

Appendix C. Complete Tables of Results

The full list of numerical results are presented in the following tables.

Benchmark ID	# of Simple Temporal Constraints	# of Contingent Constraints
1	6	2
2	26	12
3	30	14
4	26	12
5	22	10
6	30	14
7	30	14
8	30	14
9	22	10
10	30	14
11	10	4
12	30	14
13	30	14
14	22	10
15	30	14
16	14	6
17	26	12
18	10	4
19	30	14
20	26	12
21	42	20
22	14	6
23	30	14
24	26	12
25	18	8
26	22	10
27	26	12
28	38	18
29	42	20
30	42	20
31	22	10
32	54	26
33	10	4
34	38	18
35	30	14
36	26	12
37	46	22
38	54	26
39	54	26

Benchmark ID	# of Simple Temporal Constraints	# of Contingent Constraints
40	42	20
41	66	32
42	42	20
43	82	40
44	34	16
45	46	22
46	62	30
47	58	28
48	54	26
49	70	34
50	42	20
51	70	34
52	78	38
53	70	34
54	74	36
55	22	10
56	50	24
57	34	16
58	78	38
59	58	28
60	58	28
61	54	26
62	70	34
63	82	40
64	66	32
65	78	38
66	74	36
67	74	36
68	78	38
69	62	30
70	66	32
71	50	24
72	102	50
73	106	52
74	90	44
75	62	30
76	74	36
77	86	42
78	62	30
79	54	26
80	46	22
81	74	36

Benchmark ID	# of Simple Temporal Constraints	# of Contingent Constraints
82	98	48
83	62	30
84	122	60
85	86	42
86	90	44
87	106	52
88	82	40
89	78	38
90	94	46
91	78	38
92	122	60
93	94	46
94	122	60
95	70	34
96	82	40
97	82	40
98	98	48
99	62	30
100	98	48
101	130	64
102	106	52
103	126	62
104	86	42
105	146	72
106	126	62
107	94	46
108	94	46
109	102	50
110	106	52
111	134	66
112	86	42
113	130	64
114	90	44
115	98	48
116	114	56
117	126	62
118	158	78
119	134	66
120	58	28
121	98	48
122	102	50
123	118	58

Benchmark ID	# of Simple Temporal Constraints	# of Contingent Constraints
124	142	70
125	166	82
126	138	68
127	130	64
128	102	50
129	106	52
130	142	70
131	106	52
132	118	58
133	146	72
134	122	60
135	126	62
136	178	88
137	130	64
138	114	56

Table 1: The number of simple temporal constraints and the number of probabilistic contingent constraints associated with each benchmark test case.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	871.66	1	0.0536	0.0
2	6316.88	1	1.0358	0.0
3	4872.73	1	10.2942	0.0
4	7838.95	1	2.071	0.0
5	4214.95	1	8.1322	0.0
6	6342.32	1	27.0599	0.0
7	7021.14	1	2.9619	0.0
8	unsolved	1	7.9084	0.0
9	5313.93	1	8.5986	0.0
10	6470.39	1	10.2997	0.0
11	1612.56	1	0.078	0.0
12	7156.53	1	12.581	0.0
13	7085.58	1	15.259	0.0
14	3390.69	1	1.9251	0.0
15	7320.93	1	4.7665	0.0
16	2234.42	1	1.2975	0.0
17	5658.76	1	2.0744	0.0
18	unsolved	1	7.9675	0.0
19	7318.34	1	2.0141	0.0
20	7035.26	1	19.98	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
21	unsolved	1	63.956	0.0
22	2733.32	1	1.229	0.0
23	unsolved	1	9.0865	0.0
24	7527.49	1	0.7305	0.0
25	4410.08	1	0.5673	0.0
26	4012.92	1	3.1096	0.0
27	5367.42	1	5.287	0.0
28	unsolved	1	52.8661	0.0
29	9088.5	1	20.7673	0.0
30	unsolved	1	43.7147	0.0
31	2935.14	1	2.4782	0.0
32	14314.0	1	88.7943	0.0
33	2099.55	1	0.6842	0.0
34	unsolved	1	2.2191	0.0
35	7436.48	1	4.6615	0.0
36	7009.83	1	17.1323	0.0
37	unsolved	1	77.075	0.0
38	unsolved	1	112.2302	0.0
39	unsolved	1	111.8017	0.0
40	unsolved	1	63.8273	0.0
41	unsolved	1	181.4669	0.0
42	11084.78	1	18.7062	0.0
43	unsolved	1	311.5608	0.0
44	10751.16	1	7.0191	0.0
45	unsolved	1	17.1163	0.0
46	unsolved	1	4.9355	0.0
47	unsolved	1	170.281	0.0
48	unsolved	1	111.4267	0.0
49	unsolved	1	209.2631	0.0
50	unsolved	1	23.1053	0.0
51	unsolved	1	7.9952	0.0
52	unsolved	1	270.8813	0.0
53	unsolved	1	208.8521	0.0
54	unsolved	1	239.1413	0.0
55	5978.96	1	1.1545	0.0
56	10444.06	1	53.5617	0.0
57	unsolved	1	41.5829	0.0
58	unsolved	1	271.9602	0.0
59	unsolved	1	143.3831	0.0
60	16139.92	1	123.0553	0.0
61	13373.08	1	108.9814	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
62	unsolved	1	206.2394	0.0
63	unsolved	1	309.0822	0.0
64	unsolved	1	179.7316	0.0
65	unsolved	1	268.6097	0.0
66	unsolved	1	235.595	0.0
67	unsolved	1	236.4581	0.0
68	unsolved	1	266.3804	0.0
69	unsolved	1	151.1607	0.0
70	unsolved	1	179.7066	0.0
71	unsolved	1	56.2965	0.0
72	unsolved	1	987.3691	0.0
73	unsolved	1	1085.3207	0.0
74	unsolved	1	709.5381	0.0
75	unsolved	1	151.8144	0.0
76	unsolved	1	236.3564	0.0
77	unsolved	1	624.5865	0.0
78	unsolved	1	152.0172	0.0
79	unsolved	1	111.302	0.0
80	unsolved	1	76.7259	0.0
81	unsolved	1	237.7053	0.0
82	unsolved	1	887.5621	0.0
83	unsolved	1	151.8176	0.0
84	unsolved	1	1591.9001	0.0
85	unsolved	1	629.5629	0.0
86	unsolved	1	15.1211	0.0
87	unsolved	1	98.1579	0.0
88	unsolved	1	307.027	0.0
89	unsolved	1	268.8918	0.0
90	unsolved	1	793.5535	0.0
91	unsolved	1	268.7828	0.0
92	unsolved	1	1586.4015	0.0
93	unsolved	1	788.8094	0.0
94	unsolved	1	1590.498	0.0
95	unsolved	1	205.8027	0.0
96	unsolved	1	308.6216	0.0
97	unsolved	1	308.0772	0.0
98	unsolved	1	878.1768	0.0
99	unsolved	1	149.496	0.0
100	unsolved	1	892.468	0.0
101	unsolved	1	113.7532	0.0
102	unsolved	1	1092.2249	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
103	unsolved	1	1742.3876	0.0
104	unsolved	1	622.0682	0.0
105	unsolved	1	2894.1292	0.0
106	unsolved	1	1746.7493	0.0
107	unsolved	1	794.9647	0.0
108	unsolved	1	788.3663	0.0
109	unsolved	1	993.3066	0.0
110	unsolved	1	1103.1741	0.0
111	unsolved	1	2050.584	0.0
112	unsolved	1	481.5872	0.0
113	unsolved	1	1882.7745	0.0
114	unsolved	1	709.0548	0.0
115	unsolved	1	846.2148	0.0
116	unsolved	1	1284.6061	0.0
117	unsolved	1	1664.4515	0.0
118	unsolved	1	3117.1643	0.0
119	unsolved	1	2051.451	0.0
120	unsolved	1	129.9851	0.0
121	unsolved	1	36.0923	0.0
122	unsolved	1	980.8638	0.0
123	unsolved	1	1451.3772	0.0
124	unsolved	1	2312.5684	0.0
125	unsolved	1	3759.8184	0.0
126	unsolved	1	2197.0005	0.0
127	unsolved	1	1880.9717	0.0
128	unsolved	1	991.8442	0.0
129	unsolved	1	1083.9692	0.0
130	unsolved	1	2389.577	0.0
131	unsolved	1	1091.5854	0.0
132	unsolved	1	1446.1395	0.0
133	unsolved	1	2617.54	0.0
134	unsolved	1	1593.553	0.0
135	unsolved	1	41.9642	0.0
136	unsolved	1	4507.859	0.0
137	unsolved	1	1885.5906	0.0
138	unsolved	1	1323.0972	0.0

Table 2: Results for algorithm Picard with risk bound 0.05.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	5000.02	1	0.0098	0.00115
2	6449.47	4	0.0928	0.01337
3	5000.02	1	0.0159	0.00372
4	7879.15	2	0.044	0.00624
5	5000.21	1	0.0139	0.0027
6	6776.87	3	0.065	0.01097
7	8809.04	5	0.1205	0.01921
8	7919.17	3	0.0634	0.01117
9	5380.89	2	0.038	0.00599
10	10557.61	4	0.0921	0.0156
11	5000.2	1	0.0101	0.00157
12	8087.62	3	0.0729	0.01113
13	7278.32	2	0.0383	0.00716
14	5000.06	1	0.0136	0.00275
15	9017.21	4	0.1063	0.01516
16	5000.61	1	0.0111	0.00192
17	5673.14	3	0.0592	0.00951
18	5000.11	1	0.0098	0.0015
19	7588.77	5	0.1258	0.01853
20	9876.75	3	0.059	0.00975
21	13507.33	7	0.1952	0.03415
22	5000.3	1	0.0096	0.00194
23	10207.24	3	0.0689	0.01628
24	8068.98	5	0.1164	0.01588
25	5000.59	1	0.0116	0.0023
26	5000.19	1	0.0137	0.00285
27	5454.77	3	0.0476	0.00971
28	13367.55	7	0.1908	0.03078
29	9092.88	8	0.2917	0.04137
30	8100.95	5	0.1524	0.02647
31	5000.23	1	0.0122	0.00275
32	14374.65	10	0.3413	0.06131
33	5001.8	1	0.0101	0.0016
34	10959.66	5	0.1451	0.02425
35	7832.77	3	0.0604	0.01084
36	8042.48	3	0.0635	0.01007
37	13005.19	11	0.4104	0.05774
38	12668.36	7	0.2738	0.04432
39	12780.55	9	0.3822	0.05482
40	12144.75	5	0.1411	0.02469
41	22407.45	10	0.5673	0.07675

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	11276.46	3	0.0844	0.01451
43	155860.89	7	0.4194	0.065
44	13297.3	4	0.1115	0.01634
45	21523.61	7	0.2553	0.04096
46	15541.78	10	0.4774	0.07519
47	21158.02	16	0.9268	0.10848
48	20964.3	11	0.4677	0.06665
49	1071760.37	2	0.0897	0.01585
50	12501.61	6	0.1892	0.03245
51	18854.91	8	0.4763	0.06133
52	38237.13	15	1.0398	0.13665
53	14964.48	12	0.73	0.0948
54	67855.62	14	0.9704	0.12284
55	6321.06	2	0.0332	0.00542
56	12238.38	7	0.275	0.04124
57	8290.27	5	0.1187	0.01991
58	18348.7	14	1.0635	0.1255
59	17742.13	14	0.6935	0.0954
60	19417.78	6	0.2205	0.03814
61	15480.59	10	0.467	0.06013
62	22146.23	12	0.6962	0.09832
63	19544.62	15	0.8868	0.13582
64	23896.17	16	0.9285	0.1198
65	78752.13	9	0.4401	0.07744
66	19330.92	13	1.0478	0.10952
67	16554.91	11	0.7167	0.09253
68	18399.94	12	0.785	0.10516
69	18842.18	7	0.344	0.04759
70	324211.44	12	0.5978	0.08942
71	14639.4	9	0.4003	0.05051
72	44673.67	15	1.3904	0.16739
73	26942.15	21	2.8781	0.24821
74	25104.43	8	0.4751	0.07944
75	19496.72	7	0.264	0.04861
76	27377.72	11	0.6797	0.09472
77	23885.67	8	0.5795	0.07603
78	17105.49	8	0.376	0.05496
79	14412.93	10	0.4263	0.06114
80	11088.08	3	0.1192	0.01599
81	37125.24	10	0.5321	0.08428
82	142287.03	7	0.534	0.07731

