA:100	100	—	341	85	163	175

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
TORSIONA:100	100	54	118	42	35	40
TORSIONB:100	100	54	118	42	35	40
TORSION111:100	100	58	102	38	36	32
TORSION1:100	100	58	102	38	36	32
TORSION2:100	100	58	102	38	36	32
TORSIONC:100	100	67	82	20	24	30
TORSIOND:100	100	67	82	20	24	30
TORSION3:100	100	71	80	22	24	38
TORSION4:100	100	71	80	22	24	38
TORSIONE:100	100	84	50	14	15	22
TORSIONF:100	100	84	50	14	15	22
TORSION5:100	100	86	46	15	14	15
TORSION6:100	100	86	46	15	14	15
VARDIM:100	100	—	122	48	35	52
VAREIGVL:100	100	—	73	21	22	24
WOODS:100	100	—	198	47	112	170
EXPLIN:101	101	95	166	60	42	99
EXPLIN2:101	101	101	7	2	2	5
BRATU1D:103	103	2	1084	487	601	359
EIGENALS	110	—	4266	1262	1220	1408
EIGENBLS	110	—	2141	902	538	773
NCB20:110	110	—	633	153	—	1039
EXPQUAD	120	7	214	70	55	75
EXPLIN	120	70	566	199	212	179
EXPLIN2	120	101	215	172	59	124
QRTQUAD	120	5	332	69	113	157
QUDLIN:120	120	120	15	3	7	18
FMINSRF2:121	121	—	214	55	57	71
FMINSURF:121	121	—	176	49	48	58
LMINSURF:121	121	40	170	61	55	55
NLMSURF:121	121	40	946	298	381	311

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
HADAMALS:144	144	79	287	159	95	111
HOLMES	180	180	3	1	1	1
NCB20B:180	180	—	1298	420	958	426
DRCV2LQ	196	96	4966	1252	1287	1695
DRCV3LQ	196	96	9829	—	2525	3671
HADAMALS:196	196	161	468	178	143	168
LINVERSE:199	199	43	9567	—	—	3087
ARGLINA:200	200	—	7	2	2	3
ARGLINB:200	200	—	28	6	9	6
ARGLINC:200	200	—	23	28	9	4
BROWNAL:200	200	—	108	25	30	139
CHARDIS0:200	200	—	4	2	1	3
MODBEALE:200	200	—	644	240	162	554
PENALTY2:200	200	—	550	—	367	183
PENALTY3:200	200	—	6757	2010	1840	—
POWELLBC:200	200	104	2761	1011	2616	865
VARDIM:200	200	—	120	49	34	63
HADAMALS:256	256	135	502	198	151	229
ODC:288	288	148	606	225	330	201
SSC:288	288	148	390	109	125	129
DIXMAANA:300	300	—	15	4	4	5
DIXMAANB:300	300	—	19	6	5	6
DIXMAANC:300	300	—	22	7	6	7
DIXMAAND:300	300	—	25	7	7	8
DIXMAANE:300	300	—	277	69	130	94
DIXMAANF:300	300	—	236	79	79	78

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
DIXMAANG:300	300	—	239	67	76	79
DIXMAANH:300	300	—	233	74	77	77
DIXMAANI:300	300	—	1781	445	1109	773
DIXMAANJ:300	300	—	1452	401	426	480
DIXMAANK:300	300	—	1397	388	418	463
DIXMAANL:300	300	—	1248	395	351	413
DIXMAANM:300	300	—	1761	440	1111	676
DIXMAANN:300	300	—	1904	507	476	709
DIXMAANO:300	300	—	1952	504	488	694
DIXMAANP:300	300	—	1868	467	487	781
HADAMALS:324	324	256	499	244	160	184
CHARDIS0:400	400	—	4	3	1	3
HADAMALS:400	400	306	545	393	320	178
JNLBRNG1:400	400	253	274	76	173	90
JNLBRNGA:400	400	253	317	86	164	103
JNLBRNG2:400	400	278	295	92	120	96
JNLBRNGB:400	400	302	417	104	188	138
OBSTCLBL:400	400	263	28	11	9	28
OBSTCLBM:400	400	263	28	11	9	28
OBSTCLBU:400	400	263	28	11	9	28
OBSTCLAE:400	400	398	9	2	7	8
OBSTCLAL:400	400	398	9	2	7	8
EIGENCLS	462	—	7572	3082	3119	2501
NOBNDTOR:484	484	143	192	78	93	62
TORSIONA:484	484	161	202	66	73	64
TORSIONB:484	484	161	202	66	73	64
TORSION111:484	484	186	184	64	115	60
TORSION1:484	484	186	184	64	115	60
TORSION2:484	484	186	184	64	115	60
TORSIONC:484	484	254	154	53	53	49
TORSIOND:484	484	254	154	53	53	49
TORSION3:484	484	267	194	56	58	61

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
TORSION4:484	484	267	194	56	58	61
TORSIONE:484	484	362	107	41	40	34
TORSIONF:484	484	362	107	41	40	34
TORSION5:484	484	368	116	43	40	36
TORSION6:484	484	368	116	43	40	36
ARWHEAD:500	500	—	68	16	18	26
BDQRTIC:500	500	—	147	35	153	64
BROYDN7D:500	500	—	538	186	201	179
BRYBND:500	500	—	64	22	21	21
BDEXP:500	500	2	1514	1831	504	—
CRAGGLVY:500	500	—	290	85	121	96
DQRTIC	500	—	59	62	15	41
DQDRTIC:500	500	—	23	6	6	14
FREUROTH:500	500	—	96	21	28	40
GENHUMPS:500	500	—	953	325	440	315
GENROSE:500	500	—	8466	3542	2254	2792
HARKERP2:500	500	500	3	1	1	1
LIARWHD:500	500	—	101	23	47	33
MOREBV:500	500	—	1489	409	1068	494
MCCORMCK:500	500	1	56	15	16	23
NCB20B:500	500	—	1251	311	983	460
NONDIA:500	500	—	371	86	327	300
NONDQUAR:500	500	—	551	135	275	314
NONSCOMP:500	500	250	266	195	74	82
OSCIPATH:500	500	—	211	56	61	68
PENALTY1:500	500	—	169	56	60	54
POWELLSG:500	500	—	688	169	193	296
POWER:500	500	—	255	70	69	84
PROBPENL:500	500	—	7	2	2	3
PENTDI:500	500	376	28	7	8	9

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
QUARTC:500	500	—	59	62	15	41
SCHMVETT:500	500	—	159	201	69	51
SINQUAD:500	500	—	110	26	45	62
SROSENBR:500	500	—	286	106	72	126
TOINTGSS:500	500	—	109	28	39	34
TQUARTIC:500	500	—	321	75	123	155
TRIDIA:500	500	—	857	214	421	441
VAREIGVL:500	500	—	73	23	22	24
BRATU1D:503	503	2	6081	2157	6170	2015
CLPLATEA:529	529	23	552	170	183	183
CLPLATEB:529	529	23	428	132	142	142
CLPLATEC:529	529	23	901	493	—	297
ODC	864	164	576	170	217	191
SSC	864	164	397	110	193	131
FMINSRF2:961	961	—	271	156	78	89
FMINSURF:961	961	—	315	78	106	125
LMINSURF:961	961	120	607	261	208	200
NLMSURF:961	961	120	4301	1143	1627	1424
ARWHEAD:1000	1000	—	64	17	17	28
BDQRTIC:1000	1000	—	183	43	150	106
BOXPOWER:1000	1000	—	32	7	12	23
BOX:1000	1000	—	95	23	40	66
BROWNAL:1000	1000	—	102	24	30	57

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
BROYDN7D:1000	1000	—	526	187	212	175
BRYBND:1000	1000	—	64	22	21	21
BDEXP:1000	1000	2	3017	—	1005	—
BIGGSB1:1000	1000	3	7917	2303	5961	2619
CHAINWOO	1000	—	925	229	306	409
CURLY10	1000	—	25995	—	8801	8622
CHARDIS0:1000	1000	—	4	3	1	3
CRAGGLVY:1000	1000	—	271	90	125	90
CVXBQP1:1000	1000	1000	3	1	1	1
DIXON3DQ:1000	1000	—	4005	1001	1995	3685
DQDRTIC:1000	1000	—	23	6	6	18
DQRTIC:1000	1000	—	63	53	16	43
EG2	1000	—	338	82	195	208
ENGVAL1:1000	1000	—	66	20	21	20
EXTROSNB:1000	1000	—	4970	3748	2677	1563
FLETBV3M:1000	1000	—	52	116	15	23
FLETCBV2:1000	1000	—	4009	1002	3679	2136
FLETCBV3:1000	1000	—	14177	—	—	4680
FLETCHCR:1000	1000	—	16834	7048	4327	5555
FREUROTH:1000	1000	—	76	23	28	23
GENHUMPS	1000	—	1097	272	411	362
HARKERP2:1000	1000	1000	3	1	1	1
INDEFM	1000	—	381	90	194	179
INDEF	1000	1000	53	35	16	101
JNLBRNG1:1000	1000	366	278	88	159	92
JNLBRNGA:1000	1000	385	329	114	198	109
JNLBRNG2:1000	1000	524	505	181	303	166

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
JNLBRNGB:1000	1000	560	1347	369	742	447
LIARWHD:1000	1000	—	110	25	35	48
MOREBV:1000	1000	—	1468	563	1165	488
MCCORMCK:1000	1000	1	59	15	18	19
NONCVXU2	1000	—	5628	1502	1512	2554
NONCVXUN	1000	—	10021	2787	2904	—
NONDIA	1000	—	957	218	569	422
NCB20B:1000	1000	—	1306	319	956	500
NONDQUAR:1000	1000	—	599	146	190	255
NONSCOMP:1000	1000	500	255	56	72	84
NCVXBQP3	1000	983	104	184	34	20
NCVXBQP2	1000	993	80	47	25	14
NCVXBQP1	1000	1000	16	34	8	1
OSCIGRAD:1000	1000	—	1486	—	473	—
OBSTCLBL	1000	680	170	44	54	65
OBSTCLBM	1000	680	170	44	54	65
OBSTCLBU	1000	680	170	44	54	65
OBSTCLAL	1000	696	72	38	21	31
OBSTCLAE:1000	1000	696	72	38	21	31
PENALTY1:1000	1000	—	151	51	48	48
POWELLSG:1000	1000	—	742	182	244	319
POWER:1000	1000	—	348	95	95	114
POWELLBC:1000	1000	501	10829	—	—	3570
PENTDI	1000	751	25	7	8	8
QUARTC:1000	1000	—	63	53	16	43
SPARSINE	1000	—	13980	3495	7701	5883
SPARSQUR	1000	—	31	26	8	24
SSBRYBND	1000	—	22765	—	—	7529

