

Table 1: Average and standard deviation of the fitness value for the QAP instances Part 1. (*) Denote experiments where optimal solution was found.

EDA	bur26a	bur26b	bur26c	bur26d	nug17	nug18	nug20	nug21	tai10a	tai10b	tai12a	tai12b
UMDA	avg.: 5440119.0 dev.: 4456.6	3830249.0 7166.8	5433062.0 6315.6	3827255.0 7718.0	1774.0 14.4	1973.4 21.3	2653.4 15.4	2491.6 25.5	139868.6 2710.3	1203816.0 11186.4	(*) 234692.8 5736.6	40786350.0 793090.0
MIMIC	avg.: 5443712.0 dev.: 6244.8	3829300.0 3082.0	5441955.0 9758.0	3828712.0 7530.8	1792.4 18.4	1983.8 16.6	2645.6 16.1	2507.8 27.8	(*) 140080.4 3220.8	(*) 1197917.0 12809.0	(*) 239218.6 5400.8	41150980.0 1383396.0
EBNA <i>BIC</i>	avg.: 5442923.0 dev.: 4279.6	3831741.0 6153.0	5429392.0 2107.6	3830139.0 8864.6	1765.2 15.4	1992.6 16.5	2644.0 18.0	2505.0 33.6	139791.2 2379.3	(*) 1199662.0 10699.6	(*) 235787.0 3859.6	40789010.0 1315014.0
TREE	avg.: 5461404.0 dev.: 11295.2	3835015.0 4101.0	5456420.0 8604.0	3837589.0 10186.8	1815.2 13.4	2021.8 21.8	2709.8 22.6	2540.6 29.8	140230.8 3141.8	(*) 1212733.0 21401.0	242512.6 5238.1	41854440.0 1676268.0
UMDA _c	avg.: 5630092.0 dev.: 10558.8	3995678.0 6406.4	5668759.0 11668.6	4012064.0 14671.2	1958.2 9.8	2175.6 4.3	3005.6 14.2	2975.8 26.6	154072.6 3648.1	1345637.0 11954.8	264944.8 4233.1	51790730.0 1087818.0
EGNA _{ee}	avg.: 5552754.0 dev.: 12118.8	3915722.0 13502.0	5556925.0 21267.0	3946258.0 21844.8	1933.4 5.9	2144.0 15.2	2968.4 24.8	2821.4 28.3	153585.4 2169.1	1293218.0 39344.4	261749.4 3453.1	47083920.0 1212888.0
IDEA-ICE	avg.: 5478254.2 dev.: 15760.0	3848287.9 6919.5	5469277.1 11767.7	3849678.6 12222.9	1884.8 25.8	2089.2 27.8	2778.8 39.4	2673.8 58.2	145148.8 3096.3	1284602.4 28977.4	245950.2 6977.0	44731028.2 1234036.7
EHBSA <i>WT</i>	avg.: 5444394.3 dev.: 3148.7	3829565.1 1223.5	5438737.2 3823.9	3825467.6 1387.5	1769.8 5.8	1976.0 12.0	2636.6 15.3	2515.2 13.1	(*) 135877.0 594.0	(*) 1184096.6 605.9	230244.0 3832.0	(*) 39464925.0 0.0
EHBSA <i>WO</i>	avg.: 5498612.2 dev.: 7421.8	3868893.9 5524.3	5503763.7 6515.0	3885124.1 5366.7	1851.8 8.6	2076.6 8.3	2792.2 18.2	2654.8 13.2	136821.8 1083.0	(*) 1207608.0 15590.8	244928.6 1964.5	(*) 39470511.7 7821.4
NHBSA <i>WT</i>	avg.: 5431911.0 dev.: 1272.4	3823067.9 1658.1	(*) 5426795.6 1.1	(*) 3821247.5 28.7	(*) 1736.2 4.3	(*) 1939.4 4.5	(*) 2681.8 10.2	(*) 2442.2 1.8	(*) 135028.0 995.0	(*) 1183760.0 0.0	224883.6 841.7	(*) 39508471.0 78382.8
NHBSA <i>WO</i>	avg.: 5435473.8 dev.: 1941.4	3826815.2 1255.8	5428066.5 185.1	3821767.0 93.4	1761.4 19.0	1956.2 9.4	2636.4 16.1	2473.0 11.2	(*) 137382.0 1734.0	(*) 1190674.4 7697.0	231696.2 5087.4	(*) 39860785.2 633376.3
REDU <i>MDA</i>	avg.: 554078.0 dev.: 5399.6	3899491.0 10370.6	5535400.0 6760.0	3902476.0 6074.0	1882.8 9.3	2170.4 17.7	2921.0 10.6	2759.8 8.2	18386.6 2222.4	126009.0 30959.0	258501.6 3521.9	44563346.0 1880648.0
REDU <i>MIMIC</i>	avg.: 5597654.0 dev.: 9959.2	3943239.0 9462.8	5613617.0 9341.6	3957013.0 6363.0	1983.0 14.0	2248.4 4.7	2975.0 19.4	2836.8 31.2	131270.0 4543.2	1291530.0 0.0	264838.0 3952.8	47926830.0 1345824.0
OneGA	avg.: 5538537.7 dev.: 12557.0	3899236.1 18476.9	5557827.6 15699.1	3920788.6 14569.9	1912.6 27.0	2158.4 34.9	2893.6 33.5	2793.0 51.0	140862.4 2847.2	1268656.2 54297.6	254335.0 4188.8	44860807.7 1020356.4
Best Known Solutions	5426670.0	3817852.0	5426795.0	3821225.0	1732.0	1930.0	2570.0	2438.0	135028.0	1183760.0	224416.0	39464925.0

Table 2: Average and standard deviation of the fitness value for the QAP instances Part 2. (*) Denote experiments where optimal solution was found.