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	23067.08	10	0.5274	0.06925
84	36995.72	15	2.3852	0.20715
85	19747.79	18	1.4353	0.17829
86	37771.33	7	0.4639	0.07345
87	30706.76	15	1.7272	0.18072
88	24009.86	16	1.2034	0.15587
89	31233.57	13	0.7402	0.11591
90	23023.35	12	1.027	0.12534
91	35497.71	3	0.1148	0.02627
92	33054.85	4	0.2705	0.05389
93	22137.82	15	1.3124	0.16
94	31818.26	15	1.987	0.20548
95	349734.84	8	0.5102	0.06407
96	27183.52	11	0.8346	0.10363
97	23863.68	11	1.0054	0.10449
98	26882.87	10	0.7116	0.10787
99	15663.31	13	0.6285	0.09034
100	29898.12	13	1.3422	0.14168
101	82005.37	20	3.6945	0.28228
102	63662.76	25	3.8941	0.28582
103	134816.44	19	2.519	0.26001
104	21271.69	18	1.4047	0.17544
105	333458.7	3	0.1929	0.04958
106	38383.52	16	2.3701	0.21833
107	75831.08	15	1.3138	0.15498
108	25786.07	10	0.7243	0.10504
109	30485.63	21	2.8933	0.23101
110	612070.53	18	1.8454	0.20744
111	53426.3	10	1.45	0.14479
112	41796.17	13	0.7357	0.12206
113	30862.1	17	2.8642	0.23959
114	24111.52	18	1.1485	0.17712
115	29477.34	17	1.6351	0.17879
116	33275.03	19	3.3701	0.23037
117	103936.71	15	2.1574	0.20254
118	769273.08	15	3.5146	0.26288
119	124322.29	15	3.193	0.21847
120	24575.3	9	0.3527	0.05779
121	379928.76	15	1.5778	0.16
122	196269.93	19	1.7815	0.21033
123	38925.76	19	2.0268	0.24405

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	37611.92	14	2.9428	0.22371
125	65408.08	24	16.1282	0.439
126	123599.9	9	0.9915	0.13553
127	274667.49	13	1.8794	0.1888
128	46311.06	19	1.7853	0.21338
129	29000.54	17	1.6728	0.20106
130	58673.09	13	1.8283	0.20898
131	41636.64	15	1.4448	0.17291
132	39041.37	9	0.732	0.1154
133	107297.49	17	4.3593	0.27183
134	36725.16	27	4.8186	0.35814
135	32768.55	21	2.849	0.28568
136	615458.8	19	6.2705	0.3751
137	32955.25	23	2.9561	0.32839
138	35696.13	14	1.5328	0.17443

Table 3: Results for algorithm Rubato with risk bound 0.05.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	871.66	2	0.0544	0.14321
2	unsolved	5	4.5977	0.01329
3	unsolved	4	6.1251	0.01081
4	unsolved	7	6.3449	0.0189
5	4214.95	6	1.7373	0.01716
6	6342.32	11	9.2012	0.03896
7	7021.14	10	11.3857	0.03674
8	6592.08	4	1.628	0.01684
9	5313.93	7	3.2434	0.02022
10	unsolved	4	4.4346	0.01108
11	1612.56	3	1.1209	0.00477
12	unsolved	3	6.7445	0.00707
13	7085.58	6	2.7043	0.02138
14	3390.69	4	0.7278	0.01112
15	7320.93	5	2.919	0.01871
16	2234.42	3	0.9131	0.00588
17	unsolved	5	8.1703	0.01273
18	1183.63	3	1.4506	0.0045
19	7318.34	8	11.7896	0.02759
20	7035.26	7	5.3857	0.02204

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
21	unsolved	4	6.6961	0.01513
22	2733.32	6	2.5455	0.01151
23	unsolved	6	5.9777	0.01775
24	7527.49	5	0.8739	0.016
25	4410.08	2	0.2593	0.00462
26	4012.92	6	4.0141	0.01714
27	5367.42	9	6.8998	0.03
28	unsolved	7	1.331	0.02645
29	unsolved	4	6.1232	0.0145
30	unsolved	5	6.7554	0.02022
31	unsolved	5	4.5239	0.01203
32	unsolved	3	5.5699	0.01205
33	2099.55	4	0.3841	0.00765
34	unsolved	4	5.8349	0.01416
35	unsolved	4	5.2395	0.01093
36	7009.83	6	3.2632	0.01999
37	unsolved	4	6.6571	0.01596
38	unsolved	7	11.8029	0.03729
39	unsolved	4	7.5794	0.01837
40	unsolved	6	8.691	0.02526
41	unsolved	4	6.6653	0.02576
42	11084.78	12	21.0685	0.05537
43	unsolved	3	8.7813	0.01912
44	10751.16	10	8.1499	0.04078
45	unsolved	5	3.7511	0.02227
46	unsolved	3	7.8614	0.01408
47	unsolved	7	16.7	0.03839
48	13445.33	8	11.2838	0.04621
49	unsolved	6	28.945	0.034
50	10503.65	7	8.0123	0.03251
51	unsolved	4	7.5774	0.02322
52	unsolved	2	6.3354	0.00847
53	unsolved	4	8.462	0.02396
54	unsolved	12	12.922	0.08662
55	5978.96	8	5.3928	0.02187
56	unsolved	5	7.6505	0.02556
57	7554.02	10	13.2937	0.039
58	unsolved	4	10.2027	0.02717
59	unsolved	6	13.3386	0.03197
60	unsolved	3	5.8812	0.0129
61	unsolved	7	13.3594	0.03453

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
62	unsolved	4	9.1328	0.0229
63	unsolved	2	6.801	0.00898
64	unsolved	3	6.2128	0.01498
65	unsolved	2	6.6024	0.00851
66	unsolved	3	6.7323	0.01657
67	unsolved	2	6.1697	0.0081
68	unsolved	3	8.8295	0.01734
69	unsolved	5	9.7748	0.02702
70	unsolved	3	6.9984	0.01446
71	13919.53	10	15.1457	0.05247
72	unsolved	3	8.2843	0.02611
73	unsolved	4	18.1958	0.03388
74	unsolved	6	17.9618	0.04632
75	unsolved	3	5.5367	0.0139
76	unsolved	4	8.5198	0.02548
77	unsolved	2	7.1064	0.00937
78	unsolved	5	17.6605	0.02561
79	unsolved	2	4.9285	0.00607
80	unsolved	3	4.6781	0.01046
81	unsolved	5	10.9577	0.03099
82	unsolved	3	10.5265	0.01953
83	unsolved	3	5.6756	0.01374
84	unsolved	2	9.9282	0.01371
85	unsolved	3	8.4745	0.01865
86	unsolved	4	12.1309	0.02773
87	unsolved	6	21.9349	0.05881
88	unsolved	5	15.2182	0.03567
89	unsolved	6	15.9626	0.04213
90	unsolved	3	7.7924	0.02087
91	unsolved	13	26.1267	0.09844
92	unsolved	4	16.5705	0.03813
93	unsolved	5	14.3318	0.03942
94	unsolved	3	11.2267	0.02692
95	unsolved	6	13.5958	0.03746
96	unsolved	2	6.3076	0.0092
97	unsolved	5	22.6183	0.03305
98	unsolved	3	11.1716	0.01953
99	unsolved	2	5.5214	0.00698
100	unsolved	2	7.415	0.01083
101	unsolved	3	10.1659	0.02955
102	unsolved	3	9.8592	0.02251

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
103	unsolved	3	18.9134	0.03291
104	unsolved	4	7.7456	0.0289
105	unsolved	2	10.2619	0.01581
106	unsolved	3	17.2609	0.02499
107	unsolved	4	13.871	0.02837
108	unsolved	4	15.46	0.02937
109	unsolved	6	19.6577	0.04924
110	unsolved	3	8.2776	0.02291
111	unsolved	3	18.7593	0.03546
112	unsolved	3	6.9503	0.01899
113	unsolved	7	39.8322	0.07483
114	unsolved	4	8.3392	0.02939
115	unsolved	3	10.3109	0.0189
116	unsolved	2	8.174	0.0121
117	unsolved	2	9.9177	0.01328
118	unsolved	2	11.165	0.01724
119	unsolved	2	9.1097	0.01455
120	unsolved	3	6.5992	0.01275
121	unsolved	3	12.0208	0.0196
122	unsolved	4	17.9188	0.03009
123	unsolved	2	9.1166	0.01278
124	unsolved	3	12.8031	0.03447
125	unsolved	2	12.839	0.01885
126	unsolved	2	10.4791	0.01514
127	unsolved	3	19.8712	0.02599
128	unsolved	4	8.4759	0.03441
129	unsolved	3	8.8997	0.02294
130	unsolved	2	11.3912	0.01592
131	unsolved	2	7.5486	0.01129
132	unsolved	3	10.0092	0.02544
133	unsolved	2	11.9164	0.01601
134	unsolved	4	10.5481	0.03991
135	unsolved	2	9.8777	0.0145
136	unsolved	3	13.8959	0.03943
137	unsolved	2	9.7082	0.01424
138	unsolved	2	8.1835	0.01222

Table 4: Results for algorithm Rubato-Opt with risk bound 0.05.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	871.66	3	0.0924	0.00334
2	6316.88	5	0.8622	0.01631
3	unsolved	4	4.211	0.01077
4	7838.95	3	1.0649	0.00949
5	4214.95	6	1.6408	0.01653
6	6342.32	4	0.2282	0.01424
7	7021.14	6	1.476	0.0226
8	6592.08	4	0.9166	0.01486
9	5313.93	3	0.7284	0.00874
10	6470.39	5	0.2529	0.01885
11	1612.56	5	0.9221	0.00805
12	7156.53	4	1.6324	0.01463
13	7085.58	3	0.7149	0.01064
14	3390.69	6	2.142	0.01682
15	7320.93	5	0.2158	0.01852
16	2234.42	4	2.4825	0.00863
17	5658.76	4	0.1526	0.01281
18	1183.63	5	0.518	0.00758
19	7318.34	6	0.2282	0.02153
20	7035.26	4	0.3123	0.01277
21	11404.2	9	2.242	0.04364
22	2733.32	7	2.1744	0.01342
23	7535.2	6	2.2184	0.02153
24	7527.49	6	0.9381	0.01945
25	4410.08	3	0.4633	0.00727
26	unsolved	8	6.2481	0.0201
27	5367.42	4	0.2039	0.01279
28	10097.47	8	1.0231	0.03805
29	9088.5	9	0.6448	0.04608
30	7613.57	6	3.4535	0.03084
31	unsolved	6	7.6494	0.01373
32	14314.0	11	1.8126	0.06862
33	2099.55	4	0.1717	0.00639
34	9914.4	8	4.3632	0.03708
35	7436.48	6	2.7307	0.02156
36	7009.83	4	0.7899	0.01333
37	12870.19	12	4.8167	0.0628
38	12360.58	8	2.1394	0.05184
39	12173.57	10	3.808	0.06175
40	unsolved	8	11.9061	0.03279
41	unsolved	11	9.9351	0.07553

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	11084.78	4	1.8641	0.0196
43	unsolved	8	8.9269	0.06625
44	10751.16	6	0.4391	0.02435
45	10492.95	9	3.9942	0.05149
46	unsolved	11	8.9778	0.07192
47	unsolved	17	11.3294	0.11255
48	13445.33	12	7.842	0.07278
49	unsolved	7	17.7841	0.04636
50	10503.65	9	4.2942	0.04406
51	unsolved	9	9.5334	0.06128
52	unsolved	17	16.2897	0.14564
53	14632.92	13	7.1243	0.10131
54	unsolved	15	13.1672	0.11514
55	5978.96	3	0.2494	0.0086
56	unsolved	8	6.7331	0.04121
57	7554.02	6	1.231	0.02487
58	18088.84	15	6.3893	0.13196
59	17304.89	15	5.2364	0.10193
60	16139.92	9	5.3763	0.05673
61	13373.08	11	1.8776	0.06718
62	20127.38	13	8.2848	0.10696
63	unsolved	16	13.9556	0.13418
64	19115.58	17	9.773	0.12444
65	unsolved	10	9.859	0.07741
66	unsolved	14	13.9294	0.10609
67	unsolved	12	11.8079	0.0921
68	unsolved	13	13.266	0.10565
69	unsolved	8	7.5645	0.0503
70	unsolved	13	9.8488	0.08672
71	13919.53	10	2.0992	0.05619
72	unsolved	16	21.4021	0.17503
73	unsolved	22	30.5885	0.24748
74	unsolved	9	10.8289	0.07939
75	15638.53	9	10.0765	0.0599
76	19786.31	12	9.1967	0.09664
77	unsolved	9	12.5757	0.07594
78	unsolved	9	7.921	0.05594
79	12871.15	12	7.8123	0.07141
80	unsolved	4	5.3993	0.01627
81	unsolved	11	10.6012	0.08662
82	unsolved	8	12.3288	0.07728

