CG with Powell restart. April 12, 2006

1 CG Algorithm:Extended Freudenstein & Roth Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	14	8	29	14	8	.2449212683962E+05	.1333963857976E-05
2000	16	9	34	14	15	.4898425367924E+05	.6647963300215E-06
3000	36	24	144	30	32	.7347638051886E+05	.1900639373488E-04
4000	18	11	38	18	15	.9796850735848E+05	.1659294453897E-04
5000	29	18	74	29	31	.1224606341981E+06	.6864104316210E-04
6000	15	9	34	15	19	.1469527610377E+06	.1596493497679E-04
7000	24	13	53	23	34	.1714448878773E+06	.1783042363383E-05
8000	98	74	959	88	450	.1959370147169E+06	.5092262667649E-04
9000	36	21	160	34	101	.2204291415566E+06	.5194861024245E-04
10000	12	8	27	12	24	.2449212683962E+06	.9580661905429E-07
TOTAL	298	195	1552	277	7.29 (seconds)	proc= 65.44%	

2 CG Algorithm:Extended Trigonometric Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	29	18	52	18	8	.1518522500643E-09	.9802258364155E-05
2000	33	19	59	22	19	.1504720247086E-11	.2368362982499E-05
3000	29	22	52	19	25	.1522048835930E-11	.2343325933311E-05
4000	30	22	56	21	36	.3981729398917E-11	.3053596740426E-05
5000	30	23	56	22	45	.9165537446340E-12	.1567738544074E-05
6000	33	23	55	19	54	.3145319978270E-08	.6651477747469E-05
7000	32	21	55	20	62	.1338263800516E-11	.1808989891943E-05
8000	32	21	57	22	73	.2803005318556E-10	.4599748836074E-05
9000	34	24	59	22	86	.1111804759997E-12	.6018215003448E-06
10000	35	24	61	23	98	.3167066953664E-12	.9270835419956E-06
TOTAL	317	217	562	208	5.06 (seconds)	proc= 68.45%	

3 CG Algorithm:Extended Rosenbrock Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	39	22	85	33	10	.1192679275458E-17	.4785783076340E-07
2000	38	21	87	33	19	.1663939700096E-09	.1152946415200E-04
3000	40	23	89	33	29	.3492645486146E-16	.5281717027408E-08
4000	38	21	89	33	38	.9347548955419E-09	.2732607018968E-04
5000	38	21	89	33	48	.9500697723490E-09	.2754916848843E-04
6000	38	21	89	33	58	.8721274542016E-09	.2639513262218E-04
7000	38	21	89	33	67	.7431258861522E-09	.2436512861321E-04
8000	40	23	92	34	81	.1192597132418E-15	.9759888085636E-08
9000	40	23	92	34	89	.1046533191460E-15	.9142696313539E-08
10000	37	21	82	32	90	.2307635095219E-16	.4918071282073E-07
TOTAL	386	217	883	331	5.29 (seconds)	proc= 56.22%	

4 CG Algorithm:Extended White & Holst Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	32	17	62	23	7	.2945889027348E-12	.3915198524069E-06
2000	32	17	65	25	15	.9395224766606E-14	.8175244820976E-07
3000	32	17	65	25	22	.5274442978335E-13	.1921763059248E-06
4000	32	17	65	25	29	.2900209775184E-11	.1377161178026E-05
5000	33	17	66	25	37	.2345015795954E-12	.3061313187915E-06
6000	33	18	66	25	45	.2905735877455E-12	.3407711267147E-06
7000	33	19	67	26	53	.6742871964001E-12	.5191073803238E-06
8000	33	19	67	26	60	.2066988000119E-11	.9088742693369E-06
9000	33	19	67	26	68	.2297331219017E-11	.9581788844386E-06
10000	33	19	67	26	75	.1855062630474E-12	.2722789863901E-06
TOTAL	326	179	657	252	4.11 (seconds)	proc= 54.91%	

5 CG Algorithm:Extended Beale Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	12	7	23	10	2	.6952220819271E-15	.2609569807540E-06
2000	12	8	24	10	3	.7273850766067E-15	.2407748903964E-06
3000	12	8	24	10	6	.4917138815382E-13	.2102356097507E-05
4000	12	8	24	10	8	.7032877123208E-14	.8237958631966E-06
5000	12	8	24	10	9	.4634231375842E-14	.6663540891274E-06
6000	12	8	24	10	11	.5143328769932E-14	.7071945293141E-06
7000	12	8	24	10	13	.7245397328613E-14	.8312748645575E-06
8000	12	8	24	10	17	.1137687184740E-13	.1050236864281E-05
9000	12	8	24	10	18	.1895738304297E-13	.1352686119767E-05
10000	12	8	24	10	18	.3233903070537E-13	.1765843238273E-05
TOTAL	120	79	239	100	1.05 (seconds)	proc= 65.83%	

6 CG Algorithm:Extended Penalty Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	19	11	43	12	4	.8831940750670E+03	.1198860120824E-04
2000	9	5	31	9	6	.1814063664869E+04	.3555108754607E-05
3000	10	7	33	9	8	.2755973749503E+04	.2430139942357E-05
4000	29	21	56	20	23	.3704070534948E+04	.2211439760252E-04
5000	10	7	34	9	15	.4656333923744E+04	.5291916154720E-05
6000	17	14	45	17	24	.5611676659140E+04	.7506807786310E-06
7000	19	16	48	18	31	.6569428560737E+04	.2522969798821E-05
8000	9	6	34	9	22	.7529139638522E+04	.9781035278039E-06
9000	18	14	48	16	39	.8490489281459E+04	.1952133330481E-05
10000	18	11	46	11	43	.9453238852842E+04	.3802892577153E-04
TOTAL	158	112	418	130	2.15 (seconds)	proc= 70.89%	

