Detailed results for all 350 instances of the JS0(n,p) with total flow time minimization from CPLEX CP Optimizer and A*DFS at 1 hour.

As CP is non deterministic, the reported values are means of 10 runs.

CP was not able to certify the optimality of any solution.

The best LBs were always computed by A*DFS.

Values in green correspond to optimal solutions. (*) These best UBs were reached by CP, the remaining ones were reached by A*DFS.

10x5

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA01.txt	1	13682	13682	13682	13682
LA02.txt	1	12484	12484	12484	12484
LA03.txt	1	11462	11462	11462	11462
LA04.txt	1	12001	12001	12001	12001
LA05.txt	1	11273	11273	11273	11273
LA01.txt	2	7701	7701	7799	7701
LA02.txt	2	7063	7063	7093	7063
LA03.txt	2	6429	6429	6589	6429
LA04.txt	2	6784	6784	6871	6784
LA05.txt	2	6326	6326	6366	6326
LA01.txt	3	5784	5784	6157	5784
LA02.txt	3	5328	5377	5425	5377
LA03.txt	3	4844	4844	4979	4844
LA04.txt	3	5134	5134	5298	5134
LA05.txt	3	4754	4754	4864	4754
LA01.txt	4	4958	4958	5233	4958
LA02.txt	4	4551	4580	4596	4580
LA03.txt	4	4251	4251	4296	4251
LA04.txt	4	4425	4531	4583	4531
LA05.txt	4	4032	4210	4238	4210
LA01.txt	5	4832	4832	4833	4832
LA02.txt	5	4459	4459	4459	4459
LA03.txt	5	4151	4151	4151	4151
LA04.txt	5	4259	4259	4259	4259
LA05.txt	5	4072	4072	4091	4072

15x5

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA06.txt	1	27965	27965	27977	27965
LA07.txt	1	26523	26523	26523	26523
LA08.txt	1	26456	26456	26480	26456
LA09.txt	1	29949	29949	29960	29949
LA10.txt	1	27366	27366	27391	27366
LA06.txt	2	15126	15126	15301	15126
LA07.txt	2	14336	14336	14640	14336
LA08.txt	2	14324	14324	14718	14324
LA09.txt	2	16161	16161	16537	16161
LA10.txt	2	14875	14875	15085	14875
LA06.txt	3	10847	11087	11607	11087
LA07.txt	3	10301	10541	10601	10541
LA08.txt	3	10248	10505	10929	10505
LA09.txt	3	11598	11832	12651	11832
LA10.txt	3	10709	10992	11115	10992
LA06.txt	4	8755	9313	9354	9313
LA07.txt	4	8330	8951*	8951	8956
LA08.txt	4	8292	8878	9086	8878
LA09.txt	4	9399	10011	10172	10011
LA10.txt	4	8784	9415	9753	9415
LA06.txt	5	8101	8669*	8669	8723
LA07.txt	5	7766	8130*	8130	8243
LA08.txt	5	7423	8052	8533	8052
LA09.txt	5	8281	9206	9258	9206
LA10.txt	5	8410	8855	8988	8855

20x5

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA11.txt	1	48845	48845	48991	48845
LA12.txt	1	40279	40279	40409	40279
LA13.txt	1	46727	46727	46919	46727
LA14.txt	1	47924	47924	48148	47924
LA15.txt	1	50039	50039	50199	50039
LA11.txt	2	25870	25934	26598	25934
LA12.txt	2	21432	21432	22016	21432
LA13.txt	2	24772	24826	25732	24826
LA14.txt	2	25443	25497	25967	25497
LA15.txt	2	26524	26580	27537	26580
LA11.txt	3	18211	18852	19225	18852
LA12.txt	3	15157	15757	16144	15757
LA13.txt	3	17488	18135	18391	18135
LA14.txt	3	17944	18435	19458	18435
LA15.txt	3	18700	19452	20045	19452
LA11.txt	4	14474	15602	15981	15602
LA12.txt	4	12071	13194*	13194	13306
LA13.txt	4	13846	14943	15103	14943
LA14.txt	4	14242	15683*	15683	15874
LA15.txt	4	14829	15982	16538	15982
LA11.txt	5	12755	14250*	14250	14310
LA12.txt	5	10684	12329*	12329	12365
LA13.txt	5	12060	13606*	13606	13866
LA14.txt	5	13557	14610*	14610	14926
LA15.txt	5	12859	14383*	14383	14910

