

OpenFOAM Update - 28-02-2012

Comparison Between Single and Multi-Processor Averages, Flat Plate Simulations

In the flowing section, a comparison is made between LES data obtained from a flat plate simulation on a $128 \times 64 \times 64$ domain and DNS data.

During the simulations, spanwise time-averages were made at different streamwise locations, sampling on the fly the flow mean, the u_{rms} , v_{rms} and w_{rms} turbulent fluctuations and the uv shear stress. A 30 second averaging windows was used, with a $\text{CFL}_{\text{max}} = 0.1$, resulting in 150000 iteration steps.

The differences in mean flow and turbulent fluctuation averages between single- and multi-processor runs at a Reynolds number $\text{Re}_\theta = 670$ were then considered.

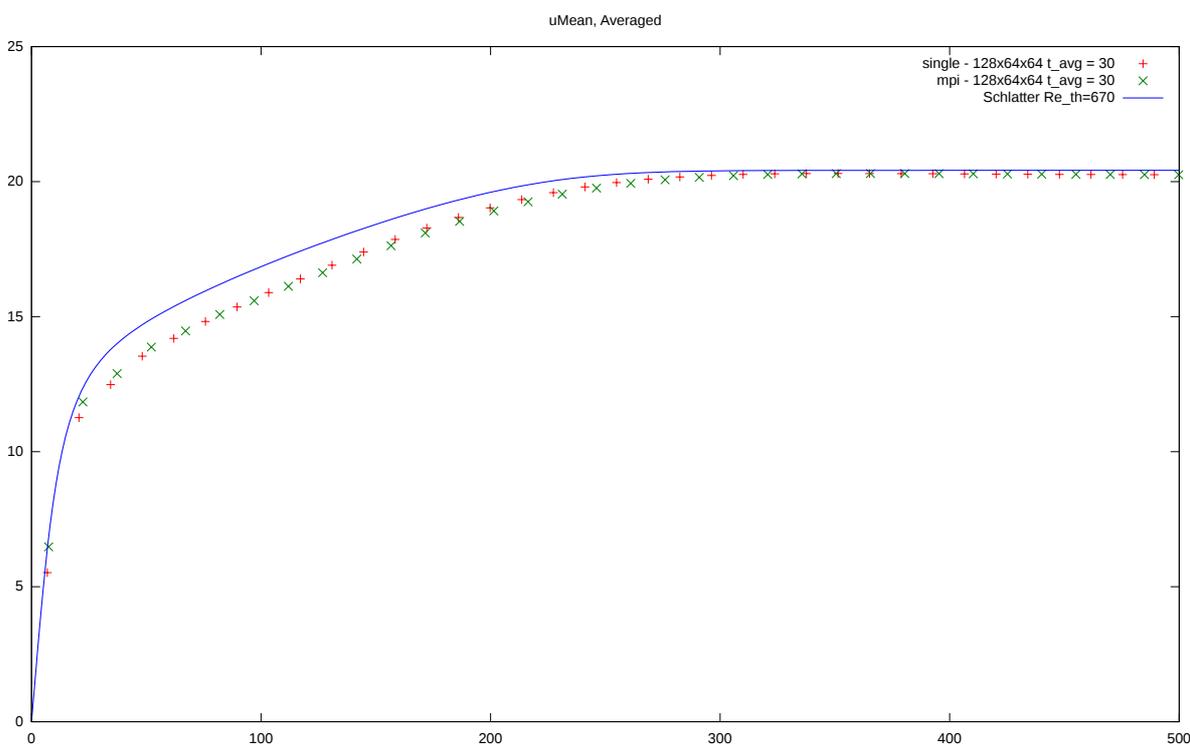


Figure 1: Mean Velocity - Time Averaged

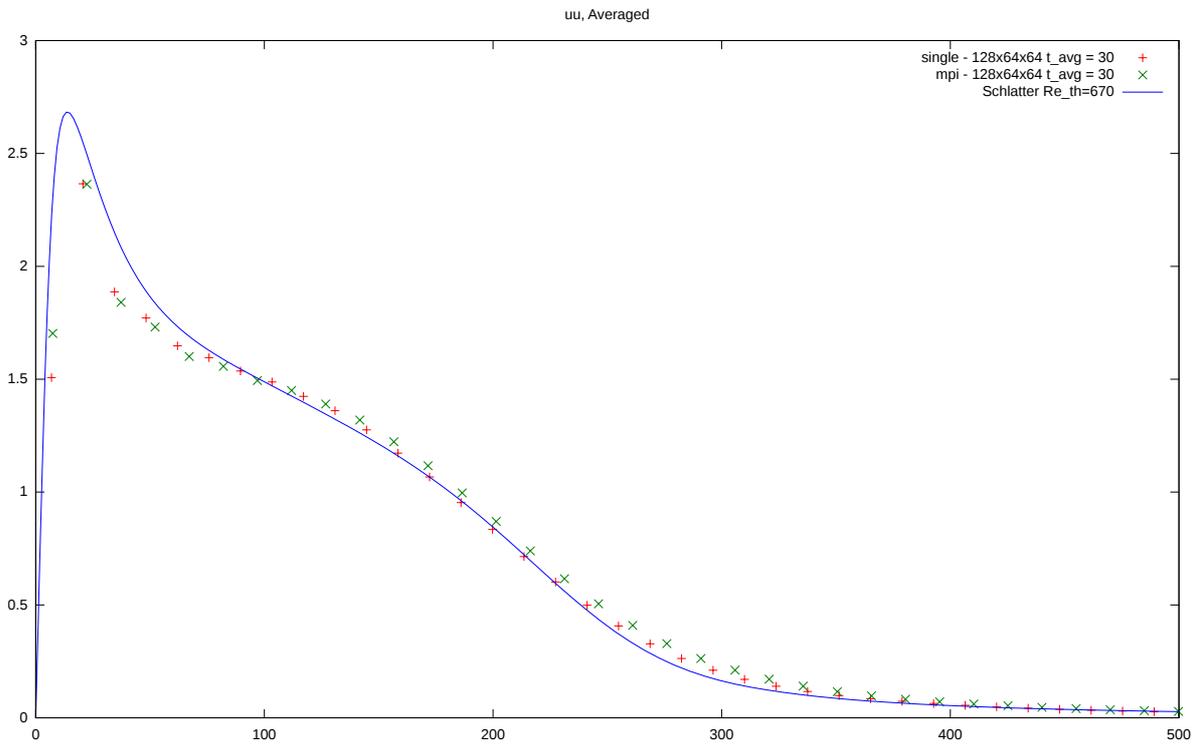