7 CG Algorithm:Perturbed Quadratic Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	372	100	575	202	52	.2522343349113E-12	.2730104651432E-05
2000	413	109	640	226	116	.8480798170729E-13	.3314679392970E-05
3000	557	151	865	307	235	.1609476222627E-12	.4200262735581E-05
4000	752	211	1172	419	424	.9549696104881E-13	.3129670456303E-05
5000	743	198	1165	421	525	.1587384747714E-12	.2509059011044E-05
6000	833	230	1305	471	706	.9735375848770E-13	.2250681331198E-05
7000	1005	268	1574	568	992	.7727177441741E-13	.4009793314909E-05
8000	1124	321	1743	618	1264	.2244904137560E-12	.3042408007579E-05
9000	1100	307	1734	633	1400	.1712039995822E-12	.7426813370295E-05
10000	958	263	1507	548	1352	.1071890875685E-12	.5102917272232E-05
TOTAL	7857	2158	12280	4413	70.66 (seconds)	proc= 27.47%	

8 CG Algorithm:Raydan 1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	386	191	688	256	58	.5005000000000E+05	.1001241103343E-05
2000	609	299	1019	325	170	.2001000000000E+06	.2076363195735E-05
3000	731	432	1179	360	292	.4501500000000E+06	.6948732291153E-06
4000	1275	884	2104	567	612	.8002000000000E+06	.9783947842002E-06
5000	1356	880	2259	659	841	.1250250000000E+07	.1279615137378E-05
6000	1661	1190	2528	623	1162	.1800300000000E+07	.1275044214591E-05
7000	1967	1561	2897	541	1486	.2450350000000E+07	.9977160409153E-06
8000	2001	1584	2637	462	1670	.3200400000000E+07	.3411314064317E-05
9000	995	563	1763	515	1214	.4050450000000E+07	.8841180508157E-06
10000	1691	1147	2896	775	2086	.5000500000000E+07	.1416130383874E-05
TOTAL	12672	8731	19970	5083	95.91 (seconds)	proc= 68.90%	

9 CG Algorithm:Raydan 2 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	4	4	9	4	0	.1000000000000E+04	.1635064626602E-06
2000	4	4	9	4	2	.2000000000000E+04	.2278967161880E-06
3000	4	4	9	4	2	.3000000000000E+04	.2772727595593E-06
4000	4	4	9	4	3	.4000000000000E+04	.3189085980221E-06
5000	4	4	9	4	3	.5000000000000E+04	.3555877027040E-06
6000	4	4	9	4	4	.6000000000000E+04	.3887518440354E-06
7000	4	4	9	4	5	.7000000000000E+04	.4192397568158E-06
8000	4	4	9	4	6	.8000000000000E+04	.4476277637395E-06
9000	4	4	9	4	6	.9000000000000E+04	.4742712167625E-06
10000	4	4	9	4	7	.1000000000000E+05	.4994223595876E-06
TOTAL	40	40	90	40	.38 (seconds)	proc= *****%	

10 CG Algorithm:Diagonal 1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	2001	1874	57533	1915	2335	-.2706832341531E+07	.3756109740208E-04
2000	2001	1815	53881	1898	4408	-.1220840670371E+08	.9718823851939E-04
3000	2001	1789	55705	1875	6738	-.2928916452173E+08	.7549791908408E-03
4000	2001	1793	55442	1872	9070	-.5436698616002E+08	.5575463492796E-02
5000	2001	1764	53800	1852	10909	-.8773370883420E+08	.2866584849697E-02
6000	2001	1757	54633	1847	13230	-.1296143649857E+09	.9681853112901E-02
7000	2001	1707	52276	1825	14978	-.1801922918025E+09	.1927748590413E-01
8000	2001	1736	53541	1852	17570	-.2396222480462E+09	.1130762193701E-01
9000	2001	1732	52950	1836	19471	-.3080381575977E+09	.2571037985319E+00
10000	2001	1651	50137	1794	20550	-.3855580713169E+09	.1963446078999E-01
TOTAL	20010	17618	539898	18566	1192.59 (seconds)	proc= 88.05%	

11 CG Algorithm:Diagonal 2 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	217	68	354	129	35	.3127464989787E+02	.1697516272786E-05
2000	312	91	512	187	103	.3699431144670E+02	.1385713831202E-05
3000	391	110	630	231	189	.4056322919050E+02	.1692647684377E-05
4000	392	115	641	237	255	.4319524089089E+02	.1775585830769E-05
5000	412	121	671	242	334	.4529383463634E+02	.1533403068982E-05
6000	545	157	888	324	529	.4704550127158E+02	.1627702212192E-05
7000	447	134	743	276	514	.4855246482357E+02	.1747200601192E-05
8000	701	189	1138	422	905	.4987707417951E+02	.2120730037204E-05
9000	578	162	949	345	845	.5106027015242E+02	.2182436880119E-05
10000	675	191	1092	405	1086	.5213043559890E+02	.2079921286221E-05
TOTAL	4670	1338	7618	2798	47.95 (seconds)	proc= 28.65%	

12 CG Algorithm:Diagonal 3 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	2001	1841	55897	1913	3419	-.4957524745606E+06	.9283934535753E-05
2000	1897	1640	47994	1734	5927	-.1991449986573E+07	.1908108592481E-05
3000	2001	1772	50719	1887	9417	-.4487144190354E+07	.6244275846624E-04
4000	2001	1752	52635	1853	13005	-.7982837036444E+07	.2806468639464E-03
5000	2001	1743	51932	1853	16046	-.1247852913784E+08	.1347971165257E-02
6000	2001	1696	48003	1816	17901	-.1797422076794E+08	.1539970461494E-03
7000	2001	1749	51684	1842	22388	-.2446991207268E+08	.1506532570134E-02
8000	2001	1666	47772	1798	23768	-.3196560313920E+08	.3147196158933E-03
9000	2001	1695	49184	1798	27455	-.4046129402376E+08	.1866692166385E-01
10000	2001	1617	44909	1784	28024	-.4995698476475E+08	.1053026479611E-03
TOTAL	19906	17171	500729	18278	1673.50 (seconds)	proc= 86.26%	

