Appendix A

Detailed Experimental Results

This appendix of tables gives the details of our BAP experiments.

Data	gp001-001	gp002-001	gp003-001	gp004-001	gp005-001	gp006-001	gp007-001
d101	278,400	234,000	234,600	239,400	234,000	225,000	**216,000**
d102	157,800	**141,600**	156,600	147,000	**141,600**	156,600	200,400
d103	248,400	196,200	186,000	256,200	196,200	196,200	**180,000**
d104	**166,800**	**166,800**	200,400	207,600	**166,800**	200,400	200,400
d105	**144,600**	151,800	151,800	151,800	151,800	151,800	151,800
d106	476,700	530,700	465,900	508,500	**446,700**	495,300	456,900
d107	451,800	499,200	**415,800**	491,400	499,200	442,200	469,800
d108	465,600	496,200	**422,400**	465,000	498,000	429,000	455,400
d109	398,400	478,200	**310,800**	327,600	478,200	370,800	417,600
d110	**489,600**	535,200	601,200	536,400	520,200	503,400	606,000
d111	591,000	663,600	637,200	603,000	**586,800**	642,600	612,000
d112	684,900	**537,900**	590,100	611,100	557,100	642,300	578,700
d113	618,300	572,700	606,900	**570,300**	579,300	579,300	600,900
d114	645,000	662,400	674,400	660,600	670,200	693,600	**634,200**
d115	712,800	**601,800**	637,200	675,600	636,000	634,200	640,200
d116	844,500	842,100	**788,100**	869,700	996,900	1,026,900	846,900
d117	993,600	852,600	933,000	**841,200**	951,600	889,800	913,800
d118	1,114,500	1,175,100	1,180,500	**975,900**	1,064,100	1,227,300	1,269,900
d119	105,046,700	91,199,100	**966,900**	1,021,500	151,222,500	1,026,300	1,129,500
d120	980,400	1,095,000	927,000	984,000	1,045,800	**907,200**	1,021,200
d121	2,885,100	2,759,700	2,652,300	2,648,700	2,688,300	2,600,100	**2,555,100**
d122	2,744,400	2,777,400	2,775,000	2,610,600	2,642,400	2,571,000	**2,467,200**
d123	2,924,400	2,620,200	2,761,800	**2,539,800**	2,951,400	2,832,600	3,069,000
d124	**2,752,200**	2,764,800	2,959,800	3,133,800	2,883,000	2,787,600	2,914,200
d125	2,670,900	2,939,100	2,817,900	2,670,900	2,842,500	**2,525,700**	2,598,300
d126	4,176,600	4,619,400	4,575,600	4,443,600	4,489,200	4,851,000	**4,077,000**
d127	4,631,400	4,578,600	4,633,200	4,510,200	4,752,600	**4,417,200**	4,607,400
d128	4,497,600	4,961,400	4,967,400	4,908,000	4,698,000	5,092,800	**4,336,200**
d129	4,494,600	4,583,400	**4,308,600**	5,340,600	4,692,600	5,050,800	4,669,800
d130	4,614,000	**4,030,200**	4,186,800	4,119,000	4,226,400	4,128,600	4,246,800
d131	5,904,600	6,305,400	6,041,400	**5,461,800**	6,043,800	5,659,200	5,692,800
d132	**5,861,400**	6,017,400	6,226,800	6,907,200	6,046,200	5,965,200	6,106,200
d133	6,062,100	5,885,700	6,524,100	6,294,900	6,286,500	**5,607,300**	6,171,900
d134	6,415,800	6,257,400	6,257,400	6,478,200	**5,940,000**	6,345,600	6,411,600
d135	6,288,300	6,959,100	6,606,900	6,214,500	6,153,300	**6,143,700**	6,274,500
d136	98,303,700	159,293,700	**8,339,700**	68,955,900	69,259,500	8,378,100	8,838,300
d137	98,403,300	99,666,300	9,347,100	**9,242,100**	203,899,700	99,590,100	9,473,700
d138	113,286,800	203,150,000	68,777,400	**9,009,600**	113,243,600	9,489,600	9,431,400
d139	98,229,900	111,580,700	60,573,100	7,757,100	112,380,500	**7,607,700**	8,459,100
d140	69,453,600	217,592,200	68,783,400	**8,702,400**	218,426,800	9,624,600	217,673,200
d141	257,100	456,300	**206,700**	230,700	456,300	**206,700**	453,900
d142	248,400	226,800	205,200	**133,200**	226,800	205,200	277,200
d143	462,600	418,200	**318,600**	341,400	418,200	**318,600**	490,200
d144	176,400	193,200	**162,000**	176,400	193,200	**162,000**	193,200
d145	483,900	847,500	**347,100**	385,500	847,500	474,300	925,500
d146	1,857,600	1,897,200	**1,425,600**	1,603,200	1,897,200	1,579,200	1,710,000
d147	1,645,800	1,463,400	**1,288,200**	1,444,200	1,463,400	**1,288,200**	1,777,800
d148	1,570,800	1,513,200	1,722,000	**1,389,600**	1,706,400	1,552,800	2,275,200
d149	2,273,400	2,267,400	**1,567,800**	2,079,000	2,047,800	**1,567,800**	2,604,600
d150	1,522,800	2,125,200	1,605,600	**1,486,800**	2,094,000	1,582,800	1,798,800

Bold numbers indicate minimum values

Table A.1: BAP-GP Objective Values from Expt 1 Runs (a)