10x10

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA16_1.txt	1	26708	26708	26712	26708
LA17_1.txt	1	23406	23406	23424	23406
LA18_1.txt	1	26294	26294	26336	26294
LA19_1.txt	1	27946	27946	27951	27946
LA20_1.txt	1	27217	27217	27217	27217
LA16_2.txt	2	14824	14824	15363	14824
LA17_2.txt	2	12989	12989	13266	12989
LA18_2.txt	2	14582	14582	14795	14582
LA19_2.txt	2	15410	15410	15835	15410
LA20_2.txt	2	15133	15133	15261	15133
LA16_3.txt	3	10916	11015	11293	11015
LA17_3.txt	3	9589	9598	9945	9598
LA18_3.txt	3	10695	10778	11278	10778
LA19_3.txt	3	11299	11299	11478	11299
LA20_3.txt	3	11102	11234	11552	11234
LA16_4.txt	4	9033	9204*	9204	9250
LA17_4.txt	4	7879	8127	8208	8127
LA18_4.txt	4	8826	9034	9496	9034
LA19_4.txt	4	9275	9468	9768	9468
LA20_4.txt	4	9195	9380*	9380	9433
LA16_5.txt	5	7791	8225*	8225	8230
LA17_5.txt	5	6838	7338	7386	7338
LA18_5.txt	5	7602	7913*	7913	7967
LA19_5.txt	5	7957	8453	8593	8453
LA20_5.txt	5	7939	8229*	8229	8375
LA16_6.txt	6	7221	7691	7805	7691
LA17_6.txt	6	6331	6759*	6759	6834
LA18_6.txt	6	6987	7388*	7388	7401
LA19_6.txt	6	7324	7673*	7673	7779
LA20_6.txt	6	7320	7754	8021	7754
LA16_7.txt	7	6997	7459	7460	7459
LA17_7.txt	7	6258	6637	6664	6637
LA18_7.txt	7	6715	7071	7091	7071
LA19_7.txt	7	6918	7288	7421	7288
LA20_7.txt	7	6942	7455	7503	7455
LA16_8.txt	8	7151	7403	7449	7403
LA17_8.txt	8	6387	6557	6664	6557
LA18_8.txt	8	6807	7048	7159	7048
LA19_8.txt	8	6940	7238	7357	7238
LA20_8.txt	8	7014	7396	7670	7396

LA16_9.txt	9	7376	7376	7541	7376
LA17_9.txt	9	6537	6537	6664	6537
LA18_9.txt	9	6970	6970	7159	6970
LA19_9.txt	9	7073	7217	7357	7217
LA20_9.txt	9	7111	7387	7670	7387
LA16_10.txt	10	7376	7376	7449	7376
LA17_10.txt	10	6537	6537	6664	6537
LA18_10.txt	10	6970	6970	6984	6970
LA19_10.txt	10	7217	7217	7357	7217
LA20_10.txt	10	7166	7345	7503	7345

15x10

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA21_1_1.txt	1	57907	57907	57978	57907
LA22_1_1.txt	1	53835	53835	54166	53835
LA23_1_1.txt	1	60960	60960	61075	60960
LA24_1_1.txt	1	56473	56473	56633	56473
LA25_1_1.txt	1	53440	53440	53582	53440
LA21_2_1.txt	2	31122	31122	32250	31122
LA22_2_1.txt	2	28909	28909	29509	28909
LA23_2_1.txt	2	32669	32669	33368	32669
LA24_2_1.txt	2	30331	30331	31064	30331
LA25_2_1.txt	2	28768	28768	29862	28768
LA21_3_1.txt	3	22116	22456	23631	22456
LA22_3_1.txt	3	20565	20967	22732	20967
LA23_3_1.txt	3	23172	23744	24071	23744
LA24_3_1.txt	3	21567	22057	22819	22057
LA25_3_1.txt	3	20516	20978	21758	20978
LA21_4_1.txt	4	17730	18367	19435	18367
LA22_4_1.txt	4	16492	17022	17546	17022
LA23_4_1.txt	4	18544	19306	19805	19306
LA24_4_1.txt	4	17304	17936	18598	17936
LA25_4_1.txt	4	16522	17294	17606	17294
LA21_5_1.txt	5	15018	15896*	15896	16011
LA22_5_1.txt	5	13995	14947	15190	14947
LA23_5_1.txt	5	15600	16572*	16572	16738
LA24_5_1.txt	5	14635	15649	15901	15649
LA25_5_1.txt	5	14021	14819*	14819	15230
LA21_6_1.txt	6	13438	14465	14534	14465
LA22_6_1.txt	6	12476	13746	14009	13746
LA23_6_1.txt	6	13946	14941*	14941	15242
LA24_6_1.txt	6	13085	14411	14869	14411
LA25_6_1.txt	6	12544	13628*	13628	13803
LA21_7_1.txt	7	12118	13834	14158	13834
LA22_7_1.txt	7	11296	12770	12860	12770
LA23_7_1.txt	7	12519	14114*	14114	14170
LA24_7_1.txt	7	11836	13369	13415	13369
LA25_7_1.txt	7	11335	12985	13032	12985
LA21_8_1.txt	8	11290	13113	13406	13113
LA22_8_1.txt	8	10553	12296	12339	12296
LA23_8_1.txt	8	11569	13285*	13285	13815
LA24_8_1.txt	8	11130	12567*	12567	12682
LA25_8_1.txt	8	10582	12544*	12544	12722

