

**Table 1:** BFIRST.

Name	Time	Iters	Nodes	Best	Solved
10teams	102.66	525615	4720	924	1
air01	0	39	3	6796	1
air02	2.9	1154	234	7810	1
air03	2.47	911	88	340160	1
air04	681.38	554639	8200	56137	1
air05	446.88	498795	13031	26374	1
air06	10.63	9721	21	49649	1
bal8x12	0.06	489	191	471.55	1
bienst1	432.17	2927821	24989	46.75	1
bk4x3	0	29	11	350	1
blend2	5.4	20432	11571	7.6	1
bm23	0.03	1269	469	34	1
cap6000	256.51	72393	27176	-2451377	1
crapb1	0.2	806	151	22199	1
dcmulti	156.44	443694	168955	188182	1
disctom	288.93	175178	7551	-5000	1
dsbmip	1.75	5231	214	-305.2	1
egout	0.02	219	169	568.1	1
enigma	0.71	28120	2818	0	1
fixnet3	1.58	3678	1404	51973	1
fixnet4	24.34	52768	21437	8936	1
fixnet6	29.26	46466	24903	3983	1
flugpl	0.05	678	1113	1201500	1
gen	196.08	1302844	33601	112313.36	1
gr4x6	0.01	203	122	202.35	1
khb05250	4.45	15661	3618	106940226	1
l152lav	14.18	42892	3649	4722	1
lp41	0.12	503	61	2967	1
lseu	3.03	44678	21474	1120	1
mas284	1049.62	1261072	369158	91405.72	1
misc01	0.2	3306	887	563.5	1
misc02	0.02	521	129	1690	1
misc03	3.92	50758	6926	3360	1
misc04	0.66	1903	27	2666.7	1
misc05	0.54	3749	644	2984.5	1
misc06	2.73	5775	1139	12850.86	1
mod008	2.3	13557	7709	307	1
mod010	32.86	52381	8421	6548	1
mod013	0.14	1663	957	280.95	1
nw04	593.79	22088	1776	16862	1
p0033	0.48	9845	7432	3089	1

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**Table 1 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
p0040	0.01	274	118	62027	1
p0201	0.42	5367	542	7615	1
p0282	196.54	791150	434629	258411	1
p0291	0.08	811	431	5223.75	1
pipex	0.16	3530	1751	788.26	1
ran10x10a	6.3	43053	20279	1499	1
ran10x10b	8.14	54820	27171	3073	1
ran10x12	4.78	27847	13752	2714	1
rentacar	7.18	10546	137	30356760.98	1
rgn	3.73	74854	15615	82.2	1
stein15	0.01	363	100	9	1
stein27	0.95	15992	4619	18	1
stein45	64.95	522410	94859	30	1
stein9	0	47	15	5	1
vpm1	101.91	678853	245281	20	1
momentum3	3600	142652	32	not	0
rd-rplusc-21	3600	2842	224	not	0
momentum1	3600	921444	1365	not	0
dano3mip	3600	1896354	3244	718.5	0
ds	3600	197972	12505	not	0
fast0507	3600	229424	16482	176	0
t1717	3600	145226	13917	not	0
msc98-ip	3600	732213	20547	not	0
net12	3600	1494775	7653	337	0
arki001	3600	8070137	978202	not	0
mkc	3600	1013111	302325	-269.71	0
gesa2-o	3600	1778977	712640	28007022.02	0
seymour	3600	3999025	103146	430	0
afflow40b	3600	10188814	129309	1512	0
mod011	3600	3350930	32148	-54341997.32	0
danoimt	3600	18539129	218737	65.67	0
p2756	3600	1118032	470410	3866	0
opt1217	3600	2474426	1002351	-16	0
set1cl	3600	1648552	975094	9796.75	0
tr12-30	3600	14414905	1383802	not	0
rout	3600	9996028	805084	1112.87	0
afflow30a	3600	9200235	488656	1158	0
markshare2	3600	1453570	633701	36	0
bell3b	3600	1315139	650605	11935575.05	0
set1ch	3600	736974	626730	70240	0
fiber	3600	2036743	608897	405935.18	0
pk1	3600	3430631	550142	12	0

