## Supplemental file of "Differential evolution with evolutionary scale adaptation"

## TABLE CAPTIONS

**Table S1** Performance comparison of ESADE with other state-of-the-art DEs on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

**Table S2** Performance comparison of ESA with other multi-strategy methods on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

Table S3 Performance comparison of ESADE with the variants on 50-D CEC2017 benchmark set over 51 independent runs

Table S4 Comparison of ESA with other multi-strategy methods on the real-world problems

Table S5 Comparison of ESA with single mutation strategy on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

Table S1 Performance comparison of ESADE with other state-of-the-art DEs on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

	30-D														
		PaDE		SCS	S-L-SHADE			EaDE		L-SI	HADE-RSP			EJADE	
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std	sig	mean	std	sig
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=
F3	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	7.88E-06	2.31E-05	+
F4	5.15E+01	2.04E+01	+	5.86E+01	2.78E-14	+	5.86E+01	4.71E-13	+	5.86E+01	1.14E-14	+	5.29E+01	1.96E+01	+
F5	8.32E+00	1.86E+00	+	7.27E+00	1.35E+00	=	4.04E+00	2.46E+00	-	6.91E+00	1.98E+00	-	2.11E+01	4.69E+00	+
F6	3.35E-09	1.97E-08	-	0.00E+00	0.00E+00	-	2.68E-09	1.92E-08	-	9.39E-09	3.29E-08	-	0.00E+00	0.00E+00	-
F7	3.86E+01	1.41E+00	=	3.81E+01	1.73E+00	=	3.66E+01	1.47E+00	-	3.84E+01	1.97E+00	=	5.07E+01	4.33E+00	+
F8	9.19E+00	1.75E+00	+	7.34E+00	1.92E+00	=	4.33E+00	2.58E+00	-	6.93E+00	1.92E+00	-	2.08E+01	5.20E+00	+
F9	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=
F10	1.50E+03	2.15E+02	=	1.44E+03	2.17E+02	-	1.30E+03	2.95E+02	-	1.57E+03	2.94E+02	=	1.64E+03	4.21E+02	=
F11	1.44E+01	2.08E+01	+	1.72E+01	2.41E+01	+	1.83E+01	2.48E+01	+	1.00E+01	1.86E+01	=	1.86E+01	2.47E+01	+
F12	1.02E+03	3.83E+02	+	5.65E+02	2.65E+02	+	5.82E+02	2.73E+02	+	1.46E+02	1.01E+02	+	1.03E+03	7.22E+02	+
F13	1.54E+01	5.27E+00	-	1.60E+01	4.83E+00	-	1.56E+01	6.48E+00	-	1.88E+01	2.23E+00	=	2.06E+01	1.02E+01	=
F14	2.11E+01	5.59E+00	+	2.15E+01	4.26E+00	+	2.21E+01	3.14E+00	+	2.16E+01	1.13E+00	+	1.46E+01	1.01E+01	-
F15	3.07E+00	1.58E+00	=	2.30E+00	1.03E+00	=	2.53E+00	1.70E+00	=	1.01E+00	7.69E-01	-	5.73E+00	2.72E+00	+
F16	1.00E+02	8.31E+01	+	4.76E+01	4.41E+01	+	3.15E+01	5.44E+01	+	2.08E+01	1.79E+01	+	2.39E+02	1.61E+02	+
F17	2.90E+01	5.96E+00	-	3.39E+01	5.40E+00	=	3.58E+01	7.91E+00	-	3.51E+01	6.52E+00	=	1.83E+01	1.81E+01	-
F18	2.14E+01	9.76E-01	+	2.08E+01	6.07E-01	-	2.07E+01	4.47E-01	-	2.03E+01	2.85E+00	+	2.40E+01	1.41E+01	+
F19	5.24E+00	1.54E+00	-	5.11E+00	1.79E+00	-	5.60E+00	1.96E+00	=	3.57E+00	1.02E+00	-	5.49E+00	2.74E+00	=
F20	3.48E+01	7.21E+00	+	3.00E+01	6.48E+00	=	2.78E+01	8.51E+00	-	3.18E+01	5.18E+00	=	1.92E+01	3.63E+01	-
F21	2.08E+02	1.67E+00	=	2.08E+02	1.57E+00	=	2.06E+02	2.39E+00	-	2.07E+02	2.09E+00	=	2.20E+02	4.94E+00	+
F22	1.00E+02	1.44E-14	=	1.00E+02	1.44E-14	=	1.00E+02	1.83E-13	-	1.00E+02	1.44E-14	=	1.00E+02	1.44E-14	=
F23	3.45E+02	3.19E+00	-	3.50E+02	2.88E+00	=	3.49E+02	2.52E+00	=	3.50E+02	2.66E+00	=	3.67E+02	6.73E+00	+
F24	4.21E+02	2.16E+00	-	4.26E+02	1.60E+00	=	4.25E+02	1.95E+00	=	4.28E+02	3.04E+00	+	4.37E+02	5.65E+00	+
F25	3.87E+02	2.55E-02	+	3.87E+02	1.52E-02	+	3.87E+02	1.60E-02	+	3.87E+02	5.87E-03	+	3.87E+02	5.71E-02	+
F26	8.76E+02	4.16E+01	=	9.27E+02	3.84E+01	+	9.32E+02	3.88E+01	+	9.39E+02	4.02E+01	+	1.09E+03	8.77E+01	+
F27	5.07E+02	5.27E+00	+	5.01E+02	6.20E+00	+	5.01E+02	6.53E+00	+	4.98E+02	6.42E+00	=	5.01E+02	5.53E+00	+
F28	3.38E+02	5.49E+01	=	3.25E+02	4.62E+01	=	3.23E+02	4.64E+01	-	3.06E+02	2.54E+01	-	3.39E+02	5.64E+01	=
F29	4.35E+02	1.02E+01	=	4.38E+02	1.21E+01	=	4.37E+02	1.04E+01	=	4.41E+02	1.17E+01	+	4.18E+02	7.86E+00	-
F30	2.05E+03	8.82E+01	+	1.97E+03	3.37E+01	=	1.98E+03	4.32E+01	=	1.97E+03	1.84E+01	=	2.00E+03	5.98E+01	+
W		12			8		8			9			17		
T		11 17						11			14			7	
L		6			4			10			6			5	

Table S1 Performance comparison of ESADE with other state-of-the-art DEs on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

	30-D												
		DISH		S	CSS-jSO			DTDE		ESA	ADE .		
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std		
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00		
F3	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00		
F4	5.86E+01	3.22E-14	+	5.86E+01	1.97E-14	+	5.86E+01	3.31E-14	+	4.96E+01	1.90E+00		
F5	7.85E+00	2.05E+00	=	7.90E+00	1.75E+00	=	1.33E+00	1.03E+00	-	7.57E+00	1.45E+00		
F6	5.37E-09	2.68E-08	-	1.74E-08	4.45E-08	=	2.68E-09	1.92E-08	-	5.40E-08	1.28E-07		
F7	3.87E+01	1.70E+00	=	3.79E+01	1.75E+00	=	3.37E+01	8.17E-01	-	3.85E+01	1.62E+00		
F8	7.57E+00	2.01E+00	=	7.69E+00	1.69E+00	-	1.56E+00	1.06E+00	-	7.58E+00	1.46E+00		
F9	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00		
F10	1.68E+03	2.69E+02	+	1.48E+03	2.07E+02	-	5.45E+01	8.42E+01	-	1.54E+03	1.93E+02		
F11	5.73E+00	1.40E+01	-	4.58E+00	1.16E+01	-	1.44E+01	2.18E+01	+	7.72E+00	1.50E+01		
F12	1.12E+02	9.84E+01	-	9.29E+01	8.20E+01	-	5.08E+02	2.66E+02	+	1.01E+02	8.54E+01		
F13	2.06E+01	2.74E+00	+	1.52E+01	4.22E+00	-	1.78E+01	5.08E+00	=	1.74E+01	5.93E+00		
F14	2.20E+01	1.36E+00	+	2.14E+01	2.86E+00	+	2.28E+01	5.09E+00	+	1.96E+01	4.49E+00		
F15	2.26E+00	1.04E+00	=	1.14E+00	8.28E-01	-	5.66E+00	2.29E+00	+	2.76E+00	2.06E+00		
F16	4.48E+01	6.63E+01	+	3.99E+01	5.30E+01	+	1.41E+01	1.88E+00	-	2.13E+01	2.48E+01		
F17	3.70E+01	6.84E+00	+	3.20E+01	7.87E+00	=	2.10E+01	5.21E+00	-	3.35E+01	5.88E+00		
F18	2.09E+01	3.46E-01	+	2.04E+01	2.81E+00	+	2.54E+01	3.40E+00	+	2.06E+01	3.40E-01		
F19	4.71E+00	1.78E+00	-	3.73E+00	1.12E+00	-	5.12E+00	1.50E+00	=	5.59E+00	1.03E+00		
F20	3.26E+01	5.97E+00	=	2.84E+01	5.72E+00	-	1.78E+01	7.86E+00	-	3.20E+01	5.70E+00		
F21	2.08E+02	2.19E+00	-	2.08E+02	1.92E+00	=	2.03E+02	1.72E+00	-	2.08E+02	1.60E+00		
F22	1.00E+02	1.37E-13	-	1.00E+02	1.24E-13	-	1.00E+02	1.44E-14	=	1.00E+02	1.08E-13		
F23	3.51E+02	3.03E+00	+	3.50E+02	3.33E+00	-	3.47E+02	2.88E+00	-	3.50E+02	2.20E+00		
F24	4.27E+02	2.57E+00	+	4.26E+02	2.58E+00	=	4.24E+02	1.36E+00	-	4.26E+02	1.65E+00		
F25	3.87E+02	6.02E-03	+	3.87E+02	6.87E-03	+	3.87E+02	1.67E-02	+	3.87E+02	3.90E-03		
F26	9.31E+02	5.11E+01	+	9.51E+02	4.27E+01	+	8.92E+02	4.16E+01	=	8.87E+02	2.93E+01		
F27	4.95E+02	7.98E+00	=	4.94E+02	6.56E+00	-	5.01E+02	6.23E+00	+	4.98E+02	6.43E+00		
F28	3.00E+02	2.36E-13	=	3.02E+02	1.60E+01	-	3.38E+02	5.40E+01	=	3.13E+02	3.65E+01		
F29	4.45E+02	1.36E+01	+	4.31E+02	2.00E+01	=	4.10E+02	6.55E+00	-	4.36E+02	1.19E+01		
F30	1.97E+03	9.65E+00	=	1.97E+03	1.20E+01	=	1.98E+03	4.69E+01	=	1.98E+03	3.25E+01		
W		12 6						8					
T	14 16							9					
Ĺ		3			7			12					
L	ĺ	J		ĺ	1			14					

Table S1 Performance comparison of ESADE with other state-of-the-art DEs on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

	50-D														
		PaDE		SCS	S-L-SHADE			EaDE		L-Sl	HADE-RSP			EJADE	
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std	sig	mean	std	sig
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=
F3	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	1.73E+02	4.19E+02	+
F4	7.92E+01	4.77E+01	=	7.91E+01	5.07E+01	=	7.10E+01	5.33E+01	=	5.27E+01	4.72E+01	=	5.59E+01	4.81E+01	=
F5	1.74E+01	2.62E+00	+	1.17E+01	2.66E+00	=	7.98E+00	3.12E+00	-	1.20E+01	3.61E+00	=	4.18E+01	9.59E+00	+
F6	3.67E-04	1.28E-03	-	3.08E-08	7.95E-08	-	5.33E-08	1.21E-07	-	1.58E-07	2.73E-07	-	2.69E-04	1.92E-03	-
F7	6.49E+01	1.99E+00	=	6.31E+01	1.79E+00	-	6.14E+01	1.64E+00	-	6.58E+01	3.30E+00	+	8.82E+01	7.82E+00	+
F8	1.80E+01	2.14E+00	+	1.19E+01	2.06E+00	-	7.72E+00	3.38E+00	-	1.31E+01	3.82E+00	=	4.36E+01	8.91E+00	+
F9	3.51E-03	1.76E-02	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	3.94E-01	5.88E-01	+
F10	3.13E+03	3.14E+02	=	3.14E+03	3.11E+02	=	3.03E+03	4.31E+02	=	3.48E+03	3.94E+02	+	3.33E+03	5.44E+02	+
F11	6.36E+01	1.29E+01	+	3.12E+01	4.36E+00	+	3.22E+01	4.56E+00	+	2.43E+01	3.70E+00	+	4.57E+01	1.05E+01	+
F12	2.23E+03	5.08E+02	+	2.11E+03	4.27E+02	+	2.06E+03	5.20E+02	+	1.56E+03	4.19E+02	+	8.70E+03	1.12E+04	+
F13	5.72E+01	3.54E+01	+	4.95E+01	3.04E+01	=	4.82E+01	2.64E+01	=	2.82E+01	1.83E+01	-	7.52E+01	5.75E+01	+
F14	3.07E+01	3.66E+00	+	2.51E+01	2.12E+00	+	2.65E+01	2.85E+00	+	2.24E+01	1.53E+00	-	4.84E+01	2.08E+01	+
F15	4.36E+01	1.06E+01	+	2.66E+01	4.11E+00	+	2.66E+01	3.50E+00	+	2.09E+01	2.48E+00	=	5.32E+01	4.50E+01	+
F16	3.66E+02	9.94E+01	+	2.89E+02	1.17E+02	=	3.15E+02	1.22E+02	=	3.19E+02	1.47E+02	=	6.36E+02	2.46E+02	+
F17	2.85E+02	5.72E+01	+	2.13E+02	7.97E+01	=	2.15E+02	9.59E+01	=	2.26E+02	8.68E+01	=	4.77E+02	1.80E+02	+
F18	4.23E+01	1.22E+01	+	2.64E+01	2.93E+00	+	2.70E+01	2.58E+00	+	2.29E+01	1.36E+00	=	1.39E+02	1.21E+02	+
F19	2.57E+01	7.73E+00	+	1.48E+01	2.37E+00	+	1.61E+01	2.54E+00	+	1.09E+01	2.31E+00	-	3.85E+01	3.93E+01	=
F20	1.81E+02	7.15E+01	+	1.68E+02	6.59E+01	+	2.16E+02	1.21E+02	+	1.46E+02	7.91E+01	=	3.09E+02	1.81E+02	+
F21	2.18E+02	2.28E+00	+	2.13E+02	2.77E+00	-	2.08E+02	3.79E+00	-	2.14E+02	4.28E+00	-	2.42E+02	8.87E+00	+
F22	3.24E+02	8.67E+02	-	2.66E+03	1.60E+03	=	2.31E+03	1.69E+03	-	2.34E+03	1.92E+03	=	2.91E+03	1.91E+03	=
F23	4.27E+02	5.56E+00	=	4.28E+02	5.08E+00	=	4.28E+02	4.74E+00	=	4.32E+02	5.82E+00	+	4.63E+02	1.33E+01	+
F24	5.04E+02	4.73E+00	-	5.06E+02	2.54E+00	-	5.06E+02	2.88E+00	=	5.09E+02	3.47E+00	+	5.27E+02	8.90E+00	+
F25	5.02E+02	3.17E+01	+	4.81E+02	2.79E+00	+	4.81E+02	3.14E+00	+	4.81E+02	2.32E+00	+	5.21E+02	3.64E+01	+
F26	1.13E+03	6.56E+01	+	1.12E+03	4.43E+01	+	1.13E+03	4.09E+01	+	1.13E+03	4.72E+01	+	1.45E+03	1.23E+02	+
F27	5.38E+02	7.98E+00	+	5.32E+02	1.87E+01	+	5.30E+02	1.90E+01	+	5.10E+02	1.03E+01	-	5.27E+02	1.67E+01	+
F28	5.01E+02	1.70E+01	+	4.61E+02	9.58E+00	+	4.62E+02	1.16E+01	+	4.59E+02	1.75E-13	+	4.87E+02	2.22E+01	+
F29	3.54E+02	1.20E+01	-	3.63E+02	1.44E+01	=	3.62E+02	1.13E+01	=	3.65E+02	1.46E+01	+	3.49E+02	6.66E+01	-
F30	6.18E+05	3.22E+04	=	6.45E+05	6.15E+04	=	6.40E+05	5.50E+04	=	6.25E+05	5.22E+04	=	6.27E+05	5.42E+04	=
W		17			11			11			10			22	
T		8			13			13			13			5	
L		4			5			5			6			2	

Table S1 Performance comparison of ESADE with other state-of-the-art DEs on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

