



HPC2002 Result

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Hewlett-Packard Company
HP Cluster Platform 4000 w/XC (DL145 G2)

SPECenvM2002 = 845

SPEC license #: HPG0001 | Tested by: Hewlett-Packard Company | Test site: Houston, Texas | Test date: Aug-2005 | HW Avail: Jun-2005 | SW Avail: Oct-2005

Benchmark	Reference Time	Runtime	Ratio
361.wrf_m	86400	102	845

Hardware		Software	
CPU:	AMD Opteron(tm) Processor 252	Parallel:	MPI
CPU MHz:	2600	Processes-Threads:	192
FPU:	Integrated	MPI Processes:	192
CPU(s) enabled:	192 cores, 192 chips, 1 core/chip	OpenMP Threads:	--
CPU(s) orderable:	1 to 2 per node	Operating System:	XC Linux for High Performance Computing v3.0
Primary Cache:	64KBI + 64KBD (on chip) per core	Compiler:	Pathscale 2.2 Fortran Compiler
Secondary Cache:	1 MB on chip		Pathscale 2.2 C Compiler
L3 Cache:	--	File System:	NFS Shared File System
Other Cache:	None	System State:	Multi-user
Memory:	4 GB DDR PC3200 per node (8x512K)	Other Software:	HP-MPI 2.1.1, LSF 6.1.7, SLURM 0.5.0-10
Disk Subsystem:	1x80GB SATA disk (root)		
Other Hardware:	See below for a more complete system description		

Notes/Tuning Information

Peak Flags:

```
mpif90 -Ofast -I. -I${NETCDF}/include
FPORABILITY = -DF2CSTYLE
```

```
mpicc -Ofast -I. -I${NETCDF}/include
CPORABILITY = -DSPEC_HPG_MPI2
```

```
Preprocessing:
-I. -traditional
```

```
Link Flags EXTRA_LIBS = -L${NETCDF}/lib -lnetcdf
```

```
ENV_SPEC_HPG_PARALLEL=MPI
```

Flags file description HP-MPI-Pathscale-20050913.txt

Alternate Source used for Peak:

```
hplinux
fix errno.h include file problem under #ifdef T3D
Available as SPEC HPC2002 Source:
env2002-src_hp-errno-fix-20050907.tar.gz
```

Peak User Environment:

```
bsub -n 192 ./runspec -c linux_amd_psc --reportable env_m
```

```
use_submit_for_speed=1
submit = \${MPI_ROOT}/bin/mpirun -srun
taskset 0x3 $command < /dev/null
```

```
-srun launches one process per processor
consisting of the command which follows.
taskset execs its arguments and bind proceses
to processors according to mask.
$command is generated by the SPEC tools.
```

System Description

HPC Cluster Platform is a Hewlett-Packard preconfigured and factory built hardware and software solution scalable



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Notes/Tuning Information (Continued)

from 5 to 512 nodes. The product used in these submissions is an HP Cluster Platform model 4000.

For Product Information see www.hp.com and search for
HPC Clusters Platforms

<http://www.hp.com/techservers/clusters/ucp/index.html>

XC Clusters

http://www.hp.com/techservers/clusters/xc_clusters.html

For detailed quick specs, search www.hp.com and search for:

HP Cluster Platform 3000 and HP Cluster Platform 4000

http://h18000.www1.hp.com/products/quickspecs/12306_div/12306_div.HTML

XC System Software V2.1 quickspecs

http://h18000.www1.hp.com/products/quickspecs/12094_div/12094_div.HTML

Underlying Cluster compute nodes:

HP ProLiant DL145 G2 server

96 compute nodes used for this run.

Network (for computation)

Voltaire Infiniband HCA 400Ex

Voltaire leaf switches - ISR 9024 (1 per 12 nodes)

Voltaire aggregation switch - ISR 9288 (12 ports per leaf switch)

Network (for File Server)

ProCurve 2848 Gb Ethernet Switches (1 per 40 nodes)

File Server

HP ProLiant DL585

two AMD Opteron (tm) Processor 850 2400MHz

8 GB Memory 4 2GB PC2100 Dimms

146 GB SCSI 10000 Disk

Additional Linux Software

Netcdf 3.5.1 source obtained from

<http://www.unidata.ucar.edu/packages/netcdf/>

build with (./configure ; make)