



# HPC2002 Result

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**DELL**  
**PowerEdge 1750 cluster**

**SPECenvM2002 = 115**

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

| Benchmark | Reference Time | Runtime | Ratio |
|-----------|----------------|---------|-------|
| 361.wrf_m | 86400          | 754     | 115   |

| Hardware          |  | Software           |   |
|-------------------|--|--------------------|---|
| CPU:              | Intel Xeon processor                                     | Parallel:          | MPI   |
| CPU MHz:          | 3060   | Processes-Threads: | 32  |
| FPU:              | Integrated   | MPI Processes:     | 32  |
| CPU(s) enabled:   | 32 cores, 32 chips, 1 core/chip, Hyper-Threading 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 8.0<br>Build 20031016Z for Linux       |
| Secondary Cache:  | 512KB on chip  |                    | Intel Fortran Compiler- ifort, Version 8.0<br>Build 20040122Z for Linux |
| L3 Cache:         | 1 MB on chip   | File System:       | NFS shared file system  |
| Other Cache:      | N/A  | System State:      | Multi-user  |
| Memory:           | 2 GB DDR PC2100 CL2.5 ECC Registered per node            | Other Software:    | MPICH-1.2.6, NETCDF-3.5.1   |
| Disk Subsystem:   | 1x36 GB SCSI per node                                    |                    |   |
| Other Hardware:   | See File server and Network notes                        |                    |   |

## Notes/Tuning Information

Flags (Fortran & C):

```

CPP Flags: -I. -C -P -DSPEC_HPG_MPI
COPTIMIZE = -O2 -march=pentium4 -mcpu=pentium4 -axW -tpp7 -xW
FOPTIMIZE = -O2 -mp -fp_port -axW -tpp7 -xW
EXTRA_LIBS = -L${NETCDF_BASE}/lib -lnetcdf

```

Submit command to run MPI application:

```

use_submit_for_speed=1
MPI_COMM_SIZE=32
submit=mpiexec -n "\$MPI_COMM_SIZE" $command
NetCDF 3.5.1 built from source

```

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):

Cisco 6509 Gigabit Ethernet Switch

Built-in Gigabit Ethernet Adapters

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.