



SPEC® CFP2006 Result

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NEC Corporation

Express5800/120Lj
(Intel Xeon X5260)

SPECfp®_rate2006 = 55.5

SPECfp_rate_base2006 = 49.3

CPU2006 license: 9006

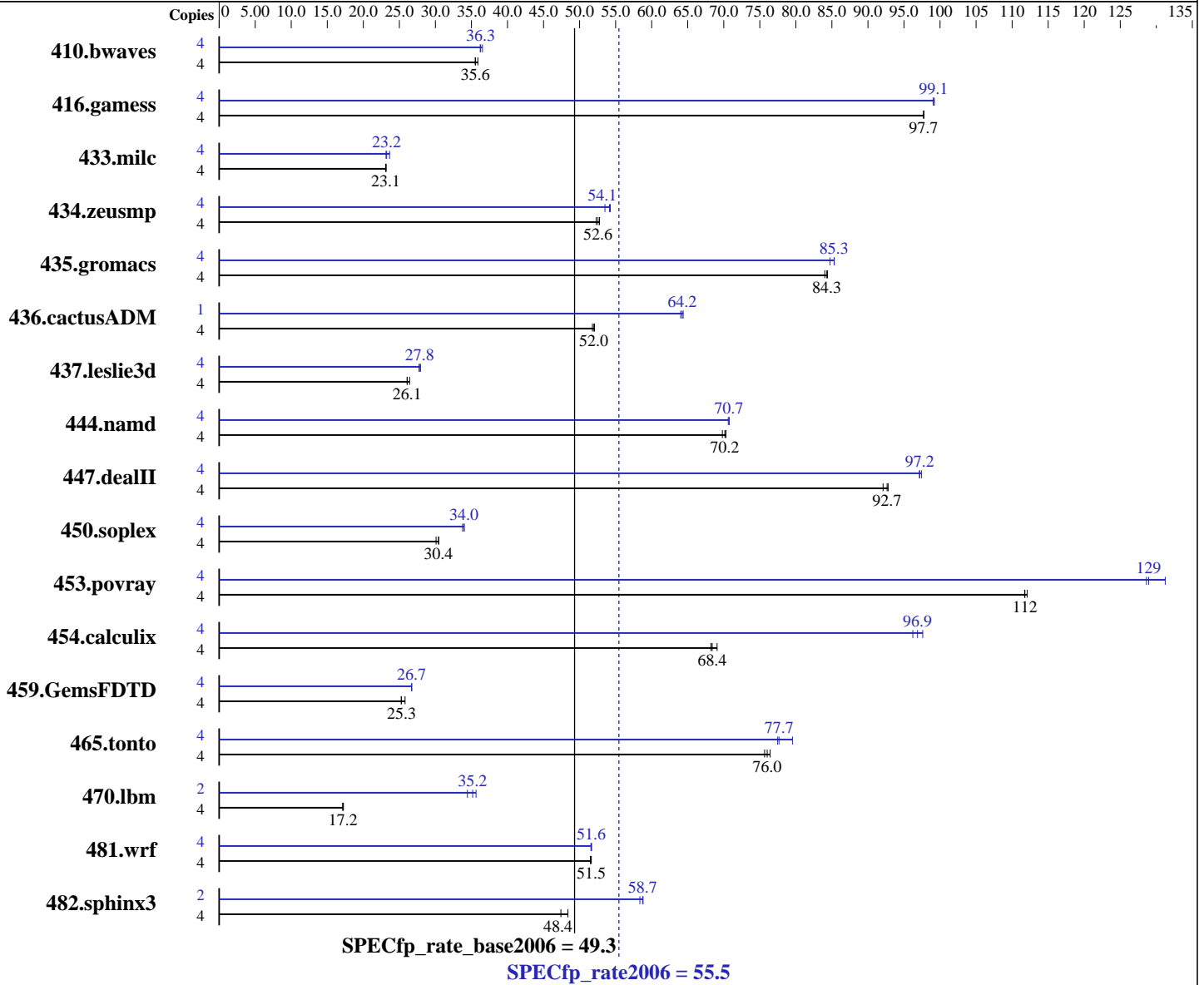
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Feb-2008

Hardware Availability: Feb-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon X5260
 CPU Characteristics: 3.33 GHz, 6 MB L2, 1333 MHz bus
 CPU MHz: 3333
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 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-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: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils-2.17.tar.gz, Version 2.17