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	17028.97	11	9.6563	0.07752
84	unsolved	16	31.9372	0.21484
85	unsolved	19	17.6551	0.17363
86	unsolved	8	11.8048	0.08305
87	unsolved	16	22.9831	0.18347
88	unsolved	17	15.5472	0.15131
89	unsolved	14	11.8005	0.11302
90	unsolved	13	17.0743	0.12661
91	unsolved	5	8.7256	0.0352
92	unsolved	5	13.068	0.05687
93	unsolved	16	19.8411	0.16118
94	unsolved	16	29.443	0.20382
95	16991.42	9	9.3707	0.06925
96	unsolved	14	29.333	0.11571
97	unsolved	12	14.1753	0.10556
98	unsolved	11	13.0667	0.10896
99	unsolved	14	10.5014	0.09165
100	unsolved	14	19.2672	0.14966
101	unsolved	21	42.3388	0.28425
102	unsolved	26	31.8805	0.28453
103	unsolved	20	29.8383	0.2582
104	unsolved	19	17.8288	0.17524
105	unsolved	4	11.2902	0.04806
106	unsolved	17	35.3414	0.21865
107	unsolved	16	17.5185	0.15055
108	unsolved	11	14.1335	0.10478
109	unsolved	22	28.1896	0.23247
110	unsolved	19	25.449	0.2084
111	unsolved	11	25.823	0.14509
112	unsolved	14	12.4593	0.12526
113	unsolved	18	29.3401	0.24172
114	unsolved	19	16.0022	0.1784
115	unsolved	18	21.8503	0.1786
116	unsolved	20	31.1315	0.23568
117	unsolved	16	28.5027	0.20309
118	unsolved	16	45.9084	0.25385
119	unsolved	16	32.9574	0.21835
120	unsolved	10	7.7642	0.05774
121	unsolved	16	20.6684	0.16108
122	unsolved	20	22.5421	0.2155
123	unsolved	20	26.3403	0.24477

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	unsolved	15	39.4732	0.22329
125	unsolved	25	89.5666	0.43887
126	unsolved	10	18.0534	0.13477
127	unsolved	14	25.3806	0.18408
128	unsolved	20	21.2373	0.21602
129	unsolved	18	25.1166	0.20402
130	unsolved	14	31.3319	0.20215
131	unsolved	16	21.2717	0.17298
132	unsolved	10	16.8071	0.11596
133	unsolved	18	47.731	0.27373
134	unsolved	28	39.199	0.36293
135	unsolved	22	33.8103	0.28899
136	unsolved	20	61.0749	0.38054
137	unsolved	24	36.7268	0.32691
138	unsolved	15	24.3313	0.17695

Table 5: Results for algorithm Rubato-Opt-FF with risk bound 0.05.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	854.0	1	0.0322	0.0
2	6227.56	1	2.2465	0.0
3	4805.23	1	12.6377	0.0
4	7728.47	1	2.1112	0.0
5	4152.95	1	5.7713	0.0
6	6253.84	1	21.0428	0.0
7	6924.63	1	6.0306	0.0
8	6501.52	1	3.109	0.0
9	5237.26	1	2.1333	0.0
10	6380.54	1	8.7694	0.0
11	1585.98	1	0.0746	0.0
12	7057.31	1	5.8602	0.0
13	6987.69	1	1.2193	0.0
14	3340.49	1	5.1542	0.0
15	7220.65	1	3.5049	0.0
16	2199.56	1	0.8063	0.0
17	5578.51	1	4.4085	0.0
18	1163.97	1	0.5051	0.0
19	7217.79	1	8.7256	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
20	6936.13	1	10.5689	0.0
21	unsolved	1	39.6504	0.0
22	2690.63	1	1.1489	0.0
23	7432.46	1	5.4173	0.0
24	7422.28	1	0.6443	0.0
25	4344.66	1	0.9963	0.0
26	3954.11	1	2.4983	0.0
27	unsolved	1	3.3006	0.0
28	9961.26	1	41.8937	0.0
29	8969.0	1	8.9574	0.0
30	7512.67	1	32.5752	0.0
31	2892.6	1	1.6352	0.0
32	14132.44	1	109.5928	0.0
33	2065.08	1	0.5524	0.0
34	unsolved	1	53.3589	0.0
35	unsolved	1	15.5514	0.0
36	6910.58	1	4.3001	0.0
37	12702.39	1	32.5632	0.0
38	unsolved	1	113.3114	0.0
39	12018.19	1	24.6838	0.0
40	unsolved	1	40.6037	0.0
41	unsolved	1	181.9045	0.0
42	10938.67	1	24.6963	0.0
43	unsolved	1	312.2216	0.0
44	unsolved	1	10.8621	0.0
45	unsolved	1	56.1396	0.0
46	unsolved	1	152.5135	0.0
47	unsolved	1	131.6951	0.0
48	unsolved	1	112.0765	0.0
49	unsolved	1	210.7342	0.0
50	10365.06	1	53.7015	0.0
51	unsolved	1	209.8059	0.0
52	unsolved	1	272.1852	0.0
53	unsolved	1	209.3528	0.0
54	unsolved	1	239.4669	0.0
55	5892.01	1	1.5161	0.0
56	unsolved	1	93.8055	0.0
57	unsolved	1	42.2025	0.0
58	unsolved	1	270.4837	0.0
59	unsolved	1	131.9089	0.0
60	15936.59	1	99.7578	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
61	13202.93	1	27.3007	0.0
62	unsolved	1	206.2106	0.0
63	unsolved	1	310.0577	0.0
64	unsolved	1	186.0383	0.0
65	unsolved	1	269.2989	0.0
66	unsolved	1	236.2826	0.0
67	unsolved	1	236.3399	0.0
68	unsolved	1	266.7427	0.0
69	unsolved	1	150.8341	0.0
70	unsolved	1	4.5937	0.0
71	unsolved	1	31.4818	0.0
72	unsolved	1	984.9918	0.0
73	unsolved	1	1095.8727	0.0
74	unsolved	1	709.6945	0.0
75	unsolved	1	152.0014	0.0
76	unsolved	1	236.5001	0.0
77	unsolved	1	628.8681	0.0
78	unsolved	1	151.2148	0.0
79	unsolved	1	111.6723	0.0
80	unsolved	1	76.9269	0.0
81	unsolved	1	237.3785	0.0
82	unsolved	1	885.2882	0.0
83	unsolved	1	151.9153	0.0
84	unsolved	1	1600.8976	0.0
85	unsolved	1	630.0257	0.0
86	unsolved	1	18.2858	0.0
87	unsolved	1	1089.6246	0.0
88	unsolved	1	128.3884	0.0
89	unsolved	1	268.8703	0.0
90	unsolved	1	795.2033	0.0
91	unsolved	1	268.6732	0.0
92	unsolved	1	1588.5665	0.0
93	unsolved	1	792.16	0.0
94	unsolved	1	35.66	0.0
95	unsolved	1	208.2774	0.0
96	unsolved	1	307.8808	0.0
97	unsolved	1	305.7209	0.0
98	unsolved	1	884.8398	0.0
99	unsolved	1	149.6028	0.0
100	unsolved	1	886.1916	0.0
101	unsolved	1	1871.0685	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
102	unsolved	1	1096.8479	0.0
103	unsolved	1	1743.3474	0.0
104	unsolved	1	626.2928	0.0
105	unsolved	1	1696.9014	0.0
106	unsolved	1	1756.2383	0.0
107	unsolved	1	792.7786	0.0
108	unsolved	1	792.904	0.0
109	unsolved	1	990.789	0.0
110	unsolved	1	1093.4086	0.0
111	unsolved	1	2055.8342	0.0
112	unsolved	1	13.7371	0.0
113	unsolved	1	1882.9374	0.0
114	unsolved	1	709.0397	0.0
115	unsolved	1	849.8027	0.0
116	unsolved	1	1280.0247	0.0
117	unsolved	1	1681.8816	0.0
118	unsolved	1	3074.5713	0.0
119	unsolved	1	2041.7358	0.0
120	unsolved	1	129.1212	0.0
121	unsolved	1	880.9601	0.0
122	unsolved	1	987.8962	0.0
123	unsolved	1	1457.6147	0.0
124	unsolved	1	2400.8748	0.0
125	unsolved	1	1317.9646	0.0
126	unsolved	1	2203.3708	0.0
127	unsolved	1	1873.5342	0.0
128	unsolved	1	989.8114	0.0
129	unsolved	1	1102.8835	0.0
130	unsolved	1	2408.0886	0.0
131	unsolved	1	1078.4874	0.0
132	unsolved	1	1445.4423	0.0
133	unsolved	1	2579.7131	0.0
134	unsolved	1	1597.7008	0.0
135	unsolved	1	41.4571	0.0
136	unsolved	1	4482.7	0.0
137	unsolved	1	1845.4742	0.0
138	unsolved	1	1319.2156	0.0

Table 6: Results for algorithm Picard with risk bound 0.1.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	5000.02	1	0.009	0.00118
2	6252.69	4	0.0889	0.0127
3	5000.01	1	0.0147	0.00369
4	13248.0	2	0.0491	0.00642
5	5000.21	1	0.0126	0.00272
6	6508.21	3	0.0614	0.01069
7	8179.52	5	0.1036	0.01799
8	7658.13	3	0.0614	0.01136
9	5301.75	2	0.0323	0.00589
10	6414.34	4	0.0884	0.01512
11	5000.19	1	0.0098	0.00155
12	21579.36	3	0.0748	0.01167
13	7121.98	2	0.0375	0.00717
14	5000.06	1	0.012	0.00274
15	8228.99	4	0.0948	0.01538
16	5000.71	1	0.0101	0.00191
17	5617.32	3	0.0508	0.00955
18	5000.1	1	0.0125	0.00154
19	7413.94	5	0.1195	0.02039
20	7336.12	3	0.0519	0.00957
21	11777.14	7	0.1842	0.03523
22	5000.24	1	0.0131	0.00192
23	36104.6	3	0.0624	0.01076
24	7890.54	5	0.1172	0.01596
25	5000.49	1	0.0103	0.0023
26	5000.17	1	0.0121	0.00281
27	5373.46	3	0.0415	0.00944
28	12871.02	7	0.2012	0.03251
29	8984.69	7	0.2267	0.03402
30	8021.04	5	0.1496	0.02437
31	5000.19	1	0.0106	0.00285
32	15655.36	11	0.4074	0.06763
33	5000.5	1	0.0089	0.00158
34	10448.63	5	0.131	0.02224
35	7762.79	5	0.1081	0.01775
36	7913.6	3	0.0645	0.0101
37	23193.39	6	0.1704	0.03282
38	12918.78	10	0.4096	0.06738
39	13516.86	9	0.3683	0.05914
40	10296.68	4	0.1301	0.02068
41	19241.14	9	0.392	0.06699

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	11461.71	3	0.0813	0.01461
43	21764.2	22	1.5272	0.21149
44	11470.55	6	0.1717	0.02403
45	15892.93	7	0.2255	0.03793
46	16265.35	13	0.6056	0.09108
47	17594.63	14	0.7162	0.09134
48	15080.7	5	0.1909	0.03055
49	21268.99	11	0.6081	0.08821
50	11770.0	6	0.1973	0.03002
51	17196.9	10	0.4682	0.07782
52	17845.59	16	1.2449	0.13668
53	15361.22	12	0.6104	0.09594
54	30558.06	7	0.3062	0.05842
55	5923.96	2	0.0374	0.00545
56	10771.26	7	0.2665	0.03944
57	7829.11	5	0.1203	0.02078
58	18441.83	14	1.0552	0.12354
59	18030.21	10	0.3462	0.06617
60	17488.76	9	0.3693	0.05752
61	14259.73	9	0.3416	0.05515
62	52767.81	8	0.399	0.06114
63	20722.08	17	1.2242	0.15485
64	20442.63	15	0.7093	0.1085
65	16972.43	8	0.3893	0.06922
66	18594.85	14	0.8078	0.1129
67	18259.67	15	0.9159	0.13285
68	17318.42	11	0.6448	0.10255
69	14663.93	9	0.408	0.06186
70	18438.42	16	0.9579	0.11615
71	15354.1	10	0.4404	0.05819
72	29879.88	12	0.8656	0.13334
73	28979.9	13	1.1782	0.15088
74	22812.61	9	0.5827	0.08882
75	16999.89	9	0.3665	0.06237
76	19617.69	12	0.7781	0.10001
77	234333.29	7	0.4319	0.07113
78	14189.2	11	0.5735	0.07833
79	13930.56	7	0.238	0.04361
80	11500.15	3	0.0937	0.01564
81	63080.31	12	0.647	0.10011
82	28247.43	12	0.9906	0.13017

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	16822.01	8	0.3363	0.05575
84	359051.68	12	2.0304	0.16753
85	19196.79	18	1.4002	0.17449
86	24537.63	16	1.2469	0.16142
87	24975.61	16	2.2516	0.19434
88	20519.39	20	1.5003	0.18238
89	22506.16	19	1.3325	0.1667
90	34750.76	12	0.9637	0.12536
91	21555.41	13	0.7693	0.11395
92	227670.68	12	1.7874	0.16273
93	201245.81	4	0.2076	0.04386
94	101758.14	15	1.7564	0.20429
95	517628.45	7	0.4075	0.05515
96	70211.11	9	0.5983	0.08947
97	211661.98	12	0.855	0.10939
98	38080.21	11	0.747	0.11713
99	17396.8	13	0.6306	0.0909
100	26265.2	15	1.6185	0.16313
101	228846.63	20	4.4362	0.29446
102	60120.34	24	2.7105	0.27495
103	33574.08	26	3.5981	0.35384
104	355005.1	15	0.9991	0.13855
105	39721.33	6	0.7958	0.09769
106	47844.67	15	2.3068	0.2078
107	29038.36	21	1.8869	0.21167
108	22156.23	13	0.946	0.13481
109	122336.17	15	1.4333	0.16998
110	29354.53	20	2.2181	0.23189
111	53693.69	15	2.2365	0.21809
112	28163.77	12	0.6083	0.11416
113	52603.23	25	3.2171	0.35745
114	83976.04	20	1.5324	0.20259
115	25269.69	13	1.02	0.13778
116	33587.41	18	2.7097	0.21584
117	37061.89	10	0.9406	0.13441
118	40203.67	14	4.2361	0.23908
119	40018.75	12	1.593	0.17857
120	13448.38	11	0.4417	0.07219
121	26533.87	11	0.8093	0.11772
122	36989.31	13	0.85	0.14617
123	146355.47	20	2.571	0.25933