	50-D													
		DISH		S	CSS-jSO			DTDE		ESA	ADE			
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std			
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00			
F3	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00			
F4	5.80E+01	4.83E+01	-	4.57E+01	3.79E+01	-	6.84E+01	5.74E+01	-	7.56E+01	5.21E+01			
F5	1.32E+01	4.18E+00	=	1.24E+01	2.74E+00	=	1.95E+00	1.60E+00	-	1.25E+01	2.06E+00			
F6	2.09E-07	3.22E-07	-	3.16E-07	5.68E-07	-	3.22E-08	1.04E-07	-	1.02E-06	1.24E-06			
F7	6.78E+01	3.93E+00	+	6.27E+01	2.82E+00	-	5.66E+01	1.07E+00	-	6.42E+01	2.13E+00			
F8	1.42E+01	3.96E+00	=	1.30E+01	3.11E+00	=	1.85E+00	1.38E+00	-	1.34E+01	2.24E+00			
F9	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00			
F10	3.53E+03	3.78E+02	+	3.16E+03	3.78E+02	=	1.51E+02	8.81E+01	-	3.04E+03	3.47E+02			
F11	2.42E+01	3.59E+00	+	2.45E+01	3.55E+00	+	3.11E+01	4.07E+00	+	2.16E+01	2.49E+00			
F12	1.38E+03	4.14E+02	+	1.27E+03	3.70E+02	+	2.01E+03	5.25E+02	+	8.55E+02	3.13E+02			
F13	4.04E+01	2.67E+01	=	2.41E+01	1.66E+01	-	5.18E+01	2.88E+01	=	4.43E+01	2.93E+01			
F14	2.45E+01	2.84E+00	=	2.44E+01	1.85E+00	+	2.39E+01	6.30E+00	+	2.35E+01	1.25E+00			
F15	2.18E+01	2.38E+00	+	2.09E+01	1.84E+00	=	2.64E+01	3.00E+00	+	2.03E+01	1.80E+00			
F16	4.10E+02	1.54E+02	+	3.90E+02	1.34E+02	+	1.35E+02	4.10E+01	-	3.00E+02	1.25E+02			
F17	2.95E+02	9.14E+01	+	2.44E+02	1.01E+02	=	6.02E+01	5.97E+01	-	2.09E+02	8.32E+01			
F18	2.30E+01	1.27E+00	=	2.27E+01	1.35E+00	=	3.38E+01	5.57E+00	+	2.27E+01	1.15E+00			
F19	1.13E+01	2.42E+00	-	1.09E+01	2.56E+00	-	9.44E+00	2.52E+00	-	1.32E+01	1.87E+00			
F20	1.76E+02	9.30E+01	+	1.29E+02	6.79E+01	=	2.40E+01	2.93E+00	-	1.21E+02	5.21E+01			
F21	2.14E+02	4.12E+00	=	2.14E+02	3.08E+00	-	2.03E+02	2.36E+00	-	2.15E+02	2.35E+00			
F22	2.07E+03	2.11E+03	-	2.51E+03	1.68E+03	-	3.49E+02	1.58E+02	-	2.51E+03	1.67E+03			
F23	4.32E+02	6.66E+00	+	4.29E+02	5.80E+00	=	4.22E+02	7.11E+00	-	4.27E+02	4.89E+00			
F24	5.08E+02	3.84E+00	=	5.07E+02	3.95E+00	=	5.00E+02	2.58E+00	-	5.07E+02	3.27E+00			
F25	4.81E+02	2.27E+00	+	4.81E+02	3.15E+00	+	4.83E+02	1.19E+01	+	4.81E+02	2.81E+00			
F26	1.12E+03	4.82E+01	+	1.13E+03	5.02E+01	+	1.04E+03	5.72E+01	-	1.09E+03	4.91E+01			
F27	5.03E+02	7.81E+00	-	5.07E+02	1.03E+01	-	5.26E+02	1.11E+01	+	5.17E+02	1.27E+01			
F28	4.59E+02	2.10E-13	+	4.59E+02	1.95E-13	+	4.62E+02	1.16E+01	+	4.58E+02	1.73E-01			
F29	3.72E+02	1.22E+01	+	3.59E+02	1.48E+01	=	3.02E+02	6.91E+00	-	3.59E+02	1.05E+01			
F30	6.05E+05	3.74E+04	-	5.98E+05	2.70E+04	-	6.63E+05	7.30E+04	+	6.31E+05	5.25E+04			
W		13			7			9						
T		12			15			5		_				
Ĺ		4			7			15						

Table S1 Performance comparison of ESADE with other state-of-the-art DEs on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

	100-D														
		PaDE		SCS	S-L-SHADE			EaDE		L-Sl	HADE-RSP			EJADE	
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std	sig	mean	std	sig
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	4.17E-10	2.08E-09	=
F3	5.53E-08	5.82E-08	-	2.15E-04	6.33E-05	+	1.05E-04	9.47E-05	+	2.15E-07	3.19E-07	=	4.15E+03	4.02E+03	+
F4	1.41E+02	6.85E+01	-	2.09E+02	7.77E+00	+	1.96E+02	1.73E+01	=	2.00E+02	9.13E+00	=	4.18E+01	6.22E+01	-
F5	4.33E+01	3.04E+00	+	2.86E+01	4.01E+00	+	2.52E+01	7.21E+00	=	2.91E+01	7.99E+00	+	1.20E+02	2.20E+01	+
F6	1.68E-02	1.23E-02	+	1.69E-03	8.24E-04	+	2.07E-03	1.89E-03	+	2.80E-05	7.09E-05	=	6.30E-02	7.13E-02	+
F7	1.42E+02	9.44E+00	+	1.30E+02	2.08E+00	+	1.30E+02	4.29E+00	+	1.37E+02	7.37E+00	+	2.23E+02	1.87E+01	+
F8	4.31E+01	2.95E+00	+	3.02E+01	3.70E+00	+	2.44E+01	6.38E+00	=	2.82E+01	9.22E+00	=	1.19E+02	1.76E+01	+
F9	1.31E+00	6.23E-01	+	1.24E-01	1.60E-01	+	5.47E-02	1.20E-01	+	0.00E+00	0.00E+00	=	2.77E+01	1.86E+01	+
F10	9.66E+03	5.26E+02	+	1.03E+04	3.90E+02	+	9.36E+03	7.27E+02	+	1.07E+04	8.13E+02	+	1.04E+04	1.53E+03	+
F11	5.68E+02	6.95E+01	+	1.77E+02	2.18E+01	+	1.67E+02	4.77E+01	+	6.70E+01	1.92E+01	+	4.67E+02	3.53E+02	+
F12	2.74E+04	1.31E+04	+	2.20E+04	1.10E+04	+	1.74E+04	6.49E+03	+	1.15E+04	4.84E+03	+	3.41E+04	1.97E+04	+
F13	7.44E+02	4.15E+02	+	2.13E+02	1.90E+01	+	1.82E+02	5.50E+01	+	1.32E+02	3.76E+01	+	4.45E+02	4.53E+02	+
F14	2.83E+02	1.76E+01	+	9.27E+01	1.01E+01	+	8.36E+01	1.89E+01	+	4.31E+01	5.36E+00	+	3.67E+02	2.10E+02	+
F15	2.22E+02	4.13E+01	+	2.70E+02	5.18E+01	+	2.48E+02	4.73E+01	+	1.24E+02	3.42E+01	+	4.05E+02	3.71E+02	+
F16	1.44E+03	1.33E+02	=	1.45E+03	2.12E+02	=	1.50E+03	2.74E+02	=	1.49E+03	3.38E+02	=	2.03E+03	4.92E+02	+
F17	1.12E+03	1.65E+02	+	9.71E+02	1.86E+02	-	9.93E+02	2.84E+02	=	1.09E+03	3.10E+02	=	1.58E+03	3.83E+02	+
F18	1.89E+02	1.77E+01	+	1.94E+02	6.21E+01	+	2.21E+02	5.92E+01	+	1.54E+02	4.01E+01	+	3.02E+03	2.95E+03	+
F19	1.96E+02	2.02E+01	+	1.70E+02	2.34E+00	+	1.68E+02	2.15E+01	+	6.75E+01	1.13E+01	+	1.80E+02	6.16E+01	+
F20	1.43E+03	1.46E+02	+	1.56E+03	9.87E+01	+	1.46E+03	3.21E+02	+	1.37E+03	2.71E+02	+	1.60E+03	3.38E+02	+
F21	2.67E+02	2.81E+00	+	2.52E+02	2.78E+00	=	2.50E+02	6.35E+00	=	2.49E+02	6.72E+00	=	3.40E+02	1.65E+01	+
F22	1.11E+04	5.19E+02	+	1.11E+04	3.90E+02	+	1.02E+04	9.20E+02	+	1.11E+04	7.43E+02	+	1.13E+04	1.47E+03	+
F23	5.94E+02	1.44E+01	+	5.54E+02	4.69E+00	=	5.61E+02	9.45E+00	+	5.64E+02	7.89E+00	+	6.29E+02	1.85E+01	+
F24	9.21E+02	2.87E+00	+	9.09E+02	6.40E+00	+	9.04E+02	6.95E+00	+	8.99E+02	6.53E+00	=	9.89E+02	2.39E+01	+
F25	7.29E+02	2.85E+01	+	7.39E+02	2.40E+01	+	7.30E+02	4.09E+01	+	7.32E+02	3.65E+01	+	7.38E+02	4.71E+01	+
F26	3.56E+03	9.74E+01	+	3.11E+03	5.78E+01	=	3.23E+03	8.01E+01	+	3.16E+03	1.02E+02	+	4.22E+03	2.77E+02	+
F27	6.62E+02	2.77E+01	+	6.12E+02	8.16E+00	+	6.22E+02	1.83E+01	+	5.79E+02	1.59E+01	=	6.47E+02	2.63E+01	+
F28	5.19E+02	1.55E+01	+	5.22E+02	2.56E+00	+	5.33E+02	2.26E+01	+	5.23E+02	2.35E+01	+	5.29E+02	4.07E+01	+
F29	1.15E+03	1.53E+02	-	1.32E+03	1.41E+02	+	1.26E+03	1.92E+02	=	1.21E+03	2.14E+02	=	1.63E+03	3.90E+02	+
F30	2.66E+03	8.33E+01	+	2.36E+03	7.97E+01	+	2.32E+03	1.18E+02	+	2.33E+03	1.54E+02	+	2.54E+03	1.94E+02	+
W		24			23		21			17			27		
T		2			5			8			12			1	
L		3			1			0			0			1	

Table S1 Performance comparison of ESADE with other state-of-the-art DEs on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

	100-D												
		DISH		S	CSS-jSO			DTDE		ESA	ADE		
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std		
F1	6.58E-08	1.32E-07	+	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00		
F3	3.94E-05	3.75E-05	+	1.07E-04	1.03E-04	+	1.19E-04	1.58E-04	+	2.11E-07	2.35E-07		
F4	2.03E+02	9.85E+00	+	1.97E+02	1.29E+01	=	1.96E+02	8.93E+00	=	2.03E+02	1.14E+01		
F5	2.57E+01	8.89E+00	=	2.86E+01	5.36E+00	+	4.70E+00	2.59E+00	-	2.57E+01	3.41E+00		
F6	6.12E-06	6.24E-06	-	1.78E-05	1.86E-05	-	2.44E-03	2.23E-03	+	1.97E-05	1.20E-05		
F7	1.41E+02	9.64E+00	+	1.26E+02	3.78E+00	=	1.11E+02	1.67E+00	-	1.27E+02	3.32E+00		
F8	2.66E+01	9.32E+00	=	2.86E+01	4.93E+00	+	4.57E+00	2.31E+00	-	2.64E+01	3.90E+00		
F9	0.00E+00	0.00E+00	=	1.76E-03	1.25E-02	=	8.84E-02	1.56E-01	+	0.00E+00	0.00E+00		
F10	1.12E+04	7.13E+02	+	9.38E+03	6.34E+02	+	3.49E+02	2.51E+02	-	8.97E+03	4.66E+02		
F11	5.40E+01	2.20E+01	+	6.67E+01	3.17E+01	+	1.65E+02	4.54E+01	+	4.85E+01	3.20E+01		
F12	1.22E+04	5.15E+03	+	1.31E+04	6.56E+03	+	1.68E+04	5.71E+03	+	4.95E+03	8.95E+02		
F13	1.17E+02	3.37E+01	+	1.13E+02	3.08E+01	+	1.73E+02	5.39E+01	+	7.13E+01	2.76E+01		
F14	3.73E+01	3.85E+00	-	4.07E+01	4.72E+00	=	8.19E+01	1.71E+01	+	3.91E+01	3.77E+00		
F15	1.17E+02	3.62E+01	+	8.96E+01	3.28E+01	=	2.52E+02	5.29E+01	+	7.98E+01	3.14E+01		
F16	1.83E+03	3.81E+02	+	1.77E+03	2.85E+02	+	2.19E+02	1.25E+02	-	1.45E+03	2.13E+02		
F17	1.26E+03	3.08E+02	+	1.19E+03	1.95E+02	+	8.00E+01	7.37E+01	-	1.03E+03	1.95E+02		
F18	1.18E+02	2.71E+01	+	1.09E+02	2.86E+01	+	2.28E+02	3.93E+01	+	5.57E+01	1.42E+01		
F19	5.62E+01	6.71E+00	+	5.28E+01	6.94E+00	+	1.64E+02	3.02E+01	+	4.79E+01	5.57E+00		
F20	1.52E+03	3.42E+02	+	1.33E+03	2.14E+02	+	1.65E+02	3.60E+01	-	1.19E+03	1.38E+02		
F21	2.49E+02	7.77E+00	-	2.51E+02	5.15E+00	-	2.27E+02	4.54E+00	-	2.51E+02	4.41E+00		
F22	1.19E+04	6.67E+02	+	1.01E+04	6.05E+02	+	9.56E+02	2.90E+02	-	9.78E+03	4.93E+02		
F23	5.63E+02	9.41E+00	+	5.68E+02	9.38E+00	+	5.49E+02	7.83E+00	=	5.52E+02	1.09E+01		
F24	8.94E+02	6.19E+00	-	8.94E+02	8.54E+00	-	8.95E+02	6.56E+00	-	8.99E+02	5.65E+00		
F25	7.00E+02	4.91E+01	+	7.05E+02	3.88E+01	+	7.34E+02	3.87E+01	+	6.64E+02	4.34E+01		
F26	3.10E+03	8.05E+01	=	3.10E+03	9.25E+01	=	3.16E+03	8.31E+01	+	3.10E+03	8.69E+01		
F27	5.68E+02	1.69E+01	=	5.77E+02	1.69E+01	=	6.23E+02	1.60E+01	+	5.76E+02	2.02E+01		
F28	5.21E+02	2.47E+01	+	5.28E+02	2.88E+01	+	5.28E+02	2.64E+01	+	5.13E+02	2.55E+01		
F29	1.26E+03	2.43E+02	=	1.18E+03	2.07E+02	=	8.54E+02	1.68E+02	-	1.22E+03	1.56E+02		
F30	2.34E+03	1.41E+02	+	2.29E+03	1.13E+02	=	2.34E+03	1.44E+02	+	2.28E+03	1.76E+02		
W	19 16							15			$\overline{}$		
T		6			11			3		_			
L		4			2			11					

Table S2 Performance comparison of ESA with other multi-strategy methods on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