13 CG Algorithm:Hager Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	296	271	8228	280	470	-.4474419132154E+05	.9886600745738E-06
2000	478	450	13689	453	1525	-.1471735005125E+06	.1373196277710E-05
3000	920	884	27820	895	4826	-.2925501003138E+06	.1034975799708E-05
4000	1998	1955	63802	1964	14513	-.4746425076978E+06	.1546361707628E-05
5000	2001	1962	63679	1970	17909	-.6896067628040E+06	.2023063401120E-05
6000	1743	1697	54765	1709	18360	-.9347349321991E+06	.1147526630958E-05
7000	2001	1952	63312	1964	24680	-.1207973806382E+07	.3526942854809E-05
8000	2001	1953	63108	1962	28014	-.1507691037216E+07	.5631856965088E-05
9000	2001	1949	63846	1968	32033	-.1832544956898E+07	.1405580823499E-04
10000	2001	1946	62656	1965	35123	-.2181405217178E+07	.3362643382304E-05
TOTAL	15440	15019	484905	15130	1774.53 (seconds)	proc= 97.27%	

14 CG Algorithm:Generalized Tridiagonal 1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	23	3	51	23	7	.9972103074860E+03	.1368357799061E-05
2000	21	4	45	19	11	.1997210307486E+04	.1718774704636E-05
3000	21	5	48	20	19	.2997210307486E+04	.1740015688661E-05
4000	36	20	526	34	202	.3997210307486E+04	.2016387046715E-05
5000	39	23	560	37	261	.4997210307486E+04	.2488648573884E-05
6000	42	27	666	39	378	.5997210307486E+04	.2069798069808E-05
7000	53	40	996	50	644	.6997210307486E+04	.1071444967303E-05
8000	44	29	567	41	424	.7997210307486E+04	.1076141679076E-05
9000	48	34	811	45	686	.8997210307486E+04	.2070513584395E-05
10000	23	9	51	20	65	.9997210307486E+04	.2236761171474E-05
TOTAL	350	194	4321	328	26.97 (seconds)	proc= 55.43%	

15 CG Algorithm:Extended Tridiagonal 1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	11	6	22	10	3	.1358383938489E-07	.1035603585619E-04
2000	11	6	22	10	4	.4773659977587E-07	.3209330425936E-04
3000	10	5	21	10	6	.1356173110213E-05	.3645549769235E-04
4000	10	5	21	10	9	.1824600290602E-05	.4234037099954E-04
5000	10	5	21	10	10	.2277945912945E-05	.4726428304752E-04
6000	10	5	21	10	13	.2720767739585E-05	.5157019331077E-04
7000	10	5	21	10	14	.3155737093590E-05	.5543905718038E-04
8000	10	5	21	10	17	.3584565733128E-05	.5897903085211E-04
9000	10	5	21	10	19	.4008424639671E-05	.6226046582739E-04
10000	10	5	21	10	20	.4428155289234E-05	.6533200534199E-04
TOTAL	102	52	212	100	1.15 (seconds)	proc= 50.98%	

16 CG Algorithm:Extended Three Expo Terms Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	10	6	17	6	2	.1279633348329E+04	.5955239906355E-06
2000	8	5	14	5	3	.2559266696658E+04	.3082156255283E-04
3000	14	8	22	7	8	.3838900044987E+04	.7783159717131E-05
4000	12	7	19	6	10	.5118533393317E+04	.2769934049109E-04
5000	13	7	21	7	13	.6398166741646E+04	.6511081075972E-04
6000	12	7	19	6	14	.7677800089975E+04	.2300415696635E-04
7000	12	7	19	6	16	.8957433438305E+04	.5563771226792E-04
8000	8	5	14	5	14	.1023706678663E+05	.6894148194495E-06
9000	8	5	14	5	15	.1151670013496E+05	.3989421912019E-07
10000	12	7	19	6	24	.1279633348329E+05	.2881809239825E-04
TOTAL	109	64	178	59	1.19 (seconds)	proc= 58.72%	

17 CG Algorithm:Generalized Tridiagonal 2 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	44	17	74	28	12	.6263371020339E-13	.2388364609818E-05
2000	54	17	85	28	30	.9584127765254E+00	.2167772395941E-05
3000	53	21	81	25	42	.9584127765254E+00	.1976405501129E-05
4000	60	24	91	28	65	.1215078813006E+01	.2934035170790E-05
5000	56	19	86	27	75	.9584127765254E+00	.2876300508042E-05
6000	65	29	101	33	106	.9584127765254E+00	.2229073878778E-05
7000	61	25	95	31	115	.9584127765256E+00	.3079816446280E-05
8000	58	20	90	29	125	.1215078813006E+01	.3242706606919E-05
9000	62	23	98	33	152	.2852933237635E+01	.1456927637169E-05
10000	61	24	95	31	166	.2852933237635E+01	.2447239833469E-05
TOTAL	574	219	896	293	8.88 (seconds)	proc= 38.15%	

18 CG Algorithm:Diagonal 4 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	4	2	8	3	0	.2114881523650E-29	.2480638981193E-14
2000	4	2	8	3	2	.1166392604593E-27	.1779188997502E-13
3000	4	2	8	3	1	.1214032565772E-29	.1351212984314E-13
4000	4	2	8	3	3	.1247983857767E-26	.5194724785180E-13
5000	4	2	8	3	3	.7041667987918E-27	.1342640058574E-12
6000	4	2	8	3	4	.7485373682546E-27	.7665806463845E-13
7000	4	2	8	3	4	.2243526159342E-26	.5966667746392E-12
8000	4	2	8	3	5	.8143003168436E-26	.1049955667889E-11
9000	6	3	11	4	8	.2537281737712E-22	.7507180385222E-11
10000	6	3	11	4	9	.5502392570587E-23	.3315677919871E-10
TOTAL	44	22	86	32	.39 (seconds)	proc= 50.00%	

19 CG Algorithm:Diagonal 5 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	4	4	9	4	1	.6931471805599E+03	.8715768884900E-10
2000	4	4	9	4	3	.1386294361120E+04	.1502775478795E-09
3000	4	4	9	4	4	.2079441541680E+04	.1994241466411E-09
4000	4	4	9	4	5	.2772588722240E+04	.2412399549831E-09
5000	4	4	9	4	7	.3465735902800E+04	.2770876325013E-09
6000	4	4	9	4	8	.4158883083360E+04	.3079227696841E-09
7000	4	4	9	4	10	.4852030263920E+04	.3435486937104E-09
8000	4	4	9	4	11	.5545177444480E+04	.3732603752924E-09
9000	4	4	9	4	12	.6238324625040E+04	.4040991367898E-09
10000	4	4	9	4	14	.6931471805601E+04	.4277549885482E-09
TOTAL	40	40	90	40	.75 (seconds)	proc= *****%	

