

Numerical Results for SCALCG

Theta spectral, Powell restart, 750 problems

Stopping criterion: $\|\nabla f(x_k)\|_\infty \leq 10^{-6}$.

May 2, 2006 *** SCALCG ***

1 *** SCALCG Algorithm ***. Function: FREUROTH (CUTE)

Powell criterion for restart.		Stoptest = 5					
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	9	6	20	9	4	.2449212683962E+05	.4390702299426E-06
2000	9	6	20	9	6	.4898425368469E+05	.3134773180516E-04
3000	10	7	22	10	11	.7347638051889E+05	.4303356866063E-06
4000	9	6	21	10	8	.9796850735849E+05	.1005148168976E-05
5000	10	7	25	10	7	.1224606341981E+06	.3235530873472E-04
6000	11	7	32	12	9	.4123706154423E-06	.3284679305617E-07
7000	11	7	32	12	12	.2493646476946E-06	.3775255877528E-07
8000	13	10	35	13	14	.6806397798113E-06	.4125599159550E-04
9000	11	7	32	12	15	.4924335210066E-06	.4474970225729E-07
10000	11	8	34	11	17	.3735937103489E-04	.1632460239031E-05

TOTAL	104	71	273	108	1.03(seconds)	proc= 68.27%	

2 *** SCALCG Algorithm ***. Function: Extended Trigonometric

Powell criterion for restart.		Stoptest = 5					
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	21	15	45	18	6	.5264047848327E-11	.5619483319792E-07
2000	28	19	52	18	14	.1244849505980E-10	.4941436163113E-05
3000	30	20	59	22	21	.6870613150299E-11	.1743002790357E-05
4000	26	20	51	19	24	.2485489169995E-10	.3153082027600E-05
5000	32	18	58	20	35	.1228074831292E-10	.1430157394306E-05
6000	33	23	60	21	43	.9394580720731E-11	.1739312970660E-05
7000	34	22	59	19	50	.1843991120693E-10	.2578811646600E-05
8000	53	30	85	25	86	.3764100630396E-08	.4072599348279E-05
9000	54	29	82	21	93	.5382878969331E-08	.8520915292885E-05
10000	56	26	86	22	106	.6416273300480E-08	.9538842268372E-05

TOTAL	367	222	637	205	4.78(seconds)	proc= 60.49%	

3 *** SCALCG Algorithm ***. Function: SROSENBR (CUTE)

Powell criterion for restart.		Stoptest = 5					
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	27	24	55	20	4	.2671474726769E-10	.6737421699350E-09
2000	24	20	55	20	8	.8327185042997E-08	.1117798044932E-04
3000	26	20	59	19	13	.1422614843723E-04	.1902633763702E-04
4000	25	18	61	23	19	.2852018147718E-07	.3984860017112E-05
5000	30	25	66	23	25	.1843916991842E-07	.1156669450005E-05
6000	27	24	61	21	27	.1300404150176E-07	.6028662258883E-05
7000	27	22	60	22	33	.1584722417861E-06	.5636806266249E-05
8000	24	18	53	20	31	.1742684939716E-07	.2310414806382E-05
9000	26	21	54	18	37	.8864858017513E-10	.3006454067070E-05
10000	27	23	62	23	47	.9439731159879E-08	.1074695159585E-05

TOTAL	263	215	586	209	2.44(seconds)	proc= 81.75%	

4 *** SCALCG Algorithm ***. Function: Extended White & Holst

Powell criterion for restart.		Stoptest = 5					
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	25	21	52	19	3	.3824603210331E-08	.5899873288629E-06
2000	26	19	56	22	8	.2559550545892E-09	.1665747363246E-05
3000	26	19	54	22	12	.4889194710963E-12	.1962549188722E-09
4000	24	20	48	19	15	.7112807713237E-11	.1661070483754E-07
5000	26	20	55	20	21	.1850844683507E-10	.9216328578501E-08
6000	24	20	51	20	22	.8672381568588E-08	.1862758064384E-05

7000	24	20	48	18	26	.1046329179389E-06	.1353102569954E-04
8000	24	20	51	20	31	.9074123955400E-08	.1754143085060E-05
9000	26	19	59	22	40	.2226097865839E-10	.3162947534295E-07
10000	25	22	52	21	39	.2420031509748E-09	.9395406528574E-07

TOTAL	250	200	526	203	2.17(seconds)	proc= 80.00%	

5 *** SCALCG Algorithm ***. Function: Extended Beale BEALE (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	10	9	21	9	1	.2102922641955E-09	.4628585197162E-06
2000	10	9	21	9	2	.7973458979765E-09	.1111153475833E-05
3000	10	9	21	9	2	.1222372186655E-08	.1377702755819E-05
4000	10	9	21	9	3	.1504983512821E-08	.1481231969026E-05
5000	10	9	21	9	4	.1704317960674E-08	.1517767269175E-05
6000	10	9	21	9	4	.1854295224654E-08	.1524658990225E-05
7000	10	9	21	9	5	.1973283046411E-08	.1517699008017E-05
8000	10	9	21	9	7	.2071649649065E-08	.1504138378180E-05
9000	10	9	21	9	7	.2155576176030E-08	.1487529507107E-05
10000	10	9	21	9	9	.2228944639969E-08	.1469695830938E-05

TOTAL	100	90	210	90	.44(seconds)	proc= 90.00%	

6 *** SCALCG Algorithm ***. Function: Extended Penalty

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	8	6	29	8	1	.8831940750836E+03	.3221346281021E-05
2000	9	6	32	9	4	.1814063664869E+04	.6216187277490E-05
3000	8	5	32	9	6	.2755973749506E+04	.1656563405210E-07
4000	18	15	43	17	11	.3704070535012E+04	.1040219543295E-05
5000	9	5	35	10	11	.4656333923744E+04	.8267747536952E-07
6000	17	15	46	17	18	.5611676659140E+04	.8590217686573E-07
7000	16	14	45	17	19	.6569428560737E+04	.1036467502220E-05
8000	11	7	38	10	19	.7529139638522E+04	.2280276581192E-05
9000	15	12	46	16	26	.8490489281464E+04	.1488054206982E-05
10000	12	8	41	11	25	.9453238852842E+04	.1152547572977E-05

TOTAL	123	93	387	124	1.40(seconds)	proc= 75.61%	

7 *** SCALCG Algorithm ***. Function: Perturbed Quadratic

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	292	129	390	96	18	.1311362645458E-12	.2871763151756E-05
2000	411	180	532	119	49	.2033236417225E-12	.5730290680640E-05
3000	513	226	673	158	94	.8193651526571E-13	.6214940488418E-05
4000	620	274	814	192	150	.1052298087697E-12	.6216960172590E-05
5000	710	302	953	241	220	.2699602526368E-12	.6093378219770E-05
6000	701	316	913	210	254	.2647474133724E-12	.6768157885366E-05
7000	803	352	1053	248	343	.2778167173026E-12	.7025913823389E-05
8000	933	423	1215	280	458	.8493820890095E-13	.3706647016867E-05
9000	1010	461	1294	282	543	.1074287673616E-12	.4624622936644E-05
10000	1096	502	1422	324	662	.1029591660957E-12	.5412649656615E-05

TOTAL	7089	3165	9259	2150	27.91(seconds)	proc= 44.65%	

8 *** SCALCG Algorithm ***. Function: Raydan 1

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	244	110	319	72	16	.5005000000000E+05	.3264998821848E-05
2000	342	162	460	112	45	.2001000000000E+06	.4125278285682E-05
3000	396	211	542	140	79	.4501500000000E+06	.2213772813113E-05
4000	548	267	763	211	148	.8002000000000E+06	.5189136348312E-05
5000	638	320	872	222	213	.1250250000000E+07	.6916027894992E-05
6000	614	287	860	243	253	.1800300000000E+07	.4076352868305E-05
7000	646	335	892	238	304	.2450350000000E+07	.3087381041120E-05

8000	901	465	1265	346	502	.3200400000000E+07	.5807774698437E-05
9000	967	476	1358	373	599	.4050450000000E+07	.3926528409678E-05
10000	865	446	1208	338	587	.5000500000000E+07	.7120617178689E-05

TOTAL 6161 3079 8539 2295 27.46(seconds) proc= 49.98%

9 *** SCALCG Algorithm ***. Function: Raydan 2

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	3	2	9	4	0	.1000000006648E+04	.1635080389044E-06
2000	3	2	9	4	1	.2000000013020E+04	.2278967988341E-06
3000	3	2	9	4	1	.3000000019346E+04	.2772841656783E-06
4000	3	2	9	4	1	.4000000025648E+04	.3189150972674E-06
5000	3	2	9	4	2	.5000000031935E+04	.3555884887929E-06
6000	3	2	9	4	2	.6000000038212E+04	.3887515032366E-06
7000	3	2	9	4	3	.7000000044481E+04	.4192396853265E-06
8000	3	2	9	4	3	.8000000050742E+04	.4476034679730E-06
9000	3	2	9	4	3	.9000000057000E+04	.4742638019954E-06
10000	3	2	9	4	4	.100000006325E+05	.4994219282161E-06

TOTAL 30 20 90 40 .20(seconds) proc= 66.67%

10 *** SCALCG Algorithm ***. Function: Powell singular (CUTE)