Data	gp001-001	gp002-001	gp003-001	gp004-001	gp005-001	gp006-001	gp007-001
d151	3,325,800	3,397,800	2,980,200	**2,356,200**	3,129,000	2,994,600	3,689,400
d152	3,760,200	4,900,200	**2,845,800**	3,261,000	4,391,400	2,890,200	4,698,600
d153	3,147,900	3,671,100	2,690,700	2,940,300	3,389,100	**2,550,300**	3,425,100
d154	3,340,200	3,567,000	**2,801,400**	3,156,600	3,419,400	2,991,000	3,678,600
d155	3,785,100	3,647,100	3,239,100	**3,175,500**	4,023,900	3,435,900	4,021,500
d156	5,803,500	7,010,700	5,087,100	**4,823,100**	6,211,500	5,005,500	6,428,700
d157	**5,312,700**	6,583,500	5,527,500	5,582,700	7,577,100	5,592,300	6,779,100
d158	5,572,200	6,192,600	**5,137,800**	5,922,600	6,688,200	5,329,800	6,340,200
d159	5,135,700	4,737,300	4,692,900	4,580,100	5,148,900	**4,440,900**	5,296,500
d160	5,943,600	7,886,400	**5,518,800**	6,220,800	8,074,800	5,816,400	8,034,000
d161	2,042,700	2,499,900	1,823,100	1,766,400	**1,752,900**	1,960,800	2,199,300
d162	**1,614,600**	2,320,200	2,079,000	1,993,500	2,255,400	2,310,300	2,239,200
d163	2,019,600	2,661,300	1,996,200	**1,812,600**	2,631,600	1,996,200	2,308,500
d164	1,942,200	2,255,400	**1,647,900**	2,075,400	2,237,400	1,950,300	2,134,800
d165	2,383,800	3,412,500	2,385,600	2,793,300	3,412,500	2,375,700	**2,266,800**
d166	3,842,700	3,602,400	3,725,700	**3,325,200**	3,732,000	4,272,000	3,642,000
d167	3,937,200	4,245,900	**3,692,400**	4,518,600	4,275,600	3,880,500	3,871,500
d168	4,101,000	4,165,800	4,024,500	4,119,000	**3,717,600**	3,794,100	3,972,300
d169	**4,094,700**	4,406,100	4,518,600	4,741,800	4,755,300	4,165,800	4,164,000
d170	4,257,000	**3,700,800**	3,862,800	4,208,400	3,892,500	3,890,700	3,817,800
d171	5,425,800	5,630,100	5,443,800	5,446,500	5,553,600	**5,207,100**	5,460,900
d172	5,591,400	5,545,500	5,347,500	5,481,600	**5,329,500**	5,612,100	5,571,600
d173	**4,908,300**	5,131,500	5,505,900	5,829,000	5,344,800	5,738,100	5,586,900
d174	5,327,700	5,230,500	5,311,500	5,763,300	**5,005,500**	5,641,800	5,289,900
d175	5,668,800	5,880,300	6,279,000	5,485,200	5,796,600	**5,341,200**	5,558,100
d176	**6,947,700**	7,355,400	7,224,000	7,281,600	7,575,000	7,072,800	7,358,100
d177	**6,815,700**	7,828,200	7,270,200	6,984,000	7,510,500	7,815,600	7,283,700
d178	**7,494,600**	7,781,700	7,687,200	7,814,100	7,550,400	7,873,500	7,800,600
d179	6,723,600	7,295,100	7,277,100	6,806,400	6,871,200	**6,484,200**	7,296,900
d180	7,276,800	7,797,900	**7,230,000**	7,537,800	7,788,900	7,353,300	7,837,500
d181	1,695,450	1,845,460	1,773,210	1,768,740	1,842,110	**1,487,890**	1,690,920
d182	2,156,530	2,105,320	**1,718,510**	2,016,750	2,040,720	1,851,810	1,858,270
d183	1,848,610	1,876,320	**1,477,830**	1,763,920	1,915,560	1,657,950	1,927,730
d184	1,775,090	1,740,940	1,701,150	1,499,160	1,511,700	**1,439,050**	1,556,780
d185	1,909,080	1,990,860	**1,731,140**	1,827,830	1,945,900	1,762,940	2,055,730
d186	2,439,170	2,708,030	2,577,700	2,578,700	2,779,100	**2,248,270**	2,500,000
d187	2,458,990	2,345,320	**2,236,660**	2,541,750	2,501,630	2,355,010	2,402,740
d188	2,314,690	2,367,750	**2,224,100**	2,620,200	2,279,620	2,411,020	2,270,350
d189	2,235,690	2,240,760	2,209,430	2,242,880	2,253,870	**1,993,370**	2,397,630
d190	62,869,530	**2,986,860**	62,786,360	62,823,440	3,040,780	62,732,460	3,026,810
d191	184,338,800	64,068,450	123,374,310	183,270,580	**63,819,140**	273,572,930	301,832,760
d192	3,757,130	3,879,990	**3,270,610**	3,688,320	3,871,150	3,716,980	93,783,680
d193	107,658,070	183,981,920	63,962,740	107,939,220	94,299,200	**63,789,310**	184,085,350
d194	**3,412,110**	4,012,100	3,723,400	3,870,650	3,864,760	93,483,110	64,043,790
d195	287,706,040	378,218,660	333,670,650	**153,613,980**	366,123,810	351,774,740	288,126,790
d196	406,496,520	315,740,770	290,185,800	362,847,860	419,774,560	**139,872,620**	453,927,120
d197	332,506,010	855,279,900	245,485,490	423,000,120	634,746,190	**245,210,330**	318,018,170
d198	94,547,320	95,272,080	4,709,950	**4,587,960**	5,333,600	94,761,990	5,693,560
d199	332,650,280	543,646,240	**64,880,180**	348,452,500	289,533,200	155,098,360	439,196,330
d200	124,693,140	**95,147,290**	124,638,580	154,434,450	95,196,710	124,771,550	213,036,390

Bold numbers indicate minimum values

Table A.2: BAP-GP Objective Values from Expt 1 Runs (b)