20 CG Algorithm:Extended Himmelblau Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	19	10	31	11	3	.3390841356639E-11	.1593752921045E-04
2000	19	10	31	11	5	.5542042481433E-11	.2057634744356E-04
3000	19	10	31	11	8	.7718693658480E-11	.2439139527160E-04
4000	19	10	31	11	10	.9889621992410E-11	.2768333365950E-04
5000	19	10	31	11	13	.1205268485089E-10	.3061758858436E-04
6000	19	10	31	11	16	.1420954596860E-10	.3328984868226E-04
7000	19	10	31	11	18	.1635947263618E-10	.3575785430175E-04
8000	19	10	31	11	20	.1850631711838E-10	.3806443868509E-04
9000	19	10	31	11	24	.2064886183116E-10	.4023622787548E-04
10000	19	10	31	11	26	.2278733897965E-10	.4229407587702E-04
TOTAL	190	100	310	110	1.43 (seconds)	proc= 52.63%	

21 CG Algorithm:Generalized PSC1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	365	132	640	241	202	.9987220414412E+03	.1295335907127E-05
2000	403	255	5602	342	3133	.1998722041482E+04	.2270636240303E-05
3000	379	172	1346	273	1148	.2998722041806E+04	.8119744349555E-05
4000	668	530	13950	612	15566	.3998722041591E+04	.4214956306670E-05
5000	571	260	1388	407	2132	.4998722041572E+04	.3544700126678E-05
6000	335	139	799	227	1468	.5998722041549E+04	.3102810024772E-05
7000	711	543	13010	641	24934	.6998722041458E+04	.1784543698746E-05
8000	482	253	2255	348	5330	.7998722041678E+04	.4663451158074E-05
9000	853	643	15236	776	38999	.8998722042529E+04	.1387723437353E-04
10000	1019	750	16448	897	45676	.9998722041770E+04	.5617983019046E-05
TOTAL	5786	3677	70674	4764	1385.88 (seconds)	proc= 63.55%	

22 CG Algorithm:Extended PSC1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	6	5	13	6	3	.3865995282465E+03	.1098462646851E-04
2000	6	5	13	6	5	.7731990564929E+03	.1492791778973E-04
3000	6	5	13	6	8	.1159798584739E+04	.1544301242271E-04
4000	7	5	15	7	12	.1546398112986E+04	.2218970719011E-06
5000	7	5	15	7	16	.1932997641232E+04	.2393650462321E-06
6000	7	5	15	7	18	.2319597169479E+04	.2822996711083E-06
7000	7	5	15	7	21	.2706196697725E+04	.2866687280573E-06
8000	7	5	15	7	24	.3092796225972E+04	.3909204277183E-06
9000	7	5	15	7	28	.3479395754218E+04	.4327304839443E-06
10000	7	5	15	7	30	.3865995282465E+04	.4395286013982E-06
TOTAL	67	50	144	67	1.65 (seconds)	proc= 74.63%	

23 CG Algorithm:Extended Powell Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	57	16	109	51	10	.2118083490762E-06	.9721822829848E-05
2000	41	13	77	35	14	.2759118606042E-06	.2234793179098E-04
3000	61	17	112	50	32	.2254802890284E-06	.2357588018023E-04
4000	59	18	105	45	40	.8996215937943E-07	.7495338034581E-05
5000	72	21	137	64	62	.1295019504473E-05	.3420386127806E-04
6000	76	23	139	62	79	.2296900639693E-05	.4888697479884E-04
7000	55	16	104	48	66	.5378220794624E-06	.3451941116121E-04
8000	66	20	121	54	90	.3605060241484E-05	.5244271808977E-04
9000	62	19	119	56	98	.1937607203085E-05	.5566907114744E-04
10000	59	19	113	53	102	.5271624926383E-06	.5853640707795E-04
TOTAL	608	182	1136	518	5.93 (seconds)	proc= 29.93%	

24 CG Algorithm:Extended Block-Diagonal BD1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	42	39	72	27	7	.1938707404501E-09	.2714740942604E-04
2000	55	55	87	29	18	.1619310422532E-09	.2481059730107E-04
3000	55	55	87	29	26	.2811909753719E-09	.3269436184314E-04
4000	55	55	87	29	36	.4072719923025E-09	.3934725666156E-04
5000	55	55	87	29	44	.5229147869464E-09	.4458488465886E-04
6000	55	55	87	29	54	.6282725209918E-09	.4887043652274E-04
7000	55	55	87	29	62	.7175576157287E-09	.5222766067402E-04
8000	55	55	87	29	71	.7642573304422E-09	.5390039956608E-04
9000	54	54	85	29	78	.1626090996442E-08	.7862210578459E-04
10000	51	50	83	28	83	.2070114324283E-08	.8870935734707E-04
TOTAL	532	528	849	287	4.79 (seconds)	proc= 99.25%	

25 CG Algorithm:Extended Maratos Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	69	34	155	65	11	-.5003121103484E+03	.2734294656591E-05
2000	71	35	160	68	23	-.1000624220696E+04	.2660732071776E-04
3000	69	34	156	67	32	-.1500936331045E+04	.2437488755897E-05
4000	66	33	151	64	43	-.2001248441393E+04	.3370415842617E-04
5000	66	33	152	64	52	-.2501560551742E+04	.9568196180342E-05
6000	69	34	159	68	66	-.3001872662090E+04	.1347617047159E-04
7000	66	33	151	65	74	-.3502184772437E+04	.4450480474068E-04
8000	69	34	157	66	89	-.4002496882786E+04	.3325083212436E-04
9000	66	33	152	64	95	-.4502808993135E+04	.1939130356651E-05
10000	66	33	152	64	105	-.5003121103484E+04	.1674387860022E-05
TOTAL	677	336	1545	655	5.90 (seconds)	proc= 49.63%	

