# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

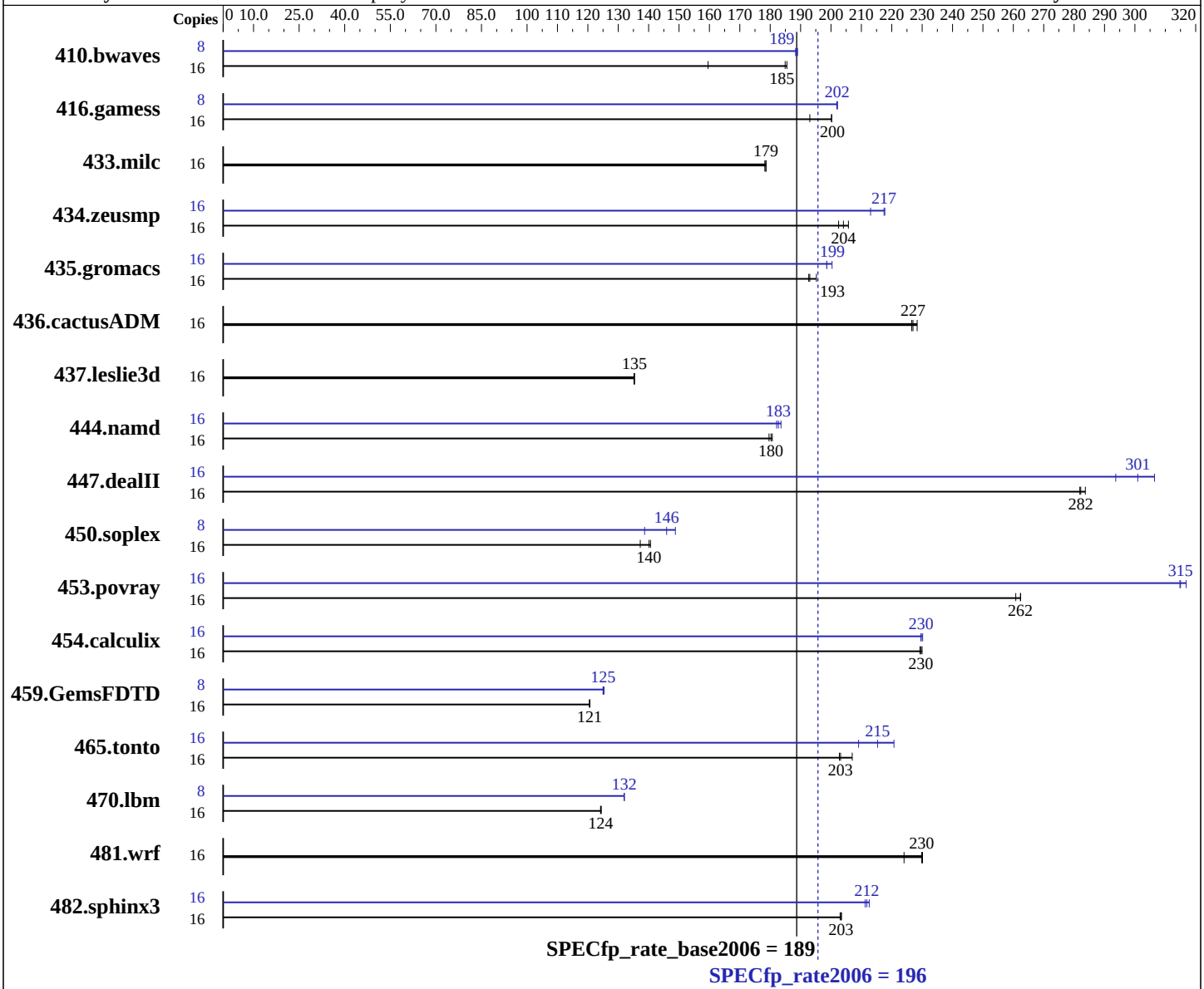
ProLiant ML350 G6
(2.93 GHz, Intel Xeon X5570)

SPECfp®_rate2006 = 196

SPECfp_rate_base2006 = 189

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

**Test date:** Mar-2009
**Hardware Availability:** Mar-2009
**Software Availability:** Feb-2009




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5570 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.33 GHz |
| CPU MHz: | 2933 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |