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	86727.07	19	3.434	0.29712
125	43278.62	23	10.5686	0.42079
126	42242.53	19	3.3919	0.29552
127	33442.29	18	2.6053	0.25806
128	24315.23	18	1.4635	0.20213
129	1003446.82	3	0.1368	0.03497
130	283596.93	12	2.0204	0.18674
131	34616.31	18	2.5279	0.21178
132	27710.15	13	1.7462	0.16991
133	67468.33	13	3.0577	0.20736
134	30877.9	23	3.988	0.31072
135	32275.76	20	3.6969	0.27669
136	49486.34	17	3.5417	0.34155
137	34108.59	29	4.5049	0.41885
138	28618.41	18	2.2252	0.22499

Table 7: Results for algorithm Rubato with risk bound 0.1.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	854.0	2	0.0518	0.00237
2	unsolved	6	8.7024	0.01579
3	unsolved	2	3.7112	0.0038
4	unsolved	3	7.0224	0.00672
5	4152.95	7	1.2879	0.01937
6	6253.84	7	5.387	0.02505
7	unsolved	7	9.3848	0.02145
8	6501.52	6	4.0038	0.02266
9	5237.26	6	2.1811	0.01763
10	6380.54	10	8.1695	0.03721
11	1585.98	4	1.9214	0.00637
12	unsolved	3	4.606	0.00724
13	6987.69	5	2.1611	0.01795
14	3340.49	4	0.6299	0.01114
15	unsolved	3	6.3954	0.00742
16	2199.56	3	0.3259	0.00572
17	5578.51	4	2.2374	0.01311
18	1163.97	4	0.8787	0.00614
19	unsolved	4	9.7378	0.01013
20	6936.13	9	5.7975	0.02911

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
21	unsolved	5	9.0671	0.01913
22	unsolved	5	4.2513	0.00792
23	unsolved	4	6.2687	0.0112
24	7422.28	5	1.6671	0.0161
25	4344.66	2	0.1778	0.00466
26	3954.11	6	3.2904	0.01672
27	5291.53	8	2.8973	0.02526
28	unsolved	7	2.9758	0.02762
29	unsolved	2	4.4637	0.0049
30	unsolved	5	5.8926	0.01927
31	unsolved	5	5.1095	0.01101
32	unsolved	4	9.1107	0.01747
33	2065.08	5	2.1575	0.0081
34	unsolved	3	4.5386	0.00924
35	unsolved	4	4.7706	0.01064
36	6910.58	6	4.6321	0.01991
37	unsolved	4	5.6666	0.0158
38	unsolved	9	6.0464	0.05028
39	unsolved	3	6.2833	0.01262
40	9349.91	8	11.9967	0.03746
41	unsolved	8	22.0141	0.04781
42	unsolved	6	10.7151	0.0234
43	unsolved	3	12.9443	0.01675
44	unsolved	4	5.7044	0.01187
45	unsolved	3	4.7318	0.01061
46	unsolved	3	8.4592	0.01264
47	unsolved	4	6.8536	0.01972
48	unsolved	2	4.8427	0.00592
49	unsolved	5	18.3903	0.02895
50	10365.06	7	4.9573	0.03557
51	unsolved	2	5.7379	0.00773
52	unsolved	9	17.9518	0.06806
53	unsolved	9	27.5963	0.06278
54	unsolved	3	6.9467	0.016
55	5892.01	8	4.275	0.02175
56	unsolved	3	2.2785	0.01406
57	unsolved	9	9.0769	0.03296
58	unsolved	8	21.4343	0.05767
59	unsolved	3	6.0303	0.0129
60	unsolved	4	8.8645	0.01915
61	unsolved	6	11.0872	0.02893

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
62	unsolved	3	8.4585	0.02221
63	unsolved	2	6.8026	0.00887
64	unsolved	3	7.2964	0.01439
65	unsolved	3	11.624	0.01564
66	unsolved	4	7.0372	0.02405
67	unsolved	3	8.2362	0.01686
68	unsolved	2	6.4316	0.00877
69	unsolved	7	15.5232	0.0396
70	unsolved	5	11.201	0.02781
71	unsolved	5	9.4481	0.02201
72	unsolved	3	8.8612	0.02347
73	unsolved	3	8.8663	0.02297
74	unsolved	7	14.3826	0.05755
75	unsolved	4	7.8676	0.02051
76	unsolved	3	6.3119	0.01634
77	unsolved	2	7.1433	0.00937
78	unsolved	6	14.8709	0.03326
79	unsolved	8	12.6581	0.04344
80	unsolved	4	5.6696	0.01557
81	unsolved	5	9.7469	0.03387
82	unsolved	2	7.9285	0.01067
83	unsolved	6	10.7725	0.03344
84	unsolved	2	9.6205	0.01353
85	unsolved	3	7.434	0.01939
86	unsolved	4	5.6655	0.03129
87	unsolved	6	14.1618	0.05677
88	unsolved	2	6.3635	0.00955
89	unsolved	2	6.0712	0.00878
90	unsolved	6	18.9528	0.05023
91	unsolved	4	10.4339	0.02568
92	unsolved	7	38.4067	0.07144
93	unsolved	7	21.7053	0.05711
94	unsolved	3	10.7759	0.02716
95	unsolved	5	10.9744	0.02973
96	unsolved	2	6.568	0.0093
97	unsolved	7	20.9568	0.05003
98	unsolved	3	8.9411	0.02145
99	unsolved	6	11.8842	0.03389
100	unsolved	10	23.2828	0.09398
101	unsolved	4	20.4381	0.04308
102	unsolved	2	7.7155	0.01136

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
103	unsolved	3	17.78	0.02469
104	unsolved	5	8.5373	0.03693
105	unsolved	3	13.2358	0.03049
106	unsolved	4	20.4164	0.03966
107	unsolved	2	7.0045	0.00998
108	unsolved	4	13.873	0.02978
109	unsolved	4	9.2684	0.03289
110	unsolved	5	10.6093	0.04583
111	unsolved	3	11.4614	0.0289
112	unsolved	6	10.025	0.04746
113	unsolved	13	62.2959	0.15136
114	unsolved	3	7.1222	0.02018
115	unsolved	3	9.1469	0.02082
116	unsolved	3	9.3321	0.02391
117	unsolved	2	9.982	0.01342
118	unsolved	4	16.3181	0.05044
119	unsolved	7	25.9748	0.07764
120	unsolved	4	10.6664	0.01825
121	unsolved	9	21.4974	0.08177
122	unsolved	3	10.0164	0.02018
123	unsolved	4	21.3734	0.03404
124	unsolved	2	11.7552	0.01646
125	unsolved	2	12.8212	0.01892
126	unsolved	2	11.0557	0.01728
127	unsolved	2	10.6199	0.01417
128	unsolved	2	7.3595	0.01097
129	unsolved	5	11.81	0.04483
130	unsolved	2	11.594	0.01567
131	unsolved	2	7.8989	0.01187
132	unsolved	3	9.3087	0.02592
133	unsolved	2	11.9943	0.01694
134	unsolved	5	15.3845	0.04805
135	unsolved	2	9.7946	0.01364
136	unsolved	3	19.7583	0.03766
137	unsolved	2	9.8145	0.01457
138	unsolved	11	53.6846	0.11211

Table 8: Results for algorithm Rubato-Opt with risk bound 0.1.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	854.0	3	0.0471	0.0033
2	6227.56	5	0.6406	0.01612
3	unsolved	4	5.0403	0.01103
4	7728.47	3	0.7393	0.00947
5	unsolved	3	3.5417	0.00545
6	6253.84	4	0.7281	0.01408
7	6924.63	6	0.4173	0.02137
8	6501.52	4	1.2628	0.01505
9	5237.26	3	0.3218	0.00868
10	6380.54	5	0.5539	0.01876
11	1585.98	6	1.4556	0.00963
12	7057.31	4	0.6458	0.01427
13	6987.69	3	1.0409	0.01077
14	3340.49	9	2.6886	0.02535
15	7220.65	5	0.8545	0.01868
16	2199.56	4	0.6032	0.00763
17	5578.51	4	0.114	0.01277
18	1163.97	6	2.2334	0.00911
19	7217.79	6	0.2394	0.02165
20	6936.13	4	0.1703	0.01323
21	unsolved	8	0.919	0.03474
22	2690.63	6	2.7359	0.01148
23	7432.46	6	2.491	0.02173
24	7422.28	6	0.2028	0.01944
25	4344.66	3	0.1587	0.00757
26	3954.11	8	4.4241	0.02398
27	5291.53	4	0.6654	0.01272
28	9961.26	8	1.988	0.03876
29	8969.0	8	0.9454	0.04006
30	7512.67	6	1.5527	0.02918
31	unsolved	6	5.1625	0.01363
32	14132.44	12	3.4513	0.07248
33	2065.08	6	0.8768	0.00952
34	unsolved	6	1.431	0.02229
35	7334.56	6	2.2852	0.02145
36	6910.58	4	0.2378	0.01346
37	12702.39	9	5.7017	0.04619
38	12202.96	11	1.8767	0.06773
39	12018.19	10	2.0012	0.06371
40	9349.91	6	4.3677	0.02811
41	unsolved	10	8.7182	0.06791

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	10938.67	4	1.2985	0.01926
43	unsolved	23	20.7467	0.20855
44	10607.05	7	0.2446	0.03195
45	10355.49	9	2.6252	0.04829
46	unsolved	14	10.6141	0.09318
47	unsolved	15	10.1089	0.09309
48	13273.4	6	3.5317	0.03526
49	unsolved	14	22.8971	0.09897
50	10365.06	7	1.7292	0.03505
51	unsolved	11	10.1032	0.07766
52	unsolved	17	15.7695	0.13684
53	14450.71	13	5.762	0.1067
54	unsolved	8	9.0891	0.05748
55	5892.01	3	0.761	0.00812
56	10308.51	8	1.8351	0.0473
57	7449.86	6	1.9927	0.02401
58	17867.03	15	9.697	0.12868
59	17086.3	11	5.5307	0.07165
60	15936.59	10	2.4529	0.06323
61	13202.93	10	1.2305	0.05976
62	19879.01	9	2.4596	0.06755
63	unsolved	18	15.7755	0.15327
64	18877.76	16	7.1172	0.11421
65	unsolved	9	9.246	0.06799
66	unsolved	15	13.4482	0.11575
67	unsolved	16	14.1037	0.12596
68	unsolved	12	10.8448	0.09273
69	unsolved	10	8.7115	0.06245
70	unsolved	17	12.957	0.12251
71	13740.56	11	3.0438	0.06056
72	unsolved	13	17.1041	0.13396
73	unsolved	14	17.0865	0.15039
74	unsolved	11	21.21	0.09719
75	15440.7	10	3.4769	0.06746
76	19543.49	13	10.1877	0.11448
77	unsolved	8	11.625	0.06602
78	unsolved	12	9.7082	0.07706
79	12706.98	10	3.3509	0.06055
80	10855.32	4	4.1641	0.02002
81	unsolved	13	11.9453	0.09927
82	unsolved	13	18.7928	0.13064

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	16815.47	9	3.7023	0.06282
84	unsolved	13	25.152	0.16697
85	unsolved	19	18.4431	0.17283
86	unsolved	17	18.1868	0.16009
87	unsolved	17	26.7533	0.18839
88	unsolved	21	18.4384	0.18395
89	unsolved	20	16.1396	0.17014
90	unsolved	13	16.356	0.12714
91	20783.16	14	9.0073	0.12087
92	29995.17	13	3.7079	0.17638
93	unsolved	5	8.6985	0.04149
94	unsolved	16	29.1656	0.20853
95	16780.46	10	16.0873	0.08228
96	19802.79	10	11.8718	0.09393
97	unsolved	17	40.9945	0.14612
98	unsolved	12	13.8359	0.12836
99	14357.3	15	10.8386	0.10263
100	unsolved	16	20.9292	0.17088
101	unsolved	21	41.0528	0.29171
102	unsolved	25	28.5983	0.27395
103	unsolved	27	43.4592	0.36916
104	unsolved	16	14.5255	0.141
105	unsolved	7	17.4096	0.09613
106	unsolved	16	33.0264	0.2091
107	unsolved	22	22.224	0.22805
108	unsolved	14	17.8644	0.13479
109	unsolved	16	18.0962	0.17082
110	unsolved	21	24.7275	0.23479
111	unsolved	16	35.0967	0.21712
112	unsolved	13	11.2932	0.11535
113	unsolved	26	33.2576	0.35635
114	unsolved	21	19.5255	0.19947
115	unsolved	14	17.0175	0.13667
116	unsolved	19	29.5942	0.21578
117	unsolved	11	18.993	0.13554
118	unsolved	15	51.1521	0.24842
119	unsolved	13	26.4893	0.17678
120	12590.44	12	2.8183	0.07668
121	unsolved	12	15.4299	0.11976
122	unsolved	14	14.725	0.1453
123	unsolved	21	30.8125	0.25828