Data	#Se	#Ve	#U	Objective	Transship	Penalty	Algo	#P	Time(s)	AvgD(m)
d101	2	60	0	216,000	216,000	0	gp007-001	3	0.0274	78.66
d102	2	60	0	141,600	141,600	0	gp002-001	2	0.0201	51.77
d103	2	60	0	180,000	180,000	0	gp007-001	4	0.0381	65.19
d104	2	60	0	166,800	166,800	0	gp001-001	3	0.0252	60.90
d105	2	60	0	144,600	144,600	0	gp001-001	7	0.0612	53.89
d106	2	96	0	446,700	446,700	0	gp005-001	7	0.0957	101.34
d107	2	96	0	415,800	415,800	0	gp003-001	5	0.0803	93.48
d108	2	96	0	422,400	422,400	0	gp003-001	4	0.0648	95.26
d109	2	96	0	310,800	310,800	0	gp003-001	3	0.0507	70.70
d110	2	96	0	489,600	489,600	0	gp001-001	6	0.0878	112.29
d111	2	120	0	586,800	586,800	0	gp005-001	6	0.1175	109.36
d112	2	120	0	537,900	537,900	0	gp002-001	6	0.1140	96.57
d113	2	120	0	570,300	570,300	0	gp004-001	3	0.0691	102.13
d114	2	120	0	634,200	634,200	0	gp007-001	4	0.0843	116.69
d115	2	120	0	601,800	601,800	0	gp002-001	6	0.1167	110.10
d116	2	144	0	788,100	788,100	0	gp003-001	8	0.1920	120.47
d117	2	144	0	841,200	841,200	0	gp004-001	8	0.1880	125.35
d118	2	144	0	975,900	975,900	0	gp004-001	4	0.1075	147.68
d119	2	144	0	966,900	966,900	0	gp003-001	3	0.0822	145.53
d120	2	144	0	907,200	907,200	0	gp006-001	4	0.1070	137.56
d121	5	240	0	2,555,100	2,555,100	0	gp007-001	4	2.1281	232.58
d122	5	240	0	2,467,200	2,467,200	0	gp007-001	5	2.6566	223.48
d123	5	240	0	2,539,800	2,539,800	0	gp004-001	7	3.7444	231.14
d124	5	240	0	2,752,200	2,752,200	0	gp001-001	4	2.0321	250.47
d125	5	240	0	2,525,700	2,525,700	0	gp006-001	6	3.0394	230.17
d126	5	302	0	4,077,000	4,077,000	0	gp007-001	6	4.1503	293.01
d127	5	302	0	4,417,200	4,417,200	0	gp006-001	5	3.5863	317.62
d128	5	302	0	4,336,200	4,336,200	0	gp007-001	5	3.4629	309.22
d129	5	302	0	4,308,600	4,308,600	0	gp003-001	4	2.9884	310.35
d130	5	302	0	4,030,200	4,030,200	0	gp002-001	5	3.4634	289.61
d131	5	362	0	5,461,800	5,461,800	0	gp004-001	9	7.9261	330.50
d132	5	362	0	5,861,400	5,861,400	0	gp001-001	9	7.9839	352.10
d133	5	362	0	5,607,300	5,607,300	0	gp006-001	6	5.2978	335.16
d134	5	362	0	5,940,000	5,940,000	0	gp005-001	5	4.5911	360.11
d135	5	362	0	6,143,700	6,143,700	0	gp006-001	4	3.6002	368.35
d136	5	422	0	8,339,700	8,339,700	0	gp003-001	6	6.7033	430.39
d137	5	422	0	9,242,100	9,242,100	0	gp004-001	6	6.8769	475.76
d138	5	422	0	9,009,600	9,009,600	0	gp004-001	4	4.6649	463.19
d139	5	422	1	7,607,700	7,607,700	0	gp006-001	6	6.7917	393.16
d140	5	422	0	8,702,400	8,702,400	0	gp004-001	7	7.7488	445.32
d141	3	240	0	206,700	206,700	0	gp003-001	1	0.1726	18.81
d142	3	240	0	133,200	133,200	0	gp004-001	1	0.1770	12.07
d143	3	240	0	318,600	318,600	0	gp003-001	1	0.1695	29.00
d144	3	240	0	162,000	162,000	0	gp003-001	1	0.1637	14.74
d145	3	240	0	347,100	347,100	0	gp003-001	1	0.1634	31.63
d146	3	302	0	1,425,600	1,425,600	0	gp003-001	3	0.5103	102.46
d147	3	302	0	1,288,200	1,288,200	0	gp003-001	2	0.3619	92.63
d148	3	302	0	1,389,600	1,389,600	0	gp004-001	3	0.5244	99.09
d149	3	302	0	1,567,800	1,567,800	0	gp003-001	3	0.5323	112.93
d150	3	302	0	1,486,800	1,486,800	0	gp004-001	3	0.5371	106.84

Table A.3: Best BAP-GP Solutions from Expt 1 Runs (a)

