

## HPC2002 Result

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Dell  
PowerEdge 1750 cluster

SPECseisM2002 =NC

SPEC license # HPG0007A	Tested by: Purdue University	Test site: Purdue University	Test date: Feb-2005	Hardware Avail: Apr-2004	Software Avail: May-2004
<b>SPEC has determined that this result was not in compliance with the SPEC HPC2002 run and reporting rules. Specifically, the result violated run rule 5.0 ("Run Rule Exceptions") in that unapproved source code changes, made to comply with the Fortran standard, were used. Replacement results that use an approved alternate source can be found at: <a href="http://www.spec.org/hpc2002/results/res2005q2/hpc2002-20050511-00138.html">http://www.spec.org/hpc2002/results/res2005q2/hpc2002-20050511-00138.html</a></b>					

Benchmark	Reference Time	Runtime	Ratio
351.seis_m	86400	NC	NC
SPECseisM2002			NC

<b>Hardware</b>		<b>Software</b>	
<b>Hardware Vendor:</b>	Dell	<b>Parallel:</b>	MPI
<b>Model Name:</b>	PowerEdge 1750 cluster	<b>Processes-Threads:</b>	16
<b>CPU:</b>	Intel Xeon processor	<b>MPI Processes:</b>	16
<b>CPU MHz:</b>	3060	<b>OpenMP Threads:</b>	--
<b>FPU:</b>	Integrated	<b>Operating System:</b>	RedHat Enterprise Linux, Advanced Server version 3 (4)
<b>CPU(s) enabled:</b>	16 cores, 16 chips, 1 core/chip, Hyper-Threading enabled	<b>Compiler:</b>	Intel C++ Compiler-icc, Version 8.0 Build 20031016Z for Linux Intel Fortran Compiler-ifort, Version 8.0 Build 20040122Z for Linux
<b>CPU(s) orderable:</b>	1 or 2 per node	<b>File System:</b>	NFS shared file system
<b>Primary Cache:</b>	12KB (I) micro-ops (trace) + 8KB (D) on chip	<b>System State:</b>	Multi-user
<b>Secondary Cache:</b>	512KB on chip	<b>Other Software:</b>	mpich-1.2.6
<b>L3 Cache:</b>	1 MB on chip		
<b>Other Cache:</b>	None		
<b>Memory:</b>	2 GB DDR PC2100 CL2.5 ECC Registered per node		
<b>Disk Subsystem:</b>	1x36 GB SCSI per node		
<b>Other Hardware:</b>	See File server and Network notes		

## Notes / Tuning Information

Flags (Fortran & C):

```
CPP Flags: -I. -C -P -DSPEC_HPG_MPI
COPTIMIZE = -O3 -static -march=pentium4 -mcpu=pentium4 -Dmpi \
            -DSPEC_HPG_MPI -DSPECDONOTNEEDARG -DFORTRAN_UNDERSCORE \
            -I/usr/local/topspin/mpi/mpich/include
FOPTIMIZE = -O3 -mp -static -fp_port -xW -axW -tpp7 \
            -I/usr/local/topspin/mpi/mpich/include
LDOPTIONS = -O3 -mp -static
```

Submit command to run MPI application:

```
use_submit_for_speed=1
MPI_COMM_SIZE=16
submit=mpirun -np "$MPI_COMM_SIZE" -hostfile "$PBS_NODEFILE" $command
```

Hardware notes:

Cluster config:

Nodes and file server use NFS shared file system.  
Two CPUs per node, Hyperthreading ENABLED

File server:

2 x 3.06 GHz Intel Xeon processors  
4 GB DDR PC2100 CL2.5 ECC Registered Memory  
5 x 72 GB 10K RPM SCSI Drives  
Hardware RAID-5 (Dell PERC/3Di option)  
Debian Linux, 3.1 "sarge"  
ext3 local file system  
NFS shared file system

Network (for computation and file server):

Infiniband: Topspin HBAs, Topspin 120 switches

All BIOS parameters left with factory defaults

For a description of Intel compiler flags, portability flags,  
and system parameters used to generate this result, please refer  
to PURDUE-20050329-INTEL-LINUX-XEON.txt in the flags directory.

Submitted\_by: "Sayeed, Mohamed" Submitted: Thu Mar 31 11:28:31 2005

Submission: hpc2002-20050226-00124.sub

For questions about this result, please contact the tester.

For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org)

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