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|--------|-------------|-------------|-------------|-------------|------------|-------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 1515 | 35.9 | <u>1529</u> | <u>35.6</u> | 1531 | 35.5 | 4 | <u>1499</u> | <u>36.3</u> | 1501 | 36.2 | 1488 | 36.5 |
| 416.gamess | 4 | 801 | 97.7 | 801 | 97.8 | <u>801</u> | <u>97.7</u> | 4 | <u>790</u> | <u>99.1</u> | 789 | 99.2 | 791 | 99.0 |
| 433.milc | 4 | 1590 | 23.1 | <u>1588</u> | <u>23.1</u> | 1585 | 23.2 | 4 | 1586 | 23.1 | <u>1581</u> | <u>23.2</u> | 1553 | 23.6 |
| 434.zeusmp | 4 | 696 | 52.3 | 690 | 52.8 | <u>693</u> | <u>52.6</u> | 4 | <u>672</u> | <u>54.1</u> | 680 | 53.5 | 671 | 54.3 |
| 435.gromacs | 4 | <u>339</u> | <u>84.3</u> | 340 | 84.0 | 338 | 84.4 | 4 | <u>335</u> | <u>85.3</u> | 335 | 85.3 | 337 | 84.7 |
| 436.cactusADM | 4 | 918 | 52.1 | <u>919</u> | <u>52.0</u> | 923 | 51.8 | 1 | <u>186</u> | <u>64.2</u> | 187 | 64.0 | 186 | 64.4 |
| 437.leslie3d | 4 | 1423 | 26.4 | 1442 | 26.1 | <u>1441</u> | <u>26.1</u> | 4 | <u>1353</u> | <u>27.8</u> | 1356 | 27.7 | 1346 | 27.9 |
| 444.namd | 4 | 460 | 69.8 | 456 | 70.3 | <u>457</u> | <u>70.2</u> | 4 | <u>454</u> | <u>70.7</u> | 453 | 70.8 | 454 | 70.6 |
| 447.dealII | 4 | 493 | 92.8 | <u>494</u> | <u>92.7</u> | 497 | 92.1 | 4 | <u>471</u> | <u>97.2</u> | 471 | 97.1 | 470 | 97.4 |
| 450.soplex | 4 | <u>1096</u> | <u>30.4</u> | 1109 | 30.1 | 1095 | 30.5 | 4 | 988 | 33.8 | <u>982</u> | <u>34.0</u> | 981 | 34.0 |
| 453.povray | 4 | <u>190</u> | <u>112</u> | 190 | 112 | 190 | 112 | 4 | 165 | 129 | 162 | 131 | <u>165</u> | <u>129</u> |
| 454.calculix | 4 | 484 | 68.2 | <u>483</u> | <u>68.4</u> | 478 | 69.1 | 4 | 343 | 96.2 | <u>341</u> | <u>96.9</u> | 338 | 97.6 |
| 459.GemsFDTD | 4 | 1645 | 25.8 | 1681 | 25.3 | <u>1678</u> | <u>25.3</u> | 4 | 1590 | 26.7 | <u>1590</u> | <u>26.7</u> | 1588 | 26.7 |
| 465.tonto | 4 | 520 | 75.7 | <u>518</u> | <u>76.0</u> | 515 | 76.4 | 4 | 508 | 77.5 | 495 | 79.5 | <u>507</u> | <u>77.7</u> |
| 470.lbm | 4 | <u>3198</u> | <u>17.2</u> | 3188 | 17.2 | 3209 | 17.1 | 2 | 798 | 34.4 | <u>781</u> | <u>35.2</u> | 771 | 35.6 |
| 481.wrf | 4 | <u>867</u> | <u>51.5</u> | 868 | 51.5 | 865 | 51.6 | 4 | 865 | 51.7 | <u>866</u> | <u>51.6</u> | 866 | 51.6 |
| 482.sphinx3 | 4 | 1644 | 47.4 | 1611 | 48.4 | <u>1611</u> | <u>48.4</u> | 2 | <u>664</u> | <u>58.7</u> | 668 | 58.4 | 663 | 58.8 |

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
'/usr/bin/taskset' used to bind processes to CPUs
OMP_NUM_THREADS set to number of cores

Platform Notes

Bios settings:
Intel SpeedStep Technology: Disabled



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General Notes

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3, for peak, are compiled in 32-bit mode

The NEC Express5800/120Lj(Intel Xeon X5260) and the Bull NovaScale T860 E1(Intel Xeon X5260,3.33GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Lj(Intel Xeon X5260) 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.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

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Base Optimization Flags (Continued)

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

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Peak Portability Flags (Continued)

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

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:

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Peak Optimization Flags (Continued)

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/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.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.20090713.xml>

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

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