LA21_9_1.txt	9	11103	12784	13333	12784
LA22_9_1.txt	9	10247	11995	12192	11995
LA23_9_1.txt	9	11483	13311*	13311	13350
LA24_9_1.txt	9	10716	12321*	12321	12360
LA25_9_1.txt	9	10305	12315	12643	12315
LA21_10_1.txt	10	11165	12736*	12736	12761
LA22_10_1.txt	10	10279	12029	12193	12029
LA23_10_1.txt	10	11537	13120	13216	13120
LA24_10_1.txt	10	10466	12243*	12243	12284
LA25_10_1.txt	10	10257	12121	12016	12121

20x10

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA26_1_1.txt	1	100315	100315	101209	100315
LA27_1_1.txt	1	105460	105460	106603	105460
LA28_1_1.txt	1	102480	102480	103383	102480
LA29_1_1.txt	1	93621	93621	94997	93621
LA30_1_1.txt	1	97457	97457	99120	97457
LA26_2_1.txt	2	52922	53170	54427	53170
LA27_2_1.txt	2	55576	55763	57184	55763
LA28_2_1.txt	2	54069	54368	55608	54368
LA29_2_1.txt	2	49403	49747	51635	49747
LA30_2_1.txt	2	51550	51965	53531	51965
LA26_3_1.txt	3	37154	37973	38492	37973
LA27_3_1.txt	3	38994	39774	40460	39774
LA28_3_1.txt	3	37954	38673	39585	38673
LA29_3_1.txt	3	34753	35493	36168	35493
LA30_3_1.txt	3	36272	37244	38148	37244
LA26_4_1.txt	4	29232	30625	31174	30625
LA27_4_1.txt	4	30627	31912	32656	31912
LA28_4_1.txt	4	29864	31129	31269	31129
LA29_4_1.txt	4	27332	28577	29614	28577
LA30_4_1.txt	4	28628	29992	30493	29992
LA26_5_1.txt	5	24532	26329	27003	26329
LA27_5_1.txt	5	25656	27315*	27315	27537
LA28_5_1.txt	5	25060	26844	27495	26844
LA29_5_1.txt	5	22926	24469	25359	24469
LA30_5_1.txt	5	24114	25740	26552	25740
LA26_6_1.txt	6	21580	23704*	23704	24009
LA27_6_1.txt	6	22503	24520*	24520	24626
LA28_6_1.txt	6	22013	23796*	23796	24297
LA29_6_1.txt	6	20123	22057	22436	22057
LA30_6_1.txt	6	21126	23248	23490	23248
LA26_7_1.txt	7	19288	21823	22572	21823
LA27_7_1.txt	7	20130	22160*	22160	22847
LA28_7_1.txt	7	19775	21841*	21841	22676
LA29_7_1.txt	7	18022	20369	20530	20369
LA30_7_1.txt	7	19043	21361	21371	21361
LA26_8_1.txt	8	17688	20313*	20313	20807
LA27_8_1.txt	8	18449	21734	21861	21734
LA28_8_1.txt	8	18249	21506	21577	21506
LA29_8_1.txt	8	16612	18800*	18800	19484
LA30_8_1.txt	8	17549	20400*	20400	20868