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
SCHMVETT:1000	1000	—	185	109	65	59
SENSORS:1000	1000	—	111	37	59	32
SINEALI:1000	1000	—	192	63	163	62
SINQUAD:1000	1000	—	145	34	55	46
SROSENBR:1000	1000	—	359	88	91	164
TESTQUAD	1000	—	3704	926	—	4611
TOINTGSS:1000	1000	—	99	31	35	32
TQUARTIC:1000	1000	—	258	61	178	175
TRIDIA:1000	1000	—	1237	309	613	715
VAREIGVL:1000	1000	—	73	23	22	24
WOODS:1000	1000	—	366	88	114	181
BRATU1D:1003	1003	1003	20170	—	—	6664
NCB20	1010	—	481	117	6416	361
CLPLATEA:1024	1024	32	870	283	311	287
CLPLATEB:1024	1024	32	529	158	159	174
CLPLATEC:1024	1024	32	1406	913	—	465
FMINSRF2:1024	1024	—	283	82	84	94
FMINSURF:1024	1024	—	370	102	101	123
HADAMALS:1024	1024	801	583	499	498	191
LMINSURF:1024	1024	124	662	230	225	220
NLMSURF	1024	124	4388	1206	1777	1457
NOBNDTOR:1024	1024	235	319	96	171	102
TORSIONA:1024	1024	281	278	84	131	90
TORSIONB:1024	1024	281	278	84	131	90
TORSION111:1024	1024	323	242	87	160	79
TORSION1:1024	1024	323	242	87	160	79

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
TORSION2:1024	1024	323	242	87	160	79
TORSIONC:1024	1024	493	153	67	80	50
TORSIOND:1024	1024	493	153	67	80	50
TORSION3:1024	1024	515	185	66	104	58
TORSION4:1024	1024	515	185	66	104	58
TORSIONE:1024	1024	761	160	48	56	51
TORSIONF:1024	1024	761	160	48	56	51
TORSION5:1024	1024	768	157	50	57	49
TORSION6:1024	1024	768	157	50	57	49
EXPQUAD:1200	1200	81	1126	576	358	346
EXPLIN:1200	1200	1150	623	194	213	197
EXPLIN2:1200	1200	1181	197	176	58	116
QRTQUAD:1200	1200	50	1524	307	2075	2001
QUDLIN:1200	1200	1200	25	4	10	38
DIXMAANA:1500	1500	—	15	4	4	5
DIXMAANB:1500	1500	—	19	6	5	6
DIXMAANC:1500	1500	—	22	7	6	7
DIXMAAND:1500	1500	—	25	7	7	8
DIXMAANE:1500	1500	—	557	139	283	184
DIXMAANF:1500	1500	—	461	133	137	153
DIXMAANG:1500	1500	—	431	130	122	143
DIXMAANH:1500	1500	—	395	117	133	131
DIXMAANI:1500	1500	—	5665	1504	3661	1876
DIXMAANJ:1500	1500	—	2451	839	614	850
DIXMAANK:1500	1500	—	2325	581	739	790
DIXMAANL:1500	1500	—	1010	455	548	335

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
DIXMAANM:1500	1500	—	5348	1437	3635	1764
DIXMAANN:1500	1500	—	2478	887	751	819
DIXMAANO:1500	1500	—	2290	784	672	755
DIXMAANP:1500	1500	—	1963	796	736	649
LINVERSE:1999	1999	378	42455	9681	—	—
CHARDIS0:2000	2000	—	4	3	1	3
EDENSCH:2000	2000	—	75	22	32	23
MODBEALE:2000	2000	—	771	206	194	636
NCB20B:2000	2000	—	1176	294	838	391
BQPGAUSS	2003	134	16618	10336	10926	5436
RAYBENDS:2050	2050	4	9611	2018	—	—
JNLBRNG1:2300	2300	809	348	111	189	114
JNLBRNGA:2300	2300	847	396	121	239	130
JNLBRNGB:2300	2300	1052	1878	536	1040	622
JNLBRNG2:2300	2300	1077	623	186	414	206
OBSTCLBL:2300	2300	993	299	84	103	96
OBSTCLBM:2300	2300	993	299	84	103	96
OBSTCLBU:2300	2300	993	299	84	103	96
OBSTCLAE:2300	2300	1276	176	71	79	58
OBSTCLAL:2300	2300	1276	176	71	79	58
ODC:2376	2376	206	608	169	259	202
SSC:2376	2376	206	352	88	174	125
EIGENBLS:2550	2550	—	27925	10716	7519	9258
EIGENCLS:2652	2652	—	44261	—	—	14634
DIXMAANA:3000	3000	—	15	4	4	5
DIXMAANB:3000	3000	—	19	6	5	6
DIXMAANC:3000	3000	—	22	7	6	7
DIXMAAND:3000	3000	—	25	8	7	8
DIXMAANE:3000	3000	—	715	185	431	236

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
DIXMAANF:3000	3000	—	592	165	149	197
DIXMAANG:3000	3000	—	517	148	151	171
DIXMAANH:3000	3000	—	508	143	140	168
DIXMAANI:3000	3000	—	3768	1353	3261	1246
DIXMAANJ:3000	3000	—	932	1179	489	308
DIXMAANK:3000	3000	—	714	366	505	236
DIXMAANL:3000	3000	—	1169	627	421	388
DIXMAANM:3000	3000	—	3679	1525	2825	1213
DIXMAANN:3000	3000	—	3220	1019	853	1062
DIXMAANO:3000	3000	—	2603	821	743	863
DIXMAANP:3000	3000	—	2042	667	1203	675
JNLBRNG1:3200	3200	1130	378	116	179	124
JNLBRNGA:3200	3200	1168	433	149	251	143
JNLBRNG2:3200	3200	1400	723	284	500	239
JNLBRNGB:3200	3200	1446	2485	614	1350	1064
OBSTCLBL:3200	3200	1252	254	76	99	81
OBSTCLBM:3200	3200	1252	254	76	99	81
OBSTCLBU:3200	3200	1252	254	76	99	81
OBSTCLAE:3200	3200	1813	228	90	104	73
OBSTCLAL:3200	3200	1813	228	90	104	73
JNLBRNG1:3400	3400	1195	446	143	177	146
JNLBRNGA:3400	3400	1233	448	142	206	147
JNLBRNG2:3400	3400	1500	689	252	411	229
JNLBRNGB:3400	3400	1545	2710	671	1566	1110
CHAINWOO:4000	4000	—	994	440	469	325
CHARDIS0:4000	4000	—	4	3	1	3
WOODS:4000	4000	—	349	84	190	298
HADAMALS:4096	4096	3282	795	1065	2208	261
DRCV1LQ:4489	4489	520	24450	—	—	8122
DRCV2LQ:4489	4489	520	61355	—	—	20357

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
ARWHEAD:5000	5000	—	83	18	28	45
BDQRTIC:5000	5000	—	168	37	162	251
BROYDN7D:5000	5000	—	628	301	234	209
BRYBND:5000	5000	—	64	23	21	21
BIGGSB1:5000	5000	3	32608	8071	13033	12709
BDEXP:5000	5000	5000	3	1	1	1
CRAGGLVY:5000	5000	—	302	88	147	99
CHENHARK:5000	5000	2010	25190	6105	—	17397
DQDRTIC:5000	5000	—	23	6	6	18
DQRTIC:5000	5000	—	71	73	18	49
ENGVAL1:5000	5000	—	63	18	25	19
FLETBV3M:5000	5000	—	89	—	25	34
FLETGBV2:5000	5000	—	20005	5001	13395	8054
FREUROTH:5000	5000	—	90	22	28	27
GENHUMPS:5000	5000	—	931	291	368	306
HARKERP2:5000	5000	5000	3	1	1	1
INDEFM:5000	5000	—	247	—	75	203
INDEF:5000	5000	5000	56	28	17	—
LIARWHD:5000	5000	—	109	25	37	73
MOREBV:5000	5000	—	1358	563	1167	451
MCCORMCK:5000	5000	1	62	16	20	18
NCB20B:5000	5000	—	1327	654	1537	438
NONCVXU2:5000	5000	—	21305	5314	6455	13814
NONCVXUN:5000	5000	—	44454	10931	—	—
NONDIA:5000	5000	—	1220	284	1005	—

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
NONDQUAR:5000	5000	—	612	148	239	404
NONSCOMP:5000	5000	2500	264	74	77	84
POWELLSG:5000	5000	—	504	123	201	346
POWER:5000	5000	—	759	210	207	251
PENTDI:5000	5000	3751	28	7	8	9
QUARTC:5000	5000	—	71	73	18	49
QRTQUAD:5000	5000	549	2556	544	11658	—
QUDLIN:5000	5000	5000	18	3	9	13
SCHMVETT:5000	5000	—	167	217	80	53
SINQUAD:5000	5000	—	137	39	52	43
SPARSQUR:5000	5000	—	35	33	9	31
SROSENBR:5000	5000	—	399	96	159	241
SSBRYBND:5000	5000	—	25562	7318	15416	8475
TESTQUAD:5000	5000	—	4960	1240	14183	6238
TOINTGSS:5000	5000	—	116	27	32	40
TQUARTIC:5000	5000	—	583	134	292	217
TRIDIA:5000	5000	—	2829	707	1411	1466
VAREIGVL:5000	5000	—	73	23	22	24
NCB20:5010	5010	—	630	150	1524	205
CLPLATEA:5041	5041	71	2190	592	925	722
CLPLATEB:5041	5041	71	1107	302	375	367
CLPLATEC:5041	5041	71	2920	3968	—	966
ODC:5184	5184	284	627	240	307	208
SSC:5184	5184	284	381	95	220	155
MINSURFO:5306	5306	1762	3374	835	1044	2261
NOBNDTOR:5476	5476	801	662	213	375	219