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	36	21	66	27	4	.3450658503146E-08	.7060894731068E-05
2000	34	16	70	31	10	.6396676594849E-07	.3125222494754E-04
3000	41	23	82	38	16	.3862808872080E-08	.3641155033453E-05
4000	121	52	230	104	62	.2140961951170E-05	.3452682251197E-04
5000	77	45	144	63	47	.8412676500099E-08	.1398896400541E-04
6000	83	47	151	64	61	.4158848034855E-05	.2853386106951E-04
7000	35	17	69	31	32	.2517932329420E-06	.3147768006158E-04
8000	54	26	101	44	54	.1253361278220E-07	.2458960201243E-04
9000	54	35	98	41	59	.4824781379513E-08	.5240745157355E-04
10000	46	29	87	38	56	.7181255290572E-07	.2531497301199E-05

TOTAL 581 311 1098 481 4.01(seconds) proc= 53.53%

11 *** SCALCG Algorithm ***. Function: Diagonal 1

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	32	14	59	25	5	.1099267400064E-10	.8450849672154E-06
2000	26	10	47	19	8	.6961674642611E-09	.9118610644856E-06
3000	34	15	63	27	16	.4612382444081E-11	.6614615003163E-06
4000	29	13	54	23	17	.2966867722924E-10	.2211780373570E-05
5000	37	14	68	29	29	.6401961419162E-11	.1122953749557E-05
6000	32	14	54	20	27	.3336973612240E-10	.1280876794350E-05
7000	37	16	68	29	39	.8617971608523E-11	.1143875452869E-05
8000	31	13	58	25	38	.9512862920790E-11	.1133146378412E-05
9000	31	13	58	25	44	.9397949185662E-11	.1155318966569E-05
10000	31	13	58	25	48	.9385980183397E-11	.1175433485795E-05

TOTAL 320 135 587 247 2.71(seconds) proc= 42.19%

12 *** SCALCG Algorithm ***. Function: Diagonal 2

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	3	2	9	4	1	-.2149394726913E+03	.3758411476364E-07
2000	3	2	9	4	2	-.4298789453878E+03	.5307981245590E-07
3000	3	2	9	4	2	-.6448184180867E+03	.6494026411719E-07
4000	3	2	9	4	4	-.8597578907869E+03	.7493216108485E-07
5000	3	2	9	4	4	-.1074697363488E+04	.8376355341900E-07
6000	3	2	9	4	5	-.1289636836189E+04	.9172742490646E-07
7000	3	2	9	4	6	-.1504576308891E+04	.9905278247658E-07
8000	3	2	9	4	7	-.1719515781593E+04	.1059012924078E-06

9000	3	2	9	4	7	-.1934455254296E+04	.1122721781299E-06
10000	3	2	9	4	9	-.2149394727000E+04	.1182385966914E-06

TOTAL	30	20	90	40	.47(seconds)	proc= 66.67%	

13 *** SCALCG Algorithm ***. Function: Hager

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	252	232	6880	235	378	-.4474419132154E+05	.2584892135809E-05
2000	330	309	9191	310	992	-.1471735005125E+06	.1705699726348E-05
3000	305	280	8036	283	1325	-.2925501003138E+06	.2546803189896E-05
4000	784	759	23820	759	5266	-.4746425076978E+06	.1367032950763E-05
5000	1289	1264	40760	1260	11145	-.6896067628040E+06	.1608013382674E-05
6000	970	939	30146	942	9827	-.9347349321991E+06	.2175566766768E-05
7000	741	706	22274	716	8438	-.1207973806382E+07	.1183668144446E-05
8000	884	845	26661	851	11502	-.1507691037216E+07	.1881308920346E-05
9000	1740	1709	55411	1711	27007	-.1832544956898E+07	.1482239990136E-05
10000	683	646	19745	647	10759	-.2181405217178E+07	.1929284660913E-05

TOTAL	7978	7689	242924	7714	866.39(seconds)	proc= 96.38%	

14 *** SCALCG Algorithm ***. Function: Generalized Tridiagonal 1

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	21	5	47	20	4	.9972103074860E+03	.1513066214796E-05
2000	21	4	49	22	10	.1997210307486E+04	.1442498733257E-05
3000	22	5	56	22	16	.2997210307486E+04	.2315442569488E-05
4000	21	3	59	21	23	.3997210307486E+04	.1733821224276E-05
5000	25	7	212	25	95	.4997210307486E+04	.1633521203981E-05
6000	21	4	51	22	30	.5997210307486E+04	.1113323974313E-05
7000	29	13	280	28	177	.6997210307486E+04	.2182284573390E-05
8000	20	3	48	20	38	.7997210307486E+04	.2058215053057E-05
9000	62	49	1417	61	1163	.8997210307486E+04	.2717561320367E-05
10000	56	42	1170	55	1062	.9997210307486E+04	.1842797458964E-05

TOTAL	298	135	3389	296	26.18(seconds)	proc= 45.30%	

15 *** SCALCG Algorithm ***. Function: Extended Tridiagonal 1

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	7	5	18	7	1	.8276519923472E-07	.4749937698908E-05
2000	5	3	14	5	2	.6951232088110E-03	.1876981361433E-04
3000	9	6	19	8	3	.3688508397594E-07	.1401609026752E-04
4000	9	7	19	8	4	.1043007021180E-06	.4724016461114E-04
5000	10	8	21	9	7	.3166368527187E-07	.6224564765173E-04
6000	10	8	21	9	8	.3910560744478E-07	.7244183725755E-04
7000	10	8	20	8	9	.4648113431393E-07	.6593051664713E-04
8000	10	8	20	8	10	.5383251141611E-07	.6887543794334E-04
9000	10	8	20	8	11	.6115040554474E-07	.6806973173991E-04
10000	10	8	20	8	13	.6840667966222E-07	.6323530417967E-04

TOTAL	90	69	192	78	.68(seconds)	proc= 76.67%	

16 *** SCALCG Algorithm ***. Function: Extended Three Expo Terms

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	7	6	15	6	1	.1279633348329E+04	.1328420882556E-06
2000	7	6	15	6	2	.2559266696659E+04	.9539275064063E-08
3000	7	6	15	6	3	.3838900044988E+04	.1851674071702E-06
4000	7	6	15	6	4	.5118533393317E+04	.1838714544844E-06
5000	7	6	15	6	6	.6398166741647E+04	.6960313510708E-06
6000	7	6	15	6	7	.7677800089976E+04	.1087119154530E-06
7000	7	6	15	6	8	.8957433438305E+04	.8012512517710E-06
8000	7	6	15	6	9	.1023706678663E+05	.6127085538086E-06
9000	7	6	15	6	10	.1151670013496E+05	.1745713333253E-05

10000	7	6	15	6	11	.1279633348329E+05	.1189823952484E-05
TOTAL	70	60	150	60	.61(seconds)	proc= 85.71%	

17 *** SCALCG Algorithm ***. Function: Generalized Tridiagonal 2

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	59	31	94	32	12	.9584127765256E+00	.4007911368308E-05
2000	51	26	81	26	20	.9584127765255E+00	.2567895229758E-05
3000	46	19	79	29	30	.9584127765255E+00	.2807104744378E-05
4000	48	23	81	29	41	.1215078813006E+01	.1781824794191E-05
5000	51	20	89	33	57	.2478470208626E+01	.3139246075207E-05
6000	43	21	73	26	56	.1637854424629E+01	.2188721729257E-05
7000	43	23	76	29	67	.1637854424630E+01	.3327735809238E-05
8000	51	23	84	29	86	.2752708757255E+01	.1852580817862E-05
9000	55	32	85	26	97	.2752708757255E+01	.2399485608852E-05
10000	43	22	74	27	93	.1637854424629E+01	.2005115171033E-05
TOTAL	490	240	816	286	5.59(seconds)	proc= 48.98%	

18 *** SCALCG Algorithm ***. Function: Diagonal 4

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	3	2	8	3	0	.4645125024689E-07	.8868952683780E-14
2000	3	2	8	3	1	.2113558990606E-06	.8244881659764E-14
3000	3	2	8	3	1	.9699462609233E-06	.3303854665214E-13
4000	3	1	8	3	1	.9664180537099E-03	.8769926420924E-13
5000	3	1	8	3	1	.1577411548205E-02	.9027455438772E-13
6000	3	1	8	3	2	.1505845449509E-03	.5345922851689E-13
7000	3	1	8	3	2	.1647906203720E-01	.2184615541318E-12
8000	3	1	8	3	3	.3217735674587E-01	.4314623801015E-12
9000	4	2	9	3	3	.2180160023478E-02	.4320745157578E-10
10000	3	1	8	3	3	.9257938002963E-01	.9953041634278E-12
TOTAL	31	14	81	30	.17(seconds)	proc= 45.16%	

19 *** SCALCG Algorithm ***. Function: Diagonal 5

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	3	2	9	4	0	.2000000348027E+04	.2418891953255E-05
2000	3	2	9	4	2	.4000000688958E+04	.3403563351413E-05
3000	3	2	9	4	2	.6000001028641E+04	.4158921349168E-05
4000	3	2	9	4	2	.8000001367677E+04	.4795589883234E-05
5000	3	2	9	4	4	.1000000170630E+05	.5356571070849E-05
6000	3	2	9	4	4	.1200000204463E+05	.5863654532649E-05
7000	3	2	9	4	4	.1400000238274E+05	.6329724978474E-05
8000	3	2	9	4	6	.1600000272068E+05	.6764168530890E-05
9000	3	2	9	4	6	.1800000305847E+05	.7171367342089E-05
10000	3	2	9	4	6	.2000000339614E+05	.7556982598846E-05
TOTAL	30	20	90	40	.36(seconds)	proc= 66.67%	

