An assessment of non-monotone linesearch techniques for unconstrained optimization: the complete numerical results

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Abstract

The purpose of this paper is to detail the complete results of all test runs reported on in the companion paper Toint (1994).

In this paper, we report the complete numerical results discussed in the companion paper Toint (1994). This reports therefore only consists of tables, in which these detailed results can be found, while their introduction and discussion is entirely presented in Toint (1994).

In the tables that follow, the heading "iters" stands for the number of iterations requires for solution, "evals" for the number of function evaluations, "CG-its" for the number of (modified) conjugate gradients steps cumulated over all iterations, "CPU" for the CPU time (in seconds on a DEC 3000/500 under OSF and using version 3.3-35 of the f77 compiler with default options, rounded to the tenth of a second), "value" for the value of the objective function found at the algorithm's termination, and finally "exit" for the exit condition code, for which a nonzero value indicates abnormal termination. A run is reported to have "failed" when execution was terminated due to an arithmetic error, or when the time limit of 18000 seconds was exceeded.

Problem	n	iters	evals	CG-its	CPU	value	exit
ALLINITU	4	9	13	29	0.0	5.744e+00	0
ARWHEAD	100	5	6	12	0.0	0.000e+00	0
ARWHEAD	500	6	7	14	0.2	0.000e+00	0
BARD	3	11	13	37	0.0	8.215e-03	0
BDQRTIC	100	13	14	83	0.1	3.788e+02	0
BDQRTIC	500	16	36	132	0.8	1.981e+03	0
BEALE	2	9	13	24	0.0	5.528e-15	0
BIGGS6	6	30	53	119	0.1	5.656e-03	0
BOX3	3	8	9	24	0.0	2.384e-15	0
BRKMCC	2	3	4	8	0.0	1.690e-01	0
BROWNAL	10	6	7	16	0.0	1.529e-15	0
BROWNBS	2	4	5	9	0.0	1.972e-31	0
BROWNDEN	4	11	12	41	0.0	8.582e+04	0
BROYDN7D	10	12	16	90	0.0	1.261e+00	0
BROYDN7D	100	19	30	200	0.2	4.117e+01	0
BROYDN7D	500	39	71	463	2.0	1.801e+02	0
BRYBND	10	13	20	126	0.0	2.911e-21	0
BRYBND	100	9	10	92	0.1	1.704e-13	0
BRYBND	500	9	10	81	0.6	1.470e-13	0
CHNROSNB	10	24	29	183	0.0	1.724e-23	0
CLIFF	2	27	28	55	0.0	1.998e-01	0
CRAGGLVY	100	15	16	131	0.1	3.227e+01	0
CRAGGLVY	4	15	18	70	0.0	2.829e-08	0
CRAGGLVY	500	15	16	130	0.7	1.674e+02	0
CUBE	2	30	49	81	0.0	9.495e-11	0
DENSCHNA	2	5	6	14	0.0	1.200e-15	0
DENSCHNB	2	7	12	19	0.0	1.462e-20	0
DENSCHNC	2	9	10	22	0.0	1.842e-13	0
DENSCHND	3	30	31	100	0.0	8.229e-09	0
DENSCHNE	3	564	1152	1682	0.3	1.045e-18	0
DENSCHNF	2	6	7	18	0.0	6.513e-22	0
DIXMAANA	15	6	12	17	0.0	1.000e+00	0
DIXMAANA	90	6	12	16	0.0	1.000e+00	0
DIXMAANA	300	6	13	16	0.1	1.000e+00	0
DIXMAANB	15	8	9	21	0.0	1.000e+00	0
DIXMAANB	90	8	9	21	0.1	1.000e+00	0

Table 1: Results for BLS on small problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
DIXMAANB	300	8	9	21	0.1	1.000e+00	0
DIXMAANC	15	8	9	23	0.0	1.000e+00	0
DIXMAANC	90	8	9	22	0.1	1.000e+00	0
DIXMAANC	300	9	10	23	0.1	1.000e+00	0
DIXMAAND	15	9	14	33	0.0	1.000e+00	0
DIXMAAND	90	10	11	27	0.1	1.000e+00	0
DIXMAAND	300	10	11	27	0.2	1.000e+00	0
DIXMAANE	15	8	18	54	0.0	1.000e+00	0
DIXMAANE	90	9	18	112	0.1	1.000e+00	0
DIXMAANE	300	15	30	279	0.5	1.000e+00	0
DIXMAANF	15	9	10	44	0.0	1.000e+00	0
DIXMAANF	90	10	11	75	0.1	1.000e+00	0
DIXMAANF	300	11	12	136	0.3	1.000e+00	0
DIXMAANG	15	10	11	52	0.0	1.000e+00	0
DIXMAANG	90	11	12	83	0.1	1.000e+00	0
DIXMAANG	300	13	16	137	0.4	1.000e+00	0
DIXMAANH	15	12	14	62	0.0	1.000e+00	0
DIXMAANH	90	13	18	107	0.1	1.000e+00	0
DIXMAANH	300	13	14	121	0.3	1.000e+00	0
DIXMAANI	15	8	15	77	0.0	1.000e+00	0
DIXMAANI	90	8	15	371	0.2	1.000e+00	0
DIXMAANI	300	7	15	919	1.1	1.000e+00	0
DIXMAANJ	15	10	11	73	0.0	1.000e+00	0
DIXMAANJ	90	14	17	293	0.2	1.000e+00	0
DIXMAANJ	300	15	20	1217	1.9	1.000e+00	0
DIXMAANK	15	13	14	93	0.0	1.000e+00	0
DIXMAANK	90	12	13	233	0.1	1.000e+00	0
DIXMAANK	300	18	26	584	1.1	1.000e+00	0
DIXMAANL	15	14	16	93	0.0	1.000e+00	0
DIXMAANL	90	15	20	320	0.2	1.000e+00	0
DIXMAANL	300	17	23	985	1.6	1.000e+00	0
DIXON3DQ	10	2	3	18	0.0	2.786e-30	0
DJTL	2	263	897	660	0.2	-8.952e+03	0
DQDRTIC	10	4	5	17	0.0	0.000e+00	0
DQDRTIC	100	6	7	18	0.0	5.003e-15	0

Table 2: Results for BLS on small problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
DQDRTIC	500	6	7	19	0.1	1.832e-36	0
DQRTIC	100	24	25	92	0.1	3.051e-08	0
DQRTIC	500	28	29	97	0.2	1.697e-07	0
EDENSCH	36	13	14	54	0.0	2.193e+02	0
EIGENALS	110	20	25	195	0.8	1.001e-10	0
EIGENALS	420	35	50	552	15.9	1.365e-11	0
EIGENBLS	110	101	198	3503	13.8	2.950e-12	0
EIGENBLS	420	289	655	39705	1285.4	2.656e-09	0
EIGENCLS	462	94	186	6401	245.5	1.245e-11	0
ENGVAL1	100	10	11	40	0.1	1.091e+02	0
ENGVAL1	2	7	8	19	0.0	0.000e+00	0
ERRINROS	10	59	93	332	0.1	6.695e+00	0
ERRINROS	50	63	107	666	0.3	3.990e+01	0
EXPFIT	2	6	9	18	0.0	2.405e-01	0
EXTROSNB	5	63	101	321	0.1	5.527e-10	0
FLETCBV2	100	2	3	187	0.1	-5.140e-01	0
FLETCBV3	100	10001	20416	24943	76.0	-1.778e+05	2
FLETCHBV	10	66	156	651	0.1	-2.710e+06	0
FLETCHBV	100	10001	20745	0	1718.2	-1.769e+13	2
FLETCHCR	10	28	36	218	0.0	2.933e-25	0
FLETCHCR	100	160	192	1879	1.2	2.581e-16	0
FMINSURF	121	23	149	1407	1.2	1.000e+00	0
FMINSURF	16	14	63	156	0.0	1.000e+00	0
FREUROTH	100	14	23	125	0.1	1.196e+04	0
FREUROTH	2	7	8	17	0.0	4.898e+01	0
FREUROTH	50	13	21	136	0.1	5.881e+03	0
FREUROTH	500	11	20	47	0.5	6.063e+04	0
GENROSE	10	26	34	211	0.0	1.000e+00	0
GENROSE	100	65	130	1224	0.7	1.000e+00	0
GENROSE	500	295	597	5890	16.4	1.000e+00	0
GROWTHLS	3	182	360	525	0.2	1.004e+00	0
GULF	3	21	37	61	0.3	9.592e-16	0
HAIRY	2	22	56	66	0.0	2.000e+01	0
HATFLDD	3	20	24	62	0.0	1.007e-07	0
HATFLDE	3	21	24	66	0.0	5.126e-07	0

Table 3: Results for BLS on small problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
HEART6LS	6	1277	3124	5210	1.8	3.018e-13	0
HELIX	3	12	19	42	0.0	5.224e-13	0
HILBERTA	2	2	3	5	0.0	8.217e-33	0
HILBERTB	5	5	6	11	0.0	1.977e-15	0
HIMMELBB	2	19	26	41	0.0	2.358e-09	0
HIMMELBF	4	10001	20017	49968	10.6	3.186e+02	2
HIMMELBG	2	5	7	15	0.0	2.977e-12	0
HIMMELBH	2	5	8	12	0.0	-1.000e+00	0
HYDC20LS	99	2360	2386	191296	353.8	5.222e-01	3
JENSMP	2	9	10	23	0.0	1.244e+02	0
KOWOSB	4	13	23	53	0.0	3.078e-04	0
LIARWHD	100	12	13	34	0.1	6.474e-16	0
LIARWHD	36	10	11	30	0.0	6.772e-19	0
LIARWHD	500	14	15	37	0.3	2.968e-15	0
LOGROS	2	125	300	313	0.1	0.000e+00	0
MANCINO	100	12	20	30	29.6	1.715e-21	0
MOREBV	10	3	4	31	0.0	2.716e-12	0
MOREBV	100	6	7	892	0.3	7.764e-08	0
MOREBV	500	3	4	1309	2.2	8.048e-09	0
MSQRTALS	100	20	34	648	2.0	1.435e-13	0
MSQRTALS	4	11	14	44	0.0	3.169e-15	0
MSQRTALS	49	20	38	365	0.4	1.194e-13	0
MSQRTBLS	100	27	52	970	2.9	7.041e-13	0
MSQRTBLS	49	19	34	450	0.5	1.211e-15	0
MSQRTBLS	9	9	13	62	0.0	4.015e-11	0
NCB20B	100	16	31	664	3.5	1.967e+02	0
NCB20B	50	9	19	232	0.5	9.950e+01	0
NCB20B	500	20	33	1179	40.4	8.975e+02	0
NONDIA	100	10	11	25	0.1	7.272e-28	0
NONDIA	50	8	10	21	0.0	2.409e-19	0
NONDIA	500	7	8	17	0.2	1.101e-18	0
NONDQUAR	100	35	75	2161	0.5	6.965e-08	0
NONDQUAR	500	79	263	20549	23.8	2.537e-08	0
NONMSQRT	100	183	313	4710	13.2	1.806e+01	3
NONMSQRT	49	230	405	3477	3.9	1.076e+00	0

Table 4: Results for BLS on small problems (Part 4)

Problem	n	iters	evals	CG-its	CPU	value	exit
NONMSQRT	9	84	129	442	0.1	7.520e-01	0
OSBORNEA	5	58	90	227	0.2	5.465e-05	0
OSBORNEB	11	23	34	186	0.4	4.014e-02	0
PALMER1C	8	7	8	51	0.0	9.761e-02	0
PALMER1D	7	5	6	32	0.0	6.527e-01	0
PALMER2C	8	7	8	49	0.0	1.437e-02	0
PALMER3C	8	7	8	47	0.0	1.954e-02	0
PALMER4C	8	7	8	47	0.0	5.031e-02	0
PENALTY1	10	26	44	60	0.0	7.127e-05	0
PENALTY1	100	36	48	82	0.1	9.025e-04	0
PENALTY1	50	39	57	93	0.1	4.318e-04	0
PENALTY1	500	40	48	89	0.5	4.779e-03	0
PENALTY2	10	15	24	57	0.0	2.940e-04	0
PENALTY2	100	18	19	91	0.2	9.710e+04	0
PENALTY2	50	30	37	166	0.2	4.296e+00	0
PENALTY3	100	15	50	182	22.8	9.999e-04	3
PENALTY3	50	242	872	1680	63.7	2.418e+03	3
PFIT1LS	3	725	2742	2161	0.7	1.700e-09	0
POWELLSG	100	17	18	80	0.0	1.242e-08	0
POWELLSG	500	17	18	80	0.2	6.209e-08	0
POWELLSG	20	16	17	75	0.0	1.257e-08	0
POWELLSG	4	15	16	70	0.0	1.273e-08	0
POWER	10	17	18	66	0.0	7.652e-09	0
POWER	100	24	25	154	0.1	2.714e-09	0
POWER	50	22	23	114	0.0	3.173e-09	0
POWER	500	29	30	335	0.5	1.246e-09	0
QUARTC	100	24	25	92	0.1	3.051e-08	0
QUARTC	25	19	20	62	0.0	7.864e-08	0
QUARTC	500	28	29	97	0.2	1.697e-07	0
ROSENBR	2	25	39	66	0.0	4.012e-16	0
S308	2	9	10	24	0.0	7.732e-01	0
SCHMVETT	10	5	6	43	0.0	-2.400e+01	0
SCHMVETT	500	6	7	62	0.7	-1.494e+03	0
SCHMVETT	3	4	5	15	0.0	-3.000e+00	0
SCHMVETT	500	6	7	62	0.7	-1.494e+03	0

Table 5: Results for BLS on small problems (Part 5)

Problem	n	iters	evals	CG-its	CPU	value	exit
SINQUAD	100	37	57	113	0.3	2.903e-07	0
SINQUAD	5	15	18	51	0.0	1.397e-07	0
SINQUAD	50	25	35	75	0.1	7.859e-07	0
SINQUAD	500	69	125	205	2.5	1.715e-06	0
SISSER	2	12	13	29	0.0	1.214e-08	0
SNAIL	2	70	149	190	0.0	4.785e-18	0
SPMSRTLS	100	13	26	172	0.2	1.523e-12	0
SPMSRTLS	28	12	20	107	0.1	3.905e-13	0
SPMSRTLS	499	16	34	227	1.5	1.663e+00	0
SROSENBR	10	7	8	16	0.0	3.832e-11	0
SROSENBR	100	8	9	19	0.0	2.946e-19	0
SROSENBR	50	8	9	19	0.0	1.473e-19	0
SROSENBR	500	8	9	19	0.1	1.473e-18	0
TOINTGOR	50	8	9	148	0.0	1.374e+03	0
TOINTGSS	10	7	9	61	0.0	1.000e+01	0
TOINTGSS	100	8	11	31	0.1	1.010e+01	0
TOINTGSS	50	9	16	51	0.0	1.042e+01	0
TOINTGSS	500	4	5	14	0.2	1.002e+01	0
TOINTPSP	50	14	32	120	0.0	2.256e+02	0
TOINTQOR	50	7	8	63	0.0	1.175e+03	0
TQUARTIC	100	11	20	27	0.1	4.128e-16	0
TQUARTIC	5	8	13	21	0.0	1.554e-13	0
TQUARTIC	50	10	14	24	0.0	5.569e-14	0
TQUARTIC	500	19	31	45	0.3	2.688e-13	0
TRIDIA	10	5	6	41	0.0	0.000e+00	0
TRIDIA	100	7	8	172	0.1	1.445e-13	0
TRIDIA	50	7	8	130	0.0	6.705e-15	0
TRIDIA	500	8	9	429	0.5	1.022e-13	0
VARDIM	10	14	15	28	0.0	1.640e-26	0
VARDIM	100	25	26	50	0.1	1.472e-25	0
VARDIM	50	22	23	44	0.0	2.475e-27	0
VARDIM	500	33	34	66	0.3	1.292e-24	0
VAREIGVL	10	9	11	61	0.0	1.296e-11	0
VAREIGVL	100	12	13	123	0.1	2.511e-09	0
VAREIGVL	50	12	13	133	0.1	1.103e-09	0

Table 6: Results for BLS on small problems (Part 6)

Problem	n	iters	evals	CG-its	CPU	value	exit
VAREIGVL	500	13	14	121	0.7	3.142e-09	0
VIBRBEAM	8	42	43	184	0.4	1.564e-01	3
WATSON	12	9	10	47	0.1	8.250e-08	0
WATSON	31	9	10	49	0.1	1.284e-08	0
WOODS	100	17	18	54	0.1	3.726e-15	0
WOODS	4	17	18	55	0.0	9.798e-17	0
WOODS	500	17	18	54	0.3	1.863e-14	0
YFITU	3	60	101	206	0.1	6.899e-13	0
ZANGWIL2	2	1	2	2	0.0	-1.820e+01	0
PFIT2LS	3	10001	20027	39924	8.5	1.168e-02	2
PFIT3LS	3	10001	18524	27787	7.8	5.348e-02	2
PFIT4LS	3	83	195	212	0.1	2.605e-01	3
EXTROSNB	10	412	1331	3269	0.5	7.200e-07	0
EXTROSNB	50	529	1854	5034	8.8	7.995e-07	0
EXTROSNB	100	535	1879	5094	21.9	7.826e-07	0

Table 7: Results for BLS on small problems (Part 7)