			<u> </u>	or / cener	illiaik set	30-D	31 macpe	maciit run			
		Sa			EPS			SaM		ES	SA
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F3	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	-	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F4 F5	4.54E+01 7.78E+00	8.06E+00 1.32E+00	-	4.64E+01 7.89E+00	1.04E+01 1.46E+00	=	2.98E+01 8.34E+00	6.03E+00 2.44E+00	+	4.96E+01 7.57E+00	1.90E+00 1.45E+00
F6	8.05E-09	3.25E-08	-	5.37E-09	2.10E-08	-	2.68E-09	1.92E-08	-	5.40E-08	1.28E-07
F7	3.92E+01	1.37E+00	+	3.92E+01	1.68E+00	+	4.05E+01	2.50E+00	+	3.85E+01	1.62E+00
F8 F9	8.41E+00 0.00E+00	1.57E+00 0.00E+00	+	8.13E+00 0.00E+00	1.35E+00 0.00E+00	=	9.52E+00 0.00E+00	2.26E+00 0.00E+00	+	7.58E+00 0.00E+00	1.46E+00 0.00E+00
F10	1.43E+03	2.13E+02	-	1.45E+03	2.56E+02	=	1.39E+03	2.93E+02	-	1.54E+03	1.93E+02
F11	9.44E+00	1.65E+01	-	5.91E+00	1.22E+01	=	6.31E+00	1.22E+01	=	7.72E+00	1.50E+01
F12	3.03E+02	1.89E+02 6.31E+00	+	2.74E+02	1.48E+02	+	4.15E+02	2.09E+02	+	1.01E+02	8.54E+01 5.93E+00
F13 F14	1.52E+01 1.95E+01	5.53E+00	=	1.62E+01 2.01E+01	6.01E+00 5.01E+00	+	1.93E+01 2.00E+01	1.73E+01 4.88E+00	=	1.74E+01 1.96E+01	4.49E+00
F15	2.41E+00	1.56E+00	-	2.15E+00	1.33E+00	=	2.92E+00	1.66E+00	=	2.76E+00	2.06E+00
F16	2.51E+01	3.39E+01	=	3.76E+01	5.97E+01	=	1.83E+01	1.93E+01	-	2.13E+01	2.48E+01
F17 F18	2.91E+01	7.12E+00 6.11E-01	-	2.95E+01 2.10E+01	7.68E+00 6.64E-01	-	2.58E+01 2.14E+01	5.88E+00 8.29E-01	+	3.35E+01 2.06E+01	5.88E+00 3.40E-01
F19	2.09E+01 5.32E+00	1.61E+00	=	5.44E+00	1.66E+00	_	5.71E+00	1.43E+00	=	5.59E+00	1.03E+00
F20	2.84E+01	6.09E+00	-	2.81E+01	5.47E+00	-	2.82E+01	7.54E+00	-	3.20E+01	5.70E+00
F21	2.09E+02	1.65E+00	+	2.08E+02	1.77E+00	=	2.08E+02	1.62E+00	=	2.08E+02	1.60E+00
F22	1.00E+02	1.44E-14	=	1.00E+02	1.44E-14	=	1.00E+02	6.39E-14	=	1.00E+02	1.08E-13
F23 F24	3.49E+02 4.25E+02	3.19E+00 2.18E+00	=	3.50E+02 4.26E+02	3.51E+00 2.09E+00	=	3.50E+02 4.26E+02	3.73E+00 1.76E+00	=	3.50E+02 4.26E+02	2.20E+00 1.65E+00
F25	3.87E+02	1.13E-02	=	3.87E+02	1.28E-02	=	3.87E+02	1.12E-02	-	3.87E+02	3.90E-03
F26	9.05E+02	4.71E+01	+	9.01E+02	4.15E+01	=	8.85E+02	4.40E+01	=	8.87E+02	2.93E+01
F27	5.02E+02	6.90E+00	+	5.03E+02	5.25E+00	+	5.03E+02	5.41E+00	+	4.98E+02	6.43E+00
F28 F29	3.09E+02 4.35E+02	3.09E+01 8.20E+00	=	3.21E+02 4.31E+02	4.36E+01 9.59E+00	-	3.15E+02 4.33E+02	3.86E+01 7.40E+00	+	3.13E+02 4.36E+02	3.65E+01 1.19E+01
F30	1.97E+03	3.39E+01	=	1.98E+03	3.92E+01	=	1.99E+03	5.37E+01	=	1.98E+03	3.25E+01
W		6			4			7			
T		17			21			14			/
		1 /			41			14			
L		6			4			8			
L			ı							ES	SA
	mean	6 CSM std	sig	mean	4 UM std	sig	mean	8 SCSS std	sig	mean	std
F1	3.77E-09	6 CSM std 2.69E-08	=	0.00E+00	4 UM std 0.00E+00	=	0.00E+00	8 SCSS std 0.00E+00	=	mean 0.00E+00	std 0.00E+00
		6 CSM std			4 UM std	-		8 SCSS std	-	mean	std
F1 F3 F4 F5	3.77E-09 0.00E+00 4.83E+01 6.15E+00	6 CSM std 2.69E-08 0.00E+00 2.50E+01 1.58E+00	= +	0.00E+00 0.00E+00 5.70E+01 1.10E+01	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00	= = + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00	= = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00	std 0.00E+00 0.00E+00 1.90E+00 1.45E+00
F1 F3 F4 F5 F6	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04	6 CSM std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03	= + - =	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07	= + + =	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08	= = = = = = = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08	std 0.00E+00 0.00E+00 1.90E+00 1.45E+00 1.28E-07
F1 F3 F4 F5 F6 F7	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01	= +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00	= = + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00	= = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01	std 0.00E+00 0.00E+00 1.90E+00 1.45E+00 1.28E-07 1.62E+00
F1 F3 F4 F5 F6 F7 F8 F9	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00	= + - = -	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00	= + + + + = +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00	= = = = = = = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00	std 0.00E+00 0.00E+00 1.90E+00 1.45E+00 1.28E-07 1.62E+00 1.46E+00 0.00E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03	6 CSM std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02	= = + - = - = =	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00 2.57E+02	= = + + + + = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 1.47E+00 0.00E+00 2.04E+02	= = = = = = = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03	std 0.00E+00 0.00E+00 1.90E+00 1.45E+00 1.28E-07 1.62E+00 1.46E+00 0.00E+00 1.93E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00	= + - = -	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00	= + + + + = +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.65E+01	= = = = = = = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00	std 0.00E+00 0.00E+00 1.90E+00 1.45E+00 1.28E-07 1.62E+00 1.46E+00 0.00E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01	= = + + + - = = + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00 1.75E+02 1.12E+01	= = = + + + + = = + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 1.47E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00	= = = = = = = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03	std  0.00E+00  0.00E+00  1.90E+00  1.45E+00  1.28E-07  1.62E+00  0.00E+00  1.93E+02  1.50E+01  5.93E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 7.28E+01	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01	= = + + = = + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 2.13E+00 2.00E+00 0.00E+00 0.00E+00 1.12E+01 9.74E+01 5.38E+00 7.31E+00	= = + + + + + = = + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 5.63E+00	= = = = = = = = + + + + + + + + + + + +	mean 0.00E+00 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 1.96E+01	std  0.00E+00  0.00E+00  1.90E+00  1.45E+00  1.28E-07  1.62E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  4.49E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 1.28E+01 1.53E+01	6 CSM std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01	= + + - = = + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.85E+01 5.54E+00	4 UM std 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 1.07E+00	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 2.09E+00	8 SCSS std 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.55E+01 1.54E+02 6.72E+00 1.92E+00 1.09E+00	= = = = = = = = + + = = = = = = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00	std  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.45E+00  1.62E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  2.06E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 7.28E+01	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01	= = + + = = + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 2.13E+00 2.00E+00 0.00E+00 0.00E+00 1.12E+01 9.74E+01 5.38E+00 7.31E+00	= = + + + + + = = + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 5.63E+00	= = = = = = = = + + + + + + + + + + + +	mean 0.00E+00 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 1.96E+01	std  0.00E+00  0.00E+00  1.90E+00  1.45E+00  1.28E-07  1.62E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  4.49E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F17	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 4.37E+01 2.70E+03 7.28E+01 1.53E+02 1.11E+02 4.52E+01 1.04E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 2.67E+01 8.92E+01 1.77E+01 2.21E+01	= = + + = = + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 5.54E+00 4.71E+01 2.08E+01	4 UM std 0.00E+00 1.24E+00 1.91E+00 1.91E+00 2.13E+00 2.00E+00 0.00E+00 0.00E+00 1.12E+01 9.74E+01 5.38E+00 1.07E+00 5.79E+01 1.97E+00 1.99E+00 1.99E+00	= = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 2.09E+00 2.18E+01 2.08E+01	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 3.81E+01 0.90E+00 3.81E+01 4.97E-01	= = = = = = = = + + = = = = = = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00 2.13E+01 2.35E+01	std  0.00E+00 1.90E+00 1.90E+00 1.45E+00 1.28E-07 1.62E+00 1.46E+00 0.00E+00 1.93E+02 1.50E+01 8.54E+01 5.93E+00 2.06E+00 2.48E+01 5.88E+00 3.40E-01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 7.28E+01 1.11E+02 4.52E+01 1.04E+02 7.70E+01	6 CSM std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01 8.92E+01 1.77E+01 1.77E+01 1.32E+01	= + + = = + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 3.34E+01 2.08E+01 7.19E+00	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 7.31E+00 1.07E+00 5.79E+01 6.99E+01 2.38E+00	= = = + + + + + + + + + + = = = = = = =	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 2.09E+00 2.18E+01 3.03E+01 4.81E+00 4.81E+00	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 6.72E+01 1.54E+02 6.72E+00 3.81E+01 6.18E+00 4.97E-01 1.55E+00	= = = = = = = = + + = = = = = = = = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 1.96E+01 2.76E+00 2.13E+01 3.35E+01 2.06E+01 5.59E+00	std  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.45E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  2.48E+01  5.88E+00  3.40E-01  1.03E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F17	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 4.37E+01 2.70E+03 7.28E+01 1.53E+02 1.11E+02 4.52E+01 1.04E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 2.67E+01 8.92E+01 1.77E+01 2.21E+01	= = + + = = + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 5.54E+00 4.71E+01 2.08E+01	4 UM std 0.00E+00 1.24E+00 1.91E+00 1.91E+00 2.13E+00 2.00E+00 0.00E+00 0.00E+00 1.12E+01 9.74E+01 5.38E+00 1.07E+00 5.79E+01 1.97E+00 1.99E+00 1.99E+00	= = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 2.09E+00 2.18E+01 2.08E+01	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 3.81E+01 0.90E+00 3.81E+01 4.97E-01	= = = = = = = = + + = = = = = = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00 2.13E+01 2.35E+01	std  0.00E+00 1.90E+00 1.90E+00 1.45E+00 1.28E-07 1.62E+00 1.46E+00 0.00E+00 1.93E+02 1.50E+01 8.54E+01 5.93E+00 2.06E+00 2.48E+01 5.88E+00 3.40E-01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F20 F21	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 7.28E+01 1.53E+02 4.52E+01 1.04E+02 7.70E+01 4.46E+01 2.06E+02 1.00E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 2.67E+01 8.92E+01 1.77E+01 2.21E+01 1.32E+01 2.30E+01 2.30E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+01 1.34E+02	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 1.85E+01 1.85E+01 1.85E+01 1.85E+01 2.08E+01 7.19E+00 2.57E+01 2.12E+02 1.00E+02	4 UM std 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 1.07E+00 5.79E+01 6.99E+01 2.38E+00 7.68E+00 1.68E+03	= = + + + + + + + + + + + + + + + + = = +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 3.03E+01 4.81E+00 2.08E+01 4.81E+00 2.08E+01 4.81E+00 2.08E+01 4.81E+00 2.08E+02	8 SCSS std 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 3.81E+01 6.18E+00 4.97E-01 1.55E+00 5.91E+00 1.87E+00 1.47E+00	= = = = = = = = = = = = = = = = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00 2.13E+01 3.35E+01 5.59E+00 3.20E+01 5.59E+00 3.20E+01 5.08E+02	std  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.45E+00  1.62E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  2.06E+00  2.48E+01  5.88E+00  5.88E+00  5.70E+00  1.03E+00  1.03E+00  1.03E+00  1.04E+00  1.04E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F22 F22	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 7.28E+01 1.53E+02 1.11E+02 4.52E+01 1.04E+02 2.06E+02 3.60E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01 2.67E+01 2.21E+01 1.77E+01 2.21E+01 2.30E+01 2.30E+01 2.30E+01 2.44E+14 5.55E+00	= = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 3.34E+01 2.08E+01 7.19E+00 2.57E+01 2.12E+02 2.57E+01 2.12E+02 3.53E+02	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 2.13E+00 2.