

Supplementary File for “Evolutionary Multitasking With Global and Local Auxiliary Tasks for Constrained Multi-Objective Optimization”

Kangjia Qiao, Jing Liang, *Senior Member, IEEE*, Zhongyao Liu, Kunjie Yu, Caitong Yue, and Boyang Qu

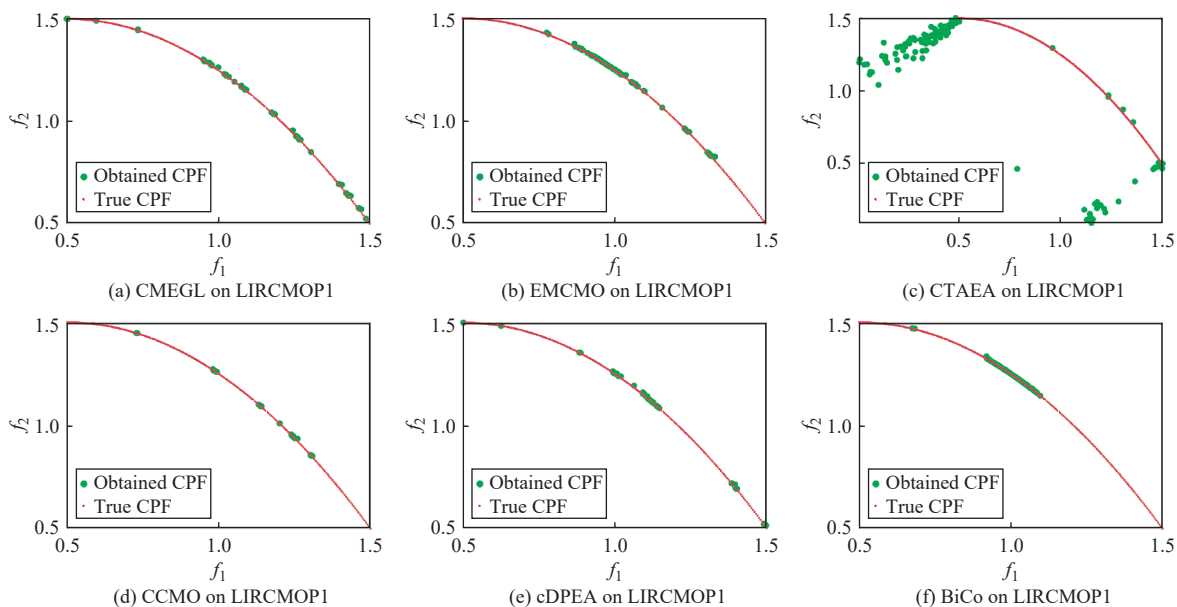


Fig. S-1. The final population distributions of compared algorithms corresponding to the median IGD value on function LIRCMP1.

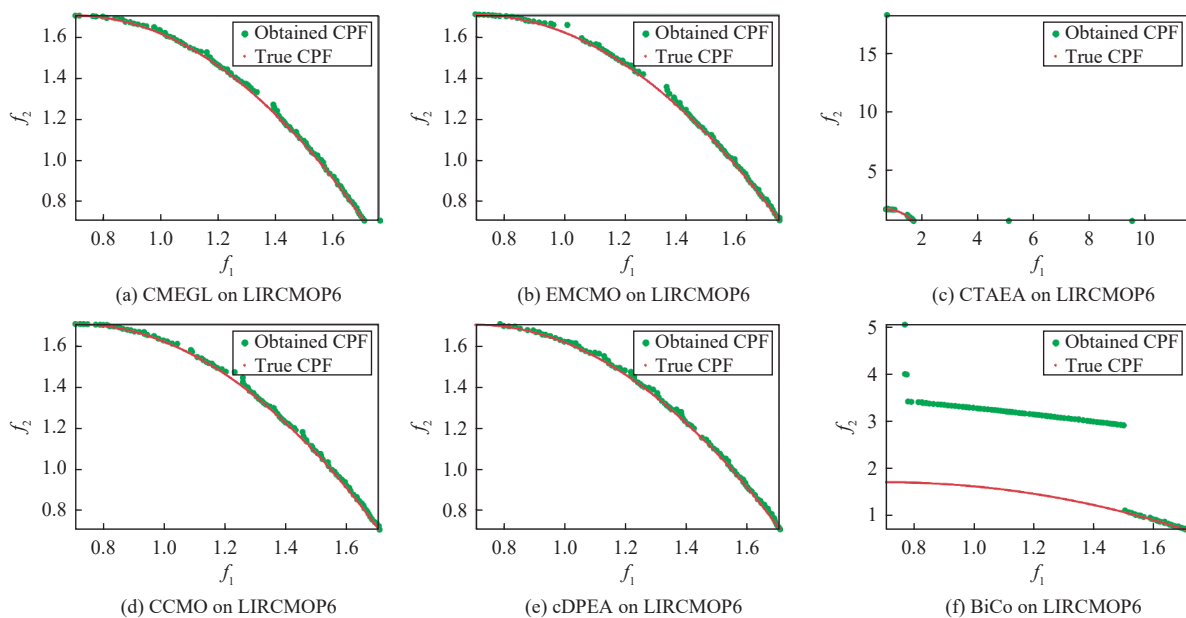


Fig. S-2. The final population distributions of compared algorithms corresponding to the median IGD value on function LIRCMP6.