26 CG Algorithm:Extended Cliff Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	28	24	50	9	5	.9989330707115E+02	.6816907849449E-05
2000	35	32	69	9	10	.1997866171128E+03	.2708135788000E-04
3000	36	35	62	5	16	.2996799205166E+03	.9872945529527E-07
4000	14	13	21	5	8	.3995732273554E+03	.7017669123435E-05
5000	17	15	38	8	14	.4994665391026E+03	.3133164104627E-04
6000	15	13	23	6	13	.5993598410471E+03	.1401553551038E-04
7000	17	14	40	8	21	.6992531518415E+03	.2818198261019E-04
8000	18	16	36	8	23	.7991464820791E+03	.7398406553106E-04
9000	21	17	46	10	31	.8990397615937E+03	.1009723298912E-04
10000	18	15	36	8	28	.9989330727375E+03	.2949337802125E-04
TOTAL	219	194	421	76	1.69 (seconds)	proc= 88.58%	

27 CG Algorithm:Quadratic Diagonal Perturbed Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	125	23	219	93	19	.3523182156672E-10	.5791207181158E-05
2000	226	37	398	171	68	.2455247739378E-10	.3155086575733E-05
3000	278	56	485	206	124	.1871633672947E-10	.3500529406420E-05
4000	289	54	502	212	173	.3263481155791E-10	.2802028956376E-04
5000	411	74	721	309	308	.2049385580020E-10	.2094702093878E-05
6000	374	73	657	282	337	.1532717710883E-10	.9347106571782E-05
7000	379	72	660	280	396	.1906763285100E-10	.9153903261584E-05
8000	418	82	727	308	499	.4146881010066E-10	.3193688445211E-04
9000	441	81	775	333	594	.3515611475965E-10	.2305842460860E-04
10000	426	78	747	320	639	.5883684143889E-10	.7099142508991E-04
TOTAL	3367	630	5891	2514	31.57 (seconds)	proc= 18.71%	

28 CG Algorithm:Extended Wood Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	24	9	47	21	6	.7156677880877E-12	.7417336322281E-05
2000	31	13	58	25	15	.1806054429677E-12	.1809319180666E-04
3000	25	10	49	22	19	.1381640267565E-09	.2612783408083E-04
4000	26	10	50	22	26	.7430018430487E-13	.1200672164585E-04
5000	28	12	54	24	34	.4625203845774E-13	.2949446853670E-05
6000	26	11	50	22	39	.2489340853974E-09	.1893024411700E-04
7000	27	11	51	22	46	.3995748832658E-10	.4461655456061E-04
8000	24	9	47	21	48	.8743596216107E-14	.1784249023216E-05
9000	31	13	58	25	68	.2356311490874E-09	.2111214184295E-04
10000	23	10	45	20	57	.2339854363263E-12	.8024603364270E-05
TOTAL	265	108	509	224	3.58 (seconds)	proc= 40.75%	

29 CG Algorithm:Extended Hiebert Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	77	49	169	77	12	.2262781120747E-12	.5447919636860E-06
2000	78	49	165	77	24	.2542493526868E-08	.2006721241101E-04
3000	79	50	171	78	37	.2204215781359E-13	.1514342167559E-04
4000	79	50	166	78	48	.1249196325690E-14	.3591636300793E-05
5000	77	49	157	76	59	.2023210891289E-10	.2132456014484E-05
6000	79	50	165	78	74	.2037620745760E-15	.1455990651621E-05
7000	79	50	164	78	86	.1742034584407E-14	.4257212430375E-05
8000	79	50	165	78	97	.9915391413988E-14	.1015668056599E-04
9000	79	50	164	78	110	.2895008851402E-14	.5488096493847E-05
10000	79	50	169	78	123	.8511431030369E-13	.2975757053380E-04
TOTAL	785	497	1655	776	6.70 (seconds)	proc= 63.31%	

30 CG Algorithm:Quadratic QF1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	343	93	537	193	33	-.4999999995816E-03	.2212886024792E-05
2000	506	148	792	285	99	-.2499999994730E-03	.2840447223215E-05
3000	622	173	961	338	182	-.1666666663078E-03	.3859276484549E-05
4000	897	250	1396	498	349	-.1249999997422E-03	.3356238028348E-05
5000	740	207	1157	416	361	-.9999999992524E-04	.4289442410525E-05
6000	816	220	1281	464	476	-.8333333329492E-04	.4955214017104E-05
7000	992	278	1560	567	675	-.7142857091603E-04	.2852619449506E-05
8000	1053	285	1651	597	820	-.6249999987330E-04	.6436126229515E-05
9000	1111	313	1748	636	973	-.5555555518272E-04	.4453682401886E-05
10000	1132	331	1763	630	1100	-.4999999993776E-04	.1718523324498E-05
TOTAL	8212	2298	12846	4624	50.68 (seconds)	proc= 27.98%	

31 CG Algorithm:Extended Quadratic Penalty QP1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	637	635	21129	637	760	.3990006250000E+04	.7456914915273E-06
2000	2001	1998	66948	2000	4840	.7990003125000E+04	.3349623290714E-05
3000	8	6	22	8	4	.1199000208333E+05	.6200238632329E-06
4000	2001	1998	66995	2000	9696	.1599000156250E+05	.4571753020474E-05
5000	9	8	26	8	9	.1999000125000E+05	.3847672623095E-06
6000	38	36	755	38	173	.2399000104167E+05	.9707353166239E-06
7000	43	41	899	43	238	.2799000089285E+05	.9221663265891E-06
8000	2001	1999	67065	2000	19462	.3199000078125E+05	.1224368174560E-04
9000	42	41	901	42	306	.3599000069444E+05	.9250898320245E-06
10000	30	28	654	29	246	.3999000062499E+05	.9754690208718E-06
TOTAL	6810	6790	225394	6805	357.34 (seconds)	proc= 99.71%	

32 CG Algorithm:Extended Quadratic Penalty QP2 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	37	20	90	34	9	.1243246755841E-16	.1811598128861E-07
2000	37	19	87	33	19	.8820591095977E-14	.1878360201545E-06
3000	45	22	106	43	35	.1380107541224E-15	.3363339255193E-07
4000	43	21	108	42	46	.2736177973349E-17	.3335931120460E-08
5000	43	22	106	41	57	.6710859420901E-13	.5181066424561E-06
6000	41	19	112	39	71	.2744871064071E-15	.4662085520786E-07
7000	47	25	104	43	81	.1093632001036E-16	.7494188054025E-08
8000	42	21	105	41	90	.1372305877994E-16	.1481726180423E-06
9000	42	21	111	41	106	.3569410470195E-15	.7557105285176E-06
10000	42	21	107	41	114	.2714982845412E-15	.6590841042872E-06
TOTAL	419	211	1036	398	6.28 (seconds)	proc= 50.36%	

