```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-1.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
c =================== [ Problem Statistics ]=======================
C
c |
   Number of variables:
                           12
  Number of clauses:
                          108
c I
c | Parse time:
                         0.00 s
c | Preprocesing is fully done
                         0.00 Mb
c | Eliminated clauses:
c l
  Simplification time:
                          0.00 s
c |
  c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
c I
c | Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
С
c | - Restarts:
                          | - Reduce Clause DB:
                                                    - Minimize Asserting:
                                                     * size < 30
   * LBD Queue : 50
                           * First : 2000
c l
   * Trail Queue : 5000
* K : 0.80
* R : 1.40
                           * Inc : 300
* Special : 1000
                            * Inc
                                                      * lbd < 6
c l
С
                          * Protected : (lbd)< 30
С
c
c l
         RESTARTS
c I
                                ORIGINAL
                                                       LEARNT
                                                                        Progress
      NB Blocked Avg Cfc | Vars Clauses Literals | Red Learnts LBD2 Removed |
c |
  _____
                                                           _____
c last restart ## conflicts : 0 0
c restarts
               : 1 (0 conflicts in avg)
c blocked restarts
                 : 0 (multiple: 0)
c last block at restart : 0
c nb ReduceDB
c nb removed Clauses
                 : 0
c nb learnts DL2
                 : 0
                : 0
c nb learnts size 2
c nb learnts size 1
c conflicts
                 : 0
                              (0 /sec)
c decisions
                 : 1
                              (0.00 % random) (690 /sec)
                              (3451 /sec)
c propagations
                 : 5
c nb reduced Clauses : 0
c CPU time : 0.001449 s
s SATISFIABLE
      0m0.010s
real
      0m0.002s
user
      0m0.002s
sys
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-2.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
WARNING! DIMACS header mismatch: wrong number of clauses.
c | Number of variables:
   Number of clauses:
                           109
c I
c | Parse time:
                          0.00 s
C
c | Preprocesing is fully done
                          0.00 s
c | Simplification time:
c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
c | Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
c I
c I
c | - Restarts:
                            - Reduce Clause DB:
                                                     - Minimize Asserting:
                            * First : 2000
* Inc : 300
    * LBD Queue :
                   50
С
                                                       * size < 30
   * Trail Queue : 5000
                                        300
1000
                                                       * lbd < 6
С
                             * Special :
                  0.80
               : 1.40
                          * Protected : (lbd)< 30
c I
c =======[ Search Statistics (every 10000 conflicts) ]===========
c I
         RESTARTS
                                ORIGINAL
                                                         LEARNT
c I
                                                                        Progress
      NB Blocked Avg Cfc | Vars Clauses Literals |
                                               Red Learnts LBD2 Removed
c |
c last restart ## conflicts : 10
c restarts : 1 (1 conflicts in avg) c blocked restarts : 0 (multiple: 0)
c last block at restart : 0
c nb ReduceDB
                 : 0
c nb removed Clauses
                 : 0
                 : 0
c nb learnts DL2
c nb learnts size 2
                 : 0
c nb learnts size 1
                : 1
c conflicts
                 : 1
                               (620 /sec)
                 : 2
c decisions
                               (0.00 % random) (1240 /sec)
c propagations
                 : 11
                              (6820 /sec)
c nb reduced Clauses
c CPU time
                 : 0.001613 s
s SATISFIABLE
real
      0m0.018s
user
      0m0.002s
sys
      0m0.001s
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-3.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
c I
   Number of variables:
                          82
c I
c | Number of clauses:
                        1213
c | Parse time:
                        0.00 s
С
c | Preprocesing is fully done
   Eliminated clauses:
                         0.00 Mb
c | Simplification time:
                        0.00 s
c I
c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
С
 Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
С
c | - Restarts:
                         | - Reduce Clause DB:
                                                  - Minimize Asserting:
                         | * First : 2000
| * Inc : 300
   * LBD Queue : 50
* Trail Queue : 5000
                                                   * size < 30
c I
                                                    * lbd < 6
C
   * K
* R
                         * Special : 1000
Protected : (lbd)< 30
          : 0.80
: 1.40
C
С
c i
  c |
c I
         RESTARTS
                              ORIGINAL
                                                     LEARNT
                                                                    | Progress
      NB Blocked Avg Cfc | Vars Clauses Literals |
                                             Red Learnts LBD2 Removed |
