



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/120Rh-1
(Intel Xeon processor X5460)

SPECfp®2006 = 23.3

SPECfp_base2006 = 19.6

CPU2006 license: 9006

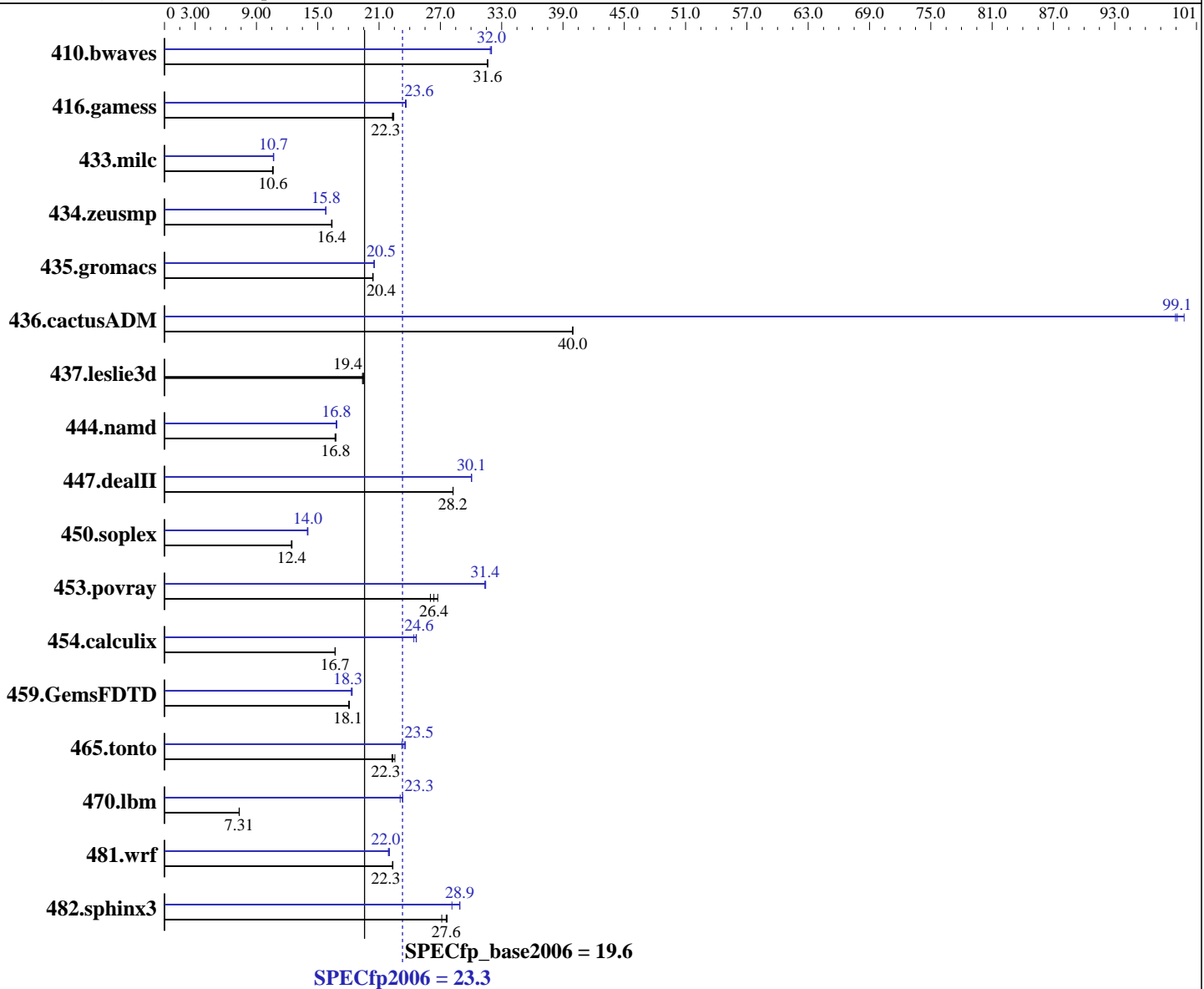
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2007

Hardware Availability: Dec-2007

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon X5460
 CPU Characteristics: 3.16 GHz, 2x6 MB L2 shared, 1333 MHz bus
 CPU MHz: 3160
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 1,2 chips
 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 for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
 Auto Parallel: Yes
 File System: ext2