33 CG Algorithm:Quadratic QF2 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	394	110	600	205	83	-.1000124968766E+01	.2597329437053E-05
2000	548	152	850	300	227	-.1000062492189E+01	.2481755290068E-05
3000	606	184	939	331	373	-.1000041663195E+01	.1883917016468E-05
4000	826	242	1282	453	662	-.1000031248047E+01	.2598034964895E-05
5000	924	264	1442	514	930	-.1000024998750E+01	.2412570425135E-05
6000	987	290	1561	567	1188	-.1000020832465E+01	.1408073226416E-05
7000	1209	334	1909	697	1673	-.1000017856505E+01	.2574764797638E-05
8000	1261	354	1985	722	1933	-.1000015624512E+01	.2857434366382E-05
9000	1433	412	2267	824	2494	-.1000013888503E+01	.3634850149549E-05
10000	1388	447	2202	788	2658	-.1000012499688E+01	.2613346785030E-05
TOTAL	9576	2789	15037	5401	122.21 (seconds)	proc= 29.12%	

34 CG Algorithm:Extended EP1 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	2	2	5	2	1	.7931762881473E+04	.5427376174645E-08
2000	3	3	6	2	0	.1586352576295E+05	.1185543339228E-08
3000	3	3	6	2	1	.2379528864442E+05	.2225548739908E-10
4000	3	3	6	2	1	.3172705152589E+05	.2620573871782E-10
5000	3	3	6	2	2	.3965881440736E+05	.1529755802112E-09
6000	3	3	6	2	3	.4759057728884E+05	.2073590669368E-09
7000	3	3	6	2	3	.5552234017031E+05	.1121914841985E-09
8000	2	2	4	1	2	.6345410305178E+05	.3908987923302E-04
9000	3	3	6	2	3	.7138586593325E+05	.2528642697408E-09
10000	4	4	7	2	5	.7931762881473E+05	.6092834570204E-10
TOTAL	29	29	58	19	.21 (seconds)	proc= *****%	

35 CG Algorithm:Extended Tridiagonal 2 Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	32	12	50	17	5	.3893393944764E+03	.3549011845256E-05
2000	37	16	92	22	14	.7790685180764E+03	.4095705744457E-05
3000	35	18	65	25	17	.1168797641676E+04	.3442423842433E-05
4000	36	18	58	20	21	.1558526765277E+04	.2605429512833E-05
5000	35	15	60	21	27	.1948255888877E+04	.2990944710324E-05
6000	33	13	52	17	30	.2337985012477E+04	.2070301832208E-05
7000	33	17	56	19	37	.2727714136076E+04	.3003431519622E-05
8000	38	20	67	25	47	.3117443259676E+04	.2562316044260E-05
9000	38	20	139	27	78	.3507172383276E+04	.4851641061213E-05
10000	36	18	63	21	56	.3896901506876E+04	.1804828125339E-05
TOTAL	353	167	702	214	3.32 (seconds)	proc= 47.31%	

36 CG Algorithm:BDQRTIC (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	1610	1464	30924	1264	6111	.3983817950577E+04	.9643648973471E-06
2000	2001	1890	55422	1973	21831	.7989427682541E+04	.5306846116938E-04
3000	2001	1892	53610	1972	31722	.1199503741451E+05	.1819865403942E-04
4000	2001	1839	50226	1955	39765	.1600064714647E+05	.1820372333410E-03
5000	2001	1859	52217	1968	51549	.2000625687843E+05	.1134733715780E-04
6000	2001	1868	52842	1969	62557	.2401186661040E+05	.2521350054186E-04
7000	2001	1846	51519	1969	71349	.2801747634236E+05	.2979965323870E-04
8000	2001	1820	49391	1954	78039	.3202308607433E+05	.5383851178688E-05
9000	2001	1861	52411	1965	93186	.3602869580629E+05	.3765753873672E-03
10000	2001	1838	50002	1964	98865	.4003430553825E+05	.5281432286876E-04
TOTAL	19619	18177	498564	18953	5549.74 (seconds)	proc= 92.65%	

37 CG Algorithm:TRIDIA (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	995	261	1571	575	143	.3008572813189E-12	.4152176707637E-05
2000	2001	523	3158	1157	579	.2754727260613E-10	.1887033832465E-04
3000	2001	552	3117	1116	863	.2213697176599E-09	.4540664761475E-04
4000	2001	570	3091	1090	1147	.2240352354757E-08	.3816592087961E-03
5000	2001	562	3139	1138	1441	.1844460750993E-05	.1242948454162E+00
6000	2001	543	3124	1123	1724	.1218615665869E-05	.1058789033510E-01
7000	2001	543	3151	1150	2018	.1270944284288E-05	.6330134921744E-01
8000	2001	526	3125	1124	2298	.2846437408542E-03	.9541117072690E-01
9000	2001	574	3105	1104	2578	.4450088719374E-05	.1187192826863E-01
10000	2001	552	3169	1168	2884	.1896772409414E-03	.6253010211445E-01
TOTAL	19004	5206	29750	10745	156.75 (seconds)	proc= 27.39%	

38 CG Algorithm:ARWHEAD (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	8	6	57	7	11	.0000000000000E+00	.4188453008996E-06
2000	9	6	37	7	15	.0000000000000E+00	.1534715352018E-06
3000	15	8	31	14	20	.0000000000000E+00	.1343223566620E-06
4000	7	5	35	6	27	.0000000000000E+00	.6794397979891E-06
5000	7	5	35	6	35	.0000000000000E+00	.5061882640597E-06
6000	6	4	14	5	18	.0000000000000E+00	.8206033747649E-06
7000	17	11	95	16	131	.0000000000000E+00	.1711854448763E-06
8000	4	3	10	3	17	.0000000000000E+00	.1394225206478E-06
9000	4	3	10	3	19	.0000000000000E+00	.1234208244146E-06
10000	7	5	35	6	69	.0000000000000E+00	.9766274952916E-06
TOTAL	84	56	359	73	3.62 (seconds)	proc= 66.67%	

