Scenario #1

Regular Fitness-based Migration Policy

November, 2022

TABLE I
SCENARIO #1 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{10}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
	Best	2.41E+03	6.78E+02	2.20E+03		1.64E+03	2.58E+03	5.84E+03		1.17E+01	1.13E+01	5.99E-02
	Median	9.58E+03	6.45E+03	1.03E+04		5.09E+03	1.52E+04	1.71E+04		1.02E+02	1.02E+02	2.72E+01
F1	Worst	6.04E+04	4.35E+04	3.38E+04	F12	4.28E+04	5.47E+04	5.74E+04	F22	1.04E+02	1.05E+02	1.04E+02
	Mean	1.49E+04	1.00E+04	1.17E+04		8.85E+03	1.93E+04	2.19E+04		7.36E+01	8.10E+01	4.05E+01
	Std	1.48E+04	8.84E+03	6.73E+03		8.99E+03	1.42E+04	1.29E+04		3.51E+01	3.41E+01	3.54E+01
	Best	1.07E+01	7.35E+00	6.55E+00		2.04E+01	7.65E+00	3.78E+01		7.38E-02	1.01E-01	2.37E-01
	Median	5.49E+01	4.73E+01	4.26E+01		7.66E+02	6.17E+02	5.97E+02		3.07E+02	3.09E+02	3.07E+02
F3	Worst	2.12E+02	5.25E+02	1.83E+02	F13	1.32E+04	1.36E+04	4.40E+03	F23	3.13E+02	3.20E+02	3.12E+02
	Mean	7.02E+01	7.13E+01	5.40E+01		1.71E+03	1.52E+03	1.05E+03		2.75E+02	2.70E+02	2.49E+02
	Std	5.01E+01	9.05E+01	4.98E+01		2.65E+03	2.95E+03	1.08E+03		9.19E+01	1.04E+02	1.20E+02
	Best	3.05E-03	9.95E-02	5.42E-02		3.85E+00	2.13E+00	8.60E+00		1.00E+02	1.00E+00	1.00E+02
	Median	4.74E+00	3.43E+00	3.35E+00		2.86E+01	4.47E+01	4.33E+01		1.00E+02	1.00E+02	1.00E+02
F4	Worst	6.49E+00	7.09E+00	7.32E+00	F14	1.07E+02	2.15E+02	2.50E+02	F24	1.01E+02	3.46E+02	1.01E+02
	Mean	4.02E+00	3.53E+00	3.37E+00		3.83E+01	5.50E+01	5.66E+01		1.00E+02	1.05E+02	1.00E+02
	Std	2.04E+00	1.79E+00	1.73E+00		2.82E+01	5.01E+01	4.89E+01		2.00E-01	4.74E+01	9.81E-02
	Best	2.00E+00	1.99E+00	1.13E+00		4.48E+00	5.19E+00	6.91E+00		3.98E+02	3.98E+02	3.98E+02
	Median	4.08E+00	4.98E+00	4.29E+00		1.29E+02	8.73E+01	1.00E+02		3.99E+02	3.99E+02	3.99E+02
F5	Worst	8.96E+00	7.98E+00	8.07E+00	F15	1.29E+03	4.84E+02	5.93E+02	F25	4.44E+02	4.47E+02	4.21E+02
	Mean	4.50E+00	4.83E+00	4.49E+00		2.34E+02	1.60E+02	1.53E+02		4.00E+02	4.05E+02	4.00E+02
	Std	1.87E+00	1.57E+00	1.26E+00		2.62E+02	1.59E+02	1.57E+02		8.00E+00	1.57E+01	3.96E+00
	Best	2.77E-02	2.15E-02	4.04E-02		6.94E-02	5.28E-02	1.52E-01		1.09E+00	6.68E-01	1.33E+00
	Median	6.30E-02	5.95E-02	7.26E-02		6.77E-01	5.65E-01	7.74E-01		3.00E+02	3.00E+02	3.00E+02
F6	Worst	1.97E-01	1.78E-01	1.47E-01	F16	1.19E+02	1.15E+01	2.51E+00	F26	3.00E+02	3.00E+02	3.00E+02
	Mean	6.86E-02	6.67E-02	8.20E-02		5.12E+00	8.80E-01	9.41E-01		2.81E+02	2.87E+02	2.81E+02
	Std	3.41E-02	3.28E-02	2.91E-02		2.10E+01	1.95E+00	4.74E-01		7.35E+01	5.50E+01	7.23E+01
	Best	6.69E+00	5.69E+00	1.20E+01		9.46E-02	1.10E-01	3.19E-01		3.87E+02	3.87E+02	3.87E+02
	Median	1.51E+01	1.69E+01	1.72E+01		1.39E+00	1.43E+00	1.48E+00		3.91E+02	3.92E+02	3.90E+02
F7	Worst	2.68E+01	2.53E+01	2.36E+01	F17	2.62E+00	2.90E+00	2.36E+00	F27	3.96E+02	3.97E+02	3.95E+02
	Mean	1.51E+01	1.71E+01	1.72E+01		1.15E+00	1.36E+00	1.43E+00		3.91E+02	3.92E+02	3.90E+02
	Std	4.56E+00	4.04E+00	3.01E+00		7.05E-01	7.62E-01	6.17E-01		2.21E+00	2.79E+00	1.99E+00
	Best	1.03E+00	2.00E+00	2.01E+00		5.13E+01	3.93E+01	1.56E+02		1.08E+00	1.73E+00	2.98E+00
	Median	3.99E+00	4.98E+00	4.48E+00		1.04E+03	3.69E+02	9.84E+02		3.00E+02	3.00E+02	3.00E+02
F8	Worst	8.97E+00	8.99E+00	7.18E+00	F18	4.98E+03	3.22E+03	2.67E+03	F28	3.68E+02	3.97E+02	3.67E+02
	Mean	4.34E+00	5.06E+00	4.51E+00		1.38E+03	7.39E+02	1.05E+03		2.97E+02	3.20E+02	3.09E+02
	Std	1.77E+00	1.41E+00	1.47E+00		1.24E+03	7.43E+02	7.25E+02		8.22E+01	6.73E+01	6.26E+01
	Best	4.71E-03	2.80E-03	5.07E-03		3.47E+00	1.06E+01	1.50E+00		2.33E+02	2.33E+02	2.32E+02
	Median	3.72E-02	3.07E-02	2.85E-02		1.51E+02	9.79E+01	1.18E+02		2.40E+02	2.45E+02	2.40E+02
F9	Worst	1.07E+00	9.80E-01	2.05E-01	F19	1.58E+03	1.79E+03	6.82E+02	F29	2.56E+02	2.76E+02	2.53E+02
	Mean	1.28E-01	8.64E-02	5.29E-02		2.04E+02	2.20E+02	1.90E+02		2.41E+02	2.46E+02	2.40E+02
	Std	2.21E-01	1.76E-01	4.86E-02		2.83E+02	3.46E+02	1.88E+02		5.64E+00	8.57E+00	4.33E+00
	Best	2.59E-01	3.66E+00	6.08E-01		8.85E-02	1.24E-01	1.98E-01		7.76E+02	1.27E+03	7.20E+02
	Median	1.52E+01	2.21E+01	1.43E+01		9.41E-01	6.13E-01	8.23E-01		1.45E+04	8.01E+03	3.05E+03
F10	Worst	1.35E+02	1.50E+02	1.38E+02	F20	2.04E+00	2.46E+00	3.17E+00	F30	9.33E+04	4.78E+04	7.64E+03
	Mean	4.44E+01	5.62E+01	2.67E+01		9.59E-01	8.11E-01	1.17E+00		2.27E+04	1.35E+04	3.18E+03
	Std	5.38E+01	5.61E+01	4.05E+01		5.13E-01	5.84E-01	8.06E-01		2.39E+04	1.33E+04	1.79E+03
	Best	1.31E+00	1.30E+00	1.35E+00		2.46E+00	2.27E+00	1.01E+02				
	Median	3.30E+00	4.68E+00	4.67E+00		1.02E+02	1.03E+02	1.02E+02				
F11	Worst	8.25E+00	8.64E+00	1.07E+01	F21	1.03E+02	1.05E+02	1.03E+02				
	Mean	3.78E+00	4.82E+00	4.91E+00		9.85E+01	9.93E+01	1.02E+02				
	Std	1.67E+00	1.92E+00	1.86E+00		1.76E+01	1.78E+01	8.70E-01				