20 *** SCALCG Algorithm ***. Function: HIMMELBC (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	6	4	15	7	1	.2789264791299E-09	.1502904592152E-07
2000	6	4	15	7	1	.6461607190192E-09	.1911338576430E-07
3000	6	4	15	7	2	.1032043090861E-08	.2211187411794E-07
4000	6	4	15	7	2	.1427588297377E-08	.2459401340145E-07
5000	6	4	15	7	2	.1829359531421E-08	.2675912953227E-07
6000	6	4	15	7	3	.2235445705798E-08	.2870332061481E-07
7000	6	4	15	7	4	.2645076128657E-08	.3048206525096E-07
8000	6	4	15	7	4	.3057045953946E-08	.3213473213282E-07
9000	6	4	15	7	5	.3471199432905E-08	.3368440941675E-07
10000	6	4	15	7	5	.3887257193005E-08	.3514527161565E-07

TOTAL 60 40 150 70 .29(seconds) proc= 66.67%

21 *** SCALCG Algorithm ***. Function: Generalized PSC1

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm

theta spectral

1000	710	521	9715	569	2600	.9987220414432E+03	.1127797378258E-05
2000	698	561	11156	574	5789	.1998722041460E+04	.1315296269112E-05
3000	519	403	9695	435	7803	.2998722041477E+04	.2104218475698E-05
4000	401	252	3480	291	3697	.3998722041451E+04	.1482151605558E-05
5000	380	245	3851	280	5300	.4998722041471E+04	.1806368944241E-05
6000	1738	1548	40868	1605	65223	.5998722041464E+04	.1048946592942E-05
7000	1138	969	22908	998	42957	.6998722041439E+04	.1152673674603E-05
8000	1551	1291	28800	1360	62011	.7998722041470E+04	.1382139081524E-05
9000	683	536	11642	556	28000	.8998722041467E+04	.1868817775414E-05
10000	1382	1197	28735	1245	76583	.9998722041496E+04	.2079696905434E-05

TOTAL 9200 7523 170850 7913 2999.63(seconds) proc= 81.77%

22 *** SCALCG Algorithm ***. Function: Extended PSC1

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm

theta spectral

1000	6	5	15	7	3	.3865995282467E+03	.3269898458045E-07
2000	6	5	15	7	5	.7731990564934E+03	.4018695357111E-07
3000	6	5	15	7	7	.1159798584740E+04	.4209072223365E-07
4000	6	5	15	7	10	.1546398112987E+04	.4274101731579E-07
5000	6	5	15	7	12	.1932997641234E+04	.4297998082678E-07
6000	6	5	15	7	16	.2319597169480E+04	.4304129843733E-07
7000	6	5	15	7	17	.2706196697727E+04	.4298740556482E-07
8000	6	5	15	7	20	.3092796225974E+04	.4295925702824E-07
9000	6	5	15	7	22	.3479395754220E+04	.4270036508082E-07
10000	6	5	15	7	25	.3865995282467E+04	.4270090308732E-07

TOTAL 60 50 150 70 1.37(seconds) proc= 83.33%

23 *** SCALCG Algorithm ***. Function: Extended Powell

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm

theta spectral

1000	60	30	108	45	6	.9399047374464E-07	.1107919563044E-04
2000	70	31	128	56	14	.5684136814500E-06	.1310427511808E-04
3000	60	30	110	47	18	.5240906079154E-07	.1051135575034E-04
4000	81	35	156	72	34	.5930925422064E-07	.1105929078932E-04
5000	32	15	63	29	17	.4627868574426E-06	.2892443192254E-04
6000	50	25	94	42	31	.5659961500338E-06	.4137859609774E-04
7000	34	13	66	30	25	.2351214378686E-06	.3801375316314E-04
8000	40	23	75	33	31	.1501009296557E-05	.3521136688820E-04
9000	41	26	74	31	36	.2785107188619E-06	.1849582911059E-04
10000	51	23	98	44	52	.3255651805464E-07	.3160608821994E-04

TOTAL 519 251 972 429 2.64(seconds) proc= 48.36%

24 *** SCALCG Algorithm ***. Function: Extended Block-Diagonal BD1

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm

theta spectral

1000	19	16	36	13	2	.8760940456074E-10	.1005212699666E-05
2000	16	14	32	12	3	.5657566910493E-09	.1474521493125E-04
3000	16	13	31	11	5	.2339468487078E-08	.2653966334531E-04
4000	17	15	33	12	8	.2097852939037E-08	.2400760083377E-04
5000	21	18	36	12	9	.4257084441851E-09	.7320029483832E-05
6000	21	17	38	14	13	.3087360048158E-08	.1141187487206E-04
7000	15	13	29	11	10	.3317670213746E-06	.4355130970884E-04
8000	15	13	31	12	14	.526100228777E-09	.2409367484675E-04
9000	19	17	37	14	17	.2302897725944E-08	.7676521764535E-04
10000	21	20	41	15	22	.5774978617982E-09	.1915154781782E-04

TOTAL 180 156 344 126 1.03(seconds) proc= 86.67%

25 *** SCALCG Algorithm ***. Function: Extended Maratos

Powell criterion		for restart.		Stoptest = 5			
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	41	34	90	34	3	-.5003121103430E+03	.7522166713887E-05
2000	46	40	101	38	7	-.1000624220697E+04	.4023762875023E-07
3000	46	40	99	35	11	-.1500936331045E+04	.2416323758034E-06
4000	44	38	89	32	13	-.2001248441393E+04	.5331577795061E-07
5000	46	36	102	38	18	-.2501560551742E+04	.1076191845991E-06
6000	42	34	92	35	19	-.3001872662090E+04	.1813382282840E-08
7000	43	38	101	38	25	-.3502184772439E+04	.3088977645538E-06
8000	42	36	91	34	26	-.4002496882436E+04	.5075444917226E-04
9000	44	39	96	34	31	-.4502808993135E+04	.4425176356910E-04
10000	40	33	91	32	32	-.5003121103484E+04	.7121108616193E-08

TOTAL	434	368	952	350	1.85(seconds)	proc= 84.79%	

26 *** SCALCG Algorithm ***. Function: CLIFF (CUTE)

Powell criterion		for restart.		Stoptest = 5			
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	8	6	15	5	1	.9989330683906E+02	.1604612361950E-04
2000	15	12	28	9	2	.1997866136797E+03	.8643111887391E-07
3000	11	8	19	5	2	.2996799205166E+03	.1102457777360E-04
4000	8	5	19	8	4	.3995732300207E+03	.2611052049255E-04
5000	23	20	387	23	68	.4994665341945E+03	.5748919983837E-04
6000	9	6	21	9	6	.5993598410332E+03	.4176560914757E-04
7000	8	5	19	8	5	.6992531479068E+03	.7710355113307E-04
8000	22	19	218	21	62	.7991464547110E+03	.3433984007263E-05
9000	10	7	21	8	8	.8990397615661E+03	.8583843227051E-04
10000	10	7	23	10	9	.9989330684601E+03	.8472830382565E-04

TOTAL	124	95	770	106	1.67(seconds)	proc= 76.61%	

27 *** SCALCG Algorithm ***. Function: Quadratic Diagonal Perturbed

Powell criterion		for restart.		Stoptest = 5			
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	117	35	192	73	9	.3211734128789E-10	.7581780512992E-05
2000	168	46	273	103	25	.3682490591171E-10	.7993707658639E-05
3000	264	100	416	150	57	.3530954590105E-10	.7358334713451E-05
4000	316	101	509	191	94	.2328623617036E-10	.1265909320306E-04
5000	365	120	580	213	133	.2529480599941E-10	.7262068310036E-05
6000	294	89	475	179	131	.3174547368090E-10	.7103312598441E-05
7000	381	112	632	249	203	.2590630357923E-10	.7735841955295E-05
8000	434	142	703	267	258	.1358529714910E-10	.9029739523550E-05
9000	423	123	677	252	281	.2872192127721E-10	.6107670846104E-05
10000	414	110	678	262	314	.2303935384637E-10	.1323505482153E-04

TOTAL	3176	978	5135	1939	15.05(seconds)	proc= 30.79%	

28 *** SCALCG Algorithm ***. Function: WOODS (CUTE)

Powell criterion		for restart.		Stoptest = 5			
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	35	16	65	28	6	.1111071408964E-07	.5577625757414E-05
2000	38	18	70	30	12	.7936182227688E-07	.6655931069510E-06
3000	51	29	89	36	25	.3592735418881E-09	.1643751678472E-05
4000	29	15	58	27	20	.8298558253790E-08	.1067100598145E-05
5000	38	19	71	31	33	.3268163540895E-09	.2519003830322E-04
6000	30	13	59	27	32	.4892189177784E-08	.5681893153472E-07
7000	28	12	56	26	35	.4104101436605E-08	.1962043259728E-06
8000	28	12	56	26	41	.1036908308962E-06	.6024396140620E-04
9000	41	18	78	35	63	.9170734565042E-11	.4417054551890E-05
10000	25	12	50	23	45	.9336060811281E-09	.3600330708772E-04

TOTAL	343	164	652	289	3.12(seconds)	proc= 47.81%	

29 *** SCALCG Algorithm ***. Function: Extended Hiebert

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	59	55	118	39	5	.4137878583709E-09	.1446678065617E-05
2000	51	46	113	44	8	.1388401473170E-07	.2598755202052E-05
3000	55	48	121	46	13	.1360014919857E-11	.4441708294991E-09
4000	57	52	110	41	16	.1694248195242E-08	.1229464554697E-05
5000	55	52	116	45	21	.6996017072519E-07	.1034426139169E-04
6000	52	47	118	44	25	.1267575053361E-08	.5731535950087E-06
7000	57	51	115	46	30	.6558320539180E-12	.6646853998098E-09
8000	51	48	114	45	34	.3870813584291E-10	.5406708449246E-08
9000	53	50	108	43	35	.1175458499843E-09	.6541381179638E-06
10000	55	51	114	43	42	.8411702304802E-07	.2342079088666E-04

