# SPEC® CFP2006 Result

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## Hewlett-Packard Company

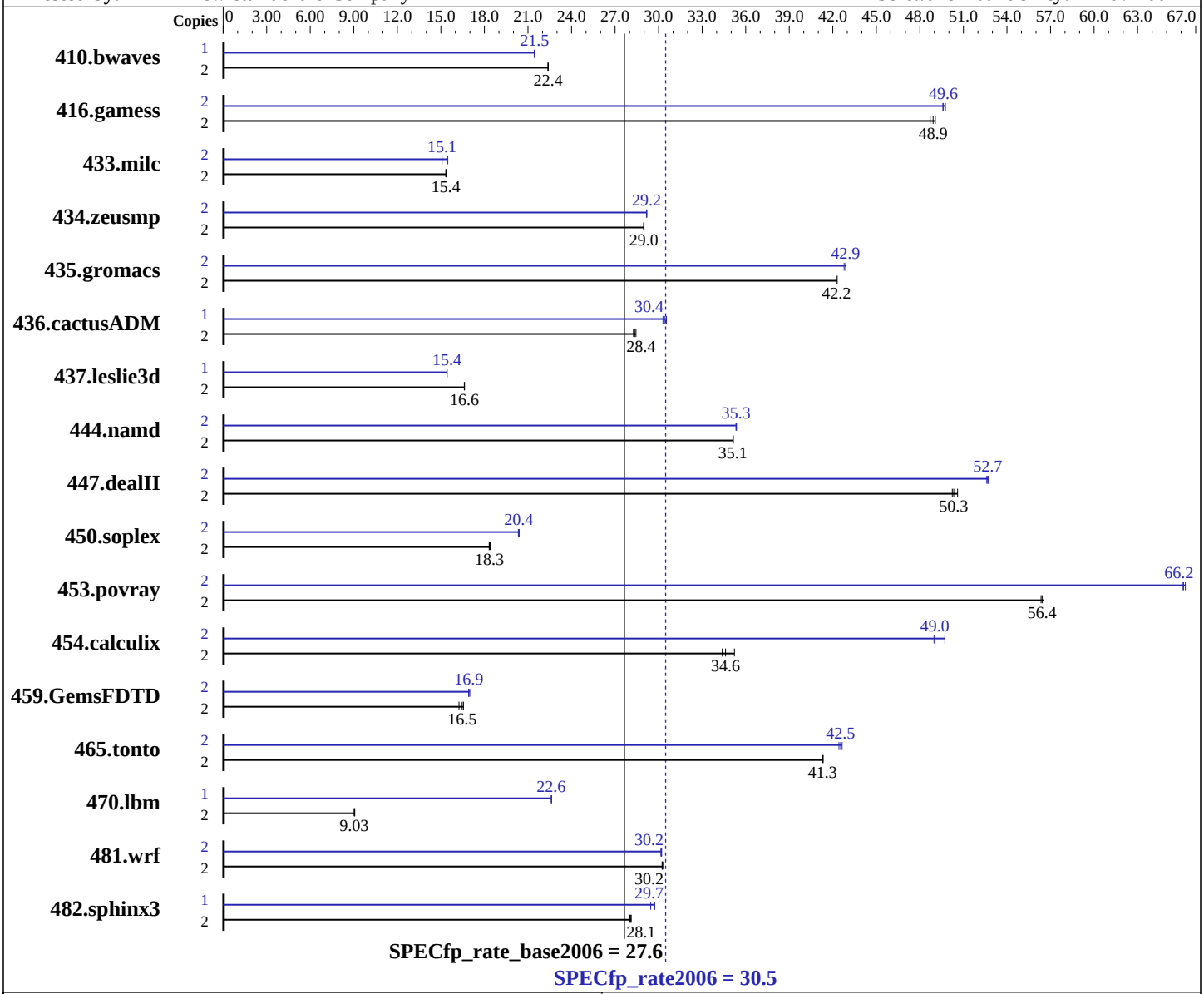
ProLiant ML350 G5
(3.33 GHz, Intel Xeon X5260)

SPECfp®_rate2006 = 30.5

SPECfp_rate_base2006 = 27.6

**CPU2006 license:** 3
**Test sponsor:** Hewlett-Packard Company
**Tested by:** Hewlett-Packard Company

**Test date:** May-2008
**Hardware Availability:** Jul-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5260 |
| CPU Characteristics: | 3.33 GHz, 6 MB L2, 1333 MHz system bus |
| CPU MHz: | 3333 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 6 MB I+D on chip per chip |

