HiPeCC

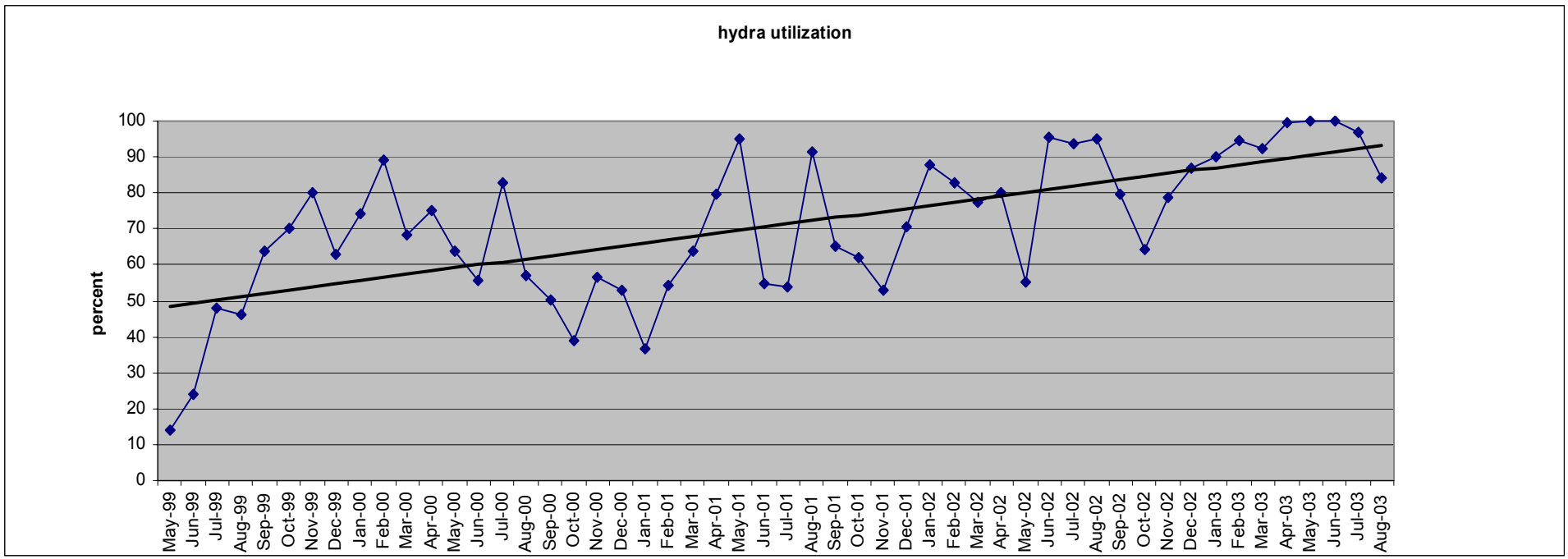
High Performance Computing Center

Wichita State University

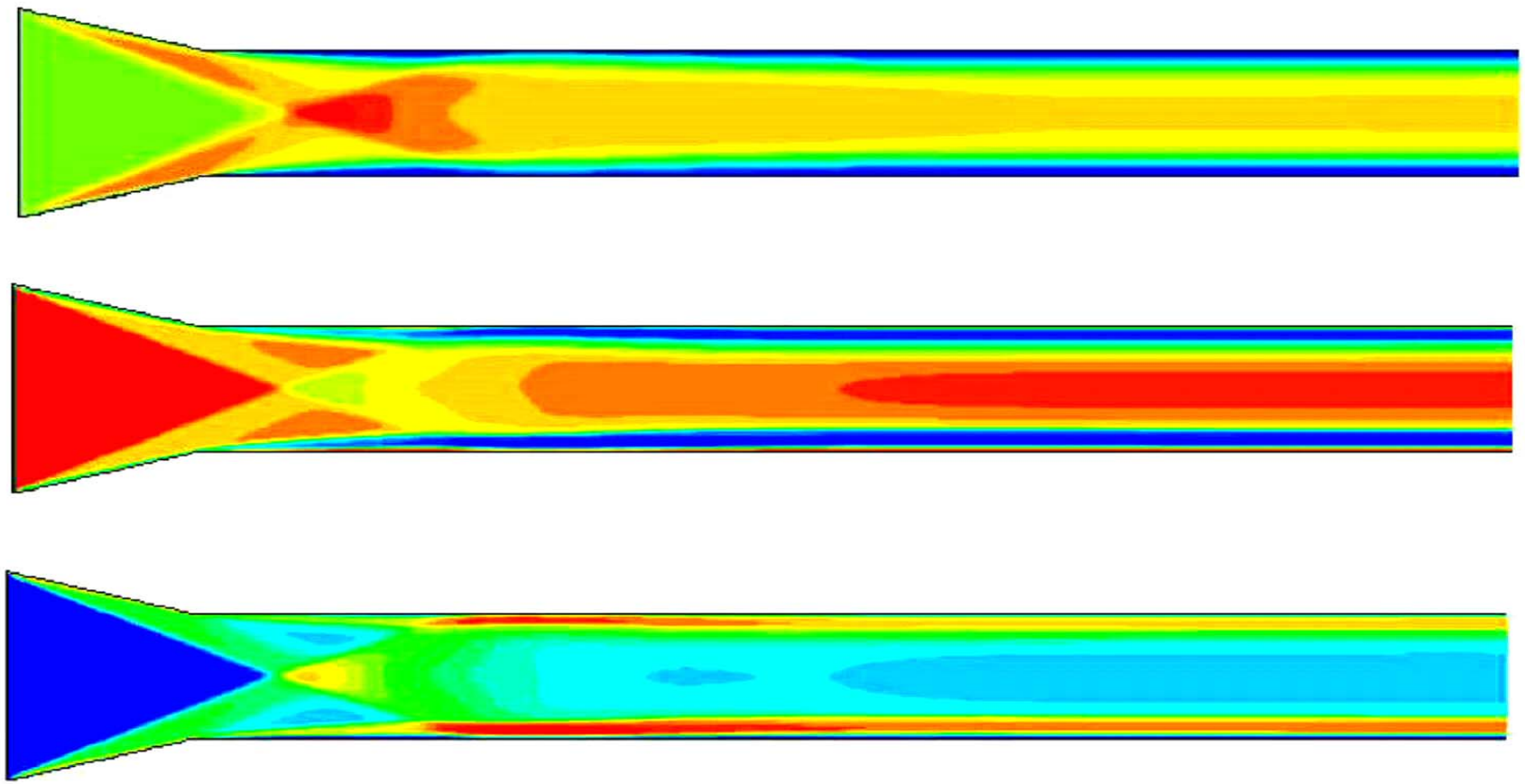
John Matrow, System Administrator/Trainer