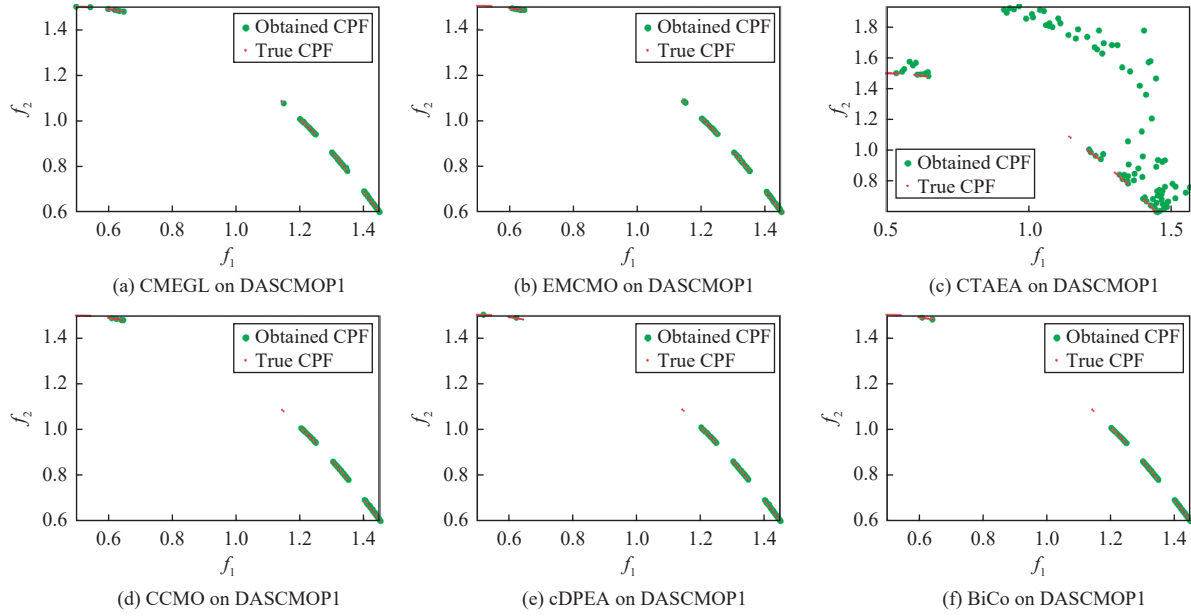


Fig. S-3. The final population distributions of compared algorithms corresponding to the median IGD value on function DASCMP1.

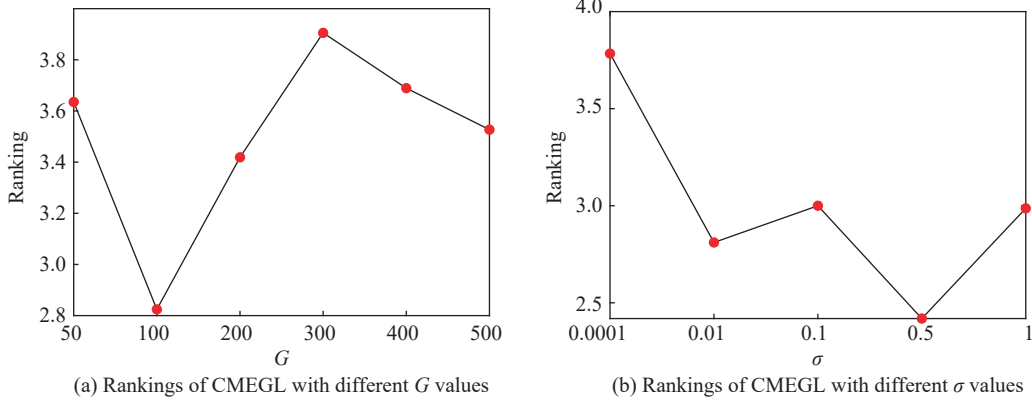


Fig. S-4. Investigation of G values and σ values.