39 CG Algorithm:NONDIA (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	14	8	28	12	4	.1153669004027E-16	.4309165779284E-08
2000	9	6	19	7	6	.1008386104002E-25	.2018385458768E-11
3000	10	6	21	8	10	.2386744577308E-18	.5355296952066E-06
4000	7	4	14	5	8	.3943912996129E-09	.1261809629097E-04
5000	7	4	14	5	11	.1675203498273E-09	.7355986142025E-05
6000	7	4	14	5	13	.7267449121380E-10	.4423105664141E-05
7000	7	4	14	5	16	.1430331069212E-09	.5745116886938E-05
8000	7	4	14	5	17	.4318597556119E-10	.2953025459280E-05
9000	7	4	14	5	19	.1440611112643E-10	.1608054268915E-05
10000	7	4	14	5	22	.8894779161501E-11	.1198740719278E-05
TOTAL	82	48	166	62	1.26 (seconds)	proc= 58.54%	

40 CG Algorithm:NONDQUAR (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	1464	225	2744	1262	440	.6062844693367E-05	.4437965452266E-05
2000	1765	321	3292	1493	1054	.4926098071524E-05	.3888520787881E-05
3000	1783	303	3391	1547	1626	.4873091582812E-05	.3354712835573E-05
4000	1719	299	3248	1498	2084	.5216980307443E-05	.4164802956065E-05
5000	1673	320	3133	1427	2515	.6558513969162E-05	.5351557681532E-05
6000	1986	352	3754	1707	3608	.5133252228286E-05	.4683113517725E-05
7000	1704	303	3250	1487	3634	.5573967969565E-05	.4619108581560E-05
8000	2001	402	3766	1707	4828	.5148160079108E-05	.5323782104675E-05
9000	1760	307	3358	1536	4816	.5615159871664E-05	.4702818385488E-05
10000	1907	358	3656	1661	5825	.5466194958179E-05	.4017414175275E-05
TOTAL	17762	3190	33592	15325	304.30 (seconds)	proc= 17.96%	

41 CG Algorithm:DQDRTIC (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	7	1	15	7	2	.4304930177119E-14	.2445674436961E-06
2000	7	0	15	7	3	.1673587748166E-12	.1484941320764E-05
3000	10	0	21	10	8	.4122647634213E-18	.1819807516839E-07
4000	10	0	21	10	11	.9092450731066E-16	.2702830110164E-06
5000	10	0	21	10	13	.1446529858160E-16	.1078134955328E-06
6000	10	0	21	10	16	.1835791259998E-14	.1214533925283E-05
7000	10	0	21	10	19	.3855405395119E-15	.5566251264335E-06
8000	6	2	13	6	14	.3024007111548E-14	.9651991983860E-06
9000	6	2	13	6	15	.7087686833261E-17	.4696224885859E-07
10000	6	2	13	6	16	.3816450633735E-16	.1087370788431E-06
TOTAL	82	7	174	82	1.17 (seconds)	proc= 8.54%	

42 CG Algorithm:EG2 (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	2001	1885	61052	1993	2620	-.9989473889673E+03	.7753375330280E-04
2000	267	115	614	254	98	-.1998947386161E+04	.2456829173481E-04
3000	2001	1901	61725	1986	7987	-.2998946507104E+04	.3402125724260E-03
4000	2001	1883	60748	1991	10526	-.3998946671785E+04	.3216825547680E-03
5000	2001	1895	61356	1993	13387	-.4998944947800E+04	.4651154159658E-03
6000	2001	1881	60974	1990	15848	-.5998945826947E+04	.3234858962177E-03
7000	2001	1902	62087	1984	18763	-.6998943746074E+04	.3068277312155E-02
8000	2001	1820	56439	1981	19657	-.7998946338552E+04	.3296358672888E-03
9000	2001	1918	62835	1995	24455	-.8998936808059E+04	.1437911716213E-02
10000	2001	1891	61227	1987	26496	-.9998943864397E+04	.2510587094924E-02
TOTAL	18276	17091	549057	18154	1398.37 (seconds)	proc= 93.52%	

43 CG Algorithm:DIXMAANA (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	6	4	12	5	3	.1000000000000E+01	.1093741231957E-05
2000	6	4	12	5	7	.1000000000001E+01	.2616351420448E-05
3000	6	3	12	5	11	.1000000000003E+01	.3338775205746E-05
4000	6	3	12	5	14	.1000000000004E+01	.3904085845430E-05
5000	6	4	12	5	17	.1000000000005E+01	.4738649862496E-05
6000	6	3	12	5	20	.1000000000007E+01	.5215732841113E-05
7000	6	3	12	5	25	.1000000000007E+01	.5635016474999E-05
8000	6	4	12	5	27	.1000000000010E+01	.6300179253025E-05
9000	6	3	12	5	31	.1000000000011E+01	.6663508930805E-05
10000	6	3	12	5	35	.1000000000011E+01	.7011593756423E-05
TOTAL	60	34	120	50	1.90 (seconds)	proc= 56.67%	

44 CG Algorithm:DIXMAANB (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	10	10	17	6	5	.1000000000000E+01	.1258664703360E-05
2000	11	11	19	7	11	.1000000000000E+01	.4260436932232E-06
3000	11	10	19	7	17	.1000000000000E+01	.1612844149183E-06
4000	11	11	19	7	22	.1000000000000E+01	.8273191561284E-06
5000	11	11	19	7	28	.1000000000000E+01	.1267939019051E-05
6000	11	10	19	7	34	.1000000000001E+01	.1532546149982E-05
7000	11	11	19	7	40	.1000000000001E+01	.1883698514640E-05
8000	11	10	19	7	45	.1000000000001E+01	.2153442874006E-05
9000	11	10	19	7	50	.1000000000001E+01	.2331971344383E-05
10000	11	10	19	7	56	.1000000000000E+01	.1514379346675E-05
TOTAL	109	104	188	69	3.08 (seconds)	proc= 95.41%	

