



# HPC2002 Result

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## IBM Corporation eServer 325 Cluster

## SPECenvM2002 = 403

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	100	200	300	400	500
361.wrf_m	86400	214	403					

### Hardware

CPU: AMD Opteron (246)  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 104  
 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: 104  
 MPI Processes: 104  
 OpenMP Threads: N/A  
 Operating System: SUSE LINUX 8.0 SLES 64 bit Kernel  
 k\_smp-2.4.21-60 (from Service Pack 3)  
 Fortran: Portland Group 5.1-3 Fortran 90  
 C: Portland Group 5.1-3 C  
 Compiler:  
 File System: Linux/reiserfs  
 System State: Multi-user  
 Other Software: MPICH-GM 1.2.5..10  
 GM 2.0.6\_Linux  
 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 104 -machinefile n00x2.mf
--gm-recv blocking --gm-no-shmem -wd `pwd` $command
```

### Cluster Configuration:

```
Two CPUs per node, 52 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