



# HPC2002 Result

Copyright ©1999-2002, Standard Performance Evaluation Corporation

## IBM Corporation eServer 325 Cluster

## SPECchemM2002 = 52.9

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

Benchmark	Reference Time	Runtime	Ratio
371.gamess_m	86400	1634	52.9

Hardware		Software	
CPU:	AMD Opteron (246)	Parallel:	MPI
CPU MHz:	2000	Processes-Threads:	80
FPU:	Integrated	MPI Processes:	80
CPU(s) enabled:	80	OpenMP Threads:	N/A
CPU(s) orderable:	1 or 2 per node	Operating System:	SUSE LINUX 8.0 SLES 64 bit Kernel k_smp-2.4.21-60 (from Service Pack 3)
Primary Cache:	64KBI + 64KBD on chip	Compiler:	Fortran: Portland Group 5.1-3 Fortran 90 C: Portland Group 5.1-3 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:	6GB 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

#### Extra Libraries:

-lmpich -lgm -lpthread

#### Submit command to run applications:

```
cp 371.gamess_m.env ~/.ssh/environment ;
mpirun.ch_gm -np 80 -machinefile n00x2.mf --gm-recv
blocking --gm-no-shmem -wd `pwd` $command ;
rm ~/.ssh/environment
```

#### Cluster Configuration:

Two CPUs per node, 40 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-E128 Switch Enclosure  
8 x Myrinet M3-SW16-8F 8-Port Line Card

#### x345 File Server (2):

2 x 2.8 GHz Xeon Processors  
4GB DDR266 CL2.5 Registered ECC Memory  
2 x 36GB 10K RPM SCSI Drives  
Software RAID 0  
Red Hat Linux 7.3  
Ext3 Local File System  
NFS Shared File System

#### File Server Network:



# HPC2002 Result

Copyright ©1999-2002, Standard Performance Evaluation Corporation

IBM Corporation  
eServer 325 Cluster

SPECchemM2002 = 52.9

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

## Notes/Tuning Information (Continued)

Cisco 6509 Gigabit Ethernet Switch  
3 x 48-port Copper  
Built-in Gigabit Ethernet Adapters

Set the following BIOS parameters:

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