

Table 1: IGD, Mean and standard deviation

Obj.	problem	HHCOR2LPNORM	HHCOR2MINMAX	HHCOR2SDE	HHCORandomLPNORM	HHCORandomMINMAX	HHCORandomSDE	HHLA
5	MaF01	1.2E-3(1.31E-5)	1.23E-3(6.46E-5)	1.18E-3(1.04E-5)	1.22E-3(9.52E-6)	1.26E-3(5.38E-5)	1.2E-3(9.97E-6)	1.34E-3(2(2.2E-3)
	MaF02	<b>6.68E-3(8.17E-5)</b>	6.87E-3(3.43E-4)	7.01E-3(1.03E-4)	6.94E-3(9.00E-5)	6.86E-3(1.19E-4)	7.21E-3(1.05E-4)	1.04E-2(1.07E-2)
	MaF03	2.81E2(4.19E2)	6.1E-1(7.71E-1)	6.07E-1(7.73E-1)	<b>7.81E-4(4.47E-5)</b>	9.93E-4(1.25E-4)	8.22E-4(6.96E-5)	1.07E-2(2(2.2E-3)
	MaF04	<b>1.86E-2(2.3E-4)</b>	1.98E-2(1.89E-3)	2.61E-2(1.59E-3)	1.88E-2(2.26E-4)	1.92E-2(2.15E-3)	2.66E-2(2.15E-3)	8.21E-2(2(2.2E-3)
	MaF05	1.93E-2(4.14E-4)	2.21E-2(1.77E-3)	2.55E-2(1.16E-3)	<b>1.92E-2(3.67E-4)</b>	1.98E-2(1.15E-3)	2.56E-2(1.02E-3)	2.7E-2(2(2.2E-3)
	MaF06	4.25E-5(4.57E-6)	3.9E-5(7.85E-6)	9.08E-5(1.3E-5)	4.45E-5(6.59E-6)	3.76E-5(7.88E-6)	8.93E-5(9.05E-6)	5.12E-4(7.12E-4)
	MaF07	<b>2.31E-3(5.19E-5)</b>	2.37E-3(1.86E-4)	2.55E-3(8.85E-5)	2.37E-3(5.34E-5)	2.49E-3(1.36E-4)	2.51E-3(9.34E-5)	4.68E-3(4(4.6E-3)
	MaF08	<b>1.07E-3(1.02E-5)</b>	1.24E-3(1.18E-4)	1.14E-3(2.99E-5)	1.08E-3(1.2E-5)	1.13E-3(2.11E-5)	1.15E-3(3.32E-5)	2.73E-3(4(4.7E-3)
	MaF09	1.1E-3(5.58E-5)	1.29E-3(1.45E-4)	1.04E-3(3.22E-5)	1.14E-3(3.85E-5)	1.24E-3(1.25E-4)	<b>1.03E-3(1.18E-5)</b>	1.31E-3(2(2.2E-3)
	MaF10	8.43E-3(7.71E-4)	9.11E-3(1.03E-3)	8.92E-3(1.13E-3)	<b>5.94E-3(5.74E-4)</b>	6.31E-3(5.83E-4)	6.97E-3(1.02E-3)	1.58E-2(5(5.1E-2)
	MaF11	9.64E-3(1.99E-3)	7.32E-3(1.01E-3)	1.72E-2(2.14E-3)	8.68E-3(1.01E-3)	<b>6.67E-3(6.58E-4)</b>	1.75E-2(1.46E-3)	1.83E-2(1(1.1E-2)
	MaF12	<b>1.03E-2(6.46E-5)</b>	1.08E-2(6.4E-4)	1.26E-2(3.94E-4)	1.03E-2(7.73E-5)	1.04E-2(3.99E-4)	1.27E-2(3.71E-4)	1.32E-2(1(1.1E-2)
	MaF13	8.84E-4(8.08E-5)	9.93E-4(1.52E-4)	8.92E-4(1.04E-4)	7.79E-4(6.73E-5)	8.86E-4(1.01E-4)	<b>7.74E-4(9.6E-5)</b>	2.53E-3(4(4.1E-3)
	MaF14	6.4E-3(1.46E-3)	5.6E-3(5.09E-4)	5.34E-3(6.92E-4)	5.98E-3(6.96E-4)	6.04E-3(4.97E-4)	5.95E-3(6.98E-4)	5.94E-3(4(4.1E-3)
