```
"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=39581

import sys; print('Python %s on %s' % (sys.version, sys.platform))
sys.path.extend(['E:\\1 □□□□\\3 □□□□□□\\1 □□□□□□□\\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_15_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 567837 rows, 122880 columns and 1686525 nonzeros
Model fingerprint: 0xa355323c
Variable types: 0 continuous, 122880 integer (103875 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, 5e+06]
Presolve removed 492720 rows and 5763 columns
Presolve time: 0.41s
Presolved: 75117 rows, 117117 columns, 225176 nonzeros
Variable types: 0 continuous, 117117 integer (98112 binary)
Root relaxation presolved: 58533 rows, 117200 columns, 172603 nonzeros

Deterministic concurrent LP optimizer: primal and dual simplex
Showing primal log only...

Concurrent spin time: 0.00s

Solved with dual simplex

Root relaxation: objective 5.497616e+02, 4331 iterations, 1.49 seconds (0.53 work units)

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

     0     0  549.76156    0 3198          -  549.76156      -     -    5s
H    0     0                1138.0000000  549.76156  51.7%     -    7s
H    0     0                1137.0000000  549.76156  51.6%     -   11s
H    0     0                1113.0000000  575.83655  48.3%     -   15s
     0     0  575.83655    0 3066 1113.00000  575.83655  48.3%     -   16s
H    0     0                1016.0000000  575.84813  43.3%     -   32s
     0     0  581.88497    0 3204 1016.00000  581.88497  42.7%     -   34s
     0     0  582.15410    0 3204 1016.00000  582.15410  42.7%     -   35s
     0     0  582.23300    0 3204 1016.00000  582.23300  42.7%     -   35s
     0     0  582.26415    0 3204 1016.00000  582.26415  42.7%     -   35s
     0     0  582.32501    0 3204 1016.00000  582.32501  42.7%     -   36s
     0     0  582.34278    0 3204 1016.00000  582.34278  42.7%     -   36s
     0     0  582.37477    0 3204 1016.00000  582.37477  42.7%     -   37s
     0     0  582.38254    0 3204 1016.00000  582.38254  42.7%     -   37s
     0     0  582.39712    0 3204 1016.00000  582.39712  42.7%     -   37s
     0     0  582.40700    0 3204 1016.00000  582.40700  42.7%     -   38s
H    0     0                1004.0000000  582.40700  42.0%     -   40s
     0     0  584.32911    0 2478 1004.00000  584.32911  41.8%     -   41s
     0     0  584.90117    0 3002 1004.00000  584.90117  41.7%     -   52s
     0     0  584.95782    0 3000 1004.00000  584.95782  41.7%     -   52s
     0     0  584.96102    0 3002 1004.00000  584.96102  41.7%     -   53s
H    0     0                1003.0000000  584.96102  41.7%     -   59s
     0     0  589.36846    0 2256 1003.00000  589.36846  41.2%     -   61s
     0     0  590.22389    0 2772 1003.00000  590.22389  41.2%     -   72s
     0     0  590.40081    0 2775 1003.00000  590.40081  41.1%     -   73s
     0     0  590.43343    0 2789 1003.00000  590.43343  41.1%     -   73s
     0     0  590.45259    0 2791 1003.00000  590.45259  41.1%     -   74s
     0     0  590.45612    0 2796 1003.00000  590.45612  41.1%     -   74s
