```
"E:\1 □□□□\3 □□□□□\1 □□□□□□\1 □□□□□□□□\1_□□□□□□_□□□□\1_LW _□□□□\4 □□□□\3 python_code\1 exzample\2 □□□□□□\9 Code for this paper\Scripts\python.exe" "D:\Python\Pycharm\setroute\PyCharm Community Edition 2021.2.3\plugins\python-ce\helpers\pydev\pydevconsole.py" --mode=client --port=51176

import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['E:\\1 □□□□\\3 □□□□□□\\1 □□□□□□□□\\1_□□□□□□_□□□□\\1_LW _□□□□\\4 □□□□\\3 python_code\\9 Code for this paper', 'E:/1 □□□□/3 □□□□□/1 □□□□□□□/1 □□□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□/4 □□□□/3 python_code/9 Code for this paper'])

PyDev console: starting.

Python 3.9.7 (tags/v3.9.7:1016ef3, Aug 30 2021, 20:19:38) [MSC v.1929 64 bit (AMD64)] on win32
>>> runfile('E:/1 □□□□/3 □□□□□/1 □□□□□□□/1 □□□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□/4 □□□□/3 python_code/9 Code for this paper/main_DM.py', wdir='E:/1 □□□□/3 □□□□□/1 □□□□□□□/1 □□□□□□□□□/1_□□□□□□_□□□□/1_LW _□□□□/4 □□□□/3 python_code/9 Code for this paper')
Backend TkAgg is interactive backend. Turning interactive mode on.
Waiting 5s.....

Optimize the  ./R_7_1.xlsx  instance

Set parameter TimeLimit to value 1200

Set parameter PoolSolutions to value 3
Set parameter PoolGap to value 0.05
Set parameter PoolSearchMode to value 2
Gurobi Optimizer version 11.0.0 build v11.0.0rc2 (win64 - Windows 10.0 (19045.2))

CPU model: 11th Gen Intel(R) Core(TM) i7-11370H @ 3.30GHz, instruction set [SSE2|AVX|AVX2|AVX512]
Thread count: 4 physical cores, 8 logical processors, using up to 8 threads

Optimize a model with 133301 rows, 56000 columns and 390789 nonzeros
Model fingerprint: 0x5ceb96aa
Variable types: 0 continuous, 56000 integer (47131 binary)
Coefficient statistics:
  Matrix range     [1e+00, 5e+05]
  Objective range  [1e+00, 1e+00]
  Bounds range     [1e+00, 1e+00]
  RHS range        [1e+00, 8e+06]
Presolve removed 100418 rows and 1911 columns
Presolve time: 0.29s
Presolved: 32883 rows, 54089 columns, 96002 nonzeros
Variable types: 0 continuous, 54089 integer (45227 binary)
Found heuristic solution: objective 674.0000000

Root relaxation: objective 2.479053e+02, 3135 iterations, 0.20 seconds (0.38 work units)

    Nodes    |    Current Node    |     Objective Bounds      |     Work
 Expl Unexpl |  Obj  Depth IntInf | Incumbent    BestBd   Gap | It/Node Time

     0     0  247.90533    0 2258  674.00000  247.90533  63.2%     -    1s
H    0     0                       642.0000000  247.90533  61.4%     -    1s
     0     0  260.36673    0 1947  642.00000  260.36673  59.4%     -    2s
H    0     0                       408.0000000  260.37191  36.2%     -    7s
H    0     0                       395.0000000  260.37191  34.1%     -   11s
     0     0  278.00000    0 2174  395.00000  278.00000  29.6%     -   12s
     0     0  278.00000    0 1964  395.00000  278.00000  29.6%     -   13s
     0     0  278.00000    0 2271  395.00000  278.00000  29.6%     -   13s
     0     0  278.00000    0 2270  395.00000  278.00000  29.6%     -   13s
     0     0  278.00000    0 2270  395.00000  278.00000  29.6%     -   13s
     0     0  278.00000    0 2270  395.00000  278.00000  29.6%     -   13s
     0     0  278.00000    0 2270  395.00000  278.00000  29.6%     -   13s
     0     0  278.00000    0 2213  395.00000  278.00000  29.6%     -   14s
