



HPC2002 Result

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IBM Corporation eServer 325 Cluster

SPECchemM2002 = 46.6

SPEC license #: HPG0005 | Tested by: IBM Corporation | Test site: Research Triangle Park, NC | Test date: Oct-2003 | HW Avail: Oct-2003 | SW Avail: Jul-2003

Benchmark	Reference Time	Runtime	Ratio
371.gamess_m	86400	1854	46.6

Hardware		Software	
CPU:	AMD Opteron (246)	Parallel:	MPI
CPU MHz:	2000	Processes-Threads:	48
FPU:	Integrated	MPI Processes:	48
CPU(s) enabled:	48	OpenMP Threads:	N/A
CPU(s) orderable:	1 or 2 per node	Operating System:	SuSE Linux 8.0 SLES 64 bit Kernel k_smp-2.4.19-249 (from Service Pack 2)
Primary Cache:	64KBI + 64KBD on chip	Compiler:	Fortran: Portland Group 5.0-2 Fortran 90 C: Portland Group 5.0-2 C
Secondary Cache:	1024KB(I+D) on chip	File System:	Linux/reiserfs
L3 Cache:	None	System State:	Multi-user
Other Cache:	None	Other Software:	MPICH-GM 1.2.5..10 GM 2.0.6_Linux
Memory:	4GB DDR333 CL2.5 Registered ECC per node		
Disk Subsystem:	1 x 36GB 10K RPM SCSI per node		
Other Hardware:	See Notes.		

Notes/Tuning Information

Flags:

```
Fortran:
-DSPEC_HPG_MPI_INT4 -DBITS64 -i8
C:
-DSPEC_HPG_MPI_INT4 -DBITS64
Preprocessor:
-E
```

Submit command to run applications:

```
cp 371.gamess_m.env ~/.ssh/environment ;
mpirun.ch_gm -np 48 -machinefile n00x2.mf --gm-recv
blocking --gm-no-shmem -wd `pwd` $command ;
rm ~/.ssh/environment
```

Cluster Configuration:

```
Two CPUs per node, 24 nodes
371.gamess_m.env contains environment variables
the benchmark needs for execution in a cluster
All benchmark files are on a shared file server
Nodes and file server use NFS shared file system
```

Computation Network:

```
Myrinet M3F-PCIXD-2 Adapters (one per node)
Myrinet M3-E32 Switch Enclosure
4 x Myrinet M3-SW16-8F 8-Port Line Cards
```

x345 File Server:

```
2 x 2.4 GHz Xeon Processors
512MB DDR266 CL2.5 Registered ECC Memory
1 x 36GB 10K RPM Internal SCSI Drives
ServerRAID 4H SCSI RAID Adapter
10 x 36GB 10K RPM SCSI Drives
SuSE 8.0 Pro Kernel 2.4.20-40
Reiserfs Local File System
NFS Shared File System
```

File Server Network:

```
Cisco 4003 GbE Copper Switch
```



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Notes/Tuning Information (Continued)

Built-in Gigabit Ethernet Adapters

Set the following BIOS parameters:

DRAM Interleave = AUTO
Node Interleave = Disabled
ACPI SRAT = Enabled