

Single disk and NFS tests

- Dataset size: 900 projections, 511 sinograms
- Single disk test performed on data residing on one disk in node (not OS disk)
- NFS test performed on data residing on a RAID 5 set served over NFS
- Performed on 1 x 8 CPU core node only
- No GPU used in calculation
- Avg time is the time per process to complete its assigned subset (projection or sinogram) – error bars indicate deviation across processes.
- Total time is the time taken to complete the section (background removal, sinogram creation, sinogram reconstruction) as a function of the number of processes running.

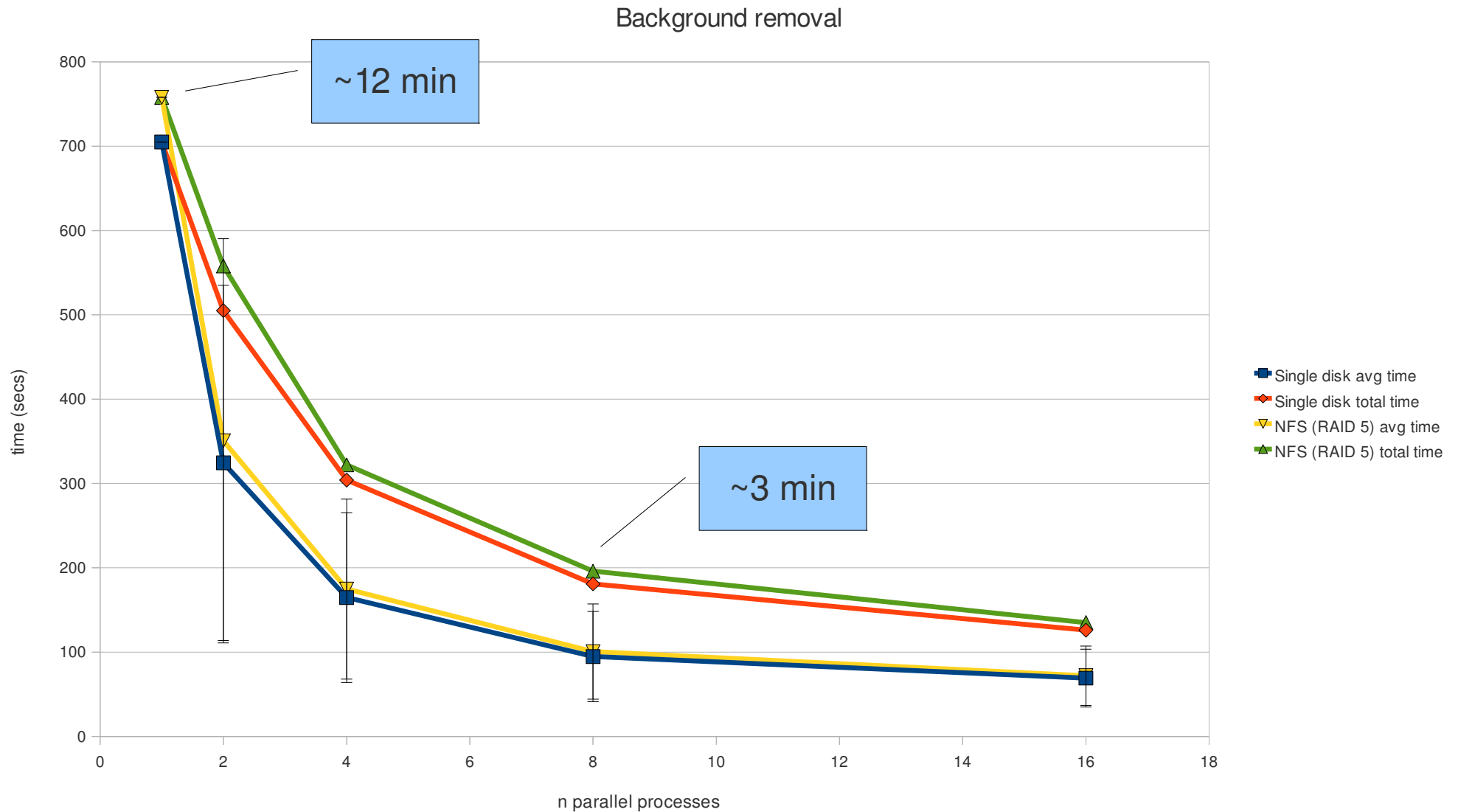
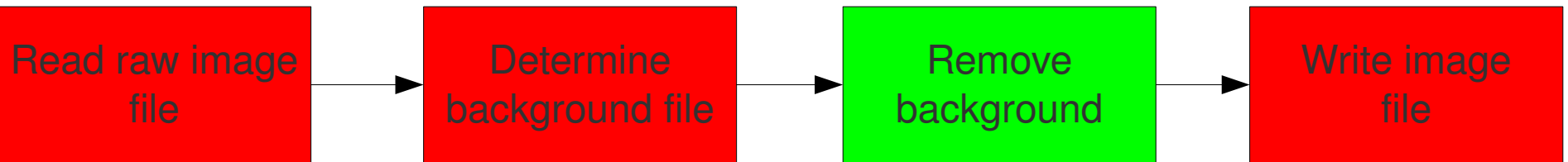