	MaF15	9.79E-3(2.68E-3)	4.7E-3(4.73E-4)	4.32E-3(4.95E-4)	5.99E-3(5.28E-4)	5.53E-3(1.02E-3)	<b>2.56E-3(1.43E-4)</b>	8.42E-3(3(3.1E-3)
10	MaF01	2.7E-3(2.01E-5)	<b>2.66E-3(3.47E-5)</b>	2.7E-3(2.28E-5)	2.75E-3(2.66E-5)	2.82E-3(3.55E-5)	2.71E-3(2.28E-5)	3.41E-3(1(1.1E-2)
	MaF02	1.98E-3(3.32E-5)	1.96E-3(3.97E-5)	1.89E-3(3.5E-5)	1.99E-3(3.76E-5)	1.98E-3(6.07E-5)	<b>1.87E-3(2.33E-5)</b>	4.27E-3(1(1.1E-2)
	MaF03	1.73E3(1.91E3)	1.24E0(1.73E0)	9.5E-1(1.26E0)	2.64E2(7.18E2)	1.85E-3(2.85E-4)	<b>1.08E-3(4.9E-5)</b>	4.11E5(1(1.1E5)
	MaF04	<b>6.78E-1(1.88E-2)</b>	6.86E-1(4.72E-2)	1.16E0(1.07E-1)	6.93E-1(2.44E-2)	7.09E-1(6.25E-2)	1.33E0(1.27E-1)	4.07E0(9(9.1E0)
	MaF05	9.62E-1(6.69E-2)	1.45E0(2.35E-1)	6.98E-1(1.95E-2)	9.39E-1(5.32E-2)	1.21E0(2.44E-1)	<b>6.83E-1(2.13E-2)</b>	1.15E0(3(3.1E0)
	MaF06	1.45E-2(1.18E-2)	8.65E-3(8.66E-3)	8.75E-3(8.58E-3)	3.49E-3(1.48E-3)	1.01E-3(2E-3)	1.05E-3(4.6E-4)	1.95E-2(2(2.2E-3)
	MaF07	6.46E-3(1.65E-4)	6.48E-3(3.65E-4)	5.91E-3(4.3E-4)	6.47E-3(9.2E-5)	6.61E-3(3.39E-4)	<b>5.89E-3(3.15E-4)</b>	1.44E-2(1(1.1E-2)
	MaF08	<b>1.3E-3(1.24E-5)</b>	1.43E-3(1.26E-4)	1.4E-3(2.27E-5)	1.3E-3(8.72E-6)	1.39E-3(8.88E-5)	1.4E-3(2.58E-5)	3.66E-3(1(1.1E-2)
	MaF09	1.79E-2(5.47E-3)	7.43E-3(6.1E-3)	1.69E-3(4.89E-4)	1.33E-2(1.2E-3)	1.46E-2(3.55E-3)	<b>1.36E-3(1.7E-4)</b>	1.02E-2(3(3.1E0)
	MaF10	1.87E-2(1.82E-3)	1.94E-2(2.19E-3)	2.03E-2(1.63E-3)	<b>1.51E-2(1.59E-3)</b>	1.59E-2(1.91E-3)	1.77E-2(2.2E-3)	4.31E-2(7(7.1E2)
	MaF11	2.57E-2(3.67E-3)	1.69E-2(3.13E-3)	4.63E-2(8.56E-3)	2.41E-2(3.35E-3)	1.58E-2(3.67E-3)	4.61E-2(1.26E-2)	1.3E-1(2(2.2E-3)
	MaF12	5.09E-2(9.1E-4)	5.15E-2(1.71E-3)	5.32E-2(7.35E-4)	5.26E-2(8.46E-4)	<b>5.09E-2(1.38E-3)</b>	5.42E-2(6.52E-4)	6.27E-2(8(8.1E2)
	MaF13	1.03E-3(8.82E-5)	1.16E-3(1.52E-4)	<b>9.67E-4(1.16E-4)</b>	1.01E-3(1.01E-4)	1.16E-3(1.19E-4)	9.79E-4(1.41E-4)	3.19E-3(1(1.1E-2)
	MaF14	1.06E-2(2.48E-3)	8.36E-3(5.79E-4)	9.58E-3(1.6E-3)	1.12E-2(4.98E-3)	8.39E-3(4.6E-4)	8.04E-3(5.15E-4)	4.45E-1(1(1.1E1)