TABLE S-I
THE IGD RESULTS OF CMEGL, CMEGL-G, AND CMEGL-L ON THREE FUNCTION TEST SUITES

Problem	CMEGL	CMEGL-G	CMEGL-L
LIRCMOP1	3.2209e-2 (8.05e-3)	1.9341e-1 (7.25e-2) -	2.7259e-2 (5.99e-3) +
LIRCMOP2	2.9935e-2 (9.29e-3)	1.7579e-1 (6.26e-2) -	2.5562e-2 (5.25e-3) =
LIRCMOP3	3.2193e-2 (1.20e-2)	2.4011e-1 (8.98e-2) -	2.6613e-2 (1.26e-2) =
LIRCMOP4	3.4209e-2 (1.03e-2)	2.4666e-1 (7.80e-2) -	3.3456e-2 (1.75e-2) =
LIRCMOP5	1.4203e-2 (1.13e-2)	1.9598e-2 (1.28e-2) -	2.4946e-2 (1.76e-2) -
LIRCMOP6	8.9731e-3 (2.35e-3)	3.4290e-2 (5.96e-2) -	9.0390e-2 (1.18e-1) -
LIRCMOP7	8.7332e-3 (1.66e-3)	1.1915e-2 (5.39e-3) -	1.2415e-2 (1.46e-2) =
LIRCMOP8	7.9051e-3 (6.99e-4)	8.8963e-3 (3.28e-3) =	1.2507e-2 (2.59e-2) =
LIRCMOP9	2.4665e-2 (3.19e-2)	2.2583e-1 (1.08e-1) -	2.5190e-2 (3.17e-2) =
LIRCMOP10	5.8237e-1 (6.71e-4)	5.9044e-1 (7.17e-3) -	5.7967e-1 (3.13e-3) +
LIRCMOP11	2.4629e-3 (7.35e-5)	1.1898e-2 (2.43e-2) -	2.4701e-3 (8.07e-5) =
LIRCMOP12	6.8821e-3 (5.68e-3)	3.7583e-2 (3.81e-2) -	8.9840e-3 (9.39e-3) =
LIRCMOP13	9.0574e-2 (1.93e-3)	8.9680e-2 (2.54e-3) +	9.0387e-2 (2.40e-3) =
LIRCMOP14	9.3408e-2 (2.90e-3)	9.2178e-2 (2.60e-3) =	9.2965e-2 (2.81e-3) =

TABLE S-I
THE IGD RESULTS OF CMEGL, CMEGL-G, AND CMEGL-L ON THREE FUNCTION TEST SUITES (CONTINUED)

Problem	CMEGL	CMEGL-G	CMEGL-L
MW1	1.5947e-3 (8.86e-6)	1.9630e-3 (1.39e-3) =	1.5988e-3 (1.20e-5) =
MW2	1.8034e-2 (6.28e-3)	2.0312e-2 (7.01e-3) =	1.8764e-2 (8.31e-3) =
MW3	4.7008e-3 (2.09e-4)	4.7240e-3 (2.47e-4) =	4.8230e-3 (3.01e-4) =
MW4	4.0366e-2 (4.31e-4)	4.0361e-2 (3.40e-4) =	4.0474e-2 (4.53e-4) =
MW5	6.3215e-4 (2.09e-4)	5.3819e-3 (1.19e-2) -	1.0108e-3 (8.87e-4) -
MW6	1.8668e-2 (1.59e-2)	2.4941e-2 (1.68e-2) =	1.9332e-2 (1.05e-2) =
MW7	4.2446e-3 (1.72e-4)	4.4275e-3 (3.37e-4) -	4.2705e-3 (2.15e-4) =
MW8	4.5168e-2 (2.83e-3)	4.6515e-2 (6.33e-3) =	4.6096e-2 (3.89e-3) =
MW9	4.4256e-3 (1.56e-4)	4.7466e-3 (5.94e-4) -	5.3230e-2 (1.78e-1) -
MW10	2.0855e-2 (2.14e-2)	4.2808e-2 (3.33e-2) -	NaN (9.67e-1) -
MW11	5.9999e-3 (1.51e-4)	5.8714e-3 (2.48e-4) +	6.0129e-3 (1.33e-4) =
MW12	2.7080e-2 (1.22e-1)	3.0275e-2 (1.40e-1) -	4.7303e-3 (1.51e-4) =
MW13	5.4227e-2 (3.23e-2)	7.3015e-2 (3.22e-2) =	7.9221e-2 (4.33e-2) -
MW14	9.7447e-2 (1.70e-3)	9.7427e-2 (2.43e-3) =	9.7866e-2 (1.67e-3) =
DASCMOP1	7.8674e-3 (6.49e-3)	8.2017e-2 (1.60e-1) -	1.2985e-2 (6.66e-3) -
DASCMOP2	1.1410e-2 (1.45e-2)	4.9773e-2 (3.64e-2) -	2.3374e-2 (3.10e-2) =
DASCMOP3	6.0518e-2 (5.05e-2)	1.3536e-1 (7.19e-2) -	6.7701e-2 (5.35e-2) =
DASCMOP4	1.3082e-3 (8.66e-4)	1.3116e-3 (9.65e-4) =	1.2569e-3 (5.04e-4) =
DASCMOP5	3.0935e-3 (1.67e-4)	2.8135e-3 (1.11e-4) +	3.0240e-3 (1.79e-4) =
DASCMOP6	1.7725e-2 (3.12e-3)	3.1794e-2 (2.64e-2) -	1.7919e-2 (4.59e-3) =
DASCMOP7	3.1295e-2 (8.32e-4)	3.0924e-2 (7.17e-4) =	3.1171e-2 (8.49e-4) =
DASCMOP8	3.9500e-2 (9.96e-4)	3.9566e-2 (8.84e-4) =	3.9282e-2 (1.25e-3) =
DASCMOP9	3.9244e-2 (1.00e-3)	4.0383e-2 (9.36e-4) -	3.9348e-2 (8.79e-4) =
+/-/ =		3/21/13	2/7/28

