



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 241

ProLiant SL170s G6
(2.93 GHz, Intel Xeon X5670)

SPECfp_rate_base2006 = 233

CPU2006 license: 3

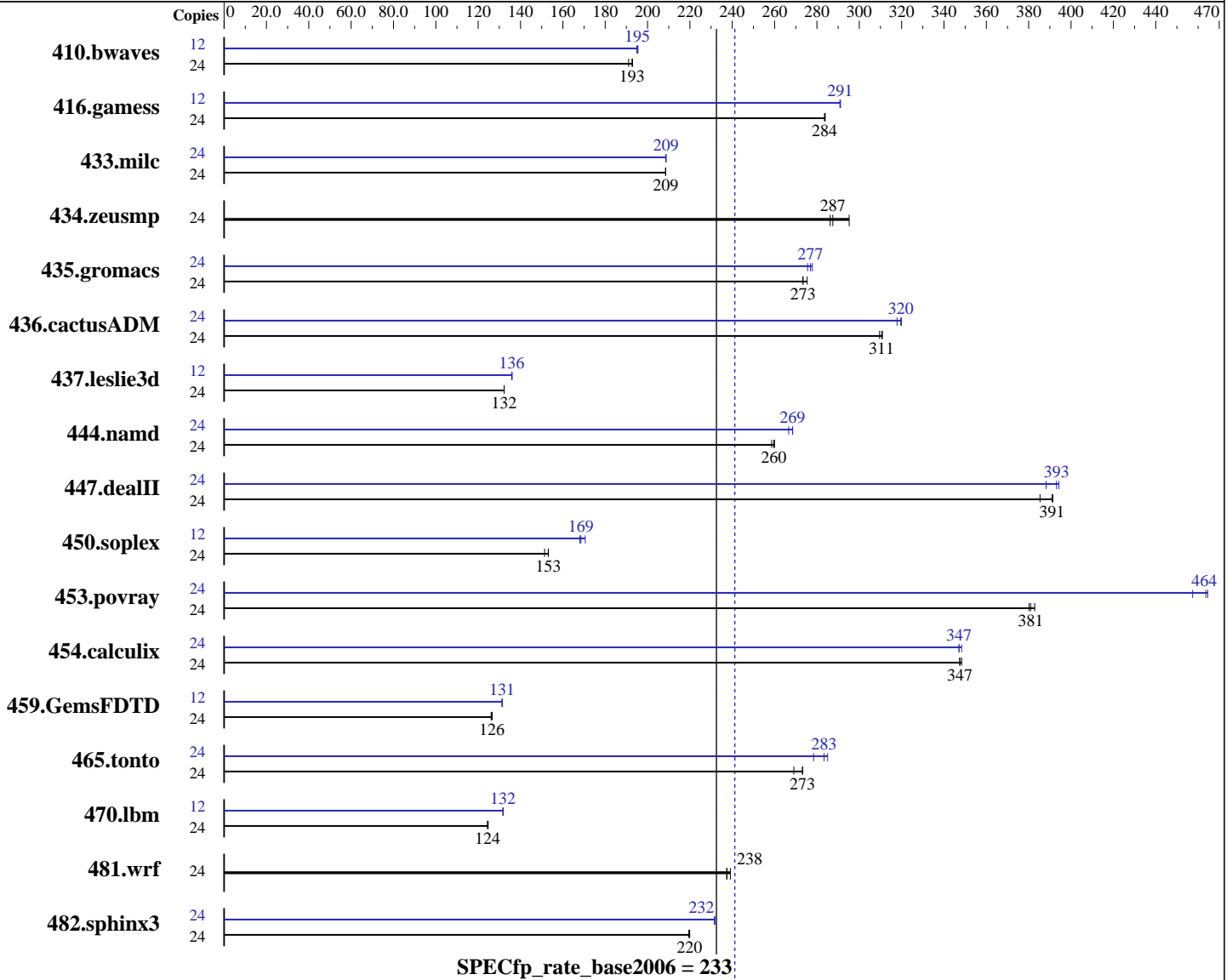
Test date: Sep-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Oct-2010

Tested by: Hewlett-Packard Company

Software Availability: Apr-2010



Hardware

CPU Name: Intel Xeon X5670
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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