I/O bound stage

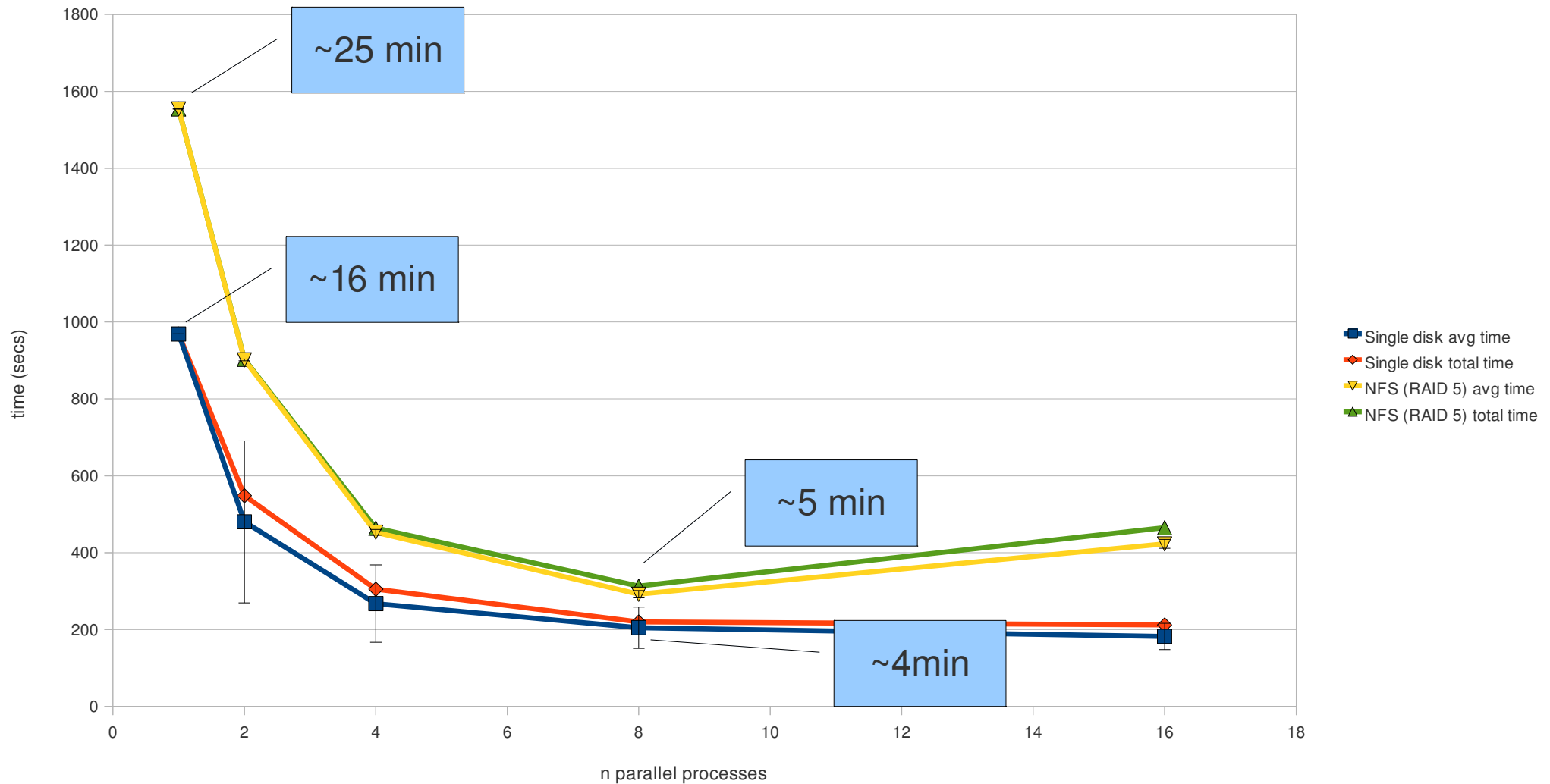
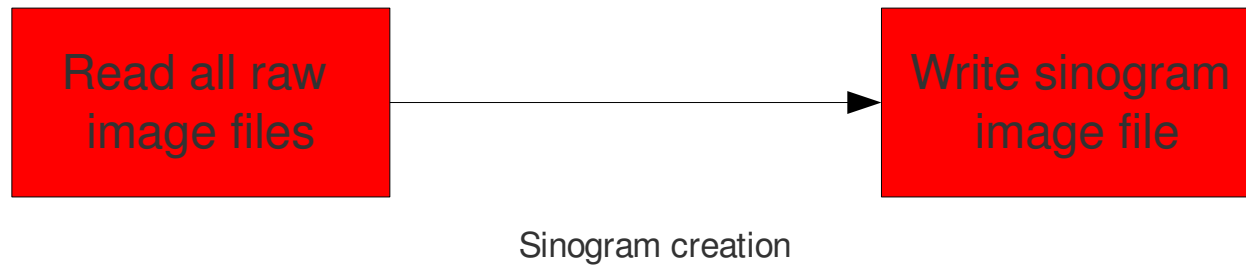


