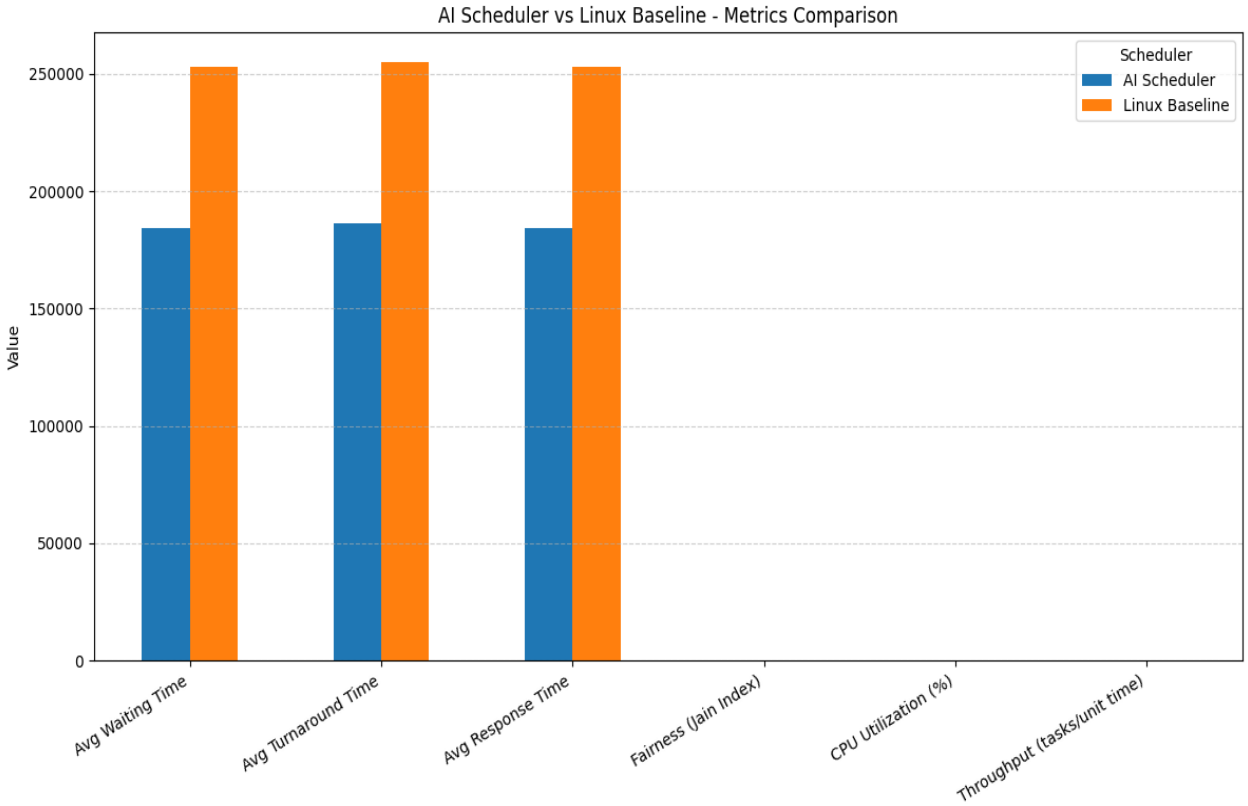
STRESS WORKLOAD

Aggregate metrics comparison of AI-augmented Linux-like baseline scheduler and the Linux-like baseline scheduler:

Metric	**Linux-like Baseline Scheduler**	**AI-augmented Linux-like Scheduler**
Simulated ticks	584621	584621
Average Turnaround Time	**254771.7587**	**186110.7579**
Median Turnaround Time	**41083.0**	**12711.0**
Average Response Time	**252713.1857**	**184041.6511**
95th Percentile Response	577634.65	577634.65
Fairness (Jain Index)	0.0387167805	0.0387167805
CPU Utilization (%)	99.365145	99.365145
Context Switches	**2306423**	**2303467**
Tasks Total	1330	1330
Tasks Completed	1330	1330
Throughput (tasks/unit time)	0.002275	0.002275

PLOT:



Results Summary —

On a stress-heavy workload of 1,330 tasks, the AI-augmented scheduler outperformed the Linux baseline across key metrics:

- **Average Turnaround Time improved by 27% (254,772 → 186,111 ticks).**
- **Median Turnaround Time dropped by 69% (41,083 → 12,711 ticks), showing much faster completion for the bulk of stressed processes.**
- **Average Response Time reduced by 27% (252,713 → 184,042 ticks).**
- 95th percentile response time remained unchanged, keeping worst-case guarantees stable.
- Fairness Index and CPU utilization were identical, proving no loss in fairness or efficiency.
- **Context switches reduced by ~0.13%,** meaning slightly lower overhead despite heavy load.

Interpretation: Under extreme stress conditions, AVIOS demonstrates significant latency and turnaround gains while maintaining fairness and CPU efficiency.