Problem	n	iters	evals	CG-its	CPU	value	exit
ARWHEAD	1000	6	7	14	0.3	0.000e+00	0
ARWHEAD	5000	5	6	11	1.5	1.110e-12	0
BDQRTIC	1000	14	15	92	1.3	3.984e+03	0
BROYDN7D	1000	64	121	825	7.0	3.588e+02	0
BRYBND	1000	9	10	80	1.2	3.189e-13	0
BRYBND	5000	9	10	78	7.1	1.049e-12	0
CRAGGLVY	1000	15	16	130	1.5	3.364e+02	0
CRAGGLVY	5000	16	17	148	9.6	1.688e+03	0
DIXMAANA	1500	7	15	18	0.7	1.000e+00	0
DIXMAANA	3000	7	19	19	1.5	1.000e+00	0
DIXMAANB	1500	8	9	21	0.7	1.000e+00	0
DIXMAANB	3000	8	9	21	1.4	1.000e+00	0
DIXMAANC	1500	9	10	23	0.8	1.000e+00	0
DIXMAANC	3000	9	10	23	1.6	1.000e+00	0
DIXMAAND	1500	10	11	27	0.8	1.000e+00	0
DIXMAAND	3000	10	11	27	1.8	1.000e+00	0
DIXMAANE	1500	16	34	454	3.9	1.000e+00	0
DIXMAANE	3000	19	45	709	12.4	1.000e+00	0
DIXMAANF	1500	13	17	246	2.7	1.000e+00	0
DIXMAANF	3000	12	13	286	6.3	1.000e+00	0
DIXMAANG	1500	13	14	249	2.7	1.000e+00	0
DIXMAANG	3000	18	29	426	9.5	1.000e+00	0
DIXMAANH	1500	18	24	267	3.2	1.000e+00	0
DIXMAANH	3000	18	27	437	9.7	1.000e+00	0
DIXMAANI	1500	14	32	2886	18.4	1.000e+00	0
DIXMAANI	3000	18	43	7798	105.7	1.000e+00	0
DIXMAANJ	1500	28	55	6153	48.5	1.000e+00	0
DIXMAANJ	3000	23	36	5554	94.7	1.000e+00	0
DIXMAANK	1500	19	29	2818	22.5	1.000e+00	0
DIXMAANK	3000	26	43	4836	83.3	1.000e+00	0
DIXMAANL	1500	17	25	1459	12.2	1.000e+00	0
DIXMAANL	3000	19	31	3401	58.7	1.000e+00	0
DQDRTIC	1000	5	6	17	0.2	1.908e-14	0
DQDRTIC	5000	5	6	18	1.2	8.352e-34	0
DQRTIC	1000	30	31	104	0.5	2.141e-07	0
DQRTIC	5000	35	36	134	3.1	2.039e-07	0

Table 8: Results for BLS on large problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
EDENSCH	2000	14	16	47	1.9	1.200e+04	0
EIGENALS	930	54	82	1382	119.4	4.316e-13	0
EIGENBLS	930	435	1089	157666	17333.5	3.041e-08	0
ENGVAL1	1000	10	11	39	0.6	1.108e+03	0
ENGVAL1	5000	11	33	47	4.6	5.549e+03	3
FLETCBV2	1000	1	2	970	3.4	-5.014e-01	0
FLETCBV3	1000	10001	20042	25002	834.0	-1.808e+11	2
FMINSURF	1024	29	309	13179	106.9	1.000e+00	0
FMINSURF	5625	54	546	46594	2364.7	1.000e+00	0
FREUROTH	1000	14	22	74	1.2	1.214e+05	0
FREUROTH	5000	18	47	194	14.7	6.079e+05	3
LIARWHD	1000	14	15	37	0.6	3.779e-20	0
LIARWHD	5000	14	15	35	3.3	2.798e-15	0
MOREBV	1000	2	3	551	1.9	1.340e-09	0
MOREBV	5000	2	3	2692	58.3	1.053e-11	0
MSQRTALS	1024	100	200	19513	2236.1	1.549e-11	0
MSQRTALS	529	206	505	58164	2015.6	4.608e-14	0
MSQRTBLS	529	150	346	40893	1417.9	2.534e-11	0
MSQRTBLS	1024	190	390	78646	8882.1	2.835e-10	0
NCB20B	1000	20	35	1190	85.1	1.676e+03	0
NONDIA	1000	6	7	14	0.3	5.329e-12	0
NONDIA	5000	6	7	14	1.7	1.191e-17	0
NONDIA	10000	4	5	9	2.4	5.777e-10	0
NONDQUAR	1000	83	275	17913	42.3	4.616e-08	0
NONDQUAR	5000	95	354	33953	478.8	3.531e-08	0
NONDQUAR	10000	114	426	36801	1211.4	3.960e-08	0
NONMSQRT	529	250	444	23935	767.7	6.135e+01	3
PENALTY1	1000	41	47	90	1.1	9.686e-03	0
POWELLSG	1000	18	19	85	0.4	2.453e-08	0
POWELLSG	5000	18	19	86	2.1	1.227e-07	0
POWELLSG	10000	19	20	91	4.8	4.846e-08	0
POWER	1000	31	32	454	1.4	1.116e-09	0
QUARTC	1000	30	31	104	0.5	2.141e-07	0
QUARTC	5000	35	36	134	3.1	2.039e-07	0
QUARTC	10000	37	38	137	7.1	2.539e-07	0

Table 9: Results for BLS on large problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
SCHMVETT	1000	6	7	53	1.2	-2.994e+03	0
SCHMVETT	5000	7	8	65	7.7	-1.499e+04	0
SCHMVETT	10000	7	8	65	15.9	-2.999e+04	0
SINQUAD	1000	92	182	281	7.3	1.481e-06	0
SINQUAD	5000	161	336	503	99.2	1.529e-06	0
SINQUAD	10000	192	428	594	247.3	1.378e-06	0
SPMSRTLS	1000	22	44	357	4.8	6.301e-14	0
SPMSRTLS	4999				failed		
SPMSRTLS	10000	17	36	434	60.3	4.588e-13	0
SROSENBR	1000	8	9	19	0.2	2.946e-18	0
SROSENBR	5000	8	9	19	1.0	1.473e-17	0
SROSENBR	10000	8	9	19	2.1	2.946e-17	0
TESTQUAD	1000	11	12	1042	2.0	3.678e-13	0
TOINTGSS	1000	4	5	10	0.3	1.001e+01	0
TOINTGSS	5000	4	5	10	1.5	1.000e+01	0
TOINTGSS	10000	4	5	9	3.0	1.000e+01	0
TQUARTIC	1000	16	25	37	0.5	5.065e-16	0
TQUARTIC	5000	13	22	31	3.0	8.425e-16	0
TQUARTIC	10000	9	14	21	5.1	2.704e-17	0
TRIDIA	1000	9	10	585	1.3	1.325e-14	0
TRIDIA	5000	10	11	1544	18.7	7.107e-16	0
TRIDIA	10000	11	12	2258	65.1	2.990e-17	0
VARDIM	1000	36	37	72	0.6	8.128e-21	0
VARDIM	5000	45	46	90	4.1	1.189e-18	3
VAREIGVL	1000	14	15	158	1.7	1.012e-09	0
VAREIGVL	5000	15	16	148	9.6	1.249e-09	0
WOODS	1000	17	18	54	0.5	3.726e-14	0
WOODS	10000	18	19	58	6.6	3.076e-27	0
FLETCHCR	1000	1480	1746	18268	108.8	2.222e-14	0
GENROSE	1000	559	1109	11202	62.6	1.000e+00	0

Table 10: Results for BLS on large problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
ALLINITU	4	9	13	29	0.0	5.744e+00	0
ARWHEAD	100	5	6	12	0.0	0.000e+00	0
ARWHEAD	500	6	7	14	0.1	0.000e+00	0
BARD	3	15	16	52	0.0	8.215e-03	0
BDQRTIC	100	13	14	83	0.1	3.788e+02	0
BDQRTIC	500	13	14	84	0.5	1.981e+03	0
BEALE	2	9	13	24	0.0	5.528e-15	0
BIGGS6	6	29	43	116	0.1	5.656e-03	0
BOX3	3	8	9	24	0.0	2.384e-15	0
BRKMCC	2	3	4	8	0.0	1.690e-01	0
BROWNAL	10	6	7	16	0.0	1.529e-15	0
BROWNBS	2	4	5	9	0.0	1.972e-31	0
BROWNDEN	4	11	12	41	0.0	8.582e+04	0
BROYDN7D	10	14	19	104	0.0	1.261e+00	0
BROYDN7D	100	21	33	181	0.2	3.950e+01	0
BROYDN7D	500	48	85	477	2.3	1.803e+02	0
BRYBND	10	13	20	126	0.0	2.911e-21	0
BRYBND	100	9	10	92	0.1	1.704e-13	0
BRYBND	500	9	10	81	0.6	1.470e-13	0
CHNROSNB	10	25	28	158	0.0	8.970e-14	0
CLIFF	2	27	28	55	0.0	1.998e-01	0
CRAGGLVY	100	15	16	131	0.1	3.227e+01	0
CRAGGLVY	4	17	19	73	0.0	2.602e-08	0
CRAGGLVY	500	15	16	130	0.7	1.674e+02	0
CUBE	2	17	21	44	0.0	8.561e-13	0
DENSCHNA	2	5	6	14	0.0	1.200e-15	0
DENSCHNB	2	7	12	19	0.0	1.462e-20	0
DENSCHNC	2	9	10	22	0.0	1.842e-13	0
DENSCHND	3	30	31	100	0.0	8.229e-09	0
DENSCHNE	3	54	90	134	0.0	8.212e-21	0
DENSCHNF	2	6	7	18	0.0	6.513e-22	0
DIXMAANA	15	8	13	23	0.0	1.000e+00	0
DIXMAANA	90	6	12	16	0.0	1.000e+00	0
DIXMAANA	300	6	13	16	0.1	1.000e+00	0
DIXMAANB	15	8	9	21	0.0	1.000e+00	0
DIXMAANB	90	8	9	21	0.1	1.000e+00	0

Table 11: Results for GLL1 on small problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
DIXMAANB	300	8	9	21	0.1	1.000e+00	0
DIXMAANC	15	8	9	23	0.0	1.000e+00	0
DIXMAANC	90	8	9	22	0.1	1.000e+00	0
DIXMAANC	300	9	10	23	0.1	1.000e+00	0
DIXMAAND	15	9	14	33	0.0	1.000e+00	0
DIXMAAND	90	10	11	27	0.1	1.000e+00	0
DIXMAAND	300	10	11	27	0.2	1.000e+00	0
DIXMAANE	15	8	18	54	0.0	1.000e+00	0
DIXMAANE	90	20	31	175	0.1	1.000e+00	0
DIXMAANE	300	23	36	228	0.6	1.000e+00	0
DIXMAANF	15	9	10	44	0.0	1.000e+00	0
DIXMAANF	90	10	11	75	0.1	1.000e+00	0
DIXMAANF	300	11	12	136	0.3	1.000e+00	0
DIXMAANG	15	10	11	52	0.0	1.000e+00	0
DIXMAANG	90	11	12	83	0.1	1.000e+00	0
DIXMAANG	300	24	32	222	0.6	1.000e+00	0
DIXMAANH	15	12	14	62	0.0	1.000e+00	0
DIXMAANH	90	18	21	124	0.1	1.000e+00	0
DIXMAANH	300	13	14	121	0.3	1.000e+00	0
DIXMAANI	15	11	17	64	0.0	1.000e+00	0
DIXMAANI	90	8	15	371	0.2	1.000e+00	0
DIXMAANI	300	7	15	919	1.2	1.000e+00	0
DIXMAANJ	15	10	11	73	0.0	1.000e+00	0
DIXMAANJ	90	23	33	339	0.3	1.000e+00	0
DIXMAANJ	300	23	30	673	1.2	1.000e+00	0
DIXMAANK	15	13	14	93	0.0	1.000e+00	0
DIXMAANK	90	12	13	233	0.1	1.000e+00	0
DIXMAANK	300	28	38	840	1.5	1.000e+00	0
DIXMAANL	15	14	17	86	0.0	1.000e+00	0
DIXMAANL	90	26	37	367	0.3	1.000e+00	0
DIXMAANL	300	29	40	890	1.6	1.000e+00	0
DIXON3DQ	10	2	3	18	0.0	2.786e-30	0
DJTL	2	263	897	660	0.2	-8.952e+03	0
DQDRTIC	10	4	5	17	0.0	0.000e+00	0
DQDRTIC	100	6	7	18	0.0	5.003e-15	0

Table 12: Results for GLL1 on small problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
DQDRTIC	500	6	7	19	0.1	1.832e-36	0
DQRTIC	100	24	25	92	0.1	3.051e-08	0
DQRTIC	500	28	29	97	0.2	1.697e-07	0
EDENSCH	36	13	14	54	0.0	2.193e+02	0
EIGENALS	110	20	25	195	0.8	1.001e-10	0
EIGENALS	420	35	47	553	15.8	7.475e-12	0
EIGENBLS	110	70	107	2056	8.2	1.549e-12	0
EIGENBLS	420	173	348	20926	678.0	8.812e-10	0
EIGENCLS	462	148	288	9941	382.6	5.502e-13	0
ENGVAL1	100	10	11	40	0.1	1.091e+02	0
ENGVAL1	2	7	8	19	0.0	0.000e+00	0
ERRINROS	10	43	47	207	0.1	6.695e+00	0
ERRINROS	50	48	54	379	0.2	3.990e+01	0
EXPFIT	2	12	16	33	0.0	2.405e-01	0
EXTROSNB	5	35	37	158	0.0	8.445e-10	0
FLETCBV2	100	2	3	187	0.1	-5.140e-01	0
FLETCBV3	100	10001	20061	25001	75.2	-1.785e+05	2
FLETCHBV	10	282	590	2952	0.5	-2.739e+06	0
FLETCHBV	100	10001	20022	0	1677.0	-1.778e+13	2
FLETCHCR	10	24	30	184	0.0	2.649e-12	0
FLETCHCR	100	140	145	1619	1.0	8.112e-18	0
FMINSURF	121	717	6899	55177	48.1	1.000e+00	0
FMINSURF	16	321	2916	4388	0.8	1.000e+00	0
FREUROTH	100	14	22	123	0.1	1.196e+04	0
FREUROTH	2	7	8	17	0.0	4.898e+01	0
FREUROTH	50	13	20	137	0.1	5.881e+03	0
FREUROTH	500	16	24	58	0.6	6.063e+04	0
GENROSE	10	23	27	176	0.0	1.000e+00	0
GENROSE	100	57	104	1060	0.6	1.000e+00	0
GENROSE	500	279	521	4964	14.1	1.000e+00	0
GROWTHLS	3	173	334	493	0.2	1.004e+00	0
GULF	3	21	35	56	0.3	8.539e-11	0
HAIRY	2	136	273	399	0.1	2.000e+01	0
HATFLDD	3	20	24	62	0.0	1.007e-07	0
HATFLDE	3	21	24	66	0.0	5.126e-07	0

Table 13: Results for GLL1 on small problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
HEART6LS	6	1177	2919	4673	1.7	1.303e-09	0
HELIX	3	21	27	65	0.0	6.547e-18	0
HILBERTA	2	2	3	5	0.0	8.217e-33	0
HILBERTB	5	5	6	11	0.0	1.977e-15	0
HIMMELBB	2	19	26	41	0.0	2.358e-09	0
HIMMELBF	4	4149	8283	20508	4.2	3.186e+02	0
HIMMELBG	2	5	7	15	0.0	2.977e-12	0
HIMMELBH	2	5	8	12	0.0	-1.000e+00	0
HYDC20LS	99	1975	1994	160198	289.2	5.367e-01	3
JENSMP	2	9	10	23	0.0	1.244e+02	0
KOWOSB	4	19	25	79	0.0	3.078e-04	0
LIARWHD	100	12	13	34	0.1	6.474e-16	0
LIARWHD	36	10	11	30	0.0	6.772e-19	0
LIARWHD	500	14	15	37	0.3	2.968e-15	0
LOGROS	2	221	448	604	0.1	7.106e-12	0
MANCINO	100	12	20	30	30.9	1.715e-21	0
MOREBV	10	3	4	31	0.0	2.716e-12	0
MOREBV	100	6	7	892	0.3	7.764e-08	0
MOREBV	500	3	4	1309	2.2	8.048e-09	0
MSQRTALS	100	36	65	1070	3.2	4.591e-11	0
MSQRTALS	4	10	12	39	0.0	1.287e-13	0
MSQRTALS	49	28	49	546	0.6	1.727e-11	0
MSQRTBLS	100	45	77	1600	4.7	2.162e-15	0
MSQRTBLS	49	50	70	1341	1.3	5.501e-04	0
MSQRTBLS	9	9	13	62	0.0	4.015e-11	0
NCB20B	100	24	30	1206	5.9	1.967e+02	0
NCB20B	50	14	17	301	0.7	9.950e+01	0
NCB20B	500	20	28	1207	41.0	8.975e+02	0
NONDIA	100	10	11	25	0.1	7.272e-28	0
NONDIA	50	10	11	27	0.0	4.708e-26	0
NONDIA	500	7	8	17	0.2	1.101e-18	0
NONDQUAR	100	56	64	1763	0.5	4.954e-08	0
NONDQUAR	500	116	145	7349	9.0	5.156e-08	0
NONMSQRT	100	104	126	2460	7.0	1.805e+01	0
NONMSQRT	49	96	124	1164	1.4	1.076e+00	0

Table 14: Results for GLL1 on small problems (Part 4)