TABLE II
Scenario #1 Comparison of migration policies on the CEC'17 single objective real-parameter benchmark considering D_{30}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	2.95E+04	2.91E+04	4.13E+04	F12	8.07E+04	3.41E+05	5.27E+04	F22	1.01E+02	1.01E+02	1.02E+02
	Median	6.21E+04	5.68E+04	1.06E+05		5.06E+05	2.05E+06	4.18E+05		1.02E+02	1.02E+02	1.04E+02
	Worst	9.78E+04	1.44E+05	2.58E+05		1.79E+06	6.64E+06	3.93E+06		1.05E+02	1.06E+02	1.05E+02
	Mean	6.20E+04	6.54E+04	1.15E+05		6.19E+05	2.52E+06	7.20E+05		1.02E+02	1.03E+02	1.04E+02
	Std	1.91E+04	2.90E+04	4.77E+04		4.18E+05	1.76E+06	7.80E+05		1.22E+00	9.85E-01	9.85E-01
F3	Best	7.88E+02	7.81E+02	3.36E+03	F13	1.35E+03	3.38E+03	1.00E+03	F23	3.67E+02	3.83E+02	3.63E+02
	Median	2.40E+03	2.26E+03	6.01E+03		1.15E+04	1.92E+04	1.93E+04		4.00E+02	4.02E+02	3.91E+02
	Worst	4.85E+03	5.20E+03	1.17E+04		3.48E+04	2.20E+05	5.14E+04		4.28E+02	4.43E+02	4.23E+02
	Mean	2.54E+03	2.41E+03	6.43E+03		1.40E+04	2.98E+04	2.14E+04		3.98E+02	4.06E+02	3.92E+02
	Std	9.53E+02	1.03E+03	2.24E+03		8.82E+03	3.80E+04	1.68E+04		1.31E+01	1.16E+01	1.34E+01
F4	Best	6.96E-01	5.93E+01	6.94E+01	F14	5.12E+03	5.71E+03	1.44E+03	F24	4.56E+02	4.61E+02	4.44E+02
	Median	7.52E+01	9.40E+01	9.47E+01		3.40E+04	8.48E+04	2.53E+04		4.81E+02	4.91E+02	4.63E+02
	Worst	1.13E+02	1.19E+02	1.26E+02		9.89E+04	2.44E+05	7.40E+04		5.19E+02	5.11E+02	4.91E+02
	Mean	6.95E+01	9.58E+01	9.95E+01		4.14E+04	8.04E+04	3.08E+04		4.79E+02	4.88E+02	4.65E+02
	Std	3.27E+01	1.78E+01	1.50E+01		2.77E+04	5.00E+04	1.81E+04		1.33E+01	1.20E+01	9.93E+00
F5	Best	3.50E+01	2.40E+01	1.30E+01	F15	1.40E+02	7.51E+02	3.84E+02	F25	3.84E+02	3.85E+02	3.85E+02
	Median	4.48E+01	4.48E+01	3.40E+01		3.82E+03	6.24E+03	4.04E+03		3.88E+02	3.89E+02	3.88E+02
	Worst	6.27E+01	6.87E+01	5.88E+01		1.49E+04	4.03E+04	3.51E+04		3.91E+02	4.13E+02	3.89E+02
	Mean	4.56E+01	4.61E+01	3.73E+01		4.73E+03	1.08E+04	7.95E+03		3.88E+02	3.90E+02	3.88E+02
	Std	6.84E+00	1.14E+01	1.02E+01		4.00E+03	9.94E+03	8.41E+03		1.61E+00	5.77E+00	9.76E-01
F6	Best	5.79E-02	6.35E-02	6.41E-02	F16	1.91E+02	3.82E+02	1.43E+02	F26	2.07E+02	2.04E+02	2.27E+02
	Median	9.78E-02	9.44E-02	1.17E-01		5.32E+02	7.34E+02	4.92E+02		1.62E+03	1.67E+03	3.61E+02
	Worst	1.37E-01	1.91E-01	2.14E-01		7.50E+02	1.10E+03	6.82E+02		1.86E+03	1.95E+03	1.65E+03
	Mean	1.01E-01	1.07E-01	1.21E-01		4.98E+02	7.48E+02	4.42E+02		1.45E+03	1.45E+03	7.74E+02
	Std	2.19E-02	3.51E-02	3.29E-02		1.58E+02	1.89E+02	1.67E+02		4.72E+02	5.08E+02	5.34E+02
F7	Best	6.59E+01	5.80E+01	5.95E+01	F17	3.57E+01	3.91E+01	2.40E+01	F27	4.90E+02	4.88E+02	4.88E+02
	Median	9.00E+01	9.04E+01	7.77E+01		8.30E+01	2.20E+02	5.24E+01		5.10E+02	5.07E+02	5.04E+02
	Worst	1.19E+02	1.10E+02	9.71E+01		4.10E+02	5.51E+02	1.80E+02		5.27E+02	5.20E+02	5.22E+02
	Mean	9.20E+01	8.99E+01	7.70E+01		1.38E+02	2.32E+02	7.18E+01		5.10E+02	5.06E+02	5.03E+02
	Std	1.35E+01	1.15E+01	8.13E+00		9.97E+01	1.32E+02	4.77E+01		7.43E+00	8.50E+00	7.14E+00
F8	Best	2.99E+01	2.49E+01	2.79E+01	F18	1.69E+04	3.31E+04	1.95E+04	F28	3.93E+02	4.02E+02	4.01E+02
	Median	4.29E+01	4.68E+01	4.28E+01		7.88E+04	3.54E+05	8.87E+04		4.16E+02	4.20E+02	4.19E+02
	Worst	6.24E+01	6.68E+01	6.37E+01		8.55E+05	1.14E+06	3.02E+05		4.62E+02	4.60E+02	4.61E+02
	Mean	4.46E+01	4.73E+01	4.18E+01		1.29E+05	3.98E+05	1.20E+05		4.18E+02	4.27E+02	4.21E+02
	Std	7.82E+00	1.09E+01	8.49E+00		1.58E+05	2.57E+05	8.77E+04		1.44E+01	1.95E+01	1.62E+01
F9	Best	3.66E+00	9.30E+00	6.32E-01	F19	4.80E+02	9.48E+02	8.03E+02	F29	3.84E+02	4.16E+02	3.74E+02
	Median	2.87E+01	3.32E+01	1.30E+01		2.03E+03	8.28E+03	5.07E+03		5.06E+02	5.05E+02	4.67E+02
	Worst	1.17E+02	2.26E+02	4.06E+01		1.70E+04	4.37E+04	4.75E+04		7.43E+02	6.55E+02	5.61E+02
	Mean	3.84E+01	5.46E+01	1.52E+01		4.04E+03	1.19E+04	9.08E+03		5.25E+02	5.25E+02	4.64E+02
	Std	2.85E+01	4.91E+01	1.06E+01		4.22E+03	1.15E+04	1.07E+04		9.16E+01	6.90E+01	4.37E+01
F10	Best	5.97E+02	1.21E+03	1.01E+03	F20	1.33E+01	4.65E+01	4.55E+00	F30	4.05E+03	3.18E+03	4.97E+03
	Median	1.64E+03	1.76E+03	1.47E+03		1.33E+02	2.37E+02	1.31E+02		7.96E+03	5.58E+03	7.62E+03
	Worst	2.14E+03	2.59E+03	2.08E+03		2.58E+02	5.36E+02	2.74E+02		1.54E+04	2.36E+04	2.00E+04
	Mean	1.54E+03	1.82E+03	1.51E+03		1.12E+02	2.64E+02	1.01E+02		8.49E+03	7.99E+03	9.10E+03
	Std	3.87E+02	3.57E+02	3.17E+02		7.54E+01	1.26E+02	7.26E+01		2.94E+03	4.34E+03	3.61E+03
F11	Best	1.97E+01	3.33E+01	1.94E+01	F21	2.33E+02	2.33E+02	2.30E+02				
	Median	6.63E+01	1.60E+02	5.63E+01		2.48E+02	2.52E+02	2.40E+02				
	Worst	1.37E+02	3.02E+02	1.69E+02		2.70E+02	2.70E+02	2.55E+02				
	Mean	7.22E+01	1.62E+02	7.00E+01		2.50E+02	2.52E+02	2.40E+02				
	Std	3.44E+01	7.53E+01	3.96E+01		9.47E+00	9.36E+00	6.46E+00				

TABLE III

Scenario #1 Comparison of migration policies on the CEC'17 single objective real-parameter benchmark considering D_{50}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	1.57E+05	1.27E+05	2.81E+05	F12	1.07E+06	2.43E+06	6.96E+05	F22	1.11E+02	1.08E+02	1.09E+02
	Median	3.03E+05	2.28E+05	4.76E+05		7.10E+06	6.70E+06	4.16E+06		4.04E+03	4.14E+03	3.48E+03
	Worst	6.17E+05	4.22E+05	9.60E+05		1.60E+07	1.03E+07	1.26E+07		4.83E+03	5.26E+03	4.66E+03
	Mean	3.15E+05	2.40E+05	5.18E+05		7.25E+06	6.12E+06	5.11E+06		3.84E+03	3.97E+03	3.36E+03
	Std	9.65E+04	6.31E+04	1.56E+05		3.86E+06	2.46E+06	3.11E+06		8.49E+02	8.78E+02	1.15E+03
F3	Best	5.25E+03	5.00E+03	2.06E+04	F13	2.15E+03	3.18E+03	6.16E+03	F23	5.26E+02	5.24E+02	4.93E+02
	Median	1.12E+04	8.90E+03	2.70E+04		1.02E+04	1.13E+04	1.64E+04		5.57E+02	5.62E+02	5.30E+02
	Worst	1.62E+04	1.86E+04	4.16E+04		5.09E+04	3.64E+04	6.22E+04		5.91E+02	6.18E+02	6.02E+02
	Mean	1.18E+04	9.53E+03	2.91E+04		1.30E+04	1.33E+04	1.78E+04		5.57E+02	5.67E+02	5.34E+02
	Std	2.30E+03	3.03E+03	5.90E+03		9.92E+03	9.10E+03	1.07E+04		1.64E+01	2.24E+01	2.29E+01
F4	Best	4.04E+01	5.53E+01	4.12E+01	F14	1.90E+04	5.03E+04	1.48E+04	F24	6.13E+02	5.92E+02	5.42E+02
	Median	1.35E+02	1.57E+02	1.61E+02		3.84E+05	3.43E+05	1.60E+05		6.45E+02	6.57E+02	5.94E+02
	Worst	1.66E+02	2.25E+02	2.30E+02		1.13E+06	1.46E+06	3.96E+05		6.92E+02	7.02E+02	6.31E+02
	Mean	1.20E+02	1.46E+02	1.59E+02		4.65E+05	4.51E+05	1.48E+05		6.46E+02	6.59E+02	5.94E+02
	Std	3.51E+01	4.92E+01	5.01E+01		3.36E+05	3.36E+05	9.29E+04		2.03E+01	2.44E+01	2.34E+01
F5	Best	6.88E+01	8.66E+01	6.19E+01	F15	1.09E+03	9.22E+02	1.03E+03	F25	4.73E+02	4.91E+02	4.99E+02
	Median	1.02E+02	1.16E+02	8.94E+01		4.12E+03	6.63E+03	8.93E+03		5.39E+02	5.64E+02	5.34E+02
	Worst	1.37E+02	1.87E+02	1.22E+02		1.60E+04	2.14E+04	1.97E+04		5.76E+02	6.11E+02	5.70E+02
	Mean	1.04E+02	1.19E+02	8.86E+01		5.95E+03	7.92E+03	9.81E+03		5.37E+02	5.55E+02	5.33E+02
	Std	1.64E+01	2.26E+01	1.70E+01		4.75E+03	6.22E+03	5.70E+03		2.15E+01	2.67E+01	1.61E+01
F6	Best	1.13E-01	8.00E-02	1.05E-01	F16	6.85E+02	8.26E+02	5.01E+02	F26	2.01E+03	2.20E+03	3.26E+02
	Median	1.69E-01	1.28E-01	1.56E-01		1.25E+03	1.25E+03	8.85E+02		2.47E+03	2.53E+03	2.24E+03
	Worst	2.73E-01	1.97E-01	2.44E-01		1.73E+03	1.95E+03	1.54E+03		2.84E+03	3.50E+03	2.74E+03
	Mean	1.72E-01	1.29E-01	1.58E-01		1.24E+03	1.28E+03	9.00E+02		2.50E+03	2.58E+03	2.14E+03
	Std	3.32E-02	2.60E-02	2.95E-02		2.51E+02	2.74E+02	2.69E+02		1.91E+02	2.67E+02	5.05E+02
F7	Best	1.56E+02	1.50E+02	1.23E+02	F17	4.88E+02	2.55E+02	2.36E+02	F27	5.40E+02	5.31E+02	5.27E+02
	Median	1.85E+02	1.98E+02	1.55E+02		8.59E+02	8.45E+02	5.25E+02		5.80E+02	5.87E+02	5.51E+02
	Worst	2.15E+02	2.65E+02	1.93E+02		1.19E+03	1.31E+03	9.18E+02		6.34E+02	6.53E+02	5.88E+02
	Mean	1.83E+02	1.97E+02	1.56E+02		8.49E+02	8.27E+02	5.68E+02		5.84E+02	5.82E+02	5.51E+02
	Std	1.61E+01	2.55E+01	1.92E+01		1.98E+02	2.52E+02	1.82E+02		2.40E+01	3.02E+01	1.53E+01
F8	Best	6.52E+01	6.38E+01	5.13E+01	F18	3.77E+04	1.50E+05	6.89E+04	F28	4.70E+02	4.61E+02	4.61E+02
	Median	9.59E+01	1.13E+02	8.87E+01		1.21E+06	1.48E+06	4.07E+05		5.12E+02	5.13E+02	4.94E+02
	Worst	1.27E+02	1.57E+02	1.16E+02		4.51E+06	4.33E+06	1.50E+06		5.55E+02	6.11E+02	5.29E+02
	Mean	9.90E+01	1.13E+02	8.85E+01		1.44E+06	1.66E+06	4.88E+05		5.11E+02	5.16E+02	4.93E+02
	Std	1.48E+01	2.39E+01	1.57E+01		1.04E+06	1.18E+06	3.53E+05		2.21E+01	3.23E+01	1.83E+01
F9	Best	3.87E+01	1.21E+02	1.82E+01	F19	3.53E+02	2.69E+02	7.76E+02	F29	4.60E+02	3.83E+02	3.34E+02
	Median	3.29E+02	3.39E+02	7.57E+01		1.39E+04	1.31E+04	1.60E+04		7.01E+02	7.27E+02	4.74E+02
	Worst	6.67E+02	1.32E+03	2.21E+02		3.93E+04	3.81E+04	3.89E+04		1.11E+03	1.28E+03	6.76E+02
	Mean	3.12E+02	4.27E+02	8.78E+01		1.45E+04	1.42E+04	1.68E+04		7.08E+02	7.55E+02	4.97E+02
	Std	1.71E+02	2.71E+02	5.14E+01		1.07E+04	1.03E+04	1.42E+04		1.70E+02	2.17E+02	9.25E+01
F10	Best	1.74E+03	2.63E+03	2.42E+03	F20	3.22E+02	1.12E+02	6.72E+01	F30	6.66E+05	6.95E+05	6.79E+05
	Median	3.14E+03	3.68E+03	3.21E+03		5.89E+02	4.49E+02	4.00E+02		8.56E+05	9.01E+05	9.51E+05
	Worst	3.91E+03	4.61E+03	4.19E+03		9.51E+02	1.00E+03	6.57E+02		1.07E+06	1.20E+06	1.45E+06
	Mean	3.14E+03	3.60E+03	3.24E+03		6.03E+02	5.29E+02	3.87E+02		8.71E+05	9.24E+05	9.50E+05
	Std	4.65E+02	5.22E+02	4.63E+02		1.68E+02	2.55E+02	1.46E+02		9.89E+04	1.28E+05	1.60E+05
F11	Best	6.22E+01	9.53E+01	5.63E+01	F21	2.85E+02	2.78E+02	2.67E+02				
	Median	1.41E+02	2.12E+02	1.82E+02		3.13E+02	3.15E+02	2.92E+02				
	Worst	5.96E+02	6.75E+02	7.04E+02		3.38E+02	3.65E+02	3.36E+02				
	Mean	1.78E+02	2.38E+02	1.97E+02		3.12E+02	3.16E+02	2.95E+02				
	Std	1.25E+02	1.37E+02	1.24E+02		1.22E+01	1.98E+01	1.50E+01				