TOTAL	545	500	1147	436	2.29(seconds)	proc= 91.74%	

30 *** SCALCG Algorithm ***. Function: Quadratic QF1

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	302	156	392	88	6	-.4999999991621E-03	.3926352225959E-05
2000	407	190	520	111	19	-.2499999996438E-03	.3890632633362E-05
3000	524	234	681	155	37	-.1666666663606E-03	.6075127876958E-05
4000	585	247	751	164	55	-.1249999992791E-03	.4584848503857E-05
5000	744	339	959	213	86	-.999999966119E-04	.5810598325607E-05
6000	693	316	892	197	97	-.8333333284977E-04	.5211938078014E-05
7000	855	386	1127	270	140	-.7142857101357E-04	.7469840694459E-05
8000	932	407	1217	283	176	-.6249999987644E-04	.5229500127146E-05
9000	922	445	1182	258	189	-.555555524653E-04	.7226949101133E-05
10000	909	422	1193	282	211	-.499999955135E-04	.1111528557485E-04

TOTAL	6873	3142	8914	2021	10.16(seconds)	proc= 45.72%	

31 *** SCALCG Algorithm ***. Function: Extended Quadratic Penalty QP1

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	6	5	19	7	1	.3990006250001E+04	.3678566829301E-06
2000	6	4	19	7	2	.7990003125003E+04	.7467254228428E-06
3000	6	4	18	7	2	.1199000208333E+05	.2179004501377E-06
4000	2001	1998	67034	2000	9056	.1599000156250E+05	.1741272995779E-04
5000	29	28	693	30	117	.1999000125000E+05	.3073612036328E-05
6000	6	5	21	7	5	.2399000104167E+05	.2962640573704E-07
7000	6	5	21	7	5	.2799000089286E+05	.1333536206989E-06
8000	6	4	21	7	7	.3199000078125E+05	.8501975024581E-06
9000	2001	1999	67065	2001	20386	.3599000069444E+05	.3690587033719E-05
10000	7	6	25	8	9	.3999000062500E+05	.1610075098290E-05

TOTAL	4074	4058	134936	4081	295.90(seconds)	proc= 99.61%	

32 *** SCALCG Algorithm ***. Function: Extended Quadratic Penalty QP2

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	24	21	62	21	5	.2757817486988E-10	.1409888026814E-06
2000	27	24	65	22	9	.1810477118213E-13	.3212641272622E-09
3000	34	29	85	30	20	.9789240899379E-10	.7108177585290E-06
4000	30	27	78	26	26	.2604104517712E-12	.6010212321212E-08
5000	31	27	81	27	31	.9059749692321E-12	.8984925132878E-08
6000	26	22	82	22	38	.5882626599660E-07	.3811116774113E-06
7000	31	27	63	25	34	.1635293539139E-07	.6425286432234E-06
8000	31	27	79	24	48	.1519122963801E-10	.1258490399104E-06
9000	30	27	87	29	59	.5424794126139E-12	.1179961593906E-06
10000	33	25	84	28	64	.3147466757195E-08	.1225260215422E-06

TOTAL	297	256	766	254	3.34(seconds)	proc= 86.20%	

33 *** SCALCG Algorithm ***. Function: Quadratic QF2

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	332	158	431	97	40	-.1000124968765E+01	.3722107068369E-05
2000	474	231	622	146	114	-.1000062492189E+01	.5647602102149E-05
3000	622	297	818	194	225	-.1000041663195E+01	.6158368849581E-05
4000	649	282	837	186	308	-.1000031248047E+01	.5152778485714E-05
5000	789	343	1013	222	465	-.1000024998750E+01	.5342161382280E-05
6000	974	450	1281	305	699	-.1000020832465E+01	.3728978318489E-05
7000	871	384	1141	268	730	-.1000017856505E+01	.4050135037802E-05
8000	1059	473	1387	326	1008	-.1000015624512E+01	.6817633215075E-05
9000	1182	516	1567	383	1277	-.1000013888503E+01	.4188552222629E-05
10000	1124	500	1469	342	1321	-.1000012499687E+01	.4323581046914E-05

TOTAL	8076	3634	10566	2469	61.87(seconds)	proc= 45.00%	

34 *** SCALCG Algorithm ***. Function: Extended EP1

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	1	0	5	2	0	.7931762881473E+04	.5427376174645E-08
2000	2	1	6	2	0	.1586352576295E+05	.1185543339228E-08
3000	2	1	6	2	1	.2379528864442E+05	.2225548739908E-10
4000	2	1	6	2	1	.3172705152589E+05	.2620573871782E-10
5000	2	1	6	2	0	.3965881440736E+05	.1529755802112E-09
6000	2	1	6	2	1	.4759057728884E+05	.2073590669368E-09
7000	2	1	6	2	1	.5552234017031E+05	.1121914841985E-09
8000	1	0	4	1	0	.6351946072431E+05	.3908993432603E-04
9000	2	1	6	2	2	.7138586593325E+05	.2528642697408E-09
10000	3	2	7	2	2	.7931762881473E+05	.6092834570204E-10

TOTAL	19	9	58	19	.08(seconds)	proc= 47.37%	

35 *** SCALCG Algorithm ***. Function: Extended Tridiagonal 2

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	30	16	49	17	2	.3893393944764E+03	.2434708650701E-05
2000	31	19	49	16	4	.7790685180764E+03	.2535634230713E-05
3000	31	15	48	15	7	.1168797641676E+04	.3159313264634E-05
4000	29	11	51	19	9	.1558526765277E+04	.3028711125082E-05
5000	32	21	55	20	12	.1948255888877E+04	.2736556024452E-05
6000	31	12	51	17	14	.2337985012477E+04	.3255345754633E-05
7000	32	23	50	14	16	.2727714136076E+04	.3496196806945E-05
8000	29	18	48	15	17	.3117443259676E+04	.3196952162236E-05
9000	32	18	60	22	23	.3507172383276E+04	.1275369954284E-05
10000	33	20	57	19	25	.3896901506876E+04	.2116988280023E-05

TOTAL	310	173	518	174	1.29(seconds)	proc= 55.81%	

36 *** SCALCG Algorithm ***. Function: BDQRTIC (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	875	794	20451	806	4007	.3983817950577E+04	.1684917075536E-05
2000	1644	1589	44781	1578	17520	.7989427682541E+04	.5892728742342E-06
3000	2001	1933	54166	1947	31790	.1199503741451E+05	.1159547106303E-03
4000	2001	1929	53736	1942	42188	.1600064714647E+05	.3501782218794E-04
5000	2001	1910	51146	1944	50111	.2000625687843E+05	.3925981331025E-04
6000	2001	1918	51177	1946	60248	.2401186661040E+05	.6840977867669E-04
7000	2001	1894	48985	1899	67140	.2801747634236E+05	.1787558577768E-02
8000	2001	1912	53376	1933	83697	.3202308607433E+05	.2920606465507E-03
9000	2001	1904	51747	1925	91294	.3602869580629E+05	.1034923971378E-02
10000	2001	1912	49828	1929	97706	.4003430553825E+05	.4545353168814E-03

TOTAL	18527	17695	479393	17849	5457.01(seconds)	proc= 95.51%	

37 *** SCALCG Algorithm ***. Function: TRIDIA (CUTE)

Powell criterion for restart.		Stoptest = 5						
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm	

theta spectral								
1000	1026	468	1352	324	63	.5853071663863E-13	.5541964758244E-05	
2000	1688	749	2206	516	207	.3388612576577E-12	.6670948415898E-05	
3000	1903	849	2498	593	352	.3519250266911E-12	.9222743327052E-05	
4000	2001	907	2596	594	486	.1322155620822E-09	.6723232621627E-04	
5000	2001	870	2642	640	619	.9060270285521E-08	.6305334258624E-03	
6000	2001	911	2608	606	732	.5243843995551E-07	.1540176906704E-01	
7000	2001	951	2588	586	847	.6336664199408E-06	.9260458478134E-02	
8000	2001	912	2616	614	978	.3831835917026E-06	.6816416913847E-02	
9000	2001	880	2592	590	1097	.2468870841676E-05	.1843159289133E-01	
10000	2001	896	2604	602	1219	.2242407590063E-03	.1540346621766E+00	

TOTAL	18624	8393	24302	5665	66.00(seconds)	proc= 45.07%		

38 *** SCALCG Algorithm ***. Function: ARWHEAD (CUTE)

Powell criterion for restart.		Stoptest = 5						
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm	

theta spectral								
1000	4	3	10	4	2	.8592374858493E-11	.2324697006873E-05	
2000	7	5	16	7	6	.1083660071399E-15	.1395151759267E-07	
3000	6	4	14	5	7	.2076096998309E-12	.6526961125252E-06	
4000	7	5	16	6	12	.8671448975539E-15	.4692690832263E-06	
5000	9	7	20	8	18	.2682863696826E-13	.8978766795665E-06	
6000	6	4	15	6	17	.1440079164857E-10	.1161284468249E-06	
7000	7	5	36	7	47	.3794165502613E-15	.9758398545238E-06	
8000	9	7	82	9	120	.4336266588856E-15	.9467028147238E-06	
9000	6	4	16	6	26	.4878367675099E-15	.1215294053845E-06	
10000	33	31	732	33	1355	.0000000000000E+00	.2649621001411E-06	