c |
c last restart ## conflicts : 106 2
: 1 (106 conflicts in avg)
: 0 (multiple: 0)
c blocked restarts
c last block at restart : 0
c nb ReduceDB
                : 0
c nb removed Clauses
               : 0
c nb learnts DL2
                 : 25
                : 13
: 4
: 106
c nb learnts size 2
c nb learnts size 1
                            (25310 /sec)
c conflicts
c decisions
                             (0.00 % random) (31519 /sec)
                : 132
c propagations
                            (476361 /sec)
                : 1995
c nb reduced Clauses : 5
c CPU time : 0.004188 s
s SATISFIABLE
real
     0m0.020s
user
     0m0.005s
     0m0.002s
sys
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-4.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
C
   Number of variables:
                           964
 Number of clauses:
                           2170
   Parse time:
                           0.00 s
c | Preprocesing is fully done
c | Eliminated clauses:
                           0.01 Mb
   Simplification time:
                          0.00 s
c I
c I
c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
c | Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
                            - Reduce Clause DB:
                                                      - Minimize Asserting:
С
   - Restarts:
                              * First : 2000
С
    * LBD Queue :
                                                       * size < 30
    * Trail Queue :
                             * Inc
                                           300
                                                        * lbd <
                  5000
C
                                       :
           : 0.80
                                         1000
                             * Special :
C
    * R
                : 1.40
                             * Protected : (lbd)< 30
c I
c I
c ======= [ Search Statistics (every 10000 conflicts) ]==========
c I
c |
         RESTARTS
                                 ORIGINAL
                                                          LEARNT
                          Vars Clauses Literals
   NB Blocked Avg Cfc |
                                                 Red Learnts LBD2 Removed
c last restart ## conflicts : 191 2
                  : 1 (191 conflicts in avg)
c restarts
c blocked restarts
                 : 0 (multiple: 0)
c last block at restart : 0
c nb ReduceDB
                 : 0
c nb removed Clauses
                 : 0
c nb learnts DL2
                  : 15
                 : 9
: 2
c nb learnts size 2
c nb learnts size 1
c conflicts
                 : 191
                               (39841 /sec)
c decisions
                  : 356
                               (0.00 % random) (74259 /sec)
c propagations
                 : 11985
                               (2500000 /sec)
c nb reduced Clauses
                  : 9
c CPU time
                  : 0.004794 s
s SATISFIABLE
real
      0m0.012s
      0m0.005s
user
      0m0.002s
sys
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-5.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
c I
C
   Number of variables:
                          1433
С
 | Number of clauses:
                          7493
   Parse time:
                          0.00 s
C
c | Preprocesing is fully done
                          0.00 Mb
c | Eliminated clauses:
c | Simplification time:
                          0.00 s
c |
c =======[ MAGIC CONSTANTS ]==================================
c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
C
c \dot{\mid} Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
c I
C
С
 - Restarts:
                            - Reduce Clause DB:
                                                     - Minimize Asserting:
    * LBD Queue :
                   50
                             * First : 2000
                                                       * size < 30
                            * Inc
   * Trail Queue : 5000
                                         300
                                                       * lbd < 6
C
                             * Special
    * K
                  0.80
                                          1000
           :
C
               : 1.40
                            * Protected : (lbd)< 30
   * R
C
c |
c =======[ Search Statistics (every 10000 conflicts) ]=============
c |
         RESTARTS
                                ORIGINAL
     NB Blocked Avg Cfc | Vars Clauses Literals |
                                                 Red Learnts LBD2 Removed
c last restart ## conflicts : 275 11
c restarts : 1 (275 conflicts in avg) c blocked restarts : 0 (multiple: 0)
c last block at restart : 0
c nb ReduceDB
c nb removed Clauses
                 : 0
c nb learnts DL2
                 : 8
: 0
c nb learnts size 2
c nb learnts size 1
                 : 275
c conflicts
                              (20870 /sec)
c decisions
                  : 516
                               (0.00 % random) (39159 /sec)
c propagations
                 : 36889
                               (2799499 /sec)
                : 4
: 0.013177 s
c nb reduced Clauses
c CPU time
s SATISFIABLE
real
      0m0.035s
user
      0m0.013s
      0m0.003s
sys
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-6.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
Number of variables:
Number of clauses:
Parse time:
                                 7493
                                0.00 s
c | Preprocesing is fully done
c | Eliminated clauses:
                               0.00 Mb
0.00 s
   Simplification time:
   | Constants are supposed to work well together :-)
| however, if you find better choices, please let us known...