Short History

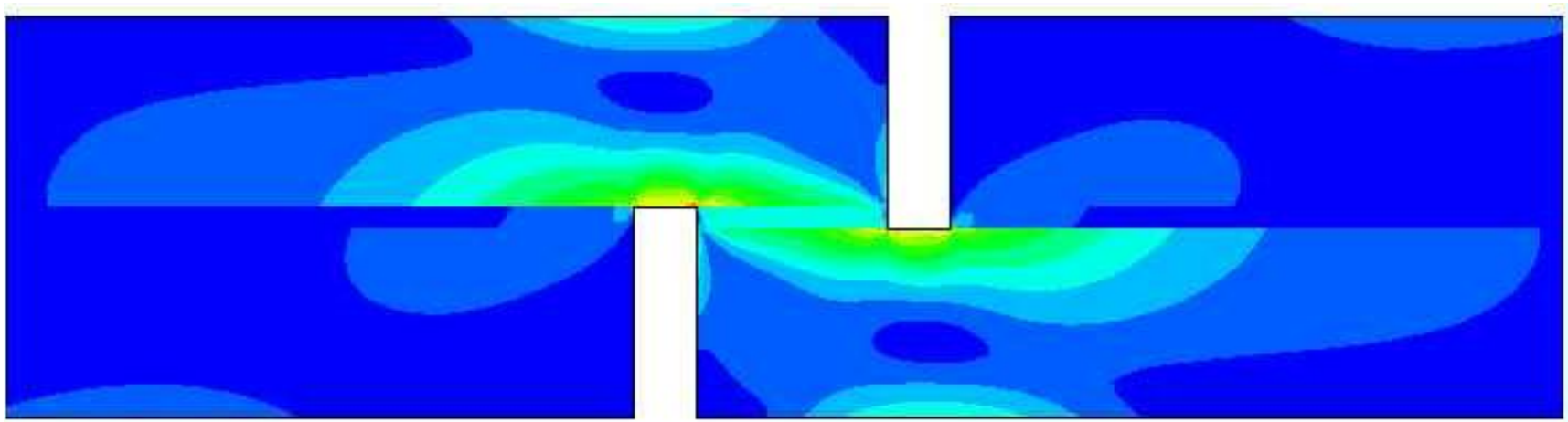
- HiPeCC created April 1999
- Purchased 16p 300Mhz SGI Origin 2000
- April 2001: Added 8p 250Mhz



