SPG Program
Freudenstein & Roth function

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    Project: Simple Bounded Optimization
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    SPG Program - E.G.Birgin, J.M.Martinez and M.Raydan.
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    Date: ---  Month: 8  Day:17  Year: 2010

    Termination criteria:
    cginfn .le. eps
    cgtwon .le. eps2**2
    where :
    cginfn is the gradient infinite-norm, and eps=
.0000000000000E+00
    cgtwon is the gradient 2-norm, and eps2=
.1000000000000E-05

    Line search interpolation:
    Line search with safeguarded quadratic interpolation

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    Freudenstein & Roth function:    n=   1000

 F=          2.4492126840D+04
 CGINFNORM=  5.9685589804D-13
 CGTWONORM=  1.3349885981D-11
 FLAG=       1

 ITER=          92
 FCNT=         157
 GCNT=          93
 TIME(csec.)=      0

    Freudenstein & Roth function:    n=   2000

 F=          4.8984253679D+04
 CGINFNORM=  4.8316906032D-13
 CGTWONORM=  1.5280799323D-11
 FLAG=       1

 ITER=          92
 FCNT=         157
 GCNT=          93
 TIME(csec.)=      5

    Freudenstein & Roth function:    n=   3000

 F=          7.3476380519D+04
 CGINFNORM=  4.5474735089D-13
 CGTWONORM=  1.7614438974D-11
 FLAG=       1

 ITER=          92
 FCNT=         157
 GCNT=          93
 TIME(csec.)=      6

    Freudenstein & Roth function:    n=   4000

 F=          9.7968507358D+04
 CGINFNORM=  4.8316906032D-13
 CGTWONORM=  2.1610313646D-11
 FLAG=       1

 ITER=          92
 FCNT=         157
 GCNT=          93
 TIME(csec.)=     11
```

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    Termination criteria:
    cginfn .le. eps
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    Line search interpolation:
    Line search with safeguarded cubic interpolation

==========================================================

    Freudenstein & Roth function:    n=   1000

 F=          2.4492126840D+04
 CGINFNORM=  2.0611423679D-10
 CGTWONORM=  4.6239279422D-09
 FLAG=       1

 ITER=          60
 FCNT=          87
 GCNT=          61
 TIME(csec.)=      0

    Freudenstein & Roth function:    n=   2000

 F=          4.8984253679D+04
 CGINFNORM=  1.3179146663D-10
 CGTWONORM=  4.1822889953D-09
 FLAG=       1

 ITER=          60
 FCNT=          87
 GCNT=          61
 TIME(csec.)=      0

    Freudenstein & Roth function:    n=   3000

 F=          7.3476380519D+04
 CGINFNORM=  2.4692781153D-10
 CGTWONORM=  9.5829314354D-09
 FLAG=       1

 ITER=          60
 FCNT=          87
 GCNT=          61
 TIME(csec.)=      5

    Freudenstein & Roth function:    n=   4000

 F=          9.7968507358D+04
 CGINFNORM=  8.9244167611D-12
 CGTWONORM=  4.0111531433D-10
 FLAG=       1

 ITER=          60
 FCNT=          87
 GCNT=          61
 TIME(csec.)=      6
```

```
   Freudenstein & Roth function:    n=   5000

F=          1.2246063420D+05
CGINFNORM=  5.1159076975D-13
CGTWONORM=  2.5582005531D-11
FLAG=       1

ITER=          92
FCNT=         157
GCNT=          93
TIME(csec.)=     11
```

```
   Freudenstein & Roth function:    n=   5000

F=          1.2246063420D+05
CGINFNORM=  8.3872464529D-11
CGTWONORM=  4.2099621866D-09
FLAG=       1

ITER=          60
FCNT=          87
GCNT=          61
TIME(csec.)=     11
```

```
   Freudenstein & Roth function:    n=   6000

F=          1.4695276104D+05
CGINFNORM=  4.2632564146D-13
CGTWONORM=  2.3354060011D-11
FLAG=       1

ITER=          92
FCNT=         157
GCNT=          93
TIME(csec.)=     16
```

```
   Freudenstein & Roth function:    n=   6000

F=          1.4695276104D+05
CGINFNORM=  4.8885340220D-11
CGTWONORM=  2.6861024751D-09
FLAG=       1

ITER=          60
FCNT=          87
GCNT=          61
TIME(csec.)=     11
```

```
   Freudenstein & Roth function:    n=   7000

F=          1.7144488788D+05
CGINFNORM=  4.8316906032D-13
CGTWONORM=  2.8584667096D-11
FLAG=       1

ITER=          92
FCNT=         157
GCNT=          93
TIME(csec.)=     22
```

```
   Freudenstein & Roth function:    n=   7000

F=          1.7144488788D+05
CGINFNORM=  1.2721557141D-10
CGTWONORM=  7.5436845206D-09
FLAG=       1

ITER=          60
FCNT=          87
GCNT=          61
TIME(csec.)=     11
```

```
   Freudenstein & Roth function:    n=   8000

F=          1.9593701472D+05
CGINFNORM=  3.9790393203D-13
CGTWONORM=  2.5169666364D-11
FLAG=       1

ITER=          92
FCNT=         157
GCNT=          93
TIME(csec.)=     28
```

```
   Freudenstein & Roth function:    n=   8000

F=          1.9593701472D+05
CGINFNORM=  8.8078877525D-11
CGTWONORM=  5.5807840519D-09
FLAG=       1

ITER=          60
FCNT=          87
GCNT=          61
TIME(csec.)=     16
```

```
   Freudenstein & Roth function:    n=   9000

F=          2.2042914156D+05
CGINFNORM=  3.9790393203D-13
CGTWONORM=  2.6692207216D-11
FLAG=       1

ITER=          92
FCNT=         157
GCNT=          93
TIME(csec.)=     27
```

```
   Freudenstein & Roth function:    n=   9000

F=          2.2042914156D+05
CGINFNORM=  1.3608314475D-10
CGTWONORM=  9.1401481865D-09
FLAG=       1

ITER=          60
FCNT=          87
GCNT=          61
TIME(csec.)=     22
```

```
   Freudenstein & Roth function:    n=  10000

F=          2.4492126840D+05
CGINFNORM=  9.0949470177D-13
CGTWONORM=  6.4318837091D-11
FLAG=       1

ITER=          92
FCNT=         157
GCNT=          93
TIME(csec.)=     33
```

```
   Freudenstein & Roth function:    n=  10000

F=          2.4492126840D+05
CGINFNORM=  1.7152501641D-10
CGTWONORM=  1.2174543862D-08
FLAG=       1

ITER=          60
FCNT=          87
GCNT=          61
TIME(csec.)=     16
```

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