



# HPC2002 Result

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

**SPECenvM2002 = 312**

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	100	200	300	400	500
361.wrf_m	86400	277	312					

### Hardware

CPU: AMD Opteron(tm) Processor 252  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 32 chips, 1 core/chip  
 CPU(s) orderable: 1 to 2 per node  
 Primary Cache: 64KBI + 64KBD (on chip) per core  
 Secondary Cache: 1 MB on chip  
 L3 Cache: --  
 Other Cache: None  
 Memory: 4 GB DDR PC3200 per node (8x512K)  
 Disk Subsystem: 1x80GB SATA disk (root)  
 Other Hardware: See below for a more complete system description

### Software

Parallel: MPI  
 Processes-Threads: 32  
 MPI Processes: 32  
 OpenMP Threads: --  
 Operating System: XC Linux for High Performance Computing v3.0  
 Compiler: Pathscale 2.2 Fortran Compiler  
 Pathscale 2.2 C Compiler  
 File System: NFS Shared File System  
 System State: Multi-user  
 Other Software: HP-MPI 2.1.1, LSF 6.1.7, SLURM 0.5.0-10

## 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 32 ./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](http://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](http://www.hp.com/techservers/clusters/xc_clusters.html)

For detailed quick specs, search [www.hp.com](http://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](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](http://h18000.www1.hp.com/products/quickspecs/12094_div/12094_div.HTML)

Underlying Cluster compute nodes:

HP ProLiant DL145 G2 server

16 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 )