TABLE IV

SCENARIO #1 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{100}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	9.38E+05	6.74E+05	2.27E+06	F12	9.09E+06	9.63E+06	1.67E+07	F22	8.66E+03	9.46E+03	9.03E+03
	Median	1.57E+06	1.02E+06	3.37E+06		2.67E+07	3.17E+07	2.62E+07		1.09E+04	1.16E+04	1.10E+04
	Worst	3.73E+06	1.43E+06	5.55E+06		5.61E+07	5.49E+07	6.49E+07		1.27E+04	1.46E+04	1.30E+04
	Mean	1.70E+06	1.04E+06	3.43E+06		2.86E+07	3.18E+07	3.18E+07		1.10E+04	1.16E+04	1.09E+04
	Std	5.30E+05	2.08E+05	7.99E+05		1.16E+07	1.13E+07	1.35E+07		1.03E+03	1.18E+03	9.75E+02
F3	Best	3.87E+04	3.07E+04	1.05E+05	F13	5.56E+03	4.83E+03	4.59E+03	F23	6.63E+02	6.77E+02	6.24E+02
	Median	5.44E+04	4.32E+04	1.41E+05		1.39E+04	8.77E+03	1.36E+04		7.30E+02	7.57E+02	7.09E+02
	Worst	6.59E+04	5.49E+04	1.70E+05		4.13E+04	1.82E+04	4.73E+04		7.72E+02	8.31E+02	7.79E+02
	Mean	5.44E+04	4.41E+04	1.38E+05		1.58E+04	9.58E+03	1.53E+04		7.27E+02	7.56E+02	7.13E+02
	Std	7.28E+03	6.26E+03	1.79E+04		8.18E+03	3.08E+03	8.94E+03		3.04E+01	3.30E+01	3.31E+01
F4	Best	2.16E+02	2.04E+02	2.18E+02	F14	1.08E+06	6.11E+05	5.74E+05	F24	1.11E+03	1.15E+03	1.08E+03
	Median	2.95E+02	2.83E+02	2.74E+02		2.41E+06	1.99E+06	1.41E+06		1.21E+03	1.23E+03	1.17E+03
	Worst	3.89E+02	4.00E+02	3.42E+02		4.41E+06	4.53E+06	3.39E+06		1.29E+03	1.38E+03	1.27E+03
	Mean	2.90E+02	2.91E+02	2.74E+02		2.47E+06	2.26E+06	1.66E+06		1.21E+03	1.23E+03	1.17E+03
	Std	3.49E+01	5.26E+01	3.07E+01		8.89E+05	1.06E+06	7.41E+05		4.05E+01	5.25E+01	4.15E+01
F5	Best	2.34E+02	2.26E+02	1.85E+02	F15	1.76E+03	1.78E+03	1.70E+03	F25	7.36E+02	7.66E+02	7.75E+02
	Median	3.21E+02	3.04E+02	2.28E+02		4.61E+03	4.45E+03	3.62E+03		8.44E+02	8.46E+02	8.74E+02
	Worst	4.03E+02	3.93E+02	2.98E+02		1.86E+04	1.14E+04	1.58E+04		9.71E+02	1.00E+03	9.72E+02
	Mean	3.17E+02	3.02E+02	2.38E+02		5.65E+03	4.80E+03	5.21E+03		8.44E+02	8.58E+02	8.67E+02
	Std	3.80E+01	4.06E+01	3.15E+01		3.51E+03	2.16E+03	3.71E+03		5.64E+01	6.11E+01	4.61E+01
F6	Best	2.05E-01	1.52E-01	2.38E-01	F16	2.23E+03	2.04E+03	1.67E+03	F26	6.18E+03	6.19E+03	5.38E+03
	Median	2.60E-01	2.15E-01	2.84E-01		3.12E+03	3.89E+03	3.28E+03		6.91E+03	7.02E+03	6.36E+03
	Worst	3.46E-01	2.69E-01	3.61E-01		4.06E+03	4.88E+03	4.62E+03		8.20E+03	8.52E+03	7.82E+03
	Mean	2.59E-01	2.14E-01	2.91E-01		3.14E+03	3.81E+03	3.36E+03		6.88E+03	7.09E+03	6.41E+03
	Std	3.33E-02	2.64E-02	3.11E-02		3.91E+02	7.03E+02	7.79E+02		4.11E+02	5.51E+02	5.30E+02
F7	Best	3.91E+02	3.99E+02	2.84E+02	F17	1.68E+03	1.69E+03	1.13E+03	F27	6.89E+02	6.97E+02	6.27E+02
	Median	5.05E+02	5.31E+02	3.97E+02		2.21E+03	2.83E+03	2.43E+03		7.50E+02	7.91E+02	7.10E+02
	Worst	6.53E+02	6.90E+02	4.54E+02		2.85E+03	4.03E+03	3.24E+03		8.05E+02	8.55E+02	7.66E+02
	Mean	5.05E+02	5.40E+02	3.91E+02		2.24E+03	2.80E+03	2.42E+03		7.54E+02	7.85E+02	7.04E+02
	Std	6.26E+01	7.11E+01	4.06E+01		2.99E+02	5.21E+02	5.40E+02		3.28E+01	4.13E+01	3.05E+01
F8	Best	2.50E+02	2.40E+02	1.79E+02	F18	7.92E+05	9.91E+05	5.42E+05	F28	5.89E+02	5.65E+02	5.85E+02
	Median	3.20E+02	3.21E+02	2.27E+02		2.91E+06	3.03E+06	2.66E+06		6.50E+02	6.72E+02	6.65E+02
	Worst	3.90E+02	4.18E+02	3.18E+02		6.82E+06	7.08E+06	4.36E+06		7.13E+02	7.12E+02	7.29E+02
	Mean	3.15E+02	3.22E+02	2.35E+02		3.11E+06	3.52E+06	2.64E+06		6.53E+02	6.65E+02	6.66E+02
	Std	3.84E+01	4.54E+01	3.60E+01		1.37E+06	1.77E+06	9.46E+05		3.50E+01	4.20E+01	3.54E+01
F9	Best	1.90E+03	1.48E+03	1.91E+02	F19	1.49E+03	1.21E+03	1.34E+03	F29	1.97E+03	1.91E+03	1.46E+03
	Median	3.25E+03	3.28E+03	5.03E+02		5.16E+03	2.90E+03	4.03E+03		2.68E+03	2.93E+03	2.31E+03
	Worst	6.96E+03	1.12E+04	8.53E+02		2.17E+04	2.43E+04	1.79E+04		3.15E+03	3.59E+03	2.90E+03
	Mean	3.63E+03	3.85E+03	4.80E+02		7.06E+03	4.45E+03	5.19E+03		2.66E+03	2.87E+03	2.24E+03
	Std	1.21E+03	1.87E+03	1.51E+02		5.25E+03	4.62E+03	3.79E+03		2.84E+02	4.26E+02	3.47E+02
F10	Best	7.57E+03	8.28E+03	8.02E+03	F20	1.28E+03	1.61E+03	1.31E+03	F30	1.20E+04	1.21E+04	3.31E+04
	Median	1.01E+04	1.03E+04	9.73E+03		1.89E+03	2.49E+03	2.05E+03		3.23E+04	3.74E+04	7.02E+04
	Worst	1.26E+04	1.21E+04	1.15E+04		2.44E+03	3.32E+03	2.96E+03		7.99E+04	7.38E+04	1.54E+05
	Mean	9.93E+03	1.03E+04	9.82E+03		1.90E+03	2.44E+03	2.04E+03		3.64E+04	3.82E+04	7.97E+04
	Std	1.14E+03	9.59E+02	7.84E+02		2.80E+02	4.18E+02	4.17E+02		1.55E+04	1.46E+04	3.29E+04
F11	Best	1.60E+03	8.06E+02	1.55E+03	F21	4.63E+02	5.19E+02	4.13E+02				
	Median	2.91E+03	3.18E+03	3.83E+03		5.56E+02	6.03E+02	5.33E+02				
	Worst	5.94E+03	6.22E+03	6.06E+03		6.34E+02	7.36E+02	6.11E+02				
	Mean	3.09E+03	3.29E+03	3.69E+03		5.57E+02	6.02E+02	5.25E+02				
	Std	1.02E+03	1.19E+03	9.55E+02		4.08E+01	5.29E+01	4.60E+01				