TOTAL	94	75	957	91	16.10(seconds)	proc= 79.79%		

39 *** SCALCG Algorithm ***. Function: NONDIA (CUTE)

Powell criterion for restart.		Stoptest = 5						
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm	

theta spectral								
1000	10	7	21	8	3	.1384019442201E-11	.1905825289505E-06	
2000	8	5	18	6	4	.9834144151522E-10	.9753180923787E-07	
3000	10	7	24	8	8	.1038610159841E-14	.6656833649309E-10	
4000	8	5	18	6	8	.2030042795692E-12	.4914020274514E-06	
5000	8	5	18	6	11	.6073087955801E-14	.6662221531830E-09	
6000	8	5	18	6	12	.2439973751217E-12	.2930983901657E-08	
7000	8	5	19	6	16	.2012270982990E-14	.6219930470688E-09	
8000	7	4	16	6	14	.3397188365684E-17	.6279421427280E-12	
9000	7	4	16	6	17	.2613508542484E-15	.2511768570912E-11	
10000	7	4	16	6	19	.3636094635261E-17	.4444475182242E-09	

TOTAL	81	51	184	64	1.12(seconds)	proc= 62.96%		

40 *** SCALCG Algorithm ***. Function: NONDQUAR (CUTE)

Powell criterion for restart.		Stoptest = 5						
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm	

theta spectral								
1000	1726	488	3033	1304	373	.3859383364048E-05	.3884060440077E-05	
2000	1576	488	2752	1171	679	.4202367271227E-05	.4047695350870E-05	
3000	1520	424	2690	1165	1000	.5639933914895E-05	.4679560752918E-05	
4000	1582	434	2817	1227	1388	.4685432221372E-05	.4127931882092E-05	
5000	1979	566	3522	1533	2176	.3099420100332E-05	.4133844427966E-05	
6000	1918	553	3379	1444	2510	.3344271106053E-05	.3347684399674E-05	
7000	1923	593	3366	1436	2905	.4153446903416E-05	.4476292789354E-05	
8000	1908	528	3406	1486	3367	.4093017396603E-05	.4331246255162E-05	
9000	2001	574	3569	1558	3961	.4446350514237E-05	.4347735988376E-04	
10000	2001	586	3573	1553	4408	.3884126673953E-05	.7851098977009E-04	

TOTAL	18134	5234	32107	13877	227.67(seconds)	proc= 28.86%		

41 *** SCALCG Algorithm ***. Function: DQDRTIC (CUTE)

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	6	1	15	7	1	.2690733071101E-12	.2616143437881E-06
2000	5	0	13	6	3	.3205058487285E-06	.1097363351774E-05
3000	5	0	13	6	3	.1463338060027E-05	.8675843936239E-06
4000	6	0	15	7	6	.1986321745046E-13	.1667223317666E-06
5000	5	0	13	6	6	.1134095052308E-04	.4578064177855E-06
6000	6	0	15	7	8	.8846555512640E-13	.3519708312679E-06
7000	6	0	15	7	10	.4057700558759E-13	.2383196116795E-06
8000	6	0	15	7	11	.5404785418246E-13	.2753405645698E-06
9000	6	0	15	7	12	.5858740324626E-13	.2867171021205E-06
10000	6	0	15	7	14	.9132084737500E-14	.1132892816354E-06

TOTAL	57	1	144	67	.74(seconds)	proc=	1.75%

42 *** SCALCG Algorithm ***. Function: EG2 (CUTE)

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	131	86	606	108	26	-.9989473933009E+03	.1086438261538E-05
2000	554	478	10379	529	859	-.1998947392786E+04	.8362910211384E-06
3000	2001	1939	53346	1962	6595	-.2998947392615E+04	.1798356491928E-03
4000	2001	1956	52393	1957	8641	-.3998947391649E+04	.1315703365322E-04
5000	2001	1940	51643	1901	10760	-.4998947392478E+04	.9069302678833E-04
6000	426	359	4676	369	1180	-.5998947392431E+04	.1151846728157E-05
7000	2001	1962	57340	1978	16548	-.6998947392419E+04	.8800275390530E-05
8000	2001	1946	59198	1966	19520	-.7998947380386E+04	.1621907610114E-02
9000	2001	1929	51200	1941	19025	-.8998947392293E+04	.9059608377955E-03
10000	2001	1957	57400	1966	23666	-.9998947391251E+04	.6487451587343E-03

TOTAL	15118	14552	398181	14677	1068.20(seconds)	proc=	96.26%

43 *** SCALCG Algorithm ***. Function: DIXMAANA (CUTE)

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	5	3	12	5	40	.1000000026174E+01	.2223662629183E-06
2000	6	3	14	6	6	.1000000000089E+01	.5769944663313E-07
3000	5	3	12	5	8	.1000000102032E+01	.6169026526619E-06
4000	5	3	12	5	15	.1000000148788E+01	.8512989770882E-06
5000	6	3	14	6	24	.1000000000120E+01	.3823921916930E-07
6000	5	3	12	5	18	.1000000234278E+01	.1164759166058E-05
7000	5	3	12	5	20	.1000000283896E+01	.1343819249882E-05
8000	6	3	14	6	32	.1000000000131E+01	.3119681935295E-07
9000	5	3	12	5	26	.1000000372727E+01	.1599134636300E-05
10000	5	3	12	5	30	.1000000423717E+01	.1749751440859E-05

TOTAL	53	30	126	53	2.19(seconds)	proc=	56.60%

44 *** SCALCG Algorithm ***. Function: DIXMAANB (CUTE)

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	10	9	19	7	5	.1000000000236E+01	.1738545099438E-06
2000	10	9	19	7	9	.1000000002548E+01	.1525205445265E-05
3000	10	9	19	7	14	.1000000005682E+01	.1400754080188E-05
4000	10	9	19	7	19	.1000000009662E+01	.7113855951713E-06
5000	10	9	19	7	23	.1000000013570E+01	.4748347257673E-06
6000	10	9	19	7	28	.1000000016988E+01	.5878384893616E-06
7000	10	9	19	7	33	.1000000020802E+01	.1200985207687E-05
8000	10	9	19	7	37	.1000000024607E+01	.1786398043519E-05
9000	10	9	19	7	42	.1000000028081E+01	.2034366608496E-05
10000	10	9	19	7	47	.1000000031860E+01	.2515785696683E-05

TOTAL	100	90	190	70	2.57(seconds)	proc=	90.00%

45 *** SCALCG Algorithm ***. Function: DIXMAANC (CUTE)

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	13	12	25	10	6	.1000000000122E+01	.6246401517636E-07
2000	13	12	24	9	12	.10000000006955E+01	.3709144602024E-05
3000	13	12	24	9	18	.10000000005689E+01	.3051846008720E-05
4000	13	12	24	9	24	.1000000000491E+01	.3408870983529E-06
5000	13	12	24	9	29	.1000000000426E+01	.1141684480423E-05
6000	13	11	24	9	36	.1000000000045E+01	.2450291217678E-06
7000	14	12	26	10	45	.1000000000011E+01	.5232536795647E-07
8000	14	11	26	10	51	.1000000000007E+01	.1354614123898E-07
9000	14	11	26	10	58	.1000000000016E+01	.5053697566688E-08
10000	14	12	26	10	65	.1000000000051E+01	.2921590334300E-07

TOTAL	134	117	249	95	3.44(seconds)	proc= 87.31%	

46 *** SCALCG Algorithm ***. Function: DIXMAANE (CUTE)

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	199	86	257	56	80	.1000000000280E+01	.3051555652899E-05
2000	284	140	363	77	222	.1000000000232E+01	.3175764945361E-05
3000	316	155	422	104	388	.1000000000967E+01	.5054714719226E-05
4000	385	173	513	126	630	.1000000000510E+01	.6682804165459E-05
5000	363	165	467	102	718	.1000000000614E+01	.5625389271329E-05
6000	343	159	448	103	826	.1000000001228E+01	.5120657986454E-05
7000	423	177	561	136	1205	.1000000001426E+01	.4826584189787E-05
8000	488	241	622	132	1528	.1000000000659E+01	.6067583292346E-05
9000	454	209	604	148	1667	.1000000003199E+01	.1258729241355E-04
10000	517	234	680	161	2087	.1000000002922E+01	.7353050645565E-05

TOTAL	3772	1739	4937	1145	93.51(seconds)	proc= 46.10%	

47 *** SCALCG Algorithm ***. Function: Partial Perturbed Quadratic

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	225	80	346	119	313	.3453756165738E-12	.5901033157895E-05
2000	232	66	375	141	1342	.1684066559492E-12	.6505472082225E-05
3000	212	63	332	118	2663	.4004742810646E-12	.1291461468861E-04
4000	158	43	255	95	3629	.3531256968068E-12	.1314484888787E-04
5000	73	20	123	48	2743	.4785864610889E-12	.4324744514892E-04
6000	59	23	95	34	3057	.3625269290175E-12	.1659689291929E-04
7000	31	8	58	25	2542	.2811731579221E-12	.1685275862610E-04
8000	28	5	53	23	3038	.7944306092717E-13	.2139221738814E-04
9000	23	5	46	21	3338	.1208801372166E-12	.2601349988693E-04
10000	19	3	39	18	3495	.1836046728195E-12	.3598105859762E-04

