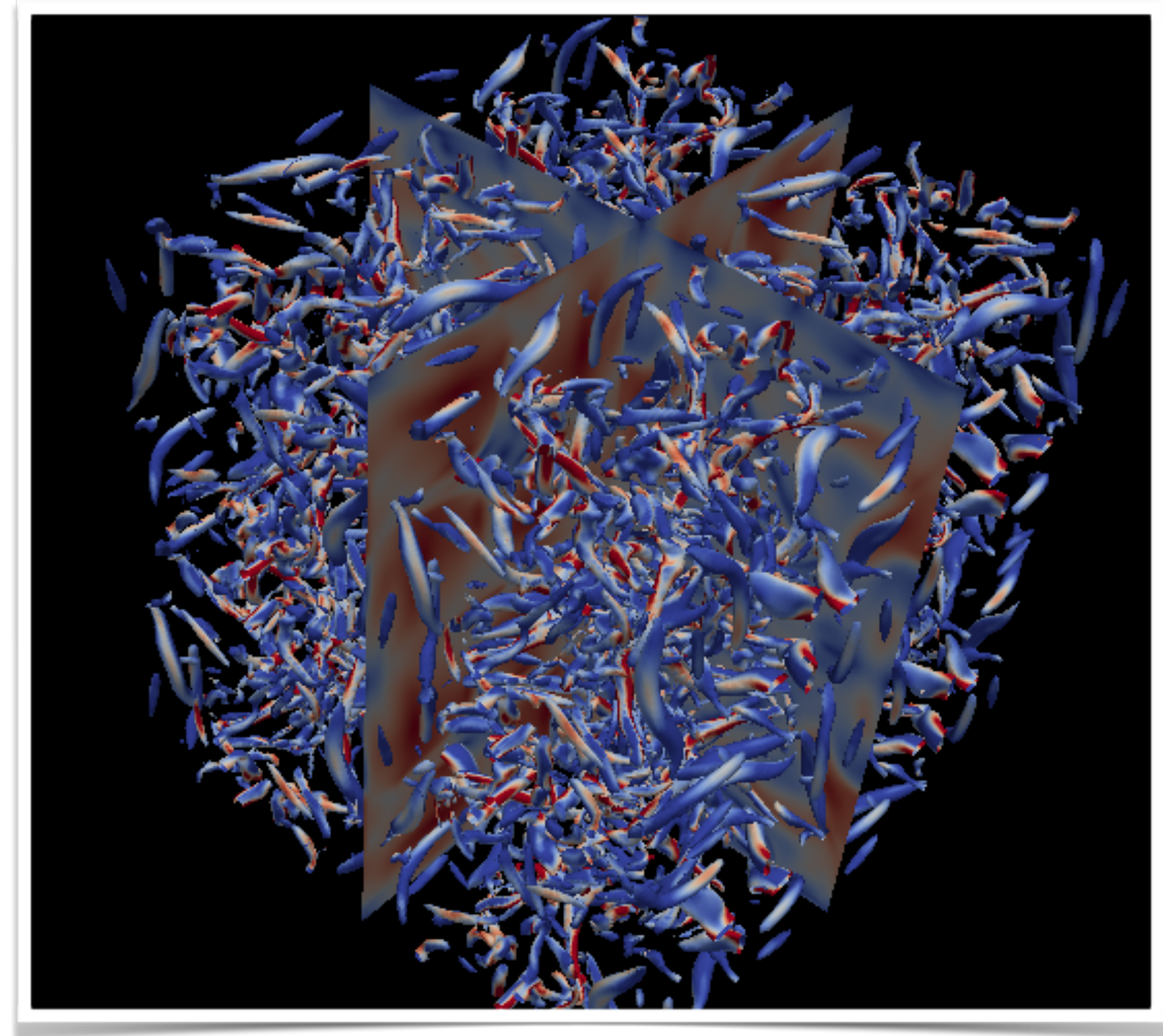


Preliminary PyFR Summit Scaling Results

Test Case

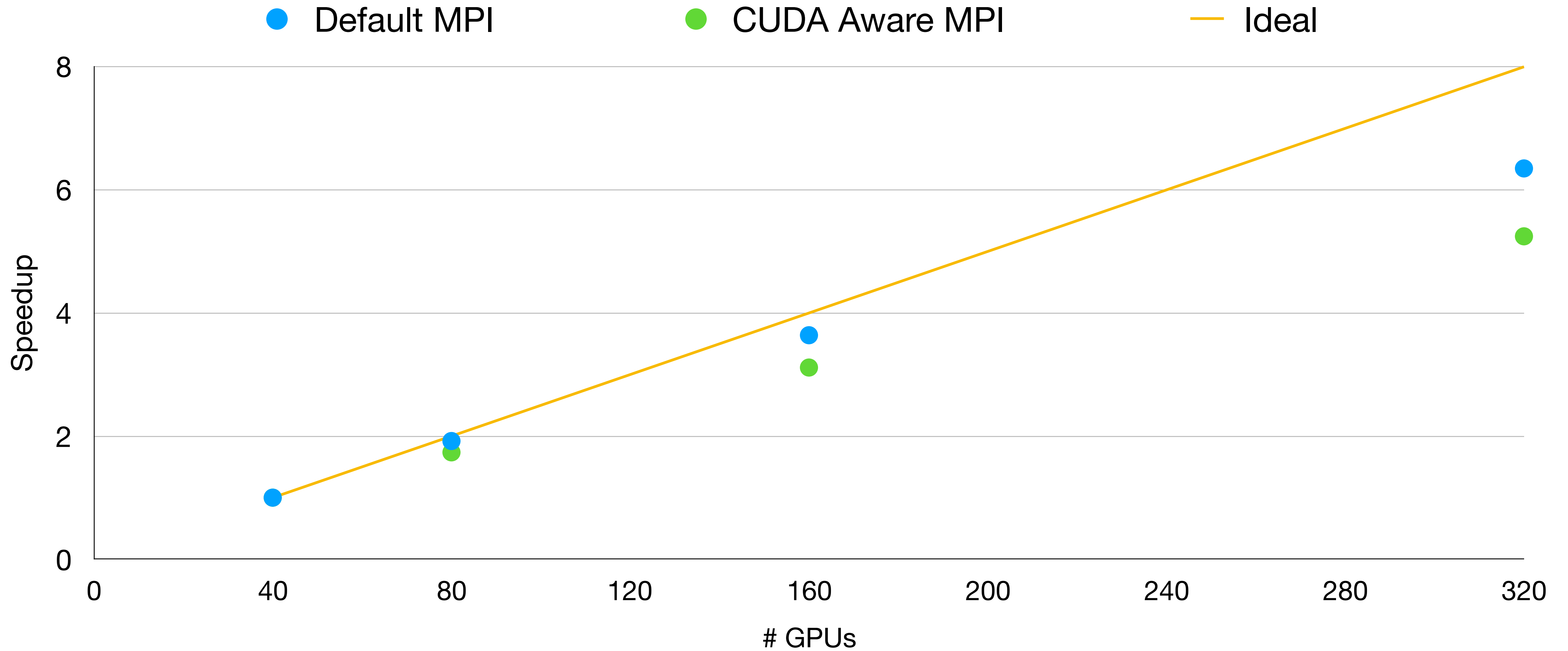
- Taylor–Green vortex with 150^3 hexahedral elements.
- Fourth order solution polynomials with **full anti-aliasing**.
- Total working set of **456 GB**.
- Numerics **representative of the T161 simulations** that we have been running on Titan.



Software Stack

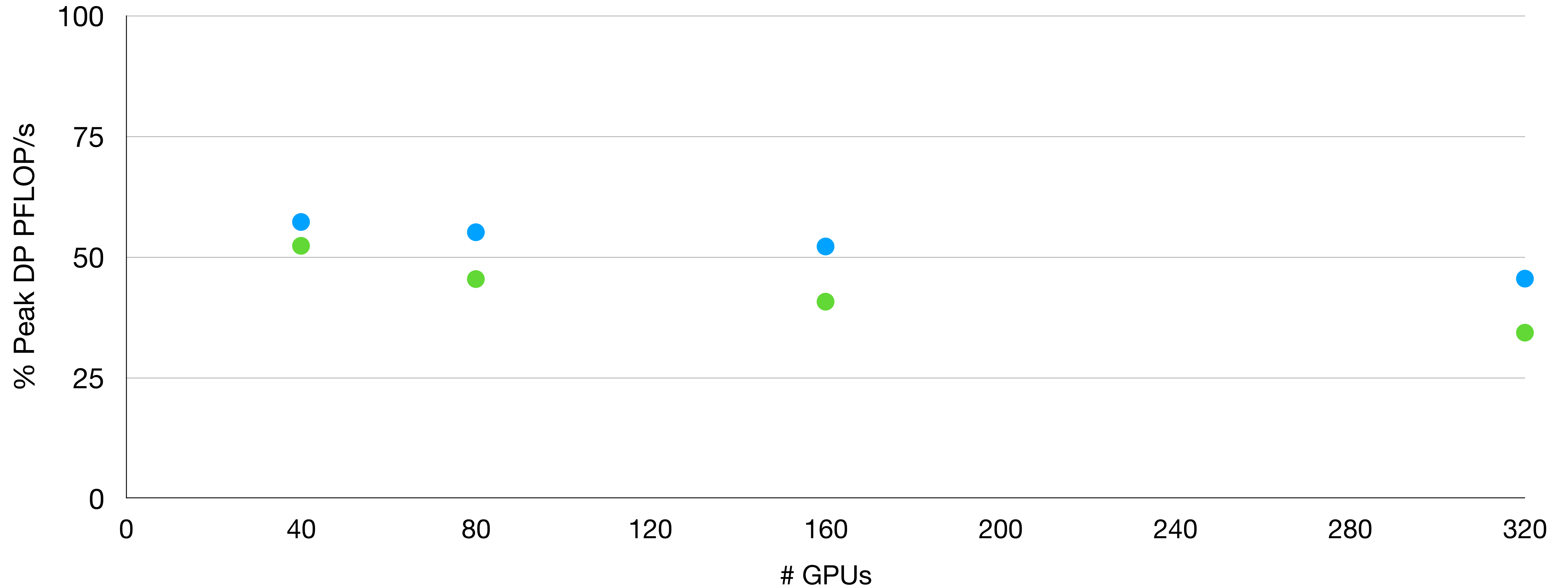
- PyFR/1.5.0 running under Python/3.5.2.
- CUDA/9.1.85.
- IBM Spectrum MPI/10.2.0.0.
- **One CPU core and GPU per MPI rank...**
 - ...requested using resource sets,
 - ...no need for MPS.

Strong Scaling



Strong Scaling

● Default MPI ● CUDA Aware MPI



Conclusions

- Currently investigating how to improve the performance with **CUDA aware MPI**.
- Also working on evaluating **I/O performance** and our **in-situ visualisation** technology.