Jacobi Iterator

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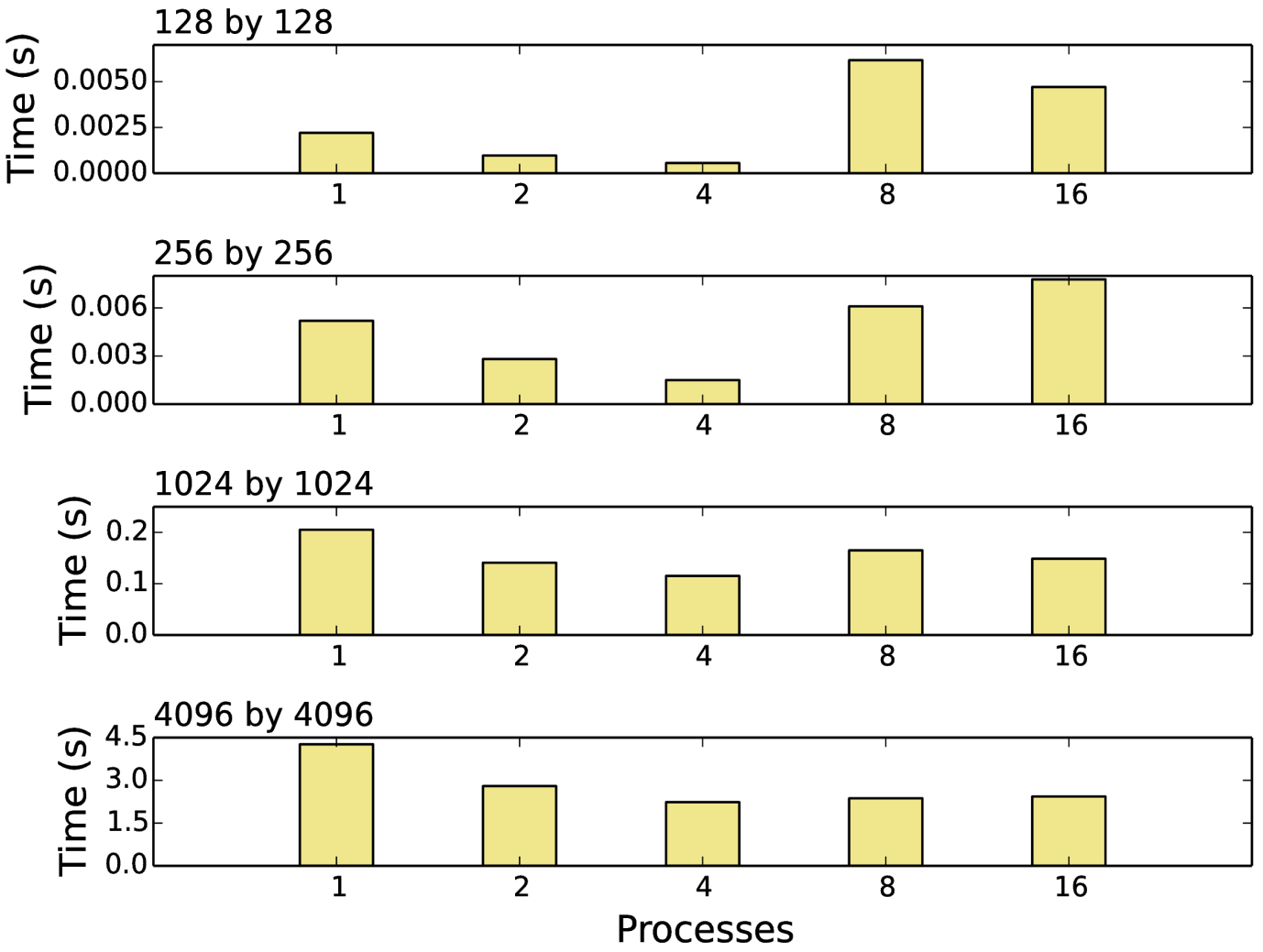
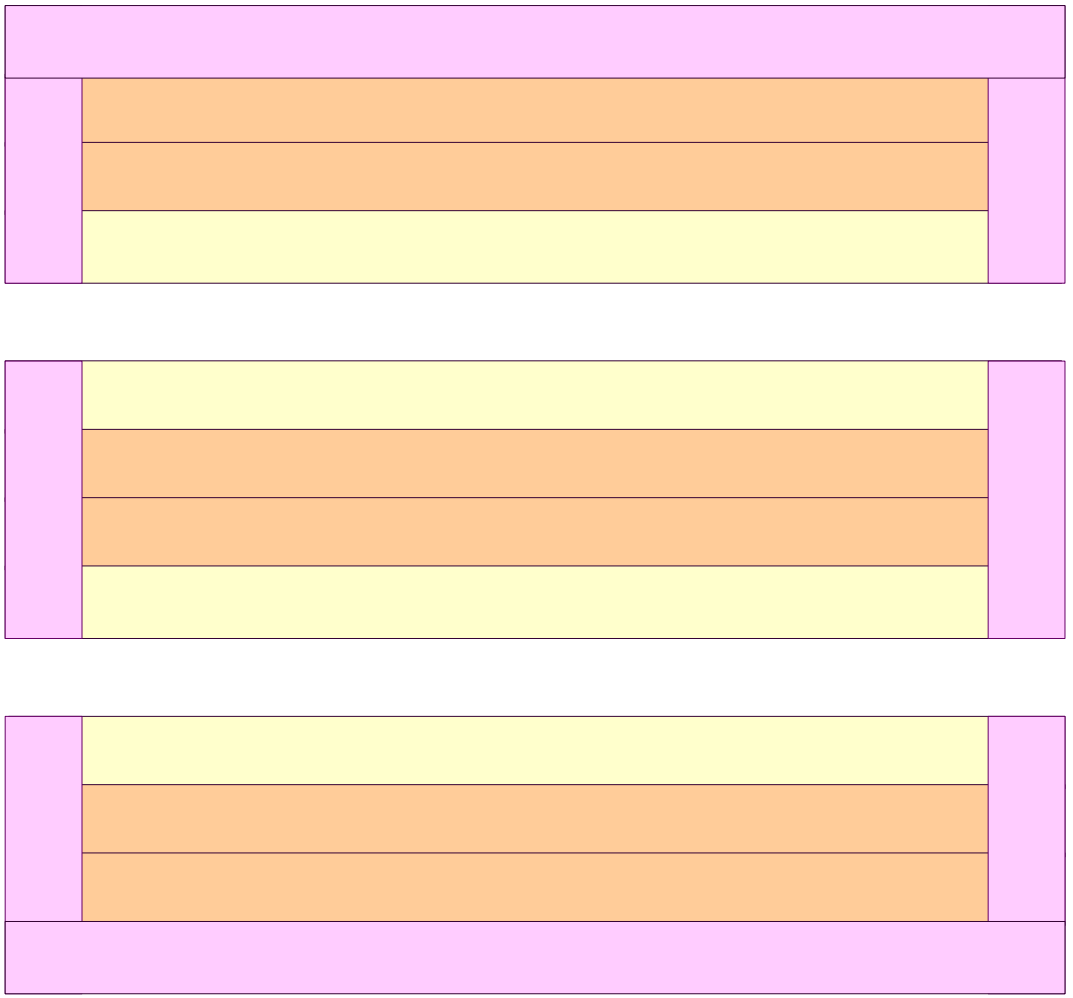