Problem	n	iters	evals	CG-its	CPU	value	exit
NONMSQRT	9	57	64	286	0.1	7.519e-01	0
OSBORNEA	5	46	56	149	0.1	4.859e-02	3
OSBORNEB	0				failed		
PALMER1C	8	7	8	51	0.0	9.761e-02	0
PALMER1D	7	5	6	32	0.0	6.527e-01	0
PALMER2C	8	7	8	49	0.0	1.437e-02	0
PALMER3C	8	7	8	47	0.0	1.954e-02	0
PALMER4C	8	7	8	47	0.0	5.031e-02	0
PENALTY1	10	18	19	38	0.0	7.088e-05	0
PENALTY1	100	30	31	65	0.1	9.025e-04	0
PENALTY1	50	24	25	51	0.0	4.318e-04	0
PENALTY1	500	32	33	66	0.4	4.779e-03	0
PENALTY2	10	18	19	63	0.0	2.937e-04	0
PENALTY2	100	18	19	91	0.2	9.710e+04	0
PENALTY2	50	28	29	132	0.2	4.296e+00	0
PENALTY3	100	16	28	191	21.4	1.000e-03	0
PENALTY3	50	35	49	271	8.4	2.418e+03	0
PFIT1LS	3	490	1671	1464	0.4	1.459e-11	0
POWELLSG	100	17	18	80	0.0	1.242e-08	0
POWELLSG	500	17	18	80	0.2	6.209e-08	0
POWELLSG	20	16	17	75	0.0	1.257e-08	0
POWELLSG	4	15	16	70	0.0	1.273e-08	0
POWER	10	17	18	66	0.0	7.652e-09	0
POWER	100	24	25	154	0.1	2.714e-09	0
POWER	50	22	23	114	0.0	3.173e-09	0
POWER	500	29	30	335	0.6	1.246e-09	0
QUARTC	100	24	25	92	0.1	3.051e-08	0
QUARTC	25	19	20	62	0.0	7.864e-08	0
QUARTC	500	28	29	97	0.2	1.697e-07	0
ROSENBR	2	21	29	52	0.0	2.393e-14	0
S308	2	9	10	24	0.0	7.732e-01	0
SCHMVETT	10	5	6	43	0.0	-2.400e+01	0
SCHMVETT	500	6	7	62	0.6	-1.494e+03	0
SCHMVETT	3	4	5	15	0.0	-3.000e+00	0
SCHMVETT	500	6	7	62	0.6	-1.494e+03	0

Table 15: Results for GLL1 on small problems (Part 5)

Problem	n	iters	evals	CG-its	CPU	value	exit
SINQUAD	100	31	42	91	0.2	8.252e-07	0
SINQUAD	5	15	18	51	0.0	7.676e-08	0
SINQUAD	50	27	35	82	0.1	3.134e-07	0
SINQUAD	500	63	109	184	2.3	8.064e-08	0
SISSER	2	12	13	29	0.0	1.214e-08	0
SNAIL	2	71	128	177	0.1	9.079e-21	0
SPMSRTLS	100	36	60	429	0.6	1.954e-14	0
SPMSRTLS	28	27	44	247	0.1	2.510e-01	0
SPMSRTLS	499	17	28	183	1.3	1.663e+00	0
SROSENBR	10	7	8	16	0.0	3.832e-11	0
SROSENBR	100	8	9	19	0.0	2.946e-19	0
SROSENBR	50	8	9	19	0.0	1.473e-19	0
SROSENBR	500	8	9	19	0.1	1.473e-18	0
TOINTGOR	50	8	9	148	0.0	1.374e+03	0
TOINTGSS	10	135	260	1009	0.2	1.250e+01	0
TOINTGSS	100	10	13	52	0.1	1.010e+01	0
TOINTGSS	50	248	500	2128	1.4	1.042e+01	0
TOINTGSS	500	4	5	14	0.2	1.002e+01	0
TOINTPSP	50	40	98	311	0.1	2.256e+02	0
TOINTQOR	50	7	8	63	0.0	1.175e+03	0
TQUARTIC	100	14	24	35	0.1	3.363e-14	0
TQUARTIC	5	9	15	24	0.0	4.024e-13	0
TQUARTIC	50	10	14	24	0.0	5.569e-14	0
TQUARTIC	500	19	31	45	0.3	2.688e-13	0
TRIDIA	10	5	6	41	0.0	0.000e+00	0
TRIDIA	100	7	8	172	0.1	1.445e-13	0
TRIDIA	50	7	8	130	0.0	6.705e-15	0
TRIDIA	500	8	9	429	0.5	1.022e-13	0
VARDIM	10	14	15	28	0.0	1.640e-26	0
VARDIM	100	25	26	50	0.1	1.472e-25	0
VARDIM	50	22	23	44	0.0	2.475e-27	0
VARDIM	500	33	34	66	0.3	1.292e-24	0
VAREIGVL	10	9	11	61	0.0	1.296e-11	0
VAREIGVL	100	12	13	123	0.1	2.511e-09	0
VAREIGVL	50	12	13	133	0.1	1.103e-09	0

Table 16: Results for GLL1 on small problems (Part 6)

Problem	n	iters	evals	CG-its	CPU	value	exit
VAREIGVL	500	13	14	121	0.7	3.142e-09	0
VIBRBEAM	8	42	43	184	0.4	1.564e-01	3
WATSON	12	9	10	47	0.1	8.250e-08	0
WATSON	31	9	10	49	0.1	1.284e-08	0
WOODS	100	17	18	54	0.1	3.726e-15	0
WOODS	4	17	18	55	0.0	9.798e-17	0
WOODS	500	17	18	54	0.3	1.863e-14	0
YFITU	3	32	34	105	0.1	4.185e-09	0
ZANGWIL2	2	1	2	2	0.0	-1.820e+01	0
PFIT2LS	0				failed		
PFIT3LS	0				failed		
PFIT4LS	0				failed		
EXTROSNB	10	236	501	1701	0.3	6.027e-07	0
EXTROSNB	50	203	455	1703	1.5	1.177e-06	0
EXTROSNB	100	231	477	1906	5.3	1.002e-06	0

Table 17: Results for GLL1 on small problems (Part 7)

Problem	n	iters	evals	CG-its	CPU	value	exit
ARWHEAD	1000	6	7	14	0.3	0.000e+00	0
ARWHEAD	5000	5	6	11	1.5	1.110e-12	0
BDQRTIC	1000	14	15	92	1.3	3.984e+03	0
BROYDN7D	1000	66	119	788	6.9	3.565e+02	0
BRYBND	1000	9	10	80	1.3	3.189e-13	0
BRYBND	5000	9	10	78	7.0	1.049e-12	0
CRAGGLVY	1000	15	16	130	1.5	3.364e+02	0
CRAGGLVY	5000	16	17	148	9.7	1.688e+03	0
DIXMAANA	1500	7	15	18	0.7	1.000e+00	0
DIXMAANA	3000	7	19	19	1.5	1.000e+00	0
DIXMAANB	1500	8	9	21	0.7	1.000e+00	0
DIXMAANB	3000	8	9	21	1.4	1.000e+00	0
DIXMAANC	1500	9	10	23	0.8	1.000e+00	0
DIXMAANC	3000	9	10	23	1.6	1.000e+00	0
DIXMAAND	1500	10	11	27	0.8	1.000e+00	0
DIXMAAND	3000	10	11	27	1.8	1.000e+00	0
DIXMAANE	1500	28	47	504	5.0	1.000e+00	0
DIXMAANE	3000	19	33	660	11.7	1.000e+00	0
DIXMAANF	1500	30	43	319	4.4	1.000e+00	0
DIXMAANF	3000	12	13	286	6.5	1.000e+00	0
DIXMAANG	1500	13	14	249	2.7	1.000e+00	0
DIXMAANG	3000	31	38	528	13.1	1.000e+00	0
DIXMAANH	1500	31	41	356	4.7	1.000e+00	0
DIXMAANH	3000	35	48	467	12.7	1.000e+00	0
DIXMAANI	1500	21	39	4755	30.2	1.000e+00	0
DIXMAANI	3000	31	48	6162	87.8	1.000e+00	0
DIXMAANJ	1500	35	53	2742	23.1	1.000e+00	0
DIXMAANJ	3000	53	84	5867	108.2	1.000e+00	0
DIXMAANK	1500	26	37	2035	17.1	1.000e+00	0
DIXMAANK	3000	44	66	6332	114.9	1.000e+00	0
DIXMAANL	1500	39	57	2690	23.0	1.000e+00	0
DIXMAANL	3000	37	59	4740	86.6	1.000e+00	0
DQDRTIC	1000	5	6	17	0.2	1.908e-14	0
DQDRTIC	5000	5	6	18	1.2	8.352e-34	0
DQRTIC	1000	30	31	104	0.5	2.141e-07	0
DQRTIC	5000	35	36	134	3.1	2.039e-07	0

Table 18: Results for GLL1 on large problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
EDENSCH	2000	17	18	56	2.2	1.200e+04	0
EIGENALS	930	43	60	1051	91.9	7.870e-12	0
EIGENBLS	930	268	563	56343	6274.5	1.759e-10	0
ENGVAL1	1000	10	11	39	0.6	1.108e+03	0
ENGVAL1	5000	10	11	39	3.3	5.549e+03	0
FLETCBV2	1000	1	2	970	3.5	-5.014e-01	0
FLETCBV3	1000	10001	20035	24899	810.0	-1.727e+11	2
FMINSURF	1024	2662	10056	662763	5401.9	1.000e+00	0
FMINSURF	5625	failed					
FREUROTH	1000	14	22	74	1.2	1.214e+05	0
FREUROTH	5000	21	34	201	14.8	6.079e+05	0
LIARWHD	1000	14	15	37	0.6	3.779e-20	0
LIARWHD	5000	14	15	35	3.3	2.798e-15	0
MOREBV	1000	2	3	551	1.9	1.340e-09	0
MOREBV	5000	2	3	2692	58.3	1.053e-11	0
MSQRTALS	1024	106	191	13949	1624.3	4.797e-11	0
MSQRTALS	529	159	302	30559	1069.2	1.454e-13	0
MSQRTBLS	529	182	346	28812	1015.2	2.468e-12	0
MSQRTBLS	1024	151	267	41407	4821.3	1.166e-09	0
NCB20B	1000	20	26	883	65.3	1.676e+03	0
NONDIA	1000	6	7	14	0.3	5.329e-12	0
NONDIA	5000	6	7	14	1.7	1.191e-17	0
NONDIA	10000	4	5	9	2.4	5.777e-10	0
NONDQUAR	1000	135	167	11684	28.9	2.504e-08	0
NONDQUAR	5000	159	198	14787	213.2	5.464e-08	0
NONDQUAR	10000	192	272	24528	812.2	3.859e-08	0
NONMSQRT	529	108	134	7761	252.9	6.133e+01	3
PENALTY1	1000	36	37	76	0.9	9.686e-03	0
POWELLSG	1000	18	19	85	0.4	2.453e-08	0
POWELLSG	5000	18	19	86	2.1	1.227e-07	0
POWELLSG	10000	19	20	91	4.8	4.846e-08	0
POWER	1000	31	32	454	1.4	1.116e-09	0
QUARTC	1000	30	31	104	0.5	2.141e-07	0
QUARTC	5000	35	36	134	3.1	2.039e-07	0
QUARTC	10000	37	38	137	7.1	2.539e-07	0

Table 19: Results for GLL1 on large problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
SCHMVETT	1000	6	7	53	1.2	-2.994e+03	0
SCHMVETT	5000	7	8	65	7.7	-1.499e+04	0
SCHMVETT	10000	7	8	65	15.9	-2.999e+04	0
SINQUAD	1000	84	153	260	6.7	1.348e-07	0
SINQUAD	5000	139	279	436	83.4	1.181e-05	0
SINQUAD	10000	125	258	367	153.8	2.035e-05	0
SPMSRTLS	1000	49	90	775	10.4	3.971e-13	0
SPMSRTLS	4999				failed		
SPMSRTLS	10000	183	368	11748	1408.2	3.297e-01	0
SROSENBR	1000	8	9	19	0.2	2.946e-18	0
SROSENBR	5000	8	9	19	1.0	1.473e-17	0
SROSENBR	10000	8	9	19	2.1	2.946e-17	0
TESTQUAD	1000	11	12	1042	2.0	3.678e-13	0
TOINTGSS	1000	4	5	10	0.3	1.001e+01	0
TOINTGSS	5000	4	5	10	1.6	1.000e+01	0
TOINTGSS	10000	4	5	9	3.0	1.000e+01	0
TQUARTIC	1000	16	25	37	0.5	5.065e-16	0
TQUARTIC	5000	12	18	28	2.8	5.101e-18	0
TQUARTIC	10000	9	14	21	5.1	2.704e-17	0
TRIDIA	1000	9	10	585	1.3	1.325e-14	0
TRIDIA	5000	10	11	1544	18.8	7.107e-16	0
TRIDIA	10000	11	12	2258	65.3	2.990e-17	0
VARDIM	1000	36	37	72	0.6	8.128e-21	0
VARDIM	5000	45	46	90	4.0	1.189e-18	3
VAREIGVL	1000	14	15	158	1.7	1.012e-09	0
VAREIGVL	5000	15	16	148	9.6	1.249e-09	0
WOODS	1000	17	18	54	0.5	3.726e-14	0
WOODS	10000	18	19	58	6.6	3.076e-27	0
FLETCHCR	1000	1288	1291	15654	96.0	9.519e-19	0
GENROSE	1000	552	1030	10360	61.2	1.000e+00	0

Table 20: Results for GLL1 on large problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
ALLINITU	4	9	11	29	0.0	5.744e+00	0
ARWHEAD	100	5	2	12	0.0	0.000e+00	0
ARWHEAD	500	6	4	14	0.1	0.000e+00	0
BARD	3	15	12	52	0.0	8.215e-03	0
BDQRTIC	100	13	10	83	0.1	3.788e+02	0
BDQRTIC	500	13	9	84	0.5	1.981e+03	0
BEALE	2	9	11	24	0.0	5.528e-15	0
BIGGS6	6	26	33	93	0.1	5.656e-03	0
BOX3	3	8	4	24	0.0	2.384e-15	0
BRKMCC	2	3	2	8	0.0	1.690e-01	0
BROWNAL	10	6	5	16	0.0	1.529e-15	0
BROWNBS	2	4	5	9	0.0	1.972e-31	0
BROWNDEN	4	11	8	41	0.0	8.582e+04	0
BROYDN7D	10	14	13	104	0.0	1.261e+00	0
BROYDN7D	100	21	28	181	0.2	3.950e+01	0
BROYDN7D	500	48	81	477	2.3	1.803e+02	0
BRYBND	10	13	15	126	0.0	2.911e-21	0
BRYBND	100	9	6	92	0.1	1.704e-13	0
BRYBND	500	9	6	81	0.6	1.470e-13	0
CHNROSNB	10	25	29	158	0.0	8.970e-14	0
CLIFF	2	27	22	55	0.0	1.998e-01	0
CRAGGLVY	100	15	11	131	0.1	3.227e+01	0
CRAGGLVY	4	17	17	69	0.0	4.692e-08	0
CRAGGLVY	500	15	12	130	0.7	1.674e+02	0
CUBE	2	17	18	44	0.0	8.561e-13	0
DENSCHNA	2	5	4	14	0.0	1.200e-15	0
DENSCHNB	2	7	8	19	0.0	1.462e-20	0
DENSCHNC	2	9	7	22	0.0	1.842e-13	0
DENSCHND	3	30	31	100	0.0	8.229e-09	0
DENSCHNE	3	65	113	172	0.0	6.905e-14	0
DENSCHNF	2	6	2	18	0.0	6.513e-22	0
DIXMAANA	15	8	11	23	0.0	1.000e+00	0
DIXMAANA	90	6	10	16	0.0	1.000e+00	0
DIXMAANA	300	6	11	16	0.1	1.000e+00	0
DIXMAANB	15	8	6	21	0.0	1.000e+00	0
DIXMAANB	90	8	7	21	0.1	1.000e+00	0

Table 21: Results for GLL2 on small problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
DIXMAANB	300	8	7	21	0.1	1.000e+00	0
DIXMAANC	15	8	7	23	0.0	1.000e+00	0
DIXMAANC	90	8	7	22	0.1	1.000e+00	0
DIXMAANC	300	9	8	23	0.1	1.000e+00	0
DIXMAAND	15	9	12	33	0.0	1.000e+00	0
DIXMAAND	90	10	8	27	0.1	1.000e+00	0
DIXMAAND	300	10	8	27	0.2	1.000e+00	0
DIXMAANE	15	8	16	54	0.0	1.000e+00	0
DIXMAANE	90	20	29	175	0.2	1.000e+00	0
DIXMAANE	300	23	35	228	0.6	1.000e+00	0
DIXMAANF	15	9	7	44	0.0	1.000e+00	0
DIXMAANF	90	10	9	75	0.1	1.000e+00	0
DIXMAANF	300	11	10	136	0.3	1.000e+00	0
DIXMAANG	15	10	8	52	0.0	1.000e+00	0
DIXMAANG	90	11	10	83	0.1	1.000e+00	0
DIXMAANG	300	13	12	129	0.3	1.000e+00	0
DIXMAANH	15	12	11	62	0.0	1.000e+00	0
DIXMAANH	90	18	18	124	0.1	1.000e+00	0
DIXMAANH	300	13	11	121	0.3	1.000e+00	0
DIXMAANI	15	11	17	64	0.0	1.000e+00	0
DIXMAANI	90	8	14	371	0.2	1.000e+00	0
DIXMAANI	300	7	15	919	1.1	1.000e+00	0
DIXMAANJ	15	10	10	73	0.0	1.000e+00	0
DIXMAANJ	90	28	35	418	0.3	1.000e+00	0
DIXMAANJ	300	16	18	529	0.9	1.000e+00	0
DIXMAANK	15	13	12	93	0.0	1.000e+00	0
DIXMAANK	90	12	11	233	0.2	1.000e+00	0
DIXMAANK	300	28	36	840	1.5	1.000e+00	0
DIXMAANL	15	14	16	86	0.0	1.000e+00	0
DIXMAANL	90	26	35	333	0.3	1.000e+00	0
DIXMAANL	300	29	38	890	1.6	1.000e+00	0
DIXON3DQ	10	2	3	18	0.0	2.786e-30	0
DJTL	2	263	905	660	0.2	-8.952e+03	0
DQDRTIC	10	4	4	17	0.0	0.000e+00	0
DQDRTIC	100	6	5	18	0.0	5.003e-15	0