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 7.31E+00 1.07E+00 1.99E+01 1.99E+01 1.99E-01 1.99E-01 1.99E-01 1.98E+00 1.95E+00	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 1.48E+01 1.99E+01 2.09E+00 2.18E+01 3.03E+01 2.08E+01 2.08E+01 2.08E+01 2.08E+02 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01 3.03E+01	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 1.47E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 5.63E+00 1.99E+00 1.97E-01 1.54E+02 6.72E+00 5.63E+00 1.97E-01 1.55E+00 4.97E-01 1.55E+00 4.97E-01 1.55E+00 4.97E-01 1.44E-14 3.45E+00		mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+01 2.13E+01 3.35E+01 2.06E+01 2.08E+02 3.20E+01 2.08E+02 3.20E+01 3.35E+01 3.35E+01 3.35E+01 3.35E+01	std  0.00E+00  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.28E-07  1.62E+00  1.46E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  4.49E+00  2.06E+00  3.40E-01  1.03E+00  5.70E+00  1.08E-13  2.20E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F20 F21 F22	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 7.28E+01 1.53E+02 4.52E+01 1.04E+02 7.70E+01 4.46E+01 2.06E+02 1.00E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 2.67E+01 8.92E+01 1.77E+01 2.21E+01 1.32E+01 2.30E+01 2.30E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+01 1.34E+02	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 1.85E+01 1.85E+01 1.85E+01 1.85E+01 2.08E+01 7.19E+00 2.57E+01 2.12E+02 1.00E+02	4 UM std 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 1.07E+00 5.79E+01 6.99E+01 2.38E+00 7.68E+00 1.68E+03	= = + + + + + + + + + + + + + + + + = = +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 3.03E+01 4.81E+00 2.08E+01 4.81E+00 2.08E+01 4.81E+00 2.08E+01 4.81E+00 2.08E+02	8 SCSS std 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 3.81E+01 6.18E+00 4.97E-01 1.55E+00 5.91E+00 1.87E+00 1.47E+00	= = = = = = = = = = = = = = = = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00 2.13E+01 3.35E+01 5.59E+00 3.20E+01 5.59E+00 3.20E+01 5.08E+02	std  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.45E+00  1.62E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  2.06E+00  2.48E+01  5.88E+00  5.88E+00  5.70E+00  1.03E+00  1.03E+00  1.03E+00  1.04E+00  1.04E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F25 F25 F25 F25 F27	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 7.28E+01 1.04E+02 4.52E+01 1.04E+02 4.6E+01 2.06E+02 4.29E+02 3.60E+02 4.29E+02 4.29E+02 3.88E+02 1.01E+03	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 2.44E+02 2.51E+01 2.67E+01 2.67E+01 2.67E+01 2.67E+01 2.67E+01 2.7E+01 2.30E+01 2.30E+01 2.30E+01 2.30E+01 2.39E+01 3.59E+00 3.59E+00 3.59E+00 3.59E+00	= = + + = = = + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 2.08E+01 2.57E+01 2.12E+02 2.57E+01 2.12E+02 3.34E+01 2.12E+02 3.53E+02 4.28E+02	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 2.13E+00 2.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 7.31E+00 1.07E+00 1.99E+01 1.99E+01 1.99E+01 1.99E+01 1.99E+01 2.38E+00 7.48E+01 7.48	= = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 1.41E+03 8.19E+00 1.41E+03 8.19E+00 1.48E+01 1.99E+01 2.09E+01 2.08E+01 2.08E+01 2.08E+01 2.09E+00 2.18E+01 3.03E+01 2.09E+00 2.18E+01 3.03E+01 2.09E+02 4.81E+00 2.69E+01 2.09E+02 4.81E+00 2.69E+01 2.09E+02 3.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02 4.87E+02	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 1.47E+00 2.04E+02 1.65E+01 1.54E+02 6.72E+00 5.63E+00 1.09E+00 4.97E-01 1.55E+01 6.18E+00 4.97E-01 1.45E+00 4.97E-01 1.45E+00 3.91E+00 3.	= = = = = = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+01 2.13E+01 3.35E+01 2.06E+01 2.08E+02 3.20E+01 2.08E+02 4.26E+02 3.50E+02 4.26E+02 8.87E+02	std  0.00E+00  0.00E+00  1.90E+00  1.45E+00  1.28E-07  1.62E+00  1.46E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  4.49E+00  2.06E+00  2.48E+01  5.88E+00  3.40E-01  1.03E+02  5.70E+00  1.65E+00  3.90E-03  2.20E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 7.28E+01 1.53E+02 4.52E+01 1.04E+02 4.62E+01 2.06E+02 1.00E+02 3.80E+02 4.29E+02 3.88E+01 5.64E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01 2.77E+01 2.21E+01 1.32E+01 2.30E+01 2.30E+01 2.30E+01 0.359E+00 1.44E-14 5.55E+00 5.93E+00	= = + + = = = + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 5.54E+00 2.08E+01 3.34E+01 2.08E+01 2.12E+02 1.00E+02 3.53E+02 4.28E+02 3.53E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.91E+00 2.00E+00 0.00E+00 0.00E+00 0.00E+00 1.74E-01 5.38E+00 7.31E+00 1.07E+00 1.99E-01 2.38E+00 7.68E+00 1.95E+00 1.95E+00 1.95E+00 1.95E+00 1.95E+00 2.54E+00 2.78E-03 4.00E+01 8.18E+00	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 1.48E+01 1.99E+01 2.08E+01 3.03E+01 2.08E+01 2.08E+01 2.08E+02 3.49E+02 3.49E+02 4.25E+02 3.87E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02 5.03E+02	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.47E+00 1.47E+00 1.55E+01 1.54E+02 1.65E+01 1.54E+02 1.65E+01 1.54E+02 1.65E+00 1.99E+00 1.99E+00 1.91E+00	= = = = = = = = = = = = = = = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 4.96E+01 7.57E+00 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 1.96E+01 2.76E+00 2.13E+01 3.35E+01 2.06E+01 2.08E+02 1.00E+02 3.87E+02 4.26E+02 4.87E+02 4.98E+02	std  0.00E+00 0.00E+00 1.90E+00 1.90E+00 1.45E+00 1.28E-07 1.62E+00 1.46E+00 0.00E+00 1.93E+02 1.50E+01 8.54E+01 5.93E+00 4.49E+00 2.06E+00 3.40E-01 1.03E+00 1.60E+00 1.68E-13 2.20E+00 1.65E+00 3.90E-03 2.93E+01 6.43E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F25 F25 F25 F25 F27	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 1.44E+03 4.37E+01 2.70E+03 7.28E+01 1.53E+02 4.52E+01 1.04E+02 7.70E+01 2.06E+02 1.00E+02 3.60E+02 4.29E+02 3.88E+02 1.01E+03 3.60E+02 3.06E+02 3.06E+02 3.06E+02 3.06E+02 3.06E+02 3.06E+02 3.06E+02 3.06E+02 3.06E+02 3.06E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 2.80E-03 1.52E+01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 2.67E+01 8.92E+01 1.77E+01 2.21E+01 1.32E+01 2.30E+01 2.30E+01 2.30E+01 6.72E+01 5.55E+00 6.62E-01 6.72E+01 5.93E+00 2.45E+01	= = + + = = = + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.10E+01 1.10E+01 1.18E+01 1.18E+01 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 5.54E+00 2.08E+01 7.19E+00 2.12E+02 1.00E+02 3.33E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 3.47E+02 4.28E+02	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 2.13E+00 2.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 7.31E+00 1.07E+00 1.99E+01 1.99E+01 1.99E+01 1.99E+01 1.99E+01 2.38E+00 7.48E+01 7.48	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 2.08E+01 4.81E+00 2.81E+01 2.08E+01 4.81E+00 2.89E+01 4.81E+00 3.03E+01 2.89E+02 3.87E+02 8.92E+02 3.87E+02 8.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.92E+02 3.99E+02 3.99E+02 3.99E+02	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.72E+00 1.47E+00 0.00E+00 0	= = = = = = = = = = = = = = = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00 2.13E+01 2.35E+01 2.06E+01 2.06E+01 2.08E+02 1.00E+02 3.50E+02 3.87E+02 8.87E+02 8.87E+02 3.13E+02	std  0.00E+00  0.00E+00  1.90E+00  1.45E+00  1.28E-07  1.62E+00  1.46E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  4.49E+00  2.06E+00  2.48E+01  5.88E+00  3.40E-01  1.03E+02  5.70E+00  1.65E+00  3.90E-03  2.20E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F20 F21 F22 F22 F24 F25 F26 F27 F27	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 7.28E+01 1.53E+02 4.52E+01 1.04E+02 4.62E+01 2.06E+02 1.00E+02 3.80E+02 4.29E+02 3.88E+01 5.64E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 0.00E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01 2.77E+01 2.21E+01 1.32E+01 2.30E+01 2.30E+01 2.30E+01 0.359E+00 1.44E-14 5.55E+00 5.93E+00	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 5.54E+00 2.08E+01 3.34E+01 2.08E+01 2.12E+02 1.00E+02 3.53E+02 4.28E+02 3.53E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02 4.28E+02	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.74E-07 2.13E+00 2.00E+00 0.00E+00 0.00E+00 1.74E-07 1.12E+01 9.74E+01 5.38E+00 1.07E+00 5.79E+01 2.38E+00 1.99E-01 2.38E+00 1.95E+00 1.95E+00 1.95E+00 1.95E+00 1.86E-13 3.07E+00 2.54E+00 2.54E+00 2.78E-03 4.00E+01 8.18E+00 2.02E+01	= = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 1.48E+01 1.99E+01 2.08E+01 3.03E+01 2.08E+01 2.08E+02 1.00E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02 3.87E+02	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.47E+00 1.47E+00 1.55E+01 1.54E+02 1.65E+01 1.54E+02 1.65E+01 1.54E+02 1.65E+00 1.99E+00 1.99E+00 1.91E+00	= = = = = = + + = = = = = + + = = = = =	mean 0.00E+00 4.96E+01 7.57E+00 4.96E+01 7.57E+00 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 1.96E+01 2.76E+00 2.13E+01 3.35E+01 2.06E+01 2.08E+02 1.00E+02 3.87E+02 4.26E+02 4.87E+02 4.98E+02	std  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.28E-07  1.62E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  2.06E+00  2.48E+01  3.40E-01  1.03E+00  1.03E+00  1.03E+00  3.40E-01  1.03E+00  1.05E+00  3.40E-01  1.03E+00  3.40E-01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F27 F28 F30 F30 F30 F30 F30 F30 F30 F30 F30 F30	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 7.28E+01 1.15E+02 4.52E+01 1.04E+02 7.70E+01 4.46E+01 2.06E+02 4.29E+02 3.80E+02 4.29E+02 5.14E+02 5.14E+02 4.53E+02 4.53E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 2.44E+02 2.51E+01 1.05E+01 2.67E+01 2.67E+01 2.105E+01 2.30E+01 2.30E+01 2.30E+01 2.30E+01 2.30E+01 2.30E+01 2.30E+01 2.30E+01 5.55E+00 3.59E+00 6.62E-01 6.72E+01 5.93E+00	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 1.85E+01 2.08E+01 7.19E+00 2.57E+01 2.12E+02 3.34E+01 2.12E+02 3.53E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 1.91E+00 2.00E+00 0.00E+00 2.13E+00 2.00E+00 0.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 7.31E+00 1.07E+00 1.99E+01 1.95E+00 1.95E+00 1.95E+00 2.38E+00 2.54E+00 2.54E+00 2.54E+00 2.54E+00 2.54E+01 1.66E+01 1.15E+01	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 2.09E+00 2.18E+01 2.08E+01 4.81E+00 2.69E+01 2.08E+02 3.49E+02 4.25E+02 8.92E+02 5.03E+02 4.33E+02 4.33E+02	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 1.47E+00 2.04E+02 1.65E+01 5.63E+00 1.99E+00 5.63E+00 1.99E+00 5.63E+00 1.99E+00 1.99E+00 1.99E+00 1.97E-01 1.54E+01 6.18E+00 4.97E-01 1.45E+01 6.43E+00 2.19E+00 1.44E-14 3.45E+00 2.19E+00 1.42E+01 6.43E+01 6.43E+00 4.21E+01 1.44E+01		mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00 2.13E+01 3.35E+01 5.59E+00 3.20E+01 5.59E+00 3.20E+01 5.59E+02 4.26E+02 4.26E+02 4.87E+02 4.98E+02 4.98E+02 4.96E+02 4.36E+02	std  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.45E+00  1.45E+00  1.46E+00  0.00E+00  1.46E+01  1.46E+00  0.00E+00  1.50E+01  8.54E+01  5.93E+00  2.46E+01  5.88E+00  3.40E-01  1.03E+00  1.60E+00  1.60E+00  1.60E+00  1.65E+01  3.90E-03  2.93E+01  6.43E+00  1.43E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28 F30 F30 F30 F30 F30 F30 F30 F30 F30 F30	3.77E-09 0.00E+00 4.83E+01 6.15E+00 4.15E-04 3.53E+01 5.78E+00 0.00E+00 1.44E+03 4.37E+01 2.70E+03 1.99E+03 7.28E+01 1.15E+02 4.52E+01 1.04E+02 7.70E+01 4.46E+01 2.06E+02 4.29E+02 3.80E+02 4.29E+02 5.14E+02 5.14E+02 4.53E+02 4.53E+02	std 2.69E-08 0.00E+00 2.50E+01 1.58E+00 2.80E-03 9.32E-01 1.52E+00 2.44E+02 2.51E+01 1.69E+03 3.18E+02 1.05E+01 2.47E+01 2.21E+01 1.77E+01 2.21E+01 2.30E+01 1.32E+01 2.30E+01 2.39E+01 6.62E-01 6.72E+01 5.93E+00 2.45E+01	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.70E+01 1.10E+01 1.05E-07 4.22E+01 1.18E+01 0.00E+00 1.49E+03 7.02E+00 1.25E+02 1.89E+01 1.85E+01 1.85E+01 2.08E+01 7.19E+00 2.57E+01 2.12E+02 3.34E+01 2.12E+02 3.53E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02 4.24E+02	4 UM std 0.00E+00 0.00E+00 1.24E+00 1.91E+00 2.13E+00 2.00E+00 2.00E+00 2.57E+02 1.12E+01 9.74E+01 5.38E+00 7.31E+00 1.07E+00 1.99E+01 1.99E+01 1.99E+01 1.99E+01 1.95E+00 2.38E+00 2.38E+00 2.38E+00 2.38E+00 2.38E+00 2.38E+00 2.38E+00 2.38E+00 2.38E+00 2.54E+00 2.54E+00 2.52E+01 8.18E+00 2.02E+01 1.15E+01	= = + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.81E+01 7.54E+00 3.35E-09 3.87E+01 8.20E+00 0.00E+00 1.41E+03 8.19E+00 2.81E+02 1.48E+01 1.99E+01 2.09E+00 2.18E+01 2.08E+01 4.81E+00 2.69E+01 2.08E+02 3.49E+02 4.25E+02 8.92E+02 5.03E+02 4.33E+02 4.33E+02	8 SCSS std 0.00E+00 0.00E+00 8.94E+00 1.72E+00 1.97E-08 1.47E+00 2.04E+02 1.65E+01 1.54E+02 5.63E+00 5.63E+00 4.97E-01 6.18E+00 4.97E-01 1.55E+00 5.91E+00 5.91E+00 1.44E-14 3.45E+01 6.43E+00 4.21E+01		mean 0.00E+00 4.96E+01 7.57E+00 5.40E-08 3.85E+01 7.58E+00 0.00E+00 1.54E+03 7.72E+00 1.01E+02 1.74E+01 2.76E+00 2.13E+01 3.35E+01 5.59E+00 3.20E+01 5.59E+00 3.20E+01 5.59E+02 4.26E+02 4.26E+02 4.87E+02 4.98E+02 4.98E+02 4.96E+02 4.36E+02	std  0.00E+00  1.90E+00  1.90E+00  1.45E+00  1.45E+00  1.45E+00  1.62E+00  1.46E+00  0.00E+00  1.93E+02  1.50E+01  8.54E+01  5.93E+00  2.06E+00  2.48E+01  5.88E+00  5.70E+00  1.03E+00  1.05E+00  1.05E+00  1.05E+00  1.05E+00  1.05E+00  1.05E+00  1.05E+00  1.05E+01