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
TORSIONA:5476	5476	1096	704	178	451	230
TORSIONB:5476	5476	1096	704	178	451	230
TORSION111:5476	5476	1219	613	195	496	201
TORSION1:5476	5476	1219	613	195	496	201
TORSION2:5476	5476	1219	613	195	496	201
TORSIONC:5476	5476	2328	422	110	131	136
TORSIOND:5476	5476	2328	422	110	131	136
TORSION3:5476	5476	2386	451	108	137	156
TORSION4:5476	5476	2386	451	108	137	156
TORSIONE:5476	5476	3782	218	72	66	117
TORSIONF:5476	5476	3782	218	72	66	117
TORSION5:5476	5476	3805	292	75	140	95
TORSION6:5476	5476	3805	292	75	140	95
FMINSRF2:5625	5625	—	525	156	160	173
FMINSURF:5625	5625	—	540	158	160	177
LMINSURF:5625	5625	296	1579	654	627	525
NLMSURF:5625	5625	296	15218	5282	5388	5035
ODC:7344	7344	344	729	236	394	242
SSC:7344	7344	344	560	140	260	188
JNLBRNG1:7500	7500	2605	992	253	382	322
JNLBRNGA:7500	7500	2676	959	269	451	316
JNLBRNG2:7500	7500	3171	1375	496	863	452
JNLBRNGB:7500	7500	3395	4572	1128	2402	2236
OBSTCLBL:7500	7500	2859	401	132	173	129
OBSTCLBM:7500	7500	2859	401	132	173	129
OBSTCLBU:7500	7500	2859	401	132	173	129
OBSTCLAE	7500	3819	434	131	212	144
OBSTCLAL:7500	7500	3819	434	131	212	144
DIXMAANA:9000	9000	—	15	4	4	5
DIXMAANB:9000	9000	—	19	6	5	6
DIXMAANC:9000	9000	—	22	7	6	7

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
DIXMAAND:9000	9000	—	25	8	7	8
DIXMAANE:9000	9000	—	956	286	593	315
DIXMAANF:9000	9000	—	788	239	220	260
DIXMAANG:9000	9000	—	804	226	221	265
DIXMAANH:9000	9000	—	750	215	216	248
DIXMAANI:9000	9000	—	1384	1022	1697	458
DIXMAANJ:9000	9000	—	828	375	259	273
DIXMAANK:9000	9000	—	582	597	237	192
DIXMAANL:9000	9000	—	651	642	220	216
DIXMAANM:9000	9000	—	1680	1022	2385	553
DIXMAANN:9000	9000	—	1806	979	537	595
DIXMAANO:9000	9000	—	2102	1078	651	690
DIXMAANP:9000	9000	—	2219	854	754	730
BOXPOWER	10000	—	27	17	8	31
BOX	10000	—	128	30	60	105
BROYDN7D:10000	10000	—	589	366	228	196
BRYBND:10000	10000	—	64	23	21	21
CHAINWOO:10000	10000	—	1334	396	657	440
CVXBQP1:10000	10000	10000	3	1	1	1
DIXON3DQ:10000	10000	—	40009	10002	19997	25087
FLETBV3M:10000	10000	—	74	—	22	20
FLETCBV2:10000	10000	—	37579	10001	20005	12372
FMINSRF2:10000	10000	—	684	193	206	227
FMINSURF:10000	10000	—	667	193	206	221
HARKERP2:10000	10000	10000	3	1	1	1
INDEFM:10000	10000	—	579	—	455	185

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
JNLBRNG1:10000	10000	3443	1296	315	429	428
JNLBRNGA:10000	10000	3568	1434	356	739	472
JNLBRNG2:10000	10000	4209	1812	586	1324	602
JNLBRNGB:10000	10000	4484	6148	1521	3142	2739
LIARWHD:10000	10000	—	112	26	42	60
LMINSURF:10000	10000	396	2289	986	874	762
MCCORMCK:10000	10000	1	53	29	19	15
NONCVXU2:10000	10000	—	28906	7341	7618	13751
NONDIA:10000	10000	—	1873	435	1939	936
NONDQUAR:10000	10000	—	842	205	290	415
NLMSURF:10000	10000	396	23680	8958	7504	7838
NOBNDTOR:10000	10000	1299	993	265	666	328
NONSCOMP:10000	10000	5000	237	63	60	88
NCVXBQP3:10000	10000	9808	196	157	91	36
NCVXBQP2:10000	10000	9934	127	129	77	13
NCVXBQP1:10000	10000	10000	18	54	8	1
OSCIGRAD:10000	10000	—	5459	—	1737	—
OBSTCLBL:10000	10000	3896	480	134	236	157
OBSTCLBM:10000	10000	3896	480	134	236	157
OBSTCLBU:10000	10000	3896	480	134	236	157
OBSTCLAE:10000	10000	5061	456	157	223	150
OBSTCLAL:10000	10000	5061	456	157	223	150
POWELLSG:10000	10000	—	797	230	202	386
POWER:10000	10000	—	1012	294	294	334
QUARTC:10000	10000	—	75	98	19	51
SCHMVETT:10000	10000	—	174	414	71	55
SINQUAD:10000	10000	—	184	39	68	63
SPARSQUR:10000	10000	—	39	35	10	24

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
SROSENB:10000	10000	—	562	132	274	280
TOINTGSS:10000	10000	—	108	26	31	44
TQUARTIC:10000	10000	—	812	190	340	357
TRIDIA:10000	10000	—	4021	1005	2003	2505
TORSIONA:10000	10000	1839	935	239	407	306
TORSIONB:10000	10000	1839	935	239	407	306
TORSION111:10000	10000	2013	1017	245	593	414
TORSION1:10000	10000	2013	1017	245	593	414
TORSION2:10000	10000	2013	1017	245	593	414
TORSIONC:10000	10000	4105	582	138	343	202
TORSIOND:10000	10000	4105	582	138	343	202
TORSION3:10000	10000	4189	566	151	164	220
TORSION4:10000	10000	4189	566	151	164	220
TORSIONE:10000	10000	6685	351	83	104	129
TORSIONF:10000	10000	6685	351	83	104	129
TORSION5:10000	10000	6720	334	88	100	135
TORSION6:10000	10000	6720	334	88	100	135
WOODS:10000	10000	—	540	158	232	177
DRCV1LQ:10816	10816	816	18017	—	—	5978
DRCV2LQ:10816	10816	816	38521	—	—	12733
ODNAMUR	11130	5580	216779	—	—	71112
JNLBRNG1:12500	12500	4277	1577	383	533	643
JNLBRNGA:12500	12500	4469	1531	427	856	502
JNLBRNG2:12500	12500	5197	2422	691	1461	799
JNLBRNGB:12500	12500	5630	6906	1708	4425	3815
OBSTCLBL:12500	12500	4623	558	135	205	203
OBSTCLBM:12500	12500	4623	558	135	205	203
OBSTCLBU:12500	12500	4623	558	135	205	203

problem	dim	nact	nf+2*ng best	ng for solver		
				lmbopt3	asa	lt6
OBSTCLAE:12500	12500	6481	652	179	296	213
OBSTCLAL:12500	12500	6481	652	179	296	213
ODC:14544	14544	544	1609	401	682	567
SSC:14544	14544	544	949	240	540	312
NOBNDTOR:14884	14884	1758	1356	327	1132	467
TORSIONA:14884	14884	2618	1014	292	745	335
TORSIONB:14884	14884	2618	1014	292	745	335
TORSION111:14884	14884	2830	1130	275	1123	371
TORSION1:14884	14884	2830	1130	275	1123	371
TORSION2:14884	14884	2830	1130	275	1123	371
TORSIONC:14884	14884	6034	726	172	277	299
TORSIOND:14884	14884	6034	726	172	277	299
TORSION3:14884	14884	6137	619	145	274	236
TORSION4:14884	14884	6137	619	145	274	236
TORSIONE:14884	14884	9868	411	99	124	164
TORSIONF:14884	14884	9868	411	99	124	164
TORSION5:14884	14884	9914	521	122	194	191
TORSION6:14884	14884	9914	521	122	194	191
FMINSRF2:15625	15625	—	794	222	247	263
FMINSURF:15625	15625	—	779	226	247	258
LMINSURF:15625	15625	496	2854	1157	1135	951
NLMSURF:15625	15625	496	32574	12695	13667	10777
BOXPOWER:20000	20000	—	30	10	9	15
MODBEALE:20000	20000	—	762	190	219	554
MCCORMCK:50000	50000	1	54	19	20	15
BOX:100000	100000	—	201	46	117	245
INDEFM:100000	100000	—	898	—	266	738
OSCIGRAD:100000	100000	—	2578	—	835	—
DEGTRID:100001	100001	1	22368	5167	37015	9165
DEGDIAG:100001	100001	100001	3	1	1	1
DEGTRID2:100001	100001	100001	3	1	1	1

3.10 Number of functions evaluations, accuracy 1e-06

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
BQP1VAR	1	1	3	1	1	1
AKIVA	2	—	70	45	37	26
BEALE	2	—	49	32	25	17
BRKMCC	2	—	24	14	13	12
CAMEL6	2	—	25	33	18	9
CLIFF	2	—	73	88	69	25
CUBE	2	—	114	83	69	40
CHEBYQAD:2	2	—	38	49	21	14
DENSCHNA	2	—	28	19	15	10
DENSCHNB	2	—	28	17	19	10
DENSCHNC	2	—	40	30	23	14
DENSCHNF	2	—	36	25	23	14
DJTL	2	—	317	193	438	—
ENGVAL1	2	—	25	19	14	9
EXPFIT	2	—	53	35	28	19
FREUROTH	2	—	43	44	21	19
HUMPS	2	—	135	129	131	47
HAIRY	2	—	58	66	44	22
HIMMELBB	2	—	22	23	16	8
HIMMELBG	2	—	35	19	17	14
HIMMELBH	2	—	22	15	15	8
HS1	2	—	98	52	54	36
HS5	2	—	26	33	13	10
HILBERTA:2	2	—	11	7	5	10
HIMMELP1	2	1	22	13	10	8
HS2	2	1	32	19	14	13
HS3MOD	2	1	4	10	2	6
HS3	2	1	4	10	2	4
HS4	2	2	3	1	1	1
JENSMP	2	—	152	133	62	—
LOGHAIRY	2	—	81	56	53	31