	MaF15	5.13E-2(3.85E-2)	9.56E-3(1.42E-3)	6.69E-3(3.28E-4)	1.64E-2(1.9E-3)	1.16E-2(8.66E-4)	<b>6.24E-3(1.86E-4)</b>	1.28E-2(1(1.1E-2)
15	MaF01	<b>3.89E-3(6.86E-5)</b>	4.11E-3(1.36E-4)	4.2E-3(7.9E-5)	4.02E-3(7.7E-5)	4.36E-3(1.9E-4)	4.4E-3(7.15E-5)	4.75E-3(3(3.1E0)
	MaF02	2.54E-3(3.8E-5)	2.76E-3(1.7E-4)	2.61E-3(8.56E-5)	2.57E-3(5.03E-5)	2.82E-3(1.92E-4)	2.63E-3(6.8E-5)	6.44E-3(9(9.1E2)
	MaF03	1.13E-1(1.96E-1)	8.29E-2(1.62E-1)	8.28E-2(1.66E-1)	2.58E-3(6.1E-5)	2.48E-3(4.6E-5)	<b>1.62E-3(9.03E-5)</b>	3.09E7(1(1.1E7)
	MaF04	<b>2.63E1(1.71E0)</b>	2.65E1(1.27E0)	4.82E1(8.52E0)	2.82E1(2.17E0)	2.79E1(1.45E0)	4.59E1(8.85E0)	3.47E2(5(5.1E2)
	MaF05	3.68E1(4.12E0)	5.02E1(4.99E0)	2.65E1(6.49E0)	3.49E1(3.14E0)	5.03E1(7.72E0)	<b>2.55E1(1.96E0)</b>	5.75E1(2(2.2E-3)
	MaF06	1.21E-2(1.14E-2)	4.55E-3(3.54E-3)	4.09E-3(3.31E-3)	4.1E-3(2.17E-10)	5.65E-3(2.88E-3)	1.23E-3(2.66E-4)	2.64E-1(4(4.1E2)
	MaF07	1.29E-2(2.06E-4)	1.34E-2(4.94E-4)	<b>1.18E-2(2.66E-4)</b>	1.28E-2(2.48E-4)	1.34E-2(4.4E-4)	1.18E-2(2.34E-4)	2.36E-2(1(1.1E-2)
	MaF08	2.11E0(5.49E0)	2.11E0(5.49E0)	2.11E0(5.49E0)	2.42E0(5.96E0)	2.42E0(5.96E0)	2.42E0(5.96E0)	1.17E0(5(5.1E0)
	MaF09	2.68E-3(2.42E-4)	3.04E-3(7.75E-4)	2.27E-3(4.87E-5)	2.52E-3(1.13E-4)	2.8E-3(5.82E-4)	2.25E-3(4.17E-5)	7.39E-3(3(3.1E0)
	MaF10	<b>2.64E-2(1.19E-3)</b>	2.68E-2(1.2E-3)	2.99E-2(2.19E-3)	2.73E-2(1.33E-3)	2.69E-2(1.26E-3)	2.92E-2(1.75E-3)	5.84E-2(3(3.1E0)
	MaF11	7.57E-2(2.29E-2)	3.27E-2(1.29E-2)	7.77E-2(2.86E-2)	7.29E-2(2.17E-2)	3.36E-2(1.32E-2)	7.53E-2(3.5E-2)	1.86E-1(4(4.1E2)
	MaF12	1.16E-1(1.78E-3)	1.12E-1(7.37E-3)	1.2E-1(7.37E-3)	1.18E-1(3.33E-3)	1.13E-1(2.77E-3)	1.4E-1(1.3E-2)	1.52E-1(3(3.1E0)
	MaF13	1.71E-3(1.15E-4)	1.97E-3(3.61E-4)	1.41E-3(1.56E-4)	1.68E-3(1.19E-3)	2.13E-3(3.44E-4)	<b>1.39E-3(1.4E-4)</b>	6.01E-3(2(2.2E-3)
	MaF14	1.42E-2(2.49E-3)	1.37E-2(2.14E-3)	1.3E-2(1.02E-3)	1.27E-2(1.1E-3)	1.3E-2(1.84E-3)	1.29E-2(7.43E-4)	1.65E1(7(7.1E2)
	MaF15	6.54E-2(5.81E-2)	1.54E-2(2.29E-3)	1.15E-2(2.96E-3)	1.96E-2(4.56E-3)	1.38E-2(1.8E-3)	<b>9.11E-3(1.9E-4)</b>	4.12E-2(8(8.1E2)