Table S2 Performance comparison of ESA with other multi-strategy methods on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

				-		50-D	1	ildelit Tuli			
		Sa			EPS			SaM		ES	SA
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F3	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F4 F5	4.63E+01 1.67E+01	4.36E+01 2.43E+00	+	4.87E+01 1.65E+01	4.19E+01 2.72E+00	+	5.35E+01 1.63E+01	4.50E+01 3.56E+00	+	7.56E+01 1.25E+01	5.21E+01 2.06E+00
F6	7.55E-08	1.33E-07	-	1.16E-07	1.68E-07	-	1.07E-07	1.67E-07	-	1.02E-06	1.24E-06
F7	6.85E+01	2.50E+00	+	6.75E+01	2.70E+00	+	6.99E+01	4.71E+00	+	6.42E+01	2.13E+00
F8 F9	1.61E+01	2.78E+00	+	1.63E+01	2.31E+00	+	1.63E+01 0.00E+00	3.25E+00	+	1.34E+01	2.24E+00
F10	0.00E+00 3.17E+03	0.00E+00 2.41E+02	=	0.00E+00 3.13E+03	0.00E+00 3.81E+02	=	3.04E+03	0.00E+00 3.54E+02	=	0.00E+00 3.04E+03	0.00E+00 3.47E+02
F11	2.32E+01	2.38E+00	+	2.27E+01	3.27E+00	+	2.12E+01	2.33E+00	=	2.16E+01	2.49E+00
F12	1.69E+03	4.30E+02	+	1.53E+03	3.57E+02	+	1.58E+03	3.91E+02	+	8.55E+02	3.13E+02
F13 F14	6.90E+01 2.56E+01	3.89E+01 1.88E+00	+	6.08E+01 2.54E+01	4.02E+01 1.71E+00	+	5.99E+01 2.71E+01	3.81E+01 2.98E+00	+	4.43E+01 2.35E+01	2.93E+01 1.25E+00
F15	2.56E+01	3.61E+00	+	2.49E+01	2.70E+00	+	2.73E+01	4.66E+00	+	2.03E+01	1.80E+00
F16	3.19E+02	1.10E+02	=	3.22E+02	1.17E+02	=	2.63E+02	1.05E+02	=	3.00E+02	1.25E+02
F17	2.34E+02	7.52E+01	=	2.18E+02	6.85E+01	=	2.34E+02	5.56E+01	=	2.09E+02	8.32E+01
F18	2.53E+01	2.29E+00	+	2.61E+01	2.20E+00	+	2.55E+01	2.49E+00	+	2.27E+01	1.15E+00
F19 F20	1.70E+01	3.36E+00 4.09E+01	+	1.66E+01	2.67E+00 4.93E+01	+	1.78E+01	3.31E+00	+	1.32E+01	1.87E+00
F21	1.02E+02 2.16E+02	3.24E+00	=	1.11E+02 2.18E+02	2.91E+00	+	1.00E+02 2.18E+02	3.28E+01 3.24E+00	+	1.21E+02 2.15E+02	5.21E+01 2.35E+00
F22	1.07E+03	1.53E+03	-	1.41E+03	1.73E+03	-	1.50E+03	1.70E+03	-	2.51E+03	1.67E+03
F23	4.31E+02	4.51E+00	+	4.31E+02	4.76E+00	+	4.31E+02	5.89E+00	+	4.27E+02	4.89E+00
F24	5.07E+02	3.54E+00	=	5.08E+02	3.31E+00	=	5.07E+02	3.48E+00	=	5.07E+02	3.27E+00
F25 F26	4.81E+02 1.07E+03	2.42E+00 4.77E+01	=	4.81E+02 1.10E+03	2.94E+00 6.20E+01	=	4.82E+02 1.08E+03	2.68E+00 5.18E+01	-	4.81E+02 1.09E+03	2.81E+00 4.91E+01
F27	5.27E+02	1.37E+01	+	5.26E+02	1.37E+01	+	5.39E+02	2.63E+01	+	5.17E+02	1.27E+01
F28	4.61E+02	1.45E+01	-	4.60E+02	1.33E+01	-	4.58E+02	1.36E+01	-	4.58E+02	1.73E-01
F29	3.53E+02	1.01E+01	-	3.53E+02	1.12E+01	-	3.54E+02	1.14E+01	-	3.59E+02	1.05E+01
F30	6.50E+05	7.85E+04	=	6.23E+05	5.81E+04	=	6.54E+05	8.05E+04	=	6.31E+05	5.25E+04
W		12			13			12			
T		11			11			10			
L		6			5			7			
					TIME			cccc		E	
		CSM			UM			SCSS		ES	
F1	mean 1.16E-01	std	sig +	mean 0.00E+00	std	sig =	mean 0.00E+00	std	sig =	mean	std
F1 F3	mean 1.16E-01 0.00E+00			mean 0.00E+00 0.00E+00		-	mean 0.00E+00 0.00E+00		-		
F3 F4	1.16E-01 0.00E+00 4.95E+01	std 2.06E-01 0.00E+00 4.27E+01	+ = =	0.00E+00 0.00E+00 5.55E+01	std 0.00E+00 0.00E+00 4.50E+01	= =	0.00E+00 0.00E+00 4.54E+01	std 0.00E+00 0.00E+00 4.30E+01	= =	mean 0.00E+00 0.00E+00 7.56E+01	std 0.00E+00 0.00E+00 5.21E+01
F3 F4 F5	1.16E-01 0.00E+00 4.95E+01 1.38E+01	std 2.06E-01 0.00E+00 4.27E+01 2.70E+00	+ = + +	0.00E+00 0.00E+00 5.55E+01 2.24E+01	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00	= = = +	0.00E+00 0.00E+00 4.54E+01 1.49E+01	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00	= = +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00
F3 F4	1.16E-01 0.00E+00 4.95E+01	std 2.06E-01 0.00E+00 4.27E+01	+ = =	0.00E+00 0.00E+00 5.55E+01	std 0.00E+00 0.00E+00 4.50E+01	= =	0.00E+00 0.00E+00 4.54E+01	std 0.00E+00 0.00E+00 4.30E+01	= =	mean 0.00E+00 0.00E+00 7.56E+01	std 0.00E+00 0.00E+00 5.21E+01
F3 F4 F5 F6 F7 F8	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00	+ = = + - = =	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00 1.66E-06 4.16E+00 3.80E+00	= = + = + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 2.31E+00	= = - + - +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00
F3 F4 F5 F6 F7 F8 F9	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00	+ = = + = = =	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00 1.66E-06 4.16E+00 3.80E+00 0.00E+00	= = = + = + + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 2.31E+00 0.00E+00	= = - + - + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00
F3 F4 F5 F6 F7 F8	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00	+ = = + - = =	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00 1.66E-06 4.16E+00 3.80E+00	= = + = + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 2.31E+00	= = - + - +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 6.70E+03	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03	+ = = + + + +	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00 1.66E-06 4.16E+00 3.80E+00 0.00E+00 3.78E+02 2.48E+00 3.74E+02	= = = = + + + + = = = + + + = = = + + + = = = + + + = = = + + + = = = + + + = = = + + + = = = + + + = = = + + + = = = + + + = = = + + + + = = = + + + + + = = = + + + + + = = = + + + + + = = = + + + + + = = = + + + + + = = = + + + + + = = = + + + + + = = = + + + + + + = = = + + + + + + = = = + + + + + + = = = + + + + + + + = = + + + + + + + = = + + + + + + + = = + + + + + + + = = +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 0.00E+00 3.19E+02 3.43E+00 3.65E+02	= = = + + + + = = = + + + + + + + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E+06 2.13E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 6.70E+03 1.20E+03	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03	+ = = + + + + +	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00 1.66E-06 4.16E+00 0.00E+00 3.78E+02 2.48E+00 3.74E+02 3.38E+01	= = = = + + + + + = = + + + + + + + + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 0.00E+00 3.19E+02 3.43E+00 3.65E+02 3.50E+01	= = = + + = = = = + + = = = = + + = = = = + + = = = = + + + = = = = + + + = = = = = + + + = = = = = + + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = = + + + = = = = = = + + = = = = = = = + + =	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 4.43E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 6.70E+03 1.20E+03 1.42E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03	+ = = + + = = + + + + + + +	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.51E+01	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00 1.66E-06 4.16E+00 3.80E+00 0.00E+00 3.78E+02 2.48E+00 3.74E+02 3.38E+01 1.73E+00	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01 2.54E+01	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 0.00E+00 3.19E+02 3.43E+00 3.65E+02 3.50E+01 2.20E+01	= = = + + = = + + + + + + + + + + + + +	mean 0.00E+00 0.00E+01 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 2.16E+01 8.55E+02 4.43E+01 2.35E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01 1.25E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 7.56E+01 6.70E+03 1.20E+03 1.42E+02 3.03E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01	+ = = + + + + +	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.17E+01	std 0.00E+00 0.00E+00 4.50E+01 4.03E+00 1.66E-06 4.16E+00 3.80E+00 0.00E+00 3.78E+02 2.48E+00 3.74E+02 3.38E+01 1.73E+00 2.40E+00	= = = = + + + + + = = + + + + + + + + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 2.27E+01 1.61E+03 5.42E+01 2.33E+01	std  0.00E+00  4.30E+01  2.21E+00  7.12E-08  3.01E+00  0.00E+00  3.19E+02  3.43E+00  3.65E+02  3.50E+01  2.20E+00  3.10E+00	= = = + + = = = = + + = = = = + + = = = = + + = = = = + + + = = = = + + + = = = = = + + + = = = = = + + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = + + + = = = = = = + + + = = = = = = + + = = = = = = = + + =	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.35E+01 2.03E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01 1.25E+00 1.80E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 6.70E+03 1.20E+03 1.42E+02 3.03E+02 2.84E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  5.54E+01	+ + = = + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.51E+01 2.17E+01 2.72E+02 2.62E+02	std  0.00E+00  0.00E+00  4.50E+01  4.03E+00  4.03E+00  3.80E+00  0.00E+00  3.78E+02  2.48E+00  3.74E+02  2.48E+01  1.73E+00  2.40E+00  1.52E+02  7.99E+01	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01 2.34E+01 2.33E+01 2.25E+02	std 0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 0.00E+00 3.19E+02 3.43E+00 3.65E+02 2.20E+00 3.10E+00 8.10E+01	= = = = + + = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.25E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.09E+02	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 1.25E+00 1.86E+00 1.25E+02 8.32E+01
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 6.70E+03 1.20E+03 1.42E+02 3.03E+02 3.14E+02 2.84E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  7.58E+01  3.48E+01	+ + = = + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.17E+01 3.92E+02 2.62E+02 2.34E+01	std  0.00E+00  0.00E+00  4.50E+01  4.03E+00  1.66E-06  4.16E+00  3.80E+00  0.00E+00  3.78E+02  2.48E+00  3.74E+02  3.38E+01  1.73E+00  2.40E+00  1.52E+02	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 2.27E+01 1.61E+03 5.42E+01 2.33E+01 3.12E+02 2.25E+02 2.45E+01	std  0.00E+00  0.00E+00  4.30E+01  2.21E+00  7.12E-08 3.01E+00  0.00E+00  3.19E+02  3.43E+00  3.65E+02  3.50E+01  3.10E+00  1.14E+02  8.10E+01  1.96E+00	= = = + + = = + + + = = + + + + = = + + + + + = = + + + + + = = + + + + + = = + + + + + + = = + + + + + + = = + + + + + + = = + + + + + + = = + + + + + + = = + + + + + + = = + + + + + + + = = +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.27E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01 1.25E+00 1.25E+02 1.25E+02 1.25E+01 1.25E+01
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F17	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 3.14E+02 2.84E+02 1.88E+02 1.88E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  7.58E+01  5.54E+01  1.23E+01	+ + = = + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.51E+01 3.92E+02 2.62E+02 2.34E+01 1.48E+01	std  0.00E+00  0.00E+00  4.50E+01  4.03E+00  1.66E-06  3.80E+00  0.00E+00  3.78E+02  3.48E+00  3.74E+02  3.38E+01  1.73E+00  2.40E+00  1.52E+02  7.99E+01  1.44E+00  3.61E+00	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01 2.33E+01 3.12E+02 2.25E+02 2.45E+01	std  0.00E+00  4.30E+01  2.21E+00  7.12E-08 3.01E+00  0.00E+00  3.19E+02  3.43E+00  3.65E+02  3.50E+01  2.20E+00  1.14E+02  8.10E+01  1.96E+00  2.42E+00	= = = = + + = = = = = = = = = = = = = =	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.35E+01 2.03E+01 3.00E+02 2.09E+02 1.32E+01 1.32E+01	std  0.00E+00  0.00E+00  5.21E+01  2.06E+00  1.24E-06  2.13E+00  0.00E+00  3.47E+02  2.49E+00  3.13E+02  2.99E+01  1.25E+00  1.80E+00  1.15E+00  1.15E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 6.70E+03 1.20E+03 1.42E+02 3.03E+02 3.14E+02 2.84E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  7.58E+01  3.48E+01	+ + = = + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 2.24E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.17E+01 3.92E+02 2.62E+02 2.34E+01	std  0.00E+00  0.00E+00  4.50E+01  4.03E+00  1.66E-06  4.16E+00  3.80E+00  0.00E+00  3.78E+02  2.48E+00  3.74E+02  3.38E+01  1.73E+00  2.40E+00  1.52E+02	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 2.27E+01 1.61E+03 5.42E+01 2.33E+01 3.12E+02 2.25E+02 2.45E+01	std  0.00E+00  0.00E+00  4.30E+01  2.21E+00  7.12E-08 3.01E+00  0.00E+00  3.19E+02  3.43E+00  3.65E+02  3.50E+01  3.10E+00  1.14E+02  8.10E+01  1.96E+00	= - + + + + = = + + + + + + + + + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.27E+01	std 0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01 1.25E+00 1.25E+02 1.25E+02 1.25E+01 1.25E+01
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F21	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 3.14E+02 2.84E+02 7.41E+01 8.00E+01 2.15E+02 7.55E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  7.58E+01  1.23E+01  1.23E+01  1.23E+01  1.23E+01  1.23E+01  1.23E+01  1.23E+01	+ + + + + + + + + - = -	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.51E+01 3.92E+02 2.62E+02 2.34E+01 1.48E+01 1.30E+02 1.23E+02 1.52E+03	std  0.00E+00  0.00E+00  4.50E+01  4.03E+00  1.66E-06  4.16E+00  3.80E+00  0.00E+00  3.78E+02  2.48E+00  3.74E+02  3.38E+01  1.73E+00  2.40E+00  1.52E+02  7.99E+01  1.44E+00  3.61E+00  7.29E+01  1.80E+03	= = = = + + + + + + + + + + + + + + + =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01 2.33E+01 3.12E+02 2.25E+02 2.45E+01 1.62E+01 1.09E+02 2.16E+02	std  0.00E+00  4.30E+01  4.30E+01  2.21E+00  7.12E-08  3.01E+00  0.00E+00  3.19E+02  3.43E+00  3.65E+02  3.50E+01  3.10E+00  1.14E+02  8.10E+01  1.96E+00  4.81E+01  2.71E+00  1.73E+03	= = = + + + + = = = + + + + = = =	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.09E+02 1.32E+01 1.32E+01 1.32E+01 1.32E+01 2.15E+02	std  0.00E+00  0.00E+00  5.21E+01  2.06E+00  1.24E-06  2.13E+00  2.24E+00  0.00E+00  3.47E+02  2.49E+00  3.13E+02  2.93E+01  1.25E+02  8.32E+01  1.15E+00  1.87E+00  5.21E+01  2.35E+00  1.67E+03