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	unsolved	20	41.4238	0.30084
125	unsolved	24	85.4693	0.42297
126	unsolved	20	41.9352	0.29919
127	unsolved	19	38.3667	0.25726
128	unsolved	19	21.4129	0.20367
129	unsolved	6	13.6703	0.05559
130	unsolved	13	31.364	0.18546
131	unsolved	19	26.2121	0.21308
132	unsolved	14	25.6098	0.17193
133	unsolved	14	40.2602	0.20832
134	unsolved	24	36.6705	0.30583
135	unsolved	21	38.6409	0.27606
136	unsolved	18	62.492	0.34036
137	unsolved	30	46.7382	0.42212
138	unsolved	19	28.7981	0.22343

Table 9: Results for algorithm Rubato-Opt-FF with risk bound 0.1.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	832.96	1	0.1434	0.0
2	6129.9	1	3.3635	0.0
3	unsolved	1	3.3493	0.0
4	7607.78	1	1.7558	0.0
5	4084.7	1	4.909	0.0
6	6157.29	1	11.8487	0.0
7	6819.61	1	10.7758	0.0
8	6402.99	1	3.2739	0.0
9	5153.26	1	6.5142	0.0
10	6282.56	1	11.832	0.0
11	1556.13	1	0.0824	0.0
12	6949.17	1	5.1281	0.0
13	6881.06	1	3.2163	0.0
14	3285.13	1	4.6184	0.0
15	7111.59	1	3.3965	0.0
16	2160.8	1	2.6421	0.0
17	5490.7	1	3.1666	0.0
18	1141.82	1	1.427	0.0
19	7108.4	1	3.127	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
20	6827.88	1	5.1027	0.0
21	unsolved	1	7.5288	0.0
22	2643.13	1	0.1518	0.0
23	7320.83	1	3.1981	0.0
24	7307.53	1	1.0178	0.0
25	4272.6	1	2.1228	0.0
26	3889.42	1	5.1689	0.0
27	5208.56	1	1.6314	0.0
28	9813.36	1	20.4596	0.0
29	8839.75	1	24.1032	0.0
30	7403.4	1	18.2132	0.0
31	2845.89	1	1.7368	0.0
32	13937.06	1	67.6548	0.0
33	2026.41	1	0.2154	0.0
34	9639.1	1	37.0664	0.0
35	7223.71	1	1.0239	0.0
36	unsolved	1	3.3202	0.0
37	12521.12	1	40.9174	0.0
38	12033.19	1	97.1161	0.0
39	unsolved	1	114.2549	0.0
40	9213.99	1	55.6698	0.0
41	unsolved	1	183.2268	0.0
42	unsolved	1	14.1239	0.0
43	unsolved	1	312.8726	0.0
44	10450.83	1	4.9771	0.0
45	unsolved	1	79.4426	0.0
46	unsolved	1	6.7011	0.0
47	unsolved	1	54.5741	0.0
48	unsolved	1	113.7549	0.0
49	unsolved	1	219.6279	0.0
50	10215.1	1	56.36	0.0
51	unsolved	1	210.6933	0.0
52	unsolved	1	272.3129	0.0
53	14254.98	1	174.6295	0.0
54	unsolved	1	239.0038	0.0
55	5796.52	1	1.5063	0.0
56	unsolved	1	94.7999	0.0
57	unsolved	1	1.292	0.0
58	unsolved	1	281.0459	0.0
59	unsolved	1	3.6801	0.0
60	15717.96	1	59.7109	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
61	13019.72	1	27.0998	0.0
62	unsolved	1	208.6108	0.0
63	unsolved	1	309.1693	0.0
64	18622.4	1	132.6125	0.0
65	unsolved	1	269.1457	0.0
66	unsolved	1	235.9102	0.0
67	unsolved	1	236.4519	0.0
68	unsolved	1	269.2595	0.0
69	unsolved	1	150.2302	0.0
70	unsolved	1	5.7267	0.0
71	13547.6	1	28.4611	0.0
72	unsolved	1	986.2375	0.0
73	unsolved	1	1095.4409	0.0
74	unsolved	1	708.0871	0.0
75	unsolved	1	152.2414	0.0
76	19283.2	1	198.698	0.0
77	unsolved	1	628.5345	0.0
78	unsolved	1	151.6292	0.0
79	unsolved	1	111.6042	0.0
80	unsolved	1	78.1307	0.0
81	unsolved	1	237.3185	0.0
82	unsolved	1	888.5607	0.0
83	16586.0	1	123.5689	0.0
84	unsolved	1	1602.2953	0.0
85	unsolved	1	631.2433	0.0
86	unsolved	1	22.2501	0.0
87	unsolved	1	25.5042	0.0
88	unsolved	1	308.1652	0.0
89	unsolved	1	269.8728	0.0
90	unsolved	1	784.5178	0.0
91	unsolved	1	267.8077	0.0
92	unsolved	1	1601.8331	0.0
93	unsolved	1	793.2648	0.0
94	unsolved	1	1573.943	0.0
95	unsolved	1	205.5074	0.0
96	unsolved	1	306.6278	0.0
97	unsolved	1	307.9332	0.0
98	unsolved	1	887.3637	0.0
99	unsolved	1	154.0621	0.0
100	24828.88	1	834.428	0.0
101	unsolved	1	1876.0547	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
102	unsolved	1	1087.6261	0.0
103	unsolved	1	1744.1796	0.0
104	unsolved	1	625.5601	0.0
105	unsolved	1	2792.8972	0.0
106	unsolved	1	1745.0668	0.0
107	unsolved	1	793.4321	0.0
108	unsolved	1	794.352	0.0
109	unsolved	1	986.1606	0.0
110	unsolved	1	1100.0417	0.0
111	unsolved	1	2027.712	0.0
112	unsolved	1	13.8235	0.0
113	unsolved	1	1869.669	0.0
114	unsolved	1	699.0527	0.0
115	unsolved	1	853.0683	0.0
116	unsolved	1	1272.8424	0.0
117	unsolved	1	1690.2828	0.0
118	unsolved	1	3090.229	0.0
119	unsolved	1	2042.6431	0.0
120	unsolved	1	131.7964	0.0
121	unsolved	1	890.0934	0.0
122	unsolved	1	990.8497	0.0
123	unsolved	1	1460.724	0.0
124	unsolved	1	2391.7314	0.0
125	unsolved	1	3743.4014	0.0
126	unsolved	1	2216.923	0.0
127	unsolved	1	1872.9752	0.0
128	unsolved	1	988.8025	0.0
129	unsolved	1	1101.4988	0.0
130	unsolved	1	2403.2852	0.0
131	unsolved	1	1082.4088	0.0
132	unsolved	1	1442.2664	0.0
133	unsolved	1	2552.8025	0.0
134	unsolved	1	1594.6357	0.0
135	unsolved	1	38.0254	0.0
136	unsolved	1	4483.538	0.0
137	unsolved	1	1872.6211	0.0
138	unsolved	1	1333.676	0.0

Table 10: Results for algorithm Picard with risk bound 0.2.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	5000.02	1	0.0103	0.00111
2	6225.89	4	0.0755	0.01272
3	5000.01	1	0.0149	0.00362
4	7628.17	2	0.0399	0.00624
5	5000.67	1	0.0111	0.00272
6	6174.22	3	0.0679	0.01122
7	7071.11	4	0.0757	0.01455
8	7451.96	3	0.0557	0.01138
9	5209.85	2	0.0293	0.00582
10	6625.48	4	0.0756	0.01444
11	5000.18	1	0.0082	0.00149
12	7062.0	3	0.0603	0.01062
13	7039.19	2	0.0336	0.0071
14	5000.05	1	0.0121	0.00272
15	7841.0	4	0.0851	0.01545
16	5002.48	1	0.0085	0.0019
17	5649.36	3	0.0415	0.00951
18	5000.1	1	0.0095	0.00151
19	7116.49	5	0.1265	0.01797
20	7131.43	3	0.053	0.00962
21	11863.35	8	0.2067	0.04372
22	5000.23	1	0.0102	0.00207
23	7583.3	5	0.1009	0.01837
24	8068.33	6	0.1375	0.01898
25	5000.42	1	0.0118	0.00233
26	5000.14	1	0.0109	0.00278
27	5274.74	2	0.0256	0.00638
28	14478.19	7	0.1929	0.03243
29	8909.6	7	0.211	0.03517
30	7766.18	5	0.1448	0.02535
31	5000.15	1	0.0203	0.00299
32	15088.36	13	0.468	0.08333
33	5000.43	1	0.009	0.00161
34	10418.79	6	0.1519	0.02645
35	8278.49	3	0.0509	0.01078
36	7209.88	3	0.0595	0.00983
37	13956.05	11	0.4018	0.06156
38	143701.77	9	0.3934	0.05827
39	15574.97	9	0.3635	0.05479
40	9997.22	5	0.153	0.02432
41	16455.41	9	0.4315	0.07055

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	11063.2	3	0.071	0.01543
43	22412.5	19	1.2705	0.17516
44	11191.92	5	0.1418	0.02057
45	10511.92	6	0.1818	0.03206
46	15694.56	10	0.4212	0.06952
47	16944.0	13	0.6009	0.08545
48	13660.08	10	0.3799	0.06037
49	19807.71	14	0.8601	0.11328
50	66438.52	6	0.1695	0.03096
51	57272.58	9	0.4427	0.06971
52	17473.58	15	0.9951	0.12906
53	15454.42	15	0.8847	0.11547
54	197899.55	9	0.4293	0.07368
55	5888.05	2	0.0381	0.00543
56	10595.38	8	0.3007	0.04532
57	7575.24	5	0.1129	0.02006
58	21245.03	11	0.5926	0.0958
59	17392.75	10	0.3315	0.06572
60	15766.22	11	0.4785	0.07058
61	13042.15	10	0.4336	0.06031
62	68658.45	8	0.3456	0.06094
63	18219.17	19	1.2127	0.17032
64	18685.73	16	0.8976	0.11627
65	18611.99	13	0.7069	0.11267
66	18519.01	14	0.8127	0.11373
67	16658.52	9	0.4715	0.07649
68	18416.01	15	1.0039	0.12921
69	15570.97	12	0.7019	0.0855
70	16103.41	21	1.2089	0.15216
71	13798.07	12	0.5171	0.06814
72	26338.09	17	1.8084	0.19215
73	25772.21	12	1.0497	0.14199
74	21533.54	10	0.6236	0.09939
75	16406.58	10	0.4552	0.07487
76	20051.08	12	0.7912	0.09861
77	21617.22	9	0.6921	0.0865
78	13953.89	9	0.3763	0.06218
79	12531.21	10	0.409	0.06104
80	11492.26	3	0.093	0.01554
81	21130.43	13	0.735	0.11493
82	41754.69	10	0.6236	0.11092

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	17100.57	12	0.567	0.08209
84	57542.97	14	2.1595	0.18906
85	19696.21	15	0.8264	0.14561
86	25750.92	19	1.7659	0.19809
87	123892.24	14	1.2951	0.16805
88	20718.42	16	0.962	0.14879
89	23020.25	15	0.797	0.13074
90	22544.63	9	0.722	0.09668
91	20808.93	14	0.8857	0.12246
92	29842.74	16	3.1177	0.22248
93	20954.87	12	0.8925	0.12504
94	30710.91	17	2.0145	0.23209
95	29551.9	8	0.4393	0.06472
96	21498.16	15	1.0786	0.1389
97	19950.0	12	0.827	0.11205
98	28100.03	12	0.78	0.12586
99	15264.01	14	0.616	0.09476
100	27030.9	16	1.7426	0.17367
101	33936.8	27	6.0861	0.38258
102	31143.89	23	2.9292	0.26282
103	32333.06	33	6.1973	0.46182
104	28667.4	18	1.1345	0.1688
105	43178.27	27	5.6037	0.429
106	33645.37	17	2.9298	0.23751
107	31223.66	19	1.6344	0.19756
108	21361.68	14	0.9746	0.14237
109	64629.72	17	1.4195	0.19411
110	130769.09	23	2.7583	0.26362
111	177790.13	18	2.8085	0.26312
112	28003.33	15	0.9381	0.14167
113	30519.61	23	2.9936	0.33512
114	24742.57	23	1.8567	0.21778
115	24363.04	15	1.3113	0.15665
116	31673.92	18	2.4852	0.2178
117	97001.86	14	1.7058	0.18645
118	41260.9	30	11.3985	0.50797
119	42247.46	20	3.0861	0.2994
120	52886.71	11	0.4638	0.07141
121	26160.26	16	1.4466	0.17238
122	25933.99	14	0.9718	0.15875
123	28415.79	20	2.6497	0.25889