     0     0  591.27925    0 2105 1003.00000  591.27925  41.0%     -   80s
```

80		0	0	592.37757	0	2625	1003.00000	592.37757	40.9%	-	81s
81		0	0	592.69679	0	2641	1003.00000	592.69679	40.9%	-	82s
82		0	0	592.72066	0	2647	1003.00000	592.72066	40.9%	-	83s
83		0	0	592.72172	0	2648	1003.00000	592.72172	40.9%	-	83s
84		0	0	593.16437	0	2456	1003.00000	593.16437	40.9%	-	85s
85		0	0	593.21819	0	2512	1003.00000	593.21819	40.9%	-	92s
86		0	0	593.22583	0	2463	1003.00000	593.22583	40.9%	-	92s
87		0	0	593.41108	0	2150	1003.00000	593.41108	40.8%	-	92s
88		0	0	593.51814	0	2491	1003.00000	593.51814	40.8%	-	94s
89		0	0	593.52024	0	2498	1003.00000	593.52024	40.8%	-	95s
90		0	0	593.90539	0	2473	1003.00000	593.90539	40.8%	-	95s
91		0	0	593.94221	0	2472	1003.00000	593.94221	40.8%	-	98s
92		0	0	593.95379	0	2440	1003.00000	593.95379	40.8%	-	98s
93		0	0	594.22758	0	2292	1003.00000	594.22758	40.8%	-	98s
94		0	0	594.24194	0	2083	1003.00000	594.24194	40.8%	-	99s
95		0	2	594.24194	0	2068	1003.00000	594.24194	40.8%	-	103s
96		25	22	598.09797	9	2209	1003.00000	596.46070	40.5%	243	105s
97	H	29	26				932.0000000	596.46070	36.0%	212	136s
98		391	403	604.81096	100	2120	932.00000	596.46070	36.0%	19.1	140s
99		888	912	612.64578	229	2024	932.00000	596.46070	36.0%	14.8	145s
100	H	1050	1035				931.0000000	596.46070	35.9%	15.7	155s
101		1053	985	643.20510	30	2049	931.00000	596.46070	35.9%	15.7	169s
102		1054	936	892.00000	250	2337	931.00000	892.00000	4.19%	15.6	179s
103		1055	937	892.00000	49	2553	931.00000	892.00000	4.19%	15.6	193s
104		1056	937	892.00000	183	2584	931.00000	892.00000	4.19%	15.6	196s
105	H	1056	890				930.0000000	892.00000	4.09%	15.6	196s
106		1058	892	893.68960	56	319	930.00000	893.68960	3.90%	15.6	200s
107		1062	894	898.31246	112	296	930.00000	898.31246	3.41%	15.5	206s
108		1064	896	901.12043	207	386	930.00000	901.12043	3.11%	15.5	210s
109		1074	902	902.50738	78	1019	930.00000	902.50738	2.96%	15.4	215s
110		1080	906	905.17716	144	1157	930.00000	905.17716	2.67%	15.3	220s
111		1085	910	906.89595	190	1009	930.00000	906.89595	2.48%	15.2	225s
112		1088	912	907.40295	164	961	930.00000	907.40295	2.43%	15.2	230s
113		1099	919	908.59470	74	907	930.00000	908.59470	2.30%	15.0	237s
114		1103	922	908.67410	240	867	930.00000	908.67410	2.29%	15.0	240s
115		1104	922	908.67410	264	854	930.00000	908.67410	2.29%	14.9	245s
116	H	1105	876				929.0000000	908.67410	2.19%	14.9	246s
117		1108	878	909.08350	78	833	929.00000	909.08350	2.14%	14.9	254s
118		1109	879	909.08350	207	776	929.00000	909.08350	2.14%	14.9	255s
119		1112	881	909.26889	81	786	929.00000	909.26889	2.12%	14.8	267s
120		1114	882	909.31235	136	777	929.00000	909.31235	2.12%	14.8	270s
121		1115	883	909.38736	61	758	929.00000	909.38736	2.11%	14.8	285s
122		1118	885	909.48579	266	720	929.00000	909.48579	2.10%	14.8	304s
123		1119	885	909.48579	38	677	929.00000	909.48579	2.10%	14.7	306s
124		1121	887	909.63619	239	706	929.00000	909.63619	2.08%	14.7	322s
125		1124	889	909.75935	64	700	929.00000	909.75935	2.07%	14.7	338s
126		1125	889	909.76009	163	642	929.00000	909.76009	2.07%	14.7	344s