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 3.14E+02 2.84E+02 1.88E+02 1.88E+02 1.89E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+02 1.99E+03 1.99E+	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  5.54E+01  3.48E+01  1.39E+01  1.79E+00  1.79E+00  1.79E+00	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 2.51E+01 3.92E+02 2.62E+02 2.34E+01 1.30E+02 2.23E+02 4.32E+03 4.32E+03	std  0.00E+00 0.00E+00 4.50E+01 4.03E+00 4.50E+01 4.03E+00 3.80E+00 3.80E+00 3.78E+02 2.48E+00 3.74E+02 3.38E+01 1.73E+00 2.40E+00 7.99E+01 1.44E+00 7.29E+01 3.55E+00 7.29E+01 1.80E+03 5.89E+03	= = = = + + = = = + + + + + + + + + + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 2.54E+01 2.33E+01 3.12E+02 2.25E+02 2.45E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01 1.62E+01	std  0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 2.31E+00 3.19E+02 3.43E+00 3.65E+02 3.50E+01 2.20E+00 3.10E+00 4.10E+00 4.81E+01 2.71E+00 4.78E+03 4.78E+00	= = = + + + + + = = + + + + = = + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.25E+01 1.32E+01 1.34E+01 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.35E+01 2.09E+02 2.27E+01 1.32E+01 1.32E+01 4.21E+02 2.15E+02 4.27E+03 4.27E+03	std  0.00E+00 0.00E+00 5.21E+01 2.00E+00 5.21E+01 2.00E+00 1.24E-06 2.13E+00 2.24E+00 3.13E+02 2.49E+01 1.25E+00 1.25E+02 8.32E+01 1.15E+00 5.21E+01 2.35E+00 4.87E+00 4.87E+00 4.87E+00 5.21E+01 4.87E+00 5.21E+01 4.87E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 2.84E+02 1.88E+02 7.41E+01 2.15E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 7.95E+02 5.15E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  7.58E+01  3.48E+01  1.23E+01  1.39E+01  2.79E+00  1.43E+03	+ + + + + + + + + - = -	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 2.51E+01 2.17E+01 2.17E+01 2.17E+01 1.39E+02 2.62E+02 2.34E+01 1.30E+02 2.23E+02 1.52E+03 4.32E+02 5.12E+02 5.12E+02	std  0.00E+00  0.00E+00  4.50E+01  4.03E+00  1.66E-06  4.16E+00  3.80E+00  0.00E+00  3.78E+02  2.48E+00  3.74E+02  2.48E+00  1.73E+00  1.52E+02  1.99E+01  1.44E+00  3.61E+00  1.55E+00  1.80E+03  5.89E+00  4.58E+00	= = = = + + + + + + + + + + + + + + + =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01 2.33E+01 3.12E+02 2.25E+02 2.45E+01 1.62E+01 1.09E+02 2.16E+02	std  0.00E+00  0.00E+00  4.30E+01  2.21E+00  7.12E-08  3.01E+00  2.31E+00  3.19E+02  3.43E+00  3.65E+02  3.50E+01  2.20E+00  3.10E+00  1.14E+02  8.10E+01  1.96E+00  2.42E+00  1.73E+03  4.81E+01  2.71E+00  1.73E+03  3.74E+00	= = = + + + + = = = + + + + = = =	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.25E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 2.35E+01 2.03E+01 3.00E+02 2.27E+01 1.32E+01 1.31E+02 2.15E+02 2.51E+03 4.27E+02 5.07E+02	std  0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.49E+00 1.25E+00 1.80E+00 1.25E+02 8.32E+01 1.15E+00 1.87E+00 1.87E+00 1.87E+00 3.23E+01 3.35E+01 3.35E+00 3.27E+00 3.27E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 2.84E+02 1.88E+02 1.88E+02 1.88E+02 1.89E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+03 1.99E+02 1.99E+03 1.99E+	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  5.54E+01  3.48E+01  1.39E+01  1.79E+00  1.79E+00  1.79E+00	+ = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 2.51E+01 3.92E+02 2.62E+02 2.34E+01 1.30E+02 2.23E+02 4.32E+03 4.32E+03	std  0.00E+00 0.00E+00 4.50E+01 4.03E+00 4.50E+01 4.03E+00 3.80E+00 3.80E+00 3.78E+02 2.48E+00 3.74E+02 3.38E+01 1.73E+00 2.40E+00 7.99E+01 1.44E+00 7.29E+01 3.55E+00 7.29E+01 1.80E+03 5.89E+03	= = = = + + = = = + + + + + + + + + + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 2.54E+01 2.33E+01 3.12E+02 2.25E+02 2.45E+01 1.62E+01	std  0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 2.31E+00 3.19E+02 3.43E+00 3.65E+02 3.50E+01 2.20E+00 3.10E+00 4.10E+00 4.81E+01 2.71E+00 4.78E+03 4.78E+00	= = = - + + + + + = = + + + + = = - + + = = = - + + = = = - + + = = = - + + = = - + + = = = - + + = = = - + + = = = - + + = = = - + + = = = - + + = = = - + + = = = - + + = = = - + + = = = - + + = = = - + + = = - + + = = = - + + = = = - + + = = = - + + + = = - + + + = = - + + + = = - + + + = = - + + + = = - + + + = = - + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.25E+01 1.32E+01 1.34E+01 3.04E+03 2.16E+01 2.35E+01 2.35E+01 2.35E+01 2.35E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+02 2.75E+03 4.27E+02 2.51E+03 4.27E+02 5.07E+02 1.09E+03	std  0.00E+00 0.00E+00 5.21E+01 2.00E+00 5.21E+01 2.00E+00 1.24E-06 2.13E+00 2.24E+00 3.13E+02 2.49E+01 1.25E+00 1.25E+02 8.32E+01 1.15E+00 5.21E+01 2.35E+00 5.21E+01 2.35E+00 3.7E+00 5.21E+01 2.35E+00 4.89E+00 3.27E+00 2.81E+00 4.89E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F24 F25 F26 F27	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 2.84E+02 1.88E+02 1.88E+02 2.84E+02 1.5E+02 7.95E+02 5.15E+02 5.15E+02 5.15E+02 5.15E+02 5.79E+03	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.51E+01  3.75E+01  3.48E+01  1.39E+01  2.79E+00  4.92E+00  3.08E+01  1.99E+00  4.92E+00  1.93E+01  1.93E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 2.51E+01 2.51E+01 2.17E+01 2.17E+01 2.17E+01 2.34E+01 1.30E+02 2.34E+01 1.30E+02 2.32E+02 4.32E+02 4.81E+02 4.81E+02 5.12E+02 4.81E+02 5.12E+02 5.12E+02 5.12E+02 5.12E+02 5.12E+02 5.12E+02 5.12E+02 5.12E+02 5.12E+02 5.12E+02	std  0.00E+00 0.00E+00 4.50E+01 4.03E+00 4.50E+01 4.03E+00 3.80E+00 0.00E+00 3.78E+02 2.48E+00 3.74E+02 2.48E+01 1.73E+00 2.40E+00 3.61E+00 3.61E+00 3.55E+02 1.52E+02 3.55E+03 3.55E+00 4.58E+00 3.48E+00 3.48E+00 3.48E+00 3.56E+01 1.45E+01	= = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 2.54E+01 2.33E+01 2.25E+02 2.45E+01 1.62E+01 1.62E+01 1.09E+02 2.16E+02 4.41E+03 5.06E+02 4.81E+02 5.06E+02 4.81E+02 5.06E+02 4.81E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03 5.25E+03	std  0.00E+00  0.00E+00  4.30E+01  2.21E+00  7.12E-08  3.01E+00  2.31E+00  3.19E+02  3.43E+00  3.65E+02  2.20E+00  3.10E+00  2.20E+00  3.10E+00  2.42E+00  4.81E+01  2.71E+00  1.73E+03  3.74E+00  3.00E+00  5.29E+01  5.29E+01	= = - + + + + + + = = + + + + + + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.25E+01 1.32E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 2.35E+01 2.03E+01 2.35E+01 1.32E+01 1.32E+01 1.32E+01 1.32E+01 2.55E+02 2.55E+02 2.55E+02 4.81E+02 4.81E+02 5.07E+02 4.81E+03	std  0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01 1.25E+02 8.32E+01 1.15E+00 1.87E+02 2.35E+01 1.5E+00 3.27E+00 3.27E+00 3.27E+00 3.27E+00 4.89E+00 3.27E+00 4.89E+00 3.27E+00 4.91E+01 1.27E+01
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28	1.16E-01 0.00E+00 4.95E+01 1.38E+01 1.38E+01 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 2.84E+02 1.88E+02 7.41E+01 2.15E+02 7.95E+02 4.44E+02 5.16E+02 1.20E+03	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  7.58E+01  1.23E+01  1.23E+01  1.29E+00  1.43E+03  7.98E+00  3.08E+01  7.95E+01  1.95E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 2.17E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.51E+01 3.92E+02 2.62E+02 2.34E+01 1.48E+01 1.30E+02 2.32E+02 4.81E+02 4.81E+02 4.17E+03	std  0.00E+00  0.00E+00  4.50E+01  4.03E+00  1.66E-06  4.16E+00  3.80E+00  0.00E+00  3.78E+02  2.48E+00  3.74E+02  3.38E+01  1.73E+00  2.40E+00  1.52E+02  1.44E+00  3.61E+00  1.80E+03  5.89E+00  4.58E+00  3.48E+00  5.66E+01  1.45E+01  1.14E-01	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01 2.34E+01 2.34E+01 2.25E+02 2.45E+01 1.62E+01 1.09E+02 1.41E+03 5.06E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.62E+01 1.62E+	std  0.00E+00  0.00E+00  4.30E+01  2.21E+00  7.12E-08 3.01E+00  0.00E+00  3.31E+00  3.43E+00  3.43E+00  3.43E+00  3.43E+00  3.10E+00  1.14E+02  8.10E+01  1.96E+00  2.42E+00  1.73E+03  4.78E+00  3.74E+00  3.00E+00  5.29E+01  1.35E+01  1.46E+01	= = = - + + + + + + + + + + + + + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.25E+01 1.02E-06 6.42E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.27E+01 1.32E+01 1.21E+02 2.51E+03 4.27E+02 4.81E+02 1.09E+03 5.07E+02 4.81E+02 1.09E+03	std  0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01 1.25E+00 1.80E+00 1.85E+00 1.87E+00 1.87E+00 1.87E+00 4.89E+00 4.89E+00 4.91E+01 4.17E+00 4.91E+01 1.27E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28 F29	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 3.14E+02 2.84E+02 1.88E+02 1.8E+02 1.8E+02 5.15E+02 4.44E+02 5.15E+02 5.16E+02 1.20E+03 5.79E+02 4.49E+02 5.16E+02 1.20E+03 5.79E+02 4.49E+02 5.79E+02 4.49E+02 5.79E+02 4.49E+03 5.79E+02 4.39E+02 4.39E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  4.27E+01  2.33E-03  1.99E+00  2.67E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  5.54E+01  3.48E+01  1.39E+01  4.92E+00  4.92E+00	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 0.00E+00 3.13E+03 2.73E+01 2.51E+01 3.13E+03 2.73E+01 3.92E+02 2.62E+02 2.34E+01 1.30E+02 2.34E+01 1.30E+02 2.34E+01 1.30E+02 2.34E+01 1.52E+03 4.32E+02 5.12E+02 5.12E+03 4.32E+02 5.12E+03 4.32E+02 5.12E+03 4.31E+02 1.17E+03 5.09E+02 3.64E+02	std  0.00E+00 0.00E+00 4.50E+01 4.03E+00 4.50E+01 4.03E+00 3.80E+00 0.00E+00 3.78E+02 2.48E+00 3.74E+02 2.48E+01 1.73E+00 2.40E+00 3.61E+00 3.61E+00 3.55E+02 1.52E+02 3.55E+03 3.55E+00 4.58E+00 3.48E+00 3.48E+00 3.48E+00 3.56E+01 1.45E+01	= = = + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 2.54E+01 2.54E+01 3.12E+02 2.25E+02 2.45E+01 1.62E+	std  0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 2.31E+00 3.19E+02 3.43E+00 3.65E+02 3.50E+01 2.20E+00 3.10E+00 4.81E+01 1.96E+00 4.81E+01 2.71E+00 4.81E+01 2.71E+00 5.29E+01 1.35E+01	= = - + + + + + + = = + + + + + + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.09E+02 2.7E+01 1.32E+01 1.21E+02 2.15E+02 4.58E+02 4.81E+02 1.09E+03 5.17E+02	std  0.00E+00  0.00E+00  5.21E+01  2.06E+00  1.24E-06  2.13E+00  2.24E+00  0.00E+00  3.47E+02  2.49E+00  3.13E+02  2.93E+01  1.25E+02  8.32E+01  1.15E+00  1.87E+00  5.21E+01  2.35E+00  4.89E+00  3.27E+00  2.31E+01  1.72E+01  1.72E+01  1.72E+01  1.72E+01  1.73E-01  1.73E-01  1.73E-01
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28	1.16E-01 0.00E+00 4.95E+01 1.38E+01 1.38E+01 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 2.84E+02 1.88E+02 7.41E+01 2.15E+02 7.95E+02 4.44E+02 5.16E+02 1.20E+03	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  2.33E-03  1.99E+00  2.67E+00  0.00E+00  3.76E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  7.58E+01  1.23E+01  1.23E+01  1.29E+00  1.43E+03  7.98E+00  3.08E+01  7.95E+01  1.95E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 0.00E+00 3.13E+03 2.73E+01 8.95E+02 6.64E+01 2.51E+01 3.92E+02 2.62E+02 2.34E+01 1.48E+01 1.30E+02 2.23E+02 4.32E+02 4.81E+02 4.81E+02 4.81E+02 4.59E+02 4.59E+02	std  0.00E+00 0.00E+00 4.50E+01 4.03E+00 4.50E+01 4.03E+00 3.80E+00 3.80E+00 3.78E+02 2.48E+00 3.74E+02 3.38E+01 1.73E+00 2.40E+00 7.99E+01 1.44E+00 7.29E+01 3.55E+00 7.29E+01 1.80E+03 5.89E+00 4.58E+00 4.58E+00 1.80E+03 1.80E+0	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 1.61E+03 5.42E+01 2.34E+01 2.34E+01 2.25E+02 2.45E+01 1.62E+01 1.09E+02 1.41E+03 5.06E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.09E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.41E+03 1.52E+02 1.62E+01 1.62E+	std  0.00E+00  0.00E+00  4.30E+01  2.21E+00  7.12E-08 3.01E+00  0.00E+00  3.31E+00  3.43E+00  3.43E+00  3.43E+00  3.43E+00  3.10E+00  1.14E+02  8.10E+01  1.96E+00  2.42E+00  1.73E+03  4.78E+00  3.74E+00  3.00E+00  5.29E+01  1.35E+01  1.46E+01	= = - + + + + + + + + + + + + + + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.25E+01 1.02E-06 6.42E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.27E+01 1.32E+01 1.21E+02 2.51E+03 4.27E+02 4.81E+02 1.09E+03 5.07E+02 4.81E+02 1.09E+03	std  0.00E+00 0.00E+00 5.21E+01 2.06E+00 1.24E-06 2.13E+00 2.24E+00 0.00E+00 3.47E+02 2.49E+00 3.13E+02 2.93E+01 1.25E+00 1.80E+00 1.85E+00 1.87E+00 1.87E+00 1.87E+00 4.89E+00 4.89E+00 4.91E+01 4.17E+00 4.91E+01 1.27E+00
F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F20 F21 F20 F21 F22 F23 F24 F25 F26 F27 F28 F30	1.16E-01 0.00E+00 4.95E+01 1.38E+01 8.23E-04 6.08E+01 1.31E+01 0.00E+00 2.99E+03 7.56E+01 1.20E+03 1.42E+02 3.03E+02 3.14E+02 2.84E+02 1.88E+02 1.8E+02 1.8E+02 5.15E+02 4.44E+02 5.15E+02 5.16E+02 1.20E+03 5.79E+02 4.49E+02 5.16E+02 1.20E+03 5.79E+02 4.49E+02 5.79E+02 4.49E+02 5.79E+02 4.49E+03 5.79E+02 4.39E+02 4.39E+02	std  2.06E-01  0.00E+00  4.27E+01  2.70E+00  4.27E+01  2.33E-03  1.99E+00  3.6E+02  1.10E+01  2.30E+03  1.24E+03  1.51E+01  3.75E+01  5.54E+01  3.48E+01  1.39E+01  4.92E+00  3.08E+01  1.39E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 0.00E+00 5.55E+01 1.20E-06 7.48E+01 0.00E+00 3.13E+03 2.73E+01 2.51E+01 3.13E+03 2.73E+01 3.92E+02 2.62E+02 2.34E+01 1.30E+02 2.34E+01 1.30E+02 2.34E+01 1.30E+02 2.34E+01 1.52E+03 4.32E+02 5.12E+02 5.12E+03 4.32E+02 5.12E+03 4.32E+02 5.12E+03 4.31E+02 1.17E+03 5.09E+02 3.64E+02	std  0.00E+00 0.00E+00 4.50E+01 4.03E+00 4.50E+01 4.03E+00 3.80E+00 3.80E+00 3.78E+02 2.48E+00 3.74E+02 2.48E+01 1.73E+00 2.40E+00 7.99E+01 1.44E+00 7.29E+01 3.55E+00 4.58E+00 3.48E+00 3.48E+00 3.48E+00 1.45E+01 1.45E+01 1.15E+01 6.44E+04	= = = = = = = = = = = = = = = = = = =	0.00E+00 0.00E+00 4.54E+01 1.49E+01 2.91E-08 6.62E+01 1.47E+01 0.00E+00 3.06E+03 2.27E+01 2.54E+01 2.54E+01 3.12E+02 2.25E+02 2.45E+01 1.62E+	std  0.00E+00 0.00E+00 4.30E+01 2.21E+00 7.12E-08 3.01E+00 2.31E+00 3.05E+01 3.43E+00 3.65E+02 3.50E+01 2.20E+00 3.10E+00 4.81E+01 1.96E+00 4.81E+01 2.71E+00 3.74E+00 3.00E+00 3.00E+00	= = - + + + + + + + + + + + + + + + + +	mean 0.00E+00 0.00E+00 7.56E+01 1.25E+01 1.02E-06 6.42E+01 1.34E+01 0.00E+00 3.04E+03 2.16E+01 8.55E+02 4.43E+01 2.03E+01 3.00E+02 2.09E+02 2.7E+01 1.32E+01 1.21E+02 2.15E+02 4.58E+02 4.81E+02 1.09E+03 5.17E+02	std  0.00E+00  0.00E+00  5.21E+01  2.06E+00  1.24E-06  2.13E+00  2.24E+00  0.00E+00  3.47E+02  2.49E+00  3.13E+02  2.93E+01  1.25E+02  8.32E+01  1.15E+00  1.87E+00  5.21E+01  2.35E+00  4.89E+00  3.27E+00  2.31E+01  1.72E+01  1.72E+01  1.72E+01  1.72E+01  1.73E-01  1.73E-01  1.73E-01