     0     0  280.00000    0 2207  395.00000  280.00000  29.1%     -   21s
     0     0  280.00000    0 2210  395.00000  280.00000  29.1%     -   21s
     0     0  280.00000    0 2210  395.00000  280.00000  29.1%     -   21s
     0     0  280.00000    0 1630  395.00000  280.00000  29.1%     -   23s
     0     0  280.00000    0 1819  395.00000  280.00000  29.1%     -   26s
     0     0  280.00000    0 1601  395.00000  280.00000  29.1%     -   26s
     0     0  280.00000    0 1777  395.00000  280.00000  29.1%     -   26s
     0     0  280.00000    0 1737  395.00000  280.00000  29.1%     -   27s
     0     0  280.00000    0 1706  395.00000  280.00000  29.1%     -   28s
     0     0  280.00000    0 1313  395.00000  280.00000  29.1%     -   28s
     0     2  280.00000    0 1313  395.00000  280.00000  29.1%     -   29s
     5     8  280.00000    3 1776  395.00000  280.00000  29.1%   893   30s
   699   705  288.06951  178 1471  395.00000  280.00000  29.1% 31.9   35s
  1442  1506  314.23915  332 1514  395.00000  280.00000  29.1% 29.3   40s
  2863  2830  338.49967  677 1184  395.00000  280.00000  29.1% 24.2   61s
H 2865  2823                       383.0000000  280.00000  26.9% 24.2   61s
  3904  3919  358.00000  984  716  383.00000  280.00000  26.9% 24.2   65s
H 5277  4783                       380.0000000  280.00000  26.3% 26.1   75s
  5280  4318  296.00000  131 1396  380.00000  280.00000  26.3% 26.1   81s
H 5280  4102                       379.0000000  356.00000  6.07% 26.1   88s
  5284  3900  364.59258  214  200  379.00000  364.59258  3.80% 26.1   90s
  5295  3527  365.00000  673  472  379.00000  365.00000  3.69% 32.3   95s
```

80	5302	3356	376.06290	559	452	379.00000	367.01942	3.16%	34.0	100s
81	5307	3360	370.00000	839	153	379.00000	370.00000	2.37%	33.9	106s
82	5314	3364	371.00000	446	105	379.00000	371.00000	2.11%	33.9	110s
83	5317	3366	371.00000	233	84	379.00000	371.00000	2.11%	33.9	115s
84	5450	3404	371.00000	61	90	379.00000	371.00000	2.11%	38.7	120s
85	5577	3451	371.00000	79	52	379.00000	371.00000	2.11%	39.8	125s
86	5748	3510	371.00000	109	51	379.00000	371.00000	2.11%	40.6	130s
87	5873	3560	378.00000	135	25	379.00000	371.00000	2.11%	41.8	135s
88	5960	3581	371.00000	146	54	379.00000	371.00000	2.11%	42.6	140s
89	6147	3687	376.00000	173	45	379.00000	371.00000	2.11%	46.9	145s
90	6299	3721	371.00795	191	147	379.00000	371.00000	2.11%	49.0	152s
91	6436	3839	371.04277	207	120	379.00000	371.00000	2.11%	50.3	155s
92	6713	4009	372.28571	242	65	379.00000	371.00000	2.11%	51.3	160s
93	6853	4078	372.38462	260	58	379.00000	371.00000	2.11%	50.9	168s
94	7149	4183	375.00000	297	18	379.00000	371.00000	2.11%	49.8	170s
95	7543	4296	cutoff	215		379.00000	371.00000	2.11%	50.4	175s
96	7673	4313	372.00000	67	119	379.00000	371.00000	2.11%	50.6	181s
97	8127	4494	372.00000	130	86	379.00000	371.00000	2.11%	50.9	185s
98	8741	4739	375.00000	123	48	379.00000	371.00000	2.11%	51.3	192s
99	9218	4824	378.00000	81	63	379.00000	371.00000	2.11%	52.2	198s
100	9468	4930	372.00000	93	122	379.00000	371.00000	2.11%	51.9	200s
101	10019	4989	376.00000	88	101	379.00000	371.00000	2.11%	52.6	208s
102	10191	5109	378.00000	89	45	379.00000	371.00000	2.11%	52.9	211s
103	10526	5001	378.00000	135	48	379.00000	371.00000	2.11%	53.6	215s