127		1126	890	909.88024	196	628	929.00000	909.88024	2.06%	14.6	349s
128		1127	891	909.88801	252	640	929.00000	909.88801	2.06%	14.6	361s
129		1130	893	909.94714	114	607	929.00000	909.94714	2.05%	14.6	365s
130		1131	893	909.94780	271	584	929.00000	909.94780	2.05%	14.6	378s
131		1132	894	909.98917	180	638	929.00000	909.98917	2.05%	14.6	383s
132		1133	895	909.98917	66	605	929.00000	909.98917	2.05%	14.6	385s
133	H	1134	849				928.0000000	909.98917	1.94%	14.5	387s
134		1136	851	910.02527	222	648	928.00000	910.02527	1.94%	14.5	390s
135		1139	809	910.02554	100	659	928.00000	910.02554	1.94%	14.5	403s
136		1140	809	910.10041	84	821	928.00000	910.10041	1.93%	14.5	406s
137		1141	810	910.21447	9	634	928.00000	910.21447	1.92%	14.5	410s
138		1147	814	910.42576	175	757	928.00000	910.42576	1.89%	14.4	415s
139		1148	815	910.42629	50	766	928.00000	910.42629	1.89%	14.4	429s
140		1149	815	910.87851	149	601	928.00000	910.87851	1.84%	14.4	433s
141		1150	816	910.92639	181	654	928.00000	910.92639	1.84%	14.3	438s
142		1152	817	911.02958	108	687	928.00000	911.02958	1.83%	14.3	442s
143		1155	819	911.05574	49	808	928.00000	911.05574	1.83%	14.3	445s
144		1156	820	911.06439	183	789	928.00000	911.06439	1.82%	14.3	451s
145		1158	821	911.07098	56	814	928.00000	911.07098	1.82%	14.2	455s
146		1159	822	911.07121	143	811	928.00000	911.07121	1.82%	14.2	464s
147		1160	823	911.17917	10	768	928.00000	911.17917	1.81%	14.2	465s
148		1167	784	911.26039	192	797	928.00000	911.26039	1.80%	14.1	472s
149		1169	786	911.40338	144	847	928.00000	911.40338	1.79%	14.1	475s
150	H	1173	747				927.0000000	911.49801	1.67%	14.1	482s
151		1175	709	911.51035	68	814	927.00000	911.51035	1.67%	14.0	486s
152		1180	712	911.52326	144	734	927.00000	911.52326	1.67%	14.0	490s
153		1185	715	911.75305	190	780	927.00000	911.75305	1.64%	13.9	495s
154		1190	719	911.85540	257	715	927.00000	911.85540	1.63%	13.9	500s
155		1195	722	911.93451	220	789	927.00000	911.93451	1.63%	13.8	505s
156		1199	725	911.96357	74	765	927.00000	911.96357	1.62%	13.8	513s
157		1201	726	912.01932	168	818	927.00000	912.01932	1.62%	13.7	515s
158		1207	730	912.03554	253	863	927.00000	912.03554	1.61%	13.7	520s
159		1210	732	912.10857	261	815	927.00000	912.10857	1.61%	13.6	525s
160		1215	735	912.12284	61	841	927.00000	912.12284	1.60%	13.6	531s
161		1218	737	912.24284	266	914	927.00000	912.24284	1.59%	13.5	535s
162		1222	740	912.24983	76	928	927.00000	912.24983	1.59%	13.5	543s
163		1224	741	912.33983	64	914	927.00000	912.33983	1.58%	13.5	548s

164	1225	742	912.36254	163	899	927.00000	912.36254	1.58%	13.5	550s
165	1229	745	912.37114	144	921	927.00000	912.37114	1.58%	13.4	555s
166	1231	706	912.44286	271	811	927.00000	912.44286	1.57%	13.4	572s
167	1232	707	912.46992	180	839	927.00000	912.46992	1.57%	13.4	581s
168	1239	711	912.49084	100	906	927.00000	912.49084	1.57%	13.3	587s
169	1240	712	912.85282	84	901	927.00000	912.85282	1.53%	13.3	591s
170	1242	713	913.04293	14	968	927.00000	913.04293	1.51%	13.3	596s
171	1248	717	913.08389	50	1037	927.00000	913.08389	1.50%	13.2	600s
172	1250	719	913.17157	181	961	927.00000	913.17157	1.49%	13.2	605s
173	1253	721	913.25726	30	962	927.00000	913.25726	1.48%	13.2	610s