CPU bound stage

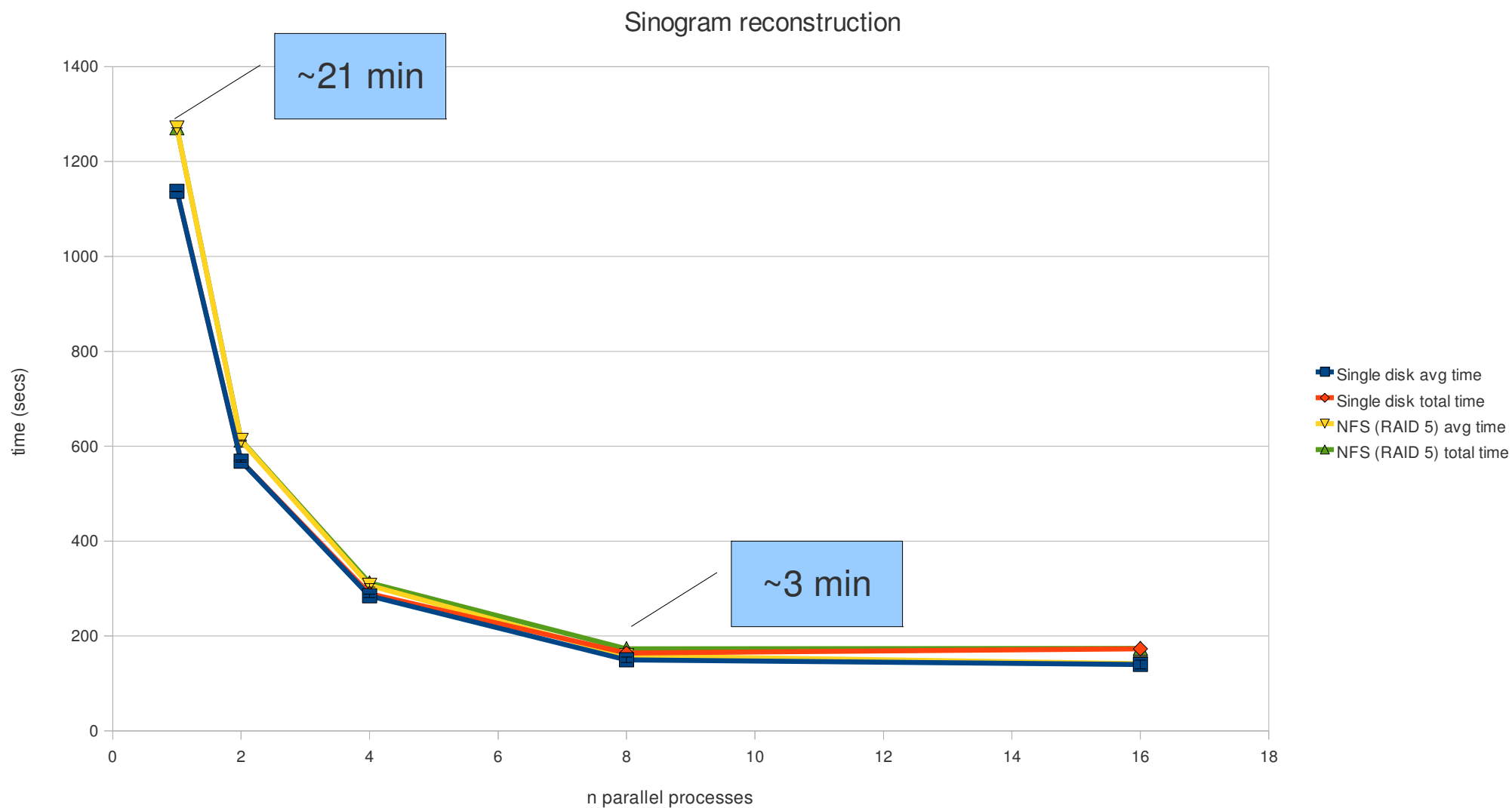
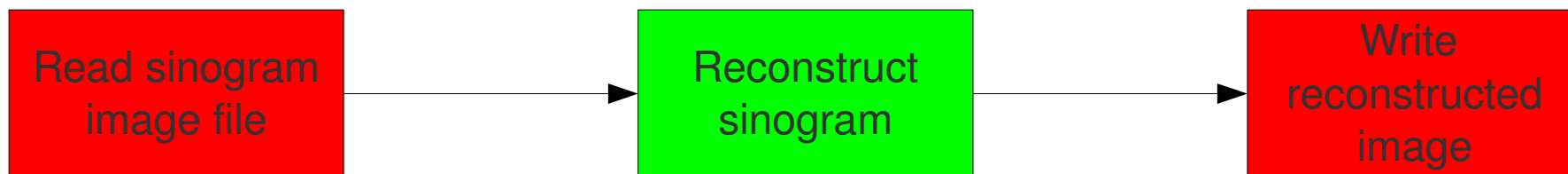
Background removal – single disk vs NFS