Continued on next page

### Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 5.3 Kernel 2.6.18-128.el5 |
| Compiler: | Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

Continued on next page

# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

ProLiant ML350 G6
(2.93 GHz, Intel Xeon X5570)

SPECfp_rate2006 = 196

SPECfp_rate_base2006 = 189

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

**Test date:** Mar-2009
**Hardware Availability:** Mar-2009
**Software Availability:** Feb-2009

L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6x4 GB PC3-10600R CL9)
Disk Subsystem: 1x146 GB 15 K SAS
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 16 | 1363 | 160 | 1172 | 186 | **1176** | **185** | 8 | 577 | 188 | 575 | 189 | **576** | **189** |
| 416.gamess | 16 | **1565** | **200** | 1623 | 193 | 1564 | 200 | 8 | **775** | **202** | 776 | 202 | 775 | 202 |
| 433.milc | 16 | 824 | 178 | 822 | 179 | **823** | **179** | 16 | 824 | 178 | 822 | 179 | **823** | **179** |
| 434.zeusmp | 16 | 719 | 203 | **713** | **204** | 708 | 206 | 16 | 683 | 213 | **670** | **217** | 669 | 218 |
| 435.gromacs | 16 | 585 | 195 | 593 | 193 | **592** | **193** | 16 | 570 | 200 | **575** | **199** | 575 | 199 |
| 436.cactusADM | 16 | 844 | 227 | **842** | **227** | 837 | 228 | 16 | 844 | 227 | **842** | **227** | 837 | 228 |
| 437.leslie3d | 16 | 1113 | 135 | 1111 | 135 | **1111** | **135** | 16 | 1113 | 135 | 1111 | 135 | **1111** | **135** |
| 444.namd | 16 | **712** | **180** | 714 | 180 | 710 | 181 | 16 | 699 | 184 | **702** | **183** | 705 | 182 |
| 447.dealII | 16 | 649 | 282 | 645 | 284 | **649** | **282** | 16 | 597 | 306 | **608** | **301** | 623 | 294 |
| 450.soplex | 16 | 972 | 137 | **952** | **140** | 949 | 141 | 8 | 481 | 139 | **457** | **146** | 448 | 149 |
| 453.povray | 16 | **324** | **262** | 326 | 261 | 324 | 262 | 16 | **270** | **315** | 269 | 317 | 270 | 315 |
| 454.calculix | 16 | 574 | 230 | 576 | 229 | **575** | **230** | 16 | 573 | 230 | 575 | 230 | **575** | **230** |
| 459.GemsFDTD | 16 | 1407 | 121 | **1408** | **121** | 1409 | 120 | 8 | **679** | **125** | 679 | 125 | 677 | 125 |
| 465.tonto | 16 | 776 | 203 | **775** | **203** | 761 | 207 | 16 | 753 | 209 | **731** | **215** | 713 | 221 |
| 470.lbm | 16 | 1767 | 124 | **1770** | **124** | 1770 | 124 | 8 | 833 | 132 | **833** | **132** | 833 | 132 |
| 481.wrf | 16 | 777 | 230 | 798 | 224 | **778** | **230** | 16 | 777 | 230 | 798 | 224 | **778** | **230** |
| 482.sphinx3 | 16 | 1536 | 203 | 1533 | 203 | **1533** | **203** | 16 | 1476 | 211 | **1472** | **212** | 1467 | 213 |

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

## Submit Notes

```
The config file option 'submit' was used.
 numactl was used to bind copies to the cores
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

## Platform Notes

```
BIOS configuration:
 HP Power Profile set to Maximum Performance
 HP Power Regulator set to HP Static High Performance Mode
 Thermal Configuration set to Increased Cooling
```

## 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:
-xSSE4.2 -ipo -O3 -no-prec-div -static

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc

482.sphinx3: icc -m32

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

450.soplex: icpc -m32

Fortran benchmarks:
ifort

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
437.leslie3d: -DSPEC_CPU_LP64
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
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

Continued on next page

# Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -opt-prefetch

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

Continued on next page

# Peak Optimization Flags (Continued)

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090710.html`
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.13.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090710.xml`
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.13.xml`


SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.


For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 00:28:16 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 May 2009.