



SPEC[®] CFP2006 Result

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NEC Corporation

Express5800/B120a-d
(Intel Xeon L5520)

SPECfp[®]_rate2006 = 82.9

SPECfp_rate_base2006 = 80.0

CPU2006 license: 9006

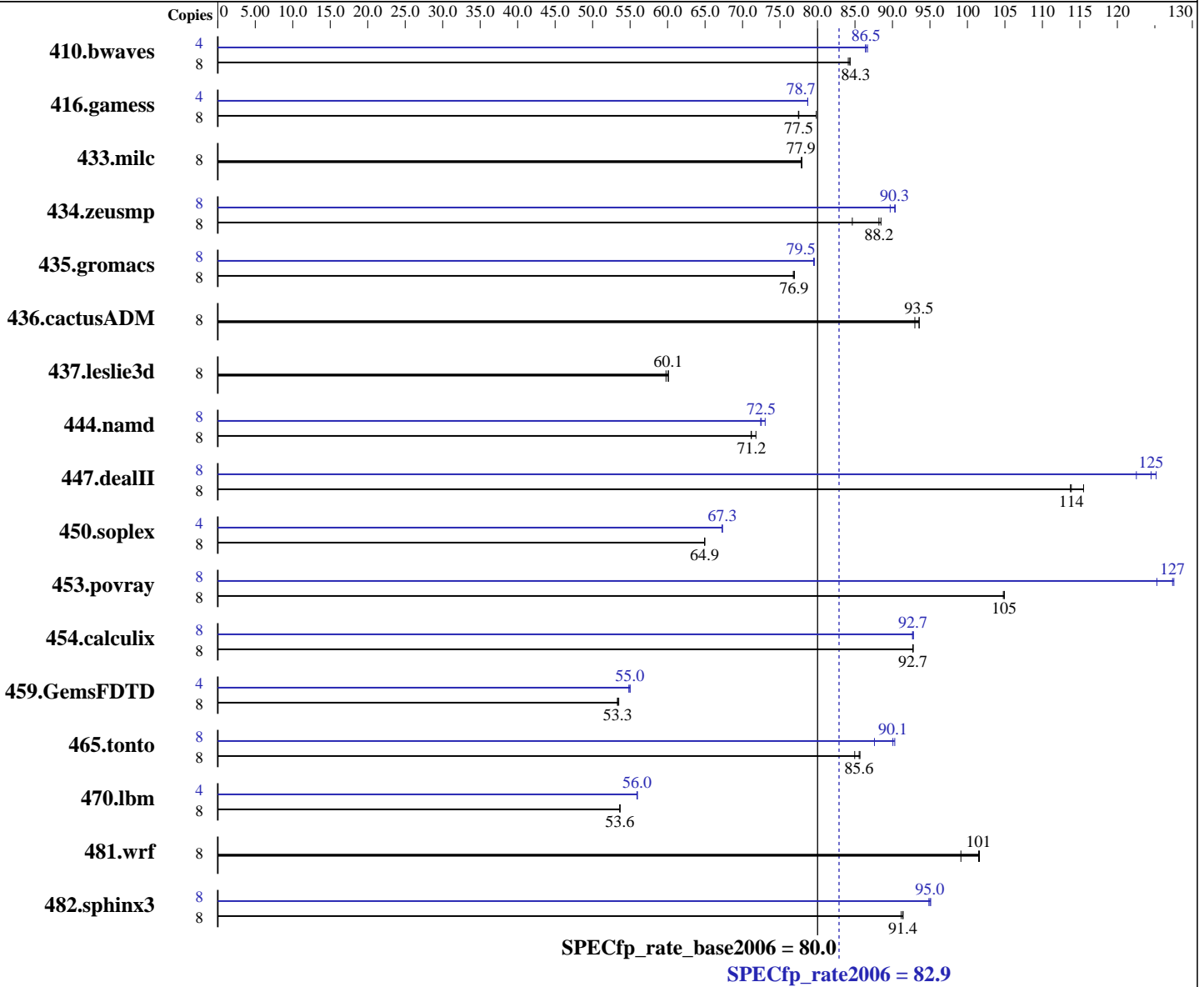
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Aug-2009

Hardware Availability: Jun-2009

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon L5520
 CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz
 CPU MHz: 2267
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 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

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64)
 SP2 with patch Linux kernel 20090119,
 Kernel 2.6.16.60-0.34-smp
 Compiler: Intel C++ and Fortran Compiler Professional 11.0
 for Linux
 Build 20090131 Package ID: l_cproc_p_11.0.081,
 l_cprof_p_11.0.081
 Auto Parallel: No
 File System: ReiserFS