45 CG Algorithm:DIXMAANC (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	14	14	25	10	7	.1000000000000E+01	.4095121828782E-06
2000	15	14	26	10	16	.1000000000000E+01	.6715103308580E-07
3000	15	13	26	10	22	.1000000000000E+01	.1430064661758E-06
4000	14	13	24	9	29	.1000000000007E+01	.5407285026748E-05
5000	14	13	24	9	35	.1000000000005E+01	.4683193615119E-05
6000	14	13	24	9	42	.1000000000005E+01	.4496101968629E-05
7000	15	15	26	10	53	.1000000000000E+01	.1846653073044E-06
8000	14	12	24	9	57	.1000000000000E+01	.7585191827777E-06
9000	14	12	24	9	63	.1000000000001E+01	.2003090931545E-05
10000	15	15	26	10	76	.1000000000000E+01	.1769896699223E-06
TOTAL	144	134	249	95	4.00 (seconds)	proc= 93.06%	

46 CG Algorithm:DIXMAANE (CUTE) Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	210	61	325	114	115	.1000000000082E+01	.3888146865925E-05
2000	274	77	427	152	302	.1000000000592E+01	.4234626880448E-05
3000	349	93	550	200	582	.1000000000245E+01	.5939870505610E-05
4000	370	101	587	216	827	.1000000001128E+01	.7121808057886E-05
5000	483	135	763	278	1346	.1000000000831E+01	.2718781236245E-05
6000	543	146	850	304	1800	.1000000001548E+01	.5437794766379E-05
7000	614	175	960	344	2375	.1000000000073E+01	.4214848631181E-05
8000	579	163	906	326	2559	.1000000001797E+01	.8025414579243E-05
9000	624	175	976	351	3101	.1000000000071E+01	.5351053800023E-05
10000	623	175	974	350	3439	.1000000000720E+01	.5637029810917E-05
TOTAL	4669	1301	7318	2635	164.46 (seconds)	proc= 27.86%	

47 CG Algorithm:Partial Perturbed Quadratic Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	221	57	357	135	364	.2073671586920E-12	.8777666299207E-05
2000	237	53	408	170	1605	.1270235440844E-12	.6979835904835E-05
3000	231	47	393	161	3435	.3453338224716E-12	.1201059396510E-04
4000	142	28	241	98	3720	.3558916562280E-12	.1514780293507E-04
5000	85	18	143	57	3436	.3379588705937E-12	.1144676359035E-04
6000	52	10	95	42	3377	.3009503710001E-12	.1373962434569E-04
7000	37	8	65	27	3047	.1539099168252E-12	.2349746791258E-04
8000	25	2	48	22	2932	.8641622839433E-13	.1754593278000E-04
9000	29	7	51	21	3946	.6473533933538E-13	.3852082127831E-04
10000	20	1	40	19	3813	.2404459368943E-13	.1261945540001E-04
TOTAL	1079	231	1841	752	296.75 (seconds)	proc= 21.41%	

48 CG Algorithm:Broyden Tridiagonal Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	40	19	65	21	4	.7093952135489E-13	.2205714142342E-05
2000	67	25	109	39	14	.3970671034876E+00	.1832437063301E-05
3000	75	26	118	40	23	.3970671034876E+00	.2159266915596E-05
4000	77	27	118	38	33	.3970671034876E+00	.2806959798899E-05
5000	60	22	96	33	31	.3970671034879E+00	.2828378295262E-05
6000	81	35	127	43	50	.3970671034876E+00	.2133059023457E-05
7000	82	28	134	49	61	.3970671034878E+00	.2879950020113E-05
8000	73	21	117	41	60	.3970671034875E+00	.1302627027753E-05
9000	75	28	123	45	71	.3970671034876E+00	.2573858729025E-05
10000	75	29	122	44	78	.3970671034876E+00	.2239845255031E-05
TOTAL	705	260	1129	393	4.25 (seconds)	proc= 36.88%	

49 CG Algorithm:Almost Perturbed Quadratic Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	310	85	480	169	31	.6794845390349E-13	.3804671006598E-05
2000	496	138	776	279	98	.5612104380962E-13	.2316397762910E-05
3000	698	188	1081	382	207	.1605008013748E-13	.4524032330281E-05
4000	693	182	1072	378	274	.5096139789684E-13	.5615559564369E-05
5000	762	214	1190	427	377	.1832028321211E-12	.3518490583668E-05
6000	869	241	1342	472	513	.8357770878384E-13	.3083327616253E-05
7000	913	253	1412	498	631	.1857375724020E-12	.6594585715172E-05
8000	1161	338	1796	634	917	.6291880737422E-13	.3775253855408E-05
9000	1125	297	1767	641	999	.4290488131025E-13	.2083007724273E-05
10000	1037	288	1623	585	1024	.2530953146676E-12	.3701733060954E-05
TOTAL	8064	2224	12539	4465	50.71 (seconds)	proc= 27.58%	

50 CG Algorithm:Tridiagonal Perturbed Quadratic Function

theta spectral. betatype = 41 (Scaled Perry - Birgin & Martinez). stoptest= 1

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
1000	391	115	607	215	56	.1976535581963E-12	.3565270758280E-05
2000	483	134	766	282	140	.6273713388556E-13	.4060266259354E-05
3000	613	169	960	346	266	.3192065574111E-13	.5004528793650E-05
4000	668	187	1047	378	386	.1651745373195E-12	.6393351596591E-05
5000	797	210	1249	451	576	.3489879455247E-13	.4371420416271E-05
6000	876	241	1363	486	758	.7632011652437E-13	.3112700125466E-05
7000	926	256	1454	527	936	.2490533353027E-12	.3374141366112E-05
8000	928	246	1453	524	1072	.2103478870958E-12	.4027236008959E-05
9000	1054	287	1633	578	1364	.5522162650917E-13	.4893518113144E-05
10000	1264	341	1962	697	1819	.2506657283094E-12	.3233526415605E-05
TOTAL	8000	2186	12494	4484	73.73 (seconds)	proc= 27.32%	

```
 ******************************
 CG - Conjugate Gradient package
 theta spectral
 betatype = 41 (SCG - Birgin & Martinez)
 stoptest =  1   : ||∇f(x_k)||_∞ ≤ 10^-6
 ******************************
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