EDA		<i>ta15a</i>	<i>ta15b</i>	<i>ta20a</i>	<i>ta20b</i>	<i>ta25a</i>	<i>ta25b</i>	<i>ta30a</i>	<i>ta30b</i>	<i>ta35a</i>	<i>ta35b</i>	<i>ta40a</i>	<i>ta40b</i>
UMDA	avg.	403520.2	51949250.0	729332.8	124456300.0	1219666.0	356871100.0	1897578.0	673346700.0	2504206.0	294916600.0	3268661.0	687946100.0
	dev.	5194.1	65000.0	5061.6	429500.0	6307.2	11838540.0	9448.0	24695100.0	15558.8	9111210.0	18205.2	15358300.0
	avg.	404128.2	51975200.0	741628.4	128104000.0	1230873.0	354706400.0	1899613.0	706720000.0	2532689.0	300356300.0	3296989.0	699671200.0
MMIC	avg.	4416.2	83020.0	6698.0	3598800.0	3939.0	3817760.0	6969.8	15578600.0	11067.0	7679100.0	10573.0	16898600.0
	dev.	397903.0	51971170.0	737861.2	130363600.0	1223566.0	359190100.0	1889003.0	668806100.0	2516776.0	293561300.0	3261389.0	674194300.0
	avg.	2739.4	68910.0	5896.0	6459400.0	5486.8	9154080.0	9636.4	13489920.0	16590.8	5916220.0	13153.2	14491360.0
EBNA <i>BIC</i>	avg.	404677.8	52033070.0	756302.4	130832900.0	1245449.0	373629400.0	1937319.0	694521800.0	2604237.0	308755400.0	3383855.0	703873000.0
	dev.	4648.6	87764.0	7683.2	4276660.0	9506.8	6889000.0	9634.8	19702400.0	20737.0	8857560.0	17147.0	17489800.0
	avg.	437695.4	52952320.0	797822.2	175079100.0	1350087.0	606091100.0	2056129.0	968400300.0	2701086.0	407695400.0	3592347.0	958721300.0
UMDA _c	avg.	4044.0	431460.0	14158.6	12052680.0	2526.2	15717880.0	5941.2	31402180.0	5004.4	4439600.0	6445.0	13015300.0
	dev.	3937.8	97490.0	2569.8	2789600.0	6137.6	21260080.0	9367.6	54057300.0	2698243.0	389334400.0	3569396.0	894976600.0
	avg.	421157.8	52217565.2	770363.6	129841172.4	1278422.8	374627467.9	1991013.4	711257299.2	2652326.8	320048934.0	3469006.2	750040138.1
IDEA-ICE	avg.	4196.6	56769.2	8262.1	1411251.7	12907.4	10482931.9	12713.7	20733273.4	32505.8	7972459.8	28015.0	12696619.5
	dev.	397816.8	51917837.8	742148.4	124674406.3	1238977.4	348819136.0	1938729.8	644313315.0	2597492.6	290830501.3	3375198.4	664187682.6
	avg.	3784.8	53042.6	2860.5	310576.9	2437.4	838379.0	2759.0	907085.2	6984.7	1432691.5	7903.3	3035945.8
EHBSA <i>WT</i>	avg.	418679.2	52322201.9	795771.8	128361149.3	1305744.4	363050800.5	2035471.6	663328632.8	2795979.2	314998569.6	3551799.2	699043045.0
	dev.	2643.0	32861.3	3347.5	732469.1	9459.0	2643264.1	3783.9	3491232.8	7370.8	4397142.1	9198.8	3144204.0
	avg.	(*) 389737.4	(*) 51765268.0	720817.8	(*) 122907026.3	1209663.2	(*) 344636635.2	1889633.4	641404350.4	2537712.2	280886207.3	3311038.4	649637601.9
NHBSA <i>WT</i>	avg.	1071.7	0.0	3607.0	361369.8	4098.4	167379.2	5363.0	1195968.3	6769.0	899674.4	6502.6	3116939.5
	dev.	396383.6	(*) 51845196.3	727433.6	126766275.9	1204084.6	34803759.9	1867840.6	688624338.1	2490871.4	292150303.3	3235093.8	677273139.5
	avg.	3389.9	79928.3	6344.1	3381307.8	7625.1	3679273.2	7861.5	25239579.7	13865.8	8879182.8	10781.1	16728768.6
REDA <i>UMDA</i>	avg.	426467.8	52397560.0	792780.6	158495200.0	1320585.0	529243500.0	2047528.0	776358000.0	2730241.0	358096500.0	3500793.0	868630000.0
	dev.	2217.0	68432.0	4371.5	2736640.0	10017.0	4789400.0	7284.4	3588800.0	10773.2	1348100.0	33655.0	11237000.0
	avg.	434397.2	52447330.0	807033.4	156759600.0	1332874.0	568270200.0	2048995.0	808369300.0	2715446.0	390944500.0	3558663.0	886682900.0
REDA <i>MMIC</i>	avg.	2187.7	176556.0	6199.7	3435440.0	5436.0	3782720.0	7133.0	10433620.0	3192.0	4596000.0	12639.8	22098880.0
	dev.	430513.4	52416541.2	794619.6	141626895.9	1326596.4	453708027.8	2050234.0	821062418.7	2743720.6	364012879.8	3600130.6	904728560.3
	avg.	3615.2	125114.9	10078.5	6605284.7	11275.2	19382249.0	9828.8	46632268.7	19522.6	11396132.0	28482.3	12200608.0
Best Known Solutions		388214.0	51765268.0	703482.0	122455319.0	1167256.0	344355646.0	1818146.0	637117113.0	2422002.0	283315445.0	3139370.0	637250948.0