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008 Intel Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008 |
| Auto Parallel: | Yes |
| File System: | ext2 |
| System State: | Run level 3 (multi-user) |

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F CL5)
Disk Subsystem: 1x36 GB 15 K SAS
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils-2.17.50

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 2 | 1215 | 22.4 | **1214** | **22.4** | 1213 | 22.4 | 1 | 633 | 21.5 | **633** | **21.5** | 634 | 21.4 |
| 416.gamess | 2 | **801** | **48.9** | 798 | 49.1 | 804 | 48.7 | 2 | 787 | 49.8 | **789** | **49.6** | 790 | 49.6 |
| 433.milc | 2 | **1196** | **15.4** | 1195 | 15.4 | 1197 | 15.3 | 2 | 1186 | 15.5 | 1218 | 15.1 | **1217** | **15.1** |
| 434.zeusmp | 2 | 628 | 29.0 | **628** | **29.0** | 628 | 29.0 | 2 | 624 | 29.2 | **624** | **29.2** | 624 | 29.2 |
| 435.gromacs | 2 | 338 | 42.3 | **338** | **42.2** | 338 | 42.2 | 2 | **333** | **42.9** | 333 | 42.9 | 334 | 42.8 |
| 436.cactusADM | 2 | **843** | **28.4** | 845 | 28.3 | 840 | 28.4 | 1 | 394 | 30.3 | 391 | 30.5 | **393** | **30.4** |
| 437.leslie3d | 2 | 1130 | 16.6 | **1131** | **16.6** | 1132 | 16.6 | 1 | **609** | **15.4** | 610 | 15.4 | 609 | 15.4 |
| 444.namd | 2 | **457** | **35.1** | 457 | 35.1 | 456 | 35.2 | 2 | 454 | 35.3 | 454 | 35.4 | **454** | **35.3** |
| 447.dealII | 2 | 455 | 50.2 | **455** | **50.3** | 452 | 50.6 | 2 | 435 | 52.6 | **434** | **52.7** | 434 | 52.7 |
| 450.soplex | 2 | 910 | 18.3 | 907 | 18.4 | **909** | **18.3** | 2 | 820 | 20.3 | 818 | 20.4 | **819** | **20.4** |
| 453.povray | 2 | 189 | 56.3 | 188 | 56.5 | **189** | **56.4** | 2 | 161 | 66.1 | **161** | **66.2** | 161 | 66.3 |
| 454.calculix | 2 | 480 | 34.4 | 468 | 35.2 | **477** | **34.6** | 2 | 332 | 49.7 | 337 | 49.0 | **336** | **49.0** |
| 459.GemsFDTD | 2 | 1306 | 16.2 | 1282 | 16.6 | **1289** | **16.5** | 2 | 1254 | 16.9 | **1254** | **16.9** | 1249 | 17.0 |
| 465.tonto | 2 | 476 | 41.3 | **476** | **41.3** | 477 | 41.3 | 2 | 462 | 42.6 | 464 | 42.4 | **463** | **42.5** |
| 470.lbm | 2 | 3030 | 9.07 | **3042** | **9.03** | 3042 | 9.03 | 1 | 607 | 22.6 | **608** | **22.6** | 610 | 22.5 |
| 481.wrf | 2 | **739** | **30.2** | 739 | 30.2 | 737 | 30.3 | 2 | 740 | 30.2 | **740** | **30.2** | 741 | 30.2 |
| 482.sphinx3 | 2 | 1391 | 28.0 | **1388** | **28.1** | 1387 | 28.1 | 1 | **656** | **29.7** | 656 | 29.7 | 662 | 29.5 |

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
 OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to physical,0
 KMP_STACKSIZE set to 64M
```

## Platform Notes

```
BIOS configuration:
  Power Regulator set to Static High Performance Mode
```

## Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

## 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 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
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

C++ benchmarks:
-fast

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

## Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

433.milc: `icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib -I/opt/intel/fc/10.1.008/include`

Benchmarks using both Fortran and C:
`icc ifort`

## Peak 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 -nofor_main`
436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

433.milc: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -fno-alias -auto-ilp32`

470.lbm: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3`

Continued on next page

# Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-fp-flags.20090714.html

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-fp-flags.20090714.xml`


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

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