TABLE S-II
THE IGD RESULTS OF CMEGL AND CMEGL-L ON THREE FUNCTION TEST SUITES

Problem	CMEGL	CMEGL-L
LIRCMOP1	3.2209e-2 (8.05e-3)	3.5656e-2 (9.77e-3) =
LIRCMOP2	2.9935e-2 (9.29e-3)	3.2315e-2 (6.44e-3) =
LIRCMOP3	3.2193e-2 (1.20e-2)	3.9965e-2 (1.42e-2) -
LIRCMOP4	3.4209e-2 (1.03e-2)	3.8132e-2 (1.23e-2) =
LIRCMOP5	1.4203e-2 (1.13e-2)	1.2034e-2 (4.86e-3) =
LIRCMOP6	8.9731e-3 (2.35e-3)	1.1095e-2 (7.63e-3) =
LIRCMOP7	8.7332e-3 (1.66e-3)	8.7880e-3 (1.69e-3) =
LIRCMOP8	7.9051e-3 (6.99e-4)	8.6925e-3 (2.20e-3) -
LIRCMOP9	2.4665e-2 (3.19e-2)	7.4317e-3 (2.82e-3) =
LIRCMOP10	5.8237e-1 (6.71e-4)	5.8218e-1 (8.19e-4) =
LIRCMOP11	2.4629e-3 (7.35e-5)	2.5390e-3 (9.96e-5) -
LIRCMOP12	6.8821e-3 (5.68e-3)	3.3870e-3 (8.81e-4) =
LIRCMOP13	9.0574e-2 (1.93e-3)	9.1773e-2 (2.27e-3) -
LIRCMOP14	9.3408e-2 (2.90e-3)	9.4460e-2 (2.89e-3) =
MW1	1.5947e-3 (8.86e-6)	1.6095e-3 (1.52e-5) -
MW2	1.8034e-2 (6.28e-3)	1.7041e-2 (6.53e-3) =
MW3	4.7008e-3 (2.09e-4)	4.7958e-3 (1.76e-4) -
MW4	4.0366e-2 (4.31e-4)	4.1087e-2 (3.89e-4) -
MW5	6.3215e-4 (2.09e-4)	8.3000e-4 (2.62e-4) -
MW6	1.8668e-2 (1.59e-2)	1.4136e-2 (1.01e-2) =

TABLE S-II
THE IGD RESULTS OF CMEGL AND CMEGL-L ON THREE FUNCTION TEST SUITES (CONTINUED)

Problem	CMEGL	CMEGL-1
MW7	4.2446e-3 (1.72e-4)	4.2410e-3 (2.23e-4) =
MW8	4.5168e-2 (2.83e-3)	4.4870e-2 (2.05e-3) =
MW9	4.4256e-3 (1.56e-4)	2.8070e-2 (1.29e-1) =
MW10	2.0855e-2 (2.14e-2)	2.7961e-2 (1.84e-2) -
MW11	5.9999e-3 (1.51e-4)	6.0921e-3 (8.90e-5) -
MW12	2.7080e-2 (1.22e-1)	4.8450e-3 (1.08e-4) +
MW13	5.4227e-2 (3.23e-2)	5.8852e-2 (3.28e-2) =
MW14	9.7447e-2 (1.70e-3)	9.7999e-2 (1.54e-3) =
DASCMP1	7.8674e-3 (6.49e-3)	8.8458e-3 (6.73e-3) =
DASCMP2	1.1410e-2 (1.45e-2)	1.7804e-2 (1.95e-2) -
DASCMP3	6.0518e-2 (5.05e-2)	4.8048e-2 (3.57e-2) =
DASCMP4	1.3082e-3 (8.66e-4)	1.4286e-3 (7.17e-4) -
DASCMP5	3.0935e-3 (1.67e-4)	3.4972e-3 (3.12e-4) -
DASCMP6	1.7725e-2 (3.12e-3)	1.7962e-2 (3.14e-3) =
DASCMP7	3.1295e-2 (8.32e-4)	3.1963e-2 (1.00e-3) -
DASCMP8	3.9500e-2 (9.96e-4)	4.0416e-2 (1.22e-3) -
DASCMP9	3.9244e-2 (1.00e-3)	3.9703e-2 (1.35e-3) =
	+/-/=	1/15/21