Data	#Se	#Ve	#U	Objective	Transship	Penalty	Algo	#P	Time(s)	AvgD(m)
d151	3	362	0	2,356,200	2,356,200	0	gp004-001	4	0.8635	142.58
d152	3	362	0	2,845,800	2,845,800	0	gp003-001	6	1.2415	170.95
d153	3	362	0	2,550,300	2,550,300	0	gp006-001	5	1.0204	152.44
d154	3	362	0	2,801,400	2,801,400	0	gp003-001	4	0.8727	169.83
d155	3	362	0	3,175,500	3,175,500	0	gp004-001	3	0.7030	190.39
d156	3	422	0	4,823,100	4,823,100	0	gp004-001	6	1.6197	248.91
d157	3	422	0	5,312,700	5,312,700	0	gp001-001	4	0.9822	273.48
d158	3	422	0	5,137,800	5,137,800	0	gp003-001	5	1.2879	264.14
d159	3	422	0	4,440,900	4,440,900	0	gp006-001	4	1.0686	229.50
d160	3	422	0	5,518,800	5,518,800	0	gp003-001	7	1.7708	282.41
d161	3	240	0	1,752,900	1,752,900	0	gp005-001	5	0.6901	159.56
d162	3	240	0	1,614,600	1,614,600	0	gp001-001	6	0.7722	146.25
d163	3	240	0	1,812,600	1,812,600	0	gp004-001	5	0.7236	164.96
d164	3	240	0	1,647,900	1,647,900	0	gp003-001	4	0.5530	149.97
d165	3	240	0	2,266,800	2,266,800	0	gp007-001	5	0.6803	206.58
d166	3	302	0	3,325,200	3,325,200	0	gp004-001	7	1.2592	238.98
d167	3	302	0	3,692,400	3,692,400	0	gp003-001	3	0.5911	265.51
d168	3	302	0	3,717,600	3,717,600	0	gp005-001	4	0.7372	265.11
d169	3	302	0	4,094,700	4,094,700	0	gp001-001	5	0.8976	294.94
d170	3	302	0	3,700,800	3,700,800	0	gp002-001	6	1.0646	265.94
d171	3	362	0	5,207,100	5,207,100	0	gp006-001	7	1.6514	315.09
d172	3	362	0	5,329,500	5,329,500	0	gp005-001	4	0.9693	320.15
d173	3	362	0	4,908,300	4,908,300	0	gp001-001	6	1.2710	293.38
d174	3	362	0	5,005,500	5,005,500	0	gp005-001	10	2.2622	303.46
d175	3	362	0	5,341,200	5,341,200	0	gp006-001	5	1.2276	320.24
d176	3	422	0	6,947,700	6,947,700	0	gp001-001	6	1.5924	358.55
d177	3	422	0	6,815,700	6,815,700	0	gp001-001	6	1.6303	350.85
d178	3	422	0	7,494,600	7,494,600	0	gp001-001	6	1.6580	385.31
d179	3	422	0	6,484,200	6,484,200	0	gp006-001	5	1.4662	335.10
d180	3	422	0	7,230,000	7,230,000	0	gp003-001	6	1.7619	369.97
d181	4	166	0	1,487,890	1,487,890	0	gp006-001	3	0.6387	195.70
d182	4	166	0	1,718,510	1,718,510	0	gp003-001	4	0.8294	223.44
d183	4	166	0	1,477,830	1,477,830	0	gp003-001	4	0.7742	196.73
d184	4	166	0	1,439,050	1,439,050	0	gp006-001	4	0.8035	197.10
d185	4	166	0	1,731,140	1,731,140	0	gp003-001	4	0.8291	227.66
d186	4	208	0	2,248,270	2,248,270	0	gp006-001	5	1.4089	237.91
d187	4	208	0	2,236,660	2,236,660	0	gp003-001	6	1.6810	235.29
d188	4	208	0	2,224,100	2,224,100	0	gp003-001	6	1.6246	234.71
d189	4	208	0	1,993,370	1,993,370	0	gp006-001	5	1.4547	210.05
d190	4	208	0	2,986,860	2,986,860	0	gp002-001	4	1.1741	316.40
d191	4	250	1	63,819,140	3,819,140	60,000,000	gp005-001	6	2.2445	334.89
d192	4	250	1	3,270,610	3,270,610	0	gp003-001	5	1.8329	285.07
d193	4	250	1	63,789,310	3,789,310	60,000,000	gp006-001	5	1.8299	330.17
d194	4	250	0	3,412,110	3,412,110	0	gp001-001	6	2.1732	298.84
d195	4	250	2	153,613,980	3,613,980	150,000,000	gp004-001	9	3.3834	315.74
d196	4	292	3	139,872,620	4,872,620	135,000,000	gp006-001	10	4.2094	367.50
d197	4	292	4	245,210,330	5,210,330	240,000,000	gp006-001	4	1.8016	394.81
d198	4	292	0	4,587,960	4,587,960	0	gp004-001	8	3.5430	343.95
d199	4	292	1	64,880,180	4,880,180	60,000,000	gp003-001	6	2.6926	365.17
d200	4	292	1	95,147,290	5,147,290	90,000,000	gp002-001	8	3.5551	389.12

Table A.4: Best BAP-GP Solutions from Expt 1 Runs (b)

Data	#Se	#Ve	#U	Objective	Transship	Penalty	Algo	#P	Time(s)	AvgD(m)
d101	2	60	0	216,000	216,000	0	gp001-160	4	0.0310	78.66
d102	2	60	0	141,600	141,600	0	gp001-104	4	0.0323	51.77
d103	2	60	0	180,000	180,000	0	gp001-103	5	0.0423	65.19
d104	2	60	0	148,800	148,800	0	gp001-103	4	0.0326	54.33
d105	2	60	0	144,600	144,600	0	gp001-101	5	0.0438	53.89
d106	2	96	0	382,500	382,500	0	gp001-162	5	0.0675	86.77
d107	2	96	0	379,800	379,800	0	gp001-193	6	0.0934	85.39
d108	2	96	0	433,800	433,800	0	gp001-107	7	0.0998	97.83
d109	2	96	0	310,800	310,800	0	gp001-125	4	0.0573	70.70
d110	2	96	0	474,000	474,000	0	gp001-150	4	0.0600	108.72
d111	2	120	0	568,200	568,200	0	gp001-115	4	0.0738	105.89
d112	2	120	0	488,700	488,700	0	gp001-160	9	0.1562	87.74
d113	2	120	0	530,700	530,700	0	gp001-123	3	0.0984	95.04
d114	2	120	0	567,000	567,000	0	gp001-104	6	0.1080	104.32
d115	2	120	0	546,600	546,600	0	gp001-154	5	0.0916	100.00
d116	2	144	0	766,500	766,500	0	gp001-104	5	0.1222	117.17
d117	2	144	0	773,400	773,400	0	gp001-129	6	0.1349	115.24
d118	2	144	0	963,300	963,300	0	gp001-130	4	0.0922	145.78
d119	2	144	0	921,900	921,900	0	gp001-171	4	0.0898	138.76
d120	2	144	0	859,200	859,200	0	gp001-131	4	0.0911	130.28
d121	5	240	0	2,400,300	2,400,300	0	gp001-148	4	2.4685	218.49
d122	5	240	0	2,437,200	2,437,200	0	gp001-185	6	3.1284	220.76
d123	5	240	0	2,560,200	2,560,200	0	gp001-177	6	3.0958	233.00
d124	5	240	0	2,464,800	2,464,800	0	gp001-166	4	2.0551	224.32
d125	5	240	0	2,597,700	2,597,700	0	gp001-170	6	3.0665	236.74
d126	5	302	0	3,948,600	3,948,600	0	gp001-172	7	4.6873	283.79
d127	5	302	0	3,940,200	3,940,200	0	gp001-109	8	5.5560	283.32
d128	5	302	0	4,110,600	4,110,600	0	gp001-127	5	3.4127	293.13
d129	5	302	0	4,044,000	4,044,000	0	gp001-118	4	2.8343	291.29
d130	5	302	0	3,879,600	3,879,600	0	gp001-155	10	6.8061	278.79
d131	5	362	0	5,476,200	5,476,200	0	gp001-109	6	5.2286	331.37
d132	5	362	0	5,513,400	5,513,400	0	gp001-179	5	4.5953	331.19
d133	5	362	0	5,511,900	5,511,900	0	gp001-183	8	6.8994	329.46
d134	5	362	0	5,658,600	5,658,600	0	gp001-133	6	5.4892	343.05
d135	5	362	0	5,679,900	5,679,900	0	gp001-129	5	4.4130	340.54
d136	5	422	0	8,016,900	8,016,900	0	gp001-190	11	12.6808	413.73
d137	5	422	0	7,830,900	7,830,900	0	gp001-128	6	6.6692	403.11
d138	5	422	0	8,035,200	8,035,200	0	gp001-194	12	13.8541	413.10
d139	5	422	0	7,476,300	7,476,300	0	gp001-155	6	6.8295	386.37
d140	5	422	0	8,127,000	8,127,000	0	gp001-155	8	9.1613	415.87
d141	3	240	0	186,300	186,300	0	gp001-112	3	0.3612	16.96
d142	3	240	0	133,200	133,200	0	gp001-135	3	0.3811	12.07
d143	3	240	0	256,200	256,200	0	gp001-179	3	0.3673	23.32
d144	3	240	0	162,000	162,000	0	gp001-129	3	0.3713	14.74
d145	3	240	0	354,300	354,300	0	gp001-154	2	0.2416	32.29
d146	3	302	0	1,137,600	1,137,600	0	gp001-167	5	1.8102	81.76
d147	3	302	0	1,195,800	1,195,800	0	gp001-162	4	0.6281	85.99
d148	3	302	0	1,209,600	1,209,600	0	gp001-148	3	0.4542	86.26
d149	3	302	0	1,378,200	1,378,200	0	gp001-113	4	0.6511	99.27
d150	3	302	0	1,264,800	1,264,800	0	gp001-106	3	0.4687	90.89