104	10534	5006	378.00000	141	126	379.00000	371.00000	2.11%	53.5	220s
105	10551	5015	371.00000	57	73	379.00000	371.00000	2.11%	54.9	225s
106	10685	5053	infeasible	65		379.00000	371.00000	2.11%	55.7	230s
107	10827	5081	371.00000	73	74	379.00000	371.00000	2.11%	56.5	238s
108	10907	5126	371.00000	80	77	379.00000	371.00000	2.11%	57.6	241s
109	11065	5205	371.00000	87	108	379.00000	371.00000	2.11%	58.8	245s
110	11543	5492	371.14634	104	124	379.00000	371.00000	2.11%	59.7	252s
111	11738	5610	371.17844	112	117	379.00000	371.00000	2.11%	59.8	255s
112	12138	5810	371.38554	136	93	379.00000	371.00000	2.11%	60.6	261s
113	12614	5954	371.66667	160	74	379.00000	371.00000	2.11%	61.7	267s
114	12817	6105	infeasible	171		379.00000	371.00000	2.11%	62.1	270s
115	13114	6108	373.00000	183	74	379.00000	371.00000	2.11%	62.5	277s
116	13256	6343	infeasible	189		379.00000	371.00000	2.11%	62.3	281s
117	13656	6525	376.00000	114	31	379.00000	371.00000	2.11%	62.3	285s
118	14192	6762	infeasible	103		379.00000	371.00000	2.11%	61.6	290s
119	14730	6727	372.00000	118	130	379.00000	371.00000	2.11%	60.8	303s
120	15037	6731	372.00000	143	115	379.00000	371.00000	2.11%	60.2	311s
121	16587	7724	371.00000	62	106	379.00000	371.00000	2.11%	58.9	315s
122	18990	8053	cutoff	220		379.00000	371.00000	2.11%	55.7	320s
123	20238	8831	374.51799	92	64	379.00000	371.00000	2.11%	56.1	325s
124	22129	9198	372.00000	138	86	379.00000	371.00000	2.11%	56.9	330s
125	24185	9317	374.36364	172	85	379.00000	371.00000	2.11%	59.2	336s
126	25039	9046	376.00000	80	66	379.00000	371.00000	2.11%	59.7	340s
127	25361	9121	371.00000	87	125	379.00000	371.00000	2.11%	61.7	345s
128	26499	9660	372.02592	145	155	379.00000	371.00000	2.11%	61.9	350s
129	28484	10371	378.00000	96	17	379.00000	371.00000	2.11%	60.5	356s
130	29988	11169	372.00000	142	68	379.00000	371.00000	2.11%	59.7	360s
131	31924	11865	371.12665	90	287	379.00000	371.00000	2.11%	59.7	366s
132	33152	12298	372.00000	128	72	379.00000	371.00000	2.11%	60.8	370s
133	34777	12854	375.00000	113	88	379.00000	371.00000	2.11%	62.9	375s
134	36366	13270	373.00000	115	94	379.00000	371.00000	2.11%	63.0	382s
135	37023	13790	371.00344	100	199	379.00000	371.00000	2.11%	63.5	386s
136	39076	14510	infeasible	90		379.00000	371.00000	2.11%	64.2	391s
137	40581	15097	infeasible	167		379.00000	371.00000	2.11%	64.6	397s
138	41814	14797	371.01529	107	179	379.00000	371.00000	2.11%	64.6	400s
139	42895	15433	376.04173	147	59	379.00000	371.00288	2.11%	64.9	405s
140	44666	15798	376.00000	124	65	379.00000	371.01713	2.11%	65.1	411s
141	46322	16100	372.00000	122	98	379.00000	371.30362	2.03%	65.7	416s
142	48144	16765	378.00000	109	23	379.00000	372.00000	1.85%	66.5	422s
143	49624	16953	374.00000	195	67	379.00000	372.00000	1.85%	67.0	426s
144	50974	17330	infeasible	102		379.00000	372.00000	1.85%	67.3	430s
145	54073	18206	374.03049	176	171	379.00000	372.00000	1.85%	67.4	438s
146	55098	18207	378.00000	132	1313	379.00000	372.00000	1.85%	68.4	578s
147	55100	18208	375.00000	114	109	379.00000	372.00000	1.85%	68.4	580s
148	55102	18210	374.00000	116	96	379.00000	372.00000	1.85%	68.4	585s
149	55104	18211	377.00000	100	61	379.00000	372.00000	1.85%	68.4	591s
150	55107	18213	374.00000	113	61	379.00000	372.00000	1.85%	68.4	595s
151	55110	18215	374.00000	179	95	379.00000	372.00000	1.85%	68.4	601s