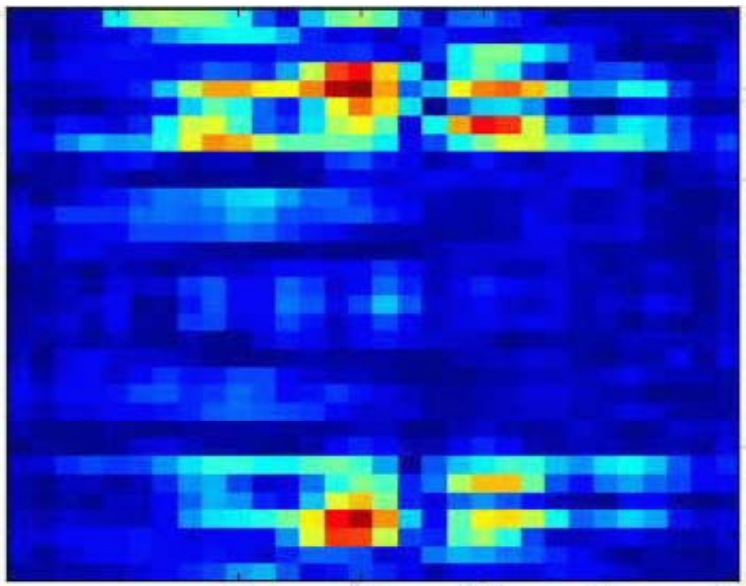
Magnetohydrodynamic Flows



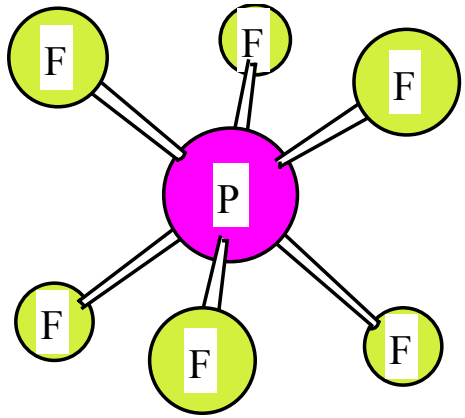
Impact, Damage & Stress Analyses

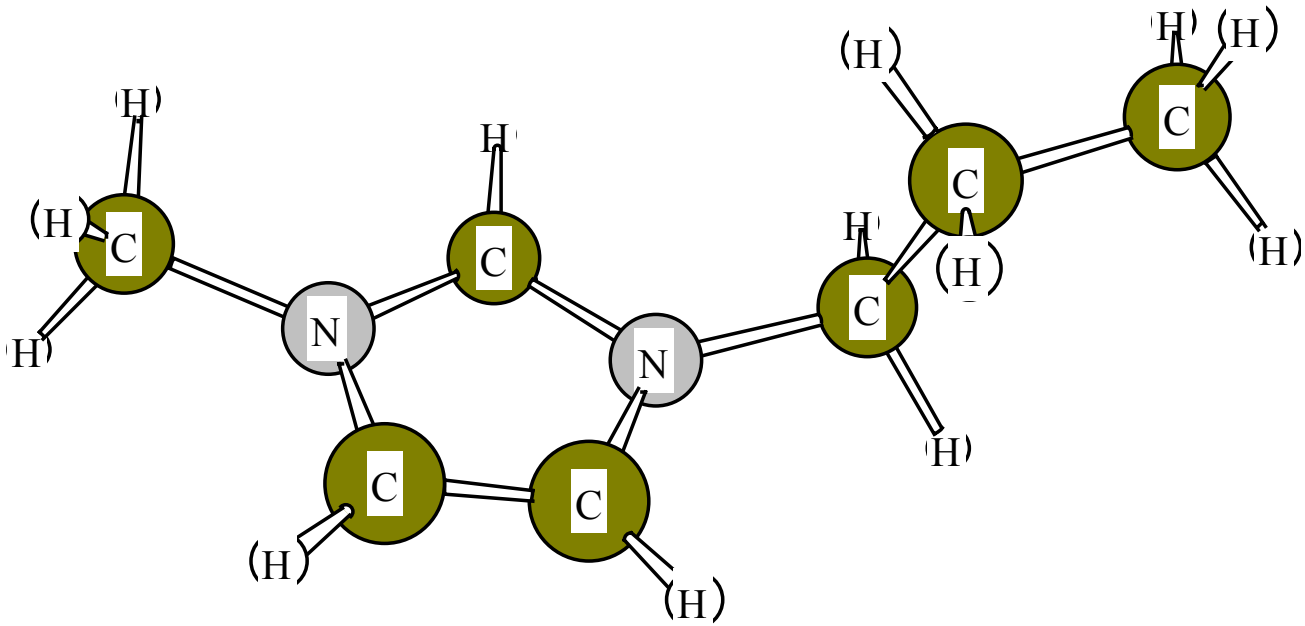


