



HPC2002 Result

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Dell
PowerEdge 1750 cluster

SPECseisM2002 = 162

SPEC license #: HPG0007A | Tested by: Purdue University | Test site: Purdue University | Test date: May-2005 | HW Avail: Apr-2004 | SW Avail: Mar-2005

Benchmark	Reference Time	Runtime	Ratio
351.seis_m	86400	534	162

Hardware		Software	
CPU:	Intel Pentium4 Xeon	Parallel:	MPI
CPU MHz:	3200	Processes-Threads:	16
FPU:	Integrated	MPI Processes:	16
CPU(s) enabled:	16 cores, 16 chips, 1 core/chip (Hyper-Threading Technology enabled)	OpenMP Threads:	-
CPU(s) orderable:	1 or 2 per node	Operating System:	RedHat Enterprise Linux, Advanced Server version 3 (4)
Primary Cache:	12KB (I) micro-ops (trace) + 8KB (D) on chip	Compiler:	Intel C++ Compiler- icc, Version 8.1
Secondary Cache:	512KB on chip		Build 20050309Z for Linux
L3 Cache:	1 MB on chip		Intel Fortran Compiler- ifort, Version 8.1
Other Cache:	None		Build 20050309Z for Linux
Memory:	2 GB DDR PC2100 CL2.5 ECC Registered per node	File System:	NFS shared file system
Disk Subsystem:	1x36 GB SCSI per node	System State:	Multi-user
Other Hardware:	see notes	Other Software:	mpich-vapi (see notes for configuration)

Notes/Tuning Information

Tested by Purdue University
Approved Alternate Source: approved alternate source, "purdueintel", was used to fix Fortran standard violations
Flags (Fortran & C):
CPP Flags: -I. -C -P -traditional -Dmpi -DSPEC_HPG_MPI
COPTIMIZE = -O3 -static -march=pentium4 -mcpu=pentium4 -Dmpi \
-DSPEC_HPG_MPI -DSPECDONOTNEEDARG -DFORTRAN_UNDESCORE
FOPTIMIZE = -O3 -mp -static -fp_port -xW -axW -tpp7
LDOPTIONS = -O3 -mp -Bstatic

Submit command to run MPI application:
PBS Version: PBSPro 5.4.1.41640
PBS Command to get resources (for cyclic allocation of processes):
qsub -I -q preemptx -lnodes=8:IB:ppn=2,walltime=1:00:00
use_submit_for_speed=1
submit=mpirun -np 16 -hostfile \\${PBS_NODEFILE} \$command
Cluster config:
Nodes and file server use NFS shared file system
Two CPUs per node, Hyper-Threading Technology 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

MPICH-1.2.5 Configuration
CC=/opt/intel_cc_81/bin/icc
CXX=/opt/intel_cc_81/bin/icc
FC=/opt/intel_fc_81/bin/ifort
F90=/opt/intel_fc_81/bin/ifort
./configure --with-device=ch_vapi --with-arch=LINUX --without-mpe \
--without-romio --disable-sharedlib \
-cflags="-D_SMP_ -DUSE_STDARG -DLAZY_MEM_UNREGISTER -DUSE_INLINE \



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Notes/Tuning Information (Continued)

```
-DRDMA_FAST_PATH -DEARLY_SEND_COMPLETION -D_REENTRANT -O2 \  
-DVIODEV_RPUT_SUPPORT -MD -fpic -DMT_LITTLE_ENDIAN -D_LINUX_ \  
-DVAPI -DTS_HOST_DRIVER -DCPU_X86 \  
-I/usr/local/topspin/include -I/usr/local/topspin/include/vapi \  
-L/usr/local/topspin/lib " \  
-lib="-lvapi -lmtl_common -lmpga -lmosal -lpthread"
```

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