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**Table 1 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
glass4	3600	1466287	618306	2150022600	0
pp08a	3600	1931689	541406	7430	0
pp08aCUTS	3600	2642569	640254	7380	0
mas76	3600	1625141	563593	40005.05	0
misc07	3600	6015270	705595	2810	0
modglob	3600	2588731	845489	20740508.09	0
set1al	3600	2020266	856568	19525.25	0
p0548	3600	1681648	1276792	9851	0
vpm2	3600	2896970	551181	13.75	0
mas74	3600	1822353	602962	11801.19	0
noswot	3600	3018468	944477	-40	0
roll3000	3600	6324677	230769	13407	0
timtab2	3600	16089182	3816453	not	0
timtab1	3600	18257751	6654116	not	0
bell4	3600	2397860	1811389	not	0
bell5	3600	1844711	1195684	not	0
markshare1	3600	1344418	625144	24	0
nsrand-ipx	3600	490859	148327	52960	0
mzzv42z	3600	1233035	48782	-19382	0
manna81	3600	326097	319713	-13160	0
a1c1s1	3600	3406408	259780	15834.04	0
mitre	3600	376474	211360	116370	0
qiu	3600	8320967	383854	-132.87	0
liu	3600	1262003	394894	1362	0
gesa2	3600	12317542	1061109567	not	0
stp3d	3600	102703	1061109567	not	0
atlanta-ip	-1	-1	-1	-1	0
harp2	-1	-1	-1	-1	0
momentum2	-1	-1	-1	-1	0
mzzv11	-1	-1	-1	-1	0
protfold	-1	-1	-1	-1	0
sp97ar	-1	-1	-1	-1	0
swath	-1	-1	-1	-1	0

**Table 2: BLAST.**

Name	Time	Iters	Nodes	Best	Solved
air01	0.01	45	5	6796	1
air02	0.78	522	52	7810	1
air03	0.72	429	15	340160	1

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**Table 2 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
air06	10.66	9922	22	49649	1
bal8x12	0.12	1020	440	471.55	1
bell5	11.45	82192	65022	8966406.49	1
bienst1	231.37	1573764	11873	46.75	1
bk4x3	0	31	15	350	1
bm23	0.04	1205	427	34	1
cap6000	1724.87	557432	213996	-2451377	1
cracpb1	0.11	583	70	22199	1
dcmulti	1001.66	1916220	678166	188182	1
disctom	283.56	170065	7336	-5000	1
dsbmip	1.44	4246	210	-305.2	1
egout	0.04	382	362	568.1	1
enigma	2.93	116666	12402	0	1
fixnet3	0.54	1751	412	51973	1
fixnet4	1.46	4073	1218	8936	1
fixnet6	3.67	6151	3048	3983	1
flugpl	0.07	1069	1608	1201500	1
gen	4.24	22115	1930	112313.36	1
gr4x6	0.01	138	78	202.35	1
khb05250	49.8	174139	34316	106940226	1
l152lav	1.62	5267	364	4722	1
lp41	0.14	801	55	2967	1
lseu	4.93	71743	36663	1120	1
misc01	0.15	2759	609	563.5	1
misc02	0.01	276	37	1690	1
misc03	0.31	4976	460	3360	1
misc04	0.52	1671	13	2666.7	1
misc05	1.03	6906	1260	2984.5	1
misc06	0.61	1936	190	12850.86	1
misc07	31.86	217462	23736	2810	1
mod008	1.64	12428	5355	307	1
mod010	0.98	2689	163	6548	1
mod013	0.07	798	460	280.95	1
nw04	620.37	26568	1763	16862	1
p0033	0.04	930	753	3089	1
p0040	0.01	180	81	62027	1
p0201	3.8	44054	6053	7615	1
p0291	26.26	130589	141163	5223.75	1
pipex	0.09	1945	988	788.26	1
qiu	1628.39	4905677	188145	-132.87	1
ran10x10a	9.7	56397	31734	1499	1
ran10x10b	11.43	72206	38019	3073	1