152	55113	18217	372.00000	113	65	379.00000	372.00000	1.85%	68.4	607s
153	55115	18218	376.00000	150	54	379.00000	372.00000	1.85%	68.4	611s
154	55117	18220	372.00000	105	74	379.00000	372.00000	1.85%	68.4	615s
155	55119	18221	378.00000	118	74	379.00000	372.00000	1.85%	68.3	621s
156	55151	18230	infeasible	82		379.00000	372.00000	1.85%	68.9	625s
157	55234	18262	373.00000	88	87	379.00000	372.00000	1.85%	69.1	632s
158	55305	18289	373.00000	90	62	379.00000	372.00000	1.85%	69.2	635s
159	55390	18333	373.00000	93	63	379.00000	372.00000	1.85%	69.2	640s
160	55556	18321	373.00751	105	109	379.00000	372.00000	1.85%	69.3	648s
161	55647	18370	376.02452	107	129	379.00000	372.00000	1.85%	69.3	650s
162	55870	18457	372.00926	87	147	379.00000	372.00000	1.85%	69.5	655s
163	56656	18576	376.00000	108	114	379.00000	372.00000	1.85%	69.9	660s

```
164   57967 18768     cutoff  134       379.00000  372.00000  1.85%  70.7  665s
165   59960 18997     cutoff  138       379.00000  372.16107  1.80%  72.0  672s
166   60448 19317  377.00000   90   82  379.00000  373.00000  1.58%  72.2  675s
167   63256 19639 infeasible   93       379.00000  373.00000  1.58%  73.6  681s
168   64975 19515  374.00000   99   42  379.00000  373.00000  1.58%  75.5  686s
169   66547 19019 infeasible  125       379.00000  373.01315  1.58%  77.4  690s
170   67882 18994  375.00000  100   45  379.00000  374.00000  1.32%  78.0  695s
171   70695 18654  377.00000  115  161  379.00000  374.00000  1.32%  78.3  700s
172   70706 18662  375.00000  135   70  379.00000  374.00000  1.32%  78.3  705s
173   70714 18667  378.00000  128  100  379.00000  374.00000  1.32%  78.3  711s
174   71272 18999  374.00000  130  111  379.00000  374.00000  1.32%  78.7  715s
175   73046 19599  378.00000  185    2  379.00000  374.00000  1.32%  78.8  720s
176   74648 19768 infeasible  152       379.00000  374.00000  1.32%  79.2  727s
177   75740 19706  378.00000  130   38  379.00000  374.00000  1.32%  80.1  730s
178   77387 19659  374.00000  138   49  379.00000  374.00000  1.32%  82.0  736s
179   78377 19643  377.06476  144  108  379.00000  374.00000  1.32%  82.8  740s
180   80410 19625  374.00000  141  164  379.00000  374.00000  1.32%  83.8  746s
181   81771 19556  377.00000  109   71  379.00000  374.00000  1.32%  84.7  751s
182   83466 19310  375.02187  158  143  379.00000  374.00000  1.32%  85.0  757s
183   84259 19264  374.00000  160   95  379.00000  374.00000  1.32%  85.1  760s
184   86247 18961  374.00000  142   92  379.00000  374.00000  1.32%  85.0  765s
185   88190 18861  374.00000  157   35  379.00000  374.00000  1.32%  85.0  771s
186   90020 18605  376.00000  172   44  379.00000  374.00000  1.32%  85.1  776s
187   90842 18525  377.13093  144   59  379.00000  374.00000  1.32%  85.3  782s
188   91904 18228  374.00805  105   84  379.00000  374.00000  1.32%  85.3  788s
189   92749 18080  375.40000  216   29  379.00000  374.00000  1.32%  85.5  794s
190   93756 17778  374.00000  147   43  379.00000  374.00000  1.32%  85.4  804s
191   94649 17495 infeasible  160       379.00000  374.00000  1.32%  85.4  820s
192   95893 17067 infeasible  128       379.00000  374.00000  1.32%  85.8  835s
193   97018 16649     cutoff  127       379.00000  374.00000  1.32%  86.4  852s
194   97848 16383  374.00000  157   36  379.00000  374.00000  1.32%  87.1  866s