Scenario #2

k-Generation Mutant Group Shutdown on Fitness-based Migration Policy

November, 2022

TABLE V
SCENARIO #2 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{10}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
	Best	2.41E+03	6.78E+02	4.69E+03		1.64E+03	2.58E+03	3.89E+03		1.17E+01	1.13E+01	9.83E-02
	Median	9.58E+03	6.45E+03	1.41E+04		5.09E+03	1.52E+04	8.78E+03		1.02E+02	1.02E+02	2.85E+01
F1	Worst	6.04E+04	4.35E+04	5.43E+04	F12	4.28E+04	5.47E+04	3.26E+04	F22	1.04E+02	1.05E+02	1.03E+02
	Mean	1.49E+04	1.00E+04	1.78E+04		8.85E+03	1.93E+04	1.15E+04		7.36E+01	8.10E+01	4.02E+01
	Std	1.48E+04	8.84E+03	1.40E+04		8.99E+03	1.42E+04	7.66E+03		3.51E+01	3.41E+01	3.17E+01
	Best	1.07E+01	7.35E+00	5.09E+00		2.04E+01	7.65E+00	1.52E+01		7.38E-02	1.01E-01	2.24E-01
	Median	5.49E+01	4.73E+01	6.51E+01		7.66E+02	6.17E+02	3.29E+02		3.07E+02	3.09E+02	3.07E+02
F3	Worst	2.12E+02	5.25E+02	3.20E+02	F13	1.32E+04	1.36E+04	6.82E+03	F23	3.13E+02	3.20E+02	3.11E+02
	Mean	7.02E+01	7.13E+01	7.95E+01		1.71E+03	1.52E+03	6.73E+02		2.75E+02	2.70E+02	2.65E+02
	Std	5.01E+01	9.05E+01	6.36E+01		2.65E+03	2.95E+03	1.21E+03		9.19E+01	1.04E+02	1.03E+02
	Best	3.05E-03	9.95E-02	2.53E-02		3.85E+00	2.13E+00	2.78E+00		1.00E+02	1.00E+00	4.35E+00
	Median	4.74E+00	3.43E+00	3.17E+00		2.86E+01	4.47E+01	2.33E+01		1.00E+02	1.00E+02	1.00E+02
F4	Worst	6.49E+00	7.09E+00	6.16E+00	F14	1.07E+02	2.15E+02	1.07E+02	F24	1.01E+02	3.46E+02	1.01E+02
	Mean	4.02E+00	3.53E+00	2.65E+00		3.83E+01	5.50E+01	3.40E+01		1.00E+02	1.05E+02	9.73E+01
	Std	2.04E+00	1.79E+00	1.68E+00		2.82E+01	5.01E+01	3.06E+01		2.00E-01	4.74E+01	1.70E+01
	Best	2.00E+00	1.99E+00	2.01E+00		4.48E+00	5.19E+00	6.11E+00		3.98E+02	3.98E+02	3.98E+02
	Median	4.08E+00	4.98E+00	4.30E+00		1.29E+02	8.73E+01	9.42E+01		3.99E+02	3.99E+02	3.99E+02
F5	Worst	8.96E+00	7.98E+00	8.37E+00	F15	1.29E+03	4.84E+02	3.32E+02	F25	4.44E+02	4.47E+02	4.00E+02
	Mean	4.50E+00	4.83E+00	4.47E+00		2.34E+02	1.60E+02	1.29E+02		4.00E+02	4.05E+02	3.99E+02
	Std	1.87E+00	1.57E+00	1.46E+00		2.62E+02	1.59E+02	9.88E+01		8.00E+00	1.57E+01	6.28E-01
	Best	2.77E-02	2.15E-02	3.29E-02		6.94E-02	5.28E-02	2.20E-01		1.09E+00	6.68E-01	1.15E+00
	Median	6.30E-02	5.95E-02	8.97E-02		6.77E-01	5.65E-01	1.02E+00		3.00E+02	3.00E+02	3.00E+02
F6	Worst	1.97E-01	1.78E-01	1.89E-01	F16	1.19E+02	1.15E+01	1.31E+01	F26	3.00E+02	3.00E+02	3.00E+02
	Mean	6.86E-02	6.67E-02	9.64E-02		5.12E+00	8.80E-01	1.70E+00		2.81E+02	2.87E+02	2.65E+02
	Std	3.41E-02	3.28E-02	3.87E-02		2.10E+01	1.95E+00	2.91E+00		7.35E+01	5.50E+01	8.95E+01
	Best	6.69E+00	5.69E+00	6.20E+00		9.46E-02	1.10E-01	1.62E-01		3.87E+02	3.87E+02	3.87E+02
	Median	1.51E+01	1.69E+01	1.66E+01		1.39E+00	1.43E+00	1.33E+00		3.91E+02	3.92E+02	3.90E+02
F7	Worst	2.68E+01	2.53E+01	2.33E+01	F17	2.62E+00	2.90E+00	2.35E+00	F27	3.96E+02	3.97E+02	3.95E+02
	Mean	1.51E+01	1.71E+01	1.62E+01		1.15E+00	1.36E+00	1.25E+00		3.91E+02	3.92E+02	3.91E+02
	Std	4.56E+00	4.04E+00	3.29E+00		7.05E-01	7.62E-01	5.82E-01		2.21E+00	2.79E+00	2.27E+00
	Best	1.03E+00	2.00E+00	1.02E+00		5.13E+01	3.93E+01	3.38E+01		1.08E+00	1.73E+00	2.41E+00
	Median	3.99E+00	4.98E+00	4.06E+00		1.04E+03	3.69E+02	4.96E+02		3.00E+02	3.00E+02	3.00E+02
F8	Worst	8.97E+00	8.99E+00	7.98E+00	F18	4.98E+03	3.22E+03	1.60E+03	F28	3.68E+02	3.97E+02	3.67E+02
	Mean	4.34E+00	5.06E+00	4.38E+00		1.38E+03	7.39E+02	6.72E+02		2.97E+02	3.20E+02	2.60E+02
	Std	1.77E+00	1.41E+00	1.38E+00		1.24E+03	7.43E+02	4.40E+02		8.22E+01	6.73E+01	1.23E+02
	Best	4.71E-03	2.80E-03	3.32E-03		3.47E+00	1.06E+01	5.82E-01		2.33E+02	2.33E+02	2.37E+02
	Median	3.72E-02	3.07E-02	3.53E-02		1.51E+02	9.79E+01	7.78E+01		2.40E+02	2.45E+02	2.41E+02
F9	Worst	1.07E+00	9.80E-01	5.80E-01	F19	1.58E+03	1.79E+03	5.85E+02	F29	2.56E+02	2.76E+02	2.55E+02
	Mean	1.28E-01	8.64E-02	6.51E-02		2.04E+02	2.20E+02	1.14E+02		2.41E+02	2.46E+02	2.43E+02
	Std	2.21E-01	1.76E-01	1.05E-01		2.83E+02	3.46E+02	1.20E+02		5.64E+00	8.57E+00	4.72E+00
	Best	2.59E-01	3.66E+00	3.70E+00		8.85E-02	1.24E-01	1.38E-01		7.76E+02	1.27E+03	6.92E+02
	Median	1.52E+01	2.21E+01	2.22E+01		9.41E-01	6.13E-01	6.26E-01		1.45E+04	8.01E+03	2.53E+03
F10	Worst	1.35E+02	1.50E+02	1.48E+02	F20	2.04E+00	2.46E+00	1.90E+00	F30	9.33E+04	4.78E+04	6.11E+03
	Mean	4.44E+01	5.62E+01	4.64E+01		9.59E-01	8.11E-01	7.66E-01		2.27E+04	1.35E+04	2.90E+03
	Std	5.38E+01	5.61E+01	5.23E+01		5.13E-01	5.84E-01	4.77E-01		2.39E+04	1.33E+04	1.39E+03
	Best	1.31E+00	1.30E+00	8.36E-01		2.46E+00	2.27E+00	2.11E+00				
	Median	3.30E+00	4.68E+00	4.45E+00		1.02E+02	1.03E+02	1.02E+02				
F11	Worst	8.25E+00	8.64E+00	8.36E+00	F21	1.03E+02	1.05E+02	1.04E+02				
	Mean	3.78E+00	4.82E+00	4.55E+00		9.85E+01	9.93E+01	9.57E+01				
	Std	1.67E+00	1.92E+00	1.73E+00		1.76E+01	1.78E+01	2.45E+01				

TABLE VI

SCENARIO #2 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{30}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
	Best	2.95E+04	2.91E+04	8.04E+04		8.07E+04	3.41E+05	6.93E+04		1.01E+02	1.01E+02	1.03E+02
	Median	6.21E+04	5.68E+04	1.54E+05		5.06E+05	2.05E+06	5.50E+05		1.02E+02	1.02E+02	1.04E+02
F1	Worst	9.78E+04	1.44E+05	3.02E+05	F12	1.79E+06	6.64E+06	2.72E+06	F22	1.05E+02	1.06E+02	1.08E+02
	Mean	6.20E+04	6.54E+04	1.65E+05		6.19E+05	2.52E+06	6.80E+05		1.02E+02	1.03E+02	1.05E+02
	Std	1.91E+04	2.90E+04	6.51E+04		4.18E+05	1.76E+06	5.81E+05		1.22E+00	9.85E-01	1.43E+00
	Best	7.88E+02	7.81E+02	2.37E+03		1.35E+03	3.38E+03	2.18E+03		3.67E+02	3.83E+02	3.70E+02
	Median	2.40E+03	2.26E+03	7.13E+03		1.15E+04	1.92E+04	8.82E+03		4.00E+02	4.02E+02	3.94E+02
F3	Worst	4.85E+03	5.20E+03	1.34E+04	F13	3.48E+04	2.20E+05	4.08E+04	F23	4.28E+02	4.43E+02	4.18E+02
	Mean	2.54E+03	2.41E+03	6.70E+03		1.40E+04	2.98E+04	1.36E+04		3.98E+02	4.06E+02	3.94E+02
	Std	9.53E+02	1.03E+03	2.28E+03		8.82E+03	3.80E+04	1.13E+04		1.31E+01	1.16E+01	1.22E+01
	Best	6.96E-01	5.93E+01	7.01E+01		5.12E+03	5.71E+03	1.25E+03		4.56E+02	4.61E+02	4.45E+02
	Median	7.52E+01	9.40E+01	9.29E+01		3.40E+04	8.48E+04	2.21E+04		4.81E+02	4.91E+02	4.69E+02
F4	Worst	1.13E+02	1.19E+02	1.23E+02	F14	9.89E+04	2.44E+05	1.26E+05	F24	5.19E+02	5.11E+02	4.88E+02
	Mean	6.95E+01	9.58E+01	9.96E+01		4.14E+04	8.04E+04	2.93E+04		4.79E+02	4.88E+02	4.69E+02
	Std	3.27E+01	1.78E+01	1.57E+01		2.77E+04	5.00E+04	2.57E+04		1.33E+01	1.20E+01	1.12E+01
	Best	3.50E+01	2.40E+01	2.31E+01		1.40E+02	7.51E+02	7.20E+02		3.84E+02	3.85E+02	3.84E+02
	Median	4.48E+01	4.48E+01	3.70E+01		3.82E+03	6.24E+03	6.50E+03		3.88E+02	3.89E+02	3.88E+02
F5	Worst	6.27E+01	6.87E+01	6.08E+01	F15	1.49E+04	4.03E+04	2.84E+04	F25	3.91E+02	4.13E+02	3.90E+02
	Mean	4.56E+01	4.61E+01	3.84E+01		4.73E+03	1.08E+04	8.92E+03		3.88E+02	3.90E+02	3.88E+02
	Std	6.84E+00	1.14E+01	8.97E+00		4.00E+03	9.94E+03	7.90E+03		1.61E+00	5.77E+00	1.53E+00
	Best	5.79E-02	6.35E-02	7.75E-02		1.91E+02	3.82E+02	2.95E+01		2.07E+02	2.04E+02	2.11E+02
	Median	9.78E-02	9.44E-02	1.30E-01		5.32E+02	7.34E+02	4.56E+02		1.62E+03	1.67E+03	1.31E+03
F6	Worst	1.37E-01	1.91E-01	2.02E-01	F16	7.50E+02	1.10E+03	6.35E+02	F26	1.86E+03	1.95E+03	1.77E+03
	Mean	1.01E-01	1.07E-01	1.33E-01		4.98E+02	7.48E+02	4.07E+02		1.45E+03	1.45E+03	1.05E+03
	Std	2.19E-02	3.51E-02	3.07E-02		1.58E+02	1.89E+02	1.49E+02		4.72E+02	5.08E+02	5.47E+02
	Best	6.59E+01	5.80E+01	5.72E+01		3.57E+01	3.91E+01	2.58E+01		4.90E+02	4.88E+02	4.85E+02
	Median	9.00E+01	9.04E+01	8.33E+01		8.30E+01	2.20E+02	5.02E+01		5.10E+02	5.07E+02	5.03E+02
F7	Worst	1.19E+02	1.10E+02	1.05E+02	F17	4.10E+02	5.51E+02	1.80E+02	F27	5.27E+02	5.20E+02	5.17E+02
	Mean	9.20E+01	8.99E+01	8.33E+01		1.38E+02	2.32E+02	6.13E+01		5.10E+02	5.06E+02	5.02E+02
	Std	1.35E+01	1.15E+01	1.28E+01		9.97E+01	1.32E+02	4.03E+01		7.43E+00	8.50E+00	8.03E+00
	Best	2.99E+01	2.49E+01	2.15E+01		1.69E+04	3.31E+04	5.43E+03		3.93E+02	4.02E+02	3.99E+02
	Median	4.29E+01	4.68E+01	4.11E+01		7.88E+04	3.54E+05	9.54E+04		4.16E+02	4.20E+02	4.21E+02
F8	Worst	6.24E+01	6.68E+01	6.67E+01	F18	8.55E+05	1.14E+06	2.93E+05	F28	4.62E+02	4.60E+02	4.63E+02
	Mean	4.46E+01	4.73E+01	3.96E+01		1.29E+05	3.98E+05	1.15E+05		4.18E+02	4.27E+02	4.20E+02
	Std	7.82E+00	1.09E+01	9.22E+00		1.58E+05	2.57E+05	8.06E+04		1.44E+01	1.95E+01	1.14E+01
	Best	3.66E+00	9.30E+00	6.98E-01		4.80E+02	9.48E+02	1.82E+02		3.84E+02	4.16E+02	3.51E+02
	Median	2.87E+01	3.32E+01	1.24E+01		2.03E+03	8.28E+03	2.80E+03		5.06E+02	5.05E+02	4.49E+02
F9	Worst	1.17E+02	2.26E+02	4.23E+01	F19	1.70E+04	4.37E+04	4.63E+04	F29	7.43E+02	6.55E+02	6.50E+02
	Mean	3.84E+01	5.46E+01	1.36E+01		4.04E+03	1.19E+04	9.18E+03		5.25E+02	5.25E+02	4.54E+02
	Std	2.85E+01	4.91E+01	8.91E+00		4.22E+03	1.15E+04	1.16E+04		9.16E+01	6.90E+01	6.40E+01
	Best	5.97E+02	1.21E+03	8.42E+02		1.33E+01	4.65E+01	8.05E+00		4.05E+03	3.18E+03	4.92E+03
	Median	1.64E+03	1.76E+03	1.62E+03		1.33E+02	2.37E+02	2.95E+01		7.96E+03	5.58E+03	8.91E+03
F10	Worst	2.14E+03	2.59E+03	2.23E+03	F20	2.58E+02	5.36E+02	1.82E+02	F30	1.54E+04	2.36E+04	2.34E+04
	Mean	1.54E+03	1.82E+03	1.56E+03		1.12E+02	2.64E+02	7.04E+01		8.49E+03	7.99E+03	9.60E+03
	Std	3.87E+02	3.57E+02	3.44E+02		7.54E+01	1.26E+02	6.48E+01		2.94E+03	4.34E+03	3.92E+03
	Best	1.97E+01	3.33E+01	1.09E+01		2.33E+02	2.33E+02	2.34E+02				
	Median	6.63E+01	1.60E+02	6.70E+01		2.48E+02	2.52E+02	2.46E+02				
F11	Worst	1.37E+02	3.02E+02	1.33E+02	F21	2.70E+02	2.70E+02	2.63E+02				
	Mean	7.22E+01	1.62E+02	6.46E+01		2.50E+02	2.52E+02	2.46E+02				
	Std	3.44E+01	7.53E+01	2.85E+01		9.47E+00	9.36E+00	8.43E+00				