Interior Aircraft Acoutics

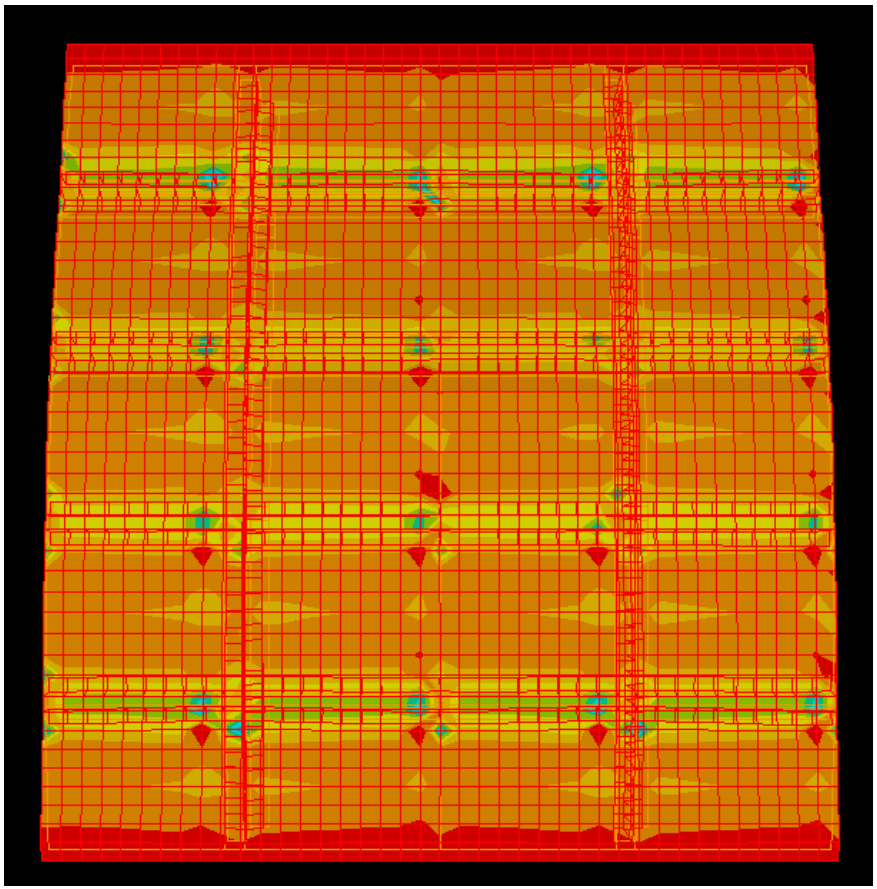


Computational Chemistry

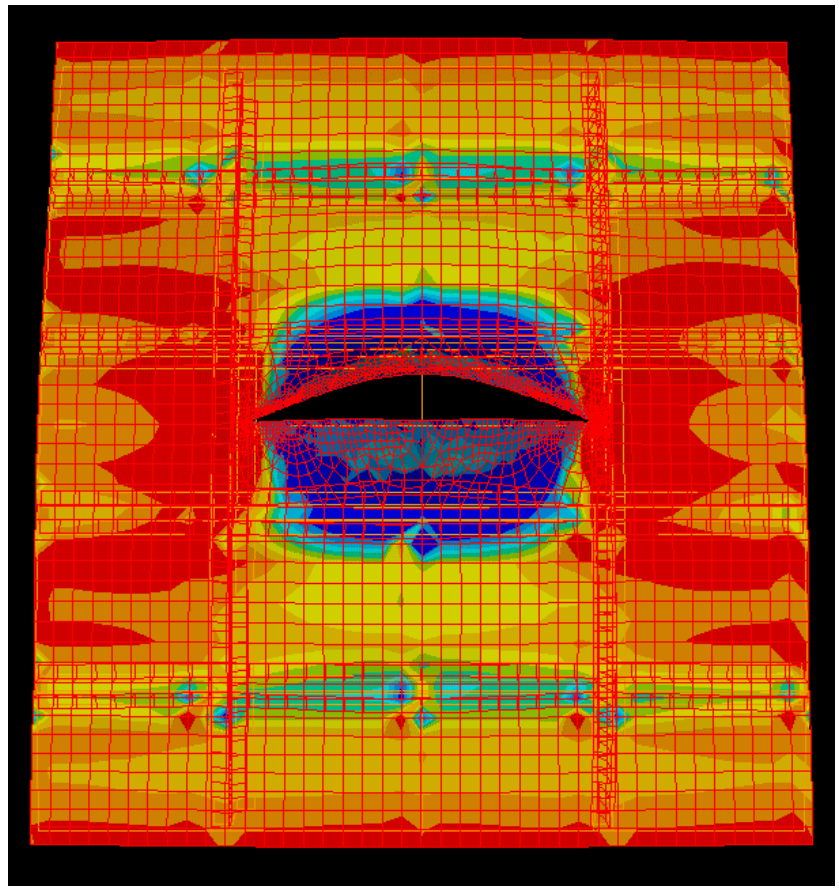