195   98613 16157  374.00000  133  113  379.00000  374.00000  1.32%  88.3  883s
196   99599 15820  377.00000  125   46  379.00000  374.00000  1.32%  88.9  898s
197  100493 15549  377.00000  128   34  379.00000  374.00000  1.32%  90.0  915s
198  101426 15241  375.00000  149  152  379.00000  374.00000  1.32%  91.0  920s
199  101429 15243  376.00000  142   77  379.00000  374.00000  1.32%  91.0  926s
200  101431 15245  376.00000  180   57  379.00000  374.00000  1.32%  91.0  931s
201  101433 15246  377.00000  193   98  379.00000  374.00000  1.32%  91.0  935s
202  101435 15247  376.00000  143   65  379.00000  374.00000  1.32%  91.0  941s
203  101437 15249  377.00000  102   73  379.00000  374.00000  1.32%  91.0  946s
204  101439 15250  378.00000  106   78  379.00000  374.00000  1.32%  91.0  952s
205  101440 15251  374.09077  143   74  379.00000  374.00000  1.32%  91.0  955s
206  101443 15253  376.00000  147  121  379.00000  374.00000  1.32%  91.0  961s
207  101445 15254  375.57779  142  114  379.00000  374.00000  1.32%  91.0  966s
208  101447 15255  378.00000  131  127  379.00000  374.00000  1.32%  91.0  972s
209  101449 15257  377.00000  190  159  379.00000  374.00000  1.32%  91.0  976s
210  101451 15258  375.00000  150   97  379.00000  374.00000  1.32%  91.0  980s
211  101454 15260  375.00000  135  174  379.00000  374.00000  1.32%  91.0  985s
212  101457 15262  377.04394  155  140  379.00000  374.00000  1.32%  91.0  991s
213  101459 15263  375.00000  125  158  379.00000  374.00000  1.32%  91.0  995s
214  101462 15265  377.00000  121  195  379.00000  374.00000  1.32%  91.0 1000s
215  101465 15267  375.00000  144  137  379.00000  374.00000  1.32%  91.0 1006s
216  101468 15269  378.00000  154  166  379.00000  374.00000  1.32%  91.0 1010s
217  101479 15277  375.12498  154  175  379.00000  374.00000  1.32%  91.0 1015s
218  101491 15285  376.86784  233  183  379.00000  374.00000  1.32%  91.0 1020s
219  101501 15291  374.00000  166  156  379.00000  374.00000  1.32%  91.0 1025s
220  101512 15299  375.00000  146  153  379.00000  374.00000  1.32%  90.9 1030s
221  101522 15305  375.00000  151  179  379.00000  374.00000  1.32%  90.9 1035s
222  101531 15311  376.00000  180  185  379.00000  374.00000  1.32%  90.9 1040s
223  101541 15318  377.00000  110  218  379.00000  374.00000  1.32%  90.9 1045s
224  101552 15325  376.00000  148  174  379.00000  374.00000  1.32%  90.9 1050s
225  101561 15331  377.00000  105  154  379.00000  374.00000  1.32%  90.9 1055s
226  101571 15338  376.04528  175  195  379.00000  374.00000  1.32%  90.9 1060s
227  101581 15345  376.16484  157  219  379.00000  374.00000  1.32%  90.9 1065s
228  101591 15351  376.86784  233  182  379.00000  374.00000  1.32%  90.9 1070s
229  101599 15357  374.02541  129  231  379.00000  374.00000  1.32%  90.9 1075s
230  101603 15359  375.00000  133  241  379.00000  374.00000  1.32%  90.9 1080s
231  101612 15365  375.00000  146  226  379.00000  374.00000  1.32%  90.9 1085s
232  101621 15371  376.00000  162  174  379.00000  374.00000  1.32%  90.8 1090s
233  101633 15386  374.00000  102  174  379.00000  374.00000  1.32%  92.4 1095s
234  102365 15626  374.00000  132  152  379.00000  374.00000  1.32%  92.4 1100s
