Configuration analysis with performance metrics and statistical validation

Configuration	SCI Score (gCO$_2$eq/scenario)					Duration (sec)	Power (W)	Success Rate (%)	Effect Size	Bootstrap CI (95%)	Original p-value	Holm p-value	Achieved Power
	Mean	Std	Min	Max	Median								
P1_E1 Baseline	0.457	0.031	0.442	0.546	0.447	5169	41.81	99.74	–	–	–	–	–
P2_E1_parallel_4_lookahead_default	0.457	0.031	0.441	0.544	0.448	5172	41.73	99.74	0.00	-0.86 – 0.86	0.970	1.0	0.24
P2_E1_parallel_16_lookahead_default	0.433	0.036	0.394	0.504	0.445	4885	42.03	99.87	0.71	-0.12 – 1.68	0.385	1.0	0.24
P2_E1_parallel_default_lookahead_12	0.445	0.017	0.399	0.460	0.449	5022	41.98	99.87	0.48	-1.11 – 1.01	0.678	1.0	0.24
P2_E1_parallel_default_lookahead_48	0.440	0.032	0.399	0.498	0.449	4959	42.03	100.0	0.56	-0.40 – 1.37	0.970	1.0	0.24
P2_E2_reduced	0.448	0.023	0.398	0.496	0.448	5056	41.94	100.0	0.34	-0.67 – 1.00	0.970	1.0	0.52
P2_E2_minimal	0.427	0.025	0.395	0.449	0.443	4806	42.19	100.0	1.06	0.59 – 1.96	0.045	1.0	0.52
P2_E3_extended_expiration	0.430	0.024	0.390	0.450	0.441	4902	40.96	99.87	0.99	0.59 – 1.71	0.021	0.63	0.69
P2_E3_larger_cache	0.438	0.025	0.388	0.459	0.447	5014	40.67	100.0	0.67	-0.32 – 1.25	0.678	1.0	0.69
P2_E4_no_compression	0.438	0.027	0.390	0.487	0.443	5004	40.76	99.87	0.68	-0.11 – 1.39	0.054	1.0	0.48
P2_E5_MemoryConservation	**0.322**	0.024	0.304	0.359	0.307	**3670**	41.19	100.0	**4.79**	**3.83 – 11.70**	**0.00018**	**0.010**	**1.0**
P2_E5_DynamicAdaptation	**0.317**	0.021	0.306	0.357	0.307	**3604**	41.33	100.0	**5.25**	**4.03 – 48.20**	**0.00018**	**0.010**	**1.0**
P2_E5_ThreadEfficient	**0.322**	0.025	0.303	0.361	0.306	**3663**	41.27	99.74	**4.75**	**3.80 – 11.36**	**0.00018**	**0.010**	**1.0**
P2_E5_ReducedFootprint	**0.320**	0.024	0.303	0.355	0.306	**3646**	41.17	100.0	**4.91**	**3.92 – 12.02**	**0.00018**	**0.010**	**1.0**
P3_E1_Carbon-Optimized	**0.340**	0.026	0.307	0.362	0.359	**3866**	41.26	100.0	**4.10**	**3.52 – 7.55**	**0.00018**	**0.010**	**1.0**