Table 22: Results for GLL2 on small problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
DQDRTIC	500	6	5	19	0.1	1.832e-36	0
DQRTIC	100	24	23	92	0.1	3.051e-08	0
DQRTIC	500	28	28	97	0.2	1.697e-07	0
EDENSCH	36	13	10	54	0.0	2.193e+02	0
EIGENALS	110	20	24	195	0.8	1.001e-10	0
EIGENALS	420	35	44	553	15.9	7.475e-12	0
EIGENBLS	110	65	94	1907	7.7	2.465e-14	0
EIGENBLS	420	173	348	20926	687.5	8.812e-10	0
EIGENCLS	462	157	297	10091	396.7	3.704e-13	0
ENGVAL1	100	10	5	40	0.1	1.091e+02	0
ENGVAL1	2	7	6	19	0.0	0.000e+00	0
ERRINROS	10	41	41	195	0.1	6.695e+00	0
ERRINROS	50	46	47	360	0.2	3.990e+01	0
EXPFIT	2	12	14	33	0.0	2.405e-01	0
EXTROSNB	5	36	33	161	0.0	8.180e-14	0
FLETCBV2	100	2	3	187	0.1	-5.140e-01	0
FLETCBV3	100	12	39	25	0.1	-4.518e-02	4
FLETCHBV	10	282	587	2952	0.5	-2.739e+06	0
FLETCHBV	100	10001	20022	0	1661.3	-1.778e+13	2
FLETCHCR	10	24	30	184	0.0	2.649e-12	0
FLETCHCR	100	140	146	1619	1.0	8.112e-18	0
FMINSURF	121	717	6896	55177	49.2	1.000e+00	0
FMINSURF	16	321	2912	4388	0.9	1.000e+00	0
FREUROTH	100	14	23	123	0.1	1.196e+04	0
FREUROTH	2	7	8	17	0.0	4.898e+01	0
FREUROTH	50	13	21	137	0.1	5.881e+03	0
FREUROTH	500	16	23	58	0.6	6.063e+04	0
GENROSE	10	23	23	176	0.0	1.000e+00	0
GENROSE	100	57	100	1060	0.6	1.000e+00	0
GENROSE	500	276	504	4936	13.8	1.000e+00	0
GROWTHLS	3	173	329	493	0.2	1.004e+00	0
GULF	3	21	36	56	0.3	8.539e-11	0
HAIRY	2	136	270	399	0.1	2.000e+01	0
HATFLDD	3	20	24	62	0.0	1.007e-07	0
HATFLDE	3	21	24	66	0.0	5.126e-07	0

Table 23: Results for GLL2 on small problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
HEART6LS	6	1177	2920	4673	1.7	1.303e-09	0
HELIX	3	21	27	65	0.0	6.547e-18	0
HILBERTA	2	2	3	5	0.0	8.217e-33	0
HILBERTB	5	5	3	11	0.0	1.977e-15	0
HIMMELBB	2	21	21	47	0.0	2.641e-11	0
HIMMELBF	4	4924	9844	24367	5.1	3.186e+02	0
HIMMELBG	2	5	4	15	0.0	2.977e-12	0
HIMMELBH	2	5	5	12	0.0	-1.000e+00	0
HYDC20LS	99	1975	1990	160198	295.1	5.367e-01	3
JENSMP	2	9	4	23	0.0	1.244e+02	0
KOWOSB	4	19	20	79	0.0	3.078e-04	0
LIARWHD	100	12	13	34	0.1	6.474e-16	0
LIARWHD	36	10	9	30	0.0	6.772e-19	0
LIARWHD	500	14	16	37	0.3	2.968e-15	0
LOGROS	2	259	523	708	0.1	1.172e-11	0
MANCINO	100	12	12	30	26.3	1.715e-21	0
MOREBV	10	3	4	31	0.0	2.716e-12	0
MOREBV	100	6	7	892	0.3	7.764e-08	0
MOREBV	500	3	2	1309	2.2	8.048e-09	0
MSQRTALS	100	36	65	1070	3.2	4.591e-11	0
MSQRTALS	4	10	6	40	0.0	1.394e-12	0
MSQRTALS	49	28	47	546	0.6	1.727e-11	0
MSQRTBLS	100	45	75	1570	4.4	5.665e-15	0
MSQRTBLS	49	49	66	1257	1.3	5.474e-04	0
MSQRTBLS	9	9	9	62	0.0	4.015e-11	0
NCB20B	100	24	27	1206	6.0	1.967e+02	0
NCB20B	50	14	11	301	0.7	9.950e+01	0
NCB20B	500	20	22	1207	40.4	8.975e+02	0
NONDIA	100	10	11	25	0.1	7.272e-28	0
NONDIA	50	10	8	27	0.0	4.708e-26	0
NONDIA	500	7	9	17	0.2	1.101e-18	0
NONDQUAR	100	59	60	1363	0.4	6.996e-08	0
NONDQUAR	500	116	143	7349	8.8	5.156e-08	0
NONMSQRT	100	76	81	1426	4.1	1.805e+01	0
NONMSQRT	49	80	90	907	1.1	1.076e+00	0

Table 24: Results for GLL2 on small problems (Part 4)

Problem	n	iters	evals	CG-its	CPU	value	exit
NONMSQRT	9	57	58	286	0.1	7.519e-01	0
OSBORNEA	5	6	29	17	0.0	2.537e-01	4
OSBORNEB	0				failed		
PALMER1C	8	7	8	51	0.0	9.761e-02	0
PALMER1D	7	5	6	32	0.0	6.527e-01	0
PALMER2C	8	7	8	49	0.0	1.437e-02	0
PALMER3C	8	7	8	47	0.0	1.954e-02	0
PALMER4C	8	7	8	47	0.0	5.031e-02	0
PENALTY1	10	18	14	38	0.0	7.088e-05	0
PENALTY1	100	30	28	65	0.1	9.025e-04	0
PENALTY1	50	24	21	51	0.1	4.318e-04	0
PENALTY1	500	32	30	66	0.4	4.779e-03	0
PENALTY2	10	18	16	63	0.0	2.937e-04	0
PENALTY2	100	18	17	91	0.2	9.710e+04	0
PENALTY2	50	28	27	132	0.2	4.296e+00	0
PENALTY3	100	16	23	191	22.1	1.000e-03	0
PENALTY3	50	35	45	271	8.3	2.418e+03	0
PFIT1LS	0				failed		
POWELLSG	100	17	16	80	0.0	1.242e-08	0
POWELLSG	500	17	16	80	0.2	6.209e-08	0
POWELLSG	20	16	15	75	0.0	1.257e-08	0
POWELLSG	4	15	15	70	0.0	1.273e-08	0
POWER	10	17	18	66	0.0	7.652e-09	0
POWER	100	24	24	154	0.1	2.714e-09	0
POWER	50	22	22	114	0.0	3.173e-09	0
POWER	500	29	29	335	0.6	1.246e-09	0
QUARTC	100	24	23	92	0.1	3.051e-08	0
QUARTC	25	19	19	62	0.0	7.864e-08	0
QUARTC	500	28	28	97	0.2	1.697e-07	0
ROSENBR	2	21	28	52	0.0	2.393e-14	0
S308	2	9	7	24	0.0	7.732e-01	0
SCHMVETT	10	5	2	43	0.0	-2.400e+01	0
SCHMVETT	500	6	3	62	0.6	-1.494e+03	0
SCHMVETT	3	4	2	15	0.0	-3.000e+00	0
SCHMVETT	500	6	3	62	0.6	-1.494e+03	0

Table 25: Results for GLL2 on small problems (Part 5)

Problem	n	iters	evals	CG-its	CPU	value	exit
SINQUAD	100	31	44	91	0.2	7.709e-07	0
SINQUAD	5	17	19	59	0.0	6.806e-08	0
SINQUAD	50	27	36	82	0.1	3.134e-07	0
SINQUAD	500	52	80	156	1.8	7.362e-08	0
SISSER	2	12	9	29	0.0	1.214e-08	0
SNAIL	2	70	121	176	0.1	8.201e-20	0
SPMSRTLS	100	36	58	429	0.6	1.954e-14	0
SPMSRTLS	28	27	42	247	0.1	2.510e-01	0
SPMSRTLS	499	17	27	183	1.3	1.663e+00	0
SROSENBR	10	7	6	16	0.0	3.832e-11	0
SROSENBR	100	8	9	19	0.0	2.946e-19	0
SROSENBR	50	8	8	19	0.0	1.473e-19	0
SROSENBR	500	8	9	19	0.1	1.473e-18	0
TOINTGOR	50	8	5	148	0.0	1.374e+03	0
TOINTGSS	10	135	256	1009	0.2	1.250e+01	0
TOINTGSS	100	8	7	43	0.1	1.020e+01	0
TOINTGSS	50	248	496	2128	1.4	1.042e+01	0
TOINTGSS	500	4	3	14	0.1	1.002e+01	0
TOINTPSP	50	40	96	311	0.1	2.256e+02	0
TOINTQOR	50	7	4	63	0.0	1.175e+03	0
TQUARTIC	100	12	22	29	0.1	3.267e-15	0
TQUARTIC	5	10	13	25	0.0	1.157e-14	0
TQUARTIC	50	9	15	22	0.0	1.242e-14	0
TQUARTIC	500	19	29	46	0.3	1.225e-15	0
TRIDIA	10	5	3	41	0.0	0.000e+00	0
TRIDIA	100	7	4	172	0.1	1.445e-13	0
TRIDIA	50	7	4	130	0.0	6.705e-15	0
TRIDIA	500	8	5	429	0.5	1.022e-13	0
VARDIM	10	14	12	28	0.0	1.640e-26	0
VARDIM	100	25	21	50	0.1	1.472e-25	0
VARDIM	50	22	19	44	0.0	2.475e-27	0
VARDIM	500	33	28	66	0.3	1.292e-24	0
VAREIGVL	10	9	5	61	0.0	1.296e-11	0
VAREIGVL	100	12	5	123	0.1	2.511e-09	0
VAREIGVL	50	12	4	133	0.1	1.048e-08	0

Table 26: Results for GLL2 on small problems (Part 6)

Problem	n	iters	evals	CG-its	CPU	value	exit
VAREIGVL	500	13	6	121	0.6	3.142e-09	0
VIBRBEAM	8	42	38	184	0.4	1.564e-01	3
WATSON	12	9	8	47	0.1	8.250e-08	0
WATSON	31	9	8	49	0.1	1.284e-08	0
WOODS	100	17	19	54	0.1	3.726e-15	0
WOODS	4	17	19	55	0.0	9.798e-17	0
WOODS	500	17	19	54	0.3	1.863e-14	0
YFITU	3	32	33	105	0.1	4.185e-09	0
ZANGWIL2	2	1	2	2	0.0	-1.820e+01	0
PFIT2LS	0				failed		
PFIT3LS	0				failed		
PFIT4LS	0				failed		
EXTROSNB	10	196	307	1347	0.2	6.596e-08	0
EXTROSNB	50	172	259	1341	1.1	7.017e-07	0
EXTROSNB	100	134	183	1019	0.9	6.881e-07	0

Table 27: Results for GLL2 on small problems (Part 7)

Problem	n	iters	evals	CG-its	CPU	value	exit
ARWHEAD	1000	6	4	14	0.3	0.000e+00	0
ARWHEAD	5000	5	4	11	1.4	1.110e-12	0
BDQRTIC	1000	14	11	92	1.2	3.984e+03	0
BROYDN7D	1000	66	114	788	6.8	3.565e+02	0
BRYBND	1000	9	6	80	1.2	3.189e-13	0
BRYBND	5000	9	6	78	6.8	1.049e-12	0
CRAGGLVY	1000	15	12	130	1.5	3.364e+02	0
CRAGGLVY	5000	16	12	148	9.3	1.688e+03	0
DIXMAANA	1500	7	12	18	0.6	1.000e+00	0
DIXMAANA	3000	7	17	19	1.4	1.000e+00	0
DIXMAANB	1500	8	7	21	0.7	1.000e+00	0
DIXMAANB	3000	8	7	21	1.4	1.000e+00	0
DIXMAANC	1500	9	8	23	0.7	1.000e+00	0
DIXMAANC	3000	9	8	23	1.6	1.000e+00	0
DIXMAAND	1500	10	9	27	0.8	1.000e+00	0
DIXMAAND	3000	10	9	27	1.8	1.000e+00	0
DIXMAANE	1500	28	46	504	5.2	1.000e+00	0
DIXMAANE	3000	19	31	660	11.8	1.000e+00	0
DIXMAANF	1500	13	11	236	2.7	1.000e+00	0
DIXMAANF	3000	12	12	286	6.3	1.000e+00	0
DIXMAANG	1500	13	12	249	2.8	1.000e+00	0
DIXMAANG	3000	31	36	528	12.9	1.000e+00	0
DIXMAANH	1500	31	39	356	4.8	1.000e+00	0
DIXMAANH	3000	43	58	572	15.3	1.000e+00	0
DIXMAANI	1500	21	39	4755	32.4	1.000e+00	0
DIXMAANI	3000	31	47	6162	89.2	1.000e+00	0
DIXMAANJ	1500	51	75	2404	22.6	1.000e+00	0
DIXMAANJ	3000	34	45	5650	99.0	1.000e+00	0
DIXMAANK	1500	26	35	1625	14.7	1.000e+00	0
DIXMAANK	3000	28	40	3070	55.2	1.000e+00	0
DIXMAANL	1500	30	41	2389	21.1	1.000e+00	0
DIXMAANL	3000	36	52	4311	77.0	1.000e+00	0
DQDRTIC	1000	5	5	17	0.2	1.908e-14	0
DQDRTIC	5000	5	5	18	1.2	8.352e-34	0
DQRTIC	1000	30	29	104	0.5	2.141e-07	0
DQRTIC	5000	35	36	134	3.1	2.039e-07	0

Table 28: Results for GLL2 on large problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
EDENSCH	2000	17	14	56	2.1	1.200e+04	0
EIGENALS	930	43	56	1051	91.6	7.870e-12	0
EIGENBLS	930	279	575	56035	6267.5	6.404e-11	0
ENGVAL1	1000	10	6	39	0.5	1.108e+03	0
ENGVAL1	5000	10	6	39	3.1	5.549e+03	0
FLETCBV2	1000	1	2	970	3.6	-5.014e-01	0
FLETCBV3	1000	3	23	7	0.3	-4.472e+01	4
FMINSURF	1024	2662	10053	662763	5357.5	1.000e+00	0
FMINSURF	5625	failed					
FREUROTH	1000	14	21	74	1.2	1.214e+05	0
FREUROTH	5000	17	28	188	12.6	6.077e+05	0
LIARWHD	1000	14	16	37	0.6	3.779e-20	0
LIARWHD	5000	14	15	35	3.3	2.798e-15	0
MOREBV	1000	2	4	551	1.9	1.340e-09	0
MOREBV	5000	2	4	2692	59.0	1.053e-11	0
MSQRTALS	1024	106	191	13949	1633.6	4.797e-11	0
MSQRTALS	529	159	302	30559	1088.7	1.454e-13	0
MSQRTBLS	529	182	346	28812	1033.4	2.468e-12	0
MSQRTBLS	1024	155	270	52083	5952.4	2.152e-10	0
NCB20B	1000	18	23	1174	88.9	1.676e+03	0
NONDIA	1000	6	7	14	0.3	5.329e-12	0
NONDIA	5000	6	7	14	1.7	1.191e-17	0
NONDIA	10000	4	5	9	2.4	5.777e-10	0
NONDQUAR	1000	135	164	11684	27.4	2.504e-08	0
NONDQUAR	5000	159	194	14787	210.6	5.464e-08	0
NONDQUAR	10000	189	252	21570	711.2	4.753e-08	0
NONMSQRT	529	108	129	7761	250.2	6.133e+01	3
PENALTY1	1000	36	34	76	0.9	9.686e-03	0
POWELLSG	1000	18	18	85	0.4	2.453e-08	0
POWELLSG	5000	18	18	86	2.2	1.227e-07	0
POWELLSG	10000	19	19	91	4.9	4.846e-08	0
POWER	1000	31	32	454	1.4	1.116e-09	0
QUARTC	1000	30	29	104	0.5	2.141e-07	0
QUARTC	5000	35	36	134	3.1	2.039e-07	0
QUARTC	10000	37	37	137	7.0	2.539e-07	0

Table 29: Results for GLL2 on large problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
SCHMVETT	1000	6	3	53	1.1	-2.994e+03	0
SCHMVETT	5000	7	4	65	7.3	-1.499e+04	0
SCHMVETT	10000	7	4	65	15.2	-2.999e+04	0
SINQUAD	1000	79	139	243	5.9	1.267e-07	0
SINQUAD	5000	113	222	340	65.4	1.247e-05	0
SINQUAD	10000	114	222	338	137.9	1.168e-05	0
SPMSRTLS	1000	51	91	798	10.2	5.564e-15	0
SPMSRTLS	4999	93	171	3320	208.3	2.349e-12	0
SPMSRTLS	10000				failed		
SROSENBR	1000	8	9	19	0.2	2.946e-18	0
SROSENBR	5000	8	10	19	1.0	1.473e-17	0
SROSENBR	10000	8	10	19	2.2	2.946e-17	0
TESTQUAD	1000	11	9	1042	2.1	3.678e-13	0
TOINTGSS	1000	4	3	10	0.3	1.001e+01	0
TOINTGSS	5000	4	3	10	1.4	1.000e+01	0
TOINTGSS	10000	4	3	9	2.8	1.000e+01	0
TQUARTIC	1000	19	34	47	0.6	8.980e-14	0
TQUARTIC	5000	17	27	43	4.2	6.070e-17	0
TQUARTIC	10000	9	12	21	4.8	2.704e-17	0
TRIDIA	1000	9	5	585	1.3	1.325e-14	0
TRIDIA	5000	10	6	1544	18.4	7.107e-16	0
TRIDIA	10000	11	6	2258	62.4	2.990e-17	0
VARDIM	1000	36	31	72	0.5	8.128e-21	0
VARDIM	5000	45	39	90	4.0	1.189e-18	3
VAREIGVL	1000	14	6	158	1.6	9.743e-09	0
VAREIGVL	5000	15	8	148	9.1	1.249e-09	0
WOODS	1000	17	19	54	0.5	3.726e-14	0
WOODS	10000	18	19	58	6.7	3.076e-27	0
FLETCHCR	1000	1288	1289	15654	94.8	9.519e-19	0
GENROSE	1000	552	1025	10360	59.4	1.000e+00	0