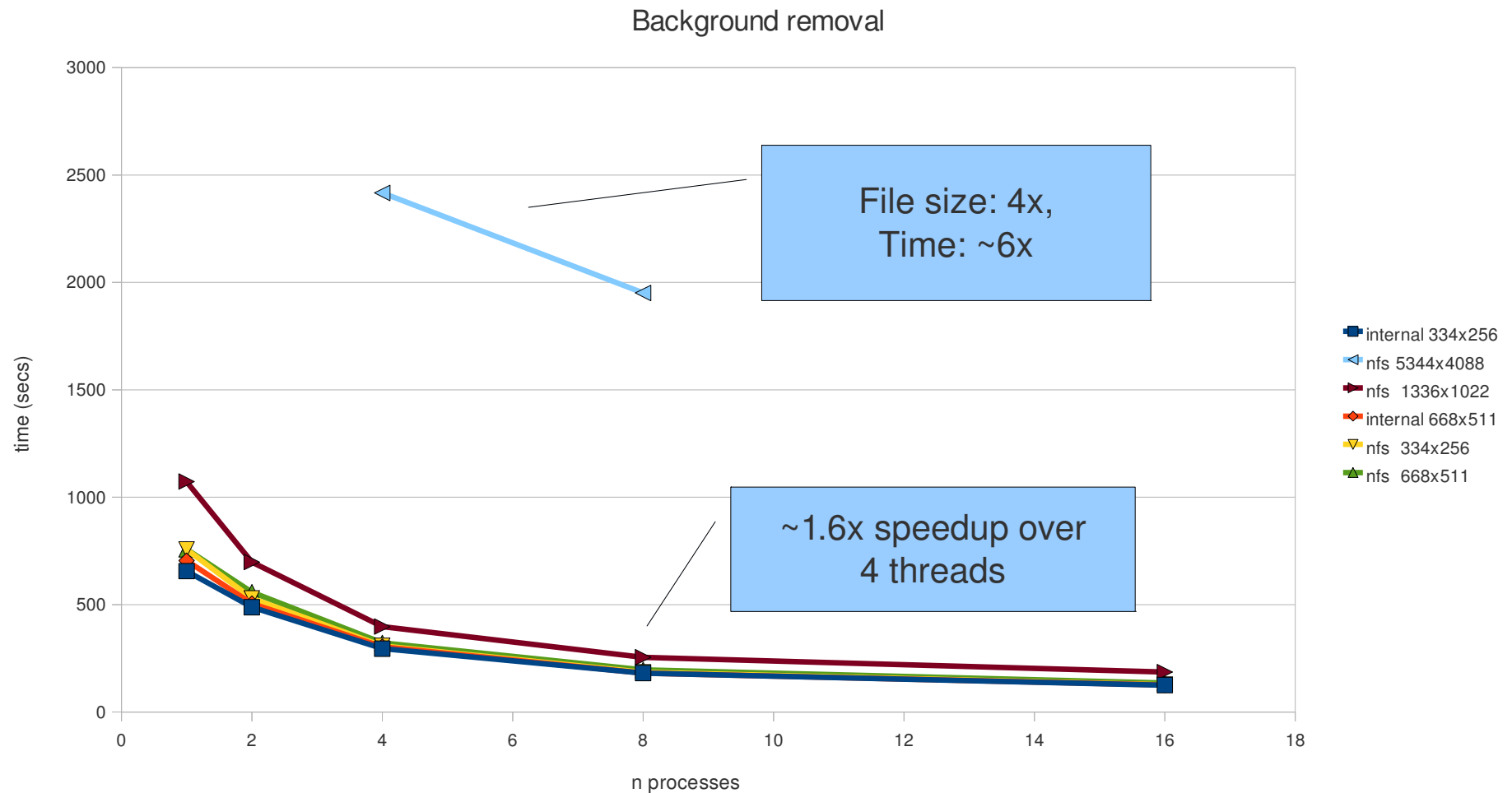
Sinogram creation – single disk vs NFS



Sinogram reconstruction – single disk vs NFS