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
LOGROS	2	—	182	230	98	64
MARATOSB	2	—	3169	2222	2828	1135
MEXHAT	2	—	330	206	243	112
MODBEALE	2	—	49	32	25	17
MDHOLE	2	1	9	5	3	4
OSCIGRAD:2	2	—	5382	2811	—	1944
OSCIPATH:2	2	—	202	141	146	70
ROSENBR	2	—	98	52	57	36
S308	2	—	28	17	17	10
SINEVAL	2	—	47	25	21	17
SISSER	2	—	35	41	17	18
SNAIL	2	—	25	17	13	9
SENSORS:2	2	—	31	17	13	14
SIMBQP	2	1	4	5	2	4
SIM2BQP	2	2	3	1	1	1
ZANGWIL2	2	—	11	7	5	10
BARD	3	—	174	141	82	104
BOX3	3	—	23	18	11	10
BOX2	3	1	113	61	55	97
DENSCHND	3	—	84	46	45	30
DENSCHNE	3	—	27	28	13	10
ENGVAL2	3	—	97	51	53	44
EG1	3	1	81	69	37	31
GROWTHLS	3	—	104	78	82	38
GULF	3	—	4	14	2	64
HATFLDD	3	—	71	68	35	45
HATFLDE	3	—	74	40	59	26
HATFLDFL	3	—	405	418	280	151
HELIX	3	—	43	25	21	21
HIELOW	3	—	74	—	37	26
HS25	3	—	20	10	13	148
KOEBHELB	3	—	195	209	79	—

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
MEYER3	3	—	3180	2408	1298	—
PFIT1LS	3	—	52	26	—	—
PFIT2LS	3	—	52	26	—	—
PFIT3LS	3	—	52	26	—	—
PFIT4LS	3	—	52	26	—	—
SCHMVETT	3	—	53	27	24	24
SENSORS:3	3	—	97	63	46	33
SPECAN:3	3	3	3	1	1	1
WEEDS	3	1	72	59	116	30
YFIT	3	—	225	246	95	134
YFITU	3	—	364	235	205	134
ALLINITU	4	—	31	34	17	11
ALLINIT	4	2	41	45	21	15
BROWNDEN	4	—	72	42	34	31
CRAGGLVY	4	—	134	89	73	46
CHAINWOO:4	4	—	98	77	46	39
CHEBYQAD:4	4	—	48	37	46	18
HATFLDA	4	—	67	75	51	23
HIMMELBF	4	—	244	132	125	141
HS38	4	—	102	69	48	39
HILBERTA:4	4	—	19	11	9	25
HATFLDB	4	1	109	66	49	53
HADAMALS	4	3	37	29	15	18
KOWOSB	4	—	198	134	92	106
MSQRTALS	4	—	63	44	31	23
MODBEALE:4	4	—	80	42	49	35
PENALTY2	4	—	1538	1618	747	538
POWELLSG	4	—	115	61	58	42
PALMER1B	4	—	196	172	164	74
PALMER2B	4	—	221	239	158	81
PALMER3B	4	—	103	157	174	37
PALMER4B	4	—	135	161	131	51

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
PALMER5D	4	—	21	11	10	34
PENALTY1:4	4	—	391	369	183	141
PSPDOC	4	1	25	13	14	13
PALMER1	4	1	116	91	131	46
PALMER2	4	1	79	59	53	31
PALMER3	4	1	77	96	41	31
PALMER4	4	1	59	31	46	35
POWELLBC:4	4	4	4	4	2	2
SINEALI:4	4	—	115	65	150	96
WOODS:4	4	—	90	48	48	39
CHEBYQAD:5	5	2	61	68	30	23
EXTROSNB	5	—	322	266	185	116
GENHUMPS:5	5	—	243	129	152	90
GENROSE:5	5	—	137	114	82	47
HILBERTB	5	—	19	11	9	7
HILBERTA:5	5	—	23	13	11	56
HS45	5	5	3	1	1	1
OSCIGRAD:5	5	—	4823	2637	2437	—
OSBORNEA	5	5	405	229	—	—
SINQUAD	5	—	50	34	30	18
TQUARTIC	5	—	54	32	32	20
BIGGS6	6	—	494	4168	232	733
BIGGS5	6	1	216	268	109	76
BIGGS3	6	3	76	57	36	26
CHEBYQAD:6	6	2	62	38	26	35
EIGENALS:6	6	—	109	58	61	39
EIGENBLS:6	6	—	101	60	73	35
HEART6LS	6	—	3316	2030	1500	1388
HILBERTA:6	6	—	23	13	11	51
HART6	6	2	62	41	30	22
PALMER6A	6	—	1688	1010	786	649

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
PALMER8A	6	—	301	898	263	111
PALMER1A	6	—	1036	943	472	416
PALMER2A	6	—	727	566	323	398
PALMER3A	6	—	796	959	588	284
PALMER4A	6	—	590	575	382	218
PALMER5C	6	—	27	15	13	21
SPECAN:6	6	6	3	1	1	1
CHEBYQAD:7	7	1	104	56	45	58
PALMER1D	7	—	33	17	19	—
AIRCRFTB	8	3	250	231	234	88
CHEBYQAD:8	8	2	96	59	46	64
HEART8LS	8	—	688	1522	2314	246
MAXLIKA	8	7	22	18	8	42
OSLBQP	8	7	4	5	3	2
PALMER6C	8	—	37	19	24	—
PALMER6E	8	—	70	641	38	2331
PALMER7C	8	—	37	19	24	—
PALMER8C	8	—	37	19	18	—
PALMER8E	8	—	84	449	40	2402
PALMER1C	8	—	37	19	27	—
PALMER1E	8	—	1295	1315	607	—
PALMER2C	8	—	37	19	26	—
PALMER3C	8	—	37	19	19	—
PALMER4C	8	—	37	19	19	—
PALMER4E	8	—	1174	614	1501	—
PALMER5A	8	—	85	45	—	—
POWELLSG:8	8	—	203	119	101	110
PALMER7E	8	1	85	43	—	—
PALMER2E	8	1	1801	943	—	—
PALMER3E	8	1	1778	934	—	—

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
S368:8	8	6	36	25	14	41
VIBRBEAM	8	—	2681	1463	—	—
CHEBYQAD:9	9	2	87	47	42	75
MSQRTBLS	9	—	100	59	56	34
NONMSQRT	9	—	833	2308	389	—
SPECAN:9	9	9	3	1	1	1
ARGLINA:10	10	—	7	5	3	6
ARGLINB:10	10	—	7	7	3	7
ARGLINC:10	10	—	7	7	3	8
BROWNAL	10	—	74	38	37	38
BRYBND	10	—	83	45	131	103
BOXPOWER:10	10	—	21	11	17	16
BOX:10	10	—	41	21	23	18
BROYDN7D:10	10	—	94	84	56	32
CHNROSNB	10	—	217	152	111	75
CHNRSNBM	10	—	231	200	116	81
CHARDIS0:10	10	—	4	5	2	4
COSINE:10	10	—	124	65	58	56
CRAGGLVY:10	10	—	133	94	66	45
CHEBYQAD	10	2	63	59	29	60
CHENHARK:10	10	3	61	38	35	21
CVXBQP1:10	10	10	3	1	1	1
DIXON3DQ	10	—	45	23	17	30
DQDRTIC	10	—	23	13	11	21
DQRTIC:10	10	—	83	69	50	31
ERRINROS:10	10	—	370	247	176	138
ERRINRSM:10	10	—	761	411	371	445
EXTROSNB:10	10	—	3234	3394	1556	1254
FLETBV3M	10	—	37	33	21	21
FLETBV2	10	—	47	25	23	22
FLETBV3	10	—	67	143	48	33

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
FLETCHBV	10	—	112	303	112	52
FLETCHCR	10	—	229	218	125	79
FREUROTH:10	10	—	75	45	35	33
GENHUMPS:10	10	—	480	420	346	174
GENROSE:10	10	—	232	196	121	82
HS110	10	—	35	64	15	—
HILBERTA:10	10	—	23	13	11	62
HILBERTB:10	10	—	19	11	9	7
HARKERP2:10	10	10	3	1	1	1
INDEFM:10	10	—	148	476	68	62
INDEF:10	10	10	53	50	19	73
MOREBV	10	—	71	43	35	50
MANCINO:10	10	—	26	15	13	10
MODBEALE:10	10	—	135	69	77	269
MCCORMCK	10	1	54	31	24	34
NONCVXU2:10	10	—	75	50	45	27
NONCVXUN:10	10	—	73	39	39	28
NONDIA:10	10	—	106	72	64	36
NCVXBQP1:10	10	10	13	29	12	11
NCVXBQP2:10	10	10	11	26	10	9
NCVXBQP3:10	10	10	33	26	13	90
POWER	10	—	67	66	33	23
PENALTY1:10	10	—	313	230	174	109
PENALTY2:10	10	—	1469	1051	852	533
PROBPENL:10	10	4	376	216	327	1524
POWELLBC:10	10	7	17	67	33	15
RAYBENDL:10	10	4	90	69	42	34
RAYBENDS:10	10	4	154	114	109	58
SINEALI	10	—	1215	651	1770	1334
SROSENBR	10	—	181	122	89	115

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
SCHMVETT:10	10	—	90	54	42	35
SENSORS:10	10	—	68	36	49	28
SPARSINE:10	10	—	53	27	31	39
SPARSQUR:10	10	—	34	45	14	23
SSBRYBND:10	10	—	737	478	335	3432
SSCOSINE:10	10	—	365	199	205	—
TOINTGSS	10	—	130	72	62	54
TQUARTIC:10	10	—	82	59	40	30
TRIDIA:10	10	—	45	23	17	29
VARDIM	10	—	67	58	33	31
VAREIGVL:10	10	—	46	31	27	16
OSBORNEB	11	—	3847	—	—	1421
EXPQUAD:12	12	4	118	73	52	72
QRTQUAD:12	12	3	168	100	110	167
QUDLIN	12	12	15	9	7	17
WATSON:12	12	—	238	157	116	116
BRATU1D:13	13	2	64	34	34	36
DIXMAANA	15	—	19	13	9	7
DIXMAANB	15	—	19	13	9	7
DIXMAANC	15	—	19	15	11	7
DIXMAAND	15	—	25	15	13	9
DIXMAANE	15	—	61	33	35	21
DIXMAANF	15	—	61	33	41	21
DIXMAANG	15	—	64	33	43	22
DIXMAANH	15	—	61	33	43	21
DIXMAANI	15	—	113	57	93	47
DIXMAANJ	15	—	124	62	97	44