Table A.5: Best BAP-GP Solutions from Expt 2 Runs (a)

Data	#Se	#Ve	#U	Objective	Transship	Penalty	Algo	#P	Time(s)	AvgD(m)
d151	3	362	0	2,536,200	2,536,200	0	gp001-114	5	0.9941	153.47
d152	3	362	0	2,409,000	2,409,000	0	gp001-124	4	0.7780	144.71
d153	3	362	0	2,516,700	2,516,700	0	gp001-181	4	0.7805	150.43
d154	3	362	0	2,317,800	2,317,800	0	gp001-130	7	2.8169	140.52
d155	3	362	0	2,778,300	2,778,300	0	gp001-133	4	0.7726	166.57
d156	3	422	0	4,453,500	4,453,500	0	gp001-148	6	1.5062	229.83
d157	3	422	0	4,683,900	4,683,900	0	gp001-136	5	1.2445	241.12
d158	3	422	0	4,973,400	4,973,400	0	gp001-156	7	3.5992	255.69
d159	3	422	0	4,169,700	4,169,700	0	gp001-200	6	1.4420	215.49
d160	3	422	0	5,112,000	5,112,000	0	gp001-171	9	2.1673	261.59
d161	3	240	0	1,481,100	1,481,100	0	gp001-127	8	1.0631	134.82
d162	3	240	0	1,605,600	1,605,600	0	gp001-128	6	0.8257	145.43
d163	3	240	0	1,800,000	1,800,000	0	gp001-189	5	1.5169	163.82
d164	3	240	0	1,674,000	1,674,000	0	gp001-123	5	0.6455	152.35
d165	3	240	0	2,088,600	2,088,600	0	gp001-148	6	0.7607	190.34
d166	3	302	0	3,421,500	3,421,500	0	gp001-185	6	1.0600	245.90
d167	3	302	0	3,384,600	3,384,600	0	gp001-113	6	2.2072	243.37
d168	3	302	0	3,248,700	3,248,700	0	gp001-107	6	1.0516	231.67
d169	3	302	0	3,549,300	3,549,300	0	gp001-117	9	1.6877	255.66
d170	3	302	0	3,429,900	3,429,900	0	gp001-107	9	1.5542	246.47
d171	3	362	0	4,596,900	4,596,900	0	gp001-123	7	1.4983	278.16
d172	3	362	0	4,869,600	4,869,600	0	gp001-200	7	1.5543	292.52
d173	3	362	0	4,833,600	4,833,600	0	gp001-120	6	1.2615	288.92
d174	3	362	0	4,804,800	4,804,800	0	gp001-158	7	1.5873	291.29
d175	3	362	0	5,120,700	5,120,700	0	gp001-174	5	1.5157	307.01
d176	3	422	0	6,393,300	6,393,300	0	gp001-160	9	2.6418	329.94
d177	3	422	0	6,815,700	6,815,700	0	gp001-102	6	1.7413	350.85
d178	3	422	0	6,477,600	6,477,600	0	gp001-145	7	1.9419	333.02
d179	3	422	0	6,179,100	6,179,100	0	gp001-176	6	1.5958	319.33
d180	3	422	0	6,527,100	6,527,100	0	gp001-110	6	1.6838	334.00
d181	4	166	0	1,473,190	1,473,190	0	gp001-193	6	1.1780	193.76
d182	4	166	0	1,648,960	1,648,960	0	gp001-183	7	1.4143	214.40
d183	4	166	0	1,501,210	1,501,210	0	gp001-137	11	2.1328	199.84
d184	4	166	0	1,383,670	1,383,670	0	gp001-120	5	0.9688	189.52
d185	4	166	0	1,613,860	1,613,860	0	gp001-194	7	1.3968	212.24
d186	4	208	0	2,156,140	2,156,140	0	gp001-117	6	1.6097	228.16
d187	4	208	0	2,096,270	2,096,270	0	gp001-159	7	3.6993	220.52
d188	4	208	0	2,029,300	2,029,300	0	gp001-173	8	2.1113	214.15
d189	4	208	0	1,915,000	1,915,000	0	gp001-152	7	2.0171	201.79
d190	4	208	0	2,528,220	2,528,220	0	gp001-164	5	1.4282	267.82
d191	4	250	1	93,206,530	3,206,530	90,000,000	gp001-168	10	3.5318	281.92
d192	4	250	0	3,387,070	3,387,070	0	gp001-173	5	1.8707	295.22
d193	4	250	1	63,318,180	3,318,180	60,000,000	gp001-195	7	2.5609	289.12
d194	4	250	0	3,176,550	3,176,550	0	gp001-192	10	3.6353	278.21
d195	4	250	1	107,956,080	3,956,080	104,000,000	gp001-129	6	2.2033	344.25
d196	4	292	2	154,908,330	4,908,330	150,000,000	gp001-175	7	3.0408	370.61
d197	4	292	3	229,344,330	5,344,330	224,000,000	gp001-111	6	2.8321	404.48
d198	4	292	0	4,269,070	4,269,070	0	gp001-137	5	2.1238	320.04
d199	4	292	1	94,295,780	4,295,780	90,000,000	gp001-127	8	3.6374	322.17
d200	4	292	1	64,169,870	4,169,870	60,000,000	gp001-199	7	3.0966	314.52