707 Body Panel No. 1 – Local Stresses

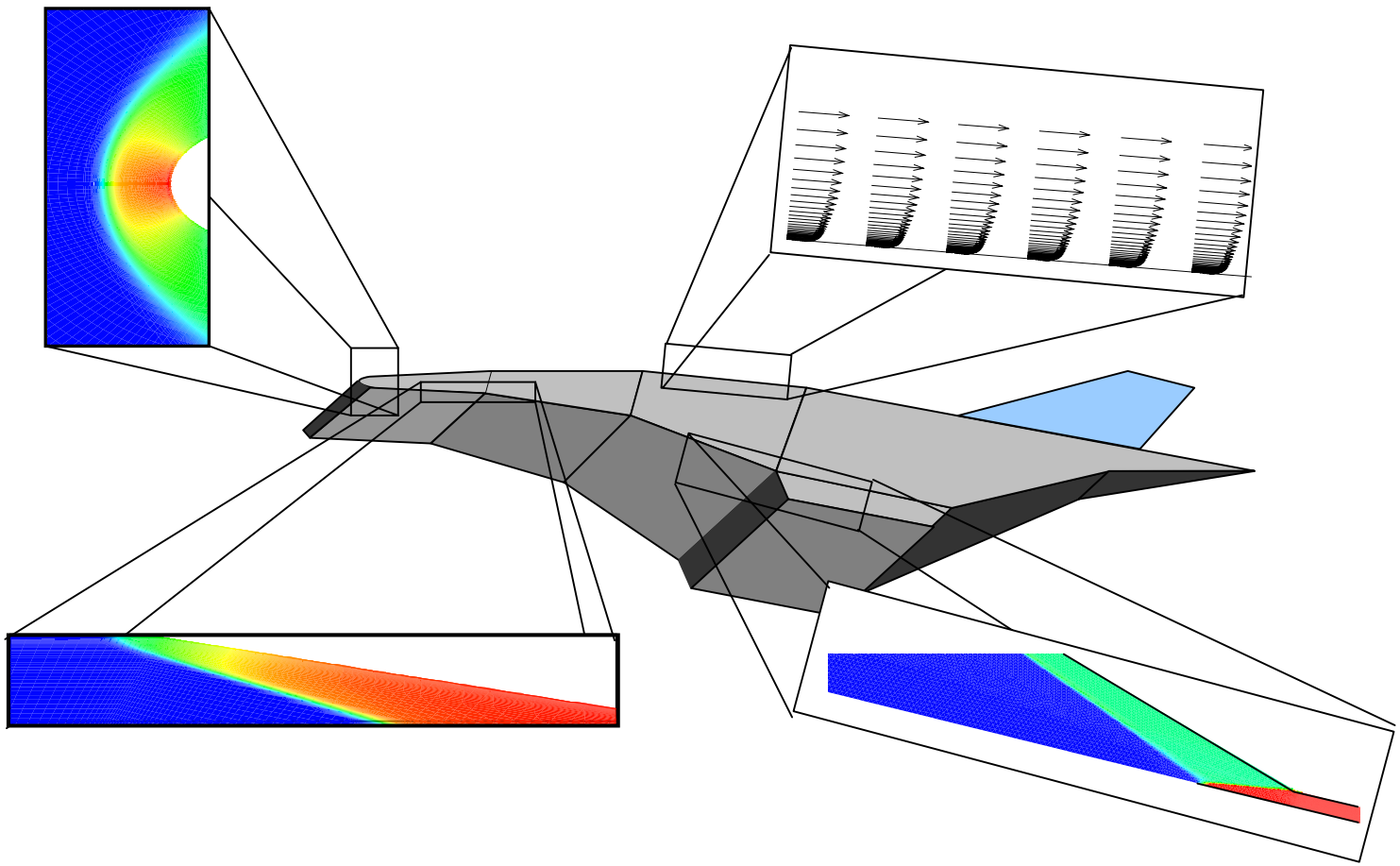


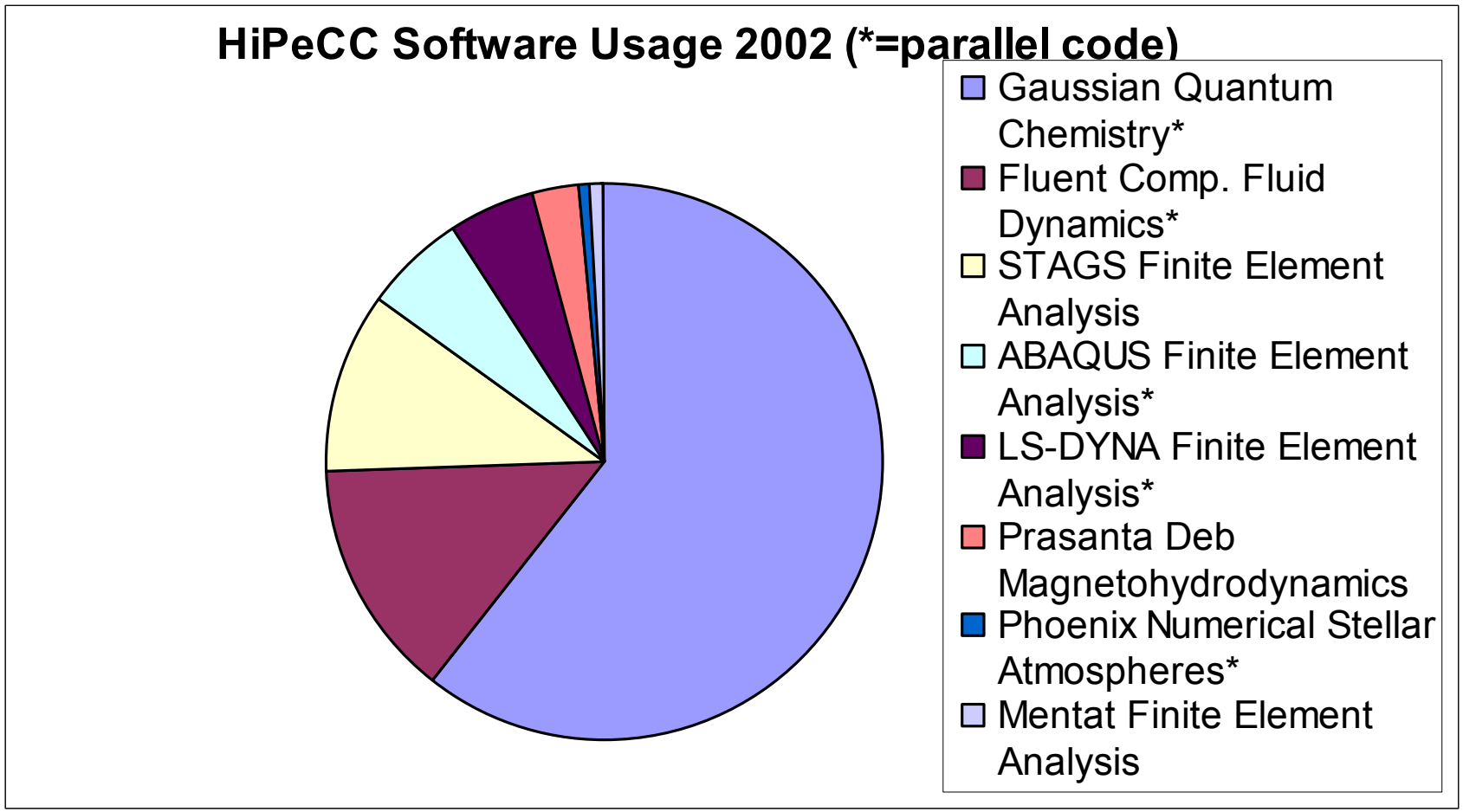
No Crack

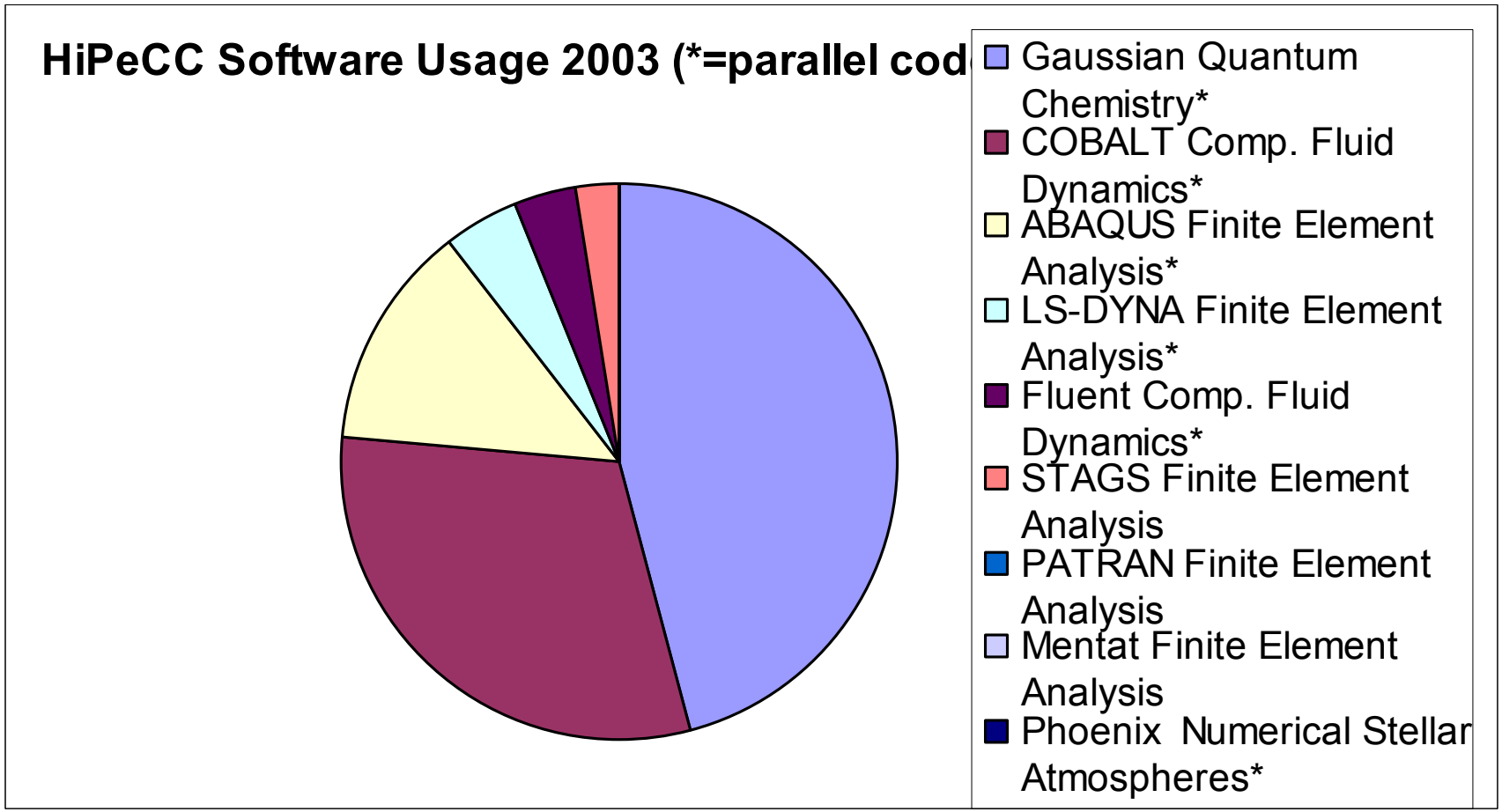


18-in Crack

Aerospace Engineering




HiPeCC Software Usage 2002 (*=parallel code)
Gaussian Quantum Chemistry*
Fluent Comp. Fluid Dynamics*
STAGS Finite Element Analysis
ABAQUS Finite Element Analysis*
LS-DYNA Finite Element Analysis*
Prasanta Deb Magnetohydrodynamics
Phoenix Numerical Stellar Atmospheres*
Mentat Finite Element Analysis