LA26_9_1.txt	9	16419	20011	20207	20011
LA27_9_1.txt	9	17171	20777*	20777	20805
LA28_9_1.txt	9	16925	20408*	20408	20801
LA29_9_1.txt	9	15415	17959*	17959	18624
LA30_9_1.txt	9	16660	19876	19959	19876
LA26_10_1.txt	10	15854	19765	19787	19765
LA27_10_1.txt	10	16252	20083*	20083	20518
LA28_10_1.txt	10	15938	19942	20329	19942
LA29_10_1.txt	10	14836	18524	18788	18524
LA30_10_1.txt	10	16652	20129	20243	20129

30x10

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA31_1_1.txt	1	212098	212098	217579	212098
LA32_1_1.txt	1	237041	237041	242683	237041
LA33_1_1.txt	1	210572	210572	213665	210572
LA34_1_1.txt	1	221004	221004	223912	221004
LA35_1_1.txt	1	219795	219795	224259	219795
LA31_2_1.txt	2	109963	111115	114211	111115
LA32_2_1.txt	2	122744	123291	128053	123291
LA33_2_1.txt	2	109147	109920	115475	109920
LA34_2_1.txt	2	114444	115284	118396	115284
LA35_2_1.txt	2	113876	114848	118645	114848
LA31_3_1.txt	3	75957	77585	79854	77585
LA32_3_1.txt	3	84727	86159	89855	86159
LA33_3_1.txt	3	75337	77032	80799	77032
LA34_3_1.txt	3	78923	80633	84259	80633
LA35_3_1.txt	3	78553	80465	84701	80465
LA31_4_1.txt	4	59040	61426	65175	61426
LA32_4_1.txt	4	65803	68450	72053	68450
LA33_4_1.txt	4	58553	60718	65794	60718
LA34_4_1.txt	4	61294	63338	65691	63338
LA35_4_1.txt	4	61010	63367	66841	63367
LA31_5_1.txt	5	48723	51856	54298	51856
LA32_5_1.txt	5	54287	57664	59629	57664
LA33_5_1.txt	5	48326	51295	54271	51295
LA34_5_1.txt	5	50519	53764	55734	53764
LA35_5_1.txt	5	50364	53382	56598	53382
LA31_6_1.txt	6	41949	46229	47682	46229
LA32_6_1.txt	6	46693	50508	52836	50508
LA33_6_1.txt	6	41611	45463	48476	45463
LA34_6_1.txt	6	43437	47422	49078	47422
LA35_6_1.txt	6	43327	47350	50400	47350
LA31_7_1.txt	7	37273	42170	44322	42170
LA32_7_1.txt	7	41484	46062*	46062	46501
LA33_7_1.txt	7	36962	41449	42452	41449
LA34_7_1.txt	7	38544	43150	44403	43150
LA35_7_1.txt	7	38481	43302	44673	43302
LA31_8_1.txt	8	33698	39932	40365	39932
LA32_8_1.txt	8	37448	42980	45030	42980
LA33_8_1.txt	8	33400	38878	42235	38878
LA34_8_1.txt	8	34818	40457	40873	40457
LA35_8_1.txt	8	34733	40452	41468	40452

LA31_9_1.txt	9	30946	38183	40005	38183
LA32_9_1.txt	9	34482	41327	43223	41327
LA33_9_1.txt	9	30636	37555	38118	37555
LA34_9_1.txt	9	31950	38663	39701	38663
LA35_9_1.txt	9	31898	38807*	38807	39049
LA31_10_1.txt	10	29350	37436*	37436	37994
LA32_10_1.txt	10	31746	40075*	40075	40272
LA33_10_1.txt	10	28274	36386	36656	36386
LA34_10_1.txt	10	29420	36763*	36763	38009
LA35_10_1.txt	10	30794	37355*	37355	38299