Table 30: Results for GLL2 on large problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
ALLINITU	4	9	11	29	0.0	5.744e+00	0
ARWHEAD	100	5	2	12	0.0	0.000e+00	0
ARWHEAD	500	6	4	14	0.1	0.000e+00	0
BARD	3	15	12	52	0.0	8.215e-03	0
BDQRTIC	100	13	10	83	0.1	3.788e+02	0
BDQRTIC	500	13	9	84	0.5	1.981e+03	0
BEALE	2	9	11	24	0.0	5.528e-15	0
BIGGS6	6	26	34	95	0.1	5.656e-03	0
BOX3	3	8	4	24	0.0	2.384e-15	0
BRKMCC	2	3	2	8	0.0	1.690e-01	0
BROWNAL	10	6	5	16	0.0	1.529e-15	0
BROWNBS	2	4	5	9	0.0	1.972e-31	0
BROWNDEN	4	11	8	41	0.0	8.582e+04	0
BROYDN7D	10	12	12	90	0.0	1.261e+00	0
BROYDN7D	100	19	27	209	0.2	4.117e+01	0
BROYDN7D	500	38	62	442	2.0	1.800e+02	0
BRYBND	10	13	15	126	0.0	2.911e-21	0
BRYBND	100	9	6	92	0.1	1.704e-13	0
BRYBND	500	9	6	81	0.6	1.470e-13	0
CHNROSNB	10	24	29	183	0.0	1.724e-23	0
CLIFF	2	27	22	55	0.0	1.998e-01	0
CRAGGLVY	100	15	11	131	0.1	3.227e+01	0
CRAGGLVY	4	17	17	69	0.0	4.692e-08	0
CRAGGLVY	500	15	12	130	0.7	1.674e+02	0
CUBE	2	27	40	69	0.0	6.667e-12	0
DENSCHNA	2	5	4	14	0.0	1.200e-15	0
DENSCHNB	2	7	8	19	0.0	1.462e-20	0
DENSCHNC	2	9	7	22	0.0	1.842e-13	0
DENSCHND	3	30	31	100	0.0	8.229e-09	0
DENSCHNE	3	65	113	172	0.0	6.905e-14	0
DENSCHNF	2	6	2	18	0.0	6.513e-22	0
DIXMAANA	15	6	10	17	0.0	1.000e+00	0
DIXMAANA	90	6	10	16	0.0	1.000e+00	0
DIXMAANA	300	6	11	16	0.1	1.000e+00	0
DIXMAANB	15	8	6	21	0.0	1.000e+00	0
DIXMAANB	90	8	7	21	0.0	1.000e+00	0

Table 31: Results for NMLS on small problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
DIXMAANB	300	8	7	21	0.1	1.000e+00	0
DIXMAANC	15	8	7	23	0.0	1.000e+00	0
DIXMAANC	90	8	7	22	0.1	1.000e+00	0
DIXMAANC	300	9	8	23	0.1	1.000e+00	0
DIXMAAND	15	9	12	33	0.0	1.000e+00	0
DIXMAAND	90	10	8	27	0.1	1.000e+00	0
DIXMAAND	300	10	8	27	0.2	1.000e+00	0
DIXMAANE	15	8	16	54	0.0	1.000e+00	0
DIXMAANE	90	9	17	112	0.1	1.000e+00	0
DIXMAANE	300	15	29	279	0.5	1.000e+00	0
DIXMAANF	15	9	7	44	0.0	1.000e+00	0
DIXMAANF	90	10	9	75	0.1	1.000e+00	0
DIXMAANF	300	11	10	136	0.3	1.000e+00	0
DIXMAANG	15	10	8	52	0.0	1.000e+00	0
DIXMAANG	90	11	10	83	0.1	1.000e+00	0
DIXMAANG	300	13	12	129	0.3	1.000e+00	0
DIXMAANH	15	12	11	62	0.0	1.000e+00	0
DIXMAANH	90	14	17	119	0.1	1.000e+00	0
DIXMAANH	300	13	11	121	0.3	1.000e+00	0
DIXMAANI	15	8	14	77	0.0	1.000e+00	0
DIXMAANI	90	8	14	371	0.2	1.000e+00	0
DIXMAANI	300	7	15	919	1.1	1.000e+00	0
DIXMAANJ	15	10	10	73	0.0	1.000e+00	0
DIXMAANJ	90	15	16	377	0.2	1.000e+00	0
DIXMAANJ	300	16	17	760	1.3	1.000e+00	0
DIXMAANK	15	13	12	93	0.0	1.000e+00	0
DIXMAANK	90	12	11	233	0.1	1.000e+00	0
DIXMAANK	300	24	30	770	1.4	1.000e+00	0
DIXMAANL	15	14	16	86	0.0	1.000e+00	0
DIXMAANL	90	20	26	313	0.2	1.000e+00	0
DIXMAANL	300	29	38	890	1.6	1.000e+00	0
DIXON3DQ	10	2	3	18	0.0	2.786e-30	0
DJTL	2	263	905	660	0.2	-8.952e+03	0
DQDRTIC	10	4	4	17	0.0	0.000e+00	0
DQDRTIC	100	6	5	18	0.0	5.003e-15	0

Table 32: Results for NMLS on small problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
DQDRTIC	500	6	5	19	0.1	1.832e-36	0
DQRTIC	100	24	23	92	0.1	3.051e-08	0
DQRTIC	500	28	28	97	0.2	1.697e-07	0
EDENSCH	36	13	10	54	0.0	2.193e+02	0
EIGENALS	110	20	24	195	0.8	1.001e-10	0
EIGENALS	420	34	44	563	15.7	1.872e-13	0
EIGENBLS	110	68	111	2145	8.5	6.727e-12	0
EIGENBLS	420	217	428	20041	660.0	8.283e-14	0
EIGENCLS	462	139	257	7474	292.1	1.793e-11	0
ENGVAL1	100	10	5	40	0.1	1.091e+02	0
ENGVAL1	2	7	6	19	0.0	0.000e+00	0
ERRINROS	10	41	49	212	0.1	6.695e+00	0
ERRINROS	50	42	49	387	0.2	3.990e+01	0
EXPFIT	2	8	13	22	0.0	2.405e-01	0
EXTROSNB	5	37	36	172	0.0	9.936e-13	0
FLETCBV2	100	2	3	187	0.1	-5.140e-01	0
FLETCBV3	100	12	39	25	0.1	-4.518e-02	4
FLETCHBV	10	309	635	3152	0.5	-2.741e+06	0
FLETCHBV	100	10001	20022	0	1512.2	-1.778e+13	2
FLETCHCR	10	24	30	184	0.0	2.649e-12	0
FLETCHCR	100	140	147	1612	1.0	1.417e-16	0
FMINSURF	121	242	2506	11489	12.1	1.000e+00	0
FMINSURF	16	14	60	156	0.0	1.000e+00	0
FREUROTH	100	14	22	125	0.1	1.196e+04	0
FREUROTH	2	7	8	17	0.0	4.898e+01	0
FREUROTH	50	13	21	136	0.1	5.881e+03	0
FREUROTH	500	11	21	47	0.5	6.063e+04	0
GENROSE	10	24	29	186	0.0	1.000e+00	0
GENROSE	100	63	111	1100	0.7	1.000e+00	0
GENROSE	500	267	504	4979	14.1	1.000e+00	0
GROWTHLS	3	166	317	477	0.2	1.004e+00	0
GULF	3	18	33	50	0.2	7.804e-10	0
HAIRY	2	55	119	163	0.0	2.000e+01	0
HATFLDD	3	20	24	62	0.0	1.007e-07	0
HATFLDE	3	21	24	66	0.0	5.126e-07	0

Table 33: Results for NMLS on small problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
HEART6LS	6	1134	2606	4621	1.6	6.472e-09	0
HELIX	3	12	17	40	0.0	1.642e-15	0
HILBERTA	2	2	3	5	0.0	8.217e-33	0
HILBERTB	5	5	3	11	0.0	1.977e-15	0
HIMMELBB	2	21	21	47	0.0	2.641e-11	0
HIMMELBF	4	4687	9378	23208	4.7	3.186e+02	0
HIMMELBG	2	5	4	15	0.0	2.977e-12	0
HIMMELBH	2	5	5	12	0.0	-1.000e+00	0
HYDC20LS	99	1975	1990	160198	290.9	5.367e-01	3
JENSMP	2	9	4	23	0.0	1.244e+02	0
KOWOSB	4	13	17	53	0.0	3.078e-04	0
LIARWHD	100	12	13	34	0.1	6.474e-16	0
LIARWHD	36	10	9	30	0.0	6.772e-19	0
LIARWHD	500	14	16	37	0.3	2.968e-15	0
LOGROS	2	105	203	256	0.1	0.000e+00	0
MANCINO	100	12	12	30	26.6	1.715e-21	0
MOREBV	10	3	4	31	0.0	2.716e-12	0
MOREBV	100	6	7	892	0.3	7.764e-08	0
MOREBV	500	3	2	1309	2.2	8.048e-09	0
MSQRTALS	100	18	29	565	1.7	5.272e-14	0
MSQRTALS	4	10	6	40	0.0	1.394e-12	0
MSQRTALS	49	26	43	452	0.5	2.800e-11	0
MSQRTBLS	100	25	43	722	2.2	7.251e-12	0
MSQRTBLS	49	23	34	506	0.6	1.255e-16	0
MSQRTBLS	9	9	9	62	0.0	4.015e-11	0
NCB20B	100	24	27	1206	5.9	1.967e+02	0
NCB20B	50	11	10	215	0.5	9.950e+01	0
NCB20B	500	20	22	1207	41.1	8.975e+02	0
NONDIA	100	10	11	25	0.1	7.272e-28	0
NONDIA	50	10	8	27	0.0	4.708e-26	0
NONDIA	500	7	9	17	0.2	1.101e-18	0
NONDQUAR	100	50	55	1631	0.4	1.929e-08	0
NONDQUAR	500	107	127	7798	9.2	2.877e-08	0
NONMSQRT	100	76	81	1426	4.2	1.805e+01	0
NONMSQRT	49	80	90	907	1.1	1.076e+00	0

Table 34: Results for NMLS on small problems (Part 4)

Problem	n	iters	evals	CG-its	CPU	value	exit
NONMSQRT	9	45	41	213	0.1	7.519e-01	0
OSBORNEA	5	6	29	17	0.0	2.537e-01	4
OSBORNEB	11	20	29	154	0.3	4.014e-02	0
PALMER1C	8	7	8	51	0.0	9.761e-02	0
PALMER1D	7	5	6	32	0.0	6.527e-01	0
PALMER2C	8	7	8	49	0.0	1.437e-02	0
PALMER3C	8	7	8	47	0.0	1.954e-02	0
PALMER4C	8	7	8	47	0.0	5.031e-02	0
PENALTY1	10	18	14	38	0.0	7.088e-05	0
PENALTY1	100	30	28	65	0.1	9.025e-04	0
PENALTY1	50	24	21	51	0.0	4.318e-04	0
PENALTY1	500	32	30	66	0.4	4.779e-03	0
PENALTY2	10	24	26	88	0.0	2.937e-04	0
PENALTY2	100	18	17	91	0.2	9.710e+04	0
PENALTY2	50	28	27	132	0.2	4.296e+00	0
PENALTY3	100	16	23	191	20.9	1.000e-03	0
PENALTY3	50	49	83	356	11.5	2.418e+03	0
PFIT1LS	3	508	1674	1511	0.4	1.511e-11	0
POWELLSG	100	17	16	80	0.0	1.242e-08	0
POWELLSG	500	17	16	80	0.2	6.209e-08	0
POWELLSG	20	16	15	75	0.0	1.257e-08	0
POWELLSG	4	15	15	70	0.0	1.273e-08	0
POWER	10	17	18	66	0.0	7.652e-09	0
POWER	100	24	24	154	0.1	2.714e-09	0
POWER	50	22	22	114	0.0	3.173e-09	0
POWER	500	29	29	335	0.5	1.246e-09	0
QUARTC	100	24	23	92	0.1	3.051e-08	0
QUARTC	25	19	19	62	0.0	7.864e-08	0
QUARTC	500	28	28	97	0.2	1.697e-07	0
ROSENBR	2	22	32	58	0.0	3.209e-12	0
S308	2	9	7	24	0.0	7.732e-01	0
SCHMVETT	10	5	2	43	0.0	-2.400e+01	0
SCHMVETT	500	6	3	62	0.6	-1.494e+03	0
SCHMVETT	3	4	2	15	0.0	-3.000e+00	0
SCHMVETT	500	6	3	62	0.6	-1.494e+03	0

Table 35: Results for NMLS on small problems (Part 5)

Problem	n	iters	evals	CG-its	CPU	value	exit
SINQUAD	100	31	44	91	0.2	7.709e-07	0
SINQUAD	5	20	24	69	0.0	7.264e-08	0
SINQUAD	50	27	36	82	0.1	3.134e-07	0
SINQUAD	500	52	80	156	1.8	7.362e-08	0
SISSER	2	12	9	29	0.0	1.214e-08	0
SNAIL	2	72	169	183	0.1	3.075e-12	0
SPMSRTLS	100	14	25	174	0.2	4.336e-13	0
SPMSRTLS	28	16	25	165	0.1	2.539e-16	0
SPMSRTLS	499	21	40	281	1.9	1.663e+00	0
SROSENBR	10	7	6	16	0.0	3.832e-11	0
SROSENBR	100	8	9	19	0.0	2.946e-19	0
SROSENBR	50	8	8	19	0.0	1.473e-19	0
SROSENBR	500	8	9	19	0.1	1.473e-18	0
TOINTGOR	50	8	5	148	0.0	1.374e+03	0
TOINTGSS	10	8	6	71	0.0	1.000e+01	0
TOINTGSS	100	8	7	31	0.1	1.010e+01	0
TOINTGSS	50	9	13	51	0.0	1.042e+01	0
TOINTGSS	500	4	3	14	0.1	1.002e+01	0
TOINTPSP	50	14	28	120	0.0	2.256e+02	0
TOINTQOR	50	7	4	63	0.0	1.175e+03	0
TQUARTIC	100	12	22	29	0.1	3.267e-15	0
TQUARTIC	5	10	13	25	0.0	1.157e-14	0
TQUARTIC	50	9	15	22	0.0	1.242e-14	0
TQUARTIC	500	19	29	46	0.3	1.225e-15	0
TRIDIA	10	5	3	41	0.0	0.000e+00	0
TRIDIA	100	7	4	172	0.1	1.445e-13	0
TRIDIA	50	7	4	130	0.0	6.705e-15	0
TRIDIA	500	8	5	429	0.5	1.022e-13	0
VARDIM	10	14	12	28	0.0	1.640e-26	0
VARDIM	100	25	21	50	0.1	1.472e-25	0
VARDIM	50	22	19	44	0.0	2.475e-27	0
VARDIM	500	33	28	66	0.3	1.292e-24	0
VAREIGVL	10	9	5	61	0.0	1.296e-11	0
VAREIGVL	100	12	5	123	0.1	2.511e-09	0
VAREIGVL	50	12	4	133	0.1	1.048e-08	0

Table 36: Results for NMLS on small problems (Part 6)

Problem	n	iters	evals	CG-its	CPU	value	exit
VAREIGVL	500	13	6	121	0.6	3.142e-09	0
VIBRBEAM	8	42	38	184	0.4	1.564e-01	3
WATSON	12	9	8	47	0.1	8.250e-08	0
WATSON	31	9	8	49	0.1	1.284e-08	0
WOODS	100	17	19	54	0.1	3.726e-15	0
WOODS	4	17	19	55	0.0	9.798e-17	0
WOODS	500	17	19	54	0.3	1.863e-14	0
YFITU	3	32	33	105	0.1	4.185e-09	0
ZANGWIL2	2	1	2	2	0.0	-1.820e+01	0
PFIT2LS	0			failed			
PFIT3LS	3	10001	18473	27778	8.3	5.244e-02	2
PFIT4LS	0			failed			
EXTROSNB	10	76	83	462	0.1	1.381e-06	0
EXTROSNB	50	191	346	1524	1.5	1.027e-06	0
EXTROSNB	100	198	372	1596	4.1	1.028e-06	0

Table 37: Results for NMLS on small problems (Part 7)