TOTAL	1060	316	1722	642	261.60(seconds)	proc= 29.81%	

48 *** SCALCG Algorithm ***. Function: Broyden Tridiagonal

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	36	18	66	25	1	.2798594531736E-12	.2572234731817E-05
2000	63	26	95	28	4	.3970671034879E+00	.4179152057597E-05
3000	61	33	94	29	6	.3970671034881E+00	.2733422646465E-05
4000	60	32	93	29	7	.3970671034880E+00	.2600400026134E-05
5000	62	33	94	28	9	.3970671034877E+00	.2016484142081E-05
6000	63	32	95	28	12	.3970671034877E+00	.2095315243996E-05
7000	59	32	88	25	12	.3970671034878E+00	.3234437283131E-05
8000	65	35	103	34	16	.3970671034878E+00	.2042657813489E-05
9000	60	30	97	33	18	.3970671034878E+00	.3235682632805E-05
10000	65	34	102	33	20	.3970671034877E+00	.3337506425313E-05

TOTAL	594	305	927	292	1.05(seconds)	proc= 51.35%	

49 *** SCALCG Algorithm ***. Function: Almost Perturbed Quadratic

Powell criterion for restart. Stoptest = 5

n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	299	138	382	81	7	.1945881002768E-12	.4224333514533E-05
2000	447	211	577	128	21	.1735039570946E-12	.4380303324208E-05
3000	486	235	634	146	35	.2734178453824E-12	.4909665989944E-05
4000	643	300	835	190	62	.2821328695651E-12	.6822838794597E-05
5000	686	329	874	186	82	.2093289660789E-12	.7226838940624E-05
6000	665	312	864	197	97	.2498137887416E-12	.5110749342935E-05
7000	905	396	1189	282	155	.1023197469764E-12	.4150021903296E-05
8000	963	410	1265	300	191	.1069119004692E-12	.6646541016396E-05
9000	911	425	1171	258	197	.7379739643244E-13	.5741492443220E-05
10000	1027	484	1338	309	248	.2691204381151E-12	.9100026356016E-05
TOTAL	7032	3240	9129	2077	10.95(seconds)	proc= 46.08%	

50 *** SCALCG Algorithm ***. Function: Tridiagonal Perturbed Quadratic

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	282	124	379	95	18	.3226340498672E-12	.3281700696699E-05
2000	409	186	521	110	50	.2710019823494E-12	.5574166689382E-05
3000	488	241	630	140	90	.1003627740720E-12	.5926301564299E-05
4000	570	259	753	181	145	.2838208354041E-12	.6479638053769E-05
5000	644	276	812	166	198	.2319932583764E-12	.6242936411481E-05
6000	766	333	988	220	286	.2732046636538E-12	.4430921561494E-05
7000	753	347	987	232	331	.3562759782395E-12	.9705125351763E-05
8000	924	411	1201	275	463	.2598011768788E-12	.5733612274922E-05
9000	841	375	1084	241	470	.3229756504887E-12	.6166904977314E-05
10000	1057	485	1361	302	655	.1848552998545E-12	.6703523299569E-05
TOTAL	6734	3037	8716	1962	27.06(seconds)	proc= 45.10%	

51 *** SCALCG Algorithm ***. Function: EDENSCH (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	24	14	48	18	6	.6003284592021E+04	.1836528229262E-05
2000	20	8	41	16	10	.1200328459202E+05	.3170993324133E-05
3000	36	27	470	31	153	.1800328459202E+05	.1359962331820E-05
4000	19	8	44	18	20	.2400328459202E+05	.1042773216796E-05
5000	36	24	369	32	199	.3000328459202E+05	.1830938309957E-05
6000	38	26	372	33	245	.3600328459202E+05	.1621455234551E-05
7000	31	20	279	24	210	.4200328459202E+05	.1023949364400E-05
8000	43	34	615	39	524	.4800328459202E+05	.1184380327862E-05
9000	28	18	284	25	282	.5400328459202E+05	.1829626641319E-05
10000	25	13	48	19	57	.6000328459202E+05	.9034534197117E-06
TOTAL	300	192	2570	255	17.06(seconds)	proc= 64.00%	

52 *** SCALCG Algorithm ***. Function: VARDIM (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm
theta spectral							
1000	19	16	58	20	4	.2294382279051E-14	.4254077249421E-05
2000	23	19	70	24	9	.3019023660351E-12	.2408074997372E-04
3000	47	42	249	48	44	.3469703736768E-11	.3725427690662E-05
4000	60	49	391	61	93	.1088264675514E-10	.6597770315215E-05
5000	52	46	365	52	108	.3690374258140E-17	.9400571339614E-09
6000	80	70	404	80	145	.1061658691044E-15	.1921334039686E-07
7000	2001	1999	2004	2	908	.8438007472227E+27	.2117741181636E+27
8000	113	96	606	111	292	.2685586836209E-09	.3277551272880E-04
9000	2001	1999	2005	3	1162	.1864665669056E+21	.3146661662196E+22
10000	2001	1999	2004	2	1297	.1473228482026E+29	.3088406903636E+28
TOTAL	6397	6335	8156	403	40.62(seconds)	proc= 99.03%	

53 *** SCALCG Algorithm ***. Function: STAIRCASE S1

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

```

-----
theta spectral
1000 2001 948 2609 607 122 .5747997437766E-04 .1893867725089E-02
2000 2001 896 2619 617 244 .4140651037104E-03 .1122688682982E-02
3000 2001 893 2625 622 367 .8043452541648E-03 .8671113046239E-03
4000 2001 885 2632 629 489 .1557536646455E-02 .3940437948782E-02
5000 2001 884 2580 577 604 .1255644133891E-02 .5302256059618E-03
6000 2001 900 2624 622 732 .2303364807623E-02 .5293806792418E-02
7000 2001 923 2629 627 853 .3138663731871E-02 .3332913659575E-02
8000 2001 881 2589 586 969 .3980911240118E-02 .1049204311195E-01
9000 2001 886 2614 611 1098 .7008208239932E-02 .3820653650716E-02
10000 2001 889 2641 638 1227 .8238833364012E-02 .8404856738698E-02
-----
TOTAL 20010 8985 26162 6136 67.05(seconds) proc= 44.90%

```

54 *** SCALCG Algorithm ***. Function: LIARWHD (CUTE)

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----
theta spectral
1000 13 9 28 13 2 .2745208320865E-12 .4829645383418E-08
2000 15 12 31 14 4 .1801016358863E-11 .1498631060721E-07
3000 16 13 34 15 6 .2227971442045E-16 .0000000000000E+00
4000 16 11 30 12 8 .2560349347163E-09 .2703314202640E-06
5000 17 14 34 14 11 .2792365674972E-10 .4349672985931E-09
6000 16 13 35 16 14 .6739031858216E-16 .1066574401846E-10
7000 19 16 39 17 17 .7833458506065E-15 .6219246768557E-11
8000 14 11 30 13 16 .1535451677496E-10 .8489686376646E-08
9000 15 12 31 13 18 .7836290619604E-10 .1606808647962E-06
10000 15 12 31 13 20 .3172594622969E-12 .1668525612536E-07
-----
TOTAL 156 123 323 140 1.16(seconds) proc= 78.85%

```

55 *** SCALCG Algorithm ***. Function: Diagonal 6

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----
theta spectral
1000 3 2 9 4 0 .6647618233657E-05 .1635068442576E-06
2000 3 2 9 4 1 .1301985030899E-04 .2278951210338E-06
3000 3 2 9 4 1 .1934601379094E-04 .2772844703964E-06
4000 3 2 9 4 2 .2564835588359E-04 .3189158392807E-06
5000 3 2 9 4 1 .3193548203662E-04 .3555910967640E-06
6000 3 2 9 4 3 .3821180238894E-04 .3887465033299E-06
7000 3 2 9 4 2 .4447993584566E-04 .4192350796458E-06
8000 3 2 9 4 3 .5074158870855E-04 .4476125036603E-06
9000 3 2 9 4 3 .5699794536351E-04 .4742646454286E-06
10000 3 2 9 4 4 .6324986978612E-04 .4994726028607E-06
-----
TOTAL 30 20 90 40 .20(seconds) proc= 66.67%

```

56 *** SCALCG Algorithm ***. Function: DIXON3DQ (CUTE)

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----
theta spectral
1000 2001 871 2574 572 112 .1106140613236E-02 .4783489669815E-03
2000 2001 869 2615 613 218 .1019632093771E-01 .1275175955634E-02
3000 2001 892 2613 611 308 .1005571543575E-01 .2485086597893E-02
4000 2001 873 2605 603 389 .1051880741920E-01 .1367576836423E-02
5000 2001 873 2605 603 462 .1051880741920E-01 .1367576836423E-02
6000 2001 873 2605 603 537 .1051880741920E-01 .1367576836423E-02
7000 2001 873 2605 603 613 .1051880741920E-01 .1367576836423E-02
8000 2001 873 2605 603 686 .1051880741920E-01 .1367576836423E-02
9000 2001 873 2605 603 761 .1051880741920E-01 .1367576836423E-02
10000 2001 873 2605 603 836 .1051880741920E-01 .1367576836423E-02
-----
TOTAL 20010 8743 26037 6017 49.22(seconds) proc= 43.69%

```

57 *** SCALCG Algorithm ***. Function: ENGVAL1 (CUTE)

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----

```

```

theta spectral
1000 19 7 40 17 0 .1108194718785E+04 .1317644595521E-05
2000 21 8 43 18 2 .2218313143943E+04 .1451221832148E-05
3000 22 9 43 17 2 .3328431569101E+04 .1086423208393E-05
4000 20 10 41 17 2 .4438549994258E+04 .1873900069327E-05
5000 17 6 36 16 3 .5548668419416E+04 .2830223726674E-05
6000 22 11 44 19 4 .6658786844573E+04 .1879018422627E-05
7000 27 16 230 26 12 .7768905269731E+04 .1219595026400E-05
8000 24 11 104 22 9 .8879023694889E+04 .3036833897763E-05
9000 52 41 1054 50 65 .9989142120047E+04 .2074111540732E-05
10000 22 13 44 19 6 .1109926054521E+05 .4408096073837E-05
-----
TOTAL 246 132 1679 221 1.05(seconds) proc= 53.66%