HiPeCC Software Usage 2003 (*=parallel cod
Gaussian Quantum Chemistry*
COBALT Comp. Fluid Dynamics*
ABAQUS Finite Element Analysis*
LS-DYNA Finite Element Analysis*
Fluent Comp. Fluid Dynamics*
STAGS Finite Element Analysis
PATRAN Finite Element Analysis
Mentat Finite Element Analysis
Phoenix Numerical Stellar Atmospheres*

Requirements

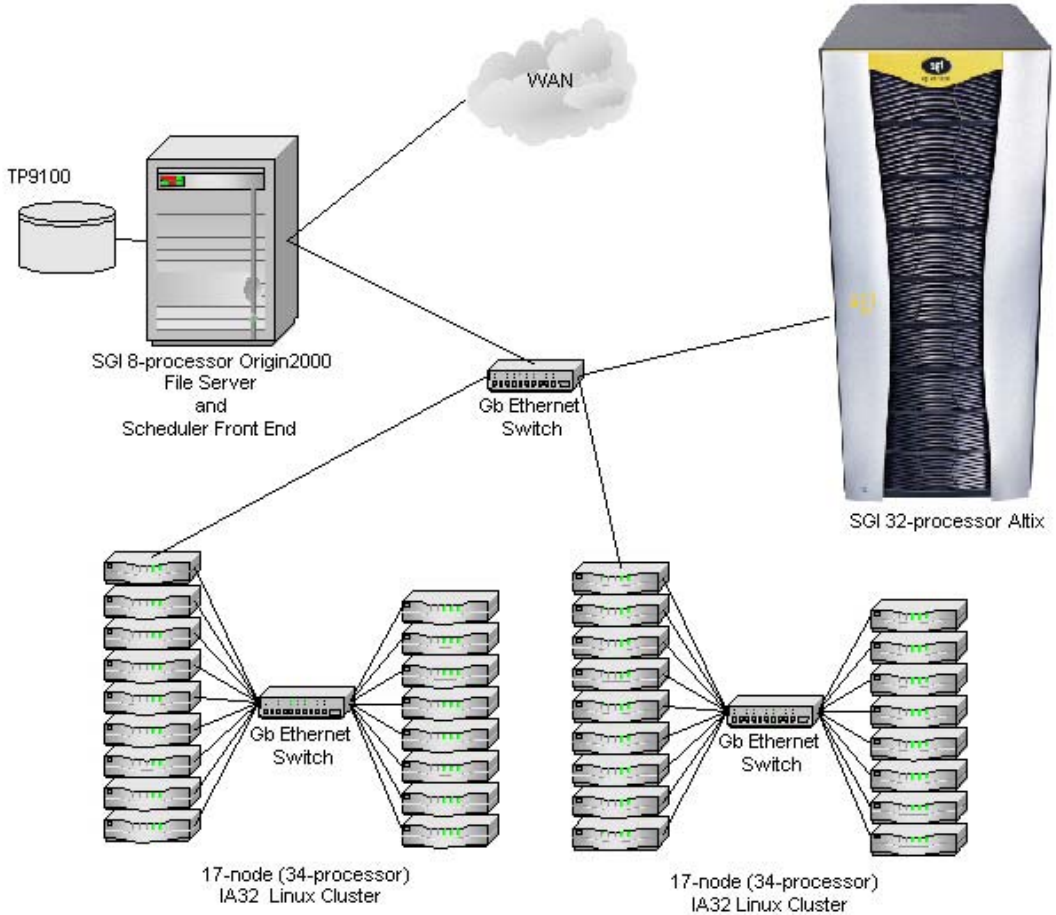
- Low Interconnect Requirement:
  COBALT, FLUENT
- Medium Interconnect Requirement:
  Gaussian, ABAQUS, LS-DYNA
- No particular I/O requirement
- 1GB per processor RAM requirement
- New codes coming:
  CHARMM/NAMD

Benchmarking

- Sorry but confidential results
- But. . . .
- While 64 bit processors are perhaps 30-40% faster than Xeon,
- You can buy 5 2/3 Gigabit Xeons for price of one SMP 64 bit processor

Purchase from SGI

- SGI Altix 3700
  - 32 1.3GHz Madisons
  - 32 GB
- Two Atipa Technologies Clusters, each:
  - 34 dual 2.66GHz Xeon
  - 34 GB
- SGI TP9100 storage: 1TB


WAN
TP9100
SGI 8-processor Origin2000
File Server
and
Scheduler Front End
Gb Ethernet
Switch
SGI 32-processor Altix
Gb Ethernet
Switch
17-node (34-processor)
IA32 Linux Cluster
Gb Ethernet
Switch
17-node (34-processor)
IA32 Linux Cluster