Problem	n	iters	evals	CG-its	CPU	value	exit
ARWHEAD	1000	6	4	14	0.3	0.000e+00	0
ARWHEAD	5000	5	4	11	1.4	1.110e-12	0
BDQRTIC	1000	14	11	92	1.2	3.984e+03	0
BROYDN7D	1000	63	112	775	6.8	3.577e+02	0
BRYBND	1000	9	6	80	1.2	3.189e-13	0
BRYBND	5000	9	6	78	6.9	1.049e-12	0
CRAGGLVY	1000	15	12	130	1.5	3.364e+02	0
CRAGGLVY	5000	16	12	148	9.4	1.688e+03	0
DIXMAANA	1500	7	12	18	0.6	1.000e+00	0
DIXMAANA	3000	7	17	19	1.5	1.000e+00	0
DIXMAANB	1500	8	7	21	0.7	1.000e+00	0
DIXMAANB	3000	8	7	21	1.4	1.000e+00	0
DIXMAANC	1500	9	8	23	0.8	1.000e+00	0
DIXMAANC	3000	9	8	23	1.6	1.000e+00	0
DIXMAAND	1500	10	9	27	0.8	1.000e+00	0
DIXMAAND	3000	10	9	27	1.8	1.000e+00	0
DIXMAANE	1500	16	33	454	4.0	1.000e+00	0
DIXMAANE	3000	18	36	774	14.3	1.000e+00	0
DIXMAANF	1500	13	11	236	2.6	1.000e+00	0
DIXMAANF	3000	12	12	286	6.7	1.000e+00	0
DIXMAANG	1500	13	12	249	2.7	1.000e+00	0
DIXMAANG	3000	22	36	496	12.1	1.000e+00	0
DIXMAANH	1500	23	30	368	4.3	1.000e+00	0
DIXMAANH	3000	17	21	307	7.8	1.000e+00	0
DIXMAANI	1500	14	32	2886	18.6	1.000e+00	0
DIXMAANI	3000	19	45	7786	119.4	1.000e+00	0
DIXMAANJ	1500	29	43	2689	22.6	1.000e+00	0
DIXMAANJ	3000	45	70	5506	106.3	1.000e+00	0
DIXMAANK	1500	16	17	1435	12.1	1.000e+00	0
DIXMAANK	3000	34	49	4940	94.5	1.000e+00	0
DIXMAANL	1500	30	41	2389	20.4	1.000e+00	0
DIXMAANL	3000	52	73	5973	115.6	1.000e+00	0
DQDRTIC	1000	5	5	17	0.2	1.908e-14	0
DQDRTIC	5000	5	5	18	1.2	8.352e-34	0
DQRTIC	1000	30	29	104	0.5	2.141e-07	0
DQRTIC	5000	35	36	134	3.1	2.039e-07	0

Table 38: Results for NMLS on large problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
EDENSCH	2000	14	13	47	1.8	1.200e+04	0
EIGENALS	930	47	61	1192	102.4	2.520e-11	0
EIGENBLS	930	308	648	64915	7209.3	1.022e-10	0
ENGVAL1	1000	10	6	39	0.5	1.108e+03	0
ENGVAL1	5000	10	6	39	3.1	5.549e+03	0
FLETCBV2	1000	1	2	970	3.4	-5.014e-01	0
FLETCBV3	1000	3	23	7	0.3	-4.472e+01	4
FMINSURF	1024	454	5315	63194	547.4	1.000e+00	0
FMINSURF	5625	34	476	50704	2586.2	1.557e+00	4
FREUROTH	1000	14	21	74	1.2	1.214e+05	0
FREUROTH	5000	19	32	244	15.4	6.077e+05	0
LIARWHD	1000	14	16	37	0.6	3.779e-20	0
LIARWHD	5000	14	15	35	3.3	2.798e-15	0
MOREBV	1000	2	4	551	1.9	1.340e-09	0
MOREBV	5000	2	4	2692	58.8	1.053e-11	0
MSQRTALS	1024	104	190	20188	2498.0	1.616e-13	0
MSQRTALS	529	166	318	36940	1299.4	1.367e-14	0
MSQRTBLS	529	85	161	15487	548.4	6.132e-12	0
MSQRTBLS	1024	155	270	52083	6375.7	2.152e-10	0
NCB20B	1000	18	23	1174	82.7	1.676e+03	0
NONDIA	1000	6	7	14	0.3	5.329e-12	0
NONDIA	5000	6	7	14	1.7	1.191e-17	0
NONDIA	10000	4	5	9	2.4	5.777e-10	0
NONDQUAR	1000	135	164	11684	27.8	2.504e-08	0
NONDQUAR	5000	143	187	11007	159.8	7.108e-08	0
NONDQUAR	10000	165	213	15851	532.4	6.898e-08	0
NONMSQRT	529	108	129	7761	254.1	6.133e+01	3
PENALTY1	1000	36	34	76	0.9	9.686e-03	0
POWELLSG	1000	18	18	85	0.4	2.453e-08	0
POWELLSG	5000	18	18	86	2.1	1.227e-07	0
POWELLSG	10000	19	19	91	4.9	4.846e-08	0
POWER	1000	31	32	454	1.4	1.116e-09	0
QUARTC	1000	30	29	104	0.5	2.141e-07	0
QUARTC	5000	35	36	134	3.1	2.039e-07	0
QUARTC	10000	37	37	137	7.1	2.539e-07	0

Table 39: Results for NMLS on large problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
SCHMVETT	1000	6	3	53	1.2	-2.994e+03	0
SCHMVETT	5000	7	4	65	7.4	-1.499e+04	0
SCHMVETT	10000	7	4	65	15.1	-2.999e+04	0
SINQUAD	1000	79	139	243	6.0	1.267e-07	0
SINQUAD	5000	77	143	221	43.8	3.593e-06	0
SINQUAD	10000	118	238	347	143.1	2.054e-05	0
SPMSRTLS	1000	26	45	381	5.1	3.130e-14	0
SPMSRTLS	4999	57	102	1122	79.6	1.743e-14	0
SPMSRTLS	10000	48	85	828	123.9	2.014e-11	0
SROSENBR	1000	8	9	19	0.2	2.946e-18	0
SROSENBR	5000	8	10	19	1.1	1.473e-17	0
SROSENBR	10000	8	10	19	2.1	2.946e-17	0
TESTQUAD	1000	11	9	1042	2.0	3.678e-13	0
TOINTGSS	1000	4	3	10	0.3	1.001e+01	0
TOINTGSS	5000	4	3	10	1.4	1.000e+01	0
TOINTGSS	10000	4	3	9	2.8	1.000e+01	0
TQUARTIC	1000	19	34	47	0.6	8.980e-14	0
TQUARTIC	5000	17	27	43	3.9	6.070e-17	0
TQUARTIC	10000	9	12	21	4.8	2.704e-17	0
TRIDIA	1000	9	5	585	1.2	1.325e-14	0
TRIDIA	5000	10	6	1544	18.7	7.107e-16	0
TRIDIA	10000	11	6	2258	62.7	2.990e-17	0
VARDIM	1000	36	31	72	0.5	8.128e-21	0
VARDIM	5000	45	39	90	4.0	1.189e-18	3
VAREIGVL	1000	14	6	158	1.6	9.743e-09	0
VAREIGVL	5000	15	8	148	9.1	1.249e-09	0
WOODS	1000	17	19	54	0.5	3.726e-14	0
WOODS	10000	18	19	58	6.7	3.076e-27	0
FLETCHCR	1000	1290	1295	15666	96.6	5.930e-19	0
GENROSE	1000	544	1039	10079	59.2	1.000e+00	0

Table 40: Results for NMLS on large problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
ALLINITU	4	8	12	10	0.0	5.744e+00	0
ARWHEAD	100	5	6	6	0.0	5.411e-13	0
ARWHEAD	500	5	6	6	0.2	2.288e-12	0
BARD	3	7	8	7	0.0	8.215e-03	0
BDQRTIC	100	10	11	11	0.1	3.788e+02	0
BDQRTIC	500	10	11	11	0.5	1.981e+03	0
BEALE	2	7	11	8	0.0	3.400e-11	0
BIGGS6	6	42	74	69	0.1	3.532e-12	0
BOX3	3	7	8	7	0.0	1.044e-11	0
BRKMCC	2	2	3	2	0.0	1.690e-01	0
BROWNAL	10	12	13	90	0.0	9.691e-12	0
BROWNBS	2	5	6	5	0.0	0.000e+00	0
BROWNDEN	4	8	9	8	0.0	8.582e+04	0
BROYDN7D	10	14	24	18	0.0	1.270e+00	0
BROYDN7D	100	17	28	54	0.2	3.899e+01	0
BROYDN7D	500	26	48	81	1.4	1.644e+02	0
BRYBND	10	11	14	26	0.0	2.635e-14	0
BRYBND	100	12	17	35	0.2	5.738e-17	0
BRYBND	500	12	16	35	0.8	1.534e-18	0
CHNROSNB	10	22	26	22	0.0	9.539e-16	0
CLIFF	2	27	28	27	0.0	1.998e-01	0
CRAGGLVY	100	14	15	14	0.1	3.227e+01	0
CRAGGLVY	4	15	17	15	0.0	3.279e-08	0
CRAGGLVY	500	14	15	14	0.7	1.674e+02	0
CUBE	2	26	37	26	0.0	4.042e-14	0
DENSCHNA	2	5	6	5	0.0	2.214e-12	0
DENSCHNB	2	5	7	6	0.0	8.487e-12	0
DENSCHNC	2	10	11	10	0.0	2.178e-20	0
DENSCHND	3	28	29	28	0.0	7.854e-09	0
DENSCHNE	3	10	13	11	0.0	5.717e-21	0
DENSCHNF	2	6	7	6	0.0	6.513e-22	0
DIXMAANA	15	5	6	5	0.0	1.000e+00	0
DIXMAANA	90	7	14	12	0.1	1.000e+00	0
DIXMAANA	300	8	16	13	0.2	1.000e+00	0
DIXMAANB	15	8	17	14	0.0	1.000e+00	0
DIXMAANB	90	26	58	133	0.3	1.000e+00	0

Table 41: Results for PBLS on small problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
DIXMAANB	300	31	70	169	1.0	1.000e+00	0
DIXMAANC	15	16	37	37	0.0	1.000e+00	0
DIXMAANC	90	18	35	51	0.1	1.000e+00	0
DIXMAANC	300	55	127	361	2.0	1.000e+00	0
DIXMAAND	15	13	25	31	0.0	1.000e+00	0
DIXMAAND	90	31	71	143	0.3	1.000e+00	0
DIXMAAND	300	50	116	304	1.7	1.000e+00	0
DIXMAANE	15	3	8	4	0.0	1.000e+00	0
DIXMAANE	90	7	17	12	0.1	1.000e+00	0
DIXMAANE	300	8	17	17	0.2	1.000e+00	0
DIXMAANF	15	15	32	33	0.0	1.000e+00	0
DIXMAANF	90	31	69	134	0.3	1.000e+00	0
DIXMAANF	300	59	140	345	2.1	1.000e+00	0
DIXMAANG	15	14	35	32	0.0	1.000e+00	0
DIXMAANG	90	36	80	303	0.5	1.000e+00	0
DIXMAANG	300	56	125	428	2.2	1.000e+00	0
DIXMAANH	15	17	34	33	0.0	1.000e+00	0
DIXMAANH	90	34	78	140	0.3	1.000e+00	0
DIXMAANH	300	80	197	562	3.0	1.000e+00	0
DIXMAANI	15	3	8	4	0.0	1.000e+00	0
DIXMAANI	90	8	18	17	0.1	1.000e+00	0
DIXMAANI	300	9	20	21	0.2	1.000e+00	0
DIXMAANJ	15	13	26	23	0.0	1.000e+00	0
DIXMAANJ	90	47	101	322	0.5	1.000e+00	0
DIXMAANJ	300	71	169	404	2.4	1.000e+00	0
DIXMAANK	15	13	34	27	0.0	1.000e+00	0
DIXMAANK	90	60	143	276	0.6	1.000e+00	0
DIXMAANK	300	57	131	466	2.3	1.000e+00	0
DIXMAANL	15	19	45	49	0.0	1.000e+00	0
DIXMAANL	90	48	133	233	0.5	1.000e+00	0
DIXMAANL	300	62	152	416	2.3	1.000e+00	0
DIXON3DQ	10	1	2	1	0.0	0.000e+00	0
DJTL	2	2208	3326	3311	1.8	-8.952e+03	0
DQDRTIC	10	1	2	1	0.0	0.000e+00	0
DQDRTIC	100	1	2	1	0.0	0.000e+00	0

Table 42: Results for PBLS on small problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
DQDRTIC	500	1	2	1	0.0	0.000e+00	0
DQRTIC	100	24	25	24	0.1	2.309e-08	0
DQRTIC	500	28	29	28	0.4	1.167e-07	0
EDENSCH	36	12	13	12	0.0	2.193e+02	0
EIGENALS	110	20	32	85	1.1	1.261e-17	0
EIGENALS	420	33	49	268	20.5	2.483e-14	0
EIGENBLS	110	113	221	3148	17.6	2.383e-15	0
EIGENBLS	420	183	393	36138	1273.2	1.405e-14	0
EIGENCLS	462	116	230	7827	357.9	1.244e-13	0
ENGVAL1	100	7	8	7	0.1	1.091e+02	0
ENGVAL1	2	7	8	7	0.0	0.000e+00	0
ERRINROS	10	22	43	23	0.0	7.195e+00	0
ERRINROS	50	35	92	51	0.2	4.040e+01	0
EXPFIT	2	7	10	8	0.0	2.405e-01	0
EXTROSNB	5	49	62	49	0.0	8.819e-16	0
FLETCBV2	100	1	2	1	0.0	-5.140e-01	0
FLETCBV3	100	10001	20305	234118	253.2	-1.763e+05	2
FLETCHBV	10	42	114	175	0.1	-2.727e+06	0
FLETCHBV	100	8553	19865	0	998.3	-1.728e+13	3
FLETCHCR	10	25	33	25	0.0	6.863e-20	0
FLETCHCR	100	157	185	157	0.9	2.105e-14	0
FMINSURF	121	58	472	1346	2.6	1.000e+00	0
FMINSURF	16	25	130	116	0.1	1.000e+00	0
FREUROTH	100	7	13	85	0.1	1.196e+04	0
FREUROTH	2	6	7	6	0.0	4.898e+01	0
FREUROTH	50	7	13	41	0.1	5.881e+03	0
FREUROTH	500	7	14	163	1.2	6.063e+04	0
GENROSE	10	25	36	28	0.0	1.000e+00	0
GENROSE	100	80	155	158	0.6	1.000e+00	0
GENROSE	500	398	796	837	14.1	1.000e+00	0
GROWTHLS	3	75	129	82	0.1	1.004e+00	0
GULF	3	50	91	71	0.7	5.094e-17	0
HAIRY	2	18	46	30	0.0	2.000e+01	0
HATFLDD	3	19	24	22	0.0	6.615e-08	0
HATFLDE	3	20	24	24	0.0	5.120e-07	0

Table 43: Results for PBLS on small problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
HEART6LS	6	384	1113	865	0.7	4.080e-13	0
HELIX	3	9	17	12	0.0	6.349e-17	0
HILBERTA	2	1	2	1	0.0	2.958e-31	0
HILBERTB	5	1	2	1	0.0	5.215e-30	0
HIMMELBB	2	7	16	11	0.0	4.396e-26	0
HIMMELBF	4	350	767	923	0.4	3.186e+02	0
HIMMELBG	2	5	7	6	0.0	5.181e-12	0
HIMMELBH	2	2	4	3	0.0	-1.000e+00	0
HYDC20LS	99	10001	12979	707542	1563.9	5.069e-02	2
JENSMP	2	9	10	9	0.0	1.244e+02	0
KOWOSB	4	7	9	9	0.0	3.078e-04	0
LIARWHD	100	11	12	28	0.1	9.087e-21	0
LIARWHD	36	10	11	25	0.0	3.324e-18	0
LIARWHD	500	11	12	31	0.4	4.538e-18	0
LOGROS	2	81	141	90	0.0	0.000e+00	0
MANCINO	100	14	29	28	40.4	1.344e-21	0
MOREBV	10	2	3	2	0.0	6.582e-14	0
MOREBV	100	1	2	1	0.0	7.887e-10	0
MOREBV	500	1	2	1	0.0	5.932e-12	0
MSQRTALS	100	98	189	3947	13.7	3.006e-14	0
MSQRTALS	4	10	13	22	0.0	5.072e-12	0
MSQRTALS	49	480	602	33762	37.0	3.687e-04	0
MSQRTBLS	100	47	91	1478	5.5	1.259e-11	0
MSQRTBLS	49	427	527	28855	31.8	5.471e-04	0
MSQRTBLS	9	13	23	65	0.0	2.599e-17	0
NCB20B	100	15	23	807	4.3	1.967e+02	0
NCB20B	50	22	38	804	2.2	9.950e+01	0
NCB20B	500	16	25	706	27.6	8.975e+02	0
NONDIA	100	32	60	68	0.3	9.899e-01	0
NONDIA	50	26	45	58	0.1	9.899e-01	0
NONDIA	500	62	143	142	2.5	9.899e-01	0
NONDQUAR	100	14	15	26	0.1	8.776e-08	0
NONDQUAR	500	16	17	27	0.3	6.512e-09	0
NONMSQRT	100	8089	8985	0	2800.7	1.806e+01	3
NONMSQRT	49	10001	10335	807628	789.0	1.076e+00	2

Table 44: Results for PBLS on small problems (Part 4)

Problem	n	iters	evals	CG-its	CPU	value	exit
NONMSQRT	9	1829	3696	8093	3.0	7.519e-01	0
OSBORNEA	5	10001	24799	30753	41.2	4.873e-02	2
OSBORNEB	11	13	22	80	0.3	4.014e-02	0
PALMER1C	8	10001	20300	56622	27.7	1.177e-01	2
PALMER1D	7	191	430	1317	0.5	6.527e-01	0
PALMER2C	8	10001	20386	35427	18.7	2.853e-02	2
PALMER3C	8	10001	20628	74137	21.9	1.966e-02	2
PALMER4C	8	10001	20671	78428	22.3	5.049e-02	2
PENALTY1	10	33	51	142	0.0	7.114e-05	0
PENALTY1	100	52	73	424	0.6	9.025e-04	0
PENALTY1	50	49	69	342	0.2	4.318e-04	0
PENALTY1	500	52	65	466	5.0	4.779e-03	0
PENALTY2	10	147	431	902	0.3	2.937e-04	0
PENALTY2	100	20	21	75	0.3	9.710e+04	0
PENALTY2	50	28	34	118	0.2	4.296e+00	0
PENALTY3	100	16	57	193	33.1	1.000e-03	3
PENALTY3	50	11	23	53	3.6	1.000e-03	0
PFIT1LS	3	295	517	345	0.3	3.434e-09	0
POWELLSG	100	16	17	20	0.1	2.162e-08	0
POWELLSG	500	17	18	24	0.3	2.136e-08	0
POWELLSG	20	16	17	20	0.0	4.325e-09	0
POWELLSG	4	15	16	16	0.0	4.379e-09	0
POWER	10	17	18	17	0.0	3.846e-09	0
POWER	100	24	25	40	0.1	4.880e-10	0
POWER	50	22	23	40	0.1	7.790e-10	0
POWER	500	28	29	31	2.0	3.136e-10	0
QUARTC	100	24	25	24	0.1	2.309e-08	0
QUARTC	25	19	20	19	0.0	5.926e-08	0
QUARTC	500	28	29	28	0.4	1.167e-07	0
ROSENBR	2	21	29	21	0.0	3.744e-21	0
S308	2	8	10	8	0.0	7.732e-01	0
SCHMVETT	10	3	4	3	0.0	-2.400e+01	0
SCHMVETT	500	3	4	3	0.3	-1.494e+03	0
SCHMVETT	3	3	4	3	0.0	-3.000e+00	0
SCHMVETT	500	3	4	3	0.3	-1.494e+03	0