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**Table 2 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
ran10x12	2.31	14794	6103	2714	1
rentacar	85.37	91614	4565	30356760.98	1
rgn	0.52	8284	2521	82.2	1
stein15	0.01	413	112	9	1
stein27	0.96	16407	4768	18	1
stein45	65	506660	93939	30	1
stein9	0	46	14	5	1
vpm1	843.52	3312988	917880	20	1
10teams	3600	15285545	180840	924	0
alc1s1	3600	2273077	376563	12791.73	0
afflow30a	3600	9989364	571501	1237	0
afflow40b	3600	9476914	212613	1307	0
air04	3600	2875504	39261	56811	0
air05	3600	4267980	77830	26374	0
atlanta-ip	3600	784188	385	not	0
bell3b	3600	7065564	6239790	11809844.43	0
bell4	3600	21045894	14015259	18593695.06	0
blend2	3600	872125	658486	8.05	0
dano3mip	3600	1944363	3960	718.53	0
danoint	3600	17796123	212690	65.67	0
ds	3600	206617	13749	not	0
fast0507	3600	320801	10265	176	0
fiber	3600	2632251	812717	1033625.12	0
gesa2	3600	12007596	1061109567	not	0
gesa2-o	3600	1478651	684376	26014275.79	0
liu	3600	957803	630087	2706	0
manna81	3600	287099	282781	-13164	0
markshare1	3600	1398750	635052	17	0
markshare2	3600	1462904	639138	25	0
mas284	3600	1665333	501281	91405.72	0
mas74	3600	1983293	657793	11945.26	0
mas76	3600	1591375	566858	40005.05	0
mitre	3600	237547	226898	115155	0
mkc	3600	1817500	254712	-484.81	0
mod011	3600	3435919	45850	-54558535.01	0
modglob	3600	1974904	682993	20788884.61	0
momentum1	3600	993883	3957	not	0
momentum3	3600	135444	52	not	0
msc98-ip	3600	1091570	552	not	0
noswot	3600	4587346	618299	-41	0
nsrand-ipx	3600	402780	154172	56800	0
opt1217	3600	3789962	1268087	-16	0

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**Table 2 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
p0282	3600	1442578	582416	425387	0
p0548	3600	18653450	1572999	not	0
p2756	3600	2569881	393551	20105	0
pk1	3600	3309878	533628	11	0
pp08a	3600	3892910	784305	7350	0
pp08aCUTS	3600	3992638	620706	7350	0
rd-rplusc-21	3600	1281	247	not	0
roll3000	3600	4810115	485622	not	0
rout	3600	5430412	523613	1131.72	0
set1al	3600	3510799	1023934	18276	0
set1ch	3600	2367276	1009147	56639.5	0
set1cl	3600	1468691	1190205	10476.75	0
seymour	3600	4086485	76940	428	0
stp3d	3600	104631	1061109567	not	0
t1717	3600	181668	13824	not	0
timtab1	3600	1458154	641567	1138148	0
timtab2	3600	14887677	3919467	not	0
tr12-30	3600	3192187	1022881	137163	0
vpm2	3600	3206869	563294	13.75	0
arki001	-1	-1	-1	-1	0
glass4	-1	-1	-1	-1	0
harp2	-1	-1	-1	-1	0
momentum2	-1	-1	-1	-1	0
mzzv11	-1	-1	-1	-1	0
mzzv42z	-1	-1	-1	-1	0
net12	-1	-1	-1	-1	0
protfold	-1	-1	-1	-1	0
sp97ar	-1	-1	-1	-1	0
swath	-1	-1	-1	-1	0