Figure 2: uu- Perturbations, Time Averaged

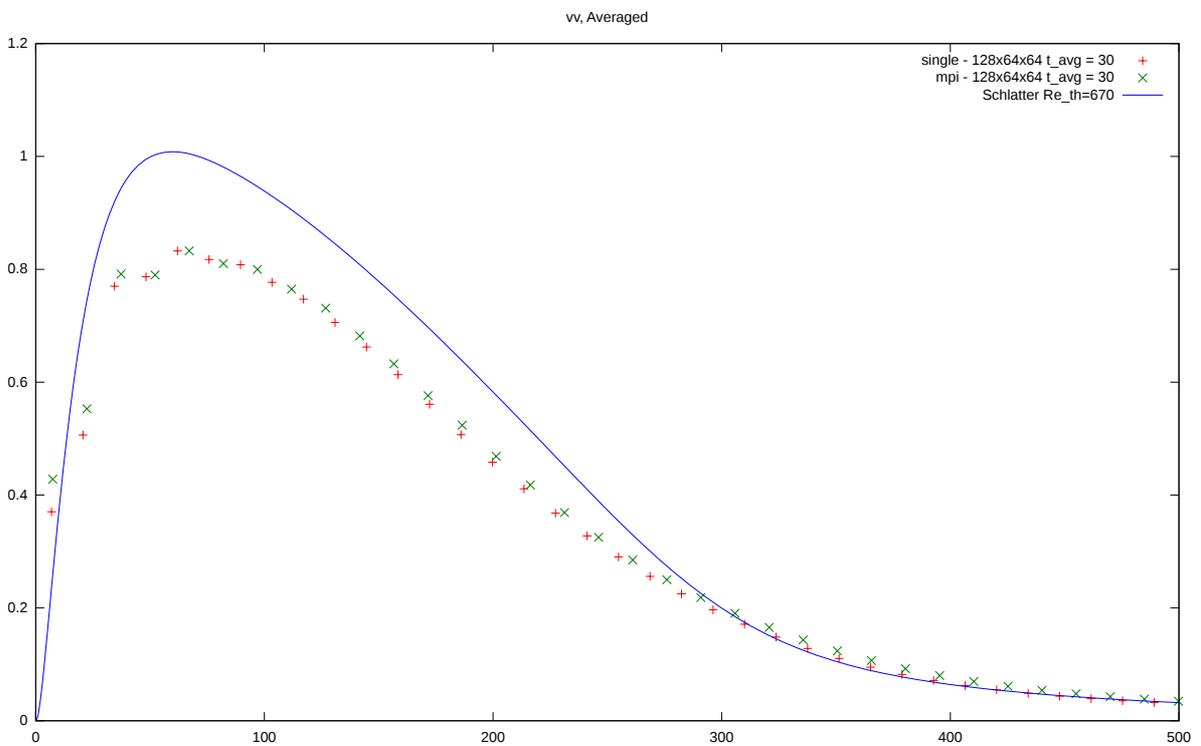


Figure 3: vv- Perturbations, Time Averaged

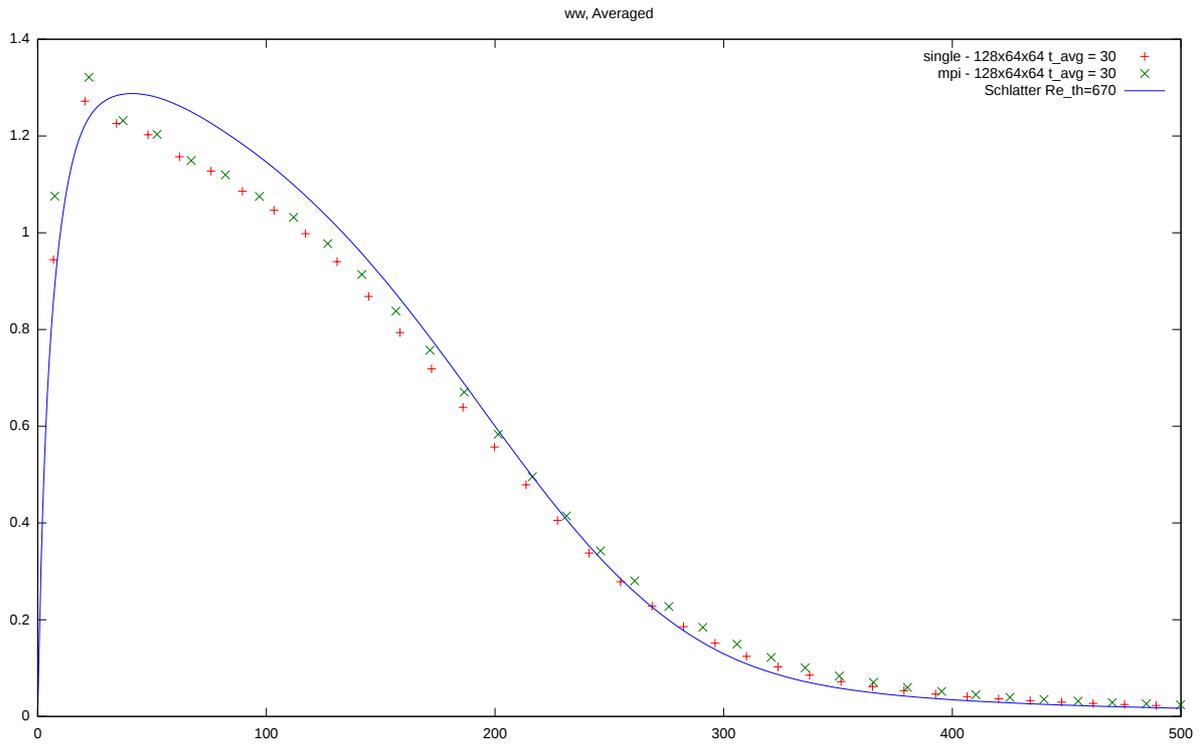


Figure 4: ww- Perturbations, Time Averaged

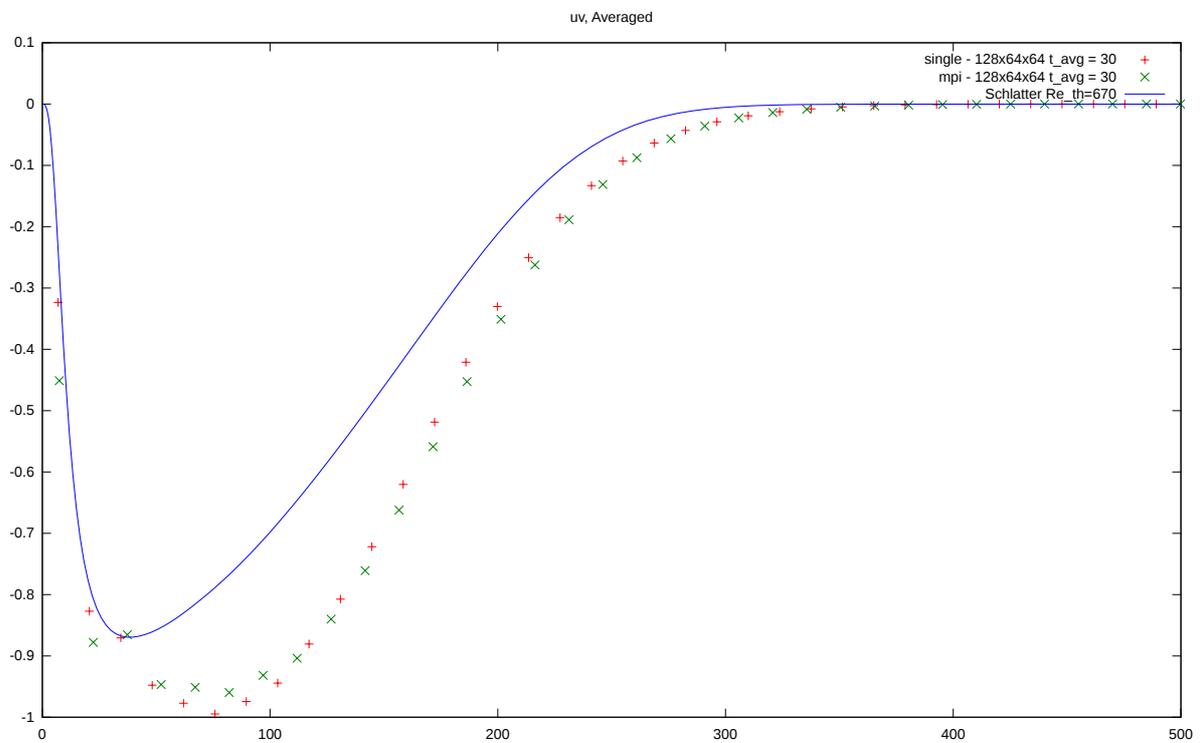


Figure 5: uv- Perturbations, Time Averaged