Table 45: Results for PBLS on small problems (Part 5)

Problem	n	iters	evals	CG-its	CPU	value	exit
SINQUAD	100	67	117	211	0.8	7.538e-10	0
SINQUAD	5	11	12	11	0.0	1.172e-08	0
SINQUAD	50	36	86	153	0.3	1.012e-08	0
SINQUAD	500	91	159	261	5.3	4.191e-11	0
SISSER	2	12	13	12	0.0	1.066e-08	0
SNAIL	2	62	85	64	0.0	1.671e-19	0
SPMSRTLS	100	13	29	89	0.3	5.280e-14	0
SPMSRTLS	28	15	29	37	0.1	5.227e-14	0
SPMSRTLS	499	3284	6684	54564	463.4	1.383e+00	0
SROSENBR	10	7	9	7	0.0	1.788e-13	0
SROSENBR	100	8	10	8	0.0	6.604e-24	0
SROSENBR	50	7	9	7	0.0	8.941e-13	0
SROSENBR	500	8	10	8	0.2	3.302e-23	0
TOINTGOR	50	8	9	97	0.1	1.374e+03	0
TOINTGSS	10	1	2	1	0.0	1.000e+01	0
TOINTGSS	100	1	2	1	0.0	1.000e+01	0
TOINTGSS	50	1	2	1	0.0	1.000e+01	0
TOINTGSS	500	1	2	1	0.1	1.000e+01	0
TOINTPSP	50	18	41	102	0.1	2.256e+02	0
TOINTQOR	50	6	7	31	0.0	1.175e+03	0
TQUARTIC	100	8	12	12	0.1	1.229e-16	0
TQUARTIC	5	1	2	1	0.0	4.930e-32	0
TQUARTIC	50	8	14	12	0.0	2.937e-12	0
TQUARTIC	500	10	20	16	0.3	6.343e-18	0
TRIDIA	10	1	2	1	0.0	9.244e-31	0
TRIDIA	100	1	2	1	0.0	2.135e-28	0
TRIDIA	50	1	2	1	0.0	4.922e-29	0
TRIDIA	500	1	2	1	0.0	4.373e-27	0
VARDIM	10	16	17	54	0.0	7.084e-13	0
VARDIM	100	29	30	325	0.4	1.937e-12	0
VARDIM	50	26	27	215	0.1	1.097e-15	0
VARDIM	500	38	39	1406	8.1	1.216e-12	0
VAREIGVL	10	13	27	59	0.0	3.108e-09	0
VAREIGVL	100	19	35	91	0.3	1.058e-13	0
VAREIGVL	50	21	41	174	0.2	6.024e-15	0

Table 46: Results for PBLS on small problems (Part 6)

Problem	n	iters	evals	CG-its	CPU	value	exit
VAREIGVL	500	14	17	64	1.6	5.697e-10	0
VIBRBEAM	8	101	168	314	1.2	1.564e-01	0
WATSON	12	9	10	48	0.1	1.375e-07	0
WATSON	31	13	14	87	0.3	6.457e-09	0
WOODS	100	17	18	17	0.1	1.206e-22	0
WOODS	4	16	17	16	0.0	2.797e-13	0
WOODS	500	17	18	17	0.4	6.029e-22	0
YFITU	3	37	76	56	0.1	2.253e-08	0
ZANGWIL2	2	1	2	1	0.0	-1.820e+01	0
PFIT2LS	3	159	248	207	0.1	1.240e-13	0
PFIT3LS	3	58	92	93	0.1	5.504e-12	0
PFIT4LS	3	102	162	165	0.1	9.379e-12	0
EXTROSNB	10	236	343	285	0.3	1.324e-06	0
EXTROSNB	50	1304	1884	1304	7.6	1.305e-08	0
EXTROSNB	100	1220	1752	1220	15.3	1.582e-08	0

Table 47: Results for PBLS on small problems (Part 7)

Problem	n	iters	evals	CG-its	CPU	value	exit
ARWHEAD	1000	6	7	7	0.5	0.000e+00	0
ARWHEAD	5000	6	7	7	2.5	0.000e+00	0
BDQRTIC	1000	10	11	11	0.9	3.984e+03	0
BROYDN7D	1000	41	91	147	4.7	3.558e+02	0
BRYBND	1000	11	15	34	1.7	3.973e-17	0
BRYBND	5000	12	18	34	9.9	6.922e-17	0
CRAGGLVY	1000	14	15	14	1.4	3.364e+02	0
CRAGGLVY	5000	14	15	14	7.3	1.688e+03	0
DIXMAANA	1500	7	19	12	0.9	1.000e+00	0
DIXMAANA	3000	6	15	10	1.7	1.000e+00	0
DIXMAANB	1500	77	186	859	20.8	1.000e+00	0
DIXMAANB	3000	failed					
DIXMAANC	1500	111	258	1039	26.8	1.000e+00	0
DIXMAANC	3000	failed					
DIXMAAND	1500	105	244	1065	26.7	1.000e+00	0
DIXMAAND	3000	179	417	1954	105.9	1.000e+00	0
DIXMAANE	1500	7	19	12	0.9	1.000e+00	0
DIXMAANE	3000	6	15	10	1.7	1.000e+00	0
DIXMAANF	1500	123	292	1094	29.2	1.000e+00	0
DIXMAANF	3000	failed					
DIXMAANG	1500	173	410	1676	44.9	1.000e+00	0
DIXMAANG	3000	failed					
DIXMAANH	1500	118	274	859	24.9	1.000e+00	0
DIXMAANH	3000	failed					
DIXMAANI	1500	7	20	13	1.0	1.000e+00	0
DIXMAANI	3000	8	18	21	2.3	1.000e+00	0
DIXMAANJ	1500	142	342	1779	43.7	1.000e+00	0
DIXMAANJ	3000	134	325	1423	76.9	1.000e+00	0
DIXMAANK	1500	167	400	1388	37.5	1.000e+00	0
DIXMAANK	3000	failed					
DIXMAANL	1500	123	293	1398	34.5	1.000e+00	0
DIXMAANL	3000	failed					
DQDRTIC	1000	1	2	1	0.1	0.000e+00	0
DQDRTIC	5000	1	2	1	0.5	0.000e+00	0
DQRTIC	1000	30	31	30	0.8	1.468e-07	0
DQRTIC	5000	35	36	35	5.2	1.388e-07	0

Table 48: Results for PBLS on large problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
EDENSCH	2000	12	13	12	2.2	1.200e+04	0
EIGENALS	930	36	58	1572	181.3	3.316e-12	0
EIGENBLS	930	304	729	124496	14514.7	1.149e-08	0
ENGVAL1	1000	7	8	7	0.5	1.108e+03	0
ENGVAL1	5000	7	8	7	2.9	5.549e+03	0
FLETCBV2	1000	1	2	1	0.1	-5.014e-01	0
FLETCBV3	1000				failed		
FMINSURF	1024	28	246	1425	27.3	1.000e+00	0
FMINSURF	5625	50	596	6786	902.9	1.000e+00	0
FREUROTH	1000	8	16	427	7.5	1.215e+05	0
FREUROTH	5000	7	16	58	7.2	6.082e+05	0
LIARWHD	1000	11	12	31	0.8	1.510e-17	0
LIARWHD	5000	15	20	34	6.1	2.621e-26	0
MOREBV	1000	1	2	1	0.1	7.329e-13	0
MOREBV	5000	1	2	1	0.4	5.848e-15	0
MSQRTALS	1024	181	365	50222	6146.5	9.726e-12	0
MSQRTALS	529	137	311	32782	1240.5	4.329e-11	0
MSQRTBLS	529	330	746	109894	4077.6	1.735e-10	0
MSQRTBLS	1024	81	156	11735	1513.0	2.840e-11	0
NCB20B	1000	15	24	573	48.1	1.676e+03	0
NONDIA	1000	56	132	115	4.6	9.899e-01	0
NONDIA	5000	3249	6581	6520	1415.7	9.899e-01	0
NONDIA	10000	129	366	275	125.1	9.899e-01	0
NONDQUAR	1000	17	18	28	0.7	2.635e-09	0
NONDQUAR	5000	18	19	29	4.0	1.595e-09	0
NONDQUAR	10000	19	20	33	8.8	6.519e-10	0
NONMSQRT	529				failed		
PENALTY1	1000	46	53	242	13.0	9.686e-03	0
POWELLSG	1000	17	18	24	0.6	4.271e-08	0
POWELLSG	5000	18	19	28	3.5	4.219e-08	0
POWELLSG	10000	18	19	28	7.3	8.437e-08	0
POWER	1000	30	31	31	7.5	1.866e-10	0
QUARTC	1000	30	31	30	0.8	1.468e-07	0
QUARTC	5000	35	36	35	5.2	1.388e-07	0
QUARTC	10000	37	38	37	11.6	1.735e-07	0

Table 49: Results for PBLS on large problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
SCHMVETT	1000	3	4	3	0.6	-2.994e+03	0
SCHMVETT	5000	3	4	3	3.0	-1.499e+04	0
SCHMVETT	10000	3	4	3	6.2	-2.999e+04	0
SINQUAD	1000	235	530	682	31.9	2.104e-10	0
SINQUAD	5000	457	1058	1325	438.3	2.504e-09	0
SINQUAD	10000	859	2165	2491	1765.3	8.719e-09	0
SPMSRTLS	1000	295	584	11394	165.3	4.011e+00	0
SPMSRTLS	4999				failed		
SPMSRTLS	10000				failed		
SROSENBR	1000	8	10	8	0.3	6.604e-23	0
SROSENBR	5000	8	10	8	1.8	3.302e-22	0
SROSENBR	10000	8	10	8	3.7	6.604e-22	0
TESTQUAD	1000	6	7	26	0.3	7.596e-17	0
TOINTGSS	1000	1	2	1	0.1	1.000e+01	0
TOINTGSS	5000	1	2	1	0.7	1.000e+01	0
TOINTGSS	10000	1	2	1	1.4	1.000e+01	0
TQUARTIC	1000	11	22	17	0.6	3.115e-16	0
TQUARTIC	5000	7	13	11	2.5	2.618e-15	0
TQUARTIC	10000	7	12	11	5.7	1.669e-20	0
TRIDIA	1000	1	2	1	0.1	1.975e-26	0
TRIDIA	5000	1	2	1	0.3	4.917e-25	0
TRIDIA	10000	1	2	1	0.5	1.833e-24	0
VARDIM	1000	45	46	3229	37.2	3.551e-16	0
VARDIM	5000	55	56	10219	964.4	4.657e-11	3
VAREIGVL	1000	14	15	72	4.8	9.059e-10	0
VAREIGVL	5000	14	15	58	87.8	1.693e-09	0
WOODS	1000	17	18	17	0.8	1.206e-21	0
WOODS	10000	17	18	17	9.3	1.206e-20	0
FLETCHCR	1000	1473	1674	1473	88.2	1.688e-21	0
GENROSE	1000	777	1571	1642	56.3	1.000e+00	0

Table 50: Results for PBLS on large problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
ALLINITU	4	8	9	10	0.0	5.744e+00	0
ARWHEAD	100	5	5	6	0.0	5.411e-13	0
ARWHEAD	500	5	5	6	0.2	2.288e-12	0
BARD	3	7	7	7	0.0	8.215e-03	0
BDQRTIC	100	10	7	11	0.1	3.788e+02	0
BDQRTIC	500	10	6	11	0.4	1.981e+03	0
BEALE	2	10	13	11	0.0	5.557e-13	0
BIGGS6	6	43	62	65	0.1	9.982e-10	0
BOX3	3	7	7	7	0.0	1.044e-11	0
BRKMCC	2	2	2	2	0.0	1.690e-01	0
BROWNAL	10	12	7	90	0.0	9.691e-12	0
BROWNBS	2	5	7	5	0.0	0.000e+00	0
BROWNDEN	4	8	7	8	0.0	8.582e+04	0
BROYDN7D	10	14	22	18	0.0	1.270e+00	0
BROYDN7D	100	17	23	54	0.2	3.899e+01	0
BROYDN7D	500	31	47	87	1.6	1.644e+02	0
BRYBND	10	11	11	26	0.0	2.635e-14	0
BRYBND	100	12	13	35	0.2	5.738e-17	0
BRYBND	500	12	11	35	0.8	1.534e-18	0
CHNROSNB	10	21	22	21	0.0	1.436e-20	0
CLIFF	2	27	22	27	0.0	1.998e-01	0
CRAGGLVY	100	14	11	14	0.1	3.227e+01	0
CRAGGLVY	4	15	15	15	0.0	3.279e-08	0
CRAGGLVY	500	14	11	14	0.6	1.674e+02	0
CUBE	2	19	26	19	0.0	5.436e-30	0
DENSCHNA	2	5	4	5	0.0	2.214e-12	0
DENSCHNB	2	5	6	6	0.0	8.487e-12	0
DENSCHNC	2	10	8	10	0.0	2.178e-20	0
DENSCHND	3	28	29	28	0.0	7.854e-09	0
DENSCHNE	3	10	7	11	0.0	5.717e-21	0
DENSCHNF	2	6	2	6	0.0	6.513e-22	0
DIXMAANA	15	5	6	5	0.0	1.000e+00	0
DIXMAANA	90	7	12	12	0.1	1.000e+00	0
DIXMAANA	300	8	13	13	0.2	1.000e+00	0
DIXMAANB	15	8	17	14	0.0	1.000e+00	0
DIXMAANB	90	25	51	129	0.3	1.000e+00	0

Table 51: Results for PBLS on small problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
DIXMAANB	300	37	76	197	1.2	1.000e+00	0
DIXMAANC	15	19	44	41	0.0	1.000e+00	0
DIXMAANC	90	18	32	51	0.1	1.000e+00	0
DIXMAANC	300	57	120	314	2.0	1.000e+00	0
DIXMAAND	15	13	24	31	0.0	1.000e+00	0
DIXMAAND	90	51	111	198	0.5	1.000e+00	0
DIXMAAND	300	62	139	301	2.0	1.000e+00	0
DIXMAANE	15	3	8	4	0.0	1.000e+00	0
DIXMAANE	90	7	14	12	0.1	1.000e+00	0
DIXMAANE	300	8	16	17	0.2	1.000e+00	0
DIXMAANF	15	15	31	33	0.0	1.000e+00	0
DIXMAANF	90	27	57	112	0.3	1.000e+00	0
DIXMAANF	300	50	112	304	1.8	1.000e+00	0
DIXMAANG	15	14	35	32	0.0	1.000e+00	0
DIXMAANG	90	66	140	364	0.7	1.000e+00	0
DIXMAANG	300	95	210	504	3.3	1.000e+00	0
DIXMAANH	15	19	35	36	0.0	1.000e+00	0
DIXMAANH	90	40	80	138	0.3	1.000e+00	0
DIXMAANH	300	94	208	653	3.6	1.000e+00	0
DIXMAANI	15	3	8	4	0.0	1.000e+00	0
DIXMAANI	90	8	17	17	0.1	1.000e+00	0
DIXMAANI	300	9	18	21	0.2	1.000e+00	0
DIXMAANJ	15	13	24	23	0.0	1.000e+00	0
DIXMAANJ	90	63	137	357	0.7	1.000e+00	0
DIXMAANJ	300	95	211	340	2.8	1.000e+00	0
DIXMAANK	15	13	34	27	0.0	1.000e+00	0
DIXMAANK	90	47	102	210	0.5	1.000e+00	0
DIXMAANK	300	108	244	544	3.6	1.000e+00	0
DIXMAANL	15	20	48	53	0.0	1.000e+00	0
DIXMAANL	90	53	117	288	0.5	1.000e+00	0
DIXMAANL	300	71	160	509	2.8	1.000e+00	0
DIXON3DQ	10	1	2	1	0.0	0.000e+00	0
DJTL	2	789	1253	1181	0.7	-8.952e+03	0
DQDRTIC	10	1	2	1	0.0	0.000e+00	0
DQDRTIC	100	1	2	1	0.0	0.000e+00	0