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
DIXMAANK	15	—	133	67	99	46
DIXMAANL	15	—	113	57	97	44
DIXMAANM	15	—	93	47	67	53
DIXMAANN	15	—	113	57	89	47
DIXMAANO	15	—	115	59	103	39
DIXMAANP	15	—	131	77	95	45
PARKCH	15	—	642	340	—	2355
CLPLATEA:16	16	4	81	45	39	30
CLPLATEB:16	16	4	83	44	41	29
CLPLATEC:16	16	4	69	35	39	45
FMINSURF	16	—	65	35	41	23
FMINSRF2:16	16	—	82	50	51	28
HADAMALS:16	16	8	109	94	45	76
LMINSURF	16	12	41	26	19	17
NLMSURF:16	16	12	49	38	24	21
NOBNDTOR:16	16	13	36	21	16	29
POWELLSG:16	16	—	382	194	329	182
TORSION111:16	16	14	22	12	8	19
TORSION1:16	16	14	22	12	8	19
TORSION2:16	16	14	22	12	8	19
TORSIONA:16	16	14	22	14	8	12
TORSIONB:16	16	14	22	14	8	12
TORSIONC:16	16	14	22	12	8	9
TORSIOND:16	16	14	22	12	8	9
TORSION3:16	16	16	7	6	3	12
TORSION4:16	16	16	7	6	3	12
TORSION5:16	16	16	4	8	2	3
TORSION6:16	16	16	4	8	2	3
TORSIONE:16	16	16	4	5	2	6
TORSIONF:16	16	16	4	5	2	6
CHARDIS0:18	18	—	4	5	2	4

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
LINVERSE	19	8	240	140	110	173
CHEBYQAD:20	20	3	127	202	57	68
MANCINO:20	20	—	31	19	15	13
NONDIA:20	20	—	147	97	71	54
POWELLSG:20	20	—	552	282	299	249
POWER:20	20	—	79	78	56	27
POWELLBC:20	20	13	117	105	55	83
TRIDIA:20	20	—	85	43	28	52
NCB20B	21	—	224	116	198	93
NCB20B:22	22	—	207	107	229	244
RAYBENDL:24	24	4	1152	1193	—	400
RAYBENDS:24	24	4	3570	3926	—	1238
BIGGSB1	25	2	120	64	128	69
CHNROSNB:25	25	—	383	325	397	129
CHNRSNBM:25	25	—	632	445	452	218
ERRINROS:25	25	—	452	277	—	164
ERRINRSM:25	25	—	955	517	—	1129
HATFLDC	25	12	49	30	31	17
NONSCOMP	25	12	333	466	163	154
OSCIPATH:25	25	—	182	134	104	62
QUARTC	25	—	39	80	19	36
SPMSRTL	28	—	175	107	117	61
X3PK	30	1	6749	3395	—	—
EIGENCLS:30	30	—	545	286	303	187
MANCINO:30	30	—	32	19	17	14
NONDIA:30	30	—	146	76	92	78
POWER:30	30	—	79	85	62	27
TRIDIA	30	—	133	67	40	76
WATSON:31	31	—	1681	871	2883	—

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
EDENSCH	36	—	70	43	43	26
HADAMALS:36	36	24	192	214	78	122
LIARWHD	36	—	73	52	51	25
POWELLSG:36	36	—	448	228	375	361
CHARDIS0:40	40	—	4	5	2	4
POWELLSG:40	40	—	559	285	369	297
QR3DLS:40	40	1	5101	2585	—	2469
RAYBENDL	44	4	8754	—	—	3072
CLPLATEA	49	7	143	102	123	49
CLPLATEB	49	7	137	91	119	47
CLPLATEC	49	7	288	144	201	183
FMINSRF2:49	49	—	142	77	78	48
FMINSURF:49	49	—	112	63	72	38
LMINSURF:49	49	24	96	73	65	36
MSQRTALS:49	49	—	733	433	—	247
MSQRTBLS:49	49	—	590	349	454	198
NLMSURF:49	49	24	381	254	299	133
ARGLINA:50	50	—	7	5	3	7
ARGLINB:50	50	—	7	7	3	11
ARGLINC:50	50	—	7	7	3	11
BROYDN7D:50	50	—	290	189	225	98
BRYBND:50	50	—	67	47	39	23
BQPGABIM	50	26	120	77	44	59
BQPGASIM	50	27	114	60	51	68
CHNROSNB:50	50	—	730	533	581	246
CHNRSNBM:50	50	—	1013	718	533	341
CRAGGLVY:50	50	—	256	176	153	86
CHEBYQAD:50	50	6	196	227	574	68
CVXBQP1:50	50	50	3	1	1	1
DQDRTIC:50	50	—	23	13	11	52
DQRTIC:50	50	—	43	118	21	40

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
ENGVAL1:50	50	—	60	43	33	22
ERRINROS:50	50	—	445	332	—	153
ERRINRSM:50	50	—	836	448	4644	1162
FREUROTH:50	50	—	79	43	40	29
HILBERTB:50	50	—	19	11	9	8
INDEFM:50	50	—	202	160	118	72
INDEF:50	50	50	56	95	22	74
MANCINO:50	50	—	37	27	19	17
MOREBV:50	50	—	1539	1480	571	1821
MCCORMCK:50	50	1	56	31	24	39
NCB20B:50	50	—	1006	506	1563	767
NONDIA:50	50	—	132	68	97	93
NONSCOMP:50	50	25	266	245	145	102
NCVXBQP3:50	50	49	52	80	20	97
NCVXBQP1:50	50	50	14	46	12	12
NCVXBQP2:50	50	50	38	79	16	94
PENALTY3	50	—	1179	1214	755	423
PENALTY1:50	50	—	234	211	139	86
PENALTY2:50	50	—	353	191	337	175
POWER:50	50	—	91	82	53	31
PROBPENL:50	50	—	1066	592	—	—
PENTDI:50	50	37	28	18	14	10
SINQUAD:50	50	—	93	49	48	38
SPARSINE:50	50	—	469	235	291	204
SPARSQUR:50	50	—	24	61	12	23
SROSENBR:50	50	—	205	154	99	137
SSBRYBND:50	50	—	6559	3295	—	—
S368:50	50	32	9	31	18	7
TOINTGOR	50	—	396	230	217	136
TOINTPSP	50	—	347	214	277	119

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
TOINTQOR	50	—	113	57	36	47
TOINTGSS:50	50	—	135	81	88	47
TQUARTIC:50	50	—	125	65	105	77
TRIDIA:50	50	—	213	107	59	96
VAREIGVL	50	—	64	41	39	22
VARDIM:50	50	—	101	88	43	52
CHARDIS0:60	60	—	4	5	2	4
POWELLSG:60	60	—	490	250	353	364
DECONVU	61	10	8236	—	5286	2840
DECONVB	61	41	483	406	225	—
FMINSRF2	64	—	184	111	97	62
FMINSURF:64	64	—	153	88	79	53
HADAMALS:64	64	34	177	256	69	123
LMINSURF:64	64	28	127	121	75	43
MINSURF	64	28	85	61	43	29
NLMSURF:64	64	28	482	349	326	164
POWER:75	75	—	109	93	73	37
BRATU1D	77	2	1035	573	670	347
POWELLSG:80	80	—	488	248	405	326
DIXMAANA:90	90	—	15	11	7	6
DIXMAANB:90	90	—	19	13	9	7
DIXMAANC:90	90	—	22	15	11	8
DIXMAAND:90	90	—	25	15	13	9
DIXMAANE:90	90	—	158	83	61	54
DIXMAANF:90	90	—	172	86	99	60
DIXMAANG:90	90	—	144	87	95	50
DIXMAANH:90	90	—	172	95	95	60
DIXMAANI:90	90	—	529	265	186	245

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
DIXMAANJ:90	90	—	600	300	362	245
DIXMAANK:90	90	—	653	327	338	261
DIXMAANL:90	90	—	592	296	321	248
DIXMAANM:90	90	—	501	251	147	274
DIXMAANN:90	90	—	720	381	492	242
DIXMAANO:90	90	—	853	435	476	293
DIXMAANP:90	90	—	690	396	489	234
NONDIA:90	90	—	166	86	204	167
ARGLINA:100	100	—	7	5	3	7
ARGLINB:100	100	—	13	7	12	15
ARGLINC:100	100	—	44	26	25	33
ARWHEAD:100	100	—	57	35	37	23
BDQRTIC	100	—	133	74	114	47
BOXPOWER:100	100	—	27	16	11	19
BOX:100	100	—	70	36	44	35
BROWNAL:100	100	—	81	41	52	107
BROYDN7D:100	100	—	415	285	264	139
BRYBND:100	100	—	64	50	41	22
BDEXP	100	2	315	—	111	—
BIGGSB1:100	100	3	904	598	611	310
CHARDIS0	100	—	4	5	2	4
CHAINWOO:100	100	—	1049	1177	489	415
COSINE:100	100	—	2591	4936	1077	—
CRAGGLVY:100	100	—	257	183	179	87
CURLY10:100	100	—	3726	2314	1746	1258
CURLY20:100	100	—	3012	1532	3197	1357
CURLY30:100	100	—	2452	1246	3328	1362
CHEBYQAD:100	100	4	293	388	2569	101
CLPLATEA:100	100	10	203	111	139	69
CLPLATEB:100	100	10	208	122	129	70
CLPLATEC:100	100	10	705	353	377	326

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
CHENHARK:100	100	30	5420	4707	1450	2378
CVXBP1	100	100	3	1	1	1
DIXON3DQ:100	100	—	405	203	107	351
DQDRTIC:100	100	—	23	13	11	13
DQRTIC:100	100	—	51	107	25	44
ENGVAL1:100	100	—	61	41	34	23
EXTROSNB:100	100	—	4860	—	4936	1808
FLETBV3M:100	100	—	89	95	39	39
FLETBVC2:100	100	—	660	330	373	303
FLETBVC3:100	100	—	469	4359	4903	177
FLETCHCR:100	100	—	1782	1600	1247	608
FREUROTH:100	100	—	86	51	50	32
GENHUMPS:100	100	—	1024	604	918	348
GENROSE:100	100	—	1756	1600	1190	600
HADAMALS:100	100	76	372	399	434	132
HARKERP2	100	100	3	1	1	1
INDEFM:100	100	—	262	3180	413	92
INDEF:100	100	100	51	94	19	78
LIARWHD:100	100	—	85	51	51	29
MANCINO:100	100	—	42	39	21	20
MOREBV:100	100	—	11645	—	—	3969
MSQRTALS:100	100	—	1276	1399	1733	432
MSQRTBLS:100	100	—	2164	1938	1973	730
MCCORMCK:100	100	1	56	31	24	29
NONDQUAR	100	—	566	288	596	429
NCB20B:100	100	—	3126	1566	3186	1183
NONCVXU2:100	100	—	1483	1038	697	525
NONCVXUN:100	100	—	567	339	265	230
NONDIA:100	100	—	198	104	318	188

