



Adapting the Massively-Parallel Monte Carlo Radiation Transport Code Shift to Solve Time-Dependent Neutron Transport



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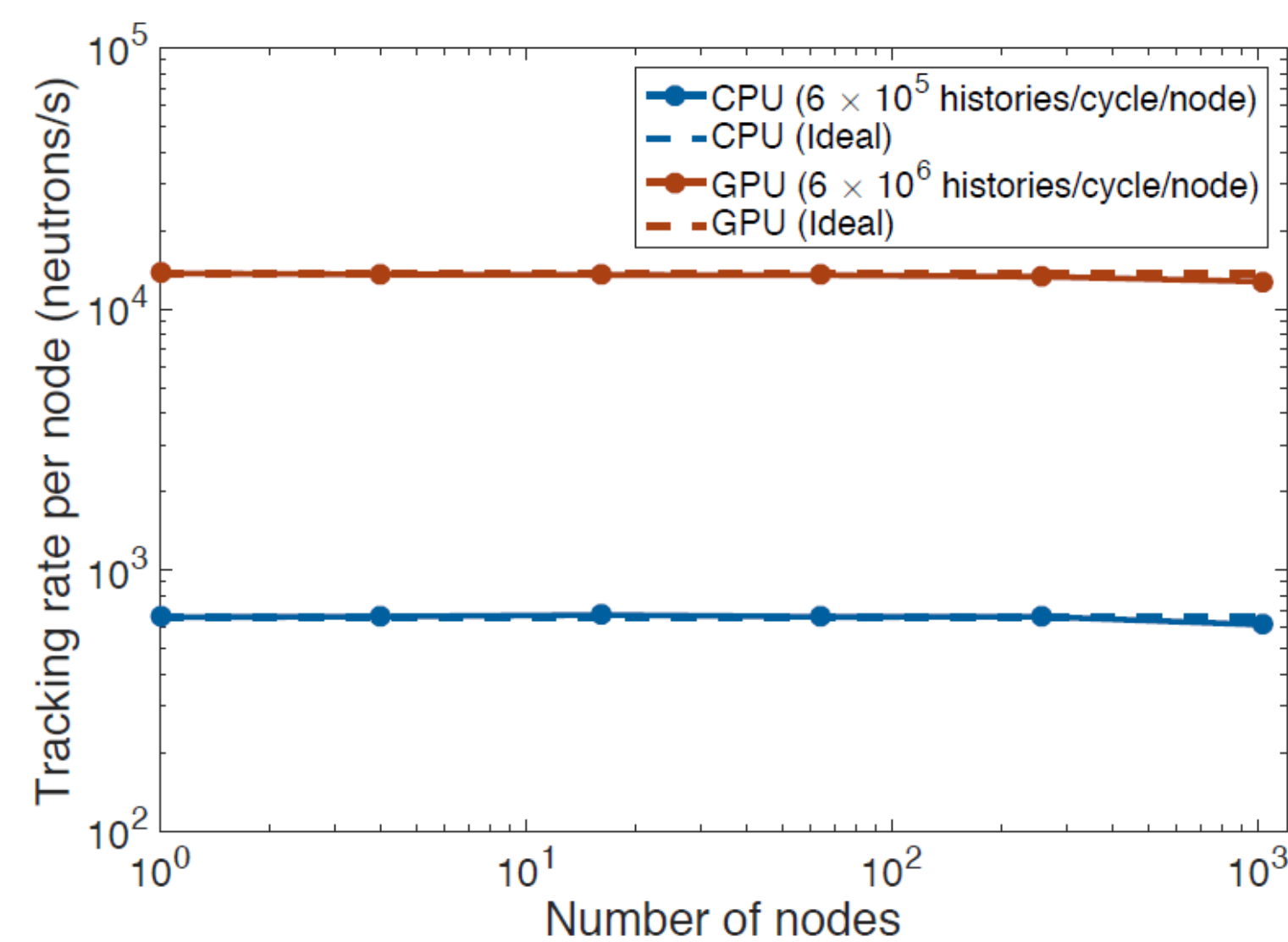
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Objective

