



# HPC2002 Result

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## IBM Corporation eServer 325 Cluster

## SPECenvM2002 = 455

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	190	455

Hardware		Software	
CPU:	AMD Opteron (246)	Parallel:	MPI
CPU MHz:	2000	Processes-Threads:	128
FPU:	Integrated	MPI Processes:	128
CPU(s) enabled:	128	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 NetCDF 3.5.0
Memory:	6GB DDR333 CL2.5 Registered ECC per node		
Disk Subsystem:	1 x 36GB SCSI per node		
Other Hardware:	See Notes.		

### 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 128 -machinefile n00x2.mf
  --gm-recv blocking --gm-no-shmem -wd `pwd` $command

```

#### Cluster Configuration:

```

Two CPUs per node, 64 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