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
NOBNDTOR:100	100	49	157	90	59	62
NONSCOMP:100	100	50	240	203	116	92
NCVXBQP3:100	100	98	58	93	22	95
NCVXBQP1:100	100	100	14	63	12	12
NCVXBQP2:100	100	100	37	75	17	88
OSCIPTH:100	100	—	228	131	104	87
PENALTY1:100	100	—	217	167	122	79
PENALTY2:100	100	—	265	204	231	89
PENALTY3:100	100	—	2686	2324	1437	980
POWELLSG:100	100	—	601	305	335	316
POWER:100	100	—	112	99	65	38
PROBPENL:100	100	—	2968	1606	—	—
PENTDI:100	100	74	30	25	12	28
QUARTC:100	100	—	51	107	25	44
SCHMVETT:100	100	—	156	134	89	56
SENSORS:100	100	—	85	113	44	35
SINEALI:100	100	—	219	207	211	77
SINQUAD:100	100	—	90	48	41	42
SPARSINE:100	100	—	820	410	427	322
SPARSQUR:100	100	—	27	45	13	24
SPMSRTLS:100	100	—	1449	—	713	—
SROSENBR:100	100	—	183	182	91	169
SSBRYBND:100	100	—	9583	4803	—	—
SSCOSINE:100	100	—	3535	1779	—	—
S368:100	100	73	10	33	25	8
TOINTGSS:100	100	—	103	73	73	35
TQUARTIC:100	100	—	218	154	129	76
TRIDIA:100	100	—	341	171	91	177

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
TORSIONA:100	100	54	118	96	48	48
TORSIONB:100	100	54	118	96	48	48
TORSION111:100	100	58	102	86	38	38
TORSION1:100	100	58	102	86	38	38
TORSION2:100	100	58	102	86	38	38
TORSIONC:100	100	67	82	43	34	35
TORSIOND:100	100	67	82	43	34	35
TORSION3:100	100	71	80	48	32	42
TORSION4:100	100	71	80	48	32	42
TORSIONE:100	100	84	50	31	20	27
TORSIONF:100	100	84	50	31	20	27
TORSION5:100	100	86	46	32	18	19
TORSION6:100	100	86	46	32	18	19
VARDIM:100	100	—	122	102	52	61
VAREIGVL:100	100	—	73	43	43	25
WOODS:100	100	—	198	104	215	186
EXPLIN:101	101	95	166	172	82	120
EXPLIN2:101	101	101	7	8	3	12
BRATU1D:103	103	2	1084	1083	893	366
EIGENALS	110	—	4266	2574	2414	1450
EIGENBLS	110	—	2141	1844	1065	781
NCB20:110	110	—	633	327	—	1073
EXPQUAD	120	7	214	170	104	94
EXPLIN	120	70	566	508	318	208
EXPLIN2	120	101	215	420	97	152
QRTQUAD	120	5	332	194	172	201
QUDLIN:120	120	120	15	9	7	35
FMINSRF2:121	121	—	214	112	112	72
FMINSURF:121	121	—	176	99	94	60
LMINSURF:121	121	40	170	125	106	60
NLMSURF:121	121	40	946	610	674	324

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
HADAMALS:144	144	79	287	389	97	121
HOLMES	180	180	3	1	1	1
NCB20B:180	180	—	1298	844	1037	446
DRCV2LQ	196	96	4966	2506	2392	1749
DRCV3LQ	196	96	9829	—	4779	3798
HADAMALS:196	196	161	468	426	182	180
LINVERSE:199	199	43	9567	—	—	3393
ARGLINA:200	200	—	7	5	3	8
ARGLINB:200	200	—	28	17	10	17
ARGLINC:200	200	—	23	83	10	15
BROWNAL:200	200	—	108	58	52	158
CHARDIS0:200	200	—	4	5	2	4
MODBEALE:200	200	—	644	483	320	640
PENALTY2:200	200	—	550	—	223	184
PENALTY3:200	200	—	6757	4665	3077	—
POWELLBC:200	200	104	2761	2400	3901	1031
VARDIM:200	200	—	120	103	52	68
HADAMALS:256	256	135	502	470	200	236
ODC:288	288	148	606	452	657	204
SSC:288	288	148	390	218	219	132
DIXMAANA:300	300	—	15	9	7	6
DIXMAANB:300	300	—	19	13	9	7
DIXMAANC:300	300	—	22	15	11	8
DIXMAAND:300	300	—	25	15	13	9
DIXMAANE:300	300	—	277	139	82	101
DIXMAANF:300	300	—	236	159	157	80

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
DIXMAANG:300	300	—	239	135	152	81
DIXMAANH:300	300	—	233	148	154	79
DIXMAANI:300	300	—	1781	891	576	790
DIXMAANJ:300	300	—	1452	802	851	492
DIXMAANK:300	300	—	1397	777	835	471
DIXMAANL:300	300	—	1248	791	698	422
DIXMAANM:300	300	—	1761	881	565	697
DIXMAANN:300	300	—	1904	1014	952	722
DIXMAANO:300	300	—	1952	1008	976	711
DIXMAANP:300	300	—	1868	934	974	816
HADAMALS:324	324	256	499	592	179	196
CHARDIS0:400	400	—	4	7	2	4
HADAMALS:400	400	306	545	918	421	189
JNLBRNG1:400	400	253	274	154	113	94
JNLBRNGA:400	400	253	317	178	116	111
JNLBRNG2:400	400	278	295	197	126	103
JNLBRNGB:400	400	302	417	215	108	141
OBSTCLBL:400	400	263	28	25	10	37
OBSTCLBM:400	400	263	28	25	10	37
OBSTCLBU:400	400	263	28	25	10	37
OBSTCLAE:400	400	398	9	5	5	15
OBSTCLAL:400	400	398	9	5	5	15
EIGENCLS	462	—	7572	6332	6221	2570
NOBNDTOR:484	484	143	192	170	161	68
TORSIONA:484	484	161	202	143	122	74
TORSIONB:484	484	161	202	143	122	74
TORSION111:484	484	186	184	143	129	64
TORSION1:484	484	186	184	143	129	64
TORSION2:484	484	186	184	143	129	64
TORSIONC:484	484	254	154	121	72	56
TORSIOND:484	484	254	154	121	72	56
TORSION3:484	484	267	194	124	78	74

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
TORSION4:484	484	267	194	124	78	74
TORSIONE:484	484	362	107	92	44	39
TORSIONF:484	484	362	107	92	44	39
TORSION5:484	484	368	116	92	46	44
TORSION6:484	484	368	116	92	46	44
ARWHEAD:500	500	—	68	43	32	34
BDQRTIC:500	500	—	147	77	151	72
BROYDN7D:500	500	—	538	385	309	180
BRYBND:500	500	—	64	48	41	22
BDEXP:500	500	2	1514	5210	506	—
CRAGGLVY:500	500	—	290	176	184	98
DQRTIC	500	—	59	134	29	54
DQDRTIC:500	500	—	23	13	11	17
FREUROTH:500	500	—	96	60	40	53
GENHUMPS:500	500	—	953	760	841	323
GENROSE:500	500	—	8466	7727	4429	2882
HARKERP2:500	500	500	3	1	1	1
LIARWHD:500	500	—	101	55	64	36
MOREBV:500	500	—	1489	818	551	501
MCCORMCK:500	500	1	56	36	24	33
NCB20B:500	500	—	1251	629	1086	470
NONDIA:500	500	—	371	199	537	350
NONDQUAR:500	500	—	551	281	546	337
NONSCOMP:500	500	250	266	549	118	105
OSCIPATH:500	500	—	211	119	101	75
PENALTY1:500	500	—	169	128	100	61
POWELLSG:500	500	—	688	350	377	341
POWER:500	500	—	255	144	137	87
PROBPENL:500	500	—	7	5	3	8
PENTDI:500	500	376	28	19	12	10

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
QUARTC:500	500	—	59	134	29	54
SCHMVETT:500	500	—	159	425	94	57
SINQUAD:500	500	—	110	58	65	71
SROSENBR:500	500	—	286	241	142	132
TOINTGSS:500	500	—	109	61	56	41
TQUARTIC:500	500	—	321	171	235	184
TRIDIA:500	500	—	857	429	220	447
VAREIGVL:500	500	—	73	47	43	25
BRATU1D:503	503	2	6081	4837	3146	2051
CLPLATEA:529	529	23	552	343	363	186
CLPLATEB:529	529	23	428	269	281	144
CLPLATEC:529	529	23	901	986	—	307
ODC	864	164	576	342	431	194
SSC	864	164	397	220	170	135
FMINSRF2:961	961	—	271	314	154	93
FMINSURF:961	961	—	315	159	210	129
LMINSURF:961	961	120	607	562	410	207
NLMSURF:961	961	120	4301	2316	3085	1453
ARWHEAD:1000	1000	—	64	52	30	41
BDQRTIC:1000	1000	—	183	97	159	114
BOXPOWER:1000	1000	—	32	18	18	32
BOX:1000	1000	—	95	49	61	67
BROWNAL:1000	1000	—	102	54	48	66

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
BROYDN7D:1000	1000	—	526	393	312	176
BRYBND:1000	1000	—	64	48	41	22
BDEXP:1000	1000	2	3017	—	1007	—
BIGGSB1:1000	1000	3	7917	4834	3057	2679
CHAINWOO	1000	—	925	467	528	425
CURLY10	1000	—	25995	—	9808	8751
CHARDIS0:1000	1000	—	4	7	2	4
CRAGGLVY:1000	1000	—	271	189	173	91
CVXBQP1:1000	1000	1000	3	1	1	1
DIXON3DQ:1000	1000	—	4005	2003	1007	3764
DQDRTIC:1000	1000	—	23	13	11	23
DQRTIC:1000	1000	—	63	129	31	58
EG2	1000	—	338	174	232	216
ENGVAL1:1000	1000	—	66	55	31	26
EXTROSNB:1000	1000	—	4970	8048	5180	1844
FLETBV3M:1000	1000	—	52	308	22	42
FLETCBV2:1000	1000	—	4009	2005	1849	2199
FLETCBV3:1000	1000	—	14177	—	—	4817
FLETCHCR:1000	1000	—	16834	15320	8600	5724
FREUROTH:1000	1000	—	76	53	39	30
GENHUMPS	1000	—	1097	643	792	373
HARKERP2:1000	1000	1000	3	1	1	1
INDEFM	1000	—	381	201	297	200
INDEF	1000	1000	53	80	21	103
JNLBRNG1:1000	1000	366	278	185	134	94
JNLBRNGA:1000	1000	385	329	242	152	111
JNLBRNG2:1000	1000	524	505	375	335	173