15x15

Instance	#Ops.	Best LB	Best UB	Cplex1h	ADFS 1h
LA36_1_1.txt	1	87020	87020	87520	87020
LA37_1_1.txt	1	95543	95543	95737	95543
LA38_1_1.txt	1	82916	82916	83884	82916
LA39_1_1.txt	1	86142	86142	87124	86142
LA40_1_1.txt	1	86257	86257	86871	86257
LA36_2_1.txt	2	46658	46658	47578	46658
LA37_2_1.txt	2	51129	51129	52503	51129
LA38_2_1.txt	2	44420	44613	45813	44613
LA39_2_1.txt	2	46170	46170	48000	46170
LA40_2_1.txt	2	46195	46195	47663	46195
LA36_3_1.txt	3	33070	33510	35056	33510
LA37_3_1.txt	3	36193	36579	37570	36579
LA38_3_1.txt	3	31569	32307	32971	32307
LA39_3_1.txt	3	32702	33260	34526	33260
LA40_3_1.txt	3	32754	33244	34875	33244
LA36_4_1.txt	4	26526	27563	28252	27563
LA37_4_1.txt	4	28979	29639	30187	29639
LA38_4_1.txt	4	25302	26083	27030	26083
LA39_4_1.txt	4	26225	26961	27738	26961
LA40_4_1.txt	4	26234	27054	27689	27054
LA36_5_1.txt	5	22345	23624	23761	23624
LA37_5_1.txt	5	24309	25330	25679	25330
LA38_5_1.txt	5	21406	22552	23542	22552
LA39_5_1.txt	5	22090	23324	23794	23324
LA40_5_1.txt	5	22083	23271	23806	23271
LA36_6_1.txt	6	20010	21166	21561	21166
LA37_6_1.txt	6	21767	22927	23013	22927
LA38_6_1.txt	6	19071	20241*	20241	20367
LA39_6_1.txt	6	19714	20984	21471	20984
LA40_6_1.txt	6	19747	21107	21463	21107
LA36_7_1.txt	7	17962	19531	20028	19531
LA37_7_1.txt	7	19516	21125	21614	21125
LA38_7_1.txt	7	17053	18821	19172	18821
LA39_7_1.txt	7	17670	19162	19905	19162
LA40_7_1.txt	7	17751	19286	19437	19286
LA36_8_1.txt	8	16550	18677	18792	18677
LA37_8_1.txt	8	17960	19863	20325	19863
LA38_8_1.txt	8	15894	17743*	17743	18036
LA39_8_1.txt	8	16341	18076	18612	18076
LA40_8_1.txt	8	16382	18309	18723	18309

LA36_9_1.txt	9	15698	17691*	17691	17941
LA37_9_1.txt	9	17060	19152*	19152	19260
LA38_9_1.txt	9	15084	17043*	17043	17489
LA39_9_1.txt	9	15509	17529	17696	17529
LA40_9_1.txt	9	15569	17491*	17491	17523
LA36_10_1.txt	10	15083	17355	17814	17355
LA37_10_1.txt	10	16413	18452*	18452	18616
LA38_10_1.txt	10	14305	16389*	16389	16962
LA39_10_1.txt	10	14859	16245*	16245	16848
LA40_10_1.txt	10	14825	16902*	16902	17052
LA36_11_1.txt	11	15044	16992	17525	16992
LA37_11_1.txt	11	15939	18470	18522	18470
LA38_11_1.txt	11	13600	16042*	16042	16228
LA39_11_1.txt	11	14427	16268	16478	16268
LA40_11_1.txt	11	14246	16310*	16310	16583
LA36_12_1.txt	12	15083	16930	17557	16930
LA37_12_1.txt	12	15873	18206	18473	18206
LA38_12_1.txt	12	13524	15490	16248	15490
LA39_12_1.txt	12	14251	16046*	16046	16161
LA40_12_1.txt	12	14004	16282	16367	16282
LA36_13_1.txt	13	15086	16895	17156	16895
LA37_13_1.txt	13	15873	18073	18390	18073
LA38_13_1.txt	13	13535	15690	16010	15690
LA39_13_1.txt	13	14260	15937	16465	15937
LA40_13_1.txt	13	14046	16211*	16211	16278
LA36_14_1.txt	14	15086	16895	17474	16895
LA37_14_1.txt	14	15873	18158	18441	18158
LA38_14_1.txt	14	13535	15690	15885	15690
LA39_14_1.txt	14	14260	15937	16219	15937
LA40_14_1.txt	14	14050	16278	16486	16278
LA36_15_1.txt	15	15086	16715	17046	16715
LA37_15_1.txt	15	15872	17899*	17899	18165
LA38_15_1.txt	15	13535	15482*	15482	15690
LA39_15_1.txt	15	14260	15937	16200	15937
LA40_15_1.txt	15	14049	16155*	16155	16278