```

58 *** SCALCG Algorithm ***. Function: Extended DENSCHNA (CUTE)

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----
theta spectral
1000 6 4 14 6 1 .3219208000893E-03 .6105538797863E-05
2000 7 5 16 7 3 .2829051788432E-08 .7067162683422E-05
3000 7 5 16 7 4 .5296094434135E-08 .7616598428143E-05
4000 7 5 16 7 6 .7095958271619E-08 .7444091103525E-05
5000 6 3 14 6 6 .3307756596708E-05 .1107643661366E-04
6000 7 4 16 7 8 .1141097745939E-07 .7400980283109E-05
7000 7 6 16 7 9 .2810164747751E-08 .1982489505883E-05
8000 7 6 16 7 11 .4424291285334E-08 .2392559775123E-05
9000 7 6 16 7 12 .6204806331893E-08 .2791288269574E-05
10000 7 6 16 7 14 .8096940430685E-08 .3176209506327E-05
-----
TOTAL 68 50 156 68 .74(seconds) proc= 73.53%

```

59 *** SCALCG Algorithm ***. Function: Extended DENSCHNC (CUTE)

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----
theta spectral
1000 8 7 18 8 3 .5738698707728E-08 .5400603648688E-06
2000 9 5 18 7 7 .3889134227590E-05 .4344437775158E-05
3000 7 5 15 6 9 .2536209580610E-04 .3855153749419E-04
4000 8 6 17 7 12 .3883367521694E-09 .3624687457580E-04
5000 10 8 20 8 19 .2441335294434E-09 .1008438853940E-07
6000 9 7 19 8 22 .5480827217666E-08 .3977831194371E-09
7000 9 8 18 7 24 .1664028367935E-06 .2958094171837E-04
8000 10 9 19 7 28 .1196083519041E-07 .5090956207808E-08
9000 10 9 21 8 36 .8013794763978E-09 .2365937609415E-08
10000 9 7 21 9 40 .2002469356094E-09 .3703182141936E-10
-----
TOTAL 89 71 186 75 2.00(seconds) proc= 79.78%

```

60 *** SCALCG Algorithm ***. Function: Extended DENSCHNB (CUTE)

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----
theta spectral
1000 4 3 11 5 1 .1168734772577E-04 .6478699756743E-05
2000 4 3 11 5 1 .1487718852045E-04 .5583693332441E-05
3000 4 3 11 5 3 .1803419310337E-04 .5404302316630E-05
4000 4 3 11 5 3 .2109765955935E-04 .5396600499338E-05
5000 4 3 11 5 4 .2408082433417E-04 .5452180170431E-05
6000 4 3 11 5 6 .2699885108902E-04 .5535691735061E-05
7000 4 3 11 5 6 .2986361123388E-04 .5632548566096E-05
8000 4 3 11 5 6 .3268405746939E-04 .5735836297211E-05
9000 4 3 11 5 8 .3546700493730E-04 .5841972477621E-05
10000 4 3 11 5 9 .3821773815287E-04 .5948988612071E-05
-----
TOTAL 40 30 110 50 .47(seconds) proc= 75.00%

```

61 *** SCALCG Algorithm ***. Function: Extended DENSCHNF (CUTE)