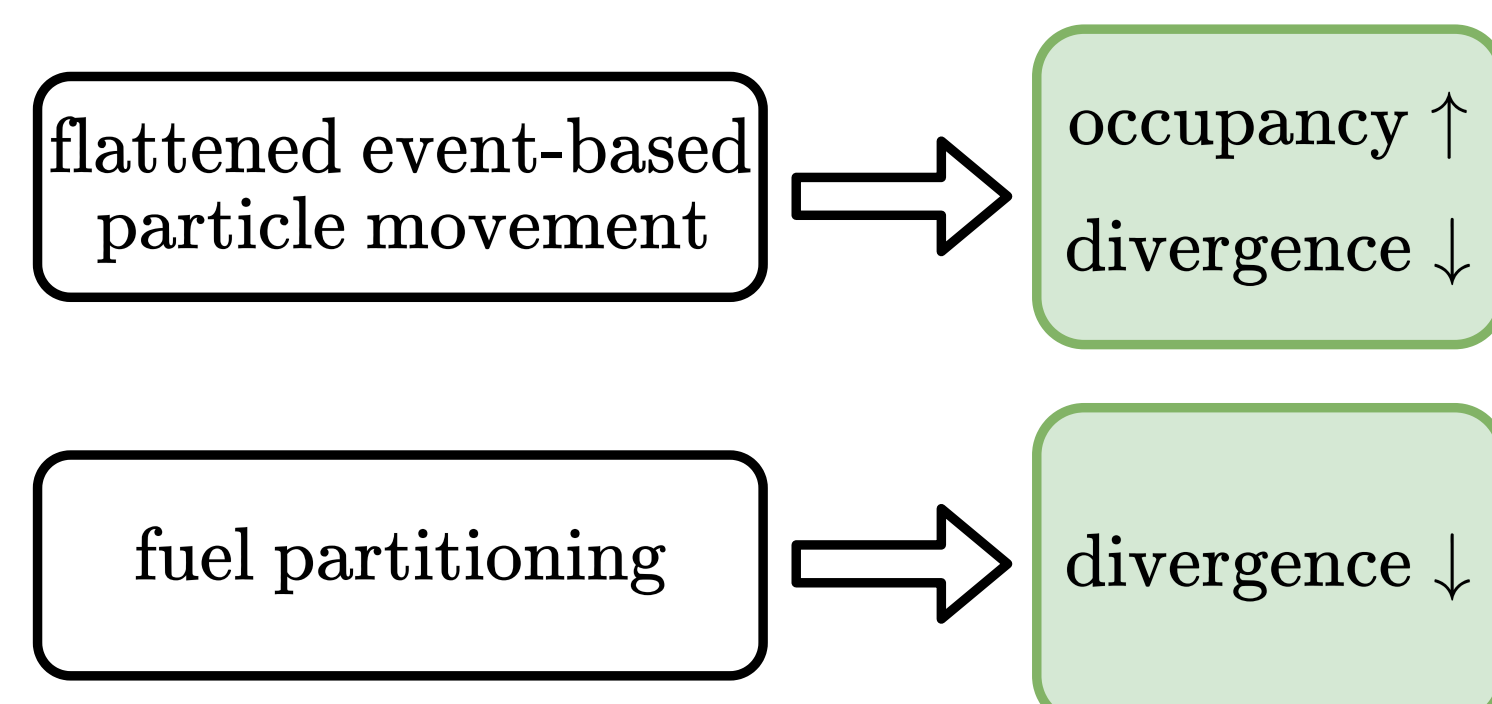
Determine if modifications to Shift curtailed performance