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Software

Operating System: Red Hat Enterprise Linux Server release 5.5
 Kernel 2.6.18-194.el5
 Compiler: Intel C++ and Fortran Compiler 11.1 for Linux
 Build 20100414 Package ID: l_cproc_p_11.1.072,
 l_cprof_p_11.1.072
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12x4 GB 2Rx4 PC3-10600R CL9, ECC)
Disk Subsystem: 1 x 500 GB 7.2 K SATA
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---------------|--------|-------------|------------|-------------|------------|-------------|------------|--------|-------------|------------|-------------|------------|-------------|------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 24 | 1707 | 191 | 1691 | 193 | 1693 | 193 | 12 | 837 | 195 | 834 | 195 | 835 | 195 |
| 416.gamess | 24 | 1657 | 284 | 1655 | 284 | 1657 | 284 | 12 | 807 | 291 | 807 | 291 | 808 | 291 |
| 433.milc | 24 | 1056 | 209 | 1056 | 209 | 1056 | 209 | 24 | 1056 | 209 | 1056 | 209 | 1056 | 209 |
| 434.zeusmp | 24 | 740 | 295 | 760 | 287 | 763 | 286 | 24 | 740 | 295 | 760 | 287 | 763 | 286 |
| 435.gromacs | 24 | 627 | 273 | 627 | 273 | 622 | 275 | 24 | 622 | 276 | 619 | 277 | 617 | 278 |
| 436.cactusADM | 24 | 923 | 311 | 922 | 311 | 926 | 310 | 24 | 897 | 320 | 896 | 320 | 902 | 318 |
| 437.leslie3d | 24 | 1706 | 132 | 1705 | 132 | 1706 | 132 | 12 | 830 | 136 | 831 | 136 | 829 | 136 |
| 444.namd | 24 | 741 | 260 | 740 | 260 | 744 | 259 | 24 | 722 | 267 | 717 | 269 | 717 | 269 |
| 447.dealII | 24 | 712 | 385 | 701 | 391 | 702 | 391 | 24 | 707 | 388 | 698 | 393 | 696 | 394 |
| 450.soplex | 24 | 1322 | 151 | 1307 | 153 | 1307 | 153 | 12 | 596 | 168 | 594 | 169 | 587 | 171 |
| 453.povray | 24 | 335 | 381 | 336 | 380 | 333 | 383 | 24 | 279 | 457 | 275 | 465 | 275 | 464 |
| 454.calculix | 24 | 570 | 347 | 570 | 347 | 568 | 348 | 24 | 570 | 347 | 568 | 348 | 570 | 347 |
| 459.GemsFDTD | 24 | 2011 | 127 | 2014 | 126 | 2019 | 126 | 12 | 970 | 131 | 969 | 131 | 969 | 131 |
| 465.tonto | 24 | 865 | 273 | 878 | 269 | 864 | 273 | 24 | 828 | 285 | 833 | 283 | 848 | 278 |
| 470.lbm | 24 | 2644 | 125 | 2650 | 124 | 2649 | 124 | 12 | 1252 | 132 | 1252 | 132 | 1251 | 132 |
| 481.wrf | 24 | 1129 | 238 | 1121 | 239 | 1129 | 237 | 24 | 1129 | 238 | 1121 | 239 | 1129 | 237 |
| 482.sphinx3 | 24 | 2127 | 220 | 2127 | 220 | 2132 | 219 | 24 | 2018 | 232 | 2020 | 232 | 2019 | 232 |

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:
Data Reuse - Disabled
2DPC @1333 - Enabled
Power Efficiency - Custom

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Platform Notes (Continued)

ClE Support - Disabled
CC3/C6 State - Disabled
QPI Power Management - Disabled
Turbo Mode - Enabled

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

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Base Optimization Flags (Continued)

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: /opt/intel/Compiler/11.1/072/bin/intel64/icpc -m32

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: ifort -m32

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

470.lbm: -DSPEC_CPU_LP64

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX



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Peak Optimization Flags

C benchmarks:

433.milc: -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

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

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: basepeak = yes

437.leslie3d: -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 -opt-prefetch

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

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Peak Optimization Flags (Continued)

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: -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 -opt-prefetch -auto-ilp32

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

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revF.20100511.html>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20101109.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revF.20100511.xml>
<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20101109.xml>

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

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