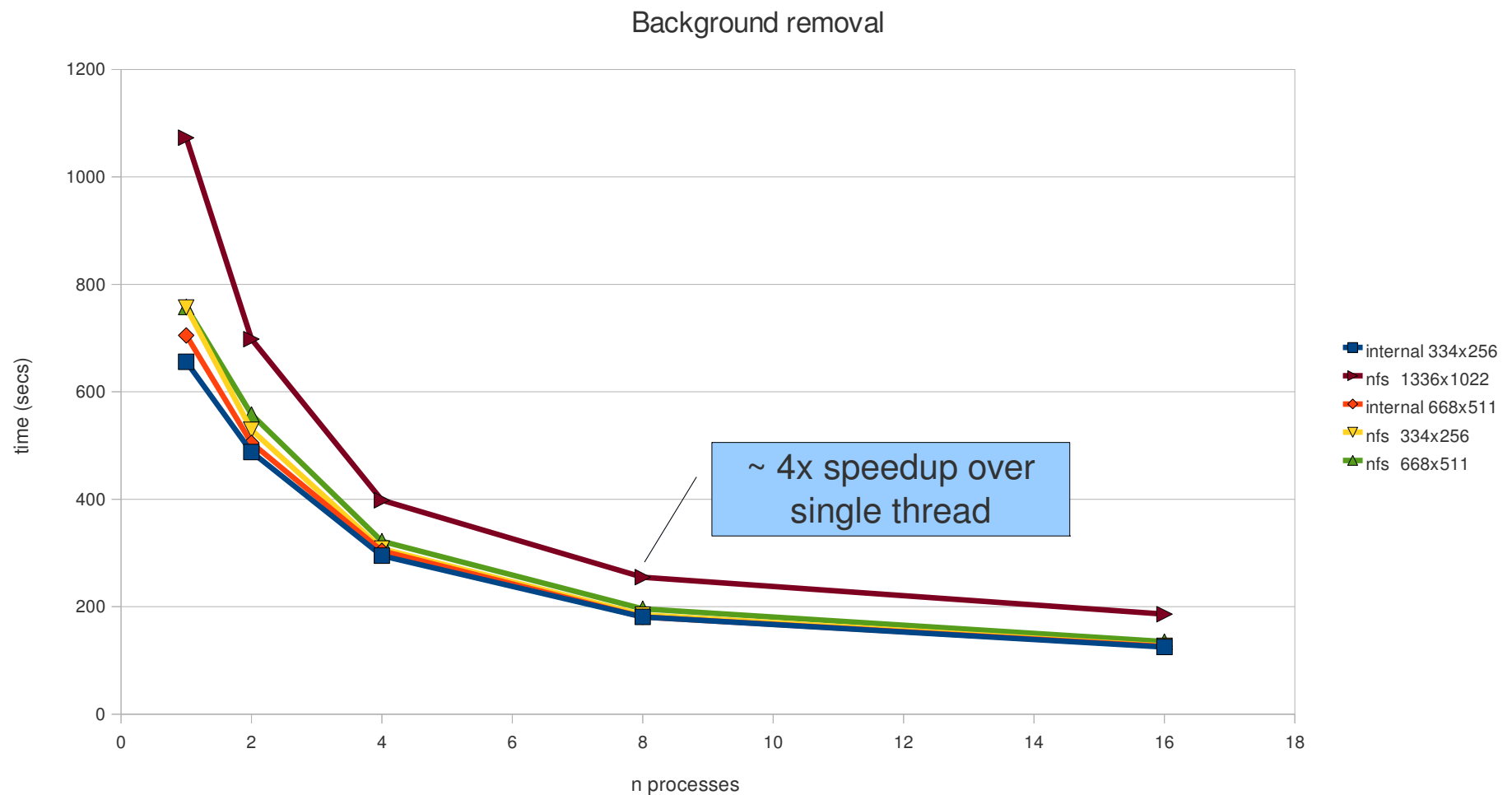


Background removal – processes v. image size



