HPC2002 Result

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Hewlett-Packard Company

HP Cluster Platform 4000 w/XC (DL145 G2)

SPECchemM2002 = 84.4

SPEC license #: HPG0001	Tested by: Hewlett-Packard Company	Test site: Houston, Texas	Test date: Aug-2005	HW Avail: Jun-2005	SW Avail: Oct-2005

Benchmark	Reference Time	Runtime	Ratio
371.gamess_m	86400	1024	84.4

Hardware

CPU:	AMD Opteron(tm) Processor 252
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	64 cores, 64 chips, 1 core/chip
CPU(s) orderable:	1 to 2 per node
Primary Cache:	64KBI + 64KBD (on chip) per core
Secondary Cache:	1 MB on chip
L3 Cache:	--
Other Cache:	None
Memory:	4 GB DDR PC3200 per node (8x512K)
Disk Subsystem:	1x80GB SATA disk (root)
Other Hardware:	See below for a more complete system descrition

Software

Parallel:	MPI
Processes-Threads:	64
MPI Processes:	64
OpenMP Threads:	--
Operating System:	XC Linux for High Performance Computing v3.0
Compiler:	Pathscale 2.2 Fortran Compiler Pathscale 2.2 C Compiler
File System:	NFS Shared File System
System State:	Multi-user
Other Software:	HP-MPI 2.1.1, LSF 6.1.7, SLURM 0.5.0-10

Notes/Tuning Information

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Peak Flags:
  mpif90  -Ofast -I. -i8
    FOPTIMIZE = -DSPEC_HPG_MPI_INT4 -DBITS64

  mpicc -Ofast -I.
    CPORTABILITY = -DLINUXIA64
    COPTIMIZE =  -DSPEC_HPG_MPI_INT4 -DBITS64

  Preprocessing:
    -I. -C -P -traditional

  ENV_SPEC_HPG_PARALLEL=MPI

 Flags file description HP-MPI-Pathscale-20050913.txt


Peak User Environment:
  bsub -n 64 ./runspec -c linux_amd_psc --reportable chem_m
  use_submit_for_speed=1
  submit = $MPI_ROOT/bin/mpirun -srun
     ${SPEC}/runenv taskset 0x3 $command < /dev/null

     runenv defines the chem environment variables
     -srun launches one process per procesor
        consisting of the command which follows.
       taskset execs its arguments and bind proceses
       to processors according to mask.
        $command is generated by the SPEC tools.
System Description
  HPC Cluster Platform is a Hewlett-Packard preconfigured
  and factory built hardware and software solution scalable
  from 5 to 512 nodes. The product used in these submissions
  is an HP Cluster Platform model 4000.

  For Product Information see www.hp.com and search for
    HPC Clusters Platforms
      http://www.hp.com/techservers/clusters/ucp/index.html
    XC Clusters
```

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Notes/Tuning Information (Continued)

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        http://www.hp.com/techservers/clusters/xc_clusters.html

    For detailed quick specs, search www.hp.com and search for:
      HP Cluster Platform 3000 and HP Cluster Platform 4000
        http://h18000.www1.hp.com/products/quickspecs/12306_div/12306_div.HTML
      XC System Software V2.1 quickspecs
        http://h18000.www1.hp.com/products/quickspecs/12094_div/12094_div.HTML

  Underlying Cluster compute nodes:
    HP ProLiant DL145 G2 server
    32 compute nodes used for this run.

  Network (for computation)
    Voltaire Infiniband HCA 400Ex
    Voltaire leaf switches - ISR 9024 (1 per 12 nodes)
    Voltaire aggregation switch - ISR 9288 (12 ports per leaf switch)

  Network (for File Server )
    ProCurve 2848 Gb Ethernet Switches (1 per 40 nodes)

  File Server
    HP Proliant DL585
       two AMD Opteron (tm) Processor 850 2400MHz
       8 GB Memory 4 2GB PC2100 Dimms
       146 GB SCSI 10000 Disk

  runenv script to propogate environment
  #!/bin/csh
   setenv IRCDATA ./gamess_us.irc
   setenv INPUT ./gamess_us.F05
   setenv PUNCH ./gamess_us.dat
   setenv INTGRLS ./gamess_us.F08
   setenv AOINTS ./gamess_us.F08
   setenv MOINTS ./gamess_us.F09
   setenv DICTNRY ./gamess_us.F10
   setenv DRTFILE ./gamess_us.F11
   setenv CIVECTR ./gamess_us.F12
   setenv NTNFMLA ./gamess_us.F13
   setenv CIINTS ./gamess_us.F14
   setenv WORK15 ./gamess_us.F15
   setenv WORK16 ./gamess_us.F16
   setenv CSFSAVE ./gamess_us.F17
   setenv FOCKDER ./gamess_us.F18
   setenv DASORT ./gamess_us.F20
   setenv JKFILE ./gamess_us.F23
   setenv ORDINT ./gamess_us.F24
   setenv EFPIND ./gamess_us.F25
   setenv MPI_ENABLED ENABLED
```