



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 53.3

ProLiant ML310 G5
(3.0 GHz, Intel Xeon X3370)

SPECfp_rate_base2006 = 50.5

CPU2006 license: 3

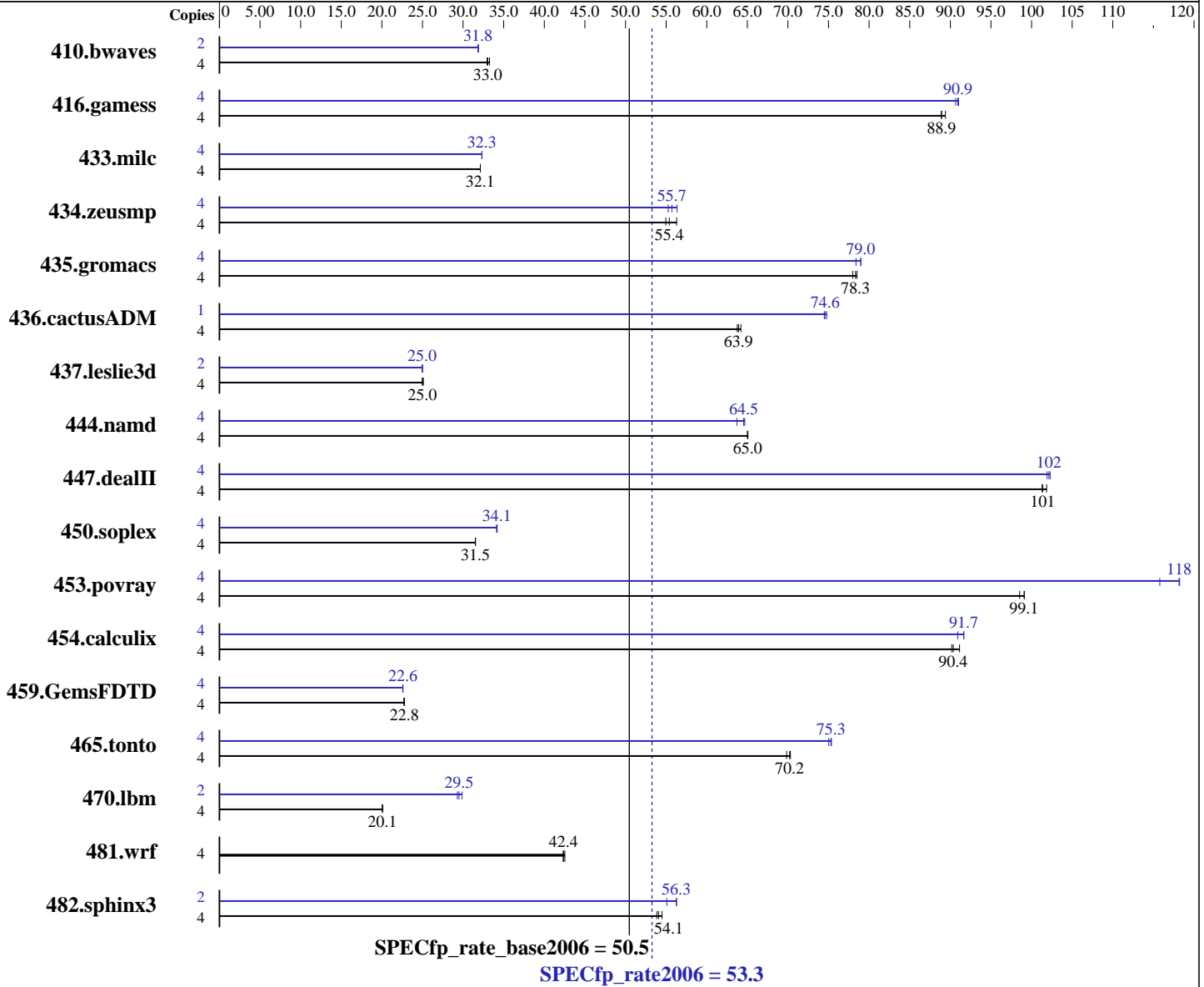
Test date: Sep-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon X3370
 CPU Characteristics: 3.0 GHz, 2 x 6 MB L2 shared, 1333 MHz system bus
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smpp
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB(4x2 GB PC2-6400E CL6)
Disk Subsystem: 250 GB 7.2 K SATA
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 | 4 | 1634 | 33.3 | 1645 | 33.0 | 1649 | 33.0 | 2 | 852 | 31.9 | 854 | 31.8 | 854 | 31.8 |
| 416.gamess | 4 | 881 | 88.9 | 881 | 88.9 | 876 | 89.4 | 4 | 861 | 91.0 | 861 | 90.9 | 864 | 90.7 |
| 433.milc | 4 | 1143 | 32.1 | 1143 | 32.1 | 1143 | 32.1 | 4 | 1136 | 32.3 | 1136 | 32.3 | 1136 | 32.3 |
| 434.zeusmp | 4 | 657 | 55.4 | 647 | 56.3 | 662 | 55.0 | 4 | 653 | 55.7 | 646 | 56.4 | 659 | 55.3 |
| 435.gromacs | 4 | 365 | 78.3 | 366 | 78.0 | 364 | 78.5 | 4 | 364 | 78.4 | 362 | 79.0 | 362 | 79.0 |
| 436.cactusADM | 4 | 750 | 63.8 | 744 | 64.2 | 748 | 63.9 | 1 | 160 | 74.6 | 160 | 74.5 | 160 | 74.8 |
| 437.leslie3d | 4 | 1504 | 25.0 | 1497 | 25.1 | 1505 | 25.0 | 2 | 753 | 25.0 | 753 | 25.0 | 752 | 25.0 |
| 444.namd | 4 | 493 | 65.0 | 493 | 65.0 | 493 | 65.1 | 4 | 497 | 64.5 | 504 | 63.7 | 496 | 64.7 |
| 447.dealII | 4 | 452 | 101 | 449 | 102 | 451 | 101 | 4 | 447 | 102 | 448 | 102 | 449 | 102 |
| 450.soplex | 4 | 1058 | 31.5 | 1058 | 31.5 | 1059 | 31.5 | 4 | 977 | 34.1 | 977 | 34.1 | 975 | 34.2 |
| 453.povray | 4 | 216 | 98.5 | 215 | 99.1 | 215 | 99.1 | 4 | 180 | 118 | 180 | 118 | 184 | 116 |
| 454.calculix | 4 | 362 | 91.1 | 366 | 90.2 | 365 | 90.4 | 4 | 360 | 91.7 | 360 | 91.7 | 363 | 90.9 |
| 459.GemsFDTD | 4 | 1864 | 22.8 | 1868 | 22.7 | 1865 | 22.8 | 4 | 1878 | 22.6 | 1878 | 22.6 | 1880 | 22.6 |
| 465.tonto | 4 | 564 | 69.8 | 560 | 70.3 | 561 | 70.2 | 4 | 525 | 75.0 | 522 | 75.4 | 523 | 75.3 |
| 470.lbm | 4 | 2737 | 20.1 | 2737 | 20.1 | 2737 | 20.1 | 2 | 920 | 29.9 | 938 | 29.3 | 931 | 29.5 |
| 481.wrf | 4 | 1055 | 42.4 | 1055 | 42.3 | 1051 | 42.5 | 4 | 1055 | 42.4 | 1055 | 42.3 | 1051 | 42.5 |
| 482.sphinx3 | 4 | 1431 | 54.5 | 1448 | 53.8 | 1442 | 54.1 | 2 | 693 | 56.3 | 693 | 56.3 | 708 | 55.1 |

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.
taskset was used to bind processes to cores except
for 436.cactusADM peak

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



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Platform Notes

BIOS configuration:
Adjacent Sector Prefetch Disabled
Hardware Prefetcher Disabled

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:
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

C++ benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/ifort
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/042/ipp/ia32/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

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Peak Portability Flags (Continued)

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

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

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

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

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

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

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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

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

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

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

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Peak Optimization Flags (Continued)

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

Benchmarks using both Fortran and C:

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

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -opt-prefetch -parallel
-auto-ilp32

454.calculix: -xSSE4.1 -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/HP-Intel-Linux-Settings-flags.20090713.html>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revD.20090713.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.20090713.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revD.20090713.xml>

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