Shift

- Monte Carlo neutron transport code performant on up to 1000 Summit nodes

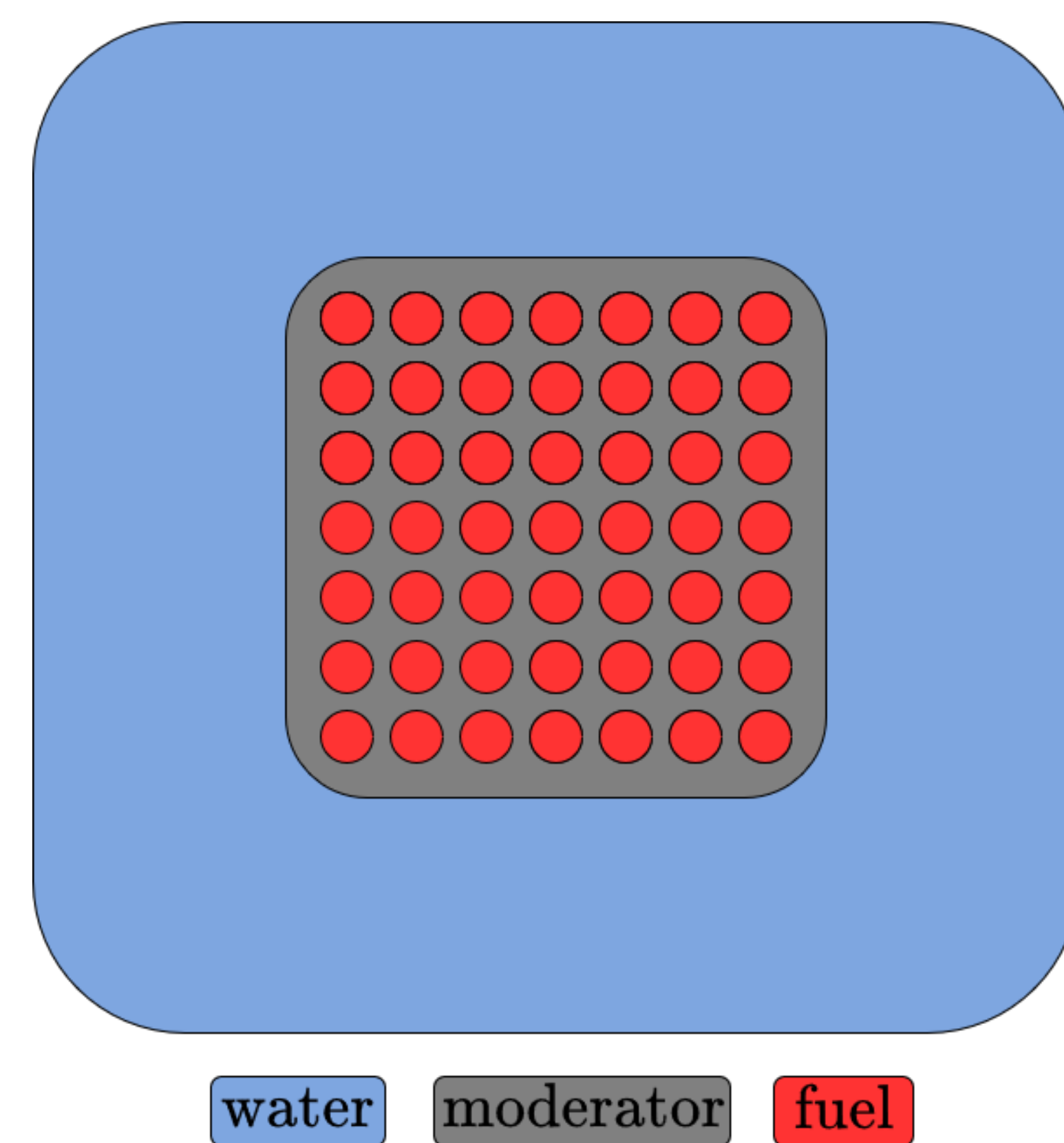


From Hamilton et al.[1]