  ert Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
                                   - Reduce Clause DB:
   - Restarts:
                                                                  - Minimize Asserting:
     * LBD Queue : 50

* Trail Queue : 5000

* K : 0.80

* R : 1.40
                                    * First : 2000
* Inc : 300
* Special : 1000
                                                                   * size < 30
* lbd < 6
                                    * Protected : (lbd)< 30
                                 =[ Search Statistics (every 10000 conflicts) ]===============
                                       ORIGINAL
c | RESTARTS | ORIGINAL | LEARNT | Progress | c | NB Blocked Avg Cfc | Vars Clauses Literals | Red Learnts LBD2 Removed | | C
C ------
c restarts : 1 (4377 conflicts in avg) c blocked restarts : 0 (multiple: 0)
c last block at restart : 0
c nb ReduceDB
c nb removed Clauses
                      : 1001
c nb learnts DL2
c nb learnts size 2
                     : 133
: 57
c nb learnts size 1
                     : 3
                      : 4377
c conflicts
                                      (32808 /sec)
c decisions
                      : 5511
                                       (0.00 % random) (41308 /sec)
c propagations
                      : 565347
                                      (4237539 /sec)
c nb reduced Clauses
                      : 65
c CPU time
                      : 0.133414 s
s UNSATISFIABLE
real 0m0.150s
user 0m0.134s
SVS
       0m0.007s
bash-4.2$
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-7.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
c ========= [ Problem Statistics ]============================
   Number of variables:
c |
   Number of clauses:
                           1067
c l
  Parse time:
                          0.00 s
c I
C
c | Preprocesing is fully done
                          0.00 Mb
c |
  Eliminated clauses:
c I
   Simplification time:
                          0.00 s
c
  c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
c I
c | Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
c I
  -----
C
С
  - Restarts:
                            - Reduce Clause DB:
                                                      - Minimize Asserting:
С
    * LBD Queue :
                   50
                             * First : 2000
                                                        * size < 30
    * Trail Queue :
                   5000
                             * Inc
                                          300
                                                        * lbd <
           : 0.80
                             * Special : 1000
c |
                             * Protected : (lbd)< 30
cĺ
                : 1.40
c l
c ======= [ Search Statistics (every 10000 conflicts) ]==========
c I
                                ORIGINAL
c |
         RESTARTS
                                                         LEARNT
                          Vars Clauses Literals | Red Learnts LBD2 Removed |
    NB Blocked Avg Cfc |
c |
c last restart ## conflicts : 28 9
c restarts
                  : 1 (28 conflicts in avg)
               : 0 (multiple: 0)
c blocked restarts
c last block at restart : 0
c nb ReduceDB
                  : 0
c nb removed Clauses
                 : 0
c nb learnts DL2
                  : 5
                 : 1
c nb learnts size 2
c nb learnts size 1
                 : 0
c conflicts
                               (29197 /sec)
                  : 28
                               (0.00 % random) (75078 /sec)
c decisions
                  : 72
                               (392075 /sec)
c propagations
                 : 376
c nb reduced Clauses
                 : 6
                  : 0.000959 s
c CPU time
s SATISFIABLE
      0m0.014s
real
      0m0.001s
user
      0m0.003s
sys
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-8.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
c =================== [ Problem Statistics ]==================
c |
    Number of variables:
                            256
c | Number of clauses:
   Parse time:
                            0.00 s
c l
C
c | Preprocesing is fully done
C
    Eliminated clauses:
                            0.00 Mb
c | Simplification time:
c I
c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
c | Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
c i
C
                             - Reduce Clause DB:
c I
   Restarts:
                                                         - Minimize Asserting:
   * LBD Queue : 50

* Trail Queue : 5000

* K : 0.80

* R : 1.40
                              * First : 2000
* Inc : 300
С
                     50
                                                          * size < 30
                                                           * lbd <
                               * Special : 1000
c |
                : 1.40
                               * Protected : (lbd)< 30
c I
c l
c =======[ Search Statistics (every 10000 conflicts) ]=============
c |
          RESTARTS
                                   ORIGINAL
       NB Blocked Avg Cfc | Vars Clauses Literals | Red Learnts LBD2 Removed |
c i
c last restart ## conflicts : 5 63
c restarts
                 : 1 (5 conflicts in avg)
c blocked restarts
                   : 0 (multiple: 0)
c last block at restart : 0
c nb ReduceDB
                 : 0
: 0
c nb removed Clauses
                  : 0
c nb learnts DL2
                 : 0
c nb learnts size 2
c nb learnts size 1
c conflicts
                   : 5
                                 (475 /sec)
                                 (0.00 % random) (6648 /sec)
                   : 70
c decisions
                  : 276
c propagations
c nb reduced Clauses : 0
- COUL time : 0.010529 s
                                 (26213 /sec)
s SATISFIABLE
      0m0.028s
real
user
      0m0.011s
      0m0.002s
sys
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-9.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
c I
c |
   Number of variables:
                         718
c | Number of clauses:
                         4806
c | Parse time:
                         0.00 s
c l
c | Preprocesing is fully done
C
   Eliminated clauses:
                         0.00 Mb
c | Simplification time:
                         0.00 s
c I
c =======[ MAGIC CONSTANTS ]=================================
c | Constants are supposed to work well together :-)
c | however, if you find better choices, please let us known...