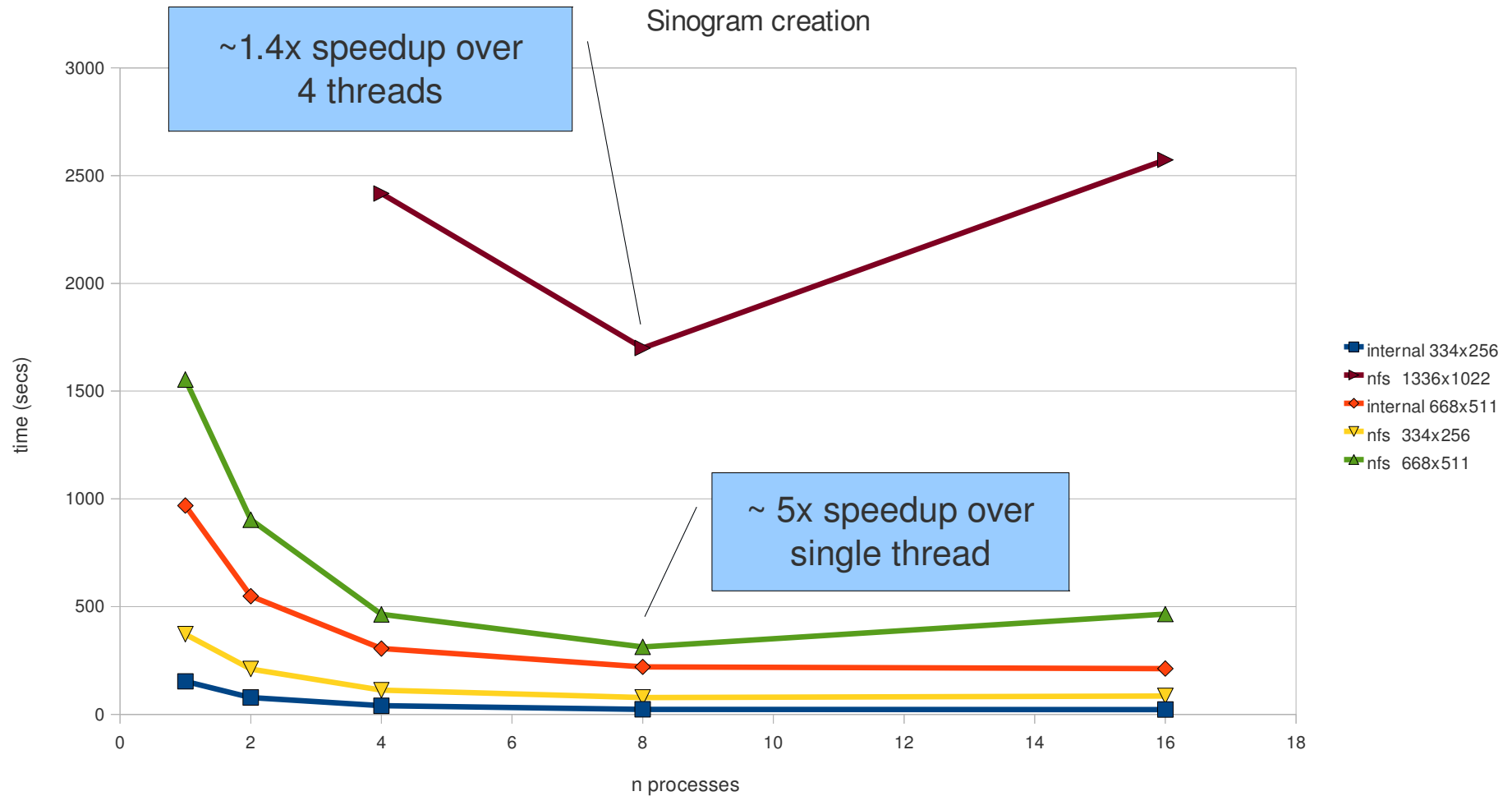
Speedup seen as more processes added – IO hit will be seen quickly as nodes / processes added.