SCENARIO #2 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{50}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	1.57E+05	1.27E+05	4.38E+05	F12	1.07E+06	2.43E+06	1.34E+06	F22	1.11E+02	1.08E+02	1.13E+02
	Median	3.03E+05	2.28E+05	7.44E+05		7.10E+06	6.70E+06	6.37E+06		4.04E+03	4.14E+03	3.55E+03
	Worst	6.17E+05	4.22E+05	1.46E+06		1.60E+07	1.03E+07	1.40E+07		4.83E+03	5.26E+03	4.88E+03
	Mean	3.15E+05	2.40E+05	8.32E+05		7.25E+06	6.12E+06	6.64E+06		3.84E+03	3.97E+03	3.26E+03
	Std	9.65E+04	6.31E+04	2.47E+05		3.86E+06	2.46E+06	3.11E+06		8.49E+02	8.78E+02	1.32E+03
F3	Best	5.25E+03	5.00E+03	1.05E+04	F13	2.15E+03	3.18E+03	5.59E+03	F23	5.26E+02	5.24E+02	4.76E+02
	Median	1.12E+04	8.90E+03	2.02E+04		1.02E+04	1.13E+04	1.39E+04		5.57E+02	5.62E+02	5.46E+02
	Worst	1.62E+04	1.86E+04	2.84E+04		5.09E+04	3.64E+04	3.50E+04		5.91E+02	6.18E+02	5.86E+02
	Mean	1.18E+04	9.53E+03	2.01E+04		1.30E+04	1.33E+04	1.48E+04		5.57E+02	5.67E+02	5.44E+02
	Std	2.30E+03	3.03E+03	4.29E+03		9.92E+03	9.10E+03	6.15E+03		1.64E+01	2.24E+01	2.16E+01
F4	Best	4.04E+01	5.53E+01	7.56E+01	F14	1.90E+04	5.03E+04	2.47E+04	F24	6.13E+02	5.92E+02	5.68E+02
	Median	1.35E+02	1.57E+02	1.75E+02		3.84E+05	3.43E+05	1.27E+05		6.45E+02	6.57E+02	6.24E+02
	Worst	1.66E+02	2.25E+02	2.31E+02		1.13E+06	1.46E+06	3.14E+05		6.92E+02	7.02E+02	6.73E+02
	Mean	1.20E+02	1.46E+02	1.73E+02		4.65E+05	4.51E+05	1.44E+05		6.46E+02	6.59E+02	6.19E+02
	Std	3.51E+01	4.92E+01	4.14E+01		3.36E+05	3.36E+05	8.33E+04		2.03E+01	2.44E+01	2.71E+01
F5	Best	6.88E+01	8.66E+01	6.22E+01	F15	1.09E+03	9.22E+02	1.03E+03	F25	4.73E+02	4.91E+02	4.66E+02
	Median	1.02E+02	1.16E+02	9.69E+01		4.12E+03	6.63E+03	5.48E+03		5.39E+02	5.64E+02	5.39E+02
	Worst	1.37E+02	1.87E+02	1.54E+02		1.60E+04	2.14E+04	3.07E+04		5.76E+02	6.11E+02	5.95E+02
	Mean	1.04E+02	1.19E+02	1.01E+02		5.95E+03	7.92E+03	9.08E+03		5.37E+02	5.55E+02	5.38E+02
	Std	1.64E+01	2.26E+01	1.93E+01		4.75E+03	6.22E+03	7.77E+03		2.15E+01	2.67E+01	3.08E+01
F6	Best	1.13E-01	8.00E-02	1.55E-01	F16	6.85E+02	8.26E+02	1.59E+02	F26	2.01E+03	2.20E+03	1.79E+03
	Median	1.69E-01	1.28E-01	2.25E-01		1.25E+03	1.25E+03	8.46E+02		2.47E+03	2.53E+03	2.25E+03
	Worst	2.73E-01	1.97E-01	3.42E-01		1.73E+03	1.95E+03	1.30E+03		2.84E+03	3.50E+03	2.69E+03
	Mean	1.72E-01	1.29E-01	2.26E-01		1.24E+03	1.28E+03	8.43E+02		2.50E+03	2.58E+03	2.25E+03
	Std	3.32E-02	2.60E-02	4.01E-02		2.51E+02	2.74E+02	2.48E+02		1.91E+02	2.67E+02	2.15E+02
F7	Best	1.56E+02	1.50E+02	1.36E+02	F17	4.88E+02	2.55E+02	2.88E+02	F27	5.40E+02	5.31E+02	5.35E+02
	Median	1.85E+02	1.98E+02	1.78E+02		8.59E+02	8.45E+02	5.75E+02		5.80E+02	5.87E+02	5.63E+02
	Worst	2.15E+02	2.65E+02	2.29E+02		1.19E+03	1.31E+03	8.80E+02		6.34E+02	6.53E+02	5.88E+02
	Mean	1.83E+02	1.97E+02	1.78E+02		8.49E+02	8.27E+02	5.90E+02		5.84E+02	5.82E+02	5.63E+02
	Std	1.61E+01	2.55E+01	2.30E+01		1.98E+02	2.52E+02	1.49E+02		2.40E+01	3.02E+01	1.38E+01
F8	Best	6.52E+01	6.38E+01	6.85E+01	F18	3.77E+04	1.50E+05	1.07E+05	F28	4.70E+02	4.61E+02	4.66E+02
	Median	9.59E+01	1.13E+02	9.67E+01		1.21E+06	1.48E+06	3.43E+05		5.12E+02	5.13E+02	4.88E+02
	Worst	1.27E+02	1.57E+02	1.31E+02		4.51E+06	4.33E+06	1.89E+06		5.55E+02	6.11E+02	5.23E+02
	Mean	9.90E+01	1.13E+02	9.78E+01		1.44E+06	1.66E+06	5.16E+05		5.11E+02	5.16E+02	4.90E+02
	Std	1.48E+01	2.39E+01	1.51E+01		1.04E+06	1.18E+06	3.85E+05		2.21E+01	3.23E+01	1.63E+01
F9	Best	3.87E+01	1.21E+02	3.35E+01	F19	3.53E+02	2.69E+02	1.03E+03	F29	4.60E+02	3.83E+02	4.01E+02
	Median	3.29E+02	3.39E+02	8.24E+01		1.39E+04	1.31E+04	1.36E+04		7.01E+02	7.27E+02	5.59E+02
	Worst	6.67E+02	1.32E+03	2.55E+02		3.93E+04	3.81E+04	3.48E+04		1.11E+03	1.28E+03	7.58E+02
	Mean	3.12E+02	4.27E+02	1.05E+02		1.45E+04	1.42E+04	1.33E+04		7.08E+02	7.55E+02	5.54E+02
	Std	1.71E+02	2.71E+02	5.93E+01		1.07E+04	1.03E+04	9.01E+03		1.70E+02	2.17E+02	1.09E+02
F10	Best	1.74E+03	2.63E+03	2.03E+03	F20	3.22E+02	1.12E+02	5.84E+01	F30	6.66E+05	6.95E+05	7.35E+05
	Median	3.14E+03	3.68E+03	3.52E+03		5.89E+02	4.49E+02	3.43E+02		8.56E+05	9.01E+05	9.32E+05
	Worst	3.91E+03	4.61E+03	4.50E+03		9.51E+02	1.00E+03	5.97E+02		1.07E+06	1.20E+06	1.56E+06
	Mean	3.14E+03	3.60E+03	3.41E+03		6.03E+02	5.29E+02	3.49E+02		8.71E+05	9.24E+05	9.45E+05
	Std	4.65E+02	5.22E+02	6.74E+02		1.68E+02	2.55E+02	1.42E+02		9.89E+04	1.28E+05	1.74E+05
F11	Best	6.22E+01	9.53E+01	7.30E+01	F21	2.85E+02	2.78E+02	2.71E+02				
	Median	1.41E+02	2.12E+02	1.79E+02		3.13E+02	3.15E+02	3.03E+02				
	Worst	5.96E+02	6.75E+02	4.83E+02		3.38E+02	3.65E+02	3.38E+02				
	Mean	1.78E+02	2.38E+02	1.89E+02		3.12E+02	3.16E+02	3.05E+02				
	Std	1.25E+02	1.37E+02	8.44E+01		1.22E+01	1.98E+01	1.67E+01				

TABLE VIII
SCENARIO #2 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{100}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	9.38E+05	6.74E+05	7.96E+06	F12	9.09E+06	9.63E+06	2.73E+07	F22	8.66E+03	9.46E+03	9.05E+03
	Median	1.57E+06	1.02E+06	1.16E+07		2.67E+07	3.17E+07	4.89E+07		1.09E+04	1.16E+04	1.09E+04
	Worst	3.73E+06	1.43E+06	1.55E+07		5.61E+07	5.49E+07	9.97E+07		1.27E+04	1.46E+04	1.30E+04
	Mean	1.70E+06	1.04E+06	1.18E+07		2.86E+07	3.18E+07	5.43E+07		1.10E+04	1.16E+04	1.08E+04
	Std	5.30E+05	2.08E+05	2.28E+06		1.16E+07	1.13E+07	1.90E+07		1.03E+03	1.18E+03	9.15E+02
F3	Best	3.87E+04	3.07E+04	1.01E+05	F13	5.56E+03	4.83E+03	7.88E+03	F23	6.63E+02	6.77E+02	6.54E+02
	Median	5.44E+04	4.32E+04	1.34E+05		1.39E+04	8.77E+03	1.96E+04		7.30E+02	7.57E+02	7.36E+02
	Worst	6.59E+04	5.49E+04	2.21E+05		4.13E+04	1.82E+04	3.23E+04		7.72E+02	8.31E+02	7.79E+02
	Mean	5.44E+04	4.41E+04	1.40E+05		1.58E+04	9.58E+03	1.99E+04		7.27E+02	7.56E+02	7.24E+02
	Std	7.28E+03	6.26E+03	2.37E+04		8.18E+03	3.08E+03	6.17E+03		3.04E+01	3.30E+01	3.42E+01
F4	Best	2.16E+02	2.04E+02	2.37E+02	F14	1.08E+06	6.11E+05	3.73E+05	F24	1.11E+03	1.15E+03	1.15E+03
	Median	2.95E+02	2.83E+02	3.10E+02		2.41E+06	1.99E+06	1.68E+06		1.21E+03	1.23E+03	1.23E+03
	Worst	3.89E+02	4.00E+02	3.87E+02		4.41E+06	4.53E+06	3.10E+06		1.29E+03	1.38E+03	1.30E+03
	Mean	2.90E+02	2.91E+02	3.12E+02		2.47E+06	2.26E+06	1.70E+06		1.21E+03	1.23E+03	1.22E+03
	Std	3.49E+01	5.26E+01	3.97E+01		8.89E+05	1.06E+06	6.52E+05		4.05E+01	5.25E+01	4.11E+01
F5	Best	2.34E+02	2.26E+02	1.84E+02	F15	1.76E+03	1.78E+03	1.75E+03	F25	7.36E+02	7.66E+02	7.25E+02
	Median	3.21E+02	3.04E+02	2.87E+02		4.61E+03	4.45E+03	5.29E+03		8.44E+02	8.46E+02	8.71E+02
	Worst	4.03E+02	3.93E+02	3.90E+02		1.86E+04	1.14E+04	2.31E+04		9.71E+02	1.00E+03	9.64E+02
	Mean	3.17E+02	3.02E+02	2.90E+02		5.65E+03	4.80E+03	6.83E+03		8.44E+02	8.58E+02	8.79E+02
	Std	3.80E+01	4.06E+01	4.60E+01		3.51E+03	2.16E+03	4.77E+03		5.64E+01	6.11E+01	5.05E+01
F6	Best	2.05E-01	1.52E-01	4.02E-01	F16	2.23E+03	2.04E+03	1.64E+03	F26	6.18E+03	6.19E+03	5.69E+03
	Median	2.60E-01	2.15E-01	4.84E-01		3.12E+03	3.89E+03	3.50E+03		6.91E+03	7.02E+03	6.92E+03
	Worst	3.46E-01	2.69E-01	6.65E-01		4.06E+03	4.88E+03	4.79E+03		8.20E+03	8.52E+03	7.80E+03
	Mean	2.59E-01	2.14E-01	5.05E-01		3.14E+03	3.81E+03	3.45E+03		6.88E+03	7.09E+03	6.88E+03
	Std	3.33E-02	2.64E-02	6.78E-02		3.91E+02	7.03E+02	7.25E+02		4.11E+02	5.51E+02	5.73E+02
F7	Best	3.91E+02	3.99E+02	3.98E+02	F17	1.68E+03	1.69E+03	1.62E+03	F27	6.89E+02	6.97E+02	6.60E+02
	Median	5.05E+02	5.31E+02	5.60E+02		2.21E+03	2.83E+03	2.63E+03		7.50E+02	7.91E+02	7.16E+02
	Worst	6.53E+02	6.90E+02	8.33E+02		2.85E+03	4.03E+03	3.46E+03		8.05E+02	8.55E+02	7.67E+02
	Mean	5.05E+02	5.40E+02	5.68E+02		2.24E+03	2.80E+03	2.69E+03		7.54E+02	7.85E+02	7.16E+02
	Std	6.26E+01	7.11E+01	7.79E+01		2.99E+02	5.21E+02	4.64E+02		3.28E+01	4.13E+01	2.91E+01
F8	Best	2.50E+02	2.40E+02	2.22E+02	F18	7.92E+05	9.91E+05	6.44E+05	F28	5.89E+02	5.65E+02	6.00E+02
	Median	3.20E+02	3.21E+02	3.05E+02		2.91E+06	3.03E+06	3.16E+06		6.50E+02	6.72E+02	6.85E+02
	Worst	3.90E+02	4.18E+02	4.07E+02		6.82E+06	7.08E+06	6.08E+06		7.13E+02	7.12E+02	7.36E+02
	Mean	3.15E+02	3.22E+02	2.98E+02		3.11E+06	3.52E+06	3.38E+06		6.53E+02	6.65E+02	6.80E+02
	Std	3.84E+01	4.54E+01	4.02E+01		1.37E+06	1.77E+06	1.40E+06		3.50E+01	4.20E+01	3.81E+01
F9	Best	1.90E+03	1.48E+03	8.04E+02	F19	1.49E+03	1.21E+03	2.50E+03	F29	1.97E+03	1.91E+03	1.62E+03
	Median	3.25E+03	3.28E+03	1.76E+03		5.16E+03	2.90E+03	5.34E+03		2.68E+03	2.93E+03	2.31E+03
	Worst	6.96E+03	1.12E+04	4.04E+03		2.17E+04	2.43E+04	1.73E+04		3.15E+03	3.59E+03	2.81E+03
	Mean	3.63E+03	3.85E+03	1.73E+03		7.06E+03	4.45E+03	6.24E+03		2.66E+03	2.87E+03	2.30E+03
	Std	1.21E+03	1.87E+03	6.08E+02		5.25E+03	4.62E+03	3.06E+03		2.84E+02	4.26E+02	2.60E+02
F10	Best	7.57E+03	8.28E+03	7.46E+03	F20	1.28E+03	1.61E+03	1.21E+03	F30	1.20E+04	1.21E+04	4.37E+04
	Median	1.01E+04	1.03E+04	1.01E+04		1.89E+03	2.49E+03	2.04E+03		3.23E+04	3.74E+04	9.33E+04
	Worst	1.26E+04	1.21E+04	1.21E+04		2.44E+03	3.32E+03	3.16E+03		7.99E+04	7.38E+04	1.57E+05
	Mean	9.93E+03	1.03E+04	1.03E+04		1.90E+03	2.44E+03	2.09E+03		3.64E+04	3.82E+04	1.01E+05
	Std	1.14E+03	9.59E+02	1.01E+03		2.80E+02	4.18E+02	4.47E+02		1.55E+04	1.46E+04	3.03E+04
F11	Best	1.60E+03	8.06E+02	3.02E+03	F21	4.63E+02	5.19E+02	4.46E+02				
	Median	2.91E+03	3.18E+03	5.43E+03		5.56E+02	6.03E+02	5.58E+02				
	Worst	5.94E+03	6.22E+03	1.20E+04		6.34E+02	7.36E+02	6.17E+02				
	Mean	3.09E+03	3.29E+03	5.71E+03		5.57E+02	6.02E+02	5.63E+02				
	Std	1.02E+03	1.19E+03	2.04E+03		4.08E+01	5.29E+01	3.68E+01				