235  103966 15755  377.00000  141  108  379.00000  374.00000  1.32%  92.3 1105s
236  105490 15662  376.00000  129  113  379.00000  374.00000  1.32%  93.3 1110s
237  107349 15074 infeasible  135       379.00000  374.00000  1.32%  93.8 1116s
238  108615 14694  376.00000  123   57  379.00000  374.00000  1.32%  94.7 1120s
239  110203 14176  374.10664  127  115  379.00000  374.00000  1.32%  95.7 1125s
240  112100 13244 infeasible  182       379.00000  375.00000  1.06%  96.6 1131s
241  113614 12530 infeasible  130       379.00000  376.00000  0.79%  96.8 1136s
242  114967 11833     cutoff  116       379.00000  376.82044  0.58%  97.1 1140s
243  115591 11433  377.44973  122   51  379.00000  377.00000  0.53%  97.1 1145s
244  116572 10763  378.00000  124   51  379.00000  377.00000  0.53%  97.4 1151s
245  117541 10077 infeasible  138       379.00000  378.00000  0.26%  97.3 1160s
246
247  Cutting planes:
```

```
  Learned: 2
  Gomory: 53
  Cover: 1
  Implied bound: 7
  Clique: 3
  MIR: 56
  StrongCG: 17
  Flow cover: 72
  Zero half: 21
  RLT: 9
  Relax-and-lift: 65

Explored 118650 nodes (11596858 simplex iterations) in 1162.00 seconds (653.40 work units)
Thread count was 8 (of 8 available processors)

Solution count 3: 379 379 379
No other solutions better than 379

Optimal solution found (tolerance 1.00e-04)
Best objective 3.790000000000e+02, best bound 3.790000000000e+02, gap 0.0000%

Output optimal solution and the Optimal Obj:  379.0


Obj = 379.0

Solutions:
    The total pi =  105.0
    The total duration time in berth stage =  130.0
    The total duration time in quay crane scheduling stage =  29.0
    The total departure time in berth stage=  240.0
    The total departure time in quay crane scheduling stage =  139.0
    The total wasted crane work hour according QC0=  3.519556674910106
    The last depature time in quay crane scheduling stage =  34.0

The specific solution are as follows:
    Vessel i: 0:    li: 7,    pi: 21-28,    ai-di: 5-31,    taoi-deltai: 5-29,    periodi: 24,    taoPi_SP-deltaPi_SP: 5-10,    periodPi: 5,    c_i: 6150034,    dowork: 6591100,    fa_i: 4
    Vessel i: 1:    li: 6,    pi: 14-20,    ai-di: 13-21,    taoi-deltai: 13-19,    periodi: 6,    taoPi_SP-deltaPi_SP: 13-14,    periodPi: 1,    c_i: 1431098,    dowork: 1450042,    fa_i: 4
    Vessel i: 2:    li: 7,    pi: 7-14,    ai-di: 18-45,    taoi-deltai: 18-43,    periodi: 25,    taoPi_SP-deltaPi_SP: 18-23,    periodPi: 5,    c_i: 6471276,    dowork: 6591100,    fa_i: 4
    Vessel i: 3:    li: 7,    pi: 14-21,    ai-di: 21-37,    taoi-deltai: 21-35,    periodi: 14,    taoPi_SP-deltaPi_SP: 21-25,    periodPi: 4,    c_i: 3658013,    dowork: 3691016,    fa_i: 4
    Vessel i: 4:    li: 7,    pi: 0-7,    ai-di: 4-54,    taoi-deltai: 4-36,    periodi: 32,    taoPi_SP-deltaPi_SP: 4-12,    periodPi: 8,    c_i: 8295964,    dowork: 8436608,    fa_i: 4
    Vessel i: 5:    li: 6,    pi: 28-34,    ai-di: 19-48,    taoi-deltai: 19-28,    periodi: 9,    taoPi_SP-deltaPi_SP: 19-21,    periodPi: 2,    c_i: 2220586,    dowork: 2240974,    fa_i: 4
    Vessel i: 6:    li: 7,    pi: 21-28,    ai-di: 28-71,    taoi-deltai: 30-50,    periodi: 20,    taoPi_SP-deltaPi_SP: 30-34,    periodPi: 4,    c_i: 5118839,    dowork: 5272880,    fa_i: 4
TimeSolveModel: 1170.000000

TimeAll: 1175.000000
```