c I
c | Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
c |-----
c |
                          - Reduce Clause DB:
c | - Restarts:
                                                  | - Minimize Asserting:
   * LBD Queue :
                  50
                            * First : 2000
                                                     * size < 30
c I
   * Trail Queue : 5000
* K : 0.80
                            * Inc : 300
* Special : 1000
                                                     * lbd < 6
c I
С
   * R
               : 1.40
                           * Protected : (lbd)< 30
c |
c I
c =======[ Search Statistics (every 10000 conflicts) ]===========
c l
                                                       LEARNT
c |
         RESTARTS
                               ORIGINAL
      NB Blocked Avg Cfc | Vars Clauses Literals | Red Learnts LBD2 Removed |
c last restart ## conflicts : 656 13
c restarts : 7 (309 conflicts in avg) c blocked restarts : 0 (multiple: 0)
c blocked restarts
c last block at restart : 0
c nb ReduceDB
                 : 1
c nb removed Clauses : 983
c nb learnts DL2
c nb learnts size 2
                 : 93
c nb learnts size 1
               : 9
c conflicts
                 : 2166
                              (80311 /sec)
c decisions
                : 3852
                              (0.00 % random) (142825 /sec)
c propagations
                 : 114961
                              (4262551 /sec)
c nb reduced Clauses : 99
c CPU time
                 : 0.02697 s
s SATISFIABLE
real
     0m0.049s
user
     0m0.027s
     0m0.004s
sys
```

```
bash-4.2$ time ./glucose ../../../sat4jexample/test-factor-10.cnf
c This is glucose 4.0 -- based on MiniSAT (Many thanks to MiniSAT team)
C
   Number of variables:
c |
  Number of clauses:
                         13396
c l
  Parse time:
                          0.01 s
c l
C
c | Preprocesing is fully done
   Eliminated clauses:
                          0.02 Mb
c | Simplification time:
                          0.01 s
c l
c ========[ MAGIC CONSTANTS ]====================
c | Constants are supposed to work well together :-)
  however, if you find better choices, please let us known...
c | Adapt dynamically the solver after 100000 conflicts (restarts, reduction strategies...)
C
C
С
  - Restarts:
                            - Reduce Clause DB:
                                                      - Minimize Asserting:
                   50
    * LBD Queue :
                           * First : 2000
                                                       * size < 30
   * Trail Queue : 5000

* K : 0.80

* R : 1.40
c
                             * Inc
                                          300
                                                        * lbd < 6
                             * Special : 1000
c |
                             * Protected : (lbd)< 30
               : 1.40
c l
c.
c =======[ Search Statistics (every 10000 conflicts) ]==========================
                                 ORIGINAL
       NB Blocked Avg Cfc | Vars Clauses Literals | Red Learnts LBD2 Removed |
C
c last restart ## conflicts : 811 111
: 3 (357 conflicts in avg)
                  : 0 (multiple: 0)
c blocked restarts
c last block at restart : 0
                : 0
c nb ReduceDB
c nb removed Clauses
                  : 0
                : 282
: 175
: 4
c nb learnts DL2
c nb learnts size 2
c nb learnts size 1
                 : 1072
c conflicts
                               (47480 /sec)
                               (0.00 % random) (167331 /sec)
c decisions
                  : 3778
c propagations
                  : 47222
                               (2091505 /sec)
                 : 8
: 0.022578 s
c nb reduced Clauses
c CPU time
s SATISFIABLE
real
      0m0.048s
user
      0m0.023s
      0m0.003s
sys
```