**Table 3: BDRTO (GLPK default).**

Name	Time	Iters	Nodes	Best	Solved
10teams	27.48	62590	1243	924	1
air01	0.01	45	5	6796	1
air02	1.34	374	41	7810	1
air03	0.56	271	3	340160	1
air05	2351.05	734728	14075	26374	1
air06	12.26	10067	14	49649	1
bal8x12	0.13	561	266	471.55	1

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**Table 3 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
bell3b	1340.05	5318291	5681877	11786160.62	1
bell5	8.56	44798	46815	8966406.49	1
bienst1	487.29	3316675	28039	46.75	1
bk4x3	0	26	11	350	1
blend2	5.38	19437	8521	7.6	1
bm23	0.04	1016	392	34	1
cracpb1	3.35	13720	800	22199	1
dcmulti	4.32	11739	4765	188182	1
disctom	1696.78	214242	4129	-5000	1
dsbmip	0.22	622	21	-305.2	1
egout	0.02	222	175	568.1	1
enigma	6.34	190682	23018	0	1
fiber	1659.84	2161667	385464	405935.18	1
fixnet3	0.24	590	170	51973	1
fixnet4	6.16	11230	4579	8936	1
fixnet6	7.1	12536	5085	3983	1
flugpl	0.23	3249	4809	1201500	1
gen	0.77	4245	301	112313.36	1
gr4x6	0.01	103	69	202.35	1
khb05250	4.22	12328	3176	106940226	1
l152lav	54.15	74965	6229	4722	1
lp41	0.48	1194	91	2967	1
lseu	4.62	62140	25798	1120	1
mas284	70.84	223679	49902	91405.72	1
misc01	0.23	3587	634	563.5	1
misc02	0.04	669	143	1690	1
misc03	1.73	18724	1981	3360	1
misc04	0.71	1946	24	2666.7	1
misc05	0.4	2293	407	2984.5	1
misc06	0.5	1779	123	12850.86	1
misc07	497.45	1975691	172424	2810	1
mitre	1754.97	57199	46456	115155	1
mod008	2.63	13796	6842	307	1
mod010	7.56	9368	840	6548	1
mod013	0.09	1034	564	280.95	1
nw04	231.58	8574	643	16862	1
p0033	0.05	1114	831	3089	1
p0040	0	141	49	62027	1
p0201	1.47	10348	1435	7615	1
p0282	0.48	2447	1100	258411	1
p0291	0.03	235	152	5223.75	1
p0548	60.08	102504	62429	8691	1

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**Table 3 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
pipex	0.18	3808	1617	788.26	1
ran10x10a	2.95	16481	8186	1499	1
ran10x10b	0.92	5678	2719	3073	1
ran10x12	0.74	3846	1783	2714	1
rentacar	5.05	7083	79	30356760.98	1
rgn	0.78	11430	3197	82.2	1
stein15	0.01	327	85	9	1
stein27	1.05	14112	3968	18	1
stein45	66.05	340115	61385	30	1
stein9	0	43	14	5	1
vpm1	175.39	873349	357413	20	1
mzzv11	3600	867969	177	not	0
ds	3600	103189	282	669.73	0
rd-rplusc-21	3600	2294	222	not	0
momentum3	3600	70612	55	not	0
mssc98-ip	3600	345358	331	not	0
fast0507	3600	53751	717	183	0
atlanta-ip	3600	334223	336	not	0
momentum1	3600	741993	1756	not	0
t1717	3600	14629	283	not	0
mzzv42z	3600	44931	880	-16862	0
seymour	3600	805955	11132	430	0
afflow40b	3600	8996881	124484	1252	0
swath	3600	3415641	177925	491.51	0
cap6000	3600	3249315	211464	-2358694	0
gesa2-o	3600	1273551	558488	25779856.37	0
mkc	3600	5399596	99070	-302.2	0
liu	3600	139316	78884	4154	0
mod011	3600	2911367	39403	-54558535.01	0
opt1217	3600	5957532	869974	-16	0
tr12-30	3600	2732823	1067495	not	0
set1cl	3600	526312	514392	6484.25	0
mas74	3600	2319966	574235	11857.37	0
p2756	3600	984059	828836	3250	0
afflow30a	3600	8518020	424180	1158	0
timtab1	3600	2057440	549734	863180	0
pp08a	3600	1431611	501310	7380	0
modglob	3600	1105740	470786	20755041.82	0
pp08aCUTS	3600	1650495	473944	7350	0
set1al	3600	1021315	969860	15915.25	0
set1ch	3600	996659	531017	59286	0
dano3mip	3600	1535612	3497	721.7	0