TABLE S-III
THE IGD RESULTS OF CMEGL, CMEGL-TS1, AND CMEGL-TS2 ON THREE FUNCTION TEST SUITES

Problem	CMEGL	CMEGL-TS1	CMEGL-TS2
LIRCMOP1	3.2209e-2 (8.05e-3)	2.9120e-2 (7.70e-3) =	8.1726e-2 (2.80e-2) -
LIRCMOP2	2.9935e-2 (9.29e-3)	3.0451e-2 (1.04e-2) =	6.4751e-2 (1.95e-2) -
LIRCMOP3	3.2193e-2 (1.20e-2)	3.5158e-2 (1.65e-2) =	1.2334e-1 (4.78e-2) -
LIRCMOP4	3.4209e-2 (1.03e-2)	3.7749e-2 (1.68e-2) =	1.0872e-1 (4.77e-2) -
LIRCMOP5	1.4203e-2 (1.13e-2)	1.3443e-2 (7.33e-3) =	3.0238e-2 (1.74e-2) -
LIRCMOP6	8.9731e-3 (2.35e-3)	1.0216e-2 (4.69e-3) =	2.7092e-2 (1.53e-2) -
LIRCMOP7	8.7332e-3 (1.66e-3)	1.1862e-2 (7.40e-3) =	1.0398e-2 (4.25e-3) =
LIRCMOP8	7.9051e-3 (6.99e-4)	8.5757e-3 (2.50e-3) =	1.3594e-2 (8.76e-3) -
LIRCMOP9	2.4665e-2 (3.19e-2)	6.8903e-2 (3.57e-2) -	1.3904e-1 (6.01e-2) -
LIRCMOP10	5.8237e-1 (6.71e-4)	5.8176e-1 (1.66e-3) =	5.8387e-1 (6.95e-3) -
LIRCMOP11	2.4629e-3 (7.35e-5)	2.4839e-3 (9.13e-5) =	3.0961e-3 (2.74e-3) =
LIRCMOP12	6.8821e-3 (5.68e-3)	6.7562e-3 (7.89e-3) =	2.4065e-2 (3.07e-2) =
LIRCMOP13	9.0574e-2 (1.93e-3)	9.1006e-2 (1.78e-3) =	9.1192e-2 (2.57e-3) =
LIRCMOP14	9.3408e-2 (2.90e-3)	9.4510e-2 (3.35e-3) =	9.4127e-2 (3.52e-3) =
MW1	1.5947e-3 (8.86e-6)	NaN (9.67e-1) -	1.7966e-3 (1.03e-3) -
MW2	1.8034e-2 (6.28e-3)	2.0168e-2 (8.39e-3) =	1.6832e-2 (6.66e-3) =
MW3	4.7008e-3 (2.09e-4)	4.7961e-3 (2.34e-4) =	5.3567e-3 (4.94e-4) -
MW4	4.0366e-2 (4.31e-4)	4.0447e-2 (3.27e-4) =	4.1941e-2 (4.98e-4) -
MW5	6.3215e-4 (2.09e-4)	7.2255e-4 (3.23e-4) =	1.0337e-3 (6.14e-4) -
MW6	1.8668e-2 (1.59e-2)	2.6938e-2 (1.58e-2) -	1.5143e-2 (1.04e-2) =
MW7	4.2446e-3 (1.72e-4)	4.3317e-3 (4.50e-4) =	4.7318e-3 (3.72e-4) -
MW8	4.5168e-2 (2.83e-3)	4.5418e-2 (3.07e-3) =	4.4697e-2 (1.92e-3) =
MW9	4.4256e-3 (1.56e-4)	2.7874e-2 (1.28e-1) =	7.0600e-3 (1.03e-2) =
MW10	2.0855e-2 (2.14e-2)	4.1636e-2 (2.41e-2) -	2.0714e-2 (2.13e-2) =
MW11	5.9999e-3 (1.51e-4)	5.9479e-3 (1.26e-4) =	5.9917e-3 (1.36e-4) =
MW12	2.7080e-2 (1.22e-1)	4.7096e-3 (1.02e-4) =	2.7754e-2 (1.22e-1) =

TABLE S-III
THE IGD RESULTS OF CMEGL, CMEGL-TS1, AND CMEGL-TS2 ON THREE FUNCTION TEST SUITES (CONTINUED)

Problem	CMEGL	CMEGL-TS1	CMEGL-TS2
MW13	5.4227e-2 (3.23e-2)	6.5989e-2 (3.30e-2) =	5.8212e-2 (3.30e-2) =
MW14	9.7447e-2 (1.70e-3)	9.8081e-2 (1.67e-3) =	1.0115e-1 (2.88e-3) -
DASCPOP1	7.8674e-3 (6.49e-3)	1.0252e-2 (7.16e-3) =	2.2013e-2 (3.84e-2) -
DASCPOP2	1.1410e-2 (1.45e-2)	1.6296e-2 (2.37e-2) =	4.5749e-2 (2.94e-2) -
DASCPOP3	6.0518e-2 (5.05e-2)	7.6616e-2 (5.20e-2) =	5.2595e-2 (3.50e-2) =
DASCPOP4	1.3082e-3 (8.66e-4)	1.1486e-3 (3.74e-5) =	1.2706e-3 (5.05e-4) =
DASCPOP5	3.0935e-3 (1.67e-4)	3.0723e-3 (1.49e-4) =	3.1700e-3 (2.01e-4) =
DASCPOP6	1.7725e-2 (3.12e-3)	2.0017e-2 (5.36e-3) =	2.9401e-2 (2.16e-2) -
DASCPOP7	3.1295e-2 (8.32e-4)	3.1521e-2 (7.40e-4) =	3.1411e-2 (7.78e-4) =
DASCPOP8	3.9500e-2 (9.96e-4)	3.9505e-2 (9.96e-4) =	3.9389e-2 (1.18e-3) =
DASCPOP9	3.9244e-2 (1.00e-3)	3.9558e-2 (1.05e-3) =	3.9969e-2 (1.64e-3) =
+/-/=		0/4/33	0/18/19