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	37003.9	15	2.6972	0.23968
125	47037.21	18	6.534	0.33105
126	36599.34	17	3.0889	0.26862
127	33713.64	20	3.4982	0.28702
128	24067.62	25	2.3806	0.279
129	29290.02	19	1.951	0.2194
130	36094.3	14	3.3909	0.21695
131	23941.38	19	2.7071	0.22501
132	28717.44	20	2.2506	0.26182
133	34626.74	19	4.7797	0.31141
134	29098.76	23	3.5555	0.31034
135	32024.72	15	2.4337	0.20507
136	49322.33	30	11.0641	0.59309
137	33529.71	32	5.4569	0.45525
138	27775.61	19	2.5474	0.24164

Table 11: Results for algorithm Rubato with risk bound 0.2.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	832.96	2	0.1134	0.0022
2	unsolved	6	6.8286	0.01586
3	unsolved	2	3.7301	0.0036
4	unsolved	8	7.3196	0.02254
5	4084.7	5	1.1224	0.0136
6	6157.29	10	9.6549	0.03592
7	unsolved	6	9.7247	0.0177
8	6402.99	6	2.4863	0.02285
9	5153.26	8	4.1265	0.02337
10	unsolved	3	3.9768	0.00773
11	1556.13	4	1.6078	0.00622
12	unsolved	3	2.3042	0.00713
13	6881.06	5	1.1799	0.01784
14	3285.13	4	0.7383	0.01095
15	unsolved	6	7.7675	0.01882
16	2160.8	4	0.6943	0.00772
17	unsolved	4	6.2308	0.00996
18	1141.82	3	0.2945	0.0046
19	unsolved	5	8.0276	0.01435
20	6827.88	7	4.6385	0.02279

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
21	unsolved	6	12.0654	0.02255
22	2643.13	5	1.1836	0.00984
23	unsolved	6	4.1485	0.01816
24	7307.53	6	0.3753	0.01907
25	4272.6	2	0.3903	0.00473
26	unsolved	2	3.4831	0.00271
27	5208.56	8	2.9114	0.02533
28	9813.36	10	3.6518	0.04381
29	unsolved	4	6.7253	0.01522
30	unsolved	3	4.8133	0.00975
31	unsolved	5	4.4534	0.01175
32	unsolved	3	5.2628	0.0121
33	2026.41	5	0.5138	0.00826
34	unsolved	2	4.1656	0.00441
35	7223.71	9	5.0999	0.03253
36	6802.11	6	3.1666	0.01929
37	unsolved	5	8.6324	0.02073
38	unsolved	7	8.3673	0.03675
39	unsolved	4	6.1646	0.01817
40	9213.99	12	11.2552	0.05865
41	unsolved	2	5.8282	0.00762
42	unsolved	3	5.0274	0.00954
43	unsolved	4	8.8024	0.02814
44	10450.83	10	3.4148	0.04177
45	unsolved	5	7.7426	0.02138
46	unsolved	5	19.5974	0.02539
47	unsolved	8	16.9415	0.04483
48	13088.13	7	8.3732	0.03986
49	unsolved	5	11.996	0.03055
50	10215.1	8	6.9531	0.04099
51	unsolved	6	14.5897	0.0531
52	unsolved	8	15.5232	0.05858
53	14254.98	19	43.3578	0.13894
54	unsolved	9	21.1928	0.06775
55	5796.52	8	4.9833	0.02208
56	unsolved	5	8.2783	0.02275
57	unsolved	4	6.353	0.01202
58	unsolved	4	10.2904	0.02543
59	unsolved	7	11.2695	0.03906
60	unsolved	3	5.964	0.01277
61	unsolved	3	7.1949	0.01202

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
62	unsolved	10	18.149	0.06753
63	unsolved	2	6.8467	0.00893
64	unsolved	4	9.737	0.02048
65	unsolved	2	6.5845	0.0086
66	unsolved	2	5.8657	0.00801
67	unsolved	3	8.4564	0.01621
68	unsolved	3	7.7299	0.01686
69	unsolved	7	9.8887	0.04218
70	unsolved	5	11.4591	0.02813
71	unsolved	5	9.5444	0.02158
72	unsolved	3	8.3191	0.02195
73	unsolved	2	8.0933	0.01178
74	20367.64	12	32.1698	0.10939
75	unsolved	9	15.4584	0.05491
76	unsolved	8	17.2256	0.05292
77	unsolved	2	7.0992	0.00932
78	unsolved	4	7.9926	0.02059
79	unsolved	6	8.2747	0.03013
80	10699.63	13	16.6783	0.06474
81	unsolved	5	8.6737	0.03312
82	unsolved	3	12.2183	0.02018
83	unsolved	3	5.6302	0.01353
84	unsolved	2	9.3476	0.01361
85	unsolved	6	20.1561	0.0537
86	unsolved	4	9.8396	0.03023
87	unsolved	6	91.2382	0.08448
88	unsolved	7	20.1033	0.05016
89	unsolved	4	10.3547	0.02467
90	unsolved	3	9.9903	0.0196
91	unsolved	12	25.617	0.093
92	unsolved	5	23.9229	0.05178
93	unsolved	8	19.9348	0.06979
94	unsolved	3	10.0542	0.02702
95	unsolved	11	24.1666	0.07459
96	unsolved	2	6.2998	0.00915
97	unsolved	7	23.0746	0.05004
98	unsolved	2	7.0592	0.01042
99	unsolved	3	9.2399	0.01288
100	unsolved	4	11.687	0.03094
101	unsolved	4	15.763	0.03975
102	unsolved	3	8.4195	0.02283

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
103	unsolved	5	27.4095	0.05072
104	unsolved	7	10.0631	0.05654
105	unsolved	3	16.4335	0.03043
106	unsolved	3	12.1197	0.02531
107	unsolved	2	6.8911	0.01004
108	unsolved	3	7.8188	0.0206
109	unsolved	4	11.6439	0.0326
110	unsolved	8	22.2235	0.07752
111	unsolved	3	11.759	0.02968
112	unsolved	8	14.5674	0.06374
113	unsolved	3	9.503	0.02791
114	unsolved	4	8.5496	0.02838
115	unsolved	5	11.5272	0.03938
116	unsolved	2	8.1383	0.012
117	unsolved	2	9.8227	0.0133
118	unsolved	4	19.0037	0.0502
119	unsolved	2	9.5144	0.01477
120	unsolved	2	4.9808	0.00641
121	unsolved	3	11.0067	0.01945
122	unsolved	5	17.3882	0.04155
123	unsolved	7	39.4206	0.06811
124	unsolved	2	12.0832	0.01713
125	unsolved	2	12.6016	0.01881
126	unsolved	2	10.9927	0.01603
127	unsolved	2	10.5828	0.01419
128	unsolved	3	7.998	0.02208
129	unsolved	6	19.4717	0.05324
130	unsolved	2	11.5012	0.01584
131	unsolved	5	13.6776	0.05066
132	unsolved	4	13.7538	0.03617
133	unsolved	2	12.47	0.01706
134	unsolved	5	15.4294	0.04833
135	unsolved	2	9.9335	0.0135
136	unsolved	3	21.0863	0.03689
137	unsolved	2	9.7089	0.01401
138	unsolved	2	8.34	0.01279

Table 12: Results for algorithm Rubato-Opt with risk bound 0.2.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	832.96	3	0.0489	0.00344
2	6129.9	5	0.504	0.01582
3	unsolved	4	4.0677	0.01071
4	7607.78	3	0.7647	0.00969
5	4084.7	4	3.2139	0.01141
6	6157.29	4	1.0959	0.01508
7	6819.61	5	0.5893	0.02008
8	6402.99	4	0.2525	0.01497
9	5153.26	3	0.2267	0.00865
10	6282.56	5	0.6106	0.01809
11	1556.13	5	0.894	0.00749
12	6949.17	4	0.6536	0.01434
13	6881.06	3	0.5282	0.01158
14	3285.13	8	2.6474	0.0219
15	7111.59	5	0.9639	0.01893
16	2160.8	4	1.4355	0.00785
17	5490.7	4	1.1663	0.01313
18	1141.82	5	0.2737	0.00765
19	7108.4	6	0.8321	0.02163
20	6827.88	4	0.2536	0.01389
21	11091.59	9	1.4223	0.04381
22	2643.13	7	0.4551	0.01573
23	7320.83	6	0.2633	0.02239
24	7307.53	7	0.3701	0.02273
25	4272.6	3	0.2233	0.007
26	3889.42	8	4.906	0.02265
27	5208.56	3	0.4683	0.01176
28	9813.36	8	0.7436	0.036
29	8839.75	8	2.1056	0.04144
30	7403.4	6	1.5559	0.03003
31	unsolved	5	4.0429	0.0121
32	13937.06	14	6.7086	0.08562
33	2026.41	5	0.4148	0.00807
34	9639.1	7	1.8262	0.03112
35	7223.71	6	2.8936	0.02171
36	6802.11	4	0.7546	0.01279
37	12521.12	12	0.7045	0.06318
38	12033.19	11	1.4461	0.06724
39	11850.8	10	2.1266	0.06065
40	9213.99	6	0.577	0.02967
41	unsolved	10	9.2594	0.07161

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	10780.61	4	2.2293	0.0194
43	unsolved	20	17.4701	0.18282
44	10450.83	6	0.2053	0.02499
45	10206.88	7	0.3909	0.03698
46	unsolved	11	8.3443	0.06944
47	unsolved	14	9.3945	0.08796
48	13088.13	11	6.1451	0.06622
49	17917.34	15	3.5586	0.12005
50	10215.1	9	5.7571	0.04788
51	15200.14	10	21.7919	0.07208
52	unsolved	16	14.5585	0.12823
53	14254.98	16	9.6916	0.12383
54	19383.0	12	22.979	0.09506
55	5796.52	3	0.1548	0.00825
56	10162.14	9	3.5169	0.05026
57	7336.37	6	1.0472	0.0242
58	unsolved	14	19.748	0.11163
59	16851.15	11	4.9756	0.07553
60	15717.96	12	1.2498	0.07735
61	13019.72	11	2.1501	0.06497
62	19612.61	9	1.8201	0.06937
63	unsolved	20	18.4794	0.17057
64	18622.4	17	7.6122	0.1215
65	unsolved	14	12.147	0.11095
66	unsolved	15	13.0948	0.11269
67	15147.67	10	8.3786	0.0831
68	unsolved	16	14.6453	0.12711
69	13792.81	13	2.5232	0.09012
70	16083.24	22	14.5883	0.1767
71	13547.6	13	0.7353	0.07315
72	unsolved	18	24.4303	0.18962
73	unsolved	13	20.5698	0.14409
74	20367.64	11	4.823	0.10785
75	15227.77	11	4.2836	0.07505
76	19283.2	13	2.3347	0.10724
77	unsolved	10	13.9382	0.0862
78	13922.76	10	2.8264	0.06885
79	12530.16	11	4.608	0.06618
80	10699.63	4	0.3607	0.02076
81	unsolved	14	12.8512	0.11668
82	unsolved	13	33.6673	0.13555

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	16586.0	14	4.85	0.09561
84	unsolved	15	29.2933	0.18709
85	unsolved	16	14.1517	0.14706
86	unsolved	20	21.4909	0.19289
87	unsolved	15	19.7812	0.1636
88	20236.54	17	11.9907	0.15835
89	unsolved	16	12.5027	0.13848
90	unsolved	10	14.1577	0.09655
91	20507.54	15	7.3573	0.13506
92	unsolved	17	33.9467	0.22132
93	unsolved	13	17.271	0.12664
94	unsolved	18	33.5997	0.2329
95	16553.97	10	13.6647	0.08387
96	19542.16	17	7.5331	0.15337
97	19850.69	13	9.6246	0.1134
98	unsolved	13	13.9718	0.13765
99	14160.83	15	3.3436	0.10117
100	unsolved	17	22.3703	0.17532
101	unsolved	18	34.8734	0.2392
102	unsolved	24	29.5546	0.26093
103	unsolved	34	61.0253	0.46226
104	unsolved	19	17.4405	0.16781
105	unsolved	28	61.9281	0.43191
106	unsolved	18	36.7226	0.23464
107	25583.63	20	11.3502	0.20381
108	unsolved	15	18.412	0.14166
109	unsolved	18	19.18	0.19205
110	unsolved	24	31.0341	0.26644
111	unsolved	19	36.6678	0.26113
112	unsolved	16	13.1681	0.14206
113	unsolved	24	29.9643	0.32868
114	unsolved	24	21.9819	0.22409
115	unsolved	16	19.867	0.15867
116	unsolved	19	30.2386	0.21754
117	unsolved	15	27.8811	0.18918
118	unsolved	31	87.4342	0.51283
119	unsolved	21	38.3609	0.29907
120	12415.27	15	11.2076	0.09374
121	unsolved	17	21.9343	0.17202
122	unsolved	15	15.6746	0.16135
123	unsolved	21	31.5158	0.25891