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**Table 3 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
noswot	3600	2313071	597292	-40	0
tintab2	3600	10440594	2302863	not	0
manna81	3600	32479	28161	-13164	0
roll3000	3600	3386749	268209	not	0
vpm2	3600	2038417	546336	13.75	0
markshare2	3600	1494107	586507	29	0
pk1	3600	3025477	496319	11	0
bell4	3600	10864911	12514278	18576909.42	0
markshare1	3600	1259439	586877	10	0
mas76	3600	1653663	555530	40005.05	0
nsrand-ipx	3600	70607	20768	54720	0
alcls1	3600	1147812	226321	13402.34	0
air04	3600	861840	10572	56137	0
qiu	3600	8280610	284784	-132.87	0
arki001	3600	2165224	510884	7581427.86	0
danoint	3600	17859831	207331	65.67	0
gesa2	3600	11952713	1061109567	not	0
stp3d	3600	93963	1061109567	not	0
rout	3600	4162018	289588	1116.68	0
protfold	3600	116181	74	not	0
glass4	-1	-1	-1	-1	0
harp2	-1	-1	-1	-1	0
momentum2	-1	-1	-1	-1	0
net12	-1	-1	-1	-1	0
sp97ar	-1	-1	-1	-1	0

**Table 4: BMFRAC.**

Name	Time	Iters	Nodes	Best	Solved
air01	0	39	3	6796	1
air02	0.62	377	37	7810	1
air03	0.48	314	5	340160	1
air05	2535.35	3184554	51847	26374	1
air06	10.54	9843	14	49649	1
bal8x12	0.19	1506	697	471.55	1
bienst1	1090.63	7557144	60962	46.75	1
bk4x3	0	31	13	350	1
blend2	50.31	153407	81962	7.6	1
bm23	0.05	1381	432	34	1
cap6000	211.29	52511	21262	-2451377	1

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**Table 4 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
cracpb1	0.16	1179	77	22199	1
dcmulti	142.68	504560	160645	188182	1
disctom	669.54	492527	7786	-5000	1
dsbmip	1.76	5605	215	-305.2	1
egout	0.08	645	676	568.1	1
enigma	18.08	609356	77459	0	1
fixnet3	0.39	1459	275	51973	1
fixnet4	1.11	2859	911	8936	1
fixnet6	1.81	3261	1639	3983	1
flugpl	0.99	14159	19172	1201500	1
gen	9.7	60305	2775	112313.36	1
gr4x6	0.01	220	131	202.35	1
khb05250	10.39	44366	7673	106940226	1
l152lav	163.61	465844	40850	4722	1
lp41	0.11	547	58	2967	1
lseu	2.73	45717	19568	1120	1
mas284	141.04	551398	118988	91405.72	1
misc01	0.26	5159	956	563.5	1
misc02	0.03	708	149	1690	1
misc03	2.62	38382	3961	3360	1
misc04	0.53	1730	11	2666.7	1
misc05	1.02	7803	1170	2984.5	1
misc06	0.69	2068	230	12850.86	1
misc07	572.65	2117649	211037	2810	1
mod008	2.4	19906	7698	307	1
mod010	51.23	82037	13221	6548	1
mod013	0.14	1727	968	280.95	1
nw04	339.5	12630	1011	16862	1
p0033	0.08	1826	1277	3089	1
p0040	0	258	115	62027	1
p0201	0.88	10200	1290	7615	1
p0291	0.08	869	483	5223.75	1
pipex	0.26	5941	2795	788.26	1
pk1	3585.06	4349293	627052	11	1
qiu	2617.45	7759868	330659	-132.87	1
ran10x10a	5.28	39792	17905	1499	1
ran10x10b	5.92	45887	20661	3073	1
ran10x12	3.91	24165	10702	2714	1
rentacar	28.72	32214	1258	30356760.98	1
rgn	0.78	14837	3571	82.2	1
stein15	0.01	385	110	9	1
stein27	0.98	16226	4579	18	1