TABLE S-IV
THE IGD RESULTS OF CMEGL, CMEGL-MAX, CMEGL-MIN ON THREE FUNCTION TEST SUITES

Problem	CMEGL	CMEGL-max	CMEGL-min
MW1	1.5947e-3 (8.86e-6)	1.5986e-3 (1.58e-5) =	NaN (9.67e-1)
MW2	1.8034e-2 (6.28e-3)	1.7109e-2 (8.56e-3) =	2.1199e-2 (7.96e-3) =
MW3	4.7008e-3 (2.09e-4)	4.8869e-3 (3.37e-4) -	4.7726e-3 (2.41e-4) =
MW4	4.0366e-2 (4.31e-4)	4.0461e-2 (3.98e-4) =	4.0527e-2 (3.89e-4) =
MW5	6.3215e-4 (2.09e-4)	7.2170e-4 (2.02e-4) =	6.1418e-2 (1.89e-1) -
MW6	1.8668e-2 (1.59e-2)	1.9795e-2 (1.09e-2) =	2.5014e-2 (1.28e-2) -
MW7	4.2446e-3 (1.72e-4)	4.4227e-3 (2.78e-4) -	4.5152e-3 (2.97e-4) -
MW8	4.5168e-2 (2.83e-3)	4.4938e-2 (2.94e-3) =	4.7119e-2 (5.64e-3) -
MW9	4.4256e-3 (1.56e-4)	4.5933e-3 (9.99e-4) =	2.7970e-2 (1.29e-1) =
MW10	2.0855e-2 (2.14e-2)	NaN (9.67e-1) -	8.4126e-2 (1.11e-1) -
MW11	5.9999e-3 (1.51e-4)	6.0638e-3 (1.66e-4) =	5.8273e-3 (2.03e-4) +
MW12	2.7080e-2 (1.22e-1)	4.7146e-3 (1.03e-4) =	3.8148e-2 (1.31e-1) =
MW13	5.4227e-2 (3.23e-2)	4.7534e-2 (3.05e-2) =	5.6858e-2 (3.62e-2) =
MW14	9.7447e-2 (1.70e-3)	9.7184e-2 (1.51e-3) =	9.7658e-2 (1.85e-3) =
DASCPOP1	7.8674e-3 (6.49e-3)	4.5548e-3 (2.84e-3) =	3.7238e-2 (5.58e-2) -
DASCPOP2	1.1410e-2 (1.45e-2)	7.3367e-3 (9.02e-3) =	4.3038e-2 (3.00e-2) -
DASCPOP3	6.0518e-2 (5.05e-2)	4.9548e-2 (4.39e-2) =	1.3397e-1 (6.91e-2) -
DASCPOP4	1.3082e-3 (8.66e-4)	1.1718e-3 (9.66e-5) =	1.1378e-3 (1.45e-5) =
DASCPOP5	3.0935e-3 (1.67e-4)	3.1555e-3 (1.59e-4) =	2.7694e-3 (7.71e-5) +
DASCPOP6	1.7725e-2 (3.12e-3)	2.1779e-2 (1.47e-2) =	5.3136e-2 (6.62e-2) -
DASCPOP7	3.1295e-2 (8.32e-4)	3.1142e-2 (6.68e-4) =	3.1151e-2 (6.68e-4) =
DASCPOP8	3.9500e-2 (9.96e-4)	3.9215e-2 (1.09e-3) =	3.9768e-2 (7.00e-4) =
DASCPOP9	3.9244e-2 (1.00e-3)	4.0020e-2 (9.33e-4) -	4.0701e-2 (8.31e-4) -
LIRCMOP1	3.2209e-2 (8.05e-3)	5.9266e-2 (1.63e-2) -	1.9859e-1 (7.26e-2) -
LIRCMOP2	2.9935e-2 (9.29e-3)	5.9623e-2 (2.28e-2) -	2.3640e-1 (8.78e-2) -
LIRCMOP3	3.2193e-2 (1.20e-2)	6.1145e-2 (2.10e-2) -	2.8382e-1 (1.14e-1) -
LIRCMOP4	3.4209e-2 (1.03e-2)	5.5444e-2 (1.69e-2) -	2.5825e-1 (5.72e-2) -
LIRCMOP5	1.4203e-2 (1.13e-2)	9.9618e-3 (2.08e-3) =	1.9862e-2 (1.17e-2) -
LIRCMOP6	8.9731e-3 (2.35e-3)	8.4802e-3 (1.79e-3) =	1.5436e-2 (1.05e-2) -
LIRCMOP7	8.7332e-3 (1.66e-3)	8.1317e-3 (7.22e-4) =	1.0083e-2 (4.65e-3) =
LIRCMOP8	7.9051e-3 (6.99e-4)	8.0656e-3 (1.28e-3) =	8.1246e-3 (2.48e-3) -
LIRCMOP9	2.4665e-2 (3.19e-2)	1.5230e-2 (1.82e-2) =	2.3988e-1 (1.15e-1) -

