# HPC2002 Result

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## IBM Corporation
## eServer 325 Cluster

SPECenvM2002 = 423

| SPEC license #: HPG0005 | Tested by: IBM Corporation | Test site: Research Triangle Park, NC | Test date: Jan-2004 | HW Avail: Oct-2003 | SW Avail: Feb-2004 |
|---|---|---|---|---|---|

| Benchmark | Reference Time | Runtime | Ratio |
|---|---|---|---|
| 361.wrf_m | 86400 | 204 | 423 |

100 200 300 400 500

### Hardware

| | |
|---|---|
| CPU: | AMD Opteron (246) |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 112 |
| CPU(s) orderable: | 1 or 2 per node |
| Primary Cache: | 64KBI + 64KBD on chip |
| Secondary Cache: | 1024KB(I+D) on chip |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 6GB DDR333 CL2.5 Registered ECC per node |
| Disk Subsystem: | 1 x 36GB SCSI per node |
| Other Hardware: | See Notes. |

### Software

| | |
|---|---|
| Parallel: | MPI |
| Processes-Threads: | 112 |
| MPI Processes: | 112 |
| OpenMP Threads: | N/A |
| Operating System: | SUSE LINUX 8.0 SLES 64 bit Kernel k_smp-2.4.21-60 (from Service Pack 3) |
| Compiler: | Fortran: Portland Group 5.1-3 Fortran 90<br>C: Portland Group 5.1-3 C |
| File System: | Linux/reiserfs |
| System State: | Multi-user |
| Other Software: | MPICH-GM 1.2.5..10<br>GM 2.0.6_Linux<br>NetCDF 3.5.0 |

## Notes/Tuning Information

```
Flags:
  Fortran:
    -O3 -fast
  C:
    -O3 -fast
  Preprocessor:
    -E -I. -I$(CDFINC) -I$(MPIINC)
  Linker:
    -Bstatic
  Extra Libraries:
    -lnetcdf -lmpich -lgm -lpthread

Submit command to run applications:
  mpirun.ch_gm -np 112 -machinefile n00x2.mf
    --gm-recv blocking --gm-no-shmem -wd ‘pwd‘ $command

Cluster Configuration:
  Two CPUs per node, 56 nodes
  All benchmark files are on a shared file server
  Nodes and file server use NFS shared file system
  $(CDFINC) is the NETCDF include directory
  $(MPIINC) is the MPICH include directory

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
```

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## Notes/Tuning Information (Continued)

```
File Server Network:
  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
```