Table A.6: Best BAP-GP Solutions from Expt 2 Runs (b)

Data	#Se	#Ve	#U	Objective	Transship	Penalty	Algo	#P	Time(s)	AvgD(m)
d101	2	60	0	216,000	216,000	0	gp001-160	4	0.0310	78.66
d102	2	60	0	141,600	141,600	0	gp001-104	4	0.0323	51.77
d103	2	60	0	180,000	180,000	0	gp001-103	5	0.0423	65.19
d104	2	60	0	148,800	148,800	0	gp001-103	4	0.0326	54.33
d105	2	60	0	144,600	144,600	0	gp001-101	5	0.0438	53.89
d106	2	96	0	382,500	382,500	0	gp001-162	5	0.0675	86.77
d107	2	96	0	379,800	379,800	0	gp001-193	6	0.0934	85.39
d108	2	96	0	422,400	422,400	0	gp003-001	4	0.0648	95.26
d109	2	96	0	310,800	310,800	0	gp001-125	4	0.0573	70.70
d110	2	96	0	474,000	474,000	0	gp001-150	4	0.0600	108.72
d111	2	120	0	568,200	568,200	0	gp001-115	4	0.0738	105.89
d112	2	120	0	488,700	488,700	0	gp001-160	9	0.1562	87.74
d113	2	120	0	530,700	530,700	0	gp001-123	3	0.0984	95.04
d114	2	120	0	567,000	567,000	0	gp001-104	6	0.1080	104.32
d115	2	120	0	546,600	546,600	0	gp001-154	5	0.0916	100.00
d116	2	144	0	766,500	766,500	0	gp001-104	5	0.1222	117.17
d117	2	144	0	773,400	773,400	0	gp001-129	6	0.1349	115.24
d118	2	144	0	963,300	963,300	0	gp001-130	4	0.0922	145.78
d119	2	144	0	921,900	921,900	0	gp001-171	4	0.0898	138.76
d120	2	144	0	859,200	859,200	0	gp001-131	4	0.0911	130.28
d121	5	240	0	2,400,300	2,400,300	0	gp001-148	4	2.4685	218.49
d122	5	240	0	2,437,200	2,437,200	0	gp001-185	6	3.1284	220.76
d123	5	240	0	2,539,800	2,539,800	0	gp004-001	7	3.7444	231.14
d124	5	240	0	2,464,800	2,464,800	0	gp001-166	4	2.0551	224.32
d125	5	240	0	2,525,700	2,525,700	0	gp006-001	6	3.0394	230.17
d126	5	302	0	3,948,600	3,948,600	0	gp001-172	7	4.6873	283.79
d127	5	302	0	3,940,200	3,940,200	0	gp001-109	8	5.5560	283.32
d128	5	302	0	4,110,600	4,110,600	0	gp001-127	5	3.4127	293.13
d129	5	302	0	4,044,000	4,044,000	0	gp001-118	4	2.8343	291.29
d130	5	302	0	3,879,600	3,879,600	0	gp001-155	10	6.8061	278.79
d131	5	362	0	5,461,800	5,461,800	0	gp004-001	9	7.9261	330.50
d132	5	362	0	5,513,400	5,513,400	0	gp001-179	5	4.5953	331.19
d133	5	362	0	5,511,900	5,511,900	0	gp001-183	8	6.8994	329.46
d134	5	362	0	5,658,600	5,658,600	0	gp001-133	6	5.4892	343.05
d135	5	362	0	5,679,900	5,679,900	0	gp001-129	5	4.4130	340.54
d136	5	422	0	8,016,900	8,016,900	0	gp001-190	11	12.6808	413.73
d137	5	422	0	7,830,900	7,830,900	0	gp001-128	6	6.6692	403.11
d138	5	422	0	8,035,200	8,035,200	0	gp001-194	12	13.8541	413.10
d139	5	422	0	7,476,300	7,476,300	0	gp001-155	6	6.8295	386.37
d140	5	422	0	8,127,000	8,127,000	0	gp001-155	8	9.1613	415.87
d141	3	240	0	186,300	186,300	0	gp001-112	3	0.3612	16.96
d142	3	240	0	133,200	133,200	0	gp001-135	3	0.3811	12.07
d143	3	240	0	256,200	256,200	0	gp001-179	3	0.3673	23.32
d144	3	240	0	162,000	162,000	0	gp001-129	3	0.3713	14.74
d145	3	240	0	347,100	347,100	0	gp003-001	1	0.1634	31.63
d146	3	302	0	1,137,600	1,137,600	0	gp001-167	5	1.8102	81.76
d147	3	302	0	1,195,800	1,195,800	0	gp001-162	4	0.6281	85.99
d148	3	302	0	1,209,600	1,209,600	0	gp001-148	3	0.4542	86.26
d149	3	302	0	1,378,200	1,378,200	0	gp001-113	4	0.6511	99.27
d150	3	302	0	1,264,800	1,264,800	0	gp001-106	3	0.4687	90.89