TABLE S-IV
THE IGD RESULTS OF CMEGL, CMEGL-MAX, CMEGL-MIN ON THREE FUNCTION TEST SUITES (CONTINUED)

Problem	CMEGL	CMEGL-max	CMEGL-min
LIRCMOP10	5.8237e-1 (6.71e-4)	5.8186e-1 (7.81e-4) +	5.8991e-1 (7.37e-3) -
LIRCMOP11	2.4629e-3 (7.35e-5)	2.4691e-3 (8.02e-5) =	2.1104e-2 (3.15e-2) =
LIRCMOP12	6.8821e-3 (5.68e-3)	3.8149e-3 (2.12e-3) +	3.9778e-2 (5.96e-2) =
LIRCMOP13	9.0574e-2 (1.93e-3)	9.0898e-2 (2.34e-3) =	9.1113e-2 (2.36e-3) =
LIRCMOP14	9.3408e-2 (2.90e-3)	9.3329e-2 (3.10e-3) =	9.2671e-2 (2.34e-3) =
+/-/=		2/8/27	2/19/15

TABLE S-V
THE IGD RESULTS OF CMEGL WITH DIFFERENT NUMBERS OF TRANSFERRED OFFSPRING

Problem	CMEGL_T1	CMEGL_T25	CMEGL_T50	CMEGL_T75	CMEGL_T100
LIRCMOP1	1.3369e-1 (5.49e-2) -	5.0623e-2 (1.93e-2) -	3.5535e-2 (8.42e-3) =	3.1824e-2 (7.80e-3) =	3.2209e-2 (8.05e-3)
LIRCMOP2	1.1768e-1 (3.38e-2) -	3.9181e-2 (1.09e-2) -	4.0913e-2 (1.31e-2) -	3.1449e-2 (8.21e-3) =	2.9935e-2 (9.29e-3)
LIRCMOP3	1.8612e-1 (7.07e-2) -	5.9264e-2 (2.29e-2) -	4.0447e-2 (1.88e-2) =	2.9443e-2 (1.45e-2) =	3.2193e-2 (1.20e-2)
LIRCMOP4	1.9473e-1 (6.46e-2) -	6.3452e-2 (3.02e-2) -	4.3906e-2 (2.23e-2) =	3.2960e-2 (9.57e-3) =	3.4209e-2 (1.03e-2)
LIRCMOP5	1.8966e-2 (9.76e-3) -	1.6068e-2 (6.93e-3) -	1.2868e-2 (7.83e-3) =	1.3101e-2 (9.08e-3) =	1.4203e-2 (1.13e-2)
LIRCMOP6	1.6346e-2 (5.53e-3) -	1.3354e-2 (5.32e-3) -	1.1445e-2 (4.99e-3) -	1.3647e-2 (1.15e-2) =	8.9731e-3 (2.35e-3)
LIRCMOP7	1.0570e-2 (4.88e-3) =	1.1410e-2 (4.97e-3) -	1.0099e-2 (4.66e-3) =	9.0505e-3 (2.24e-3) =	8.7332e-3 (1.66e-3)
LIRCMOP8	9.4423e-3 (2.51e-3) -	8.7865e-3 (2.53e-3) -	8.6596e-3 (2.74e-3) =	7.8853e-3 (8.49e-4) =	7.9051e-3 (6.99e-4)
LIRCMOP9	7.3841e-2 (5.14e-2) -	2.8030e-2 (3.26e-2) =	2.5725e-2 (3.12e-2) =	1.9338e-2 (2.17e-2) =	2.4665e-2 (3.19e-2)
LIRCMOP10	5.8011e-1 (3.57e-3) +	5.8176e-1 (8.01e-4) +	5.8224e-1 (6.81e-4) =	5.8251e-1 (5.88e-4) =	5.8237e-1 (6.71e-4)
LIRCMOP11	6.8089e-3 (1.31e-2) -	2.5249e-3 (1.30e-4) -	2.4854e-3 (1.17e-4) =	2.4547e-3 (9.14e-5) =	2.4629e-3 (7.35e-5)
LIRCMOP12	1.8199e-2 (2.11e-2) -	9.0392e-3 (9.36e-3) =	7.3224e-3 (9.25e-3) =	7.1480e-3 (7.39e-3) =	6.8821e-3 (5.68e-3)
LIRCMOP13	8.9972e-2 (2.04e-3) =	9.0996e-2 (4.05e-3) =	9.0503e-2 (1.92e-3) =	9.1180e-2 (2.60e-3) =	9.0574e-2 (1.93e-3)
LIRCMOP14	9.2860e-2 (2.83e-3) =	9.3558e-2 (3.32e-3) =	9.4436e-2 (3.94e-3) =	9.2257e-2 (2.08e-3) =	9.3408e-2 (2.90e-3)
MW1	1.5972e-3 (9.61e-6) =	1.6321e-3 (2.11e-4) =	1.5953e-3 (1.02e-5) =	1.5967e-3 (7.71e-6) =	1.5947e-3 (8.86e-6)
MW2	8.1011e-3 (5.08e-3) +	1.2302e-2 (6.34e-3) +	1.4071e-2 (5.92e-3) +	1.6585e-2 (7.68e-3) =	1.8034e-2 (6.28e-3)