Background removal – processes v. image size



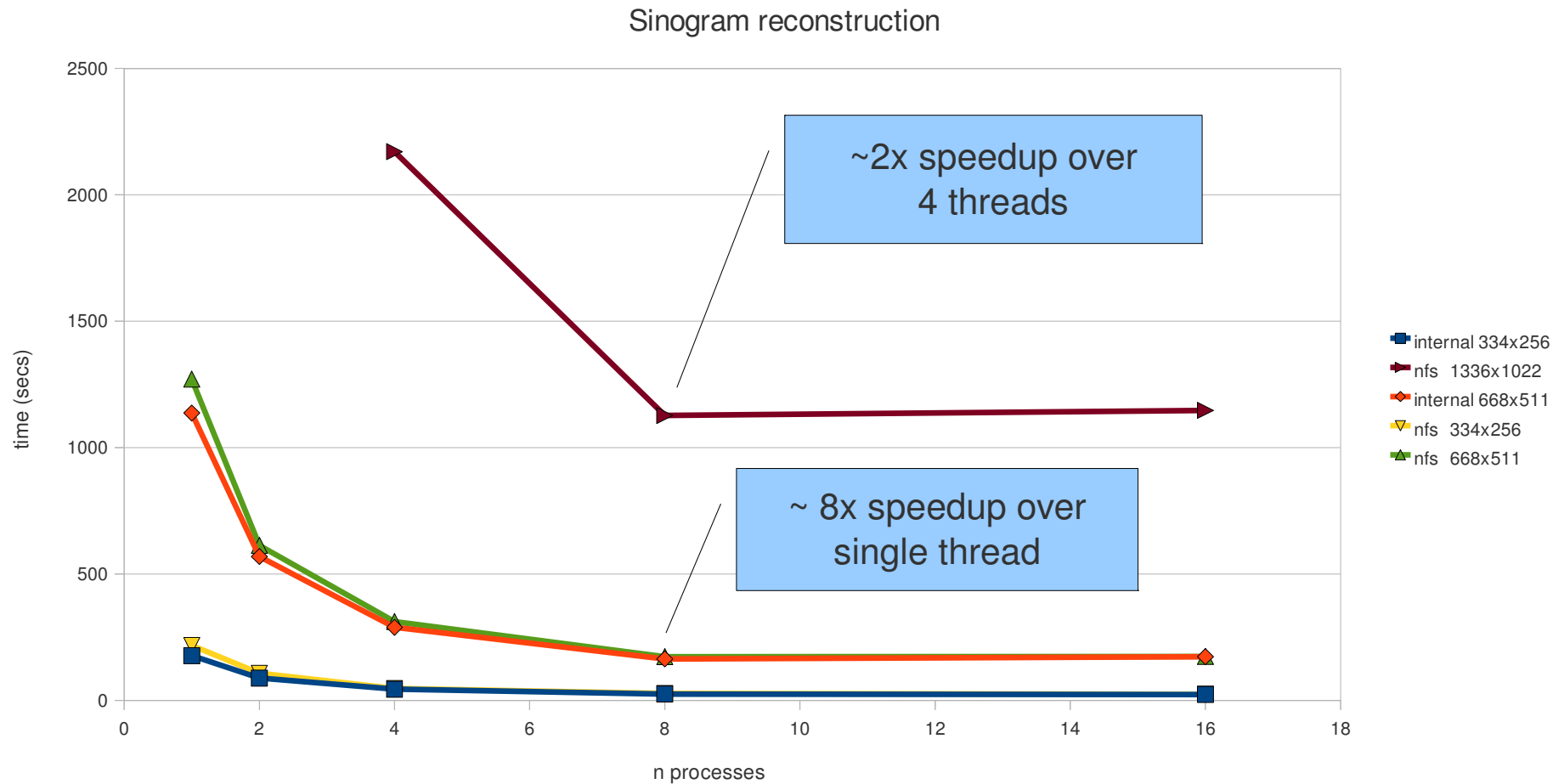
Same as previous graph but with large file (5k x 4k) data removed for clarity.

Sinogram creation – processes v. image size



Attempted sinogram creation over large files (5k x 4k) – single RAID 5 couldn't handle the IO load.

Sinogram reconstruction – processes v. image size



Total run time decreases as more workers added – there will be an IO limit at some point.

Proposed workflow