Table A.7: Best BAP-GP Solutions from Expt 1 & Expt 2 Runs (a)

Data	#Se	#Ve	#U	Objective	Transship	Penalty	Algo	#P	Time(s)	AvgD(m)
d151	3	362	0	2,356,200	2,356,200	0	gp004-001	4	0.8635	142.58
d152	3	362	0	2,409,000	2,409,000	0	gp001-124	4	0.7780	144.71
d153	3	362	0	2,516,700	2,516,700	0	gp001-181	4	0.7805	150.43
d154	3	362	0	2,317,800	2,317,800	0	gp001-130	7	2.8169	140.52
d155	3	362	0	2,778,300	2,778,300	0	gp001-133	4	0.7726	166.57
d156	3	422	0	4,453,500	4,453,500	0	gp001-148	6	1.5062	229.83
d157	3	422	0	4,683,900	4,683,900	0	gp001-136	5	1.2445	241.12
d158	3	422	0	4,973,400	4,973,400	0	gp001-156	7	3.5992	255.69
d159	3	422	0	4,169,700	4,169,700	0	gp001-200	6	1.4420	215.49
d160	3	422	0	5,112,000	5,112,000	0	gp001-171	9	2.1673	261.59
d161	3	240	0	1,481,100	1,481,100	0	gp001-127	8	1.0631	134.82
d162	3	240	0	1,605,600	1,605,600	0	gp001-128	6	0.8257	145.43
d163	3	240	0	1,800,000	1,800,000	0	gp001-189	5	1.5169	163.82
d164	3	240	0	1,647,900	1,647,900	0	gp003-001	4	0.5530	149.97
d165	3	240	0	2,088,600	2,088,600	0	gp001-148	6	0.7607	190.34
d166	3	302	0	3,325,200	3,325,200	0	gp004-001	7	1.2592	238.98
d167	3	302	0	3,384,600	3,384,600	0	gp001-113	6	2.2072	243.37
d168	3	302	0	3,248,700	3,248,700	0	gp001-107	6	1.0516	231.67
d169	3	302	0	3,549,300	3,549,300	0	gp001-117	9	1.6877	255.66
d170	3	302	0	3,429,900	3,429,900	0	gp001-107	9	1.5542	246.47
d171	3	362	0	4,596,900	4,596,900	0	gp001-123	7	1.4983	278.16
d172	3	362	0	4,869,600	4,869,600	0	gp001-200	7	1.5543	292.52
d173	3	362	0	4,833,600	4,833,600	0	gp001-120	6	1.2615	288.92
d174	3	362	0	4,804,800	4,804,800	0	gp001-158	7	1.5873	291.29
d175	3	362	0	5,120,700	5,120,700	0	gp001-174	5	1.5157	307.01
d176	3	422	0	6,393,300	6,393,300	0	gp001-160	9	2.6418	329.94
d177	3	422	0	6,815,700	6,815,700	0	gp001-102	6	1.7413	350.85
d178	3	422	0	6,477,600	6,477,600	0	gp001-145	7	1.9419	333.02
d179	3	422	0	6,179,100	6,179,100	0	gp001-176	6	1.5958	319.33
d180	3	422	0	6,527,100	6,527,100	0	gp001-110	6	1.6838	334.00
d181	4	166	0	1,473,190	1,473,190	0	gp001-193	6	1.1780	193.76
d182	4	166	0	1,648,960	1,648,960	0	gp001-183	7	1.4143	214.40
d183	4	166	0	1,477,830	1,477,830	0	gp003-001	4	0.7742	196.73
d184	4	166	0	1,383,670	1,383,670	0	gp001-120	5	0.9688	189.52
d185	4	166	0	1,613,860	1,613,860	0	gp001-194	7	1.3968	212.24
d186	4	208	0	2,156,140	2,156,140	0	gp001-117	6	1.6097	228.16
d187	4	208	0	2,096,270	2,096,270	0	gp001-159	7	3.6993	220.52
d188	4	208	0	2,029,300	2,029,300	0	gp001-173	8	2.1113	214.15
d189	4	208	0	1,915,000	1,915,000	0	gp001-152	7	2.0171	201.79
d190	4	208	0	2,528,220	2,528,220	0	gp001-164	5	1.4282	267.82
d191	4	250	1	63,819,140	3,819,140	60,000,000	gp005-001	6	2.2445	334.89
d192	4	250	1	3,270,610	3,270,610	0	gp003-001	5	1.8329	285.07
d193	4	250	1	63,318,180	3,318,180	60,000,000	gp001-195	7	2.5609	289.12
d194	4	250	0	3,176,550	3,176,550	0	gp001-192	10	3.6353	278.21
d195	4	250	1	107,956,080	3,956,080	104,000,000	gp001-129	6	2.2033	344.25
d196	4	292	3	139,872,620	4,872,620	135,000,000	gp006-001	10	4.2094	367.50
d197	4	292	3	229,344,330	5,344,330	224,000,000	gp001-111	6	2.8321	404.48
d198	4	292	0	4,269,070	4,269,070	0	gp001-137	5	2.1238	320.04
d199	4	292	1	64,880,180	4,880,180	60,000,000	gp003-001	6	2.6926	365.17
d200	4	292	1	64,169,870	4,169,870	60,000,000	gp001-199	7	3.0966	314.52

Table A.8: Best BAP-GP Solutions from Expt 1 & Expt 2 Runs (b)