Scenario #3

Mutation Group Shutdown period attached to migration frequency on Fitness-based Migration Policy

November, 2022

TABLE IX
Scenario #3 Comparison of migration policies on the CEC'17 single objective real-parameter benchmark considering D_{10}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
	Best	2.41E+03	6.78E+02	3.13E+03		1.64E+03	2.58E+03	1.81E+03		1.17E+01	1.13E+01	6.02E-02
	Median	9.58E+03	6.45E+03	1.37E+04		5.09E+03	1.52E+04	1.30E+04		1.02E+02	1.02E+02	2.70E+01
F1	Worst	6.04E+04	4.35E+04	3.90E+04	F12	4.28E+04	5.47E+04	5.36E+04	F22	1.04E+02	1.05E+02	1.04E+02
	Mean	1.49E+04	1.00E+04	1.66E+04		8.85E+03	1.93E+04	1.60E+04		7.36E+01	8.10E+01	3.26E+01
	Std	1.48E+04	8.84E+03	1.03E+04		8.99E+03	1.42E+04	1.21E+04		3.51E+01	3.41E+01	2.76E+01
	Best	1.07E+01	7.35E+00	8.76E+00		2.04E+01	7.65E+00	3.83E+01		7.38E-02	1.01E-01	5.77E-01
	Median	5.49E+01	4.73E+01	8.54E+01		7.66E+02	6.17E+02	6.38E+02		3.07E+02	3.09E+02	3.08E+02
F3	Worst	2.12E+02	5.25E+02	1.90E+02	F13	1.32E+04	1.36E+04	2.47E+04	F23	3.13E+02	3.20E+02	3.15E+02
	Mean	7.02E+01	7.13E+01	8.47E+01		1.71E+03	1.52E+03	2.27E+03		2.75E+02	2.70E+02	2.99E+02
	Std	5.01E+01	9.05E+01	5.04E+01		2.65E+03	2.95E+03	4.53E+03		9.19E+01	1.04E+02	5.46E+01
	Best	3.05E-03	9.95E-02	1.74E-02		3.85E+00	2.13E+00	2.68E+00		1.00E+02	1.00E+00	1.00E+02
	Median	4.74E+00	3.43E+00	3.95E+00		2.86E+01	4.47E+01	2.66E+01		1.00E+02	1.00E+02	1.00E+02
F4	Worst	6.49E+00	7.09E+00	6.37E+00	F14	1.07E+02	2.15E+02	1.07E+02	F24	1.01E+02	3.46E+02	1.01E+02
	Mean	4.02E+00	3.53E+00	3.35E+00		3.83E+01	5.50E+01	3.41E+01		1.00E+02	1.05E+02	1.00E+02
	Std	2.04E+00	1.79E+00	1.97E+00		2.82E+01	5.01E+01	2.82E+01		2.00E-01	4.74E+01	1.53E-01
	Best	2.00E+00	1.99E+00	2.01E+00		4.48E+00	5.19E+00	4.26E+00		3.98E+02	3.98E+02	3.98E+02
	Median	4.08E+00	4.98E+00	4.02E+00		1.29E+02	8.73E+01	1.28E+02		3.99E+02	3.99E+02	3.99E+02
F5	Worst	8.96E+00	7.98E+00	8.96E+00	F15	1.29E+03	4.84E+02	6.15E+02	F25	4.44E+02	4.47E+02	4.44E+02
	Mean	4.50E+00	4.83E+00	4.62E+00		2.34E+02	1.60E+02	1.56E+02		4.00E+02	4.05E+02	4.00E+02
	Std	1.87E+00	1.57E+00	1.82E+00		2.62E+02	1.59E+02	1.48E+02		8.00E+00	1.57E+01	8.03E+00
	Best	2.77E-02	2.15E-02	3.76E-02		6.94E-02	5.28E-02	2.56E-01		1.09E+00	6.68E-01	2.00E+00
	Median	6.30E-02	5.95E-02	6.67E-02		6.77E-01	5.65E-01	5.97E-01		3.00E+02	3.00E+02	3.00E+02
F6	Worst	1.97E-01	1.78E-01	1.48E-01	F16	1.19E+01	1.15E+01	1.21E+01	F26	3.00E+02	3.00E+02	3.01E+02
	Mean	6.86E-02	6.67E-02	7.19E-02		5.12E+00	8.80E-01	2.38E+00		2.81E+02	2.87E+02	2.81E+02
	Std	3.41E-02	3.28E-02	2.49E-02		2.10E+01	1.95E+00	4.11E+00		7.35E+01	5.50E+01	7.32E+01
	Best	6.69E+00	5.69E+00	5.33E+00		9.46E-02	1.10E-01	2.55E-01		3.87E+02	3.87E+02	3.87E+02
	Median	1.51E+01	1.69E+01	1.70E+01		1.39E+00	1.43E+00	1.49E+00		3.91E+02	3.92E+02	3.89E+02
F7	Worst	2.68E+01	2.53E+01	2.47E+01	F17	2.62E+00	2.90E+00	2.72E+00	F27	3.96E+02	3.97E+02	3.93E+02
	Mean	1.51E+01	1.71E+01	1.69E+01		1.15E+00	1.36E+00	1.56E+00		3.91E+02	3.92E+02	3.90E+02
	Std	4.56E+00	4.04E+00	3.25E+00		7.05E-01	7.62E-01	6.35E-01		2.21E+00	2.79E+00	1.62E+00
	Best	1.03E+00	2.00E+00	1.99E+00		5.13E+01	3.93E+01	2.58E+01		1.08E+00	1.73E+00	4.04E+00
	Median	3.99E+00	4.98E+00	4.98E+00		1.04E+03	3.69E+02	4.94E+02		3.00E+02	3.00E+02	3.01E+02
F8	Worst	8.97E+00	8.99E+00	8.12E+00	F18	4.98E+03	3.22E+03	3.68E+03	F28	3.68E+02	3.97E+02	3.66E+02
	Mean	4.34E+00	5.06E+00	4.63E+00		1.38E+03	7.39E+02	7.87E+02		2.97E+02	3.20E+02	2.90E+02
	Std	1.77E+00	1.41E+00	1.47E+00		1.24E+03	7.43E+02	8.13E+02		8.22E+01	6.73E+01	9.65E+01
	Best	4.71E-03	2.80E-03	4.26E-03		3.47E+00	1.06E+01	1.38E+00		2.33E+02	2.33E+02	2.33E+02
	Median	3.72E-02	3.07E-02	1.57E-02		1.51E+02	9.79E+01	7.96E+01		2.40E+02	2.45E+02	2.40E+02
F9	Worst	1.07E+00	9.80E-01	2.04E-01	F19	1.58E+03	1.79E+03	5.34E+02	F29	2.56E+02	2.76E+02	2.56E+02
	Mean	1.28E-01	8.64E-02	4.64E-02		2.04E+02	2.20E+02	1.28E+02		2.41E+02	2.46E+02	2.41E+02
	Std	2.21E-01	1.76E-01	5.78E-02		2.83E+02	3.46E+02	1.39E+02		5.64E+00	8.57E+00	5.14E+00
	Best	2.59E-01	3.66E+00	7.40E-01		8.85E-02	1.24E-01	1.67E-01		7.76E+02	1.27E+03	7.58E+02
	Median	1.52E+01	2.21E+01	1.89E+01		9.41E-01	6.13E-01	7.07E-01		1.45E+04	8.01E+03	3.05E+03
F10	Worst	1.35E+02	1.50E+02	1.51E+02	F20	2.04E+00	2.46E+00	1.81E+00	F30	9.33E+04	4.78E+04	2.42E+04
	Mean	4.44E+01	5.62E+01	4.20E+01		9.59E-01	8.11E-01	8.53E-01		2.27E+04	1.35E+04	5.11E+03
	Std	5.38E+01	5.61E+01	5.09E+01		5.13E-01	5.84E-01	5.12E-01		2.39E+04	1.33E+04	5.69E+03
	Best	1.31E+00	1.30E+00	1.10E+00		2.46E+00	2.27E+00	1.11E-01				
	Median	3.30E+00	4.68E+00	3.83E+00		1.02E+02	1.03E+02	1.02E+02				
F11	Worst	8.25E+00	8.64E+00	8.05E+00	F21	1.03E+02	1.05E+02	1.04E+02				
	Mean	3.78E+00	4.82E+00	3.89E+00		9.85E+01	9.93E+01	9.55E+01				
	Std	1.67E+00	1.92E+00	1.86E+00		1.76E+01	1.78E+01	2.46E+01				

