CEMM Meeting
Sun April 21st
Berkeley Room
Strathallan Hotel, Rochester

00	S.C. Jardin	Update on SciDAC activities
15	D. Schissel	Status and Plans for Collaborative Graphics
45	S. Klasky	Visualization of Fusion Simulation Data
10	all	Discussion of graphics/data storage issues
40	R.Samtaney	Progress and Plans on AMR SciDAC collaboration

00 Break

15	NIMROD status & plans	(Schnack, Held, Kruger, Parker, Sovinec, Nebel)
00	M3D status & plans	(Park, Breslau, Fu, Strauss, Sugiyama...)
45	all	Plans for a summer workshop
00	adjourn	

Update on SciDAC Activities

- FESAC Subcommittee on Integrated Modeling
  - Open meeting May 23,24th at GA
  - Schnack and Jardin members
- Solicitation for proposals for Fusion TCF ($200k)
- Fusion SciDAC PAC meeting at PPPL June 3,4
- Interaction with TOPs center (ODU)
- Interaction with TSTT center (RPI)
- Interaction with APDEC center (LBL)
  - To be given by Ravi Samtaney

TOPS: Parallel scaling (with ODU)

1. Direct comparison between PETSc and HYPRE routines for solving sparse linear systems

- on a structured grid (have results)
- on unstructured grids (in progress)

2. PETSc + HYPRE

- nonlinear solver interface

Parallel scaling (with ODU)

a model Poisson operator on a structured grid. The algorithms are:

- - Algebraic Multigrid (AMG) from HYPRE
- - Incomplete LU (ILU) from HYPRE
- - Additive Schwartz (ASM) from PETSc

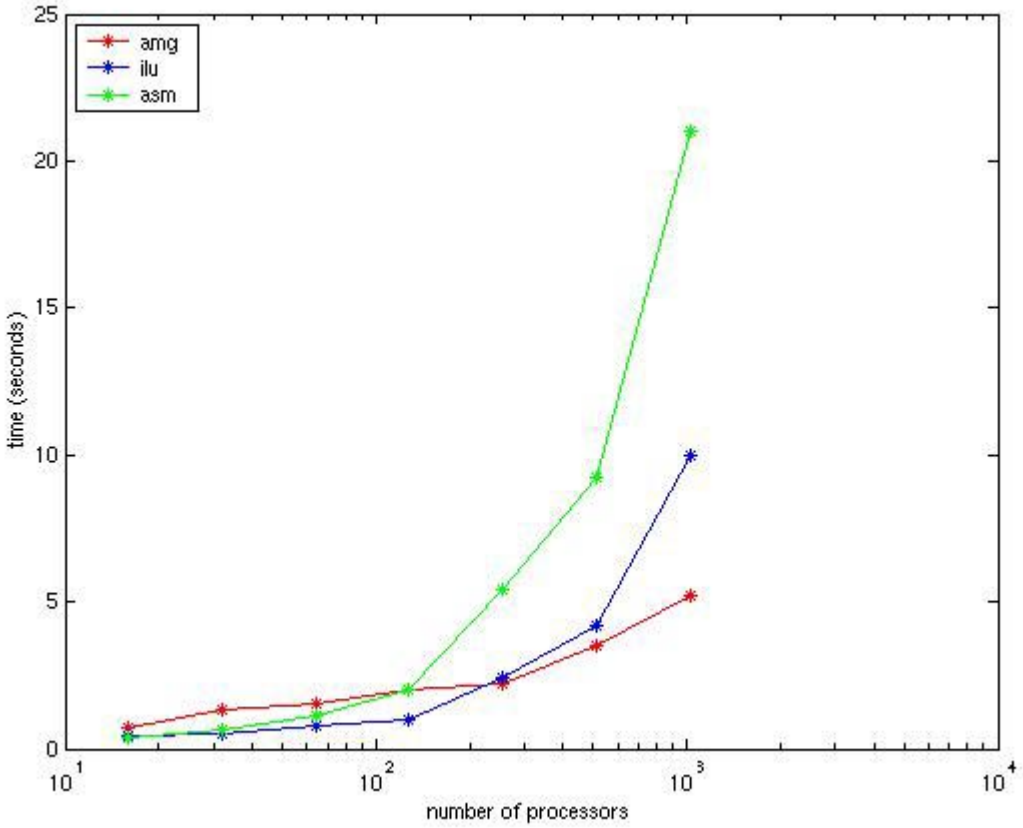
experimented on seaborg (IBM SP)

- using 16, 32, 64, 128, 256, 512 and 1024 processors.
- The number of unknowns per processor was 10000.
- The figure plots the wall time for solving the same system using each one of the three algorithms.

Conclusion:

AMG is superior to the other two in terms of scalability for the largest processor number, but ILU may have advantage for intermediate processor number..

Parallel scaling (with ODU)



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TSTT: Finite Element (with RPI)

- Develop interface between M3DP and SCOREC existing adaptive & higher order tools
  - using simplified M3DP 2D problem
- Investigate high order elements based on the interface developed,
- switch to SCOREC tools:

  - TSTT mesh

  - TSTT Field