HPC2002 Result

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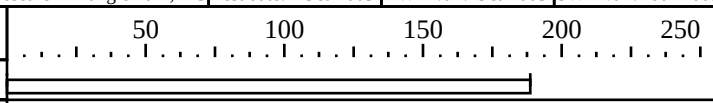
IBM Corporation
eServer 325 Cluster

SPECenvM2002 = 189

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
361.wrf_m	86400	458	189



Hardware

CPU:	AMD Opteron (246)
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	48
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:	4GB DDR333 CL2.5 Registered ECC per node
Disk Subsystem:	1 x 36GB 10K RPM SCSI per node
Other Hardware:	See Notes.

Software

Parallel:	MPI
Processes-Threads:	48
MPI Processes:	48
OpenMP Threads:	N/A
Operating System:	SuSE Linux 8.0 SLES 64 bit Kernel k_smp-2.4.19-249 (from Service Pack 2)
Compiler:	Fortran: Portland Group 5.0-2 Fortran 90 C: Portland Group 5.0-2 C
File System:	Linux/reiserfs
System State:	Multi-user
Other Software:	MPICH-GM 1.2.5..10 GM 2.0.6_Linux

Notes/Tuning Information

```
Flags:
  Fortran:
    -O3 -fast
  C:
    -O3 -fast
  Preprocessor:
    -E -I. -I$(CDF_INC) -I$(MPI_INC)
  Extra Libraries:
    -lnetcdf -lmpich -lgm -lpthread

Submit command to run applications:
  cp -rf 361.wrf_m.env ~/.ssh/environment ;
  mpirun.ch_gm -np 48 -machinefile n00x2.mf --gm-recv
    blocking -wd 'pwd' --gm-no-shmem $command ;
  rm -rf ~/.ssh/environment

Cluster Configuration:
  Two CPUs per node, 24 nodes
  All benchmark files are on a shared file server
  Nodes and file server use NFS shared file system
  $(CDF_INC) is the NETCDF include directory
  $(MPI_INC) is the MPICH include directory
  361.wrf_m.env contains "SPEC_HPG_PARALLEL=MPI"
  Submit cp and rm were later found not to be necessary

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
  ServeRAID 4H SCSI RAID Adapter
  10 x 36GB 10K RPM SCSI Drives
  SuSE 8.0 Pro Kernel 2.4.20-40
  Reiserfs Local File System
```

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Notes/Tuning Information (Continued)

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    NFS Shared File System

  File Server Network:
    Cisco 4003 GbE Copper Switch
    Built-in Gigabit Ethernet Adapters

  Set the following BIOS parameters:
    DRAM Interleave = AUTO
    Node Interleave = Disabled
    ACPI SRAT       = Enabled
```