Table S2 Performance comparison of ESA with other multi-strategy methods on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

			<u> </u>	or / ocher	illiaik set	100-E		maciit run			
		Sa			EPS			SaM		ES	SA
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std
F1	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F3	2.06E-08	4.96E-08	-	3.32E-08	4.13E-08	-	2.21E-09	7.30E-09	-	2.11E-07	2.35E-07
F4 F5	1.94E+02 3.84E+01	1.19E+01 5.99E+00	+	1.93E+02 3.84E+01	1.05E+01 5.95E+00	+	1.92E+02 3.83E+01	1.13E+01 4.63E+00	+	2.03E+02 2.57E+01	1.14E+01 3.41E+00
F6	2.01E-06	1.13E-06	-	2.31E-06	1.55E-06	-	2.10E-06	9.85E-07	-	1.97E-05	1.20E-05
F7	1.41E+02	5.78E+00	+	1.36E+02	6.83E+00	+	1.42E+02	8.06E+00	+	1.27E+02	3.32E+00
F8	3.69E+01	5.11E+00	+	3.78E+01	6.19E+00	+	3.83E+01	4.67E+00	+	2.64E+01	3.90E+00
F9	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00 9.14E+03	0.00E+00	=	0.00E+00	0.00E+00
F10 F11	9.32E+03 7.08E+01	4.82E+02 2.73E+01	+	9.34E+03 7.33E+01	7.24E+02 2.20E+01	+	6.70E+01	5.60E+02 2.47E+01	+	8.97E+03 4.85E+01	4.66E+02 3.20E+01
F12	9.34E+03	4.34E+03	+	8.71E+03	2.83E+03	+	7.64E+03	3.01E+03	+	4.95E+03	8.95E+02
F13	1.72E+02	5.11E+01	+	1.63E+02	4.94E+01	+	1.94E+02	5.00E+01	+	7.13E+01	2.76E+01
F14 F15	6.35E+01 1.37E+02	8.74E+00 3.76E+01	+	6.49E+01 1.41E+02	1.02E+01 3.16E+01	+	6.58E+01 1.45E+02	1.17E+01 3.92E+01	+	3.91E+01 7.98E+01	3.77E+00 3.14E+01
F16	1.42E+03	2.60E+01	=	1.41E+02 1.42E+03	3.20E+02	=	1.43E+02 1.23E+03	2.74E+02	-	1.45E+03	2.13E+02
F17	1.03E+03	1.83E+02	-	1.11E+03	2.17E+02	=	9.72E+02	1.75E+02	=	1.03E+03	1.95E+02
F18	1.39E+02	3.94E+01	+	1.52E+02	3.92E+01	+	1.35E+02	3.73E+01	+	5.57E+01	1.42E+01
F19	7.32E+01	1.39E+01	+	7.46E+01	9.04E+00	+	6.63E+01	8.42E+00	+	4.79E+01	5.57E+00
F20	1.12E+03	1.97E+02	=	1.18E+03	1.96E+02	=	1.08E+03	1.49E+02	-	1.19E+03	1.38E+02
F21 F22	2.60E+02 1.01E+04	4.72E+00 6.19E+02	+	2.61E+02 1.01E+04	5.22E+00 6.63E+02	+	2.64E+02 9.67E+03	9.83E+00 6.23E+02	+	2.51E+02 9.78E+03	4.41E+00 4.93E+02
F23	5.55E+02	9.29E+00	=	5.56E+02	8.10E+00	=	5.60E+02	8.04E+00	+	5.52E+02	1.09E+01
F24	9.02E+02	7.27E+00	=	9.04E+02	7.76E+00	+	9.06E+02	8.21E+00	+	8.99E+02	5.65E+00
F25	7.06E+02	3.99E+01	+	7.17E+02	4.49E+01	+	6.84E+02	4.63E+01	=	6.64E+02	4.34E+01
F26 F27	3.10E+03 5.89E+02	8.47E+01	+	3.14E+03	7.53E+01 2.18E+01	+	3.09E+03 5.90E+02	7.80E+01 2.24E+01	+	3.10E+03	8.69E+01 2.02E+01
F28	5.24E+02	2.07E+01 2.76E+01	=	5.89E+02 5.23E+02	2.49E+01	=	5.90E+02 5.21E+02	2.24E+01 2.19E+01	=	5.76E+02 5.13E+02	2.02E+01 2.55E+01
F29	1.12E+03	1.67E+02	-	1.09E+03	1.54E+02	-	1.07E+03	1.32E+02	-	1.22E+03	1.56E+02
F30	2.46E+03	1.66E+02	+	2.43E+03	1.92E+02	+	2.44E+03	2.01E+02	+	2.28E+03	1.76E+02
W		16			18			15			
T		9			7						
-					7			8			
L		4			4			6			
_L										ES	SA
	mean	CSM std	sig	mean	4 UM std	sig	mean	6 SCSS std	sig	mean	std
F1	3.42E+01	4 CSM std 4.19E+01	sig +	0.00E+00	4 UM std 0.00E+00	=	0.00E+00	6 SCSS std 0.00E+00	sig =	mean 0.00E+00	std 0.00E+00
		4 CSM std 4.19E+01 0.00E+00			4 UM std	-		6 SCSS std		mean 0.00E+00 2.11E-07	std
F1 F3 F4 F5	3.42E+01 0.00E+00 1.85E+02 3.33E+01	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00	+ - + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00	= + = +	0.00E+00 7.25E-08 1.94E+02 3.24E+01	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00	=	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00
F1 F3 F4 F5 F6	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03	+ - + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05	+ + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06	std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06	- +	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05
F1 F3 F4 F5 F6 F7	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00	+ - + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00	= + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02	\$CSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00	= - + -	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00
F1 F3 F4 F5 F6 F7 F8 F9	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03	+ - + + + -	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00	+ + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06	\$CSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 5.24E+00 0.00E+00	- +	mean  0.00E+00  2.11E-07  2.03E+02  2.57E+01  1.97E-05  1.27E+02  2.64E+01  0.00E+00	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02	+ + + + + =	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 6.94E+02	= + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 5.24E+00 0.00E+00 4.84E+02	= - + - + - = + =	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01	+ + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 4.75E+01	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 0.00E+00 4.84E+02 4.02E+01	= + = + + = + + + + + + + + +	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 4.66E+02 3.20E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02	+ + + + + =	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 6.94E+02	= + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 5.24E+00 0.00E+00 4.84E+02	= - + - + - = + =	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01	+ + - + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 1.13E+04 1.28E+02 4.50E+01	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00	= + = = + + + + + + + + + + +	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 3.91E+01	std 0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.77E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.64E+01	+ + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 1.13E+04 1.28E+02 4.50E+01 9.45E+01	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01	= + + + + + + + + + + + + = = - + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01 1.28E+02	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00 3.77E+01	- - - + - - = + - = + + + + + + + + + +	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.77E+00 3.14E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.13E+03	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.64E+01 2.69E+02	+ + - + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 1.28E+02 4.50E+01 1.76E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 2.82E+02	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.40E+03 1.40E+02 5.63E+01 1.28E+02 1.38E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 4.02E+01 4.48E+02 4.02E+01 8.55E+00 3.30E+01 8.55E+00 2.41E+02	= + = = + + + + + + + + + + +	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 3.91E+01 1.45E+03	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.77E+00 3.14E+01 2.13E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.64E+01	+ + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 1.13E+04 1.28E+02 4.50E+01 9.45E+01	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01	= + + + + + + + + + + + = = - + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01 1.28E+02	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00 3.77E+01	= + = - + + + + + + + + = = + - +	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.77E+00 3.14E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 1.13E+03 9.71E+02 1.76E+02 1.76E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.64E+01 2.69E+02 2.00E+02 3.09E+01 1.85E+01	+ + + + + + + + + + - = =	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 1.28E+02 4.50E+01 1.76E+03 1.28E+03 8.25E+01 5.52E+01	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 2.82E+02 2.15E+02 2.27E+01 6.83E+00	+ + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.38E+03 1.38E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 2.41E+02 1.68E+02 1.68E+02 1.68E+02 1.68E+01 1.03E+01	- - - - - - - - - - - - - - - - - - -	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 7.13E+01 4.95E+03 7.13E+01 1.45E+03 1.03E+03 5.57E+01 4.79E+01	std  0.00E+00  2.35E-07  1.14E+01  3.41E+00  1.20E-05  3.32E+00  3.90E+00  0.00E+00  4.66E+02  2.76E+01  3.77E+00  3.14E+01  2.13E+02  1.95E+02  1.42E+01  5.57E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.13E+03 9.71E+02 1.97E+02 1.97E+02 9.85E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.69E+02 3.09E+01 1.85E+01 1.85E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 9.45E+01 1.28E+02 4.50E+01 9.45E+01 1.28E+03 8.25E+01 1.28E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.27E+01 2.27E+01 2.05E+02	+ + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.38E+03 1.38E+04 1.14E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.35E+00 6.35E+01 4.48E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00 3.77E+01 2.41E+02 1.68E+02 3.56E+01 1.03E+01 1.03E+01 1.84E+02	- - - + - - - + - - - + + - + + + + + +	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 3.91E+01 7.98E+01 1.45E+03 1.03E+03 5.57E+01 1.19E+03	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 3.41E+00 3.90E+00 4.66E+02 3.20E+01 3.77E+00 3.14E+01 2.13E+02 1.25E+02 1.42E+01 1.38E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.13E+03 9.71E+02 1.76E+02 1.76E+02 2.59E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 1.15E+04 4.49E+02 2.99E+01 2.64E+01 2.69E+02 3.09E+02 3.09E+01 1.85E+01	+ + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 1.13E+04 4.50E+01 9.45E+01 1.28E+02 8.25E+01 5.52E+01 1.26E+03 2.71E+02	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.27E+01 6.83E+00 2.05E+02 8.29E+00	+ + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 1.28E+02 1.38E+03 1.38E+03 1.38E+03 1.38E+02 6.69E+01 1.14E+03 2.56E+02	\$\frac{6}{\text{SCSS}}\$  std  0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.15E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00 3.77E+01 2.41E+02 1.68E+02 3.56E+01 1.03E+01 1.84E+02 5.21E+00	- - - - - - - - - - - - - - - - - - -	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 4.95E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01 1.45E+03 5.57E+01 4.79E+01 1.19E+03 2.51E+02	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 3.77E+00 3.14E+01 2.13E+02 1.95E+02 1.42E+01 5.57E+00 4.38E+02 4.41E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.13E+03 9.71E+02 1.97E+02 1.97E+02 9.85E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.69E+02 3.09E+01 1.85E+01 1.85E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 9.45E+01 1.28E+02 4.50E+01 9.45E+01 1.28E+03 8.25E+01 1.28E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.27E+01 6.83E+00 2.05E+02 8.29E+00	= = + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.38E+03 1.38E+04 1.14E+03	std  0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 4.02E+01 4.48E+02 4.02E+01 8.55E+00 3.77E+01 8.55E+00 1.7FE+01 8.55E+00 1.7FE+01 1.68E+02 1.68E+02 5.21E+00 1.84E+02 5.21E+00 1.84E+02 5.21E+00 8.42E+00		mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 3.91E+01 7.98E+01 1.45E+03 1.03E+03 5.57E+01 1.19E+03	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 3.41E+00 3.90E+00 4.66E+02 3.20E+01 3.77E+00 3.14E+01 2.13E+02 1.25E+02 1.42E+01 1.38E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F22 F23 F24	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.97E+02 1.97E+02 9.85E+02 9.31E+03 9.31E+03 9.31E+03 9.31E+03 9.31E+03 9.31E+03 9.31E+03	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 1.15E+04 4.49E+02 2.99E+01 2.64E+01 2.69E+02 2.00E+02 3.09E+01 1.85E+01 1.85E+01 1.86E+02 1.96E+02	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 9.45E+01 1.28E+03 8.25E+01 5.52E+01 1.26E+03 2.71E+02 1.08E+04 9.05E+02 9.05E+02 9.05E+02	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.27E+01 6.83E+00 5.51E+02 8.29E+00 5.51E+02 8.03E+00 9.77E+00	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.38E+03 1.38E+02 6.69E+01 1.14E+03 2.56E+02 9.68E+02 9.68E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00 3.77E+01 2.41E+02 1.68E+02 3.56E+01 1.03E+01 1.34E+02 5.21E+00 6.61E+02 8.42E+00 8.42E+00 8.42E+00 8.43E+00		mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 3.91E+01 7.98E+01 1.45E+03 5.57E+01 4.79E+01 1.19E+03 2.51E+02 9.78E+03 8.99E+02	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.77E+00 3.14E+01 2.13E+02 1.42E+01 5.57E+00 4.31E+02 4.41E+00 4.93E+02 4.41E+00 4.93E+02 1.09E+01 5.65E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F21 F22 F23 F24 F25	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 1.13E+03 9.71E+02 1.76E+02 9.85E+02 9.31E+03 6.07E+02 9.31E+03 6.07E+02 9.31E+03 6.07E+02 9.31E+03 6.07E+02 9.31E+03 6.07E+02 9.31E+03 6.07E+02 9.30E+02 7.54E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 1.15E+04 4.49E+02 2.99E+01 2.64E+01 2.69E+02 3.09E+01 1.85E+01 1.96E+02 5.58E+00 8.28E+02 1.36E+01 1.26E+01 5.58E+00 8.28E+02	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 2.03E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 1.13E+04 1.28E+02 4.50E+01 1.76E+03 1.28E+03 1.28E+03 2.71E+02 1.08E+04 5.66E+02 5.66E+02 9.05E+02 6.71E+02	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 4.75E+01 6.12E+03 4.18E+01 2.82E+02 2.27E+01 6.83E+00 2.05E+02 8.03E+00 3.03	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.02E+03 1.38E+04 6.69E+01 1.14E+03 5.56E+02 9.68E+03 5.56E+02 9.01E+02 7.10E+02	\$\frac{\text{std}}{\text{std}}\$  \$\text{std}\$  0.00E+00 9.96E-08 1.07E+01 5.15E+00 1.19E-06 5.35E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 4.55E+00 3.77E+01 2.41E+02 1.68E+02 3.56E+01 1.03E+01 1.84E+02 8.42E+00 6.61E+02 8.42E+00 4.09E+01		mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01 1.45E+03 5.57E+01 4.79E+01 1.19E+03 5.52E+02 9.78E+03 5.52E+02 9.78E+03	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.14E+01 2.13E+02 1.42E+01 5.57E+00 1.38E+02 4.41E+00 4.93E+02 1.09E+01 5.65E+00 4.34E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F22 F23 F24	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.97E+02 1.97E+02 9.85E+02 9.31E+03 9.31E+03 9.31E+03 9.31E+03 9.31E+03 9.31E+03 9.31E+03	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 1.15E+04 4.49E+02 2.99E+01 2.64E+01 2.69E+02 2.00E+02 3.09E+01 1.85E+01 1.85E+01 1.86E+02 1.96E+02	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 9.45E+01 1.28E+03 8.25E+01 5.52E+01 1.26E+03 2.71E+02 1.08E+04 9.05E+02 9.05E+02 9.05E+02	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.27E+01 6.83E+00 5.51E+02 8.29E+00 5.51E+02 8.03E+00 9.77E+00	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.38E+03 1.38E+02 6.69E+01 1.14E+03 2.56E+02 9.68E+02 9.68E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00 3.77E+01 2.41E+02 1.68E+02 3.56E+01 1.03E+01 1.34E+02 5.21E+00 6.61E+02 8.42E+00 8.42E+00 8.42E+00 8.43E+00		mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 3.91E+01 7.98E+01 1.45E+03 5.57E+01 4.79E+01 1.19E+03 2.51E+02 9.78E+03 8.99E+02	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.77E+00 3.14E+01 2.13E+02 1.42E+01 5.57E+00 4.31E+02 4.41E+00 4.93E+02 4.41E+00 4.93E+02 1.09E+01 5.65E+00
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F20 F21 F22 F22 F24 F25 F26 F27 F27	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.97E+02 1.76E+02 2.59E+02 9.31E+03 6.07E+02 9.30E+02 7.54E+02 9.30E+02	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 1.15E+04 4.49E+02 2.99E+01 2.64E+01 2.69E+02 3.09E+01 1.85E+01 1.85E+01 1.85E+01 1.96E+02 5.58E+00 8.28E+02 1.36E+01 1.06E+02 2.27E+01 3.95E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 1.13E+04 1.28E+02 4.50E+01 9.45E+01 1.26E+03 8.25E+01 5.52E+01 1.26E+03 2.71E+02 1.08E+04 5.66E+02 9.05E+02 6.71E+02 3.19E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 4.75E+01 6.12E+03 4.18E+01 7.49E+01 2.82E+02 2.27E+01 6.83E+00 5.51E+02 8.03E+00 9.77E+00 3.78E+01 9.99E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.38E+03 1.3E+03 2.56E+02 9.68E+03 9.10E+02 7.10E+02 3.10E+03 5.86E+02 5.86E+02 5.86E+02 5.86E+02 5.15E+02	\$\frac{\text{std}}{\text{std}}\$  \$\text{std}\$  0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.15E+00 5.24E+00 0.00E+00 4.84E+02 4.02E+01 4.48E+03 3.30E+01 8.55E+00 3.77E+01 2.41E+02 1.68E+02 3.56E+01 1.03E+01 1.84E+02 8.42E+00 6.61E+02 8.42E+00 4.09E+01 9.92E+01 2.47E+01 2.16E+01		mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 4.95E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01 1.45E+03 5.57E+01 4.79E+01 1.19E+03 2.51E+02 9.78E+03 5.52E+02 9.78E+03 5.52E+02 9.78E+03 5.52E+02 5.13E+02 5.76E+02 5.13E+02	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 3.77E+00 3.14E+01 2.13E+02 1.95E+02 1.42E+01 5.57E+00 4.93E+02 4.41E+00 4.93E+02 1.09E+01 1.09E+01 2.02E+01 2.02E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F27 F26 F27 F27 F28	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 1.13E+03 9.71E+02 1.76E+02 9.85E+02 2.59E+02 9.31E+03 6.07E+02 9.30E+02 6.37E+02 3.28E+03 6.37E+02 3.28E+03 6.37E+02 3.28E+03 6.37E+02 3.28E+03	4 CSM std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.69E+02 2.00E+02 3.09E+01 1.85E+01 1.96E+02 5.58E+00 1.36E+01 1.26E+01 1.26E+01 1.26E+01 1.26E+01 1.26E+01 1.26E+01 1.26E+01 1.36E+01	+++++++++++++++++++++++++++++++++++++++	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 1.38E+04 1.28E+02 4.50E+01 1.76E+03 1.28E+03 8.25E+01 1.26E+03 2.71E+02 5.52E+01 1.08E+04 5.66E+02 9.05E+02 3.19E+03 5.71E+02 3.19E+03 5.71E+02 1.31E+02 1.31E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 6.94E+02 4.75E+01 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.15E+02 2.27E+01 6.83E+00 2.05E+02 8.29E+00 9.77E+00 3.78E+01 9.99E+01 2.10E+01 1.10E+01	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.02E+03 1.38E+03 1.02E+03 5.56E+02 9.01E+02 9.01E+02 3.10E+03 5.86E+02 9.01E+02 5.86E+02 9.11E+02 1.15E+02 1.15E+02 1.15E+02 1.15E+02 1.14E+03	\$\frac{6}{\text{SCSS}}\$  std  0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 4.02E+01 4.84E+02 4.02E+01 8.55E+00 3.77E+01 8.55E+00 1.7E+02 1.68E+02 3.56E+01 1.84E+02 5.21E+00 8.38E+01 1.84E+02 5.21E+00 8.38E+00	=	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01 1.45E+03 1.03E+03 5.57E+01 4.79E+01 1.19E+03 5.52E+02 8.99E+02 8.99E+02 3.10E+03 5.76E+02 3.10E+03 5.76E+02 1.22E+03	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.14E+01 2.13E+02 1.95E+02 1.42E+01 5.57E+00 1.38E+02 4.41E+00 4.93E+02 1.09E+01 5.65E+00 4.34E+01 8.69E+01 2.02E+01 2.55E+01 1.56E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F26 F30 F30 F30 F30 F30 F30 F30 F30 F30 F30	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 2.11E+02 1.97E+02 1.76E+02 2.59E+02 9.31E+03 6.07E+02 9.30E+02 7.54E+02 9.30E+02	4 CSM  std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.69E+02 2.00E+02 3.09E+01 1.85E+01 1.96E+02 5.58E+00 1.36E+01 1.26E+01 5.67E+01 3.95E+01 1.06E+02 2.27E+01 3.95E+01	+ + + + + + + + + + + + + + + + + + + +	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 1.13E+04 1.28E+02 4.50E+01 9.45E+01 1.26E+03 8.25E+01 5.52E+01 1.26E+03 2.71E+02 1.08E+04 5.66E+02 9.05E+02 6.71E+02 3.19E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.15E+02 2.27E+01 6.38E+00 9.77E+00 3.78E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 9.40E+03 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.38E+03 1.3E+03 2.56E+02 9.68E+03 9.10E+02 7.10E+02 3.10E+03 5.86E+02 5.86E+02 5.86E+02 5.86E+02 5.15E+02	\$\frac{6}{\text{SCSS}}\$  std  0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 4.02E+01 4.48E+02 4.02E+01 8.55E+00 3.77E+01 8.55E+00 1.77E+01 1.68E+02 1.68E+02 3.56E+01 1.84E+02 4.241E+02 1.68E+02 3.56E+01 1.84E+02 5.21E+00 8.38E+00 4.09E+01 2.47E+01 2.47E+01 2.16E+01 1.64E+02 1.64E+02 1.64E+02		mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 4.95E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01 1.45E+03 5.57E+01 4.79E+01 1.19E+03 2.51E+02 9.78E+03 5.52E+02 9.78E+03 5.52E+02 9.78E+03 5.52E+02 5.13E+02 5.76E+02 5.13E+02	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 3.77E+00 3.14E+01 2.13E+02 1.95E+02 1.42E+01 5.57E+00 4.93E+02 4.41E+00 4.93E+02 1.09E+01 1.09E+01 2.02E+01 2.02E+01
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F27 F28 F30 F30 F30 F30 F30 F30 F30 F30 F30 F30	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 1.13E+03 9.71E+02 1.76E+02 9.85E+02 2.59E+02 9.31E+03 6.07E+02 9.30E+02 6.37E+02 3.28E+03 6.37E+02 3.28E+03 6.37E+02 3.28E+03 6.37E+02 3.28E+03	4 CSM  std  4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.69E+02 2.00E+02 3.09E+01 1.85E+01 1.85E+01 1.96E+02 5.58E+00 8.28E+02 2.27E+01 3.95E+01 1.26E+01 5.67E+01	+++++++++++++++++++++++++++++++++++++++	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 1.38E+04 1.28E+02 4.50E+01 1.76E+03 1.28E+03 8.25E+01 1.26E+03 2.71E+02 5.52E+01 1.08E+04 5.66E+02 9.05E+02 3.19E+03 5.71E+02 3.19E+03 5.71E+02 1.31E+02 1.31E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 1.04E-05 7.68E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 6.83E+02 2.27E+01 6.83E+00 2.05E+02 8.29E+00 5.51E+02 8.03E+00 9.77E+00 3.78E+01 2.10E+01 1.73E+02 1.35E+02	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.02E+03 1.38E+03 1.02E+03 5.56E+02 9.01E+02 9.01E+02 3.10E+03 5.86E+02 9.01E+02 5.86E+02 9.11E+02 1.15E+02 1.15E+02 1.15E+02 1.15E+02 1.14E+03	6 SCSS std 0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.15E+00 5.35E+00 5.24E+00 4.02E+01 4.48E+02 4.02E+01 8.55E+00 3.77E+01 8.55E+00 1.03E+01 1.84E+02 5.21E+00 6.61E+02 5.21E+00 6.61E+02 5.21E+00 6.16E+02 1.64E+02 1.64E+02 1.64E+02 1.64E+02 1.64E+02 1.64E+02 1.64E+02 1.64E+02	=	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01 1.45E+03 1.03E+03 5.57E+01 4.79E+01 1.19E+03 5.52E+02 8.99E+02 8.99E+02 3.10E+03 5.76E+02 3.10E+03 5.76E+02 1.22E+03	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.14E+01 2.13E+02 1.95E+02 1.42E+01 5.57E+00 1.38E+02 4.41E+00 4.93E+02 1.09E+01 5.65E+00 4.34E+01 8.69E+01 2.02E+01 2.55E+01 1.56E+02
F1 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28 F30 F30 F30 F30 F30 F30 F30 F30 F30 F30	3.42E+01 0.00E+00 1.85E+02 3.33E+01 1.54E-03 1.21E+02 3.22E+01 7.31E-02 9.10E+03 4.08E+02 4.81E+04 3.71E+03 2.50E+02 1.13E+03 9.71E+02 1.76E+02 9.85E+02 2.59E+02 9.31E+03 6.07E+02 9.30E+02 6.37E+02 3.28E+03 6.37E+02 3.28E+03 6.37E+02 3.28E+03 6.37E+02 3.28E+03	4 CSM  std 4.19E+01 0.00E+00 3.18E+01 4.12E+00 1.84E-03 3.77E+00 4.64E+00 2.31E-01 7.00E+02 5.18E+01 1.15E+04 4.49E+02 2.99E+01 2.69E+02 2.00E+02 3.09E+01 1.85E+01 1.96E+02 5.58E+00 1.36E+01 1.26E+01 5.67E+01 3.95E+01 1.06E+02 2.27E+01 3.95E+01	+++++++++++++++++++++++++++++++++++++++	0.00E+00 2.23E-04 2.00E+02 4.76E+01 2.37E-05 1.49E+02 4.84E+01 0.00E+00 9.75E+03 1.14E+02 4.50E+01 1.38E+04 1.28E+02 4.50E+01 1.76E+03 1.28E+03 8.25E+01 1.26E+03 2.71E+02 5.52E+01 1.08E+04 5.66E+02 9.05E+02 3.19E+03 5.71E+02 3.19E+03 5.71E+02 1.31E+02 1.31E+03	4 UM std 0.00E+00 2.14E-04 1.04E+01 8.43E+00 7.70E+00 0.00E+00 6.94E+02 4.75E+01 6.12E+03 4.18E+01 7.49E+00 4.19E+01 2.82E+02 2.15E+02 2.27E+01 6.38E+00 9.77E+00 3.78E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01 2.10E+01	= + + + + + + + + + + + + + + + + + + +	0.00E+00 7.25E-08 1.94E+02 3.24E+01 1.80E-06 1.29E+02 3.14E+01 0.00E+00 9.15E+03 6.98E+01 1.40E+02 5.63E+01 1.28E+02 1.38E+03 1.02E+03 1.38E+03 1.02E+03 5.56E+02 9.01E+02 9.01E+02 3.10E+03 5.86E+02 9.01E+02 5.86E+02 9.11E+02 1.15E+02 1.15E+02 1.15E+02 1.15E+02 1.14E+03	\$\frac{6}{\text{SCSS}}\$  std  0.00E+00 9.96E-08 1.07E+01 5.15E+00 5.35E+00 5.24E+00 4.02E+01 4.48E+02 4.02E+01 8.55E+00 3.77E+01 8.55E+00 1.77E+01 1.68E+02 1.68E+02 3.56E+01 1.84E+02 4.241E+02 1.68E+02 3.56E+01 1.84E+02 5.21E+00 8.38E+00 4.09E+01 2.47E+01 2.47E+01 2.16E+01 1.64E+02 1.64E+02 1.64E+02	=	mean 0.00E+00 2.11E-07 2.03E+02 2.57E+01 1.97E-05 1.27E+02 2.64E+01 0.00E+00 8.97E+03 4.85E+01 4.95E+03 7.13E+01 7.98E+01 1.45E+03 1.03E+03 5.57E+01 4.79E+01 1.19E+03 5.52E+02 8.99E+02 8.99E+02 3.10E+03 5.76E+02 3.10E+03 5.76E+02 1.22E+03	std  0.00E+00 2.35E-07 1.14E+01 3.41E+00 1.20E-05 3.32E+00 3.90E+00 0.00E+00 4.66E+02 3.20E+01 8.95E+02 2.76E+01 3.14E+01 2.13E+02 1.95E+02 1.42E+01 5.57E+00 1.38E+02 4.41E+00 4.93E+02 1.09E+01 5.65E+00 4.34E+01 8.69E+01 2.02E+01 2.55E+01 1.56E+02