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	unsolved	16	32.9171	0.23327
125	unsolved	19	69.7287	0.33215
126	unsolved	18	42.4961	0.26446
127	unsolved	21	46.8231	0.29686
128	unsolved	26	28.7515	0.27741
129	unsolved	20	28.0077	0.2195
130	unsolved	15	43.824	0.22184
131	unsolved	20	28.2131	0.22421
132	unsolved	21	32.9853	0.26347
133	unsolved	20	46.8912	0.30952
134	unsolved	24	33.9835	0.31036
135	unsolved	16	35.1185	0.20594
136	unsolved	31	92.4061	0.59177
137	unsolved	33	54.1298	0.45191
138	unsolved	20	33.9255	0.23913

Table 13: Results for algorithm Rubato-Opt-FF with risk bound 0.2.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	805.56	1	0.0911	0.0
2	6021.13	1	3.3044	0.0
3	4650.19	1	13.3423	0.0
4	7473.57	1	1.8363	0.0
5	4007.91	1	3.948	0.0
6	6050.06	1	7.2253	0.0
7	6703.46	1	4.4955	0.0
8	6294.07	1	7.5368	0.0
9	5059.47	1	3.2314	0.0
10	6173.85	1	20.6583	0.0
11	1521.51	1	0.0687	0.0
12	6829.3	1	19.1174	0.0
13	6762.94	1	1.1619	0.0
14	3222.61	1	8.3112	0.0
15	6991.09	1	1.9954	0.0
16	2116.55	1	0.3119	0.0
17	5392.78	1	3.8011	0.0
18	1115.96	1	0.1919	0.0
19	6987.49	1	2.7288	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
20	6707.6	1	1.9616	0.0
21	unsolved	1	1.6264	0.0
22	2588.76	1	0.8592	0.0
23	7197.69	1	1.7855	0.0
24	7180.26	1	5.5365	0.0
25	4191.5	1	1.35	0.0
26	3816.71	1	2.7911	0.0
27	5116.16	1	3.2908	0.0
28	9650.28	1	15.9056	0.0
29	8698.05	1	11.5007	0.0
30	7283.35	1	38.4362	0.0
31	2793.49	1	0.9365	0.0
32	13724.32	1	10.1622	0.0
33	1981.66	1	0.2374	0.0
34	9481.82	1	18.0396	0.0
35	7101.25	1	5.3919	0.0
36	6681.43	1	4.6268	0.0
37	12322.71	1	14.4688	0.0
38	unsolved	1	20.1521	0.0
39	unsolved	1	83.0299	0.0
40	9064.73	1	27.8113	0.0
41	unsolved	1	182.1871	0.0
42	10607.26	1	13.4533	0.0
43	unsolved	1	312.4588	0.0
44	10279.05	1	1.8967	0.0
45	10044.03	1	35.4968	0.0
46	unsolved	1	152.3068	0.0
47	unsolved	1	3.4382	0.0
48	unsolved	1	95.6964	0.0
49	17651.8	1	175.5405	0.0
50	10050.6	1	34.6854	0.0
51	unsolved	1	209.5405	0.0
52	unsolved	1	286.9369	0.0
53	14042.32	1	74.3999	0.0
54	unsolved	1	240.6451	0.0
55	5689.49	1	1.2901	0.0
56	10001.97	1	70.9562	0.0
57	7210.62	1	16.9812	0.0
58	unsolved	1	279.1992	0.0
59	unsolved	1	3.8046	0.0
60	15480.15	1	37.7005	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
61	12820.05	1	16.916	0.0
62	19323.77	1	111.9949	0.0
63	unsolved	1	308.9831	0.0
64	18345.16	1	111.0974	0.0
65	unsolved	1	269.6224	0.0
66	unsolved	1	236.6842	0.0
67	14923.59	1	241.1177	0.0
68	unsolved	1	268.2762	0.0
69	unsolved	1	117.7548	0.0
70	unsolved	1	8.3062	0.0
71	13336.92	1	29.5859	0.0
72	unsolved	1	989.7817	0.0
73	unsolved	1	1103.9663	0.0
74	unsolved	1	729.7758	0.0
75	14995.8	1	84.4828	0.0
76	19001.21	1	107.9615	0.0
77	unsolved	1	631.1881	0.0
78	unsolved	1	153.9744	0.0
79	unsolved	1	105.7951	0.0
80	unsolved	1	79.0821	0.0
81	unsolved	1	238.122	0.0
82	unsolved	1	888.4805	0.0
83	16336.54	1	148.5837	0.0
84	unsolved	1	1599.9248	0.0
85	unsolved	1	632.1062	0.0
86	unsolved	1	20.1153	0.0
87	unsolved	1	1085.6742	0.0
88	19943.71	1	283.2622	0.0
89	unsolved	1	273.4691	0.0
90	unsolved	1	786.3145	0.0
91	unsolved	1	269.1023	0.0
92	unsolved	1	1601.9158	0.0
93	unsolved	1	793.5592	0.0
94	unsolved	1	1572.3187	0.0
95	unsolved	1	208.1447	0.0
96	19260.27	1	305.1927	0.0
97	19562.49	1	269.4508	0.0
98	unsolved	1	885.9809	0.0
99	13947.13	1	151.2943	0.0
100	unsolved	1	227.8413	0.0
101	unsolved	1	1888.6469	0.0

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
102	unsolved	1	1090.7694	0.0
103	unsolved	1	234.8304	0.0
104	unsolved	1	17.3694	0.0
105	unsolved	1	631.0307	0.0
106	unsolved	1	1752.5654	0.0
107	unsolved	1	793.7388	0.0
108	unsolved	1	796.8521	0.0
109	unsolved	1	987.1459	0.0
110	unsolved	1	1095.8931	0.0
111	unsolved	1	2033.5447	0.0
112	unsolved	1	626.6262	0.0
113	unsolved	1	1877.1199	0.0
114	unsolved	1	682.6813	0.0
115	unsolved	1	854.399	0.0
116	unsolved	1	31.1413	0.0
117	unsolved	1	1684.5801	0.0
118	unsolved	1	3125.6223	0.0
119	unsolved	1	2041.7946	0.0
120	unsolved	1	132.1396	0.0
121	unsolved	1	886.4659	0.0
122	unsolved	1	999.2438	0.0
123	unsolved	1	1461.0753	0.0
124	unsolved	1	2411.4524	0.0
125	unsolved	1	247.7686	0.0
126	unsolved	1	71.0979	0.0
127	unsolved	1	1882.0581	0.0
128	unsolved	1	989.6159	0.0
129	unsolved	1	1101.3273	0.0
130	unsolved	1	2416.6155	0.0
131	unsolved	1	1094.723	0.0
132	unsolved	1	1462.2107	0.0
133	unsolved	1	2607.5063	0.0
134	unsolved	1	1597.813	0.0
135	unsolved	1	41.7936	0.0
136	unsolved	1	4456.492	0.0
137	unsolved	1	1866.8641	0.0
138	unsolved	1	1329.9768	0.0

Table 14: Results for algorithm Picard with risk bound 0.4.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	5000.01	1	0.0073	0.00186
2	6415.25	2	0.0298	0.00629
3	5000.01	1	0.0138	0.00356
4	7626.98	3	0.0515	0.00953
5	5000.01	1	0.0119	0.00282
6	6081.81	3	0.0631	0.01144
7	6924.51	3	0.0519	0.01092
8	6548.86	3	0.056	0.01143
9	5114.16	2	0.0281	0.00576
10	6306.95	5	0.1006	0.01826
11	5000.15	1	0.0078	0.00148
12	6954.85	3	0.0582	0.01073
13	6955.39	3	0.0605	0.01152
14	5000.05	1	0.012	0.00275
15	7901.65	3	0.0515	0.01161
16	5000.09	1	0.0098	0.00191
17	5458.39	2	0.027	0.00702
18	5000.06	1	0.0076	0.00151
19	7110.14	5	0.101	0.0182
20	7832.84	3	0.0486	0.00947
21	11511.08	7	0.1782	0.03405
22	5000.2	1	0.0101	0.0019
23	7456.68	5	0.0944	0.01826
24	7553.5	5	0.1072	0.01576
25	5000.38	1	0.009	0.00231
26	5000.18	1	0.0111	0.00273
27	5198.63	2	0.0262	0.00669
28	11805.39	7	0.1757	0.03084
29	8706.15	8	0.2649	0.04101
30	7551.46	5	0.1351	0.02445
31	5000.14	1	0.0108	0.00273
32	13742.24	8	0.2349	0.05038
33	5000.49	1	0.0079	0.00162
34	10338.54	6	0.1491	0.02659
35	7336.53	5	0.098	0.01801
36	6979.7	3	0.0573	0.00955
37	13145.41	13	0.4528	0.06795
38	12077.98	10	0.3782	0.0618
39	12072.43	7	0.2794	0.04412
40	9316.21	5	0.1445	0.02486
41	15948.74	12	0.5141	0.09051

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	28210.39	3	0.0762	0.01558
43	21433.77	21	1.3047	0.19331
44	10832.36	5	0.1195	0.02001
45	10514.65	8	0.2315	0.04204
46	15971.76	14	0.6209	0.09837
47	16478.52	12	0.486	0.07732
48	13501.62	11	0.4168	0.06605
49	17690.18	12	0.6577	0.09277
50	10855.44	7	0.1944	0.03465
51	16047.89	14	0.7442	0.11059
52	16581.03	17	1.1943	0.14682
53	15150.75	12	0.7591	0.09757
54	19822.24	15	0.8655	0.13066
55	5712.98	2	0.0332	0.00554
56	10439.16	8	0.2652	0.04554
57	7397.37	5	0.1064	0.01963
58	18219.65	13	0.7427	0.11189
59	17255.15	10	0.3188	0.06417
60	16457.26	12	0.5434	0.08151
61	12888.27	8	0.311	0.04807
62	24699.42	6	0.2306	0.04679
63	20985.65	20	1.252	0.17959
64	18839.04	13	0.5229	0.09477
65	17293.53	10	0.4364	0.09064
66	17938.73	10	0.5376	0.08474
67	15086.11	10	0.4501	0.0836
68	17521.74	16	1.1303	0.13592
69	14685.29	13	0.6746	0.09117
70	17962.75	16	0.7297	0.11882
71	405352.7	11	0.5126	0.06278
72	24832.72	15	1.7004	0.17254
73	25564.73	21	1.9363	0.24742
74	22833.64	6	0.2992	0.06081
75	15549.5	7	0.2562	0.04802
76	19458.99	10	0.5942	0.08434
77	23602.17	11	0.7647	0.1069
78	14948.14	10	0.4163	0.07293
79	13898.07	9	0.3235	0.05947
80	11164.86	3	0.0983	0.01558
81	21049.66	13	0.8459	0.10929
82	26174.2	18	1.6737	0.19764

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	17403.54	10	0.5366	0.07161
84	36905.59	21	3.5228	0.28654
85	19208.98	24	2.1167	0.23898
86	24036.82	17	1.3468	0.18011
87	25372.81	20	1.7771	0.23402
88	20080.19	20	1.3661	0.1832
89	20927.28	20	1.2987	0.17357
90	20859.29	15	1.2251	0.1584
91	22057.04	14	0.8723	0.12621
92	31093.63	20	3.4263	0.27799
93	20234.2	15	1.1896	0.15844
94	29509.97	22	2.99	0.30927
95	16337.19	10	0.5527	0.08227
96	19485.48	13	1.0168	0.11887
97	19853.63	13	0.8592	0.11593
98	25918.22	12	0.7062	0.1319
99	14906.54	14	0.5575	0.1003
100	25580.53	20	2.1762	0.21693
101	33375.71	20	3.752	0.28232
102	31688.18	23	2.705	0.26396
103	32134.26	32	5.7782	0.45225
104	20968.96	22	1.5152	0.20645
105	40274.77	16	1.9794	0.25407
106	34632.1	15	2.0008	0.20564
107	25430.94	22	2.0563	0.23466
108	20835.79	15	1.1665	0.15429
109	26156.54	23	2.3509	0.26048
110	28969.69	27	2.6082	0.31079
111	34221.24	23	5.0351	0.34596
112	25994.07	14	0.7768	0.13401
113	29702.84	23	2.4975	0.32778
114	22240.71	18	1.2003	0.17113
115	24522.62	20	1.8409	0.21337
116	30889.37	19	3.0354	0.22785
117	31701.43	24	4.0972	0.32073
118	38988.01	25	7.6084	0.43525
119	35960.63	26	5.8424	0.38454
120	12605.36	7	0.2296	0.04541
121	25700.41	19	1.6994	0.20808
122	24137.66	14	1.0013	0.15836
123	26315.82	25	2.8499	0.32341

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	45098.52	25	5.0787	0.39354
125	52193.38	22	8.1751	0.41416
126	36764.13	25	5.5491	0.38165
127	33186.18	21	3.6057	0.31257
128	22772.98	21	1.9405	0.23605
129	232896.73	19	1.8318	0.21855
130	36255.56	23	4.6546	0.35686
131	24497.18	22	2.6779	0.25404
132	27320.31	25	3.3242	0.31921
133	34505.16	15	3.3174	0.23941
134	28515.82	33	6.428	0.44179
135	31563.97	17	1.9478	0.23265
136	50581.1	17	4.7117	0.35812
137	28653.5	33	5.255	0.48343
138	28605.69	14	1.5597	0.17908