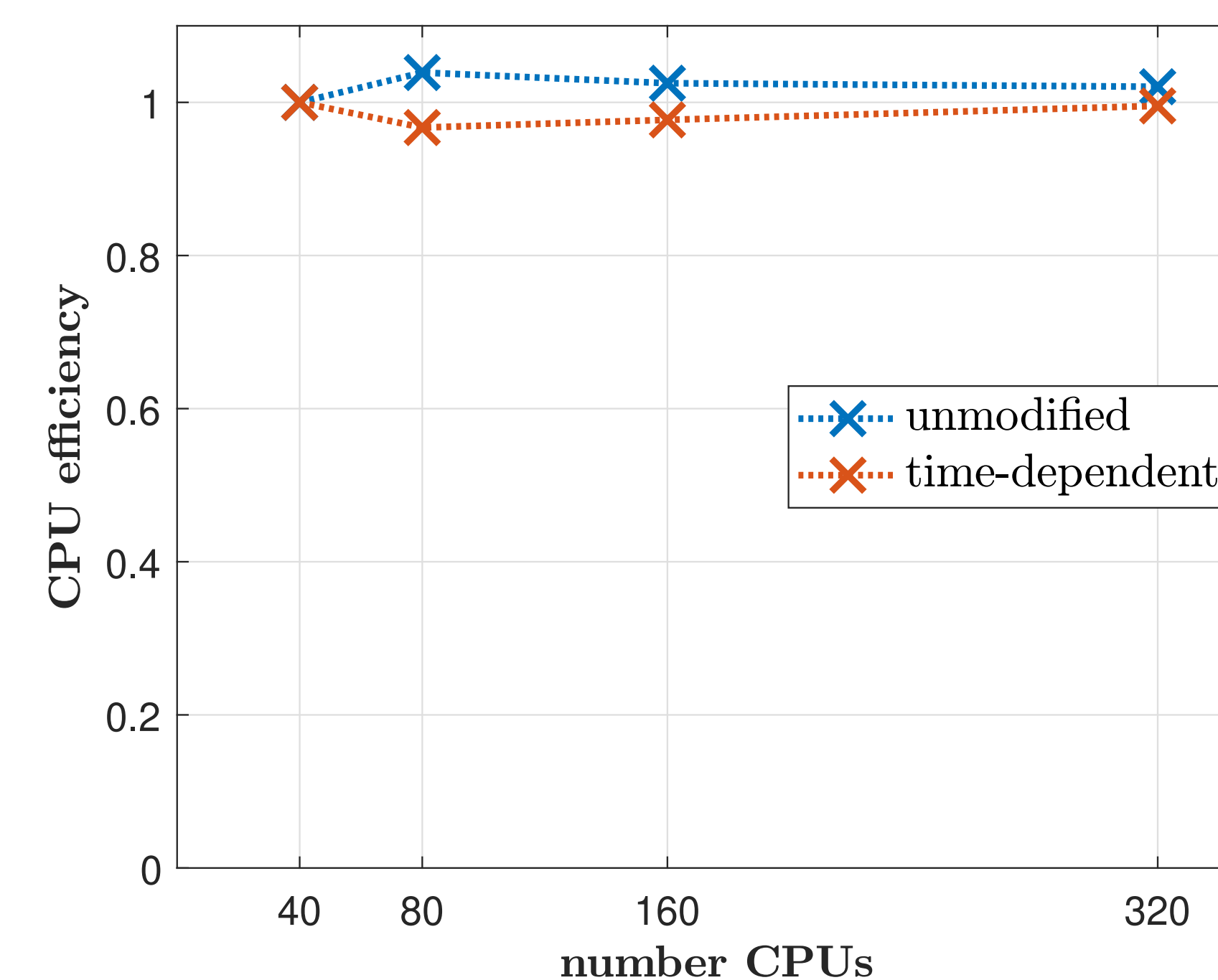


A Brief Performance Analysis

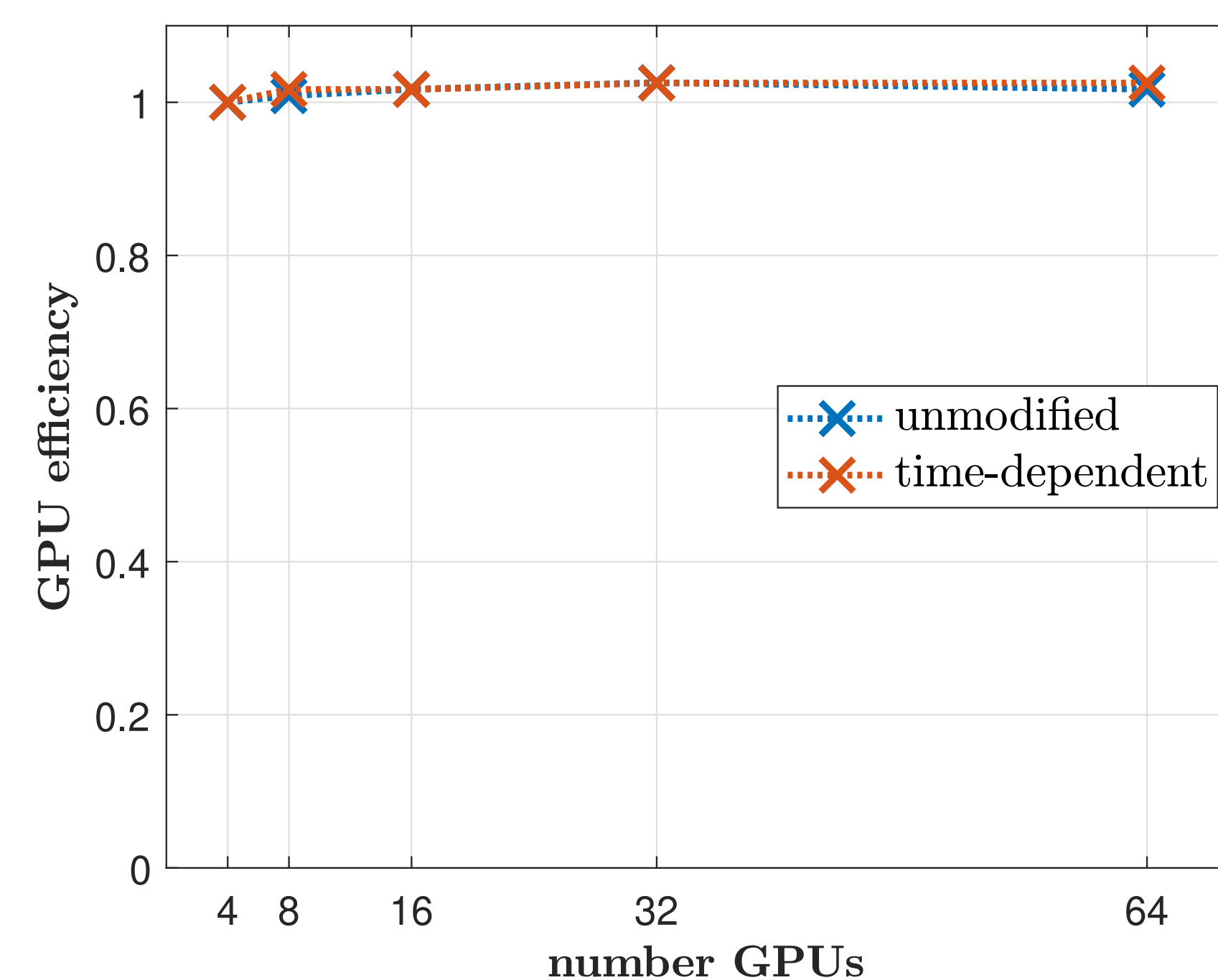
Fuel Array



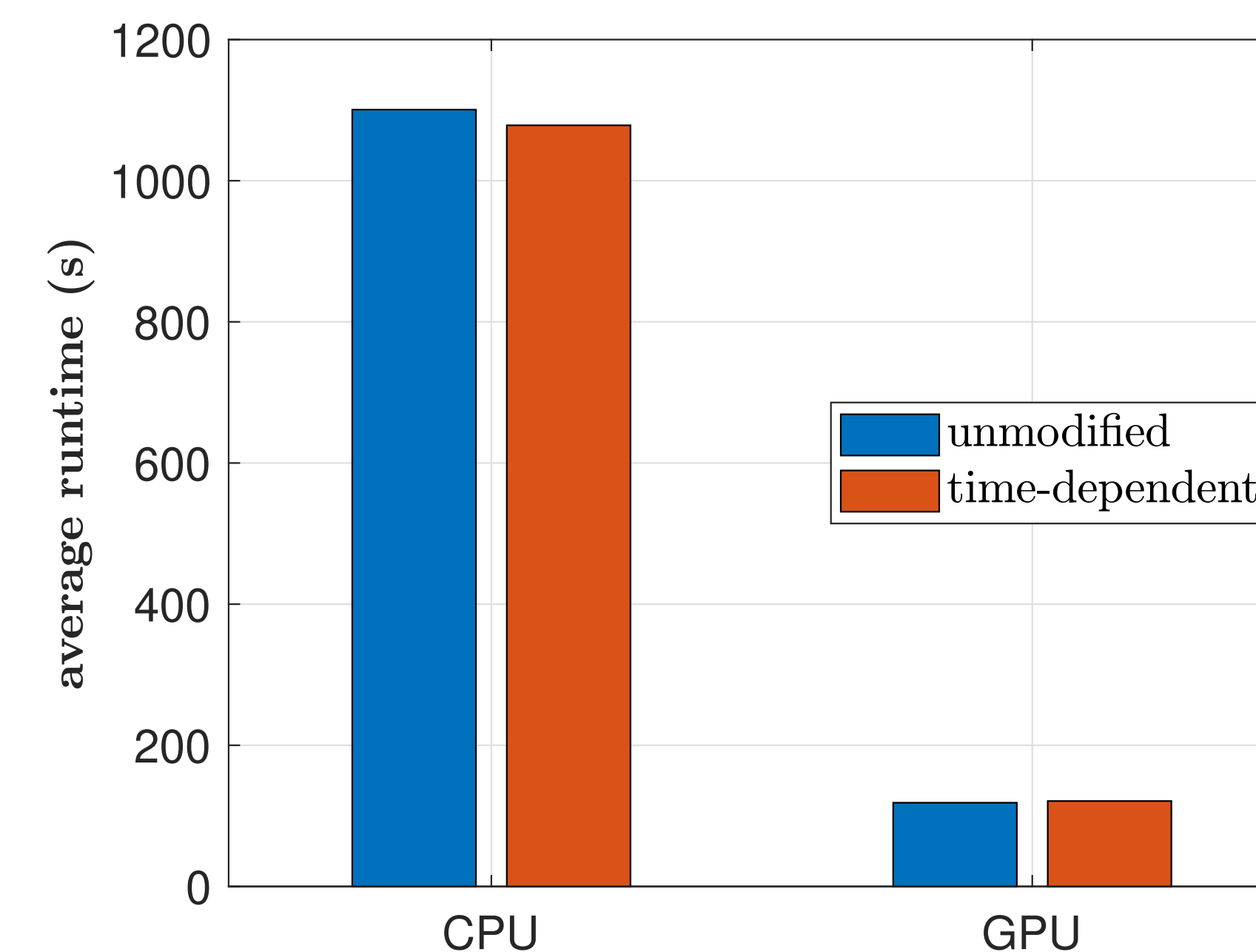
CPU Scaling



GPU Scaling



Average Runtime



Conclusions

Impacts to performance were negligible on the test problem considered

Future Work

- Implement population control approaches and measure performance impact
- Assess performance impact of outputting tally results after each time step

References

- [1] S. P. Hamilton and T. M. Evans, "Continuous-energy Monte Carlo neutron transport on GPUs in the Shift code," *Annals of Nuclear Energy (Oxford)*, vol. 128, 1 2019.

Acknowledgements

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