TABLE X
Scenario #3 Comparison of migration policies on the CEC'17 single objective real-parameter benchmark considering D_{30}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	2.95E+04	2.91E+04	5.52E+04	F12	8.07E+04	3.41E+05	1.03E+05	F22	1.01E+02	1.01E+02	1.03E+02
	Median	6.21E+04	5.68E+04	1.71E+05		5.06E+05	2.05E+06	6.52E+05		1.02E+02	1.02E+02	1.06E+02
	Worst	9.78E+04	1.44E+05	4.15E+05		1.79E+06	6.64E+06	2.41E+06		1.05E+02	1.06E+02	1.09E+02
	Mean	6.20E+04	6.54E+04	1.85E+05		6.19E+05	2.52E+06	8.10E+05		1.02E+02	1.03E+02	1.06E+02
	Std	1.91E+04	2.90E+04	9.09E+04		4.18E+05	1.76E+06	5.98E+05		1.22E+00	9.85E-01	1.53E+00
F3	Best	7.88E+02	7.81E+02	2.71E+03	F13	1.35E+03	3.38E+03	1.46E+03	F23	3.67E+02	3.83E+02	3.74E+02
	Median	2.40E+03	2.26E+03	6.06E+03		1.15E+04	1.92E+04	1.02E+04		4.00E+02	4.02E+02	3.95E+02
	Worst	4.85E+03	5.20E+03	1.09E+04		3.48E+04	2.20E+05	5.59E+04		4.28E+02	4.43E+02	4.12E+02
	Mean	2.54E+03	2.41E+03	6.32E+03		1.40E+04	2.98E+04	1.80E+04		3.98E+02	4.06E+02	3.94E+02
	Std	9.53E+02	1.03E+03	1.90E+03		8.82E+03	3.80E+04	1.52E+04		1.31E+01	1.16E+01	1.02E+01
F4	Best	6.96E-01	5.93E+01	1.87E+01	F14	5.12E+03	5.71E+03	7.93E+02	F24	4.56E+02	4.61E+02	4.51E+02
	Median	7.52E+01	9.40E+01	8.63E+01		3.40E+04	8.48E+04	1.60E+04		4.81E+02	4.91E+02	4.69E+02
	Worst	1.13E+02	1.19E+02	1.16E+02		9.89E+04	2.44E+05	7.35E+04		5.19E+02	5.11E+02	4.87E+02
	Mean	6.95E+01	9.58E+01	8.35E+01		4.14E+04	8.04E+04	2.33E+04		4.79E+02	4.88E+02	4.69E+02
	Std	3.27E+01	1.78E+01	1.71E+01		2.77E+04	5.00E+04	1.92E+04		1.33E+01	1.20E+01	9.72E+00
F5	Best	3.50E+01	2.40E+01	1.79E+01	F15	1.40E+02	7.51E+02	1.65E+02	F25	3.84E+02	3.85E+02	3.84E+02
	Median	4.48E+01	4.48E+01	4.08E+01		3.82E+03	6.24E+03	2.95E+03		3.88E+02	3.89E+02	3.88E+02
	Worst	6.27E+01	6.87E+01	5.40E+01		1.49E+04	4.03E+04	4.12E+04		3.91E+02	4.13E+02	3.92E+02
	Mean	4.56E+01	4.61E+01	4.03E+01		4.73E+03	1.08E+04	9.97E+03		3.88E+02	3.90E+02	3.88E+02
	Std	6.84E+00	1.14E+01	7.72E+00		4.00E+03	9.94E+03	1.11E+04		1.61E+00	5.77E+00	1.23E+00
F6	Best	5.79E-02	6.35E-02	1.03E-01	F16	1.91E+02	3.82E+02	1.77E+01	F26	2.07E+02	2.04E+02	2.22E+02
	Median	9.78E-02	9.44E-02	1.77E-01		5.32E+02	7.34E+02	3.52E+02		1.62E+03	1.67E+03	1.37E+03
	Worst	1.37E-01	1.91E-01	2.88E-01		7.50E+02	1.10E+03	6.37E+02		1.86E+03	1.95E+03	1.77E+03
	Mean	1.01E-01	1.07E-01	1.75E-01		4.98E+02	7.48E+02	3.42E+02		1.45E+03	1.45E+03	1.05E+03
	Std	2.19E-02	3.51E-02	4.20E-02		1.58E+02	1.89E+02	1.43E+02		4.72E+02	5.08E+02	5.48E+02
F7	Best	6.59E+01	5.80E+01	6.35E+01	F17	3.57E+01	3.91E+01	1.86E+01	F27	4.90E+02	4.88E+02	4.89E+02
	Median	9.00E+01	9.04E+01	8.49E+01		8.30E+01	2.20E+02	5.83E+01		5.10E+02	5.07E+02	5.01E+02
	Worst	1.19E+02	1.10E+02	1.22E+02		4.10E+02	5.51E+02	1.68E+02		5.27E+02	5.20E+02	5.14E+02
	Mean	9.20E+01	8.99E+01	8.79E+01		1.38E+02	2.32E+02	7.40E+01		5.10E+02	5.06E+02	5.02E+02
	Std	1.35E+01	1.15E+01	1.48E+01		9.97E+01	1.32E+02	4.80E+01		7.43E+00	8.50E+00	5.33E+00
F8	Best	2.99E+01	2.49E+01	2.65E+01	F18	1.69E+04	3.31E+04	8.26E+03	F28	3.93E+02	4.02E+02	4.02E+02
	Median	4.29E+01	4.68E+01	3.94E+01		7.88E+04	3.54E+05	8.08E+04		4.16E+02	4.20E+02	4.22E+02
	Worst	6.24E+01	6.68E+01	5.89E+01		8.55E+05	1.14E+06	2.82E+05		4.62E+02	4.60E+02	4.55E+02
	Mean	4.46E+01	4.73E+01	4.06E+01		1.29E+05	3.98E+05	9.98E+04		4.18E+02	4.27E+02	4.23E+02
	Std	7.82E+00	1.09E+01	8.33E+00		1.58E+05	2.57E+05	7.54E+04		1.44E+01	1.95E+01	1.03E+01
F9	Best	3.66E+00	9.30E+00	1.54E+00	F19	4.80E+02	9.48E+02	2.53E+02	F29	3.84E+02	4.16E+02	3.61E+02
	Median	2.87E+01	3.32E+01	6.69E+00		2.03E+03	8.28E+03	5.52E+03		5.06E+02	5.05E+02	4.68E+02
	Worst	1.17E+02	2.26E+02	1.93E+01		1.70E+04	4.37E+04	4.78E+04		7.43E+02	6.55E+02	6.38E+02
	Mean	3.84E+01	5.46E+01	8.64E+00		4.04E+03	1.19E+04	1.02E+04		5.25E+02	5.25E+02	4.69E+02
	Std	2.85E+01	4.91E+01	5.60E+00		4.22E+03	1.15E+04	1.17E+04		9.16E+01	6.90E+01	6.40E+01
F10	Best	5.97E+02	1.21E+03	6.95E+02	F20	1.33E+01	4.65E+01	1.20E+01	F30	4.05E+03	3.18E+03	3.96E+03
	Median	1.64E+03	1.76E+03	1.32E+03		1.33E+02	2.37E+02	3.34E+01		7.96E+03	5.58E+03	8.92E+03
	Worst	2.14E+03	2.59E+03	2.00E+03		2.58E+02	5.36E+02	1.82E+02		1.54E+04	2.36E+04	2.07E+04
	Mean	1.54E+03	1.82E+03	1.38E+03		1.12E+02	2.64E+02	7.01E+01		8.49E+03	7.99E+03	9.85E+03
	Std	3.87E+02	3.57E+02	2.99E+02		7.54E+01	1.26E+02	6.13E+01		2.94E+03	4.34E+03	4.26E+03
F11	Best	1.97E+01	3.33E+01	2.31E+01	F21	2.33E+02	2.33E+02	2.26E+02				
	Median	6.63E+01	1.60E+02	7.91E+01		2.48E+02	2.52E+02	2.44E+02				
	Worst	1.37E+02	3.02E+02	1.49E+02		2.70E+02	2.70E+02	2.63E+02				
	Mean	7.22E+01	1.62E+02	7.32E+01		2.50E+02	2.52E+02	2.43E+02				
	Std	3.44E+01	7.53E+01	3.09E+01		9.47E+00	9.36E+00	9.93E+00				

TABLE XI
SCENARIO #3 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{50}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	1.57E+05	1.27E+05	4.56E+05	F12	1.07E+06	2.43E+06	1.75E+06	F22	1.11E+02	1.08E+02	1.12E+02
	Median	3.03E+05	2.28E+05	8.23E+05		7.10E+06	6.70E+06	7.33E+06		4.04E+03	4.14E+03	3.75E+03
	Worst	6.17E+05	4.22E+05	1.54E+06		1.60E+07	1.03E+07	1.82E+07		4.83E+03	5.26E+03	4.83E+03
	Mean	3.15E+05	2.40E+05	9.38E+05		7.25E+06	6.12E+06	7.87E+06		3.84E+03	3.97E+03	3.05E+03
	Std	9.65E+04	6.31E+04	3.04E+05		3.86E+06	2.46E+06	4.36E+06		8.49E+02	8.78E+02	1.69E+03
F3	Best	5.25E+03	5.00E+03	1.52E+04	F13	2.15E+03	3.18E+03	7.01E+03	F23	5.26E+02	5.24E+02	4.96E+02
	Median	1.12E+04	8.90E+03	2.26E+04		1.02E+04	1.13E+04	1.58E+04		5.57E+02	5.62E+02	5.42E+02
	Worst	1.62E+04	1.86E+04	3.11E+04		5.09E+04	3.64E+04	3.93E+04		5.91E+02	6.18E+02	6.07E+02
	Mean	1.18E+04	9.53E+03	2.23E+04		1.30E+04	1.33E+04	1.78E+04		5.57E+02	5.67E+02	5.42E+02
	Std	2.30E+03	3.03E+03	3.69E+03		9.92E+03	9.10E+03	8.09E+03		1.64E+01	2.24E+01	2.62E+01
F4	Best	4.04E+01	5.53E+01	6.35E+01	F14	1.90E+04	5.03E+04	2.97E+04	F24	6.13E+02	5.92E+02	5.67E+02
	Median	1.35E+02	1.57E+02	1.53E+02		3.84E+05	3.43E+05	1.26E+05		6.45E+02	6.57E+02	6.19E+02
	Worst	1.66E+02	2.25E+02	2.20E+02		1.13E+06	1.46E+06	4.01E+05		6.92E+02	7.02E+02	6.97E+02
	Mean	1.20E+02	1.46E+02	1.53E+02		4.65E+05	4.51E+05	1.40E+05		6.46E+02	6.59E+02	6.18E+02
	Std	3.51E+01	4.92E+01	4.26E+01		3.36E+05	3.36E+05	9.52E+04		2.03E+01	2.44E+01	2.96E+01
F5	Best	6.88E+01	8.66E+01	5.91E+01	F15	1.09E+03	9.22E+02	1.51E+03	F25	4.73E+02	4.91E+02	5.07E+02
	Median	1.02E+02	1.16E+02	8.94E+01		4.12E+03	6.63E+03	5.88E+03		5.39E+02	5.64E+02	5.43E+02
	Worst	1.37E+02	1.87E+02	1.20E+02		1.60E+04	2.14E+04	2.62E+04		5.76E+02	6.11E+02	5.78E+02
	Mean	1.04E+02	1.19E+02	9.36E+01		5.95E+03	7.92E+03	8.67E+03		5.37E+02	5.55E+02	5.46E+02
	Std	1.64E+01	2.26E+01	1.68E+01		4.75E+03	6.22E+03	6.97E+03		2.15E+01	2.67E+01	1.71E+01
F6	Best	1.13E-01	8.00E-02	2.06E-01	F16	6.85E+02	8.26E+02	4.74E+02	F26	2.01E+03	2.20E+03	1.82E+03
	Median	1.69E-01	1.28E-01	2.60E-01		1.25E+03	1.25E+03	8.65E+02		2.47E+03	2.53E+03	2.33E+03
	Worst	2.73E-01	1.97E-01	4.10E-01		1.73E+03	1.95E+03	1.25E+03		2.84E+03	3.50E+03	2.78E+03
	Mean	1.72E-01	1.29E-01	2.73E-01		1.24E+03	1.28E+03	8.75E+02		2.50E+03	2.58E+03	2.28E+03
	Std	3.32E-02	2.60E-02	5.03E-02		2.51E+02	2.74E+02	2.23E+02		1.91E+02	2.67E+02	2.26E+02
F7	Best	1.56E+02	1.50E+02	1.29E+02	F17	4.88E+02	2.55E+02	3.68E+02	F27	5.40E+02	5.31E+02	5.09E+02
	Median	1.85E+02	1.98E+02	1.73E+02		8.59E+02	8.45E+02	6.24E+02		5.80E+02	5.87E+02	5.58E+02
	Worst	2.15E+02	2.65E+02	2.29E+02		1.19E+03	1.31E+03	8.43E+02		6.34E+02	6.53E+02	6.13E+02
	Mean	1.83E+02	1.97E+02	1.78E+02		8.49E+02	8.27E+02	6.18E+02		5.84E+02	5.82E+02	5.59E+02
	Std	1.61E+01	2.55E+01	2.58E+01		1.98E+02	2.52E+02	1.33E+02		2.40E+01	3.02E+01	2.16E+01
F8	Best	6.52E+01	6.38E+01	7.17E+01	F18	3.77E+04	1.50E+05	8.28E+04	F28	4.70E+02	4.61E+02	4.64E+02
	Median	9.59E+01	1.13E+02	8.81E+01		1.21E+06	1.48E+06	3.55E+05		5.12E+02	5.13E+02	4.94E+02
	Worst	1.27E+02	1.57E+02	1.29E+02		4.51E+06	4.33E+06	1.18E+06		5.55E+02	6.11E+02	5.22E+02
	Mean	9.90E+01	1.13E+02	9.19E+01		1.44E+06	1.66E+06	4.03E+05		5.11E+02	5.16E+02	4.91E+02
	Std	1.48E+01	2.39E+01	1.46E+01		1.04E+06	1.18E+06	2.52E+05		2.21E+01	3.23E+01	1.88E+01
F9	Best	3.87E+01	1.21E+02	2.20E+01	F19	3.53E+02	2.69E+02	4.01E+02	F29	4.60E+02	3.83E+02	3.54E+02
	Median	3.29E+02	3.39E+02	5.55E+01		1.39E+04	1.31E+04	1.00E+04		7.01E+02	7.27E+02	5.11E+02
	Worst	6.67E+02	1.32E+03	1.45E+02		3.93E+04	3.81E+04	3.78E+04		1.11E+03	1.28E+03	8.20E+02
	Mean	3.12E+02	4.27E+02	6.55E+01		1.45E+04	1.42E+04	1.30E+04		7.08E+02	7.55E+02	5.34E+02
	Std	1.71E+02	2.71E+02	3.68E+01		1.07E+04	1.03E+04	1.17E+04		1.70E+02	2.17E+02	1.20E+02
F10	Best	1.74E+03	2.63E+03	1.88E+03	F20	3.22E+02	1.12E+02	8.49E+01	F30	6.66E+05	6.95E+05	7.12E+05
	Median	3.14E+03	3.68E+03	3.07E+03		5.89E+02	4.49E+02	3.71E+02		8.56E+05	9.01E+05	9.41E+05
	Worst	3.91E+03	4.61E+03	4.30E+03		9.51E+02	1.00E+03	6.88E+02		1.07E+06	1.20E+06	1.78E+06
	Mean	3.14E+03	3.60E+03	3.03E+03		6.03E+02	5.29E+02	3.76E+02		8.71E+05	9.24E+05	9.65E+05
	Std	4.65E+02	5.22E+02	5.33E+02		1.68E+02	2.55E+02	1.37E+02		9.89E+04	1.28E+05	2.10E+05
F11	Best	6.22E+01	9.53E+01	8.57E+01	F21	2.85E+02	2.78E+02	2.72E+02				
	Median	1.41E+02	2.12E+02	1.97E+02		3.13E+02	3.15E+02	3.01E+02				
	Worst	5.96E+02	6.75E+02	5.09E+02		3.38E+02	3.65E+02	3.33E+02				
	Mean	1.78E+02	2.38E+02	2.34E+02		3.12E+02	3.16E+02	3.00E+02				
	Std	1.25E+02	1.37E+02	1.18E+02		1.22E+01	1.98E+01	1.63E+01				