Table 15: Results for algorithm Rubato with risk bound 0.4.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	805.56	2	0.0691	0.00221
2	unsolved	5	5.3522	0.01269
3	unsolved	4	6.5613	0.01083
4	unsolved	8	11.5248	0.02147
5	4007.91	10	5.5316	0.02779
6	6050.06	7	2.0094	0.02684
7	unsolved	3	4.0444	0.00708
8	6294.07	6	3.3017	0.02254
9	5059.47	5	0.7191	0.01444
10	unsolved	7	9.9963	0.0214
11	1521.51	3	0.5135	0.0049
12	unsolved	5	6.4871	0.01428
13	6762.94	5	4.9342	0.01848
14	3222.61	4	0.9134	0.01092
15	unsolved	6	8.3897	0.01851
16	2116.55	3	0.2964	0.00582
17	unsolved	5	6.262	0.0136
18	1115.96	4	0.8503	0.0062
19	unsolved	4	8.1719	0.01124
20	6707.6	8	2.0447	0.02533

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
21	unsolved	5	9.4515	0.01895
22	2588.76	4	2.7919	0.00767
23	unsolved	4	2.0608	0.0113
24	7180.26	5	2.1498	0.01604
25	4191.5	2	0.0956	0.00475
26	3816.71	7	2.7115	0.01986
27	5116.16	10	8.0642	0.03165
28	unsolved	2	4.2053	0.00437
29	unsolved	3	5.5259	0.01016
30	unsolved	5	7.6072	0.01915
31	unsolved	5	5.716	0.0118
32	unsolved	3	5.9041	0.01256
33	1981.66	4	0.1457	0.00633
34	9481.82	7	9.8189	0.03064
35	unsolved	4	4.8376	0.0107
36	6681.43	6	3.0824	0.01893
37	unsolved	5	10.8007	0.02019
38	unsolved	3	5.248	0.01214
39	unsolved	4	6.1981	0.01849
40	unsolved	9	12.1576	0.03789
41	unsolved	2	5.6197	0.00725
42	unsolved	6	9.2985	0.02376
43	unsolved	5	9.2545	0.03632
44	unsolved	6	6.6419	0.02009
45	unsolved	5	7.07	0.02095
46	unsolved	3	6.3459	0.0143
47	unsolved	4	12.3409	0.01912
48	unsolved	6	9.7161	0.03009
49	unsolved	6	15.0344	0.03646
50	10050.6	8	7.2483	0.03781
51	unsolved	5	8.9684	0.03089
52	unsolved	4	8.9543	0.02569
53	14042.32	10	11.5198	0.08124
54	unsolved	11	31.2065	0.07644
55	unsolved	5	5.9209	0.01115
56	unsolved	3	5.7078	0.01119
57	unsolved	9	9.0707	0.03229
58	unsolved	4	10.757	0.02476
59	unsolved	8	10.2959	0.04486
60	unsolved	4	8.7641	0.01942
61	unsolved	7	10.753	0.03603

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
62	unsolved	4	9.6893	0.02147
63	unsolved	2	6.752	0.00884
64	unsolved	3	5.6497	0.01439
65	unsolved	4	14.3084	0.02268
66	unsolved	4	9.4337	0.02422
67	unsolved	7	17.3723	0.04672
68	unsolved	3	7.5868	0.01735
69	unsolved	5	12.9054	0.02613
70	unsolved	6	12.3804	0.03334
71	unsolved	6	13.085	0.02716
72	unsolved	2	7.5294	0.01101
73	unsolved	15	55.5771	0.14604
74	unsolved	2	6.799	0.00978
75	unsolved	5	11.006	0.02648
76	unsolved	7	8.805	0.05038
77	unsolved	2	7.1139	0.00979
78	unsolved	6	12.0567	0.03374
79	unsolved	4	8.8441	0.01795
80	unsolved	3	4.6453	0.0104
81	unsolved	6	10.6449	0.04046
82	unsolved	7	28.5391	0.06227
83	unsolved	7	18.6682	0.04026
84	unsolved	2	9.4924	0.01325
85	unsolved	6	14.0502	0.04494
86	unsolved	6	18.0746	0.04435
87	unsolved	6	10.773	0.06221
88	unsolved	2	6.2785	0.00913
89	unsolved	7	15.0398	0.05076
90	unsolved	3	7.7933	0.02074
91	unsolved	11	23.8762	0.08438
92	unsolved	5	4.5505	0.06018
93	unsolved	6	13.3227	0.05317
94	unsolved	3	17.5462	0.02531
95	unsolved	7	12.9171	0.04664
96	unsolved	7	16.2772	0.0529
97	unsolved	4	8.7201	0.02625
98	unsolved	3	10.1644	0.01995
99	unsolved	7	9.8005	0.04066
100	unsolved	10	26.3177	0.09282
101	unsolved	5	19.2591	0.05281
102	unsolved	3	8.5986	0.02252

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
103	unsolved	5	17.5924	0.054
104	unsolved	10	14.7855	0.08469
105	unsolved	3	11.5231	0.03241
106	unsolved	4	13.567	0.03957
107	unsolved	7	26.9039	0.05664
108	unsolved	8	27.8976	0.06441
109	unsolved	2	7.2324	0.01092
110	unsolved	8	15.4806	0.07845
111	unsolved	8	55.4471	0.09543
112	unsolved	2	6.4555	0.00924
113	unsolved	10	37.8984	0.11523
114	unsolved	12	33.5638	0.1011
115	unsolved	7	16.6955	0.05923
116	unsolved	6	16.1956	0.05763
117	unsolved	2	9.8523	0.01319
118	unsolved	2	11.0029	0.01755
119	unsolved	4	18.3273	0.04149
120	unsolved	3	6.1197	0.01279
121	unsolved	9	17.9459	0.08686
122	unsolved	4	10.6448	0.03117
123	unsolved	7	33.4557	0.06801
124	unsolved	2	11.5981	0.01575
125	unsolved	2	12.8064	0.0188
126	unsolved	2	10.2711	0.01505
127	unsolved	3	15.6398	0.02897
128	unsolved	3	8.0641	0.02219
129	unsolved	3	8.4981	0.0228
130	unsolved	3	21.1028	0.02843
131	unsolved	7	27.0777	0.0608
132	unsolved	3	8.9169	0.02572
133	unsolved	2	11.8675	0.01597
134	unsolved	5	14.7518	0.05093
135	unsolved	2	9.6123	0.01361
136	unsolved	2	12.2277	0.02091
137	unsolved	6	22.3396	0.06622
138	unsolved	3	10.8129	0.02298

Table 16: Results for algorithm Rubato-Opt with risk bound 0.4.

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
1	805.56	3	0.1077	0.00447
2	6021.13	3	0.1551	0.01035
3	unsolved	5	5.1403	0.01435
4	7473.57	4	1.4792	0.0127
5	4007.91	7	1.6611	0.02223
6	6050.06	4	0.7133	0.01543
7	6703.46	4	0.1124	0.01447
8	6294.07	4	1.0346	0.0152
9	5059.47	3	0.295	0.00881
10	6173.85	6	1.3725	0.02159
11	1521.51	6	1.5531	0.0093
12	6829.3	4	0.5172	0.01457
13	6762.94	4	0.6738	0.01526
14	unsolved	5	4.6955	0.01147
15	6991.09	4	0.5963	0.01794
16	unsolved	4	0.3955	0.00573
17	5392.78	3	0.6036	0.00954
18	1115.96	5	0.4036	0.0076
19	6987.49	6	2.0072	0.02456
20	6707.6	4	0.7586	0.01264
21	10913.5	8	1.8205	0.04104
22	2588.76	9	2.8741	0.01769
23	7197.69	6	1.3438	0.02167
24	7180.26	6	0.6061	0.02046
25	4191.5	3	0.2753	0.00728
26	3816.71	7	3.3726	0.0194
27	5116.16	3	1.4754	0.00953
28	9650.28	8	0.7323	0.03496
29	8698.05	9	1.1036	0.04674
30	7283.35	6	0.9209	0.02876
31	unsolved	5	6.132	0.01107
32	13724.32	9	6.6238	0.05672
33	1981.66	5	0.1753	0.00805
34	9481.82	7	0.5687	0.03239
35	7101.25	6	2.0471	0.02128
36	6681.43	4	1.2268	0.01285
37	12322.71	14	1.4624	0.07514
38	11848.1	11	0.5719	0.06758
39	11668.27	8	1.8571	0.05088
40	9064.73	6	0.9604	0.03037
41	15378.7	13	8.2232	0.09663

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
42	10607.26	4	1.1586	0.01962
43	unsolved	22	18.6747	0.20921
44	10279.05	6	0.1941	0.02375
45	10044.03	9	2.7944	0.04694
46	unsolved	15	10.8197	0.09722
47	unsolved	13	9.1605	0.07758
48	12886.03	12	2.2629	0.07168
49	17651.8	13	6.6101	0.10049
50	10050.6	8	0.4081	0.03853
51	14974.15	15	1.7725	0.11716
52	16188.47	18	3.2578	0.15529
53	unsolved	13	1.2347	0.10221
54	19098.14	16	6.9712	0.1435
55	5689.49	3	0.7348	0.0082
56	10001.97	9	3.185	0.04975
57	7210.62	6	2.8691	0.02415
58	17371.58	14	1.5981	0.12792
59	16595.25	11	0.7246	0.07065
60	15480.15	13	2.958	0.08496
61	12820.05	9	0.8075	0.05406
62	19323.77	8	1.1315	0.06127
63	unsolved	21	19.0567	0.18121
64	18345.16	14	1.167	0.10134
65	16329.42	11	1.0405	0.09662
66	unsolved	11	12.0273	0.08935
67	14923.59	11	3.1439	0.08937
68	unsolved	17	15.1557	0.1375
69	13583.52	14	7.2047	0.09422
70	15842.42	17	7.7075	0.1248
71	13336.92	12	1.3893	0.0677
72	unsolved	16	23.2261	0.17088
73	unsolved	22	29.1364	0.24259
74	20076.6	9	14.8534	0.08558
75	14995.8	8	1.0621	0.0551
76	19001.21	11	2.2887	0.09032
77	unsolved	12	14.3896	0.10601
78	13710.92	11	0.8847	0.07656
79	12337.39	10	1.0651	0.06136
80	10529.04	4	1.1345	0.02105
81	unsolved	14	12.8991	0.10594
82	unsolved	19	23.0859	0.19532

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
83	16336.54	11	1.4715	0.07816
84	unsolved	22	38.8537	0.29162
85	unsolved	25	25.1324	0.23353
86	unsolved	18	21.2319	0.17648
87	unsolved	21	27.5691	0.23435
88	19943.71	21	12.2259	0.19124
89	20323.2	21	15.5375	0.18069
90	unsolved	16	20.9416	0.15684
91	20209.12	15	6.6313	0.13423
92	29213.62	21	23.9614	0.28825
93	unsolved	16	20.4331	0.16829
94	unsolved	23	42.7552	0.30474
95	16308.05	11	4.3677	0.08576
96	19260.27	14	6.0679	0.12699
97	19562.49	14	4.0375	0.12312
98	unsolved	13	14.1751	0.13236
99	13947.13	15	2.1743	0.10194
100	24480.32	21	7.8666	0.228
101	unsolved	21	42.4677	0.28247
102	unsolved	24	28.9477	0.26351
103	unsolved	33	58.0695	0.45022
104	unsolved	23	21.8495	0.20786
105	unsolved	17	29.2246	0.25607
106	unsolved	16	32.2612	0.2077
107	25221.45	23	5.5854	0.25069
108	unsolved	16	19.6615	0.15492
109	26037.64	24	21.7783	0.26225
110	unsolved	28	32.2062	0.31099
111	unsolved	24	54.0196	0.34244
112	unsolved	15	12.5745	0.13183
113	unsolved	24	29.725	0.33056
114	unsolved	19	18.2133	0.1736
115	unsolved	21	24.5514	0.20977
116	unsolved	20	32.5827	0.22923
117	unsolved	25	45.4388	0.32073
118	unsolved	26	75.6993	0.43741
119	unsolved	27	53.9737	0.38243
120	12224.18	8	1.8865	0.05015
121	unsolved	20	24.3724	0.21247
122	unsolved	15	15.5057	0.15715
123	unsolved	26	36.9219	0.32296

Benchmark #	Makespan	# of Risk Allocations	Total Risk Allocation Time (s)	Total Negative Cycle Checking Time (s)
124	unsolved	26	52.7227	0.38842
125	unsolved	23	89.4677	0.40554
126	unsolved	26	56.1251	0.38268
127	unsolved	22	49.3623	0.30393
128	unsolved	22	23.6828	0.23404
129	unsolved	20	27.0558	0.22042
130	unsolved	24	60.9801	0.3586
131	unsolved	23	33.1361	0.25382
132	unsolved	26	42.1231	0.32075
133	unsolved	16	47.9014	0.24089
134	unsolved	34	50.6362	0.43975
135	unsolved	18	32.8237	0.23419
136	unsolved	18	70.9869	0.34028
137	unsolved	34	56.5105	0.48006
138	25515.46	15	14.9743	0.18963

Table 17: Results for algorithm Rubato-Opt-FF with risk bound 0.4.