

# Scientific Benchmark Report

BoolMinGeo vs PyEDA (5-8 Variables)

---

3D K-map approach vs symbolic simplification

Experiment Date: 2026-01-09

Random Seed: 42

Total Test Cases: 210

*A Rigorous Statistical Analysis*

## BENCHMARK SUMMARY

=====  
Total Tests: 210  
Configurations: 2

## RESULTS BY CONFIGURATION

### 5-variable SOP:

Tests: 105  
Mean PyEDA Time: 0.000213 s  
Mean BoolMinGeo Time: 0.000872 s  
Speedup: 0.24x  
Time Significant: YES

### 6-variable SOP:

Tests: 105  
Mean PyEDA Time: 0.000477 s  
Mean BoolMinGeo Time: 0.001623 s  
Speedup: 0.29x  
Time Significant: YES