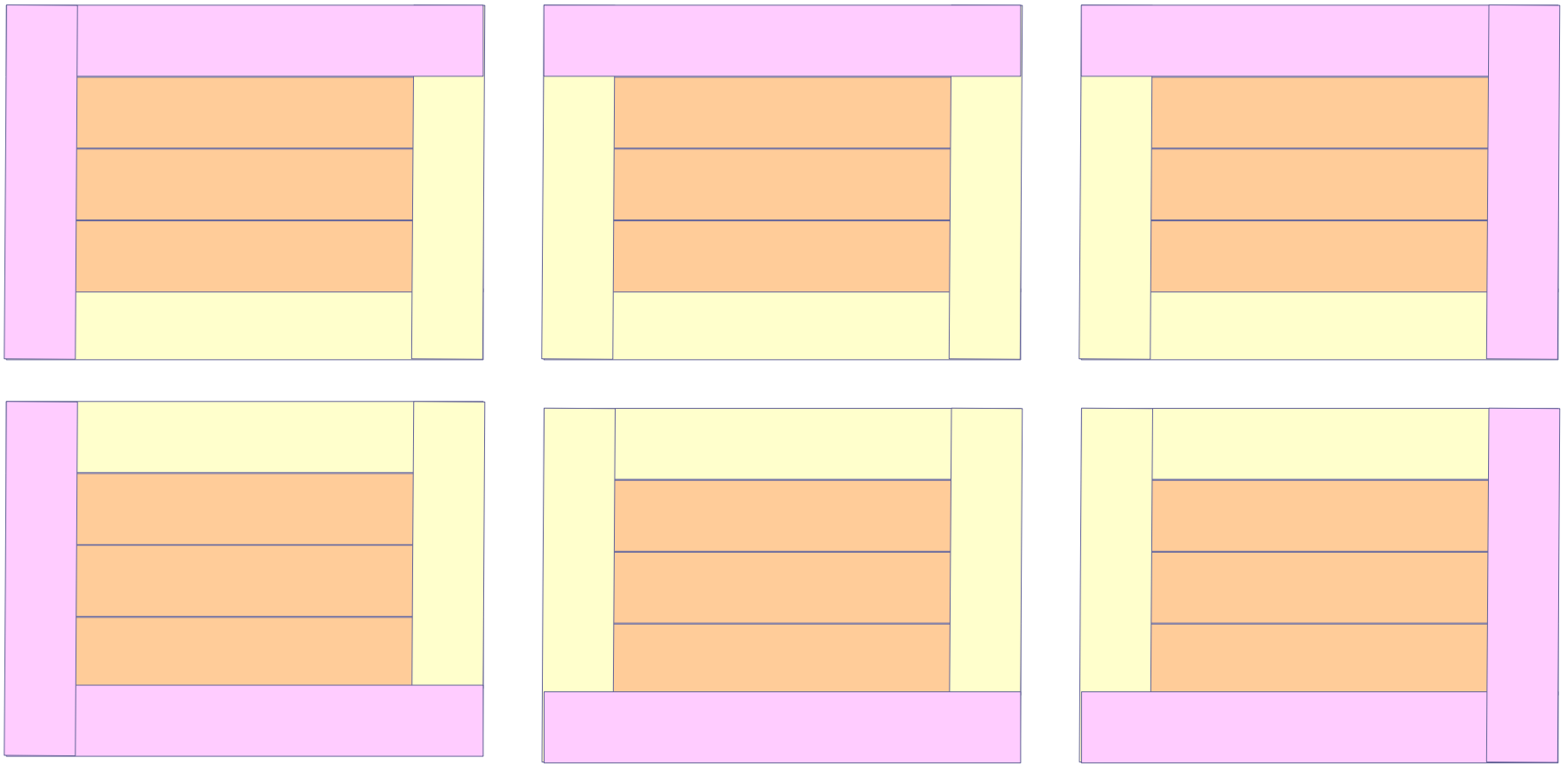
OpenMP on 4*2 core desktop



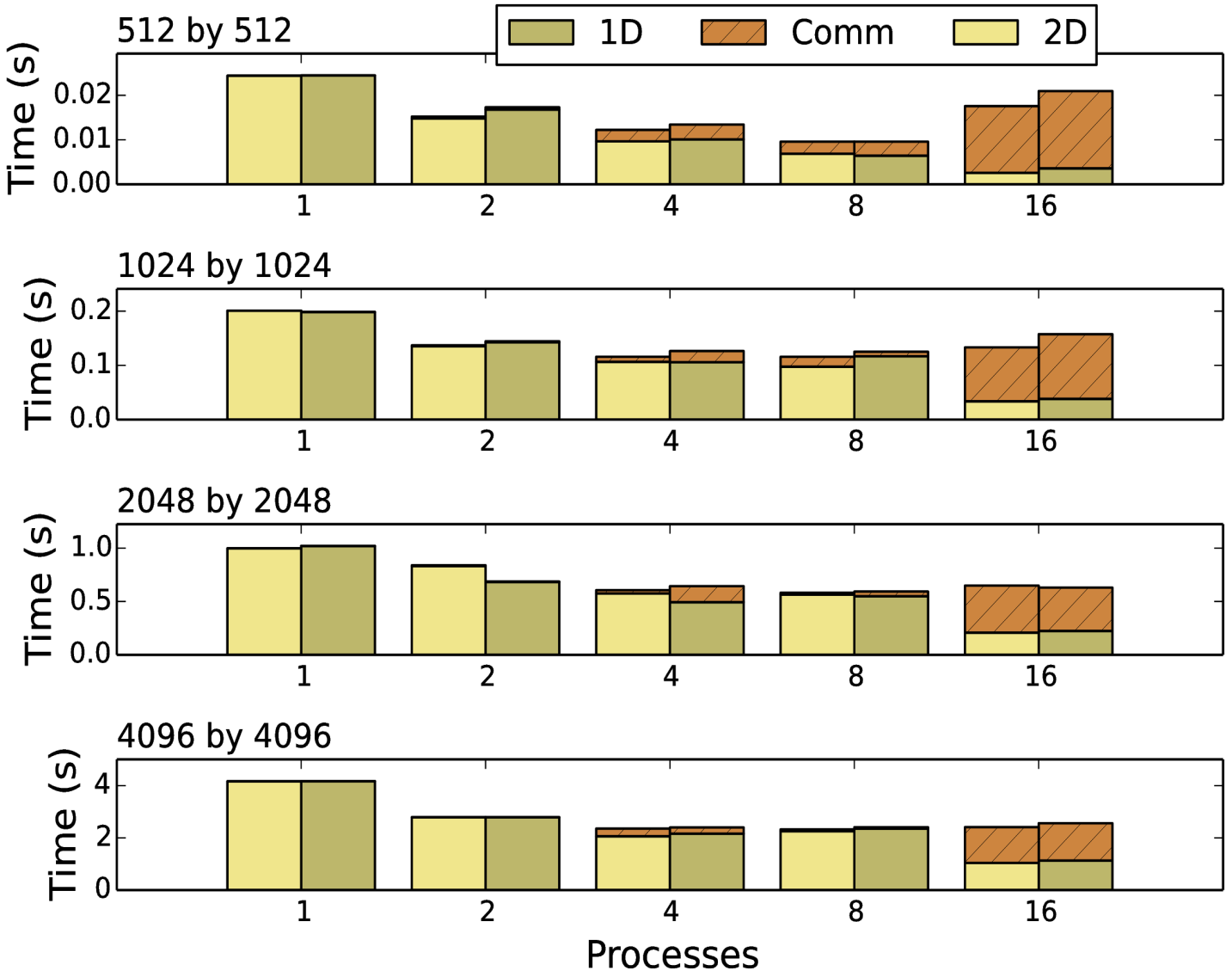
MPI 1D



MPI 2D