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L3 Cache: None
Other Cache: None
Memory: 12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 15000RPM
Other Hardware: None

System State: Multiuser, Runlevel 3
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils-2.17.tar.gz, Version 2.17

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 430 | 31.6 | 430 | 31.6 | 429 | 31.6 | 425 | 32.0 | 426 | 31.9 | 425 | 32.0 |
| 416.gamess | 876 | 22.3 | 878 | 22.3 | 873 | 22.4 | 830 | 23.6 | 828 | 23.7 | 830 | 23.6 |
| 433.milc | 865 | 10.6 | 863 | 10.6 | 868 | 10.6 | 860 | 10.7 | 858 | 10.7 | 862 | 10.7 |
| 434.zeusmp | 557 | 16.4 | 555 | 16.4 | 556 | 16.4 | 576 | 15.8 | 576 | 15.8 | 577 | 15.8 |
| 435.gromacs | 350 | 20.4 | 350 | 20.4 | 350 | 20.4 | 348 | 20.5 | 348 | 20.5 | 348 | 20.5 |
| 436.cactusADM | 299 | 40.0 | 299 | 40.0 | 299 | 40.0 | 121 | 99.1 | 121 | 99.0 | 120 | 99.8 |
| 437.leslie3d | 483 | 19.5 | 485 | 19.4 | 484 | 19.4 | 483 | 19.5 | 485 | 19.4 | 484 | 19.4 |
| 444.namd | 478 | 16.8 | 480 | 16.7 | 478 | 16.8 | 477 | 16.8 | 477 | 16.8 | 475 | 16.9 |
| 447.dealII | 405 | 28.3 | 405 | 28.2 | 405 | 28.2 | 381 | 30.1 | 381 | 30.1 | 381 | 30.0 |
| 450.soplex | 668 | 12.5 | 671 | 12.4 | 671 | 12.4 | 594 | 14.0 | 594 | 14.0 | 597 | 14.0 |
| 453.povray | 204 | 26.0 | 202 | 26.4 | 199 | 26.7 | 170 | 31.4 | 170 | 31.4 | 169 | 31.4 |
| 454.calculix | 494 | 16.7 | 493 | 16.7 | 494 | 16.7 | 338 | 24.4 | 335 | 24.6 | 335 | 24.7 |
| 459.GemsFDTD | 588 | 18.0 | 587 | 18.1 | 586 | 18.1 | 578 | 18.4 | 580 | 18.3 | 579 | 18.3 |
| 465.tonto | 436 | 22.5 | 442 | 22.3 | 440 | 22.3 | 417 | 23.6 | 424 | 23.2 | 419 | 23.5 |
| 470.lbm | 1874 | 7.33 | 1882 | 7.30 | 1879 | 7.31 | 589 | 23.3 | 589 | 23.3 | 596 | 23.1 |
| 481.wrf | 500 | 22.3 | 500 | 22.4 | 500 | 22.3 | 510 | 21.9 | 509 | 22.0 | 507 | 22.0 |
| 482.sphinx3 | 705 | 27.7 | 707 | 27.6 | 718 | 27.1 | 674 | 28.9 | 675 | 28.9 | 693 | 28.1 |

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 (default).

Platform Notes

Bios settings:
Intel SpeedStep Technology: Disabled

General Notes

All benchmarks compiled in 64-bit mode except 450.soplex,
470.lbm and 482.sphinx3, for peak, are compiled in 32-bit mode

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General Notes (Continued)

The NEC Express5800/120Rh-1(Intel Xeon Processor X5460), the NEC Express5800/120Rj-2(Intel Xeon Processor X5460), the Bull NovaScale R440 E1 (Intel Xeon X5460,3.16GHz) and the Bull NovaScale R460 E1 (Intel Xeon X5460,3.16GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon Processor X5460) model.

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.deallI: -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 -parallel

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Base Optimization Flags (Continued)

C++ benchmarks:

-fast -parallel

Fortran benchmarks:

-fast -parallel

Benchmarks using both Fortran and C:

-fast -parallel

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:

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

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX



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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

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 -parallel

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: basepeak = yes

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

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

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Peak Optimization Flags (Continued)

481.wrf: -fast -parallel -prefetch -auto-ilp32

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

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090714.00.html>

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

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090714.00.xml>

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

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 16:13:52 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 January 2008.