TABLE XII

SCENARIO #3 COMPARISON OF MIGRATION POLICIES ON THE CEC'17 SINGLE OBJECTIVE REAL-PARAMETER BENCHMARK CONSIDERING D_{100}.

		Ring	ηBest	FBMP		Ring	ηBest	FBMP		RING	NBEST	FBMP
F1	Best	9.38E+05	6.74E+05	2.98E+06	F12	9.09E+06	9.63E+06	1.25E+07	F22	8.66E+03	9.46E+03	9.02E+03
	Median	1.57E+06	1.02E+06	4.77E+06		2.67E+07	3.17E+07	3.42E+07		1.09E+04	1.16E+04	1.08E+04
	Worst	3.73E+06	1.43E+06	7.50E+06		5.61E+07	5.49E+07	7.85E+07		1.27E+04	1.46E+04	1.26E+04
	Mean	1.70E+06	1.04E+06	4.95E+06		2.86E+07	3.18E+07	3.70E+07		1.10E+04	1.16E+04	1.09E+04
	Std	5.30E+05	2.08E+05	1.00E+06		1.16E+07	1.13E+07	1.61E+07		1.03E+03	1.18E+03	1.02E+03
F3	Best	3.87E+04	3.07E+04	5.69E+04	F13	5.56E+03	4.83E+03	7.71E+03	F23	6.63E+02	6.77E+02	6.53E+02
	Median	5.44E+04	4.32E+04	8.57E+04		1.39E+04	8.77E+03	1.58E+04		7.30E+02	7.57E+02	7.24E+02
	Worst	6.59E+04	5.49E+04	1.16E+05		4.13E+04	1.82E+04	4.60E+04		7.72E+02	8.31E+02	8.15E+02
	Mean	5.44E+04	4.41E+04	8.71E+04		1.58E+04	9.58E+03	1.70E+04		7.27E+02	7.56E+02	7.29E+02
	Std	7.28E+03	6.26E+03	1.36E+04		8.18E+03	3.08E+03	8.11E+03		3.04E+01	3.30E+01	3.59E+01
F4	Best	2.16E+02	2.04E+02	2.46E+02	F14	1.08E+06	6.11E+05	4.33E+05	F24	1.11E+03	1.15E+03	1.08E+03
	Median	2.95E+02	2.83E+02	3.36E+02		2.41E+06	1.99E+06	2.43E+06		1.21E+03	1.23E+03	1.21E+03
	Worst	3.89E+02	4.00E+02	3.97E+02		4.41E+06	4.53E+06	6.01E+06		1.29E+03	1.38E+03	1.31E+03
	Mean	2.90E+02	2.91E+02	3.27E+02		2.47E+06	2.26E+06	2.54E+06		1.21E+03	1.23E+03	1.21E+03
	Std	3.49E+01	5.26E+01	3.69E+01		8.89E+05	1.06E+06	1.26E+06		4.05E+01	5.25E+01	5.68E+01
F5	Best	2.34E+02	2.26E+02	2.16E+02	F15	1.76E+03	1.78E+03	1.67E+03	F25	7.36E+02	7.66E+02	7.76E+02
	Median	3.21E+02	3.04E+02	2.87E+02		4.61E+03	4.45E+03	4.74E+03		8.44E+02	8.46E+02	9.22E+02
	Worst	4.03E+02	3.93E+02	3.77E+02		1.86E+04	1.14E+04	2.01E+04		9.71E+02	1.00E+03	9.86E+02
	Mean	3.17E+02	3.02E+02	2.92E+02		5.65E+03	4.80E+03	6.36E+03		8.44E+02	8.58E+02	8.99E+02
	Std	3.80E+01	4.06E+01	3.84E+01		3.51E+03	2.16E+03	4.20E+03		5.64E+01	6.11E+01	6.33E+01
F6	Best	2.05E-01	1.52E-01	4.32E-01	F16	2.23E+03	2.04E+03	2.74E+03	F26	6.18E+03	6.19E+03	5.42E+03
	Median	2.60E-01	2.15E-01	5.46E-01		3.12E+03	3.89E+03	3.64E+03		6.91E+03	7.02E+03	6.63E+03
	Worst	3.46E-01	2.69E-01	6.34E-01		4.06E+03	4.88E+03	5.10E+03		8.20E+03	8.52E+03	7.56E+03
	Mean	2.59E-01	2.14E-01	5.40E-01		3.14E+03	3.81E+03	3.74E+03		6.88E+03	7.09E+03	6.68E+03
	Std	3.33E-02	2.64E-02	5.83E-02		3.91E+02	7.03E+02	5.87E+02		4.11E+02	5.51E+02	5.80E+02
F7	Best	3.91E+02	3.99E+02	4.40E+02	F17	1.68E+03	1.69E+03	1.96E+03	F27	6.89E+02	6.97E+02	6.63E+02
	Median	5.05E+02	5.31E+02	5.37E+02		2.21E+03	2.83E+03	2.75E+03		7.50E+02	7.91E+02	7.24E+02
	Worst	6.53E+02	6.90E+02	6.52E+02		2.85E+03	4.03E+03	3.86E+03		8.05E+02	8.55E+02	7.95E+02
	Mean	5.05E+02	5.40E+02	5.40E+02		2.24E+03	2.80E+03	2.93E+03		7.54E+02	7.85E+02	7.29E+02
	Std	6.26E+01	7.11E+01	5.33E+01		2.99E+02	5.21E+02	4.97E+02		3.28E+01	4.13E+01	3.37E+01
F8	Best	2.50E+02	2.40E+02	2.41E+02	F18	7.92E+05	9.91E+05	1.44E+06	F28	5.89E+02	5.65E+02	6.08E+02
	Median	3.20E+02	3.21E+02	3.08E+02		2.91E+06	3.03E+06	4.04E+06		6.50E+02	6.72E+02	6.96E+02
	Worst	3.90E+02	4.18E+02	3.68E+02		6.82E+06	7.08E+06	1.16E+07		7.13E+02	7.12E+02	7.71E+02
	Mean	3.15E+02	3.22E+02	3.03E+02		3.11E+06	3.52E+06	4.41E+06		6.53E+02	6.65E+02	6.93E+02
	Std	3.84E+01	4.54E+01	3.41E+01		1.37E+06	1.77E+06	2.48E+06		3.50E+01	4.20E+01	3.29E+01
F9	Best	1.90E+03	1.48E+03	6.33E+02	F19	1.49E+03	1.21E+03	1.93E+03	F29	1.97E+03	1.91E+03	1.38E+03
	Median	3.25E+03	3.28E+03	1.25E+03		5.16E+03	2.90E+03	4.89E+03		2.68E+03	2.93E+03	2.16E+03
	Worst	6.96E+03	1.12E+04	2.47E+03		2.17E+04	2.43E+04	2.61E+04		3.15E+03	3.59E+03	2.92E+03
	Mean	3.63E+03	3.85E+03	1.27E+03		7.06E+03	4.45E+03	6.49E+03		2.66E+03	2.87E+03	2.17E+03
	Std	1.21E+03	1.87E+03	4.37E+02		5.25E+03	4.62E+03	5.28E+03		2.84E+02	4.26E+02	4.03E+02
F10	Best	7.57E+03	8.28E+03	6.04E+03	F20	1.28E+03	1.61E+03	1.93E+03	F30	1.20E+04	1.21E+04	4.20E+04
	Median	1.01E+04	1.03E+04	1.04E+04		1.89E+03	2.49E+03	2.62E+03		3.23E+04	3.74E+04	8.25E+04
	Worst	1.26E+04	1.21E+04	1.23E+04		2.44E+03	3.32E+03	3.49E+03		7.99E+04	7.38E+04	1.74E+05
	Mean	9.93E+03	1.03E+04	1.02E+04		1.90E+03	2.44E+03	2.65E+03		3.64E+04	3.82E+04	9.34E+04
	Std	1.14E+03	9.59E+02	1.27E+03		2.80E+02	4.18E+02	4.30E+02		1.55E+04	1.46E+04	3.52E+04
F11	Best	1.60E+03	8.06E+02	1.70E+03	F21	4.63E+02	5.19E+02	4.43E+02				
	Median	2.91E+03	3.18E+03	4.35E+03		5.56E+02	6.03E+02	5.69E+02				
	Worst	5.94E+03	6.22E+03	7.34E+03		6.34E+02	7.36E+02	6.33E+02				
	Mean	3.09E+03	3.29E+03	4.39E+03		5.57E+02	6.02E+02	5.60E+02				
	Std	1.02E+03	1.19E+03	1.33E+03		4.08E+01	5.29E+01	4.71E+01				