Data	#Se	#Ve	Time Taken (s)	
			BAP-GP 107 runs per data set P-II 333 MHz, 128 MB RAM	**BAP-GA** 5 runs per data set K6-2 350 MHz, 128 MB RAM
d101	2	60	2.95	362.00
d102	2	60	3.27	346.00
d103	2	60	3.48	368.00
d104	2	60	3.32	369.00
d105	2	60	4.06	381.00
d106	2	96	7.00	599.00
d107	2	96	7.70	561.00
d108	2	96	7.50	575.00
d109	2	96	6.81	568.00
d110	2	96	6.96	596.00
d111	2	120	9.84	679.00
d112	2	120	10.65	723.00
d113	2	120	9.21	708.00
d114	2	120	9.01	714.00
d115	2	120	9.25	712.00
d116	2	144	11.81	808.00
d117	2	144	10.74	864.00
d118	2	144	10.11	824.00
d119	2	144	10.12	802.00
d120	2	144	11.10	862.00
d121	5	240	261.65	1,365.00
d122	5	240	270.60	1,354.00
d123	5	240	276.55	1,335.00
d124	5	240	262.70	1,353.00
d125	5	240	274.19	1,402.00
d126	5	302	391.95	1,602.00
d127	5	302	349.71	1,602.00
d128	5	302	376.39	1,668.00
d129	5	302	363.99	1,627.00
d130	5	302	390.31	1,623.00
d131	5	362	499.36	1,864.00
d132	5	362	535.92	1,939.00
d133	5	362	505.68	1,897.00
d134	5	362	505.30	1,946.00
d135	5	362	510.75	1,911.00
d136	5	422	807.80	2,314.00
d137	5	422	869.66	2,361.00
d138	5	422	868.94	2,355.00
d139	5	422	795.83	2,292.00
d140	5	422	877.76	2,326.00
d141	3	240	38.25	1,521.00
d142	3	240	39.42	1,572.00
d143	3	240	40.21	1,527.00
d144	3	240	39.08	1,559.00
d145	3	240	37.19	1,361.00
d146	3	302	74.22	1,633.00
d147	3	302	58.16	1,600.00
d148	3	302	61.82	1,771.00
d149	3	302	62.81	1,702.00
d150	3	302	62.57	1,662.00

Table A.9: Time Taken per Data Set (a)

Data	**#Se**	**#Ve**	**Time Taken (s)**	
			BAP-GP 107 runs per data set P-II 333 MHz, 128 MB RAM	**BAP-GA** 5 runs per data set K6-2 350 MHz, 128 MB RAM
d151	3	362	88.94	1,986.00
d152	3	362	95.82	1,954.00
d153	3	362	96.84	2,040.00
d154	3	362	108.16	2,002.00
d155	3	362	93.86	2,042.00
d156	3	422	135.18	2,311.00
d157	3	422	130.58	2,279.00
d158	3	422	134.80	2,279.00
d159	3	422	135.85	2,257.00
d160	3	422	133.34	2,273.00
d161	3	240	70.62	1,421.00
d162	3	240	67.22	1,351.00
d163	3	240	82.47	1,438.00
d164	3	240	67.10	1,341.00
d165	3	240	64.76	1,371.00
d166	3	302	113.59	1,674.00
d167	3	302	108.00	1,734.00
d168	3	302	116.09	1,742.00
d169	3	302	101.42	1,620.00
d170	3	302	102.77	1,556.00
d171	3	362	129.12	1,981.00
d172	3	362	127.16	1,998.00
d173	3	362	130.84	1,991.00
d174	3	362	144.95	2,051.00
d175	3	362	151.35	1,973.00
d176	3	422	213.01	2,376.00
d177	3	422	179.09	2,360.00
d178	3	422	178.65	2,361.00
d179	3	422	176.47	2,321.00
d180	3	422	172.88	2,362.00
d181	4	166	99.11	872.00
d182	4	166	102.40	1,028.00
d183	4	166	94.62	938.00
d184	4	166	98.37	972.00
d185	4	166	104.27	941.00
d186	4	208	140.11	1,230.00
d187	4	208	173.14	1,122.00
d188	4	208	157.94	1,230.00
d189	4	208	163.55	1,215.00
d190	4	208	156.23	1,118.00
d191	4	250	201.84	1,301.00
d192	4	250	208.62	1,351.00
d193	4	250	211.08	1,324.00
d194	4	250	242.30	1,303.00
d195	4	250	223.03	1,333.00
d196	4	292	285.89	1,704.00
d197	4	292	272.03	1,544.00
d198	4	292	291.37	1,491.00
d199	4	292	327.68	1,528.00
d200	4	292	320.19	1,677.00

Table A.10: Time Taken per Data Set (b)

Data	#Se	#Ve	#U	Objective	Transship	Penalty	Algo	#P	Time(s)	AvgD(m)
d212	2	27	0	160,800	160,800	0	gp002-001	4	0.0137	138.14
d213	2	27	0	162,300	162,300	0	gp007-001	4	0.0130	137.66
d215	2	27	0	147,900	147,900	0	gp004-001	2	0.0070	125.34
d217	2	33	0	183,000	183,000	0	gp001-173	3	0.0125	130.34
d341	3	29	0	48,600	48,600	0	gp001-001	2	0.0185	38.06
d342	3	29	0	64,500	64,500	0	gp001-001	2	0.0161	53.39
d343	3	29	0	56,700	56,700	0	gp001-001	2	0.0191	46.29
d344	3	29	0	63,900	63,900	0	gp001-001	2	0.0191	50.35
d345	3	29	0	96,900	96,900	0	gp001-001	3	0.0248	78.33
d346	3	35	0	197,400	197,400	0	gp007-001	3	0.0321	127.60
d347	3	35	0	110,400	110,400	0	gp001-001	2	0.0217	71.50
d348	3	35	0	201,300	201,300	0	gp001-142	4	0.0419	130.38
d349	3	35	0	93,900	93,900	0	gp006-001	2	0.0272	62.19
d350	3	35	0	124,500	124,500	0	gp004-001	2	0.0242	83.78
d351	3	43	0	322,200	322,200	0	gp001-113	5	0.0669	170.84
d352	3	43	0	273,300	273,300	0	gp001-131	6	0.0873	142.86

Table A.11: Best BAP-GP Solutions on BAP-BB Data Sets