174	1259	725	913.27529	143	918	927.00000	913.27529	1.48%	13.1	620s
175	1262	727	913.37121	112	951	927.00000	913.37121	1.47%	13.1	626s
176	1265	729	913.38265	70	955	927.00000	913.38265	1.47%	13.0	630s
177	1268	731	913.38537	35	973	927.00000	913.38537	1.47%	13.0	643s
178	1269	731	913.42611	144	921	927.00000	913.42611	1.46%	13.0	647s
179	1271	733	913.46370	74	962	927.00000	913.46370	1.46%	13.0	651s
180	1275	735	913.47454	68	955	927.00000	913.47454	1.46%	12.9	670s
181	1276	736	913.50993	11	922	927.00000	913.50993	1.46%	12.9	675s
182	1279	738	913.55525	138	959	927.00000	913.55525	1.45%	12.9	682s
183	1280	739	913.55866	144	981	927.00000	913.55866	1.45%	12.9	688s
184	1281	739	913.56028	33	971	927.00000	913.56028	1.45%	12.9	690s
185	1285	742	913.56419	190	988	927.00000	913.56419	1.45%	12.8	702s
186	1286	743	913.58692	74	919	927.00000	913.58692	1.45%	12.8	745s
187	1287	743	913.61293	111	953	927.00000	913.61293	1.44%	12.8	750s
188	1291	746	913.62775	38	972	927.00000	913.62775	1.44%	12.8	755s
189	1294	748	913.62992	8	944	927.00000	913.62992	1.44%	12.7	766s
190	1296	749	913.65160	215	873	927.00000	913.65160	1.44%	12.7	771s
191	1300	752	913.66312	105	965	927.00000	913.66312	1.44%	12.7	775s
192	1302	753	913.66473	154	968	927.00000	913.66473	1.44%	12.7	785s
193	1304	755	913.70310	264	972	927.00000	913.70310	1.43%	12.6	790s
194	1308	757	913.71518	78	1007	927.00000	913.71518	1.43%	12.6	795s
195	1309	758	913.71574	207	973	927.00000	913.71574	1.43%	12.6	806s
196	1310	759	913.74088	261	977	927.00000	913.74088	1.43%	12.6	810s
197	1313	761	913.76939	47	980	927.00000	913.76939	1.43%	12.6	816s
198	1315	762	913.77122	61	986	927.00000	913.77122	1.43%	12.5	827s
199	1319	765	913.84031	38	965	927.00000	913.84031	1.42%	12.5	830s
200	1327	770	913.89439	252	994	927.00000	913.89439	1.41%	12.4	835s
201	1333	774	913.91842	66	922	927.00000	913.91842	1.41%	12.4	840s
202	1340	779	913.97035	84	959	927.00000	913.97035	1.41%	12.3	846s
203	1350	785	914.02400	181	1044	927.00000	914.02400	1.40%	12.2	853s
204	1352	787	914.07649	108	1049	927.00000	914.07649	1.39%	12.2	855s
205	1358	791	914.09065	56	1076	927.00000	914.09065	1.39%	12.1	861s
206	1365	795	914.12749	70	1113	927.00000	914.12749	1.39%	12.1	869s
207	1366	796	914.14475	164	1078	927.00000	914.14475	1.39%	12.1	887s
208	1368	797	914.16758	35	1121	927.00000	914.16758	1.38%	12.1	892s
209	1372	800	914.17158	124	1150	927.00000	914.17158	1.38%	12.0	897s
210	1373	801	914.18897	200	933	927.00000	914.18897	1.38%	12.0	902s
211	1375	802	914.22296	68	1018	927.00000	914.22296	1.38%	12.0	905s
212	1380	805	914.23291	144	1123	927.00000	914.23291	1.38%	12.0	910s
213	1381	806	914.25010	33	1097	927.00000	914.25010	1.38%	11.9	930s
214	1382	807	914.25725	44	1115	927.00000	914.25725	1.37%	11.9	939s
215	1383	807	914.26822	147	1091	927.00000	914.26822	1.37%	11.9	941s
216	1387	810	914.27840	111	1105	927.00000	914.27840	1.37%	11.9	945s
217	1390	812	914.28067	257	1105	927.00000	914.28067	1.37%	11.9	951s
218	1394	815	914.30879	8	1095	927.00000	914.30879	1.37%	11.8	956s
219	1397	817	914.31120	160	1107	927.00000	914.31120	1.37%	11.8	964s