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 X 4 GB PC3-8500R, 2 rank, CL7, ECC)
Disk Subsystem: 1x73.2 GB SAS, 10000 RPM in Express5800/AD106a
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
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 | 8 | 1289 | 84.4 | <u>1289</u> | <u>84.3</u> | 1293 | 84.1 | 4 | 629 | 86.4 | 627 | 86.7 | <u>629</u> | <u>86.5</u> |
| 416.gamess | 8 | <u>2021</u> | <u>77.5</u> | 2022 | 77.5 | 1962 | 79.8 | 4 | <u>995</u> | <u>78.7</u> | 995 | 78.7 | 995 | 78.7 |
| 433.milc | 8 | 943 | 77.9 | 943 | 77.8 | <u>943</u> | <u>77.9</u> | 8 | 943 | 77.9 | 943 | 77.8 | <u>943</u> | <u>77.9</u> |
| 434.zeusmp | 8 | 823 | 88.5 | <u>825</u> | <u>88.2</u> | 860 | 84.6 | 8 | <u>806</u> | <u>90.3</u> | 812 | 89.7 | 806 | 90.4 |
| 435.gromacs | 8 | 743 | 76.9 | 744 | 76.8 | <u>743</u> | <u>76.9</u> | 8 | <u>718</u> | <u>79.5</u> | 719 | 79.5 | 718 | 79.6 |
| 436.cactusADM | 8 | 1028 | 93.0 | <u>1022</u> | <u>93.5</u> | 1022 | 93.6 | 8 | 1028 | 93.0 | <u>1022</u> | <u>93.5</u> | 1022 | 93.6 |
| 437.leslie3d | 8 | <u>1252</u> | <u>60.1</u> | 1258 | 59.8 | 1251 | 60.1 | 8 | <u>1252</u> | <u>60.1</u> | 1258 | 59.8 | 1251 | 60.1 |
| 444.namd | 8 | 902 | 71.1 | <u>901</u> | <u>71.2</u> | 894 | 71.8 | 8 | <u>885</u> | <u>72.5</u> | 879 | 73.0 | 886 | 72.4 |
| 447.dealII | 8 | 805 | 114 | 792 | 115 | <u>804</u> | <u>114</u> | 8 | 747 | 123 | 731 | 125 | <u>735</u> | <u>125</u> |
| 450.soplex | 8 | 1027 | 65.0 | <u>1027</u> | <u>64.9</u> | 1027 | 64.9 | 4 | 496 | 67.3 | <u>496</u> | <u>67.3</u> | 496 | 67.3 |
| 453.povray | 8 | 406 | 105 | 406 | 105 | <u>406</u> | <u>105</u> | 8 | 334 | 128 | 340 | 125 | <u>334</u> | <u>127</u> |
| 454.calculix | 8 | <u>712</u> | <u>92.7</u> | 711 | 92.8 | 712 | 92.7 | 8 | <u>712</u> | <u>92.7</u> | 711 | 92.8 | 712 | 92.7 |
| 459.GemsFDTD | 8 | 1592 | 53.3 | <u>1591</u> | <u>53.3</u> | 1587 | 53.5 | 4 | 772 | 55.0 | <u>772</u> | <u>55.0</u> | 774 | 54.8 |
| 465.tonto | 8 | <u>920</u> | <u>85.6</u> | 919 | 85.7 | 927 | 85.0 | 8 | 872 | 90.3 | 899 | 87.6 | <u>874</u> | <u>90.1</u> |
| 470.lbm | 8 | 2049 | 53.6 | 2049 | 53.6 | <u>2049</u> | <u>53.6</u> | 4 | 983 | 55.9 | <u>982</u> | <u>56.0</u> | 982 | 56.0 |
| 481.wrf | 8 | <u>880</u> | <u>101</u> | 880 | 102 | 901 | 99.1 | 8 | <u>880</u> | <u>101</u> | 880 | 102 | 901 | 99.1 |
| 482.sphinx3 | 8 | 1710 | 91.2 | <u>1706</u> | <u>91.4</u> | 1706 | 91.4 | 8 | 1640 | 95.1 | 1644 | 94.9 | <u>1641</u> | <u>95.0</u> |

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

Default BIOS settings were used.



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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



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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

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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.dealIII: -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

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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/Intel-ic11.0-fp-linux64-revH.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.html>

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

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

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.xml>

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

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