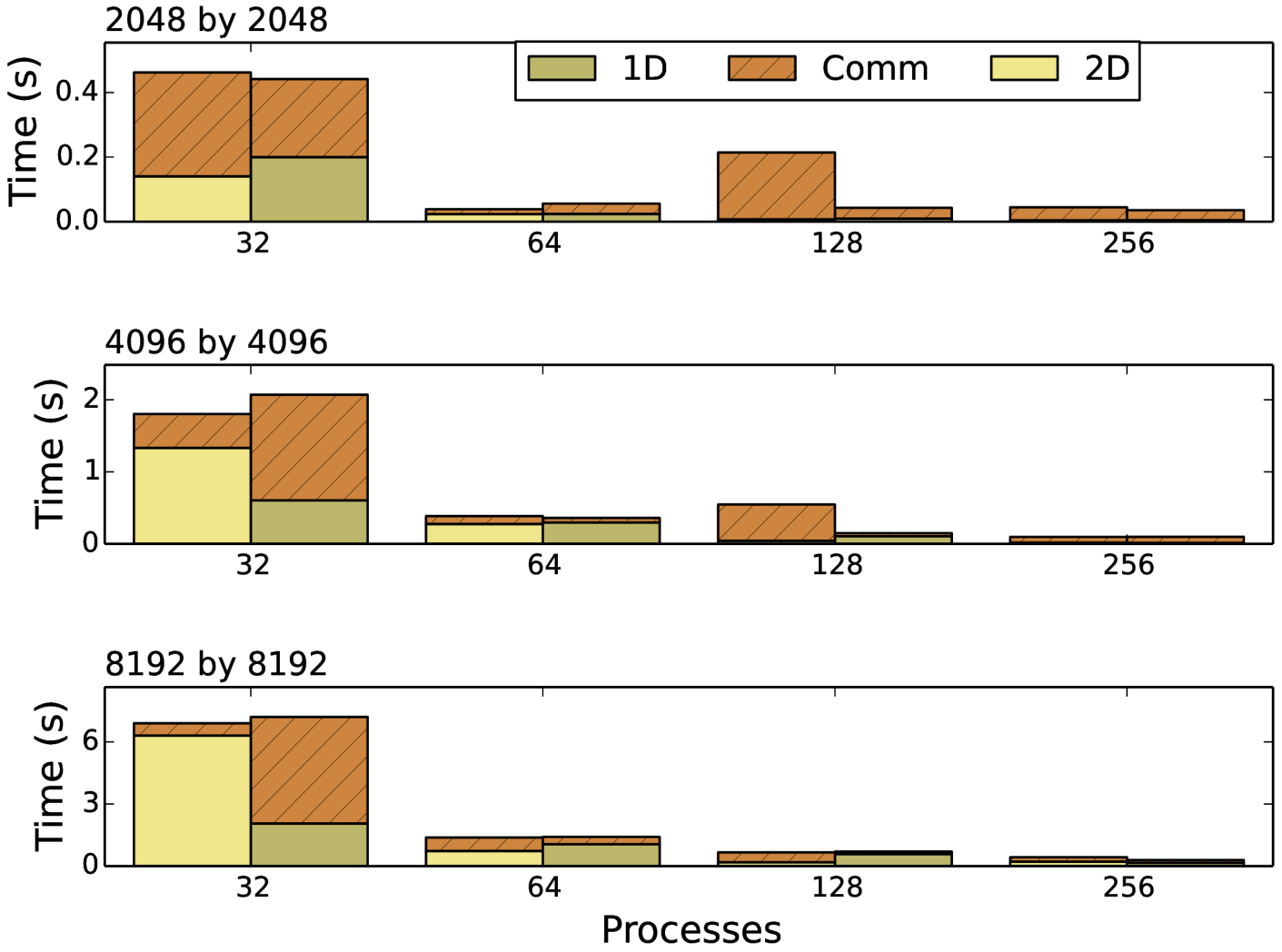
MPI on 4*2 core desktop



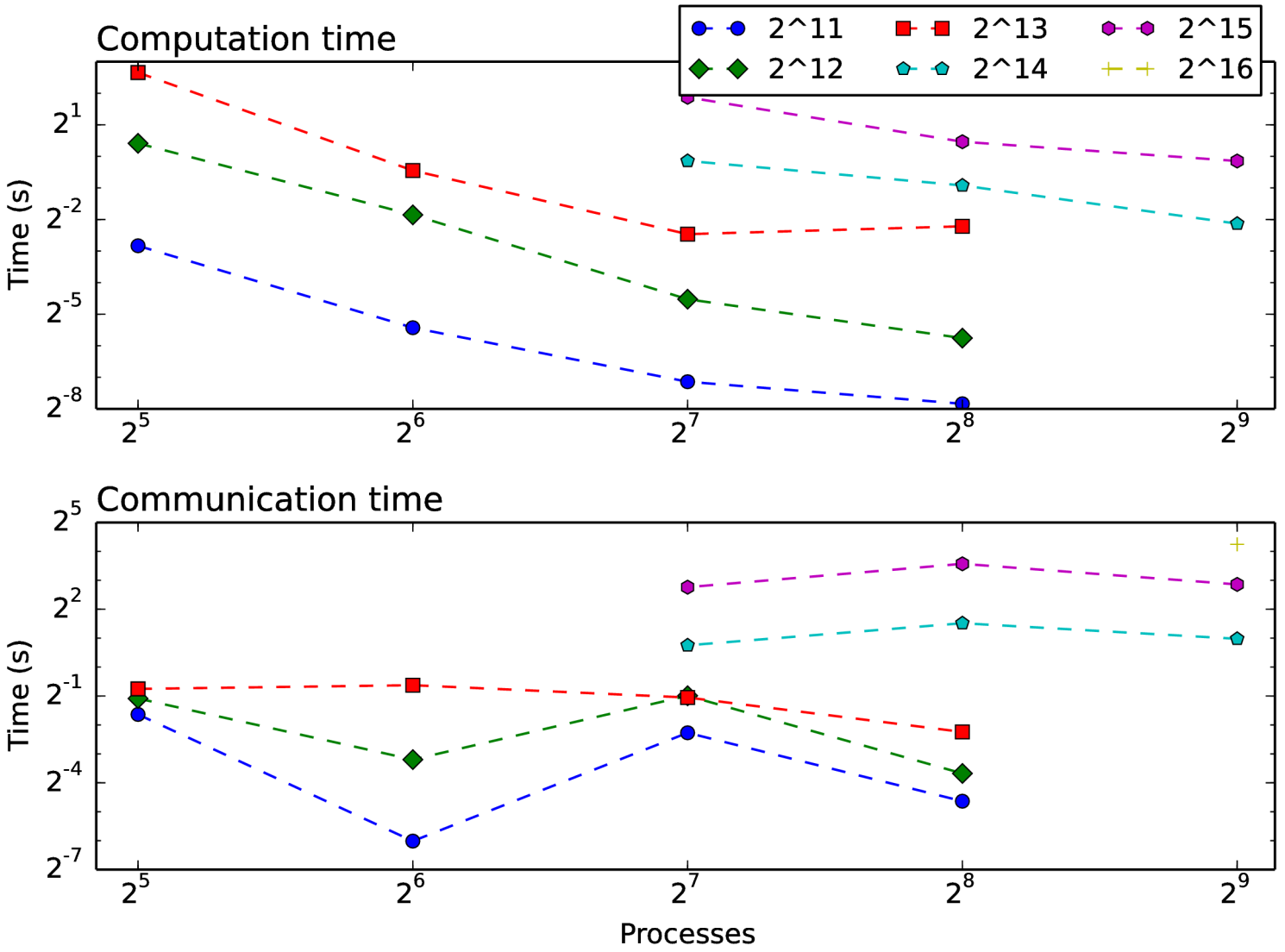
2D MPI: how many slices?

- C++, so preferably more slices along rows than columns
  - Highest power of 2 that exactly divides np: np & -np
  - Less than sqrt(np): 2^[log2 (sqrt(np))]
- 4 → 2*2 8 → 4*2 16 → 4*4
  10 → 5*2 20 → 5*4 22 → 11*2

MPI on PSC cluster



MPI 2D scalings



Conclusions

- Seemingly communication dominated
  - Computation time: nr*nc
  - Communication: 2*(2*nr + 2*nc), time ?
- (Not ideal) Might need to tune algorithm to carry out communication across nodes in large chunks