220	1398	817	914.32294	236	1049	927.00000	914.32294	1.37%	11.8	965s
221	1401	819	914.34708	168	1091	927.00000	914.34708	1.36%	11.8	973s
222	1403	821	914.36638	240	1033	927.00000	914.36638	1.36%	11.8	976s
223	1406	823	914.64966	40	1095	927.00000	914.64966	1.33%	11.7	986s
224	1407	823	914.77433	253	1020	927.00000	914.77433	1.32%	11.7	996s
225	1408	824	914.83624	78	1037	927.00000	914.83624	1.31%	11.7	1001s
226	1410	825	914.85761	261	1009	927.00000	914.85761	1.31%	11.7	1005s
227	1413	827	914.87007	47	1084	927.00000	914.87007	1.31%	11.7	1010s
228	1415	829	914.87141	61	1092	927.00000	914.87141	1.31%	11.7	1023s
229	1416	829	914.90462	108	910	927.00000	914.90462	1.30%	11.6	1026s
230	1417	830	915.53752	16	1011	927.00000	915.53752	1.24%	11.6	1032s
231	1419	831	915.53752	38	1024	927.00000	915.53752	1.24%	11.6	1037s
232	1421	833	915.53752	239	1058	927.00000	915.53752	1.24%	11.6	1040s
233	1424	835	915.53752	64	1014	927.00000	915.53752	1.24%	11.6	1054s
234	1425	835	915.53752	163	1022	927.00000	915.53752	1.24%	11.6	1058s
235	1426	836	915.53752	196	1031	927.00000	915.53752	1.24%	11.6	1061s
236	1429	838	915.79579	144	994	927.00000	915.79579	1.21%	11.5	1066s
237	1431	839	915.79579	271	1089	927.00000	915.79579	1.21%	11.5	1080s
238	1433	841	916.79432	66	991	927.00000	916.79432	1.10%	11.5	1087s
239	1434	841	916.88463	26	1039	927.00000	916.88463	1.09%	11.5	1091s
240	1437	843	917.21951	13	1028	927.00000	917.21951	1.06%	11.5	1107s
241	1438	844	917.22959	15	1007	927.00000	917.22959	1.05%	11.5	1146s
242	1439	845	919.00000	100	990	927.00000	919.00000	0.86%	11.5	1150s
243	1441	846	919.00000	9	1035	927.00000	919.00000	0.86%	11.4	1155s
244	1443	847	919.00000	95	1036	927.00000	919.00000	0.86%	11.4	1160s
245	1444	848	919.00000	236	1043	927.00000	919.00000	0.86%	11.4	1174s
246	1445	849	919.00000	149	981	927.00000	919.00000	0.86%	11.4	1179s
247	1446	849	919.00000	201	1009	927.00000	919.00000	0.86%	11.4	1181s

```
  1448   851  919.00000   50 1030  927.00000  919.00000  0.86%  11.4 1186s
  1451   853  919.00000  198 1045  927.00000  919.00000  0.86%  11.4 1195s

Cutting planes:
  Learned: 164
  Gomory: 34
  Cover: 3
  Implied bound: 76
  Clique: 3
  MIR: 464
  StrongCG: 136
  Flow cover: 808
  Zero half: 103
  RLT: 89
  Relax-and-lift: 1970
  BQP: 2

Explored 1457 nodes (347020 simplex iterations) in 1200.24 seconds (524.01 work units)
Thread count was 8 (of 8 available processors)

Solution count 3: 927 927 927

Time limit reached
Best objective 9.270000000000e+02, best bound 9.200000000000e+02, gap 0.7551%

Output one feasible solution with limited computation time

Optimization was stopped with status 9

Number of solution stored: 3
   927  927  927

Obj = 927.0

Solutions:
    The total pi =  207.0
    The total duration time in berth stage =  167.0
    The total duration time in quay crane scheduling stage =  38.0
    The total departure time in berth stage=  528.0
    The total departure time in quay crane scheduling stage =  399.0
    The total wasted crane work hour according QC0=  7.200664532475611
    The last depature time in quay crane scheduling stage =  52.0