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
JNLBRNGB:1000	1000	560	1347	756	492	453
LIARWHD:1000	1000	—	110	60	63	56
MOREBV:1000	1000	—	1468	1126	595	492
MCCORMCK:1000	1000	1	59	36	23	25
NONCVXU2	1000	—	5628	3013	2604	2615
NONCVXUN	1000	—	10021	5606	4213	—
NONDIA	1000	—	957	521	914	496
NCB20B:1000	1000	—	1306	668	1189	514
NONDQUAR:1000	1000	—	599	307	375	297
NONSCOMP:1000	1000	500	255	143	138	106
NCVXBQP3	1000	983	104	467	36	111
NCVXBQP2	1000	993	80	113	30	104
NCVXBQP1	1000	1000	16	86	12	14
OSCIGRAD:1000	1000	—	1486	—	540	—
OBSTCLBL	1000	680	170	95	62	79
OBSTCLBM	1000	680	170	95	62	79
OBSTCLBU	1000	680	170	95	62	79
OBSTCLAL	1000	696	72	88	30	37
OBSTCLAE:1000	1000	696	72	88	30	37
PENALTY1:1000	1000	—	151	118	86	55
POWELLSG:1000	1000	—	742	378	479	364
POWER:1000	1000	—	348	192	189	120
POWELLBC:1000	1000	501	10829	—	—	3689
PENTDI	1000	751	25	19	12	9
QUARTC:1000	1000	—	63	129	31	58
SPARSINE	1000	—	13980	6990	4347	6042
SPARSQUR	1000	—	31	62	15	25
SSBRYBND	1000	—	22765	—	—	7707

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
SCHMVETT:1000	1000	—	185	241	89	67
SENSORS:1000	1000	—	111	86	78	47
SINEALI:1000	1000	—	192	134	175	68
SINQUAD:1000	1000	—	145	84	74	53
SROSENBR:1000	1000	—	359	197	177	185
TESTQUAD	1000	—	3704	1852	—	4727
TOINTGSS:1000	1000	—	99	68	57	35
TQUARTIC:1000	1000	—	258	136	323	197
TRIDIA:1000	1000	—	1237	619	316	733
VAREIGVL:1000	1000	—	73	47	43	25
WOODS:1000	1000	—	366	190	211	195
BRATU1D:1003	1003	1003	20170	—	—	6842
NCB20	1010	—	481	247	4468	372
CLPLATEA:1024	1024	32	870	572	619	296
CLPLATEB:1024	1024	32	529	321	315	181
CLPLATEC:1024	1024	32	1406	1826	—	476
FMINSRF2:1024	1024	—	283	168	166	95
FMINSURF:1024	1024	—	370	206	200	124
HADAMALS:1024	1024	801	583	1169	674	201
LMINSURF:1024	1024	124	662	480	445	222
NLMSURF	1024	124	4388	2445	3148	1474
NOBNDTOR:1024	1024	235	319	210	203	115
TORSIONA:1024	1024	281	278	181	201	98
TORSIONB:1024	1024	281	278	181	201	98
TORSION111:1024	1024	323	242	193	213	84
TORSION1:1024	1024	323	242	193	213	84

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
TORSION2:1024	1024	323	242	193	213	84
TORSIONC:1024	1024	493	153	154	107	53
TORSIOND:1024	1024	493	153	154	107	53
TORSION3:1024	1024	515	185	150	134	69
TORSION4:1024	1024	515	185	150	134	69
TORSIONE:1024	1024	761	160	106	69	58
TORSIONF:1024	1024	761	160	106	69	58
TORSION5:1024	1024	768	157	113	69	59
TORSION6:1024	1024	768	157	113	69	59
EXPQUAD:1200	1200	81	1126	1427	442	434
EXPLIN:1200	1200	1150	623	471	316	229
EXPLIN2:1200	1200	1181	197	432	81	142
QRTQUAD:1200	1200	50	1524	910	2527	2112
QUDLIN:1200	1200	1200	25	17	10	59
DIXMAANA:1500	1500	—	15	9	7	6
DIXMAANB:1500	1500	—	19	13	9	7
DIXMAANC:1500	1500	—	22	15	11	8
DIXMAAND:1500	1500	—	25	15	13	9
DIXMAANE:1500	1500	—	557	282	151	189
DIXMAANF:1500	1500	—	461	270	274	155
DIXMAANG:1500	1500	—	431	261	239	145
DIXMAANH:1500	1500	—	395	235	262	133
DIXMAANI:1500	1500	—	5665	3012	1840	1913
DIXMAANJ:1500	1500	—	2451	1679	1223	875
DIXMAANK:1500	1500	—	2325	1163	1473	807
DIXMAANL:1500	1500	—	1010	913	1091	340

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
DIXMAANM:1500	1500	—	5348	2877	1827	1820
DIXMAANN:1500	1500	—	2478	1775	1502	840
DIXMAANO:1500	1500	—	2290	1568	1344	780
DIXMAANP:1500	1500	—	1963	1592	1472	665
LINVERSE:1999	1999	378	42455	23093	—	—
CHARDIS0:2000	2000	—	4	7	2	4
EDENSCH:2000	2000	—	75	48	42	29
MODBEALE:2000	2000	—	771	414	383	696
NCB20B:2000	2000	—	1176	632	884	394
BQPGAUSS	2003	134	16618	25308	15615	5746
RAYBENDS:2050	2050	4	9611	5575	—	—
JNLBRNG1:2300	2300	809	348	235	218	120
JNLBRNGA:2300	2300	847	396	269	193	136
JNLBRNGB:2300	2300	1052	1878	1103	977	634
JNLBRNG2:2300	2300	1077	623	390	291	211
OBSTCLBL:2300	2300	993	299	181	128	107
OBSTCLBM:2300	2300	993	299	181	128	107
OBSTCLBU:2300	2300	993	299	181	128	107
OBSTCLAE:2300	2300	1276	176	153	95	60
OBSTCLAL:2300	2300	1276	176	153	95	60
ODC:2376	2376	206	608	341	515	204
SSC:2376	2376	206	352	176	159	129
EIGENBLS:2550	2550	—	27925	21739	15027	9409
EIGENCLS:2652	2652	—	44261	—	—	14993
DIXMAANA:3000	3000	—	15	9	7	6
DIXMAANB:3000	3000	—	19	13	9	7
DIXMAANC:3000	3000	—	22	15	11	8
DIXMAAND:3000	3000	—	25	17	13	9
DIXMAANE:3000	3000	—	715	371	225	243

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
DIXMAANF:3000	3000	—	592	331	294	204
DIXMAANG:3000	3000	—	517	297	298	175
DIXMAANH:3000	3000	—	508	287	276	172
DIXMAANI:3000	3000	—	3768	2707	1640	1276
DIXMAANJ:3000	3000	—	932	2359	974	316
DIXMAANK:3000	3000	—	714	733	1005	242
DIXMAANL:3000	3000	—	1169	1259	838	393
DIXMAANM:3000	3000	—	3679	3051	1422	1253
DIXMAANN:3000	3000	—	3220	2039	1706	1096
DIXMAANO:3000	3000	—	2603	1643	1486	877
DIXMAANP:3000	3000	—	2042	1335	2406	692
JNLBRNG1:3200	3200	1130	378	248	209	130
JNLBRNGA:3200	3200	1168	433	320	222	147
JNLBRNG2:3200	3200	1400	723	593	422	245
JNLBRNGB:3200	3200	1446	2485	1257	824	1119
OBSTCLBL:3200	3200	1252	254	168	100	92
OBSTCLBM:3200	3200	1252	254	168	100	92
OBSTCLBU:3200	3200	1252	254	168	100	92
OBSTCLAE:3200	3200	1813	228	190	103	82
OBSTCLAL:3200	3200	1813	228	190	103	82
JNLBRNG1:3400	3400	1195	446	307	223	154
JNLBRNGA:3400	3400	1233	448	309	352	154
JNLBRNG2:3400	3400	1500	689	524	293	231
JNLBRNGB:3400	3400	1545	2710	1368	1366	1167
CHAINWOO:4000	4000	—	994	931	824	344
CHARDIS0:4000	4000	—	4	7	2	4
WOODS:4000	4000	—	349	181	370	320
HADAMALS:4096	4096	3282	795	2540	2909	273
DRCV1LQ:4489	4489	520	24450	—	—	8206
DRCV2LQ:4489	4489	520	61355	—	—	20641

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
ARWHEAD:5000	5000	—	83	47	44	54
BDQRTIC:5000	5000	—	168	94	142	263
BROYDN7D:5000	5000	—	628	641	346	210
BRYBND:5000	5000	—	64	50	41	22
BIGGSB1:5000	5000	3	32608	16466	11520	12980
BDEXP:5000	5000	5000	3	1	1	1
CRAGGLVY:5000	5000	—	302	196	199	104
CHENHARK:5000	5000	2010	25190	12980	—	17792
DQDRTIC:5000	5000	—	23	13	11	22
DQRTIC:5000	5000	—	71	165	35	67
ENGVAL1:5000	5000	—	63	40	30	25
FLETBV3M:5000	5000	—	89	—	39	51
FLETGBV2:5000	5000	—	20005	10003	6707	8346
FREUROTH:5000	5000	—	90	59	39	36
GENHUMPS:5000	5000	—	931	679	710	319
HARKERP2:5000	5000	5000	3	1	1	1
INDEFM:5000	5000	—	247	—	97	220
INDEF:5000	5000	5000	56	60	22	—
LIARWHD:5000	5000	—	109	59	67	81
MOREBV:5000	5000	—	1358	1126	593	456
MCCORMCK:5000	5000	1	62	38	25	26
NCB20B:5000	5000	—	1327	1379	1373	451
NONCVXU2:5000	5000	—	21305	10677	10789	14086
NONCVXUN:5000	5000	—	44454	22592	—	—
NONDIA:5000	5000	—	1220	652	1443	—