```

Powell criterion for restart. Stoptest = 5
n iter irs fgcnt lscnt time(c) fxnew gnorm
-----
theta spectral

```

1000	20	18	38	16	7	.2103444252239E-11	.1986322497494E-05
2000	17	14	32	13	12	.3915972840746E-10	.1241290924326E-04
3000	17	14	31	12	18	.5644910479640E-08	.4333329574808E-04
4000	17	15	30	11	23	.2375206527242E-10	.4588760937761E-04
5000	18	16	31	11	30	.1294056871919E-10	.2804688827845E-04
6000	17	15	31	12	35	.5148181408544E-09	.3903654398980E-04
7000	18	15	33	13	44	.3143975303817E-10	.4639953179038E-04
8000	17	14	33	14	51	.3989460005056E-10	.2704273114941E-04
9000	19	15	35	14	60	.3189376288876E-10	.3025245382560E-04
10000	19	17	35	14	67	.8236515487147E-10	.6053981166633E-04

TOTAL	179	153	329	130	3.47(seconds)	proc= 85.47%	

62 *** SCALCG Algorithm ***. Function: SINQUAD (CUTE)

Powell criterion for restart. Stoptest = 5								
	n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral								
1000	148	96	339	128	35	.5008619875497E-08	.1836750765675E-06	
2000	152	106	312	122	63	.7406452436070E-08	.3465202110772E-07	
3000	204	131	430	166	130	.7603658259567E-08	.4546161321943E-06	
4000	269	195	566	213	229	.4830929194591E-15	.1851963731384E-07	
5000	149	103	317	115	160	.1111459795222E-06	.1765981846669E-06	
6000	232	151	477	187	291	.5057150439847E-06	.6441817197950E-06	
7000	276	189	553	205	393	.2489373648702E-08	.2558684376394E-06	
8000	144	101	305	114	246	.1051650481879E-07	.6617574757983E-07	
9000	205	161	430	157	387	.5694082908942E-07	.3720741574035E-06	
10000	362	257	732	268	742	.2236791318881E-08	.2355521102653E-06	

TOTAL	2141	1490	4461	1675	26.76(seconds)	proc= 69.59%		

63 *** SCALCG Algorithm ***. Function: BIGGSB1 (CUTE)

Powell criterion for restart. Stoptest = 5								
	n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral								
1000	2001	909	2595	593	113	.1523661961220E-03	.3966015698459E-03	
2000	2001	876	2625	623	218	.1741353030751E-02	.3302234746218E-02	
3000	2001	898	2609	607	307	.1739546097102E-02	.1906942668318E-02	
4000	2001	874	2619	617	391	.1710529314481E-02	.2908035708284E-03	
5000	2001	874	2619	617	464	.1710529314481E-02	.2908035708284E-03	
6000	2001	874	2619	617	540	.1710529314481E-02	.2908035708284E-03	
7000	2001	874	2619	617	615	.1710529314481E-02	.2908035708284E-03	
8000	2001	874	2619	617	690	.1710529314481E-02	.2908035708284E-03	
9000	2001	874	2619	617	764	.1710529314481E-02	.2908035708284E-03	
10000	2001	874	2619	617	840	.1710529314481E-02	.2908035708284E-03	

TOTAL	20010	8801	26162	6142	49.42(seconds)	proc= 43.98%		

64 *** SCALCG Algorithm ***. Function: Extended Block-Diagonal BD2

Powell criterion for restart. Stoptest = 5								
	n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral								
1000	8	7	18	8	2	.1423373278272E-07	.8028794713171E-05	
2000	9	8	19	8	5	.3946144622403E-05	.4153201593614E-05	
3000	9	8	19	8	8	.1186080838855E-04	.3235925126937E-04	
4000	8	7	19	9	10	.7674873482477E-09	.1755974729926E-08	
5000	8	7	19	9	13	.8475963159919E-09	.1794391116893E-08	
6000	8	7	19	9	16	.9295458894976E-09	.1841730401145E-08	
7000	8	7	19	9	17	.1012043881264E-08	.1893036124570E-08	
8000	8	7	19	9	20	.1094551834622E-08	.1944976266705E-08	
9000	8	7	19	9	23	.1176830591612E-08	.1996930066746E-08	
10000	8	7	19	9	25	.1258773682889E-08	.2048489134883E-08	

TOTAL	82	72	189	87	1.39(seconds)	proc= 87.80%		

65 *** SCALCG Algorithm ***. Function: Generalized quartic GQ1

Powell criterion for restart. Stoptest = 5								
	n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral								
1000	7	4	20	8	2	.1960980818006E-11	.8781596864312E-06	

2000	8	3	23	9	3	.2106589708086E-11	.8859995810702E-06
3000	8	5	23	9	4	.1274860133972E-10	.8593879864514E-07
4000	7	3	21	8	5	.4990266287660E-12	.1761403456514E-06
5000	7	3	21	8	7	.1293380418677E-10	.1722108497473E-06
6000	8	3	23	9	9	.4861528146387E-11	.6594736955940E-06
7000	8	5	24	9	11	.4539899730068E-11	.8858334469747E-08
8000	8	4	22	7	11	.4879104729114E-08	.1134400215612E-05
9000	8	3	23	8	13	.4279312982041E-12	.3385558975279E-06
10000	7	3	22	8	15	.7457412058778E-12	.6747123494099E-07

TOTAL	76	36	222	83	.80(seconds)	proc= 47.37%	

66 *** SCALCG Algorithm ***. Function: Diagonal 7

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	3	2	11	4	0	-.8168486188973E+03	.1415568054530E-10
2000	3	2	11	4	1	-.1633697237794E+04	.3290847273545E-10
3000	3	2	11	4	2	-.2450545856691E+04	.3468569285136E-10
4000	3	2	11	4	2	-.3267394475589E+04	.4255130163915E-10
5000	3	2	11	4	2	-.4084243094485E+04	.4462202767579E-10
6000	3	2	11	4	3	-.4901091713383E+04	.4764261815724E-10
7000	3	2	11	4	4	-.5717940332281E+04	.1051491282974E-10
8000	3	2	11	4	4	-.6534788951176E+04	.8762352547302E-10
9000	3	2	11	4	4	-.7351637570073E+04	.4385733168946E-10
10000	3	2	11	4	5	-.8168486188970E+04	.1882938249764E-10

TOTAL	30	20	110	40	.27(seconds)	proc= 66.67%	

67 *** SCALCG Algorithm ***. Function: Diagonal 8

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	2	1	7	3	1	-.4804526943707E+03	.3370134507195E-05
2000	2	1	7	3	0	-.9609053110429E+03	.5713174363048E-05
3000	2	1	7	3	2	-.1441357911378E+04	.7574473618641E-05
4000	2	1	7	3	2	-.1921810503195E+04	.9166953807686E-05
5000	2	1	7	3	2	-.2402263089550E+04	.1058160526326E-04
6000	2	1	7	3	3	-.2882715672024E+04	.1186726785171E-04
7000	2	1	7	3	3	-.3363168251543E+04	.1305417744649E-04
8000	2	1	7	3	4	-.3843620828732E+04	.1416198811970E-04
9000	2	1	7	3	4	-.4324073404005E+04	.1520453368826E-04
10000	2	1	7	3	4	-.4804525977678E+04	.1619215095339E-04

TOTAL	20	10	70	30	.25(seconds)	proc= 50.00%	

68 *** SCALCG Algorithm ***. Function: Full Hessian

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	2	1	7	3	1	-.2499998859188E+00	.1137510043819E-11
2000	2	1	7	3	1	-.2499999709820E+00	.1792389658645E-11
3000	2	1	7	3	1	-.249999869981E+00	.6141751363933E-12
4000	2	1	7	3	2	-.249999926497E+00	.1123466709945E-11
5000	2	1	7	3	2	-.249999952972E+00	.8345041417904E-11
6000	2	1	7	3	2	-.249999967372E+00	.4514869049197E-11
7000	2	1	7	3	3	-.249999976054E+00	.2247887725085E-10
8000	2	1	7	3	4	-.249999981469E+00	.2476576071279E-10
9000	2	1	7	3	4	-.249999985234E+00	.4455247671624E-11
10000	2	1	7	3	4	-.249999989070E+00	.1509903313490E-10

TOTAL	20	10	70	30	.24(seconds)	proc= 50.00%	

69 *** SCALCG Algorithm ***. Function: SINCOS

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	6	5	15	7	2	.3865995282467E+03	.3269898458045E-07
2000	6	5	15	7	4	.7731990564934E+03	.4018695357111E-07

3000	6	5	15	7	7	.1159798584740E+04	.4209072223365E-07
4000	6	5	15	7	8	.1546398112987E+04	.4274101731579E-07
5000	6	5	15	7	10	.1932997641234E+04	.4297998082678E-07
6000	6	5	15	7	13	.2319597169480E+04	.4304129843733E-07
7000	6	5	15	7	14	.2706196697727E+04	.4298740556482E-07
8000	6	5	15	7	17	.3092796225974E+04	.4295925702824E-07
9000	6	5	15	7	19	.3479395754220E+04	.4270036508082E-07
10000	6	5	15	7	21	.3865995282467E+04	.4270090308732E-07

TOTAL	60	50	150	70	1.15(seconds)	proc= 83.33%	

70 *** SCALCG Algorithm ***. Function: Generalized quartic GQ2

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	31	12	55	22	5	.3506218301030E-12	.1145303516074E-05
2000	33	16	56	21	11	.3353638699300E-12	.1181049353351E-05
3000	33	16	56	21	17	.1591258520373E-12	.8435450337140E-06
4000	34	20	54	18	21	.6505610371177E-12	.1454224139932E-05
5000	34	19	57	21	28	.2624987648550E-12	.1505546214452E-05
6000	35	16	59	22	35	.3234450084328E-12	.1465510701155E-05
7000	33	17	54	19	38	.4795098226923E-12	.9723776789051E-06
8000	34	20	57	21	45	.3804147083721E-12	.1132254474520E-05
9000	34	18	58	22	51	.1242718372006E-11	.1424155963949E-05
10000	35	17	58	21	58	.6151684031441E-12	.1278035440839E-05

TOTAL	336	171	564	208	3.09(seconds)	proc= 50.89%	

71 *** SCALCG Algorithm ***. Function: EXTROSNB (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	2001	793	3257	1231	394	.1337332998617E-05	.7921841514620E-03
2000	2001	780	3324	1279	802	.1422800510353E-05	.3301902497511E-02
3000	2001	756	3305	1269	1194	.1786603986664E-05	.4189837781341E-03
4000	2001	803	3274	1246	1581	.1419880913255E-05	.5122759084767E-03
5000	2001	800	3276	1242	1984	.1555181688588E-05	.4988186313812E-03
6000	2001	837	3280	1241	2383	.1563045880996E-05	.1799661015157E-02
7000	2001	797	3222	1199	2734	.1406087757933E-05	.9814584833198E-03
8000	2001	789	3300	1251	3281	.1580346150624E-05	.3493429090479E-04
9000	2001	775	3311	1278	3614	.2264130877220E-05	.4741938668067E-04
10000	2001	811	3263	1225	3926	.1406724770704E-05	.1160498480883E-02

TOTAL	20010	7941	32812	12461	218.93(seconds)	proc= 39.69%	

72 *** SCALCG Algorithm ***. Function: ARGLINB (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	0	0	3	1	0	.3780975025000E+08	.2079456736898E-06
2000	0	0	3	1	0	.6050440010000E+09	.4995873990550E-05
3000	0	0	3	1	0	.3063035254250E+10	.2151999076694E-04
4000	1	0	5	2	1	.2000000000000E+00	.7413457994719E-05
5000	5	4	50	5	2	.2000000000000E+00	.1575649152454E-04
6000	2	1	8	3	1	.2000000000000E+00	.1799661013157E-04
7000	1	0	5	2	1	.2000000000000E+00	.1734843760644E-05
8000	6	5	82	6	6	.2000000000000E+00	.1532999938992E-04
9000	2	1	8	3	1	.2000000000000E+00	.2988686603776E-04
10000	2	1	11	3	1	.2000000000000E+00	.1381765134485E-04

TOTAL	19	12	178	27	.13(seconds)	proc= 63.16%	

73 *** SCALCG Algorithm ***. Function: FLETCHCR (CUTE)

Powell criterion for restart. Stoptest = 5							
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	23	5	50	23	3	.1103109238389E-13	.2033640273090E-05
2000	22	3	49	23	4	.8993619954530E-15	.5694152346896E-06
3000	21	5	47	22	6	.5347412956421E-14	.1380955693305E-05

4000	26	8	54	25	9	.8257651647045E-14	.1685430629512E-05
5000	96	52	399	55	77	.5047474985625E+02	.1679823249200E-05
6000	36	14	237	34	49	.4964243546265E+02	.2354040804093E-05
7000	25	6	52	24	16	.1326252606588E-13	.2114404010245E-05
8000	26	6	54	25	19	.3959666590456E-14	.1270467167905E-05
9000	27	7	55	25	22	.1984006143270E-14	.8304991066458E-06
10000	27	6	57	27	24	.4411009710692E-14	.1265175102419E-05

TOTAL	329	112	1054	283	2.29(seconds)	proc=	34.04%

74 *** SCALCG Algorithm ***. Function: Extended Himmelblau HIMMELBG (CUTE)

Powell criterion for restart.		Stoptest = 5					
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	7	6	10	1	1	.1292053853996E-02	.9360962510395E-05
2000	7	6	10	1	2	.2704139968213E-02	.1395021916261E-04
3000	7	6	10	1	2	.4137677366531E-02	.1748189881161E-04
4000	7	6	10	1	3	.5582317255533E-02	.2046270158560E-04
5000	7	6	10	1	4	.7034040775018E-02	.2309046105421E-04
6000	7	6	10	1	4	.8490839411422E-02	.2546721223696E-04
7000	7	6	10	1	6	.9951398004212E-02	.2765326786833E-04
8000	7	6	10	1	7	.1141501377877E-01	.2968851746336E-04
9000	7	6	10	1	7	.1288110335177E-01	.3160036800697E-04
10000	7	6	10	1	8	.1434915472840E-01	.3340857348941E-04

TOTAL	70	60	100	10	.44(seconds)	proc=	85.71%

75 *** SCALCG Algorithm ***. Function: Extended Himmelblau HIMMELBH (CUTE)

Powell criterion for restart.		Stoptest = 5					
n	iter	irs	fgcnt	lscnt	time(c)	fxnew	gnorm

theta spectral							
1000	4	3	11	5	1	-.4999999999318E+03	.6947528349899E-07
2000	4	3	11	5	1	-.9999999998635E+03	.9823120908795E-07
3000	4	3	11	5	1	-.1499999999795E+04	.1202649293173E-06
4000	4	3	11	5	3	-.1999999999727E+04	.1388580041401E-06
5000	4	3	11	5	2	-.2499999999659E+04	.1552438057998E-06
6000	4	3	11	5	3	-.2999999999591E+04	.1700309483118E-06
7000	4	3	11	5	4	-.3499999999522E+04	.1837787342899E-06
8000	4	3	11	5	4	-.3999999999454E+04	.1964473105752E-06
9000	4	3	11	5	5	-.4499999999386E+04	.2082187179448E-06
10000	4	3	11	5	5	-.4999999999318E+04	.2196185120089E-06

TOTAL	40	30	110	50	.29(seconds)	proc=	75.00%

May 2, 2006