HPC2002 Result

Hewlett-Packard Company
hp server rx2600 cluster (1500MHz Itanium2)

SPECchemM2002 = 60.5

SPEC license #: HPG2116	Tested by: Hewlett-Packard Company	Test site: Richardson, Texas	Test date: Feb-2004	HW Avail: Oct-2003	SW Avail: Oct-2003

Benchmark	Reference Time	Runtime	Ratio
371.gamess_m	86400	1428	60.5

Hardware

CPU:	Intel Itanium 2
CPU MHz:	1500
FPU:	Integrated
CPU(s) enabled:	88
CPU(s) orderable:	1 to 2 per node, up to 64 nodes
Primary Cache:	L1 Inst/Data: 16 KB, associativity = 4
Secondary Cache:	L2 Unified: 256 KB, associativity = 8
L3 Cache:	L3 Unified: 6144 KB, associativity = 24
Other Cache:	None
Memory:	12GB (12 x 1 GB DDR 266 DIMMS per node)
Disk Subsystem:	1x36GB 10k RPM SCSI system disk per node
Other Hardware:	See Notes section below.

Software

Parallel:	MPI
Processes-Threads:	88
MPI Processes:	88
OpenMP Threads:	N/A
Operating System:	HPUX11i-TCOE B.11.23
Compiler:	HP C/ANSI C Compiler B.11.23 HP aC++ Compiler B.11.23 HP Fortran 90 Compiler B.11.23 HP LIBF90 PHSS_29620 HP F90 Compiler PHSS_29663 HP aC++ Compiler PHSS_29655 HP C Compiler PHSS_29656 u2comp/be/plugin library PHSS_29657 HP MPI 02.00.00.00 B6060B
File System:	vxfs (system), vxfs through NFS (benchmark files)
System State:	Multi-user
Other Software:	HP MPI v2.00.00

Notes/Tuning Information

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CPU(s) enabled: 88 (two per node, 44 nodes)

Other Hardware:
  Computation Network:
    GigaBit on-board adapter for Computation, Administration and NFS
    PCI GigaBit card for NFS traffic  (GigE-TX adapter A6825A )

  NFS file server:
    rp5470 (PA-RISC) NFS File Server
      4 PA8700 CPUs 750 MHz.  16 GB of memory
      4 internal disks 73 GB Ultra2 SCSI
      20 external disks 18 GB U160 SCSI striped with LVM across 4 SCSI controllers
      15 external disks 73 GB FibreChannel mirrored with LVM across 2 FC controllers
        which contain the NFS filesystems accessed by the benchmark. These
        NFS filesystems are optimized for security rather than performance.

  File Server Network:
    HP ProCurve 9308 64-port copper Gigabit Ethernet Switch
    Built-in Gigabit Ethernet Adapters (one per node)

 Peak Flags:  MPI
   mpif90  +Ofast  +Onodataprefetch  $(DAFLAG) +Onolimit +U77
   mpicc -Ae +Ofast +Onodataprefetch  -DNOUNDERSCORE $(DAFLAG) +Onolimit
   OPTIMIZE = -I /opt/mpi/include
   DAFLAG = +DD64 +i8 +r8
   CPPFLAGS = -I. -C -P
   EXTRA_LIBS=  +U77 $(DAFLAG) +FPD -minshared
   MPILIB=/opt/mpi/lib/hpux64


 Alternate Source used for Peak:
   None
```

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Notes/Tuning Information (Continued)

```
Kernel Paramters (/stand/system):
   maxdsiz         0x7b03a000
   maxdsiz_64bit   0x4000000000
   maxssiz         0x10000000
   maxssiz_64bit   0x40000000
   maxtsiz         1073741824
   maxtsiz_64bit   4294967296
   vps_pagesize    4
   vps_ceiling     64
   dbc_min_pct     3
   dbc_max_pct     3

 Peak User Environment:
   use_submit_for_speed=1
   submit = /home/f90pack/clust_mpirun  $command

clust_mpirungames:
   mpirun -TCP   -f appfile

appfile:
    -h  rx17-gb  -np 2  -e MPI_WORKDIR=$cwd  $command
            ...
    -h  rx60-gb  -np 2  -e MPI_WORKDIR=$cwd  $command

 environment variables in .cshrc

   setenv MPI_ENABLED ENABLED
   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

 LSF used to initiate batch job submissions.
 Appfile is generated from within the LSF run.
```