MW3	5.1201e-3 (3.67e-4) -	4.8457e-3 (2.75e-4) -	4.8316e-3 (3.37e-4) =	4.8800e-3 (4.44e-4) =	4.7008e-3 (2.09e-4)
MW4	4.0606e-2 (2.25e-4) -	4.0541e-2 (3.64e-4) =	4.0545e-2 (3.41e-4) =	4.0538e-2 (3.58e-4) =	4.0366e-2 (4.31e-4)
MW5	2.5788e-3 (1.85e-3) -	9.1534e-4 (3.15e-4) -	7.6739e-4 (2.34e-4) -	8.2297e-4 (5.19e-4) -	6.3215e-4 (2.09e-4)
MW6	7.8082e-3 (5.30e-3) +	1.3141e-2 (6.79e-3) =	1.6058e-2 (1.20e-2) =	1.6170e-2 (1.01e-2) =	1.8668e-2 (1.59e-2)
MW7	4.8700e-3 (4.33e-4) -	4.5104e-3 (3.13e-4) -	4.4515e-3 (2.84e-4) -	4.3339e-3 (3.07e-4) =	4.2446e-3 (1.72e-4)
MW8	4.3653e-2 (1.43e-3) +	4.3574e-2 (1.33e-3) +	4.4151e-2 (1.81e-3) =	4.4319e-2 (2.41e-3) +	4.5168e-2 (2.83e-3)
MW9	9.0273e-3 (2.36e-3) -	4.9608e-3 (3.91e-4) -	4.7203e-3 (4.26e-4) -	4.5375e-3 (2.08e-4) -	4.4256e-3 (1.56e-4)
MW10	1.3110e-2 (9.06e-3) =	1.1681e-2 (1.01e-2) =	2.3240e-2 (2.33e-2) =	3.3544e-2 (3.74e-2) =	2.0855e-2 (2.14e-2)
MW11	6.0748e-3 (1.17e-4) -	6.0285e-3 (1.29e-4) =	5.9845e-3 (9.29e-5) =	6.0179e-3 (1.12e-4) =	5.9999e-3 (1.51e-4)
MW12	4.8086e-3 (1.06e-4) +	4.7742e-3 (1.23e-4) =	4.7507e-3 (1.15e-4) =	2.6950e-2 (1.22e-1) =	2.7080e-2 (1.22e-1)
MW13	2.7301e-2 (1.89e-2) +	4.3807e-2 (2.69e-2) =	4.3091e-2 (2.47e-2) =	4.2545e-2 (2.53e-2) =	5.4227e-2 (3.23e-2)
MW14	9.7169e-2 (1.67e-3) =	9.7473e-2 (1.90e-3) =	9.7936e-2 (1.45e-3) =	9.7498e-2 (1.59e-3) =	9.7447e-2 (1.70e-3)
DASCMOP1	1.6864e-2 (6.61e-3) -	1.2368e-2 (6.86e-3) -	1.0606e-2 (7.01e-3) -	1.1379e-2 (6.95e-3) -	7.8674e-3 (6.49e-3)
DASCMOP2	2.6514e-2 (2.57e-2) -	1.2153e-2 (1.22e-2) -	2.0710e-2 (2.55e-2) -	1.6371e-2 (2.44e-2) =	1.1410e-2 (1.45e-2)
DASCMOP3	9.1802e-2 (5.46e-2) -	6.2581e-2 (4.93e-2) =	6.0160e-2 (4.70e-2) =	5.6961e-2 (4.57e-2) =	6.0518e-2 (5.05e-2)
DASCMOP4	1.3831e-3 (7.27e-4) =	1.2744e-3 (4.30e-4) =	1.2971e-3 (5.50e-4) =	1.1856e-3 (1.05e-4) =	1.3082e-3 (8.66e-4)
DASCMOP5	3.2729e-3 (4.80e-4) =	3.3116e-3 (2.65e-4) -	3.1921e-3 (2.62e-4) =	3.2018e-3 (2.09e-4) =	3.0935e-3 (1.67e-4)
DASCMOP6	2.1859e-2 (1.41e-2) -	2.0981e-2 (1.33e-2) -	1.9393e-2 (4.76e-3) -	1.7474e-2 (3.47e-3) =	1.7725e-2 (3.12e-3)
DASCMOP7	3.1049e-2 (9.24e-4) =	3.1664e-2 (7.78e-4) =	3.1171e-2 (8.14e-4) =	3.1382e-2 (5.66e-4) =	3.1295e-2 (8.32e-4)
DASCMOP8	3.9660e-2 (1.69e-3) =	3.9610e-2 (8.85e-4) =	3.9978e-2 (1.37e-3) =	3.9702e-2 (1.56e-3) =	3.9500e-2 (9.96e-4)
DASCMOP9	4.0604e-2 (1.34e-3) -	3.9834e-2 (1.34e-3) =	3.9528e-2 (9.48e-4) =	3.9587e-2 (1.46e-3) =	3.9244e-2 (1.00e-3)
+/-/=	6/21/10	3/17/17	1/8/28	1/3/33	