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Name	Time	Iters	Nodes	Best	Solved
stein45	48.22	398061	73648	30	1
stein9	0	47	15	5	1
vpm1	231.49	1529931	502858	20	1
momentum3	3600	145309	29	not	0
rd-rplusc-21	3600	3586	241	not	0
t1717	3600	397011	3547	218998	0
ds	3600	475916	3540	481.54	0
fast0507	3600	614532	4565	175	0
mzzv11	3600	1641574	17018	-19338	0
msc98-ip	3600	876753	15494	not	0
mzzv42z	3600	1202028	40788	-16596	0
seymour	3600	4434800	46733	431	0
atlanta-ip	3600	655379	1865	not	0
nsrand-ipx	3600	491141	116301	54240	0
gesa2-o	3600	1525346	596069	27721428.78	0
afflow40b	3600	10954915	75954	1610	0
mod011	3600	3635121	36873	-54558535.01	0
opt1217	3600	5886781	635752	-16	0
liu	3600	3384778	547177	1830	0
10teams	3600	15971214	146958	924	0
net12	3600	1866160	7629	not	0
set1cl	3600	955953	879048	10227.25	0
tr12-30	3600	12886118	1630684	not	0
afflow30a	3600	14277009	460602	1161	0
p2756	3600	670160	508453	39597	0
fiber	3600	3728432	830988	513556.56	0
modglob	3600	6229648	643692	20815769.32	0
bell4	3600	5429079	4656374	18735770.26	0
pp08aCUTS	3600	3035914	558001	7350	0
markshare1	3600	1583140	561156	14	0
set1al	3600	2193099	869517	19436.5	0
tintab1	3600	2743254	660490	1177523	0
mas76	3600	2225010	572187	40005.05	0
p0548	3600	4946579	904394	not	0
set1ch	3600	1664546	626761	63907	0
mas74	3600	3331201	656195	11857.37	0
noswot	3600	2261158	650534	-41	0
pp08a	3600	2288244	614635	7350	0
rout	3600	29796669	1470465	not	0
tintab2	3600	14981982	3735383	not	0
bell5	3600	1757854	1107776	not	0
markshare2	3600	1763680	562416	24	0

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**Table 4 – continued from previous page**

Name	Time	Iters	Nodes	Best	Solved
vpm2	3600	35442756	5865959	not	0
bell3b	3600	1132449	626026	11912591.29	0
p0282	3600	1453556	616793	312048	0
roll3000	3600	5742620	353232	not	0
manna81	3600	347799	341271	-13160	0
dano3mip	3600	1871901	1417	730	0
a1c1s1	3600	2127573	305232	17440.07	0
mitre	3600	445715	217691	not	0
air04	3600	3009536	31432	56137	0
mkc	3600	4589421	109335	-317.25	0
danoint	3600	19968046	149881	66.25	0
gesa2	3600	12325162	1061109567	not	0
stp3d	3600	107684	1061109567	not	0
momentum1	3600	729361	1457	not	0
protfold	3600	444448	698	-15	0
momentum2	3600	28452	54	not	0
arki001	-1	-1	-1	-1	0
glass4	-1	-1	-1	-1	0
harp2	-1	-1	-1	-1	0
sp97ar	-1	-1	-1	-1	0
swath	-1	-1	-1	-1	0