Hewlett-Packard Company

ProLiant DL385 G2
(3.0 GHz AMD Opteron 2222)

SPECfp\textsuperscript{\_}rate\textsubscript{2006} = 25.9

SPECfp\textsubscript{\_}rate\textsubscript{base}\textsubscript{2006} = 25.5

Hewlett-Packard Company

Test date: Aug-2007
Hardware Availability: Sep-2007
Software Availability: Oct-2007

SPECfp\textsubscript{\_}rate\textsubscript{2006} = 25.9
SPECfp\textsubscript{\_}rate\textsubscript{base}\textsubscript{2006} = 25.5

Hardware

CPU Name: AMD Opteron 2222
CPU Characteristics: 3000
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
CPU(s) orderable: 1,2 chips
Primary Cache: 64 KB I + 64 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per core

Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64) SP1
Compiler: The Portland Group (PGI)
Auto Parallel: No
File System: ext2
System State: Multi-user, run level 3
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
</tr>
<tr>
<td>410.bwaves</td>
<td>2</td>
<td>857</td>
</tr>
<tr>
<td>416.gamess</td>
<td>2</td>
<td>1223</td>
</tr>
<tr>
<td>433.milc</td>
<td>2</td>
<td>942</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>2</td>
<td>704</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>2</td>
<td>550</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>2</td>
<td>1021</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>2</td>
<td>984</td>
</tr>
<tr>
<td>444.namd</td>
<td>2</td>
<td>559</td>
</tr>
<tr>
<td>447.dealII</td>
<td>2</td>
<td>772</td>
</tr>
<tr>
<td>450.soplex</td>
<td>2</td>
<td>861</td>
</tr>
<tr>
<td>453.povray</td>
<td>2</td>
<td>304</td>
</tr>
<tr>
<td>454.calculix</td>
<td>2</td>
<td>558</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>2</td>
<td>1178</td>
</tr>
<tr>
<td>465.tonto</td>
<td>2</td>
<td>688</td>
</tr>
<tr>
<td>470.lbm</td>
<td>2</td>
<td>1437</td>
</tr>
<tr>
<td>481.wrf</td>
<td>2</td>
<td>779</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>2</td>
<td>1411</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

### Operating System Notes

- Environment stack size set to 'unlimited'
- `ulimit` was set to 1048576
- `numactl` was used to bind copies to the cores
- `Set vm/nr_hugepages=1024` in `/etc/sysctl.conf`
- `mount -t hugetlbfs nodev /mnt/hugepages`

### Base Compiler Invocation

C benchmarks: `pgcc`

Continued on next page
**SPEC CFP2006 Result**

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| SPECfp_rate2006 | 25.9 |
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CPU2006 license: 3  
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**Base Compiler Invocation (Continued)**

C++ benchmarks:  
pgcpp  
Fortran benchmarks:  
pgf95  
Benchmarks using both Fortran and C:  
pgcc pgf95

**Base Portability Flags**

- 410.bwaves: -DSPEC_CPU_LP64  
- 416.gamess: -DSPEC_CPU_LP64  
- 433.milc: -DSPEC_CPU_LP64  
- 434.zeusmp: -DSPEC_CPU_LP64  
- 435.gromacs: -DSPEC_CPU_LP64 -Mnomain  
- 436.cactusADM: -DSPEC_CPU_LP64 -Mnomain  
- 437.lesle3d: -DSPEC_CPU_LP64  
- 444.namd: -DSPEC_CPU_LP64  
- 447.dealII: -DSPEC_CPU_LP64  
- 450.soplex: -DSPEC_CPU_LP64  
- 453.povray: -DSPEC_CPU_LP64 -Mnomain  
- 454.calculix: -DSPEC_CPU_LP64 -Mnomain  
- 459.GemsFDTD: -DSPEC_CPU_LP64  
- 465.tonto: -DSPEC_CPU_LP64  
- 470.lbm: -DSPEC_CPU_LP64  
- 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX  
- 482.sphinx3: -DSPEC_CPU_LP64

**Base Optimization Flags**

C benchmarks:  
-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8  
-tp k8-64 -Bstatic_pgi

C++ benchmarks:  
-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8 --zc_eh  
-tp k8-64 -Bstatic_pgi

Fortran benchmarks:  
-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8  
-tp k8-64 -Bstatic_pgi

Benchmarks using both Fortran and C:  
-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8  
-tp k8-64 -Bstatic_pgi
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Base Other Flags

C benchmarks:
- w

C++ benchmarks:
- w

Fortran benchmarks:
- w

Benchmarks using both Fortran and C:
- w

Peak Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

Fortran benchmarks:
pgf95

Benchmarks using both Fortran and C:
pgcc pgf95

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -Mpfii(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mipa=noarg(pass 2) -Mipo(pass 2) -fast -04 -Mdse
-Mfprelaxed -Msmartalloc=huge:8 -tp k8-64 -Bstatic_pgi

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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Peak Optimization Flags (Continued)

444.namd: -Mpfipass 1 -Mpfo(pass 2) -Mipa=fast(pass 2)
-Mipa=inline(pass 2) -fast -04 -Mfprelaxed
-Msmartalloc=huge:32 --zc_eh -tp k8-64 -Bstatic_pgi

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: basepeak = yes

Fortran benchmarks:

410.bwaves: -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc
-tp k8-64 -Bstatic_pgi

416.gamess: -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Mvect=noaltcode
-Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

-tp k8-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

435.gromacs: -fast -04 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:16 -tp k8-64 -Mfpapprox=rsqrt
-Bstatic_pgi

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -fast -Mfprelaxed -Msmartalloc=huge:32 -Mvect=noaltcode
-tp k8-64 -Bstatic_pgi

Peak Other Flags

C benchmarks:
-\w

C++ benchmarks:
-\w
## SPEC CFP2006 Result

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### Peak Other Flags (Continued)

Fortran benchmarks:

```
-w
```

Benchmarks using both Fortran and C:

```
-w
```

The flags file that was used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/hp-pgi710_flags.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/hp-pgi710_flags.xml

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For other inquiries, please contact webmaster@spec.org.

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