Table S3 Performance comparison of ESADE with the variants on 50-D CEC2017 benchmark set over 51 independent runs

	var	iant-reverse		Var	iant-random		Vai	riant-Amean		ESA	ADE
	mean	std	sig	mean	std	sig	mean	std	sig	mean	std
F1	1.09E-08	3.91E-08	+	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F3	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F4	4.33E+01	3.35E+01	=	4.37E+01	4.23E+01	-	7.28E+01	4.59E+01	=	7.56E+01	5.21E+01
F5	3.80E+01	5.34E+01	+	1.72E+01	2.75E+00	+	1.48E+01	2.16E+00	+	1.25E+01	2.06E+00
F6	6.64E-08	1.09E-07	-	1.28E-07	1.92E-07	-	8.36E-08	1.59E-07	-	1.02E-06	1.24E-06
F7	1.33E+02	9.71E+01	+	6.95E+01	2.66E+00	+	6.43E+01	1.77E+00	=	6.42E+01	2.13E+00
F8	2.96E+01	5.96E+00	+	1.67E+01	3.28E+00	+	1.53E+01	2.00E+00	+	1.34E+01	2.24E+00
F9	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00	=	0.00E+00	0.00E+00
F10	1.02E+04	2.12E+03	+	3.09E+03	3.67E+02	=	3.25E+03	2.82E+02	+	3.04E+03	3.47E+02
F11	3.54E+01	4.99E+00	+	2.32E+01	2.62E+00	+	3.19E+01	6.40E+00	+	2.16E+01	2.49E+00
F12	2.58E+03	5.52E+02	+	1.61E+03	3.77E+02	+	1.95E+03	5.21E+02	+	8.55E+02	3.13E+02
F13	1.10E+02	5.91E+01	+	5.65E+01	3.58E+01	+	5.62E+01	3.79E+01	=	4.43E+01	2.93E+01
F14	5.57E+01	1.48E+01	+	2.60E+01	2.11E+00	+	2.62E+01	2.20E+00	+	2.35E+01	1.25E+00
F15	5.58E+01	1.37E+01	+	2.46E+01	3.66E+00	+	2.99E+01	5.05E+00	+	2.03E+01	1.80E+00
F16	7.89E+02	6.44E+02	+	3.03E+02	1.15E+02	=	3.83E+02	1.09E+02	+	3.00E+02	1.25E+02
F17	1.11E+03	3.44E+02	+	2.44E+02	8.14E+01	+	2.71E+02	7.02E+01	+	2.09E+02	8.32E+01
F18	4.59E+01	1.11E+01	+	2.63E+01	3.03E+00	+	2.69E+01	2.87E+00	+	2.27E+01	1.15E+00
F19	3.60E+01	6.32E+00	+	1.73E+01	2.83E+00	+	2.01E+01	3.06E+00	+	1.32E+01	1.87E+00
F20	6.25E+02	2.55E+02	+	1.09E+02	5.34E+01	=	1.19E+02	3.00E+01	=	1.21E+02	5.21E+01
F21	2.47E+02	6.41E+01	+	2.18E+02	2.96E+00	+	2.16E+02	2.19E+00	+	2.15E+02	2.35E+00
F22	8.19E+02	2.92E+03	-	1.46E+03	1.72E+03	-	1.92E+03	1.86E+03	=	2.51E+03	1.67E+03
F23	4.45E+02	4.12E+01	+	4.31E+02	3.88E+00	+	4.32E+02	5.65E+00	+	4.27E+02	4.89E+00
F24	5.10E+02	4.33E+00	+	5.06E+02	3.46E+00	=	5.10E+02	3.47E+00	+	5.07E+02	3.27E+00
F25	4.94E+02	2.08E+01	+	4.81E+02	2.89E+00	=	4.84E+02	1.03E+01	+	4.81E+02	2.81E+00
F26	1.20E+03	3.78E+02	+	1.08E+03	5.40E+01	=	1.14E+03	4.50E+01	+	1.09E+03	4.91E+01
F27	5.31E+02	1.43E+01	+	5.25E+02	1.35E+01	+	5.30E+02	2.17E+01	+	5.17E+02	1.27E+01
F28	4.89E+02	2.35E+01	+	4.58E+02	6.74E+00	-	4.70E+02	2.12E+01	+	4.58E+02	1.73E-01
F29	4.22E+02	1.24E+02	+	3.55E+02	1.12E+01	=	3.85E+02	1.66E+01	+	3.59E+02	1.05E+01
F30	6.32E+05	5.30E+04	-	6.34E+05	4.54E+04	=	6.42E+05	6.98E+04	=	6.31E+05	5.25E+04
W		23			14			19			
T		4			11			9			
L	2				4			1			

Table S4
Comparison of ESA with other multi-strategy methods on the real-world problems

		Sa			EPS			SaM	
	mean	std	sig	mean	std	sig	mean	std	sig
Parameter Estimation for Frequency Modulated (FM) Sound Waves	1.74E+00	4.11E+00	=	5.98E-01	2.42E+00	=	1.42E+00	3.60E+00	=
Lennard-Jones Potential Problem	-2.76E+01	4.56E-01	+	-2.76E+01	4.66E-01	+	-2.77E+01	3.96E-01	+
Tersoff Potential for model Si (B)	-3.68E+01	2.41E-01	=	-3.68E+01	2.11E-01	=	-3.68E+01	1.78E-01	=
Tersoff Potential for model Si (C)	-2.92E+01	2.16E-04	+	-2.92E+01	2.52E-04	+	-2.92E+01	1.96E-04	+
Circular Antenna Array Design Problem	-2.16E+01	1.04E-01	=	-2.16E+01	8.00E-02	=	-2.16E+01	9.69E-02	=
ELD Problems: DED instance 1	4.67E+04	3.89E+02	+	4.67E+04	3.56E+02	+	4.64E+04	3.31E+02	+
ELD Instance 4	1.23E+05	4.90E+02	+	1.23E+05	4.09E+02	+	1.23E+05	4.95E+02	+
Hydrothermal Scheduling Instance 1	9.25E+05	5.91E+02	+	9.25E+05	5.99E+02	+	9.25E+05	6.51E+02	+
+		5			5			5	
=	3				3			3	

	CSM			UM			SCSS		ES	SA
mean	std	sig	mean	std	sig	mean	std	sig	mean	std
1.66E+01	4.52E+00	+	6.35E-01	2.57E+00	+	1.26E+00	3.48E+00	=	5.98E-01	2.42E+00
-2.79E+01	4.97E-01	=	-2.74E+01	5.44E-01	+	-2.77E+01	4.32E-01	=	-2.79E+01	4.22E-01
-3.66E+01	4.16E-01	=	-3.68E+01	3.40E-01	=	-3.68E+01	2.08E-01	-	-3.68E+01	2.57E-01
-2.92E+01	4.44E-04	-	-2.92E+01	4.84E-04	+	-2.92E+01	6.89E-05	-	-2.92E+01	6.11E-05
-2.15E+01	9.77E-02	+	-2.17E+01	9.86E-02	=	-2.16E+01	8.77E-02	+	-2.17E+01	8.94E-02
4.76E+04	3.92E+02	+	4.71E+04	4.03E+02	+	4.66E+04	3.40E+02	+	4.61E+04	3.75E+02
1.24E+05	4.75E+02	+	1.22E+05	2.57E+02	=	1.23E+05	3.96E+02	+	1.22E+05	3.03E+02
9.26E+05	6.28E+02	+	9.25E+05	5.14E+02	+	9.25E+05	6.92E+02	+	9.25E+05	5.41E+02
	<b>5</b> 2			<b>5</b> 3			<b>4</b> 2			
	1			0			2			

Table S5 Comparison of ESA with single mutation strategy on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

	30-D						50-D									
	SHADE-rand/1			SHADE- current-to-pbest/1			ESA-SHADE		SHADE-rand/1			SHADE- current-to-pbest/1			ESA-SHADE	
	mean	std	sig	mean	std	sig	mean	std	mean	std	sig	mean	std	sig	mean	std
F1	0.00E+00	0.00E+00	=	1.11E-14	5.90E-15	+	0.00E+00	0.00E+00	3.78E+03	3.60E+03	+	4.65E-14	1.75E-14	+	0.00E+00	0.00E+00
F3	3.39E+04	5.10E+04	+	7.58E-14	3.53E-14	+	2.00E+03	1.43E+04	9.35E+04	1.13E+05	+	3.43E-13	1.12E-13	-	7.51E-05	4.84E-04
F4	5.77E+01	7.70E+00	+	5.58E+01	1.42E+01	-	5.87E+01	7.78E-01	8.32E+01	5.50E+01	+	5.67E+01	4.49E+01	=	6.24E+01	4.30E+01
F5	3.75E+01	8.62E+00	+	1.47E+01	3.07E+00	=	1.83E+01	1.01E+01	7.41E+01	1.12E+01	+	3.25E+01	5.49E+00	+	2.69E+01	5.17E+00
F6	3.55E-07	8.05E-07	=	2.59E-05	2.85E-05	+	3.49E-07	5.83E-07	6.99E-06	1.37E-05	=	8.16E-04	9.69E-04	+	7.34E-06	1.07E-05
F7	6.78E+01	8.60E+00	+	4.43E+01	2.63E+00	=	4.53E+01	6.25E+00	1.23E+02	1.52E+01	+	8.18E+01	4.98E+00	+	7.75E+01	7.14E+00
F8	3.68E+01	6.88E+00	+	1.62E+01	2.95E+00	=	1.85E+01	6.35E+00	7.59E+01	1.34E+01	+	3.16E+01	4.83E+00	+	2.69E+01	4.48E+00
F9	1.42E-02	6.64E-02	=	2.65E-02	7.31E-02	+	1.23E-02	3.59E-02	5.33E-01	6.11E-01	+	9.36E-01	6.54E-01	+	3.33E-01	4.51E-01
F10	2.36E+03	2.32E+02	+	1.69E+03	2.52E+02	=	1.78E+03	2.46E+02	4.42E+03	2.42E+02	+	3.34E+03	3.29E+02	=	3.41E+03	3.20E+02
F11	2.75E+01	2.34E+01	=	2.91E+01	2.39E+01	-	2.85E+01	2.43E+01	7.94E+01	2.20E+01	-	1.34E+02	3.67E+01	+	7.72E+01	2.15E+01
F12	8.08E+03	8.28E+03	+	1.28E+03	3.99E+02	-	3.72E+03	3.88E+03	6.49E+04	3.68E+04	+	5.42E+03	3.88E+03	-	2.40E+04	1.64E+04
F13	3.17E+01	1.26E+01	=	3.74E+01	2.19E+01	+	2.93E+01	1.09E+01	1.48E+03	1.97E+03	+	2.84E+02	2.14E+02	+	1.31E+02	7.51E+01
F14	2.86E+01	1.04E+01	+	2.98E+01	5.50E+00	+	2.57E+01	8.00E+00	7.35E+01	1.73E+01	=	2.13E+02	6.49E+01	+	7.26E+01	2.25E+01
F15	1.40E+01	8.57E+00	+	2.27E+01	1.60E+01	+	1.07E+01	4.70E+00	1.11E+02	5.30E+01	+	3.09E+02	1.38E+02	+	8.49E+01	4.21E+01
F16	5.38E+02	1.64E+02	+	2.56E+02	1.29E+02	=	3.00E+02	1.42E+02	1.08E+03	1.92E+02	+	7.58E+02	1.70E+02	=	7.78E+02	2.31E+02
F17	9.59E+01	2.80E+01	+	4.78E+01	1.24E+01	-	5.16E+01	1.20E+01	8.02E+02	1.33E+02	+	5.19E+02	1.45E+02	=	4.88E+02	1.11E+02
F18	3.28E+03	2.32E+04	=	7.84E+01	4.73E+01	+	3.12E+01	1.29E+01	2.97E+04	2.05E+05	+	2.00E+02	1.31E+02	=	1.81E+02	1.74E+02
F19	1.05E+01	4.51E+00	=	1.29E+01	7.34E+00	+	9.02E+00	2.76E+00	5.07E+01	2.49E+01	=	1.48E+02	5.02E+01	+	5.62E+01	2.07E+01
F20	1.31E+02	5.36E+01	+	7.09E+01	5.01E+01	-	7.38E+01	4.73E+01	6.08E+02	1.39E+02	+	3.22E+02	1.26E+02	-	3.56E+02	1.22E+02
F21	2.40E+02	8.69E+00	+	2.17E+02	3.24E+00	=	2.19E+02	7.34E+00	2.77E+02	1.37E+01	+	2.35E+02	5.69E+00	+	2.30E+02	6.26E+00
F22	1.00E+02	2.14E-13	=	1.00E+02	1.68E-13	-	1.00E+02	2.14E-13	3.64E+03	2.23E+03	+	3.18E+03	1.57E+03	-	3.57E+03	1.30E+03
F23	3.87E+02	7.92E+00	+	3.64E+02	5.56E+00	=	3.65E+02	7.55E+00	4.93E+02	1.65E+01	+	4.59E+02	9.24E+00	+	4.52E+02	1.49E+01
F24	4.59E+02	1.11E+01	+	4.35E+02	4.38E+00	=	4.36E+02	8.82E+00	5.73E+02	1.66E+01	+	5.31E+02	6.80E+00	+	5.24E+02	8.81E+00
F25	3.87E+02	1.62E-01	+	3.87E+02	2.39E-01	=	3.87E+02	9.48E-02	4.92E+02	2.88E+01	=	5.11E+02	3.96E+01	=	4.92E+02	2.65E+01
F26	1.36E+03	1.17E+02	+	1.08E+03	4.94E+01	-	1.13E+03	1.32E+02	1.84E+03	1.61E+02	+	1.43E+03	9.89E+01	+	1.38E+03	1.25E+02
F27	5.06E+02	6.40E+00	+	5.05E+02	5.37E+00	+	5.01E+02	6.93E+00	5.67E+02	2.94E+01	+	5.44E+02	2.15E+01	+	5.35E+02	2.00E+01
F28	3.54E+02	5.96E+01	+	3.46E+02	6.11E+01	-	3.27E+02	4.87E+01	4.67E+02	1.85E+01	+	4.90E+02	2.29E+01	+	4.65E+02	1.58E+01
F29	4.83E+02	7.11E+01	=	4.61E+02	2.37E+01	=	4.80E+02	5.96E+01	5.82E+02	1.71E+02	+	4.56E+02	8.32E+01	=	4.79E+02	1.52E+02
F30	2.11E+03	9.31E+01	+	2.09E+03	1.27E+02	=	2.07E+03	1.17E+02	6.17E+05	4.37E+04	=	6.94E+05	8.59E+04	+	6.28E+05	4.67E+04
W	20			10						23		18				
T	9			16					6			9				
L	0			3					0			2				

Table S5 Comparison of ESA with single mutation strategy on 30-D, 50-D and 100-D CEC2017 benchmark set over 51 independent runs

				100	)-D			
	SHA	ADE-rand/1		ı	SHADE- nt-to-pbest/1	ESA-SHADE		
	mean	std	sig	mean	std	sig	mean	std
F1	5.83E+03	6.44E+03	+	3.26E-10	7.32E-10	+	0.00E+00	0.00E+00
F3	3.01E+05	2.77E+05	+	3.37E-06	2.02E-05	-	1.14E+03	7.60E+03
F4	2.14E+02	1.52E+01	+	1.41E+02	6.61E+01	-	1.94E+02	1.72E+01
F5	1.67E+02	3.60E+01	+	1.01E+02	1.34E+01	+	6.45E+01	8.97E+00
F6	5.05E-05	5.30E-05	=	7.84E-02	5.02E-02	+	5.68E-05	4.07E-05
F7	2.55E+02	3.29E+01	+	2.07E+02	1.25E+01	+	1.68E+02	2.03E+01
F8	1.74E+02	3.98E+01	+	9.93E+01	1.18E+01	+	6.22E+01	7.76E+00
F9	4.88E+00	3.58E+00	=	2.68E+01	1.99E+01	+	4.29E+00	3.46E+00
F10	1.15E+04	5.02E+02	+	9.36E+03	4.43E+02	=	9.42E+03	5.35E+02
F11	1.75E+04	2.55E+04	+	1.05E+03	2.04E+02	+	3.53E+02	1.33E+02
F12	4.10E+05	1.77E+05	+	2.08E+04	1.23E+04	-	7.74E+04	3.65E+04
F13	2.53E+03	2.23E+03	+	6.80E+02	9.00E+02	-	1.37E+03	1.97E+03
F14	9.15E+03	8.33E+03	+	6.11E+02	2.59E+02	=	6.75E+02	5.99E+02
F15	7.98E+02	7.25E+02	+	3.64E+02	8.54E+01	+	3.47E+02	3.65E+02
F16	3.14E+03	2.57E+02	+	2.35E+03	3.09E+02	=	2.39E+03	3.04E+02
F17	2.44E+03	3.46E+02	+	1.88E+03	2.47E+02	+	1.71E+03	2.67E+02
F18	5.72E+05	1.81E+06	+	1.57E+03	1.16E+03	-	1.39E+04	1.08E+04
F19	1.43E+03	1.79E+03	+	2.92E+02	2.02E+02	+	4.70E+02	1.84E+03
F20	2.32E+03	2.40E+02	+	1.64E+03	2.51E+02	=	1.75E+03	2.08E+02
F21	3.96E+02	4.39E+01	+	3.27E+02	1.20E+01	+	2.92E+02	9.15E+00
F22	1.27E+04	4.43E+02	+	1.06E+04	5.58E+02	=	1.07E+04	5.85E+02
F23	6.50E+02	2.43E+01	+	6.13E+02	1.50E+01	+	5.87E+02	1.13E+01
F24	1.03E+03	3.48E+01	+	9.92E+02	2.41E+01	+	9.44E+02	1.15E+01
F25	7.69E+02	5.38E+01	+	7.40E+02	5.89E+01	=	7.25E+02	3.79E+01
F26	4.76E+03	3.42E+02	+	4.17E+03	2.16E+02	+	3.65E+03	1.21E+02
F27	7.35E+02	3.54E+01	+	6.72E+02	2.64E+01	=	6.71E+02	2.66E+01
F28	5.58E+02	2.82E+01	+	5.16E+02	3.86E+01	-	5.36E+02	3.02E+01
F29	2.41E+03	3.68E+02	+	2.12E+03	3.06E+02	+	1.87E+03	3.45E+02
F30	4.53E+03	1.32E+03	+	2.69E+03	3.28E+02	=	2.60E+03	2.44E+02
W		27			15			
T	2				8			
L		0		6				