Table 52: Results for PBLS on small problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
DQDRTIC	500	1	2	1	0.0	0.000e+00	0
DQRTIC	100	24	24	24	0.1	2.309e-08	0
DQRTIC	500	28	28	28	0.4	1.167e-07	0
EDENSCH	36	12	10	12	0.0	2.193e+02	0
EIGENALS	110	20	31	85	1.1	1.261e-17	0
EIGENALS	420	30	43	263	19.0	5.685e-14	0
EIGENBLS	110	93	163	2672	14.3	5.625e-14	0
EIGENBLS	420	190	336	20438	767.5	1.036e-12	0
EIGENCLS	462	183	335	6992	371.0	1.165e-11	0
ENGVAL1	100	7	5	7	0.1	1.091e+02	0
ENGVAL1	2	7	6	7	0.0	0.000e+00	0
ERRINROS	10	21	35	22	0.0	7.195e+00	0
ERRINROS	50	27	62	37	0.1	4.040e+01	0
EXPFIT	2	8	8	9	0.0	2.405e-01	0
EXTROSNB	5	28	29	28	0.0	3.290e-11	0
FLETCBV2	100	1	2	1	0.0	-5.140e-01	0
FLETCBV3	100	2	22	20	0.1	-4.534e-02	4
FLETCHBV	10	176	369	644	0.3	-2.734e+06	0
FLETCHBV	100	2	22	202	0.2	-4.122e+06	4
FLETCHCR	10	23	27	23	0.0	4.723e-27	0
FLETCHCR	100	140	145	140	0.9	9.754e-18	0
FMINSURF	121	489	4985	10600	21.6	1.000e+00	0
FMINSURF	16	37	279	198	0.1	1.000e+00	0
FREUROTH	100	7	12	85	0.1	1.196e+04	0
FREUROTH	2	6	6	6	0.0	4.898e+01	0
FREUROTH	50	7	12	41	0.1	5.881e+03	0
FREUROTH	500	7	13	163	1.3	6.063e+04	0
GENROSE	10	22	24	25	0.0	1.000e+00	0
GENROSE	100	60	108	130	0.5	1.000e+00	0
GENROSE	500	312	619	813	11.6	1.000e+00	0
GROWTHLS	3	65	112	80	0.1	1.004e+00	0
GULF	3	36	62	49	0.5	7.037e-16	0
HAIRY	2	67	184	102	0.1	2.000e+01	0
HATFLDD	3	13	17	17	0.0	6.615e-08	0
HATFLDE	3	20	22	24	0.0	5.120e-07	0

Table 53: Results for PBLS on small problems (Part 3)

Problem	n	iters	evals	CG-its	CPU	value	exit
HEART6LS	6	798	1978	1724	1.3	7.669e-16	0
HELIX	3	9	15	12	0.0	6.349e-17	0
HILBERTA	2	1	2	1	0.0	2.958e-31	0
HILBERTB	5	1	2	1	0.0	5.215e-30	0
HIMMELBB	2	7	14	11	0.0	4.396e-26	0
HIMMELBF	4	273	548	669	0.3	3.186e+02	0
HIMMELBG	2	5	4	6	0.0	5.181e-12	0
HIMMELBH	2	2	4	3	0.0	-1.000e+00	0
HYDC20LS	99	10001	11832	717165	1567.1	4.165e-02	2
JENSMP	2	9	4	9	0.0	1.244e+02	0
KOWOSB	4	7	6	9	0.0	3.078e-04	0
LIARWHD	100	11	9	28	0.1	9.087e-21	0
LIARWHD	36	10	9	25	0.0	3.324e-18	0
LIARWHD	500	11	10	31	0.4	4.538e-18	0
LOGROS	2	79	205	102	0.1	0.000e+00	0
MANCINO	100	14	21	28	36.5	1.344e-21	0
MOREBV	10	2	2	2	0.0	6.582e-14	0
MOREBV	100	1	2	1	0.0	7.887e-10	0
MOREBV	500	1	2	1	0.0	5.932e-12	0
MSQRTALS	100	103	189	4024	14.5	4.860e-16	0
MSQRTALS	4	10	6	22	0.0	5.072e-12	0
MSQRTALS	49	834	890	65761	71.8	3.660e-04	0
MSQRTBLS	100	100	194	4284	15.1	4.047e-12	0
MSQRTBLS	49	52	95	775	1.4	2.057e-11	0
MSQRTBLS	9	13	19	65	0.0	2.599e-17	0
NCB20B	100	15	15	815	4.3	1.967e+02	0
NCB20B	50	20	20	659	1.6	9.950e+01	0
NCB20B	500	16	14	706	27.4	8.975e+02	0
NONDIA	100	25	32	53	0.2	9.899e-01	0
NONDIA	50	21	24	42	0.1	9.899e-01	0
NONDIA	500	62	102	143	2.4	9.899e-01	0
NONDQUAR	100	14	14	26	0.1	8.776e-08	0
NONDQUAR	500	16	15	27	0.3	6.512e-09	0
NONMSQRT	100	10001	11044	0	3638.2	1.806e+01	2
NONMSQRT	49	10001	10337	811951	799.1	1.076e+00	2

Table 54: Results for PBLS on small problems (Part 4)

Problem	n	iters	evals	CG-its	CPU	value	exit
NONMSQRT	9	565	1102	2318	0.9	7.519e-01	0
OSBORNEA	5	10001	23212	27786	40.7	4.836e-02	2
OSBORNEB	11	13	20	80	0.3	4.014e-02	0
PALMER1C	8	336	674	2317	1.0	1.358e+00	4
PALMER1D	7	28	28	40	0.1	1.124e+01	4
PALMER2C	8	10001	19975	20008	17.6	1.030e+00	2
PALMER3C	8	10001	20233	77366	22.2	1.954e-02	2
PALMER4C	8	10001	20175	76762	22.1	5.032e-02	2
PENALTY1	10	29	25	105	0.0	7.088e-05	0
PENALTY1	100	41	38	250	0.4	9.025e-04	0
PENALTY1	50	41	39	226	0.2	4.318e-04	0
PENALTY1	500	43	42	243	3.7	4.779e-03	0
PENALTY2	10	55	56	197	0.1	2.937e-04	0
PENALTY2	100	20	16	75	0.3	9.710e+04	0
PENALTY2	50	25	22	93	0.2	4.296e+00	0
PENALTY3	100	12	23	181	26.3	1.000e-03	0
PENALTY3	50	11	20	53	3.6	1.000e-03	0
PFIT1LS	3	82	146	115	0.1	4.931e-10	0
POWELLSG	100	16	15	20	0.1	2.162e-08	0
POWELLSG	500	17	16	24	0.3	2.136e-08	0
POWELLSG	20	16	15	20	0.0	4.325e-09	0
POWELLSG	4	15	13	16	0.0	4.379e-09	0
POWER	10	17	15	17	0.0	3.846e-09	0
POWER	100	24	22	40	0.1	4.880e-10	0
POWER	50	22	19	40	0.1	7.790e-10	0
POWER	500	28	25	31	1.9	3.136e-10	0
QUARTC	100	24	24	24	0.1	2.309e-08	0
QUARTC	25	19	18	19	0.0	5.926e-08	0
QUARTC	500	28	28	28	0.4	1.167e-07	0
ROSENBR	2	19	26	19	0.0	8.342e-20	0
S308	2	8	7	8	0.0	7.732e-01	0
SCHMVETT	10	3	2	3	0.0	-2.400e+01	0
SCHMVETT	500	3	3	3	0.3	-1.494e+03	0
SCHMVETT	3	3	2	3	0.0	-3.000e+00	0
SCHMVETT	500	3	3	3	0.3	-1.494e+03	0

Table 55: Results for PBLS on small problems (Part 5)

Problem	n	iters	evals	CG-its	CPU	value	exit
SINQUAD	100	35	47	103	0.4	1.868e-08	0
SINQUAD	5	11	10	11	0.0	1.172e-08	0
SINQUAD	50	33	61	139	0.2	7.496e-09	0
SINQUAD	500	44	69	120	2.5	3.572e-08	0
SISSER	2	12	8	12	0.0	1.066e-08	0
SNAIL	2	65	98	73	0.1	3.141e-16	0
SPMSRTLS	100	13	26	89	0.3	5.280e-14	0
SPMSRTLS	28	15	25	37	0.1	7.232e-18	0
SPMSRTLS	499	3368	6827	57018	479.4	1.383e+00	0
SROSENBR	10	5	4	5	0.0	2.490e-29	0
SROSENBR	100	8	7	8	0.0	6.604e-24	0
SROSENBR	50	7	7	7	0.0	8.941e-13	0
SROSENBR	500	8	7	8	0.1	3.302e-23	0
TOINTGOR	50	8	5	97	0.1	1.374e+03	0
TOINTGSS	10	1	2	1	0.0	1.000e+01	0
TOINTGSS	100	1	2	1	0.0	1.000e+01	0
TOINTGSS	50	1	2	1	0.0	1.000e+01	0
TOINTGSS	500	1	2	1	0.1	1.000e+01	0
TOINTPSP	50	58	137	220	0.2	2.256e+02	0
TOINTQOR	50	6	4	31	0.0	1.175e+03	0
TQUARTIC	100	8	27	13	0.1	2.251e-11	0
TQUARTIC	5	1	2	1	0.0	4.930e-32	0
TQUARTIC	50	7	24	11	0.0	8.339e-11	0
TQUARTIC	500	10	18	16	0.3	4.774e-18	0
TRIDIA	10	1	2	1	0.0	9.244e-31	0
TRIDIA	100	1	2	1	0.0	2.135e-28	0
TRIDIA	50	1	2	1	0.0	4.922e-29	0
TRIDIA	500	1	2	1	0.0	4.373e-27	0
VARDIM	10	16	14	54	0.0	7.084e-13	0
VARDIM	100	29	28	325	0.4	1.937e-12	0
VARDIM	50	26	24	215	0.1	1.097e-15	0
VARDIM	500	38	36	1406	8.2	1.216e-12	0
VAREIGVL	10	13	21	59	0.0	3.108e-09	0
VAREIGVL	100	34	59	168	0.5	8.277e-16	0
VAREIGVL	50	21	25	141	0.2	2.648e-11	0

Table 56: Results for PBLS on small problems (Part 6)

Problem	n	iters	evals	CG-its	CPU	value	exit
VAREIGVL	500	31	45	168	3.6	3.734e-15	0
VIBRBEAM	8	47	79	161	0.6	4.796e+00	3
WATSON	12	9	8	48	0.1	1.375e-07	0
WATSON	31	13	13	87	0.3	6.457e-09	0
WOODS	100	17	16	17	0.1	1.206e-22	0
WOODS	4	16	14	16	0.0	2.797e-13	0
WOODS	500	17	14	17	0.4	6.029e-22	0
YFITU	3	25	48	38	0.1	7.080e-13	0
ZANGWIL2	2	1	2	1	0.0	-1.820e+01	0
PFIT2LS	3	68	113	100	0.1	6.828e-15	0
PFIT3LS	3	21	30	31	0.0	2.884e-15	0
PFIT4LS	3	22	28	32	0.0	9.253e-13	0
EXTROSNB	10	93	128	112	0.1	1.425e-07	0
EXTROSNB	50	100	111	100	0.6	1.304e-06	0
EXTROSNB	100	98	105	98	1.1	1.404e-06	0

Table 57: Results for PBLS on small problems (Part 7)

Problem	n	iters	evals	CG-its	CPU	value	exit
ARWHEAD	1000	6	7	7	0.5	0.000e+00	0
ARWHEAD	5000	6	7	7	2.5	0.000e+00	0
BDQRTIC	1000	10	11	11	0.9	3.984e+03	0
BROYDN7D	1000	41	91	147	4.7	3.558e+02	0
BRYBND	1000	11	15	34	1.7	3.973e-17	0
BRYBND	5000	12	18	34	9.9	6.922e-17	0
CRAGGLVY	1000	14	15	14	1.4	3.364e+02	0
CRAGGLVY	5000	14	15	14	7.3	1.688e+03	0
DIXMAANA	1500	7	19	12	0.9	1.000e+00	0
DIXMAANA	3000	6	15	10	1.7	1.000e+00	0
DIXMAANB	1500	77	186	859	20.8	1.000e+00	0
DIXMAANB	3000	failed					
DIXMAANC	1500	111	258	1039	26.8	1.000e+00	0
DIXMAANC	3000	failed					
DIXMAAND	1500	105	244	1065	26.7	1.000e+00	0
DIXMAAND	3000	179	417	1954	105.9	1.000e+00	0
DIXMAANE	1500	7	19	12	0.9	1.000e+00	0
DIXMAANE	3000	6	15	10	1.7	1.000e+00	0
DIXMAANF	1500	123	292	1094	29.2	1.000e+00	0
DIXMAANF	3000	failed					
DIXMAANG	1500	173	410	1676	44.9	1.000e+00	0
DIXMAANG	3000	failed					
DIXMAANH	1500	118	274	859	24.9	1.000e+00	0
DIXMAANH	3000	failed					
DIXMAANI	1500	7	20	13	1.0	1.000e+00	0
DIXMAANI	3000	8	18	21	2.3	1.000e+00	0
DIXMAANJ	1500	142	342	1779	43.7	1.000e+00	0
DIXMAANJ	3000	134	325	1423	76.9	1.000e+00	0
DIXMAANK	1500	167	400	1388	37.5	1.000e+00	0
DIXMAANK	3000	failed					
DIXMAANL	1500	123	293	1398	34.5	1.000e+00	0
DIXMAANL	3000	failed					
DQDRTIC	1000	1	2	1	0.1	0.000e+00	0
DQDRTIC	5000	1	2	1	0.5	0.000e+00	0
DQRTIC	1000	30	31	30	0.8	1.468e-07	0
DQRTIC	5000	35	36	35	5.2	1.388e-07	0

Table 58: Results for PBLS on large problems (Part 1)

Problem	n	iters	evals	CG-its	CPU	value	exit
EDENSCH	2000	12	13	12	2.2	1.200e+04	0
EIGENALS	930	36	58	1572	181.3	3.316e-12	0
EIGENBLS	930	304	729	124496	14514.7	1.149e-08	0
ENGVAL1	1000	7	8	7	0.5	1.108e+03	0
ENGVAL1	5000	7	8	7	2.9	5.549e+03	0
FLETCBV2	1000	1	2	1	0.1	-5.014e-01	0
FLETCBV3	1000				failed		
FMINSURF	1024	28	246	1425	27.3	1.000e+00	0
FMINSURF	5625	50	596	6786	902.9	1.000e+00	0
FREUROTH	1000	8	16	427	7.5	1.215e+05	0
FREUROTH	5000	7	16	58	7.2	6.082e+05	0
LIARWHD	1000	11	12	31	0.8	1.510e-17	0
LIARWHD	5000	15	20	34	6.1	2.621e-26	0
MOREBV	1000	1	2	1	0.1	7.329e-13	0
MOREBV	5000	1	2	1	0.4	5.848e-15	0
MSQRTALS	1024	181	365	50222	6146.5	9.726e-12	0
MSQRTALS	529	137	311	32782	1240.5	4.329e-11	0
MSQRTBLS	529	330	746	109894	4077.6	1.735e-10	0
MSQRTBLS	1024	81	156	11735	1513.0	2.840e-11	0
NCB20B	1000	15	24	573	48.1	1.676e+03	0
NONDIA	1000	56	132	115	4.6	9.899e-01	0
NONDIA	5000	3249	6581	6520	1415.7	9.899e-01	0
NONDIA	10000	129	366	275	125.1	9.899e-01	0
NONDQUAR	1000	17	18	28	0.7	2.635e-09	0
NONDQUAR	5000	18	19	29	4.0	1.595e-09	0
NONDQUAR	10000	19	20	33	8.8	6.519e-10	0
NONMSQRT	529				failed		
PENALTY1	1000	46	53	242	13.0	9.686e-03	0
POWELLSG	1000	17	18	24	0.6	4.271e-08	0
POWELLSG	5000	18	19	28	3.5	4.219e-08	0
POWELLSG	10000	18	19	28	7.3	8.437e-08	0
POWER	1000	30	31	31	7.5	1.866e-10	0
QUARTC	1000	30	31	30	0.8	1.468e-07	0
QUARTC	5000	35	36	35	5.2	1.388e-07	0
QUARTC	10000	37	38	37	11.6	1.735e-07	0

Table 59: Results for PBLS on large problems (Part 2)

Problem	n	iters	evals	CG-its	CPU	value	exit
SCHMVETT	1000	3	4	3	0.6	-2.994e+03	0
SCHMVETT	5000	3	4	3	3.0	-1.499e+04	0
SCHMVETT	10000	3	4	3	6.2	-2.999e+04	0
SINQUAD	1000	235	530	682	31.9	2.104e-10	0
SINQUAD	5000	457	1058	1325	438.3	2.504e-09	0
SINQUAD	10000	859	2165	2491	1765.3	8.719e-09	0
SPMSRTLS	1000	295	584	11394	165.3	4.011e+00	0
SPMSRTLS	4999				failed		
SPMSRTLS	10000				failed		
SROSENBR	1000	8	10	8	0.3	6.604e-23	0
SROSENBR	5000	8	10	8	1.8	3.302e-22	0
SROSENBR	10000	8	10	8	3.7	6.604e-22	0
TESTQUAD	1000	6	7	26	0.3	7.596e-17	0
TOINTGSS	1000	1	2	1	0.1	1.000e+01	0
TOINTGSS	5000	1	2	1	0.7	1.000e+01	0
TOINTGSS	10000	1	2	1	1.4	1.000e+01	0
TQUARTIC	1000	11	22	17	0.6	3.115e-16	0
TQUARTIC	5000	7	13	11	2.5	2.618e-15	0
TQUARTIC	10000	7	12	11	5.7	1.669e-20	0
TRIDIA	1000	1	2	1	0.1	1.975e-26	0
TRIDIA	5000	1	2	1	0.3	4.917e-25	0
TRIDIA	10000	1	2	1	0.5	1.833e-24	0
VARDIM	1000	45	46	3229	37.2	3.551e-16	0
VARDIM	5000	55	56	10219	964.4	4.657e-11	3
VAREIGVL	1000	14	15	72	4.8	9.059e-10	0
VAREIGVL	5000	14	15	58	87.8	1.693e-09	0
WOODS	1000	17	18	17	0.8	1.206e-21	0
WOODS	10000	17	18	17	9.3	1.206e-20	0
FLETCHCR	1000	1473	1674	1473	88.2	1.688e-21	0
GENROSE	1000	777	1571	1642	56.3	1.000e+00	0

Table 60: Results for PBLS on large problems (Part 3)

References

[Toint, 1994] Ph. L. Toint. An assessment of existing and new non-monotone linesearch techniques for unconstrained optimization. Technical Report ??, Department of Mathematics, FUNDP, Namur, Belgium, 1994.