The specific solution are as follows:
    Vessel i: 0:     li: 6,     pi: 20-26,     ai-di: 1-15,     taoi-deltai: 1-13,     periodi: 12,     taoPi_SP-deltaPi_SP: 1-4,     periodPi: 3,     c_i: 2917497,     dowork: 3163728,     fa_i: 3
    Vessel i: 1:     li: 6,     pi: 1-7,     ai-di: 5-11,     taoi-deltai: 5-9,     periodi: 4,     taoPi_SP-deltaPi_SP: 5-6,     periodPi: 1,     c_i: 1036171,     dowork: 1054576,     fa_i: 4
    Vessel i: 2:     li: 7,     pi: 7-14,     ai-di: 6-20,     taoi-deltai: 6-18,     periodi: 12,     taoPi_SP-deltaPi_SP: 6-8,     periodPi: 2,     c_i: 3020678,     dowork: 3163728,     fa_i: 4
    Vessel i: 3:     li: 6,     pi: 14-20,     ai-di: 10-16,     taoi-deltai: 10-14,     periodi: 4,     taoPi_SP-deltaPi_SP: 10-11,     periodPi: 1,     c_i: 1003327,     dowork: 1054576,     fa_i: 3
    Vessel i: 4:     li: 5,     pi: 14-19,     ai-di: 15-34,     taoi-deltai: 15-32,     periodi: 17,     taoPi_SP-deltaPi_SP: 15-19,     periodPi: 4,     c_i: 4430235,     dowork: 4613770,     fa_i: 4
    Vessel i: 5:     li: 6,     pi: 19-25,     ai-di: 16-25,     taoi-deltai: 16-23,     periodi: 7,     taoPi_SP-deltaPi_SP: 16-18,     periodPi: 2,     c_i: 1727656,     dowork: 1845508,     fa_i: 3
    Vessel i: 6:     li: 6,     pi: 0-6,     ai-di: 24-38,     taoi-deltai: 24-36,     periodi: 12,     taoPi_SP-deltaPi_SP: 24-28,     periodPi: 4,     c_i: 3144664,     dowork: 3163728,     fa_i: 3
    Vessel i: 7:     li: 7,     pi: 19-26,     ai-di: 26-34,     taoi-deltai: 26-32,     periodi: 6,     taoPi_SP-deltaPi_SP: 26-27,     periodPi: 1,     c_i: 1536740,     dowork: 1581864,     fa_i: 4
    Vessel i: 8:     li: 5,     pi: 9-14,     ai-di: 28-61,     taoi-deltai: 28-49,     periodi: 21,     taoPi_SP-deltaPi_SP: 28-32,     periodPi: 4,     c_i: 5432806,     dowork: 5536524,     fa_i: 4
    Vessel i: 9:     li: 7,     pi: 27-34,     ai-di: 31-54,     taoi-deltai: 31-36,     periodi: 5,     taoPi_SP-deltaPi_SP: 31-32,     periodPi: 1,     c_i: 1122221,     dowork: 1318220,     fa_i: 4
    Vessel i: 10:     li: 5,     pi: 14-19,     ai-di: 33-72,     taoi-deltai: 33-50,     periodi: 17,     taoPi_SP-deltaPi_SP: 33-37,     periodPi: 4,     c_i: 4319864,     dowork: 4350126,     fa_i: 4
    Vessel i: 11:     li: 6,     pi: 19-25,     ai-di: 33-65,     taoi-deltai: 33-49,     periodi: 16,     taoPi_SP-deltaPi_SP: 33-36,     periodPi: 3,     c_i: 3993564,     dowork: 4086482,     fa_i: 4
    Vessel i: 12:     li: 6,     pi: 0-6,     ai-di: 38-63,     taoi-deltai: 38-47,     periodi: 9,     taoPi_SP-deltaPi_SP: 38-41,     periodPi: 3,     c_i: 2342507,     dowork: 2372796,     fa_i: 3
    Vessel i: 13:     li: 7,     pi: 25-32,     ai-di: 45-72,     taoi-deltai: 45-58,     periodi: 13,     taoPi_SP-deltaPi_SP: 45-48,     periodPi: 3,     c_i: 3386423,     dowork: 3822838,     fa_i: 4
    Vessel i: 14:     li: 5,     pi: 19-24,     ai-di: 50-82,     taoi-deltai: 50-62,     periodi: 12,     taoPi_SP-deltaPi_SP: 50-52,     periodPi: 2,     c_i: 2979427,     dowork: 3163728,     fa_i: 4
TimeSolveModel: 1227.000000

TimeAll: 1231.000000
```