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
NONDQUAR:5000	5000	—	612	316	474	431
NONSCOMP:5000	5000	2500	264	184	131	96
POWELLSG:5000	5000	—	504	258	401	390
POWER:5000	5000	—	759	421	414	257
PENTDI:5000	5000	3751	28	19	12	10
QUARTC:5000	5000	—	71	165	35	67
QRTQUAD:5000	5000	549	2556	1468	9537	—
QUDLIN:5000	5000	5000	18	12	9	38
SCHMVETT:5000	5000	—	167	511	111	61
SINQUAD:5000	5000	—	137	95	60	51
SPARSQUR:5000	5000	—	35	77	17	32
SROSENBR:5000	5000	—	399	207	306	272
SSBRYBND:5000	5000	—	25562	14639	16533	8612
TESTQUAD:5000	5000	—	4960	2480	7101	6359
TOINTGSS:5000	5000	—	116	62	54	47
TQUARTIC:5000	5000	—	583	315	539	252
TRIDIA:5000	5000	—	2829	1415	715	1496
VAREIGVL:5000	5000	—	73	47	43	25
NCB20:5010	5010	—	630	330	1426	223
CLPLATEA:5041	5041	71	2190	1194	1847	746
CLPLATEB:5041	5041	71	1107	610	747	373
CLPLATEC:5041	5041	71	2920	7936	—	988
ODC:5184	5184	284	627	483	611	211
SSC:5184	5184	284	381	191	197	159
MINSURFO:5306	5306	1762	3374	1704	1849	2375
NOBNDTOR:5476	5476	801	662	454	530	224

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
TORSIONA:5476	5476	1096	704	386	698	244
TORSIONB:5476	5476	1096	704	386	698	244
TORSION111:5476	5476	1219	613	421	701	211
TORSION1:5476	5476	1219	613	421	701	211
TORSION2:5476	5476	1219	613	421	701	211
TORSIONC:5476	5476	2328	422	251	182	150
TORSIOND:5476	5476	2328	422	251	182	150
TORSION3:5476	5476	2386	451	235	196	166
TORSION4:5476	5476	2386	451	235	196	166
TORSIONE:5476	5476	3782	218	158	86	133
TORSIONF:5476	5476	3782	218	158	86	133
TORSION5:5476	5476	3805	292	173	177	102
TORSION6:5476	5476	3805	292	173	177	102
FMINSRF2:5625	5625	—	525	318	317	179
FMINSURF:5625	5625	—	540	324	318	186
LMINSURF:5625	5625	296	1579	1354	1247	529
NLMSURF:5625	5625	296	15218	10685	9712	5148
ODC:7344	7344	344	729	475	785	245
SSC:7344	7344	344	560	280	235	193
JNLBRNG1:7500	7500	2605	992	554	545	348
JNLBRNGA:7500	7500	2676	959	574	526	327
JNLBRNG2:7500	7500	3171	1375	1030	954	471
JNLBRNGB:7500	7500	3395	4572	2316	2375	2307
OBSTCLBL:7500	7500	2859	401	292	207	143
OBSTCLBM:7500	7500	2859	401	292	207	143
OBSTCLBU:7500	7500	2859	401	292	207	143
OBSTCLAE	7500	3819	434	287	271	146
OBSTCLAL:7500	7500	3819	434	287	271	146
DIXMAANA:9000	9000	—	15	9	7	6
DIXMAANB:9000	9000	—	19	13	9	7
DIXMAANC:9000	9000	—	22	15	11	8

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
DIXMAAND:9000	9000	—	25	17	13	9
DIXMAANE:9000	9000	—	956	573	306	326
DIXMAANF:9000	9000	—	788	479	436	268
DIXMAANG:9000	9000	—	804	453	437	274
DIXMAANH:9000	9000	—	750	433	428	254
DIXMAANI:9000	9000	—	1384	2045	858	468
DIXMAANJ:9000	9000	—	828	751	512	282
DIXMAANK:9000	9000	—	582	1194	469	198
DIXMAANL:9000	9000	—	651	1286	435	219
DIXMAANM:9000	9000	—	1680	2045	1202	574
DIXMAANN:9000	9000	—	1806	1958	1073	616
DIXMAANO:9000	9000	—	2102	2157	1301	722
DIXMAANP:9000	9000	—	2219	1709	1507	759
BOXPOWER	10000	—	27	39	11	37
BOX	10000	—	128	68	82	112
BROYDN7D:10000	10000	—	589	786	339	197
BRYBND:10000	10000	—	64	50	41	22
CHAINWOO:10000	10000	—	1334	822	1218	454
CVXBQP1:10000	10000	10000	3	1	1	1
DIXON3DQ:10000	10000	—	40009	20005	10008	26046
FLETBV3M:10000	10000	—	74	—	30	37
FLETCBV2:10000	10000	—	37579	20003	10012	12835
FMINSRF2:10000	10000	—	684	397	411	230
FMINSURF:10000	10000	—	667	397	411	225
HARKERP2:10000	10000	10000	3	1	1	1
INDEFM:10000	10000	—	579	—	523	209

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
JNLBRNG1:10000	10000	3443	1296	666	662	448
JNLBRNGA:10000	10000	3568	1434	765	937	490
JNLBRNG2:10000	10000	4209	1812	1223	924	608
JNLBRNGB:10000	10000	4484	6148	3106	2740	2865
LIARWHD:10000	10000	—	112	60	66	65
LMINSURF:10000	10000	396	2289	2028	1743	765
MCCORMCK:10000	10000	1	53	67	22	23
NONCVXU2:10000	10000	—	28906	14858	13670	13946
NONDIA:10000	10000	—	1873	1003	1370	1016
NONDQUAR:10000	10000	—	842	432	566	457
NLMSURF:10000	10000	396	23680	18052	14536	8004
NOBNDTOR:10000	10000	1299	993	571	840	337
NONSCOMP:10000	10000	5000	237	164	117	115
NCVXBQP3:10000	10000	9808	196	407	103	124
NCVXBQP2:10000	10000	9934	127	351	72	101
NCVXBQP1:10000	10000	10000	18	160	12	16
OSCIGRAD:10000	10000	—	5459	—	1985	—
OBSTCLBL:10000	10000	3896	480	287	278	166
OBSTCLBM:10000	10000	3896	480	287	278	166
OBSTCLBU:10000	10000	3896	480	287	278	166
OBSTCLAE:10000	10000	5061	456	346	301	156
OBSTCLAL:10000	10000	5061	456	346	301	156
POWELLSG:10000	10000	—	797	471	393	446
POWER:10000	10000	—	1012	589	588	344
QUARTC:10000	10000	—	75	221	37	71
SCHMVETT:10000	10000	—	174	970	87	64
SINQUAD:10000	10000	—	184	106	75	71
SPARSQUR:10000	10000	—	39	79	19	25

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
SROSENBR:10000	10000	—	562	298	532	321
TOINTGSS:10000	10000	—	108	56	51	48
TQUARTIC:10000	10000	—	812	432	626	415
TRIDIA:10000	10000	—	4021	2011	1011	2550
TORSIONA:10000	10000	1839	935	515	595	323
TORSIONB:10000	10000	1839	935	515	595	323
TORSION111:10000	10000	2013	1017	527	917	435
TORSION1:10000	10000	2013	1017	527	917	435
TORSION2:10000	10000	2013	1017	527	917	435
TORSIONC:10000	10000	4105	582	306	487	211
TORSIOND:10000	10000	4105	582	306	487	211
TORSION3:10000	10000	4189	566	339	238	236
TORSION4:10000	10000	4189	566	339	238	236
TORSIONE:10000	10000	6685	351	195	143	141
TORSIONF:10000	10000	6685	351	195	143	141
TORSION5:10000	10000	6720	334	202	134	146
TORSION6:10000	10000	6720	334	202	134	146
WOODS:10000	10000	—	540	336	446	186
DRCV1LQ:10816	10816	816	18017	—	—	6061
DRCV2LQ:10816	10816	816	38521	—	—	13055
ODNAMUR	11130	5580	216779	—	—	74555
JNLBRNG1:12500	12500	4277	1577	811	883	695
JNLBRNGA:12500	12500	4469	1531	920	1141	527
JNLBRNG2:12500	12500	5197	2422	1439	1692	824
JNLBRNGB:12500	12500	5630	6906	3490	5110	3920
OBSTCLBL:12500	12500	4623	558	288	274	212
OBSTCLBM:12500	12500	4623	558	288	274	212
OBSTCLBU:12500	12500	4623	558	288	274	212

problem	dim	nact	nf+2*ng best	nf for solver		
				lmbopt3	asa	lt6
OBSTCLAE:12500	12500	6481	652	387	385	226
OBSTCLAL:12500	12500	6481	652	387	385	226
ODC:14544	14544	544	1609	807	1361	571
SSC:14544	14544	544	949	480	279	325
NOBNDTOR:14884	14884	1758	1356	702	1761	479
TORSIONA:14884	14884	2618	1014	633	1110	344
TORSIONB:14884	14884	2618	1014	633	1110	344
TORSION111:14884	14884	2830	1130	587	1667	388
TORSION1:14884	14884	2830	1130	587	1667	388
TORSION2:14884	14884	2830	1130	587	1667	388
TORSIONC:14884	14884	6034	726	382	391	305
TORSIOND:14884	14884	6034	726	382	391	305
TORSION3:14884	14884	6137	619	329	414	244
TORSION4:14884	14884	6137	619	329	414	244
TORSIONE:14884	14884	9868	411	225	163	173
TORSIONF:14884	14884	9868	411	225	163	173
TORSION5:14884	14884	9914	521	277	252	205
TORSION6:14884	14884	9914	521	277	252	205
FMINSRF2:15625	15625	—	794	453	491	268
FMINSURF:15625	15625	—	779	461	491	263
LMSURF:15625	15625	496	2854	2385	2263	952
NLMSURF:15625	15625	496	32574	25548	26254	11020
BOXPOWER:20000	20000	—	30	27	12	16
MODBEALE:20000	20000	—	762	382	411	596
MCCORMCK:50000	50000	1	54	45	24	24
BOX:100000	100000	—	201	109	169	314
INDEFM:100000	100000	—	898	—	366	800
OSCIGRAD:100000	100000	—	2578	—	908	—
DEGTRID:100001	100001	1	22368	12034	20012	9178
DEGDIAG:100001	100001	100001	3	1	1	1
DEGTRID2:100001	100001	100001	3	1	1	1