



# Benchmark Implementation Guidelines

This supplementary section provides implementation guidance for colony cognitive security benchmarks introduced in Part 1, Section S05.

## Hardware Specifications

All benchmarks reported in this paper were executed on the following hardware:

Table 1: Benchmark hardware configuration.

Component	Specification
CPU	AMD EPYC 7763 (64 cores, 128 threads)
RAM	256 GB DDR4-3200
Storage	2 TB NVMe SSD
Network	25 Gbps Ethernet
OS	Ubuntu 22.04 LTS
Python	3.11.5
PyTorch	2.1.0

**Reproducibility:** Results may vary on different hardware configurations. For consistent benchmarking, we recommend using